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general management plan
development concept plans
land protection plan
environmental assessment

THEODORE ROOSEVELT

NATIONAL PARK / NORTH DAKOTA





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GENERAL MANAGEMENT PLAN
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ENVIRONMENTAL ASSESSMENT

THEODORE ROOSEVELT NATIONAL PARK
North Dakota

Review Draft
May 1986

Comments should be sent to

Regional Director
Rocky Mountain Regional Office
National Park Service
P.O. Box 25287
Denver, Colorado 80225-0287

U.S. Department of the Interior / National Park Service

SUMMARY

This document was prepared to replace the 1973 Master Plan for Theodore Roosevelt National Park. That plan has become obsolete and no longer applicable for resolution of current issues involving the park. Two recently approved reports were instrumental in the preparation and understanding of this document; namely, the "Statement for Management" (1985) and the Natural Resources Management Plan and Environmental Assessment (1984).

There are three major elements within this document. The first element is the draft general management plan, which provides the necessary strategies to guide management, use, and development of the park for the next 10 years. Four feasible alternatives are presented: preferred (proposed action), continuation of existing conditions, minimum requirements, and other practicable. The development concept plans, which show proposals for specific park development areas, are included within the general management plan. Only the preferred alternative is illustrated on the maps. For comparison purposes, appendix C best describes all alternative actions and proposals by park unit (north, Elkhorn, and south).

The second element is the land protection plan, which addresses the private and other nonfederal lands and interests within the authorized park boundary and the protection of park resources from external influences.

The third element is the environmental assessment, which describes the natural, cultural, and socioeconomic environments of the park and surrounding region and assesses the environmental impacts that would result from implementation of the four alternatives.

This 10-year planning effort can best be summarized as addressing resource management, with particular attention devoted to flood protection, bison management, historic building preservation, and visitor use needs. This would be accomplished by expanding trails, upgrading sanitation facilities, developing facilities for horse users and the handicapped, and increasing visitor contact and interpretive opportunities. In addition, there would be a continuing awareness of and focus on oil and gas development and other industrial activities outside the park that could have far-reaching impacts on park resources. Private property within the park, addressed in the land protection plan, is recommended for either fee acquisition or scenic easement acquisition. No boundary changes are proposed.

Ten-year costs for each of the four alternatives are as follows: preferred--\$21,291,000; continuation of existing conditions--\$11,239,000; minimum requirements--\$19,375,000; and other practicable--\$28,906,000. These figures include total construction, staffing, and operations costs to run the park.

Annual operations costs and staffing for existing conditions are now about \$1,118,000 and 36 full-time equivalent (FTE) positions. Assuming that the actions for each of the other three alternatives were completed, respective annual costs and staffing would be \$1,444,000 and 45 FTEs for the preferred alternative, \$1,367,000 and 43 FTEs for the minimum requirements alternative, and \$1,557,000 and 49 FTEs for the other practicable alternative.

Annual additional operations costs and personnel (FTEs) are as follows: \$5,900 and .1 FTE for the existing conditions, \$302,000 and 9 FTEs for the preferred, \$243,000 and 7 FTEs for the minimum requirements, and \$427,000 and 13 FTEs for the other practicable.

Development costs are \$54,000 for the existing conditions alternative, \$8,317,000 for the preferred alternative, \$6,987,000 for the minimum requirements alternative, and \$15,309,000 for the other practicable alternative. The major differences in development costs are primarily due to the varying degrees of flood protection from the Little Missouri River and two tributary streams that would be provided by each alternative. These range from \$48,000 for the existing conditions alternative, which would provide flood warnings, to \$7,678,000 for the other practicable alternative, which would relocate all threatened development above the 100-year floodplain except the historic ranch site in the Elkhorn unit, and in Medora where a flood control dike would be provided to protect most of this community where the park headquarters is located.

Implementation of the preferred alternative would result in adverse impacts on 78.5 acres of soils and vegetation for new development over existing use; construction of a permanent dike at Medora would have a minimum adverse impact on the natural moderation of floods, water quality maintenance, groundwater recharge, and living, cultural, and cultivated resource values. Impacts on wildlife, cultural, and socioeconomic resources and air and visual quality would be minimal.

The park had 368,615 visitors in 1984, and annual visitation is expected to remain about the same until 1996 when implementation of this plan is projected for completion.

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Theodore Roosevelt National Park from Painted Canyon overlook

INTRODUCTION

This section, which describes the setting, features, purpose, and history of Theodore Roosevelt National Park, contains information that provides an overall understanding and familiarity with the park, including legislative background. Management objectives for the park are included in appendix B. The overall objectives are to protect and preserve the natural and cultural environments, to permit natural processes to continue with a minimum of human disturbance, and to provide opportunities for enjoyable visitor experiences, including an understanding of the park's resources.

DESCRIPTION AND PURPOSE OF THE PARK

The park, which has been set aside as three separate units (north, Elkhorn, and south) in western North Dakota, is dedicated to the preservation and public enjoyment of important historic, scenic, and natural resources (see Region map). A central, unifying feature of the 110 square mile park (approximately 70,634 acres) is the free-flowing Little Missouri River, which winds through the south and north units and forms the east boundary of the small Elkhorn unit where Roosevelt once had a ranch headquarters. The south and Elkhorn units of the park are in Billings County, and the north unit is in McKenzie County.

The park memorializes Theodore Roosevelt for his outstanding contributions to conservation and interprets late 19th century "open range" cattle ranching history closely associated with him. The park also preserves natural resources that had an important influence on the man and the actions he took as president. Without Roosevelt's experiences and perceptions gained here in his formative years between 1883 and 1898, the development of America's forest and park conservation programs might have been much different. The historical associations with Roosevelt primarily involve the Elkhorn and south units of the park. Historic resources of the north unit include structures of Civilian Conservation Corps (CCC) vintage, built when this unit was part of the Roosevelt Recreation Demonstration Area, and traces of the Long X cattle trail.

The colorful North Dakota badlands comprise the primary scenic attraction of the park. They straddle the Little Missouri River from south of Medora to the river's mouth to the east of the park's north unit at Lake Sakakawea. The badlands within the park are only part of a larger region of dissected and banded hills and bluffs interspersed with grassy uplands. The meandering valley of the Little Missouri, with its cottonwood-dominated woodlands, presents an attractive centerpiece for the colorful badlands scenery.

Another significant feature of the park is its flora and fauna. Nearly 800 species of vascular plants and 252 species of vertebrate wildlife are found in the park. Reintroduced bison, bighorn sheep, and elk, as well as the long-term native mule deer, white-tailed deer, pronghorn, badger,

beaver, coyote, porcupine, eagle, hawk, and the ubiquitous prairie dog are the most frequently observed wildlife. An interpretive display herd of longhorn steers in the north unit is also popular with visitors, in addition to a herd of wild horses that roam the south unit.

Approximately 42 percent of the park has been designated as wilderness. The undeveloped backcountry provides excellent opportunities for hiking, horseback riding, and exploring, and for experiencing the environment much the way Theodore Roosevelt did.

The scenic beauty and recreational opportunities of the 24,070-acre north unit are particularly popular with nearby North Dakota residents and with those vacationers traveling the north-south US 85 route between Canada, the Black Hills, and points south. However, the 46,128-acre south unit has been and will continue to be the focus of most visitor use and awareness. This portion of the park is immediately adjacent to Interstate 94--a primary east-west travel route--and historic Medora, just south of the interstate. The park headquarters, including the principal visitor center and adjacent Maltese Cross cabin (Roosevelt's first ranch dwelling), is found within this small but summer-bustling town. From Medora a scenic loop road takes visitors north and east past a popular prairie dog town, the historic Peaceful Valley ranch and Little Missouri River bottoms, and several scenic overlooks. Many stop to view the south unit of the park from the Painted Canyon overlook and visitor center, incorporated into a rest area along I-94. The former east entrance to the park, which has historic stone structures built during the thirties, has been abandoned, along with old Highway 10 (which has since been obliterated). The old entrance lies within ½ mile of the loop road and is easily accessible to hikers.

Peaceful Valley ranch, which contains several historic buildings, is used for the park's only concession operation. The concession provides rental horses and trail rides of varying lengths. The concession operator utilizes but does not own any of the ranch facilities.

The 218-acre undeveloped Elkhorn unit, containing minimal remnants of Roosevelt's second ranch headquarters, receives light visitation. The area is well removed from highways, and auto access is difficult. Access to the vicinity of the unit is scheduled for improvement by the local counties; this should result in a significant percentage increase in visitation, although the total number of visitors will not be very high.

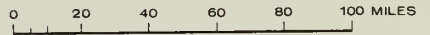
The character of the areas surrounding the park has changed greatly in the last two decades. The discovery of widespread and often rich reserves of oil and gas has been the primary factor. Structures, smoke, and dust from related oil and gas developments can be seen from highways, roads, and stopping points just outside the park, and particularly from scenic vistas within the park.



REGION

THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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MAY 85	DSC



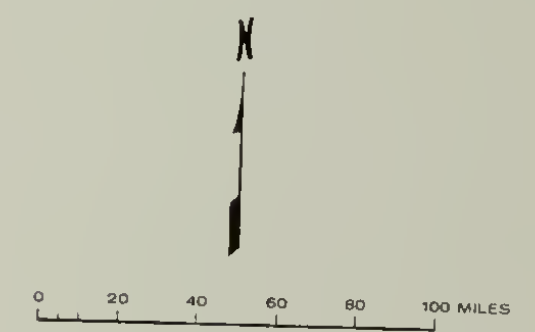
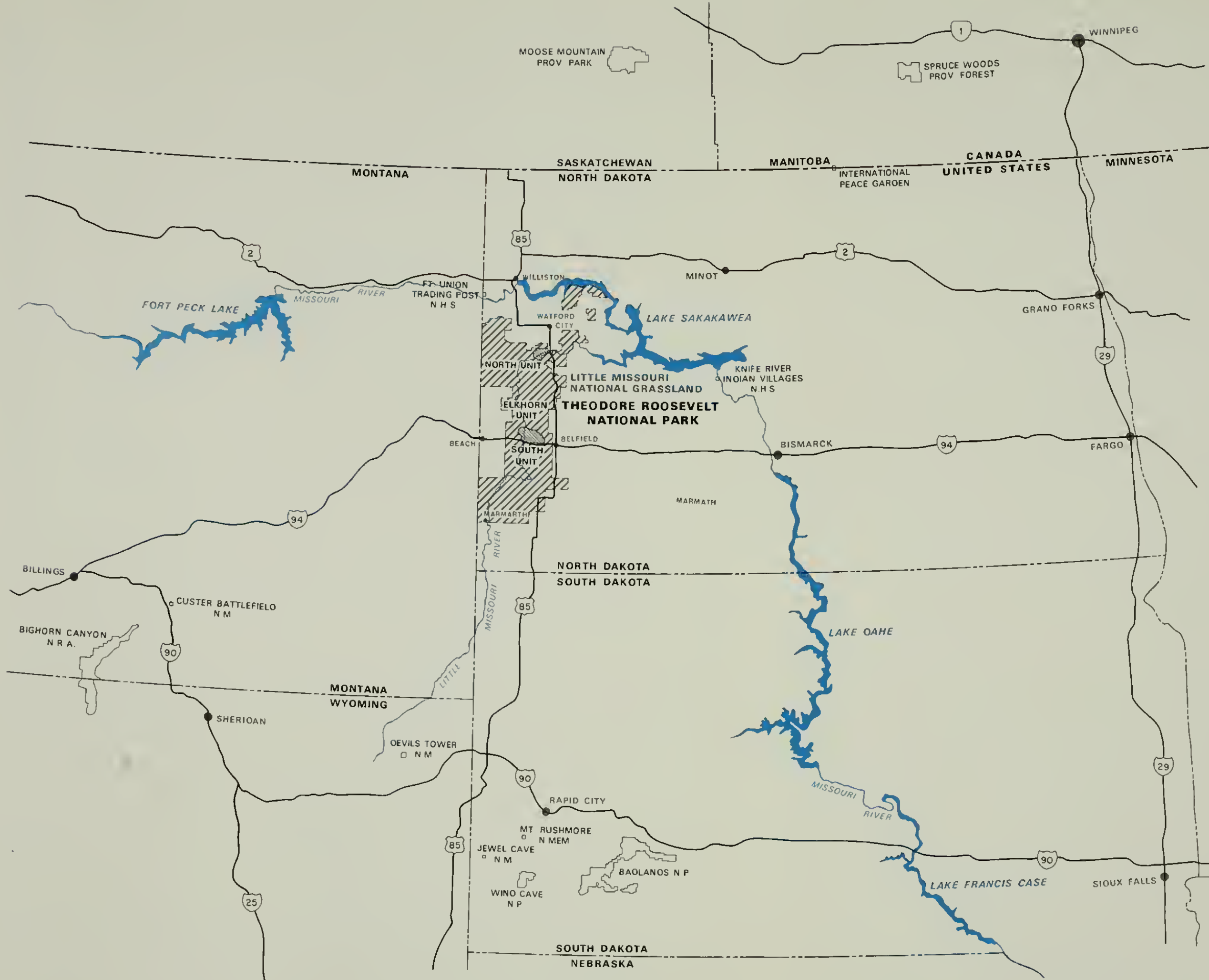
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-  LITTLE MISSOURI NATIONAL GRASSLAND



REGION

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

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NATIONAL PARK SERVICE

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-  THEODORE ROOSEVELT NATIONAL PARK
-  LITTLE MISSOURI NATIONAL GRASSLAND

PARK GROWTH AND MANAGEMENT DIRECTION

Theodore Roosevelt National Park had its beginnings in August 1934, when CCC camps, under the sponsorship of the North Dakota State Historical Society and the direction of the National Park Service, began work in what was then known as the Roosevelt Regional State Park.

Initially, two parcels of state land inside what are now the north and south units were acquired by the historical society for the CCC project. Additional lands for park development became available through the federal government's submarginal land purchase program, under which homestead lands were purchased from those unable to derive a living from them. Through an arrangement between federal agencies and the state of North Dakota, submarginal lands within certain specified boundaries were made available for park development as they were acquired. These lands, together with intermingled remnants of the original public domain and state school lands, qualified as a recreation demonstration area (RDA) when, beginning about 1936, a total of 46 such areas were established throughout the United States. These RDAs were to enable the federal government, through the National Park Service, to aid the states by developing recreation areas on lands of low agricultural value and demonstrating their worth for public park purposes.

Until the last CCC camp was closed in the south unit in 1941, a significant amount of park development was accomplished through the combined work of the CCC and several Emergency Relief Administration (ERA) and Work Project Administration (WPA) projects.

The Roosevelt RDA remained under the custody of the National Park Service during World War II. In April 1946, the U.S. Fish and Wildlife Service took over its administration. On April 25, 1947, a locally supported congressional bill, which became Public Law 38 (61 Stat. 52), established the area as Theodore Roosevelt National Memorial Park.

The new memorial park contained only a portion of the south unit of the former RDA and was provided authority to acquire certain lands thought to contain the Elkhorn ranch site. The reduced boundaries were a concession to local livestock interests concerned about the amount of good grazing lands included in the RDA. The legislation also provided for the exchange of the remaining RDA lands to eliminate private holdings within the park boundaries.

PL 620 (62 Stat. 352), which was approved on June 10, 1948, amended the establishing act, adding some land from the former RDA and also adding land west of the Little Missouri River that included the petrified forest. The act also corrected the description of the Elkhorn ranch unit lands. PL 631 (62 Stat. 384), enacted June 12, 1948, added the north unit to the park including all but the six northernmost sections of the former north unit of the RDA.

On March 24, 1956, PL 438 (70 Stat. 55) added lands on the north side of the village of Medora for park headquarters development. This act also



The overlook shelter, above, and the picnic shelter in Squaw Creek campground, below, were built in the north unit by the Civilian Conservation Corps in the late 1930s while the area was still part of the Roosevelt Recreation Demonstration Area.



authorized the secretary of the interior to make future boundary adjustments along US 10 and US 85, due to realignment, with certain acreage limitations. The secretary adjusted the boundaries in 1963 to conform to the realignment of US 10, now reconstructed and designated I-94. This excluded 398.39 acres and added 459.04 acres.

Snowmobiling has occurred along the Little Missouri River within (and outside) the park for a number of years. In 1974, an environmental assessment was prepared, and subsequently the river within the north and south units was designated under special regulations as an authorized snowmobile trail. Use is confined to the riverbed, and under current regulations, entry and exit must be made from outside the park. While snowmobiling is light and has not caused significant problems, it would be difficult to control if it were prohibited.

In the late 1960s, the U.S. Geological Survey determined that certain lands along the south boundary of the east end of the park's south unit were being subjected to drainage of valuable minerals by oil and gas producing wells on adjoining land to the south, outside the park. This meant that the drained oil and gas could be recovered without payment to the federal government. As a result, in 1975 nine tracts of park land, which are within the Fryburg-Scoria known geologic structure and contain the drainable area, were leased by the Bureau of Land Management to the Amerada-Hess Corporation. Directional drilling into this area has been successful, and all leases are held by oil and gas production. (Note: A known geologic structure (or KGS) is a subterranean trap in which an accumulation of oil or gas has been discovered by drilling and determined to be productive.)

The memorial park was designated Theodore Roosevelt National Park by PL 95-625 (92 Stat. 3467), enacted November 10, 1978. This same act (92 Stat. 3490) designated 29,920 acres within the park as wilderness, while another section of the act (92 Stat. 3475) authorized a boundary adjustment at the north unit to add approximately 146 acres to and delete approximately 160 acres from the park.

For many years Theodore Roosevelt National Memorial Park was managed as a historic area of the national park system. Over the past 10 to 12 years, however, there has been a growing recognition of the significance of the park's natural resources and of the park as a natural area. In addition, there has been an increasing realization that these resources greatly influenced Roosevelt's thinking as a conservationist. The effect has been a shift in management emphasis which is resulting in a more balanced interpretation of the area's natural and historical significance.

PURPOSE AND NEED FOR THE PLAN

The following material describes management constraints and, most importantly, presents a complete summary of the issues and concerns that are addressed in both the "General Management Plan" and "Land Protection Plan" elements of this document. This planning effort was needed since the 1973 Master Plan was obsolete and did not address current issues affecting park resources, developments, and visitors, although a recently completed "Statement for Management" provides an inventory of park conditions and an analysis of principal issues and problems. Issues and concerns have also been treated extensively in the July 1984 Natural Resources Management Plan and Environmental Assessment; information on natural resources has been summarized from that plan and is included in both the "General Management Plan" and "Environmental Assessment."

LEGAL, ADMINISTRATIVE, AND ENVIRONMENTAL CONSTRAINTS

There are few legal or congressional constraints that impinge on management of the park exclusively. PL 631, dated June 12, 1948, reserved to stockmen of the area surrounding the north and south units a perpetual right-of-way through the park along the Little Missouri River for the trailing of livestock to and from the railroad. In this same vein, the park is required to maintain and keep open the East River road in the south unit to the north boundary of the unit for use by ranchers living adjacent to the park. Local rancher and Billings County access is also permitted on a farm road that passes through the Elkhorn unit. In addition, the park's enabling legislation (PL 38, April 25, 1947) limited expenditures for reconstruction of the Elkhorn ranch site (land and buildings) to \$40,000.

The park is closed to mineral entry under the 1872 Mining Law and to mineral leasing of federally owned subsurface resources, including oil and gas. The legislation that provides the first basis for this determination is the Mineral Leasing Act of 1920. However, both the 1970 National Park Service Administration Act (PL 91-383, 84 Stat. 825) and the 1978 Redwood amendments to the NPS Administration Act (PL 95-250, 92 Stat. 163) reaffirmed the park's closure to all forms of mineral entry and leasing.

Another constraint, which is both administrative and legal, involves the fact that all three units of the park have been designated a class I area for the purpose of preventing significant deterioration of air quality, in accordance with the 1977 Clean Air Act amendments. This can affect existing and proposed point sources of air pollution outside the park and is also a constraint on any NPS development or management activity that could affect air quality.

An additional constraint involves the 740.51 acres of private and state owned land within the park boundary. The Park Service has an

obligation to ensure that the natural and cultural values of these lands are not degraded by inappropriate developments, but the landowners otherwise control these properties. The Park Service has the same obligation for the 1,300 acres of nonfederal or part-nonfederal subsurface (mineral) rights within the park.

Because of the requirements of Executive Order 11988 ("Floodplain Management") and Executive Order 11990 ("Protection of Wetlands") as well as NPS final procedures for implementing these orders (45 FR 35916 as revised by 47 FR 36718), certain restrictions must be placed on development and use within floodplains and wetlands. Surveying of the 100- and 500-year floodplains was completed by the U.S. Geological Survey in 1984 (with subsequent mapping performed by the National Park Service) for all areas of the park involving the Little Missouri River lowlands and potential flash-flood areas near the mouths of three side drainages along the Little Missouri. Based on the results of these surveys, a statement of findings will be prepared for any developments remaining or proposed in the 100- and 500-year floodplains, as required by NPS final procedures.

The park's separation into three distinct units makes it quite impossible to manage the area as an ecological system. Maintaining natural area and wilderness characteristics is made very difficult because of developments on and uses of adjacent private, state, and federal lands. The developments and uses include extensive oil and gas recovery operations and crop and livestock production. They have caused or increased problems with air and auditory pollution, exotic plant infestation, maintenance and protection of rare, threatened, or endangered plants and wildlife, and boundary control of larger wildlife species. (The 7-foot fencing of the perimeter of the park is now keeping livestock out of the park.)

The climate of the Northern Plains region affects development planning, structure maintenance, and visitor use. Summer temperatures can be uncomfortable in unshaded areas not exposed to breezes, while winter temperatures and winds can produce chill factors approaching -100°F. Snowfall is generally light, but accumulations cover the ground during most of the winter months. Most park roads are generally closed from December through April because of snowdrifts and ice.

ISSUES AND CONCERNS

Issues and concerns, both parkwide and those specific to the north, Elkhorn, and south units, are described below. The resource management concerns are grouped by type of issue, rather than area of the park. The proposals contained in the "General Management Plan" and the "Land Protection Plan" are responses to these issues and concerns.

Resource Management

As a result of ongoing research, study, and observation over the past several years, several significant natural and cultural resource management issues have been identified. The number one natural resource management problem--air and noise pollution and visual intrusions, along with increasing incidences of H₂S and SO₂ gas acceptable level violations--is included with the discussion of the land protection issues and concerns.

Other major natural resource management concerns involve the need for a parkwide bison management plan, including stocking rate guidelines, and relocation of the bison corral in the north unit and development of an additional bison corral in the south unit to facilitate easier and safer herding, capture, and handling of the animals by park staff. Also needed is a wild horse management plan (for the south unit), including a determination of the role and appropriateness of these animals in the park ecosystem. A management plan, together with an evaluation of their environmental impacts, is needed for the exotic longhorn cattle herd that is kept within the north unit. This is an artificially maintained herd of steers only, but the cattle have been retained because of their popularity with visitors as a historical display.

A park herd of California bighorn sheep, introduced to replace the extinct Audubon bighorn sheep, was observed to previously total 32 animals in 1979 but has declined to 4 animals because of lung disease complications and other factors not completely understood. Elk, which were formerly common in the badlands, were experimentally reintroduced in the south unit in 1985. Long-range restoration and management plans are needed for these two species.

Porcupine and beaver have taken an inordinately heavy toll on cottonwood trees, particularly along the river and major drainages; natural population regulation may not be operating within the park. A program to research this problem along with ongoing management through monitoring and periodic relocation/reduction is needed.

Other wildlife concerns include prairie dogs in the south unit and threatened and endangered species. Prairie dogs have expanded their towns into visitor and administrative use sites in the Peaceful Valley area. An environmental assessment and control measures may be needed to deal with the present problem and prevent further encroachment. The park contains possible habitat for several endangered and threatened species, including the bald eagle, whooping crane, black-footed ferret, and peregrine falcon. Additional efforts are needed to survey for the presence of these species, as well as to protect habitats, supplement populations, and/or reintroduce species into suitable habitats, as appropriate.

Since the park's establishment, all wildland fires have been suppressed. This has resulted in increases of woody species and dense, rank herbaceous cover. A parkwide fire management plan is needed that will

take into account the need for prescribed burning and natural fires that will provide for nutrient cycling and other natural ecological processes.

Several exotic plants, especially leafy spurge, have invaded the park area (primarily the south unit), with numbers and groups of plants increasing at an alarming rate. Exotic plants tend to form homogeneous stands, excluding other (native) plants and decreasing vegetative diversity. Recent chemical control efforts have prevented increases in most exotic plant species but have not decreased leafy spurge. A more effective control program is needed, while range management needs to be oriented to maintaining natural vegetative and wildlife habitats and species. Another concern is the negative effect of airborne acid material deposition, from precipitation (acid rain) and dry material, on vegetation and amphibian habitat.

The free-flowing Little Missouri River meanders for 24 miles through the south and north units and along the east boundary of the Elkhorn unit of the park. The river drains a considerable area upstream from the park, and river flows can fluctuate from less than 10 to 110,000 cubic feet per second, and temporary ice jams can form during late winter and early spring thaws. In addition, the channel can experience movement and changes in profile, subjecting the river to high-flow flooding and especially ice-jam flooding, as well as bank erosion. The most frustrating problem has been at the park headquarters area at Medora where significant ice-jam or high-flow flooding occurred in 1907, 1929, 1947, 1952, and 1972. The March 1947 flood, almost a 100-year discharge, was the most serious on record. It caused considerable property damage, and most of the town residents were forced to evacuate.

Cottonwood campground, Peaceful Valley ranch and picnic area, and portions of the river road in the south unit, as well as Squaw Creek campground/picnic area and small portions of the main road and headquarters area in the north unit are also in the Little Missouri River floodplain or in flash-flood hazard areas. All of these areas are potentially subject to backwater flooding and limited high-flow flooding, when rising water is accompanied by ice breakup. Squaw Creek campground has also been affected by bank erosion. Potential flash-flood hazard areas have been identified at and above the mouths of Knutson, Paddock, and Squaw creeks. Squaw Creek campground/picnic area and the Peaceful Valley ranch and picnic area could be affected by flash-flooding.

A major issue or concern for the park has been the need to determine the extent and depth of the 100- and 500-year floodplains along the Little Missouri River, the location of flash-flood hazard areas, and the actions (or alternative actions) that must be taken as established by federal requirements once the floodplain and flash-flood hazard areas are known. Since the first two items have been determined as a part of this planning effort, the issue focuses on the last item--the actions required. Primarily these actions would affect developed recreation sites near the river in the north and south units of the park and most of the park headquarters area at Medora, where diking would probably be required. These actions are addressed in the "Proposed Action and Alternatives" section, as well

as in subsequent sections of the "General Management Plan" and "Environmental Assessment."

Other natural resource management concerns include the need for baseline inventories of the natural resources and a wilderness/backcountry management plan, including more information on day use and possible impacts (mainly on wildlife) by backcountry users.

Information on the cultural resources (archeological and historic) of the park is incomplete. A parkwide archeological survey must be conducted to comply with section 110(a)(2) of the National Historic Preservation Act as amended, to meet the requirements of EO 11593 (36 FR 8921), and to determine all sites eligible for the National Register of Historic Places. In addition, more complete information, including surveys, needs to be developed on park historic sites, including remains and events of the early ranching era.

Another cultural resource management issue is to determine what, if anything, should be done to either retain, protect, reconstruct, move, change the use of, or interpret historic structures, remnants, or artifacts within the park units. The north unit includes the CCC camp-tender residence, three CCC shelters, the old stone quarry, and the Long X cattle trail; the Elkhorn unit includes the Theodore Roosevelt ranch site; and the south unit includes the stone structures at the old east entrance, Painted Canyon overlook stone pylon, Maltese Cross cabin, the visitor center museum and library collections, beef corral site, and Peaceful Valley ranch. Also, there is a need to determine which of the above should be the subject of historic park themes.

Visitor Use and Development

Parkwide visitor use and development issues and concerns primarily involve the need to make improvements at existing recreation sites. A limited number of completely new recreational developments, such as trails and group camping facilities, are proposed to correct obvious deficiencies. Other concerns involve inadequate visitor contact and interpretive facilities. In some cases, the solutions to these needs will be interrelated with improvements that must be made to meet health and safety requirements, particularly floodplain requirements.

A primary concern in the north unit is the small, inadequately furnished, and poorly insulated trailer as well as the adjacent small and marginally heated ranger station near the entrance; both are used for visitor contact, storage purposes, fee collections, and management and office work. Also, there is no public restroom. Properly designed space for these activities is considered essential because these facilities serve as both the principal visitor contact point and the administrative headquarters for the unit.

At the Squaw Creek campground, the inadequate parking for the picnic area results in improper parking, while the sewage lagoon needs to be

resized because it is too large to adequately digest wastewater. Most horse use of the unit now originates from national forest land and a private dude ranch just east of the park boundary, resulting in a need to cross US 85 and excessive distance to the more remote and interesting areas of the unit. A group horse camp is needed at a suitable location west of US 85. At present the only real access point to accommodate increasing canoe and snowmobile use of the Little Missouri River is within the undeveloped and narrow right-of-way of US 85 at the river bridge. Improved river access points are needed.

Within the unit, there are currently no interpretive/recreation facilities, including trails, specifically designed for the handicapped. Additional concerns include visual obtrusiveness of local and Western Area Power Administration overhead powerlines at the east end of the unit and a need to have NPS input for a new state wayside exhibit (sign) that might be provided on US 85.

The new road planned by Billings and Golden Valley counties will greatly improve access to the Elkhorn unit. This should result in a sharp increase in visitation and a need for visitor facilities, which are now nonexistent. Highway and entrance signing, wayside-type exhibits, parking, picnic facilities, trail access, sanitary facilities, drinking water, and interpreter/ranger services would be needed on a seasonal basis to meet day use visitor needs and to protect the site.

In the south unit, the increased use of recreational vehicles (including trailers) dictates a need for more pull-through parking spaces at Cottonwood campground. Additional parking and improved vehicle circulation are needed at the Peaceful Valley picnic area. Also, there are no public canoe-launching sites and associated parking in the unit, which makes it inconvenient for long canoe trips starting at Medora.

There are no designated, improved trails that begin in the vicinity of the Painted Canyon overlook/visitor center, the Medora visitor center/headquarters area, or the scenic viewpoint and parking area at Buck Hill. Also, no trails are specifically oriented to the users of Cottonwood campground, nor is there a trail connector (crossing the Little Missouri River) at this location. All four of these areas are very popular with visitors, but the Painted Canyon and headquarters area are the most heavily visited. Trail improvements are needed to meet demands and provide safe hiking opportunities. Also, a handicapped access trail in the south unit is needed, as well as a parking area and more hiking opportunity from the former Rough Rider horse camp located north of the Little Missouri River bridge and west of the river.

Opportunities for identifying and interpreting interesting resources have not been taken advantage of along the south unit loop road. In addition, there is no interpretation at Buck Hill--the most spectacular viewpoint on or near the loop--and no sanitary facilities along the entire route. The Buck Hill spur road is difficult to maintain, as unstable earth under the road causes continuing damage to the paved surface.

At the Painted Canyon visitor center, lobby space is poorly used, and opportunities to introduce visitors to activities and resources in the park have not been used to full advantage. The solar heating system for the building is costly to maintain, unreliable, and does not produce sufficient heat to keep the facility open during any of the colder fall, winter, and spring months. The existing sewage lagoon is far too large to digest the sewage, while the largest cell is so little used that sunlight is destroying the lining. Significant modifications in both of these units are required to prevent further deterioration and operational breakdown.

Park Operations

The lack of staffing is both a parkwide and a specific concern. More employees (both permanent and seasonal) are needed to monitor air and water quality, to handle maintenance functions, to provide basic visitor services, and to provide natural resource management and protection. Specific shortfalls in resource and visitor protection staffing exist with backcountry patrol, especially in the north unit; with routine protection patrols and fence maintenance in the Elkhorn unit; and with visitor services at the Painted Canyon visitor center in the south unit.

In the north unit, inadequate housing for both permanent and seasonal employees is a concern. The two mobile homes have deteriorated because of the harsh climate and general wear, and they need to be replaced by the most cost-effective, yet durable type of structure. If the CCC camp-tender residence is to remain as seasonal employee quarters, the interior would need to be completely renovated. Enclosed vehicle storage space is insufficient, and outdoor parking in the winter makes it difficult to get this equipment into operation for both routine and emergency needs. The maintenance building is too small and limited for orderly storage and conduct of sheltered work activities. The headquarters area sewage lagoon is unlined and filled to capacity during summer months. The addition of a much needed public restroom here will make the lagoon totally inadequate in size, even without lining. The radio communications tower, which is not riveted correctly, needs to be renovated for proper operation and then fenced.

In the Elkhorn unit, tools for trail and grounds maintenance, fire suppression, and first-aid activities need to be stored securely on-site. Rustic, inexpensive, low-maintenance quarters for seasonal staff are needed out of view of public use areas.

In the south unit, actions required to provide protection from potential flooding at Medora and at the Cottonwood campground/Peaceful Valley areas and the need for modification of the Painted Canyon sewage and solar heating systems and the Buck Hill spur road were covered in the issues and concerns for natural resource management and visitor use and development.

Land Protection

In-Park Concerns. One of the more significant challenges is the need for protection of resources on private properties within the park boundaries. In addition to several privately owned tracts of land within its congressionally established boundaries, the park contains a number of nonfederally owned mineral (subsurface) rights. The latter also involve specific tracts, but the rights (including oil and gas leases in a number of cases) may be held in varying percentages by multiple owners who own or hold leases for all or only certain of the minerals that could be present.

About three-fourths of the private land in the north unit, not needed for visitor use and development, may never be acquired in fee. However, scenic easements, controlling the type, level, and placement of development or type of land use allowed, will be sought. In any event, some private lands and mineral rights are likely to remain in private ownership within the park for a number of years. During the period prior to acquisition, the Park Service is responsible for ensuring that these lands and rights are not used or developed in ways that will degrade park values and visitor experiences, while at the same time preserving owner rights to reasonable uses of their properties.

The primary tool the Park Service will need to use to ensure acceptable use and development of the private holdings during this interim period is a set of guidelines as to what does and does not constitute permissible private uses or activities. These guidelines are referred to as compatible/incompatible use criteria and are spelled out in a subsequent section. Where scenic easements are acquired, the use criteria would no longer apply. For private mineral rights, there are now no regulations that expressly forbid surface occupancy of federal park lands to extract these minerals. Use of the compatible/incompatible use criteria will help to provide protection from minerals development within the park.

Allowing directional drilling from outside the park to reach nonfederal subsurface tracts inside the park is another means of maintaining protection of park areas while permitting the exercise of private rights; however, all directional drilling into the park will be either eliminated or discouraged, if possible.

A second major in-park issue is the extent of private lands or interests in land that must be acquired. Other means of protection of private holdings within the park, short of full or partial acquisition, have been examined and determined to be unreliable for protection of park-related values. All private holdings within the park are proposed for either fee acquisition or acquisition of scenic easements. The importance and potential impact of development of these private tracts varies; thus, priorities for acquisition of both private surface tracts and mineral rights have been (separately) determined. These priorities can be changed and need not necessarily be rigidly followed if the opportunities for acquisition should arise. The priority determination will guide how acquisition funds are spent and the strength of acquisition attempts, other factors being equal.



This oil and gas well, just south of I-94, has been directionally drilled into subsurface park lands north of the interstate.



This rugged badlands terrain, in the southeastern part of the south unit, is part of the area that has been leased by the federal government for directional recovery of park oil and gas resources by the private sector.

Lands and mineral rights do not necessarily have to be purchased. They can be donated, bargain-sold (part donation), or exchanged for other federal lands. Acquisition-related items are discussed in greater detail in ensuing land protection material.

The park is situated within the oil and gas rich Williston Basin. A major issue for the park, as described earlier, is the potential for drainage of federal oil and gas to areas outside the park. A number of years ago, an area along the south edge of the east end of the south unit was discovered to be drained of valuable mineral resources by wells to the south of the park. Here the oil and gas from the park could be extracted without payment to the federal government. As a result and in line with then current federal policies, nine tracts along the south boundary within the park were competitively leased in 1975, with stipulations of no surface occupancy; these stipulations were included as a protective measure taken under federal authority (Section 441, Revised Statutes of 5 USC, 1958 ed., sec 485). Currently, four directionally drilled wells immediately south of I-94 are draining hydrocarbon resources from the park within the leased subsurface tracts. The wells, which might be expanded in number in the future, create a negative visual impact from the interstate and may contribute some visual and olfactory air pollution to this area.

Although there can be no future leasing of federally owned subsurface minerals within the park, this issue appears significant because drainage may be occurring in other areas along the park boundary. A recommendation is made in the "Land Protection Plan" for dealing with future drainage situations as they are identified.

The ownership of the bed of the Little Missouri River is being contested in the courts by the federal government (represented by the Bureau of Land Management) and the state of North Dakota. The mineral rights within the river bed, should they be determined to be the state's, are not proposed for acquisition, as the state has indicated it would not issue mineral leases within the park. Also, the state has designated the Little Missouri as a state scenic river and thus has declared its intent to preserve the river and its shoreline environment.

External Concerns. A major issue that is primarily external involves protection of the Elkhorn (ranch) unit. Theodore Roosevelt's former Elkhorn ranch is surrounded by national grassland to the west, State Historical Society land to the north and south, and private ranch land to the east--across the Little Missouri River. In several instances, the park boundary to the west is found halfway up a hillside, instead of over the crest of the hill. To the east, private land is found only the distance of the width of the river from the ranch headquarters site; the primary view from this site is of the river and the area beyond it. Thus, the Elkhorn ranch area is inadequately protected, especially visually.

This issue has been of limited concern in the past because of the unit's remoteness and difficult access and the fact that little visual impact has existed. However, Billings County, in cooperation with Golden Valley

County to the west, plans to construct a new road and bridge across the Little Missouri River, the location of which will probably be just south of the unit's south boundary. This road should increase visitation to the ranch site, especially if the Park Service provides access into the unit, parking, and interpretive facilities. In time, the improved county road access might also increase interest in developing commercial facilities or residences near the unit, thus increasing the need to provide additional protection for the historic ranch site.

Additional oil and gas development on private, state, or federal land within view of the Elkhorn ranch is another disturbing possibility. As an example, a small but quite visible oil and gas complex was sited on land managed by the Forest Service, a short distance south and slightly west of the ranch site; fortunately, this operation has been abandoned and the site reclaimed. There are tracts that have been leased for potential oil and gas development near the Elkhorn unit. However, through use of agreements, easements, or mineral entry withdrawals, it may be possible to limit future leasing, discourage the development of oil and gas facilities in highly visible locations on existing leases, or both.

The Medora airport, which is situated on a detached tract of Forest Service-managed land on a mesa top a short distance north and slightly east of Medora, is a lightly used facility that has been in existence for about 40 years. The airport is actually more of an emergency airstrip because the runway is short, ungraded, and unpaved, and has no user facilities or landing lights. In 1977, it was discovered that the airstrip encroaches on park land by about 300 feet.

In 1981-82, the city of Medora proposed an improvement that would involve realigning and lengthening the landing field, which would result in further encroachment onto park land. The proposal, which cites hazards of the present facility, would also result in more air traffic flying over or easily seen from nearby park areas. A long-term use agreement has been requested from the Park Service for 11 acres of park land that would be needed. The Park Service has not yet granted or denied the city's request, although park and regional staff have been quite concerned about this questionable use of park land and the effects increased air traffic would have on park visitors, wildlife, protection of the natural scene, and use of the interpretive/historic facilities at Medora. This proposal, which has been supported by the North Dakota Aeronautics Commission, is also addressed in the 1984 Natural Resources Management Plan and Environmental Assessment.

Energy development outside the park, in its several aspects, constitutes the greatest single concern for the park. The extent and type of such development or potential development is depicted on the Oil/Gas Resource, Coal Resource, and External Conditions maps, which are found at the end of this section.

As recently as 1970, the areas surrounding the three park units consisted of grazing lands and vacant areas with few roads, limited croplands, scattered oil and gas wells, and little habitation. The air over the park

View from the Elkhorn unit across the river, showing ranch and farm land that might eventually be developed for other more intensive uses.



The Medora airstrip. Private plane had recently crash-landed.



was clear, and sounds were mostly limited to those from the railroad and the new interstate highway south of the south unit. The backcountry of both the south and north units was, in effect, a part of a much larger backcountry that stretched to the horizon.

The energy development boom that began in the extensive Williston Basin in the early 1970s has, however, drastically changed the scene. There are hundreds of oil and gas wells within 6 to 7 miles of the three park units--predominantly on areas of the Little Missouri National Grasslands (Forest Service) and private lands. Fewer wells are on public domain (Bureau of Land Management) and state lands. Some wells are within 1,000 feet or less of the park boundaries. The greatest concentrations and closest wells are to the north and northeast, to the west, and to the south of the east end of the south unit; within the area adjacent to the Elkhorn unit; and west of the north unit.

Somewhat farther from the park are many other oil and gas wells and several gas processing plants, existing or proposed, that do or could add to the park's air pollution problems. A natural gas sweetening plant is proposed for construction by the Northern Natural Gas Products Company in the vicinity of Rawson, approximately 12 miles northwest of the north unit. If the plant is built as proposed, it would emit substantial quantities of sulfur dioxide (SO_2), as well as other gases and particulates. The SO_2 emissions could significantly increase air pollution over the north unit and, at times, exceed the class 1 air quality standards (increments) of the park.

Approximately 75 to 150 miles from the park (both to the east and west and into eastern Montana), there are several existing (or proposed) coal-fired electric generating plants, natural gas processing plants, coal to methanol conversion plants, and oil refining plants that could increase the park's air quality problems. Should all the proposed plants be built, there would be 20 (or more) point sources of pollution that could have an adverse effect on the air quality of the park.

The potential for large-scale recovery and processing of lignite in western North Dakota and eastern Montana is another air quality concern. Lignite is a relatively low grade form of coal found extensively in this area, with some apparently minable deposits near the south unit of the park. Lignite-fueled power plants must be built close to the source of the fuel. Because of the strip mining and large-scale developments that would be involved, the threat to maintenance of park air quality with major lignite development would be potentially greater than that from current forms of energy development and processing. Particulate matter, sulfur dioxide, and nitrogen oxides would likely be the primary pollutants.

Several sources of environmental concern are related to the oil and gas development, including visual impacts, noise, and obnoxious odors that conflict with the solitude and natural scene of the park. These environmental impacts are caused by various structures and conditions, including batteries of large tanks, as well as new high standard roads, hydrogen sulfide gas, flaring wells, smoke, dust, pump engines, and the



Oil and gas development west of the western boundary of the south unit of the park. In some cases, these developments can be seen from the park.



sensation of being in a shrinking wilderness. Smoke and particulate matter are frequently observed from the park. Some of the smoke or haze is probably from indeterminate sources, including the plants mentioned above, some distance away.

The Forest Service has given increasing emphasis to including environmental stipulations in oil and gas leases; however, only since 1975 has the agency asked for lease requirements specifically aimed at reducing park impacts. Many older leases remaining in effect through oil and gas production contain few, if any, environmental stipulations. The new "Custer National Forest Plan" gives greater emphasis to environmental concerns, but proposes a visual quality objective of "partial retention" for the area seen from the park. The Bureau of Land Management and the state of North Dakota do not have such policies; however, the acreage of BLM and state lands close to the park is limited.

An issue closely related to energy development is the potential water quality and flood hazard problems from sources outside the park. This concern is associated with groundwater aquifers and watercourses that enter the park from areas outside the park where contamination could arise. Flood hazards along the Little Missouri River, a significant and different problem, are discussed separately.

Because extensive oil and gas development and transport are being conducted outside the park but within the drainage area of park aquifers and watersheds, aquifer and stream contamination could occur. Large oil and gas storage and treatment facilities are within the watershed, and there is a risk of well blowouts or contaminant spills into tributary waters of the Little Missouri River, with subsequent contamination of the river and possibly water wells and springs within the park. The river could also have contamination where pipelines, railways, and highway bridges cross.

An issue that will likely become more important in the future is the potential for greater interaction with local and state governments on land use matters. Local land use regulations and state laws have limited applicability in providing protection from inappropriate development of private holdings within the park. However, the proper enforcement of local zoning ordinances and other land use and environmental control measures could aid in limiting or modifying proposals for undesirable developments and activities on private lands that are near park boundaries. The National Park Service can provide a positive influence and technical assistance as a means of achieving goals mutually agreeable to all concerned--the state, McKenzie and Billings counties, the city of Medora, and the Park Service.

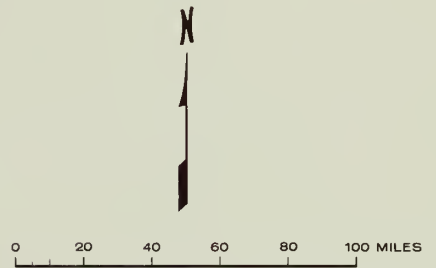
Other Issues. Other land protection issues addressed in this plan include opportunities for cooperative agreements with other agencies, potentials for land exchanges and transfers, and other (non-NPS) federal and state programs that bear on or complement NPS management of park resources, including the Little Missouri River.





OIL/GAS RESOURCE

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,017
MAY 85	DSC



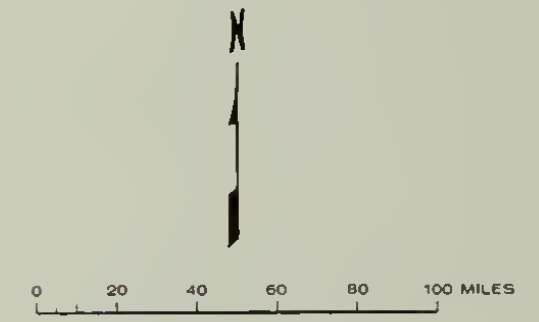
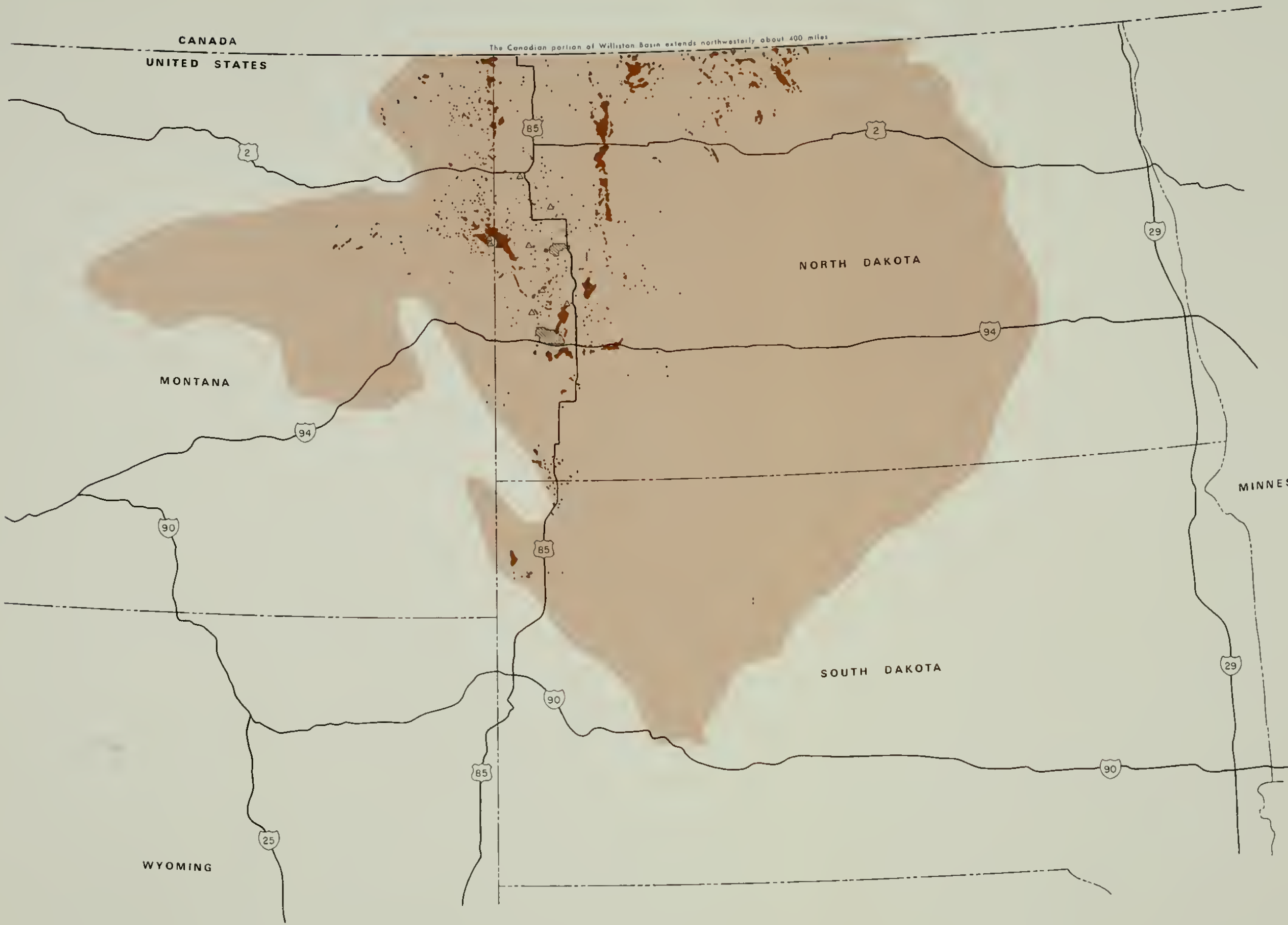
-  OIL OR GAS FIELD
-  WILLISTON BASIN
-  NATURAL GAS PLANT
-  THEODORE ROOSEVELT N.P.





OIL/GAS RESOURCE

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,017
MAY 85	DSC



-  OIL OR GAS FIELD
-  WILLISTON BASIN
-  NATURAL GAS PLANT
-  THEODORE ROOSEVELT N.P.

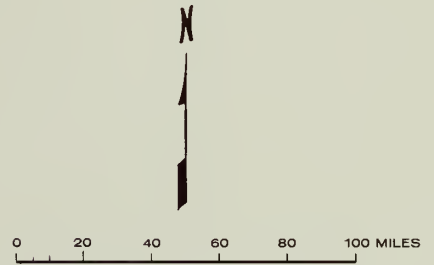







COAL RESOURCE

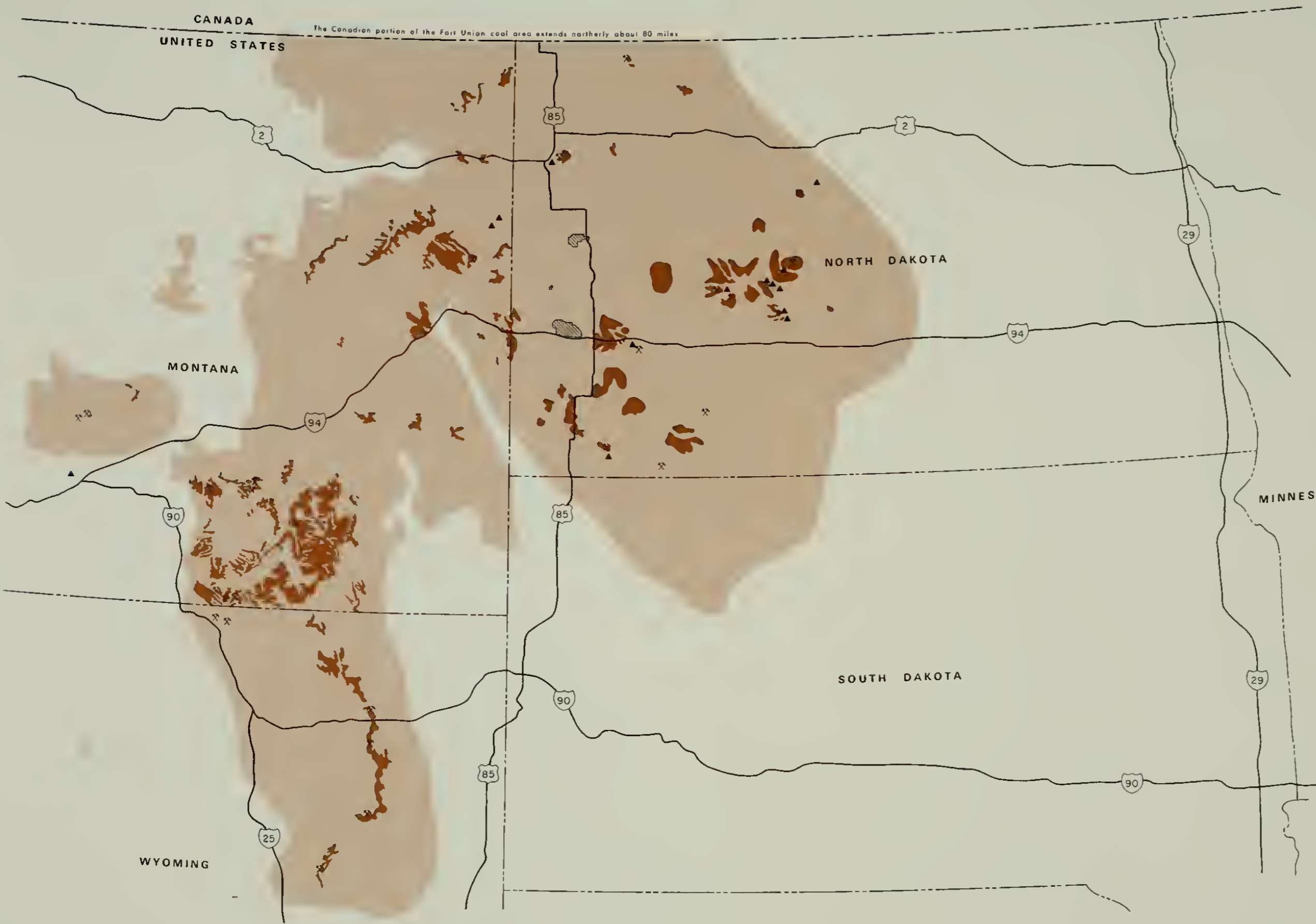
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,018
MAY 85	DSC



-  STRIPPABLE COAL DEPOSIT
-  FORT UNION COAL AREA
-  COAL MINE
-  COAL BURNING PLANT
-  THEODORE ROOSEVELT N.P.

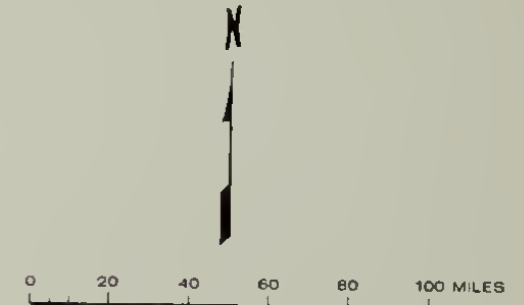







COAL RESOURCE

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,018
MAY 85	DSC



-  STRIPPABLE COAL DEPOSIT
-  FORT UNION COAL AREA
-  COAL MINE
-  COAL BURNING PLANT
-  THEODORE ROOSEVELT N.P.

EXTERNAL CONDITIONS

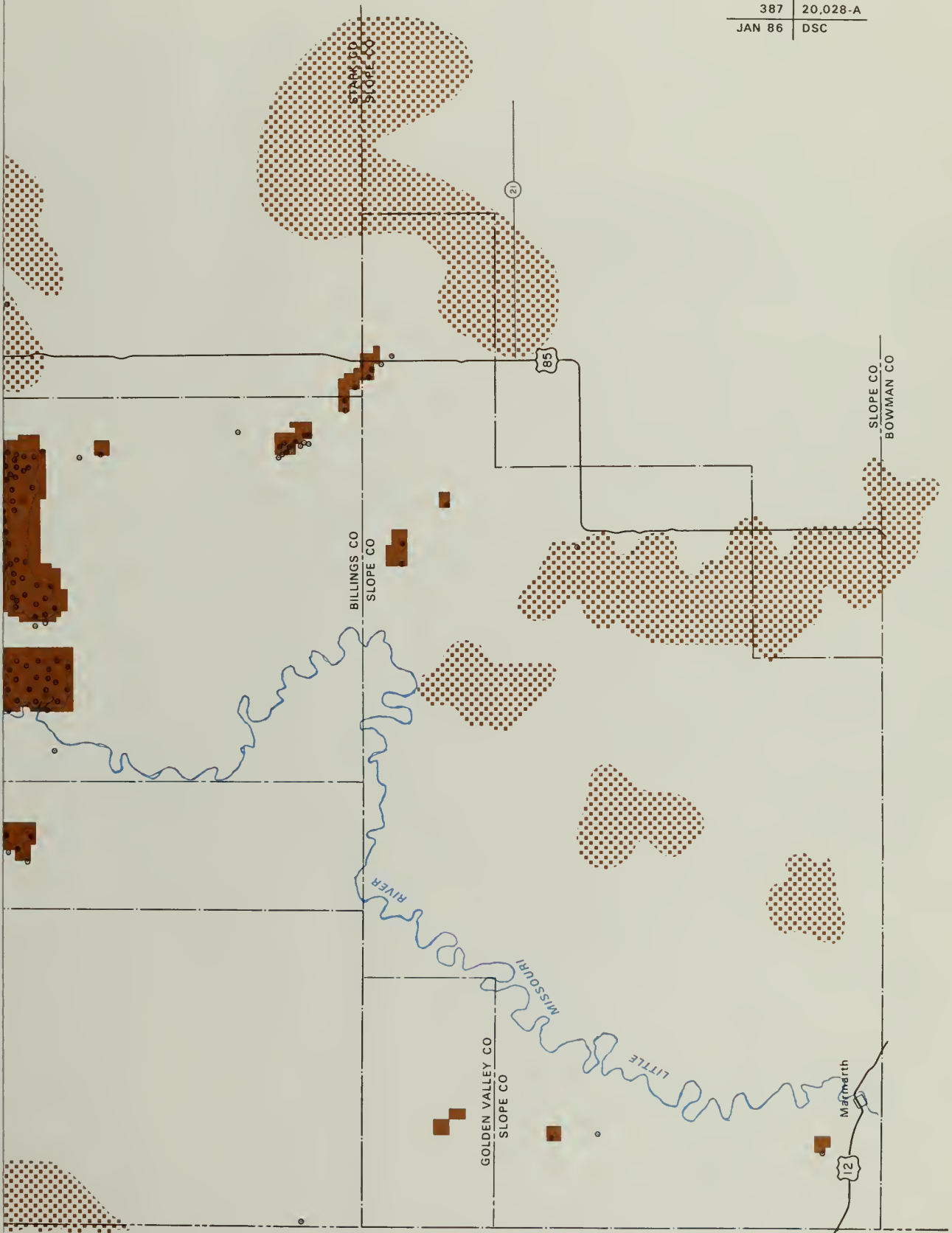
THEODORE ROOSEVELT NATIONAL PARK

NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

387	20,028-A
JAN 86	DSC



EXTERNAL CONDITIONS

THEODORE ROOSEVELT NATIONAL PARK

NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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Future county road and Little Missouri River bridge construction alternatives being considered by Golden Valley and Billings counties

GENERAL MANAGEMENT PLAN

PROPOSED ACTION AND ALTERNATIVES

INTRODUCTION

This section contains all of the proposals and thus is the heart of the plan. Four alternatives, including the preferred, are presented here. Alternatives for resource management, visitor use, and park operations range from a continuation of existing conditions to the provision of new visitor use opportunities and programs and the construction of significant new facilities to support these programs. Staffing needs to accommodate projected programs and uses are identified by alternative in the "Plan Implementation" section and in appendix C. All considerations and proposals involving land and minerals protection, including landownership and use, are presented in the "Land Protection Plan" portion of this document. Management zoning establishes the overall strategies for management of land within the boundary; the zoning scheme is based largely on resource values, with provision made for retention of existing development, and would essentially be the same for all alternatives except the continuation of existing conditions.

The Development Concept Plan maps, as well as the General Development Plan/Flood Data maps, graphically show actions proposed for the preferred alternative only. Proposals for the minimum requirements and other practicable alternatives are not reflected on the maps.

Natural resource management issues and recommendations have already been detailed and evaluated in the 1984 Natural Resources Management Plan and Environmental Assessment. The concerns and recommendations are summarized under the preferred alternative (these are essentially the same for all alternatives except the continuation of existing conditions). The natural resource management proposals, except for those involving developments, are not proposed actions of the general management plan per se; thus, these items and their costs are not included in this document. The terms recommended action or recommended course of action are used for the natural resource management items because this is the language and approach used in the 1984 plan.

A preliminary draft "Cultural Resources Management Plan" has been completed by park staff to determine the specific requirements for resource protection. While that plan has yet to be approved, its findings and recommendations provide useful information which has been considered in this general management planning effort.

All of the proposals and alternatives of this plan are consistent with state, area, and local plans and programs.

The four alternatives are also evaluated in the "Environmental Assessment" for their potential impacts on the natural, cultural, and socioeconomic environments.

PREFERRED ALTERNATIVE (PROPOSED ACTION)

The preferred alternative, or proposed action, constitutes the National Park Service's draft general management plan for Theodore Roosevelt National Park. It describes the zoning and resource management considered necessary to protect and preserve park resources, and it presents proposals for visitor use, staffing, and development. This alternative was chosen because it would provide the most management- and cost-effective solution to each issue or need. A summary of the rationale used for selecting the preferred alternative is found in the "Plan Implementation" section.

Management Zoning

For NPS management purposes, the park would be divided into four zones--natural, cultural (formerly historic), development, and special use (see Management Zoning Proposal maps for the north and south units). The natural zone (68,248.73 acres) would be managed to maintain the primitive character and natural processes of the park. Management strategies in the cultural zone (215.66 acres) would focus on preservation, interpretation, and protection of historic and archeological resources. The development zone (1,685 acres) would provide the necessary space for visitor and management facilities and utilities. The special use zone (485 acres) consists of land east of the US 85 right-of-way in the north unit. The area is proposed for scenic easements and would be subject to agricultural, recreational, and limited residential uses that are compatible with protection of scenic values.

Table 1 summarizes this information and gives examples of permitted activities and development in each of the zones. Nonfederal lands are zoned to indicate the management strategy that would be used when the land is eventually acquired by the National Park Service (see the "Land Protection Plan"). Until that happens, the preferred zoning would not apply to these lands.

PL 95-625 (92 Stat. 3490), dated November 10, 1978, designated the Theodore Roosevelt Wilderness. This legislation added 29,920 acres (19,410 in the north unit and 10,510 in the south unit) to the national wilderness preservation system. These acreages are included in the proposed natural zone.

The proposed cultural zones, as shown on the Management Zoning Proposal maps, are tentative. These areas would be modified as necessary after a determination of significance by qualified professional historians and archeologists. Significant sites and districts would be nominated for inclusion on the National Register of Historic Places.

Table 1: Management Zones

	Natural Zone	Cultural Zone	Development Zone	Special Use Zone
Permitted Activities Recreational	Interpretation of natural features, hiking, camping, picnicking, backpacking, canoeing, fishing, horseback riding	Interpretation of historic and archeological features	Scenic touring, hiking, picnicking, horseback riding, fishing, interpretive programs, camping	Hiking, horseback riding
Nonrecreational	Research	Research	Maintenance of utilities	Grazing, ranching, and limited residential uses
Comments				The above scenic easement activities could continue indefinitely. Scenic easements lie east of the US 85 right-of-way in the north unit.
Permitted Development	Minimal facilities necessary for the preservation and enjoyment of natural values	Access to cultural resources, trails for con-fining and containing use, protective enclosures, interpretive facilities	Permanent structures to support visitor and management activities	Practices permitted by the terms of the scenic easements
Management Strategy	Perpetuation of natural processes and primitive character, use of resources subject to protection of other natural values	Preservation, restoration where deemed appropriate by professional analysis, interpretation	Maintenance of facilities, provision of visitor services	Consumption of renewable resources subject to protection of scenic values
Acresage	Unit North 22,864.88 Elkhorn None South 45,383.85 Total 68,248.73	0.44 213.00 2.22 215.66	720 5 960 1,685	Totals 24,070.32 218.00 46,346.07 70,634.39
Percentage	North 95 Elkhorn 0 South 98 Total 97	< 1 98 < 1 < 1	3 2 2 2	485 None None 485

Resource Management

Natural Resources. The policies, rules, and regulations established by the National Park Service for natural areas would be followed in the administration and management of natural resources. The protection, preservation, and management of the natural environment to ensure ecosystem integrity while providing for visitor enjoyment and safety would be the principal considerations. Natural processes, both biotic and abiotic, would be permitted to continue with a minimum of human disturbance. However, because the park is not free from man-made influences affecting ecosystems and their processes, some active manipulation (e.g., exotic plant control, prescribed burning, and wildlife population reductions) would be necessary to meet resource management objectives. Also, because the park does not include a complete ecosystem with its many components, some of these activities may need to be continued indefinitely.

Additional research is needed to establish a baseline against which existing and potential threats to resources may be measured. When these data needs have been met and the park environment has been restored to its proposed condition, resource management programs would shift major emphasis to monitoring resources and processes.

Following is a brief description of natural resource programs, management concerns, and proposed actions. In some cases, the information taken from the 1984 Natural Resources Management Plan has been clarified or expanded upon.

Air quality, the most important and difficult to manage natural resource problem, is considered a land protection issue and a major effect of energy development outside the park. Recommendations aimed at increased monitoring and mitigation of this problem are found in the discussion on external recommendations in the "Land Protection Plan."

Minerals and geological resources management focuses on mineral development around the park and natural erosion threatening park developments. Since mineral development and processing outside the park is considered a land protection issue, recommended actions aimed at mitigating the problems caused by these activities are contained in the external recommendations discussion in the "Land Protection Plan."

The geological formations of the park tend to be soft and erosive. As a result, sinkholes, slumping of material from cliffs and hillsides, and soil erosion have threatened park roads, trails, and visitor facilities. The primary problems have been with road stabilization and riverbank erosion at Squaw Creek campground. The recommended course of action includes monitoring, reconstructing or relocating facilities, and signing and other provisions for ensuring visitor safety and stability of improvements in developed areas where geological activity might occur.

Approximately 23 exotic plants are known to occur in various habitats in the park. Six are of special interest because they are efficient

L&M

NONFEDERAL LANDS AND MINERALS



WILDERNESS

NORTH UNIT MANAGEMENT ZONING PROPOSAL

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,033-A
JAN 86	DSC



L&M NONFEDERAL LANDS AND MINERALS

WILDERNESS





Proposed zoning is shown for nonfederal lands and minerals to indicate the management philosophy that would be used if ever acquired, either in fee title or as scenic easements, by the National Park Service. Until that happens this zoning would not apply. See land status and mineral status maps for ownership details.

The natural zone consists of the majority of this unit where the management strategy would be the perpetuation of natural processes and primitive character. The 19,410 acres in the National Wilderness Preservation System are included.

The cultural zone consists of 3 CCC stone and wood shelters and the CCC camp-tender residence.

The development zone consists of paved roads (125 foot wide corridor), unpaved roads and utility lines (66 foot wide corridor), and other developments such as buildings, campgrounds, picnic areas, parking, wayside exhibits, utility systems, corrals and storage.

The special use zone consists of land east of the U.S. Highway 85 right-of-way where domestic livestock grazing, ranching and limited residential uses would be appropriate. The primary objective would be to retain a pastoral, ranching scene.

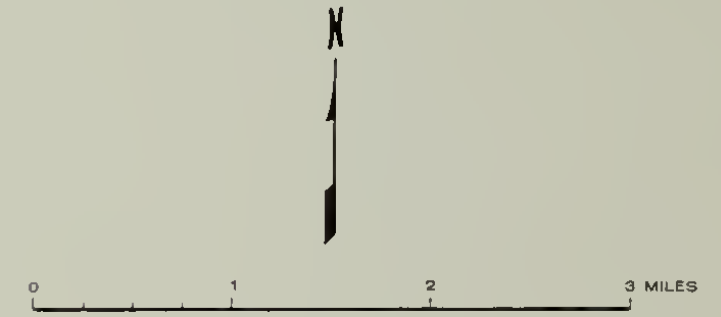
MANAGEMENT ZONES	ACREAGE	% OF NORTH UNIT
 NATURAL	22,864.88	95
 CULTURAL	D.44	<1
 DEVELOPMENT	720	3
 SPECIAL USE	485	2
TOTAL	24,070.32	100

NORTH UNIT MANAGEMENT ZONING PROPOSAL

THEODORE ROOSEVELT NATIONAL PARK
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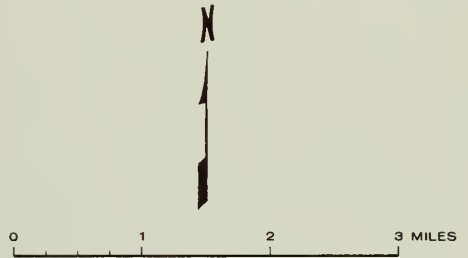


- L&M NONFEDERAL LANDS AND MINERALS
- M NONFEDERAL MINERALS
- O/G UNITIZED OIL/GAS LEASE
- WILDERNESS

SOUTH UNIT MANAGEMENT ZONING PROPOSAL

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,032-A
JAN 86	DSC



- L&M NONFEDERAL LANDS AND MINERALS
- M NONFEDERAL MINERALS
- D/G UNITIZED OIL/GAS LEASE
- WILDERNESS

Proposed zoning is shown for nonfederal lands and minerals to indicate the management philosophy that would be used if ever acquired by the National Park Service. Until that happens this zoning would not apply. See land status and mineral status maps for ownership details.

The natural zone consists of the majority of this unit where the management strategy would be the perpetuation of natural processes and primitive character. The 10,510 acres in the National Wilderness Preservation System are included.

The cultural zone consists of the Maltese Cross Cabin, the Peaceful Valley Ranch and the East Entrance Station.

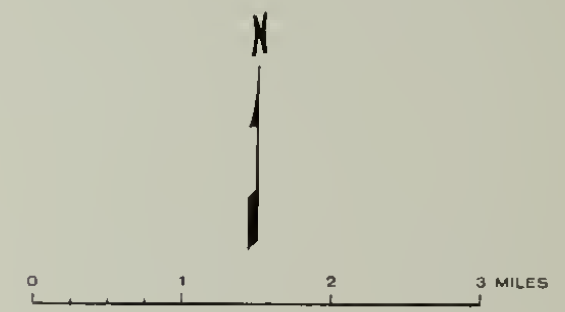
The development zone consists of paved roads (125 foot wide corridor), unpaved roads and utility lines (66 foot wide corridor), and other developments such as buildings, campgrounds, picnic areas, parking, wayside exhibits, utility systems, corrals and storage.

MANAGEMENT ZONES	ACREAGE	% OF SOUTH UNIT
 NATURAL	45,383.85	98
 CULTURAL	2.22	<1
 DEVELOPMENT	960	2
SPECIAL USE	NONE	NONE
TOTAL	46,346.07	100

SOUTH UNIT MANAGEMENT ZONING PROPOSAL

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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JAN 86 | DSC



competitors and spread rapidly, they now infest large acreages, and/or they require control under the North Dakota noxious weeds law, which requires "every person to eradicate or control the spread of noxious weed on lands owned or controlled by him in the State." To date, chemical treatment of leafy spurge (Euphorbia esula), Canada thistle (Cirsium arvense), and knapweeds (Centaurea sp.), all classified as noxious by the state, has been carried out to try and slow their spread and eliminate local populations when feasible. Park staff are involved in collecting specimens and mapping infestations of these and other exotic plants. The recommended course of action includes an integrated approach to exotic plant management, including chemical, mechanical, and biological control techniques. The park will continue to maintain close contact with researchers studying biological control methods and will coordinate with other agencies for the use of herbicides and mechanical treatments in and around the park.

The vegetation and soils of the park have stabilized since the period of severe soil erosion in the 1930s, which was caused by drought and heavy grazing on then privately owned ranges. Following the park's establishment in 1947, grazing by domestic herbivores was eliminated (although small populations of bison were introduced in 1956 and after), and fires were actively suppressed. Low consumption of herbaceous vegetation has caused a heavy buildup of litter layers and a decrease in range diversity and productivity. Since the basic soil and vegetation restoration has been accomplished, restoration of the natural grazing and fire regime is necessary for proper vegetation use and plant community development. With implementation of these programs would come the reestablishment of associated ecosystem processes of nutrient cycling, energy flow, and hydrologic cycling. The recommended course of action calls for adding various ecosystem components to attempt a duplication of the natural systems, including the use of natural and prescribed fire, introduction and management of major wildlife, increased research and monitoring of plant life and processes affecting the vegetation resource, and management of exotic plants.

Historically, the Elkhorn ranch site was probably barren and dusty. However, since the turn of the century, it has reverted to grass and woodland. The preferred alternative calls for zoning most of the unit cultural and emphasizing the natural scene through prescribed grazing and fire.

Water resources management, for the most part, is concerned with degradation of groundwater aquifers and surface waters threatened by energy development and chemical transportation on highways and railroads within the Little Missouri River watershed. Oil and gas drilling, storage, and treatment facilities, as well as injection wells for waste salt water, are located near the park. Water systems for visitor and administrative use are periodically sampled for chemical and microbiological analysis. By 1986 these systems should all be chemically treated to comply with public health requirements.

A number of springs and wells have been developed for use by wildlife, and chemical analysis has been done on some of them, but the remaining sources need to be sampled to establish a baseline condition. The recommended course of action includes continued periodic water sample collection and analysis, maintenance and repair of domestic and wildlife watering systems, and development of a water resources management plan. External threats to water quality are considered to be a land protection issue; thus, recommended actions for this potential problem are described in the "Land Protection Plan." Proposed solutions to the problem of flooding along the Little Missouri River are defined in the discussion on safety and sanitation.

Acid deposition--from precipitation and dry material--has been recorded in the park and is attributable to the continued increase of pollutant emitting sources. Acid deposition measurement is essential for management and protection of park resources, as studies have identified significant biological impacts from acid deposition in Europe and North America. Continued monitoring through the National Atmospheric Deposition Program would establish a baseline condition, and research programs to study the effects of acid deposition on biological resources are included in the recommended course of action.

External aesthetic problems, other than those associated with energy exploration and development, involve communication, power transmission, and transportation facilities. New proposals for additional facilities are frequent, and scenic vistas from inside the park to the outside have already been significantly affected and continued degradation is possible. The recommended course of action calls for the monitoring of external aesthetic threats; however, in an effort to maintain or improve the visitor's experience, the establishment of a park protection zone on adjacent federal lands and/or appropriate county zoning ordinances would be investigated. Also, park staff would continue to work with county, state, and federal agencies and private companies to minimize aesthetic impacts around the park.

Natural resource baseline inventories have in the past concentrated on major species or groups, and the inventory process needs to be expanded to other biotic and abiotic resources. Surveys would be conducted and the data used for assessing population trends; for determining resource quality, quantity, and natural history; for monitoring of sensitive resources for decline or degradation, especially that caused by human activity; and for initiating research proposals to resolve problems discovered from baseline inventories.

Bison are an integral component of the badlands environment, and their interaction with the fauna and flora of the area is essential to simulate natural conditions. Recommended actions include maintenance of the park's high fencing, relocating the corral in the north unit to the north boundary while retaining the present site as NPS horse pasture, and upgrading the existing wild horse corral in the northeast corner of the south unit as a second facility for bison. Other recommended actions involve monitoring forage use and herd size; conducting roundups and

herd reductions as needed, including disease testing and vaccination; and initiating research programs on population characteristics, social structure, and the ecological role of bison in the park ecosystem. The data generated from these activities would be incorporated into a bison management plan.

Wild horses, which are found in the south unit, are considered a historical demonstration, but population management is required to minimize their effects on other resources. Studies are needed to determine range use, carrying capacity, and the role wild horses occupy in the natural environment of the park. Until this information is available, recommended actions include surveying the population annually to determine expansion rates and periodically rounding up and reducing the population through public auctions.

Audubon bighorn sheep (Ovis canadensis auduboni), once common in badlands, are now extinct. In 1956 a population of California bighorn sheep (O. c. californica) were introduced in the south unit. However, this population, due to disease complications, has declined from 32 animals in 1979 to four. Planning is underway to introduce a sheep population in an enclosure in the south unit west of the Little Missouri River. The animals would be medicated for the lungworm infestation. In addition, an attempt would be made to stabilize the condition of and obtain reproductive recruitment from the existing animals, thereby gradually developing a self-sustaining population of bighorn.

The proposed action is necessary because the park is dependent on the state of North Dakota for technical assistance and replacement animals. The state maintains healthy, medicated herds of bighorn sheep outside the park and has indicated it will not provide additional sheep unless the park takes action to save the remaining sheep by implementing a medication program. The alternative would be to lose the herd.

Deer and pronghorn populations have remained relatively stable for the last 10 years as determined by population trend studies and by aerial surveys over the last five years. Deer populations appear to have reached carrying capacity, with the reintroduction of elk populations of deer and pronghorn and their use of vegetation will require monitoring. Pronghorn and deer move freely in and out of the park, and during hunting season, pressure is intense along the park boundary. Recommended actions include patrols during hunting season to discourage poaching, fence modification to allow continued free movement, continued aerial survey and population monitoring, and habitat utilization studies of reintroduced elk.

Elk were common in the North Dakota badlands historically, and because of their role as a major wild herbivore in the badlands ecosystem, a program for elk introduction into the park has been developed. Planned management will be similar to that for deer; i.e., they will be allowed to range inside and outside the park. The recommended course of action was begun by contacting area land management agencies and private landowners regarding their attitudes toward elk reintroduction, followed

by development of a plan and environmental assessment. A research program to study movements, habitat preference and use, and development of an optimum stocking level has also been initiated. An initial introduction of 47 elk from Wind Cave National Park in South Dakota was accomplished in March 1985.

Longhorn cattle are displayed in the north unit as a historical demonstration of the cattle associated with 1880s cattle drives into the Dakotas; a portion of the Long X cattle trail reportedly crossed the unit. During the winter, the herd consists of about 20 steers. They require tending, including salting, watering, and feeding. Because they restrict themselves to a small area year-round, their grazing may have a detrimental impact on the area's vegetation. The recommended course of action is to continue to maintain a small nonbreeding herd and study their range use for possible environmental impacts.

Porcupine and beaver populations are currently monitored to determine their impact on groves of hardwood trees that are associated with watercourses and wooded draws. Because of girdling of stems and branches and felling of trees by these animals, damage to hardwoods in and near recreation sites occurs. This results in dead and damaged trees, which create hazards for the public and eventual problems for the animals themselves because the populations may be out of balance due to the lack of natural mortality factors. Recommended actions include continued monitoring and studying of population dynamics and habitat use, periodic removal and relocation of animals as needed, and experimentation with and evaluation of repellents. The latter two actions would be pursued only until this situation could be brought back into balance.

Black-tailed prairie dogs have been causing some minor management problems because of their activities in visitor use areas along roads, at parking areas, and in campgrounds and picnic areas. Mechanical or chemical control has not been conducted in 20 years, and in general, populations have remained stable. Prairie dogs are an important component of the prairie environment and so are necessary in ecosystem management. Recommended actions include applying minimum control methods in developed areas, mapping prairie dog towns every three to four years, determining the potential black-footed ferret habitat provided by prairie dog towns, and studying the relationship of prairie dogs with other elements of the park environment.

Carnivores, small mammals, amphibians, and reptiles have received limited management attention mostly because of the difficulty in counting these populations and in determining habitat requirements. The recommended course of action is to gather baseline data for these groups of species, including species present, critical habitat needs, and population densities. Continued maintenance of as nearly a natural environment as possible and careful assessment of management activities would most likely maintain sufficient habitat for these animals.

The park comprises potential range for a number of endangered and threatened species. Of the federally listed species, bald eagles (Haliaeetus leucocephalus) and whooping cranes (Grus americana) have been sighted migrating through the park, while habitat potential exists for the interior least tern (Sterna antillarum athalassos), black-footed ferret (Mustela nigripes), peregrine falcon (Falco peregrinus), and piping plover (Charadrius melodus). Three plant species, three birds, and one mammal listed as endangered or threatened by the state of North Dakota have been located or reported in the park, and habitat potential may exist for others. Recommended actions include continued protection of endangered and threatened species and their habitats, coordination with other agencies for surveying and management, surveying and monitoring of populations within the park, and evaluation of habitat suitability for supplementing existing populations or starting new ones. As discussed in the 1984 Natural Resources Management Plan, reintroduction of rare flora and fauna would be considered when feasible and a source of the species became available.

Avian management of both endemic and exotic birdlife has been limited, with the Christmas bird counts, the breeding bird survey in the north unit, and raptor nest surveys being conducted. The park provides widely varying protected habitats for birds, with minimal disturbance by human activity. Recommended actions include protection of habitats, location and mapping of critical habitats, investigation of habitat requirements, investigation of interactions of exotic birds in the badlands ecosystem, and evaluation of human activities that could affect bird populations or their habitats.

Boundary control is needed to contain bison within the park and to exclude cattle. Most of the park boundary is now fenced with high, woven wire. This fencing is necessary because bison escapes have resulted in costs to herd the animals back and to pay for damage to fences and crops of adjacent landowners. The recommended course of action includes maintaining the high, woven wire fencing around the park, as well as adding wildlife crossings to the fence and monitoring their effectiveness.

Fire management up till now has included total suppression of natural and man-caused fire and very limited use of prescribed burning. Protection from fire has resulted in increases of woody species and dense, rank herbaceous cover, thereby increasing the risk of catastrophic fire. Complete suppression has interfered with ecological processes, and a natural fire regime needs to be reestablished. Recommended actions include development of a fire management plan, zoning of park lands for the use of fire, maintaining and upgrading suppression and prescribed burning capabilities, researching the role of natural fire in the badlands environment, and conducting small-scale experimental prescribed burns.

The backcountry, which includes the designated wilderness and portions of the park away from development zones, is a primary resource of the park. Its management is affected by management actions for other resources. Specific actions recommended include regular protection

patrolling and maintenance of foot and horseback trails, restricted use of critical wildlife habitat areas, monitoring of day and overnight visitation, and preparation of a wilderness/backcountry management plan.

Cultural Resources. Until such time as parkwide archeological and historic surveys are completed, any activity in an area not previously surveyed that requires ground disturbance will first need an archeological inspection to prevent destruction of prehistoric or historic sites and artifacts. If cultural resources are or might be present, consultation would be conducted with the North Dakota state historic preservation officer and the Advisory Council on Historic Preservation.

There are four historically significant structures in the north unit--Little Missouri River overlook shelter, two picnic shelters in the Squaw Creek campground/picnic area, and the CCC camp-tender residence in the north unit headquarters area.

The only cultural resource in the north unit that would be affected by this plan is the camp-tender residence. The wood frame structure, with board-and-batten siding and a wood shingle roof, was constructed by the CCC in the mid-1930s. It was originally intended for temporary use, and as a result, the interior is wholly substandard for present-day occupancy. The building is historically significant because of the CCC presence and activity in the area during the 1930s; it is potentially eligible for listing on the National Register. To retain the building's historical value, the camp-tender residence should be kept on its present, original site. A new park road realignment that passes close to the structure would require vegetative screening to mitigate disruption to the historic scene.

The preferred alternative would leave the building in place and renovate it. Future use of the building, whether for residential use or for storage, would be determined by the outcome of other proposals in this plan for additional and improved quarters facilities.

Should it be decided to use the building for continued residential use (employee quarters), extensive interior remodeling and updating would be required to bring the building up to acceptable standards. Should it be decided to use the building for storage, minimum interior work would be required. Regardless of the ultimate interior use, the exterior would need to be repaired, repainted, reshingled, etc., to restore the building to its historical appearance. A historic structure report should be completed on the building prior to repairs. Removal of historic fabric would require section 106 compliance before any restoration or maintenance was begun.

The Elkhorn unit comprises the ranch site that Theodore Roosevelt developed in 1884 along the Little Missouri River about 35 miles north of Medora. When Theodore Roosevelt National Memorial Park was established in 1947, the legislation called for reconstruction of the ranch buildings at a cost not to exceed \$40,000. Since that date, however, historical evidence has not been found to enable reconstruction of more than the

exteriors of the ranch house and stable. Current NPS policy, as reflected in the "Cultural Resource Management Guidelines" (NPS-28), states that "the Service does not endorse, support, or encourage the reconstruction of historic or prehistoric structures." In those few instances when reconstruction may be permitted, sufficient data must be available to allow reproduction with a minimum of conjecture. Because of the circumstance, lack of policy support, and inadequate data, reconstruction in this case would not likely be approved.

Archeological investigations have discovered the sites and configurations of the various buildings associated with the ranch. In lieu of reconstruction, the preferred alternative calls for the delineation (by marking) of the foundations or edges of the ranch house, stable, blacksmith shop, well site, chicken pen, shed, dugout, and corral.

Proposed actions in the south unit involve several facilities and historic structures. At the Medora visitor center, fire suppression systems would be installed in the Maltese Cross cabin and the rooms in the visitor center that house the museum and library collections. The historic Maltese Cross cabin is a log structure with a wood shingle roof. Theodore Roosevelt first inhabited this cabin upon coming to the Medora area, and a number of his original possessions, along with other period pieces, are on display here. A fire suppression system would guarantee there would be no damage to the historic artifacts within these structures. The museum and library collections are partially protected by fire detection and intrusion alarm systems installed in 1985.

The remainder of the known cultural resources in the south unit include the stone structures at the old east entrance and the stone pylon at the Painted Canyon overlook (which were built by the ERA), and the three Peaceful Valley ranch structures. Constructed in 1938, the structures at the former entrance include the check station and privy as well as two stone walls. The entrance station was closed and abandoned in 1968 with the completion of a nearby stretch of I-94.

The preferred alternative calls for moving the entrance structures to a new location and adaptively using them. This would allow park staff and/or public use, which to date has not been possible. The relocation site tentatively chosen is near the gravel road in the vicinity of the north entrance to the south unit. Because of the structures' potential for inclusion on the National Register, compliance procedures would be followed prior to relocation. Once the buildings have been relocated, the check station would need exterior work involving masonry repointing, replacement of wood roof shingles, and consolidation or replacement of log rafter ends.

The stone pylon bearing the park sign at Painted Canyon was moved to a new, permanent location in 1985. Some masonry repointing may be necessary; also, a pull-off type parking zone is proposed adjacent to the sign.

Visitor Use

The preferred alternative recommends specific actions to support well-established recreational patterns and uses, emphasizing the improvement of existing facilities and services, including safeguards from possible flooding. All visitor use related proposals (including recreation, interpretation, safety and sanitation, and special populations) would be included in the following types of improvement:

floodproofing of visitor facilities and utilities and provision of warning systems in/on flood-prone recreation sites and trails to provide for visitor safety and minimize property and facility damage (includes diking at Medora)

improvements in existing recreation site parking and utilities, especially sewage lagoons, but also including the Painted Canyon visitor center solar heating system

provision of new facilities and signs to aid horseback, canoe, and river snowmobile use generally; recreation and interpretive use of the Elkhorn unit; and park information/interpretation for US 85 travelers in the north unit

addition and improvement of trails in areas of highest demand and greatest recreational opportunity and development of a trailhead west of river in the south unit

improvement of information/interpretive, parking, and toilet facilities at the north unit headquarters area (multipurpose improvements), and information/interpretive and toilet facilities along the south unit loop road

redesign and improvement of the interior of the Painted Canyon visitor center and relocation of the historic old east entrance station to near the north entrance of the south unit

relocation of the obtrusive high-voltage Western Area Power Administration (WAPA) power line at the east end of the north unit (through encouragement and as practicable), and undergrounding of the smaller local rural electric cooperative (REC) lines (by National Park Service) where they are on federal park lands

Recreation. Of the many recreational and interpretive opportunities at the park, the most popular include the Painted Canyon overlook, the Medora visitor center/Maltese Cross cabin, and the Peaceful Valley ranch and other stops along the river and loop roads in the south unit. Squaw Creek campground/picnic area is the principal developed visitor use area in the north unit. Important improvements are proposed for other portions of the park, but they are in less intensively used areas.

The most significant recreational improvements are proposed in the following areas or complexes:

- North unit
 - district headquarters
 - Squaw Creek campground/picnic area
 - Bison corral area

- Elkhorn Unit - historic ranch site/adjacent development areas

- South Unit
 - Medora/park headquarters
 - Cottonwood campground
 - Peaceful Valley area
 - north entrance (old east entrance station relocation)
 - Painted Canyon area

Other recreation proposals involving portions of the park outside the nine areas include a new trailhead at the former horse camp west of the river and several miles of associated trails in the western portion of the south unit, improvements along the south unit loop road, and a new trail between Buck Hill and the Painted Canyon overlook.

Visitor use proposals and alternatives are presented in table 2. Developments specifically related to cultural resources, interpretive programs, safety and sanitation, special populations, and park operations are not included. A complete summary of all proposed developments and other items, including cost estimates, is contained in the "Plan Implementation" section and in appendix C.

Interpretation. The existing parkwide "Interpretive Prospectus" was prepared in 1973 when the park was managed as a historic area. It does not adequately address the need for balanced interpretation of the area's natural and historical significance. Current management objectives for the park recognize and include the significance of natural resources and their influence on Theodore Roosevelt.

After completion of this general management planning effort, a new parkwide interpretive prospectus and wayside exhibit plan would be prepared. These documents would address recent changes in interpretation objectives and identify how interpretation would best be accomplished at the various sites.

Except for recreational use of the two developed areas and along the scenic drive, the visitor experience in the north unit is a low intensity wilderness experience. The preferred alternative would retain this experience.

For many visitors to this unit, the state-maintained overlook and wayside exhibit on US 85 is the first opportunity to learn about the park. For this reason, the National Park Service is concerned with its message. However, the Park Service has no jurisdiction or maintenance

Table 2: Visitor Use Development Proposals and Alternatives

Park Unit and Area	Preferred Alternative (Proposed Action)	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Rationale for Proposed Action
NORTH-District Headquarters Area	Add public restrooms and more parking as part of new multi-purpose structure improvements at entrance.	No change; retain existing limited facilities.	Same as preferred.	Same as preferred.	There are no restrooms in this area. Parking is adequate only for present small ranger station and trailer.
NORTH-Squaw Creek Campground Area	Redesign picnic area for additional parking.	No change.	Same as preferred.	Relocate area out of flash-flood zone and provide adequate parking.	Properly designed parking for this area is inadequate, and improper parking results. No appropriate relocation sites.
Develop canoe access point along Little Missouri River at Squaw Creek and develop canoe/snow-mobile access point on or near Wright/Baye property in the district headquarters area.	No change; no access points.	Develop a canoe/snow-mobile access point on Little Missouri River at Squaw Creek or at district headquarters area (not both).	Develop canoe/snow-mobile access point along Little Missouri River at Squaw Creek and also on or near Wright/Baye property in the district headquarters area.	Canoeing on the river is increasing, but with little support from the National Park Service. Proposed action would make 5-mile and longer trips possible and provide access for other recreationists.	
Provide new trailhead for Squaw Creek nature trail.	No change.	Same as preferred.	Same as preferred.	Existing trailhead is inadequate, especially with proposal to make this a handicap trail.	
NORTH-Bison Corral Area	Build group horse camp, either here, two alternate locations on Wright/Baye property, or east of Squaw Creek campground.	No change; no group horse camp in unit.	Cooperate with Forest Service in providing horse camp south of river near US 85.	Same as preferred.	There is a demand for group horse camping in the park. Most such use now originates from private area east of US 85. Highway must be crossed; park trails too remote. Feasibility of Forest Service funding and construction is uncertain.
ELKHORN	Develop short access road from south, parking, and small picnic area; flood-proof water well and vault toilet; and build trail from parking to former ranch headquarters site. (Trail should meet minimum standards).	No changes; no developments. Use existing primitive road into unit for foot access.	Develop short access road and parking; floodproof vault toilet; and build trail to former ranch headquarters site. Truck in water; no picnic facilities.	Develop longer access road from north and all improvements proposed under preferred alternative.	Counties' proposed new road and river bridge would bring more visitors to the unit and make the trip much easier than it is now. (Proposed action is based on assumption the road would pass south of the unit.) Once access is improved, the trail and minimum recreation facilities would be required. Trucked-in water could be expensive in the long-term.

<u>Park Unit and Area</u>	<u>Preferred Alternative (Proposed Action)</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Rationale for Proposed Action</u>
SOUTH- Peaceful Valley	Provide additional parking and improve vehicle circulation at picnic area.	No changes.	Same as preferred.	Relocate area above 100-year floodplain and provide adequate parking. Build foot-bridge across river at Peaceful Valley ranch for horses and hikers.	Redesigned parking is needed to alleviate congestion; it would not attract additional use. No adequate relocation sites are possible. Footbridge is not essential during low water level.
SOUTH- Cottonwood Campground	Redesign the remaining parking spurs for campsites to the paved pull-through type.	No changes.	Same as preferred.	Same as preferred.	There is a greater need for pull-through parking loops (as opposed to spurs) than when this campground was designed and built. Recreation vehicles and trailers are now more numerous. A few campsites would be lost, but area is seldom fully used.
SOUTH- Cottonwood Campground/ Area West of River	Develop 6-mile loop trail west of river beginning at Cottonwood campground.	No change; no new trail.	No change; no new trail.	Same as preferred.	Campground users have little access to trails. This demand results in unplanned trails on steep, eroding slopes east of the campground.
SOUTH- Loop Road	Build vault toilets at Buck Hill and two other locations along loop road.	No change; no toilets.	Build vault toilet at Buck Hill location only.	Same as preferred.	There are no toilets along the loop road, a situation that contributes to hurried trips along this scenic drive. Buck Hill is an obvious location for one toilet. Other locations would be determined following further study. Interpretive facilities would also be improved.
SOUTH- Loop Road (Buck Hill Spur)	Convert ½-mile long Buck Hill road to gravel as base deteriorates.	Convert road to trail as base deteriorates.	Same as preferred.	Continue replacing pavement or road. Also improve base and drainage.	This steep spur road is underlain by moving earth. The pavement buckles, whereas dirt and gravel can be easily regraded. Trail access would prevent many from reaching the scenic high point off the end of this spur while complete reconstruction might not be successful.
SOUTH- Buck Hill Painted Canyon	Develop trail between Buck Hill overlook and Painted Canyon overlook.	No change; no trail.	No change; no trail.	Same as preferred.	This is an excellent opportunity to connect two high-use scenic areas through varied terrain. There are no existing trails available at these two popular areas.

Park Unit and Area	Preferred Alternative (Proposed Action)	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Rationale for Proposed Action
SOUTH-west of Little Missouri River	Develop new trailhead/parking area just north of I-94 on the west side of river.	No changes; no improvements.	No changes; no improvements.	Same as preferred.	The NPS radio tower has been relocated, opening additional terrain for hiking. Opportunities for hiking scenic ravines and ridges are available. The trailhead is needed for access when the river is too high to safely ford.
SOUTH-Medora/Park Headquarters Area	Develop a Medora overlook trail - a loop about 3 miles long, beginning at the visitor center and extending to the top of the mesa above Medora.	No changes; no trail.	No changes; no trail.	Same as preferred.	This area is one of the two most heavily visited within the park and the single-most important orientation point, but there are no existing trail opportunities. A trail would offer outstanding views and diverse vegetation.
	Develop canoe/snow-mobile access point along river at Medora (cooperate with North Dakota Historical Society, riverfront landowner adjacent to Chimney Park). Provide graded parking area.	No change; no formal access point.	Same as preferred.	Same as preferred.	Most canoe/snowmobile trips require parking at beginning and end of trip; however, there is no developed public put-in site at Medora. Longer trips could be made to the north unit or beyond. Short canoe trip take-outs could be handled at Cottonwood campground or Peaceful Valley.
SOUTH-Painted Canyon Area (Visitor Center)	Completely redesign and replace solar heating system for reliable and extended season operation.	No change; continue to operate with existing system.	Same as preferred.	Same as preferred.	The existing solar thermal system was custom-designed for the visitor center. It is unreliable, includes standard collector panels, is costly to maintain, and will not produce sufficient heat to keep the center open during the colder spring and fall months. Parts are also difficult to obtain. Complete replacement with more reliable solar or conventional system is under study. Renovation for longer season or year-round operation is also being considered.

responsibilities, although advisory consultation on park-related highway sign information is a normal cooperative activity. A special effort would be made to offer advice and assistance to the state to ensure the use of appropriate highway exhibit/signing.

The north unit visitor contact facility is currently inadequate both in terms of interpretation for visitors and sufficient space for interpretive support functions such as museum collections and library and work area for the interpreters. A new multipurpose facility is proposed that would provide a brief orientation to the whole park, but would focus on the north unit and its relationship to the other units (see "Park Operations" section for description of facility). Orientation would describe the north unit and the opportunities available, and interpretation would cover the themes of natural history, wilderness, and the relationship of humans with the park environment.

The proposed wayside exhibit plan and interpretive prospectus would define the media to be used. The design of the proposed visitor contact facility and the selection of media should be sufficiently flexible to allow for changeable interpretive messages. The intent would be to provide enough diversity in interpretation to sustain the interest of the many repeat visitors to the north unit.

Access to the Elkhorn unit is via unpaved, unsigned roads that are often impassable. The park's enabling legislation authorized reconstruction of the ranch buildings (\$40,000 expenditure limit), but because of low visitation and poor access, no reconstruction has been done.

All actions proposed for the Elkhorn unit are dependent on development of the new trans-river county road. Appropriate directional road signing would be installed. The interpretive theme for this unit would focus on ranch life when Theodore Roosevelt lived here and the influence this life had on him. Interpretation would primarily be self-guided (wayside exhibits and tour folder) to allow visitors to identify the locations of former ranch facilities and contemplate this quiet, scenic area with minimal intrusion. Imagination would be an important aspect as no reconstruction is proposed. During high visitation levels when resource damage might occur, park staff would be present to provide protection while conducting guided walks or carrying out resource management and caretaking duties.

Most visitors to the park only see the south unit. A large percentage of these stop only at the Painted Canyon overlook/visitor center, where outstanding views of the badlands scenery are available. Under the preferred alternative, signing would be provided to encourage visitors to enter the visitor center at Painted Canyon and discover it is more than a rest stop and that there are things of interest to see and do here. The interior of the visitor center would be redesigned to better utilize space, improve facility placement, and resolve inadequate interpretation problems. The proposed interpretive prospectus would define in detail how the visitor center would be developed. Interpretive themes would include the significance of the park as a whole, geological origin of the badlands, and air quality. Guided walks would continue to be offered. An interpretive trail below the Painted Canyon rim would be developed.

A wayside exhibit plan for the south unit loop road, including Buck Hill would be developed. The exhibit plan would be coordinated with the development of new pullouts. This is particularly important because there are interesting resources along the road that have not been interpreted because of a lack of safe parking. The road improvements, however, are not included in this general management plan; they will be accomplished as a part of the park maintenance and rehabilitation program. The Skyline Vista trail would be improved to a self-guiding, handicap-accessible, interpretive trail.

Buck Hill is currently not interpreted; yet its prime location affords an outstanding panorama of badlands scenery. The themes for this site would include the geological origin of the badlands, grassland ecosystem, and human habitation. To preserve the beauty and isolated feel of this windblown hilltop, any wayside exhibits should be at the parking area. A publication would accomplish interpretation from the hilltop.

The costs for the improvements proposed for the interior of the Painted Canyon visitor center, the tour folder and wayside exhibits for the Elkhorn unit, and the new interpretive exhibits for the south unit loop road and at Buck Hill are not included in this plan. They would be determined by the proposed interpretive prospectus and specific development plans.

General Safety and Sanitation. Visitor safety would continue to be emphasized on signs, in brochures, and through personal contacts and interpretive messages. Certain visitor and park operation facilities also need to be improved or built to meet safety needs for visitors and park staff. The development and other proposals that follow would reduce existing or potential safety and sanitation problems, including making sewage systems operate more effectively (these items are treated in greater detail elsewhere in the "Proposed Action and Alternatives" section).

Safety Items: Bison must be periodically herded and captured. Because of the distances and areas that must be traversed, the bison can break away, scatter, and cause hazards for both park staff and horses. The bison can also go through the weak parts of the old corrals, which could result in injuries. The following developments are proposed: relocate north unit bison corral to north boundary and build an additional bison corral at the site of the existing wild horse corral along the northeast boundary of the south unit. These actions would make the roundup operations both easier and safer.

An unheated building would be constructed at the north unit headquarters to house maintenance and emergency vehicles that otherwise might be difficult to start and move during colder months in responding to emergencies. The existing north unit maintenance building space would be enlarged to provide a safer, less-cluttered shop operation and better space for administering first aid and storage of first-aid equipment.

An interpretive trail would be developed below the rim at the Painted Canyon overlook to discourage visitors from using informal paths to venture onto steep, risky terrain.

The existing Buck Hill spur road, which is paved but in a deteriorating condition, would be converted to gravel for vehicle safety.

All recommended actions (many of which involve working with other agencies and interests) should be taken to attempt to reduce incidents of concentrated levels of hydrogen sulfide and sulfur dioxide gas sometimes experienced by park visitors and staff. These levels have been sufficiently strong on occasion to cause physical discomfort.

Sanitation Items: The sewage lagoon at the north unit district headquarters would be enlarged and lined, and the sewage lagoon at Squaw Creek campground would be resized.

A floodproof vault toilet would be built for public use at the Elkhorn unit, along with a second small vault toilet and primitive shower for staff use.

The six existing pit toilets at Peaceful Valley ranch and picnic area would be replaced with a flush-type comfort station at the ranch and two vault toilets at the picnic area (additional required sanitation changes are covered in the flood-related proposals that follow).

Vault toilets would be installed at Buck Hill and two other locations along the south unit loop road.

The largest sewage lagoon cell at Painted Canyon overlook would be reduced in size and relined; the reduced cell would be used for secondary treatment.

Flood-Related Safety and Sanitation. Many structures and facilities at the park are within the 100-year floodplain (base flood area) of the Little Missouri River and the 100-year flash-flood hazard area of two of its tributaries--Paddock and Squaw creeks. Another tributary, Knutson Creek, contains no development other than trails. (See External Conditions map, North Unit and South Unit General Development Plan/Flood Data maps, and Development Concept Plan maps for Medora Headquarters, Cottonwood Campground, Peaceful Valley, Elkhorn Unit, Squaw Creek Campground, Bison Corral, and North Unit District Headquarters for detailed information on flooding.)

The basic NPS policy for floodplains and high-hazard areas (flash-flood areas) is to avoid having developments that would be within the 100-year floodplain whenever there is a practicable alternative, and to prohibit the development of structures in which humans might seek shelter in potential flash-flood areas.

Flood-warning systems and evacuation plans would be developed by the park staff for dealing with all Little Missouri River flood-prone lands and

tributary drainage flash-flood hazard areas. Because of a lack of suitable relocation sites, the preferred alternative would retain all developed areas within the floodplain and flash-flood areas in their present locations. However, as stated earlier, federal requirements dictate that actions must be taken to minimize life, property, and stream contamination hazards.

About 10 concession employees live in the bunkhouse and recently renovated ranch house during the summer season at Peaceful Valley ranch, which would be flooded by 100-year floods of the Little Missouri River and 100-year flash floods of Paddock Creek. The use of these structures as dwellings should be phased out in the long term.

Warning signs would be posted in flood-hazard areas and along sections of trails that could be subjected to flash flooding. Facilities and structures would be marked with flood heights. In addition, detection and communication capabilities would be implemented, evacuation strategies would be developed, and provisions would be made for emergency water and sewer service or temporarily closing areas and deactivating utilities.

A 100-year flood of the Little Missouri River would affect developed area facilities as follows:

	<u>Depth of water over floor of buildings</u>
Squaw Creek Area:	Camp-tender residence - 3½ feet Comfort stations - 2¼, 4, and 5 feet Picnic shelters - 6 and 9 feet
Peaceful Valley Area:	Ranch buildings - 4 feet Picnic area - 0 to 2 feet
Cottonwood Campground:	Camp-tender residence - 2 feet Comfort stations - 4, 5, 6, and 7 feet
Park Headquarters (Medora):	Visitor center - 3½ feet Maltese Cross cabin - 4½ feet Administration building and park housing - ½ to 5 feet

The preferred alternative calls for floodproofing or replacement and floodproofing of structures and utilities at Squaw Creek, Peaceful Valley, and Cottonwood campground. At Medora, a permanent dike along the west edge of the headquarters area would be required.

At Squaw Creek campground/picnic area, the camp-tender residence would be raised approximately 4 feet and placed on (hidden) concrete pilings. The structure should be anchored so as to prevent flotation, collapse, or lateral movement. Earth should be placed under the building and sloped to the sides so that it is sited on top of a natural-appearing hill with appropriate landscaping. Access to the building would be by a paved

ramp or a ramp and steps to a porch. The camp-tender structure as well as the three comfort stations would be altered by installing watertight doors, waterproofing material for the walls, and making other similar modifications. The comfort stations would also be placed on concrete pilings and natural-appearing hills; paved trails or ramps would provide access. The power transformers for each building would also need to be raised, as would the sewage system pump station control panel (on a post).

At the Elkhorn ranch site, the proposed parking area, picnic area, and vault toilet would tentatively be built a short distance above the 100-year floodplain, while the water well, storage buildings, ranger tent platforms, and staff toilet and primitive shower would be situated on slightly higher ground. The public toilet would be built as a floodproof unit, with a vault that could be sealed manually. The well would be a sealed unit. Signs and markers delineating structures at the ranch site would be installed to withstand flooding or restored after flooding occurred.

At the Peaceful Valley ranch and picnic area, the preferred alternative calls for replacement of existing pit toilets with a flush unit at the ranch and two vault comfort stations at the picnic area. The new toilets should be raised and floodproofed in the same manner as the Squaw Creek campground toilets. Additional flood-protection improvements for the ranch would include construction of a sewage lift station and sewer force main to an area above the 100-year floodplain; here an influent manhole, septic tank, and leach field would be installed.

At Cottonwood campground, all four comfort stations and the camp-tender residence would be raised and floodproofed in the manner as the Squaw Creek campground toilets. The sewage system would be floodproofed by modifying the two lift stations and sewage lines within the campground. A sewer force main would be extended to an area above the 100-year floodplain, where a new influent manhole, septic tank, and leach field would be placed. The five existing septic tanks would be removed. A new well and pump house would be floodproofed.

At the Medora headquarters, a permanent flood control dike would be constructed between the foot of the slope north of the Maltese Cross cabin south to the Burlington Northern Railroad embankment. A gap would be left for the old highway 10 bypass; it would be temporarily closed with sandbags in the event of a flood. The dike, 1,800-feet long and 7 feet high (average), would be built slightly above the 100-year flood elevation. Approximately 300 feet (17 percent) of its length, including the highway gap, would not be within the park. The dike would protect about 49 acres within Medora (most of the developed portion of the town) from a 100-year flood. Seventy-five percent of this area would not be within the park. A hydraulic study should be conducted to determine the extent to which the Little Missouri River would be raised in a 100-year flood because of the presence of the proposed dike.

NPS final procedures for implementing EO 11988 define critical actions as those for which even a slight chance of flooding is too great. These procedures require the use of sites completely outside the 500-year floodplain for all critical actions, which include the construction or rehabilitation of facilities or structures that contain irreplaceable historic objects or documents. However, at present, irreplaceable historic objects are kept in both the visitor center and the Maltese Cross cabin. In order to protect these resources, the historic objects and documents would be removed and taken to higher ground when a catastrophic flood appeared imminent. In addition, the height of the proposed 100-year floodplain dike and a short segment of the Burlington-Northern Railroad would be raised to the 500-year floodplain level through the use of sandbags and earth. The difference between the two floodplain levels is about 4 feet.

Generally, most visitor use facilities that are subject to flooding but which would not be floodproofed or otherwise protected have been built to withstand flooding with minor or no damage.

Special Populations

NPS "Management Policies" state that "to the greatest extent possible, commensurate with physical limitations, the handicapped should be able to enjoy the park using the same facilities as the non-handicapped visitor. Special interpretive facilities and programs for handicapped people are encouraged where good potential for participation is indicated."

Significant emphasis has already been placed on making visitor facilities within the park accessible to the handicapped, but more needs to be done. As a result, approximately \$130,000 has been specifically obligated for handicap-use improvements at the Painted Canyon overlook/visitor center, Medora visitor center, and several recreation sites. Improvements involve such modifications as making buildings more accessible; providing special toilets, wash basins, and fountains; and creating special handicap units in campgrounds. These improvements have been separately approved and funded and are not dependent on implementation of this plan.

Minor improvements, such as better signs, curb cuts, parking space striping and marking, and ramps, would continue to be made as a part of ongoing maintenance. The improvements program described in the previous paragraph will also include some of these items.

Unfortunately, some of the required floodproofing modifications, described earlier under safety and sanitation, would decrease handicap accessibility. However, design criteria will attempt to keep such reductions at a minimum.

Any new visitor or staff facilities proposed and any alterations to existing facilities would comply with all appropriate laws and regulations, including the Architectural Barriers Act of 1968 (42 USC 4151 et. seq., as amended by 88 Stat. 1617). In addition, as possible, interpretive programs would be made suitable and accessible for most special populations.

The following proposals of this plan (discussed in greater detail elsewhere) would benefit the handicapped:

Build new handicap-accessible building at the north unit district headquarters that would include space for visitor contact and interpretation.

Provide a handicap-accessible nature trail in the north unit (at a safe and suitable location to be determined)

Improve the Skyline Vista trail (south unit) to make it handicap accessible.

Stabilize access trail in the Elkhorn unit for the handicapped.

Park Operations

Park operations involve the adequacy and effectiveness of facilities (including staff housing) needed for park management, as well as the staffing necessary to perform management, park protection, visitor services, study/research, and maintenance functions (staffing needs are covered in the "Plan Implementation" section and in appendix C). This may also involve arrangements/agreements with other entities that may be required for effective management of the park and lands adjacent to the park.

The small ranger station and information trailer at the district headquarters area of the north unit are totally inadequate in size, furnishings, and/or condition for both staff and visitors. The trailer, an older model and poorly insulated, cannot be used during the colder months. A new building (approximately 5,850 square feet including basement) would be constructed to house district ranger and interpreter offices, as well as space for a multiuse meeting room, library, storage, fee collection, public restrooms, publication sales, public information, and park interpretation. At the time of construction, a waterline to the building would also be required. Once the building was completed, the existing ranger station and visitor contact trailer would be removed.

There is an acute shortage of park housing in the north unit for the permanent and seasonal employees who are needed to ensure the hiring of qualified seasonal personnel and adequate protection for visitors, resources and facilities, including implementation of proposed flash-flood evacuation plans. In addition, some of the existing housing is of poor quality. As a result, new and replacement quarters for seasonal and permanent employees are proposed.

The development and provision of park housing for employees must be in conformance with NPS management policies, as currently set out by the January 1985 "Government Furnished Quarters Management Guidelines" (NPS-36). The guidelines require completion of and NPS director

approval of a "Justification for New or Replacement Quarters" (Form 10-373). Also required is adherence to statutory limitations regarding the maximum amount that may be spent per unit. Requested quarters should be in accordance with the approved "Quarters Management Plan" for the park. An analysis of the availability of local housing and all other alternatives that have been considered to protect the park resource or provide the necessary service would also be important. Preparation and submission of this material would be performed by the park superintendent subsequent to the completion of this plan.

The nearby communities of Watford City (population 2,119), 14 miles away, and Killdeer (population 790), 35 miles away, are located in the oil and gas rich Williston Basin. Due to recent ups and downs of this volatile energy industry, the region's economy has become boom or bust for the communities. Rental and purchase housing prices fluctuate accordingly, and prospective NPS employees, especially seasonals, are unable to afford housing in the boom times, and could find that rental costs become unaffordable when bust changed to boom times. This could result in the resignation of affected employees. In addition, it is difficult to recruit qualified personnel in this remote area without park housing. At present employment is limited to singles or people who live in nearby communities.

Three quarters, the CCC camp-tender residence (used for seasonal housing) and two trailers occupied by various employees, are substandard to the extent of having slumlike qualities. These facilities have become badly deteriorated over the years due to poor construction and the harsh climate of the area and are unable to keep out frost and rain, as well as rodents and insects. For example, the furnace in one trailer can bring the inside temperature to only 50°F when it is -30°F outside. The NPS policy is to eliminate trailers as housing units.

These substandard units should be replaced with modular duplexes and apartments designed for energy efficiency and longevity. The number of units needed, estimated at six, would be determined by staffing needs. Multifamily units would be provided if they are the most cost-effective.

Under present conditions at the north unit headquarters, several maintenance and emergency vehicles (e.g., snow removal trucks and a protection division vehicle) must be kept outdoors because of a serious lack of space in the maintenance building. Subfreezing temperatures and drifting snow hamper efforts to get the equipment operational, and dig-out and warm-up time are required. To alleviate this situation, the preferred alternative proposes construction of an unheated, wind-sheltered structure with power for engine heaters, which would keep these vehicles on call at all times. Construction of this relatively simple structure would be less expensive than adding on to the existing maintenance building. In addition, site restrictions demand the proposed vehicle storage area be in a separate location.

The existing three-bay north unit maintenance building is too small for the sheltered work activities and storage facility that it is required to

support. Floor space needed for vehicle maintenance and safe shop operation is occupied by lumber, equipment, and materials storage. One wall, now containing fire suppression equipment, is inadequate for future fire management programs. First aid, now less satisfactorily conducted at the entrance station, should be relocated to individual space in the nearby maintenance building.

The preferred alternative proposes enlargement of the existing building space to accommodate a carpenter shop, a first-aid station, a fire cache, and small equipment storage.

If the historic CCC camp-tender residence at the north unit headquarters continues its use as seasonal quarters, interior renovation would be required; if its use is changed to storage, only minimal interior improvement would be required. Exterior maintenance improvements would be required in either case.

The north unit radio tower is not riveted properly and the result is mixed frequencies and interference. Under the preferred alternative, the tower would be refitted, reriveted, and fenced.

There are no facilities in the remote Elkhorn unit. When the county road access is improved including a bridge over the Little Missouri River, there would be a need for a short access road and limited visitor use and operational facilities on-site. The preferred alternative calls for a small building for securely storing trail and grounds maintenance tools, fire management apparatus, and first-aid items. Tent platforms, a small vault toilet, and a primitive shower would also be needed for a small seasonal staff during the summer. These structures would be low in cost, low in maintenance, and out of view of public use areas. The access road would require a special use permit or right-of-way from the State Historical Society and/or the Forest Service.

There are no park operations improvements proposed for the south unit.

Other Proposals

A highly visible and obtrusive high-voltage WAPA power line diagonally crosses the private land at the east end of the north unit before it spans US 85, passes just south and east of the unit headquarters area, and then crosses the Little Missouri River. A smaller REC power line, which serves NPS facilities, is found in this same area. A spur REC line also serves Squaw Creek campground to the west.

The preferred alternative proposes undergrounding the REC lines where they are on federal park property and encouraging WAPA to relocate their line outside the park when the line requires replacement or major maintenance/repair. No new major aboveground transmission lines should be permitted to cross this or any other areas of the park.

General Development/Development Concept Plans

Some of the facilities within the park have been serving the public for many years and are in need of repair or improvement. In other cases, special actions have never been taken and basic improvements never provided because of no funds and no clear management/planning direction; floodproofing, new trails, and better located toilets are three examples.

Primary developments proposed under the preferred alternative would (1) meet statutory requirements by protecting life and property from flooding; (2) meet curatorial and cultural resource standards by protecting or providing safe storage for irreplaceable artifacts, books, papers, and historic structures; (3) fulfill health, sanitation, and utility operational standards by providing new vault or flush toilets and improving sewage lagoons and other utility systems; (4) meet critical needs for improved or additional visitor contact, interpretive, office, and quarters space; and (5) meet safety needs and provide additional opportunities for the handicapped. In addition, improvements in campgrounds, picnic areas, river access, trails, and administration and maintenance facilities would make support services and overall park management more efficient and provide additional recreational and interpretive opportunities. These actions are not, however, intended to produce significant changes in facility capacity or to alter the basic recreational experience.

The proposed facilities and improvements under the preferred alternative are shown on the accompanying Development Concept Plan maps. Additional proposals are shown on the North Unit and South Unit General Development Plan/Flood Data maps. The nine development concept plan areas generally represent where the most significant or numerous changes are proposed. The various developments have also been described in the previous sections of the "Proposed Action and Alternatives."

Costs and Personnel

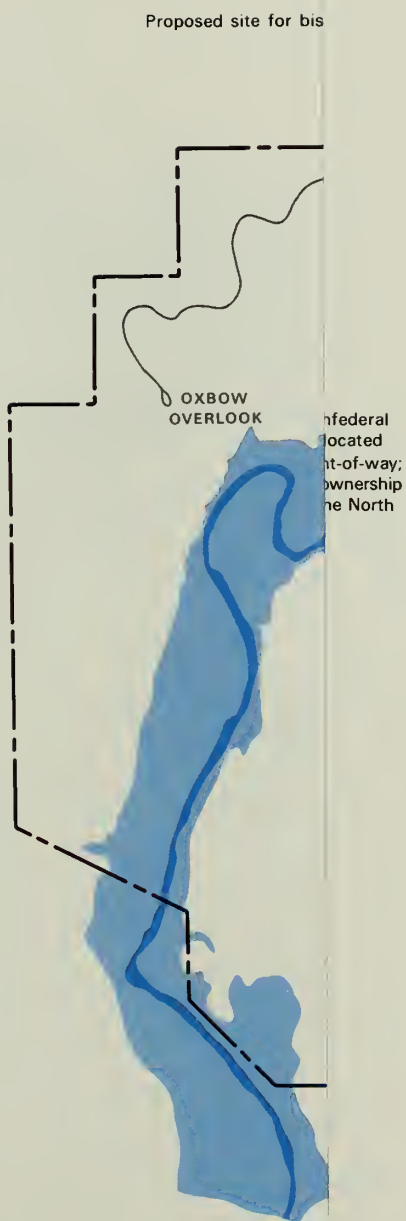
Associated costs and priorities for the various developments are given in the "Plan Implementation" section.

NORTH UNIT GENERAL DEVELOPMENT PLAN FLOOD DATA

**THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA**

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,031-A
JAN 86	DSC



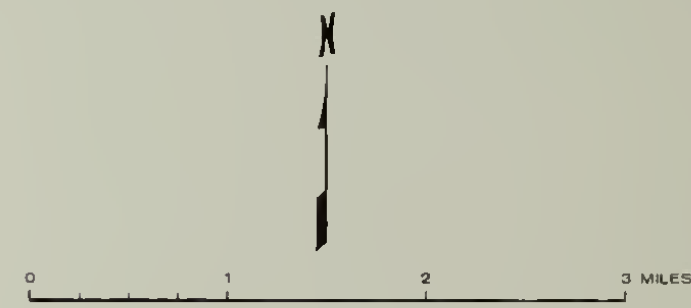
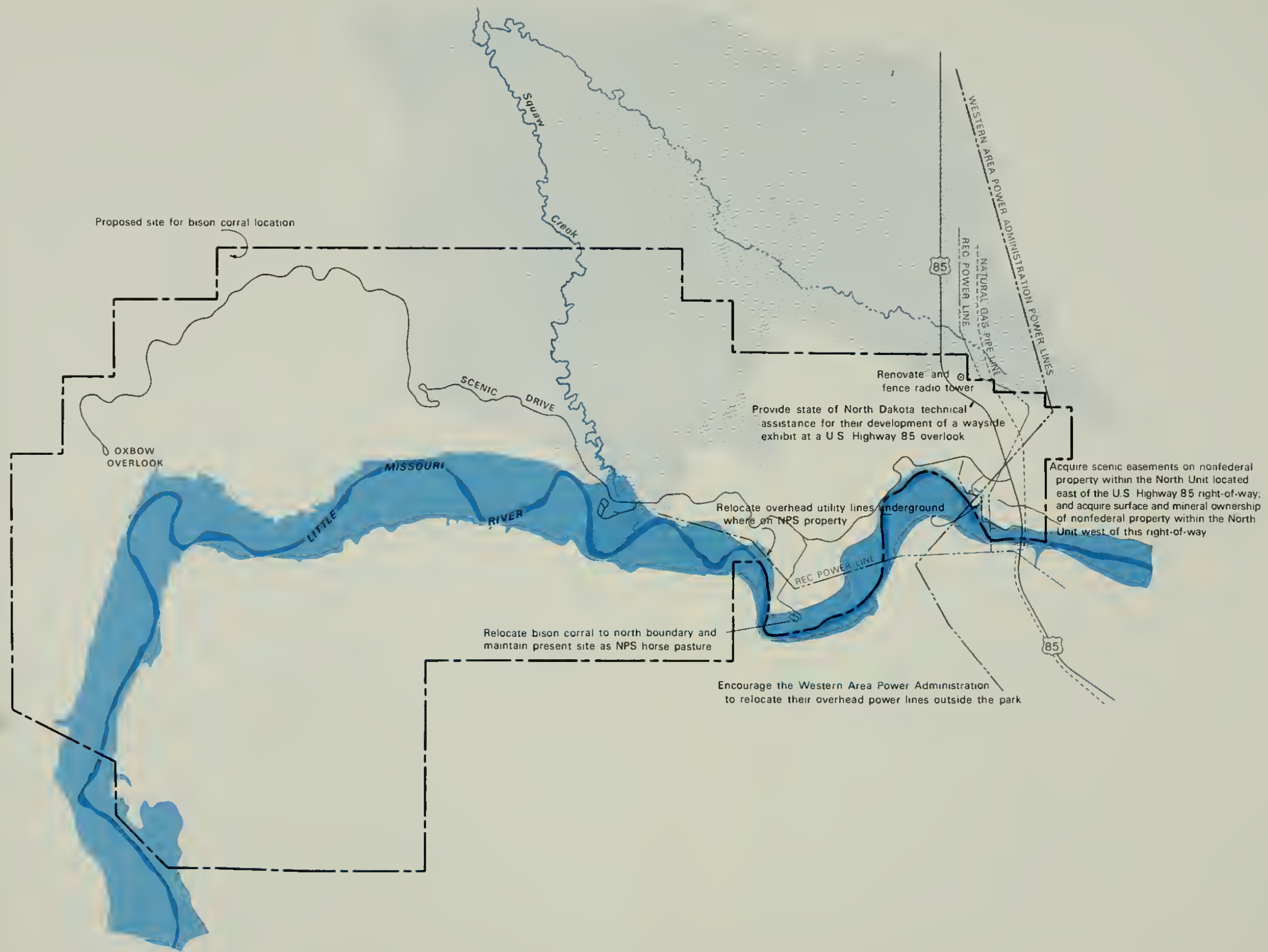
- LITTLE MISSOURI RIVER
100-YEAR FLOODPLAIN**
- SQUAW CREEK DRAINAGE
26½ SQUARE MILES**
- PARK BOUNDARY**

Proposed actions are shown in black, and existing conditions are shown in gray.

NORTH UNIT GENERAL DEVELOPMENT PLAN FLOOD DATA

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20.031-A
JAN 86	DSC



- LITTLE MISSOURI RIVER
100-YEAR FLOODPLAIN
- SQUAW CREEK DRAINAGE
26½ SQUARE MILES
- PARK BOUNDARY

Proposed actions are shown in black, and existing conditions are shown in gray

Proposed site for bison corral location

OXBOW OVERLOOK

LITTLE MISSOURI RIVER

SCENIC DRIVE

Squaw Creek

85

WESTERN AREA POWER ADMINISTRATION POWER LINES
NATURAL GAS PIPELINE
REC POWER LINE

Renovate and fence radio tower

Provide state of North Dakota technical assistance for their development of a wayside exhibit at a U S Highway 85 overlook

Relocate overhead utility lines underground where on NPS property

Acquire scenic easements on nonfederal property within the North Unit located east of the U S Highway 85 right-of-way; and acquire surface and mineral ownership of nonfederal property within the North Unit west of this right-of-way

REC POWER LINE

85

Relocate bison corral to north boundary and maintain present site as NPS horse pasture

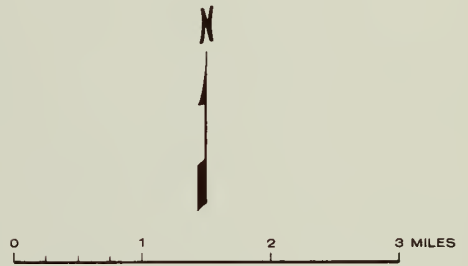
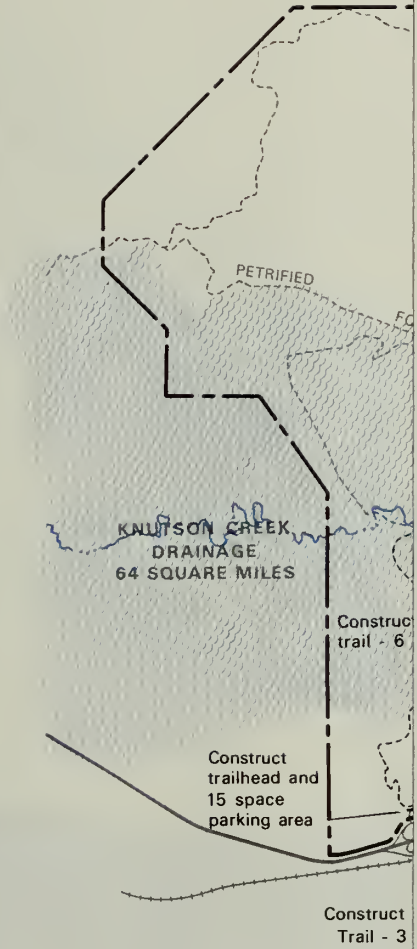
Encourage the Western Area Power Administration to relocate their overhead power lines outside the park

SOUTH UNIT GENERAL DEVELOPMENT PLAN FLOOD DATA

**THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA**

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,030-A
JAN 86	DSC



- LITTLE MISSOURI RIVER
- 100-YEAR FLOODPLAIN
- MAJOR CREEK DRAINAGES
- PARK BOUNDARY

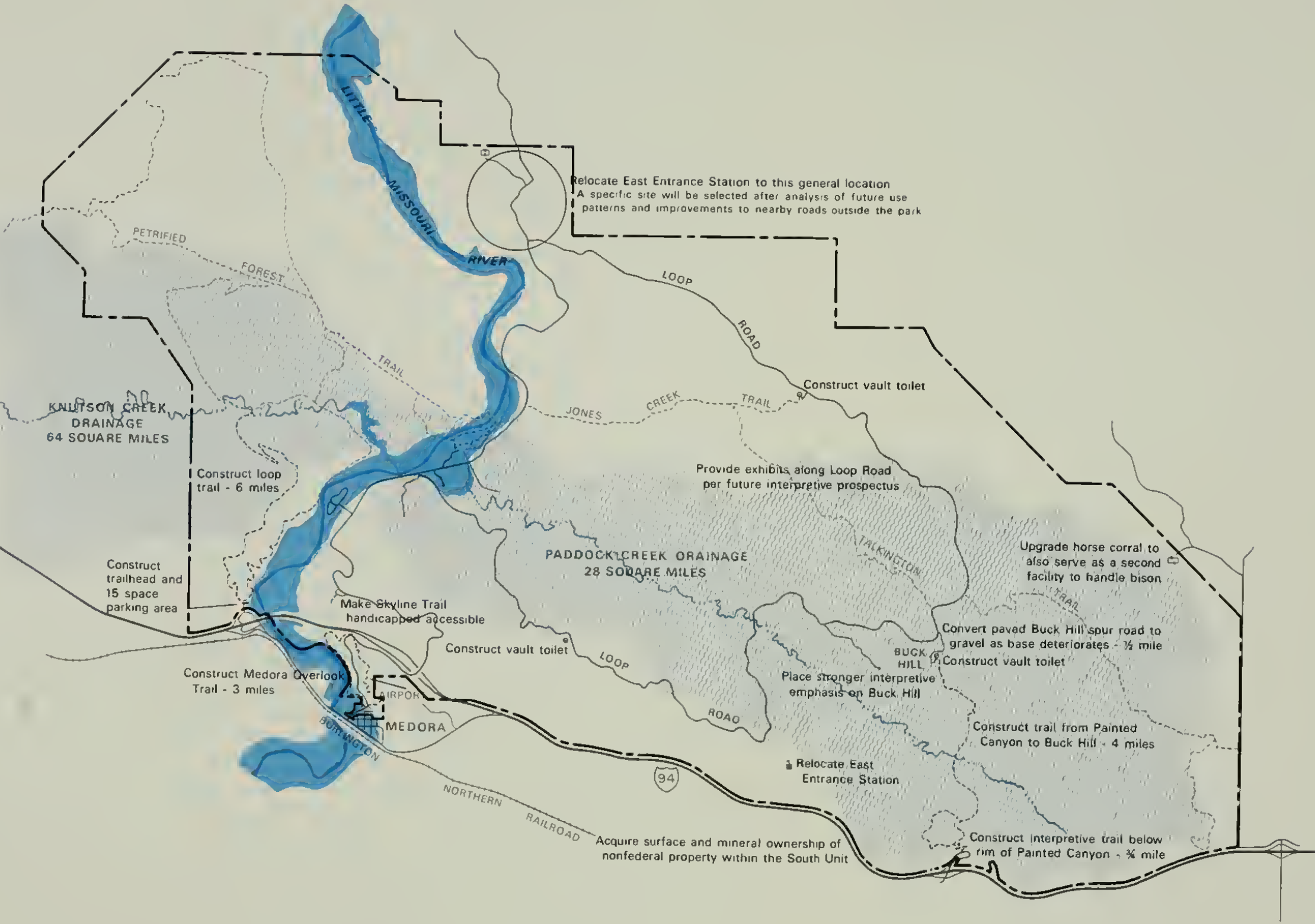
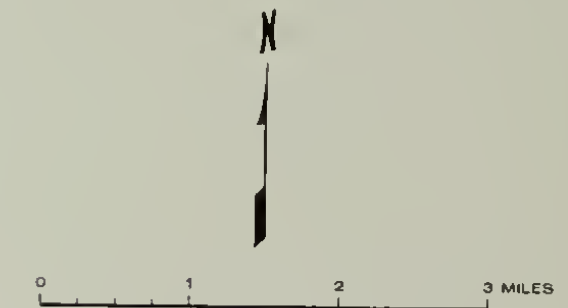
Proposed actions are shown in black, and existing conditions are shown in gray.

SOUTH UNIT
 GENERAL DEVELOPMENT PLAN
 FLOOD DATA

THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

387	20,030-A
JAN 86	DSC



Relocate East Entrance Station to this general location
 A specific site will be selected after analysis of future use patterns and improvements to nearby roads outside the park

Construct vault toilet

Provide exhibits along Loop Road per future interpretive prospectus

Upgrade horse corral to also serve as a second facility to handle bison

Convert paved Buck Hill spur road to gravel as base deteriorates - 1/2 mile
 Construct vault toilet

Place stronger interpretive emphasis on Buck Hill

Construct trail from Painted Canyon to Buck Hill - 4 miles

Relocate East Entrance Station

Construct interpretive trail below rim of Painted Canyon - 3/4 mile

Acquire surface and mineral ownership of nonfederal property within the South Unit

Construct loop trail - 6 miles

Construct trailhead and 15 space parking area

Construct Medora Overlook Trail - 3 miles

Make Skyline Trail handicapped accessible

Construct vault toilet

- LITTLE MISSOURI RIVER 100-YEAR FLOODPLAIN
- MAJOR CREEK DRAINAGES
- PARK BOUNDARY

Proposed actions are shown in black, and existing conditions are shown in gray.

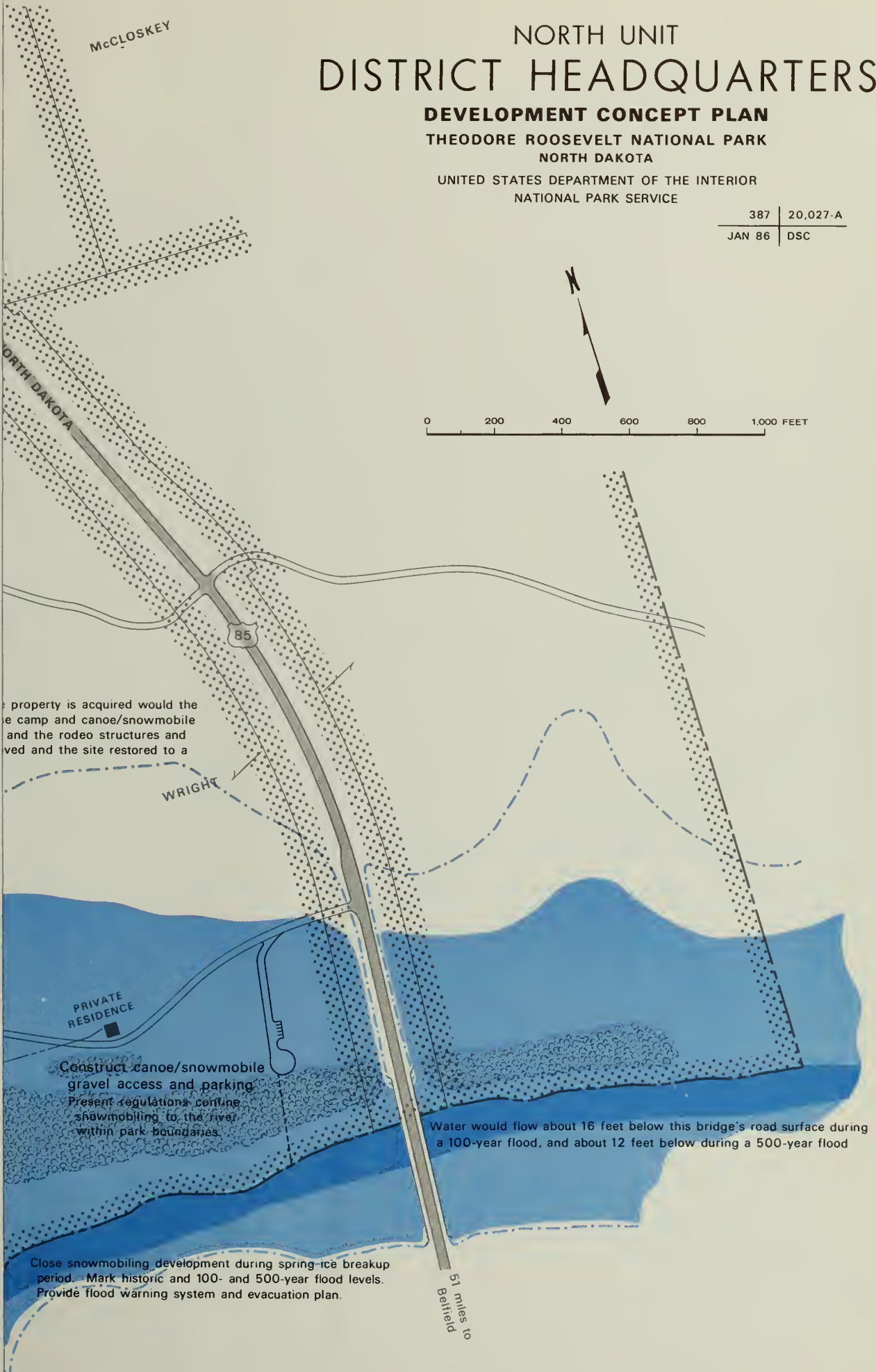
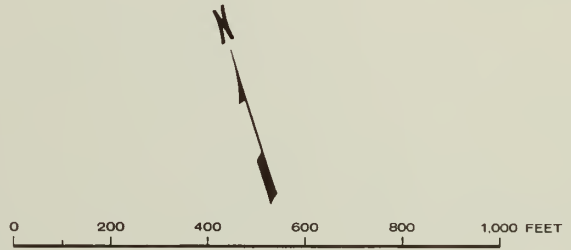
NORTH UNIT DISTRICT HEADQUARTERS

DEVELOPMENT CONCEPT PLAN

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,027-A
JAN 86	DSC



property is acquired would the
camp and canoe/snowmobile
and the rodeo structures and
ved and the site restored to a

WRIGHT

PRIVATE
RESIDENCE

Construct canoe/snowmobile
gravel access and parking
Present regulations confine
snowmobiling to the river
within park boundaries

Water would flow about 16 feet below this bridge's road surface during
a 100-year flood, and about 12 feet below during a 500-year flood

Close snowmobiling development during spring-ice breakup
period. Mark historic and 100- and 500-year flood levels.
Provide flood warning system and evacuation plan.

51 miles to
Bellevue







NORTH UNIT DISTRICT HEADQUARTERS

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

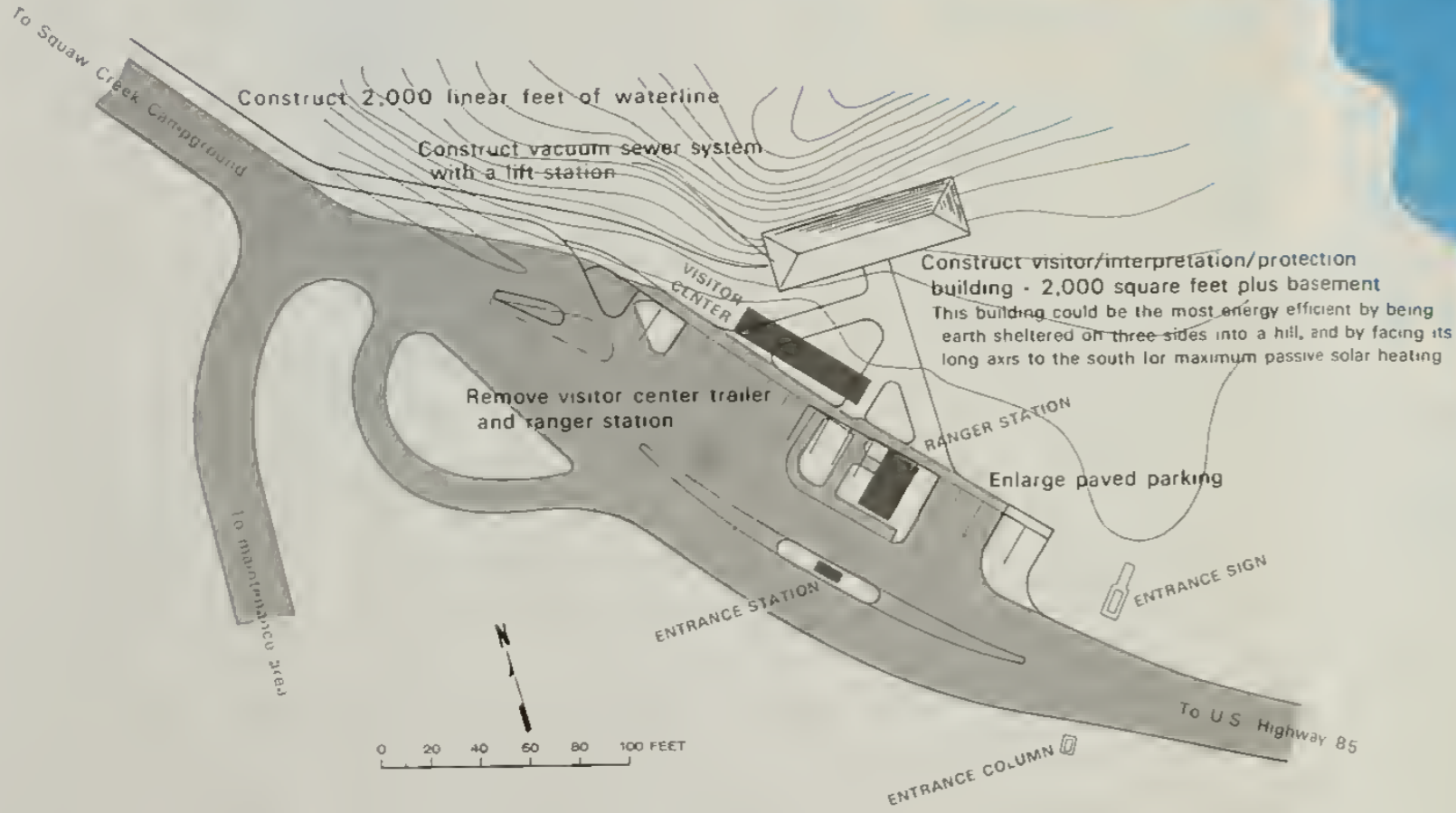
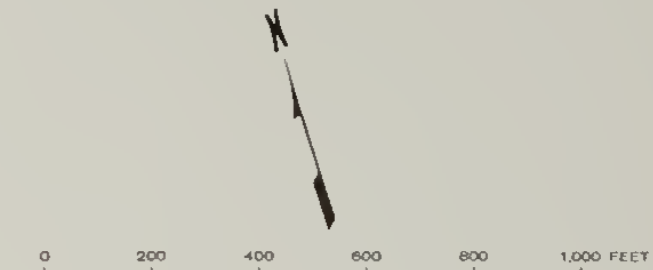
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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JAN 86 | DSC

DISTRICT HEADQUARTERS Location

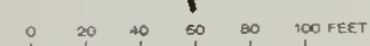
-  500-YEAR FLOODPLAIN
-  100-YEAR FLOODPLAIN
-  TREES
-  PARK BOUNDARY
-  FEDERAL SURFACE OWNERSHIP
-  NONFEDERAL SURFACE OWNERSHIP

Proposed actions are shown in black, and existing conditions are shown in gray.
Surface ownership only shown within the park.



In March 1947, a 200- to 500-year flood occurred on the lower reaches of the Little Missouri River in the vicinity of a gauging station at the U.S. Highway 85 bridge. The peak flow took 48 hours to travel from a gauging station at the Marmarth highway bridge about 228 river miles upstream. This peak overflowed the riverbanks for 2 days with a speed averaging about 5 miles per hour.

Close snowmobiling development during spring-ice breakup period. Mark historic and 100- and 500-year flood levels. Provide flood warning system and evacuation plan.



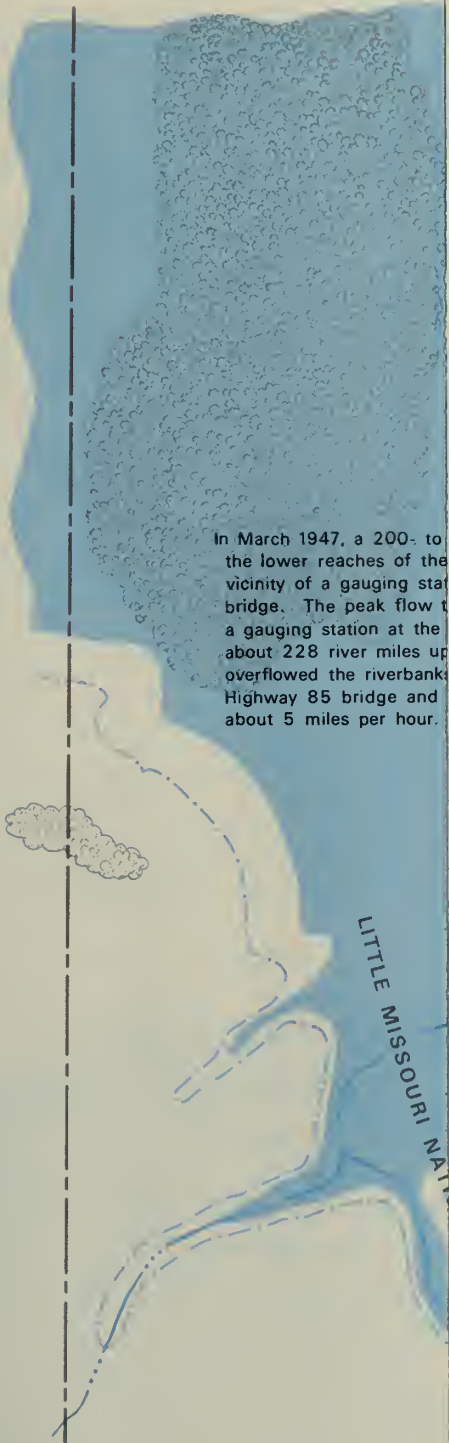
NORTH UNIT BISON CORRAL

DEVELOPMENT CONCEPT PLAN

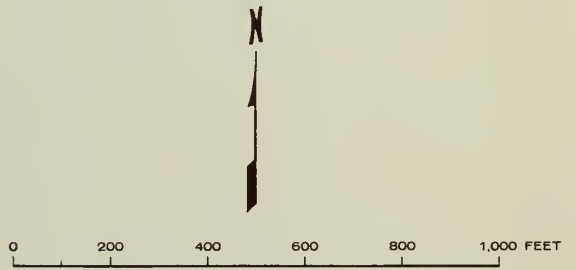
THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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In March 1947, a 200- to 300-foot wide flow of water from the lower reaches of the river in the vicinity of a gauging station at the Highway 85 bridge. The peak flow at a gauging station at the same location was about 228 river miles up the river. The water overflowed the riverbanks at the Highway 85 bridge and moved at about 5 miles per hour.



-  500-YEAR FLOODPLAIN
-  100-YEAR FLOODPLAIN
-  TREES
-  PARK BOUNDARY

Proposed actions are shown in black, and existing conditions are shown in gray.



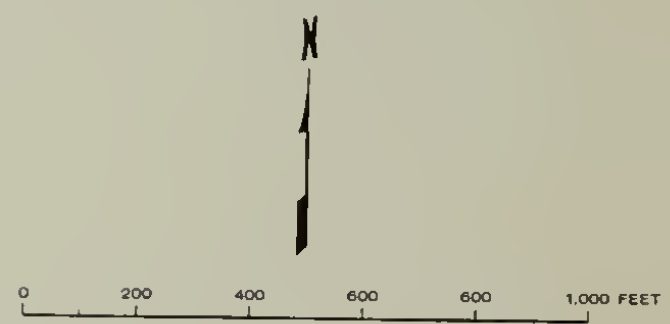
BISON CORRAL Location

NORTH UNIT BISON CORRAL

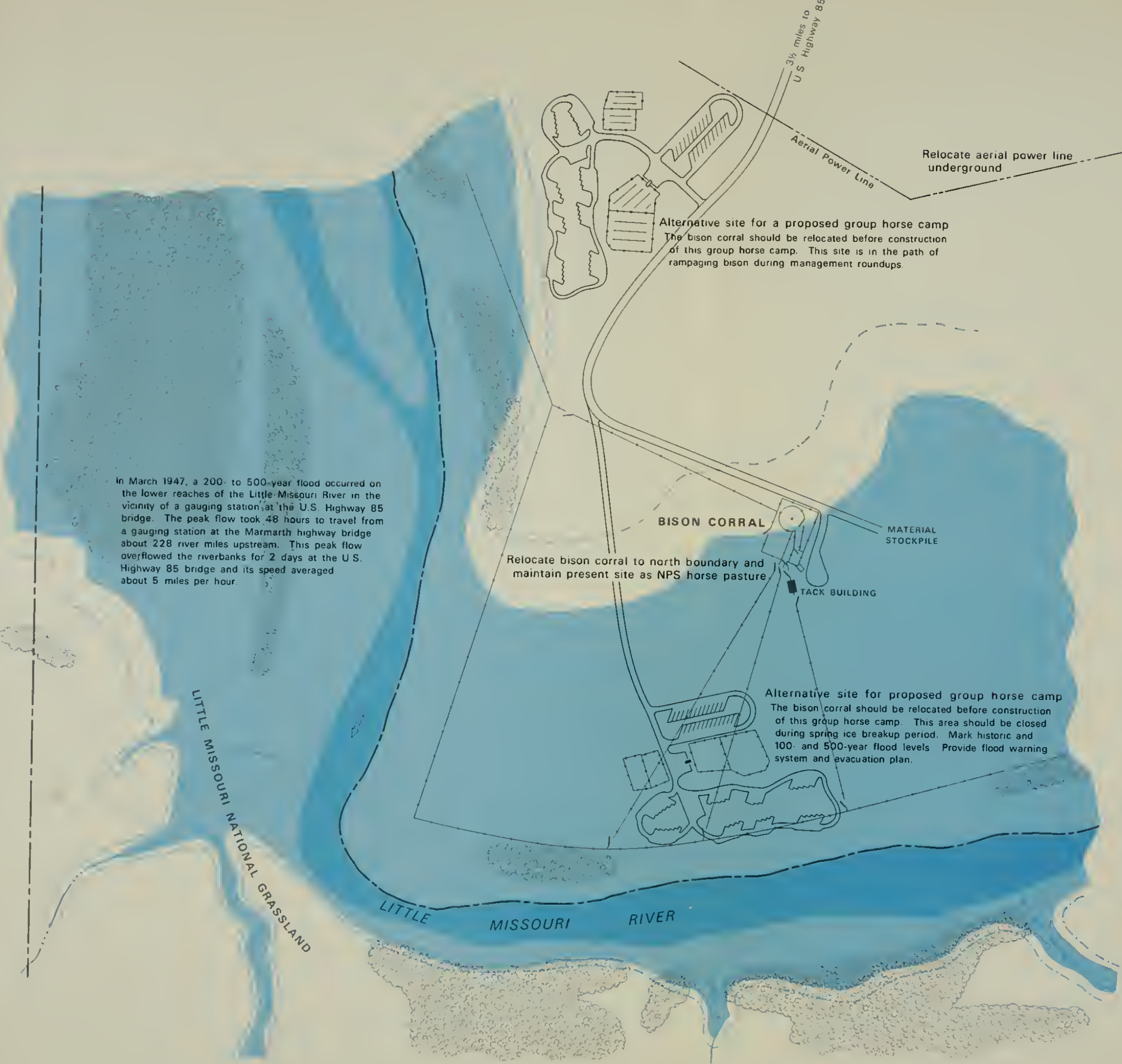
DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH OAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,021-A
JAN 86	DSC



In March 1947, a 200- to 500-year flood occurred on the lower reaches of the Little Missouri River in the vicinity of a gauging station at the U.S. Highway 85 bridge. The peak flow took 48 hours to travel from a gauging station at the Marmarth highway bridge about 228 river miles upstream. This peak flow overflowed the riverbanks for 2 days at the U.S. Highway 85 bridge and its speed averaged about 5 miles per hour.



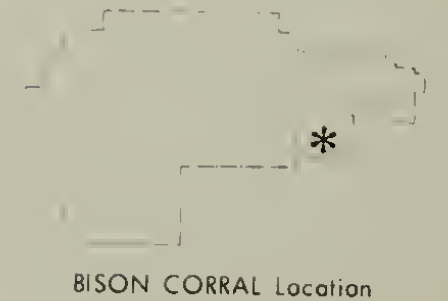
Alternative site for a proposed group horse camp
The bison corral should be relocated before construction of this group horse camp. This site is in the path of rampaging bison during management roundups.

Relocate bison corral to north boundary and maintain present site as NPS horse pasture

Alternative site for proposed group horse camp
The bison corral should be relocated before construction of this group horse camp. This area should be closed during spring ice breakup period. Mark historic and 100- and 500-year flood levels. Provide flood warning system and evacuation plan.

- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- TREES
- PARK BOUNDARY

Proposed actions are shown in black, and existing conditions are shown in gray.

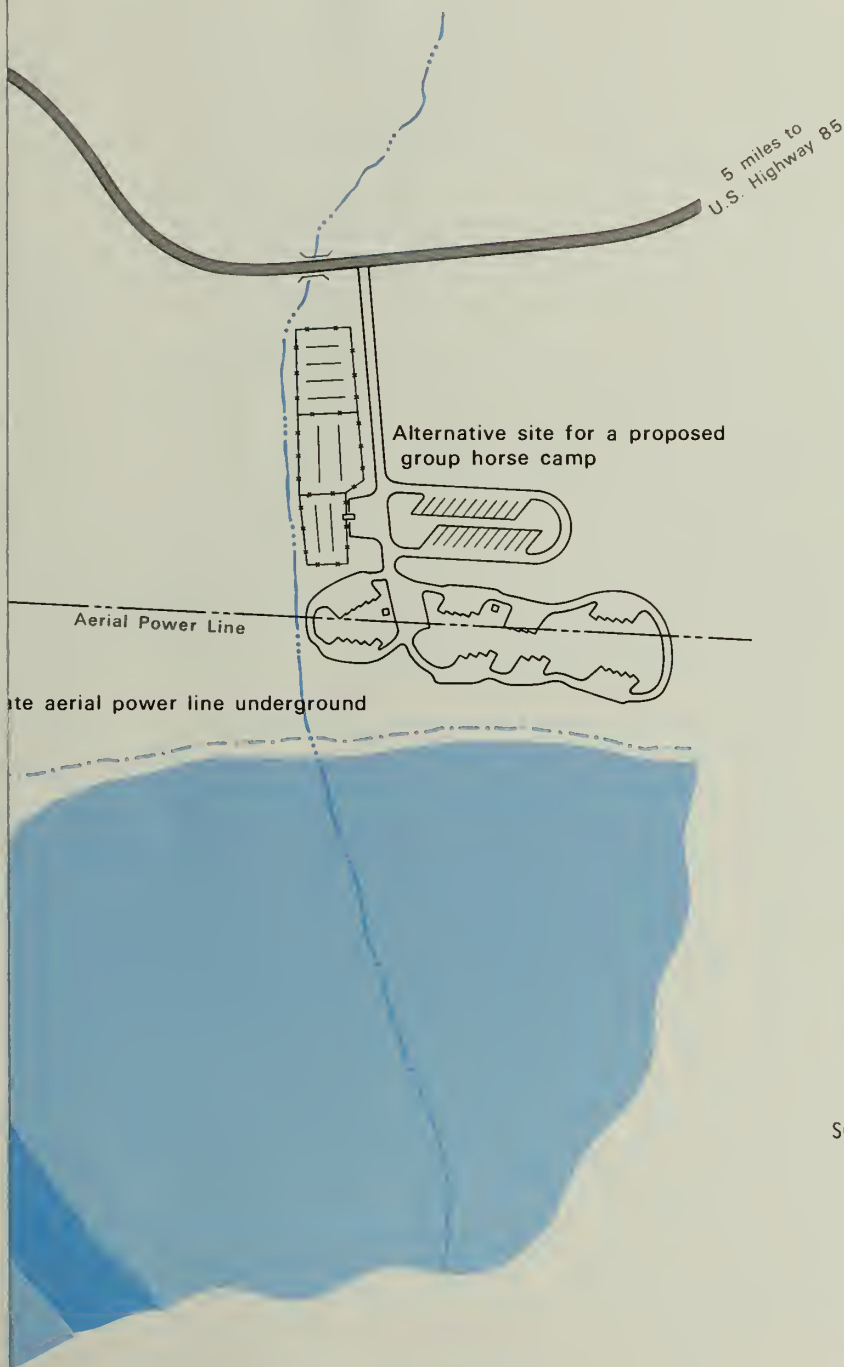


NORTH UNIT SQUAW CREEK CAMPGROUND

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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SQUAW CREEK CAMPGROUND Location

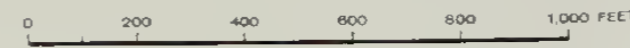
NORTH UNIT SQUAW CREEK CAMPGROUND

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- FLASH FLOOD AREA
- TREES

Proposed actions are shown in black, and existing conditions are shown in gray



SQUAW CREEK FLASH-FLOOD DATA

Typical conditions for a 100-year flash flood on this 92,000-foot-long drainage would be a heavy downpour lasting for about 1 hour. In this event it would take about 6 hours at an average velocity of about 4 feet per second for the flood peak to reach the camp-tender residence. Use the main park road bridge over Squaw Creek as a reference point, and a 100-year flash flood event. This bridge and most of the road in the flash flood area would be covered with about 3 feet of water with a maximum depth of about 11 feet in the creek bed. Upstream 3,200 feet where the flash flood area is narrower, the water would have a maximum depth of about 16 feet in the bed. Downstream 550 feet at the camp-tender residence, the water would have a depth of about 2 feet and a velocity of about 7 feet per second outside of the bed. Post warnings in flash flood hazard area.

Construct canoe gravel access and parking

COMFORT STATION

Provide flood warning systems and evacuation plans

PICNIC SHELTER

AMPHITHEATER

CAMP-TENDER RESIDENCE

COMFORT STATION

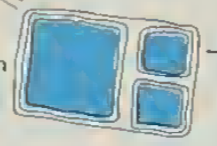
Construct 15 additional parking spaces in picnic area

PICNIC SHELTER

COMFORT STATION

TRAILER SEWERAGE DUMP STATION

Reduce size and reline sewage lagoon



Aerial Power Line

Relocate aerial power line underground

Alternative site for a proposed group horse camp

5 miles to Highway 85

Floodproof the camp-tender residence, 3 comfort stations, power control panel for the sewer pump station, and power transformers for these 4 buildings by raising them above the 100-year floodplain

If not raised the floors would be covered with about 3 to 5 feet of water. The 2 CCC picnic shelters would be impractical to floodproof. Their floors would be covered with about 6 to 9 feet.

LITTLE MISSOURI RIVER FLOODPLAIN DATA

In 1947, a 200- to 500-year flood occurred on the lower reaches of this river in the vicinity of a gauging station at the U.S. Highway 85 bridge. The peak flow took about 47 hours to travel from a gauging station at the Marmarth highway bridge about 222 river miles upstream. This peak overflowed the riverbanks for 2 days and its speed averaged about 5 miles per hour. Use the camp-tender residence as a reference point and a 100-year floodplain event. The floor would be covered with about 4 feet of water and the velocity nearby would be about 1 foot per second. The Squaw Creek bridge along the main park road would be covered with about 4 feet. Close campground during spring ice breakup period. Mark historic and 100- and 500-year flood levels

LITTLE MISSOURI RIVER



SQUAW CREEK CAMPGROUND Location

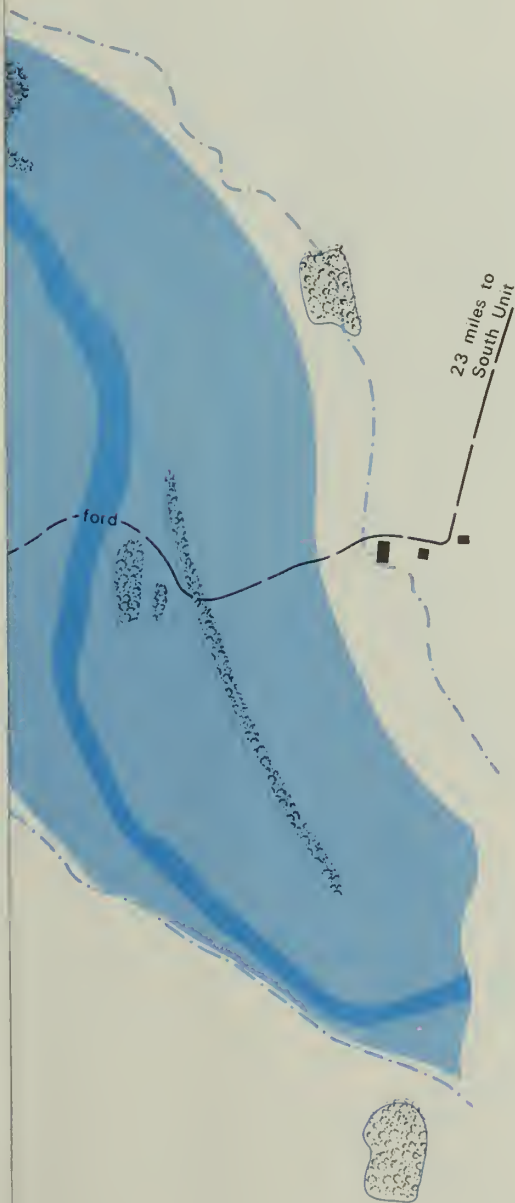
ELKHORN UNIT





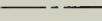




DEVELOPMENT CONCEPT PLAN

THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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-  500-YEAR FLOODPLAIN
-  100-YEAR FLOODPLAIN
-  TREES
-  PARK BOUNDARY
-  PROPOSED RESOURCE PROTECTION ZONE
-  UNPAVED MAINTAINED ROAD
-  UNPAVED UNMAINTAINED ROAD
-  FEDERAL SURFACE OWNERSHIP
-  NONFEDERAL SURFACE OWNERSHIP

Proposed actions are shown in black, and existing conditions are shown in gray.

Proposed actions to occur only upon completion of the trans-river road by Golden Valley and Billings counties.

Surface ownership only shown within the park and proposed resource protection zone.

A recent court case determined that the state of North Dakota owned the bed of the Little Missouri River. This case has been appealed.

The proposed management zoning for the Elkhorn Unit is cultural except for 5 acres which are development.

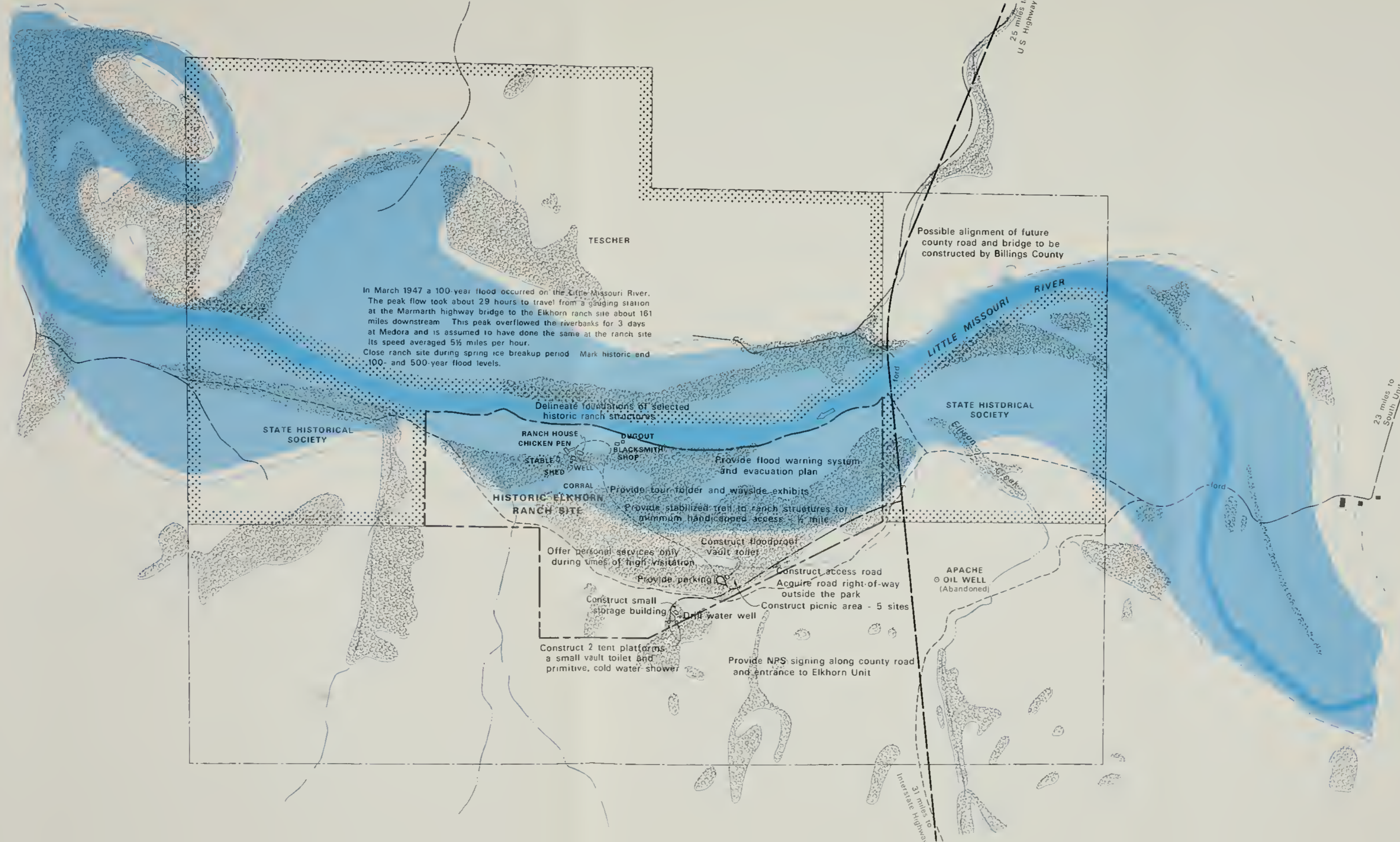
ELKHORN UNIT

DEVELOPMENT CONCEPT PLAN

THEODORE ROOSEVELT NATIONAL PARK NORTH OAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387 | 20,013-A
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In March 1947 a 100-year flood occurred on the Little Missouri River. The peak flow took about 29 hours to travel from a gauging station at the Marmarth highway bridge to the Elkhorn ranch site about 161 miles downstream. This peak overflowed the riverbanks for 3 days at Medora and is assumed to have done the same at the ranch site. Its speed averaged 5 1/2 miles per hour. Close ranch site during spring ice breakup period. Mark historic end 100- and 500-year flood levels.

- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- TREES
- PARK BOUNDARY
- PROPOSED RESOURCE PROTECTION ZONE
- UNPAVED MAINTAINED ROAD
- UNPAVED UNMAINTAINED ROAD
- FEDERAL SURFACE OWNERSHIP
- NONFEDERAL SURFACE OWNERSHIP

Proposed actions are shown in black, and existing conditions are shown in gray.

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The proposed management zoning for the Elkhorn Unit is cultural except for 5 acres which are development.

- Delineate foundations of selected historic ranch structures
- RANCH HOUSE
- CHICKEN PEN
- STABLE
- SHED
- WELL
- CORRAL
- DUGOUT
- BLACKSMITH SHOP
- Provide flood warning system and evacuation plan
- Provide tour folder and wayside exhibits
- Provide stabilized trail to ranch structures for minimum handicapped access - 1/4 mile
- Construct floodproof vault toilet
- Offer personal services only during times of high visitation
- Provide parking
- Construct small storage building
- Drill water well
- Construct 2 tent platforms, a small vault toilet and primitive, cold water shower
- Construct access road
- Acquire road right-of-way outside the park
- Construct picnic area - 5 sites
- Provide NPS signing along county road and entrance to Elkhorn Unit

SOUTH UNIT
**EAST ENTRANCE STATION
 RELOCATION**

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

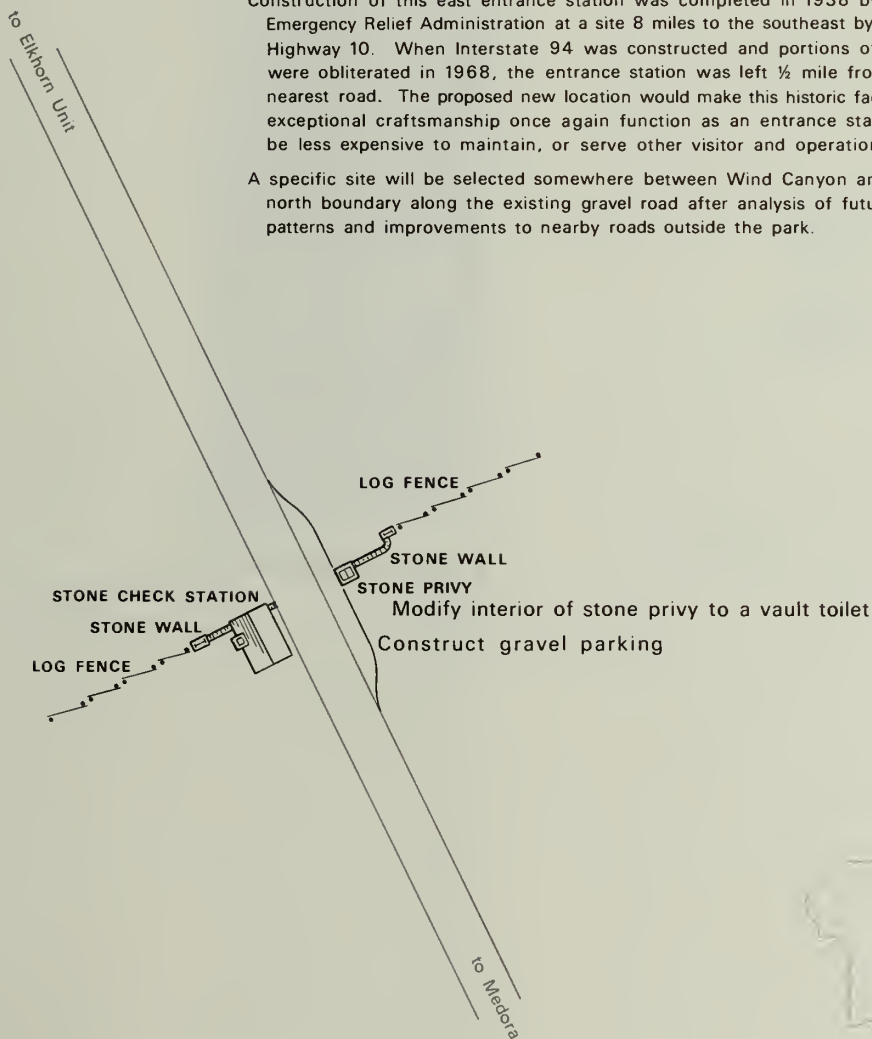


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Proposed actions are shown in black, and existing conditions are shown in gray.

Construction of this east entrance station was completed in 1938 by the Emergency Relief Administration at a site 8 miles to the southeast by U.S. Highway 10. When Interstate 94 was constructed and portions of U.S. 10 were obliterated in 1968, the entrance station was left ½ mile from the nearest road. The proposed new location would make this historic facility of exceptional craftsmanship once again function as an entrance station and be less expensive to maintain, or serve other visitor and operational needs.

A specific site will be selected somewhere between Wind Canyon and the north boundary along the existing gravel road after analysis of future use patterns and improvements to nearby roads outside the park.



EAST ENTRANCE STATION Location

SOUTH UNIT PEACEFUL VALLEY

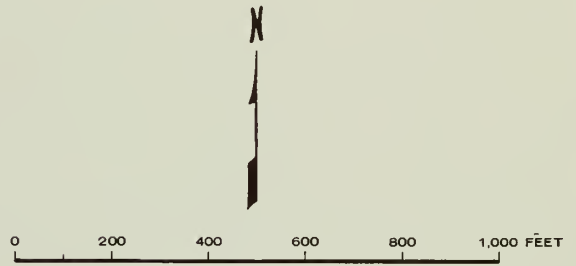
DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,020-A
JAN 86	DSC

LITTLE MISSOURI

In March 1947, a 100-year
22 hours to travel from a
highway bridge to Medora.
This peak overflowed the
and its speed averaged 5
Use Peaceful Valley Ranch
100-year floodplain event
be about 4 feet deep with
second. The Paddock Camp
about 2 feet of water.
Close ranch and picnic area
period. Mark historic and



- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- FLASH FLOOD AREA
- TREES

Proposed actions are shown in black, and existing conditions are shown in gray.



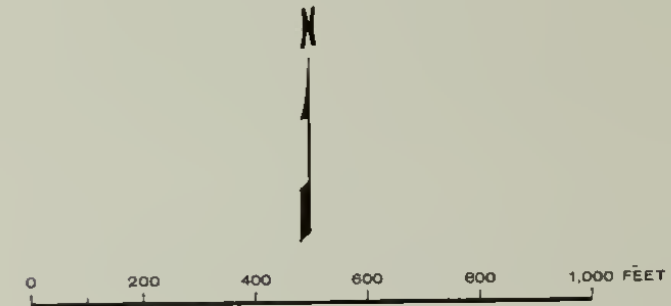
PEACEFUL VALLEY Location

SOUTH UNIT PEACEFUL VALLEY

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH OAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- FLASH FLOOD AREA
- TREES

Proposed actions are shown in black, and existing conditions are shown in gray



PEACEFUL VALLEY Location

LITTLE MISSOURI RIVER FLOODPLAIN DATA

In March 1947, a 100-year flood occurred. The peak flow took 22 hours to travel from a gauging station at the Marmarth highway bridge to Medora about 121 river miles downstream. This peak overflowed the riverbanks for 3 days at Medora and its speed averaged 5 1/2 miles per hour. Use Peaceful Valley Ranch buildings as reference points, and a 100-year floodplain event. At these buildings the water would be about 4 feet deep with a velocity of about 2 feet per second. The Paddock Creek bridge would be covered with about 2 feet of water. Close ranch and picnic area during spring ice breakup period. Mark historic and 100- and 500-year flood levels

Provide flood warning systems and evacuation plans

Remove ranch house/bunkhouse septic tank and construct sewer line to lift station
Construct floodproof flush type comfort station and sewage lift station to handle raw sewage

PEACEFUL VALLEY RANCH

Construct leach field, septic tank, influent manhole and sewer force main

Relocate paved entrance road in order to improve circulation for parking

Construct paved parking area (15 spaces)

INFLUENT MANHOLE (100 gallons)
SEPTIC TANK (5,000 gallons)
LEACH FIELD

Construct paved parking area (8 spaces)

Construct paved parking area (9 spaces)
Construct floodproof vault type comfort station to replace pit toilets

GROUP PICNIC AREA

PRAIRIE DOG TOWN

PAODOCK CREEK FLASH FLOOD DATA

Typical conditions for a 100-year flash flood on this 69,500 foot long drainage would be a heavy downpour lasting for about 1 hour. In this event it would take about 5 hours at an average velocity of about 5 feet per second for the flood peak to reach the ranch buildings. Use the park road bridge over Paddock Creek as a reference point, and a 100-year flash flood event. This bridge and most of the road in the flash flood area would be covered with about 3 feet of water with a maximum depth of 23 feet in the creek bed. Upstream 3,100 feet where the flash flood area is narrower, the water would have a maximum depth of about 28 feet. Downstream 700 feet at the ranch buildings, the water would have a depth of about 1 1/2 feet and a velocity of about 1 foot per second. Post warnings in flash flood hazard area

1 mile to Cottonwood Campground

SCENIC LOOP DRIVE

HORSE TRAIL

Paddock Creek

1/2 mile to Holiday Well

5 miles to north boundary of South Unit

LITTLE MISSOURI RIVER

HORSE

BUNKHOUSE
RANCH HOUSE
BARN
CORRAL
PARKING AREA

SURREY BRED PUMPHOUSE
HAY BARN
VAULT TOILETS

RIVER

SOUTH UNIT COTTONWOOD CAMPGROUND

DEVELOPMENT CONCEPT PLAN

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

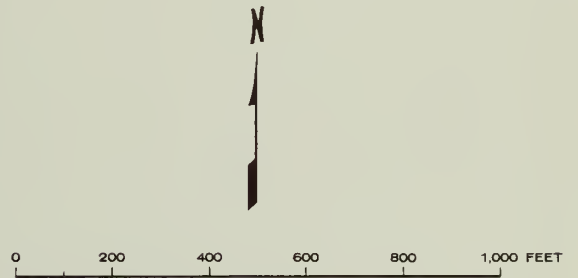
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NATIONAL PARK SERVICE





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JAN 86	DSC

Construct loop trail - 6 miles

to
inch

Provi
evac

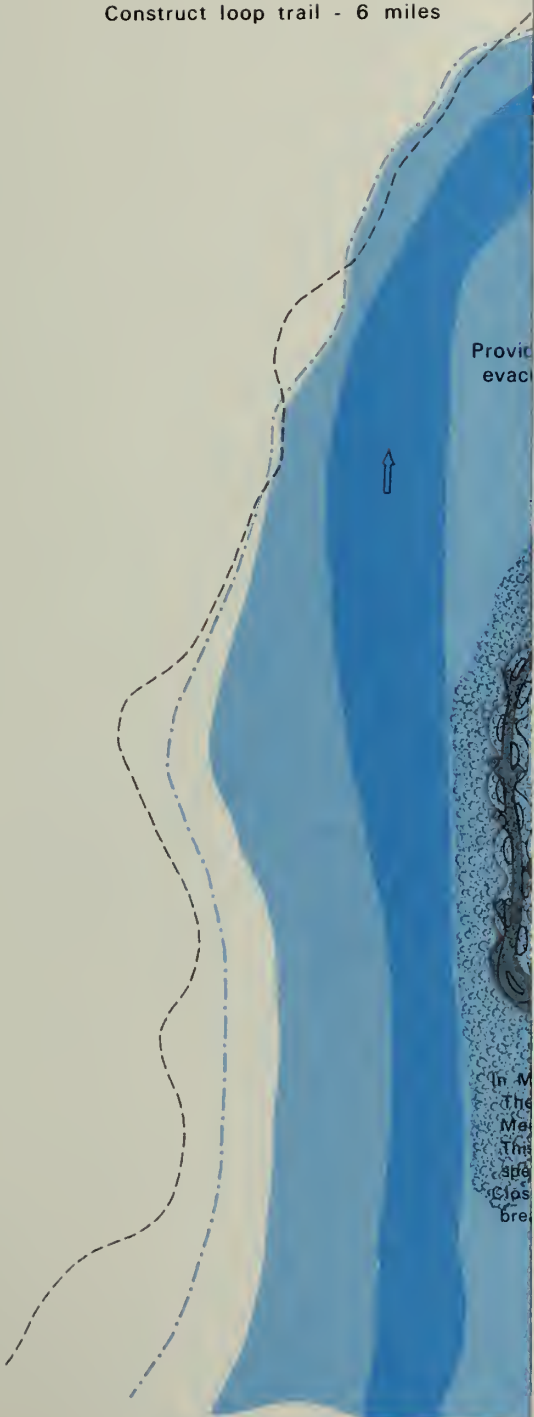


-  500-YEAR FLOODPLAIN
-  100-YEAR FLOODPLAIN
-  TREES
-  SEWER LINE, LIFT STATION

Proposed actions are shown in black, and existing conditions are shown in gray.



COTTONWOOD CAMPGROUND Location



SOUTH UNIT COTTONWOOD CAMPGROUND

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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Construct loop trail - 6 miles



ROUGH RIDERS HORSE AND GROUP CAMP
Construction of this facility has been programmed and is not included in this development concept plan.

Provide flood warning system and evacuation plan

- Redesign sewage treatment:
- Modify lift stations to handle raw sewage
 - Remove 5 septic tanks, 2 leach fields and sewer force main to southern leach field
 - Construct sewer line from camp tender residence to lift station
 - Construct sewer force main between 2 comfort stations
 - Extend sewer force main above the 100-year floodplain
 - Construct influent manhole (400 gallons), septic tank (20,000 gallons) and leach field (1,400 linear feet)
 - Floodproof the well and pump house

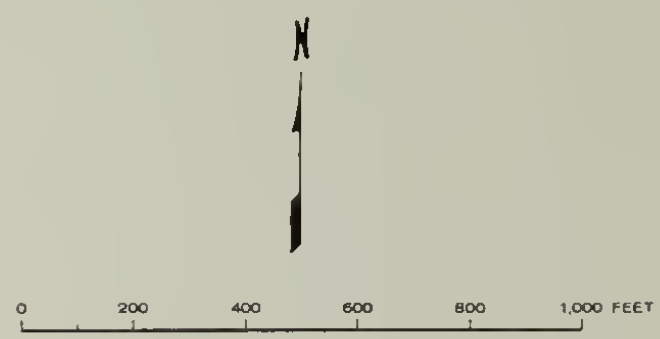
Floodproof the camp tender residence and 4 comfort stations by raising them above the 100-year floodplain. If not raised, the floor of the residence would be covered with about 2 feet of water and the comfort stations from about 4 to 7 feet of water in a 100-year flood.

Redesign spur campsites to paved pull-through type

In March 1947, a 100-year flood occurred on the Little Missouri River. The peak flow took 22 hours to travel from a gauging station at the Marmarth highway bridge to Medora about 12 river miles downstream. The peak overflowed the riverbanks for 3 days at Medora and its speed averaged 5 1/2 miles per hour. Close campground and horse and group camp areas during spring ice breakup period. Mark historic and 100- and 500-year flood levels.

1 mile to Peaceful Valley Ranch

5 miles to Medora



- - - 500-YEAR FLOODPLAIN
- █ 100-YEAR FLOODPLAIN
- ☁ TREES
- SEWER LINE, LIFT STATION

Proposed actions are shown in black, and existing conditions are shown in gray



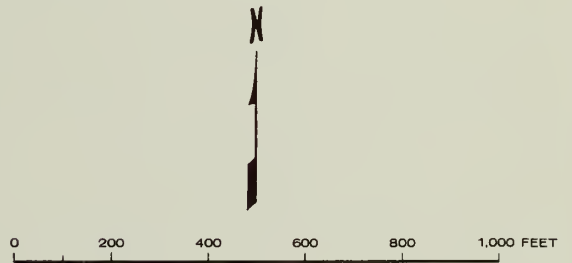
COTTONWOOD CAMPGROUND Location

SOUTH UNIT PAINTED CANYON

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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PARK BOUNDARY
 Bottom of well
 Top of well
 ● OIL WELL (Directionally drilled)

Proposed actions are shown in black, and existing conditions are shown in gray.



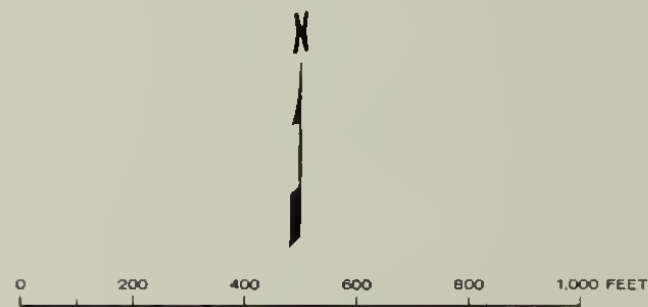
PAINTED CANYON Location

SOUTH UNIT PAINTED CANYON

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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JAN 86	OSC



--- PARK BOUNDARY
 Bottom of well Top of well
 - - - - - OIL WELL (Directionally drilled)

Proposed actions are shown in black, and existing conditions are shown in gray



PAINTED CANYON Location

SOUTH UNIT MEDORA HEADQUARTERS

DEVELOPMENT CONCEPT PLAN

THEODORE ROOSEVELT NATIONAL PARK

NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR

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0 100 200 300 400 500 FEET



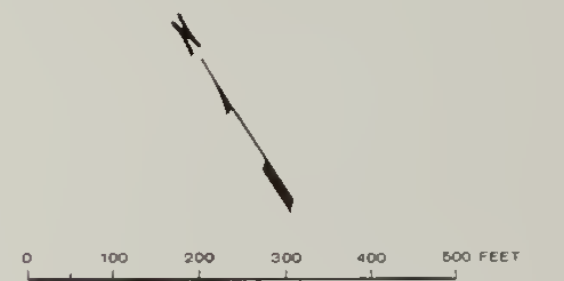
MEDORA HEADQUARTERS Location



SOUTH UNIT MEDORA HEADQUARTERS

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN WITHOUT FLOOD CONTROL DIKE
- 100-YEAR FLOODPLAIN WITH FLOOD CONTROL DIKE
- TREES
- PARK BOUNDARY
- MEDORA CITY LIMITS

Proposed actions are shown in black, and existing conditions are shown in gray.
The highest flood level on record at Medora occurred in March 1947 and was caused by ice jams. The water level reached an elevation of 2,267.25 feet which was within 1 foot of the 100-year floodplain. Business was suspended and people were forced to evacuate. The peak flow took 22 hours to travel from a gauging station at the Marmarth highway bridge about 121 river miles upstream from Medora. This peak overflowed the riverbanks for 3 days and its speed averaged 5 1/2 miles per hour.



Construct Medora Overlook Trail - 3 miles

Provide flood warning system and evacuation plan which should include removal of cultural materials from the Maltese Cross Cabin and visitor center

Install fire suppression system in Maltese Cross Cabin

Install fire suppression system for museum collections and library in visitor center. The floor would be covered with about 3 1/2 feet of water in a 100-year flood if a dike is not provided.

Relocate paved service drive to make room for proposed flood control dike

Construct permanent flood control dike to the 100 year flood elevation - 1,800 feet long with 7 foot average height

Develop canoe/snowmobile access, provide gravel access road and parking

Fill highway gap opening temporarily with sandbags to prevent flooding

Water would flow over this low area during a 500-year flood

* MEDORA HEADQUARTERS Location

2 miles to Interstate Highway 94 West

1 1/2 miles to Interstate Highway 94 East

Sully Creek State Park

BURLINGTON NORTHERN RAILROAD

STATE HISTORICAL SOCIETY

PICNIC AREA
CHIMNEY STATE HISTORICAL SOCIETY

BADLANDS TROUT POND

Medora Overlook

5 miles to Cottonwood Campground

Construct Medora Overlook Trail - 3 miles

Construct trail under road

To commercial campground

Site of DeMores packing plant chimney remains

ENTRANCE STATION

BYPASS HIGHWAY

RIVER

Sully Creek State Park

CONTINUATION OF EXISTING CONDITIONS ALTERNATIVE

Basically, the continuation of existing conditions alternative would represent no change from the present course of park management and improvement, and it would involve the least action and cost (see appendix C).

Management Zoning

No changes would be made in the existing management zoning (refer to the 1985 "Statement for Management" for description).

Natural Resource Management

As stated previously, recommendations for natural resource management have been detailed and evaluated in the 1984 Natural Resources Management Plan and subsequently summarized in the preferred alternative. Nearly all of these proposals involve only one alternative (the proposed action), and a continuation of existing conditions alternative is not considered. Exceptions would be as follows: continued special use permit grazing and no vegetative management for the Elkhorn unit; no changes for the bison corrals in the north and south units (see appendix C for more information on these exceptions).

Cultural Resource Management

No changes would be made in the four historically significant structures in the north unit. Despite its substandard interior, the CCC camp-tender residence would continue to be used as seasonal quarters for as long as possible.

The Elkhorn ranch site would remain as it now exists, and no attempt would be made to delineate or sign any structure sites.

Under this alternative, there would be no fire suppression system installed in the Maltese Cross cabin to protect the historic artifacts or in the Medora visitor center to protect the museum and library collections. Aside from periodic maintenance, the old east entrance station would remain in its present location and closed to the public.

Visitor Use

Recreation/Interpretation. Table 2 (contained in the preferred alternative) reflects the visitor use development proposals for this alternative. The interpretive program would probably continue to operate without the guidance of a current interpretive prospectus and wayside exhibit plan. (The existing park interpretive program is described in the "Affected Environment" section.)

Interpretation in the north unit would continue at present levels. Overall, the low intensity wilderness experience for visitors would be retained. No changes would be made in the Elkhorn unit. Because of the remote and complex travel route involved and the lack of a river bridge, no new directional signs would be added, public use of the unit would not be promoted, and interpretation of the historic scene would not be provided. At the Painted Canyon visitor center in the south unit, seasonal operation of the information/publication sales desk and occasional guided walks would continue. Interpretation would provide orientation and touch lightly on the badlands scenery. No changes would be made for the loop road, including Buck Hill.

Safety and Sanitation. Visitor safety would continue to be emphasized on signs, in brochures, and through personal contacts and interpretive messages. To ensure visitor safety, the Buck Hill spur road in the south unit would be converted to a trail as the pavement is deteriorating and unsafe for vehicles.

Flood-warning systems and evacuation plans would be developed by the park staff for dealing with all Little Missouri River flood-prone lands and tributary drainage flash-flood hazard areas (Squaw, Paddock, and Knutson creeks). Warning signs would be posted, and facilities and structures would be marked with flood heights. Evacuation routes would be identified as necessary, and provisions would be made for temporary water and sewer service. This plan would reduce the risk of loss of life and property. For further details, refer to the "Guidelines on Community Local Flood Warning and Response Systems" (Federal Interagency Advisory Committee on Water Data 1985).

In a 100-year flood, the developments at Squaw Creek campground/picnic area, Peaceful Valley ranch/picnic area, and Cottonwood campground would be under varying water depths (see DCP maps in the preferred alternative for more information). Under the continuation of existing conditions alternative, these areas would be allowed to flood; after high waters receded, debris would be cleaned up and any damage repaired. The Elkhorn ranch site would also be allowed to flood. At the park headquarters in Medora, temporary dikes would be hurriedly built upon receiving flood warnings, as has been done in the past. However, with the short time available, it would virtually be impossible to construct a temporary dike capable of withstanding a 100-year flood.

Special Populations. NPS "Management Policies" state that "Special interpretive facilities and programs for handicapped people are encouraged where good potential for participation is indicated." Many visitor facilities within the park are accessible to the handicapped, but more improvements are needed. As a result, funding has been provided for improvements at the Painted Canyon overlook/visitor center, Medora visitor center, and several recreation sites. Improvements would involve such modifications as making buildings more accessible; providing special toilets, wash basins, and fountains; and creating special handicap units in campgrounds. These improvements have been separately approved and funded and are not dependent on implementation of this plan. Minor

improvements (curb cuts, better signs, ramps, etc.) would continue to be made as a part of ongoing maintenance.

Park Operations

Under this alternative, the ranger station and information trailer at the district headquarters in the north unit would continue to be used in their current condition; no changes would be made. No improvements would be made in the existing employee quarters (described in the preferred alternative). Also, no changes would be made for storage of maintenance and emergency vehicles (they would remain outdoors), or in the space or operation of the three-bay maintenance building. Although the radio tower is not riveted properly, no changes would be made to reduce interference or mixed frequencies. In the undeveloped Elkhorn unit, no future on-site facilities would be provided. Also, no improvements in park operations in the south unit would be made.

Costs and Personnel

Information on costs and personnel for this alternative is shown in tables 4 and 5 and appendix C. The average cost per visit for implementation of the continuation of existing conditions alternative is \$1.78.

MINIMUM REQUIREMENTS ALTERNATIVE

The minimum requirements alternative could best be described as proposing actions needed to provide the least expensive (although not necessarily the more desirable solution) to each of the issues and needs. A complete summary of all proposed developments and other items, including cost estimates, is contained in appendix C.

Management Zoning

The developments proposed for this alternative that would affect management zoning differ from the preferred alternative in the following ways: north unit - no group horse camp and only one canoe/snowmobile access; Elkhorn unit - no picnic area; and south unit - a gravel access road to the old east entrance station, and only one vault toilet on south unit loop road; no upgrading of bison corral, no construction of Medora overlook trail, no trailhead parking west of river, and no developed trail from Painted Canyon to Buck Hill. Otherwise, management zoning would be the same (see North Unit and South Unit Management Zoning Proposal maps and Elkhorn Unit DCP map).

Natural Resource Management

Natural resource recommendations and programs would generally be the same as described in the preferred alternative. Further description is contained in the 1984 Natural Resources Management Plan.

Cultural Resource Management

The actions proposed for the CCC camp-tender residence in the north unit and the ranch site in the Elkhorn unit would be the same as in the preferred alternative.

In the south unit, the minimum requirements alternative would provide a fire suppression system for the Medora visitor center but not for the Maltese Cross cabin. The old east entrance station would remain on its original site, and it would be adaptively used for seasonal quarters or interpretive purposes. The old stone privy would be converted to a vault toilet. A gravel road would provide access to the area.

Visitor Use

Recreation/Interpretation. This alternative also proposes actions that would support well-established recreational patterns and uses. With few exceptions, visitor use proposals are the same as the preferred alternative (see table 2).

The low intensity wilderness experience for visitors to the north unit would be retained. Interpretive functions and services, as well as proposed facilities, for the north unit would be the same as in the preferred alternative.

Interpretation in the Elkhorn unit would primarily be self-guided (wayside exhibits and a tour folder). Personal ranger interpretive services would be provided during those times when visitation levels warranted it (e.g., summer weekends). All actions proposed in this unit are dependent on construction of the new trans-river county road. Appropriate directional road signing would be installed.

Under this minimum requirements alternative, the proposals for the Painted Canyon area, loop road, and Buck Hill in the south unit would be the same as the preferred alternative. The proposed interpretive prospectus would address means of serving visitors when the Painted Canyon visitor center was closed.

General Safety and Sanitation. Visitor safety would continue to be emphasized on signs, in brochures, and through personal contacts and interpretive messages. Some visitor and park operations facilities need to be improved or built to meet safety needs for visitors and park staff. Safety- and sanitation-related proposals, as described in the preferred alternative, would generally be the same for this alternative.

Flood-Related Safety and Sanitation. For the minimum requirements alternative, proposals involving floodproofing or replacement and floodproofing of structures and utilities at Squaw Creek, Peaceful Valley, and Cottonwood campground, as well as a permanent dike at Medora, would generally be the same as those described for the preferred alternative. Flood-warning systems and evacuation plans would also be provided for areas with flood potential.

Flood-related actions for the Elkhorn ranch site would also be as described in the preferred alternative.

Special Populations. Under this alternative, improvements in interpretive facilities and programs for the handicapped would generally be as outlined in the preferred alternative.

Park Operations

As with the preferred alternative, a new building would replace the small ranger station and information trailer in the north unit. To deal with the shortage of park housing in this unit, the minimum requirements alternative would also provide new and replacement quarters for permanent and seasonal employees. The proposals in the preferred alternative for the construction of an unheated, wind-sheltered structure to house the emergency and maintenance vehicles, enlargement of the existing three-bay maintenance building, use of the CCC camp-tender residence, and improvements in the radio tower would also apply to this alternative.

In the Elkhorn unit, the developments proposed would be the same as for the preferred alternative; again, these are contingent upon construction of a bridge over the Little Missouri River.

No park operations improvements are proposed for the south unit.

Other Proposals

This alternative would also call for undergrounding the REC lines wherever they are on federal park property and encouraging WAPA to relocate its power line outside the park when replacement or major repair is needed.

General Development

The various developments proposed for the minimum requirements alternative have been described in the previous sections of the "Proposed Action and Alternatives."

Plan Implementation

Information on costs and personnel for the minimum requirements alternative is shown in tables 4 and 5 and appendix C. The average cost per visit for implementation of this alternative is \$2.91.

OTHER PRACTICABLE ALTERNATIVE

For the most part, the other practicable alternative, which would entail the most extensive action, proposes alternate solutions to issues and problems that would involve greater cost than the preferred alternative. Most of these cost differences involve expensive flood-related recreation site relocations. A complete summary of all proposed developments and other items, including cost estimates, is contained in appendix C.

Management Zoning

Although this alternative proposes relocation of recreation facilities above the 100-year floodplain, zoning acreages would essentially be the same as the preferred alternative. It would simply be a case of obliterating development and restoring sites to a natural appearance and in turn providing like development in a new, natural location. Two proposed developments under this alternative (not called for in the preferred) that would affect management zoning include an interpretive shelter/storage building in the Elkhorn unit and a footbridge across the Little Missouri River in the south unit.

Natural Resource Management

Natural resource recommendations and programs would generally be the same for this alternative as for the preferred alternative. One exception is that the other practicable alternative would call for more precisely determining the historic scene and managing the entire Elkhorn unit through appropriate resource management, including prescribed grazing and fire.

Cultural Resource Management

Under this alternative, the CCC camp-tender residence in the north unit would be relocated and renovated on the interior for either a residence or for storage. Relocation would require clearance under section 106 of the National Historic Preservation Act as amended.

The other practicable alternative envisions the reconstruction of the exteriors of the Elkhorn ranch house and stable. However, considering current policy, it would be most difficult to receive authorization for such action. In addition, Congress would have to enact legislation to increase the ceiling on the \$40,000 expenditure limit.

In the south unit, actions proposed for the Maltese Cross cabin, museum and library collection areas in the visitor center, and the old east entrance station would be the same as in the preferred alternative.

Visitor Use

Recreation/Interpretation. This alternative, like the preferred alternative, emphasizes improvement of existing facilities and services (including safeguards from possible flooding), as well as provision of new facilities and services (see preferred alternative and table 2).

Except for recreational use of the two developed areas and along the scenic drive, the visitor experience in the north unit is a low intensity wilderness experience and would remain so under this alternative.

Under this alternative, the National Park Service, supported by the proposed interpretive prospectus and wayside exhibit plan, would provide a new wayside exhibit for the US 85 overlook in the north unit, assuming this was acceptable to the state. The interpretive message here would emphasize that the park lies ahead and would explain its significance.

With the other practicable alternative, a separate building would be constructed at the maintenance area (north unit) for office space and protection and storage of interpretive materials. Otherwise, interpretive functions and services would be the same as the preferred alternative.

In the Elkhorn unit, personal services would be provided daily in the summer, regardless of visitation levels. Interpretation would also be provided through wayside exhibits and a tour folder. All proposed actions in this unit are dependent on development of a new trans-river county road. Directional road signing would be installed.

The interpretive proposals for the Painted Canyon area and the south unit loop road, including Buck Hill, would be the same as for the preferred alternative. The proposed interpretive prospectus would address means of serving visitors when the visitor center was closed.

Safety and Sanitation. Visitor safety would continue to be emphasized on signs, in brochures, and through personal contacts and interpretive messages. Some visitor and park operations facilities need to be improved or built to meet safety needs for visitors and park staff. Safety-related proposals for the other practicable alternative would essentially be the same as for the preferred alternative. Sanitation-related proposals for the north unit district headquarters, Elkhorn unit, Buck Hill and south unit loop road, and Painted Canyon overlook would be as described in the preferred alternative.

In a 100-year flood of the Little Missouri River, developed area facilities would be under varying water depths (see DCP maps and North Unit and South Unit General Development/Flood Data maps). Under the other practicable alternative, all of the facilities at the Squaw Creek area, Peaceful Valley area, and Cottonwood campground would be relocated above the 100-year floodplain.

Flood-warning systems and evacuation plans would be provided for those remaining areas with flood potential (Elkhorn and Medora).

At the park headquarters in Medora, a higher (12-foot average) and longer (2,200 feet) permanent flood control dike than proposed under the preferred alternative would be built near the riverbank.

Flood-related proposals for the Elkhorn unit would be the same as for the preferred alternative.

Special Populations. Under this alternative, improvements in interpretive facilities and programs for the handicapped would generally be as outlined in the preferred alternative, except that the access trail in the Elkhorn unit would be paved.

Park Operations

The other practicable alternative would call for constructing two separate, split-function facilities at the district headquarters in the north unit. A district ranger/interpreter office and multipurpose room would be built in the maintenance area. A structure to accommodate the other functions as described under the preferred alternative would be built at or near the site of the present ranger station and trailer.

With regard to the shortage of park housing for permanent and seasonal employees in the north unit, new and replacement quarters would be built using the more expensive on-site method of construction.

As in the preferred alternative, this alternative proposes construction of an unheated, wind-sheltered structure (with power for engine heaters) which would keep the maintenance and emergency vehicles on call in any kind of weather.

With the other practicable alternative, a separate building would be constructed in the north unit to house a carpenter shop, a first-aid station, a fire cache, and small equipment. The building would be comparable in size to the addition proposed under the preferred alternative.

Even though this alternative proposes relocation of the CCC camp-tender residence in the north unit, if its use should be continued as seasonal quarters, interior renovation would be required; or, if its use should be changed to storage, minimal improvement would be needed. Exterior maintenance would be continued in either case.

The north unit radio tower would be refitted, riveted, and fenced as called for in the preferred alternative.

Improvements proposed for the Elkhorn unit would involve building a more expensive combination interpretive shelter/storage structure, in addition to the tent platforms and other facilities described in the preferred alternative.

No park operations improvements are proposed for the south unit.

Other Proposals

This alternative would also call for undergrounding the REC lines where they are located on federal park property and encouraging WAPA to relocate its power line at a future time.

General Development

The various developments contained in the other practicable alternative have been described in the previous sections of the "Proposed Action and Alternatives."

Plan Implementation

Information on costs and personnel for this alternative is shown in tables 4 and 5 and appendix C. The average cost per visit for implementation is \$4.56.

ALTERNATIVES CONSIDERED BUT REJECTED

Several proposed actions and alternatives to proposed actions were considered, and, at some point in the general management and land protection planning process, were eliminated. For the most part, these alternatives were judged to be infeasible and/or impractical.

To deal with the parkwide problem of nonfederally owned mineral rights, an alternative was developed that would involve securing agreements from owners that they would develop these rights only through directional drilling from outside the park. This was rejected for several reasons, including the fact that only rights along the park boundary can be so developed and because it was subsequently determined that directional drilling into subsurface park lands should be discouraged. In addition, it would probably be difficult to get such agreements in many cases.

Another parkwide proposal involved developing a scenic connecting parkway between the north, Elkhorn, and south units of the park. This was dropped because of questionable need combined with the problems of high costs and serious environmental/ranching operation disturbances that would be involved.

In the north unit, several land protection alternatives were considered for dealing with the private lands at the east end of the unit. These included (1) acquiring all private lands in fee, (2) eliminating some of the private lands east of US 85 through recommending an acreage-reduction boundary change with fee or scenic easement acquisition of the remaining private lands, and (3) acquiring the private lands west of US 85, while eliminating all private lands east of the highway through recommending a boundary change that would more or less parallel the highway. All of these proposed alternatives were eliminated because it was determined that a less-than-fee interest was needed in the lands east of US 85 to control development and protect the view from the highway and park entrance area.

Past proposals to reconstruct all significant Theodore Roosevelt ranch structures and develop substantial visitor and staff facilities at and immediately adjacent to the Elkhorn unit were considered but not accepted as alternatives. Such development is believed excessive to all need, even with improved county road access. It would also greatly exceed the long-standing \$40,000 expenditure limitation, violate cultural resource reconstruction policies, and alter the quiet, pastoral environment.

Finally, one south unit alternative that was considered would have relocated the park headquarters area to a higher area, well above flood-prone Medora. This was discarded because of high costs, loss of existing investments, and the fact the town serves as the ideal and only appropriate location to contact and serve park visitors in this area. Any relocation site would be either well above or well removed from the town and the present headquarters location.

PLAN IMPLEMENTATION

CONSTRUCTION PRIORITIES

Table 3 lists construction projects by priority. This list is only a tentative guide and is based on conditions known as of 1985 and in anticipation of projected funding in the future.

ACTIONS AND COSTS

Information on costs and personnel for all four alternatives is shown in two ways. Table 4 summarizes these figures for the major parkwide categories of resource management, visitor use, and operations, and table 5 shows the cost and personnel data for each of the three park units. More detailed information can be found in appendix C.

In all cases, development costs are given in gross 1985 dollars. The additional personnel (park staffing) required to implement and support these proposals on an ongoing basis is shown in terms of full-time equivalents (FTEs). In other words, a development or management action that has been estimated to require an additional one-half the total time of two full-time employees each year would be shown as 1.00 FTE.

COST-EFFECTIVENESS

Park General

The average cost per visit for implementation of the preferred alternative is \$3.21.

The proposals, which constitute the general management plan, are a composite formed from selecting the most management-, site-, and cost-effective solution to each issue. The following material summarizes briefly by park unit how benefits and costs were considered in selecting the preferred alternative.

North Unit

CCC Camp-tender Residence. Vegetative screening of this structure was chosen over relocation because it would mitigate the view of and from the realigned park road nearly as well as relocation while saving 83 percent in costs. The cost to renovate was considered necessary because the present structure is wholly substandard on the interior as a residence.

Bison Corral. The cost of relocation was considered justified because it would greatly reduce the massive scattering of animals, which often occurs while they are being driven to the present site. This in turn would significantly increase the safety of staff and horses involved in the

Table 3: Construction Priorities

Project by Priority	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>Futu</u>
1. North Unit (Package 113)											
Provide flood-warning systems/evacuation plans	A	P	C								
Construct employee housing	A	P	C								
Construct visitor contact building, redesign parking, and improve utilities	A	P	C								
Enlarge maintenance building, construct equipment storage building, and renovate camp-tender residence	A	P	C								
Floodproof Squaw Creek campground and picnic area buildings	A	P	C								
Relocate bison corral	A	P	C								
Provide group horse camp	A	P	C								
Renovate radio tower	A	P	C								
Enlarge Squaw Creek picnic area parking	A	P	C								
Provide handicap-accessible trail	A	P	C								
Develop canoe/snowmobile access	A	P	C								
Bury overhead utility lines	A	P	C								
2. South Unit (Package 164)											
Provide flood-warning systems/evacuation plans				A	P	C					
Construct flood-control dike in Medora				A	P	C					
Install fire suppression systems in Maltese Cross cabin and visitor center				A	P	C					
Floodproof comfort station at Peaceful Valley ranch and relocate sewage treatment above 100-year floodplain at Peaceful Valley ranch and Cottonwood campground				A	P	C					
Floodproof existing structures and relocate sewage treatment at Cottonwood campground above 100-year floodplain				A	P	C					
Install two floodproof vault toilets at Peaceful Valley picnic area and three along loop road				A	P	C					
Fix solar heating system at Painted Canyon and reduce size of sewage lagoon				A	P	C					
Replace pavement on Buck Hill road				A	P	C					
Redesign Cottonwood campground and improve circulation for Peaceful Valley picnic area				A	P	C					
Upgrade bison corral				A	P	C					
Make Skyline trail handicap accessible				A	P	C					
Develop canoe/snowmobile access at Medora				A	P	C					
Develop interpretive trail at Painted Canyon; trail from Painted Canyon to Buck Hill				A	P	C					
Provide trailhead parking and trail west of Little Missouri River				A	P	C					
Develop Medora overlook trail				A	P	C					
Relocate east entrance station				A	P	C					
3. Elkhorn Unit (Package 208)											
Provide access road, parking, and flood-warning system/evacuation plan							A	P	C		
Construct picnic area, floodproof vault toilet, drill water well, and provide highway signing							A	P	C		
Construct small storage building, three tent platforms, small vault toilet, and cold water shower.							A	P	C		
Delineate historic building foundations, trail for handicapped							A	P	C		

A = Advance Planning
P = Project Planning
C = Construction

Table 4: Development/Staffing/Operations Costs - Summary by Category

Category	Alternatives							
	Preferred	%	Continuation of Existing Conditions	%	Minimum Requirements	%	Other Practicable	%
<u>Resource Management</u>								
Development Costs	\$2,132,000	26	\$48,000	89	\$1,978,000	28	\$8,255,000	54
Staffing FTEs	1.08	12	0.09	90	0.83	12	2.06	16
Operations Costs	48,240	16	5,400	92	38,840	16	88,980	21
<u>Visitor Use</u>								
Development Costs	5,277,000	63	6,000	11	4,106,000	59	5,862	38
Staffing FTEs	6.68	75	0.10	10	5.36	75	8.51	65
Operations Costs	204,933	68	500	8	163,223	67	234,129	55
<u>Operations</u>								
Development Costs	887,000	11	0	0	887,000	13	1,187,000	8
Staffing FTEs	1.18	13	0	0	0.98	13	2.49	19
Operations Costs	49,290	16	0	0	40,890	17	104,310	24
<u>Totals:</u>								
*Development--All	\$8,317,000		\$54,000		\$6,987,000		\$15,309,000	
Flood-related costs	\$1,598,000	19	\$48,000	89	\$1,590,000	23	\$7,678,000	50
Staffing	8.94		0.10		7.17		13.06	
Operations	\$ 302,463		\$ 5,900		\$ 242,953		\$ 427,419	

*These development totals include flood-related costs:

Notes:

Full-time equivalent positions (FTEs) are the additional annual totals over and above the 1984 totals assuming the plan has been implemented.

Operations figures are the additional annual costs over and above the 1984 totals assuming the plan has been implemented.

Costs are based on 1985 dollars.

Development cost estimates are class "C" net, which are conceptual in nature and based on similar facilities in other parks. These include construction, material, labor, advance and project planning, construction supervision, and facilitating administration services costs.

Table 5: Development/Staffing/Operations Costs - Summary by Unit

Location - Description	Alternatives											
	Preferred			Existing Conditions			Minimum Requirements			Other Practicable		
	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost
NORTH UNIT												
Resource Management												
Relocate bison corral	\$ 224,000	.07	\$ 4,100				\$ 224,000	.07	\$ 4,100	\$ 224,000	.07	\$ 4,100
Relocate Squaw Creek campground/picnic area above 100-yr floodplain	213,000	.02	800		.02	800	213,000	.02	800			14,000
Floodproof campground/ picnic area	24,000			16,000			16,500					
Provide flood-warning systems/evacuation plans	\$ 461,000	.09	\$ 4,900	\$16,000	.02	800	\$ 453,000	.09	\$ 4,900	\$3,491,000	.44	\$ 18,200
Total	\$ 726,000	.53	\$18,600				\$ 350,000	.05	\$ 1,000	\$ 726,000	.53	\$ 18,600
Visitor Use												
Provide group horse camp	350,000									350,000		
Bury overhead utility lines	2,198,000	1.35	44,471				2,198,000	1.35	44,471	1,660,000	1.30	21,735
Construct visitor con- tact building/parking	208,000	.07	2,010				164,000	.06	1,810	208,000	.06	1,860
Provide canoe/snow- mobile access	114,000						114,000			71,000		
Utility additions and improvements	39,000	.06	1,520				39,000	.06	1,520			
Enlarge picnic area parking	23,000	.06	2,100				23,000	.05	2,100	23,000	.05	2,100
Develop trail for handicapped	\$3,658,000	2.06	\$68,701				\$2,888,000	1.57	\$50,901	\$3,038,000	1.94	\$ 44,295
Total	\$ 580,000	.20	\$ 8,400				\$ 580,000	.20	\$ 8,400	\$ 776,000	.30	\$ 12,600
Operations												
Construct employee housing	105,000	.20	8,400				105,000	.20	8,400	153,000	.41	17,220
Construct maintenance building	97,000	.05	2,100				97,000	.05	2,100	97,000	.05	2,100
Construct equipment storage										48,000	1.00	42,000
Construct ranger/inter- building	44,000						44,000			44,000		
Renovate radio tower	34,000	.02	840				34,000	.02	840	44,000	.02	840
Renovate CCC camp- tender residence	27,000						27,000			27,000		
Enlarge sewage lagoon	\$ 887,000	.47	\$19,740				\$ 887,000	.47	\$19,740	\$1,187,000	1.78	\$ 74,760
Total	\$5,006,000	2.62	\$93,341	\$16,000	.02	800	\$4,228,000	2.13	\$75,541	\$7,716,000	4.16	\$137,255

Alternatives

	Preferred		Existing Conditions		Minimum Requirements		Other Practicable	
	Develop-ment Cost	Staff-ing FTEs	Develop-ment Cost	Staff-ing FTEs	Develop-ment Cost	Staff-ing FTEs	Develop-ment Cost	Staff-ing FTEs
ELKHORN UNIT								
Resource Management								
Delineate historic building foundations	\$ 13,800	.02	\$ 840		\$ 13,000	.02	\$ 840	
Determine historic scene		.03	3,000			.03	3,000	.04
Emphasize natural scene								\$ 4,000
Reconstruct exteriors of ranch house and stable								.52
Provide flood-warning system/evacuation plan	8,000				8,000			
Total	\$ 21,000	.05	\$ 3,840		\$ 21,000	.05	\$ 3,840	.56
Visitor Use								
Construct access road and parking	\$122,000	.30	\$14,400		\$122,000	.30	\$14,400	.60
Drill water well	66,000							66,000
Provide interpretive shelter/storage building	45,000	.50	21,000		45,000	.50	21,000	48,000
Provide floodproof vault toilet	27,000	.10	4,200		27,000	.10	4,200	.32
Develop trail for handi-capped	15,000							45,000
Provide 5-site picnic area	13,000	.02	840		13,000	.02	840	40,000
Provide highway signing		.40	7,947			.40	7,947	15,000
Provide tour folder and more personal tours		.01	500			.01	500	13,000
Monitor camping demand		1.33	\$48,537			1.43	\$52,737	40,000
Total	\$288,000		\$207,000		\$207,000		\$232,000	2.67
Operations								
Provide small storage building	\$ 16,000				\$ 16,000			.71
Provide small vault toilet, cold water shower, and three tent plat-forms	5,000	.71	29,550			.51	\$21,150	\$ 5,000
Total	\$ 21,000	.71	\$29,550		\$ 16,000	.51	\$21,150	\$ 50,000
Totals - Elkhorn Unit	\$330,000	2.09	\$81,927	.01	\$244,000	1.99	\$77,727	\$1,301,000
								3.94
								\$ 88,271
								\$ 29,550
								\$144,021

Alternatives

	Preferred		Existing Conditions		Minimum Requirements		Other Practicable			
	Develop- ment Cost	Staff- ing FTEs	Develop- ment Cost	Staff- ing FTEs	Develop- ment Cost	Staff- ing FTEs	Develop- ment Cost	Staff- ing FTEs		
<u>SOUTH UNIT</u>										
<u>Resource Management</u>										
Relocate Cottonwood campground above 100-year floodplain							\$2,104,000	.02	\$ 800	
Relocate Peaceful Valley ranch above 100-yr floodplain							1,087,000	.34	14,280	
Relocate Peaceful Valley picnic area above 100-yr floodplain							320,000	.20	8,400	
Construct flood control dike in Medora	\$ 451,000	.20	\$ 8,400		\$ 451,000	.20	\$ 8,400			
Floodproof structures in Cottonwood camp- ground	451,000	.04	1,600		451,000	.04	1,600			
Relocate sewage treat- ment, construct flood- proof comfort stn. at Peaceful Valley ranch	293,000	.20	8,400		293,000	.20	8,400			
Provide 2 floodproof vault toilets at Peaceful Valley picnic area	81,000				81,000					
Provide flood-warming systems/evacuation plans	32,000			.04	1,600		8,000			
Upgrade bison corral	240,000	.28	12,400			.03	3,000		12,400	
Restore and/or relocate east entrance structures	67,000	.22	8,700		169,000	.22	8,700		67,000	
Install fire suppression system in Medora	27,000				27,000		27,000			
Visitor center	8,000						8,000			
Install fire suppression system in Maltese Cross cabin										
Total	\$1,650,000	.94	\$ 39,500	.07	\$1,504,000	.69	\$ 30,100	\$4,700,000	1.06	\$ 44,580
<u>Visitor Use</u>										
Fix solar heating system at Painted Canyon	\$ 242,000	.35	\$ 6,374		\$ 242,000	.35	\$ 6,374	\$ 242,000	.85	\$ 15,292
Replace pavement on Buck Hill road	47,000	.20	8,400		47,000	.20	8,400	335,000	.20	8,000
Construct trail west of river	193,000	.14	5,800					193,000	.14	5,800
Construct Medora over- look trail	183,000	.30	2,810					183,000	.30	2,810
Redesign Cottonwood campground	174,000	.18	4,900		174,000	.18	4,900	174,000	.18	4,900
Improve circulation - Peaceful Valley picnic area	172,000				172,000					
Build footbridge across river								145,000		

Alternatives

	Preferred			Existing Conditions			Minimum Requirements			Other Practicable		
	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost	Develop- ment Cost	Staff- ing FTEs	Opera- tions Cost
Build vault toilets - loop road	135,000	.40	16,800				45,000	.20	8,400	135,000	.40	16,800
Reduce size of sewage lagoon - Painted Canyon	56,000						56,000			56,000		
Develop interpretive trail - Painted Canyon	42,000	.70	9,957				42,000	.70	9,957	42,000	.70	9,957
Develop trailhead park- ing west of river	37,000	.02	400							37,000	.02	400
Develop canoe/snow- mobile access at Medora	29,000	.01	150				29,000	.01	150	29,000	.01	150
Make Skyline trail handicap accessible	11,000	.02	400				11,000	.02	400	11,000	.02	400
Develop trail - Painted Canyon to Buck Hill	10,000	.03	600							10,000	.03	600
Provide maintenance for all new trails		.58	24,300					.20	8,400		.70	29,400
Provide more interpreta- tion on Buck Hill		.35	6,654					.35	6,654		.35	6,654
Monitor or allow canoe camping		.01	150					.01	150			
Total	\$1,331,000	3.29	\$ 87,695	\$ 6,000			\$1,011,000	2.36	\$ 59,585	\$1,592,000	3.90	\$101,563
Operations - None												
Totals - South Unit	\$2,981,000	4.23	\$127,195	\$38,000	.07	\$ 4,600	\$2,515,000	3.05	\$ 89,685	\$6,292,000	4.96	\$146,143
Grand Totals - All Units												
Staffing/Operations Development	\$8,317,000	8.94	\$302,463	\$54,000	.10	\$ 5,900	\$6,987,000	7.17	\$242,953	\$15,309,000	13.06	\$427,419

Cost estimates include funds for archeological and historic section 106 compliance.
A more detailed breakdown of development, staffing, and operations costs can be found in appendix C.

roundup operations, especially when the bison must be chased into rough or forested areas. Road access can be provided from outside the park through Forest Service land.

Picnic Area. Relocation to an area outside the floodplain was considered unjustified because of environmental destruction, high costs, unsuitable relocation sites, and the effect on the historic architectural significance of the picnic shelters. The benefits of additional parking to accommodate existing use would exceed the relatively small cost involved.

Horse Camping. Development of an in-park site was chosen because the benefits would exceed those of a site on Forest Service land while being no more expensive. Benefits include direct access to park trails and greater likelihood of project development and funding. A significant benefit over the present situation is the elimination of the need for riders to cross US 85.

Canoe Camping. The alternative of banning canoe camping was rejected because the impact on canoeists and enforcing park protection staff would be much greater than the small benefit to the park resource. Monitoring would be sufficient to detect any resource damage that might result from increased future use.

River Access. The cost of constructing two canoe and one snowmobile access points is justified by the considerable benefit to visitors, including eliminating the present need for users to access the river from the US 85 right-of-way. The canoe access at Squaw Creek campground would accommodate those electing to take a short 5-mile canoe trip. The sites, which would be located in consideration of the wildlife habitat present, can also be used for fishing access.

Proposed Nature Trail. The benefits of constructing a handicap accessible trail outweigh the reasonable cost. At present, there are no specifically designed outdoor facilities available for the handicapped in or near this portion of the park. The trail can still be used by others.

Entrance Facilities. The present facilities are primitive and inadequate. A combined-function building with redesigned parking was determined to be more cost effective than the construction of two separate facilities. Visitors would benefit from the provision of good interpretive facilities and a public restroom located near the park entrance. Other significant benefits would result from the provision of suitable storage areas for scientific, law enforcement, and library materials. The building would be sited against the hillside and designed for maximum energy conservation and visual compatibility.

Employee Quarters. The present facilities, barely adequate to begin with, have deteriorated so much that they must be replaced. Hiring all seasonal employees from the local area has not proven possible. Renting or purchasing housing in Watford City is impractical because of limited availability and prohibitively high costs during energy boom cycles. Modular construction, which would include energy conservation features,

was chosen because it would save costs over conventional on-site construction. However, a justification analysis must still be provided by the park before the proposals can be approved.

Vehicle Storage and Maintenance Building. Benefits from construction and improvement of these facilities at the minimum level were determined to exceed the costs. The major benefits include having winter and emergency response equipment ready when needed, providing for adequate first aid and indoor storage, and reducing the number of trips to Medora for supplies and equipment. The additional cost of constructing a new maintenance building (versus enlarging the present structure) would not be justified because of limited additional benefits. Cost of the vehicle storage structure would be minimized by the fact it would not need to be heated.

Headquarters Sewage Lagoon. Enlarging and lining the present lagoon would reduce the potential for water pollution and sanitation breakdown problems while allowing for the future provision of a public restroom in the area. These benefits greatly exceed the relatively small cost of this modification and are needed to meet public health standards.

Overhead Power Lines. Underground power lines to NPS facilities would have the benefit of reducing visual intrusiveness. The benefit should exceed the cost of the action.

Campground Sewage Lagoon. The cost of resizing this facility would be justified by the improvement in its efficiency and the alternative of having to take more expensive actions in the future. Obliterating the lagoon would be appropriate only if the campground were being relocated.

Radio Tower. Adequate communications in this unit can be achieved most inexpensively by renovating the present tower. Placing a fence around the tower has the additional benefit of increasing visitor safety and protecting government property.

Campground Floods. Floodproofing the four buildings would be justified by the cost savings in repairing the damage after each flood. Relocating the campground outside the floodplain was rejected because of environmental destruction, high costs, complete lack of adequate and attractive relocation sites, and impact on the historic structures. In addition, a flood-warning system/evacuation plan and floodproofing are mandated by federal requirements.

Elkhorn Unit

Road Access. Assuming the new county road is built as planned, provision of connecting road access to this unit is necessary to maximize visitor benefits. If the county selects the southern route, it would minimize park road construction costs, and user benefits would significantly exceed the costs involved.

Historic Structures. Some interpretation of these structures is considered necessary, while reconstruction appears infeasible due to cost, congressional expenditure limitations, lack of historic data, and flooding. The least expensive approach is to delineate and identify the foundations of selected structures, the cost of which would be minor.

Picnic Area. With improved road access, the cost of a small picnic area was considered justified, especially since this area is well removed from any other park and recreation area.

Trails. Developing an access trail is justified if access is improved. It would have the additional benefit of making the unit accessible to handicapped visitors.

Signing. The small cost of providing appropriate directions to this unit is justified by the considerable benefits to the visitors. At present one can easily get lost trying to find it.

Interpretive Staffing. On-the-ground interpretation would be justified if access to this unit was improved. Staffing costs would be kept reasonable by providing this service only during peak use periods. The alternative of providing significantly greater interpretive services was rejected because of the higher cost, questionable need, and greater staffing demands at other areas.

Ranger Facilities. If access to this unit was improved, a storage building for maintenance and protection would be required. The alternative of combining this with a contact facility was rejected because staffing on a daily basis is not proposed. Lodging for the seasonal staff is justified by the savings in commuting time and costs. The least expensive way of providing and maintaining such lodging is through the construction of tent platforms. A primitive, cold water shower would also be required.

Utilities. Provision of adequate toilets and drinking water would be required if access to the area was improved. Construction of vault toilets and drilling of a well are undoubtedly the least expensive means of meeting this requirement. Hauling the water by truck was rejected because of the higher long-term costs.

South Unit

Maltese Cross Cabin and Visitor Center Protection. Installation of fire suppression systems are justified by the importance of these buildings and the value of their historic contents.

Old East Entrance Station. Although the historic structure requires little cost in its present location, neither the park nor the visitors receive any benefits from it. The costs of relocation and adaptive restoration are justified by the benefit of putting this structure to good use. The alternative of adaptively using it in its present location was rejected due to the cost and environmental questionability of providing road access.

Bison Corral. Modification of the existing horse corral on the east side of the range (near northeast boundary) to also serve as a facility to handle bison would save roundup time and improve both animal and employee safety. These benefits justify the cost of this improvement.

Vehicular Camping. The cost of redesigning sites for pull-through is justified by the benefits to the users of recreational vehicles. Access would be easier, campsites more spacious, and circulation safer. At present camping levels, this increased cost is equivalent to 79 cents per camper night over a 10-year period.

Canoe/Snowmobile Access. The cost of constructing this access point outside the park is justified by the considerable benefit to the visitors. Short trips could be accommodated by using existing informal access points at Cottonwood campground and at Peaceful Valley.

Trails. The construction of four new trails and improvement of two existing trails would provide significant benefits to visitors at reasonable cost to the government. This results from the emphasis on short to medium length trails in heavily visited areas, including areas that did not previously offer hiking opportunities. The improvements would also benefit by reducing unplanned trails, especially those on steep, eroding slopes. The small cost of improving the Skyline Vista trail is more than justified by the benefits of modifying this area for wheelchair access. All new trails would be carefully located, considering environmental, maintenance, and visitor safety and enjoyment factors.

Interpretation. Redesign of the interior of the Painted Canyon visitor center along with the increased emphasis at the Buck Hill viewpoint would result in a more beneficial interpretive effort. These actions are cost-effective because they would place the improvements in those areas where the greatest benefits would result.

Peaceful Valley Ranch and Picnic Area. The cost of improving picnic area road circulation and parking is justified by the benefit of reducing congestion in this area. The cost of replacing the existing pit toilets with a flush unit at the ranch and vault toilets at the picnic area is justified by the benefits to users and the need to bring this area up to the health and facility standards of the rest of the park.

Buck Hill Road. This road can be expected to deteriorate further due to earth movements. Some action will have to be taken to provide continued visitor access to this popular area. The alternative of converting the road to a trail was rejected due to greatly decreased visitor benefits. The least expensive and more maintainable means of providing access would be to provide a gravel surface through the unstable area. The cost of attempting to maintain a conventional paved road would not be justified by the relatively small increase in visitor convenience.

Painted Canyon Sewage Lagoon. Reducing the size and relining the sewage lagoon are required to provide adequate treatment of present sewage loads and to prevent system breakdowns. The cost of this modification is small compared with the cost of building a new facility.

Painted Canyon Solar System. Redesign and replacement of the present system appears to be the only reasonable alternative, considering the problems, costs, and maintenance difficulties of the current system. In the long term this would be energy- and cost-effective, and an extended season of operation would be possible at this area, which receives the greatest visitor use in the park. A separate study will determine the type of system needed.

Loop Road Toilets. Visitors would benefit greatly from the provision of three vault toilets on this popular but restroom-free road; trips could be made in a more leisurely fashion.

Headquarters Flooding. The preferred alternative calls for building a permanent dike largely within the federal ownership at Medora. In the long term this would be less expensive and certainly more efficient than the emergency construction of temporary dikes every time a flood appears imminent. More importantly, temporary dikes would not stop a 100-year flood; thus, a permanent dike is the only means (short of complete relocation) of meeting federal floodplain requirements. The proposed action would also protect most of the adjacent flood-prone areas in Medora. The alternative of building a permanent dike along the riverbank would protect more of Medora, but the costs, secondary effects on flooding, and complications of multientity funding and construction off federal land caused this option to be rejected.

Cottonwood Campground and Peaceful Valley Area Flooding. Relocation of the sewage leach fields and floodproofing of camp-tender and comfort station structures would be the most reasonable and least expensive means of complying with floodplain regulations. Also, this could result in a long-term savings over repeatedly repairing flood damage to these facilities.

FUTURE PLANS AND STUDIES NEEDED

The following resource-specific plans and surveys are needed and recommended for preparation after the approval of this plan; in some cases, work is underway or draft plans exist:

- Various wildlife management plans
- Fire management plan
- Historic resource study
- Collections management plan
- Water resources management plan
- Cultural resources management plan
- Archeological survey
- Interpretive prospectus
- Wayside exhibit plans
- Minerals management plan
- Wilderness/backcountry management plan
- Hydraulic study of effects of proposed dike on floodwaters at Medora

The following cultural resource plans and reports are also needed, although not as greatly as the cultural resource items listed above:

- Historic structures preservation guide
- Historic American Buildings Survey
- Historic furnishing reports

Although a historic structure report has been completed on the extant historic structures (NPS 1980) and studies have been made on the Elkhorn ranch and Maltese Cross cabin (Mattison 1950, 1960; NPS 1959), as well as an administrative history (Petty 1965, Harmon 1985), further cultural study of the park is needed. To promote better management and broader interpretation, a historic resource study is needed. Such a study would add to the knowledge of the homesteading that occurred in the park, could provide further information on the Long X cattle trail and beef corral area, and could determine the importance of the CCC stone quarry in the north unit. A special study could be programmed for identifying individual homestead sites.

The programmed parkwide archeological survey should be completed as soon as possible to comply with section 110(a)(2) of the National Historic Preservation Act as amended. Such a survey would aid in the assessment of National Register nomination needs, which is also necessary for extant structures.

LAND PROTECTION PLAN

INTRODUCTION

POLICIES

Land protection plans describe the alternative strategies for protecting nonfederal lands and mineral interests (if any) within units of the national park system. These plans also consider the problems and means of protecting park resources from external influences. Both are treated in this plan. Like the general management plan, this land protection plan addresses specific issues and concerns that are summarized in the "Purpose and Need for the Plan" section of this document.

On May 7, 1982, the Department of the Interior issued a policy statement (47 FR 19784) to guide use of the federal portion of the Land and Water Conservation Fund. The policy requires that the National Park Service take the following steps in protecting the lands, waters, and interests necessary to achieve natural, cultural, and recreation management objectives:

Identify what lands or interests in land need to be in federal ownership to achieve the purposes of the unit.

Use, to the maximum extent practicable, cost-effective alternatives to direct federal purchase of private lands and when acquisition is necessary, acquire or retain only the minimum interests necessary to meet management objectives.

Cooperate with landowners, other federal agencies, state and local governments, and the private sector to manage lands for public use or to protect them for resource conservation.

Formulate, or revise as necessary, plans for land acquisition and resource use or protection to ensure that sociocultural impacts are considered and that the most outstanding areas are adequately managed and protected.

In response to this departmental policy, the National Park Service has published regulations (48 FR 21121) requiring that a land protection plan be prepared for each unit of the national park system that contains private or other nonfederal land within its authorized boundary.

In compliance with departmental policy and the NPS regulations cited above, this land protection plan has been incorporated with the new general management plan for Theodore Roosevelt National Park. This strategy was selected to ensure a comprehensive and integrated approach to resolving operation and resource management issues, and to achieve the most cost-effective method for accomplishing both planning efforts.

This element of the document constitutes a complete and independent land protection plan with the following exceptions:

Descriptive and historic information on the park and the land protection issues are found in the "Introduction" and the "Purpose and Need for the Plan" sections, respectively.

Land protection alternatives that were considered for dealing with nonfederal mineral rights within the park and the private lands at the east end of the north unit but which were subsequently rejected are treated under "Alternatives Considered But Rejected" section of the "General Management Plan."

Detailed information on nonfederal lands and mineral rights within the park are found in appendixes D and E.

Impacts that would be associated with implementing the land protection plan proposals are integrated with other impacts in the "Environmental Assessment."

This plan does not constitute an offer to purchase land or interest in land; neither does it diminish the rights of nonfederal landowners. The plan is intended to guide subsequent land protection activities subject to the availability of funds and other constraints.

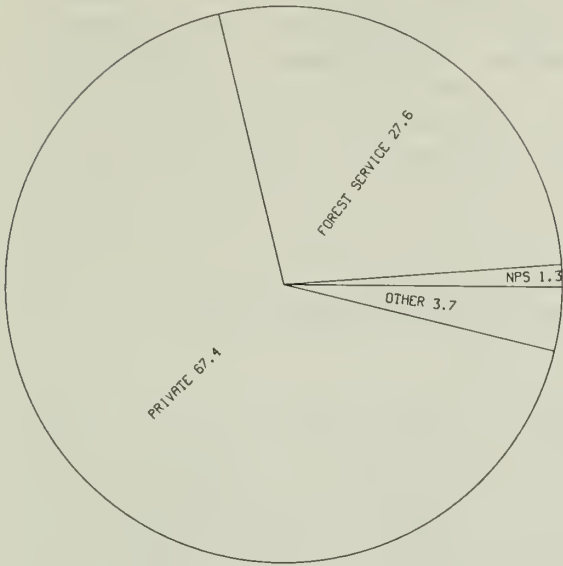
LANDOWNERSHIP AND USES

Regional Ownership and Use

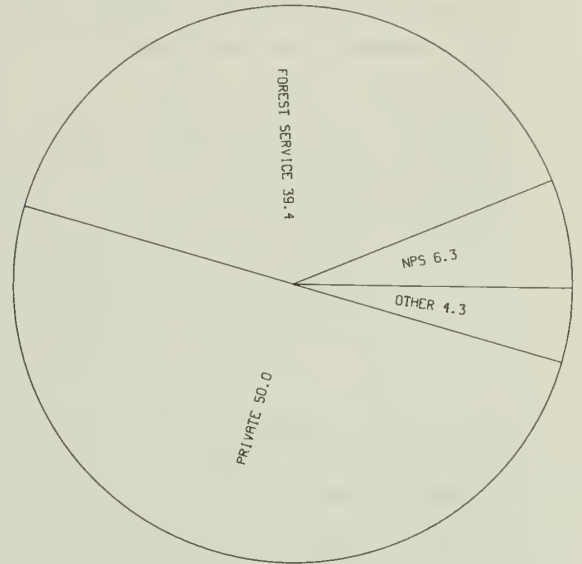
The regional area is considered to include McKenzie and Billings counties, the two counties in which the three park units are located. As shown by the following diagrams, more than two-thirds of the land area in McKenzie County is privately owned. The Little Missouri National Grassland (managed by the U.S. Forest Service) constitutes a major portion of each county, especially Billings County, where the national grassland accounts for nearly two-fifths of the total land area. Generally, the national grassland ownerships are interspersed with private and state lands.

The "other" category is mostly state land--primarily school sections (16 and 36) granted to the state during the last century. Small tracts of public domain land, managed by the Bureau of Land Management, are found east of the north unit and north of the south unit. The NPS area consists totally of Theodore Roosevelt National Park.

LANDOWNERSHIP
MCKENZIE COUNTY

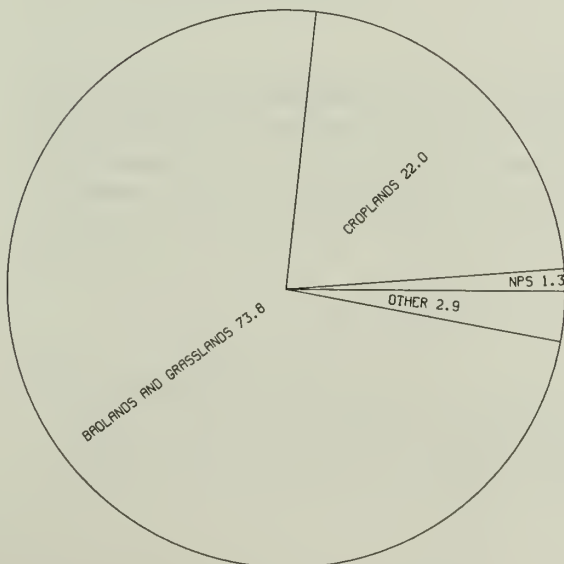


LANDOWNERSHIP
BILLINGS COUNTY



Badlands and grasslands, which represent about three-fourths of the total land area of both counties, are illustrated together in the following diagrams. These two landforms are often adjacent to or interspersed with each other. The badlands and grasslands areas shown here are outside the park and are primarily used for cattle grazing and oil and gas production. Croplands account for a little less than one-fifth of the total two-county area. The "other" category consists primarily of water surface and developed areas, such as towns.

LAND USE
MCKENZIE COUNTY



LAND USE
BILLINGS COUNTY



In-Park Ownership and Use

Table 6 summarizes the land and minerals ownerships within the park boundary. No NPS-administered lands or mineral interests are owned outside the boundary. Also, there are no legislatively imposed ceilings for land acquisition expenditures for the park. Information on private landowners follows the table. It should be noted that for a number of nonfederal mineral tracts, the United States owns any coal that might be present. Land and minerals (ownership) maps are found in the "Recommendations" section.

Table 6: Land and Minerals Ownership within the Park
(as of December 31, 1985)

<u>Surface Ownership</u>	<u>Acres</u>
Federal lands	69,675.88
Private lands	690.27
Nonfederal public land (state highway right-of-way)	<u>50.24</u>
Total Lands	70,416.39
<u>Subsurface Ownership*</u>	
Federal	(69,015.01)
Private	(1,198.15)
Federal and Billings County (2 separated south unit tracts; apparently each entity owns 50%)	(144.78)
Partial federal ownership; also involving private and/or state interests (all such ownerships in south unit at or near Painted Canyon)	(58.45)

*The minerals ownership acreages are shown in parentheses as they are included in the surface ownership acreages shown above and should not be totaled together. The subsurface acreage figures for the federal, private, and partial federal ownership categories are actually approximate, as they are a combination of a number of exact acreages and a few estimated acreages.

Only one park landowner, Mrs. Ruth Baye, is an occupant; however, the land is being sold by her on contract for deed to present nonoccupants. All owners are North Dakota residents who are not dependent on their property as a source of livelihood. The properties are receiving little

use beyond a limited amount of stock grazing. There is the potential for a home to be developed on one of the three north unit tracts owned by Odin Stutrud. The owner of the two tracts in the south unit, Norbert Sickler, acquired the properties from St. Joseph's Catholic Church following the completion of I-94 and the cutting off of all road access to the tracts. None of the private tracts are critical to any continuing ranch or farming operations.

Approximately 97 percent of the park is in a natural or near-natural condition (see table 1, North Unit and South Unit Management Zoning Proposal maps, and Elkhorn Unit DCP map). The remainder is private land that is currently used lightly for stock grazing, as well as several limited areas of the park that are developed for roads, other visitor use, administrative purposes, and preservation of historic resources.

History and Current Status of Land Protection Actions

The acquisition history of the park is reflected in table 7. The acreage shown as disposed inside boundary resulted from a boundary change. The mineral rights acquired are those that did not come with the surface ownership; the acreage is shown in parentheses as it should not be totaled with the surface acreage figures. Only 235.95 acres of land have been acquired through condemnation. There are no pending actions at this time.

Table 7: Park Land and Minerals Acquisitions
(as of December 31, 1985)

<u>Method of Acquisition</u>	<u>Acres Acquired</u>	<u>Acres Disposed inside Boundary</u>
Purchase	379.80	
Complaint in condemnation	160.00	
Declaration of taking	75.95	
Donation	216.76	
Exchange	10,002.26	
Transfer	231.72	
Withdrawal	59,145.67	
Disposal other than exchange		536.28
Total Fee (Surface)	70,212.16	536.28
Total Mineral Rights	(7,868.65)	

PROTECTION ALTERNATIVES

The land protection methods in this section have been analyzed for their applicability in protecting park resources and visitor use experiences. The protection techniques are first described and then analyzed for their applicability in protecting resources and implementing policy and plan objectives.

FEDERAL AND STATE REGULATIONS

There are numerous federal regulations that apply to the park that provide varying degrees of protection for the resources. One of the more important regulations involves the fact that all three units of the park have been identified for protection as class I areas for the purpose of preventing significant deterioration of air quality in accordance with the 1977 Clean Air Act amendments. Other laws and authorities govern protection of wetlands and major watercourses, extraction of minerals, discharge of dredge and fill material, nondegradation of water quality, and protection of endangered plant and wildlife species and cultural sites. However, most of these laws apply only or mainly to federally owned land and are difficult to enforce on private lands.

Congress did not specifically authorize the exploration and extraction of federal or nonfederal oil, gas, or other mineral resources within the boundary of the park. Such uses would have an adverse impact on park resources and visitor experiences. Therefore, the National Park Service must consider these uses as incompatible and take whatever steps are necessary, including acquisition, to preclude their activity. Until such time as rights to the nonfederal oil and gas and other minerals have been acquired by the Park Service, mineral activities associated with these rights would be subject to the regulatory requirements of 36 CFR 9B.

North Dakota state laws and regulations address mineral resource extraction, water development and use, water pollution, hunting and trapping, outdoor advertising adjacent to highways, ecological preservation, open burning, and weed control. They also provide enabling laws for local government to exercise regulatory authority including land use controls. Additionally, the state has declared the Little Missouri River a state scenic river and has expressly prohibited channelization, reservoir construction, dredging, and diversion other than for agricultural or recreational purposes. The river has been considered for federal wild and scenic river study, but such a study has never been authorized by Congress.

The state of North Dakota has both air and water quality standards as well as implementation plans. These standards are required to be at least equal to the national standards. The air quality standards cover particulate matter, sulfur dioxide, nitrogen oxides, oxidants (O₃), carbon monoxide, and lead--the primary pollutants for which there are national standards. However, the state also has standards covering hydrogen

sulfide (H₂S), which can emanate from oil and gas production facilities. Water quality standards include bacteriological, radiological, and inorganic/organic chemical parameters.

For both air and water quality programs, the state rather than the federal government has "primacy" (primary regulatory authority); the Department of Health has the responsibility for these functions. The National Park Service must adhere to the state standards in all management and development activities. The state has no noise quality standards and no floodplain standards (local governments also have no floodplain standards).

The state of North Dakota has had complete criminal and civil jurisdiction over the park. Until recently, the Park Service had only proprietary jurisdiction, and the park staff has had to call outside authorities on all violations other than those cited in the Code of Federal Regulations. Recently though, the state granted the park concurrent criminal jurisdiction on lands within the park.

The park has complete jurisdiction over all wildlife (and all nonwildlife animals) within the park. However, all wildlife except the buffalo, wild horses, and longhorn steers become the responsibility of the state if they leave the park.

Many of these federal and state laws and regulations do in fact provide protection for certain park resources. Nevertheless, these regulations should be viewed as supplemental in comparison with the protection afforded by either full ownership of land and minerals, by acquisition of an interest in private lands, or by following the guidelines and recommendations set forth in this land protection plan. Therefore, although it is encouraged that all existing federal and state regulations be properly enforced, their application will complement and not replace the need for federal land acquisition or plan-directed management of nonfederal properties within the park.

LOCAL REGULATIONS

Local zoning limits the density, type, location, and character of private development and can sometimes effectively control development without federal acquisition of lands or an interest in lands. Local zoning can support NPS management objectives when allowable economic uses of the land are compatible with protection requirements. Zoning does not, however, ensure permanent resource protection because it may be changed or variances may be granted. Also, zoning does not ensure that the public use and development needs of the National Park Service will be met.

McKenzie County has no zoning authority or other countywide land use controls that would apply to the north unit of the park.

Billings County maintains the authority to zone and control development and land use of all unincorporated areas of the county. The zoning resolution was adopted by the Board of County Commissioners in November 1974. Generally, the zoning regulates the location, size, height, and use of structures; area and dimension of lots and yards; use of lands; size and placement of outdoor advertising signs and parking facilities; development and design of junkyards, airports, mobile home camps, mining operations, and other high-impact facilities; allowance of variances; and issuance of permits. Zoning also provides for designating portions of the county as agricultural, residential, commercial, or industrial and manufacturing districts.

The south and Elkhorn units, the portions of the park within Billings County, are both zoned as agricultural. The only private lands within the park in the county are the two Sickler tracts. Since these tracts have never been developed, there has been no occasion to implement these regulations.

County zoning ordinances are not expected to provide more than minimal complementary protection to the implementation of land protection measures, including compatible/incompatible use standards for the private lands within the park. First, the private lands within the north unit, the protection of which could definitely be enhanced through adoption and enforcement of county zoning controls, are all within McKenzie County, which has no zoning or similar land use controls of any kind. Second, the only private tracts within the park in Billings County, where there are zoning regulations, are the undeveloped, inaccessible Sickler tracts. As explained in more detail in the tract summaries in appendix D, any development of these two tracts would be incompatible with the requirements for protecting park resources, including wildlife management and the visual scene from I-94 within this section of undisturbed badlands environment. The Billings County zoning ordinance would not prohibit development of the tracts, only control the type, extent, and placement of such development.

The city of Medora has a zoning ordinance designed to ensure the harmonious development of the town, to preserve those buildings and areas that possess historical or aesthetic significance, and to discourage alterations to existing structures or construction of new structures that would detract from the aesthetic qualities found within the historic district. The "City of Medora Historical Integrity Zoning Ordinance," prepared by the Roosevelt-Custer Regional Council and adopted by the city in April 1983, provides for review and approval of proposals by the city council or through a public hearing process and prescribes penalties for violations.

The boundaries of the historic district, which extend outside the city's boundaries, encompass the headquarters area for Theodore Roosevelt National Park and about a half-section of park and Forest Service land north and northeast of Medora.

The Medora zoning ordinance could provide some protection to complement existing NPS authority to protect the headquarters area within the city of Medora. While the Park Service owns all of the surface of this area in fee, approximately 10 acres involve privately owned mineral rights (see Mineral Status Map 02). Mineral ownerships appear to underlie several significant NPS structures, as well as portions of roads, parking areas, and landscaped areas. This zoning ordinance might well be employed to prohibit or discourage any attempts to directionally drill to or otherwise remove oil and gas under the headquarters area. The concern is that this could involve erecting equipment or establishing other incompatible uses on private lands just outside of but within clear view of NPS areas and facilities. Potential use of the Medora ordinance is aided by the fact that jurisdiction of the historic district extends more than ½ mile beyond the limits of the town. This ordinance should be complementary to the Billings County zoning ordinance described earlier.

OTHER PROTECTION METHODS CONSIDERED

Cooperative Agreements/Memoranda of Understanding

Cooperative agreements and memoranda of understanding are documents that define administrative arrangements between two or more parties. For Theodore Roosevelt National Park, agreements could be negotiated between the National Park Service and Billings and McKenzie counties, the state of North Dakota, the U.S. Forest Service, and the Bureau of Land Management, as well as other government units or private parties. Cooperative agreements should not be considered as protection alternatives for privately owned land unless specifically authorized by the enabling legislation. The terms of cooperative agreements could apply to a specific parcel or areas within or adjacent to the park and address land use activities, a specific use or underground transmission facility that must cross a park area, levels of development, or resource protection. These agreements would contain any necessary restrictive provisions and identify the entity responsible for enforcement. Cooperative agreements are most applicable to shared planning and maintenance of visitor facilities and services, establishment of law enforcement and other jurisdictions, and cooperation in the management of cultural resources and wildlife habitat. Cooperative agreements do have limitations. They are not legally enforceable, cannot be used to exercise control over a nonsigning third party, and can be cancelled.

Cooperative agreements as a park land protection technique could be used most effectively in the following ways:

- cooperative land use planning and zoning assistance to Billings and McKenzie counties for private lands adjacent to the park

- agreement with the state of North Dakota that it will not permit any mineral development beneath the bed of the Little Missouri River within the north and south units and adjacent to the Elkhorn unit,

should there be a final court decision that the state owns the riverbed (also see issues and concerns for land protection in the "Purpose and Need for the Plan" section)

cooperative planning and agreement with the State Historical Society regarding viewshed protection and visitor access and use of historical society lands adjacent to the Elkhorn ranch site (see Elkhorn Unit DCP map)

agreement and planning with the State Historical Society or a private land trust regarding acquisition of scenic easements for private lands east of the Elkhorn ranch site (see Elkhorn Unit DCP maps)

agreements (or quitclaim deed) by Billings County that there will be no exercise of rights regarding the county's apparent 50 percent ownership of two mineral rights tracts within the north-central part of the south unit (see South Unit Mineral Status map)

cooperative planning and/or agreements with the Forest Service and Bureau of Land Management to limit oil and gas leasing or to include environmental protection stipulations for leases that are granted near park boundaries, to otherwise protect significant cultural and natural resources (including wildlife habitat, scenic views, and wilderness values), and to provide complementary recreational opportunities or access.

Types of Acquisition

When all interest in a property is acquired, it is owned in fee simple. NPS acquisition of land in fee, in most instances, provides the maximum protection of land and its resources and often provides the greatest opportunity for visitor use. Fee acquisition is appropriate in those instances where maximum protection of resource values is necessary, the area is desired for public use, or an investment of federal funds requires full acquisition before capital improvements, such as needed visitor or administrative facilities, can be developed. Therefore, fee acquisition of several tracts in the park is appropriate to provide for visitor use and development or to meet resource protection objectives.

The National Park Service may acquire a property but grant the previous owner the right to use and occupy the property under a life or term estate. This strategy provides for eventual public use and ownership with some dollar savings to the federal government, since the value of the retained estate is subtracted from the purchase price. There do not appear to be any situations within the park in which granting a life or term estate would be practical.

Acquisition of mineral (subsurface) rights does not involve transfer of fee simple ownership, unless the minerals are acquired with the surface, which is the best strategy whenever possible. The mineral rights can be acquired in total, although in some cases that would involve acquiring the

rights from multiple owners who possess different percentages of interests, as well as different types of minerals--e.g., all fluid minerals, coal resources, or possibly all minerals except coal (see Mineral Status maps in text and tabular lists in appendix E). There are privately owned minerals and leases within all three units of the park. Except for the complication of multiple ownership, the steps that must be taken for minerals acquisition are similar to land acquisition, and both should be used as a principal strategy in protecting park resources.

An easement is a legally enforceable interest in land created by a transfer of certain property rights. Property ownership may be envisioned as a bundle of rights, including among others the rights to graze livestock, to cut trees, to construct facilities, and to exclude others from the property. Easement rights can be characterized as positive (allowing a use) or negative (restricting a use). For example, the National Park Service could acquire a positive easement to ensure public access across a property or a negative easement to restrict the owner's right to establish a commercial recreation business, develop structures, or subdivide the property. To provide the proper levels of land protection, the terms and stipulations of easements must reflect the type of land involved and the specific level of protection required.

Whether to purchase a property in fee or to acquire an easement depends on several factors, including resource values and objectives, visitor use needs, the willingness of the owner to sell or donate an easement, and the appraised value of the property in fee compared to the appraised value of an easement. The major consideration should be to acquire the interest needed to achieve park unit purposes. Within the park, easements could best be used to protect scenic views in the north unit east of US 85. The two tracts in the south unit are not suitable for scenic easements as they are part of an undeveloped area of scenic badlands, and no private or commercial use of the properties would be acceptable.

Methods of Acquisition

Opportunity Purchase. Based on national priorities, monies can be appropriated by Congress from the Land and Water Conservation Fund to purchase land or mineral rights for parks and other federal resource areas, or Congress can appropriate special monies to achieve certain purposes, including acquisition. Funds can also be donated to the Park Service to purchase fee or less-than-fee interest in private properties within the park.

All purchase negotiations are based on an appraisal of the fair market value. If the landowner is interested in selling and the Park Service has indicated an interest in acquiring the property, the Park Service will have the property appraised--usually by a private real estate appraiser. The landowner is encouraged to accompany the appraiser during the inspection to point out any features of the property that should be considered in making the appraisal.

The offer price is based on the appraisal. The appraisal is a professional estimate of fair market value, which is the price that an owner could reasonably expect to receive if the property sold on the open market. The offer price must, by law, not be less than the approved appraised value.

Private Trust Purchase. Private nonprofit trusts can protect park values by acquiring minerals, or fee, or less-than-fee interest in land by purchase or donation. The trust can then either hold title to the land or donate, bargain sell, or conventionally sell the land to the Park Service. The private ranching area immediate east of the Elkhorn ranch site (east of the river) may be particularly well suited for trust involvement (see Elkhorn Unit DCP and Elkhorn Unit Mineral Interests maps). Use of scenic or agricultural easements would be most appropriate. Private trusts can also assist in third party land exchanges in which land purchases are needed outside the authorized boundary of the park.

Donations and Bargain Sales. Donations and bargain sales are methods of acquiring land, mineral rights, or interests in land at less than full market value. Landowners can receive tax advantages by donating the full or partial value of their land to the Park Service or to eligible nonprofit organizations. Landowners should consult a qualified tax advisor for details. A bargain sale is a sale of property to a qualifying organization or government agency at a price that is less than its fair market value. The result is part sale and part charitable contribution.

Exchange. Land exchange transactions involving multiple party exchanges are usually complex but possible. If the Bureau of Land Management was willing to participate in a land exchange and could identify one or more tracts of isolated public domain that could be exchanged for private land within the park, the park property could be transferred to federal ownership. The Forest Service (U.S. Department of Agriculture) would be more likely to have such land in the vicinity of the park and might be agreeable to such an exchange; however, the park does not have the authority required to participate in a land exchange involving another federal department. (Special congressional authority would be required.)

Condemnation. Condemnation proceedings are regarded by the Park Service as a last resort and are used only when property that must be acquired cannot be obtained in any other way. Condemnations initiated by the filing of a complaint only (not a declaration of taking) are used in most cases in which the private owner and the federal government cannot reach a price agreement. In these situations, title to the land does not pass to the government until a court or jury has determined just compensation and this amount has been paid to the owner. This method may also be used to clear land titles and when owners are unknown or cannot be located.

The Congress has also provided for the use of a declaration of taking, another form of condemnation, which vests property in the United States immediately upon filing papers in the court and depositing an estimate of

just compensation. Declarations of taking are typically used where title to the property must be vested in the United States immediately in order to prevent resource damage. At present, congressional committee approval is required to take this action. This method may also be used to clear title to land after a negotiated settlement.

Condemnation powers would be used in those cases in which all other efforts to maintain resource protection prove unsuccessful.

RECOMMENDATIONS

IN-PARK RECOMMENDATIONS

The major land protection issues were discussed previously in the "Purpose and Need for the Plan" section. The major in-park concerns, which all relate to the more specific recommendations described below, include protection of resources on private holdings, extent of private lands or interests in lands that must be acquired, and drainage of federal oil and gas to areas outside the park.

Priorities

This section describes acquisition criteria and lists all private surface tracts within the park in priority order of acquisition. Acquisition priority criteria are also shown for subsurface rights based on the type and location of the rights. These acquisition priorities may be adjusted as this plan is revised. There may be emergency or hardship situations that would also have to be considered regardless of priority. These priorities might also have to be adjusted because of changes in the availability of properties for opportunity purchase, donation, or exchange, or the surfacing of any proposed plans to develop or use the properties in adverse and incompatible ways.

Surface Properties. The evaluation of the priorities of nonfederal surface properties within the park and their relationship to park protection and each other was based on the following descending order criteria:

Tracts are in areas of visual sensitivity and/or high resource significance, requiring substantial protection. Also, conflicts exist or could develop with existing visitor contact or administrative facilities, and tracts will be needed for proposed visitor use and development. Fee acquisition is essential.

Tracts are in areas of visual sensitivity and/or high resource significance, requiring substantial protection. Fee acquisition is needed.

Tracts are in an area where the visual scene requires protection from inappropriate or excessive development, and an interest in the land will be needed. However, federal ownership is not essential, and no fee acquisition is proposed.

The priority order of acquisition of the specific private surface tracts within the park is listed below. (See Land Status maps for tract locations; also see appendix D for more detail on individual tracts.) These priorities are a guideline and subject to change based on changing circumstances.

- Priority 1 North unit tract 01-121 west of US 85

- Priority 2 North unit tract 01-118 west of US 85
 North unit tract 01-120 west of US 85
 South unit tract 03-106
 South unit tract 03-108

- Priority 3 Scenic easement (or fee) acquisition:
 North unit tract 01-121 east of US 85
 North unit tract 01-118 east of US 85
 North unit tract 01-119
 North unit tract 01-120 east of US 85
 North unit tract 01-122
 North unit tract 01-123

Subsurface Ownerships. The evaluation of the priorities of private subsurface ownerships (mineral rights) within the park required to meet park protection needs was based on the following descending order criteria. Also, refer to Mineral Status maps and to nonfederal subsurface ownerships listed in appendix E for more specific information on mineral rights, including leases. This latter list includes the acquisition priority for each mineral ownership or group of ownerships. All mineral interests are proposed for acquisition, except for those east of US 85 in the north unit (see note in last criterion below) and mineral leases (unless damage to park resources would likely result). The term tract as used below refers to specific subsurface areas that can be located on a map and described by acreage. Many tracts involve multiple ownerships. Priorities are as follows:

1. Subsurface ownerships underlying NPS facilities and other improvements (all tracts in the Medora area).

2. Subsurface ownerships underlying surface tracts proposed for fee acquisition (four subsurface tracts in the north unit and four subsurface tracts in the south unit).

3. Subsurface ownerships wholly within the park boundary underlying important park resources, including wilderness, and for which it would be extremely difficult or environmentally undesirable to use directional drilling techniques to access oil and gas resources (two tracts in the north unit, one tract in the Elkhorn unit, and two or more tracts in the south unit).

4. All other subsurface ownerships also underlying important park resources but which could be directionally drilled (three or four tracts in the north unit and a number of such tracts in the south unit).

5. All subsurface ownerships underlying the private lands in the area to the east of US 85 in the north unit (all of this area except

for the southern two-thirds of surface tract 01-119 for which the minerals are USA-owned). Note: These mineral rights are not actually proposed for purchase acquisition; however, acquisition should be considered if an incompatible use situation or a noncost opportunity to acquire arises.

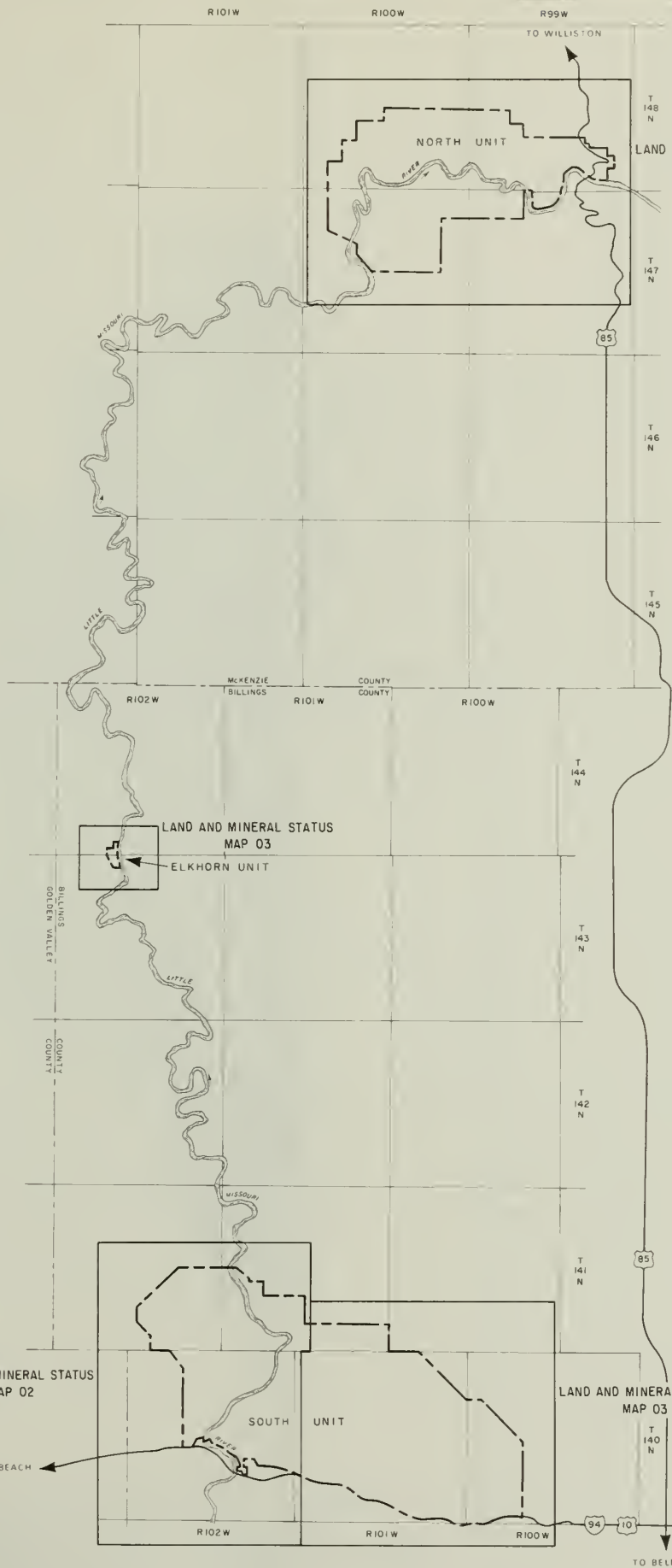
Compatible and Incompatible Uses

If acquisition of a full or partial interest has been proposed for a particular parcel, the compatible and incompatible use lists will provide a guide for NPS action, if needed, until the interest desired can be acquired.

The list of compatible uses applies to all private tracts in the north unit east of US 85. All uses with the exception of item 7 would apply to the portions of north unit tracts 01-118, 01-120, and 01-121 west of US 85. The only uses that could be permitted for tracts 03-106 and 03-108 in the south unit are items 3 and 4; these tracts involve scenic badland resources, have no access or development, and neither could be permitted (see tract descriptions in appendix D for more detail). Management of these lands within these guidelines could be considered as acceptable for the short term. Long-term protection, however, will require federal acquisition either in fee or scenic easement. Compatible uses of nonfederal land within the park are as follows:

1. Existing agricultural/ranching uses of the land
2. Existing agricultural/ranching support structures or improvements (fences, stock ponds, stock pens, water wells, barns, and storage buildings)
3. Wildlife habitat
4. Open space
5. Any existing single-family residence that might be built before the effective date of this plan with allowance for minor modifications and repair thereafter (would apply to tracts east of US 85 in north unit only).
6. One single-family dwelling per existing tract if located east of US 85 and set back a minimum of 200 feet from the east line of the US 85 right-of-way
7. Selective cutting of trees for personal uses (firewood, fence posts, etc.)
8. Maintenance and minor upgrading of existing roads

LAND AND MINERAL STATUS
MAP 01



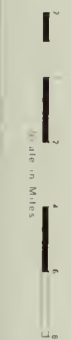
LAND AND MINERAL STATUS
MAP 03

LAND AND MINERAL STATUS
MAP 03

LAND AND MINERAL STATUS
MAP 02

FIFTH PRINCIPAL MERIDIAN

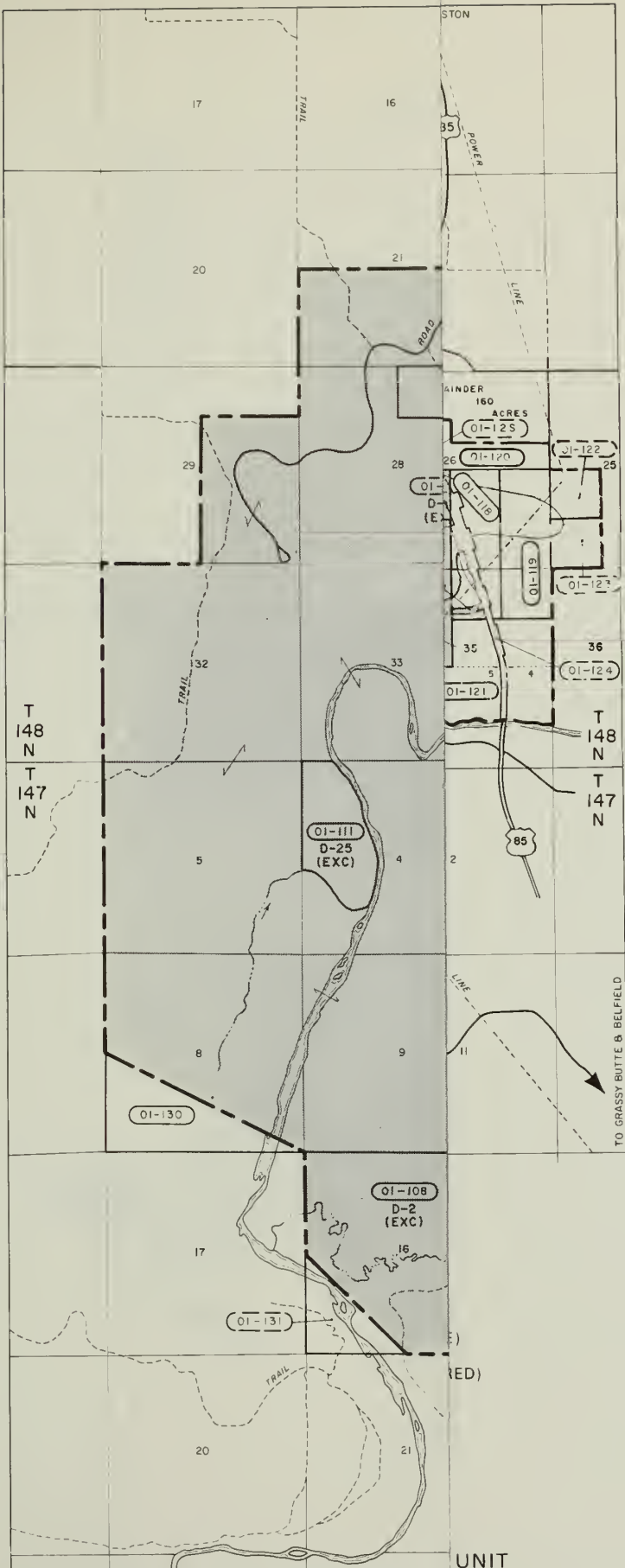
DATE	BY	REVISIONS
ESTABLISHED APRIL 25, 1947		
BOUNDARY CHANGE NOVEMBER 0, 1978		
DATE JUNE 1974		
MAPPED BY		
DENVER SERVICE CENTER COLORADO		



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF LAND ACQUISITION

THEODORE ROOSEVELT
NATIONAL PARK
BILLINGS & MCKENZIE COUNTIES
NORTH DAKOTA

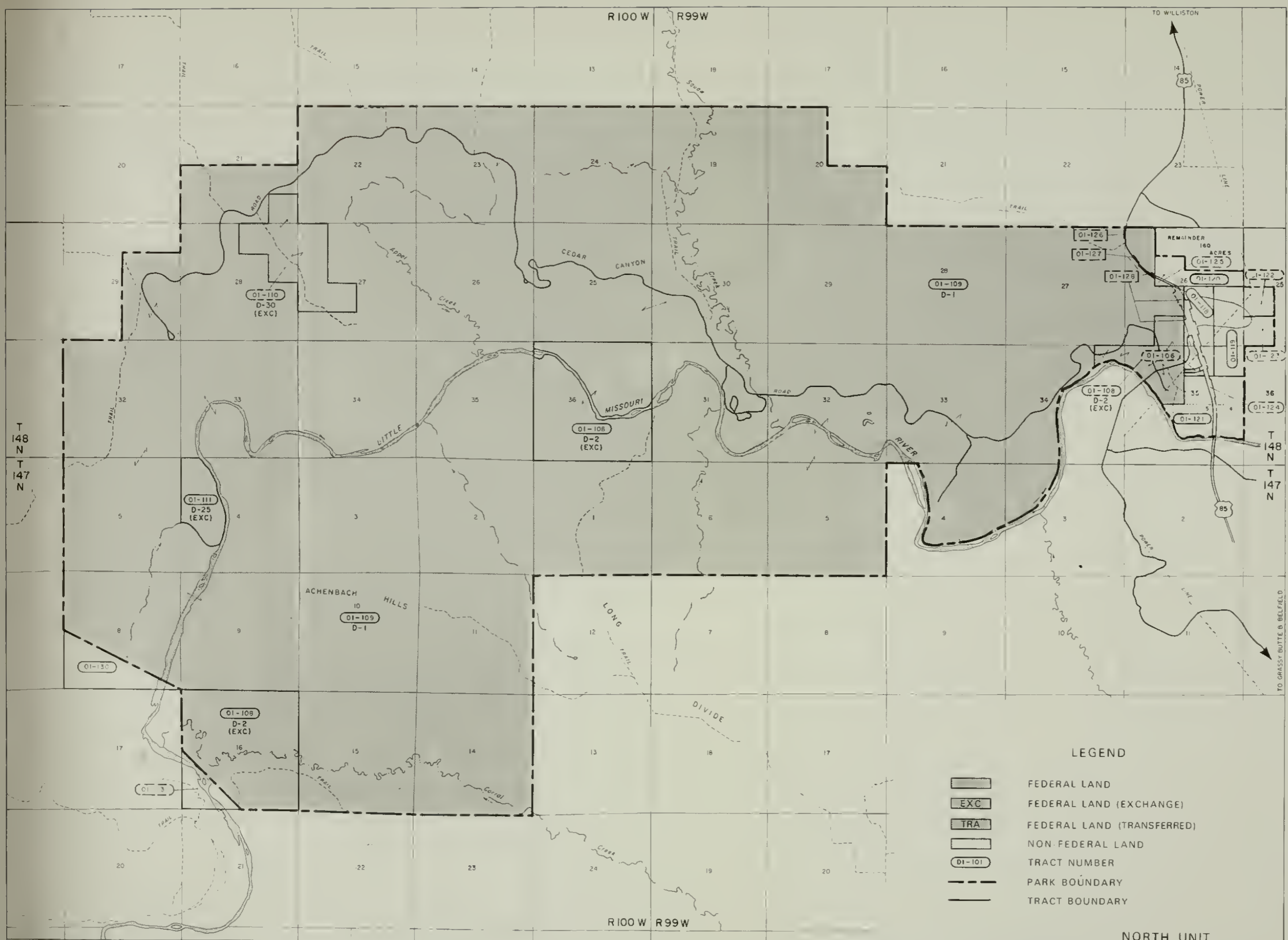
ON BY: JMR
CHECKED BY: JMR
DATE: 4/14/74
FIELD BOOK NO.: 781
SHEET 1 OF 4



DEED	TRACT	OWNER	ACRES	INT
	01-101	DELETED		
	01-102	DELETED		
	01-103	DELETED		
	01-104	DELETED		
	01-105	DELETED		
PUR 0 33	01-106	NORTH DAKOTA STATE OF	3 54	FEE
	01-107	DELETED		
EXC 0 2	01-108	NORTH DAKOTA STATE OF	1 347 37	FEE
WIT 0 1	01-109	PUBLIC DOMAIN	21 890 03	FEE
EXC 0 30	01-110	MONSEN	320 00	FEE
EXC 0 25	01-111	MANRAL	145 13	FEE
	01-112	DELETED		
	01-113	DELETED		
	01-114	DELETED		
	01-115	DELETED		
	01-116	DELETED		
	01-117	DELETED		
	01-118	STENEHJEM, et ux	90 52	FEE
	01-119	MCCLOSKEY	120 00	FEE
	01-120	STUTRUD	70 36	FEE
	01-121	WRIGHT, et al	153 09	FEE
	01-122	STUTRUC	40 00	FEE
	01-123	STUTRUD	40 00	FEE
	01-124	NORTH DAKOTA, STATE OF	40 60	FEE
	01-125	NORTH DAKOTA, STATE OF	9 64	FEE
DIS/OTH-41	01-126	TO STATE, NRTH DAKOTA	(0 77)	EASE
DIS/OTH-41	01-127	TO STATE, NORTH DAKOTA	(3 08)	EASE
DIS/OTH-41	01-128	TO STATE, NORTH DAKOTA	(5 30)	EASE
	01-129	DELETED		
DIS/OTH-14	01-130	TO DEPT of AGRICULTURE	- 153 04	FEE
DIS/OTH-14	01-131	TO DEPT of AGRICULTURE	- 46 92	FEE

10/16/84	C O NO 84-30				
6/12/84	C O NO 84-23				
5/18/84	C O NO WASO 84-25				
2/17/83	J NO 84-02				
12/14/81	J NO WASO 83-5				
5/21/81	C O NO 81-19				
1-29-79	BOUNDARY CHANGE PL 95-625				
1-19-79	WASO 79-1 PL 95-625				
12-6-78	C O NO 78-1				
6-6-77	C O NO 77-34				
DATE	REVISIONS	DATE	REVISIONS		

ESTABLISH
BOUNDARY
DATE: JUN
MAPPED BY
DENVER SURVEYING
ROOSEVELT
PARK
COUNTY
NORTH DAKOTA



DEED	TRACT	OWNER	ACRES	INT
	01-101	DELETED		
	01-102	DELETED		
	01-103	DELETED		
	01-104	DELETED		
	01-105	DELETED		
PUR 0 33	01-106	NORTH DAKOTA STATE OF	3.54	FEE
	01-107	DELETED		
EXC 0 7	01-108	NORTH DAKOTA STATE OF	1,347.37	FEE
WIT 0 1	01-109	PUBLIC DOMAIN	21,890.03	FEE
EXC 0 30	01-110	MONSEN	320.00	FEE
EXC 0 25	01-111	MANAL	145.13	FEE
	01-112	DELETED		
	01-113	DELETED		
	01-114	DELETED		
	01-115	DELETED		
	01-116	DELETED		
	01-117	DELETED		
	01-118	STENHEJEM, et al	90.52	FEE
	01-119	McCLOSKEY	120.00	FEE
	01-120	STUTRUC	70.36	FEE
	01-121	WRIGHT, et al	1,530.9	FEE
	01-122	STUTRUC	40.00	FEE
	01-123	STUTRUC	40.00	FEE
	01-124	NORTH DAKOTA, STATE OF	40.60	FEE
	01-125	NORTH DAKOTA, STATE OF	9.64	FEE
DIS/OTH 41	01-126	TO STATE, NORTH DAKOTA	(0.77)	EASE
DIS/OTH 41	01-127	TO STATE, NORTH DAKOTA	(3.08)	EASE
DIS/OTH 41	01-128	TO STATE, NORTH DAKOTA	(5.30)	EASE
	01-129	DELETED		
DIS/OTH 14	01-130	TO DEPT of AGRICULTURE	153.04	FEE
DIS/OTH 14	01-131	TO DEPT of AGRICULTURE	46.92	FEE

DATE	REVISIONS	DATE	REVISIONS
10/16/84	C O NO 84-30		
12/2/84	D NO 84-23		
2/8/84	D NO 84-23		
7/1/82	NZ AA C2		
5/21/81	C O NO 81-19		
1-28-78	BOUNDARY CHANGE PL 88-625		
8-19	W 81-19		
8-13	C O NO 81-19		

ESTABLISHED APRIL 25, 1947
 BOUNDARY CHANGE NOVEMBER 10, 1979
 DATE JUNE 1974
 MAPPED BY DENVER SERVICE CENTER COLORADO

FIFTH PRINCIPAL MERIDIAN

Scale - Feet

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DIVISION OF LAND ACQUISITION

DN BY [Signature] CR BY [Signature]
 APPR BY RRG/14/74
 REGION ROCKY MTN
 DRAWING NO 387
 92-003

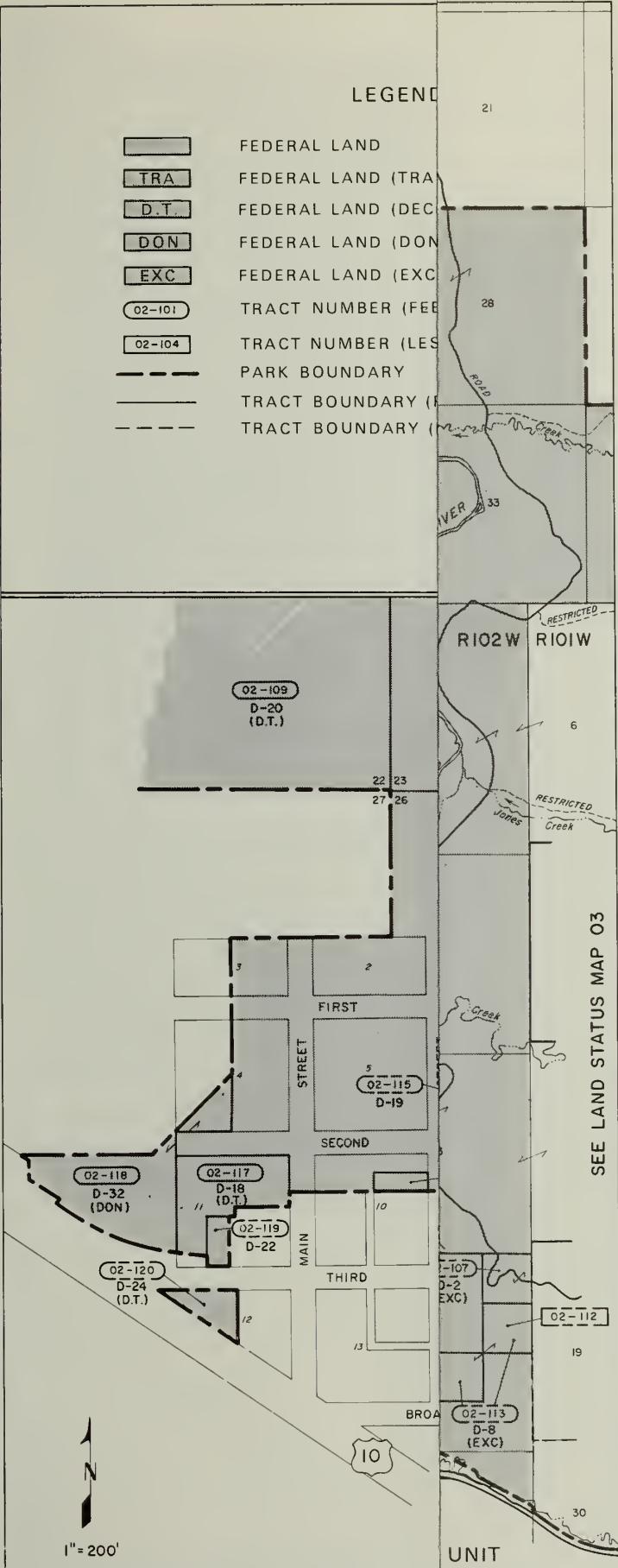
TITLE LAND STATUS MAP 01
 SHEET 2 OF 4

NORTH UNIT

THEODORE ROOSEVELT
 NATIONAL PARK
 MCKENZIE COUNTY
 NORTH DAKOTA

LEGEND

- FEDERAL LAND
- TRA FEDERAL LAND (TRA)
- D.T. FEDERAL LAND (DEC)
- DON FEDERAL LAND (DON)
- EXC FEDERAL LAND (EXC)
- 02-101 TRACT NUMBER (FEE)
- 02-104 TRACT NUMBER (LES)
- PARK BOUNDARY
- TRACT BOUNDARY (F)
- TRACT BOUNDARY (L)

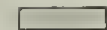

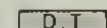
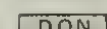
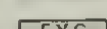

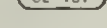
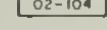

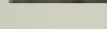


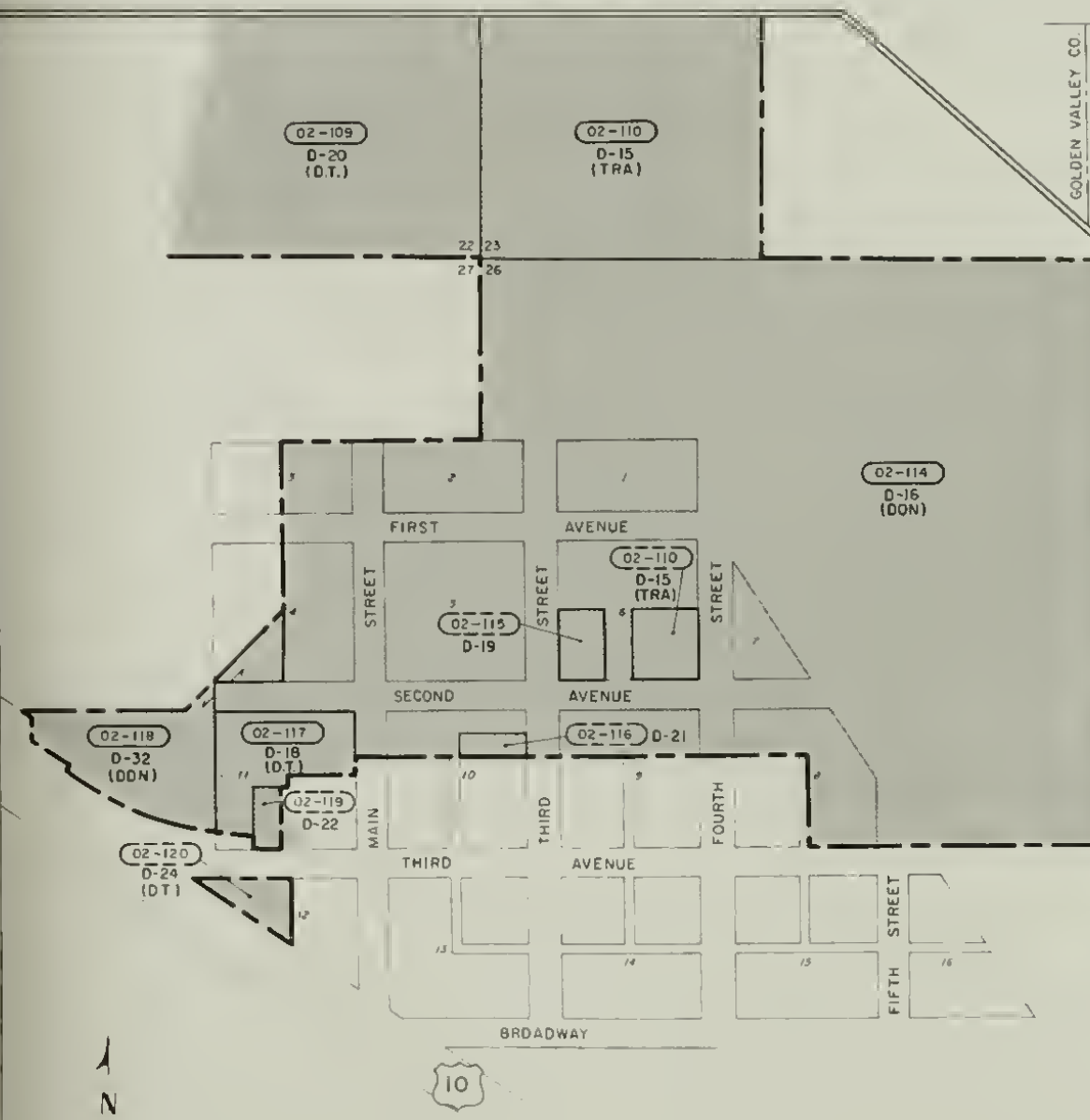
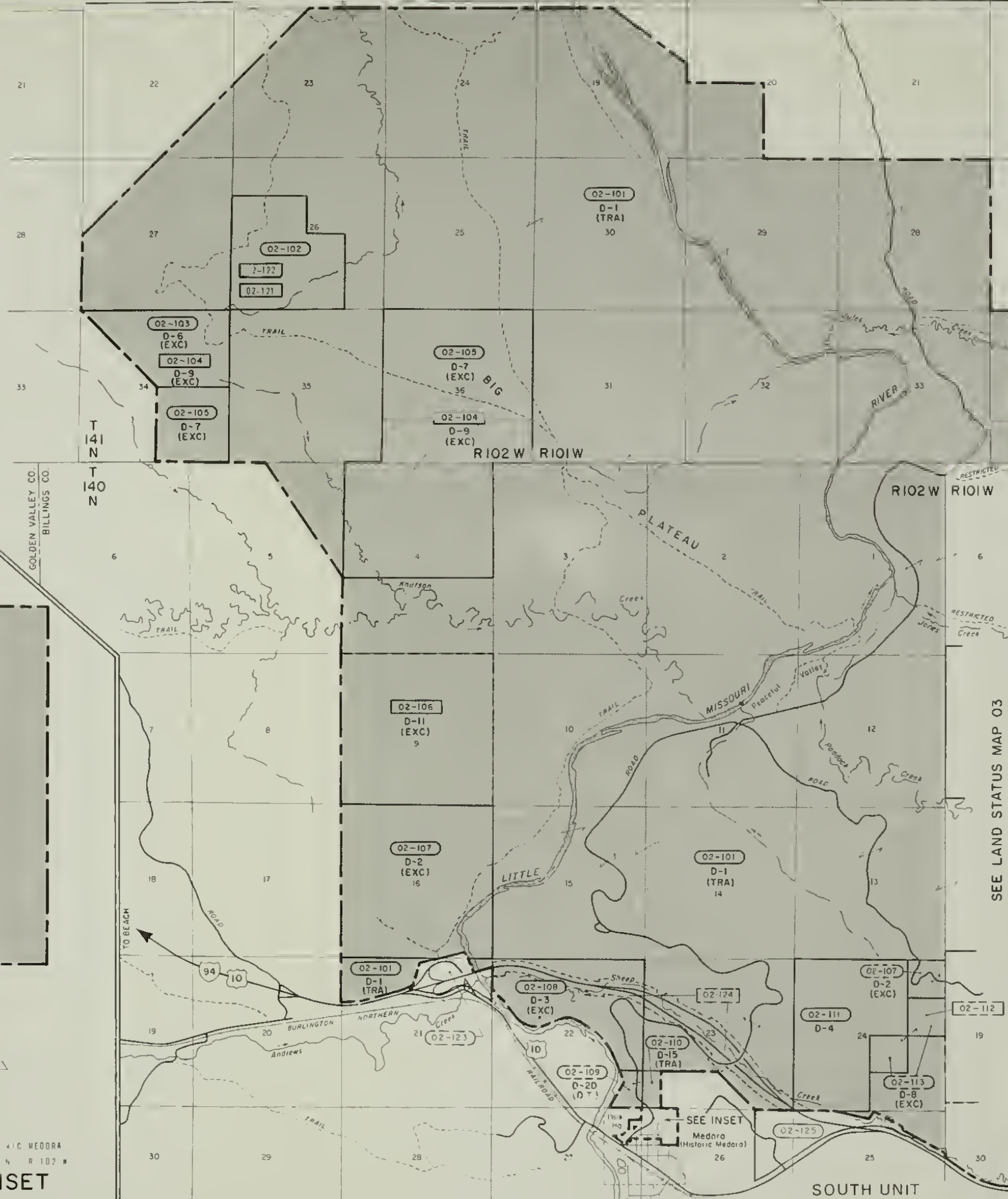
DEED	TRACT	OWNER	ACRES	INT
WIT 0-1	02-101	PUBLIC DOMAIN	37,255.64	FEF
EXC 0-5	02-102	MYERS	320.00	FEF
EXC 0-6	02-103	NORTH DAKOTA, STATE OF	520.00	FEF
EXC 0-9	02-104	NORTH DAKOTA, STATE OF	2,322.46	MIN
EXC 0-7	02-105	NORTH DAKOTA, STATE OF	2,842.46	FEF
EXC 0-11	02-106	NORTHWESTERN IMPROVEMENT	4,706.19	MIN
EXC 0-2	02-107	NORTH DAKOTA STATE OF	680.00	FEF
EXC 0-3	02-108	CHASE	313.00	FEF
OT 0-20	02-109	RED TRAIL COAL CO	27.00	FEF
TRA 0-15	02-110	FOREST SERVICE	18.66	FEF
EXC 0-4	02-111	COOPER	400.00	FEF
PUR 0-36	02-112	T. R. NATURAL HIST ASSOC	140.00	MIN
EXC 0-8	02-113	COOPER	80.00	FEF
DON 0-16	02-114	VALLAMBROSA	40.30	FEF
PUR 0-19	02-115	MUNNEL et al	0.27	FEF
OT 0-21	02-116	NOYES	0.16	FEF
OT 0-18	02-117	GRON	1.04	FEF
DON 0-32	02-118	NORTH DAKOTA STATE OF	2.18	FEF
USA 0-22	02-119	SPURGEDON	0.17	FEF
OT 0-24	02-120	HINKEL	0.40	FEF
RAW 0-39	02-121	SPURGEDON	(320.00)	MIN
DON 0-40	02-122	BILLINGS COUNTY	(320.00)	FEF
OIS/OTH-27	02-123	TO DEPT of AGRICULTURE	- 79.35	FEF
OIS/OTH-28	02-124	TO STATE of NO DAK	0.00	ROW
OIS/OTH-27	02-125	TO DEPT of AGRICULTURE	- 137.21	FEF

5/18/84	C O NO 7473 84-25		
11/23/81	C O NO 82-7		
7/21/79	C O NO 75-49		
1/26/78	C O NO 78-11		
1-9-79	WACO 79-11 P. 95-62*		
14/78	C O NO 79-1		
7/21/75	DATE STATUS		
DATE	REVISIONS	BY	

ESTABLISH ROOSEVELT
 BOUNDAR PARK
 DATE: JUN COUNTY
 MAPPED DENVER SAKOTA

LEGEND

-  FEDERAL LAND
-  FEDERAL LAND (TRANSFERRED)
-  FEDERAL LAND (DECLARATION OF TAKING)
-  FEDERAL LAND (DONATION)
-  FEDERAL LAND (EXCHANGE)
-  TRACT NUMBER (FEE)
-  TRACT NUMBER (LESS THAN FEE)
-  PARK BOUNDARY
-  TRACT BOUNDARY (FEE)
-  TRACT BOUNDARY (LESS THAN FEE)




ESTABLISHED: APRIL 25, 1947
 BOUNDARY CHANGE: NOVEMBER 10, 1978
 DATE: JUNE 1974
 MAPPED BY: DENVER SERVICE CENTER, COLORADO

H ST. 41C MEODRA
 T 140 N R 102 W

INSET

1" = 200'

FIFTH PRINCIPAL MERIDIAN



Scale in Feet

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DIVISION OF LAND ACQUISITION

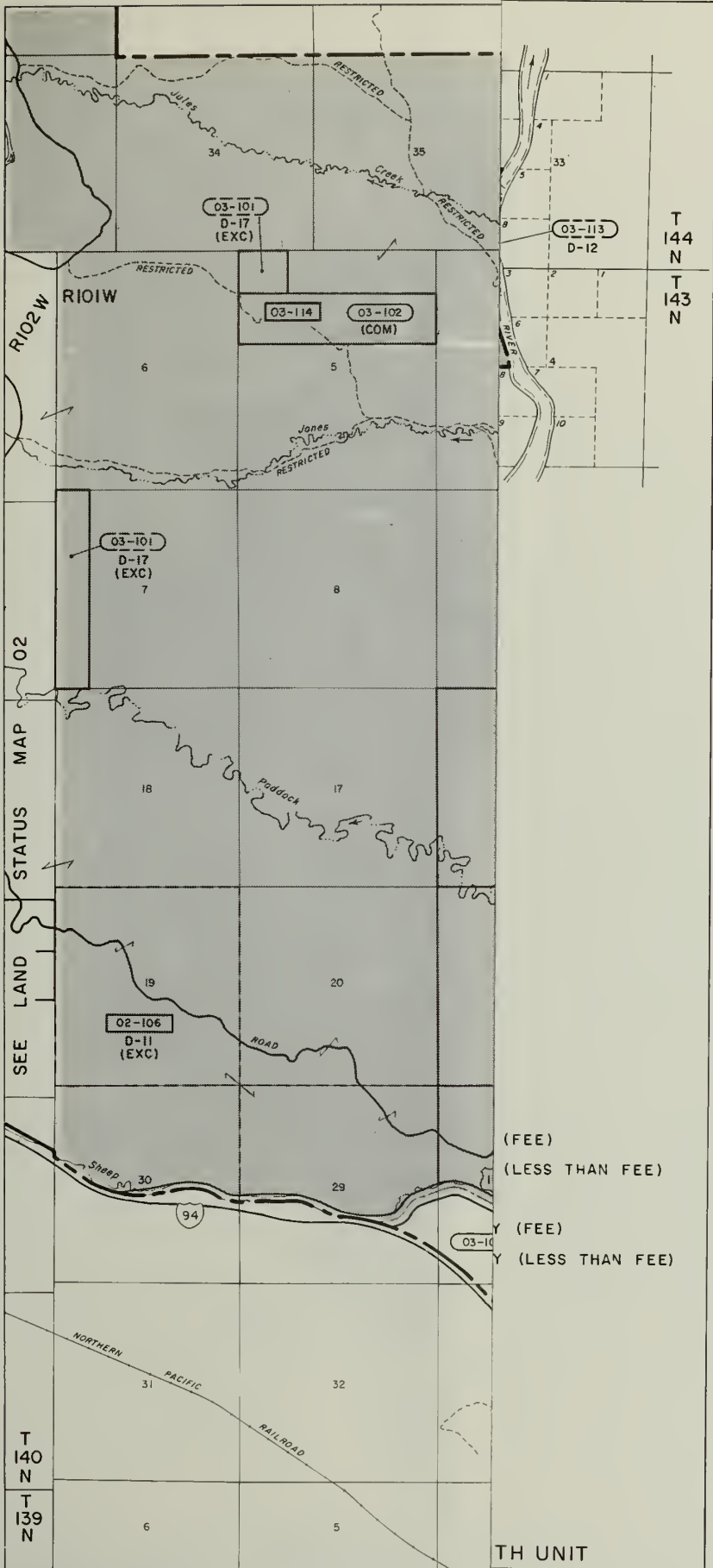
THEODORE ROOSEVELT
 NATIONAL PARK
 BILLINGS COUNTY
 NORTH DAKOTA

DEED	TRACT	OWNER	ACRES	INT.
W17 0 1	02 101	PUBLIC DOMAIN	37,255.69	FEE
EXC 0 5	02 102	MYERS	320.00	FEE
EXC 0 6	02 103	NORTH DAKOTA STATE OF	520.00	FEE
EXC 0 9	02 104	NORTH DAKOTA STATE OF	2,322.46	MIN
EXC 0 7	02 105	NORTH DAKOTA STATE OF	2,842.46	FEE
EXC 0 11	02 106	NORTHWESTERN IMPROVEMENT	4,706.19	MIN
EXC 0 2	02 107	NORTH DAKOTA STATE OF	680.00	FEE
EXC 0 3	02 108	CHASE	313.00	FEE
DT 0 20	02 109	REG TRAIL COAL CO	27.00	FEE
TRA 0 15	02 110	FOREST SERVICE	18.66	FEE
EXC 0 4	02 111	COOPER	400.00	FEE
PUR 0 36	02 112	T R NATURAL HIST ASSOC	140.00	MIN
EXC 0 8	02 113	COOPER	80.00	FEE
DN 0 16	02 114	VALLAMBROSA	40.30	FEE
PUR 0 19	02 115	MUNEL et al	0.27	FEE
DT 0 21	02 116	NOYES	0.16	FEE
DT 0 16	02 117	GROB	1.04	FEE
DN 0 32	02 118	NORTH DAKOTA STATE OF	2.18	FEE
USA 0 22	02 119	SPURGEON	0.17	FEE
DT 0 24	02 120	HINKEL	0.40	FEE
DN 0 39	02 121	SPURGEON	1320.00	MIN
DN 0 40	02 122	BILLINGS COUNTY	1320.00	MIN
OIS/OTH-27	02 123	TO DEPT of AGRICULTURE	- 79.35	FEE
OIS/OTH-28	02 124	TO STATE of ND	0.00	ROW
OIS/OTH 27	02 125	TO DEPT of AGRICULTURE	137.21	FEE

SEE LAND STATUS MAP 03

SEE INSET
 Medora (Historic Medora)

DATE	REVISIONS	BY
7 21 75	DATE STATUS	
12 28 75	NO 18	
1 31 76	NO 19	
1 31 76	NO 20	
7 21 75	NO 21	



DATE	REVISIONS	BY
5/16/84	C O NO W&SO 84-25	
5/15/84	C D NO P4-20	
3/12/84	C C NO 84-17	
7/8/80	C O NO. 80-23.	
1/25/79	C O NO. 79-11	
1-19-79	W&SO 79-11 PL 35 625	
1/8/75	C O NO. 76-11	
08/21/75	UPDATE STATUS	GLL
		BY

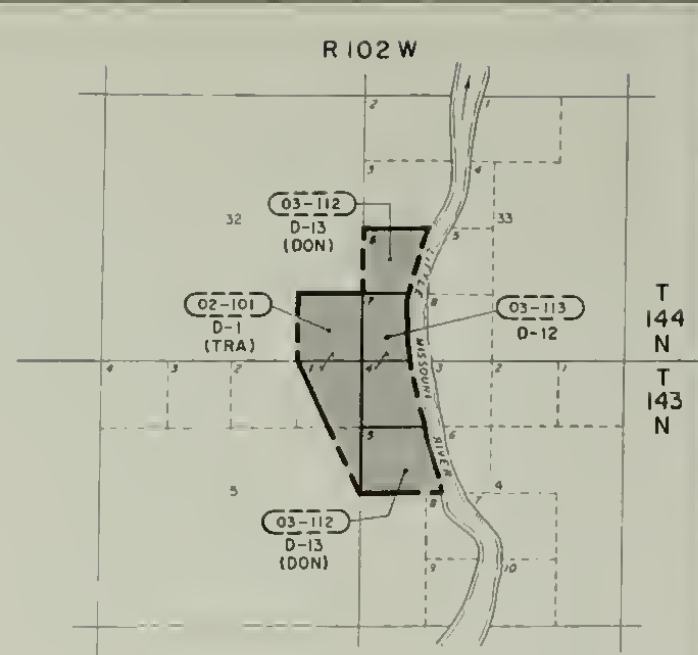
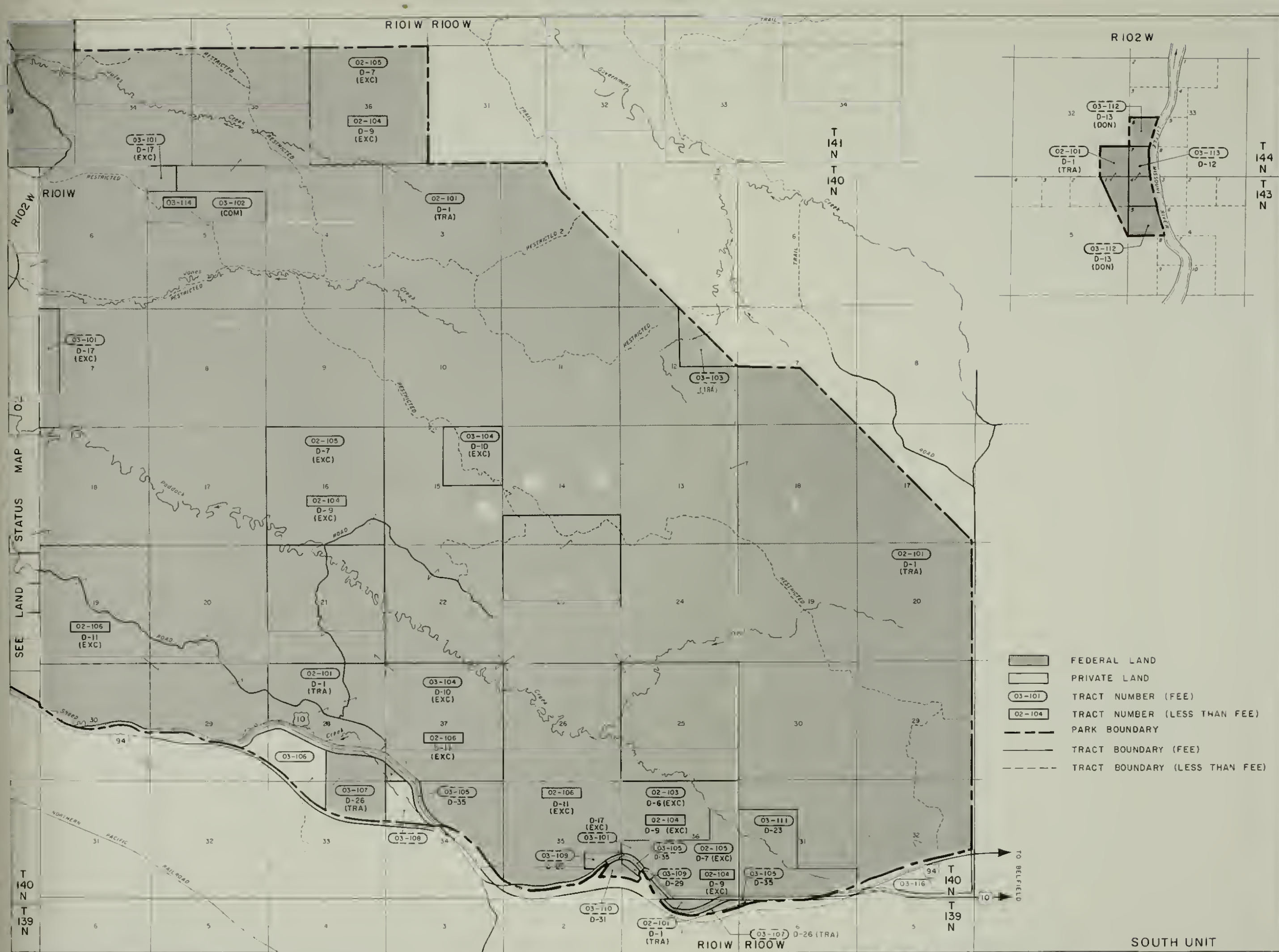
ESTABLISHED: A
 BOUNDARY CHA
 DATE: JUNE 19
 MAPPED BY
 DENVER SERVICE

DEED	TRACT	OWNER	ACRES	INT
WIT 0-1	02-101	PUBLIC DOMAIN		FEE
0-6	02-103	NORTH DAKOTA STATE OF		FEE
0-9	02-104	NORTH DAKOTA STATE OF		MIN
0-7	02-105	NORTH DAKOTA STATE OF		FEE
0-11	02-106	NORTHWESTERN IMPROVEMENT CO.		MIN
EXCO-17	03-101	O'CONNELL, et ux	172.89	FEE
COM D-37	03-102	SMITH, et ux	160.00	FEE
TRA 0-34	03-103	B L M	80.00	FEE
EXCO-10	03-104	TALKINGTON, et ux	2 861.41	FEE
00N 0-35	03-105	NORTH DAKOTA STATE OF	96.90	FEE
	03-106	SICKLER, et ux	149.00	FEE
TRA 0-26	03-107	FOREST SERVICE	133.06	FEE
	03-108	SICKLER, et ux	27.30	FEE
D T 0-29	03-109	NOYES, et al	22.00	FEE
D T D-31	03-110	O'CONNELL	2535	FEE
PUR 0-23	03-111	OLSEN, et ux	315.28	FEE
DON D-13	03-112	MACKOFF, et vir	77.38	FEE
PUR 0-12	03-113	MACKOFF, et vir	60.54	FEE
DON D-37	03-114	DEPCO, INC	(160.00)	MIN
	03-115	DELETE		
DIST 0TH-27	03-116	TO DEPT of AGRICULTURE	119.76	FEE

SEE LAND STATUS MAP 02 FOR ACRES

OLD TRACT NUMBERS
IN PARENTHESES

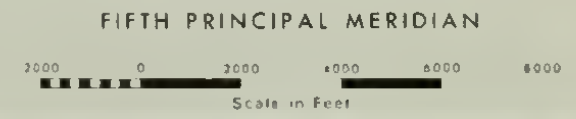
TH UNIT
 E ROOSEVELT
 AL PARK
 GS COUNTY
 H DAKOTA



DEED	TRACT	OWNER	ACRES	INT
111 0 1	02 101	PUBLIC DOMAIN		FEE
0 6	02 103	NORTH DAKOTA STATE OF		FEE
0 9	02 104	NORTH DAKOTA STATE OF		MIN
0 7	02 105	NORTH DAKOTA STATE OF		FEE
0 11	02 106	NORTHWESTERN IMPROVEMENT CO.		MIN
EXC 0 17	03 101	D'CONNELL, et ux	172 89	FEE
COM 0 37	03 102	SMITH, et ux	160 00	FEE
TRA 0 34	03 103	B L W	80 00	FFF
EXC 0 10	03 104	TALMINGTON, et ux	861 41	FEE
DON 0 35	03 105	NORTH DAKOTA STATE OF	96 90	FEE
	03 106	SICKLER, et ux	149 00	FEE
TRA 0 26	03 107	FOREST SERVICE	133 06	FEE
	03 108	SICKLER, et ux	27 30	FEE
0 1 0 29	03 109	NOYES, et al	22 00	FEE
0 1 0 31	03 110	D'CONNELL	25 35	FEE
PUR 0 23	03 111	OLSEN, et ux	315 28	FEE
DON 0 13	03 112	MACDOFF, et vir	77 38	FEE
PUR 0 12	03 113	MACDOFF, et vir	60 54	FEE
DON 0 37	03 114	UEPCO, INC	1160 00	MIN
	03 115	DELETE		
DIS OTH-27	03 116	TO DEPT OF AGRICULTURE	119 76	FEE

DATE	REVISIONS	BY
5/18/84	C O NO 250 04-23	
5/15/84	C O NO 24 20	
1/12/84	C O NO 24 11	
7/2/80	C O NO 80-23	
1/28/79	C O NO 79 11	
1/9/79	AKSO 79-11 PL 2: 62'	
7/8/75	C O NO 76-11	
08/21/75	UPDATE STATUS	GLL

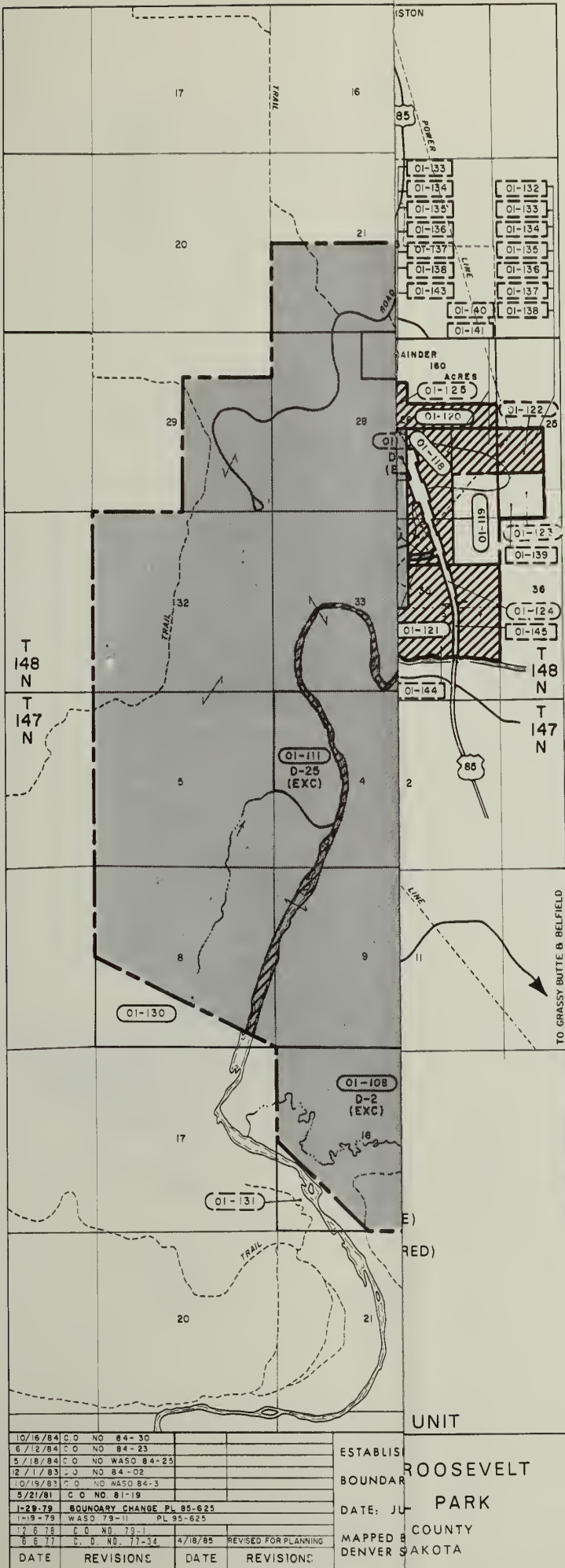
ESTABLISHED APRIL 25, 1947
 BOUNDARY CHANGE NOVEMBER 10, 1978
 DATE JUNE 1974
 MAPPED BY DENVER SERVICE CENTER, COLORADO



UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DIVISION OF LAND ACQUISITION
 LAND STATUS MAP 03

DN BY JH CR BY
 APPR BY RPLA 74
 REGION ROCKY MTN
 DRAWING NO 387
 9200J
 SHEET 4 OF 4

THEODORE ROOSEVELT NATIONAL PARK
 BILLINGS COUNTY NORTH DAKOTA



DEED	TRACT	OWNER	ACRES	INT
	01-101	DELETED		
	01-102	DELETED		
	01-103	DELETED		
	01-104	DELETED		
	01-105	DELETED		
PUR 0-33	01-106	NORTH DAKOTA STATE OF	3.54	FEE
	01-107	DELETED		
EXC 0-2	01-108	NORTH DAKOTA STATE OF	1,347.37	FEE
WIT 0-1	01-109	PUBLIC DOMAIN	21,890.03	FEE
EXC 0-30	01-110	MONSEN	320.00	FEE
EXC 0-25	01-111	MANDAL	145.13	FEE
	01-112	DELETED		
	01-113	DELETED		
	01-114	DELETED		
	01-115	DELETED		
	01-116	DELETED		
	01-117	DELETED		
	01-118	STENEHJEM, et ux	90.52	FEE
	01-119	McCLOSKEY	120.00	FEE
	01-120	STUTRUD	70.36	FEE
	01-121	WRIGHT, et al	1,530.99	FEE
	01-122	STUTRUD	40.00	FEE
	01-123	STUTRUD	40.00	FEE
	01-124	NORTH DAKOTA, STATE OF	40.60	FEE
	01-125	NORTH DAKOTA, STATE OF	9.64	FEE
DIS/OTH-41	01-126	TO: STATE, NORTH DAKOTA	(0.77)	EASE
DIS/OTH-41	01-127	TO: STATE, NORTH DAKOTA	(3.08)	EASE
DIS/OTH-41	01-128	TO: STATE, NORTH DAKOTA	(5.30)	EASE
	01-129	DELETED		
DIS/OTH-14	01-130	TO: DEPT. of AGRICULTURE	153.04	FEE
DIS/OTH-14	01-131	TO: DEPT. of AGRICULTURE	46.92	FEE
	01-132	COUNTY OF MCKENZIE	(40.00)	A/C
	01-133	STUTRUD, ODIN C.	(110.36)	A/C
	01-134	FINDLAY, ANNETTE	(110.36)	A/C
	01-135	TANBERG, GLADYS	(110.36)	A/C
	01-136	AMINOIL U. S. A., INC.	(110.36)	OGLE
	01-137	AMINOIL U. S. A., INC.	(110.36)	OGLE
	01-138	AMINOIL U. S. A., INC.	(110.36)	OGLE
	01-139	STUTRUD, ODIN C. et ux.	(40.00)	A/C
	01-140	STENEHJEN, JUDITH et. ol.	(130.52)	A/C
	01-141	JOHNSON, PHILIP O. C.	(130.52)	A/C
	01-142	UNKNOWN (STR)	(9.64)	
	01-143	FEDERAL LAND BANK OF ST. PAUL, a corp.	(70.36)	A/C
	01-144	BAYE, BEN A.	(153.09)	A/C
	01-145	UNKNOWN (STR)	(40.60)	A/C
	01-146	JOHNSON, P. O. C. et. ux.	(3.54)	FM
	01-147	DELETED		
	01-148	DELETED		
	01-149	DELETED		
	01-150	UNKNOWN	(524.20)	ALL

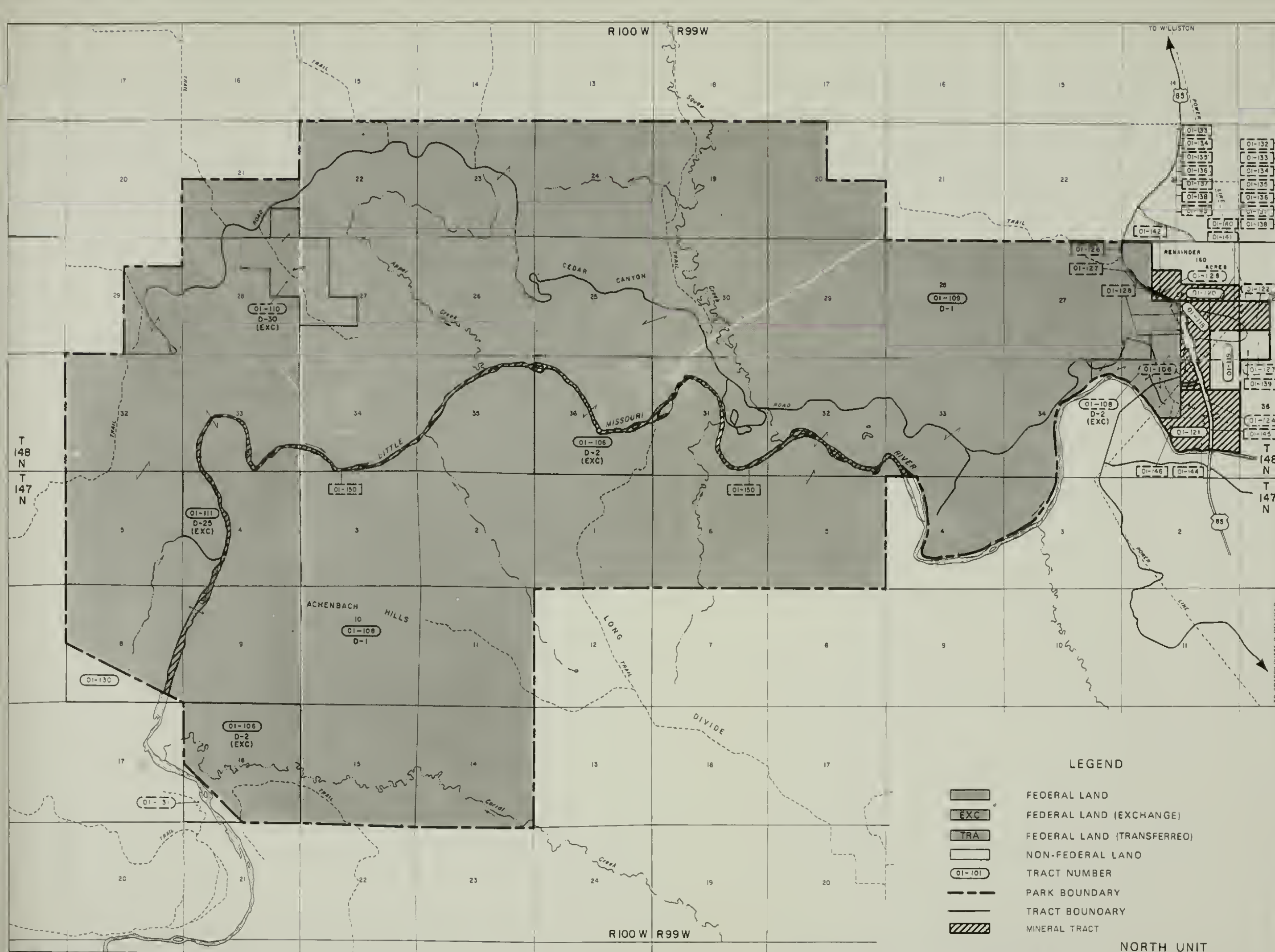
TRACT REGISTER KEY
 OWNER- LESSEE
 STR- SEE TITLE REPORT

INTEREST
 ALL- ALL MINERALS
 A/C- ALL MINERALS EXCEPT COAL
 FM- FLUID MINERALS
 OGLE- OIL AND GAS LEASE
 OGLEA- OIL AND GAS LEASE APPLICATION

NOTE: U. S. A. Reservations Of Potent And Acquired Oil, Gas And Mineral Interests Are Not Depicted.

10/16/84	C.O. NO. 84-30		
6/12/84	C.O. NO. 84-23		
5/18/84	C.O. NO. WASO 84-23		
2/17/83	J. NO. 84-02		
10/19/83	C.O. NO. WASO 84-3		
5/21/81	C.O. NO. 81-19		
1-29-79	BOUNDARY CHANGE PL. 85-625		
1-19-79	WASO 79-11 PL. 95-625		
12-6-78	C.O. NO. 78-1		
6-6-77	C.O. NO. 77-34	4/18/85	REVISED FOR PLANNING
DATE	REVISIONS	DATE	REVISIONS

ESTABLISHED BY
 BOUNDARY
 DATE: JULY 1985
 MAPPED BY
 DENVER, COLORADO



DEED	TRACT	OWNER	ACRES	INT
	01-101	DELETED		
	01-102	DELETED		
	01-103	DELETED		
	01-104	DELETED		
	01-105	DELETED		
PUR 0 33	01-106	NORTH DAKOTA STATE OF	3.54	FEE
	01-107	DELETED		
EXC D-2	01-108	NORTH DAKOTA STATE OF	1,347.37	FEE
WIT D-1	01-109	PUBLIC DOMAIN	21,890.03	FEE
EXC D-30	01-110	WONSEN	320.00	FEE
EXC D-25	01-111	WANDAL	145.13	FEE
	01-112	DELETED		
	01-113	DELETED		
	01-114	DELETED		
	01-116	DELETED		
	01-118	DELETED		
	01-117	DELETED		
	01-118	STENEHJEM, et ux	80.52	FEE
	01-119	McCLOSKEY	120.00	FEE
	01-120	STUTRUD	70.36	FEE
	01-121	WRIGHT, et al	133.09	FEE
	01-122	STUTRUD	40.00	FEE
	01-123	STUTRUD	40.00	FEE
	01-124	NORTH DAKOTA, STATE OF	40.60	FEE
	01-125	NORTH DAKOTA, STATE OF	9.64	FEE
DIS/OTH-41	01-126	TO: STATE, NORTH DAKOTA	(0.77)	EASE
DIS/OTH-41	01-127	TO: STATE, NORTH DAKOTA	(3.08)	EASE
DIS/OTH-41	01-128	TO: STATE, NORTH DAKOTA	(3.30)	EASE
	01-129	DELETED		
DIS/OTH-14	01-130	TO: DEPT of AGRICULTURE	-153.04	FEE
DIS/OTH-14	01-131	TO: DEPT of AGRICULTURE	-46.92	FEE
	01-132	COUNTY OF MCKENZIE	(40.00)	A/C
	01-133	STUTRUD, ODIN C.	(110.36)	A/C
	01-134	FINDLAY, ANNETTE	(110.36)	A/C
	01-135	TANBERG, GLADYS	(110.36)	A/C
	01-136	AMINDIL U S A, INC.	(110.36)	OGLE
	01-137	AMINDIL U S A, INC.	(110.36)	OGLE
	01-138	AMINDIL U S A, INC.	(110.36)	OGLE
	01-139	STUTRUD, ODIN C. et ux	(40.00)	A/C
	01-140	STENEHJEM, JUDITH et al	(130.52)	A/C
	01-141	JOHNSON, PHILIP O C	(130.52)	A/C
	01-142	UNKNOWN (STR)	(9.64)	
	01-143	FEDERAL LAND BANK OF ST. PAUL, a corp	(70.36)	A/C
	01-144	BAYE, BEN A	(53.08)	A/C
	01-145	UNKNOWN (STR)	(40.60)	A/C
	01-146	JOHNSON, P O C et ux	(3.54)	FM
	01-147	DELETED		
	01-148	DELETED		
	01-149	DELETED		
	01-150	UNKNOWN	(924.20)	ALL

TRACT REGISTER KEY
 OWNER-LESSEE
 STR-SEE TITLE REPORT

INTEREST
 ALL-ALL MINERALS
 A/C-ALL MINERALS EXCEPT COAL
 FM-FLUID MINERALS
 OGLE-OIL AND GAS LEASE
 OGLEA-OIL AND GAS LEASE APPLICATION

NOTE U S A Reservations Of Patent And Acquired Oil, Gas And Mineral Interests Are Not Depicted

- LEGEND**
- FEDERAL LAND
 - EXC FEDERAL LAND (EXCHANGE)
 - TRA FEDERAL LAND (TRANSFERRED)
 - NON-FEDERAL LAND
 - 01-101 TRACT NUMBER
 - PARK BOUNDARY
 - TRACT BOUNDARY
 - MINERAL TRACT

NORTH UNIT
THEODORE ROOSEVELT NATIONAL PARK
 MCKENZIE COUNTY
 NORTH DAKOTA

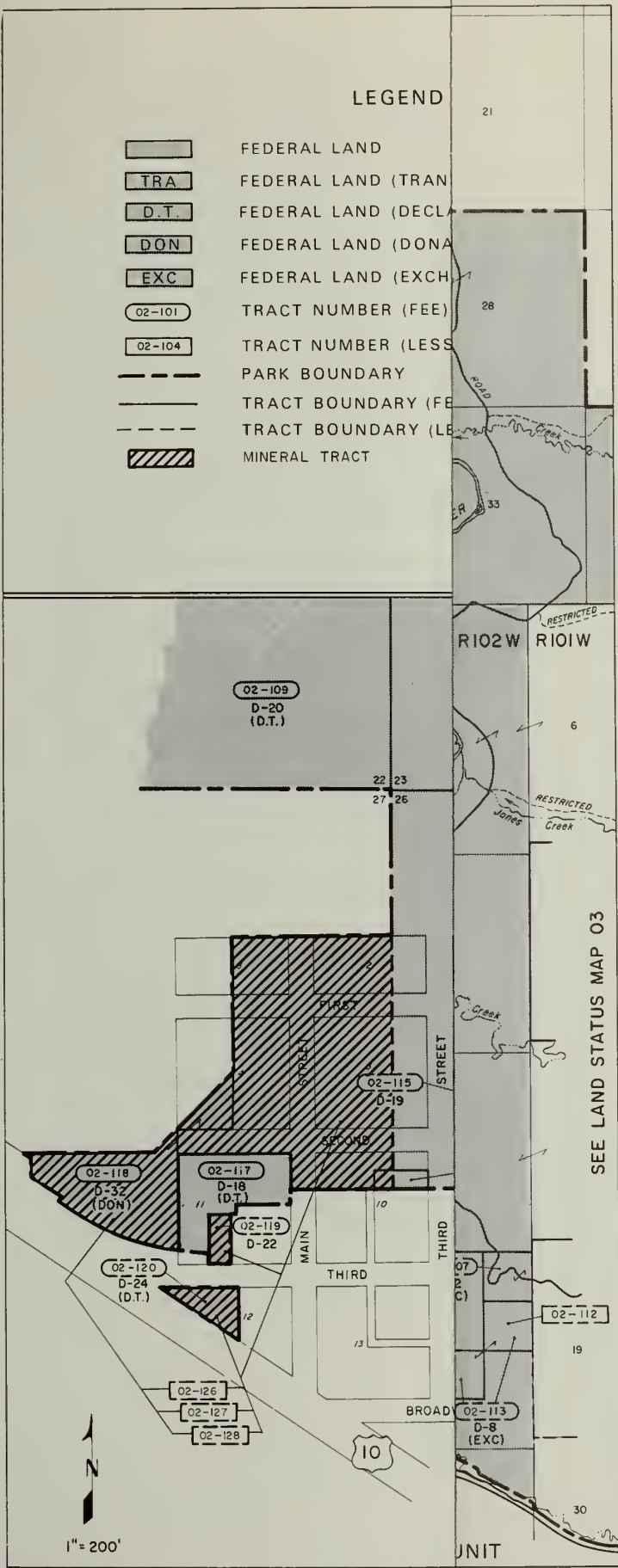
UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DIVISION OF LAND ACQUISITION
 DIVISION OF ENERGY, MINING & MINERALS
 TITLE: MINERAL STATUS MAP OI
 DRAWING NO. 387
 92 003-A
 SHEET 2 OF 4

ESTABLISHED: APRIL 25, 1947
 BOUNDARY CHANGE NOVEMBER 10, 1978
 DATE: JUNE 1974
 MAPPED BY DENVER SERVICE CENTER, COLORADO
 FIFTH PRINCIPAL MERIDIAN
 Scale in Feet: 0 2000 4000 6000 8000

DATE	REVISIONS	DATE	REVISIONS
10/18/84	C O NO 84-30		
6/7/84	C O NO 84-23		
5/7/84	C O NO WADO 84-25		
2/7/83	C O NO 84-02		
1/19/83	C O NO 84-03		
5/21/81	C O NO 81-19		
1-28-79	BOUNDARY CHANGE PL 89-825		
1-9-78	PL 93-625		
1-9-78	C O NO 78-1		
8-8-77	C O NO 77-34	4/7/85	REVISED FOR PLANNING

LEGEND

- FEDERAL LAND
- FEDERAL LAND (TRAN
- FEDERAL LAND (DECL
- FEDERAL LAND (DONA
- FEDERAL LAND (EXCH
- TRACT NUMBER (FEE)
- TRACT NUMBER (LESS
- PARK BOUNDARY
- TRACT BOUNDARY (FE
- TRACT BOUNDARY (LB
- MINERAL TRACT



DEED	TRACT	OWNER	ACRES	INT
WIT 0-1	02-101	PUBLIC DOMAIN	37,255.64	FEE
EXC 0-5	02-102	MYERS	320.00	FEE
EXC 0-6	02-103	NORTH DAKOTA STATE OF	520.00	FEE
EXC 0-9	02-104	NORTH DAKOTA STATE OF	2,322.46	MIN
EXC 0-7	02-105	NORTH DAKOTA STATE OF	2,842.46	FEE
EXC 0-11	02-106	NORTHWESTERN IMPROVEMENT	4,106.19	MIN
EXC 0-2	02-107	NORTH DAKOTA STATE OF	680.00	FEE
EXC 0-3	02-108	CHASE	313.00	FEE
OT 0-20	02-109	RED TRAIL COAL CO	27.00	FEE
TRA 0-15	02-110	FOREST SERVICE	18.66	FEE
EXC 0-4	02-111	COOPER	400.00	FEE
PUR 0-36	02-112	T. R. NATURAL HIST ASSOC	140.00	MIN
EXC 0-8	02-113	COOPER	80.00	FEE
DON 0-16	02-114	VALLAMBROSA	40.30	FEE
PUR 0-19	02-115	KUNHEI et al	0.27	FEE
OT 0-21	02-116	NOYES	0.16	FEE
OT 0-16	02-117	GRON	1.04	FEE
00N 0-32	02-118	NORTH DAKOTA STATE OF	2.18	FEE
USA 0-22	02-119	SPURGEON	0.17	FEE
OT 0-24	02-120	HINKEL	0.40	FEE
00N 0-39	02-121	SPURGEON	(320.00)	MIN
DON 0-40	02-122	BILLINGS COUNTY	(320.00)	MIN
DIS/OTH-27	02-123	TO DEPT OF AGRICULTURE	- 79.35	FEE
OIS/OTH-28	02-124	TO STATE OF NO DAK	0.00	ROW
OIS/OTH-27	02-125	TO DEPT OF AGRICULTURE	- (37.2)	FEE
	02-126	MERIDIAN LAND AND MINERAL COMPANY	(9.23)	A/OGH
	02-127	MILESTONE PETROLEUM, INC.	(9.23)	OGH
	02-128	COASTAL OIL AND GAS CORP. et al	(9.23)	OGLE 75.00%

TRACT REGISTER KEY
 INTEREST
 A/OGH - ALL MINERALS EXCEPT OIL, GAS AND HYDROCARBONS
 OGH - OIL, GAS AND HYDROCARBONS
 OGLE - OIL AND GAS LEASE

NOTE: U.S.A. Reservations Of Patent And Acquired Oil, Gas And Mineral Interests Are Not Depicted.

SEE LAND STATUS MAP 03

4/18/85	REVISED FOR PLANNING	WCO
5-18-84	C O NO 74-24-25	
11/23/81	C O NO 82-7	
7-1-79	C O NO 75-25	
1-26-79	C O NO 79-11	
1-9-79	WASO 79-11 P. 95-624	
1-18-78	C O NO 79-1	
7/21/75	UPDATE STATUS	
DATE	REVISIONS	BY

ESTABLISHED
 BOUNDARY
 DATE: JUN
 MAPPED BY
 DENVER SER

ROSEVELT
 PARK
 COUNTY
 DAKOTA

LEGEND

- FEDERAL LAND
- TRA FEDERAL LAND (TRANSFERRED)
- DT FEDERAL LAND (DECLARATION OF TAKING)
- DDN FEDERAL LAND (DDNATION)
- EXC FEDERAL LAND (EXCHANGE)
- 02-101 TRACT NUMBER (FEE)
- 02-104 TRACT NUMBER (LESS THAN FEE)
- PARK BOUNDARY
- TRACT BOUNDARY (FEE)
- TRACT BOUNDARY (LESS THAN FEE)
- MINERAL TRACT

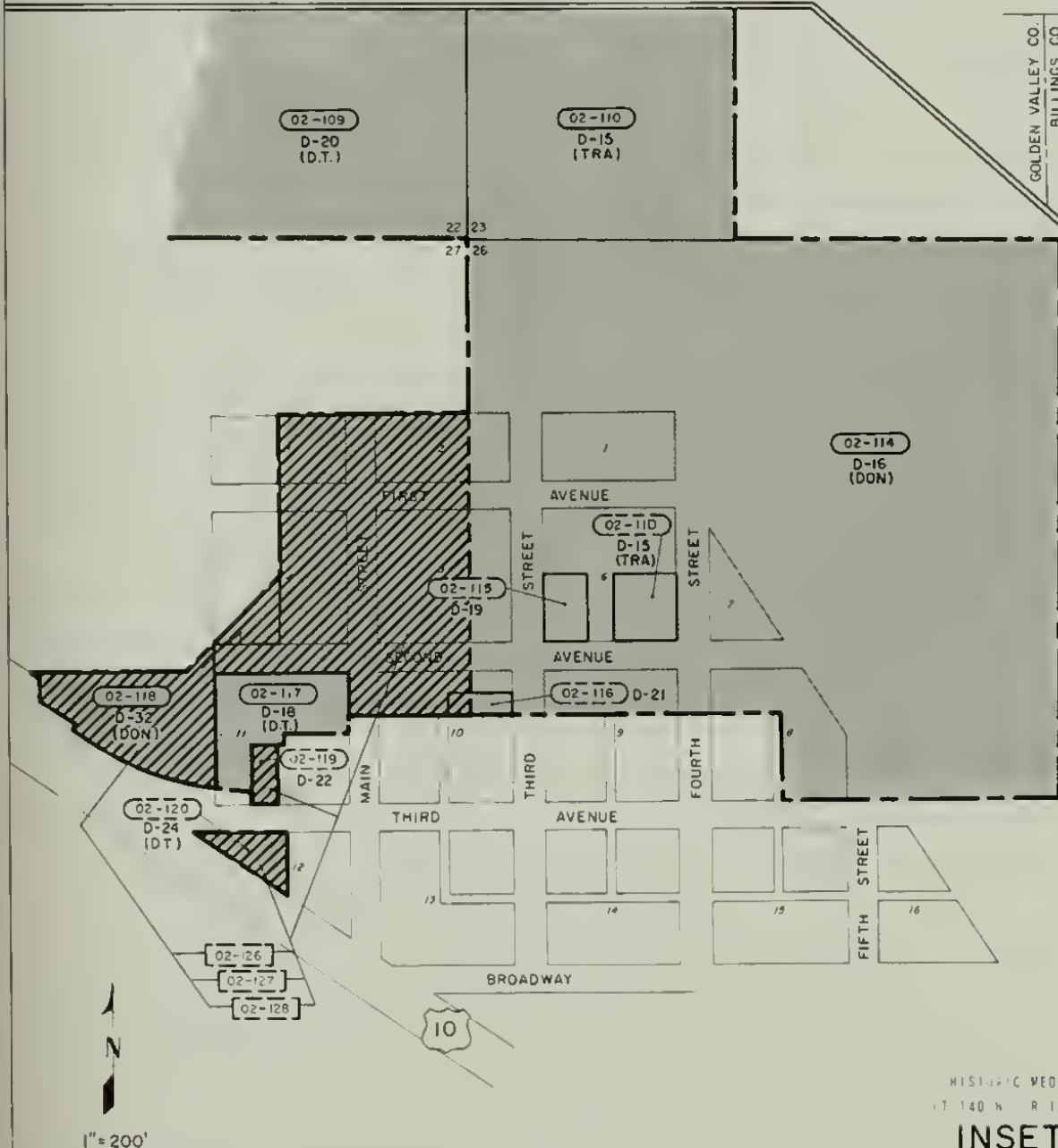
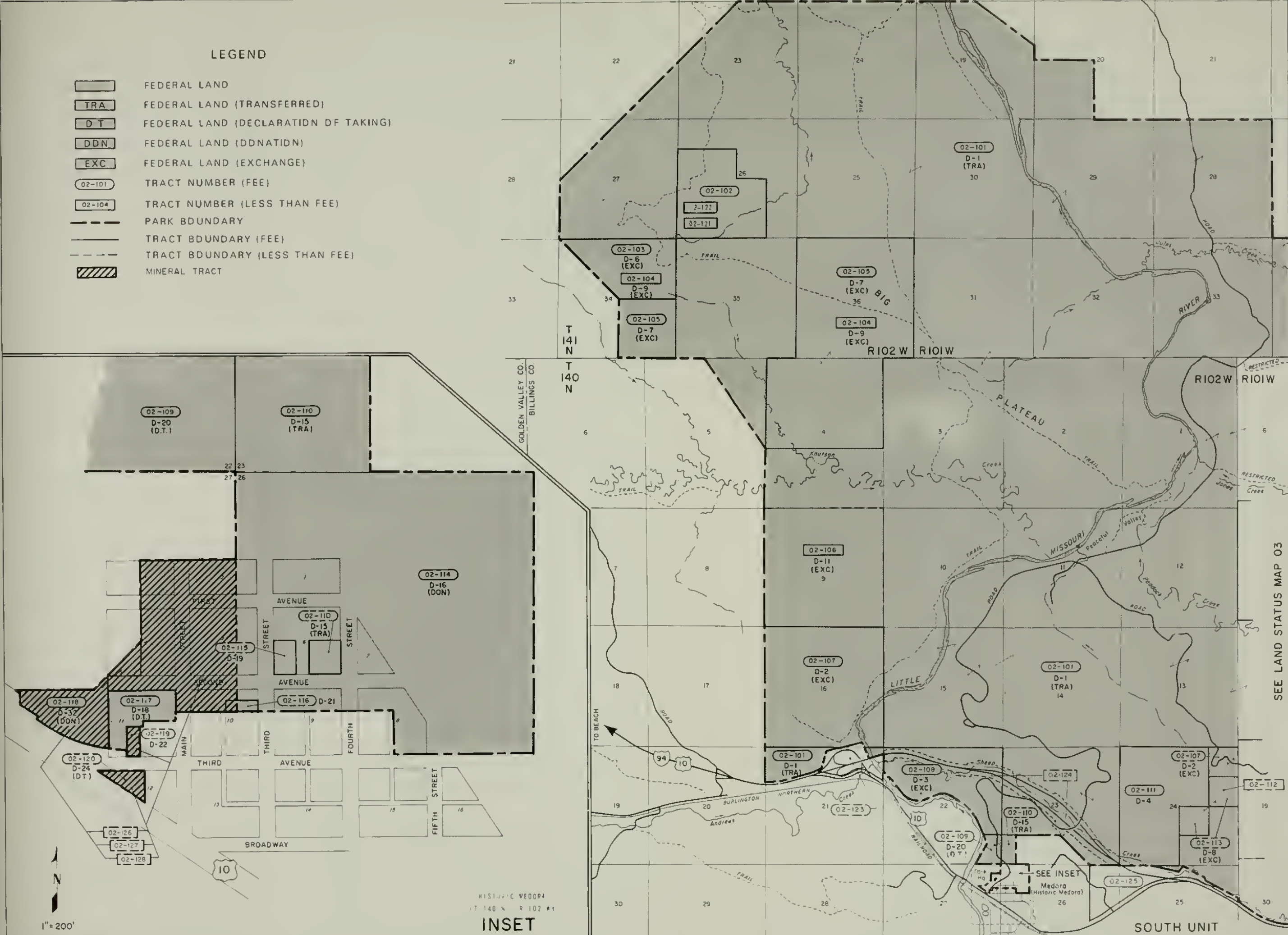
DEED	TRACT	OWNER	ACRES	INT
#11 0 1	02-101	PUBLIC DOMAIN	37,255.64	FEE
EXC 0 5	02-102	MYERS	320.00	FEE
EPC 0 6	02-103	NORTH DAKOTA STATE OF	520.00	FEE
EPC 0 9	02-104	NORTH DAKOTA STATE OF	12,322.46	MIN
EPC 0 7	02-105	NORTH DAKOTA STATE OF	12,842.46	FEE
EPC 0 11	02-106	NORTHWESTERN IMPROVEMENT	4,706.19	MIN
EPC 0 2	02-107	NORTH DAKOTA STATE OF	680.00	FEE
EPC 0 3	02-108	CHASE	313.00	FEE
DT 0 20	02-109	RED TRAIL COAL CO	27.00	FEE
TRA 0 15	02-110	FOREST SERVICE	18.66	FEE
EXC 0 4	02-111	COOPER	400.00	FEE
PUR 0 36	02-112	T R NATURAL HIST ASSOC	140.00	MIN
EXC 0 8	02-113	COOPER	80.00	FEE
DDN 0 16	02-114	VALLAMBROSA	40.30	FEE
PLS 0 19	02-115	KUNPE et al	0.27	FEE
0 1 0 21	02-116	NOYES	0.16	FEE
0 1 0 16	02-117	GROW	1.04	FEE
DDN 0 32	02-118	NORTH DAKOTA STATE OF	2.18	FEE
USA 0 27	02-119	SPURGEON	0.17	FEE
0 1 0 24	02-120	HINKEL	0.40	FEE
DDN 0 39	02-121	SPURGEON	1320.00	MIN
DDN 0 40	02-122	BILLINGS COUNTY	1320.00	MIN
OIS/OTH 27	02-123	TO DEPT of AGRICULTURE	79.35	FEE
OIS/OTH 28	02-124	TO STATE of N DAK	0.00	ROW
OIS/OTH 27	02-125	TO DEPT of AGRICULTURE	137.21	FEE
	02-126	MERIDIAN LAND AND MINERAL COMPANY	(9.23)	A/OGH
	02-127	MILESTONE PETROLEUM, INC	(9.23)	OGH
	02-128	COASTAL OIL AND GAS CORP. et al	(9.23)	OGLE 75.00%

TRACT REGISTER KEY

- INTEREST
- A/OGH - ALL MINERALS EXCEPT OIL, GAS AND HYDROCARBONS
- OGH - OIL, GAS AND HYDROCARBONS
- OGLE - OIL AND GAS LEASE

NOTE: U.S.A. Reservations of Patent and Acquired Oil, Gas and Mineral Interests are Not Depicted.

SEE LAND STATUS MAP 03



DATE	REVISIONS	BY
4/28/83	REVISED FOR PLANNING	WCO
11/18/84	C.O. NO. 82-2	
11/23/81	C.O. NO. 82-2	
11/18/79	C.O. NO. 79-11	
9-19-79	C.O. NO. 79-11	
7-27-75	D.D. STATUS	

ESTABLISHED APRIL 25, 1947
 BOUNDARY CHANGE NOVEMBER 10, 1978
 DATE JUNE 1974
 MAPPED BY DENVER SERVICE CENTER, COLORADO

FIFTH PRINCIPAL MERIDIAN

Scale in Feet
 2000 0 2000 4000 6000 8000

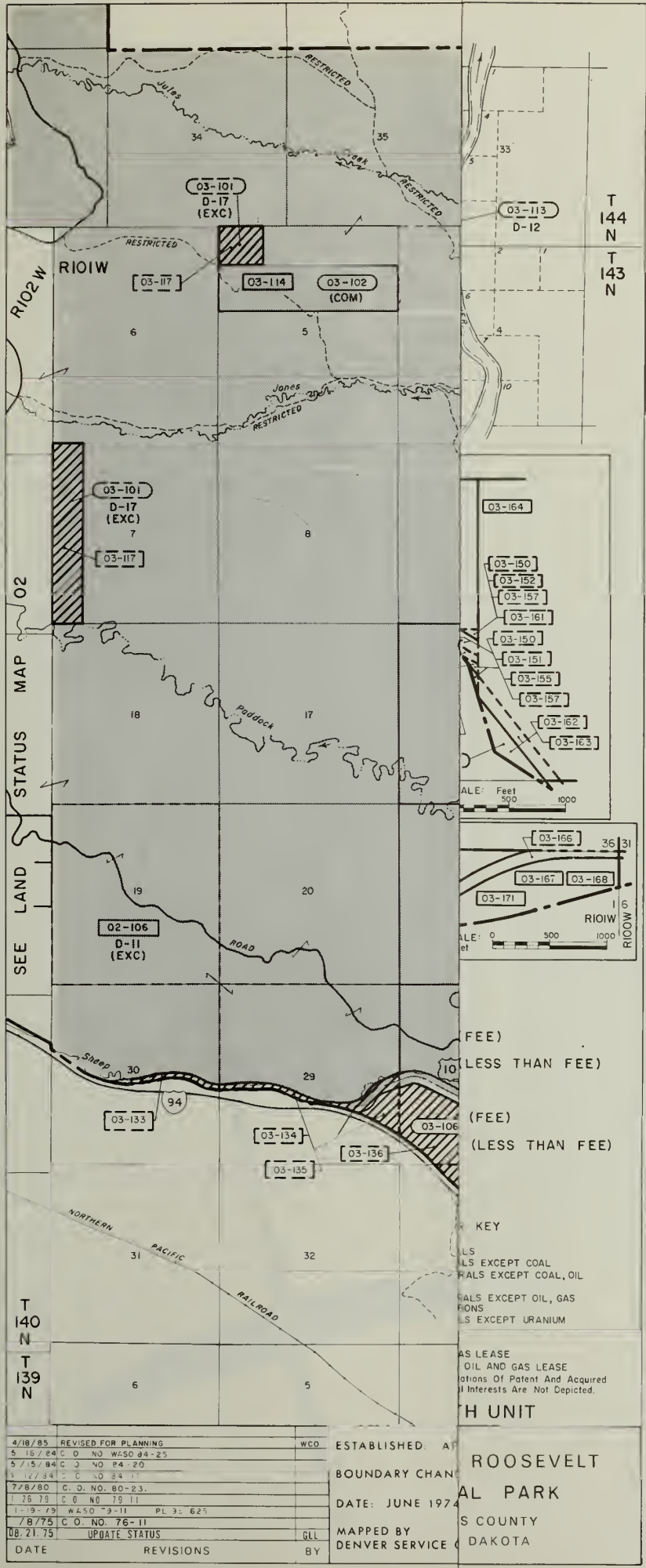
UNITED STATES
 DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
 DIVISION OF LAND ACQUISITION
 DIVISION OF ENERGY, MINING & MINERALS

DN BY [initials] CK BY [initials]
 APPR BY P.P. 6/14/74
 REGION ROCKY MTN
 DRAW NO 387
 92-103-A

TITLE
MINERAL STATUS MAP 02

SHEET 3 OF 4

THEODORE ROOSEVELT NATIONAL PARK
 BILLINGS COUNTY
 NORTH DAKOTA



DEED	TRACT	OWNER	ACRES	INT
WIT 0-1	02-101	PUBLIC DOMAIN		FEE
0-6	02-103	NORTH DAKOTA, STATE OF		FEE
0-9	02-104	NORTH DAKOTA STATE OF		MIN
0-7	02-105	NORTH DAKOTA STATE OF		FEE
0-11	02-106	NORTHWESTERN IMPROVEMENT CO.		MIN
EXC 0-17	03-101	O'CONNELL, et ux	172.89	FEE
COM 0-37	03-102	SMITH, et ux	160.00	FEE
TRA 0-34	03-103	8 L M	80.00	FFF
EXC 0-10	03-104	TALKINGTON, et ux	2 861.41	FEE
DON 0-35	03-105	NORTH DAKOTA STATE OF	96.90	FEE
TRA 0-26	03-106	SICKLER, et ux	149.00	FEE
	03-107	FOREST SERVICE	133.06	FEE
	03-108	SICKLER, et ux	27.30	FEE
0-7-29	03-109	NOYES, et al	22.00	FEE
0-7-31	03-110	O'CONNELL	2.535	FEE
PUR 0-23	03-111	OLSEN, et ux	315.28	FEE
UM 0-13	03-112	MACKOFF, et vir	77.38	FEE
PUR 0-12	03-113	MACKOFF, et vir	60.54	FEE
DON 0-37	03-114	DEP CO, INC	(160.00)	MIN
	03-115	DELETE		
DIS 0TH-27	03-116	TO DEPT of AGRICULTURE	- 119.76	FEE
SEE LAND STATUS MAP 02 FOR ACRES				
OLD TRACT NUMBERS IN PARENTHESES				
	03-117	COUNTY OF BILLINGS	(14478)	ALL
	03-118	VANGRIGG, W T et al	(80.00)	A/C
	03-119	HANCOCK ENTERPRISES	(80.00)	OG
	03-120	FORTIN, MARY A.	(80.00)	A/C
	03-121	EVERETT, W R et al	(80.00)	A/C
	03-122	HIGGINS, WILMA T.	(80.00)	A/C
	03-123	DIETRICH, F A	(80.00)	A/C
	03-124	GUTH, PETER L.	(80.00)	A/C
	03-125	KAGY, JOHN M.	(80.00)	A/C
	03-126	FORTIN, MARY A	(80.00)	A/COG
	03-127	HANCOCK ENTERPRISES	(80.00)	A/COG
	03-128	SLAWSON, D. C.	(80.00)	OGLE
	03-129	K & E PETROLEUM, INC. et al	(80.00)	OGLE
	03-130	INTERNATIONAL FUEL SUPPLY	(80.00)	OGLE
	03-131	MCLESTER TUB CO.	(80.00)	OGLE
	03-132	BRAZOS YOUNG CORP	(80.00)	OGLE
	03-133	UNKNOWN	(15.0)	ALL
	03-134	BURLINGTON NORTHERN INC.	(40.5)	ALL
	03-135	COASTAL OIL AND GAS CORP, et al	(40.5)	OGLE
	03-136	O'CONNELL, K A	(1076)	A/U
	03-137	MILESTONE PETROLEUM INC	(68.0)	OGH
	03-138	MERIDIAN LAND AND MINERAL CO.	(68.0)	A/OGH
	03-139	COASTAL OIL AND GAS CORP, et al	(68.0)	OGLE
	03-140	CEPERLEY, BERTHA	(261.0)	A/C
	03-141	ALTHOFF, SHIRLEY	(261.0)	A/C
	03-142	COULTER, DOROTHY	(261.0)	A/C
	03-143	ANDERSON, NONA	(261.0)	A/C
	03-144	SHIRLEY, K M	(261.0)	A/C
	03-145	CARLE, E. E.	(261.0)	A/C
	03-146	MADSEN, L. K. et al	(261.0)	A/C
	03-147	AMERADA HESS CORP et al	(320.0)	UOGLE
	03-148	AMERADA HESS CORP et al	(220.23)	UOGLE
	03-149	AMERADA HESS CORP	(15.30)	UOGLE
	03-150	STATE OF NORTH DAKOTA	(51.3)	ALL
	03-151	FERGUSON, ADA	(13.6)	ALL
	03-152	PHILLIPS PETROLEUM CO.	(26.66)	ALL
	03-153	PHILLIPS PETROLEUM CO	(11.08)	ALL
	03-154	STATE OF NORTH DAKOTA	2.25	FEE
	03-155	AMERADA HESS CORP	(13.6)	UOGLE
	03-156	AMERADA HESS CORP.	(37.9)	UOGLE
	03-157	CLINTON OIL COMPANY	(13.47)	UOGLE
	03-158	AMERADA HESS CORP.	(2.99)	UOGLE
	03-159	AMERADA HESS CORP	(11.08)	UOGLE
	03-160	AMERADA HESS CORP et al.	(27.80)	UOGLE
	03-161	AMERADA HESS CORP. et al.	(0.310)	UOGLE
	03-162	STATE OF NORTH DAKOTA	(4.86)	ALL
	03-163	AMERADA HESS CORP	(4.86)	UOGLE
	03-164	AMERADA HESS CORP et al.	(233.890)	UOGLE
	03-165	FISHER, SAMUEL V. S.	(4.07)	C
	03-166	AMERADA HESS CORP et al.	(28.02)	UOGLE
	03-167	OLIS, HERBERT G.	(35.8)	C
	03-168	LASSON, M L	(35.8)	C
	03-169	DELETE		
	03-170	DELETE		
	03-171	AMERADA HESS CORP	(12.3)	UOGLE
	03-172	AMERADA HESS CORP. et al.	(318.210)	UOGLE
	03-173	STATE OF NORTH DAKOTA	(3.05)	A/C
	03-174	AMERADA HESS CORP. et al	(3.05)	UOGLE
	03-175	AMERADA HESS CORP et al.	(133.260)	UOGLE
	03-176	SHAPIRO, S. R. et al.	(44.72)	A/C
	03-177	STEDMAN, GENEVA	(44.72)	6000%
	03-178	KELLOGG, ROBERT J. et al.	(44.72)	A/C
	03-179	KELLOGG, KATHLEEN	(44.72)	A/C

FEE)
LESS THAN FEE)
(FEE)
(LESS THAN FEE)

KEY
LS
LS EXCEPT COAL
ALS EXCEPT COAL, OIL
ALS EXCEPT OIL, GAS
IONS
LS EXCEPT URANIUM

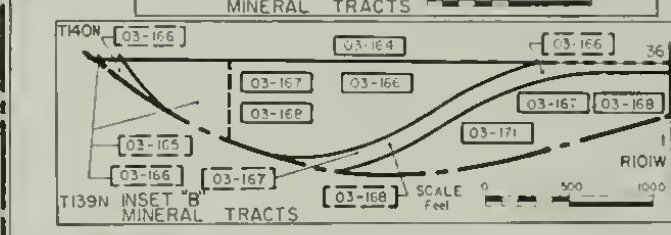
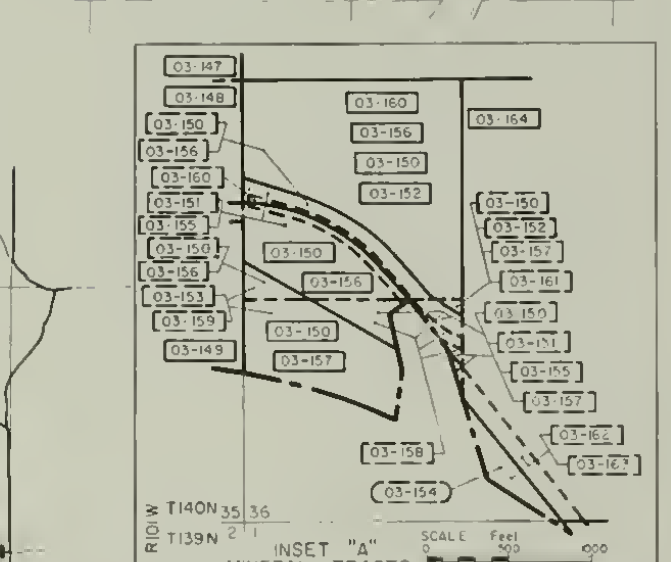
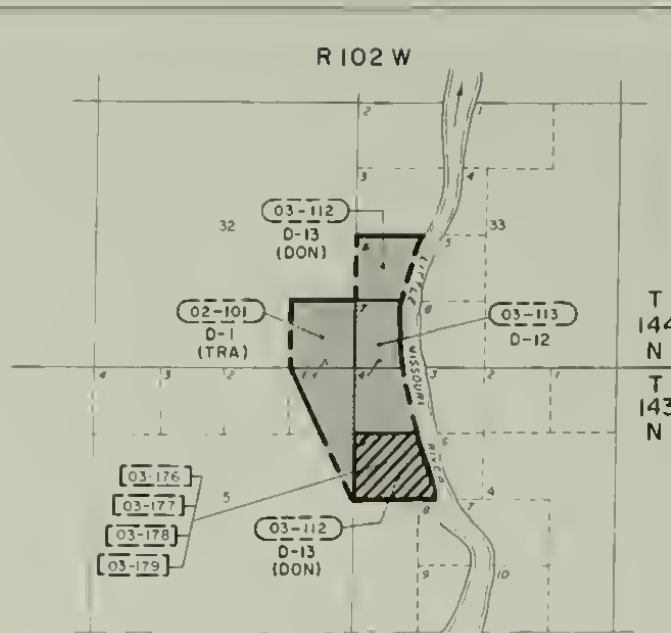
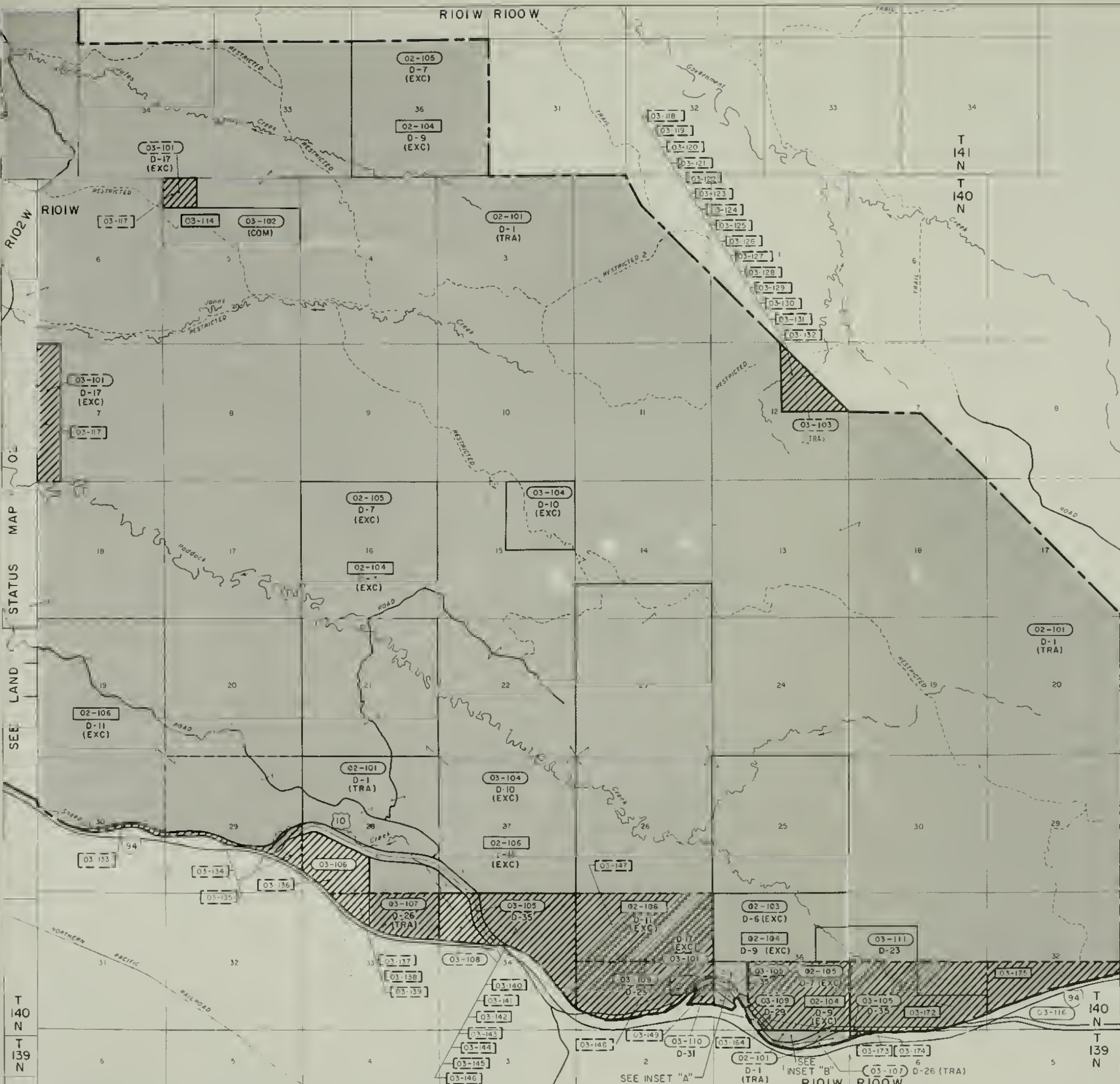
AS LEASE
OIL AND GAS LEASE
ations Of Patent And Acquired
Interests Are Not Depicted.

TH UNIT

ROOSEVELT
AL PARK
S COUNTY
DAKOTA

4/18/85	REVISED FOR PLANNING	WCO
5/15/84	C. O. NO. W450 84-25	
5/15/84	C. O. NO. 84-20	
5/12/84	C. O. NO. 84-17	
7/8/80	C. O. NO. 80-23.	
1/26/78	C. O. NO. 78-11	
1-19-79	W450-3-11 PL 3: 625	
7/8/75	C. O. NO. 76-11	
08-21-75	UPDATE STATUS	GLL
DATE	REVISIONS	BY

ESTABLISHED: A
BOUNDARY CHAN
DATE: JUNE 1974
MAPPED BY
DENVER SERVICE C



TRACT REGISTER KEY

INTEREST

- ALL - ALL MINERALS
- A/C - ALL MINERALS EXCEPT COAL
- A/C/G - ALL MINERALS EXCEPT COAL, OIL AND GAS
- A/O/GH - ALL MINERALS EXCEPT OIL, GAS AND HYDROCARBONS
- A/U - ALL MINERALS EXCEPT URANIUM
- C - COAL
- OG - OIL AND GAS
- OGLE - OIL AND GAS LEASE
- UOGLE - UNITIZED OIL AND GAS LEASE

NOTE: U.S. & Reservations of Patent and Acquired Oil, Gas and Mineral Interests Are Not Depicted.

DEED	TRACT	OWNER	ACRES	INT
WIT 0 1	02 101	PUBLIC DOMAIN		FEE
0 6	02 103	NORTH DAKOTA STATE OF		FEE
0 9	02 104	NORTH DAKOTA STATE OF		MIN
0 7	02 105	NORTH DAKOTA STATE OF		FEE
0 11	02 106	NORTHWESTERN IMPROVEMENT CO.		MIN
EXC 0-17	03 101	O'CONNELL, et al	172.89	FEE
COM 0-37	03 102	SMITH, et al	160.00	FEE
TRA 0-34	03 103	B L M	80.00	FEE
EXC 0-35	03 104	TALKINGTON, et al	861.41	FEE
DN 0-10	03 105	NORTH DAKOTA STATE OF	96.90	FEE
TRA 0-26	03 106	SICKLER, et al	145.00	FEE
	03 107	FOREST SERVICE	133.05	FEE
	03 108	SICKLER, et al	27.30	FEE
0 0-29	03 109	HOYES, et al	22.00	FEE
D 1 0-31	03 110	O'CONNELL	25.35	FEE
PUR 0-23	03 111	OLSEN, et al	315.28	FEE
DN 0-13	03 112	MACROFF, et al	77.38	FEE
PUR 0-17	03 113	MACROFF, et al	60.54	FEE
DN 0-32	03 114	UEPCO, INC	1160.00	MIN
	03 115	DELETE		
OIS 0TH-27	03 116	TO DEPT OF AGRICULTURE	119.76	FEE
		SEE LAND STATUS MAP 02 FOR ACRES		
		OLD TRACT NUMBERS IN PARENTHESES		
03-117	COUNTY OF BILLINGS	1144.78	ALL	
03-118	VANGRIGG, W T et al	(80.00)	5000% A/C	
03-119	HANCOCK ENTERPRISES	(80.00)	4375% OG	
03-120	FORTIN, MARY A	(80.00)	3125% A/C	
03-121	EVERETT, W R et al	(80.00)	3125% A/C	
03-122	HIGGINS, WILMA T	(80.00)	2500% A/C	
03-123	DIETRICH, F A	(80.00)	15625% A/C	
03-124	GUTH, PETER L	(80.00)	3125% A/C	
03-125	KAGY, JOHN M	(80.00)	3125% A/C	
03-126	FORTIN, MARY A	(80.00)	3125% A/COG	
03-127	HANCOCK ENTERPRISES	(80.00)	15625% A/COG	
03-128	SLAWSON, D C	(80.00)	15625% OGLE	
03-129	K&E PETROLEUM, INC et al	(80.00)	44.45% OGLE	
03-130	INTERNATIONAL TUBULAR SUPPLY	(80.00)	11.55% A/C	
03-131	MCLESTER FUEL CO	(80.00)	19.00% OGLE	
03-132	BRAZOS YOUNG CORP	(80.00)	2000% OGLE	
03-133	UNKNOWN	(15.0)	500% ALL	
03-134	BURLINGTON NORTHERN INC	(140.5)	ALL	
03-135	COASTAL OIL AND GAS CORP, et al	(140.5)	OGLE	
03-136	O'CONNELL, K A	(107.6)	A/U	
03-137	MILESTONE PETROLEUM INC	(168.0)	OGH	
03-138	MERIDIAN LAND AND MINERAL CO	(168.0)	A/COG	
03-139	COASTAL OIL AND GAS CORP, et al	(168.0)	OGLE	
03-140	CEPERLEY, BERTHA	(261.0)	A/C	
03-141	ALTHOFF, SHIRLEY	(261.0)	12.963% A/C	
03-142	COULTER, OOROTHY	(261.0)	1851% A/C	
03-143	ANDERSON, NONA	(261.0)	1851% A/C	
03-144	SHIRLEY, K M	(261.0)	16.667% A/C	
03-145	CARLE, E E	(261.0)	33.333% A/C	
03-146	MOSEN, L K et al	(261.0)	25.00% A/C	
03-147	AMERADA HESS CORP et al	(320.00)	8.333% UOGLE	
03-148	AMERADA HESS CORP et al	(220.23)	UOGLE	
03-149	AMERADA HESS CORP	(15.30)	UOGLE	
03-150	STATE OF NORTH DAKOTA	(15.3)	ALL	
03-151	FERGUSON, AOA	(113.6)	50.00% ALL	
03-152	PHILLIPS PETROLEUM CO	(126.66)	25.00% ALL	
03-153	PHILLIPS PETROLEUM CO	(110.8)	25.00% ALL	
03-154	STATE OF NORTH DAKOTA	2.25	FEE	
03-155	AMERADA HESS CORP	(113.6)	25.00% UOGLE	
03-156	AMERADA HESS CORP	(37.9)	50.00% UOGLE	
03-157	CLINTON OIL COMPANY	(13.47)	50.00% UOGLE	
03-158	AMERADA HESS CORP	(2.99)	UOGLE	
03-159	AMERADA HESS CORP	(110.8)	25.00% UOGLE	
03-160	AMERADA HESS CORP et al	(27.80)	UOGLE	
03-161	AMERADA HESS CORP et al	(10.310)	UOGLE	
03-162	STATE OF NORTH DAKOTA	(4.86)	ALL	
03-163	AMERADA HESS CORP	(4.86)	UOGLE	
03-164	AMERADA HESS CORP et al	(23.890)	UOGLE	
03-165	FISHER, SAMUEL V S	(4.07)	C	
03-166	AMERADA HESS CORP et al	(260.2)	UOGLE	
03-167	OLIS, HERBERT G	(35.8)	C	
03-168	LASSON, M L	(35.8)	5000% C	
03-169	DELETE			
03-170	DELETE			
03-171	AMERADA HESS CORP	(112.3)	UOGLE	
03-172	AMERADA HESS CORP et al	(1318.210)	UOGLE	
03-173	STATE OF NORTH DAKOTA	(40.00)	A/C	
03-174	AMERADA HESS CORP et al	(3.051)	UOGLE	
03-175	AMERADA HESS CORP et al	(14.721)	5000% UOGLE	
03-176	SHAPIRO, S R et al	(6.00)	A/C	
03-177	STEOMAN, GENEVA	(44.72)	A/C	
03-178	KELLOGG, FObERT J et al	(44.72)	900% A/C	
03-179	KELLOGG, KATHLEEN	(44.72)	2200% A/C	

4/18/75	REVISED FOR PLANNING	WCO
5/6/75	NO ALSO PA 27	
5/7/75	NO PA 29	
1/10/76	NO 28	
1/27/80	C. D. NO. 80-23	
1/28/79	C. D. NO. 78	
8/23/75	PA 21-62	
7/8/75	C. D. NO. 76-11	
08/21/75	UPDATE STATUS	GIL
DATE	REVISIONS	BY

ESTABLISHED APRIL 25, 1947

BOUNDARY CHANGE NOVEMBER 10, 1958

DATE: JUNE 1974

MAPPED BY DENVER SERVICE CENTER, COLORADO

FIFTH PRINCIPAL MERIDIAN

Scale in Feet: 0 2000 4000 6000 8000

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE DIVISION OF LAND ACQUISITION DIVISION OF ENERGY, MINING & MINERALS

MINERAL STATUS MAP 03

DN BY: LR CK BY: JH

APPR BY: R.P.G. A.74

REGION: ROCKY MTN

DRAWN NO: 387

SHEET 4 OF 4

THEODORE ROOSEVELT NATIONAL PARK

BILLINGS COUNTY NORTH DAKOTA

NORTH UNIT DISTRICT HEADQUARTERS MINERAL INTERESTS

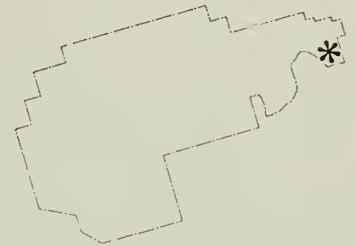
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,026-A
JAN 86	DSC



0 200 400 600 800 1,000 FEET

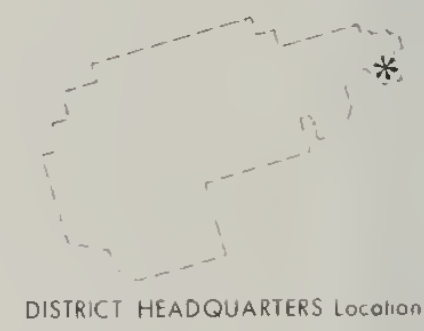
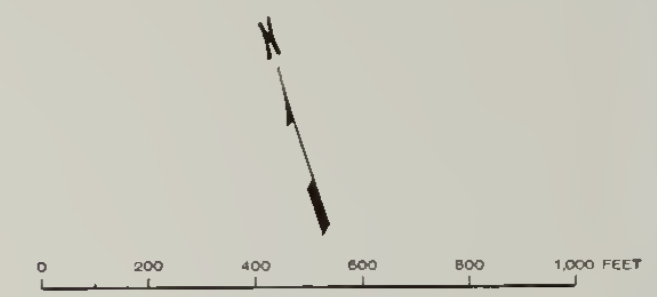


DISTRICT HEADQUARTERS Location



NORTH UNIT
 DISTRICT HEADQUARTERS
 MINERAL INTERESTS
 THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

387 | 20,026-A
 JAN 86 | DSC



- FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
- NONFEDERAL OWNERSHIP EXCEPT COAL WITHOUT OIL/GAS LEASE
- PARK BOUNDARY

Mineral interests only shown within the park

ELKHORN UNIT

MINERAL INTERESTS

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA











UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,023
JULY 85	DSC



0 500 1,000 1,500 2,000 2,500 FEET



-  FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
-  FEDERAL OWNERSHIP WITH OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP EXCEPT COAL WITHOUT OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP WITH OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP WITH FEDERAL OIL/GAS LEASE (See note)
-  PARK BOUNDARY
-  PROPOSED RESOURCE PROTECTION ZONE
-  UNPAVED MAINTAINED ROAD
-  UNPAVED UNMAINTAINED ROAD

Mineral interests only shown within the park and proposed resource protection zone.

The state of North Dakota issued oil and gas leases in the bed of the Little Missouri River. The federal government issued an oil and gas lease in this bed which overlaps a portion of one of the state leases. A recent court case determined that the state owned the riverbed. It has been appealed.

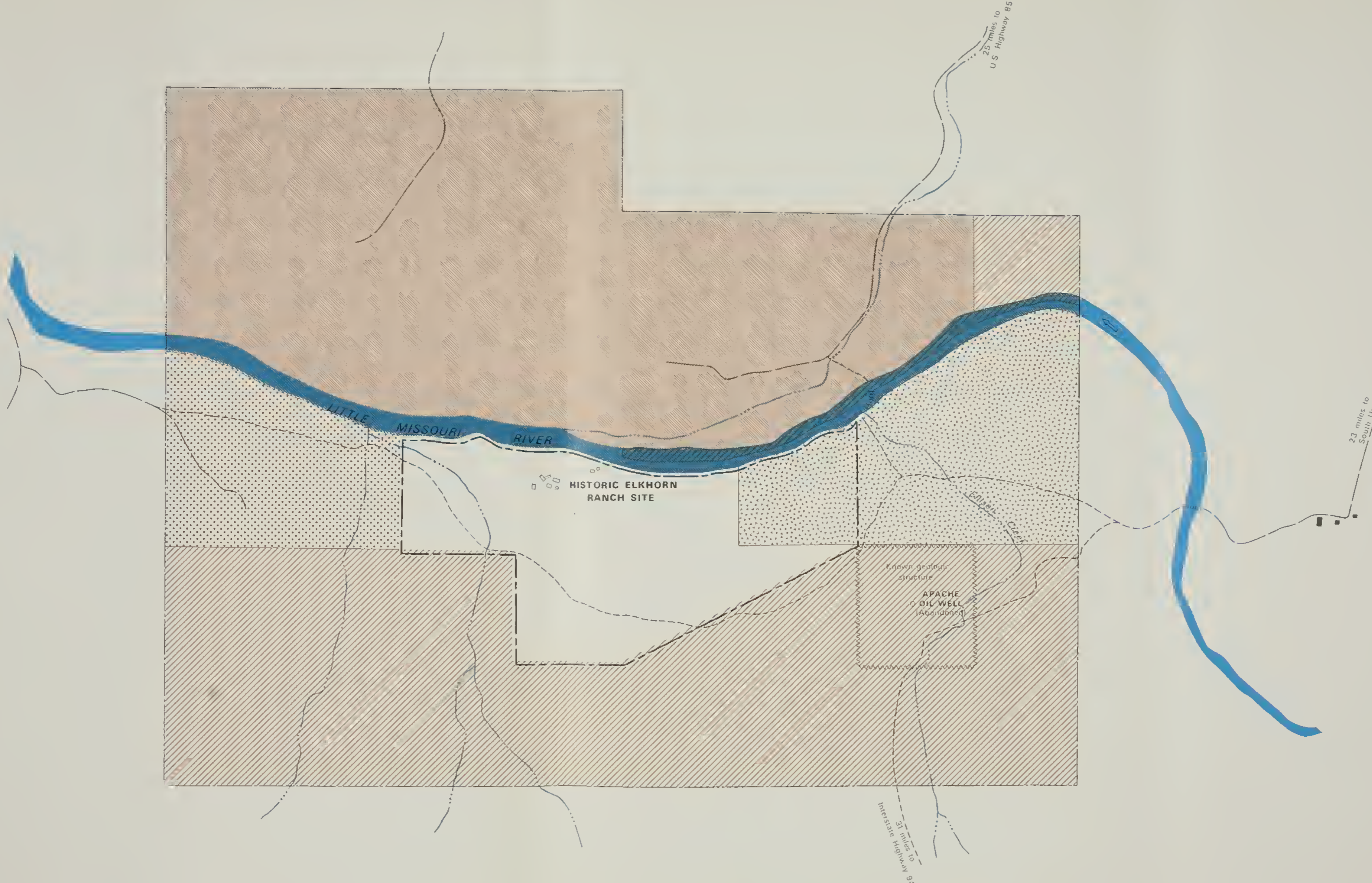
ELKHORN UNIT

MINERAL INTERESTS

THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387 | 20,023
JULY 85 | DSC



- FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
- FEDERAL OWNERSHIP WITH OIL/GAS LEASE
- NONFEDERAL OWNERSHIP EXCEPT CDAL WITHOUT OIL/GAS LEASE
- NONFEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
- NONFEDERAL OWNERSHIP WITH OIL/GAS LEASE
- NONFEDERAL OWNERSHIP WITH FEDERAL OIL/GAS LEASE (See note)
- PARK BOUNDARY
- PROPOSED RESOURCE PROTECTION ZONE
- UNPAVED MAINTAINED ROAD
- UNPAVED UNMAINTAINED ROAD

Mineral interests only shown within the park and proposed resource protection zone.

The state of North Dakota issued oil and gas leases in the bed of the Little Missouri River. The federal government issued an oil and gas lease in this bed which overlaps a portion of one of the state leases. A recent court case determined that the state owned the riverbed. It has been appealed.

SOUTH UNIT PAINTED CANYON






MINERAL INTERESTS

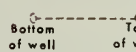
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,025-A
JAN 86	DSC



-  FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
-  FEDERAL OWNERSHIP WITH OIL/GAS LEASE
-  FEDERAL AND NONFEDERAL OWNERSHIP AND OIL/GAS LEASES
-  PARTIAL FEDERAL OWNERSHIP WITH NONFEDERAL OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP WITH OIL/GAS LEASE

 WELL (Directionally drilled)
Bottom of well Top of well

 PARK BOUNDARY

Mineral interests only shown within the park.

All partial federal ownership is 25%.



PAINTED CANYON Location

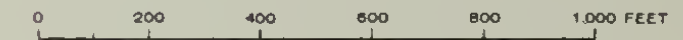
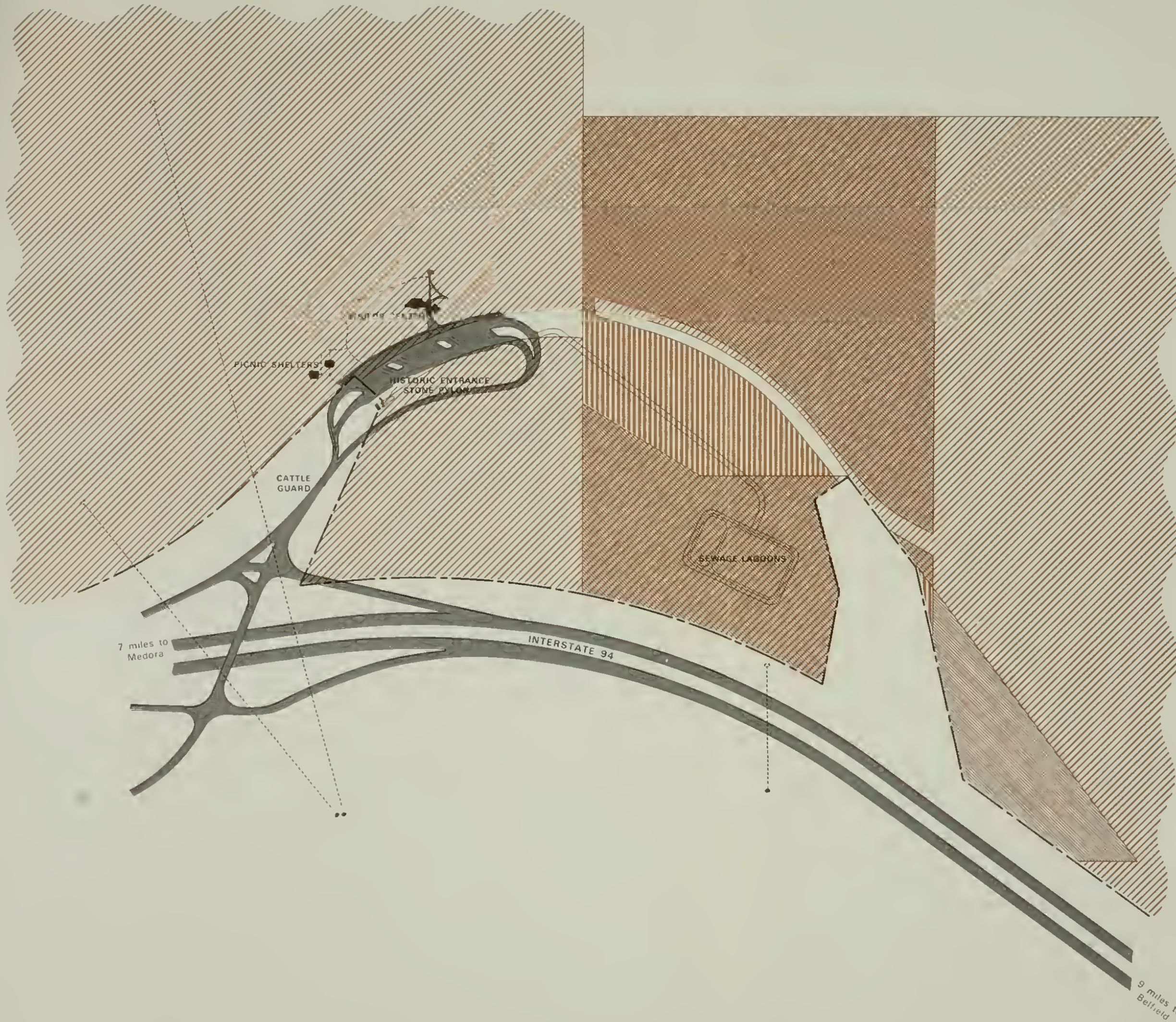
SOUTH UNIT PAINTED CANYON








MINERAL INTERESTS

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,025-A
JAN 86	DSC



-  FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
-  FEDERAL OWNERSHIP WITH OIL/GAS LEASE
-  FEDERAL AND NONFEDERAL OWNERSHIP AND OIL/GAS LEASES
-  PARTIAL FEDERAL OWNERSHIP WITH NONFEDERAL OIL/GAS LEASE
-  NONFEDERAL OWNERSHIP WITH OIL/GAS LEASE
-  WELL (Directionally drilled)
Bottom of well Top of well
-  PARK BOUNDARY

Mineral interests only shown within the park
All partial federal ownership is 25%.



PAINTED CANYON Location

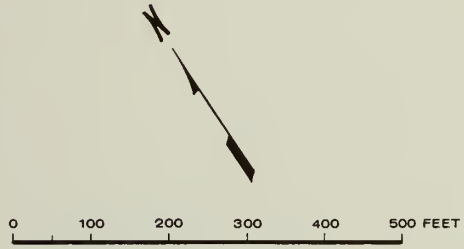
SOUTH UNIT MEDORA HEADQUARTERS

MINERAL INTERESTS

THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

387	20,024-A
JAN 86	DSC



MEDORA HEADQUARTERS Location



SOUTH UNIT MEDORA HEADQUARTERS

MINERAL INTERESTS

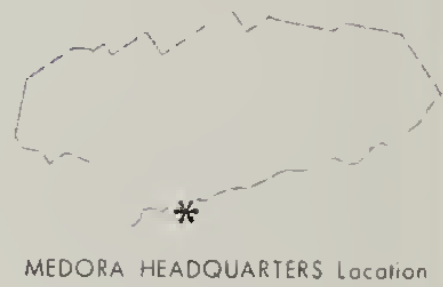
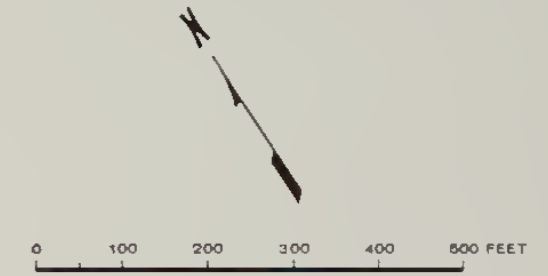
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

- FEDERAL OWNERSHIP WITHOUT OIL/GAS LEASE
- NONFEDERAL OWNERSHIP WITH OIL/GAS LEASE
- PARK BOUNDARY
- MEDORA CITY LIMITS

Mineral interests only shown within the park

387 | 20,024-A
JAN 86 | DSC



If any nonfederal property within the park is subjected to any incompatible uses, all necessary authorities and actions will be employed to protect the resources involved. If necessary, the Park Service would attempt to acquire the property. As a last resort, condemnation would be considered. Landowners are encouraged to contact the park superintendent with any questions regarding possible incompatible land uses.

Incompatible uses of nonfederal land within the park are as follows:

1. Any subdivision of land
2. Any new single- or multiple-family residence not permitted by items 5 and 6 of the compatible use listing
3. Any commercial use
4. Any industrial use
5. Any mineral or rock exploration or extraction activity including, but not limited to, sand, gravel, limestone, and earth
6. Any surface exploration or extraction of oil and gas resources
7. Any commercial logging
8. Any conversion of existing rangeland to cropland
9. Any highly intensive agricultural uses such as a feedlot operations, stockyards, commercial sale barns, and significant overstocking/overgrazing
10. Any new access roads or a substantial upgrading of existing roads unless covered by specific agreement with the park superintendent
11. Any major alterations, including development of any water impoundment, which constitutes a major change in the appearance and topography of the site
12. Any installation of new television, radio, or satellite receiver or without prior approval of the superintendent

Recommended Protection of Surface and Subsurface Ownerships

Recommendations for acquisition of nonfederal lands in fee, as easements, and as nonfederal mineral rights are made so as to provide the degree of protection required for all areas within the park. The recommendations are presented below by summaries for surface and subsurface tracts and for each of the three units of the park.

Surface Tracts. With the information in the following paragraphs, recommend acquisitions can be identified on Land Status maps 01 and 03. Additional information is presented on the North Unit and South Unit General Development Plan/Flood Data maps and in table 8. Descriptions of these nonfederal tracts are found in appendix D.

In the north unit there are six privately owned tracts, all at the east end of the unit, with a total area of 513.97 acres. In addition, 50.24 acres are in highway right-of-way, owned in fee by the state of North Dakota. The portions of tract 01-118 (Stenehjem), tract 01-121 (Wright), and the small portion (2 acres) of tract 01-120 (Stutrud) west of US 85 are recommended for fee acquisition. All of the area to the east of US 85 within the park is recommended for scenic easement acquisition.

Total acreage proposed for fee acquisition: 125

Total acreage proposed for scenic easement acquisition: 389

Rationale: Public ownership in fee is necessary to allow for visitor use and visitor use development proposals for the area south of the north unit entrance to be implemented (see North Unit District Headquarters DCP map). Fee acquisition of the private lands west of US 85 is also necessary to provide protection for the attractive Little Missouri River shoreline here, the US 85 corridor, and the area adjacent to the north unit headquarters and entrance.

Continued private ownership of the lands east of US 85 is appropriate, as long as uses are restricted and the mostly pastoral nature of the area can be preserved. These tracts contain no important natural features or resources and are not needed for visitor purposes. The bank of the river to the east of the highway is more open and less attractive than the bank to the west of the highway. Scenic easements would be acquired to protect the visual scene from US 85 and the entrance area of the park and to preclude incompatible commercial and industrial activities.

In the south unit there are two separated private tracts, both owned by Norbert Sickler and bordering on the north right-of-way of I-94. These parcels are recommended for fee acquisition.

Total acreage proposed for fee acquisition: 176.3

Rationale: These two inaccessible parcels are a continuous part of a critical natural resource area of scenic badlands that are highly visible from I-94. There are no improvements or uses on these tracts, and other than passive uses, none would be acceptable and compatible with the preservation of the visual scene in a totally natural area. Therefore, scenic easements would not be practical. Access to these tracts was eliminated by the construction of I-94

Table 8: Surface Ownerships and Acquisition Recommendations

<u>Tract No.</u>	<u>Park Unit</u>	<u>Owner</u>	<u>Acreage</u>	<u>Interest or Protection Needed</u>	<u>Method of Protection</u>
01-118	North	Stenehjem, et ux	90.52	Fee - 28 acres Scenic easement - 62.5 acres	Acquisition
01-119	North	McCloskey	120.00	Scenic easement	Acquisition
01-120	North	Stutrud	70.36	Fee - 2 acres Scenic easement - 68.36 acres	Acquisition
01-121	North	Wright, et al. (Baye tract)	153.09	Fee - 95 acres Scenic easement - 58.1 acres	Acquisition
01-122	North	Stutrud	40.00	Scenic easement	Acquisition
01-123	North	Stutrud	40.00	Scenic easement	Acquisition
01-124	North	State of North Dakota	40.60	No interest	None (this is US 85 right-of-way)
01-125	North	State of North Dakota	9.64	No interest	None (same as above)
03-106	South	Sickler, et ux	149.00	Fee	Acquisition
03-108	South	Sickler, et ux	<u>27.30</u>	Fee	Acquisition
TOTAL			740.51	Fee - 301.30 acres Scenic Easements - 388.97 acres No Interest - 50.24 acres	

Looking south toward US 85 and the Little Missouri River in the north unit. The private land to the right (west) of the highway is recommended for fee acquisition, while the area to the left (east) is recommended for scenic easement acquisition.



Private tract 03-106 in the south unit. This inaccessible tract is in an area of undisturbed scenic badlands and borders I-94; it is recommended for fee acquisition by the National Park Service.



while the property was held by the previous owner. If access were permitted, it would require a road that would cross adjacent park land as well as this tract. This would damage sensitive natural resources and the visual scene.

Subsurface Tracts (Mineral Rights). Parkwide recommendations involving the issues of nonfederal minerals acquisition and management, federal mineral leasing, and drainage of federal minerals are described below.

Nonfederal Minerals: No exploration activity or mining that requires surface occupancy will be permitted within any part of the park. However, owner rights cannot be denied (explained below); thus, federal acquisition of the rights may be required. Toward that end, the Park Service should seek to acquire by purchase, exchange, donation, or as a last resort, condemnation, all nonfederal mineral interests within the park (with the exception of the area east of US 85 in the north unit) as funds permit and pressures for development of those interests increase. Proposals for such development should not be considered as a prerequisite for obtaining the necessary acquisition funds, however.

When the Park Service acquires the nonfederal subsurface rights, the rights may be encumbered by leases to other parties. When these leases expire, they cannot be renewed because title to the minerals is vested in the United States, and mineral resources within units of the national park system cannot be exploited. Acquisition of existing leases is proposed only if necessary to prevent mineral exploration or extraction that would result in adverse impacts on park resources. For more information on existing leases, refer to appendix E.

Two separated tracts involving about 145 acres in the north-central part of the south unit involve an apparent 50 percent ownership each by Billings County and the USA. Efforts should be made to work with the county to acquire, quiet title to, or otherwise establish NPS control over these apparently outstanding interests without cost to the federal government. Although this may or may not involve donation, for purposes of this plan, it is assumed that purchase will not be required.

In the event nonfederal owners seek to develop their mineral interests within the park, the Park Service will, in the case of oil and gas, apply the requirements of 36 CFR 9B that permit access and occupancy, if necessary, under a plan of operations that must be submitted to the NPS regional director through the park superintendent. If the nonfederal oil and gas owner still seeks to develop his or her minerals after the plan of operations has been reviewed, the Park Service should pursue the following actions:

An attempt should be made by the Park Service to acquire the nonfederal mineral rights involved. However, unless there are significant environmental concerns and a scenic easement has not been acquired, this recommendation will not apply to the area east of US 85 in the north unit. (The scenic easements proposed for this

area should include a provision that there be no mineral activity disturbance or occupancy of the surface area.)

If acquisition funds cannot be obtained or acquisition negotiations are unsuccessful, the Park Service will seek to persuade the owner to access the minerals via directional drilling from outside the park, if that is feasible. This would be done under appropriate environmental stipulations as provided by 36 CFR 9B.

If directional drilling from outside the park is infeasible and the owner of the rights proposes development through occupancy of park surface, the Park Service will seek to acquire the mineral interests involved.

Federal Minerals: There will be no additional leases issued for federal minerals, including oil and gas, within the park. Federal minerals within the park are not subject to disposal under federal mineral leasing laws.

In the event the Bureau of Land Management determines that drainage of federal oil and gas from within the park is being caused by activities of nonfederal parties outside the park, the Park Service will recommend to that agency implementation of its authority to negotiate agreements whereby the United States is compensated under 43 CFR 3100.2-1.

There are no means by which the Park Service can regulate the mineral activity for nonfederal minerals other than oil and gas. Various means of acquisition can be used by the Park Service if any form of surface development or occupancy is attempted or proposed within the park.

A summary of nonfederal mineral rights acreages by park unit, with appropriate recommendations, follows. These tracts are shown on the accompanying mineral status maps, and more detailed information on mineral ownerships and leases is found in appendix E.

North unit acreage proposed for acquisition (USA owns nearly all coal): 125

North unit acreage not proposed for acquisition: 362.75

Elkhorn unit acreage proposed for acquisition: 44.72

South unit acreage (all private except for coal in some cases) proposed for acquisition: approximately 666

South unit acreage, with USA a part-owner, proposed for acquisition: approximately 58

South unit acreage requiring title-quieting action because of apparent half-ownership of county (purchase by USA will probably not be required): 144.78 (2 separated tracts)

This scenic area, just north of I-94 in the south unit, is underlain with privately owned minerals.



Some of the NPS facilities and visitor attractions at Medora, including the Maltese Cross cabin, are underlain with privately owned mineral rights.



Total private or part-private minerals acreage proposed for purchase acquisition: approximately 894

Total private and other nonfederal minerals acreage not proposed for purchase acquisition: approximately 1,508 (includes 145 acres of tracts that appear to be half-owned by Billings County for which it is assumed that purchase by USA will not be required)

Rationale: The presence of the nonfederal mineral rights within the park could potentially complicate park management and result in possible adverse impacts on park resources. In the Medora area, major headquarters and visitor facilities could be affected. Thus, any oil and gas or other mineral development within the park would be totally incompatible with park purposes and could not be permitted. Conversely, while directional drilling from outside the boundary might be feasible in a number of places, it would result in a more subtle violation of park resources; additional development along the boundary line, including the boundary of designated wilderness; and additional air and auditory pollution easily detectable from within the park. Directional drilling from outside the park into privately owned lands and minerals east of US 85 in the north unit, however, would probably not be a significant concern.

In addition to nonfederally owned minerals within the park, there are four south unit tracts of federally owned land (totaling 41.631 acres) that have been leased to the Amerada-Hess Corporation for oil and gas development but that are not protected by inclusion of "no operational use of surface" clauses in the leases. This occurred because the leases were granted prior to these tracts being included in the park through a boundary adjustment involving the area between old US 10 and new I-94. Acquisition of the private leasehold interests is not recommended because these tracts are only small portions of the total leased area held by Amerada-Hess; the bulk of the area is outside the park boundary where the wellheads and related equipment for this area are located. In other words, the four tracts in question are a part of the area from which Amerada-Hess is already recovering oil and gas through directional drilling from south of I-94. Additional development from within the park would be unnecessary and unlikely.

In the past, the park has not had an approved plan that calls for a discouragement of directional drilling into subsurface park lands. However, the approach recommended here would require that private mineral interests be acquired for this approach to be fully implemented. It is believed these rights can be acquired over time for reasonable cost, while adequate payment can be obtained from private interests for the drainage of federal oil and gas to areas outside the park. The Energy, Mining and Minerals Division of the National Park Service will provide assistance to park staff in identifying what additional federal actions and/or regulations are needed to help protect the park from exploration and extraction of mineral resources within or adjacent to the park.

EXTERNAL RECOMMENDATIONS

The following recommendations are made for issues that are external or largely external to Theodore Roosevelt National Park, but that either affect park areas and visitors or are directly related to protection of park resources. They concern protection and development of the Elkhorn (ranch) unit, proposed expansion of the Medora airport, energy and water development outside the park, and cooperation with other units of government in land use and resource protection matters. The issues were discussed earlier in the "Purpose and Need for the Plan" section.

Elkhorn (Ranch) Unit Protection Zone

A resource protection zone surrounding the Elkhorn unit is proposed (see Elkhorn Unit DCP map). This zone would encompass a land area of special concern to the National Park Service. Federal, state, and private lands are involved, and would total about 1,535 acres--private, 635 acres; Forest Service, 600 acres; State Historical Society, 240 acres; and river area (in legal contention as whether state or federally owned), 60 acres.

The proposed zone would protect the scenic backdrop of the ranch site, protect the view of the east bank and adjacent lands across the Little Missouri River from the ranch site, and address anticipated increased visitor use of the area due to a future county road (and river bridge) that would probably pass just south of the unit.

Protection of the lands within the proposed zone would be accomplished as follows:

For national grassland (Forest Service) and North Dakota State Historical Society lands, cooperative agreements would be sought. Both viewshed protection and required access to the Elkhorn ranch site from the proposed new county road would be included in those agreements.

For private ranch lands to the east of the Little Missouri River and across from the Elkhorn ranch site, either a private land trust or the North Dakota State Historical Society would be urged to acquire scenic easements on approximately 635 acres of private lands to protect the viewshed, restrict development, and perpetuate existing ranch use. As a last resort, a boundary change would be necessary to include these lands if all other protection efforts failed. However, a scenic easement, not fee acquisition, would still be proposed.

Surface occupancy for oil and gas and other mineral development would not be permitted on future leases under the proposed terms of both the cooperative agreements and the scenic easements. While existing lease terms and conditions would be honored, at such a time as existing leases expired or were dropped, any disturbed areas

would have to be restored to a natural condition. In addition, visual screening and other environmental precautions would be urged on existing lease areas. (See Elkhorn Unit Mineral Interests map for information on subsurface ownerships within this area.)

Rationale: The former Theodore Roosevelt ranch site is inadequately protected, particularly visually. The ranch site is surrounded by the Forest Service, State Historical Society, and private lands. Billings County plans to construct a new road and river bridge that most likely will be located just to the south of the Elkhorn ranch site. This road will result in a significant increase in visitation to the ranch site because of improved access, which could result in undesired changes in use for the lands surrounding the Elkhorn unit. Finally, the possibility of increased oil and gas activity exists in the area. The resource protection zone around the unit would aid in the ability to obtain agreements that restrict future surface oil and gas development, which would help to ensure the integrity and maintenance of the area's visual quality.

Proposed Expansion of Medora Airport

The Park Service opposes any expansion of Medora's airport facilities, including the runway and immediate takeoff path, onto park land. Encouraging increased air traffic over the park and the use of park land for commercial airport use are both incompatible with the purposes for which the park was established and could diminish visitor enjoyment in and near Medora.

The existing airport area is situated almost entirely on land managed by the Forest Service (see South Unit General Development Plan/Flood Data map). The Forest Service will be addressing various alternatives regarding the existing special use permit for the airport. Because of overlapping concerns and the dominant NPS ownership in the area, the Park Service will assist the Forest Service and seek to be an active co-participant in the consideration of airport issues and options.

Energy Development outside the Park

The following recommendations are aimed at reducing oil and gas industry impacts. Several of these actions, as well as the recommendation for coal development, are taken from the 1984 Natural Resources Management Plan, although modifications and additions have been made as appropriate (also see Oil/Gas Resource and External Conditions maps).

Establish air quality trend data base maps showing point sources of pollution.

Continue the air quality monitoring program in the south and north units of the park. The program would be coordinated with present research projects on sensitive plant and animal species.

Continue mapping and photographing all structures around the park that are considered visual intrusions.

Continue monitoring new oil and gas developments adjacent to the park that degrade scenic vistas and produce noise, smoke, and/or gas.

Coordinate with the North Dakota Industrial Commission and other appropriate state agencies, as well as private oil and gas companies, to gain cooperation in reducing impacts from the installation of new wells, from production equipment, and from other developments on private or state lands close to the park boundaries. If possible, establish a park protection zone (1 mile suggested) within which directional drilling from outside, no burning of waste pits, removal of unneeded equipment, use of vapor recovery units on tanks, and muting or screening of visual impacts and sounds would be strongly encouraged.

Continue coordination with the Forest Service and the Bureau of Land Management in their attempts to reduce impacts of oil and gas operations, both within a special consideration zone of approximately 1 mile from park boundaries and beyond this zone. Carefully review current draft management plans and future draft area plans and make appropriate recommendations. Also, work with the Forest Service in preparing environmental stipulations for new leases that may be issued, especially between 1986 and 1987 when a number of leases will be considered for reissuance. To the extent possible, make this site-specific and complete this coordination work by personally reviewing questions and explaining comments on the plans and lease documents with appropriate Forest Service personnel.

The park superintendent, with technical input from the NPS Air Quality Office and the Rocky Mountain Region, should identify a threshold limit of the amount of air pollution burden that the park's air pollution sensitive resources such as lichens, ponderosa pine, and green ash will bear from SO₂ sources. This limit should then be made part of the public record and included in park planning documents.

The following recommendation is made regarding the potential for future coal development as it relates to adverse impacts that the park would probably experience (see Coal Resource map):

The emphasis for proposed development and processing of coal resources must be to continue monitoring the situation; coordinate with the state, other agencies, and the NPS Air Quality Office; and promote public awareness of the class I air quality standards established for the park areas.

The following recommendations are directed toward the potential for water quality problems in park streams and aquifers from sources outside the park:

The proposed extension and realignment of the Medora airport landing strip, if implemented, would extend the far end of the airstrip to this point on park land. I-94 is ahead and below.



Oil and gas developments just outside the north boundary of the south unit of the park. In addition to being visually obtrusive, these developments can produce hydrogen sulfide gas that may be detected within the park. Future leases should include stipulations to minimize such environmental impacts, and that developments such as these found here be closely monitored.



Coordinate with the Forest Service, Bureau of Land Management, and state of North Dakota to ensure there is some form of environmental monitoring and reporting of existing oil and gas operations. The monitoring should include several areas of concern, including detecting and seeking correction of potential aquifer and stream contamination that could have an impact on the park.

Directly monitor oil- and gas-related problem or potential problem situations, especially on private land adjacent to park boundaries. Report problems to appropriate federal and/or state agencies to effect corrections and compliance as necessary.

Prepare a comprehensive water resources management plan to address park water resource problems and management actions.

Cooperative Efforts on Land Use and Resource Protection

The following recommendations are made regarding the potential for greater interaction with local government on land use matters that could directly affect the park and the need for protection of the Little Missouri River in the general park area:

As was stated earlier, the proper enforcement of local zoning and other land use ordinances could aid in limiting or modifying proposals for undesirable developments on private land near park boundaries. This has limited applicability now, especially in McKenzie County, but as opportunities increase, park staff should stay in close contact with county and city of Medora government to ensure local awareness of NPS interests.

As inappropriate or questionable developments are proposed close to the park, park staff should seek the opportunity for input before the proposals are accepted and implemented. The input would probably involve comments and suggestions regarding the location, design, and quality of proposed commercial, industrial, residential, transportation, and other uses and developments that could affect the park and its visitors. This type of cooperation might become more important in the future if pressures for private development close to the south and Elkhorn units, in particular, increase.

Segments of the Little Missouri River, a designated state scenic river, flow through or along the three units of the park. These river segments will be managed by the Park Service so as to protect the recognized outstanding values. Most of the river in the general park area, however, flows through the Little Missouri National Grassland, which contains lands managed by the Forest Service and the state and lands owned privately. The Park Service urges these agencies and owners to also protect the river's value in concert with the goals of the state to prohibit any future impoundment, channeling, dewatering, or dredging (as well as degradation of the immediate shoreline).

ENVIRONMENTAL ASSESSMENT

AFFECTED ENVIRONMENT

This section provides the information necessary to understand the issues, the proposed action, and the alternatives of this document and to help assess environmental effects. Existing environments and conditions in the park, including natural and cultural resources, visitor use, and requirements for park management, are described. A facility analysis of the type, number, and condition of all park facilities and improvements is also included.

NATURAL RESOURCES

Geology/Terrain

Theodore Roosevelt National Park provides an outstanding representation of the North Dakota badlands, formed by the Little Missouri River. Much of the park is a maze of canyons, buttes, and coulees. Elevations in the park range from 1,958 feet along the river in the north unit to 2,850 feet at Buck Hill in the south unit. Erosion has produced an infinite variety of landforms interspersed by buttes and ridges, with rolling prairies extending outward from the rim of the badlands.

Rock formations of three ages are found in the park; however, fossil remains of ancient flora and fauna are almost exclusively representative of the Paleocene epoch. Fossils are rare, but occasional shells of freshwater clams and snails and the skeletal remains of archaic alligators have been found in the North Dakota badlands. Petrified stumps of ancient coniferous trees are more common; a concentration of these is found in the western portion of the south unit. These remains were formed in the silica-rich environment of volcanic ash which covered the trees; silica replaced the cellulose content.

Trees and other plants that died and were buried by alluvial sediments were transformed by pressure into seams of lignite coal, which are found throughout the badlands. Lignite seams ignited by natural sources baked overlying sediments to form a brick-like, red stone known locally as scoria.

Vegetation/Soils

Soils found within the park are regosols, developed from excessively drained, medium-textured, and calcareous parent material. Textures range from loams to clay loams. These soils can cause problems when water is present. The saturated soils tend to slump and slip, which can result in difficulties with road construction and maintenance, such as at Buck Hill, and cliff and hillside stability, such as at Painted Canyon.

The vegetation is adapted to the soil types and the semiarid climate and varies according to slope, aspect, soil, and moisture availability. The

vegetation can be grouped into six physiographic/vegetational classes including upland grasslands, dry breaks, wooded draws, sagebrush and grassland bottoms, floodplain forests, and a riparian class (see table 9 for vegetation composition in park areas).

The distribution and abundance of the natural vegetation have been changed by activities such as grazing, cultivation, and protection from fire. Leafy spurge, Canada thistle, yellow sweet-clover, bromegrasses, and other exotic plants are widespread.

Sites with deep, well-drained soils on moderately to gently rolling areas make up the upland grasslands. Wheatgrasses, needlegrasses, blue grama, and upland sedges dominate these areas. A variety of forbs make up about 10 percent of the herbage, while shrubs such as snowberry and prairie rose are less abundant.

The dry breaks are characterized by bare, eroded soils or scoria surfaces. Plant life is limited with sparse stands of little bluestem, blue grama, sideoats grama, and red threeawn. Shrubs such as creeping juniper, saltbush, and greasewood are scattered.

Wooded draws are dominated by Rocky Mountain juniper, green ash, and chokecherry. Common understory species include snowberry, skunkbush sumac, sedges, wildrye, ricegrass, mosses, and lichens. In the Achenbach Hills, some upland draws are dominated by quaking aspen.

The sagebrush and grassland bottoms are formed by alluvial deposits from the river and its larger tributaries. These higher floodplains and river terraces are dominated by silver sagebrush, western wheatgrass, needle and thread, and blue grama. Fringed sage, prairie rose, and snowberry are minor, woody components.

Floodplain forests are found along perennial watercourses and are dominated by plains cottonwood. Other important species include Rocky Mountain juniper, green ash, chokecherry, wildrye, wheatgrasses, and sedges. Large expanses in the north unit are devoid of woody understory and instead have a dense cover of grasses and forbs.

Riparian vegetation is generally a narrow band between the floodplain forest and a perennial stream. A variety of willows are the dominant vegetative species. Wildrye and sometimes prairie cordgrass or rushes may be found. The willows are generally low growing and bushy in appearance, as they are periodically flooded or scoured by the seasonal actions of the river and streams.

There are no prime or unique agricultural lands within the park.

Wildlife

Large mammals found within the park include white-tailed deer, mule deer, bison, elk, pronghorn, wild horses, longhorn steers, and a small

Table 9: General Vegetation Composition at Existing and Proposed Development Areas

<u>Location</u>	<u>Common Plants</u>	<u>Physiographic/Vegetation Class</u>
<u>North Unit</u>		
CCC camp-tender residence	Wheatgrasses, needlegrasses, silver sagebrush, fringed sage	Sagebrush-grassland bottom
Bison corral (proposed relocation)	Wheatgrasses, needlegrasses, sedges, snowberry	Upland grassland
Squaw Creek picnic area and campground	Cottonwood, green ash, wheatgrasses, wildrye, juniper	Floodplain forest
Proposed group horse camp (bison corral, Wright/Baye property, and east of Squaw Creek locations)	Wheatgrasses, needlegrasses, silver sagebrush, fringed sage	Sagebrush-grassland bottom
Proposed canoe/snowmobile access site	Cottonwood, green ash, wheatgrasses, needlegrasses, wildrye, silver sagebrush, fringed sage	Sagebrush-grassland bottom/floodplain forest
Squaw Creek nature trail	Cottonwood, green ash, wheatgrasses, needlegrasses, wildrye, silver sagebrush, fringed sage	Sagebrush-grassland bottom/floodplain forest
District headquarters-entrance area	Wheatgrasses, needlegrasses, sedges, maintained lawn	Upland grassland/lawn
District headquarters-housing area	Wheatgrasses, needlegrasses, sedges, silver sagebrush, snowberry, lawns	Upland grassland/sagebrush-grassland bottom/lawn
District headquarters-maintenance area	Wheatgrasses, needlegrasses, sedges, silver sagebrush, snowberry, lawns, cottonwood	Upland grassland/sagebrush-grassland bottom/lawn
Sewage lagoon area	Wheatgrasses, wildrye, silver sagebrush, chemically controlled weeds and brush	Sagebrush-grassland bottom
Overhead power lines	Wheatgrasses, needlegrasses, wildrye, fringed sage, little bluestem, sideoats grama, saltbush, cottonwood	Upland grassland/dry breaks/sagebrush-grassland bottom/floodplain forest
<u>Elkhorn Unit</u>		
Proposed unit access road	Silver sagebrush, juniper, ash, wheatgrasses, needlegrasses, snowberry, cottonwood	Sagebrush-grassland bottom
Historic structure locations	Cottonwood, wheatgrasses, prairie sandreed, wildrye, fringed sage, juniper	Floodplain forest
Proposed picnic area and restrooms	Juniper, green ash, wheatgrasses, silver sagebrush, chokecherry	Floodplain forest
Proposed trails	Cottonwood, juniper, green ash, chokecherry, wheatgrasses, prairie sandreed, fringed sage	Floodplain forest
Proposed storage building and tent platforms	Juniper, green ash, wheatgrasses, wildrye, ricegrass, snowberry	Wooded draw/floodplain forest

<u>Location</u>	<u>Common Plants</u>	<u>Physiographic/Vegetation Class</u>
<u>South Unit</u>		
Maltese Cross cabin	Smooth brome, lawn, cottonwood	Floodplain forest/lawn
East entrance station (existing)	Prairie dog weed, blue grama, threeawn, wheatgrasses, needlegrasses	Dry breaks/upland grassland
East entrance station (proposed relocation)	Green ash, chokecherry, wheatgrasses, needlegrasses, sedges	Wooded draw/upland grassland
Painted Canyon visitor center	Maintained lawn, seeded exotic and native grasses	Lawn
Bison corral (existing)	Wheatgrasses, needlegrasses, green ash, chokecherry silver sagebrush, little bluestem	Upland grassland/wooded draw
Horse corral (proposed additional bison corral)	Wheatgrasses, needlegrasses, sedges silver sagebrush, snowberry	Upland grassland
Cottonwood campground	Cottonwood, juniper, green ash, wildrye, wheatgrasses, sedges, silver sagebrush	Floodplain forest/sagebrush-grassland bottom
Proposed canoe access site (State Historical Society lands)	Mowed grass, willows, wildrye, prairie cordgrass	Sagebrush-grassland bottom/riparian
Proposed westside loop trail	Cottonwood, juniper, green ash, silver sagebrush, wheatgrasses, snowberry, buffaloberry	Floodplain forest/sagebrush-grassland bottom/dry breaks/upland grassland
Proposed Painted Canyon nature trail	Wheatgrasses, little bluestem, sideoats, grama, silver sagebrush rabbitbrush, saltbush, juniper	Dry breaks
Proposed Medora Overlook trail	Wheatgrasses, sideoats grama, saltbush, willow, snowberry, rose, wildrye	Dry breaks/upland grassland/sagebrush-grassland bottom/riparian
Skyline trail	Smooth brome, western wheatgrass	Upland grassland
Peaceful Valley picnic area	Green ash, cottonwood, chokecherry, wheatgrasses, wildrye, snowberry	Woody draw
Buck Hill	Wheatgrasses, needlegrasses, sideoats grama, little bluestem, creeping juniper, juniper	Upland grassland/dry breaks
Painted Canyon sewage lagoon	Wheatgrasses, prairie junegrass, fringed sage, needlegrasses	Upland grassland
Peaceful Valley ranch	Cottonwood, juniper, mowed lawn, silver sagebrush, wheatgrasses	Floodplain forest/sagebrush-grassland bottom/lawn
Headquarters area	Seeded/sodded, mowed lawns, cottonwood	Sagebrush-grassland bottom/lawn

band of bighorn sheep. A program to supplement the bighorn band is being developed, while the elk reintroduction is still considered to be in an experimental stage.

Mammalian predators found in the area include coyote, bobcat, red fox, badger, and weasel. Sightings of mountain lion have been reported. Many other mammals inhabit the park, including small rodents, skunks, beavers, porcupine, and prairie dogs.

Many birds of prey nest in the park. Those that nest on steep-sided buttes or in large trees include golden eagles, prairie falcons, kestrels, turkey vultures, great-horned owls, screech owls, and red-tailed and rough-legged hawks. Marsh hawks and burrowing owls are ground nesters. A great variety of passerine and four gallinaceous birds also nest within the park.

Threatened and Endangered Species

There are no plant species in the park that are currently included or proposed for inclusion on the federal endangered or threatened species lists. However, two species--bursage (Ambrosia acanthicarpa) and desert wire lettuce (Stephenomeria runcinata) both occur in the park, and are listed as endangered by the North Dakota Natural Heritage Program. Three other species found in the park--alkali sacaton (Sporobolus airoides), squirreltail (Sitanion hystrix), and double bladderpod (Physaria brassicoides)--are considered threatened by the state.

Currently there are no wildlife species that inhabit or could inhabit the park that are considered as threatened on the federal list. The federally endangered black-footed ferret (Mustela nigripes), which is associated with prairie dog towns, could possibly inhabit the park, but its occurrence is unknown. The peregrine falcon (Falco peregrinus) formerly nested in the badlands, but nesting has not been recorded recently. Two winter sightings have been reported, but subsequent nesting has not been observed. Recently listed as federally endangered is the interior least tern (Sterna antillarum athalassos); little is known of this species, but the park may serve as habitat. The piping plover (Charodrius melodus) has recently been listed as federally threatened, but this species has not been sighted in the park.

The endangered gray wolf (Canis lupus) has been extirpated from the area, and because livestock production is a major economic base for the region, its reintroduction or reinhabitation is unlikely. The endangered bald eagle (Haliaeetus leucocephalus) is commonly seen along the river during spring and fall migration, while the endangered whooping crane (Grus americana) is rarely spotted. Within the park, both species use riparian habitat along the river only briefly while migrating.

In addition, two federal category 2 species have been sighted in the park. (Category 2 means that information indicates the possible appropriateness of listing these species as threatened or endangered;

however, further research and field study are needed.) The ferruginous hawk (Buteo regalis) and Swainson's hawk (Buteo swainsoni) probably nest in the vicinity of the park. Other category 2 species for which the park may serve as habitat include the pallid sturgeon (Scaphirhynchus albus), long-billed curlew (Numenius americanus), and swift fox (Vulpes velox). The lynx (Felis lynx), also on this list, may have been in the area in the past but is not at the present time.

Species listed as endangered by the North Dakota Natural Heritage Program and of interest to western North Dakota include the black bear (Ursus americanus), fisher (Martes pennanti), and river otter (Lutra canadensis). None of these has been recently recorded in the park. Two state-listed threatened species, the golden eagle (Aguila chrysaetos) and prairie falcon (Falco mexicanus), are commonly seen and nest in the park; little is known regarding the occurrence, distribution, and use of the park by the mountain lion (Felis concolor) or merlin (Falco columbarius).

Because overlapping of these sensitive species between federal and state lists is common, they have been recorded here only once under the most protective classification. Little is known about many of these species' relationship to the park environment, although efforts are being made to gather more data. Aerial surveys were made in 1983 and 1984 and are scheduled every two to three years to locate raptor nest sites; ground surveys will be made annually to monitor reproductive success. Over the past several years, park staff and university researchers have surveyed, collected, and identified plant specimens and have located rare flora within the park. Occasional seining is conducted in the perennial streams to collect specimens of common fishes and to locate rare species.

Water Resources

The major surface water resource in the park is the wild and free-flowing Little Missouri River and its tributaries. The river flows through the north and south units and along the eastern boundary of the Elkhorn unit. Because of its designation as a scenic river by the state of North Dakota, diversions and impoundments on the main stem are prohibited. There are 13 developed springs and 18 wells in the park. Data on flow rates and chemical characteristics from these sources and the river are incomplete. The primary concern regarding water resources relates to potential pollution of streams and underground aquifers from oil and gas development and chemical transportation. Oil and gas development includes waste salt water injection wells, storage and treatment facilities, and gas pipelines, including pipelines buried under the Little Missouri River bed. Seepage of crude oil into a major Little Missouri tributary upstream from the park has been reported.

Floodplains and Wetlands

In 1984 the U.S. Geological Survey located the 100- and 500-year floodplains of the Little Missouri River in the Medora, Cottonwood campground, Peaceful Valley, Elkhorn ranch, Squaw Creek campground, and north unit headquarters areas. Permanent survey markers were installed in appropriate locations. The National Park Service then mapped these floodplains for use in future planning. A large portion of Medora, including the park headquarters, the Medora visitor center, Maltese Cross cabin, and most of the park housing area, are within the 100-year floodplain, as are the Cottonwood campground, the Peaceful Valley area, and all the historic remains in the Elkhorn ranch unit. In addition, the Squaw Creek campground/picnic area (including all historic structures) and approximately one-half of the north unit bison corral are in the 100-year floodplain.

The Peaceful Valley ranch and picnic area are in the Paddock Creek 100-year flash-flood area, and the Squaw Creek campground/picnic area is within the Squaw Creek 100-year flash-flood area. Flash floods could also be experienced in the Knutson Creek drainage, but no developments other than trails are located or proposed along this stream. Within these three flash-flood areas are segments of several trails, short portions of which cross Squaw, Paddock, and Knutson creeks. (Refer to DCP maps for Squaw Creek campground and Peaceful Valley, and the General Development Plan/Flood Data maps for location of these drainages and trails.)

Above the Little Missouri bottomlands, the tributary streams, prone to flash floods, have narrow channels in steep-sided canyons where flash floods would be quite destructive and dangerous. No facilities except trails are located in or proposed for these areas. Close to the river, where they pass through developed visitor use areas, the tributary stream floodplains become rather broad. However, USGS calculations for depths and velocities during 100-year flash floods at these locations indicate there would be a hazard to persons and property.

There is the extremely remote possibility that a 100-year flash flood could occur in these three creek drainages at the same time that a 100-year flood occurred in the Little Missouri River floodplain. Should this happen, flash-flood damage would be mitigated greatly in the developed areas because of the deeper slack water from the river flood, which would dissipate much of the destructive force of the flash flood (see Squaw Creek campground and Peaceful Valley DCP maps for more information).

The danger in flash flood and other high hazard areas is extremely difficult to assess because of the many variables involved. This highlights the importance of having adequate information and analysis on each flash-flood area in question so that rational decisions can be made about what developments, if any, will be permitted.

In 1980 a report concerning potential flood hazards was prepared for the National Park Service by Linsley, Kraeger Associates. Table 10 contains information from that report concerning the effects of water depths and velocities, which may be useful in assessing flood hazards.

Table 10: Physical Impact of Floodwaters
 (Based on the Force in Pounds Exerted on a Cylinder
 1 Foot in Diameter When Immersed in Flowing Water)

Velocity of Flow in Feet Per Second (fps)	Depth of Immersion in Feet					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
2	4	8	12	16	20	TOLERABLE
3	9	17	26	35	44	UNSAFE
5	24	48	73	97	121	
10	97	194	291	388	485	
15	218	436	655	873	1,091	
20	412	825	1,237	1,649	2,062	

Table Notes and Explanation

The table presents values of the force (in pounds) exerted on a circular cylinder immersed in water depths from 1 to 5 feet flowing at velocities from 2 to 20 fps. Assuming that the cylinder approximates a human body, a healthy adult might be able to stand in water 5 feet deep with velocity of 2 fps resisting a force of 20 pounds. However, the effective weight of this person would be very small because of bouyancy. Quite probably this person would be pushed or floated downstream, but at 2 fps might be able to swim to safety. With a velocity of 3 fps, an adult could withstand depths of 3 feet and at 5 fps a depth of possibly 2 feet. At greater depths or velocities as indicated by table entries below the line, chances of survival would rapidly approach zero. A rough rule of thumb is that a healthy human adult can withstand a combination of velocity and depth whose product is 10; i.e., 2 fps and 5 feet deep or 5 fps and 2 feet deep.

Children, because of their small weight and height, would have serious difficulty at depths or velocities much lower than those an adult might withstand. Handicapped persons or persons trapped in sleeping bags on the ground could experience great difficulty in a depth of 1 foot within relatively low velocities. It should be noted that the discussion above applies largely to sediment-free water. If the flow is carrying very large sediment loads, chances of survival are sharply reduced.

Forces exerted on cars, trailers, and other structures are much greater than those indicated above because of the much greater area exposed to the flow combined with the fact that the drag force on a large flat plate would be nearly double that on a cylinder of the same projected area. Bouyant forces at depths of 2 or 3 feet are usually sufficient to float an automobile or trailer.

NPS final procedures for implementing EO 11988 and EO 11990 (see appendix F) exempt picnic and camping facilities and their associated sanitary facilities from compliance with the orders, provided that floodproofing is a consideration in their design or construction. All entrance, access, and internal roads to or within existing developments are also exempt from compliance with the floodplain orders.

The U.S. Army Corps of Engineers, through the Remote Sensing Lab at the University of Nebraska-Omaha, has mapped the wetlands along the Little Missouri River using high altitude LANDSAT satellite imagery. A very broad classification was used, which separated open water, marsh, and riparian habitats. The last two are most important for wetland classification, and the data showed that about 66 acres of widely scattered riparian wetlands occur in the north unit, and 57 acres occur in the south unit. No marsh wetlands were recorded along the river or elsewhere in either unit. The riparian wetlands would nearly correspond to the riparian physiographic/vegetational class discussed previously.

An informal aerial reconnaissance along the river by the U.S. Fish and Wildlife Service resulted in an opinion that some palustrine forested wetlands occurred in the park, but that they are probably insignificant in total area and value as wetlands habitat.

Neither this survey nor the LANDSAT photography was ground-truthed. Wetlands will be preserved in accordance with EO 11990 and by the normal park procedures of environmental assessment for any major management activity or proposed development.

Air Quality

As far as can be determined, the historical quality of the air flowing over the park has been excellent until recently. Natural transient pollution from wildfires, blowing dust, and burning coal veins occurred with no significant long-lasting impacts on the environment. However, with the demand for fossil fuels and electricity increasing and the potential for the production of both in the Williston Basin, the basin has become a major energy development area, with great potential for negative impacts on aesthetic and natural environments.

The park's first air pollution monitoring equipment--a high volume, total suspended particulates sampler--was installed in the south unit in 1974. In 1977, the park prepared its first documentation of air quality and related values, including historical quality and significant vistas. Also, in accordance with the 1977 Clean Air Act amendments, all three units of the park were designated a mandatory class I area for purposes of preventing significant deterioration of air quality.

In 1979, a monitoring facility to sample sulfur dioxide, hydrogen sulfide, total suspended particulates, and fine particulates was placed in the north unit, and the park was issued a teleradiometer to measure visual range reduction in the south unit.

Following enactment of the 1977 Clean Air Act amendments, the Environmental Protection Agency published visibility protection regulations. Those regulations gave the secretary of the interior an opportunity to identify scenic views from class I areas of specific landmarks or panoramas located outside the class I areas that were important or integral to the park visitor's visual experience. Identification of the integral vistas would not have assured protection of air quality in those vistas. However, it would have required states such as North Dakota to include vistas identified by the secretary in their state implementation plans and to consider the costs and benefits of preventing visibility degradation that might affect those vistas before deciding to permit new air pollution sources.

Using draft guidelines developed by the National Park Service's Air Quality Division, the park prepared a list of integral vistas in 1980. This list included viewpoints such as Badlands Overlook, Bentonitic Clay, Boicourt, Buck Hill, Elkhorn Ranch, Johnson's Plateau, Little Missouri, Man and Grass, Medora Overlook, Oxbow, Painted Canyon, and Ridgeline Nature Trail. The vistas included Badland Terrain, Kildeer Mountains, Bullion Buttes, Sentinel Butte, South River Bluffs, DeMores Chateau, Custer National Grassland Plateau, Stock Butte, Maltese Cross Cabin, Little Missouri Town Site, West River Crossing (Kellogg Ranch), and Little Missouri National Grassland. The draft guidelines and preliminary list of integral vistas were published in the Federal Register in January 1981 (46 CFR 3646) and April 1981 (46 FR 23389). The list of vistas was also given to the state of North Dakota.

Following completion of a detailed regulatory impact analysis, the secretary of the interior on October 25, 1985, decided not to publish a final regulation officially designating integral vistas. The secretary emphasized that his decision did not reflect a judgment that integral vistas are not worthy of protection. He also made it clear that the Park Service will continue to have the responsibility to participate in individual state permitting and regulatory decisions, and through this participation, have an opportunity to raise concerns regarding protection of scenic views. The secretary believes that parks can work cooperatively with states and private interests under existing regulatory programs to resolve air quality related resource conflicts.

To date, approximately 1,500 producing oil and gas wells have been drilled in the two counties, which include the three park units. Sources of air pollution from this development include hydrogen sulfide and sulfur dioxide from gas flaring, hydrogen sulfide associated with escaping natural gas, and smoke and particulates from reserve pit burning and construction.

From 1982 through 1984 the Park Service responded to seven PSD (prevention of significant deterioration) permit applications for energy conversion and natural gas sweetening facilities within a 125-mile radius of the park. NPS computer modeling of emissions predicted that some class I air quality standards (increments) within the park would be exceeded, although the standards at the source areas would not

necessarily be violated. However, since the Park Service also determined that visibility and pollution-sensitive plant species would not be significantly affected, the Department of the Interior issued a certification of no unacceptable adverse impact on the park for these facilities (1984). As a result, the state has granted construction permits for six of the seven plants (one had withdrawn its application).

Air quality activities in the park are numerous. They include monitoring visibility and air quality, researching plant effects, mapping and photographing visual intrusions and new energy developments near the park, reporting violations of state air pollution standards, responding to public inquiries regarding air pollution in the park, contacting news media and the public, coordinating with the State Industrial Commission regarding reduction of visual and other impacts of energy development, and cooperating with the Forest Service and Bureau of Land Management regarding oil and gas permit stipulations and review of planning documents. In addition, the park staff, in cooperation with the NPS Rocky Mountain Region and Denver-based Air Quality Division, will continue to review air quality permit applications submitted to the North Dakota Department of Health to identify potential air quality problems.

CULTURAL RESOURCES

Archeological Resources

Only a small portion of the park has been surveyed for archeological resources. In 1968 James Sperry of the North Dakota State Historical Society surveyed parts of the north and south units. He located 37 prehistoric Indian sites but filed no report. Another 8 prehistoric Indian sites were found by Ralph Hartley of the Midwest Archeological Center in the 1979-80 period during a survey for the realignment right-of-way of 6 miles of the north unit (NPS 1981). Approximately 30 to 40 homestead sites have been documented by park personnel, but none of these areas has been surveyed. Basically, the Elkhorn unit has received the greatest archeological attention.

Because of the lack of a comprehensive archeological survey, the park is not in compliance with section 110(a)(2) of the National Historic Preservation Act, as amended in 1980, which dictates that such a survey must be accomplished. This completed survey of the park would allow an evaluation to be made of the eligibility of cultural sites for inclusion on the National Register of Historic Places. Also, it would provide a valuable interpretive tool to address aboriginal and homesteading use of the park as well as provide valuable information on which to base improvements or construction, which could otherwise result in costly delays until mitigation was completed on a previously unknown site encountered during such work.

The recorded Indian and homestead sites are not located within any of the areas proposed by the action alternatives that would have earth disturbances.

Historic Resources

The park was originally established for its historical association with Theodore Roosevelt and the open range cattle industry. The principal Roosevelt-related historic site is the Elkhorn ranch location, which has no surviving structures and only minimal archeological remains, including those of the ranch house, stable, blacksmith shop, dugout, well, chicken pen, shed, and corral. Shallow ground indentations exist where the structures' foundations were situated. For a few structures, some rough foundation stones remain. Some posts, pieces of wood, stone pillars (ranch house), etc. have been removed. Elkhorn served as the headquarters for Roosevelt's second ranch from late 1884 to 1890. The Long X cattle trail, which crosses a portion of the north unit, was used to drive Texas longhorn cattle into McKenzie County, particularly to the Long X ranch operated by the Reynolds brothers. A third site in the south unit was purportedly used by the Marquis de Mores as a corral (generally known as the beef corral).

The Peaceful Valley ranch in the south unit also represents the ranching era and dates to 1885. By 1920 it was operating as a dude ranch, which was when the ranch received its name. Currently, the ranch consists of a ranch house, bunk house, and a barn-equestrian center, and serves as the base for the horse concession.

The Maltese Cross cabin, located near the Medora visitor center, still remains from the first Roosevelt ranch, south of Medora.

The other historic theme connected with the park involves the federal relief programs and their projects during the depression years of the 1930s. The sites of CCC camps are in both the north and south units of the park. From 1934 to 1941 the CCC built the following north unit structures: the camp-tender cabin, two picnic shelters (made of stone and heavy timbers) at the Squaw Creek campground/picnic area, and the Little Missouri River overlook shelter. The CCC obtained some of their building material from a stone quarry, which is located in the north unit. The ERA constructed the south unit's old east entrance station, its stone privy, and the stone pylon, which was relocated to the Painted Canyon area in 1968.

Of all the above-named areas and structures, only the Elkhorn ranch site, Maltese Cross cabin, CCC camp-tender residence, and old east entrance station would be affected by the current planning effort.

Collections

The park museum collections, which are housed in both the Medora visitor center and the Maltese Cross cabin, reflect the natural and human history themes of the park. These objects represent an ongoing effort to assemble acquisitions to successfully interpret both themes. In addition, a small library collection is stored in the visitor center. These books, which cover a range of natural and historical subjects, are for use by the

staff, Theodore Roosevelt Nature and History Association members, very interested visitors, and researchers. Provisions have been made in this plan to provide for protection of these collections and books from flood, fire, and theft.

RECREATION/VISITOR USE

Regional Recreation Resources and Uses

Most campers who stay in the vicinity of the north unit use Squaw Creek campground. There are no Forest Service or state campgrounds in the area. There are motels in nearby Watford City and a dude ranch immediately east of the unit. The access road for the dude ranch lies just south of and across US 85 from the entrance to the north unit.

When water conditions permit, some river canoeing occurs. Canoes can be rented from a private supplier just outside the north unit, although many users bring their own. Most trips begin upstream, and many canoeists do not take out until they have passed through the unit. In the winter, snowmobilers using the river also pass through the unit. The north unit is a destination for quite a few horse user groups. Hunting is not permitted in the park, but deer, elk, and small game hunting occurs on lands surrounding the north unit.

The Elkhorn unit is relatively isolated. There are no significant recreational developments anywhere near the unit. The closest campgrounds and motels are along I-94 and in Medora. As in the north unit, some river canoeing occurs when water conditions permit, while snowmobiling occurs on the river during the winter. Virtually all trips begin upstream, and many canoeists do not take out until they have passed through the unit. There is little horse use and only a minimum of small game hunting in the area surrounding this unit.

A significant amount of summer use occurs in the vicinity of Medora, gateway to the south unit. In addition to the Cottonwood campground, there are private campgrounds at Medora. A Forest Service campground with 37 units is located off I-94, 7 miles west of Medora. Sullys Creek State Primitive Park with 12 camping/picnicking sites lies to the south of Medora. There are several motels near the park headquarters and entrance in Medora.

Medora has a number of other attractions for visitors, including the Chimney Park State Historic Site/Picnic Area and the Chateau DeMores Historic Site.

As in the other two park units, some river canoeing occurs when water conditions permit. Canoes can be rented in the area, although many bring their own. Most trips begin immediately upstream, and most canoeists do not take out until they have passed beyond the south unit. In the winter, snowmobilers using the river pass through the park.

The south unit is also a destination for a number of horse user groups. There is no hunting in the park, but big and small game hunting is the principal recreational use of lands surrounding the unit.

Park Use Patterns and Trends

The principal activity of visitors to the park is sight-seeing by motor vehicle. Excluding those who stop only at the Painted Canyon area, most visitors drive at least a portion of the scenic park road in either the south or the north unit of the park.

Visitor Use Counts. Visitor counts have been recorded at the park since it was first opened in 1948, although the method of recording visitation has changed several times. Originally, entrance station employees made actual counts of both vehicles and visitors. When stations were not manned, counts were estimated.

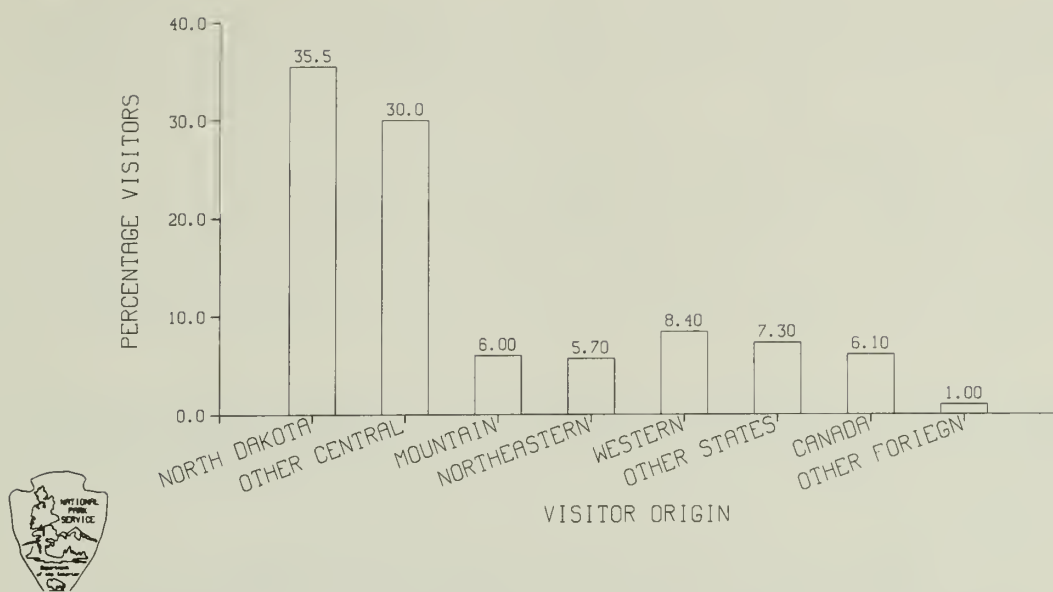
In recent years, traffic counters have been used to measure the number of vehicles. The early models provided unreliable counts because they used pneumatic tubes. Magnetic induction counters have now been installed and are providing much more reliable counts. Traffic counters are located on the incoming lanes at the north unit entrance station and the south unit entrance station, and on the entrance road to the Painted Canyon overlook/rest area.

Park visitation is currently measured in terms of number of visits. Theoretically, a visit is the entry of one visitor into the park one time. Thus, a family of four that visits the north unit once and the south unit twice has made 12 visits to the park. Visits are determined by multiplying traffic counts times the average number of visitors per vehicle. This average is revised occasionally, resulting in recorded changes in number of visits.

The last major change of vehicle occupancy multiplier was in 1983. Traffic counts that year decreased 16.1 percent from 1982 levels. However, the reported number of visits decreased by 38.3 percent because of the adjustment in the multiplier.

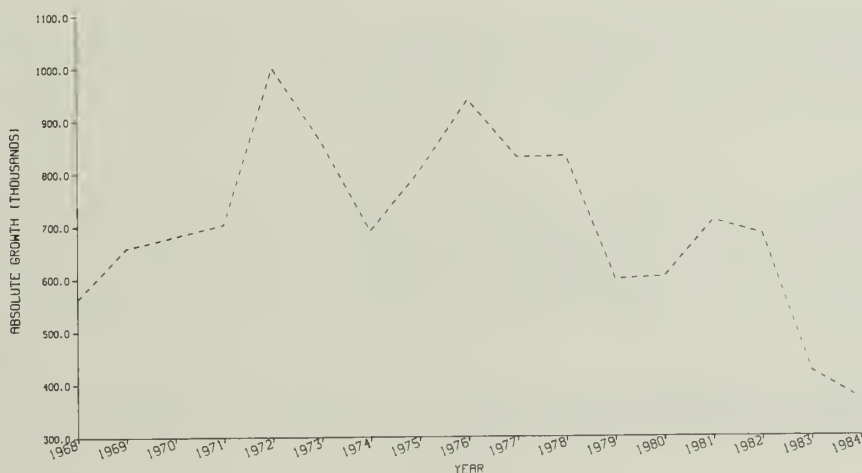
Visitor Origin and Length of Stay. As illustrated in the following graph, about one-third of the park visitors come from within the state; another third of the visitors are from other north-central states, especially Minnesota. The average length of stay at Painted Canyon is 18 minutes; in the south unit, 2.2 hours; and in the north unit, 2 hours.

VISITOR ORIGIN



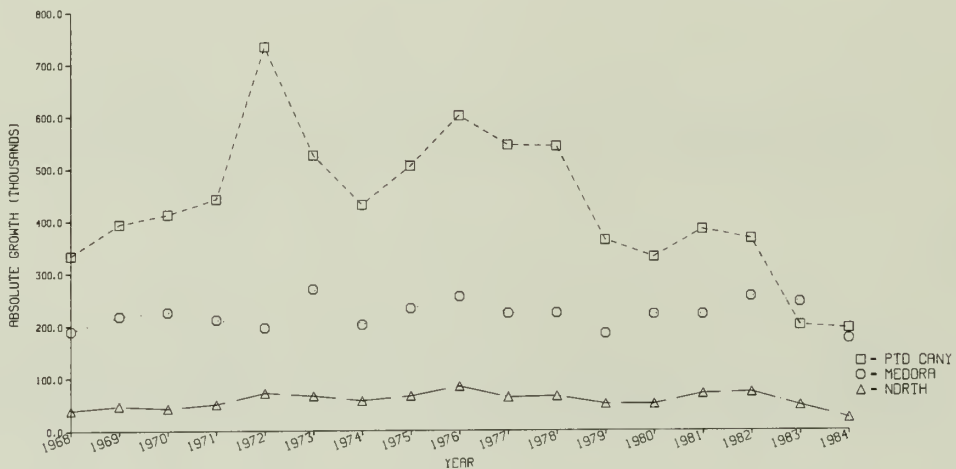
Past Use Levels. Up until I-94 opened in 1966, visitation in the park had been averaging about 250,000 visits per year. With the new interstate and the counts taken at the Painted Canyon rest area, visitation steadily increased until the first oil embargo in 1973. The peak year for visitation occurred in 1972 when 1,001,767 visits were recorded (see following graph). From 1973 through 1982, visitation averaged about 750,000 visits per year. Visitation dropped steeply in 1983 and 1984. As discussed above, the vehicle occupancy rate had been decreasing for several years. This rate was adjusted in 1983. Because of this adjustment, it is likely that over half of the reported 1983 drop actually occurred in previous years.

TOTAL RECREATION VISITS



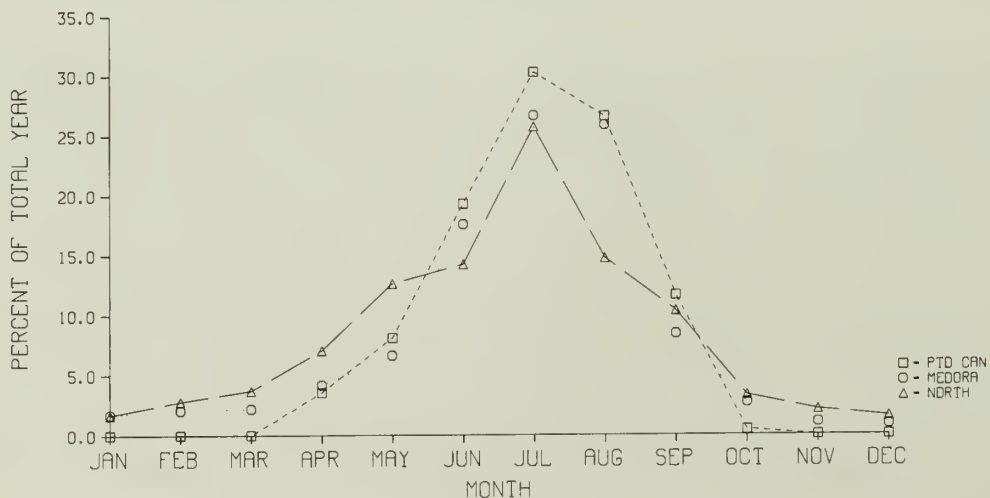
Use Levels by Area. As illustrated in the following graph, Painted Canyon accounted for 52 percent of the 1981-1983 visits, the south unit 37 percent, and the north unit 11 percent. However, when visitation is measured by visitor days, Painted Canyon accounted for only 12 percent, while 70 percent occurred at the south unit and 18 percent occurred at the north unit. The 1984 use levels for each of the three areas were lower than at any time in the previous 17 years.

ABSOLUTE CHANGE IN RECREATION VISITS



Peak Use Periods. A review of the visitor use records for the last 10 years shows July to be the peak visitation month. Since December 1982, the Painted Canyon area has been closed during the winter months. This closure has reduced recorded park visitation by approximately two-thirds from December through March. The following graph illustrates visitation for the 1983 season.

1983 SEASONAL USE



The peak visitation day of the week varies somewhat by location. At the south unit this usually occurs on a Saturday. At the north unit the peak day generally occurs on a Sunday due to heavy local use. At the Painted Canyon overlook, the peak day typically occurs on a weekday when interstate highway traffic is highest.

In 1984 the peak day at the south unit was September 2, when 1,920 visits were recorded (57 percent above the average daily use for the June through August period). The 1984 peak day at Painted Canyon was September 3, when 2,040 visitors stopped there (30 percent above the average summer day). The 1983 peak day for the north unit was August 22, when 662 visits were recorded (135 percent above the average summer day).

Projected Growth in Use. In computing present growth rate, data collected prior to 1968 cannot be used. The following events occurred in the three previous years:

I-94 was opened and the old east entrance was closed.

Entrance fees were imposed.

Painted Canyon was opened and then temporarily closed due to slumping of the nearby slope.

The south unit scenic loop road and the Buck Hill viewpoint were opened.

The Burning Coal Vein had become a major attraction.

Linear regression analysis was performed on growth from 1968 through 1984. For the Painted Canyon overlook, this indicated a long-term decrease of 12,000 visits per year (equivalent to 6 percent of 1984 visits). Medora is experiencing a decrease of 1,000 visits per year (1 percent of 1984 visits).

Due to major road construction, 1984 visitation was excluded in analyzing visitation to the north unit. The long-term growth rate at that unit is 1,000 visits annually (equivalent to 2 percent of 1983 visits).

The reasons for the decreases in visitation at Painted Canyon and Medora are not fully understood. For future planning purposes, perhaps the best assumption is that visitation will continue at approximately the present levels. The north unit use may well continue to grow about 2 percent a year.

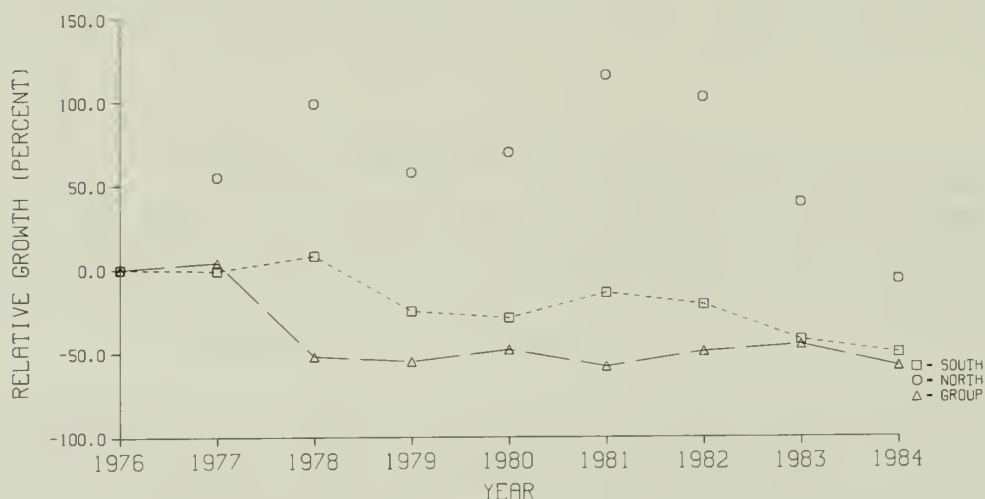
Campground Use and Future Growth. The numbers of campers are determined from campground registration records during the fee collection season and by actual counts during the off-season when fees are not collected. Although group camping is not reported by area, about 70 percent occurs in the south unit.

Camping is a major recreational activity. In 1977 camper nights represented 13 percent of visits to the north unit. This has remained

fairly stable and was 14 percent in 1983. In contrast, equivalent statistics for the south unit reflect a decrease from 15 percent in 1977 to 11 percent in 1984. This decrease may have been due to the development of commercial campgrounds adjacent to the park or to the increase in park camping fees.

As shown in the following graph, south unit camping and group camping have dropped 50 percent and 58 percent, respectively. In contrast, north unit camping use grew 40 percent through 1983.

RELATIVE CHANGE IN CAMPGROUND VISITS

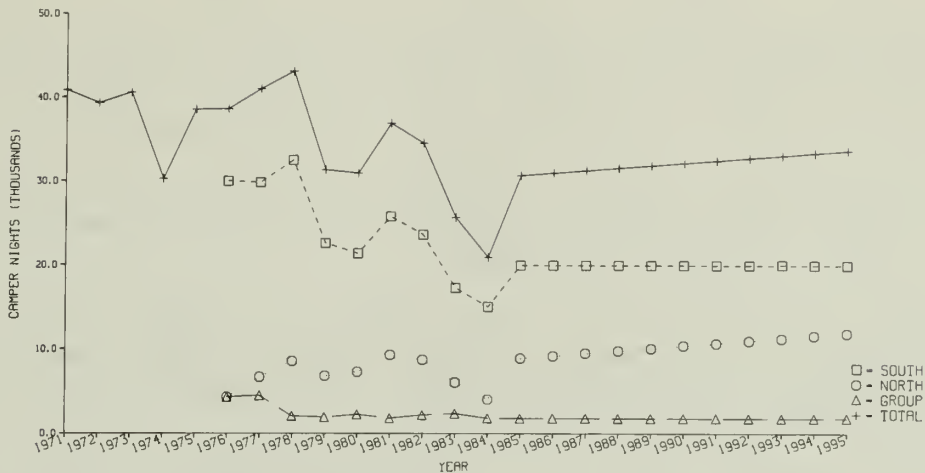


Linear regression analysis was used to determine long-term (1976 through 1984) growth rates. Group camping is currently decreasing somewhat (16 percent of 1984 use). Individual camping in the south unit is decreasing by about 2,000 camper nights annually (2 percent of 1984 use). As with total visitation, the safest assumption is that future camping will continue at present levels.

Due to major road construction, 1984 visitation was excluded in analyzing camping in the north unit. The long-term growth rate at that unit is 300 camper nights annually (5 percent of 1983 visits). This growth rate is more than double that of the growth rate of total visitation to the north unit. This may reflect an increase in nonlocal use.

Backcountry campers are required to obtain a permit, and use counts are taken from those permits. Day hikers are not recorded or reported. The concessioner maintains records of use on the guided trail rides, and use is reported in the annual concession report.

PROJECTED GROWTH IN CAMPGROUND VISITS



Interpretive Resources and Programs

The north unit is approached via US 85. As the road descends into the deep valley of the Little Missouri River from both the north and south, pulloffs provide the opportunity for travelers to view the badlands, canyons, and buttes. One pulloff north and another one south of the park entrance are signed with identical plaques that interpret the badlands but do not mention the park. Despite two other signs that mention the distance to the park entrance, highway travelers may pass the unit's entrance without any knowledge of the park or the opportunities it provides.

Upon entering the north unit, there is an entrance fee kiosk, a small frame ranger station, a trailer that serves as an interim, seasonal visitor center, and a small parking area. Most of the trailer space is devoted to visitor use. It is furnished with old exhibits (ca. 1959), an audiovisual unit, and an information desk, all salvaged from the Medora visitor center when it was remodeled. There is no orientation exhibit specific to the north unit. The remainder of the trailer space contains the district library, district herbarium, cooperating association stock storage, and a small work space for the interpreters.

In early September each year, the district interpreter must move to the (rather poorly) heated ranger station, where there is no space for visitor use, as well as no information desk, exhibits, AV program, or publications sales area. Thus, for nine months of the year there is no visitor center at the north unit.

The ranger station is cramped for protection functions and totally inadequate to accommodate interpretive functions. All supplies and files

must be left in the trailer. Projects requiring a larger, heated space demand use of the interpreter's residence. Both the trailer and the ranger station lack adequate interpretive storage space.

Other interpretive facilities at the north unit include a rear screen projection amphitheater at Squaw Creek campground, which is used for summer evening campfire programs; two self-guiding nature trails; and the wayside exhibits along the 13 miles of park road. The wayside exhibits are old, worn out, and slightly out-of-date. Only 6 miles of the road are open during the winter months. There is no auto tour guide for the north unit at this time. Trailhead access to the Squaw Creek nature trail is through the group campground.

The Elkhorn unit is isolated, undeveloped, and marked only by NPS boundary signs. Most visitors approach from the east and must ford the Little Missouri River to reach the site. When the water level permits, some visitors come to the unit by canoe.

The Elkhorn ranch site is the most important in the park for understanding the significance of Theodore Roosevelt's experiences in the badlands. Yet, few visitors attempt a visit because of the difficult access. Those who do inquire are given a handout with directions and a brief history of the ranch. Building locations are marked with posts, but there is no on-site interpretation.

Access to the south unit is via I-94. Westbound visitors make their first park contact at Painted Canyon, and eastbound visitors make their first park contact at Medora.

The Painted Canyon overlook and rest area on I-94 is the most heavily visited area of the park; for many, it is their only contact with the park. Interstate signs identify Painted Canyon as a rest area and visitor center only. While there is no vehicular access to the south unit road system from Painted Canyon, the rest area is part of the park and provides one of the best, if not the best, views of the south unit. Despite the NPS arrowhead on the visitor center and the stone pylon bearing the name of the park, travelers do not readily recognize this as a national park. Once visitors view the badlands, they want more information and will enter the visitor center. It is here that most visitors learn that this is a part of the park.

The Painted Canyon facilities were originally operated year-round and designed to allow the restrooms to remain open regardless of visitor center operating hours. Extensive vandalism of the restrooms and the need to reduce operating costs resulted in closure of the facilities from mid-November to mid-April. Winter weather conditions and limited visitation have also been factors. A locked gate prevents vehicular access, so if visitors wish to enjoy the view from the overlook, they must climb the gate and walk nearly $\frac{1}{4}$ mile.

The visitor center contains an information desk with a built-in, rear screen, random access, slide projection system; a three-sided,

free-standing exhibit that includes a basic orientation map and two panels on wildlife; a cooperating association publication sales area; a sectional sofa; a free-standing, rear screen projection AV unit that shows a three-minute slide program on the badlands environment; and a beautiful, uninterpreted view of Painted Canyon and the park through the large north wall windows. Much of the interior space is poorly utilized, and there is virtually no interpretation of the park and its significance, geology, or air quality.

Visitors to Painted Canyon are instantly drawn to the canyon rim to view its depth and its expanse. Many even attempt the descent into the canyon, although there are no developed or marked trails. Visitor traffic has created several trails; but the trails are unimproved and sections are steep. When staffing permits, primarily on weekends, well-attended ranger-guided walks are offered into the canyon. Existing wayside exhibits touch lightly on the story of the area but offer no in-depth information about the park and its opportunities. In short, Painted Canyon lacks the quality interpretive devices necessary to adequately serve the large number of visitors and provide appropriate information about the park and its opportunities.

The entrance to the south unit is at Medora, 7 miles west of Painted Canyon. A year-round visitor center houses a museum exhibit area, a theater that regularly shows a 13-minute film titled "T.R. Country," a cooperating association publications sales area, and the standard NPS information desk. In addition, the building houses the park library, park curatorial storage, and work areas for the district interpreters and rangers. These relatively new facilities were constructed under the guidance of the existing interpretive prospectus; thus, they dwell heavily on Theodore Roosevelt and the era in which he ranched here. Natural history themes are mostly lacking.

The south unit may be traveled via a 36-mile loop drive that begins and ends at the Medora visitor center. Wayside exhibits along the drive are old, worn out, out-of-date, and not sufficiently comprehensive. Also, there are not enough pulloffs along the south unit road; cars parked on the road shoulder often pose a safety problem. A self-guiding auto tour brochure for the south unit drive is sold by the cooperating association and is extremely popular. It is useful only from spring through fall, as 20 miles of the scenic drive are closed in the winter.

Buck Hill, the highest point in the south unit, lies about halfway along the scenic drive and is accessed by road and foot trail. The top of Buck Hill offers a breathtaking 360° view of the badlands, including Painted Canyon. There is no interpretation of any kind at Buck Hill.

Along the south unit drive are two self-guiding trails and two other short trails for which publications are being developed. However, there are no self-guiding trails near the Medora visitor center or Cottonwood campground. At the campground, a rear-screen projection amphitheater is used by the interpretive staff to provide campfire programs during the summer.

FACILITY ANALYSIS

Roads, Trails, and Parking

There are 55 miles of primary paved roads in the park--39 miles need reconstruction or overlay and are in fair to poor condition, narrow, and have no shoulders; 16 miles must be kept open during bad weather and are in good condition. The 9 miles of secondary gravel-improved roads all need widening, resurfacing, and drainage work to be brought up to standards.

There are three bridges in the park; all are new or less than five years old and in good condition.

The 5 miles of paved trails need major repairs and adaptation for use by the handicapped. There are 85 miles of horseback riding and hiking trails in the park--all 85 miles need repair work, new signing, marking, and general improvement to stop erosion and make them easier for visitor use.

There are five primary parking areas around the visitor centers, campgrounds, and picnic areas, and five secondary parking areas at trailheads, pullouts, and overlooks. All are currently in fair condition and capacity is adequate. There are 12 scenic pullouts in the park for one to five cars. More pullouts and some vault toilets are needed around the loop road.

Buildings and Facilities

There are about 69 buildings in the park, including two visitor centers, which are new or remodeled and in good condition, and one visitor center trailer, which is inadequate. There are seven modern comfort stations and two amphitheaters in the campgrounds. These structures are in good, sound condition except for the paint and seating.

The other buildings and facilities are used for visitor purposes, administration, and concession employee quarters, or will remain as historic structures. The Peaceful Valley ranch house is rented to the horse concessioner. The barn and bunkhouse are used under terms of the concession permit. Except for the historic structures, the buildings are in fair condition with some maintenance repairs needed to bring them up to park standards.

The 12 structures below are on the List of Classified Structures, and all need minor to major repair or rehabilitation work in the near future.

Medora visitor center area - one (Maltese Cross) log cabin

Peaceful Valley ranch - one log barn, one log-and-frame bunkhouse, and one log-and-frame ranch house

Painted Canyon overlook - one stone masonry pylon

North unit entrance - two stone masonry pylons

North unit headquarters - frame, board-and-batten camp-tender cabin

Old east entrance - stone masonry check station, walls, and pit privy

North unit, Squaw Creek picnic area - two picnic shelters (built with logs and stone fireplaces)

North unit overlook - one shelter (built with logs with stone corners and walls)

There are two family campgrounds totaling 130 units and two picnic areas in the park. Some revisions and repairs are needed to adapt the campgrounds to accommodate needed visitor services.

Since the Rough Rider campground access was destroyed during a 1978 high water period, the small Halliday Wells camping area in the south unit is being used to accommodate group campers and horse groups.

The Painted Canyon visitor center was constructed in 1978, with solar power as a primary source of heat. The solar system will not work because of the design and poor quality heat absorption panels. Therefore, the center and comfort stations must be closed during the colder months.

Utility and Park Operations Systems

The park has a new 60-kilowatt emergency generator, which supplies the Medora headquarters with water and sewer system power when commercial power is off.

The park owns and operates 12 domestic water systems; six of these systems have been rehabilitated and chlorinators added for treatment. In addition, the distribution system of one has been replaced. The Medora headquarters water system needs to be improved by drilling a new well and replacing the treatment system.

There are about 20 wildlife watering systems in the park. These consist of wells or springs with concrete, plastic, or fiberglass dish tanks to water buffalo, horses, longhorn steers, and other wildlife. All of these systems need major repairs, some need new wells drilled, and all need dish tank repairs or replacement.

The park has three lagoon sewage systems. The Medora headquarters sewer system is connected to the city system; however, the city is having trouble with proper operation of their lagoons and therefore difficulty

disposing of its waste. There are other sewage facilities in the park that involve septic tanks or pit or vault toilets.

The park has a radio system that consists of 4 repeater stations with 2 towers, 3 base stations, 37 mobile units, and approximately 35 portable radios. The system was recently redesigned and renovated and is generally in very good condition. Repeater links that will tie together Theodore Roosevelt National Park, Fort Union Trading Post National Historic Site, and Knife River Indian Villages National Historic Site are proposed for the future.

The park has two road oil storage facilities, and both are in good condition. The south unit facility will hold 12,000 gallons of road oil and the north unit will hold 4,000 gallons.

All south unit headquarters buildings have separate fuel oil storage facilities, and the north unit has two larger propane storage facilities. All quarters have separate fuel storage tanks. Some of the tanks have been replaced; other will be replaced within three years pending the availability of funding.

ENVIRONMENTAL CONSEQUENCES

This section describes the environmental and visitor use impacts that would be expected with implementation of the proposed actions and the alternatives of both the "General Management Plan" and the "Land Protection Plan." Except for natural resource proposals that have been definitively expanded upon and so identified in this document, impacts associated with proposals from the 1984 Natural Resources Management Plan are not included here; however, they may be found in that plan. A summary comparison of impacts by alternative can be found at the conclusion of this section.

IMPACTS ON NATURAL ENVIRONMENT

Impacts on Geology, Soils, and Vegetation

Continuation of Existing Conditions. Under a no-action situation, the park would have no specific land protection plan of action for responding to incompatible uses of land, including impending development of subsurface (mineral) resources from outside the park or on private or park surface lands overlying nonfederal subsurface rights within the park. In such areas, it would be potentially difficult to prevent adverse uses and disturbances by oil, gas, and other mineral exploration or extraction activities; removal or erosion of soil and damage to or removal of vegetation could result. Buildings, roads, pipelines, and other facilities necessary to support the exploratory or extraction operations would have similar impacts.

Under this alternative, no interests in nonfederal lands would be acquired in fee or through scenic easements, and current uses of the private lands east of US 85 in the north unit would continue. The limited cattle and occasional horse grazing that has been occurring would continue, along with resulting minor adverse impacts on soils and vegetation. Serious future damage to soils and vegetation through overgrazing would be a potential but unlikely possibility.

Users of Cottonwood campground currently have little opportunity to use any trails. As a result, the steep bluff east of the campground would continue to be used informally by hikers. This would perpetuate the establishment of unplanned and often steep paths, with resultant damage to ground vegetation and soils. A similar situation would continue below the rim at the Painted Canyon overlook, where even greater temptation exists to use the existing steep, informal trails and the soils are even more subject to erosion and slumping.

Action Alternatives - General Impacts. Under the action alternatives, the likelihood of the impacts that could result from the park's having no specific plan of action to respond to incompatible land uses would be greatly reduced. This would result from acquisition of fee or scenic easement interests for all private (surface) lands, from acquisition of

private and state/county owned mineral interests, and through enforcing compatibility standards for privately owned lands and federal regulations dealing with mineral leasing and development. The latter would apply particularly to situations in which acquisition of an interest in land or minerals had not been accomplished.

Grazing would continue on the fenced portions of the privately owned lands east of US 85 in the north unit. The minor adverse impacts on soil and vegetation would also continue. The use of and the impacts from grazing would be allowed because the area is not used by visitors and does not contain any significant natural or known cultural resources. Because of grazing, the appearance of the area would continue to be slightly different from the federally owned portion of the unit, which is only lightly grazed by park herbivores. However, the grazing use of the area would be contained to approximately the current level, and any chance of serious overgrazing with resultant soil and vegetation damage would be prevented through enforcement of the compatible/incompatible use criteria or scenic easement provisions proposed in the "Land Protection Plan."

Implementation of land protection acquisition proposals, which accompany all of the action proposals, would eliminate any potential for additional private development (e.g., buildings and access roads) of the lands to be acquired in fee. On lands proposed for scenic easements, limited surface developments, such as residences, access roads, and agricultural structures, would still have potential for causing erosion or removal of soil and damage to or removal of vegetation in localized areas.

Under the action alternatives, the construction or upgrading of roads, trails, parking areas, and structures associated with the proposals would require removal of vegetation, cause changes in soil structure, and reduce percolation of water into soils. Grading and paving would compact soil. Site leveling for roads, trails, parking areas, and proposed structures and development of dikes and elevated areas of earth for flood protection of existing structures would remove or add soil, thereby altering land profiles and natural processes of soil development and drainage. Topsoil removed from areas to be covered by pavement, buildings, or dikes would be used to make up any shortage incurred in installing other facilities, thus minimizing the overall loss of organic matter. Nevertheless, the organic content of topsoils would be reduced by mixing. All disturbed areas not covered by development would be reseeded with native species to speed the rate of recovery and to minimize the encroachment of invading species.

Construction sites would undergo accelerated erosion until vegetation was reestablished in cleared areas. To the extent possible, buildings, roads, and other impervious structures would be designed to collect and channel runoff into natural drainages. Runoff in these areas might cause localized increases in erosion and changes in soil nutrient transport. Runoff would escape into adjacent vegetated areas, which could result in more mesic conditions and altered vegetation composition. Altered vegetative composition could also cause slight changes in soil chemistry.



Looking North

Path of a recently installed natural gas pipeline that passes through the private tracts east of US 85 in the north unit. If scenic easements were obtained for these tracts, as proposed, this type of development would probably be precluded due to the soils, vegetation, and visual damage that results.



Looking south

Areas in and around campgrounds, picnic areas, trailheads, boat-launching sites, administration/visitor and maintenance buildings, and scenic and interpretive facilities would be affected by foot traffic. The primary impact on soils would be compaction, which would decrease permeability, locally alter soil moisture, and diminish the water storage capacity. The change in soil moisture might alter the relative abundance of some species and affect germination. Plants that invade disturbed areas would become more common. Where compaction occurred, increased runoff on the surface would increase erosion. This might lead to exposure of root systems and mortality of more mesic plants. The impacts of trampling would range from complete exclusion of vegetation to slight alterations in species composition. Similar impacts would occur along road shoulders, where cars would crush vegetation and compact soil.

To minimize the soil erosion caused by foot traffic, developments would generally be constructed on slopes less than 15 percent. Trails would be well-defined where heavy foot traffic was anticipated, and visitors would be asked to stay on the treadways. Trail construction would include special design methods in areas with steep slopes and easily erodible soils.

No significant impacts on geologic resources or processes are anticipated from any of the alternatives.

Action Alternatives - Specific Impacts. A detailed breakdown of the estimated acres of soil and vegetation that would be disturbed by proposed developments of the three action alternatives is shown in table 11. (There would be no disturbance to soil and vegetation under the continuation of existing conditions alternative.)

Under the preferred and the minimum requirements alternatives, the use of vegetative screening between the CCC camp-tender residence and the relocated section of the north unit access road would lessen visual impacts for the users of both the residence and the road. Native species such as Rocky Mountain juniper, green ash, and a native understory would be planted. The area occupied by the present ranger station, visitor contact trailer, and parking that would not be a part of the proposed replacement facilities would be restored to a natural condition or landscaped, as appropriate.

Development of a new bison corral at the north boundary of the north unit, proposed in each of the action alternatives, would result in trampling of vegetation and compaction of soil in a different area, while the present area of concentrated impact would return largely to a natural rangeland/pasture condition. The same would be true for the proposed bison corral in the south unit.

Although the Elkhorn ranch is to be zoned cultural, vegetation management for a natural scene would be emphasized in each of the action alternatives, using prescribed grazing and fire. Proper range management techniques would be used to avoid overgrazing and trampling effects, while maintaining appropriate species diversity and composition, as well as the appearance of a historic rangeland.

Table 11: Estimated Acreages of Soil and Vegetation Disturbance by Alternative

<u>Facility/ Location</u>	<u>Preferred Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>
<u>NORTH UNIT</u>			
Headquarters	1.8	1.8	1.9
Squaw Creek nature trail	0.4	0.4	0.4
Canoe/snowmobile access	0.6	0.6	0.6
Group horse camp	7.4	0	7.4
Squaw Creek picnic area/ campground	0.5	0.5	55.1
Bison corral relocation	33.2	33.2	33.2
CCC camp-tender residence	0.1	0.1	0.1
Undergrounding of power line	0.3	0.3	0.3
<u>ELKHORN UNIT</u>			
Access road/parking	2.4	2.4	13.0
Historic structures	0.2	0.2	0.4
Picnic area	1.5	0	1.5
Trails	1.3	1.3	1.3
Administrative facilities	0.6	0.6	0.6
<u>SOUTH UNIT</u>			
Headquarters	2.1	2.1	4.2
East entrance station (relocation)	4.4	2.1	4.4
Painted Canyon	1.5	1.5	1.5
Bison corral	0.1	<0.1	0.1
Cottonwood campground	2.0	2.0	2.0
Trails	16.8	1.2	16.8
Peaceful Valley picnic area	1.0	1.0	11.0
Loop road	<0.1	<0.1	<0.1
Peaceful Valley ranch	<u>0.2</u>	<u>0.2</u>	<u>7.4</u>
TOTALS	78.5	51.7	163.3

For comparison, existing acreage in development is 1,606.5.

Under the preferred and other practicable alternatives, relocation of the old east entrance station would be followed by restoration of the existing site to a natural vegetative condition. Planting would be limited to native species. The relocation under these conditions would be accompanied by construction of a temporary access road. Vegetation and soil along this route would be crushed or compacted temporarily, requiring minor landscaping and possibly reseeding to help return it to a natural condition. Under the minimum requirements alternative, reestablishment of a permanent access road to the site would eliminate existing vegetation and possibly require some minor cut-and-fill work (changing the natural or restored appearance) along the entire route.

Impacts on Wildlife

Continuation of Existing Conditions. Under this alternative, there would be no new impacts on wildlife beyond those cited in the approved 1984 Natural Resources Management Plan. Under a continuation of existing conditions, the bison corral would remain in its present, though impractical, location and continue to be used. This would perpetuate the failure to capture and contain a number of the animals being herded, especially as the bison enter rough or forested areas, such as at Squaw Creek. The result of this would be a continued difficulty in maintaining a healthy, productive herd.

Action Alternatives - General Impacts. Land protection proposals involving the private lands east of US 85 in the north unit, if carried out, would have minor yet positive effects on wildlife in this area. Management of these lands by the owners in concert with the proposed compatible and incompatible uses or under terms of proposed scenic easements would tend to perpetuate the mostly natural (or previously disturbed but recovering) condition of these tracts. This would continue to favor use of this area by wildlife, especially deer, small mammals, and birds. The positive effects would be related to preservation and protection of soil and plant life, as well as solitude, which supply feed, cover, and reproductive habitat.

Except for displacement and some destruction of resident invertebrates and small vertebrates due to construction activities, there would be no significant long-term impacts on wildlife under any of the action alternatives. However, there would be minor adverse impacts. The following small additional areas of wildlife habitat would be eliminated or significantly affected by proposed developments: preferred alternative - 75 acres, minimum requirements alternative - 50 acres, other practicable alternative - 81 acres.

Action Alternatives - Specific Impacts. The proposal to develop a canoe/snowmobile access site in the north unit and an additional access site just outside the south unit at Medora, called for in each of the three action alternatives, would probably result in a slight to moderate increase in that use as well as other human use in the wooded areas adjacent to the river. At present, white-tailed deer and other animals residing in

the areas adjacent to the riverbed can be startled by the sight or sound of the snowmobiles and will often dash away. This impact, as well as a similar impact on deer and other animals caused by visitor use of the canoe/snowmobile access sites, would increase somewhat with the proposed development, assuming that the existing federal regulation prohibiting snowmobile ingress and egress within the park can be changed. Currently, the snowmobiles are not allowed to leave the riverbed and since cooperation has been good, the deer are not pursued. By fleeing the riverbed area, the deer experience protection and are not exposed to harassment. However, there is a small degree of energy depletion for those deer startled by the snowmobiles or the snowmobile operators at the time of year most stressful for wildlife.

The recreation and administrative improvements proposed for the currently undeveloped Elkhorn unit would permanently remove a small amount of wildlife habitat, primarily for small animals such as ground squirrels and mice, and would disturb some wildlife during the main use season in an area that has experienced only occasional human disturbance in the past. Aside from the habitat that would be eliminated in favor of developments, however, the wildlife (including deer) that would move to adjacent areas would tend to reoccupy the area following the main use season. Because of the relatively light use and development and the nature of some animals and birds, significant wildlife use would also occur during the peak season of use. Wildlife displaced from this area would use nearby areas where there is an abundance of such habitat and little or no disturbance.

Floodproofing of sewage systems would require extending the sewer force mains and relocating septic tanks and leach fields above the 100-year floodplain for the Cottonwood campground and Peaceful Valley areas. This would disturb 2 to 3 acres of previously undisturbed general wildlife habitat and would cause mostly temporary displacement of use until these areas could be restored to a natural condition. At Peaceful Valley, a special effort would be made to avoid disturbing any prairie dog towns or areas where the prairie dogs would be likely to inhabit.

Impacts on Threatened and Endangered Species

Continuation of Existing Conditions. There would be no impacts on threatened and endangered species under this alternative.

General Impacts - Action Alternatives. None of the action alternatives should have impacts on endangered or threatened wildlife species except for the minor adverse impacts on black-footed ferrets (if present), golden eagles, and prairie falcons that could occur. The Fish and Wildlife Service will be consulted, in accordance with section 7 of the Endangered Species Act, prior to any development that could affect these species. All species that could be affected by plan proposals and/or would require special precautions to avoid possible adverse effects are discussed below.

The potential effects of the alternatives on several threatened and endangered plant species that may be found in the park is unknown. However, all previously undisturbed areas would be surveyed for these plants prior to construction. If any threatened or endangered species were found, the development would be relocated if at all possible.

Specific Impacts - Action Alternatives. No black-footed ferret populations have been discovered, but systematic park surveys have not been conducted. Because prairie dog towns are potential habitat for the federally endangered ferret and the old east entrance station is located within a prairie dog town, implementation of any of the action alternatives would require a ferret survey to determine potential impacts and mitigation required, if any. If appropriate, the same would be done for the proposed relocation of the Peaceful Valley area septic tank and leach field. If ferrets are found at the old east entrance location, some negative impact on them would be likely. This would probably involve some damage to or destruction of habitat.

The other federally listed species include the endangered bald eagle and whooping crane. There should be no impacts on bald eagles because they migrate through the park for periods of only about one week in the spring and fall. Construction can be timed to avoid these periods. Maintenance of a tall cottonwood overstory along the river and its tributaries for eagle roosting is important; however, none of the proposals would require clearing more than a few trees that are part of the overstory vegetation. If possible, none of the older and more massive cottonwoods would be removed.

Whooping cranes, which sometimes accompany flocks of sandhill cranes on their migrations, are seen only infrequently and then only during the spring and fall when visitor use is very light. River sandbars are used as staging and layover areas. There would be no impact on this species because the birds would either ignore or move around/beyond any construction activity or new development area along the river.

Riverine habitat, including sandbars, constitute potential nesting and feeding habitat for the threatened piping plover and the endangered interior least tern. Information indicates it may be "possibly appropriate" to propose to list the long-billed curlew as threatened or endangered, but further research and field study are needed (category 2). Little is known about these birds because they are seldom or rarely seen in or near the park. There should be no impacts on these species from any of the proposals, although site surveys would be made prior to development, and appropriate precautions would be taken if the birds or their nests were identified near any proposed construction site. The pallid sturgeon and lynx are category 2 species for which suitable habitat exists; however, these species are not believed to be in the park at this time. Should any future sightings be confirmed, there would still be no significant impacts on these species from any of the plan proposals.

Two federal category 2 species, the ferruginous hawk and Swainson's hawk, possibly nest within the park. No impacts on these two species

are anticipated; however, precautions, including development relocation if necessary, would be taken should a nest be found near any proposed construction site.

Two state-listed threatened species, the golden eagle and the prairie falcon, definitely nest within the park. These species use cliff and butte faces for nesting and lone cottonwoods for resting; golden eagles also use lone cottonwoods for nesting. The cottonwoods are found near the Little Missouri River and in tributary drainages, and several developments or improvements are proposed within these areas.

The greatest concern is that there be a minimum of disturbance to these species and their nests during the mid-March to mid-June prenesting/nesting period. Depending on the season, site surveys would be made to determine if any eagle or falcon nests were within the vicinity of development locations; construction would be delayed (or relocated) if necessary. Despite these precautions, it is likely that proposed development or early-season visitor use could cause a limited amount of disturbance to eagle or falcon nests, nesting birds, or resting birds. A few birds could be displaced to adjacent areas; at the worst, there would be a small, probably temporary reduction in the surviving hatch.

Impacts on Water Resources

Continuation of Existing Conditions. Continued use of the pit toilets in the Peaceful Valley area and the existing undersized sewage lagoon at the north unit headquarters area would perpetuate the possibility of groundwater contamination from sewage. There is also potential for sewage contamination of the Little Missouri River from existing sanitary systems along the Little Missouri River in the south unit in the event of a 100-year flood. In the absence of an approved general management plan, the floodproofing proposals in the action alternatives involving toilets and sewage systems might also be implemented under a continuation of existing conditions alternative.

General Impacts - Action Alternatives. The action alternatives call for sanitary improvements that would virtually eliminate the potential for any groundwater contamination from sewage. Both the preferred and the minimum requirements alternatives contain a number of floodproofing proposals for the Cottonwood, Peaceful Valley, and Squaw Creek recreation sites. These proposals would minimize the chance of contamination of the river (and its tributaries) from toilets and sewage systems in a 100-year flood. The other practicable alternative, which calls for relocation of all flood-prone NPS facilities, would totally eliminate the possibility of river contamination.

Specific Impacts - Action Alternatives. The preferred and other practicable alternatives for the Elkhorn ranch call for drilling a well on site. Because use would be seasonal, relatively limited, and because of the high availability of water on the river plain, no impacts on groundwater supplies would be anticipated. Under the minimum

requirements alternative, water would be trucked to the Elkhorn ranch and the old east entrance station. Use of south unit wells for this purpose would increase only during the summer months with no significant impact on groundwater supplies.

New septic tanks/leach fields would be provided above the 100-year floodplain at Cottonwood campground and for the Peaceful Valley ranch and picnic area under the preferred and minimum requirements alternatives. (The other practicable alternative would relocate the three developed areas out of the floodplain). Because soil percolation would be used in the final phase of treatment at the relocated leach fields, which are within the river valley, an unknown quantity of wastewater would be injected into the ground each year. Some of the nutrients in the wastewater (nitrates, sulfates, phosphates) would eventually reach surface streams, but in unknown amounts. However, the amount and type of wastewater would be similar to that now discharged, and because all sewage treatment systems would be designed to meet state and federal regulations for environmental and public safety, the potential for contamination of groundwater and surface streams would be minimized.

Impacts on Floodplains and Wetlands

General Impacts. The National Park Service has developed final procedures for implementing EO 11988 and EO 11990 (see appendix F). These floodplain procedures were followed in this planning effort, and alternatives were developed that would avoid or mitigate the adverse impacts associated with location of facilities in floodplains.

Current park developments and facilities have no significant impacts on natural flooding processes, but, to a small degree, all of the alternatives would affect water quality or the soils, vegetation, or wildlife habitat qualities of floodplains and wetlands.

A possible adverse impact of the flood-related proposals is that they are based on calculated risks of flooding that might never be realized within the expected lifetimes of present park improvements. Because the proposals would involve significant costs in time and materials, greater obtrusiveness of and some loss of handicap access to the raised structures, temporary disruptions due to construction, and no real increase in facility quality or area capacity, the result could be termed an overreaction to the threats involved with the potential for an excessive amount of the park's funding appropriated to meet the flood threat. The bottom line, however, is that the flood-related proposals must be carried out, subject to congressional funding to accomplish them. The legislation requiring this is a reflection of federal policy that visitors will not be invited to use an area with a significant 100-year flood potential unless there is no alternative. Steps must be taken to reduce potential loss of life and property and stream contamination to an acceptable level of risk.

The flood-warning systems and evacuation plans, which would be developed by the park staff for dealing with all flood-prone areas of the park, would reduce the risk of loss of life and property to visitors.

Continuation of Existing Conditions. Under this alternative, serious consequences from flooding would eventually be experienced in the north and south units. Less problems would be experienced in the Elkhorn unit because the unit is undeveloped. A flood of the Little Missouri River would do the most damage to Medora and its immediate vicinity than to any other development area within the park.

The highest flood level on record at Medora occurred in March 1947 before the park was established. Almost a 100-year flood, the water level reached an elevation of 2,267.25 feet. The 1947 flood caused \$120,000 worth of damage, which, using 1984 values, would be about \$575,000. In March 1972, flooding of a lesser degree occurred. Damage was estimated at \$45,000, which included the cost of a hastily constructed earthen levee that prevented more damage. Repairs would have totaled about \$112,000 if a similar flood had occurred in 1984. The 1972 flood crested at 2,265.43 feet, a 20-year flood.

Damage to Medora begins when the flood elevation exceeds 2,262 feet, a 10-year flood. The river overflows its east bank at 2,259 feet, a 5-year flood. The 100-year flood elevation is 2,268 feet.

A 100-year flood in the Medora area would create havoc within a 406-acre area bounded by I-94 to the north, the Burlington Northern Railroad tracks to the south and west, and the gentle sloping topography to the east that contains most of Medora. About half, 200 acres, is in the park. The flow of the river would be restricted to a narrow 400-foot-wide gap at the southern portion of this area by abutments for the railroad and bypass highway bridges, which are above the 100-year floodplain. East of the river, where most of Medora and all of the park headquarters are located, 90 acres would be flooded, of which 23 acres (26 percent) are in the park. (See Medora Headquarters DCP and South Unit General Development Plan/Flood Data maps for more information on flooding.)

Cleanup and damage repair to the land and development in this area would cost an estimated \$750,000 for the National Park Service alone. A 100-year flood at Medora would flood all NPS headquarters facilities, with the exception of the maintenance and storage area, one seasonal apartment, and one residence. Important museum collections and books could also be damaged, and park management activities would be disrupted.

At Cottonwood campground, a 100-year event would flood everything except a short segment of the entrance road. The floor of the camp-tender residence would be covered with about 2 feet of water and the four comfort stations with 4 to 7 feet of water (see Cottonwood Campground DCP map for more flood information). Damage would begin when the river overflows its east bank at an elevation of about 2,251 feet. The 100-year flood elevation is about 2,257 feet. Repairs would cost about \$400,000.

At Peaceful Valley ranch and picnic area, a 100-year event would flood to a depth of about 4 feet at all of the ranch buildings and would cover the

new Paddock Creek bridge with about 2 feet of water. Most of the picnic area except parking and a small portion of the group picnic area would be flooded (see Peaceful Valley DCP map for more flood information). Damage would begin when the river overflows its east bank at an elevation of about 2,241 feet. The 100-year flood elevation is about 2,253 feet. Damage to the ranch would be about \$400,000 and to the picnic area about \$100,000.

In addition, a 100-year flood would damage about 6 miles of road at other locations in the south unit; repairs would cost an estimated \$1,000,000 (see South Unit General Development Plan/Flood Data map for road locations).

At the Elkhorn unit, a 100-year flood of the Little Missouri River would completely flood the historic ranch site. The foundations of the historic structures would be under about 3 feet of water (see Elkhorn Unit DCP map for more flood information). Damage would begin when the river overflows its west bank at an elevation of about 2,128 feet. The 100-year flood elevation is about 2,131 feet. The cost to repair the damage would be about \$50,000, and would consist of fence and trail repair and general cleanup of debris and silt.

At the Squaw Creek campground and picnic area in the north unit, all development would be inundated by a 100-year flood except the sewage lagoon. The floor of the camp-tender residence and the road bridges over Squaw Creek would be covered with about 4 feet of water. The floors for the three comfort stations would be under 3 to 5 feet of water and the two CCC picnic shelters under 6 to 9 feet of water (see Squaw Creek Campground DCP map for more flood information). Damage would begin when the river overflows its east bank at an elevation of about 1,947 feet. The 100-year flood elevation is about 1,965 feet. Repairs would cost about \$500,000.

At the north unit's bison corral, a 100-year event would flood the tack building, over half of the corral, two-thirds of the pasture and all of the material stockpile area (see Bison Corral DCP map for more flood information). Damage would begin when the river overflows its east bank at an elevation of about 1,951 feet. The 100-year flood elevation is about 1,959 feet. Repairs would cost about \$100,000.

At the north unit district headquarters, a 100-year event would not flood any NPS improvements. However, some REC power lines and a private residence would be flooded (see District Headquarters DCP map for more flood information). The 100-year flood elevation is about 1,952 feet.

In addition, a 100-year flood would damage about a 3/4 mile segment of road at other locations in the north unit at an estimated repair cost of \$100,000 (see North Unit General Development Plan/Flood Data map for road locations).

Three creek drainages--Knutson Creek and Paddock Creek in the south unit and Squaw Creek in the north unit--have been identified by the

U.S. Geological Survey as appearing to have the greatest threat for personal injury or loss of life in the event of a flash flood.

Knutson Creek has the largest drainage with 64 square miles. A 100-year flash flood would change this intermittent stream to a river with water up to about 18 feet deep $\frac{1}{2}$ mile upstream from its confluence with the Little Missouri River. The depth would decrease as it approached the river due to a much wider floodplain (see South Unit General Development Plan/Flood Data and External Conditions maps for more flood information). The cost to repair the damage would be about \$50,000, and would consist of fence and trail replacement and debris removal.

Paddock Creek has a 28-square-mile drainage area. A 100-year flash flood would change this intermittent stream into a river with water up to about 10 feet deep $\frac{1}{2}$ mile upstream from its confluence with the Little Missouri River. The depth would decrease to about $1\frac{1}{2}$ feet by the time it reached the Peaceful Valley ranch buildings due to the much wider and flatter floodplain (see External Conditions, South Unit General Development Plan/Flood Data, and Peaceful Valley DCP maps for more flood information). The cost to repair the damage would be about \$200,000, and could include replacement of the ranch buildings, corral and fencing, trails, extensive road repairs, and replacement of the Halliday Well group camping area and most of the Peaceful Valley picnic area. It would take about five hours for the flood peak to reach the ranch buildings.

Squaw Creek has the smallest drainage of the three creeks with $26\frac{1}{2}$ square miles. This intermittent stream would change into a river during a 100-year flash flood, with water up to about 15 feet deep $\frac{1}{2}$ mile upstream from its confluence with the Little Missouri River. Its depth would decrease to about 2 feet with a velocity of about 7 fps by the time it reached the camp-tender residence due to the much wider and flatter floodplain (see External Conditions, North Unit General Development Plan/Flood Data, and Squaw Creek Campground DCP maps for more flood information). Damage repairs would cost up to \$600,000, and could include replacement of the camp-tender residence, three comfort stations, two historic picnic shelters, and an amphitheater and extensive road and trail reconstruction. It would take about six hours for the flood peak to reach the camp-tender residence.

Ice-jam flooding has principally been a problem at Medora and park headquarters. While late winter ice jams could cause damage and disruption at the other areas named above along the Little Missouri River, they have more often affected the south unit than the north unit. Without action, ice-jam flooding can be expected to be much more of a problem than the other types of flooding in terms of frequency.

Under the continuation of existing conditions alternative, natural moderation of floodwaters would be affected at Medora only by construction of temporary dikes. The effectiveness of a temporary dike would depend on the seriousness of the flood, as well as the amount of advance notice and availability of materials. However, construction of a

temporary dike capable of protection against a 100-year flood would be well beyond the capabilities of local resources. For example, the March 1978 flood (a 15-year event) was held in check from flooding Medora by an all-out effort to build a 4-foot-high temporary dike that taxed local resources to the limit. A 100-year flood would require a temporary dike that would average 7 feet in height.

The existing conditions alternative of constructing a temporary dike would have little, if any, impact on floodplain water resource values in a 100-year flood. The river would flow over it, quickly sweeping away any fill material that had been placed. There would then be a natural moderation of flooding, water quality maintenance, groundwater recharge, as well as continuation of living resource values and cultural and cultivated resource values.

No effects are expected from a no-action approach to wetlands.

Action Alternatives. Only the other practicable alternative proposes to relocate developed areas out of the river floodplain. The preferred and minimum requirements alternatives propose to implement evacuation plans, allowing for repair of historic structures from flood damage and repair or replacement of lost equipment such as trash cans, tables, or grates. The historic structures at Peaceful Valley ranch are in good condition, but in a 100-year flood would be inundated with 4 feet of water moving at about 2 fps. A flash flood from Paddock Creek would flood the buildings with 1.5 feet of water moving at about 1 fps.

These low velocities would not likely cause significant damage to building foundations; however, interior walls, electrical work, and furnishings would be damaged.

Under the other practicable alternative, the permanent dike proposed along the riverbank (extending 2,200 feet at an average height of 12 feet) would require a permit from the Army Corps of Engineers and concurrence from the North Dakota State Historical Society on whose property it would be located. Because of yearly high water, a riverbank dike would require constant maintenance.

Under the preferred and minimum requirements alternatives, the permanent dike proposed at the west edge of the NPS property at Medora would be 400 feet shorter and average 5 feet lower than the riverbank dike and located mostly on park property. It would be less visually obtrusive and, because the entrance area is already landscaped, similar landscaping of the dike would be complementary.

Floodplain water resource values would be adversely affected in varying degrees by the three alternatives. At Medora, the other practicable alternative with its permanent riverbank dike would affect the natural moderation of floods, water quality maintenance and groundwater recharge, living resource values, cultural resource values, and cultivated resource values to the greatest extent of the alternatives. It would prevent these floodplain values from continuing over an 127-acre area to

the east of the river, which would be protected from events through 100-year floods. To the west, 320 acres would have these values modified to an indeterminate degree due to the dike's presence, which would cause floodwaters to flow by faster and higher, deposit more sediment, and erode away soil more than if the dike were not there. The existing restriction by the abutments of the railroad and bypass highway bridges would be increased somewhat by the proposed high dike, causing a 100-year flood to be a little higher and to cover a little more than 320 acres to the west.

The preferred and minimum requirements alternatives both call for a lower dike set farther back from the river than the dike proposed in the other practicable alternative. The impacts would be similar but considerably less severe. Floodplain water resource values would be prevented from continuing over a 49-acre area to the east. To the west, 357 acres would have these values modified slightly due to the water from a 100-year flood flowing by somewhat faster, covering more than 357 acres, depositing slightly more sediment, and eroding away slightly more soil than at present.

The construction of small hills to elevate existing buildings at Cottonwood campground and Squaw Creek campground/picnic area and the proposed comfort station at Peaceful Valley ranch would have such an insignificant impact on floodplain values and the action of floodwaters that it would be difficult if not impossible to determine. The total area of the existing structures to be raised is less than 6,000 square feet and for the proposed comfort station less than 500 square feet. The small area for these 10 buildings including the hills upon which they would be placed would total less than 1 acre. The impact of these 10 buildings on floodplain values and floodwater actions within the 100-year floodplain of the Little Missouri River is too small to calculate.

Although access roads are considered excepted actions from compliance with the floodplain regulations, 100-year floods could result in major road damage at Cottonwood campground, Peaceful Valley ranch and picnic area, and Squaw Creek campground and picnic area. The danger to visitors from road washouts and subsequent stranding would be minimized by the development of the flood-warning system and evacuation plan.

The use of the existing Cottonwood and Squaw Creek campgrounds in the 100-year floodplain or flash-flood area would expose visitors to the possibility of loss of life and property in a flood. Because flooding can be monitored, is seasonally predictable, and occurs at a rate allowing evacuation, the risk at existing campgrounds could be greatly reduced under three of the alternatives. Relocation of these campgrounds was considered impractical because of the destruction of natural resources at relocation sites, substantial capital investment in existing developments and the lack of suitable alternate sites. Alternate sites are generally in arid open areas that are unattractive to visitors and difficult to use, and establishing shade cover would require costly installation and long-term maintenance of irrigation systems. Roads to the sites would also be quite expensive. All sewage treatment facilities would be moved out of the 100-year floodplain in all action alternatives.

Chemicals such as chlorine might be introduced into the floodwaters from damage to existing water treatment facilities at Medora, Cottonwood and Squaw Creek campgrounds, and Peaceful Valley ranch, but the immediate dilution would render this impact negligible.

The eventual acquisition of surface and mineral ownerships in the park would protect those containing floodplains and wetlands from adverse impacts of private development.

No structures or facilities exist in or are proposed for a high-hazard area subject to flooding events that would be so unexpected, violent, or otherwise devastating that human lives would be placed in immediate or grave danger. This is on the assumption that adequate flood warning systems and evacuation plans are in effect. As previously described, there is advance flood warning of at least 22 hours for the Little Missouri River and about five to six hours for flash flooding of Paddock and Squaw creeks.

Impacts on Visual Quality

Continuation of Existing Conditions. With nonimplementation of the land protection proposals, gradual development and changes in land use could occur on the private lands in the north unit, degrading the view from US 85 and the entrance area of the unit. Also, the electric power lines in the headquarters area at the east end of the unit would continue to be visually obtrusive.

After the new county access road is built, residential/commercial or oil and gas developments could occur close enough to the Elkhorn unit to create significant visual, olfactory, and/or auditory impacts for visitors.

If the NPS development proposals in this plan were not implemented, there would be a small amount of additional man-made visual impact that would not occur.

General Impacts - Action Alternatives. With implementation of land protection proposals, viewsheds on either side of US 85 in the north unit would be protected from inappropriate development, while lands in the park containing private mineral rights would be protected from any form of development. New visually obtrusive energy development along park boundaries would be limited. Except for the potential for development of existing oil and gas leases, the Elkhorn ranch would receive protection from private development that could border or be easily visible from the ranch site.

Specific Impacts - Action Alternatives. The only proposed park developments that would have any significant impact on visual quality would be the dike at Medora (all action alternatives) and the structures that would need to be raised in the flood-prone recreation sites along the Little Missouri River (preferred and minimum requirements alternatives). These structures would be more visually prominent and less harmonious

with their settings than is now the case. The Medora dike would be grassed but would still be fairly prominent, and the area occupied by it would be less natural appearing than now. However, the dike mostly within NPS ownership, proposed under the preferred and minimum requirements alternatives, would be significantly less obtrusive than the higher riverside dike proposed under the other practicable alternative.

The relocated Little Missouri River recreation sites proposed under the other practicable alternative would add several areas of significant visual intrusion by superimposing major developments on higher, easily visible areas with few trees or higher shrubs to absorb or soften the visual impact.

Visual impacts at the Elkhorn ranch would vary depending on the route selected by Billings and Golden Valley counties for a new road in the area. The other practicable alternative involves selection of the northern route, which would require a much longer, more expensive access road to be constructed over private and other public lands. A new county bridge would not be constructed immediately south of and within the viewshed of part of the unit. If the southern route is selected, which appears more likely, a short access road would be required, since the county road and bridge over the Little Missouri River would be situated immediately south of the unit. The road from the south would bring greater visitation to the unit and, because of its shorter length, probably generate slightly less road dust than would be the case for the road from the north.

Under each of the action alternatives, vegetation management at the Elkhorn ranch by use of prescribed fire would create a temporary degradation of visual quality from smoke and particulate matter. This impact would be temporary because the burning would last several hours or less and would occur only once or twice a year at most and then only prior to or following the high visitor use season. Burning would most often take place immediately prior to or during the active plant growing periods so that recovery from a charred condition could occur before the start of the visitor use season.

Construction of a small picnic area and tent platforms proposed for the Elkhorn ranch under the preferred and other practicable alternatives, and the addition of a multipurpose building, restrooms, primitive shower, and trail under each of the action alternatives would change the visual scene from the present undeveloped character. However, this change would include only a small portion of the unit, and the developments would be screened from the area where the former ranch buildings were situated.

The establishment of new trails in the south unit as planned in the three action alternatives would create a visual impression upon the landscape. Those trails located in natural areas would resemble paths formed by the trailing of bison and wild horses to and from watering and feeding areas. The footbridge crossing the river at Peaceful Valley, as proposed in the other practicable alternative, could be considered a visual intrusion by some visitors. The preferred alternative, however, calls for a river ford at this location.

Aboveground power lines in the eastern part of the north unit are proposed for relocation outside the park or undergrounding in each of the action alternatives. Visual quality would be improved by burying the local REC power lines and by encouraging the WAPA to relocate their power line to the east of the unit. The acquisition of tract 01-121 adjacent to the north unit headquarters area would result in a small improvement in visual quality, as several man-made developments on this tract would be removed.

IMPACTS ON CULTURAL ENVIRONMENT

Impacts on Archeological Resources

The only archeological resources addressed by the general management and land protection plans are the minimal historic ranch remains in the Elkhorn unit. Under the continuation of existing conditions alternative, there would be no change in the present method of managing these remains and no adverse impacts.

The preferred and minimum requirements alternatives call for marking the former foundations of the ranch house, stable, blacksmith shop, and well. This would not involve any excavation or disturbance of the former structure sites themselves. Impacts, if any, would be minimal.

Under the other practicable alternative, the exteriors of the house and stable would be reconstructed. This would disturb these two archeological sites, although previous investigations may or may not have recovered or noted everything of value. As stated previously, reconstruction could violate NPS policies and a congressional expenditures limitation on reconstruction work.

Impacts on Historic Resources

With the continuation of existing conditions alternative, there would be no change in the current approach to management and protection of the CCC camp-tender residence, the Maltese Cross cabin, and the old east entrance station. Only minor cyclical maintenance, preceded by section 106 clearance, would be performed on the structures, which are deteriorating gradually.

Under the preferred and minimum requirements alternatives, the CCC camp-tender residence would remain in its historic location. Vegetative screening would mitigate the problem of its proximity to the north unit access road. Renovating the interior for a residence or storage would have no effect on its exterior appearance, which is the most important aspect of the structure (the interior has been changed over time).

Under the preferred alternative, the Maltese Cross cabin would have some historic fabric destroyed by the installation of the fire suppression system. However, the protection offered by this system would more than

offset this loss because the risk of damage from fire would be minimal. The old east entrance station in the south unit would be moved to a new location. Transferring the station and stone privy to another part of the unit would lessen their historical value since they would be removed from their original location. The conversion of the stone privy to a vault toilet, however, would not harm the building's integrity, and the public would have increased opportunity to see the two structures.

Under minimum requirements alternative, a fire suppression system would be installed in the Medora visitor center but not in the Maltese Cross cabin. Fire could cause damage to the cabin's interior and contents before being extinguished. The actions of adaptively using the old east entrance station for researcher or seasonal ranger quarters and converting the stone privy to a vault toilet would have no adverse effects on the historical value of the structures. The proposed gravel road to the station would cause only minor adverse impacts if it followed the course of the former highway.

With the other practicable alternative, the impacts on the Maltese Cross cabin and the old east entrance station would be the same as for the preferred alternative. The proposed relocation of the CCC camp-tender residence would have the effect of reducing its historical value because the structure would be removed from its original location.

Impacts on Collections

Numerous natural and historic objects as well as library materials are currently housed in the Medora visitor center and Maltese Cross cabin with only limited protection from fire. Under the continuation of existing conditions alternative, the museum collections, stored artifacts, library, and historic furnishings in the cabin would be treated in the current manner and the risk of loss from fire would continue. Such a loss would be a major deprivation to the park's interpretive and research programs because most of the items are irreplaceable.

The action alternatives call for the protection of the collections through installation of fire suppression systems. With this system installed, the chance of loss would be quite minimal.

General Compliance Considerations

All archeological, historic, or architectural resources included on the National Register of Historic Places, or potentially eligible for inclusion, are entitled to protection afforded by section 106 of the National Historic Preservation Act as amended and its implementing regulations promulgated by the Advisory Council on Historic Preservation (36 CFR 800). Pursuant to those regulations, the council, the National Park Service, and the National Conference of State Historic Preservation Officers have executed a programmatic memorandum of agreement on the NPS planning process. In accordance with that memorandum of agreement, the council

and the North Dakota historic preservation officer have participated in the development of this plan through informal consultations and reviews. Those consultations and reviews will continue throughout the planning process, and both parties will be given an opportunity to formally review and comment on the proposed plan before it is approved by the regional director. Evidence of compliance with section 106, as applicable to this plan, will be included in its final NEPA document.

All new or relocated campgrounds, trails, roads, parking areas, dikes, canoe access points, and other earth-disturbing activity addressed in each of the alternatives would require archeological surveys before construction.

All historic structures in the park are to remain and receive cyclical maintenance as directed and prescribed by historic structure preservation guides or other professional recommendations.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

Impacts on Landownership

Impacts or potential impacts of land protection plan proposals on owners of private land within the park would vary. For the Sickler properties in the south unit, there would be virtually no negative impact because the tracts are not now being used and probably cannot be used by the owner; the opportunity to sell those properties to the National Park Service could represent a positive impact for the owner because of the payment that would be received and the relief from annual payment of taxes. The portions of private tracts in the north unit that have been proposed for fee acquisition (west of US 85) are currently receiving little use, except for tract 01-121, which is currently held by Mrs. Ruth Baye who resides on the portion of the tract proposed for acquisition. Under most circumstances, a life estate could be offered; however, vacating the property is a necessary eventuality because the property has already been sold under a contract for deed. The acquisition of the portions of three parcels west of US 85 would preclude other potential private uses of the land. The main impact would probably be experienced by the owners of tract 01-121 because this approximately 95-acre area is the most desirable and strategically located of the portions of those tracts west of US 85.

The private tracts and portions of private tracts to the east of US 85 in the north unit are also receiving little use. The acquisition of scenic easements for these properties should result in very little, if any, negative impacts for the owners because present uses could continue. Single residences could also be built on the tracts, and the owners would receive compensation for any additional property rights given up.

To the extent that private subsurface rights are acquired by the Park Service, these rights will not be able to be exploited for their mineral potential. This could result in some unknown amount of loss of owner

profit and minerals (most likely oil and gas) that might otherwise be removed and added to the nation's supplies of such material. From a practical standpoint, however, in most areas of the park where private subsurface interests are found, the potential for profitable mineral extraction is limited. This observation is based on the lack in these areas of nearby producing oil and gas wells and known (productive) geological structures. In the areas where profitable oil and gas resources may be found, it appears likely that they can be captured through drainage or directional drilling. In the south unit, the potentially most productive area has already been leased for directional drilling.

In any event, owners of subsurface rights will be compensated for the value of their rights. Thus, no significant negative impacts on owners are foreseen as a result of implementing the land protection plan proposals, assuming that reasonable subsurface rights values can be established and agreed upon.

Impacts on Land Use

Implementation of the general management and land protection plan proposals and their alternatives would have little effect on land uses in the park. Portions of the park that are now in a natural condition and which would be developed to some degree would involve an almost negligible acreage. Several trails would be developed through natural zones of the park, but the basic character of these natural areas would not be changed.

Implementation of land protection proposals that address private lands within the park would not change current uses of these lands, except possibly for the area west of the highway and north of the river in the north unit, where a canoe access site is proposed and a group horse camp is suggested (alternate sites are shown for this camp). However, future uses of the private lands to the east of US 85 would be limited to those compatible with maintenance of visual qualities from the highway and the park entrance/headquarters area.

The proposals and alternative proposals of this document would not directly affect land use outside the park, except to attempt to limit the number and undesirable environmental effects of additional oil and gas development near the park boundaries.

Other Impacts

The visitor use and other proposals of this document should have a slightly beneficial impact (i.e., greater profit) on those providing visitor services, including motels, restaurants, grocery stores, and gas stations to park users who obtain these services outside the park. This would result from a slight increase in visitor satisfaction and opportunity, which should result in slightly longer stays and greater interest in the park and what it has to offer. Basically, Theodore Roosevelt National Park,

including its resources and facilities, has been underused so most of the time it offers relatively uncrowded conditions, along with good recreation and sight-seeing opportunities.

The various visitor use proposals and other action alternatives would also result in safer and more efficient conditions for recreational use. Increased visitor use and satisfaction should also benefit the horse use concessioner at Peaceful Valley ranch.

The aforementioned benefits would be somewhat greater under the preferred and other practicable alternatives than under the minimum requirements alternative.

IMPACTS ON VISITOR USE AND INTERPRETATION

With a continuation of existing conditions, there would be little change in present opportunities for or patterns of visitor use or the several shortcomings in facilities and opportunities that exist.

The overall thrust of the proposals and alternatives of both the general management and land protection plans is to provide additional and enhanced opportunities for visitors, under safer and more comfortable conditions. The plans do not propose any significant expansion of visitor facilities, such as campgrounds, picnic areas, and roads, and with two exceptions, none of the proposals or their alternatives would have any adverse impacts on visitors and visitor use. The first exception is that proposed floodproofing of comfort stations in recreation sites along the Little Missouri River would raise the structures and make them more difficult to use by the handicapped.

The second exception is that relocation of flood-prone Little Missouri River recreation sites, proposed under the other practicable alternative, would replace these sites in much less attractive and much less shady locations, well-removed from the popular river.

The greatest benefits to visitor use should result from the following improvements and programs proposed under the preferred, other practicable, and (in most cases) minimum requirements alternatives:

- floodproofing of visitor facilities and utilities and provision of warning systems and evacuation plans for all flood-prone recreation sites (includes diking at Medora)

- improvements in existing parking, utilities, and comfort stations

- provision of new facilities to aid horseback, canoe, and river snowmobile use; recreation and interpretive use of the Elkhorn and north units; and comfort station needs at locations where such facilities are inadequate or lacking, such as on the south unit loop road

addition and improvement of trails in areas of highest demand and greatest recreational opportunity, including redesign and improvement of selected existing trails for use by the handicapped

improvement of existing and provision of new information/interpretive facilities and programs, including redesign of the interior of the Painted Canyon visitor center, development of new visitor/office space and displays at the north unit headquarters area, and marking and interpretation of the historic ranch remains at the Elkhorn unit

provision of additional park personnel and operational facilities to meet a variety of park protection, visitor service and protection, and general operational needs

implementation of land protection proposals to protect privately owned park lands, areas containing nonfederally owned mineral rights, and the small Elkhorn unit from undesired encroachment of incompatible developments and land uses

Except as noted earlier, visitor benefits under the preferred and other practicable alternatives would be virtually identical. Under the minimum requirements alternative, one canoe access site would be foregone, the north unit group horse camp would not be developed by the Park Service, Elkhorn unit picnic facilities would not be developed, two toilets would not be provided along the south unit loop road, and no new hiking trails would be constructed. The result would be about a 33 percent reduction in additional recreational opportunities and facilities.

The small increase in riverbed snowmobiling that would result from the proposed improvement of access sites would have little impact on other park resources or on park visitors. The park, including the river area, is occasionally used by cross-country skiers and snowshoers who are likely to find the presence and noise of the snowmobiles irritating; however, such contact has been quite limited and there is little other visitor use of the park in the wintertime.

All of the action alternatives would have short-term adverse effects on park visitors due to necessary construction activities. The areas that would be most affected include the north unit district headquarters area, Squaw Creek campground, Peaceful Valley ranch and picnic area, Cottonwood campground, the Buck Hill area, the Painted Canyon visitor center, and the area in the vicinity of the Medora visitor center and Maltese Cross cabin. The effects would consist of short-term closure of all or portions of these areas; visible and disruptive work going on in portions of the areas while the areas are being used by visitors; a temporary loss in user capacity or conveniences at some areas; and construction equipment, ongoing work, and dust in areas visible from park roads, trails, and scenic vistas. As is possible, construction would be done during nonpeak season months.

In summary, the proposals, and to a lesser extent the alternative proposals of this document, should promote greater satisfaction, safety,

and convenience for park visitors. In addition, the improvements could in time attract some additional visitor use, encourage longer stays and more use of the Elkhorn and/or north units, increase off-season use, and promote greater environmental knowledge among those who visit the park.

IMPACTS ON PARK MANAGEMENT AND OPERATIONS

Continuation of Existing Conditions

Under the continuation of existing conditions alternative, the current level and type of park management and operation functions would continue. Staffing for resource management, visitor protection, and visitor services would generally remain inadequate. With this situation, proposed utility floodproofing would probably not be done, and systems in recreation sites could be contaminated and damaged, and sewage contaminants could be released into the river. Because of difficulty in meeting federal floodplain requirements, it would be necessary to close, under certain season or weather conditions, campgrounds and other recreation sites along the Little Missouri River to public use. Since a permanent dike at Medora would not be built, temporary sandbag dikes would continue to be erected by park staff on a hurried, last-minute basis. With a 100-year flood, however, the visitor center, Maltese Cross cabin, a number of residences, and other park improvements would be damaged, fouled, and probably made temporarily unusable. Park management activities could be seriously hampered for a period of time.

Under this alternative, the improvements proposed for the bison corrals in the north and south units would not be made; thus, roundup operations would remain difficult, less safe, and inefficient.

The new multipurpose (visitor center/office) building or buildings, employees' quarters, and vehicle storage and expanded maintenance building and sewage lagoon proposed for the north unit entrance and headquarters area would not be built. The staff would continue to operate as best they can with the present cramped space and short season of operation for the present visitor center, and staffing would continue to be inadequate for patrols, visitor contact, etc. However, vehicle response to emergencies and problems and appropriate space for first-aid activities are also concerns. Given the right set of circumstances, it is possible that the response to victims of accidents or serious illness might be delayed because of inability to get underway with NPS vehicular equipment.

The relatively simple administrative facilities and increased staffing proposed for the Elkhorn unit could not be provided; thus, none of the improvements and interpretation would be implemented. With this condition and improved access, resource damage, including digging in the sites of the former ranch improvements, might occur.

In the south unit, the present limited season operation of the Painted Canyon visitor center, along with the threat of increased vandalism,

would continue, as no changes would be made in the building's heating system, and the building would remain closed most of the year. At the Medora visitor center, as discussed earlier, a fire could cause serious damage to irreplaceable documents or objects in the building due to lack of a fire suppression system.

General Impacts - Action Alternatives

With implementation of the various park operation proposals or alternatives, most concerns related to public and staff safety, public property, and NPS facilities and collections housed in the Medora visitor center would be either eliminated or reduced to an acceptable level. Resource protection would be increased, public contact and other services would be improved, park management activities would be made more efficient, especially at the north unit headquarters and Painted Canyon areas, and employee morale and creativeness should be raised.

Specific Impacts - Action Alternatives

Implementation of the land protection plan would benefit park management in several ways--most importantly, in providing positive direction for both protective management of private land and mineral interests as appropriate and opportunity permitted. The plan would also provide additional direction for addressing several external problems that do or could impact the park.

A negative impact of the land protection plan proposals involves the requirement for enforcement of compatible/incompatible use criteria for the private tracts and for enforcement of the conditions and requirements of the scenic easements proposed for the private lands east of US 85 in the north unit. These criteria and conditions could be difficult for park staff to monitor and enforce, and undue amounts of administrative time might be required if problem situations arose.

The principal difference between park operation action (development) alternatives is that under the other practicable alternative separate administration and maintenance structures would be built at the north unit headquarters area, rather than building one visitor center/administration structure and adding to the present maintenance building. Also, proposed housing here would use on-site construction. The result would be higher costs and perhaps delays in the park's ability to proceed with and fund these several improvements.

SUMMARY OF IMPACTS

Following is a simplified comparison summary of impacts based on the expected effects of each alternative, in terms of beneficial (+), no effect or no net effect (0), adverse (-), and uncertain (U). In some cases, there would be both beneficial and adverse effects, but the net effect is what is shown.

	<u>Continuation of Existing Conditions</u>	<u>Preferred</u>	<u>Minimum Requirements</u>	<u>Other Practicable</u>	<u>Land Protection Plan</u>
Natural Environment					
Geology/soils/vegetation	-	-	-	-	+
Wildlife	0	-	-	-	+
Threatened/endangered species	0	U	U	U	+
Water resources	-	+	+	+	+
Floodplains/wetlands (all effects, including those on park visitors)	-	+	+	+	0
Visual quality	0	+	+	+	+
Cultural Resources					
Archeological resources	0	0	0	-	0
Historic resources	0	0	0	-	+
Collections	-	+	+	+	0
Socioeconomic Environment					
Landownership and use	+	0	0	0	-
Other (misc. visitor services)	0	+	+	+	0
Visitor Use/Interpretation	0	+	+	+	+
Park Management/Operations	-	+	+	+	+

CONSULTATION AND COORDINATION

AGENCIES CONTACTED

Federal

Advisory Council on Historic Preservation
Department of the Army
 Omaha District Corps of Engineers
Department of Agriculture
 Forest Service, Custer National Forest
 Medora Ranger District
 McKenzie Ranger District
Department of the Interior
 Bureau of Land Management
 Dickinson, North Dakota, Area Office
 Bureau of Reclamation
 Office of Surface Mining
 Fish and Wildlife Service
 Regional Office, Denver
 Endangered Species Office, Denver
 Bismarck, North Dakota, Field Office
 Pierre, South Dakota, Field Office
 Geological Survey
 Water Resources Division, Bismarck
Environmental Protection Agency
 Regional Office, Denver
National Flood Insurance Headquarters

State of North Dakota

Department of Health
Public Service Commission
Geologist
Industrial Commission
Game and Fish Department
Parks and Recreation Department
Highway Department
Historic Preservation Officer
Aeronautics Commission
Roosevelt-Custer Regional Council for Development

COUNTY

Billings County Commissioners
McKenzie County Commissioners

CITY

Medora
Watford City

OTHER

University of Nebraska at Omaha
Remote Sensing Applications Laboratory

SUMMARY OF PUBLIC INVOLVEMENT

On February 7 and 24, 1984, news releases announced the initiation of planning for a general management plan for Theodore Roosevelt National Park, and that public scoping meetings would be held that March in Watford City and Medora, North Dakota. Interested persons were invited to hear an explanation of the planning process, and to express their views on issues to be considered.

The first meeting, held at the Civic Center in Watford City on March 6, was attended by 14 people. The second, held at the Community Building in Medora on March 7, was attended by nine people. The participants' discussion of many issues of concern to them was of help to the planning team.

A scoping brochure was released that June notifying the public of progress on the study since the February meetings, issues to be addressed, public participation opportunities, and an invitation to provide more issues for consideration. At the same time three questionnaires were prepared to find out what facilities and services the public thought were appropriate for the north unit, the Painted Canyon area in the south unit, and the remainder of the south unit. These three questionnaires and the scoping brochure have been made available to the public at entrance stations and the Medora visitor center on a continuing basis so as to receive year-round information. In addition, individuals who own land in the park have been contacted to the extent practicable.

APPENDIXES/BIBLIOGRAPHY/ PREPARERS

APPENDIX A: LEGISLATION

VI. LEGISLATION RELATING TO NATIONAL
MEMORIAL PARK

1. Theodore Roosevelt National Memorial Park

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An Act To establish the Theodore Roosevelt National Memorial Park; to erect a monument in memory of Theodore Roosevelt in the village of Medora, North Dakota; and for other purposes, approved April 25, 1947 (61 Stat. 52)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all those certain tracts, pieces, or parcels of land, title to which is vested in the United States of America, and being in the State of North Dakota, and within the boundaries particularly described, as follows, to wit: Beginning at the point where the north line of the right-of-way of United States Highway Numbered 10 intersects the east boundary of section 36, township 140 north, range 101 west, fifth principal meridian; thence southwesterly and northwesterly along the north line of said right-of-way through section 1, township 139 north, range 101 west, and sections, 36, 35, 34, 27, 28, and 29, township 140 north, range 101 west, to the west boundary of said section 29; north along section lines to the northwest corner of said section 29; west along section line to the southwest corner of section 19, township 140 north, range 101 west; north along township line to the southeast corner of the northeast quarter of the northeast

North Dakota.
Theodore
Roosevelt
National Memorial Park.

quarter of section 24, township 140 north, range 102 west; west to the southwest corner of the northeast quarter of the northeast quarter of said section 24; north to the northwest corner of the northeast quarter of the northeast quarter of said section 24; westerly along section lines to the southwest corner of section 16, township 140 north, range 102 west; northerly along section lines to the northwest corner of section 4, township 140 north, range 102 west; thence west along township line to the southwest corner of the southeast quarter of section 34, township 141 north, range 102 west; northerly through the center of sections 34 and 27 to the northwest corner of the northeast quarter of section 27 of said township 141 north, range 102 west; easterly along section lines to the northeast corner of section 28, township 141 north, range 101 west; south along section lines to the southeast corner of said section 28; east along section line to the northeast corner of section 34, township 141 north, range 101 west; south to the northwest corner of the southwest quarter of section 35, township 141 north, range 101 west; easterly through center of sections 35 and 36 to the northeast corner of the southeast quarter of said section 36 of said township 141 north, range 101 west; south to the southeast corner of said section 36; thence east along township line to the northeast corner of lot 3, section 2, township 140 north, range 101 west; southerly through the center of sections 2 and 11 to the southeast corner of the southwest quarter of said section 11, township 140 north, range 101 west; easterly along section lines to the northeast corner of section 13 of said township 140 north, range 101 west; southerly along township line to the northwest corner of section 19, township 140 north, range 100 west; easterly along north line of said section 19 to the northeast corner of the northwest quarter; southerly through center of sections 19, 30, and 31 to the northwest corner of the southeast quarter of section 31; easterly along the center of said section 31 to the northeast corner of the southeast quarter; southerly along the east line of said section 31 to the southeast corner; westerly along the township line to the east line of section 36, township 140 north, range 101 west; northerly along the township line between townships 140 north, range 100 west and 140 north, range 101 west to the north right-of-way line of United States Highway Numbered 10, the place of beginning, containing thirty-five thousand two hundred and seventy acres, more or less, are hereby dedicated and set apart as a public park for the benefit and enjoyment of the people, and shall be known as the Theodore Roosevelt National Memorial Park. The Secretary of the Interior is authorized, in his discretion, to construct and maintain a road or highway through the park connecting with a State or Federal highway. (16 U.S.C. § 241 as amended. See pp. 308-310, 312-313.)

Construction,
etc., of
highway.

SEC. 2. The Secretary of the Interior is hereby authorized to cause condemnation proceedings to be instituted in the name of the United States under the provisions of the Act of August 1, 1858, entitled "An Act to authorize the condemnation of lands for sites for public buildings, and other purposes" (25 Stat. 357), to acquire title to the lands, interests therein, or rights pertaining thereto that are privately owned within the boundaries of the said national park, and such property, when acquired, shall become a part thereof: *Provided*, That when the owner of such lands, interests therein, or rights pertaining thereto shall fix a price for the same, which, in the opinion of the Secretary of the Interior, shall be reasonable, the Secretary may purchase the same without further delay: *Provided further*, That the Secretary of the Interior is authorized to accept, on behalf of the United States, donations of land, interests therein, or rights pertaining thereto required for the Theodore Roosevelt National Memorial Park: *And provided further*, That title and evidence of title to land and interests therein acquired for said park shall be satisfactory to the Attorney General. (16 U.S.C. § 242.)

Acquisition of private lands, etc.

40 U.S.C. §§ 257, 258.

Purchase.

Donations.

Titles, etc.

SEC. 3. That for the purposes of acquiring non-Federal lands within the boundaries of said park as established by this Act, the Secretary of the Interior is hereby authorized, in his discretion, to exchange federally owned lands within the Roosevelt recreational demonstration area project, located outside the boundaries of the park for State or privately owned lands of approximately equal value within the boundaries of the park, when in his opinion such action is in the interest of the United States, the title to any lands acquired under this section to be satisfactory to the Attorney General. Upon the vesting of title thereto in the United States, any lands acquired pursuant to this authorization shall become a part of the park and shall be subject to the laws applicable thereto. (16 U.S.C. § 243.)

Exchange of lands.

SEC. 4. The Secretary of the Interior is further authorized to obtain by purchase or condemnation proceedings, as part of said Theodore Roosevelt National Memorial Park, lots 2, 3, 4, and 6 of section 33, township 144, range 102, and to reconstruct thereon the log ranch house thirty by sixty feet, the log blacksmith shop sixteen by twenty feet, one log stable sixteen by twenty feet, one log stable twenty by thirty feet, log dog house, three log rectangular corrals, and one log circular corral, as they existed at the time the premises were occupied by Theodore Roosevelt: *Provided*, That the total cost of such land and buildings shall not exceed \$40,000. (16 U.S.C. § 244 as amended. See p. 311.)

Acquisition of lots for reconstruction of buildings.

Cost limitation.

SEC. 5. The administration, protection, and development of the aforesaid park shall be exercised under the

Administration, etc., of park.

direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916 (39 Stat. 535), entitled "An Act to establish a National Park Service, and for other purposes", as amended. (16 U.S.C. § 245.)

1 U.S.C. § 485;
16 U.S.C.
§§ 1, 2-4, 22,
43.

Medora,
N. Dak.
Erection of
monument.
Cost limitation.

Care and
 upkeep.

Existing
claims, etc.

Appropriations
authorized.

SEC. 6. The Secretary of the Interior is authorized to erect a monument in memory of Theodore Roosevelt, in the village of Medora, North Dakota, with the advice of the Commission of Fine Arts: *Provided*, That the cost of the monument shall not exceed \$35,000 and there shall be conveyed to the United States such suitable site as may in the judgment of the Secretary be required for said monument: *Provided further*, That the village of Medora, or other public agency or organization, shall furnish, in writing, assurance satisfactory to the Secretary of its willingness to assume the perpetual care and upkeep of the monument. (Repealed, 16 U.S.C. § 246. See p. 311.)

SEC. 7. That nothing herein contained shall affect any valid existing claim, location, or entry under the land laws of the United States, whether for homestead, mineral, right-of-way, or any other purposes whatsoever, or shall affect the right of any such claimant, locator, or entryman to the full use and enjoyment of his land. (16 U.S.C. § 247.)

SEC. 8. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act. (16 U.S.C. § 241 note.)

An Act To amend the Act of April 25, 1917, relating to the establishment of the Theodore Roosevelt National Memorial Park, and for other purposes, approved June 10, 1943 (62 Stat. 352)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Act of April 25, 1917, is hereby amended as follows:

Theodore
Roosevelt
National Me-
morial Park.
61 Stat. 52.
16 U.S.C.,
Supp. I, § 241.
Post, pp. 384,
1102.

Amend section 1 to read "That all those certain tracts, pieces, or parcels of land, title to which is vested in the United States of America, and being in the State of North Dakota, and within the boundaries particularly described, as follows, to wit: Beginning at the point where the north line of the right-of-way of United States Highway Numbered 10 intersects the east boundary of section 36, township 140 north, range 101 west, fifth principal meridian; thence southwesterly and northwesterly along the north line of said right-of-way through section 1, township 139 north, range 101 west, and sections 36, 35, 34, 27, 28, 29, and 30, township 140 north, range 101 west; thence northwesterly and southwesterly along the north line of the right-of-way of said highway to be relocated as shown on the right-of-way plat for project S&F&P 283C(3) filed for record in the office of the register of

deeds, Medora, North Dakota, book numbered 2 of plats, page 68, on June 13, 1912, through section 25 and the east half of the northeast quarter of section 26, township 140 north, range 102 west, to the point of intersection with the east sixteenth section line of said section 26; thence north along the sixteenth section line to the northwest corner of the northeast quarter of the northeast quarter of said section 26; thence northwesterly along a line to the northwest corner of the southwest quarter of the southeast quarter of section 23, township 140 north, range 102 west; thence westerly along the sixteenth section line to the northeast corner of the southeast quarter of the southeast quarter of section 22; township 140 north, range 102 west; thence southerly along the east section line to the southeast corner of said section 22; thence westerly along the south line of said section 22 to the point of intersection with the right bank of the Little Missouri River; thence northerly and westerly along the right bank of said river to the point of intersection with the east line of section 21, township 140 north, range 102 west; thence southerly along the east line of said section 21, to the intersection with the north line of the right-of-way of the Northern Pacific Railway, which point lies north of said United States Highway Numbered 10; thence westerly along the north line of said right-of-way to the point of intersection with the north line of the right-of-way of said United States Highway Numbered 10; thence westerly along the north line of the right-of-way of said highway through said section 21 to the intersection with the west line of said section 21; thence northerly along the west line of said section 21, and sections 16 and 9, thence continuing northerly to the southeast corner of Government lot 9, section 5, township 140 north, range 102 west; thence northwesterly to the northwest corner of Government lot 2 in said section 5; thence westerly to the southwest corner of the southeast quarter of section 34, township 141 north, range 102 west; thence northerly along the quarter section line to the northwest corner of the said southeast quarter of section 34; thence northwesterly along a line to the southwest corner of section 27, township 141 north, range 102 west; thence northerly along the west line of said section 27, to the southwest corner of the northwest quarter of said section 27; thence northeasterly along a line to the southwest corner of the southeast quarter of section 22, township 141 north, range 102 west; thence continuing northeasterly along a line to the southwest corner of the northwest quarter of section 23, township 141 north, range 102 west; thence continuing northeasterly along a line to the northeast corner of said northwest quarter of section 23; thence easterly along the north lines of said section 23, and section 24, township 141 north, range 102 west; to

the northwest corner of section 19, township 141 north, range 101 west; thence continuing easterly along the north line of said section 19 to the northwest corner of the northeast quarter of said section 19; thence southeasterly along a line to the northwest corner of the southwest quarter of the southwest quarter of the northwest quarter of section 20, township 141 north, range 101 west; thence southerly along the west line of said section 20 to the northwest corner of the southwest quarter of section 20; thence easterly to the northwest corner of the southeast quarter of section 20; thence southerly to the southwest corner of the southeast quarter of said section 20; thence easterly along the north lines of section 29 and section 28, to the northeast corner of section 28, township 141 north, range 101 west; thence southerly along the west line of section 27, township 141 north, range 101 west, to the southwest corner of said section 27; thence easterly along the north lines of sections 34, 35, and 36 to the northeast corner of section 36, township 141 north, range 101 west; thence southerly along the east line of said section 36 to the southwest corner of section 31, township 141 north, range 100 west; thence easterly to the southeast corner of said section 31; thence southeasterly along a line to the northwest corner of Government lot 7 of section 2, township 140 north, range 101 west; thence continuing southeasterly along a line to the northwest corner of the southwest quarter of section 1, township 140 north, range 101 west; thence continuing southeasterly along a line to the northwest corner of the northeast quarter of section 12, township 140 north, range 101 west; thence continuing southeasterly along a line to the northwest corner of the southwest quarter of section 7, township 140 north, range 100 west; thence easterly along the quarter section line to the northwest corner of the southeast quarter of said section 7; thence southeasterly along a line to the northwest corner of section 17, township 140 north, range 100 west; thence continuing southeasterly along a line to a point which is 33 feet west of the east line of said section 17, and 33 feet north of the south line of said section 17; thence southerly on a line which lies 33 feet west of and parallel to the east lines of sections 20, 29, and 32 of township 140 north, range 100 west, to the point of intersection with the north right-of-way line of United States Highway Numbered 10; thence westerly along the north line of said right-of-way through said sections 32 and 31, township 140 north, range 100 west, to the point of intersection with the east boundary of section 36, township 140 north, range 101 west, the place of beginning, containing forty-nine thousand one hundred and fifty-three and seventy-nine one-hundredths acres more or less." (16 U.S.C. § 241. See pp. 305-306, 312-313.)

Amend section 4 by striking out "lots 2, 3, 4, and 6 of section 33, township 144, range 102," and inserting in lieu thereof "lots 6 and 7, section 33, township 144 north, range 102 west; southeast quarter of southwest quarter, section 32, township 144 north, range 102 west; lots 4 and 5, section 4, township 143, range 102 west; and those parts of lot 1 and the southeast quarter of the northeast quarter, section 5, township 143 north, range 102 west, that lie north and east of a line running diagonally from the northwest corner of said lot 1 to the southeast corner of the southeast quarter of the northeast quarter of said section 5." (16 U.S.C. § 244. See p. 307.)

61 Stat. 24

Strike out all of section 6 and renumber the remaining sections accordingly. (16 U.S.C. § 246. See p. 308.)

61 Stat. 64

SEC. 2. Administrative jurisdiction over any of such lands that the Secretary of the Interior finds are not required for exchange purposes as herein provided may be conveyed to other Federal agencies by the Secretary of the Interior without exchange of funds, or if such lands are not required by other Federal agencies they may be conveyed to the State of North Dakota without reimbursement to the United States. (16 U.S.C. § 241 note.)

Conveyance to other agencies

An Act To add certain lands to the Theodore Roosevelt National Memorial Park, in the State of North Dakota, and for other purposes, approved June 12, 1933 (62 Stat. 384)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following-described lands are hereby made a part of the Theodore Roosevelt National Memorial Park, subject to all laws and regulations applicable thereto:

Theodore Roosevelt National Memorial Park
Ante, p. 25; ;
post, p. 110.

Beginning at the southwest corner of section 17, township 147 north, range 100 west; thence north along the west boundaries of sections 17, 8, 5, township 147 north, range 100 west, and section 32 to the southwest corner of section 29, township 148 north, range 100 west; thence east to the southwest corner of the southeast quarter of section 29; thence north to the northwest corner of the southwest quarter of the northeast quarter of section 29; thence east to the northeast corner of the southeast quarter of the northeast quarter of section 29; thence north along west boundary of sections 28 and 21 to the west quarter corner of section 21; thence east to the east quarter corner of section 21; thence north along west boundary of section 22 to the northwest corner of section 22; thence east along the north boundaries of sections 22, 23, 24, township 148 north, range 100 west and sections 19 and 20 to the north quarter corner of section 20, township 148 north, range 99 west; thence south to the northwest corner of the southeast quarter of section 20; thence east to the east quarter corner of section 20; thence south

to the southeast corner of section 20; thence along the north boundaries of sections 25, 27, and 29, township 148 north, range 99 west, to the northeast corner of section 26; thence south along east boundaries of sections 26 and 35 to the east quarter corner of section 35, township 148 north, range 99 west; thence west to the north bank of Little Missouri River; thence following the north bank of the Little Missouri River in a generally westerly direction to where the north bank of the river crosses the north boundary of section 4, township 147 north, range 99 west; thence west to the northwest corner of section 4; thence south to the southeast corner of section 5; thence west along the south boundaries of sections 5 and 6, township 147 north, range 99 west, and section 1, township 147 north, range 100 west to the northeast corner of section 11; thence south along east boundaries of sections 11 and 14 to the southeast corner of section 14; thence west along the south boundaries of sections 14, 15, 16, and 17 to the point of beginning, all west of the fifth principal meridian. (16 U.S.C. §241a.)

Acquisition of non-Federal land.

Right-of-way for stockmen.

Administrative jurisdiction.

SEC. 2. That for the purposes of acquiring non-Federal lands within the boundaries of said park as established by this Act, the Secretary of the Interior is hereby authorized, in his discretion, to exchange federally owned lands within sections 1, 12, and 13, township 148 north, range 100 west, and sections 6, 7, and 18, township 148 north, range 99 west. Reserving, however, to the stockmen of the surrounding area a perpetual right-of-way through the park for the trailing of livestock, to and from the railroad, along and adjacent to the Little Missouri River, being the same trail or route which has been used by the stockmen for that purpose since the beginning of the livestock industry in the area. Administrative jurisdiction over any of such lands that the Secretary of the Interior finds are not required for exchange purposes as herein provided may be conveyed to other Federal agencies by the Secretary of the Interior without exchange of funds, or if such lands are not required by other Federal agencies they may be conveyed to the State of North Dakota without reimbursement to the United States. (16 U.S.C. § 241b.)

Joint Resolution Correcting Act establishing the Theodore Roosevelt National Memorial Park, as amended, approved June 29, 1948 (62 Stat. 1102)

Theodore Roosevelt National Memorial Park. 61 Stat. 52. *Ante*, pp. 332, 334.

Whereas a clerical or printer's error by omission of words appears in section 1 of Public Law Numbered 620 amending the Act of April 25, 1947, establishing the Theodore Roosevelt National Memorial Park: Therefore be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,

That section 1 of the Act of April 25, 1947, establishing the Theodore Roosevelt National Memorial Park as amended by Public Law Numbered 620 be further amended by striking out the period at the end of section 1 and inserting the following: “, are hereby dedicated and set apart as a public park for the benefit and enjoyment of the people, and shall be known as the Theodore Roosevelt National Memorial Park. The Secretary of the Interior is authorized, in his discretion, to construct and maintain a road or highway through the park connecting with a State or Federal highway.” (See 16 U.S.C. § 241 note. See pp. 308-310.)

Construction of road, etc.

Joint Resolution To establish a commission for the celebration of the one-hundredth anniversary of the birth of Theodore Roosevelt, approved July 28, 1953 (69 Stat. 353)

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby established a commission to be known as the Theodore Roosevelt Centennial Commission (hereinafter referred to as the “Commission”) which shall be composed of fifteen Commissioners as follows: The President of the United States, the President of the Senate, and the Speaker of the House of Representatives, all *ex officio*, and eight persons to be appointed by the President of the United States, two Senators to be appointed by the President of the Senate, and two Representatives to be appointed by the Speaker of the House of Representatives.

Theodore Roosevelt Centennial Commission. Establishment.

SEC. 2. It shall be the duty of the Commission, after announcement to the American people of its creation and purpose, to prepare plans and a program for signaling the one hundredth anniversary of the birth of Theodore Roosevelt in the year 1958, including plans for the completion of the development of Theodore Roosevelt Island in the Potomac River in accordance with the Act entitled “An Act to establish a memorial to Theodore Roosevelt in the National Capital,” approved May 21, 1932 (47 Stat. 163) as amended by the Act approved February 11, 1933 (47 Stat. 799), and including the completion of the development of Theodore Roosevelt National Memorial Park in North Dakota, created by the Act of April 25, 1947 (61 Stat. 52), as amended. In preparing such plans and program, the Commission shall give due consideration to any plan which may be submitted to it, and shall take such steps as may be necessary to coordinate and correlate its plans with those prepared by State or civic bodies. If the participation of other nations in the commemoration is deemed advisable, the Commission may communicate to that end with the governments of such nations through the State Department.

40 U.S.C. 114-126.

16 U.S.C. 241-247.

63 Stat. 954.
5 U.S.C. 1071
note.

SEC. 3. (a) The Commission shall select a Chairman and a Vice Chairman from among its members, and may employ, without regard to the civil-service laws or the Classification Act of 1949, such employees as may be necessary in carrying out its functions.

62 Stat. 694.

63 Stat. 721.

39 Stat. 54.

(b) Service of an individual as a member of the Commission shall not be considered as service or employment bringing such individual within the provisions of section 216, 281, 282, 284, 434, or 1014 of title 18 of the United States Code, or section 190 of the Revised Statutes (5 U.S.C. 99) or section 412 of the Mutual Defense Assistance Act of 1949 (22 U.S.C. 1584); nor shall any member of the Commission by reason of his status as such be deemed to be an "officer of the Government" within the meaning of the Act of April 27, 1916 (5 U.S.C. 101.)

SEC. 4. The Commissioners shall serve without compensation, but may be reimbursed for expenses incurred by them in carrying out the duties of the Commission.

SEC. 5. When the Commission has approved a plan of celebration, it shall submit it, insofar as it relates to the fine arts, to the Commission of Fine Arts for its approval.

Report to
Congress.

SEC. 6. The Commission shall, on or before March 1, 1956, make a report to the Congress in order that further enabling legislation may be enacted.

Appropriation.

SEC. 7. There are hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this joint resolution, but in no event shall the sums hereby authorized to be appropriated exceed a total of \$10,000.

Expiration
date.

SEC. 8. The Commission shall expire upon the completion of its duties, but in no event later than October 27, 1959.

An Act To revise the boundaries of the Theodore Roosevelt National Memorial Park, in the State of North Dakota, and for other purposes, approved March 24, 1956 (70 Stat. 55)

Theodore
Roosevelt
National Me-
morial Park
Boundaries.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That the following-described lands are hereby made a part of the Theodore Roosevelt National Memorial Park, subject to all laws and regulations applicable thereto: Beginning at a point in block 11 of the village of Medora, North Dakota, said point being on the northerly right-of-way line of Third Avenue a distance of 160 feet westerly from the northwest corner of the intersection of Third Avenue and Main Street; thence northerly a distance of 140 feet to a point on a line parallel to and 160 feet westerly of the westerly right-of-way line of Main Street; thence easterly 10 feet along a line parallel to and 140 feet northerly of the northerly right-of-way line of Third Avenue to a point

150 feet westerly of the westerly right-of-way line of Main Street; thence northerly 20 feet along a line parallel to and 150 feet westerly of the westerly right-of-way line of Main Street to a point on a line parallel to and 160 feet northerly of the northerly right-of-way line of Third Avenue; thence easterly along said line a distance of 150 feet to a point on the westerly right-of-way line of Main Street; thence northerly a distance of 40 feet along said westerly right-of-way line of Main Street to a point 200 feet northerly from the northwest corner of the intersection of Third Avenue and Main Street; thence easterly along a line parallel to and 200 feet northerly of the northerly right-of-way line of Third Avenue a distance of 970 feet to the northwesterly corner of lot 3 in block 8; thence southerly along the westerly line of lots 3 to 10, inclusive, in block 8 a distance of 200 feet to a point on the northerly right-of-way line of Third Avenue; thence along the northerly right-of-way line of Third Avenue extended easterly to a point on the west sixteenth line of section 26; thence northerly along said sixteenth line to a point on the section line common to sections 22 and 26; thence westerly along said section line to a point which is 650 feet easterly of the section corner common to sections 22, 23, 26, and 27; thence northerly along a line parallel to and 600 feet easterly from the section line common to sections 22 and 23 to a point on the south sixteenth line of section 23; thence westerly along said sixteenth line a distance of 600 feet to a point on the section line common to sections 22 and 23; thence southerly along said section line to the section corner common to sections 22, 23, 26, and 27; thence southerly along the section line common to sections 26 and 27 a distance of 390.5 feet; thence westerly a distance of 421.7 feet to a point on a line parallel to and 390.5 feet southerly from the section line common to sections 22 and 27; thence southerly a distance of 360 feet to a point in block 4 on a line parallel to and 150 feet westerly from the westerly right-of-way line of Main Street extended northerly; thence southwestwardly on a straight line through the southwestwardly corner of block 4 to a point on the southerly right-of-way line of Second Avenue extended westerly; thence westerly along said westerly extension of the southerly right-of-way line of Second Avenue to a point on the northeasterly right-of-way line of United States Highway Numbered 10; thence southeasterly along said northeasterly right-of-way line of United States Highway Numbered 10 to the intersection or juncture of said right-of-way line with the northerly right-of-way line of Third Avenue; thence easterly to the point of beginning; and all of that part of block 12 in the village of Medora that lies westerly of a line parallel to and westerly a distance of 140 feet

Block 6,
Medora.

from the westerly right-of-way line of Main Street; all in township 140 north, range 102 west, fifth principal meridian: *Provided*, That the lands and improvements thereon located in block 6 in the village of Medora now administered and used by the United States Forest Service, Department of Agriculture, shall not become a part of the park pursuant to this section until such time as they are transferred to the Department of the Interior by the Secretary of Agriculture. (16 U.S.C. § 241c.)

Exclusion.

SEC. 2. The following area is hereby excluded from the park: That portion of section 8 lying southwest of a line between the common corner of sections 8, 9, 16, and 17 and the northwest corner of the southwest quarter section 8; that portion of section 16 lying southwest of a line between the southeast corner southwest quarter and the northwest corner southwest quarter section 16; and section 17, township 147 north, range 100 west, fifth principal meridian, North Dakota. (16 U.S.C. § 241d.)

Boundary ad-
justments.

SEC. 3. The Secretary of the Interior is authorized to make further adjustments in the boundaries of the park along United States Highways Numbered 10 and 85 as he deems advisable and in the public interest if and when the alinement of these highways is changed: *Provided*, That not to exceed five hundred acres may be added to the park and not to exceed two thousand acres may be excluded from the park by such adjustments. Boundary adjustments made pursuant to this section shall be effective upon publication thereof in the Federal Register and all Federal land excluded from the park pursuant to this Act shall be transferred to the Secretary of Agriculture for administration or disposition in accordance with title III of the Bankhead-Jones Farm Tenant Act. (16 U.S.C. § 241e.)

Publication
in FR.

60 Stat. 525.
7 U.S.C. 1010-
1013.

Exchange au-
thority.

SEC. 4. The land exchange authority relating to Theodore Roosevelt National Memorial Park prescribed by section 3 of the Act of April 25, 1947 (61 Stat. 52), and by section 2 of the Act of June 12, 1948 (62 Stat. 384), shall be applicable also to the lands described in section 1 of this Act. (16 U.S.C. § 241f.)

61 Stat. 54.
16 U.S.C. 243.
211b.

Excerpt from "An Act Making supplemental appropriations for the fiscal year ending June 30, 1957, and for other purposes," approved July 31, 1956 (70 Stat. 763, 767)

Second
Supplemental
Appropriation
Act, 1957.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, to supply supplemental appropriations (this Act may be cited as the "Second Supplemental Appropriation Act, 1957") for the fiscal year ending June 30, 1957, and for other purposes, namely:

* * * * *

THEODORE ROOSEVELT CENTENNIAL COMMISSION

For an additional amount for "Theodore Roosevelt Centennial Commission," \$163,400, to remain available until expended: *Provided*, That this paragraph shall become effective only upon the enactment into law of S. 3386, Eighty-fourth Congress.

An Act To amend the joint resolution entitled "Joint Resolution to establish a commission for the celebration of the one hundredth anniversary of the birth of Theodore Roosevelt," approved July 28, 1955, approved August 6, 1956 (70 Stat. 1035)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 7 of the joint resolution entitled "Joint resolution to establish a commission for the celebration of the one hundredth anniversary of the birth of Theodore Roosevelt", approved July 28, 1955, is amended to read as follows:

Theodore
Roosevelt
celebration.

69 Stat. 284.

"Sec. 7. There is hereby authorized to be appropriated not to exceed the sum of \$150,000 to carry out the provisions of this joint resolution."

Appropriation.

Joint Resolution To authorize and request the President to issue a proclamation in connection with the centennial of the birth of Theodore Roosevelt, approved September 4, 1957 (71 Stat. 617)

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the joint resolution entitled, "Joint resolution to establish a commission for the celebration of the one hundredth anniversary of the birth of Theodore Roosevelt", approved July 28, 1955 (69 Stat. 348), is amended by adding at the end thereof the following new section:

Theodore
Roosevelt
Centennial
Commission.

69 Stat. 383.

"Sec. 9. The President is authorized and requested to issue a proclamation, inviting the people of the United States to observe the centennial anniversary of the birth of Theodore Roosevelt, which will occur in 1958, with appropriate ceremonies and activities during that year."

Proclamation.

An Act To authorize the Secretary of the Interior to provide water and sewage disposal facilities to the Medora area adjoining the Theodore Roosevelt National Memorial Park, North Dakota, and for other purposes, approved August 31, 1961 (75 Stat. 423)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That in order to afford adequate facilities to persons visiting Theodore Roosevelt National Memorial Park, and to enhance the setting of the park entrance and further the interpretive program of the park through encouraging the preservation and restoration of the pioneer cattle town of Medora, North Dakota, and its associations with Theodore Roosevelt, by non-Federal endeavors in accordance with house concurrent resolutions

Theodore
Roosevelt
National Me-
morial Park.
N. Dak.

"T" and "U" of the 1959 Session Laws of the State of North Dakota, pages 878 and 879, the Secretary of the Interior is authorized to modernize the water and sewage facilities of the village of Medora adjoining the park, in the manner hereinafter provided.

Medora,
N. Dak.
Water and
sewage fa-
cilities.

SEC. 2. The Secretary of the Interior is authorized to construct, operate, and maintain, on rights-of-way donated for the purpose and in such manner as he shall consider to be in the public interest, water supply and sewage disposal systems to serve Federal and non-Federal properties in the said Medora area, and he may make existing Federal systems available to serve such properties: *Provided*, That non-Federal users of the systems shall comply with standards of use prescribed by the Secretary and shall be charged rates sufficient to recover a pro rata share of depreciation and costs of operation and maintenance of the systems plus interest on the Federal investment in the systems. Funds obtained from such non-Federal users of the systems shall be deposited in the Treasury of the United States as miscellaneous receipts, with the exception that the Secretary may consider as appropriation reimbursements to be credited in the appropriation current at the time received, such amount of the aforesaid collections as may be necessary to reimburse, on a pro rata basis, appropriated operating funds expended for maintenance and operation costs of the systems.

Conditions for
construction.

SEC. 3. Construction of the facilities authorized herein shall not be undertaken or use of existing Federal systems authorized until at least 80 per centum of the potential non-Federal users, as defined by the Secretary of the Interior, are committed to connecting to said water and sewage systems and until there shall have been reached an agreement with the duly authorized officials of the village of Medora, by which the village is obligated to adopt and enforce a zoning ordinance which complies with standards prescribed by the Secretary for the purpose of preserving the historic character of Medora and affording a park-like setting in the vicinity of the park and the entrance thereto.

Appropriation.

SEC. 4. There are authorized to be appropriated for the construction of these facilities such sums as may be required therefor, not to exceed \$100,000.

Public Law 95-625
95th Congress

An Act

To authorize additional appropriations for the acquisition of lands and interests
in lands within the Sawtooth National Recreation Area in Idaho.

Nov. 10, 1978
[S. 791]

*Be it enacted by the Senate and House of Representatives of the
United States of America in Congress assembled,*

National Parks
and Recreation
Act of 1978.

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. This Act may be cited as the "National Parks and Recreation Act of 1978". 16 USC 1 note.

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TITLE II—ACQUISITION CEILING INCREASES

ACQUISITION CEILINGS

SEC. 201. The limitations on appropriations for the acquisition of lands and interests therein within certain units of the National Park System are amended as follows: Appropriation authorizations.

(1) Big Cypress National Preserve, Florida: Section 8 of the Act of October 11, 1974 (86 Stat. 1258), is amended by changing "\$116,000,000" to "\$156,700,000". 16 USC 698m.

(2) Buffalo National River, Arkansas: Section 7 of the Act of March 1, 1972 (86 Stat. 44), is amended by changing "\$30,071,500" to "\$39,948,000". 16 USC 460aa-14.

(3) Cumberland Island National Seashore, Georgia: Section 10 of the Act of October 23, 1972 (86 Stat. 1066), is amended by changing "\$10,500,000" to "\$28,500,000". 16 USC 459i-9.

SAWTOOTH NATIONAL RECREATION AREA

SEC. 202. Section 13 of the Act of August 22, 1972 (86 Stat. 612), is amended by changing "\$19,802,000" to "\$47,802,000". 16 USC 460aa-12.

TITLE III—BOUNDARY CHANGESREVISION OF BOUNDARIES

SEC. 301. The boundaries of the following units of the National Park System are revised as follows, and there are authorized to be appropriated such sums as may be necessary, but not exceed the amounts specified in the following paragraphs for acquisitions of lands and interests in lands within areas added by reason of such revisions: Appropriation authorizations.

(1) Bent's Old Fort National Historic Site, Colorado: To add approximately six hundred and twenty-two acres as generally depicted on the map entitled "Boundary Map, Bent's Old Fort National Historic Site, Colorado", numbered 417-80,007-A, and dated June 1976: \$342,000.

(2) Cape Cod National Seashore, Massachusetts: To add approximately thirteen acres and to delete approximately sixteen acres as generally depicted on the map entitled "Cape Cod National Seashore Boundary Map", numbered 609-60.015 and dated February 1978.

(3) Chiricahua National Monument, Arizona: To add approximately four hundred and forty acres as generally depicted on the map entitled "Boundary Map, Chiricahua National Monument, Arizona", numbered 145-80,002, and dated August 1977: \$294,000.

(4) Coronado National Memorial, Arizona: To add approximately three thousand and forty acres and delete approximately twelve hundred acres as generally depicted on the map entitled "Land Status Map 01, Coronado National Memorial, Cochise County, Arizona", numbered 8630/80,001, and dated October 1977: \$1,410,000.

(5) Eisenhower National Historic Site, Pennsylvania: To add approximately one hundred ninety-five and eighty-three one-hundredths acres as generally depicted on the map entitled "Boundary Map, Eisenhower National Historic Site, Adams

(15) Salem Maritime National Historic Site, Massachusetts: To add approximately fifteen one-hundredths of an acre as generally depicted on the map entitled "Salem Maritime National Historic Site Boundary Map", numbered 373-80,010, and dated February 1978: \$67,500.

(16) Theodore Roosevelt National Memorial Park, North Dakota: To add approximately one hundred and forty-six acres, and delete approximately one hundred and sixty acres as generally depicted on map entitled "Boundary Map Theodore Roosevelt National Memorial Park-North Unit McKenzie County/North Dakota", numbered 357/80,020, and dated July 1977.

(17) Tumacacori National Monument, Arizona: To add approximately seven acres, and delete approximately eleven-hundredths of an acre as generally depicted on the map entitled "Boundary Map, Tumacacori National Monument, Arizona", numbered 311-80,009-A, and dated March 1978: \$24,000.

(18)(A) Tuzigoot National Monument, Arizona: To add approximately seven hundred and ninety-one acres as generally depicted on the map entitled "Master Proposal, Tuzigoot National Monument", numbered 378-30,000D, and dated January 1973: \$1,350,000.

(B) The Secretary is authorized to acquire by donation, purchase with donated or appropriated funds, exchange or otherwise and subject to such terms, reservations, conditions applied to the acquired lands as he may deem satisfactory, the lands and interests in lands that are included within the boundaries of the Tuzigoot National Monument as revised by this paragraph. When so acquired, they shall be administered in accordance with provisions of law generally applicable to units of the National Park System, including the Act of August 25, 1916 (29 Stat. 535).

(C) In exercising his authority to acquire such lands and interests in lands by exchange, the Secretary may accept title to any non-Federal property within the boundaries of the national monument and in exchange therefor he may convey to the grantor of such property any federally owned property under his jurisdiction in the State of Arizona. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal the values shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require.

(19) White Sands National Monument, New Mexico: To add approximately three hundred and twenty acres, and delete approximately seven hundred and sixty acres as generally depicted on the map entitled "Boundary Map, White Sands National Monument, New Mexico", numbered 142/20,010-A, and dated November 1973.

(20) William Howard Taft National Historic Site, Ohio: To add approximately three acres as generally depicted on the map entitled "Boundary Map, William Howard Taft National Historic Site, Ohio", numbered 448-40,021, and dated January 1977.

(21) Wind Cave National Park, South Dakota: To add approximately two hundred and twenty-eight acres as generally depicted on the map entitled "Boundary Map, Wind Cave National Park, South Dakota", numbered 108-80,008, and dated July 1977: \$227,000.

Land
acquisitions.

Administration.

16 USC 1 et seq.

Property
conveyance.

shore and, in addition, the waters surrounding said area to distances of one thousand feet in the Atlantic Ocean and up to four thousand feet in Great South Bay and Moriches Bay and, in addition, mainland terminal and headquarters sites, not to exceed a total of twelve acres, on the Patchogue River within Suffolk County, New York, all as delineated on a map identified as 'Fire Island National Seashore', numbered OGP-0004, dated May 1975. The Secretary shall publish said map in the Federal Register, and it may also be examined in the offices of the Department of the Interior."

Map, publication in Federal Register.

(b) Section 2 of such Act is amended by adding the following new subsection at the end thereof:

Undeveloped tracts and property.
16 USC 459e-1.

"(g) The authority of the Secretary to condemn undeveloped tracts within the Dune District as depicted on map entitled 'Fire Island National Seashore' numbered OGP-0004 dated May, 1975, is suspended so long as the owner or owners of the undeveloped property therein maintain the property in its natural state. Undeveloped property within the Dune District that is acquired by the Secretary shall remain in its natural state."

(c) Section 7(b) of such Act is amended by striking the phrase "Brookhaven town park at", and inserting in lieu thereof: "Ocean Ridge portion of".

16 USC 459e-6.

(d) Section 10 of such Act is amended by striking "\$18,000,000", and inserting in lieu thereof "\$23,000,000".

16 USC 459e-9.

CUMBERLAND ISLAND NATIONAL SEASHORE

SEC. 323. Section 1 of the Act of October 23, 1972 (86 Stat. 1066), is amended by changing the phrase "numbered CUIS-40,000B, and dated June 1971," to read "numbered CUIS 40,000D, and dated January 1978,".

16 USC 459i.

TITLE IV—WILDERNESS

DESIGNATION OF AREAS

SEC. 401. The following lands are hereby designated as wilderness in accordance with section 3(c) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132(c)), and shall be administered by the Secretary in accordance with the applicable provisions of the Wilderness Act:

Administration.
16 USC 1132 note.
16 USC 1131 note.

(1) Buffalo National River, Arkansas, wilderness comprising approximately ten thousand five hundred and twenty-nine acres and potential wilderness additions comprising approximately twenty-five thousand four hundred and seventy-one acres depicted on a map entitled "Wilderness Plan, Buffalo National River, Arkansas", numbered 173-20.036-B and dated March 1975, to be known as the Buffalo National River Wilderness.

(2) Carlsbad Caverns National Park, New Mexico, wilderness comprising approximately thirty-three thousand one hundred and twenty-five acres and potential wilderness additions comprising approximately three hundred and twenty acres, depicted on a map entitled "Wilderness Plan, Carlsbad Caverns National Park, New Mexico," numbered 130-20.003-B and dated January 1978, to be known as the Carlsbad Caverns Wilderness. By January 1, 1980, the Secretary shall review the remainder of the park and shall report to the President, in accordance with section 3 (c) and (d) of the Wilderness Act (78 Stat. 891; 16 U.S.C. 1132 (c) and (d)), his recommendations as to the suitability or unsuitability of any additional areas within the park for preservation as wilder-

Report to President

16 USC 1131
note.

ness, and any designation of such areas as wilderness shall be accomplished in accordance with said subsections of the Wilderness Act.

(3) Everglades National Park, Florida, wilderness comprising approximately one million two hundred and ninety-six thousand five hundred acres and potential wilderness additions comprising approximately eighty-one thousand nine hundred acres, depicted on a map entitled "Wilderness Plan, Everglades National Park, Florida", numbered 160-20.011 and dated June 1974, to be known as the Everglades Wilderness.

(4) Guadalupe Mountains National Park, Texas, wilderness comprising approximately forty-six thousand eight hundred and fifty acres, depicted on a map entitled "Wilderness Plan, Guadalupe Mountains National Park, Texas", numbered 166-20.006-B and dated July 1972, to be known as the Guadalupe Mountains Wilderness.

(5) Gulf Islands National Seashore, Florida, and Mississippi, wilderness comprising approximately one thousand eight hundred acres and potential wilderness additions comprising approximately two thousand eight hundred acres, depicted on a map entitled "Wilderness Plan, Gulf Islands National Seashore, Mississippi, Florida", numbered 635-20.018-A and dated March 1977, to be known as the Gulf Islands Wilderness.

(6) Hawaii Volcanoes National Park, Hawaii, wilderness comprising approximately one hundred and twenty-three thousand one hundred acres and potential wilderness additions comprising approximately seven thousand eight hundred and fifty acres, depicted on a map entitled "Wilderness Plan, Hawaii Volcanoes National Park, Hawaii", numbered 124-20.020 and dated April 1974, to be known as the Hawaii Volcanoes Wilderness.

(7) Organ Pipe Cactus National Monument, Arizona, wilderness comprising approximately three hundred and twelve thousand six hundred acres and potential wilderness additions comprising approximately one thousand two hundred and forty acres, depicted on a map entitled "Wilderness Plan, Organ Pipe Cactus National Monument, Arizona", numbered 157-20.001-E and dated October 1978, to be known as the Organ Pipe Cactus Wilderness.

(8) Theodore Roosevelt National Memorial Park, North Dakota, wilderness comprising approximately twenty-nine thousand nine hundred and twenty acres, depicted on maps entitled "Theodore Roosevelt National Memorial Park, North Dakota" (North Unit and South Unit) numbered 387-20.007-E and dated January 1978, to be known as the Theodore Roosevelt Wilderness.

MAP AND DESCRIPTION

Public
availability.

Filing with
congressional
committees.

SEC. 402. A map and description of the boundaries of the areas designated in this title shall be on file and available for public inspection in the office of the Director of the National Park Service, Department of the Interior, and in the Office of the Superintendent of each area designated in this title. As soon as practicable after this Act takes effect, maps of the wilderness areas and descriptions of their boundaries shall be filed with the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Energy and Natural Resources of the United States Senate, and such maps and descriptions shall have the same force and effect as if included in this Act: *Provided*, That correction of clerical and typographical errors in such maps and descriptions may be made.

THEODORE ROOSEVELT NATIONAL PARK

SEC. 610. The area formerly known as the "Theodore Roosevelt National Memorial Park", established by the Act of April 25, 1947 (61 Stat. 52), shall henceforth be known as the "Theodore Roosevelt National Park".

16 USC 241g.
16 USC 241 et seq.

BADLANDS NATIONAL PARK

SEC. 611. The area formerly known as the "Badlands National Monument", established by Presidential Proclamation of January 25, 1939 (53 Stat. 2521), shall henceforth be known as the "Badlands National Park".

16 USC 441e-1.

ALBERT EINSTEIN MEMORIAL

SEC. 612. The Secretary of the Interior is authorized to convey for nominal consideration to the National Academy of Sciences, United States Reservation 332A, located on the south side of Square Numbered 88 between 21st Street, 22d Street and Constitution Avenue in the District of Columbia to erect and maintain a Memorial to Albert Einstein. The title to said property shall remain with the National Academy of Sciences so long as the property is used for access. At such time as the property is no longer used for memorial purposes or public access is restricted, title to said property shall revert to the United States.

Property, conveyance and title.
16 USC 431 note.

PEARSON-SKUBITZ BIG HILL LAKE

SEC. 613. The project for flood protection on Big Hill Creek, Kansas, authorized by the Flood Control Act of 1962, Public Law 87-374, shall hereafter be known and designated as the "Pearson-Skubitz Big Hill Lake". Any reference in a law, map, regulation, document, or record, or other paper of the United States to such project shall be held to be a reference to the "Pearson-Skubitz Big Hill Lake".

Designation.
76 Stat. 1180.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

SEC. 614. Section 212(a) of the Act of October 15, 1966 (80 Stat. 915), as amended (16 U.S.C. 470), is further amended by adding the following at the end thereof:
"There are authorized to be appropriated not to exceed \$2,250,000 in fiscal year 1980."

Appropriation authorization.
16 USC 470c.

TITLE VII—WILD AND SCENIC RIVERS
ACT AMENDMENTS

Subtitle A—Addition of Segments

ADDITION OF PERE MARQUETTE SEGMENT

SEC. 701. Section 3(a) of the Wild and Scenic Rivers Act is amended by adding the following new paragraph at the end thereof:
"(16) PERE MARQUETTE, MICHIGAN.—The segment downstream from the junction of the Middle and Little South Branches to its junction with United States Highway 31 as generally depicted on the boundary map entitled 'Proposed Boundary Location, Pere Marquette Wild and Scenic River,' to be administered by the Secretary of Agriculture. After consultation with State and local governments and the interested public, the Secretary shall take such action as is provided for under subsection (b) with respect to the segment

Boundaries, description.
16 USC 1274.

Consultation.

the Capitol in the City of Bismarck, on Tuesday, the sixth day of January, one thousand nine hundred and eighty-one.

HOUSE BILL NO. 1206
(Representatives Thompson, Whalen)
(Senator Roen)

AN ACT to cede to the United States concurrent criminal jurisdiction on lands within the Theodore Roosevelt national park, Fort Union trading post national historic site, and Knife River Indian villages national historic site, and to provide for retrocession of that jurisdiction.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF THE STATE OF NORTH DAKOTA:

SECTION 1. STATE OFFENSES - CONCURRENT JURISDICTION CEDED TO THE UNITED STATES. Concurrent jurisdiction is hereby ceded to the United States over offenses, as defined in section 12.1-01-04, which are committed within boundaries of the tracts of land designated as:

1. Theodore Roosevelt national park.
2. Fort Union trading post national historic site.
3. Knife River Indian villages national historic site.

SECTION 2. CONCURRENT JURISDICTION - VESTED UPON ACCEPTANCE. The concurrent jurisdiction ceded by section 1 of this Act shall be vested upon acceptance by the United States by and through its appropriate officials and shall continue so long as the lands within the designated areas are dedicated to park or historic site purposes.

SECTION 3. RETROCESSION OF JURISDICTION - ACCEPTANCE AND FILING.

1. The consent of North Dakota is hereby given to the retrocession by the United States of the jurisdiction granted by section 1 of this Act, either partially or wholly. A partial retrocession may be with respect to particular territory or particular offenses, or both. The governor is authorized to accept any such retrocession of jurisdiction on behalf of North Dakota.

2. When the governor receives written notification from the authorized official or agent of the United States that the United States desires or is willing to retrocede jurisdiction to North Dakota as provided in subsection 1, the governor may accept, and after filing the original acceptance with the secretary of state, the retrocession of jurisdiction will become effective.

James A. Peter
Speaker of the House

Ray Silbrath
Chief Clerk of the House

Ernest M. Sander
President of the Senate

Les Leidholm
Secretary of the Senate

This certifies that the within bill originated in the House of Representatives of the Forty-seventh Legislative Assembly of the State of North Dakota and is known on the records of that body as House Bill No. 1206.

Vote:	Ayes	90	Nays	0	Absent	10
Vote:	Ayes	48	Nays	0	Absent	2

Ray Silbrath
Chief Clerk of the House

Received by the Governor at 1:20 P.M. on February 19, 1981.

Approved at 9:29 A.M. on February 20, 1981.

Allen F. Olson
Governor

Filed in this office this 20th day of Feb., 1981, at 2:24 o'clock P.M.

Ben M. Min
Secretary of State

APPENDIX B: MANAGEMENT OBJECTIVES

These management objectives are taken from the 1985 "Statement for Management" for Theodore Roosevelt National Park.

MANAGEMENT, ADMINISTRATION, AND SUPPORT

Cooperate with all federal, state, and local agencies and individuals so that the resources of the park will be protected from visual or physical intrusion related to all development on the periphery of the park boundary, in accordance with Executive Order 11593.

Acquire privately owned lands using eminent domain procedures only as necessary to prevent adverse uses.

INTERPRETATION AND VISITOR SERVICES

Provide opportunities for visitors to be aware of and appreciate Theodore Roosevelt's experiences in the Little Missouri badlands, his associations with the open range cattle ranching industry, and his influences on the conservation movement in the United States.

Provide opportunities for visitors to experience the badlands environment and its resources and to reach an understanding of them, just as Theodore Roosevelt did.

Provide public access, service, and opportunity for use and enjoyment at the Elkhorn ranch.

Provide opportunities for use of school groups, independent scholars, and researchers for the study of western American history and the environment according to the historic, cultural, and natural resources contained in each park unit.

Provide as a corollary, off-site interpretive programs during winter seasons to schools, organizations, and civic groups.

Provide a static interpretive display at the Painted Canyon overlook visitor center regarding the air quality and acid rain research and monitoring programs conducted at that location and throughout the park.

CULTURAL RESOURCE MANAGEMENT

Specifically identify individually qualified prehistoric/historic sites and structures with appropriate boundaries for nomination to the National Register of Historic Places and take subsequent action to remove all inappropriate lands now listed.

Complete survey and research at the earliest possible time to identify and evaluate historic and cultural resources so that they will be properly preserved and considered on the basis of complete factual knowledge in all related management decisions and subsequent actions.

NATURAL RESOURCE MANAGEMENT

Restore and maintain, to the extent feasible, the endemic plants and animals and ecological processes of the Little Missouri badlands to a condition symbolic of the scene during Theodore Roosevelt's association with the area.

Complete survey and research at the earliest possible time to identify and evaluate natural resources so that they will be properly preserved and considered on the basis of complete factual knowledge in all related management decisions and subsequent actions.

Maximize public access to these resources.

Protect and enhance the park's class I clean air status and identify, evaluate, and preserve the park's air quality related resources in accordance with existing and future National Park Service and other federal and state legislative and regulatory mandates.

Appendix C: Cost Analysis and Staffing Requirements
(As of December 1985)

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
<u>NORTH UNIT</u>					
<u>Natural Resources</u> Bison corral	Relocate corral operation to north boundary; maintain present site as NPS horse pasture (area also has potential for new horse camp; see later section) \$ 211,000 new corral 13,000 site restoration \$ 224,000 .02 (GS-12)/\$2,000 .05 (WG-7)/\$2,100	Corral to remain in present location - no change 0	Relocate corral operation to north boundary; maintain present site as NPS horse pasture \$ 211,000 new corral 13,000 site restoration \$ 224,000 .02 (GS-12)/\$2,000 .05 (WG-7)/\$2,100	Relocate corral operation to north boundary; maintain present site as NPS horse pasture \$ 211,000 new corral 13,000 site restoration \$ 224,000 .02 (GS-12)/\$2,000 .05 (WG-7)/\$2,100	Required to maintain fence, corrals, and access road Relocate to area that is more open so buffalo may be more easily captured; increase needed for planning and supervision of construction
<u>Cultural Resources</u> District Headquarters	Leave CCC camp-tender building in place, renovate for residence or storage; add vegetative screening \$ 32,000 remodel 650 s.f. 2,000 vegetation \$ 34,000 .02 (WG-7)/\$840	No change in camp-tender residence; use as seasonal quarters - 0	Leave camp-tender building in place, renovate for residence or storage; add vegetative screening \$ 32,000 remodel 650 s.f. 2,000 vegetation \$ 34,000 .02 (WG-7)/\$840	Relocate camp-tender building, renovate for residence or storage \$ 10,000 move structure 32,000 remodel 650 s.f. \$ 42,000 .02 (WG-7)/\$840	Required to maintain building and provide ground maintenance
<u>Recreation</u> Camping/ Picnicking (vehicular)	Redesign Squaw Creek picnic area for additional parking - 15 spaces \$ 39,000 0.05 (GS-9)/\$1,100 0.01 (WG-5)/\$420	No change in Squaw Creek picnic area 0	Redesign Squaw Creek picnic area for additional parking - 15 spaces \$ 39,000 0.05 (GS-9)/\$1,100 0.01 (WG-5)/\$420	Relocate Squaw Creek area outside flash-flood zone and provide adequate parking. (See Squaw Creek campground for combined campground/picnic area estimates) 0 0.07 (GS-9)/\$1,500 0.03 (WG-7)/\$12,600	Increase required for planning input Required to maintain additional parking.

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
Camping (horse)	Build group horse camp in park at suitable location (either at bison corral, Wright/Baye property, or Squaw Creek campground); final site selection to be made during this planning process \$ 726,000 0.23 (GS-5)/\$6,000 0.3 (WG-7)/\$12,600	No group horse camp in unit - no change, continue to rely on private sector 0	Cooperate with Forest Service in providing group horse camp south of river 0 0.05 (GS-9)/\$1,000	Build group horse camp in park at suitable location (e.g., bison corral, Wright/Baye property, or Squaw Creek campground) \$ 726,000 0.23 (GS-5)/\$6,000 0.3 (WG-7)/\$12,600	Additional campground requires maintenance for grounds, water system and other Public Health Service services Minimum requirements alternative; increase needed for planning and coordination. Other practicable alternative; Increase needed for management, administration, and protection
Camping (canoe)	No designated canoe camps, permit only - no change except monitor canoe camping demand for potential future designation of sites 0 0.01 (GS-6)/\$150	No designated canoe camps, permit only - no change 0	No designated canoe camps, permit only - no change except monitor canoe camping demand for potential future designation of sites 0 0.01 (GS-6)/\$150	No canoe camping in park. Coordinate canoe camping outside unit with Forest Service 0	Minimum requirements alternative; increase required to conduct monitoring and maintain records
Canoe and/or Snowmobile Access	Develop canoe access point at Squaw Creek campground and canoe/snowmobile access point on Wright/Baye property \$ 208,000 0.03 (GS-9)/\$600 0.03 (WG-5)/\$1,260	No formal canoe or snowmobile access point - no change 0	Develop canoe/snowmobile take-out point (either Squaw Creek campground or site on Wright/Baye property) \$ 164,000 0.02 (GS-9)/\$400 0.03 (WG-5)/\$1,260	Develop canoe/snowmobile access points (both Squaw Creek campground and site on Wright/Baye property) \$ 208,000 0.03 (GS-9)/\$600 0.03 (WG-5)/\$1,260	Increase required to monitor and document use and provide protection services if access points are developed within the park Required to maintain access roads to river
Trails	Develop handicap-accessible nature trail in suitable location \$ 23,000 Pave 1,700 ft. 0.05 (WG-5)/\$2,100	Trail system - no change 0	Develop handicap-accessible nature trail in suitable location \$ 23,000 Pave 1,700 ft. 0.05 (WG-5)/\$2,100	Develop handicap-accessible nature trail in suitable location \$ 23,000 Pave 1,700 ft. 0.05 (WG-5)/\$2,100	Needed to maintain handicap trail
Interpretation/Visitor Contact US 85 Overlook	Provide state with technical assistance in their production of new way-side exhibit 0	Roadside pullout - no change 0	Provide state with technical assistance in their production of new way-side exhibit 0	Provide state with way-side exhibit, per future interpretive prospectus *	

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
District Headquarters	<p>At entrance site build a new facility for combined functions:</p> <ul style="list-style-type: none"> - District ranger/interpreter office - Protection security room/library - Storage for supplies and specimens - Public restrooms - Fee collection/permit issuance - Information/publication sales - Interpretive media to be prescribed by future interpretive prospectus, covering themes of wilderness and natural resources and man in the park environment. Use changeable media to extent possible 	<p>Information/trailer/ranger station - no change at entrance facility</p>	<p>At entrance site build a new facility for combined functions:</p> <ul style="list-style-type: none"> - District ranger/interpreter office, - Protection security room/library - Storage for supplies and specimens - Public restrooms - Fee collection/permit issuance - Information/publication sales - Interpretive media to be prescribed by future interpretive prospectus, covering themes of wilderness and natural resources and man in the park environment. Use changeable media to extent possible 	<p>Build "split function" facilities:</p> <ol style="list-style-type: none"> 1) At maintenance area provide interior space for district ranger/interpreter office, and protection and interpretive storage 2) At entrance site provide: <ul style="list-style-type: none"> - Interior space for public restrooms; fee collection/permit issuance; information/publication sales - Outdoor space for plaza* with exhibits to be prescribed by future interpretive prospectus, covering themes of wilderness and natural resources, and man in-the park environment 	<p>Operating increase is needed to supplement existing personnel, enabling facility to be open to serve visitors throughout most of year, particularly spring and fall. Without increase, facility will not be operated to serve visitors' needs for information, restrooms, etc.</p> <p>WG-7 would be needed to maintain new facility and provide janitorial services.</p>
	<p>\$2,167,000</p> <p>0.55 (GS-5)/\$10,871 0.8 (WG-7)/\$33,600</p>	<p>0</p>	<p>\$2,167,000</p> <p>0.55 (GS-5)/\$10,871 0.8 (WG-7)/\$33,600</p>	<p>\$1,629,000 new building at entrance area (4,400 s.f. includes basement)</p> <p>48,000 new building at maintenance area (1,500 s.f.)</p> <p>\$1,677,000</p> <p>1.3 (GS-4&5)/\$21,735 1.0 (WG-7)/\$42,000</p>	
	<p>Add more parking at new entrance facility</p> <p>\$ 31,000</p>	<p>No change in parking at existing entrance station</p> <p>0</p>	<p>Add more parking at new entrance facility</p> <p>\$ 31,000</p>	<p>Add more parking at new entrance facility</p> <p>\$ 31,000</p>	

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
Squaw Creek Campground	Construct waterline from storage tank to visitor/interpretation/protection building \$ 58,000 2,000 l.f. Resize sewage lagoon \$ 56,000	0 No change in sewage lagoon 0	Construct waterline from storage tank to visitor/interpretation/protection building \$ 58,000 2,000 l.f. Resize sewage lagoon \$ 56,000	Construct waterline from storage tank to visitor/interpretation/protection building \$ 58,000 2,000 l.f. Obliterate sewage lagoon \$ 13,000	
Radio Communications	Renovate and fence tower \$ 44,000	No change in radio tower 0	Renovate and fence tower \$ 44,000	Renovate and fence tower \$ 44,000	
Floodplain/Flash-flood Strategy Squaw Creek Campground/ Picnic Area	Floodproof structures and utilities to comply with 100-year flood regulations; provide flood-warning systems and evacuation plans for areas with flood potential floodproof 3 buildings \$ 163,000 0.02 (GS-12)/\$800	Let flood and repair damage; provide flood-warning systems and evacuation plans for areas with flood potential damage unpredictable 0 0.02 (GS-12)/\$800	Floodproof structures and utilities to comply with 100-year flood regulations; provide flood-warning systems and evacuation plans for areas with flood potential floodproof 3 buildings \$ 163,000 0.02 (GS-12)/\$800	Relocate above 100-year floodplain \$ 942,000 new campground 974,000 new utilities 275,000 restore site, \$2,191,000 old campground	
Picnic Area Subtotal	\$ 50,000 floodproof 1 building \$ 50,000 floodproofing 0 shelters - no damage unpredictable \$ 24,000*	0 0 \$ 16,000	\$ 50,000 floodproof 1 building 0 shelters - no damage unpredictable \$ 50,000 floodproofing \$ 16,000	\$ 687,000 new picnic area (relocate) historic structure 275,000 new utilities 114,000 restore site of \$1,076,000 old picnic area Above floodplain, none required 0	Increase needed to prepare warning and evacuation plan
Warning System Subtotal					
Total Flood Prevention Costs	\$ 237,000	\$ 16,000	\$ 229,000	\$ 3,267,000	

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
<u>North Unit Subtotals</u>					
Capital Investment-Development Cost:	\$ 5,006,000	\$ 16,000	\$ 4,228,000	7,716,000	
Staffing/Operations: FTE Cost	$\frac{12.86}{\$ 405,106}$	$\frac{10.18}{\$ 307,765}$	$\frac{12.35}{\$ 386,506}$	$\frac{14.40}{\$ 449,020}$	
10-Year Costs: Staffing/Operations	\$ 5,006,000	\$ 16,000	\$ 4,228,000	\$ 7,716,000	
Grand Total	\$ 3,613,000	\$ 3,078,000	\$ 3,511,000	\$ 3,855,000	
Relative Cost	\$ 8,619,000	\$ 3,094,000	\$ 7,739,000	\$ 11,571,000	
	\$ 2.79	\$ 1.00	\$ 2.50	\$ 3.74	

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
<u>ELKHORN UNIT**</u> <u>Roads/Parking Access Strategy</u> (Note: NPS supports the counties in selecting the "southern route" for new public road across this region.)	Counties select southern route for new road, and NPS connects to unit with short access road and small parking area (rights-of-way from landowners would be necessary)	NPS does not promote use of unit, whether new county road is built or not - no change	Counties select southern route for new road, and NPS connects to unit with short access road and small parking area (rights-of-way from landowners would be necessary)	Counties select northern route for new road, and NPS connects to unit from west and south with long access road and small parking area (rights-of-way from landowners would be necessary)	Increase needed to develop and implement visitor protection and resource management plan with projected increased use brought about by improved access
	½ mile of gravel entrance road \$ 122,000	0	½ mile of gravel entrance road \$ 122,000	3-mile gravel entrance road \$1,005,000	Provide maintenance for access road and parking area, cleanup and garbage removal
	0.1 (GS-9)&12)/\$6,000 0.2 (WG-7)/\$8,400	0.1 (GS-9)&12)/\$6,000 0.2 (WG-7)/\$8,400	0.1 (GS-9)&12)/\$6,000 0.2 (WG-7)/\$8,400	0.1 (GS-9&12)/\$6,000 0.5 (WG-7)/\$21,000	
<u>Natural Resources Zoning and Biotic Management</u>	Zone most of unit cultural; emphasize natural scene (prescribed grazing and fire through resource management planning)	No change, no vegetative management; continue special use permit for grazing	Zone most of unit cultural; emphasize natural scene (prescribed grazing and fire through resource management planning)	Zone most of unit cultural; determine historic scene and manage ranch site accordingly (prescribed grazing and fire for ranch grounds and rest of unit through resource management planning)	Increase need to prepare and carry out natural scene management plan
<u>Cultural Resources Historic Structures</u>	0 0.03 (GS-9)/\$3,000	0 No change in existing remains	0 0.03 (GS-9)/\$3,000	0 0.04 (GS-9)/\$4,000	Required to keep foundation delineations in place and provide area cleanup
<u>Recreation Camping (backcountry)</u>	No designated camps for hikers, horses, and canoes; permit only. No change, except monitor camping demand for potential future designation of sites.	No designated camps for hikers, horses, and canoes; permit only - no change	Designate campsites for backcountry use; permit only	No camping in unit - day use only. Coordinate camping outside unit with Forest Service	Increase required to control and monitor camping use
	\$ 13,000 0.02 (WG-7)/\$840	0 0.02 (WG-7)/\$840	\$ 13,000 0.02 (WG-7)/\$840	\$ 56,000 0.02 (GS-6)/\$1,200 0.5 (WG-7)/\$21,000	Increase to provide protection patrols for reconstructed structures
	0 0.01 (GS-6)/\$150 0.1 (WG-7)/\$4,200	0 0.01 (GS-6)/\$150 0.1 (WG-7)/\$4,200	0 0.01 (GS-6)/\$150 0.1 (WG-7)/\$4,200	0 0.01 (GS-6)/\$150 0.1 (WG-7)/\$4,200	

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
<u>Recreation Picnicking</u>	Provide small picnic area \$ 15,000 5 sites	No picnicking - no change 0	No picnicking 0	Provide small picnic area \$ 15,000 5 sites	
	Stabilize access trail for minimum handicap access	Existing road used for foot access - no change	Stabilize access trail for minimum handicap access	Pave access trail for handicap access	
<u>Trails</u>	new trail, stabilized (3,700 ft.) \$ 27,000	0	new trail, stabilized (3,700 ft.) \$ 27,000	new trail, paved (3,700 ft.) \$ 40,000	Maintain minimum access handicap trail; provide area cleanup
	0.1 (WG-7)/\$4,200 Provide highway and entrance signing \$ 13,000	No signs - no change 0	Provide highway and entrance signing \$ 13,000	0.05 (WG-7)/\$21,000 Provide highway and entrance signing \$ 13,000	Provide upkeep on signs and area cleanup, purchase sign repair materials
<u>Interpretation/ Visitor Contact Signing</u>	0.02 (WG-7)/\$840 Provide tour folder and wayside exhibits for site *	Provide informational handout and map - no change 0	0.02 (WG-7)/\$840 Provide tour folder and wayside exhibits for site *	0.02 (WG-7)/\$840 Provide tour folder and wayside exhibits for site *	Increase is needed for implementing/maintenance of folders and waysides; without it, visitors will be deprived of basic site information
	0.05 (GS-4)/\$989 Offer personal services only during times of high visitation**	Personal services by special appointment (minimal existing staff) - no change 0	0.05 (GS-4)/\$989 Offer personal services only during times of high visitation	0.05 (GS-4)/\$989 Provide significantly more personal services for interpretation in combination with larger protection staff 0	Without accompanying increase, few visitors will receive interpretation of site and its significance; site protection will be threatened by increased visitation and accompanying vandalism
<u>Administration and Facilities Trailhead Parking and Ranch Areas</u>	0.35 (GS-5)/\$6,958 Build small storage building for maintenance and protection near trailhead	0.01 (GS-9)/\$500 No onsite facilities - no change	0.35 (GS-5)/\$6,958 Build small storage building for maintenance and protection near trailhead	0.7 (GS-5)/\$9,957 Build combination interpretive shelter/contact station/storage building near trailhead	Minimum requirements alternative; increase needed to provide protection patrol for the development
	160 s.f. seasonal use only \$ 16,000	0	160 s.f. seasonal use only \$ 16,000	600 s.f. seasonal use only \$ 48,000	

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
	Build tent platforms, small vault toilets, and primitive, cold water shower for seasonal staff 120 s.f., wood (2) \$ 5,000 0.01 (GS-7)/\$150 0.7 (WG-7)/\$29,400	0	0 0.01 (GS-7)/\$150 0.5 (WG-7)/\$21,000	Build tent platforms, small vault toilet, and primitive, cold water shower for seasonal staff 120 s.f., wood (2) \$ 5,000 0.15 (GS-5)/\$1,995 0.04 (GS-7)/\$600 1.0 (WG-7)/\$42,000	Other practicable alternative; increase level of protection patrols in line with value of developments Maintenance required for small building, seasonal tent platforms, floodproof vault toilet, and well to provide sanitary services and utilities to meet PHS laws
Utilities Trailhead Parking and Ranch Areas	Build floodproof vault toilet \$ 45,000 Drill well for drinking water; floodproof \$ 66,000 0.5 (WG-7)/\$21,000	No utilities - no change 0 0	Build floodproof vault toilet \$ 45,000 Haul in drinking water 0 0.5 (WG-7)/\$21,000	Build floodproof vault toilet \$ 45,000 Drill well for drinking water; floodproof \$ 66,000 0.32 (WG-7)/\$13,440	
Floodplain/Flash-Flood Strategy Access and Ranch	Provide flood-warning systems and evacuation plans for areas with flood potential \$ 8,000	Let flood - no change 0	Provide flood-warning systems and evacuation plans for areas with flood potential \$ 8,000	Provide flood-warning systems and evacuation plans for areas with flood potential \$ 8,000	
Elkhorn Unit Subtotals					
Capital Investment-Development Cost	\$ 330,000	0	\$ 244,000	\$ 1,301,000	
Staffing/Operations: FTE Cost:	3.14 \$ 99,727	1.05 \$ 17,800	3.04 \$ 95,527	4.99 \$ 161,821	
10-Year Costs: Development Staffing/Operations	\$ 330,000 \$ 629,000	0 \$ 178,000	\$ 244,000 \$ 606,000	\$ 1,301,000 \$ 970,000	
Grand Total	\$ 959,000	\$ 178,000	\$ 850,000	\$ 2,271,000	
Relative Cost	\$5.39	\$1.00	\$4.78	\$12.76	

<u>Category, Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
<u>SOUTH UNIT</u>					
<u>Natural Resources</u> <u>Bison Corral</u>	Keep in present location; upgrade existing horse corral in northeastern corner of unit as a second facility to handle bison upgrade horse corral \$ 240,000 0.08 (GS-6&9)/\$6,000 0.2 (WG-7)/\$8,400	Keep in present location 0 0.03 (GS-6)/\$3,000	Keep in present location 0 0.03 (GS-6)/\$3,000	Keep in present location; upgrade existing horse corral in northeastern corner of unit as a second facility to handle bison upgrade horse corral \$ 240,000 0.08 (GS-6&9)/\$6,000 0.2 (WG-7)/\$8,400	Existing conditions and minimum requirements alternatives; increases required to maintain existing facility to standard Other practicable alternative; increase required to make improvements and then properly maintain Maintenance required to repair fence corral shutes and additional corral will increase cost of maintenance
<u>Cultural Resources</u> <u>Headquarters Area</u>	Install fire suppression system in Maltese Cross cabin \$ 8,000 Provide fire suppression system in visitor center \$ 27,000	Maltese Cross cabin - no change 0 Museum collections/library (visitor center) - no change 0	Maltese Cross cabin - no change 0 Provide fire suppression system in visitor center \$ 27,000	Install fire suppression system in Maltese Cross cabin \$ 8,000 Provide fire suppression system in visitor center \$ 27,000	
<u>East Entrance Station</u>	Move station; use adaptively elsewhere \$ 19,000 move structures 48,000 adapt. restor. \$ 67,000	Periodic maintenance - no change 0	Use station adaptively in place (researcher or seasonal quarters); provide gravel road for access; haul in water; adapt stone privy as vault toilet \$ 121,000 ½ mi. gravel 48,000 adapt. restor. \$ 169,000 (exist. util. & vault adapt.)	Move station; use adaptively elsewhere \$ 19,000 move struc. 48,000 adapt. restor. \$ 67,000	Adaptive use will require maintenance to structures as well as other support services such as utilities and PHS compliance Increase needed to monitor use and provide periodic protection patrols
	0.02 (GS-6)/\$300 0.2 (WG-7)/\$8,400	0.02 (GS-6)/\$300 0.2 (WG-7)/\$8,400	0.02 (GS-6)/\$300 0.2 (WG-7)/\$8,400	0.02 (GS-6)/\$300 0.2 (WG-7)/\$8,400	

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
Recreation Camping (vehicular)	Redesign spur campsites in Cottonwood campground to pull-through \$ 174,000 0.1 (GS-12,9,6)/\$2,900	Cottonwood campground - no change 0	Redesign spur campsites in Cottonwood campground to pull-through \$ 174,000 0.1 (GS-12,9,6)/\$2,900	Redesign spur campsites in Cottonwood campground to pull-through \$ 174,000 0.1 (GS-12,9,6)/\$2,900	Increase for management and protection of the facility during use season; construction of the Rough Riders horse/group camp has been programmed and is not included in this GMP
	Manage horse/group camp 0.08 (GS-9)/\$2,000	Manage horse/group camp 0.08 (GS-9)/\$2,000	Manage horse/group camp 0.08 (GS-9)/\$2,000	Manage horse/group camp 0.08 (GS-9)/\$2,000	
Camping (canoe)	No designated canoe camps - permit only; no change, except monitor camping demand for potential future designation of sites 0 0.01 (GS-5)/\$150	No designated canoe camps - permit only; no change 0	Canoe camping in designated sites 0 0.01 (GS-5)/\$150	No canoe camping in park; coordinate canoe camping outside unit with Forest Service 0	Increase required to manage, monitor, and document use
	Develop canoe/snow-mobile access point (cooperate with State Historical Society in providing launch site at Medora) \$ 29,000 0.01 (GS-9)/\$150	No formal canoe/snow-mobile access point - no change 0	Develop canoe/snow-mobile access point (cooperate with State Historical Society in providing launch site at Medora) \$ 29,000 0.01 (GS-9)/\$150	Develop canoe/snow-mobile access point (cooperate with State Historical Society in providing launch site at Medora) \$ 29,000 0.01 (GS-9)/\$150	Increase needed to plan and coordinate setup of access point
Trails	Develop 6-mile loop west of river, beginning at Cottonwood campground \$ 193,000 0.14 (GS-9&12)/\$5,800	Trail system - no change 0	Develop 6-mile loop west of river, beginning at Cottonwood Campground \$ 193,000 0.14 (GS-9&12)/\$5,800	Develop 6-mile loop west of river, beginning at Cottonwood Campground \$ 193,000 0.14 (GS-9&12)/\$5,800	Increase needed to lay out trail and to supervise construction; thereafter for patrol and provide maintenance support
	Develop interpretive trail below rim at Painted Canyon \$ 26,000 trail (4,000 ft) 16,000 retaining walls \$ 42,000 0.7 (GS-4)/\$9,957	Trail system - no change 0	Develop interpretive trail below rim at Painted Canyon \$ 26,000 trail (4,000 ft) 16,000 retaining walls \$ 42,000 0.7 (GS-4)/\$9,957	Develop interpretive trail below rim at Painted Canyon \$ 26,000 trail (4,000 ft) 16,000 retaining walls \$ 42,000 0.7 (GS-4)/\$9,957	Increase needed to support interpretive patrols and guided walks on proposed trail. Without it, visitor safety will be threatened, and visitors will not gain an understanding of the park's significance and recreational opportunities

Category Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
	Develop Medora overlook trail, loop about 3 mi. \$ 151,000 trail (18,500 ft.) 32,000 retaining walls \$ 183,000	0	0	Develop Medora overlook trail, loop about 3 mi. \$ 151,000 trail (18,500 ft.) 32,000 retaining walls \$ 183,000	Increase required to provide interpretive patrols and guided walks on proposed trail, thereby enhancing visitor safety and understanding of the park
	0.2 (GS-4)/\$2,660 0.1 (GS-9)/\$150			0.2 (GS-4)/\$2,660 0.1 (GS-9)/\$150	Increase needed to assist in plan and layout of trail
	Develop low-standard trail - Buck Hill to Painted Canyon \$ 10,000 21,000 ft 0.03 (GS-9)/\$600	0	0	Develop low-standard trail - Buck Hill to Painted Canyon \$ 10,000 21,000 ft 0.03 (GS-9)/\$600	Increase needed to plan and layout trail for maintenance; assistance thereafter
	Improve Skyline trail to make handicap accessible \$ 11,000 pave 1,000 ft. \$ 400	0	Improve Skyline trail to make handicap accessible \$ 11,000 pave 1,000 ft. \$ 400	Improve Skyline trail to make handicap accessible \$ 11,000 pave 1,000 ft. \$ 400	
	Build new parking and trailhead at former horse camp west of river \$ 37,000 0.58 (WG-7)/\$24,300	0	0	Build footbridge across river at Peaceful Valley (for horses and hikers) \$ 145,000 450 ft. bridge Build new parking and trailhead at former horse camp west of river \$ 37,000 0.58 (WG-7)/\$24,300	Increase needed to fund interpretive trail leaflet; without it, visitors will not have access to basic information about park resources Increase required to monitor use and provide protection and incidental maintenance after construction
Maintenance for all new trails proposed in alternatives	dirt parking, 15 vehicles \$ 37,000 0.7 (WG-7)/\$29,400		0.2 (WG-7)/\$8,400	dirt parking, 15 vehicles \$ 37,000 0.7 (WG-7)/\$29,400	Provide personal service and supplies to maintain all new or ungraded trails; cyclic maintenance required to keep visitor use trails open

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
Interpretation/ Visitor Contact Painted Canyon	Redesign interior of visitor center. New interpretive prospectus will prescribe media to interpret these themes: -Significance of park as a whole -Geological origin of the badlands -Air quality *	Existing exhibits and audiovisual - no change 0	Redesign interior of visitor center. New interpretive prospectus will prescribe media to interpret these themes: -Significance of park as a whole -Geological origin of the badlands -Air quality *	Redesign interior of visitor center. New interpretive prospectus will prescribe media to interpret these themes: -Significance of park as a whole -Geological origin of the badlands -Air quality *	
	New exhibits per new wayside exhibit plan *	Existing tour guide leaflet - no change 0	New exhibits per new wayside exhibit plan *	New exhibits per new wayside exhibit plan *	
Loop Road	Place stronger interpretive emphasis on this major viewpoint * 0.35 (GS-4)/\$6,654	Leave Buck Hill as is - no change 0	Place stronger interpretive emphasis on this major viewpoint * 0.35 (GS-4)/\$6,654	Place stronger interpretive emphasis on this major viewpoint * 0.35 (GS-4)/\$6,654	Increase required to fund informal interpretation at Buck Hill during hours of peak visitation, thereby enhancing visitor safety and understanding of park
Roads/Parking Peaceful Valley	Provide additional parking and improve circulation at picnic area \$ 172,000	Picnic area - no change 0	Provide additional parking and improve circulation at picnic area \$ 172,000	(See later section for road removal cost due to relocation above 100-year floodplain.) 0	
	Convert Buck Hill spur road to gravel as base deteriorates ½ mile \$ 47,000 9.2 (WG-7)/\$8,400	Convert Buck Hill spur road to gravel as base deteriorates ½ mile \$ 6,000	Convert Buck Hill spur road to gravel as base deteriorates ½ mile \$ 47,000 0.2 (WG-7)/\$8,400	Keep replacing pavement on Buck Hill spur road; improve base and drainage ½ mile \$ 335,000 0.2 (WG-7)/\$8,400	WG-7 required to keep gravel road to Buck Hill graded and safe for visitor travel

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Staffing Rationale
Utilities Painted Canyon	Reduce largest cell to 1/3 existing size and replace lining \$ 56,000 Completely redesign and replace heating system for extended season of operation \$ 242,000 0.35 (GS-4)/\$6,374	Sewage lagoons - no change 0 Solar heating/cooling system (visitor center) - no change 0	Reduce largest cell to 1/3 existing size and replace lining \$ 56,000 Completely redesign and replace heating system for extended season of operation \$ 242,000 0.35 (GS-4)/\$6,374	Reduce largest cell to 1/3 existing size and replace lining \$ 56,000 Completely redesign and replace heating system for extended season of operation \$ 242,000 0.85 (GS-4)/\$15,292	Current funding/staffing levels do not allow NPS to operate facility in the spring and fall; without an increase, facility will be closed at times when visitation demands it to be operated
Loop Road	Build vault toilets at Buck Hill and two other suitable locations \$ 135,000 0.4 (WG-7)/\$16,800	No toilets - no change 0	Build vault toilet at Buck Hill \$ 45,000 0.2 (WG-7)/\$8,400	Build vault toilets at Buck Hill and two other suitable locations \$ 135,000 0.4 (WG-7)/\$16,800	WG-7 required to maintain vault toilets on loop road to meet PHS laws
Floodplain/Flash-Flood Strategy Headquarters Area	Build permanent dike behind visitor center/Maltese Cross cabin; provide warning system and evacuation plan for areas with flood potential \$ 8,000 warning sys. 451,000 dike (1,700' high) \$ 459,000 long, 7' high avg.) 0.2 (WG-7)/\$8,400	Building temporary dike on receiving flood warnings; provide warning system and evacuation plan for areas with flood potential \$ 8,000	Build permanent dike behind visitor center/Maltese Cross cabin; provide warning system and evacuation plan for areas with flood potential \$ 8,000 warning sys. 451,000 dike (1,700' high) \$ 459,000 long, 7' high avg.) 0.2 (WG-7)/\$8,400	Build permanent dike (riverbank location); provide warning system and evacuation plan for areas with flood potential. \$ 8,000 warning sys. 839,000 dike (2,200' high) \$ 847,000 long, 12' high avg.)	Maintenance worker required to perform grounds work
Cottonwood Campground	Floodproof structures and utilities to comply with 100-year flood regulations; provide warning system and evacuation plan for areas with flood potential \$ 8,000 warning sys. 184,000 reloc. sew.trmt. 267,000 waterproof/elev. \$ 459,000 cmpd. struct. 0.04 (GS-12)/\$1,600	Let flood and repair damage; provide warning system and evacuation plan for areas with flood potential damage unpredictable \$ 8,000	Flood proof structures and utilities to comply with 100-year flood regulations; provide warning system and evacuation plan for areas with flood potential \$ 8,000 warning sys. 184,000 reloc. sew.trmt. 267,000 waterproof/elev. \$ 459,000 cmpd. struct. 0.04 (GS-12)/\$1,600	Relocate above 100-year floodplain New campground; new utilities; restore site of old campground \$2,104,000 0.02 (GS-12)/\$800	Increase required to prepare evacuation plan and provide warning system

<u>Category Activity, or Place</u>	<u>Preferred Alternative</u>	<u>Continuation of Existing Conditions Alternative</u>	<u>Minimum Requirements Alternative</u>	<u>Other Practicable Alternative</u>	<u>Staffing Rationale</u>
Peaceful Valley Ranch	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential; provide floodproof comfort station and relocate sewage treatment above 100-year floodplain	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential; provide floodproof comfort station and relocate sewage treatment above 100-year floodplain	Relocate above 100-year floodplain	
	relocate sewage treatment; build new comfort station	damage unpredictable	relocate sewage treatment; build new comfort station	move hist. struct; new road, parking; and util. incl. comfort station site restoration	
	\$ 293,000	0	\$ 293,000	\$ 1,087,000	
	0.2 (WG-7)/\$8,400		0.2 (WG-7)/\$8,400	0.34 (WG-7)/\$14,280	WG-7 required to maintain new comfort station and operate sewage treatment to meet PHS laws
Peaceful Valley Picnic Area	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential; provide 2 floodproof vault toilets	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential	Let flood and repair damage; provide warning systems and evacuation plans for areas with flood potential; provide 2 floodproof vault toilets	Relocate above 100-year floodplain	
	\$ 81,000	0	\$ 81,000	\$ 320,000	
Warning System Subtotal	\$ 16,000	\$ 16,000	\$ 16,000	0.2 (WG-7)/\$8,400	Above floodplain, none required
<u>South Unit Subtotals</u>					
Capital Investment-Development Cost:	\$2,981,000	\$ 38,000	\$2,515,000	\$6,292,000	
Staffing/Operations: FTE Cost	29.16 \$ 938,914	24.64 \$ 792,859	27.73 \$ 885,144	29.71 \$ 946,242	
10-Year Costs: Development Staffing/Operations	\$2,981,000 \$8,732,000	\$ 38,500 \$7,929,000	\$2,515,000 \$8,271,000	\$6,292,000 \$8,772,000	
Grand Total	\$11,713,000	\$7,967,000	\$10,786,000	\$15,064,000	
Relative Cost	\$1.47	\$1.00	\$1.35	\$1.89	

* Development costs not included; would be determined by future interpretive prospectus.

Category, Activity, or Place	Preferred Alternative	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative
PARKWIDE TOTALS				
Capital Investment-Development Cost:	\$8,317,000	\$ 54,000	\$6,987,000	\$15,309,000
Staffing/Operations: FTE Cost	<u>45.16</u> \$1,443,747	<u>35.87</u> \$1,118,424	<u>43.12</u> \$1,367,177	<u>49.10</u> \$1,557,083
10-Year Costs: Development Staffing/Operations	\$8,317,000 <u>\$12,974,000</u>	\$ 54,000 <u>\$11,185,000</u>	\$6,987,000 <u>\$12,388,000</u>	\$15,309,000 <u>\$13,597,000</u>
GRAND TOTAL	\$21,291,000	\$11,239,000	\$19,375,000	\$28,906,000
Relative Cost	\$1.89	\$1.00	\$1.72	\$2.57

Notes:

- All land protection discussions and recommendations, including those for external concerns (such as the Medora airstrip, and air and visual quality relating to regional energy development) are presented in the "Land Protection Plan" element of the document.
- A few subjects affecting the south unit were dropped as planning issues due to the ability of the park to solve them through maintenance measures at existing operational levels. These include the standard of the East River Road, water quality at headquarters, and deployment of staffing at visitor centers.
- The problem of mixed traffic (horses, pedestrians, and vehicles) at the Peaceful Valley horse concession is not adequately documented and requires additional observation by the park staff. Solutions probably can be resolved operationally without specific GMP guidance; if needed, a future DCP could be programmed. Any ground-disturbing proposals would be the subject of future environmental documentation.
- Costs are based on 1985 dollars.
- Capital investment cost estimates are class "C", which are conceptual in nature and based on similar facilities in other parks. These include construction, material, labor, advance and project planning, construction supervision, and facilitating administration services costs.
- Personnel staffing and their operational costs are provided on an annual basis except for the 10-year totals at the end of each unit.

APPENDIX D: TRACT DESCRIPTIONS OF NONFEDERAL LANDS

LANDOWNERSHIP SUMMARY

The land and minerals status maps in the text show the locations of the 10 nonfederal surface tracts (totaling 740.51 acres) within Theodore Roosevelt National Park. Except for 50 acres of state-owned highway right-of-way in the north unit, all tracts have been recommended for fee or scenic easement acquisition. A summary of the type, number, and acreage of nonfederal tracts by park unit follows:

<u>Unit</u>	<u>Type of Tract</u>	<u>Number of Tracts</u>	<u>Total Acreage</u>
North	Private	6	513.97
North	State (highway) right-of-way	2	50.24
Elkhorn	--	--	--
South	Private	<u>2</u>	<u>176.30</u>
Totals		10	740.51

TRACT DESCRIPTIONS

A description of each (surface) tract of nonfederally owned land within the park follows. Each tract description also contains a discussion of protection issues (how and why the tract requires protection), visitor use issues, a recommendation, and rationale for the recommendation.

NORTH UNIT

Tract 01-118

Total acres: 90.52

No improvements



Description

Tract 01-118 is a privately owned (Stenehjem, et ux) parcel at the east end of the north unit, adjacent on the west side to federal ownership. A newly constructed and rerouted section of US 85 cuts through the linear tract, leaving slightly less than one-third of the tract west of the highway and the remainder to the east of the highway. Much of the tract has been modified and scarred by an abandoned curve of former highway, as well as construction of the new highway, which has left one significant cut and several major road fills. In addition, a buried natural gas pipeline has recently been laid through the northeastern corner of the parcel, while a fairly obtrusive WAPA overhead power line angles through the southern portion of the tract.

The topography of the tract varies from gently sloping to moderately steep. Vegetation includes grasses, shrubs, and a limited amount of Rocky Mountain juniper. The property is used only for occasional horse or cattle grazing. It appears to have development potential both east and west of US 85. The right-of-way (3.54 acres) for the access road, between US 85 and the west boundary of this tract, is owned in fee by the USA; however, the mineral rights are privately owned.

Protection Issues

The parcel is in a key location, since US 85 passes nearly through the middle of it, while portions of an abandoned US 85 curve cut through the middle and north end of the tract. Almost any development on the tract would be within clear view of the highway. Development within the southern part of the parcel would be within view of the park entrance and visitor contact area. The mineral rights for the area of the tract are owned by the surface owner and several others. These rights have been leased for potential oil and gas development, but the lease has expired.

Visitor Use Issues

The southwestern and west-central portions of the parcel are very close to the entrance and visitor contact area for the north unit of the park. There could be some spillover of visitor use here. The northeastern part of the tract (east of the highway) contains some hilly terrain with a good view of the Little Missouri River.

Recommendation

1. Fee acquisition of the portion of the tract west of US 85 (about 28 acres)
2. Scenic easement acquisition of the portion of the tract east of US 85 (about 62.5 acres)

Rationale

The portion of the tract west of US 85 lying between the highway and the edge of the federally owned portion of the north unit is a critical area because it includes the US 85 corridor and areas adjacent to the north unit headquarters and entrance road. Any private development in this area would be in direct conflict with preserving the view from the highway and the integrity of the park entrance and visitor contact area.

US 85 forms a boundary between important and scenic park resources and visitor use areas to the west and the area to the east of the highway which contains no important natural features and is not needed for visitor purposes. This area can remain in private ownership, although it should be protected from unsightly developments and major changes in land use, as it is within view of US 85 and the park entrance and visitor center area. The area could still be put to reasonable use by the owner, as defined by the terms of the scenic easement.

NORTH UNIT

Tract 01-119

Total acres: 120

No improvements



Description

Tract 01-119, owned by Maxine McCloskey, lies immediately to the east of tract 01-118. The southern third of the east boundary of the tract is also the east boundary of the north unit of the park. The tract is in a mostly natural condition except for the upper and lower sides of an abandoned curve of US 85, which are found within the north half of the property (the right-of-way for which has reverted to the tract owners). Also, the recently laid natural gas pipeline, described under tract 01-118,

traverses most of the length of this parcel, while the WAPA overhead power line crossing 01-118 also angles laterally across this tract. Topography varies from mostly rolling at the south end to extremely steep at the far north end; much of the tract is fairly rough and uneven. Vegetation includes grasses, shrubs, and Rocky Mountain juniper.

The property is used only for occasional horse or cattle grazing. South of the abandoned highway curve, the tract appears to have some development potential, and parts of the tract have a pleasant view of the Little Missouri River and scenic lands to the south and east.

Protection Issues

Much of this tract is reasonably well-removed from US 85, but most of it can be seen from the highway. Some of the parcel can be seen from the park entrance/visitor contact area, although the view toward the tract from the park entrance area west is dominated by the large fills along the lower side of the highway. The mineral rights for the southern two-thirds of the tract are federally owned, while the rights for the remainder of the tract are privately owned. No new uses or developments have been proposed for the parcel, and it contains no significant park resources or attractions.

Visitor Use Issues

At present there is almost no visitor use of the tract. Access from the highway is rather difficult, and there will probably be little change in the future in the limited use the tract currently receives.

Recommendation

Scenic easement acquisition for the entire tract.

Rationale

Fee acquisition of this tract is not required, as it is in the separated portion of the park east of US 85, an area that contains no park resources or scenic attractions and is not needed for visitor uses. However, the parcel is within the viewshed of US 85 and should be protected from incompatible or excessive development that could degrade the scene for those entering or leaving the north unit. Part of the tract can also be seen from the entrance area of the park. The proposed scenic easement should provide this protection, while permitting reasonable use of the land by the owner.

NORTH UNIT

Tract 01-120

Total acres: 70.36

No improvements



Description

This tract, owned by Odin Stutrud, is the northernmost parcel in the block of private land that forms the eastern end of the north unit. The reconstructed portion of US 85 cuts through the western end of the parcel. This leaves approximately 2 acres of the tract west of the highway; a large, mostly barren fill slope is immediately adjacent to this area, while to the immediate east of the highway a portion of a very large and bare cut slope dominates the scene. The linear tract is superimposed over the edge of an escarpment which runs generally from the park radio tower near the tract's northwest corner almost to its southwest corner. The (upper) area north of the escarpment edge is gently sloped, while the area to the south is a steep, unusable slope above the present US 85 and the abandoned curve section of the highway. Vegetation consists mostly of grasses and shrubs. Some of the steeper slopes, including the large cut, are mostly bare and subject to erosion. This parcel is also crossed by the newly laid (buried) natural gas pipeline installed by the Williston Gas Company.

The property may support occasional grazing and is crossed by commercial trail rides. The portions of the tract above the escarpment edge have agricultural as well as residential development potential. The steeper slopes that are found on half or more of the parcel are virtually unusable.

Protection Issues

US 85 passes through the western one-third of this linear tract, but this is part of an area of new road construction involving large cuts and fills. The 2 acres of the parcel to the west of the highway adjoin important scenic resource areas of the park. The rest (eastern portion) of the tract, which is effectively severed from the rest of the north unit by the highway, is characterized by steep slopes and by gently sloping areas that are above but that can largely be seen from the present highway location. The mineral rights for this tract are owned by the surface owner and several others. The rights have been leased for potential oil and gas development.

Visitor Use Issues

Most of the parcel is not readily accessible or is too steep for visitor use. However, the gently sloping (high) portion near the NPS radio tower can be walked or driven to (when dry) from US 85 by staying above and to the east of the large cutbanks. This area, within the western third of the tract, affords an excellent view of the surrounding country to the south and west. The remainder of the tract is essentially inaccessible, at least from US 85.

Recommendation

1. Fee acquisition of the 2-acre portion of the tract west of US 85.
2. Scenic easement acquisition of the portion of the tract east of US 85 (about 68.36 acres).

Rationale

Except for the small portion of the tract west of US 85, which immediately adjoins scenic resources of the north unit as seen from the highway, fee acquisition of this tract is not essential. It contains no park resources, is basically inaccessible, is separated from the rest of the north unit, and is not needed for visitor purposes. However, the tract is within the viewshed of US 85 and, therefore, incompatible or excessive development that could degrade the scene for those entering or leaving the north unit should not be permitted. The scenic easement should accomplish this, while permitting reasonable use of the land by the owner.

NORTH UNIT

Tract 01-121

Total Acres: 153.09

Limited improvements, as follows:
small mobile home residence, barn,
other minor structures, old rodeo
arena and corral, and fences.



Description

Tract 01-121, the largest and most significant of the private tracts here, is situated at the southeast corner of the north unit. It is the only private parcel containing a residence (of Mrs. Ruth Baye, who has sold the property on a contract for deed to Wright, et al¹ /). The tract straddles US 85, while its entire south boundary is formed by the Little Missouri River. The western edge of the tract, most especially the northwest corner, lies very close to the maintenance and park residence area and a portion of the entrance road for the north unit.

The east side of the tract adjoins the property (outside the park) containing the Wike Dude Ranch, and a road from US 85 through the east side of the tract provides access to the dude ranch. The parcel has been modified from a natural condition to a relatively small extent, although the cut-and-fill reconstruction of a portion of US 85 has affected the north end, while the buried natural gas pipeline recently laid by the Williston Gas Company has left a noticeable south-north swath through the east side of the tract not far from the highway.

1. Deed transfers to the new owners when the payments for the property have been completed.

The topography varies from level to gently sloping. Much of the tract supports grass, sagebrush, and other small shrubs, but there is a large group of hardwood trees and shrubs in the southwest part of the parcel near the river. The tract is used only for stock grazing and as a residence, but it has the potential for development (including recreation) and perhaps farming.

The intended visitor use to be made of this parcel precludes retention of use and personal occupancy. However, should the residence be occupied at the time of acquisition, relocation benefits would be provided for any displacement under the provisions of PL 91-646.

Protection Issues

For the several reasons described above, this parcel is in a key location. Relative to the north unit headquarters area, the park entrance, the highway, and the Little Missouri River, this parcel is more strategically located than any of the other tracts in the area, especially that portion of the tract west of US 85. The tract has also been leased for possible oil and gas development, although the lease has expired and no development has occurred in this area.

Commercial or other intensive development of this property would threaten the integrity of adjacent park lands, including the north unit headquarters and visitor contact area, create an environmental intrusion (especially to the west) for highway and park access road users, and might result in safety hazards along the highway just south of the intersection with the north unit access road. Existing improvements on the west side of this property, however, create only a fairly minor environmental intrusion.

Visitor Use Issues

Other than use of the access road to the Wike Dude Ranch, there is very little public use of the tract. However, there is a need for better public access to the Little Missouri River for boating, fishing, and general recreation, and a developed access site within the tract is proposed. At present, the areas within the highway right-of-way on either side of the Little Missouri River bridge are used for such access, but these areas are narrow and inadequate and lack good and safe roads off US 85. This parcel, not open for public use, offers potentially excellent public river access and shoreline areas, especially west of the highway. The tract could also accommodate some public horse use and access, and possibly a group horse rider camp (it is one of three alternate sites for such a camp).

Recommendation

1. Fee acquisition of the portion of the tract west of US 85 (about 95 acres)
2. Scenic easement acquisition of the portion of the tract east of US 85 (about 58 acres)

Rationale

The location of this tract, especially the portion west of US 85, is extremely sensitive. It is adjacent to the north unit headquarters area, the Little Missouri River, US 85, and the Wike Dude Ranch--just outside the park. It is very accessible, has no steep terrain, and has development potential. Any adverse development within the parcel could be easily seen from US 85 and most of the north unit headquarters and visitor contact area. The tract contains an area (west of the highway) needed for public access to the Little Missouri River and related recreation development. The parcel also contains some developments that intrude on the natural scene to a minor degree.

The portion of the tract east of US 85 is not adjacent to any park resource or developed areas, is not proposed for recreation improvements, has less development potential than the area west of the highway, and is within the area separated from the main part of the north unit. However, this portion of the parcel does border on the river and is within easy view of the highway. The controls that would be provided by the proposed scenic easement should provide adequate protection of this portion of the property, while permitting reasonable use of the land by the owners.

NORTH UNIT

Tracts 01-122 and 01-123

Total acres:

Tract 01-122--40

Tract 01-123--40

No improvements



Description

These two adjoining tracts are owned by Odin Stutrud, who also owns tract 01-120. The parcels are the easternmost of the private lands in this area. They were added to the park in 1978 to include the apex of the curve of US 85 that had previously not been contained within the boundary. This portion of the road has now been relocated, so these two parcels are removed from US 85. Except for the abandoned and reseeded highway right-of-way, these tracts are undisturbed. The topography is gently rolling. The environment is very pleasant, consisting of open grassy areas interspersed with shrubs and scattered trees. From certain points good views are available to the south and east.

The property is used for occasional stock grazing at most. It appears to have development potential.

Protection Issues

These parcels are sufficiently removed from US 85 and the park entrance/visitor contact area that most potential development of the property would not be visible from these two areas. However, developments highly incompatible with park purposes as well as any significant amount of traffic exiting to or from the properties at the highway could cause adverse impacts for park visitors. The subsurface rights to tract 01-122 have been leased for potential oil and gas development.

Visitor Use Issues

These tracts are neither used nor needed for public purposes. The owner has indicated an interest in developing a home on one of his three tracts. Most likely, he would want to build on one of these two.

Recommendation

A scenic easement is needed to ensure that reasonable uses of this area continue and negative impacts on sensitive areas to the west do not develop.

Rationale

As stated above, these two tracts are removed from the present location of US 85 and are not needed for public purposes. A scenic easement should provide adequate protection, while permitting reasonable use of the land, including development of at least one residence, by the owner.

NORTH UNIT

Tracts 01-124 and 01-125

Total Acres: Tract 01-124--40.60

Tract 01-125--9.64

Improvements involve approximately 1.4 miles of US 85, including right-of-way fences.



Description

All of this land is area that has been purchased in fee by the North Dakota State Highway Department as right-of-way for the development of US 85. All of these two sections are part of a stretch of highway that was recently reconstructed and improved; thus, all of the road here is high standard and involves several substantial cuts and fills (some of which are on park land).

Tract 01-124 passes through privately owned tracts 01-118 and 01-121, while tract 01-125 passes through privately owned tract 01-120.

Protection Issues

The highway in this location may be considered to be a permanent man-made feature upon the land. No protection issues are involved, aside from those that involve the privately owned lands on either side of the highway.

Visitor Use Issues

These are discussed in the tract descriptions for tracts 01-118, 01-119, 01-120, 01-121, and 01-122/123.

Recommendation

Continued state right-of-way ownership. No federal interest required.

Rationale

There are no natural or historical values contained within the highway right-of-way to require protection. Any protection needed will be adequately provided by the North Dakota State Highway Department.

SOUTH UNIT

Tract 03-106

Total acres: 149.00

No improvements



Description

Tract 03-106 is one of only two privately owned surface tracts in the south unit. These parcels, which are owned by Norbert Sickler and wife, are situated immediately to the north of I-94. This, the larger and more westerly of the two tracts, is largely (but not totally) visible from the highway. The north side of the parcel borders on the south edge of the former right-of-way for Highway 10, which has been abandoned and obliterated. The tract is completely undeveloped and lacks any form of access. This parcel, held by the previous owner at the time of interstate construction, was not provided any access from the new highway by the state. There is also no access to this location from the area of the park to the interstate. A high chain-link fence separates the south side of the tract from the interstate right-of-way.

The topography varies from nearly level to rolling, with some small buttes, steep slopes, and rough areas. Vegetation consists primarily of grass, with a few scattered shrubs, cottonwoods, and junipers. The tract is part of a scenic area of badlands, viewed by more people (from the interstate) than any other part of the park. The property has not been used by the present and previous owners.

Protection Issues

The parcel is in a critical location since it is a part of a continuous area of scenic badlands, and because I-94 forms the southern boundary of the property, and most development or incompatible uses would be clearly visible from the highway. Development of the tract or an access road to the tract across nearby park lands would be unacceptable for these reasons.

The mineral rights for the area underlying the parcel are split between three different subsurface tracts (one in each of the three sections involved) and three different owners or dual owners. Two of these three tracts have been leased for possible oil and gas development, although no development of the subsurface resources has been attempted.

Visitor Use Issues

Since the tract is fenced along the interstate right-of-way and has no access, it receives virtually no visitor use. The only potential for visitor use would be through development of a trail through the area; however, none is planned, so use should remain extremely limited.

Recommendation

Fee acquisition.

Rationale

This nonaccessible parcel is a continuous part of a critical resource area highly visible for the most part from I-94. There are no improvements or uses on these tracts and other than passive uses, none would be acceptable and compatible with the preservation of the visual scene in a totally natural area; therefore, scenic easement would not be practical. Any road access to the tract would damage the sensitive natural resources and the visual scene described above. To guarantee complete, long-term protection, the land must be acquired in fee.

SOUTH UNIT

Tract 03-108

Total acres: 27.30

No improvements



Description

Tract 03-108 is the additional (of two) privately owned surface tracts in the south unit. The information describing tract 03-106 also applies to this parcel, with the following differences. This tract is smaller and approximately $\frac{1}{2}$ mile east of tract 03-106. The old (obliterated) right-of-way for Highway 10 forms the east boundary of the tract. The property more or less centers on a gulch and the terrain is mostly steep-sided, with more gentle but limited terrain at the bottom. All of the tract is visible from I-94.

Protection Issues

This parcel is also in a very critical location, since any development or incompatible use of the property would be visible from the interstate. The tract would be difficult to develop, but any development on it would be unacceptable from a resource protection and visibility standpoint. The mineral rights are owned by several individuals, not including the surface owner. These rights have not been leased.

Visitor Use Issues

The comments found under tract 03-106 also apply to this tract. This area is seen in passing by many thousands, but is not used per se.

Recommendation

Fee acquisition.

Rationale

Same as for tract 03-106.

APPENDIX E: TABULAR LISTING OF NONFEDERAL
SUBSURFACE (MINERAL) OWNERSHIPS

As noted in the text and shown on the land and minerals ownership maps, there are approximately 1,317 acres of nonfederal subsurface rights within Theodore Roosevelt National Park. To date, no known development of these rights has occurred, either within or outside the park through directional drilling. The primary potential of these subsurface resources is for oil and gas recovery. Some coal (lignite) may exist, but there have been no attempts to extract coal from any area near the park. For a number of the nonfederal mineral tracts, the federal government (USA) owns the coal resources.

The following subsurface ownership lists present detailed information on nonfederal minerals and mineral leases within the park. These may be compared with the mineral status maps, which show tract ownership numbers, locations, and interests owned or leased. However, the complexity of and metes-and-bounds surveys for a number of mineral tracts in the southeastern part of the south unit made it difficult to show the exact location and interrelationship of the ownerships involved.

The tracts in the south unit that apparently have shared ownership between Billings County and the USA will require some form of title quieting action or agreement to assure federal control, as explained in the "Land Protection Plan."

This information is subject to change and updating. This possibility could result from (1) continuing changes in ownership and leasing status since the data was collected in 1983-84; (2) further analysis of records data collected and finalization of title reports by the National Park Service; (3) clarification of ownership questions; and/or (4) the chance that additional information on the existence of outstanding mineral interests will be brought to the attention of the National Park Service. The data presented in the lists are based on more detailed title reports and other information collected by the NPS Division of Energy, Mining, and Minerals in Denver--principally through research of courthouse records.

Nonfederal Subsurface (Minerals) Ownership (Showing Recommended Protection)

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acreage	Interest or Protection Needed	Priority	Other
<u>NORTH UNIT</u>					
01-132	County of McKenzie (A/C 50%)	40.00	None	5	
01-133	Odin C. Stutrud (A/C 16.67%)	110.36	None	5	
01-134	Annette Findlay (A/C 16.67%)	--	None	5	
01-135	Gladys Tanberg (A/C 16.67%)	--	None	5	
01-136	Aminoil U.S.A., Inc. (OGLE 16.67%)	--	None	5	Nonfederal oil and gas lease issued 3/16/81 by Odin C. Stutrud and Hazel Stutrud to Aminoil U.S.A., Inc. Primary term of lease is 3 years with extension privileges. No release recorded.
01-137	Aminoil U.S.A., Inc. (OGLE 16.67%)	--	None	5	Nonfederal oil and gas lease issued 3/16/81 by Annette Findlay and Donald A. Findlay (wife and husband) to Aminoil U.S.A., Inc. Primary term of lease is 3 years with extension privileges. No release recorded.
01-138	Aminoil U.S.A., Inc. (OGLE 16.67%)	--	None	5	Nonfederal oil and gas lease issued 3/16/81 by Gladys Tanberg and John Tanberg (wife and husband) to Aminoil U.S.A., Inc. Primary term of lease is 3 years, with extension privileges. No release recorded.
01-139	Odin C. Stutrud and Hazel G. Stutrud (H&W) (A/C)	40.00	None	5	
01-140	Judith Stenehjem, Phillip O. Johnson, Maxwell H. Johnson, Maxine McCloskey (A/C 62.50%)	130.52	Acquisition of mineral rights for portion of ownership west of US 85 (about 28 acres); remainder - no interest.	2	
01-141	Philip O.C. Johnson (A/C 37.50%)	--	Acquisition of mineral rights for portion of ownership west of US 85 (about 28 acres); remainder - no interest	2	
01-142	Unknown	9.64	None	--	Surface for this tract is highway right-of-way owned by state of North Dakota.
01-143	Federal Land Bank of St. Paul, a corp. (A/C 50%)	70.36	Acquisition of mineral rights for portion of ownership west of US 85 (about 2 acres); remainder - no interest.	2	
01-144	Ben A. Baye (A/C 100%)	153.09	Acquisition of mineral rights for portion of ownership west of US 85 (about 95 acres); remainder - no interest.	2	Owner is deceased. Mineral title will require clarification.

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acreage	Interest or Protection Needed	Priority	Other
01-145	Unknown	40.60	None	--	Surface of this tract is highway right-of-way owned by state of North Dakota. Surface of this tract is USA-owned right-of-way for the north unit road.
01-146	P O.C. Johnson, et. ux. (FM)	3.54	Acquisition of mineral rights	2	
01-147	Deleted				
01-148	Deleted				
01-149	Deleted				Title to the bed of the Little Missouri River is being contested by the federal government and the state of North Dakota. Ownership as of this date is in question. The mineral rights, should they be determined to be the state's, are not needed, as state has indicated it would not lease and permit mineral development within the park. NOTE: This acreage is not included in the compilation of non-federal subsurface ownership for the park.
01-150	Undetermined	524.20	None	--	
<u>SOUTH UNIT (Medora Area)</u>					
02-126	Meridian Land and Mineral Co. (A/OGH)	9.23	Acquisition of mineral rights	1	These mineral rights underlie the park headquarters area at Medora. These mineral rights underlie the park headquarters area at Medora. Nonfederal oil and gas lease issued 11/03/80 by Burlington Northern, Inc. to Coastal Oil and Gas Corp. and Al-Aquitaine Exploration, Ltd. Primary term of lease is 5 years with extension privileges. (Milestone Petroleum, Inc. is the current owner of oil and gas interest in leased area). No release recorded. These mineral rights underlie the park headquarters area at Medora.
02-127	Milestone Petroleum, Inc. (OGH)	--	Acquisition of mineral rights	1	
02-128	Coastal Oil and Gas Corp. - 75% Al-Aquitaine Exploration, Ltd. - 25% (OGLE 75%)	--	Acquisition of leasehold rights	1	
<u>SOUTH UNIT (North-Central Area)</u>					
03-117	County of Billings (ALL 50%)	144.78	Acquisition of mineral rights by quitclaim deed, agreement or other (not purchase)	3	These are two separated areas in the north-central part of the south unit that are apparently owned by the USA and Billings County (50% each).
<u>SOUTH UNIT (Northeastern Boundary)</u>					
03-118	W. T. Vangergriff & William I. Stapp (A/C 43.75%)	80.00	Acquisition of mineral rights	4	
03-119	Hancock Enterprises (OG 3.125%)	--	Acquisition of mineral rights	4	
03-120	Mary Alice Fortin (A/C 3.125%)	--	Acquisition of mineral rights	4	

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acreage	Interest or Protection Needed	Priority	Other
03-121	William R. Everett, Mary Lynn Kubik & Karin Jane Kathrein (A/C 25.00%)	--	Acquisition of mineral rights	4	
03-122	Wilma T. Higgins (A/C 15.625%)	--	Acquisition of mineral rights	4	
03-123	F. A. Dietrich (A/C 3.125%)	--	Acquisition of mineral rights	4	
03-124	Peter L. Guth (A/C 3.125%)	--	Acquisition of mineral rights	4	
03-125	John M. Kagy (A/C 3.125%)	--	Acquisition of mineral rights	4	
03-126	Mary A. Fortin (A/COG 1.5625%)	--	Acquisition of mineral rights	4	
03-127	Hancock Enterprises (A/COG 1.5625%)	--	Acquisition of mineral rights	4	
03-128	Donald C. Slawson (OGLE 44.45%)	--	Acquisition of leasehold rights	4	Involves five nonfederal oil and gas leases which are adjacent to and may be within Frank's Creek KGS.
03-129	K & E Petroleum, Inc. - 47.5%	--	Acquisition of leasehold rights	4	Involves two nonfederal oil and gas leases which are adjacent to and may be within Frank's Creek KGS.
03-130	CZOR Petroleum, Inc. - 5% (OGLE 11.55%) International Tubular Supply (OGLE 19.00%)	--	Acquisition of leasehold rights	4	Involves a nonfederal oil and gas lease which is adjacent to and may be within Frank's Creek KGS.
03-131 and 03-132	McAlester Fuel Co. (OGLE 20.00%) Brazos Young Corp. (OGLE 5.00%)	--	Acquisition of leasehold rights	4	Involves two nonfederal oil and gas leases which are adjacent to and may be within Frank's Creek KGS.
<u>SOUTH UNIT (Southeastern Portion)</u>					
03-133	Unknown	15.0	Acquisition of mineral rights	4	
03-134	Burlington Northern Inc. (ALL)	40.5	Acquisition of mineral rights	4 (old Hwy 10 right-of-way) 2	
03-135	Coastal Oil and Gas Corp. - 75% and Al-Aquitaine Exploration, Ltd. - 25% (OGLE 75%)	--	Acquisition of leasehold rights	(Surface tract 03-106) 4 (old Hwy right-of- way) 2 (Surface tract 03-106) 2	Nonfederal oil and gas lease issued 12/30/80 by Burlington Northern Railroad Co. to Coastal Oil and Gas Corp. and Al-Aquitaine Exploration Ltd. Primary term of lease is 5 years with extension privileges. No re-lease recorded.
03-136	Kathleen A. O'Connell (A/U)	107.6	Acquisition of mineral rights	2	Clarification of mineral title necessary.

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acceage	Interest or Protection Needed	Priority	Other
03-137	Milestone Petroleum Inc. (OGH)	68.0	Acquisition of mineral rights	2 (Surface tract 03-106) 4 (Remainder)	
03-138	Meridian Land and Mineral Co. (A/OGH)	--	Acquisition of mineral rights	2 (Surface tract 03-106) 4 (Remainder)	
03-139	Coastal Oil and Gas Corp. - 75% Al-Aquitaine Exploration Ltd. - 25% (OGLE 100%)	--	Acquisition of leasehold rights	2 (Surface tract 03-106) 4 (Remainder)	Nonfederal oil and gas lease issued 12/31/80 by Burlington Northern Railroad Co. to Coastal Oil and Gas Corp and Al-Aquitaine Exploration Ltd. Primary term of lease is 5 years with extension privileges (Milestone Petroleum Inc. is the current owner of oil and gas interest leased area). No release recorded.
03-140	Bertha Ceperley (A/C 12.963%)	261.00	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-141	Shirley Althoff (A/C 1.851%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-142	Dorothy Coulter (A/C 1.851%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-143	Nona Anderson (A/C 16.667%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-144	Kathleen M. Shirley (A/C 33.33%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-145	Eleanor E. Carle (A/C 25.00%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acresage	Interest or Protection Needed	Priority	Other
03-146	Lawrence K. and Greta Madsen (A/C 8.333%)	--	Acquisition of mineral rights	2 (Surface tract 03-108) 4 (Remainder)	
03-147	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 100%)	320.00	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975)	--	Federal oil and gas lease M30616(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit Agreement. Use of surface of leased land for leasehold operations is prohibited.
03-148	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 100%)	220.23	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975)	--	Federal oil and gas lease M30613(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit agreement. Use of surface of leased land for leasehold operations is prohibited.
03-149	Amerada Hess Corp. (UOGLE 100%)	15.3	Acquisition of leasehold rights	4	Federal oil and gas lease M21358(ND), effective 5/01/57. Committed to the Fryburg-Heath-Madison Unit agreement. This lease predates this area being incorporated into the park. The lease does not contain a "no operational use of surface" clause.
03-150	State of North Dakota (ALL 50.00%)	51.3	Acquisition of mineral rights	4	
03-151	Ada Ferguson (ALL 25%)	13.6	Acquisition of mineral rights	4	
03-152	Phillips Petroleum Co. (ALL 25%)	26.66	Acquisition of mineral rights	4	
03-153	Phillips Petroleum Co. (ALL 25%)	11.08	Acquisition of mineral rights	4	
03-154	State of North Dakota involves ownership of surface and minerals)	2.25	None	-	This narrow parcel of land adjoins I-94 and the access road to the Painted Canyon overlook. This was apparently an excess taking of right-of-way for the interstate. Nonfederal oil and gas lease issued by Ada Ferguson to Amerada Hess Corp., 10/13/77. Lease is within the Fryburg-Heath-Madison Unit area.
03-155	Amerada Hess Corp. (UOGLE 25%)	13.6	Acquisition of leasehold rights	4	Nonfederal oil and gas lease issued to Donald B. Sass by the state of North Dakota on 9/27/73. Lease assigned by Donald B. Sass to Amerada Hess Corp., 2/28/74. Committed to Fryburg-Heath-Madison Unit. Nonoperative lease.
03-156	Amerada Hess Corp. (UOGLE 50%)	37.9	Acquisition of leasehold rights	4	Nonfederal oil and gas lease issued to Stanolind Oil and Gas Co. by the state of North Dakota on 1/26/54. Lease assigned by Stanolind Oil and Gas Co. to Clinton Oil Co., 1/27/72. Insofar as it covers the SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 36, T140N, R101W, lease is within the Fryburg-Heath-Madison Unit area.
03-157	Clinton Oil Co. (UOGLE 50%)	13.47	Acquisition of leasehold rights	4	
03-158	Amerada Hess Corp. (UOGLE 25%)	2.991	Acquisition of leasehold rights	4	Federal oil and gas lease M14903(ND), effective 9/10/53. Committed to the Fryburg-Heath-Madison Unit agreement. This lease predates this area being incorporated into the park. The lease does not contain a "no operational use of surface" clause.

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acreage	Interest or Protection Needed	Priority	Other
03-159	Amerada Hess Corp. (UOGLE 25%)	11.08	Acquisition of leasehold rights	4	Federal oil and gas lease M21357(ND), effective 2/09/52. Lease committed to the Fryburg-Heath-Madison Unit. This lease predates this area being incorporated into the park. This lease does not contain a "no operational use of the surface" clause.
03-160	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 25%)	27.80	None (This is a portion of the federal subsurface leased to Amerada Hess in 1975)	4	Federal oil and gas lease M30614(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit agreement. Use of surface of leased land for leasehold operations is prohibited. (Lease document cites U.S. interest as 50%; however, based on title research, it appears that only a 25% mineral interest is owned by the United States).
03-161	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 25%)	0.310	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M30620(ND), effective 2/01/75. Committed to the Fryburg-Heath-Madison Unit agreement. Use of surface of leased lands for leasehold operations is prohibited. (Lease document cites U.S. interest as 50%; however, based on title research, it appears that only a 25% mineral interest is owned by the United States).
03-162	State of North Dakota (ALL)	4.86	Acquisition of mineral rights	4	Acquisition of basic rights, if possible, may not require purchase from state.
03-163	Amerada Hess Corp. (UOGLE 100%)	4.86	Acquisition of mineral rights	4	Nonfederal oil and gas lease issued to Donald B. Sass by the state of North Dakota on 9/27/73. Lease, assigned by Donald B. Sass to Amerada Hess Corp., 2/28/74. Committed to the Fryburg-Heath-Madison Unit. Non-operative oil and gas lease.
03-164	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. 00.24972% UOGLE 100%) Samuel V.S. Fisher (C)	233.89	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M30615(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit. Use of surface of leased lands for leasehold operation is prohibited.
03-165	Samuel V.S. Fisher (C)	4.07	Acquisition of mineral rights	4	
03-166	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 100%) Herbert G. Ollis (C 50%) M.L. Lasson (C 50%) DELETED	28.02	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M30612(ND), effective 2/01/75. Committed to the Fryburg-Heath-Madison Unit. Use of surface of leased lands for leasehold operations is prohibited.
03-167	Herbert G. Ollis (C 50%) M.L. Lasson (C 50%) DELETED	35.8	Acquisition of mineral rights	4	
03-168	M.L. Lasson (C 50%) DELETED	35.8	Acquisition of mineral rights	4	
03-169 and 03-170 and 03-171	Amerada Hess Corp. (UOGLE 100%)	12.3	Acquisition of leasehold rights	4	Federal oil and gas lease BLM-A 035297(ND), effective 10/01/57. Committed to the Fryburg-Heath-Madison Unit. This lease predates this area being incorporated into the park. The lease does not contain a "no operational use of the surface" clause.

Tract (Ownership) Number	Owner(s) or Lessee(s) and Interest(s) Owned	Acreage	Interest or Protection Needed	Priority	Other
03-172	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 100%)	318.21	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M-30617(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit. Use of surface of leased lands for leasehold operations is prohibited.
03-173	State of North Dakota (A/C 50%)	3.05	Acquisition of mineral rights	4	EXCEPTION: A 33-foot-wide strip of land adjacent to the northernmost and westernmost boundary line of sec. 6 within the national park. Mineral ownership of this strip appears to be as follows: John Gawryliuk (A/C-50%), state of North Dakota (A/C-50%).
03-174	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 50%)	3.05	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M-30618(ND), effective 2/01/75. Committed to the Fryburg-Heath-Madison Unit. Use of surface of leased lands for leasehold operations is prohibited.
03-175	Amerada Hess Corp. - 99.75028% Coastal Oil and Gas Corp. - 00.24972% (UOGLE 100%)	133.26	None (This is a portion of the federal subsurface leased to Amerada-Hess in 1975).	--	Federal oil and gas lease M-30619(ND), effective 1/01/75. Committed to the Fryburg-Heath-Madison Unit. Use of surface of leased lands for leasehold operations is prohibited.

ELKHORN UNIT

03-176	Shirley R. Shapiro & Evelyn M. Rauch (A/C 60%)	44.72	Acquisition of mineral rights	3	
03-177	Geneva Stedman (A/C 9.0%)	44.72	Acquisition of mineral rights	3	
03-178	Robert J. and Joseph R. Kellogg (A/C 9.0%)	44.72	Acquisition of mineral rights	3	
03-179	Kathleen Kellogg (A/C 22%)	44.72	Acquisition of mineral rights	3	

Symbols Legend (Interest Owned)

- ALL - All Minerals
 - A/C - All Minerals Except Coal
 - A/COG - All Minerals Except Coal, Oil, and Gas
 - A/OGH - All Minerals Except Oil, Gas, and Hydrocarbons
 - A/U - All Minerals Except Uranium
 - FM - Fluid Minerals
 - C - Coal
- OG - Oil and Gas
 OGH - Oil, Gas, and Hydrocarbons
 OGLE - Oil and Gas Lease
 UOGLE - Unitized Oil and Gas Lease
 OGLEA - Oil and Gas Lease Application
 50% - Percentage owned by the particular entity (example)

NOTE: 1. Different tract numbers are used for each separate interest owned (by single or joint owners). A particular area may involve more than one tract number.
 2. See "Land Protection Plan" text for explanation of priority numbers.
 3. The information in this table is current to 1/17/84.

APPENDIX F: SUMMARIES OF FLOODPLAIN AND WETLAND
PROCEDURES AND GUIDELINES

E.O. 11988 FLOODPLAIN MANAGEMENT (05/24/77)

Each agency shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

Each agency has a responsibility to evaluate the potential effects of any actions it may take in a floodplain.

Before taking any action, each agency shall determine whether the proposed action will occur in a floodplain (determination of floodplain must be made based on HUD floodplain maps).

If an agency has determined or proposes to conduct, support, or allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the head of the agency finds that the only practicable alternatives consistent with the law and with policy requires siting in a floodplain, the agency shall, prior to taking action, (i) design or modify its actions in order to minimize potential harm to or within the floodplain and (ii) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.

Structures must be elevated above the base flood level rather than filling in land.

The regulations and procedures established shall, at a minimum, require the construction of federal structures and facilities to be in accordance with the standards and criteria of the National Flood Insurance Program.

If property used by the general public has suffered flood damage or is located in an identified flood hazard area, the responsible agency shall provide conspicuous delineation of past and probable flood height.

Base flood -- flood which has a 1% or greater chance of occurrence in any given year.

Floodplain -- lowland and relatively flat areas adjoining inland and coastal water including floodprone areas of offshore islands, including, at a minimum, that area subject to a 1% or greater chance of flooding in any given year.

E.O. 11990 PROTECTION OF WETLANDS (05/24/77)

Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

Each agency shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (i) that there is no practicable alternative to such construction, and (ii) that the proposed action included all practicable measures to minimize harm to wetlands which may result from such use.

Each agency shall consider factors relevant to a proposal's effect on the survival and quality of the wetlands:

- a) public health, safety, and welfare; pollution; flood and storm hazards; sediment and erosion
- b) maintenance of natural systems
- c) other uses of wetlands in the public interest, including recreational, scientific, and cultural uses

New construction -- dredging, draining, channelizing, filling, diking, impounding, and related structures or facilities

Wetlands -- those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction

Wetlands include swamps, marshes, bogs and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

FLOODPLAIN MANAGEMENT GUIDELINES FOR IMPLEMENTING
E.O. 11988 - WATER RESOURCES COUNCIL (02/10/78)

Agencies are required to:

- avoid the base floodplain; unless it is the only practicable alternative
- adjust to the base floodplain, if it cannot be avoided in order to:
(1) reduce the hazard and the risk of flood loss; (2) minimize the impact of floods on human safety, health, and welfare; and (3) restore and preserve the natural and beneficial floodplain values.

By including planning programs as a separate item, the order emphasizes that all actions, even those that do not result in a physical change, must be evaluated for their impacts to or within the floodplain.

HUD/FIA (FIA is now FEMA) floodplain maps are established as the minimum standards for making the determination of whether the proposed action will be located in a floodplain. Even if no map data exists, the intent is that the agency proposing the action perform or have performed a determination of whether a proposed action is located in a floodplain.

Each agency shall take floodplain management into account when formulating its own water and land use plans as well as evaluating the water and land use plans of others.

The flood hazard aspects and the floodplain value aspects should be expressed in terms of (1) potential for monetary loss; (2) human safety, health, and welfare; (3) shifting of costs or damage to others; and (4) potential for affecting the natural and beneficial floodplain values.

Each agency will be required to assess the degree of hazard associated with its program activities under a possible range of flood conditions. Then the agency must state the specific kinds of actions or adjustments that would be employed to comply with this action.

Agencies will follow the requirements of the National Flood Insurance Program (NFIP). Under the NFIP, residential structures (including basements) are required to be elevated to or above the base flood level. Nonresidential structures may be elevated as described above, or floodproofed watertight to or above the base flood level.

The cumulative effect of the proposed action, when combined with all existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community wherein the action is proposed.

The term "new construction" includes construction associated with: (1) new structures and facilities; (2) the reconstruction of existing structures and facilities following damage caused by fire, flood, or other hazard; and (3) the improvement of existing structures and facilities by rehabilitation, repair, alteration or addition.

Agencies will consider whether proposed actions will: (1) result in an increase in the useful life of the structure or facility in question; (2) maintain the investment at risk and exposure of lives to the flood hazard; or (3) eliminate an opportunity to restore the natural and beneficial floodplain values.

All structures shall be elevated using open works, e.g., columns, walls, piers, piles, etc., rather than fill.

Floodproofing measures for certain types of facilities, e.g., sewer interceptor lines and other types of piping, and bridges and roads have been developed, and are familiar to agencies having responsibilities in those areas. Other flood protection measures including warning and evacuation plans, etc. are discussed in the Unified National Program for Floodplain Management.

The conspicuous delineation of past and probable flood heights is required on property which has been or could be subjected to flooding and is used by the general public.

DECISION-MAKING PROCESS

1. Determine if the proposed action is in the base floodplain.
2. Make public the intent to locate a proposed action in the base floodplain. Provide a description of the proposed action with ample lead time for meaningful input from the public.
3. If the action is in the base floodplain, identify and evaluate the practicable alternatives to locating in the base floodplain.
4. Identify if the proposal has impacts in the base floodplain or directly or indirectly supports floodplain development that has additional impacts.
5. If the proposed alternative has identifiable impacts, these effects must be minimized. Further, natural and beneficial floodplain values must be restored and preserved.
6. Reevaluate the proposed alternative taking into account the identified impact, the steps to minimize those impacts, and opportunities to restore and preserve floodplain values.
7. If the only practicable alternative is in the base floodplain, public notice of the reasons must be given for this finding.
8. After a reasonable period to allow for public response, the proposed action can be implemented.

Descriptions:

Riverine floodplains are valley areas adjacent to any size stream or river which can be covered by floodwaters. Flooding in these areas results from excessive rainfall, snowmelt, or a combination thereof. If runoff is increased to the point that the carrying capacity of the channel is exceeded, flooding occurs. Flooding also occurs when the capacity of the stream channel is reduced by natural obstructions (ice or debris dams, sediment, and vegetation) and man-placed obstruction.

Coastal floodplains border lakes, estuaries, oceans, or similar bodies of standing water. Flooding in these areas is due to landward flows caused by unusually high tides, waves from high winds, storm surges, tsunamis, or by a combination of these causes.

Special floodplain areas encompass sheet flow or shallow flooding areas, wetlands, and sinkholes.

Within the base floodplain, extreme hazard is associated with those portions of riverine and coastal floodplains nearest to flood sources, where depths and velocities of flood waters are greatest.

DETERMINATION OF FLOODPLAIN

The following agencies have some form of expertise in floodplains and should be contacted for information.

Federal Insurance Administration (now Federal Emergency Management Agency)

Flood Hazard Boundary Maps have been developed for most communities and are available upon request. Flood Insurance Study Reports are also available (detailed engineering reports). Requests for floodplain management services and a list of experienced consulting engineers are available from the Washington, D.C. office.

The National Flood Insurance Headquarters should be contacted first to see if there are any FHBMs for the area. Because this system is usually run for communities, be sure to specify when talking to them that you need unincorporated portions of a certain county.

Maryland (800-638-6620)

Soil Conservation Service

As part of the SCS Floodplain Management Assistance Program, each State Conservationist carries out cooperative Flood Hazard Analyses on request of local government, in accordance with a Joint Coordination Agreement with the responsible state agency. SCS flood hazard reports contain floodplain delineation on aerial photographs, flood profiles, and discharge and floodway data.

Check with state or field office.

If number is not known, contact: Chief, Floodplain Management and Special Projects Branch, River Basins Division, SCS (8-447-7697)

Army Corps of Engineers

The Corps' separately funded Flood Plain Management Services Program has units in 47 offices located throughout the country that provide information and assistance in flood-related matters. They maintain a file of floodplain information, survey, and other reports containing floodplain delineations, flood profiles, and data on flood discharges and hydrographs.

Check with District Office. Sacramento District Office (8-448-3550)

If number is not known, contact: Chief, Flood Plain Management Service, Washington, D.C. (8-202-272-0169) or the division office.

Southwestern Division, Dallas, TX (214-767-2310)

Missouri River Division, Omaha, NB (402-221-7270)

North Central Division, Chicago, IL (312-353-6531)

NOAA - National Weather Service

Floodplain information and interpretive assistance for specific points on larger rivers of the US can be obtained from the National Weather Service.

Federal Housing Administration

The civil engineer at the 78 local or regional offices has specific knowledge of flood elevations for many urban locations and can provide knowledge of material available to assist in making a determination of floodplain location.

Utah Regional Office (8-588-5237)

If number is not known, contact FHA (8-755-5111)

US Geological Survey

Users Assistance Centers at 48 locations can provide (a) factual information on flood peaks and discharges, flood depths, and velocities, profiles of the water surface during major floods, areas inundated during major floods, time-of-travel of flood wave, and sediment transport data; (b) interpretive information regarding flood-frequency relations, estimates of 10-, 50-, 100-, and 500-year flood discharges, computed water surface profiles, and floodprone areas delineated on topographic maps in most communities in the U.S. with known flood problems; and (c) assistance in minimizing flood losses by quickly identifying areas of potential flood hazards.

Salt Lake District Office (8-801-524-5663)

If number is not known, contact: Chief, Surface Water Branch, Water Resources Division, National Center, Reston, Virginia (8-928-6837)

Bureau of Land Management

Check with District Office.

Utah District Office (8-801-524-4227)

If number is not known, contact: D.C. office (8-343-5717)

Bureau of Reclamation

Check with flood hydrologist in regional office.

If number is not known, contact: Flood Hydrology Section, DFC (234-2035)

Other

If none of these agencies has information or can provide assistance, the services of an experienced consulting engineer should be sought.

Several other agencies must be contacted for information on wetlands mapping. These include:

Fish and Wildlife Service

Fish and Wildlife Service maintains the National Wetland Inventory (based on infra-red photography). They should be contacted initially to determine if a map is available.

Denver (234-5586)

Salt Lake City (8-588-5637)

Environmental Protection Agency

EPA typically maps high growth areas, in Colorado, mostly Denver and ski areas.

Denver (234-4963)

Army Corps of Engineers

Have some wetlands mapping, mainly Landsat imagery. They usually map on a case-by-case basis on request.

Seattle (8-399-3495)
Sacramento District Office (8-448-2842)
Grand Junction (8-322-0333)

NOAA

Should be contacted to determine whether or not their inventory contains the area affected.

State Agencies

State Departments of Natural Resources, Fish and Game, etc. should be contacted to determine if they have performed any wetlands inventory.

Colorado Wildlife Resources - Waterfowl Research (303-484-2836)
Utah Division of Wildlife Resources - Non-Game (801-789-3103)

Critical Actions

Some key questions to be asked about critical actions (those for which even a slight chance of flooding would be too great) are:

If flooded, would the proposed action create an added dimension to the disaster as could be the case for liquefied natural gas terminals and facilities producing and storing highly volatile, toxic, or water-reactive materials?

Given the flood warning lead time available, would the occupants of buildings such as hospitals, schools, and nursing homes be insufficiently mobile to avoid loss of life and injury?

Would essential and irreplaceable records, utilities, and/or emergency services be lost or become inoperable if flooded?

If the answer to questions such as these is "yes," an alternative location must be sought completely outside the larger floodplain.

IDENTIFYING ALTERNATIVES

Alternatives must include (1) carrying out the proposed action at a location outside the base floodplain (alternative sites); (2) other means which accomplish the same purpose as the proposed action (alternative actions); and (3) no action.

If a practicable site exists outside the base floodplain, the proposed action must not be located in the base floodplain. Whenever a floodplain site is the only practicable alternative, the agency analysis leading to this conclusion should be fully documented.

At a minimum, site practicality shall be addressed in the light of the following:

natural (topography, habitat, hazards, etc.)
social (aesthetics, historic and cultural values, land use patterns)

economic (cost of space, construction, services, relocation)
legal (deeds, leases)

FLOODPLAIN IMPACTS

Three basic types of impacts to be considered are positive and negative; concentrated and dispersed; and short- and long-term.

Two basic types of floods are used in determining flood hazards: observed or historic floods and probability floods.

Evaluation of Flood Hazard

Is the proposed action to be located in the floodway portion of the riverine floodplain, or the coastal high hazard area?

Is the proposed action in a flood-fringe area such as the flood-fringe portion of a riverine floodplain or in the backwater areas of a coastal floodplain?

Is the flood hazard aggravated by the presence of, or potential for, destructive velocity flows, flood-related erosion, subsidence or sinkholes, or other special problems?

Is there a combination of flood sources present which may flood simultaneously in the area (e.g., river and ocean, or shallow overland runoff and river, etc.)?

Floodplain Values

Floodplains in their natural or relatively undisturbed state serve water resources values (natural moderation of floods, water quality maintenance, and groundwater recharge), living resource values (fish, wildlife, and plant resources), cultural resource values (open space, natural beauty, scientific study, outdoor education, and recreation), and cultivated resources values (agriculture, aquaculture, and forestry).

Floods shape floodplain topography, soils, and ecology.

Except for some steep valley and coastal bluff situations, naturally vegetated floodplains can provide a broad area to spread and slow floodwaters, thereby reducing velocities and flood peaks.

Floodplain vegetation functions in maintaining the physical and chemical integrity of the water that ultimately supports biological communities. Runoff is slowed by vegetation, allowing the water to deposit not only sediments originating on land but also those scoured from the channel bank and bed. Sediment deposition may add rich nutrients to the floodplain soil and keeps sediment-associated pathogens from the water.

However, siltation can destroy biological communities supported on the floodplain because it contributes to eutrophication, decreased dissolved oxygen, increased water temperature, and serious impairment of photosynthetic productivity. Vegetation shades stream banks and decreases daily water temperature fluctuation thereby alleviating temperature stress to the biota. Vegetation slows the flow of water and provides slack waters that give the aquatic biota a greater chance to survive flooding. In addition, floodplain storage and vegetation reduces siltation in downstream reservoirs.

An additional value of floodplain vegetation's role in slowing runoff is in groundwater recharge. Slowing the floodwater allows it to infiltrate through the generally porous floodplain soil. Base streamflow and the level of standing water bodies is regulated naturally by groundwater. During periods of excessive precipitation, runoff enters the groundwater system as well as stream channels and standing waterbodies, thereby reducing peak flows; during the dry season, water generally flows from the groundwater system into surface waters, augmenting low flows.

Fish and wildlife resources are highly susceptible to man-induced disruption of the floodplain because of their high sensitivity to the resultant impacts.

Methods to Minimize, Restore, and Preserve

Minimize is a demanding standard and requires the agency to reduce the harm to the smallest possible degree, thus establishing a far more rigorous standard than other terms which often are used in similar contexts, e.g., alleviate (to lessen), mitigate (to moderate the severity of), ameliorate (to improve), etc.

Restore means to reestablish a setting or environment in which the natural and beneficial values can again operate. Where floodplain values have been degraded by past actions, the agency must identify, evaluate, and implement measures to restore the values diminished or lost.

Preserve means to prevent modification of the natural floodplain environment, or to maintain it as closely as possible to its natural state.

Natural Moderation of Floods:

- Minimize floodplain fills and actions that require fills such as construction of dwellings, factories, highways, etc.

- Require that structures and facilities on wetlands provide for adequate flow circulation.

- Use minimum grading techniques and save as much of the site from compaction as possible.

- Relocate non-conforming structures and facilities out of the floodplain.

Return site to natural contours.

Preserve free natural drainage when designing and constructing bridges, road fills, and large built-up centers.

Prevent intrusion on and destruction of beach and estuarine ecosystems and restore damaged dunes and vegetation.

Water Quality:

Maintain wetland and floodplain vegetation buffers to reduce sedimentation and delivery of chemical pollutants to the water body.

Control agricultural activities to minimize nutrient inflow.

Control urban runoff, other storm water, and point and nonpoint discharges.

Control methods used for grading, filling, soil removal, and replacement etc. to minimize erosion and sedimentation during construction.

Prohibit the location of potential pathogenic and toxic sources on the floodplain, such as sanitary landfills and septic tanks, etc.

Groundwater Recharge:

Require the use of previous surfaces where practicable.

Design construction projects for runoff detention.

Dispose of spoils and waste materials so as not to contaminate ground or surface water or change land contours.

Living Resources:

Identify and protect wildlife habitat and other vital ecologically sensitive areas from disruption.

Require topsoil protection programs during construction.

Control wetland drainage, channelization, and water withdrawal.

Reestablish damaged floodplain ecosystems.

Minimize tree cutting and other vegetation removal.

Design floodgates and seawalls to allow natural tidal activity and estuarine flow.

Cultural Resources:

Provide public access to and along the waterfront for recreation, scientific study, educational purposes, etc.

Locate and preserve from harm historical cultural resources; consult with appropriate governmental agency or private group.

Reevaluate Alternatives

Having identified the impacts the proposed action would have on the floodplain, methods to minimize these impacts, and opportunities to restore and preserve floodplain values; the proposed action should now be reevaluated. For proposed actions in the base floodplain, the reevaluation should consider if the action is still feasible at this site. If not, consider limiting the action to make non-floodplain sites practicable. If neither is acceptable, the alternative is no action.

The reevaluation should also include a provision for comparison of the relative adverse impacts associated with the proposed action located in and out of the floodplain.

However, a site out of the floodplain should not be chosen if the overall harm is significantly greater than that associated with the floodplain site.

NPS FINAL PROCEDURES FOR IMPLEMENTING EO 11988 AND 11990

Most of the detailed information contained in the NPS procedures has already been summarized in the WRC Guidelines. Additional information covered includes:

Excepted Actions

1. If normally excluded from NEPA compliance and with no potential for adverse effects on floodplains or wetlands, is excepted from compliance with orders.
2. Other excepted actions include:
 - a. Scenic overlooks and foot trails
 - b. Picnic and camping facilities including sanitary facilities, providing that floodproofing is a consideration in their design and construction
 - c. Entrance, access, and internal roads to or within existing units of the system (not excepted for wetlands)
 - d. Outdoor play courts in recreation areas (not excepted for wetlands)
 - e. Landscaping in outdoor recreation areas (not excepted for wetlands)
 - f. Small parking lots for use of the area (not excepted for wetlands)
3. No justification necessary for marinas, docks, piers, water intake facilities, bridges, flood control facilities, water monitoring stations, drainage ditches, debris removal, outdoor water sports facilities, boardwalks to protect wetlands, and similar water dependent actions to be located in the floodplain.
4. Emergency actions essential to protect property and public health and safety will take into consideration all possible setups to mitigate adverse impacts.

If it is too expensive to obtain base floodplain boundaries, NPS will assume the project is in or will affect the base floodplain (worst case analysis). In the absence of evidence to the contrary, the NPS will assume that any action involving a structure or facility that has been flooded lies in the 100-year floodplain.

Determine if a Proposed Action Could Affect a Floodplain or Wetland

If the information gathered shows that the proposed action is not in a floodplain or wetland, the NPS Regional Director must then determine if the project holds the potential for indirect impacts on nearby floodplains or wetlands. An action has indirect impacts on nearby floodplains or wetlands if it:

Supports, encourages, allows, serves, or otherwise facilitates additional floodplain or wetland development.

Reinforces existing land uses which have developed without reflecting the concepts of hazard and risk minimization and restoration of natural floodplain or wetland values.

Has secondary or dispersed effects which reach into the floodplain or wetland and can cause change to the ecological systems functioning there or can increase flood loss potential to existing developments.

Critical Actions

The GMP will identify all critical actions in the 500-year floodplain, describe corrective measures to be taken, and present a time schedule for the corrective measures. Possible alternatives are:

- relocate outside the 500-year floodplain
- change the use to a non-critical action
- use floodproofing to protect the critical action from the 500-year flood

Critical actions include, but are not limited to, the erection or rehabilitation of structures and facilities:

Which contain hazardous material such as highly volatile, flammable, explosive, toxic, infectious, or water reactive materials. These could create an added dimension to the flood disaster. Major fuel storage facilities and 40,000 gpd or larger sewage treatment facilities shall not be placed within the 100-year floodplain, and will occupy the 500-year floodplain only when there is no practicable alternative and they can be completely floodproofed against the erosive and hydraulic force of the 500-year flood.

From which evacuation would be difficult. These are structures occupied by persons who may not be sufficiently mobile to avoid the loss of life or injury during flood and storm events. Clinic and emergency stations will not be located in the 500-year floodplain.

Which contain irreplaceable documents or objects. This includes museums, record collections, artifacts, historic furnishings, etc.

High Hazard Areas

These are areas subject to flooding events which are so unexpected, violent, or otherwise devastating that human lives are placed in immediate and grave danger. High hazard areas include, but are not limited to areas subject to flash flooding, areas below dams known to be structurally unsound, the floodway, and coastal high hazard areas. Coastal high hazard areas are defined in the WRC guidelines as "usually confined to the beach area in front of high bluffs or the crest of primary or foredunes, where wave impact is the most significant inducing factor."

Structures for human occupancy will not be placed in coastal high hazard areas except as provided for in 7.C.3., the floodway, or in areas subject to flash flooding. A "flash flood" is one in which the flood waters rise so rapidly that there is insufficient time for warning and evacuation of persons threatened by the flood. Further, no structures in which humans might seek shelter during storm or flood events will be placed in these areas. Facilities for parking, camping, picnicking, or similar activities causing congregations of people and property will not be placed in flash flood areas because of the surprise nature of such events. Undeveloped areas subject to flash flooding and known to be frequented by people even without the attraction of developed facilities will be posted with signs warning of flash flood danger. The hazardous flooding for a flash flood shall be the area covered by the probable maximum flood.

In coastal areas subject to storm overwash where no foredunes exist as defined above, and where structures and/or facilities must be placed for the management and legislated use of the affected areas, their placement and construction shall be limited to those necessary to meet the minimum needs for visitor use and park management. Furthermore, mitigating measures will be developed for the protection of human life and property. An early warning and evacuation plan will be developed and made operational. The design and construction of the structures and/or facilities shall be accordance with the criteria and standards promulgated under the National Flood Insurance Program. These warning and evacuation plans and other mitigating measures shall be addressed in the draft and final GMP/Environmental Document and subsequent, more detailed action plans, as required.

A unit Superintendent has the authority to "close to public use all or any portion of a park area when necessary for the protection of the area or the safety and welfare of persons or property by the posting of appropriate signs indicating the extent and scope of closure." When studies reveal, or it otherwise becomes apparent, that existing structures and/or facilities are subject to flash flood or other high water hazard, the unit Superintendent will prepare a plan of action which considers both their closure to public use and/or mitigation of the flood hazard by one or more structural flood control methods or non-structural measures such as floodproofing, warning and evacuation measures, seasonal closures, relocation of structures and facilities and other appropriate steps. Plans will be phased in such a manner to provide the greatest possible degree of protection. Actions to remove the structures and facilities may require EA and the following of these procedures to avoid relocating in a similarly hazardous area.

Removal or Modification of Existing Structures and Facilities

GMPs for units of the NPS will inventory existing structures, facilities, and programs involving the use of floodplains and wetlands, and will record decisions on their retention or modification. The Regional Safety Manager will evaluate all such structures and facilities to ensure that early warning systems, plans, and means of personnel evacuation are in compliance with safety standards. Upon the Safety Manager's recommendation, the Regional Director also may require the closure of structures to human occupancy or require that the use to the structures be changed. The Regional Director may also require the modification or floodproofing of structures and facilities

to protect property and Federal interest against loss. The Natural Resources Management Plan and/or the Water Resources Management Plan will specify requirements for monitoring programs and other actions to ensure protection and enhancement of floodplain and wetland values to the greatest extent possible. These plans will provide an important basis for demonstrating NPS compliance with the Orders. Non-critical actions for which compliance documentation has been prepared, either on an action itself or in the context of a previous enabling plan, will be listed and the nature of the compliance documentation indicated.

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the editorial and graphics staffs of the Denver Service Center. NPS D-42 May 1986

