

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
Acres	Unit North Elkhorn South Total	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 Elkhorn South Total	< 1 98 < 1 < 1	3 2 2 2	100 100 100 100

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

NONFEDERAL LANDS AND MINERALS

L&M

WILDERNESS

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.

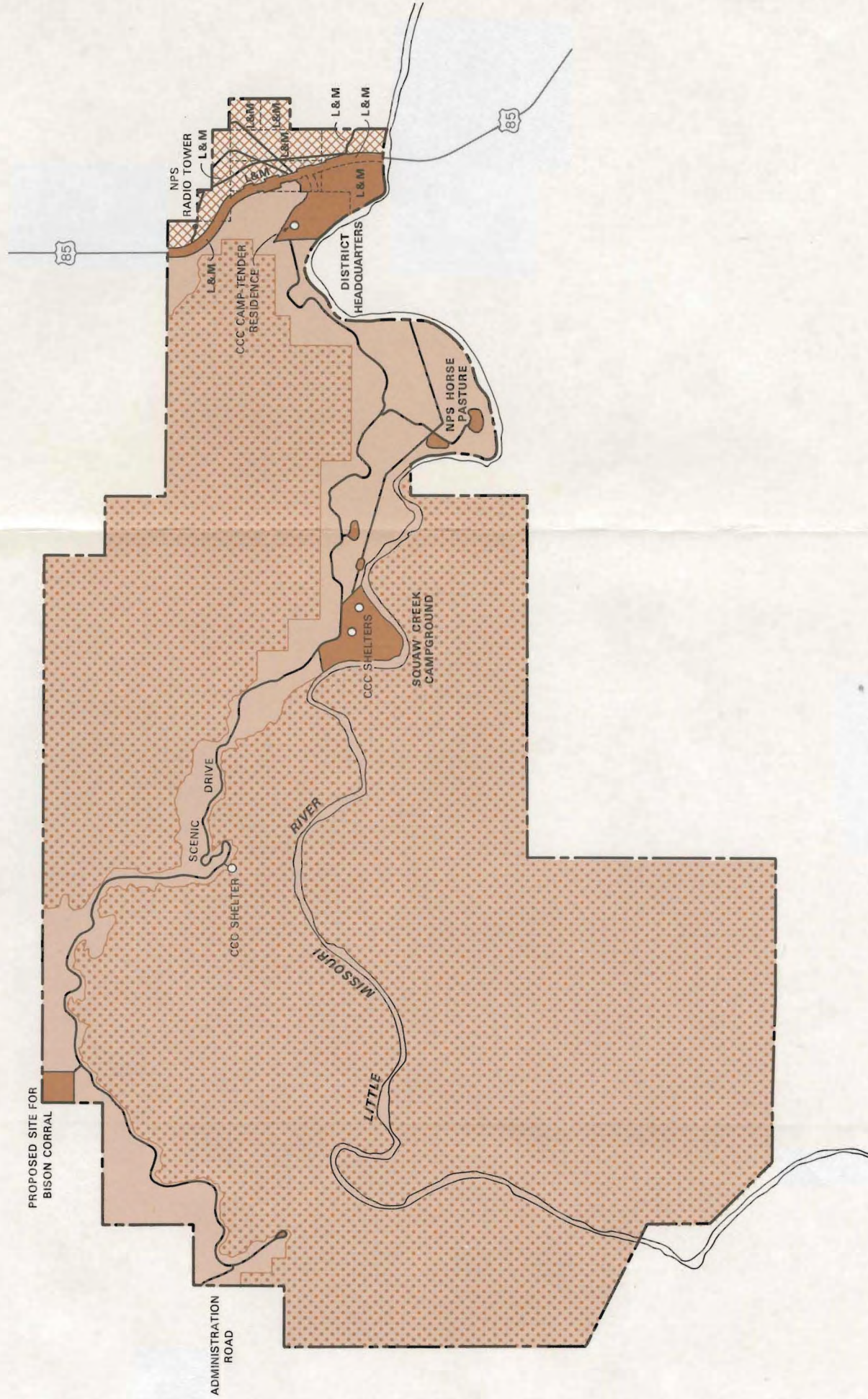
The special use zone consists of land east of the U.S. Highway 85 right-of-way where domestic livestock grazing, ranching and limited residential uses would be appropriate. The primary objective would be to retain a pastoral, ranching scene.

MANAGEMENT ZONES ACREAGE % OF NORTH UNIT

NATURAL	22,864.88	95
CULTURAL	0.44	<1
DEVELOPMENT	720	3
SPECIAL USE	485	2
TOTAL	24,070.32	100

NORTH UNIT
MANAGEMENT ZONING PROPOSAL
 THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

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

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.

 WILDERNESS

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.

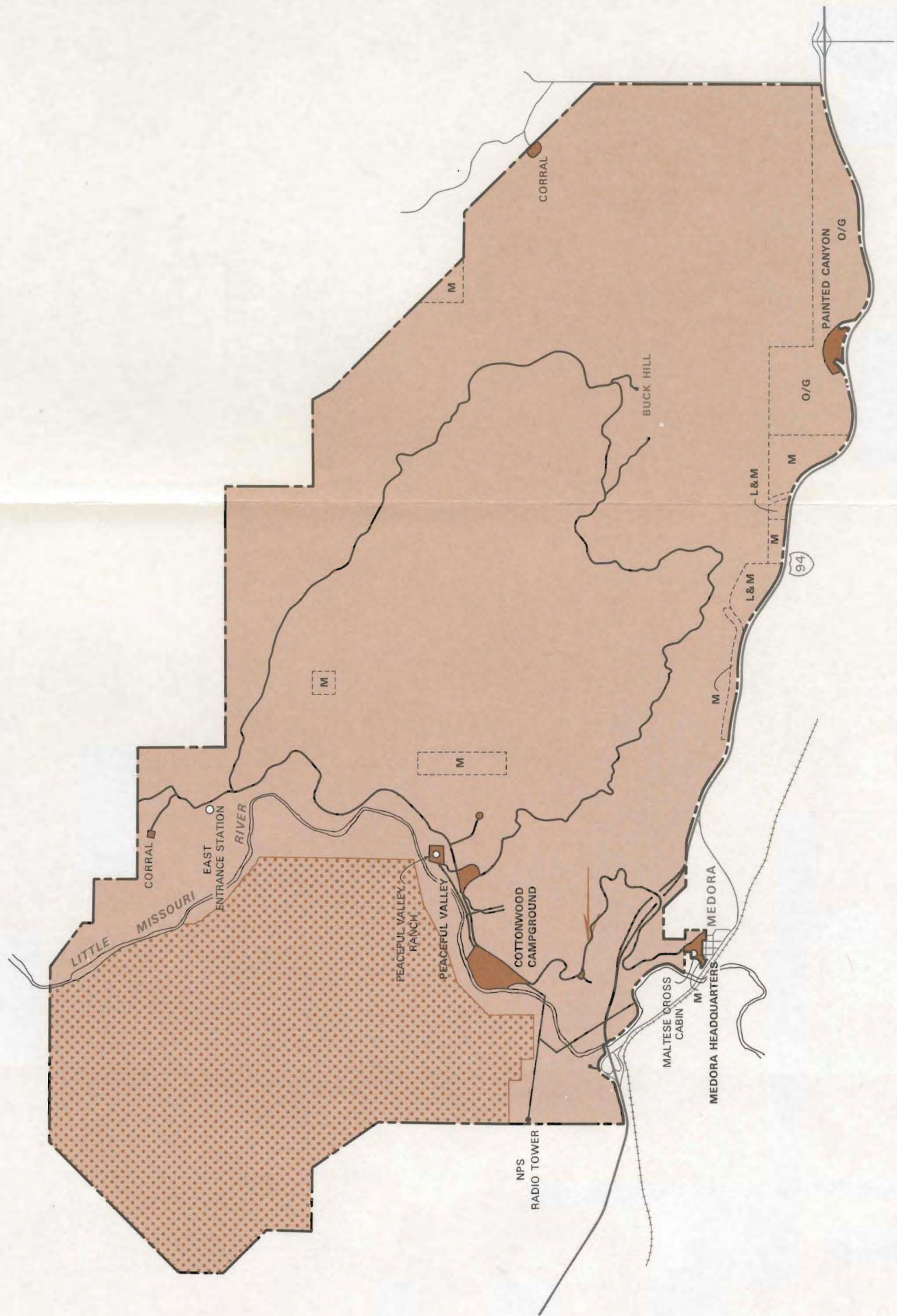
The development zone consists of paved roads (125 foot wide corridor), unpaved roads and utility lines (66 foot wide corridor), and other developments such as buildings, campgrounds, picnic areas, parking, wayside exhibits, utility systems, corrals and storage.

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

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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 (REÇ) 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 either 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.
NORTH-Bison Corral Area	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.
	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.

Park Unit and Area	Preferred Alternative (Proposed Action)	Continuation of Existing Conditions Alternative	Minimum Requirements Alternative	Other Practicable Alternative	Rationale for Proposed Action
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 1/2-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 improve- ments.	No changes; no improve- ments.	Same as preferred.	The NPS radio tower has been relocated, opening additional terrain for hiking. Opportu- nities 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). Pro- vide 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 camp- ground 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 exist- ing system.	Same as preferred.	Same as preferred.	The existing solar thermal system was custom-designed for the visitor center. It is unreliable, includes substan- dard 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 - $3\frac{1}{2}$ feet Comfort stations - $2\frac{1}{4}$, 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 - $3\frac{1}{2}$ feet Maltese Cross cabin - $4\frac{1}{2}$ feet Administration building and park housing - $\frac{1}{2}$ 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."

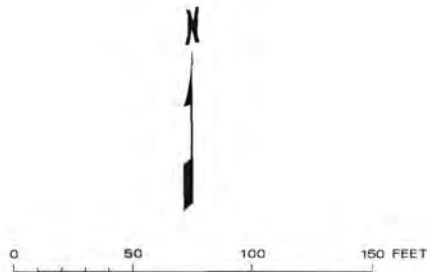
Costs and Personnel

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

SOUTH UNIT
**EAST ENTRANCE STATION
 RELOCATION**

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

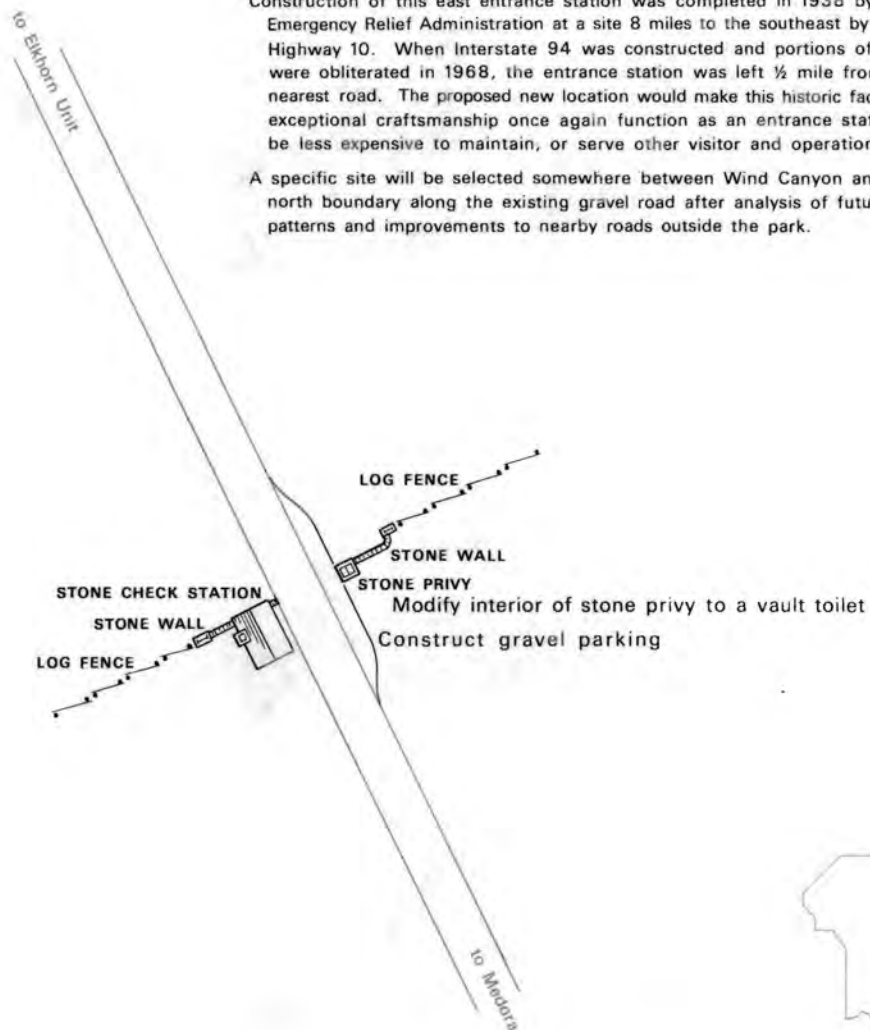


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Proposed actions are shown in black, and existing conditions are shown in gray.

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.

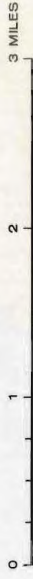





EAST ENTRANCE STATION Location

NORTH UNIT
 GENERAL DEVELOPMENT PLAN
 FLOOD DATA

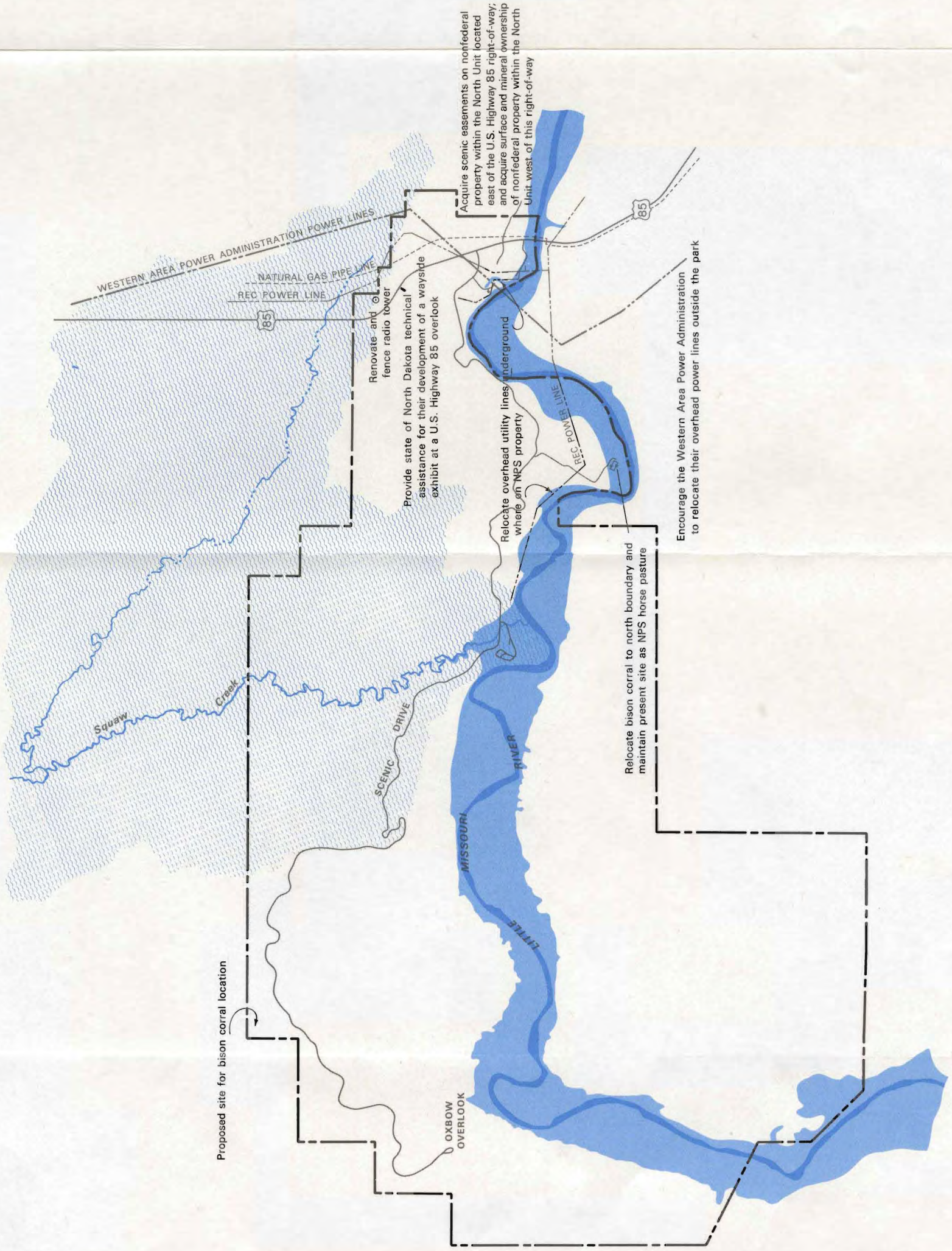
THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

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-  LITTLE MISSOURI RIVER
-  100-YEAR FLOODPLAIN
-  SQUAW CREEK DRAINAGE
-  26 1/2 SQUARE MILES
-  PARK BOUNDARY

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

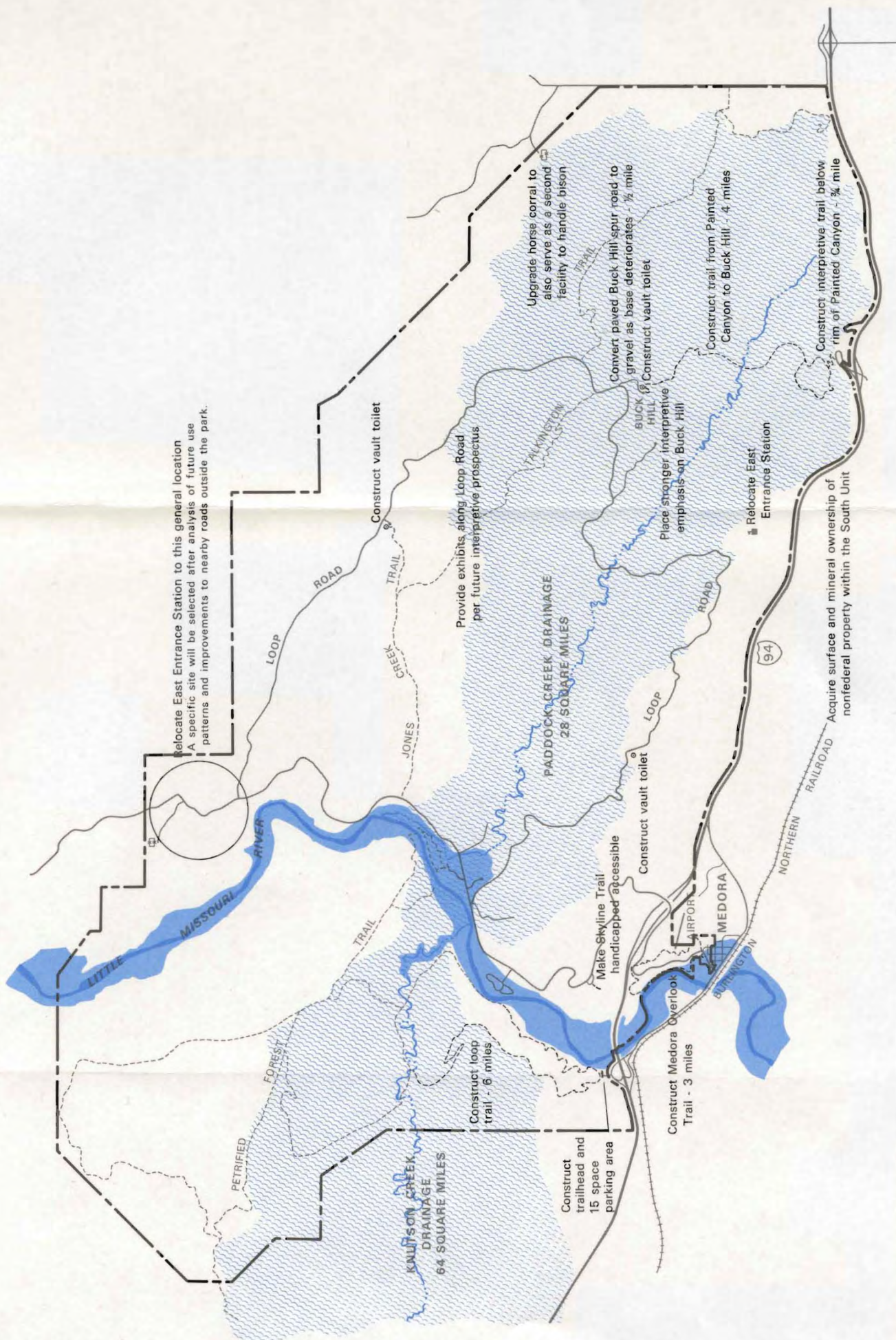


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SOUTH UNIT
 GENERAL DEVELOPMENT PLAN
 FLOOD DATA

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

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

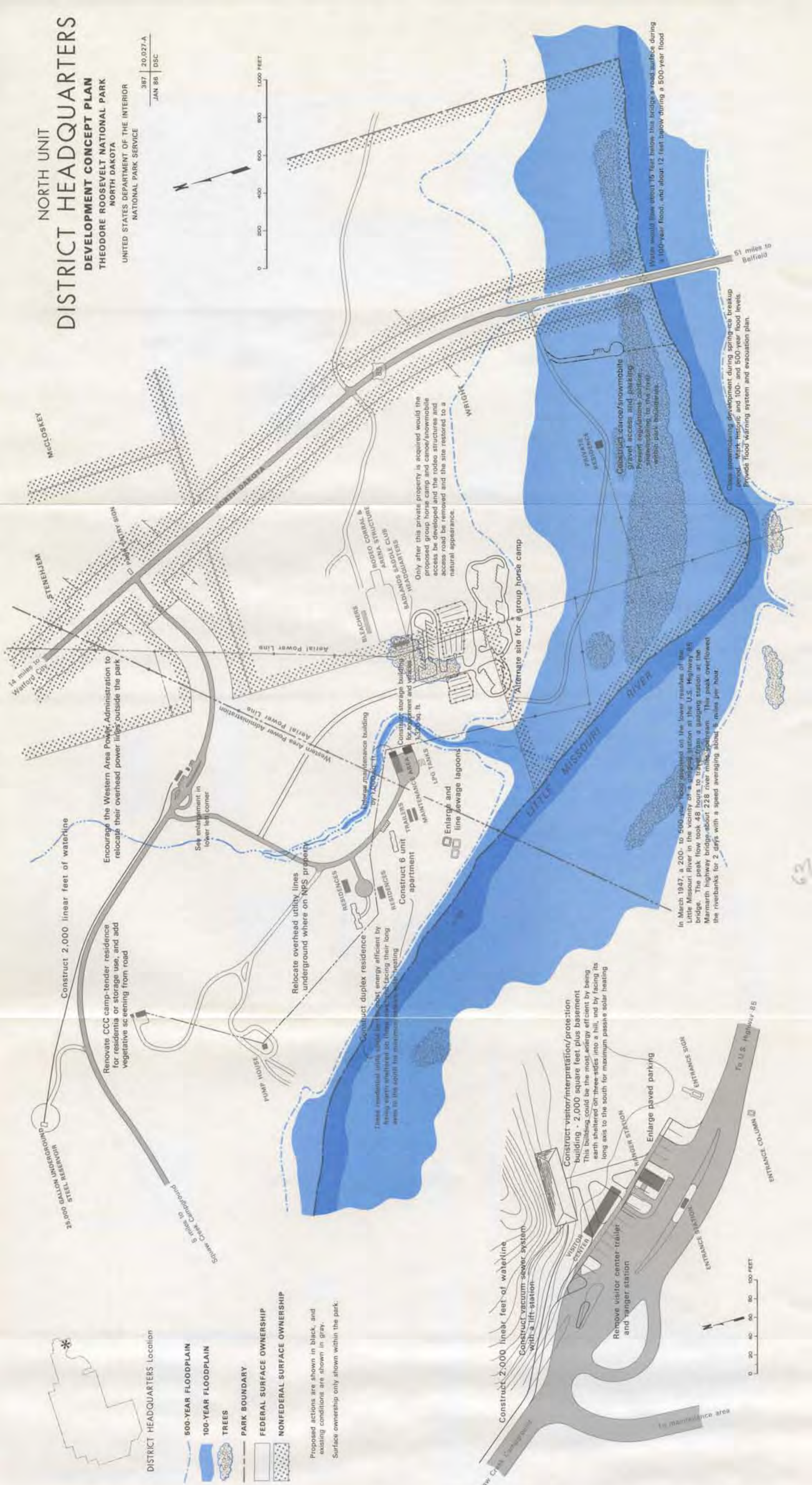
Proposed actions are shown in black, and existing conditions are shown in gray.

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NORTH UNIT
DISTRICT HEADQUARTERS
DEVELOPMENT CONCEPT PLAN

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

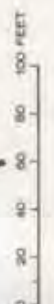
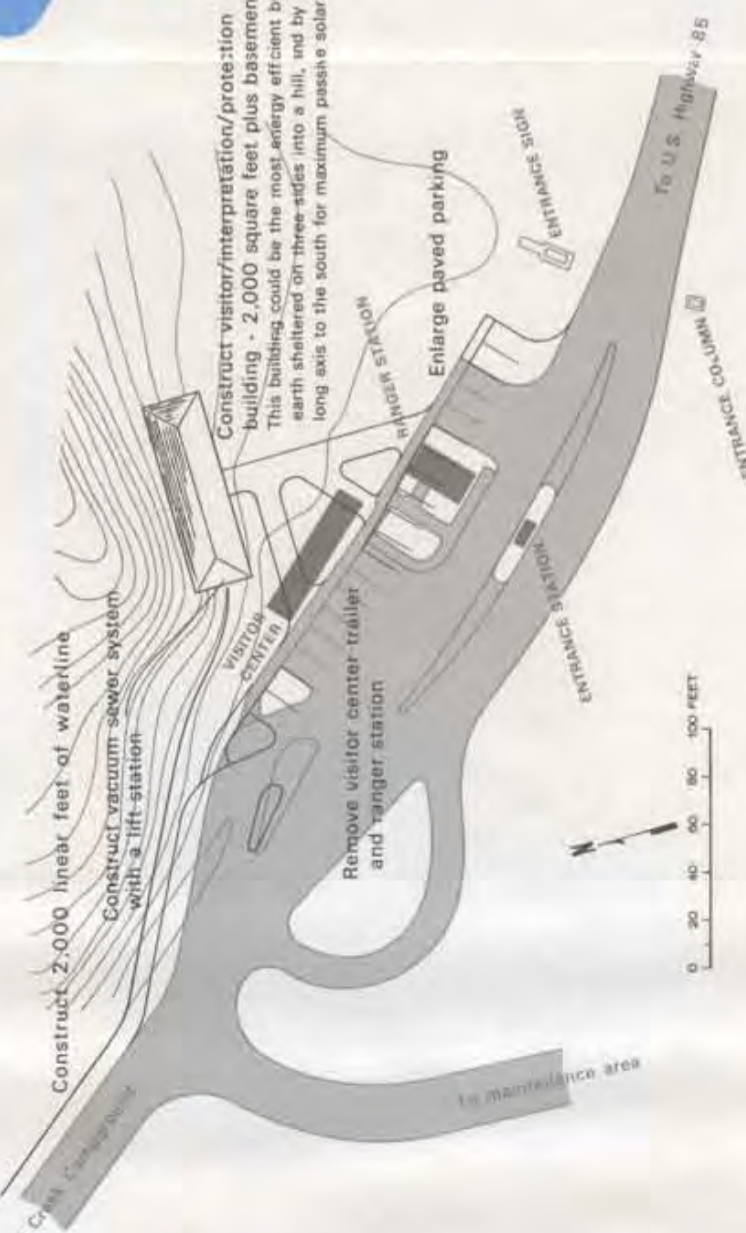
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JAN 86 DSC



DISTRICT HEADQUARTERS Location

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

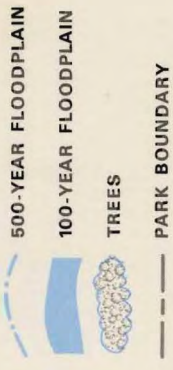
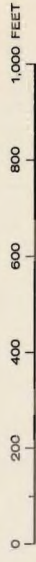
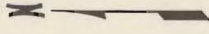
Proposed actions are shown in black, and existing conditions are shown in gray. Surface ownership only shown within the park.



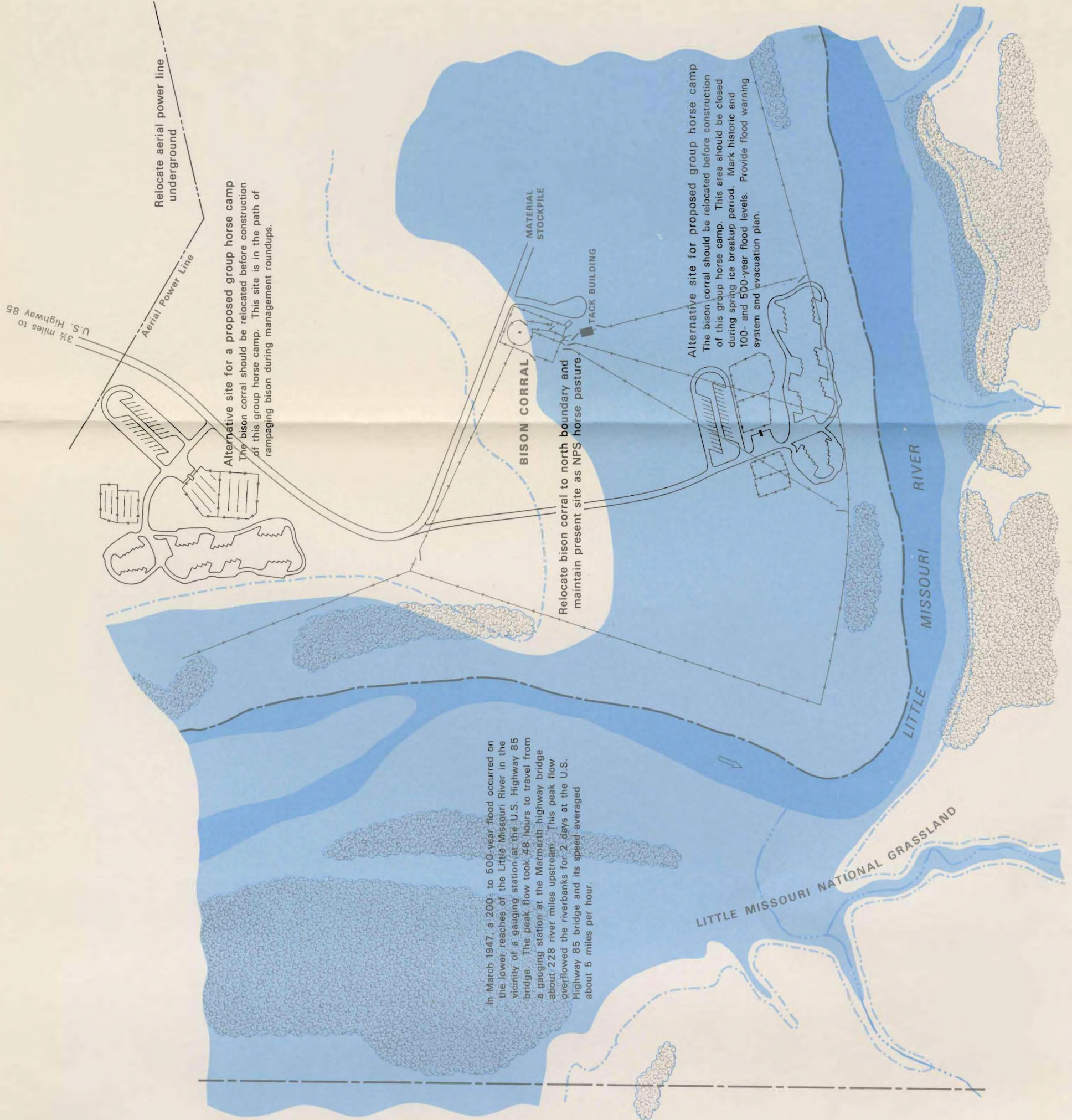
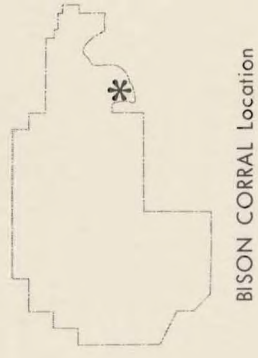
NORTH UNIT
BISON CORRAL
DEVELOPMENT CONCEPT PLAN
 THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

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

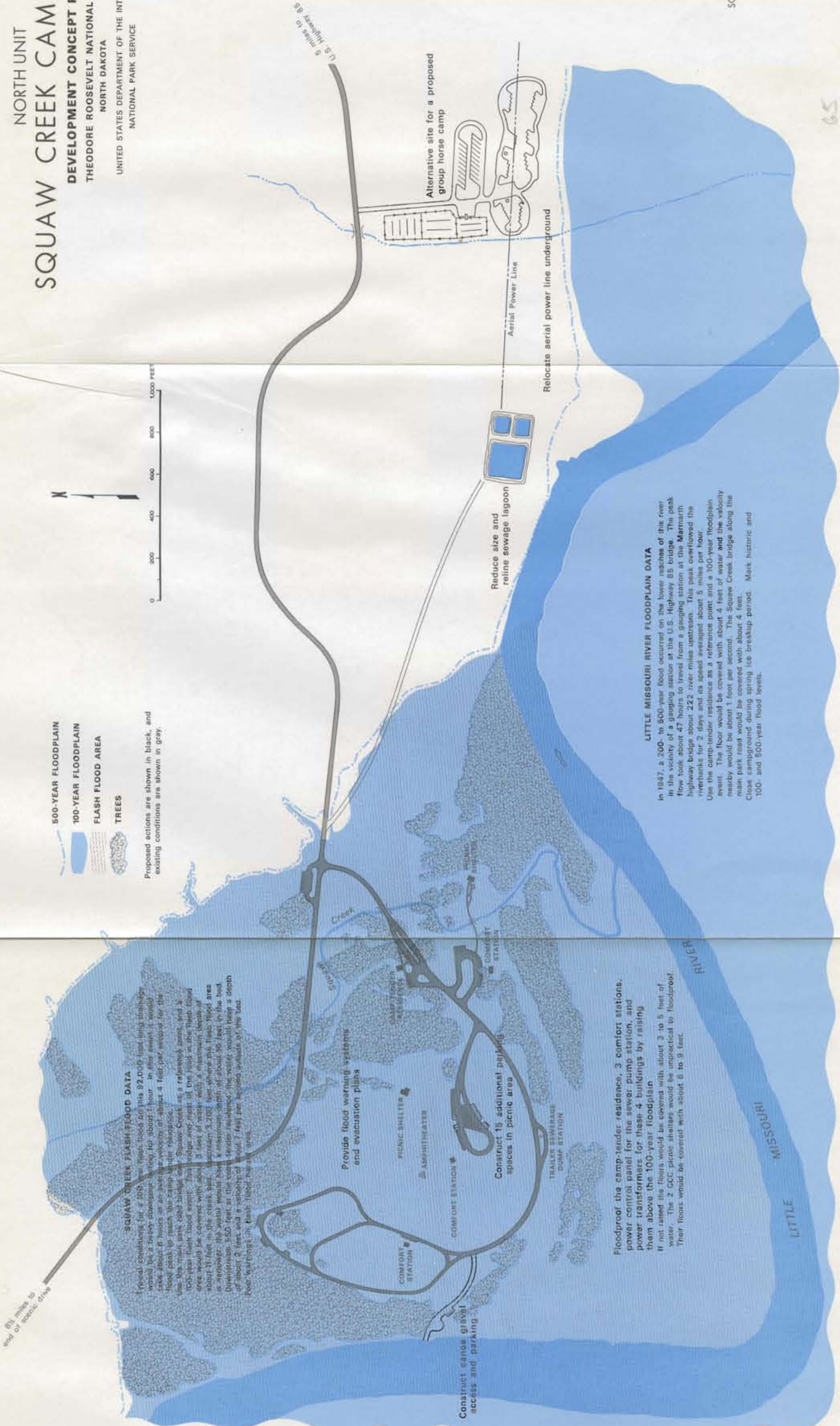


NORTH UNIT SQUAW CREEK CAMPGROUND

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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SQUAW CREEK FLASH FLOOD DATA

Typical conditions for a 100-year flood would be a heavy downpour of rain for about 1 hour. In this event it would take about 6 hours on an average velocity of about 4 feet per second for the flood peak to reach the camp and/or residence.

The main peak of the flood would be about 100 years flash flood event. The water would rise 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 keep a depth of about 2 feet and a velocity of about 7 feet per second outside of the bed.

Flood warnings in flash flood hazard areas.

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 GCC picnic shelters would be unimpacted 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 overflooded 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.



SQUAW CREEK CAMPGROUND Location

ELKHORN UNIT DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK NORTH DAKOTA

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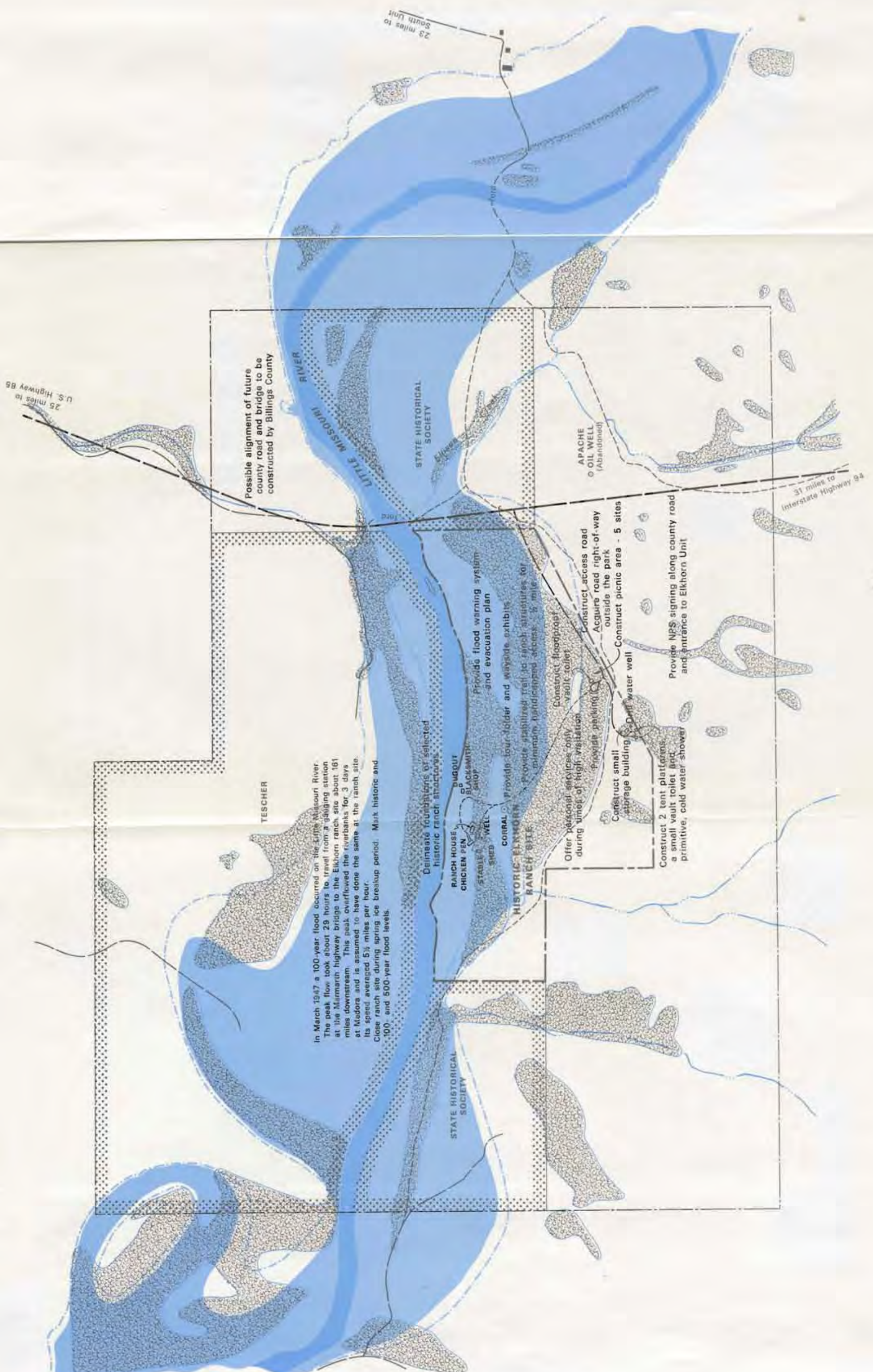
- 500-YEAR FLOODPLAIN
- 100-YEAR FLOODPLAIN
- TREES
- PARK BOUNDARY
- PROPOSED RESOURCE PROTECTION ZONE
- UNPAVED MAINTAINED ROAD
- UNPAVED UNMAINTAINED ROAD
- FEDERAL SURFACE OWNERSHIP
- NONFEDERAL SURFACE OWNERSHIP

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.



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 overflooded the riverbanks for 3 days at Miodora 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 and 100- and 500-year flood levels.

Delimitate foundations of selected historic ranch structures.

Provide flood warning system and evacuation plan

Offer personal services only during times of high visitation

Construct picnic area - 5 sites

Construct 2 tent platforms, a small vault toilet and primitive, cold water shower

Provide NPS signing along county road and entrance to Elkhorn Unit

Possible alignment of future county road and bridge to be constructed by Billings County

31 miles to Interstate Highway 94

25 miles to U.S. Highway 89

23 miles to South Unit

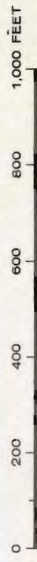
SOUTH UNIT PEACEFUL VALLEY

DEVELOPMENT CONCEPT PLAN THEODORE ROOSEVELT NATIONAL PARK

NORTH DAKOTA

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

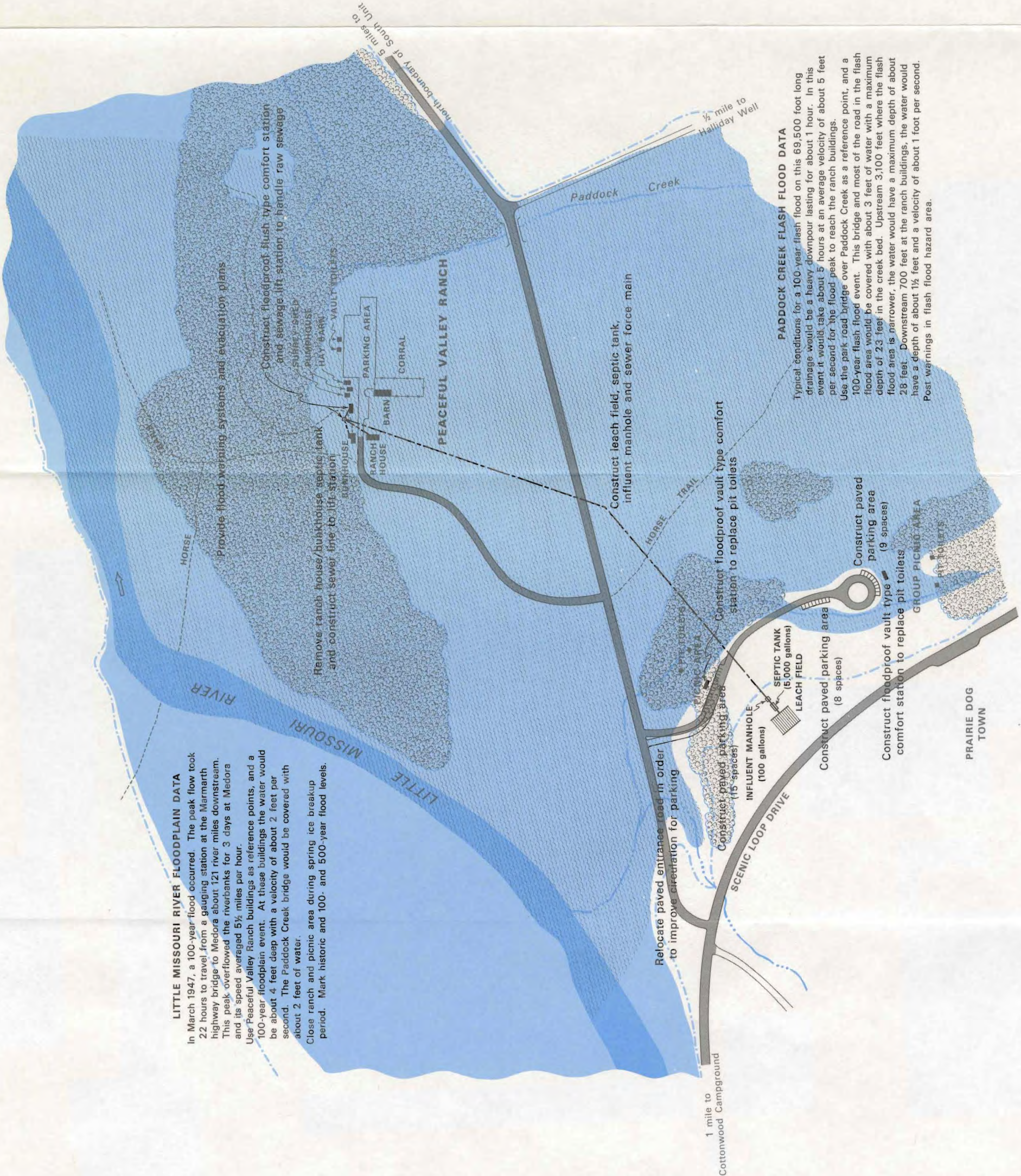
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Proposed actions are shown in black, and existing conditions are shown in gray.



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

Construct floodproof flush type comfort station and sewage lift station to handle raw sewage supply seep

Remove ranch house/bunkhouse septic tank and construct sewer line to lift station

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

Construct floodproof vault type comfort station to replace pit toilets

Relocate paved entrance road in order to improve circulation for parking

Construct paved parking area (15 spaces)

Construct paved parking area (8 spaces)

Construct paved parking area (9 spaces)

Construct floodproof vault type comfort station to replace pit toilets

Construct paved parking area (9 spaces)

Construct paved parking area (8 spaces)

Construct paved parking area (9 spaces)

Construct paved parking area (8 spaces)

Construct paved parking area (9 spaces)

Construct paved parking area (8 spaces)

Construct paved parking area (9 spaces)

PADDOCK 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.

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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

1 mile to
 Peacetul Valley Ranch

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:

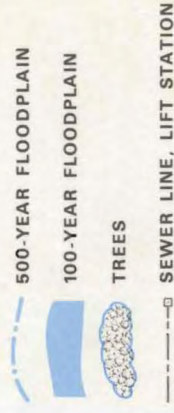
- Modify lift stations to handle raw sewage
- Remove 5 septic tanks, 2 leach fields and sewer force main to southern leach field
- Construct sewer line from camp-tender residence to lift station
- Construct sewer force main between 2 comfort stations
- Extend sewer force main above the 100-year floodplain
- 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 123 river miles downstream. This peak overflowed the riverbanks for 3 days at Medora and its signed 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.

COTTONWOOD CAMPGROUND Location

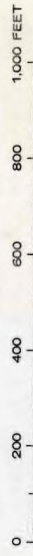
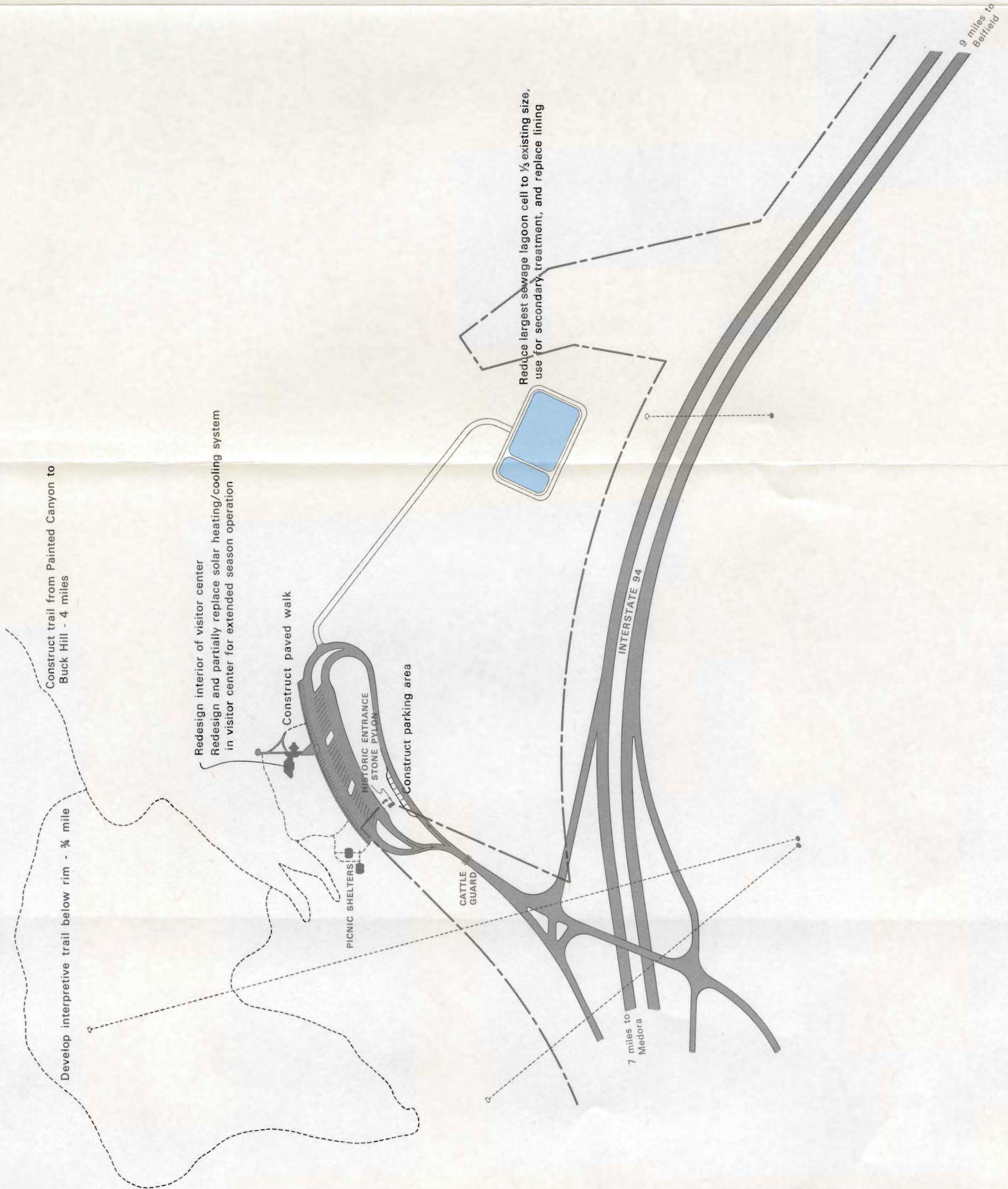


Proposed actions are shown in black, and existing conditions are shown in gray.



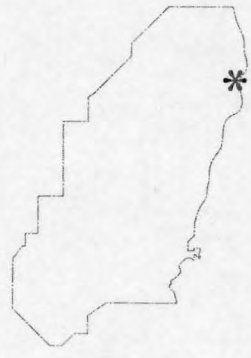
SOUTH UNIT
PAINTED CANYON
DEVELOPMENT CONCEPT PLAN
 THEODORE ROOSEVELT NATIONAL PARK
 NORTH DAKOTA
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE

387 20,015-A
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— PARK BOUNDARY
 - - - Top of well
 - - - Bottom of well
 - - - OIL WELL (Directionally drilled)

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

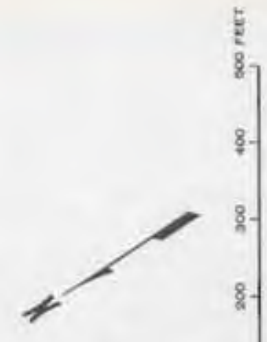


PAINTED CANYON Location

SOUTH UNIT MEDORA HEADQUARTERS

DEVELOPMENT CONCEPT PLAN
THEODORE ROOSEVELT NATIONAL PARK
NORTH DAKOTA
UNITED STATES DEPARTMENT OF THE INTERIOR
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 2,287.25 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

5 miles to Cameraground

Construct trail under road

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

Relocate paved service drive to make room for promenade

Construct permanent flood control dike to the 100-year flood elevation 1,600 feet long with 7 foot average height

Develop canoe/automobile 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

1 1/2 miles to Interstate Highway 94 East

To 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.

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.