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general management plan

july 1979

CHICKASAW



NATIONAL RECREATION AREA / OKLAHOMA

**RECOMMENDED:**

Paul V. Wykert  
Superintendent, Chickasaw National Recreation Area

November 4, 1980

**CONCURRED:**

John W. Bright  
Assistant Manager, Southeast/Southwest Team,  
Denver Service Center

November 4, 1980

**APPROVED:**

Robert I. Kerr  
Regional Director, Southwest Region

November 18, 1980

chickasaw national recreation area / oklahoma

# GENERAL MANAGEMENT PLAN

u .s. department of the interior / national park service



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# INTRODUCTION



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## I. Introduction

### A. The Region

Chickasaw National Recreation Area is a unit of the National Park System lying in south-central Oklahoma. The accompanying map shows the regional road network, communities, and parks and reservoirs. There are three state park/resort areas within the region of Chickasaw National Recreation Area. These are Arrowhead, Lake Murray, and Lake Texoma. All provide camping with hookups optional at nominal charge, plus lodging and restaurant facilities. A full range of outdoor recreational opportunities and camp amenities are provided. Turner Falls, about 9 miles southwest of the recreation area, is a municipal park operated by the City of Davis for outdoor recreation and enjoyment of the natural features, supplying 200 fee campsites with another 200 overflow sites available.

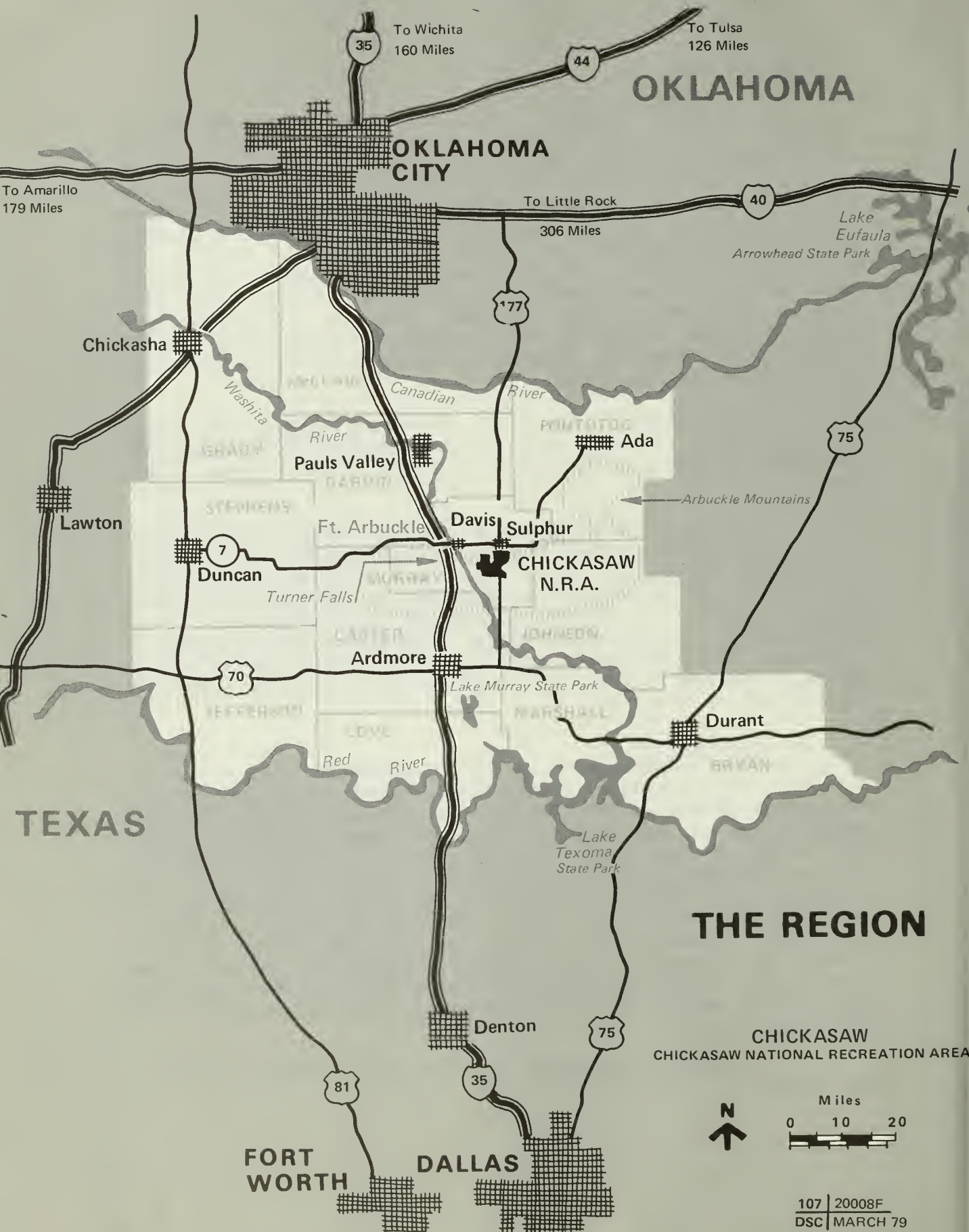
The "home" county for Chickasaw National Recreation Area is Murray County, and the nearest city (lying along the northern boundary) is Sulphur. The City of Davis is about 9 miles west.

Chickasaw NRA fulfills an important need in its area, as public land for open space is generally not abundant in its region. Chickasaw's highest purpose therefore is to provide its region with opportunities for diverse outdoor experiences--recreational to nature study--in an environment managed to perpetuate these opportunities. If the National Park Service were not to do this at Chickasaw, the preservation and public enjoyment of natural mosaics of plant and animal groupings would not be an available experience in this part of Oklahoma.

### B. Background

The establishment and rapid settlement of the town of Sulphur in the Chickasaw Indian Nation within and around an area of springs valued by the Choctaw and Chickasaw Tribes for their curative powers, prompted an agreement between these tribes and the United States, which, by an act of Congress, established Sulphur Springs Reservation, July 1, 1902 (32 Stat. 655). The original act directed the Secretary of the Interior to select certain lands, not to exceed 640 acres, embracing all natural springs in and about the town of Sulphur, and as much of Sulphur and Rock Creeks as necessary for the proper utilization and control of the springs and waters of the creeks, with the restriction that, once established, no part of the tract could be platted or disposed of for townsite purposes.

Legislation subsequent to this initial enablement is briefly as follows:



The act of April 21, 1904 permitted addition of certain lands to the reservation, comprising 218.89 acres.

The act of June 16, 1906, provided for exclusive jurisdiction over the area by the National Park Service.

The act of June 29, 1906, directed that the Sulphur Springs Reservation be renamed Platt National Park in honor of Orville H. Platt, early Connecticut Senator and member of the Committee on Indian Affairs.

On July 16, 1907, Oklahoma recognized the exclusive jurisdiction of the National Park Service over Platt National Park.

The act of July 18, 1940, permitted the addition of certain lands, amounting to 63.75 acres.

With the authorization for construction by the Bureau of Reclamation of the Arbuckle Reservoir Project in 1962 (Public Law 87-594), the National Park Service focused on the recreation potential of the reservoir. Following an investigation by the National Park Service's Southwest Regional Office staff members in 1962, the Service (in 1965) assumed responsibility for administering certain lands and waters of the Arbuckle Reservoir for public recreation.

A master plan study for the combined Platt National Park/Arbuckle Recreation Area was initiated by the National Park Service in September 1968. Following a limited regional distribution of a working draft of the proposed master plan, a public hearing was held at Platt in October 1970. The plan was reviewed in depth, and comments were solicited. At this hearing, Mr. George Bourland, Chairman of the Chickasaw Tribe Advisory Council, read an intriguing resolution and proposed that the name of the area be changed to Chickasaw National Recreation Area to commemorate the Indian tribe upon whose lands the proposed recreation area is located. As a result of this hearing, the master plan was revised.

On March 17, 1976, an act (Public Law 94-235) was approved "To establish the Chickasaw National Recreation Area..." This combined the two formerly separate units, memorialized the Chickasaw Indian Nation with the designation, established a boundary subject to minor revision by the Secretary of the Interior within a 10,000-acre limit, and provided means whereby lands and interests therein could be acquired. It provided procedures for permitting hunting and fishing in appropriate areas, placed the unit under the provisions of the August 25, 1916 act that established the National Park Service, repealed the act of June 29, 1906 that established Platt National Park, authorized a memorial to Senator Platt, arranged for jurisdictional transfers between the state of Oklahoma and the United States, and specified a ceiling of



\$1,600,000 for the acquisition of lands and interests in lands and \$4,567,000 for development.

Following this most recent legislation the National Park Service did a preliminary analysis of development requirements, determined the need for minor boundary revisions, and acquired all the land within these revised boundaries except for that owned by the City of Sulphur (including Veterans Lake), which can be acquired only by donation or exchange for lands formerly included within Platt National Park.

C. The Area's Needs

Chickasaw National Recreation Area consists of two former National Park System units--Platt National Park and Arbuckle Recreation Area--now joined by lands included in 1976 legislation when the combined area was established. Each of the formerly separate areas (now called Travertine District and Lake District, respectively) already had planning needs of its own. Now there is also the need to provide for facilities and management actions in the corridor (called Rock Creek Corridor) connecting them. Additionally, whereas the two were, and still are, managed by one superintendent, there were formerly two separate authorities for the two areas; now there is one Act of Congress that applies to both, requiring adjustments in management practices and inter-agency agreements.

Thus, although in one sense a "new" area, most of the resources therein have long been devoted to park use and have been generally protected from development. Preferred user activities are therefore mainly understood. The challenge now is more to improve existing activities rather than instigate new ones. In light of this, two considerations come to mind.

1) Over the years there has been a general growth in visitation to the area, yet in the last few years dramatic declines have occurred (to about half the former use level).

2) Resource deterioration, after accumulating slowly, has suddenly become apparent.

It is not known whether the visitor decline is caused by the resource deterioration. Furthermore, it is not even known in all cases what is causing the various types of resource deterioration, or how to correct them.

In such a context, expansive programs of park development would appear out of order. Nevertheless there are apparent development needs even now.

Travertine District lacks a visitor center, and the administrative function is scattered in several buildings miles apart. Through-traffic on U.S. Highway 177 in Travertine District conflicts with park traffic and needs to be separated. Capacity problems have occurred with respect to parking for picnic areas along Travertine Creek and Rock Creek. There are more entrances into the park than are needed for visitor access or desirable from the standpoint of park protection and administration.

Trails connecting the two formerly separated units would provide longer-distance hiking opportunities and possibly the chance for some backcountry camping. The legislation was passed in the context of including an extensive system of bicycle trails in this corridor; however, the popularity of such a system is uncertain, as is the economy of building it on the comparatively dissected relief available within the boundary. This indicates an experimental approach to test demand, building only one section at first.

Lake District operates without benefit of planned and constructed protection and operational facilities; instead, trailer-offices prevail. Although this district's main recreational feature - Arbuckle Lake - is developed for boating and camping, appropriate levels of various types of uses need to be established in order to determine a capacity. Likewise, facilities need to be arranged so that levels of use can be managed to stay within the capacity level.

Over all the area, a more aggressive program of resources management is indicated, for there are now situations of resource deterioration that affect the very essence of the park experience. Fresh-water springs in Travertine District have diminished in flow or dried up; water quality in the streams has become too polluted to allow swimming; many of the mineral springs have ceased to flow; fishing success in Arbuckle Reservoir has fallen off; vegetational changes have occurred with the apparent result of a brushier environment that is less appealing to park use. Unfortunately, although the effects of these resource changes can often be measured and observed even casually, the causes of them are more obscure and it will take management-oriented research to find them. Proposals to alleviate many situations would therefore be premature in this plan, but will be developed in conjunction with an expanding resources management effort for the area.

Resources management in the area has often been without a long-term objective, and not closely based on the particular characteristics of the resources. For instance, policies have included: extinguish all fires, encourage desired game species, and--by default--allow use of almost any level. Such practices however, no longer fit National Park Service management policies or

the increasing sophistication of resource management concepts, so adjustments will be necessary.

Although the area is called a recreation area, and is used as such, NPS policy now calls for parks to be further categorized by resource type and use into management zones, to which national policies apply. The legislation also provides that the National Park Service Act of 1916, the agency's organic act, applies. This is different from many recreation areas. Thus, there is the need for a new approach to natural resources management in the area, with new directions and even entirely new programs. These needs of Chickasaw can be separated into two kinds--those required at present to provide necessary improvements to the visitor experience and to provide for resources management at NPS standards, and those that might be needed in the future should use rise to former levels. The present plan will deal with present needs, and only identify future needs as potential requirements.

#### D. Coordination and Phasing

There is a significant need for this general management plan to provide overall coordination of the recreation area's programs. Such an approach can provide varying levels of facility development and internal circulation to assure that there is variety in the density levels of visitors and consequently a diversity of park experience available. Also, the capacity of developments at both Travertine District and Lake District must correlate to acceptable levels of use--acceptable both from the standpoints of resources protection and the visitor experience. It is a tentative conclusion of this plan that adequate development now exists within the constraints of resource/experience considerations, and even if demand should rise above present maximum capacities (about 2-1/2 million visitors a year) in the future, any increase in use that would be allowed to occur would be in day use. Additional day-use at Travertine, should it occur, can probably best be accommodated by providing an external parking area (possibly at the visitor center) with a transportation system rather than developing more parking in the interior of the park. Additional day-use at Lake District, should it occur, can probably best be accommodated by zoning the lake's surface to provide more areas for slow-speed boating only. Management experience and monitoring of public opinion as to the types of experiences preferred, and their proportions, as well as research observations of the resources may modify these preliminary judgements.

An improved circulation system is an apparent need for Travertine District should visitation rise again in the future; this would include a visitor center for orientation purposes (with administrative headquarters), through-road relocation, closure of extraneous entrances, erection of fee collection stations (where necessary), potentially a bus system, and establishing one-way

interpretive roads. Obviously, not all elements need to be provided immediately; in fact, only the visitor center/headquarters is presently proposed. This center is considered the area's current greatest need, as there is presently no means to orient - or even contact - area visitors. If and when use rises again, a study will be necessary to correlate the remaining elements.

Second in priority is the development of a trail system through the Rock Creek Corridor to connect the north and south ends of the newly combined area, including, experimentally, a bicycle trail section.

Third is the provision of improvements to camping and contact/ protection facilities throughout Lake District, with due attention to resolving any resource deterioration now experienced because of these activities. Along with this would go the installation of some 11 new campsites at Guy Sandy to bring that area up to an efficient operating size and to provide additional facilities at this site where development is minimal.

Another need, which however, can be met concurrently with the preceding ones is the establishment of a general resources management program including the research for its basis.

An important question is how to establish the capacities of the new facilities in light of the present diminished demand. For the present, the figure of 2 million annual visitors will be used; this reflects the almost constant level of demand from 1973 through 1977, when visitation fluctuated between 1,884,000 and 2,068,000, and rejects the anomalous 1978 year when visitation plunged to 1,145,000.

The appropriate time frame for implementing all these proposals is 5 years from the plan's approval date, and the park will submit programming requests accordingly so that funding will follow in orderly fashion. It is believed that with conservative design all construction items can be accomplished within the applicable legislative ceiling (\$4,567,000). Non-plan items that would probably exceed the ceiling include relocating the through-road (estimated at 2-1/2 million dollars), expansion of the visitor center into a cultural mall/governmental building as once conceived, reconstruction of campgrounds and boat-launch ramps, and installation of a bus system. These items will therefore be relegated for reconsideration to a later period of time. These possible future actions will require additional planning, design, environmental analysis, and other compliance procedures prior to their adoption. They will not require revision of the general management plan, however, as the present document has foreseen their later incorporation and is compatible with them.



A further word should be said about the long-term proposal to relocate U.S. Highway 177 so as not to interfere with park use in the Travertine District. This project would require coordination with the Oklahoma Department of Transportation, including sharing of construction costs in some ratio. There is a history of such liason, although the project is not currently listed on an official program by either agency.

Likewise, the installation of any bus system or the provision of a cultural mall or joint office complex with other agencies, also as once envisioned, would require a redetermination of interests among local entities in participating.

Following this plan's approval, there is the need for comprehensive design for each of the principal use areas, including Travertine District, Buckhorn, The Point, and Guy Sandy, each of which will include environmental analysis. An interpretive prospectus will be required for the visitor center, and a wayside interpretive plan is needed for the area as a whole.

By agreement, all plans must be submitted to the Bureau of Reclamation for review, and close cooperation must also be maintained with the Oklahoma Department of Wildlife Conservation with regard to Arbuckle Reservoir and the Lake District lands.



## THE ENVIRONMENT



## II. The Environment

### A. Lands

The legislation of 1976 provides that the boundaries for Chickasaw National Recreation will be as generally shown on map 107-20004-A dated February 1974 and may not exceed 10,000 acres. Administrative adjustments within these parameters are permitted to the Secretary of the Interior, so long as notice of same is published in the Federal Register, under certain procedures. A minor boundary adjustment was made and published on March 9, 1978. Thus the new boundary is shown on the Boundary/Ownership map. The total acreage inside the boundary thus shown is 9,491.36 acres, as follows:

#### Federal Lands (9,142.41 acres)

<u>Acres</u>	<u>Ownership Rights</u>	<u>Location</u>	<u>Uses</u>
2,116.94	All rights	Travertine Dist. & Rock Creek Corridor	national recreation area
6,835.47	All surface, variable mineral	Lake District	" "
190.00	All surface, variable mineral	Lake District	damsite

#### Non-Federal Lands (348.95)

<u>Size</u>	<u>Location</u>	<u>Use</u>
4.50 acres	southwestern part of Travertine District	City sewage treatment plant (including Chickasaw NRA sewage)
0.70 acres	in Travertine District just south of City of Sulphur and State Route 7	not in use
343.75 acres	south of Travertine District (Veterans Lake and surrounding lands)	platted streets and alleys for a subdivision (never built and lots now acquired by NPS), and dam-site and reservoir for emergency water supply for the City of Sulphur; open to limited recreational use; includes City permits for buildings.

As provided for in the legislation of 1976, City of Sulphur lands may not be purchased by the National Park Service. The Service may accept them only by donation or by exchange for other lands it holds (see below). Subsurface mineral rights of variable nature remain under some of the lands originally acquired by the Bureau of Reclamation, in the Lake District.

The National Park Service owns and has available for transfer or other disposal certain surplus lands outside the recreation area boundary. This situation came about because of boundary adjustments contained in the 1976 legislation and one case where a nearby lot outside the park was purchased as part of a parcel inside the boundary. These lands are as follows:

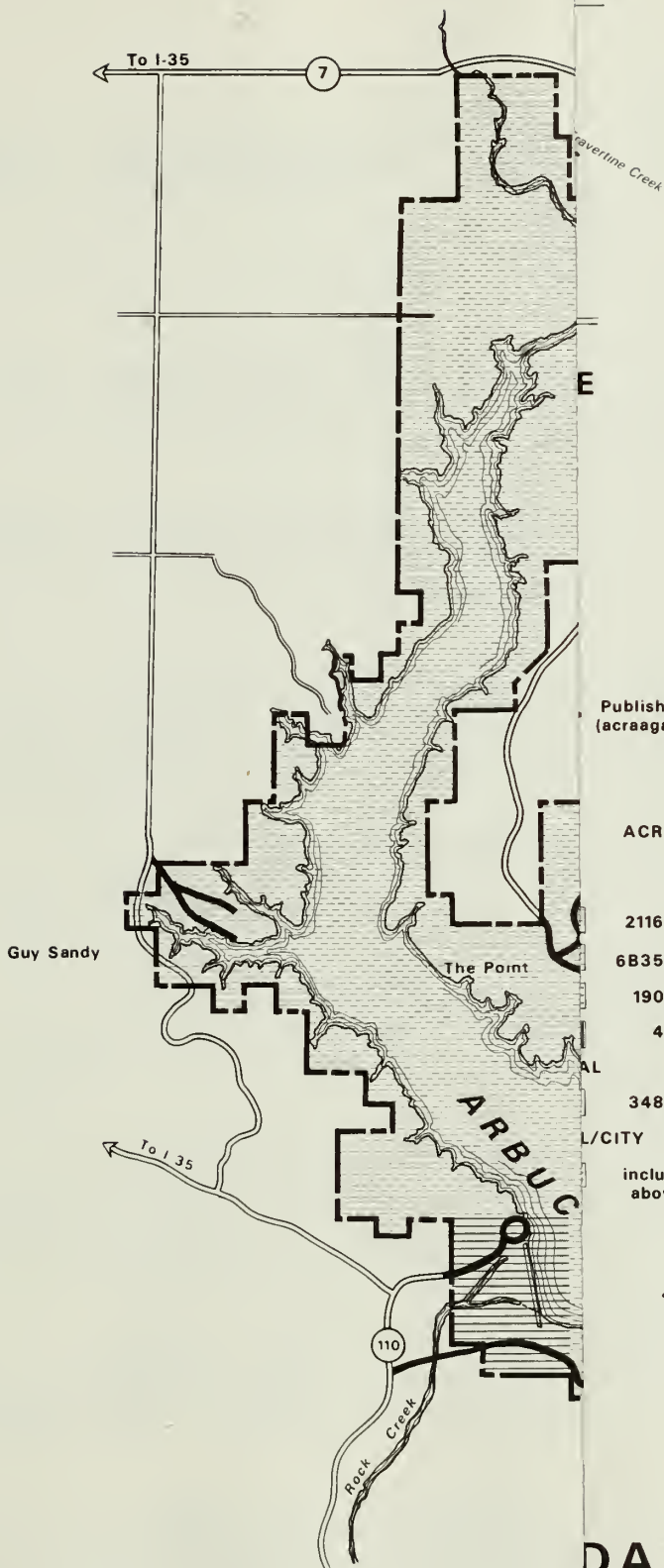
<u>Size</u>	<u>Location</u>	<u>Use</u>
4.11 acres	north of Travertine District along Rock Creek	City park and school athletic field; under NPS Special- use permit
0.64 acres	south of Travertine District, east of Veterans Lake	not used; acquired along with parcel inside boundary

#### B. Cooperative Agreements

##### 1. Interagency Agreements

The National Park Service has entered into the following cooperative agreements with other agencies in the Chickasaw NRA vicinity.

<u>Date</u>	<u>Cooperating Agencies</u>	<u>Terms of Agreement</u>
3/1/78	Bureau of Reclamation	Directs that administration, planning, and development of lands and facilities at Arbuckle Recreation Area will not interfere with operation of Arbuckle Reservoir for its primary purposes. Establishes procedure for oil and gas leases.
11/4/65 (became obsolete with act of 3/17/76; being withdrawn)	Oklahoma Department of Wildlife Conservation	Assigned specific responsibility for managing and protecting habitat and wildlife for recreation purposes in the Lake District. This included the former Arbuckle Public Hunting Area. (Guy Sandy Creek arm of Arbuckle Lake).



### BOUNDARY

Published in Federal Register on March 9, 1978  
(acraaga within-9491.36)

### OWNERSHIP

ACRES	MANAGED BY	ACQUIRED BY	RIGHTS OWNED
2116.94	NPS*	NPS	all surface, all mineral
6835.47	NPS	BR*	all surface, variable mineral
190.00	AMCD*	BR	damsite
4.75	surplus NPS land		
348.95	City of Sulphur		
included above	NPS /City of Sulphur platted land		

\* NPS- National Park Service  
BR- Bureau of Reclamation  
AMCD- Arkansas Master Conservancy District

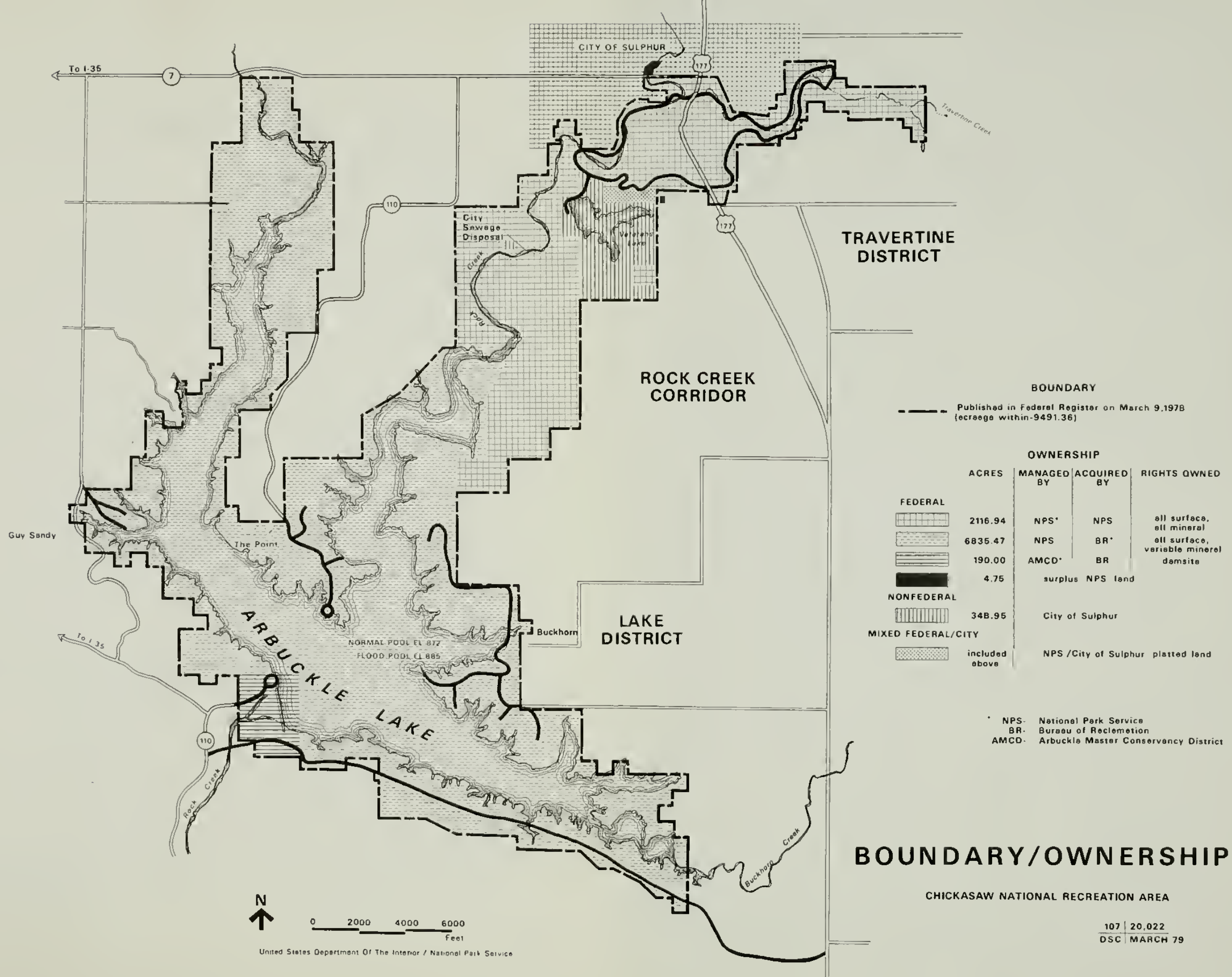
## BOUNDARY/OWNERSHIP

ARKASAW NATIONAL RECREATION AREA

107 | 20,022  
DSC | MARCH 79

United States





<u>Date</u>	<u>Cooperating Agencies</u>	<u>Terms of Agreement</u>
12/17/68	City of Sulphur	Details a cooperative plan for fire suppression within the Platt National Park, Arbuckle Recreation Area, and portions of the City of Sulphur.
12/11/68	Murray County Sheriff's Department	Spells out law enforcement and search and rescue responsibilities, and provides for mutual assistance in these fields.
6/29/73	Oklahoma Department of Public Safety	Provides for mutual assistance in underwater search and rescue.

A memorandum of agreement executed December 11, 1968, with the Murray County sheriff's department spells out law enforcement and search and rescue responsibilities, and provides for mutual assistance in these fields.

A memorandum of agreement executed June 29, 1973, with the Oklahoma Department of Public Safety provides for mutual assistance in underwater search and rescue.

## 2. Special Use Permits

These are authorizations granted by the National Park Service to individuals and/or corporations for specific limited uses. Their locations are shown on the maps of Existing Conditions.

Permit No. PLAT 2-64. Issued to Sulphur Independent School District No. 1. Permits athletic running track and baseball outfield for Sulphur High School. This NPS land is outside the park and is available for exchange with the City of Sulphur for lands the City owns within the boundary.

Permit No. PLAT 2-62. Issued to State of Oklahoma - Oklahoma Highway Commission. Permits entrance road to Oklahoma State Veterans Hospital from U.S. 177 at south park entrance.

Permit No. PLAT 1-62. Issued to State of Oklahoma - Oklahoma Highway Commission. Permits maintaining and using NPS lands outside the park boundary where State Highway 7 bridges Rock Creek in Sulphur for public highway purposes.

Permit No. 14-10-330-3. Issued to Sulphur Telephone Company. Permits establishing and maintaining aerial telephone cable systems in Travertine District.

Permit No. 14-10-133-142. Issued to Oklahoma Highway Commission. Permits right of way for State Highway 18A (U.S. 177) north-south through Travertine District.

Permit No. 3:619:1597. Issued to Goddard Youth Foundation. Permits Foundation to construct and operate youth camp to be used by Oklahoma and Texas school systems for environmental study and appreciation.

Permit No. 3:619:1602. Issued to Rural Water District No. 1, Murray County, Oklahoma. Permits installation and maintenance of water line.

Permit No. 3:619:1610. Issued to Chickasaw Telephone Company. Permits installation and maintenance of underground and underwater telephone cable.

Permit No. 3:619:1611. Issued to Chickasaw Telephone Company. Permits installation and maintenance of underground and underwater telephone cable.

Permit No. J7510:1667. Issued to an individual. Permits construction and maintenance of private road in the Lake District.

Permit No. J7510:1668. Issued to an individual. Permits grazing and pasture of 7 cows in Rock Creek Corridor.

Permit No. J7510:1669. Issued to an individual. Permits grazing and pasture of twenty cows in Rock Creek Corridor.

Permit No. 14:10:0333-1572. Issued to Oklahoma Gas and Electric Company. Permits erection and maintenance of electrical transmission lines.

In addition, there are many utility lines running through Chickasaw National Recreation Area that are not covered by special use permits.

### 3. Concession Permits

Permit No. 7076-9-0001. Issued to Hicks' Service to provide camping equipment for use at Chickasaw National Recreation Area



Permit No. 3:107:1656. Issued to Oklahoma Publishing Company to install and service newspaper vending racks.

C. Existing Park Development

Existing development in Chickasaw is described by district. Locations of facilities are shown on the Existing Conditions maps.

I. Travertine District

The Travertine District contains a two-lane paved loop road approximately 6.4 miles in length with pulloff and drive-through parking areas associated with specific facilities.

Major structures include the Travertine Nature Center (built in part over Travertine Creek); in the eastern part of the District, this contains exhibit, office, library and storage space and an auditorium. The present headquarters building, in the central part of the district, serves the superintendent and administrative division. Other year-round structures include four employee residences (one also serves as staff offices), a ranger station which handles the park's campground reservation system, and the maintenance area with office, garage, yard, and storage building. Structures that may be closed part of the year, generally in the winter, include 13 sewer comfort stations and 2 camper check-in stations.

Three pavilions (structures open on the sides) shelter the spring areas of Bromide, Black Sulphur, and Pavilion--two are in the western half of the District, Pavilion is just east of U.S. 177. Signboards at each state the chemical analyses of the waters.

Other facilities include three campgrounds and numerous picnic areas. The three campgrounds are Rock Creek with 106 individual sites and 1 group site, Cold Springs with 62 individual sites and 2 group sites and Central with 18 group sites. This provides a total of 168 individual and 21 group campsites in the Travertine District. These sites are equipped with tables, fire grates, and access to comfort stations. There is one sanitary trailer dump station in the district, in the Bromide area. There are approximately 250 picnic sites in the Travertine District, with many arranged to handle large groups. Tables, fire grates, and comfort stations are provided at the picnic areas.

In addition to these park developments and facilities, U.S. Route 177 bisects the Travertine District north-south. Two on-grade intersections exist with the park loop road, with Route 177 having the right of through traffic. Access to the City of Sulphur-owned Veteran's Lake tract and a few private residences is also provided off the park loop road.

2. Rock Creek Corridor

At present, the newly acquired Rock Creek Corridor has no park development facilities. It does contain the City of Sulphur's sewage treatment plant and the unpaved access road thereto. Some unpaved vehicle tracks have been inherited from prior uses in the corridor but these are neither open to the public nor used for routine management access.

3. Lake District

The Lake District contains three developed areas on the shores of Arbuckle Lake's three arms, and limited facilities in the northern part of the reservoir's westernmost Guy Sandy Creek arm.

In the northern Guy Sandy Creek section are numerous unpaved roads, one employee residence and a small-boat launching ramp.

The Guy Sandy developed area is on the west side of the Guy Sandy Creek Arm of Arbuckle Lake. Development consists of paved access roads (less than 1 mile), boat launching ramp and breakwater and a paved parking area with 11 double spaces and 10 single spaces. Facilities include a campground with a temporary camper check-in station and 39 individual campsites. The campsites are provided with a table and fire grate and have access to chemical toilets.

Another developed area on Arbuckle Lake is The Point, situated between the Guy Sandy Creek and Rock Creek arms. Development consists of approximately 2 miles of paved road, a boat launching ramp with a paved parking area of 104 double spaces and 32 single parking spaces. Structures include 4 sewer comfort stations (1 at the launch area), a temporary ranger station housed in a trailer and an employee residence in a mobile home. Facilities include a small maintenance yard (with no permanent structures) and a campground with a summer-operated, temporary, check-in station. The campground consists of 52 individual campsites provided with a table and fire grate plus access to comfort stations. There is a partly developed swimming beach.

The third developed area is Buckhorn, on the east side of Arbuckle Lake, situated on a ridge that divides the Buckhorn Creek and Rock Creek arms. Development here consists of approximately 3.5 miles of paved road, a boat launching ramp with 2 paved parking areas totalling 116 double spaces and 80 single parking spaces. Structures include 6 sewer comfort stations (1 at the boat launch), a summer-operated, temporary, ranger station housed in a trailer, and an employee residence in a mobile home. Facilities include a small maintenance yard with no permanent structures, a water treatment plant served by a non-paved



### FACILITIES

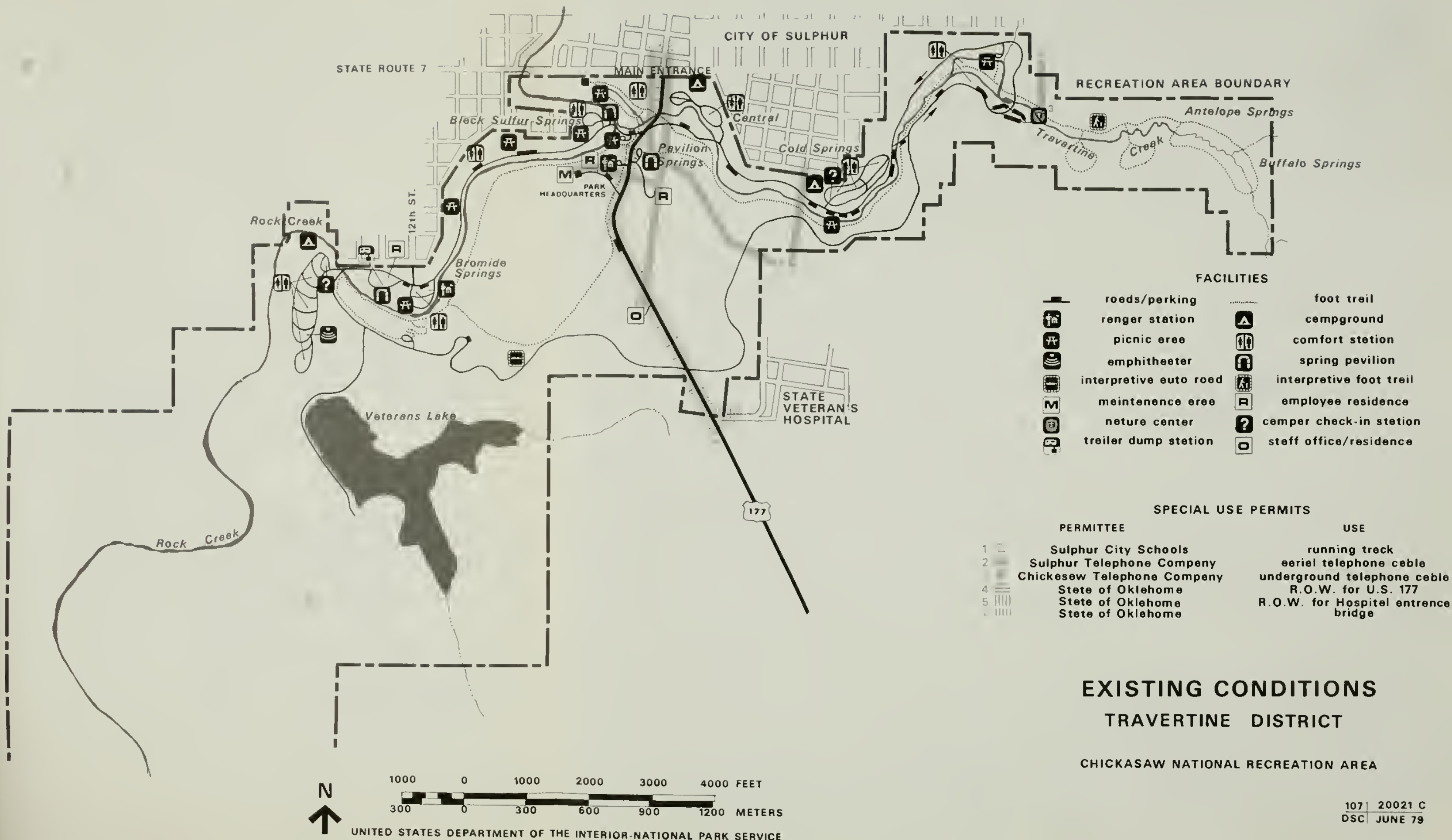
	roads/parking		foot trail
	ranger station		campground
	picnic area		comfort station
	amphitheater		spring pavilion
	interpretive auto road		interpretive foot trail
	maintenance area		employee residence
	nature center		camper check-in station
	trailer dump station		staff office/residence

### SPECIAL USE PERMITS

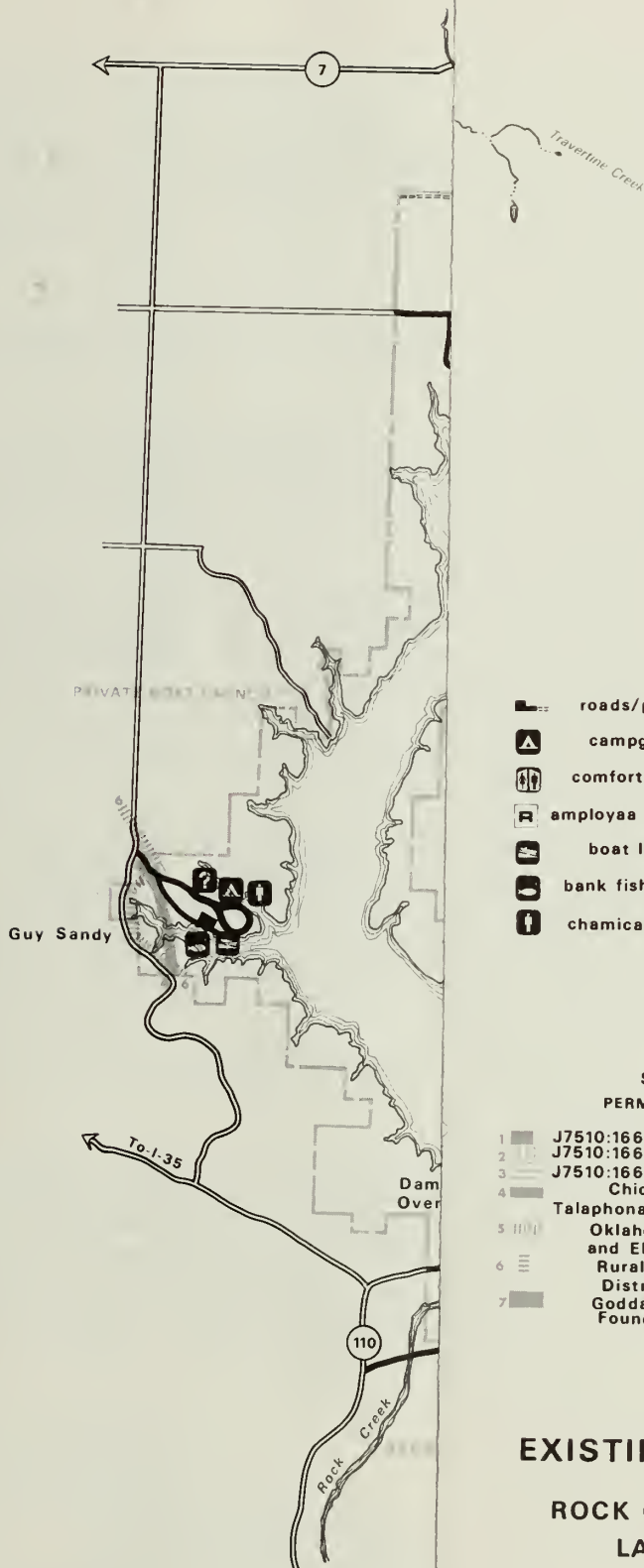
PERMITTEE	USE
Sulphur City Schools	running track
Sulphur Telephone Company	aerial telephone cable
Chickasaw Telephone Company	underground telephone cable
State of Oklahoma	R.O.W. for U.S. 177
State of Oklahoma	R.O.W. for Hospital entrance
State of Oklahoma	bridge

## EXISTING CONDITIONS TRAVERTINE DISTRICT

CHICKASAW NATIONAL RECREATION AREA







#### FACILITIES

	roads/parking		ranger station
	campground		picnic area
	comfort station		amphitheater
	employee residence		maintenance area
	boat launch		swimming area
	bank fishing area		park water treatment plant
	chemical toilets		camp check-in station

#### SPECIAL USE PERMITS

##### PERMITTEE

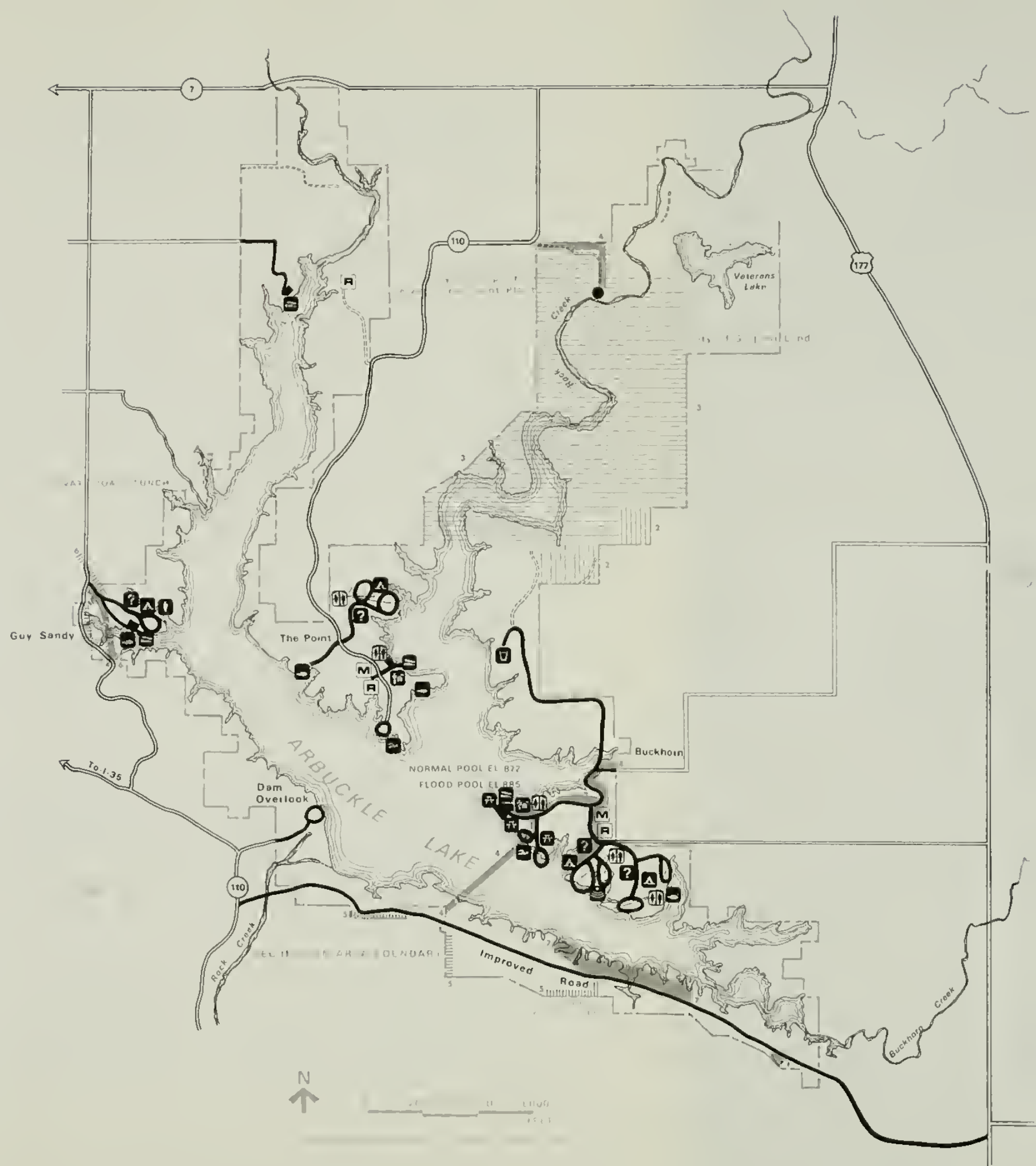
##### USE

1	J7510:1667 (individual)	private road
2	J7510:1668 (individual)	grazing
3	J7510:1669 (individual)	grazing
4	Chickasaw	underground/underwater telephone cable
5	Talaphona Company	
6	Oklahoma Gas and Electric	aerial power line
7	Rural Water District #1	water line
	Goddard Youth Foundation	non-profit youth camp

## EXISTING CONDITIONS

### ROCK CREEK CORRIDOR LAKE DISTRICT

CHICKASAW NATIONAL RECREATION AREA



#### FACILITIES

	roads/parking		ranger station
	campground		picnic area
	comfort station		amphitheater
	employee residence		maintenance area
	boat launch		swimming area
	bank fishing area		park water treatment plant
	chemical toilets		camp check-in station

#### SPECIAL USE PERMITS

PERMITTEE	USE
1 J7510:1667 (individual)	private road
2 J7510:1668 (individual)	grazing
3 J7510:1669 (individual)	grazing
4 Chickasaw	underground/underwater
Telephone Company	telephone cable
5 Oklahoma Gas and Electric	aerial power line
6 Rural Water District #1	water line
7 Goddard Youth Foundation	non-profit youth camp

### EXISTING CONDITIONS

#### ROCK CREEK CORRIDOR LAKE DISTRICT

CHICKASAW NATIONAL RECREATION AREA

management road and approximately 100 picnic sites, the majority with fire grates. Four campground loops with a total of 177 individual sites and 2 group sites are provided, with approximately 160 having a table and fire grate; an amphitheater is provided. All campsites have access to comfort stations. There is a partly developed swimming area.

In the 190 acre Arbuckle Master Conservancy District tract (which includes the damsite), an overlook, with road and shelter, is provided.

The existing conditions maps show the access and circulation roads in the entire area, and the entrances for visitors. Three of these entrances are into the Travertine District, with the remainder into the Lake District.

Total available recreational facilities for Chickasaw include 4 launch ramps, 7 campgrounds with 459 sites and approximately 350 picnic sites, 3 spring pavilions, hiking and interpretive trails, a nature center and 2 amphitheaters.

Utilities in the recreation area also differ by district:

Travertine District is served by the City of Sulphur water system with three chlorinators within and provided by the park. Sewage from Travertine is removed by gravity flow to the City of Sulphur treatment plant which is within the Rock Creek Corridor. From this plant the treated effluent is exported by pipeline from the watershed.

The Rock Creek Corridor has no water or sewer systems.

Two areas in the Lake District, The Point and Buckhorn, are connected by a pressure system to the City of Sulphur sewage treatment plant. These same two areas are served by a park water system taking raw water from Arbuckle Lake and treating it. The Guy Sandy developed area is connected to the Rural Water District #1 of Murray County for drinking water, which is chlorinated on-site. Guy Sandy has no sewage disposal connection.

#### D. Natural Resources

##### I. Hydrology

##### a. Surface Water

The entire Chickasaw National Recreation Area is contained within the Rock Creek watershed, a drainage basin of 170.4 square miles tributary to the Washita River. Main tributaries of Rock Creek are Guy Sandy Creek and Buckhorn Creeks.

Travertine Creek through Travertine District is another, lesser tributary, drawing its waters from Antelope and Buffalo Springs--large freshwater springs (occasionally dry, however). Travertine District includes a number of cold-water mineral springs; most of these are sulfur, but two are bromide springs.

Rock Creek and its tributaries now flow into Lake of the Arbuckles, a reservoir of 108,000 acre-feet capacity that was created in 1966. This captures flow from 126 square miles of the Rock Creek drainage basin. The project was constructed by the Bureau of Reclamation for the purpose of flood control, water supply, recreation, and fish and wildlife benefits; the water control functions are now operated by the Arbuckle Master Conservancy District under a contract with the Bureau. The National Park Service, however, is primarily responsible for recreational use of the water surface as well as adjacent lands. The following tables indicate the reservoir's characteristics for various lake levels, and the allotments of water to various entities. Although the lake level has generally been maintained at a high stand of 872.0 feet (bottom of the flood control pool and also top of the conservation pool), it remains possible for extensive drawdowns (to the 800.0 foot level) to be made should the users increase their consumption. Also, during floods water may be held back until the level reaches the 885.3 foot crest of the "glory hole" spillway. There is also the situation where flood waters may rise above this level; the 100-year flood control contour, for instance, is at 885.85 feet. This potential zone of fluctuation is a factor to be included in design of recreational facilities.

Sedimentation of 7,500 acre-feet by the year 2063 was projected to occur when the reservoir was designed, leaving a total capacity for water storage at that time of 101,339 acre-feet.

The base flow in Travertine Creek is fed primarily from Buffalo and Antelope Springs, both in the park. Peak flows are the result of surface runoff that enters the creek from rainfall. The drainage area of the Travertine Creek basin is very small, and after a significant rainstorm the runoff hydrograph peaks and recedes rapidly.

Rock Creek has a larger drainage area than does Travertine Creek, receiving its base flow from a watershed outside Chickasaw National Recreation Area, and carries about 30% more surface flow than does Travertine. During a recent five year period, the flow in Travertine Creek, as measured at the Travertine Nature Center, was as much as 9 cfs in magnitude. The flow in Rock Creek has been unofficially observed to be several times this amount with occasional rises of 10 feet.



## ELEVATIONS, AREAS, AND STORAGE

Feature	Elevation	Area (Acres)	Storage (Acre-feet)
Top of dam	920.0		
Maximum pool	914.2	5,600	232,000
500-year flood control contour	891.2		
100-year flood control contour	885.85		
Top of flood control pool(1)	885.3	3,130	108,800
5-year flood control contour	877.6		
Top of conserva- tion pool	872.0	2,350	72,400
Average annual mini- mum pool	circa 860.0		
Top of fish and wildlife pool	827.0	610	9,800
Top of dead pool	800.0	120	780
Streambed	778.0		
Flood control storage	872.0-885.3	-	36,400(2)
Conservation storage	827.0-872.0	-	62,600
Fish and wild- life storage	800.0-827.0	-	9,050
Dead storage	778.0-800.0	-	780

(1) Spillway crest

(2) Contains 350 acre-feet for sediment storage.

## Apportionment of Available Water Supply

<u>Participant</u>	<u>Estimated Annual Reservoir Yield</u>	
	<u>Million gallons daily</u>	<u>Acre-feet per year</u>
<u>Arbuckle Master</u>		
<u>Conservancy District</u>		
Sulphur	1.21 (1)	1,359
Davis	1.32	1,485
Wynnewood	<u>0.70</u>	<u>780</u>
	3.23	3,624
Water Service Contracts (2)		
Industrial Use	(1.50)	(1,680)
Dougherty	<u>(0.10)</u>	<u>( 112)</u>
Total District Water	3.23	3,624
<u>State of Oklahoma</u>	18.19 (1)	20,376
Total water available	21.42 (3)	24,000

- 
- (1) Available at the reservoir (not being utilized at present).
- (2) To be supplied from surplus water allocated to cities as long as sufficient surplus water exists. Thereafter, water would be provided to water service contracts through acquisition of storage held in escrow by the State.
- (3) Water apportionments have also been made from the total available to the City of Ardmore and the Keer-McGee Corporation.

b. Groundwater Springs in Travertine District

It is the complex faulting and tilting of the local rock strata that partially explains the mineral and freshwater springs in close proximity. In 1935, thirty-three mineral and freshwater springs were flowing in the Travertine Creek and Rock Creek stream valleys. By 1939, the springs had dropped to 19, and in 1976 only 7 could be located. The general ground water status in the District has gradually deteriorated from strong to weak, or non-existent, artesian conditions.

Of the freshwater springs, Buffalo and Antelope are the biggest and best known. They constitute the main supply for Travertine Creek. Although their normal daily flow is 5 million to 6 million gallons, they have been known to flow at the rate of 9-1/2 million gallons per day, and also to dry up. Occasions when these two springs are known to have ceased flowing include (but are not restricted to) the following periods:

March 1926 to August 1926, September 1937 to June 1939, January 1951 to May 1951, October 1951 to June 1953, October 1953 to June 1956, February 1958 to December 1958, October 1962 to November 1963, October 1964 to July 1966, December 1976 to January 1977, December 1977 to March 1978, and December 1978 to March 1979.

The springs in the park are directly associated with groundwater recharge which is directly related to precipitation in the area. Buffalo and Antelope Springs derive their flows from the Arbuckle formation, an aquifer that crops out east of the District and at a higher altitude in an area of over 40 square miles. Rainfall on this formation percolates down the inclined strata in a general west to northwest direction toward the District. Then, about a mile east of the park boundary, the aquifer becomes overlain with the Vanoss formation, which acts as a confining layer for the water so that it flows from that point under artesian pressure. It is through cracks and fissures in the Vanoss formation that the water finds its way to the surface at Buffalo and Antelope Springs.

The same Arbuckle aquifer that supplies Buffalo and Antelope Springs is also tapped by the City of Sulphur well field, a few miles northwest of the springs. Because the ground surface at the City well field is about 70 feet lower than it is at the two springs, the city's wells flow almost continually under artesian conditions. It is also the case that artesian conditions exist for several miles north of the District boundary. For instance, one well (Vendome, on land newly acquired by the National Park Service along the north boundary line) is artesian, supplying water with a sulphur odor to an artificial stream through Flower Park in the Travertine District. The University of Oklahoma's Bureau of Water

Resources Research has recommended the flow of this well be decreased. The Bureau has also recommended that the City not permit discharge from its well field of excess flows into the surface water stream system, and to not allow drilling of any new artesian wells without adequate safeguards to stop flow of surplus water. The ground water supply from Buffalo and Antelope Springs to Travertine Creek will cease to exist if water stored in the Arbuckle formation aquifer is allowed to continue leaking out artesian wells faster than it can be replenished by natural rainfall.

The mineralized springs originate in the Simpson formation, which is shallower than the Arbuckle and has less artesian pressure. In fact, the mineralized springs have, for all practical purposes, ceased to flow under artesian conditions, and the public springs in the park are pumped so that visitors can have the famous sulphur water of reputed but unsubstantiated medicinal value.

Historically, the mineral springs have included the following:

The Pavilion Group - seven springs of sulphur content lying southeast of the confluence of Rock Creek and Travertine Creek - has the largest flow and is the most popular of the sulphur group.

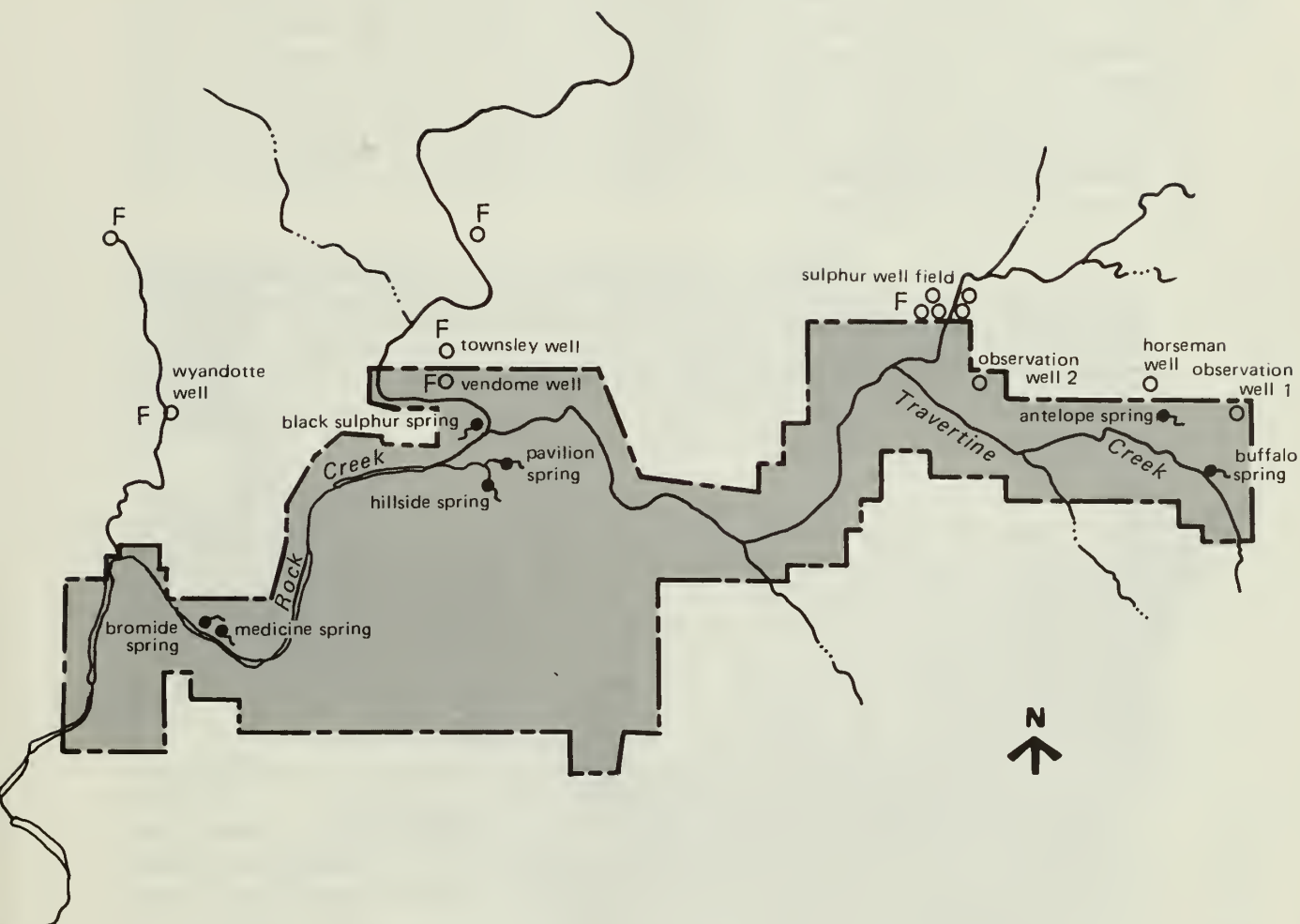
The Bromide Group lies at the base of Bromide Hill, south of Rock Creek near the west end of the Travertine District. The waters from these springs have been considered by many over the years to have the greatest medicinal value.

The Chalybeate Group (iron content) lies on the bank of Travertine Creek, halfway between the Pavilion Group and Buffalo and Antelope Springs.

Travertine deposits of contemporary and recent age are associated with the freshwater springs, as these waters contain large amounts of dissolved calcium bicarbonate, obtained by the leaching of the limestone conglomerates. Natural mechanical agitation of the waters in the streambed, plus the action of algae living in the water, results in the loss of carbon dioxide and the development of travertine, a relatively insoluble form of calcium carbonate. The extensive Travertine deposited are geologically very young and some are still being formed today.

c. Water Quality

The water quality of Rock Creek through the City of Sulphur and the Travertine District of the Chickasaw National Recreation Area is below the standards established by the Oklahoma Water Resources Board for the designated beneficial uses



- F Flowing well
- O Well (nonflowing)
- Spring

## TRAVERTINE DISTRICT

### SELECTED WELLS & SPRINGS

CHICKASAW NATIONAL RECREATION AREA



of that stream. The sustained flow for Rock Creek is a result of runoff and spring flow from land area several miles upstream from the boundary of the recreation area, where the stream traverses rangeland, past livestock holding pens, industrial property, and the City of Sulphur's storm sewer system. As a result of these sources of pollution, the acceptable nutrient concentrations and the fecal coliform levels are exceeded, resulting in observable algal blooms and concomitant water quality problems downstream in the Lake of the Arbuckles.

Other consequences of the degraded water quality of Rock Creek as a result of pollution from the industrial and urban activities are reduced aesthetic value and the loss of a very large portion of the waters of the Travertine District to park visitors as a recreational facility. All of Rock Creek flowing through the park is contaminated to a degree requiring prohibition of swimming and wading for health reasons.

The water quality of Travertine Creek is higher than that for Rock Creek since the sustained flow for Travertine emerges within the boundary of the recreation area and therefore is not subjected to pollution from urban and industrial activities. During periods of high recreational use, however, a noticeable increase in the number of total fecal coliforms has been observed below the swimming areas, to the point where even Travertine Creek has to be closed to body contact.

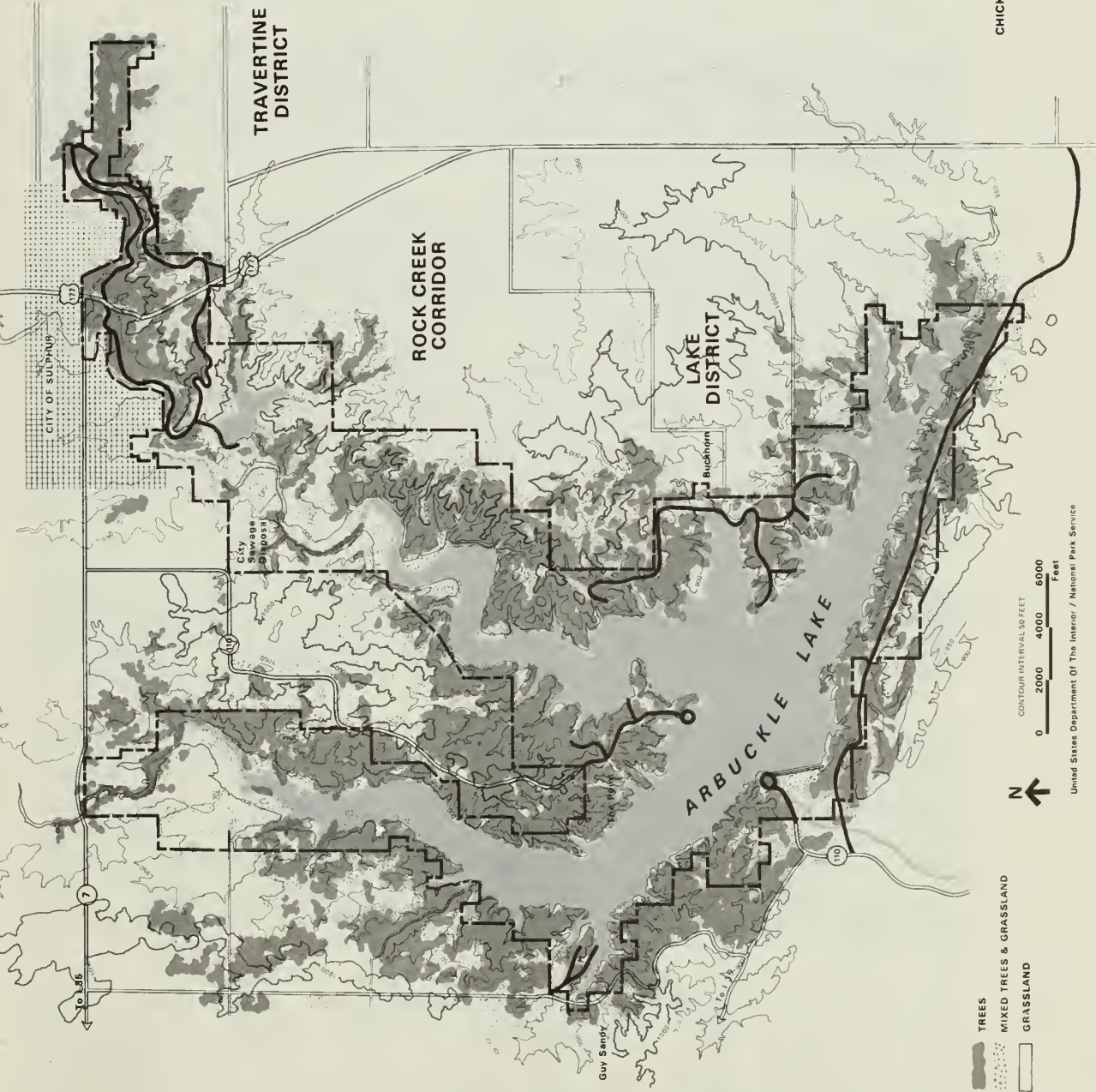
The sub-basins of Guy Sandy and Buckhorn Creeks, in general, produce a higher quality water than that of the Rock Creek sub-basin; however, the potential for a significant contribution of nutrient loading from agricultural activities has been demonstrated by virtue of the much greater percentage of land used for that activity.

The preservation of the Lake of the Arbuckles and maintenance of its water quality is of utmost importance and concern as it serves many people both as a recreational facility and a municipal and industrial water supply. This lake is now and has been for several years a highly eutrophied lake, making it less productive of game fish than envisioned before construction. Water quality studies on the lake indicate nutrient concentrations adequate to support algal blooms, which have been observed visually, and it has also been demonstrated that the water sources supplying the lake are the source of the nutrient enrichment.

## 2. Biologic Resources

### a. Flora

The region has a rich and varied flora. Because it lies in a botanical tension zone between prairie and deciduous forest, it has a variety of habitats and ecological niches.



# VEGETATION CHICKASAW NATIONAL RECREATION AREA

Four distinct forest types are recognized: in the short-lobed oak type, understories are absent in densely shaded areas, and open areas are characterized by communities of buckbrush and other low-moisture species. In the post-oak/winged-elm type, Texas ash and catbrier often occur in association. The Texas-oak/chinquapin-oak type often has the understory dominated by American elm, roughleaf dogwood, winged elm, and bittersweet. The American-elm/southern-hackberry type has bitternut hickory and black walnut as secondary species.

On the higher rocky slopes, yucca, pricklypear cactus, and dwarf sumac abound. Undisturbed parts of the moderately moist grassland community are composed of many species of true prairie plants, such as beardgrass, Indiangrass, and switchgrass.

The vegetative composition of the area has changed since the 1930's. The trend is toward an increase in eastern red cedar and a corresponding decrease in natural grasses and forbs on the uplands, reducing carrying capacity for foraging species. Furthermore, duff and litter are accumulating in the forested areas along the creek bottoms and fuel amounts are showing considerable increases. Additionally, members of the greenbriar family have grown up along stream borders until access to the water is extremely difficult in places. These apparent vegetational shifts may be the result of the policy to extinguish all fires, even though fire may have been a natural component of the ecosystem.

b. Fauna

Many faunal species are near the extremes of their ranges in the national recreation area. Also, many ranges overlap, and this overlapping of species - northern and southern, eastern and western - comprises the ecologic attraction of the area.

Various species of shad, catfish, carp, shiner, bass, sunfish, bullhead, drum, carpsucker, gar, and crappie are common in the area's freshwater streams, ponds, and lakes. Gambusia (Gambusia affinis) is one of the few species found in the sulphur pools in Flower Park in Travertine District. Northern pike, a nonnative species, was introduced to the Arbuckle Lake in 1967 but has not been observed since 1975. Fish in the lake have direct access to the Rock Creek Corridor and Travertine Districts by stream.

More than 100 species of birds have been recorded here. Most common are the cardinal, bluejay, robin, and various species of sparrows and woodpeckers. Golden eagles nest near Arbuckle Lake, but no nesting sites have been observed within the boundaries of Chickasaw National Recreation Area. The wild turkey population is increasing.



Pronghorn (antelope) were once common to the area, but are not presently found closer than 100 miles to the west. Reintroduction potential is not known. Armadillo, opossum, short-tailed shrew, eastern mole, eastern cottontail rabbit, jackrabbit, fox squirrel, various mice and rats, gray fox, bobcat, raccoon, beaver, and various skunks are common. Flying squirrels are of particular interest, although seldom seen. Louisiana white-tail deer are present.

Poisonous snakes include the copperhead, diamondback rattlesnake, and water moccasin. Other reptiles and amphibians of the area include speckled king snake, hog-nosed snake, coachwhip, bull snake, black rat snake, eastern collared lizard, Texas horned lizard, ornate box turtle, snapping turtle, three-toed box turtle, bull frog, leopard frog and narrow-mouthed salamander.

### 3. Threatened, and Endangered Species

No species shown on the federal list of endangered species, Federal Register, Vol. 44, Number 12, Jan. 17, 1979, are known to occur in the area.

### 4. Soils and Topography

The Chickasaw National Recreation Area lies within the Arbuckle uplift, on the northern edge. The NRA is a region of moderate topography, with rolling hills and a few steep bluffs in the northern portion, and, in the southern section, steep valley sides lining Arbuckle Reservoir with bluffs along lengthy sections, especially on the sides of the Rock Creek arm. In this southern section, the land is generally flatter on the interstream uplands. South of Arbuckle Reservoir is a significant, linear mountain, and it is at the natural water gap in this mountain that Rock Creek has been dammed to flood its main channel and the Buckhorn and Guy Sandy Creek tributaries.

Major soils in the area are: Denton clay loam, Denton stony loam, and Gilson gravelly loam.

Denton clay loam is the most important arable soil in the county. It is a fairly dark heavy prairie soil developed from limestone and interbedded calcareous shales. Denton clay loam, deep phase, has a gently rolling relief and is well drained. It is moderately fertile. This soil is susceptible to erosion because the fine granules of the dried surface soil are moved easily by running water. The principal areas of this soil occur mostly in the Guy Sandy Creek basin, the western half of Rock Creek basin, and the northern portion of Buckhorn Creek basin.

Denton stony loam is somewhat similar to Denton clay loam, but is shallower and stonier than the clay loam. It is

characterized by abundance of limestone gravel and by broken relief. This soil occurs principally in the eastern part of Rock Creek sub-basin.

Gilson gravelly loam is light-colored forested soil developed from limestone conglomerate. The material is very loose, and erosion is severe on the unprotected or cultivated soil. It is associated in most places with Gilson soil material (rough broken land), principally in the breaks of Guy Sandy Creek southwest of Sulphur. The relief is rolling or gently rolling.

#### 5. Climate

Overall, Chickasaw National Recreation Area is in a warm continental climate. Annual rainfall averages 38 inches. Humidity is variable, the monthly mean ranging from 46% to 80%. Rainfall is erratic in pattern, "adequate" 53% of the time, with droughts of severe to extreme intensity 11% of the time. Approximately 70% of the normal annual rainfall occurs during the growing season, April to October.

Winter is the driest season (having implications for wildfire incidence), and is usually mild and of short duration, its storms dropping only a few inches of snow at a time and then melting within a few days. Freezing snows or rains coat the landscape and roads with thin ice occasionally; severe "northers" occur very infrequently. Winter storms are generally of low intensity, extend over large areas, and have several days' duration.

Major storms have occurred in the Rock Creek Basin during all seasons of the year, but most frequently during the months of May, June, September, and October. Thunderstorms having high intensity and short duration usually occur during spring and summer months; hail activity occurs.

The long, warm summers provide many hot days which are eased by the presence of relatively low humidity, prevailing southerly winds, and occasional rain showers or thunderstorms. However, drought conditions are greatly intensified when brisk, hot winds out of the southwest accompany high daytime temperatures. Cooling trends of autumn begin with the secondary maximums of precipitation that occur in September.

The mean annual freewater surface evaporation for the region is approximately 57.5 inches.

The 30-year mean annual temperature is 63oF, with the January mean 40oF and the July mean 83oF. Temperature extremes recorded at Sulphur since 1892 have been 15oF to 120oF.

The average surface wind speed is about 13 miles per hour. Less than 2 percent of the winds exceed 25 miles per hour and nearly 50 percent of the observations are reported as calm. The area is subject to tornadoes, and although rare, this action does produce destructive winds of over 100 miles per hour.

#### E. Visitors and Socioeconomic Environment

Compared with the State of Oklahoma and the nation, Chickasaw National Recreation Area lies within a relatively depressed economic area. The regional economy is based upon light manufacturing, service industries, hospital institutions, agriculture, and oil/gas production. Tourism is an important source of income. Livestock production and dairy farming contribute the bulk of Murray County's agricultural income--56 and 34 percent, respectively. Poultry production is now significant, and gaining.

The ethnic composition of Murray County's population is predominantly white. Of the 10,669 residents counted in 1970, 9,992 were of the white race. There were 189 residents of the Negro race, 470 residents of the Indian race, and 18 residents of all other races. Thus, although a distinct minority, Indian residents are the second most populous group, a fact to keep in mind with respect to the name and major portion of the interpretive theme for the area.

Several hundred recreational homes are located around Arbuckle Lake, (outside the recreation area), with more sites being developed including a mobile home development near Buckhorn. This may increase "local" demand for boating. Motels, restaurants, automobile service stations and garages, and boating and fishing supply stores are also present in Sulphur and along some access roads. A commercial travel trailer campground has operated near Sulphur along the road to The Point, and may do so again.

More than 5.5 million people live within a 200-mile radius of the recreation area--a feasible distance for weekend recreational use. Interstate Highway 35 passes within 11 miles west of the national recreation area, as it runs north-south between Oklahoma City and Dallas/Fort Worth, Texas. U.S. Highway 70, a major east-west traffic corridor, lies 30 miles south. State Highway 7, being converted to four-lanes, lies at the north boundary.

Because the recreation area's use is primarily as a weekend outing for local and regional residents--rather than a common destination for out-of-state tourists--the visitation probably represents a smaller number of people making multiple visits over the year's time. Some out-of-state visitors use the recreation area, usually as an intermediate stop on the way to other destinations. Surveys indicate that of the out-of-state visitors, the majority originate in adjacent states rather than more distant ones.

Visitor Use Statistics for Chickasaw National Recreation Area (rounded)

<u>Recreation Visits</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Travertine District	2,137,000	2,028,000	1,694,000	1,750,000	1,653,000	1,602,000	1,361,000	681,000
Lake District	414,000	329,000	359,000	318,000	373,000	423,000	523,000	464,000
Combined Statistics for Both Districts	2,551,000	2,357,000	2,053,000	2,068,000	2,026,000	2,025,000	1,884,000	1,145,000
<u>Campers</u>								
Travertine District	171,000	163,000	80,000	87,000	75,000	76,000	61,000	45,000
Lake District	71,000	79,000	63,000	60,000	60,000	58,000	55,000	46,000
Combined Statistics for Both Districts	242,000	242,000	143,000	147,000	135,000	133,000	115,000	91,000
Boats (Lake District	.....	Statistics not available.....			23,000	23,000	23,400	25,000
Goddard Youth Camp (Lake District		"	"	"		4,940	5,160	5,290



Recent figures for visitor use are shown in the following table, revealing a recent decline of use in the Travertine District, for which there is only conjectures as to the causes. These guesses include improvements in recreational facilities elsewhere in the region, internal road-paving projects, deteriorating visitor experiences due to diminished water flow and pollution, and extremely hot summer weather. Over a 22 day span during the summer of 1978, 18 days were over 100oF. and there also were 24 consecutive days with maximum temperatures between 99oF. and 105oF.

Major visitor activities at Travertine include auto touring, picnicking, camping, nature study, walking, wading (when water quality permits), limited fishing, photography, attending nature center programs, partaking of mineral spring water, and attending family reunions. There is heavy spring and fall use by environmental education school groups at the Travertine Nature Center.

Lake District provides camping, limited hiking, picnicking, swimming, boating, fishing, hunting, sailing, water skiing, and sunbathing.

Counts indicate that 70 to 80 percent of the visits occur during April through September. The family group, particularly in reunion gatherings, is common in the Travertine District, usually picnicking.

In the years 1973 to 1977, camping fluctuated without trend in both areas, and approximately 8 percent of the total number of visitors have been campers.

U.S. Highway 177, an important through highway in the region, passes directly through the Travertine District. Use has been comparatively constant in recent years, at an average of 1,800 vehicles per day; of that total 8% are heavy trucks (with two or more dual-wheeled axles).

#### F. History and Cultural Resources

The Chickasaw National Recreation Area is part of the general prehistoric cultural province of the Caddoan-speaking tribes of the Central and Southern plains. It is internally marginal to the localities of two moderately well-defined cultural entities--the Henrietta Focus and the Washita River Focus, both early village agriculturist groups. Sites representative of the Spiro Focus and the Fulton Aspect could also exist in the area. Any archaic sites that may be present would be expected to have Fourche Maline or Grove Focus affinities or perhaps the Edwards Plateau material of north-central Texas. There are no known paleo-Indian sites in the area. The suspected, tentative cultural sequence of the area is as follows:



Historic Tribes: Eighteenth Century to present, including the Caddoans, and such southeastern area imports (along the "Trail of Tears") as the Chickasaw.

Washita River and Herietta Foci: From Ca. A.D. 1000 to 1450, or slightly later.

Archaic: Dates here could run from perhaps as early as 5-6,000 B.C. into the early centuries of the Christian era.

Paleo-Indian: Possibly 12,000 B.C. to 5-6,000 B.C.

An archeological reconnaissance by the University of Oklahoma in 1958-60 located 19 archeological sites within what was to become the Arbuckle Recreation Area (now essentially the Lake District). A later survey completed in 1964 located 34 more sites. Most of these sites were inundated as the reservoir filled with water after construction of the dam. Surface collections made during both surveys suggest that the region has been occupied over a considerable span of time, extending from archaic into historic. Test excavations made in 1968 at Antelope Springs in Travertine District failed to reveal any archeological features, even though a number of artifacts had been collected from that area earlier.

Indians are known to have frequented the region during early historic times. Legends tell that the streams near Sulphur were often dotted with tepees. The site of Fort Arbuckle lies 7 miles west of Davis; established in 1851, the fort was used in connection with the frontier wars, but it is undeveloped for tourism today.

The story of settlement, and subsequent Indian efforts to protect the mineral springs from exploitation--which eventually led to the establishment of Platt National Park--are also of interest.

The NRA mineral history, particularly that of mining the gilsonite pits for road paving materials, relates to both local geology and the economy.

No properties within the national recreation area are listed on the National Register of Historic Places, and none are eligible for such listing. Two properties are on the National Park Service List of Classified Structures:

The Leeper House (presently used as park administration office in Travertine District) was nominated to the Register, but was rejected by the State Historic Preservation Officer. The building was constructed in 1894 and has been used as a ranchhouse, community building, hardware store, and a schoolhouse until 1904 when it became the park administration building. One

large room was added in 1934-35 by the Civilian Conservation Corps. The area listed totals 1.5 acres, and is just west of U.S. Highway 177 south of its Travertine Creek crossing.

The Lincoln Bridge is about 1/4-mile north of the Leeper House. It too was nominated to the Register, but was likewise rejected. This bridge dates from 1909 and features moderately fanciful rockwork with turret-like overlooks of the stream. Originally for a wagon road, it presently provides a pedestrian crossing north into Flower Park from a parking area just west of U.S. Highway 177. The area listed includes the lands within a 150-foot radius of the bridge, totaling approximately two acres.

Lowrence Springs is a site 4 miles southeast of Sulphur, 1/2-mile east of U.S. Highway 177 (see map "Existing Conditions Lake District/Rock Creek Corridor"), that is listed on the National Register of Historic Places (entered March 10, 1975). This is not inside the Chickasaw National Recreation Area, but is mentioned here as a peripheral feature. This site represents the location of an important late prehistoric/early historic base camp for such native people as the Caddo, Wichita, and perhaps the Apache and Comanche, from which they hunted buffalo. The site thus provides data that supports the observations as to natives inhabiting and using this segment of the ecotone between the Southern Plains and Eastern Woodlands. Archeological test work conducted here in 1969 confirmed the presence of structures and other archeological features relating to the late prehistoric habitation of this camp.



## THE PLAN





### III. The Plan

#### A. Management Objectives

Management objectives for units of the National Park System are intended to provide broad guidance to park management and planning in applying the policies of the National Park Service to a given park. Thus, they are broader in scope than the general management plan which flows from them, but more specific than national policy and the park's enabling legislation from which they flow. For Chickasaw, the following objectives are in effect:

#### Management, Administration, and Support

Design and erect suitable markers or plaques to honor the memory of Senator Orville Hitchcock Platt and to commemorate the original establishment of Platt National Park.

Administer, maintain, and manage with area-wide maintenance, interpretive, administrative, and resource management programs; and provide visitor safety and protection based on a two district system (Travertine and Lake).

Maintain liaison with the following:

The city of Sulphur which pumps water from near the area's groundwater springs and has utility lines, a reservoir, and sewage treatment plant located in the area.

The Chickasaw Indian Tribe on matters pertaining to heritage and culture within the area now bearing the Tribe's name.

The Arbuckle Master Conservancy District which operates the Arbuckle Lake water regime.

The Oklahoma Department of Transportation which maintains the U.S. Highway which traverses the Travertine District and Murray County Commissioners who assure maintenance on access roads to the Lake District.

Goddard Youth Camp, a privately endowed, non-profit organization on the south shore of Arbuckle Lake.

#### Interpretation and Visitor Services

Promote maximum utilization of Travertine Nature Center and the adjoining Environmental Study Area (ESA) by environmental education groups.

Promote and support environmental education activities at the National Environmental Education Development (NEED), at the Goddard Youth Camp.

Provide recreational activities such as boating, fishing, hunting, camping, picnicking, and trail use in the Lake District. Promote energy conserving recreational activities wherever possible.

Provide streamside activities, nature walks, spring visits, trail use, camping, and picnicking in the Travertine District.

Develop interpretive activities in the Travertine District to include the story of the springs, man and the environment, and the Chickasaw Indian history and culture.

#### Visitor Protection and Safety

Provide patrol and search/rescue capability over area land and water to include roads, trails, lake surface, and underwater.

Communicate information on the safe recreational use of Lake Arbuckle and surrounding terrain in both the Lake and Travertine Districts.

#### Natural Resource Management

Implement or continue water and air quality, geological, hydrological, and ecological studies to facilitate area management, conservation, and education programs. Areas that need immediate study are soil types, vegetative types, and biological and mineralogical stream surveys.

Maintain the area in a condition approaching the natural character as nearly as possible, recognizing the past developed, agricultural, or recreational character of various parts of the area and the need for manipulative landscape techniques in heavy visitor use areas.

Discourage non-native species and prevent the introduction of additional exotics.

Perpetuate and/or restore the native oak-hickory savannah.

Provide public hunting of native species in natural habitats and in natural concentrations on a sustained yield basis in cooperation with the Oklahoma Department of Wildlife Conservation.

Extinguish all wild fires pending research to determine how to use fire as a natural resource management tool.

Negotiate and maintain an agreement with the Oklahoma Department of Wildlife Conservation for the management of game and fish in Chickasaw National Recreation Area. The former Arbuckle Public Hunting Area (Guy Sandy Creek arm) to be administered and managed by the National Park Service.

Seek ways to preserve the community groundwater resources.

### Cultural Resource Management

Interpret and maintain existing sites of minor archeological and historical significance to the degree compatible with other area programs.

### Planning and Construction

Orient camping opportunities toward the resource rather than amenities--with no provision within the Area for food, lodging, gas, or other supplies.

Provide an optimal recreational experience ranging from crowd to solitary activities.

Separate and cluster users at different places, allot sections of the lake for slow-speed boating or still fishing, and land areas for hiking and nature study, for hunting, and for bicycling.

Provide trails connecting the Lake and the Travertine District.

Remove non-recreational travel which now utilizes U.S. 177.

Provide staff housing at key locations where public housing is not readily available, to the degree essential for emergency protection services and surveillance and to facilitate maintenance.

Locate an administrative/visitor orientation building on acquired lands on the north edge of the recreation area.

### Land Acquisition

Acquire all rights to lands within the boundaries.

Resolve problems connected with the Veterans Lake dam spillway and general maintenance, including dump grounds and then accept, by donation from the city of Sulphur--if offered--the 344.5 acre Veterans Lake Tract and a 0.7 acre tract bordering Rock Creek and Davis Avenue and exchange these for two small NPS tracts located outside the boundaries.

### B. Management Zoning

The National Park Service has adopted a system of management of its areas through the delineation of zones and subzones in each park unit and establishment of national policies for managing each type of zone. Thus, rather than having a set of broad policies that apply to all of Chickasaw National Recreation Area, there are instead particular policies that apply to each of variously zoned sections. This approach is especially appropriate

at Chickasaw because of its diverse character--reservoir recreation, historic features, environmental study area, etc. Consequently, management zoning is proposed for the area as shown on the following map. These zones are described below, with notes on the intended management emphasis and how they fit Chickasaw. Some of the zone assignments may not fit present situations, but land uses will be managed to evolve into conformance during the life of this plan.

SUMMARY OF MANAGEMENT ZONING  
(by acreage and percent of total)

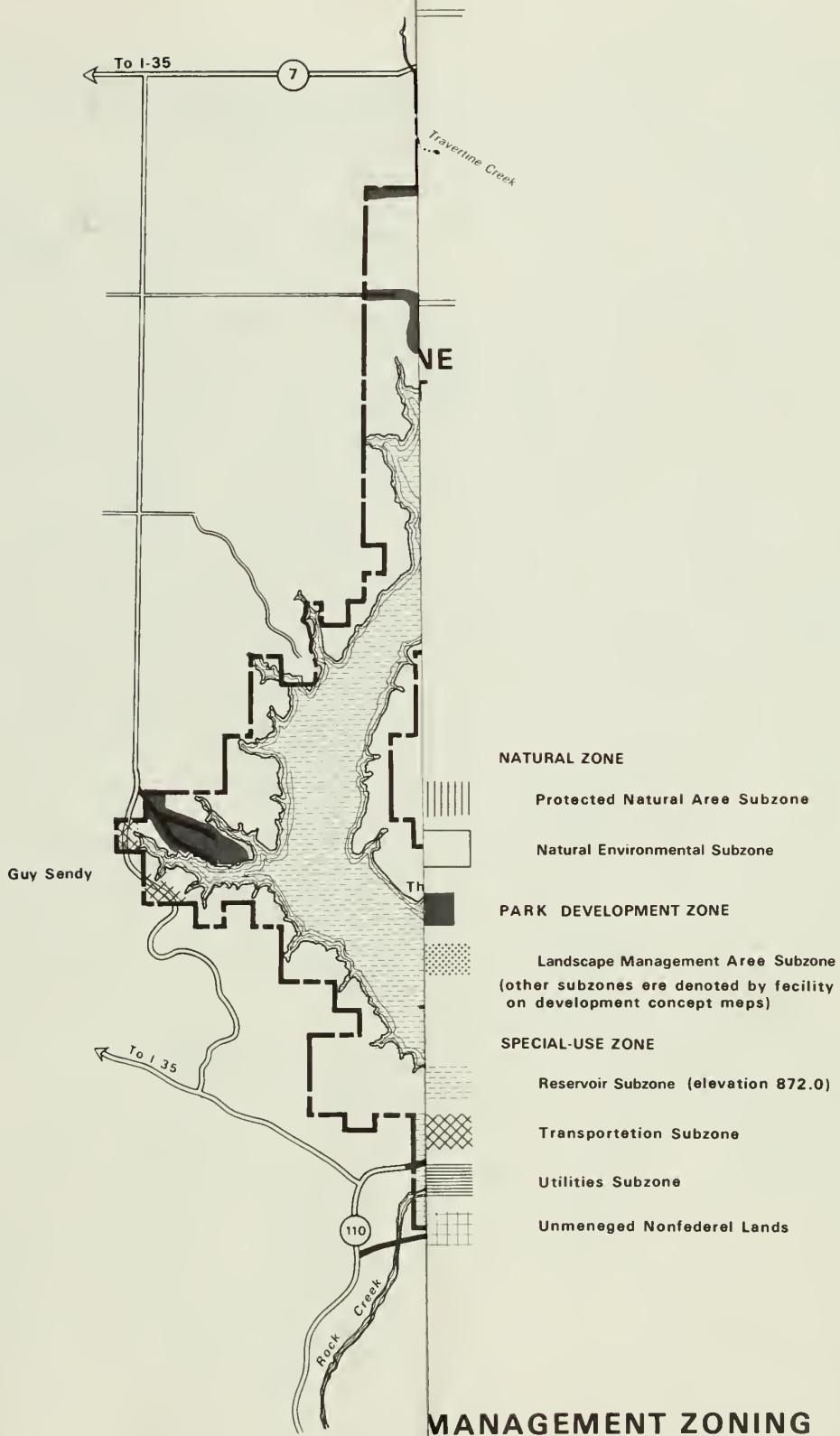
ZONE/Subzone	APPROXIMATE ACREAGE	PERCENT OF (9491.36) <u>TOTAL ACREAGE</u>
NATURAL ZONE		
Natural Environmental Subzone	6018.19	63.41%
Protected Natural Area Subzone	138.78	1.46%
PARK DEVELOPMENT ZONE		
Landscape Management Area Subzone	20.81	.22%
Other Subzones	448.09	4.72%
SPECIAL USE ZONE		
Reservoir Subzone	2450.00	25.81%
Transportation Subzone	76.74	.81%
Utilities Subzone	84.50	.89%
Unmanaged Nonfederal Lands Subzone	253.75	2.67%
<hr/>		
	9490.86	99.99%

TABLE OF MANAGEMENT ZONES

ZONE/Subzone	national policy	Management Emphasis application at Chickasaw NRA	
NATURAL ZONE	Conservation of natural resources and processes, and accommodation of uses that do not adversely affect these resources and processes.	Natural Environmental Subzone	Includes large tracts of land in the corridor connecting Travertine and Lake Districts, in the central portion of Travertine District, and at the head of Guy Sandy.
	Provision of environmentally compatible recreational activities. Where recreational activities are not now occurring, these areas are undeveloped and managed to conserve natural resources.		
	Perpetuation of geological or ecological values without, or with minimal, human intrusion. These lands and waters are set aside for strict protection because of unusual fragility or ecological significance. is	Protected Natural Area Subzone	Lands at the eastern end of the Travertine District (east of the Nature Center) are set aside in this subzone because of the limited use intended for this habitat type that otherwise rare in this section of Oklahoma where agricultural use has prevailed for so long.
PARK DEVELOPMENT ZONE	Provision and maintenance of park development to serve the needs of park management and park visitors. The zone includes areas where park development and/or intensive use substantially alter the natural environment or the setting for historically significant resources.		Because of the complexity of this zone at Chickasaw, its subzones (except the Landscape Management Area Subzone) are shown by indicated function on the development concept maps, pages 80, 83 rather than on the zoning map.
	Maintenance of an intensively managed landscape to enhance aesthetic quality, facilitate interpretation, and/or promote public use and enjoyment.	Landscape Management Area Subzone	Includes areas along Travertine Creek west of Nature Center to Cold Springs Campground plus Flower Park.

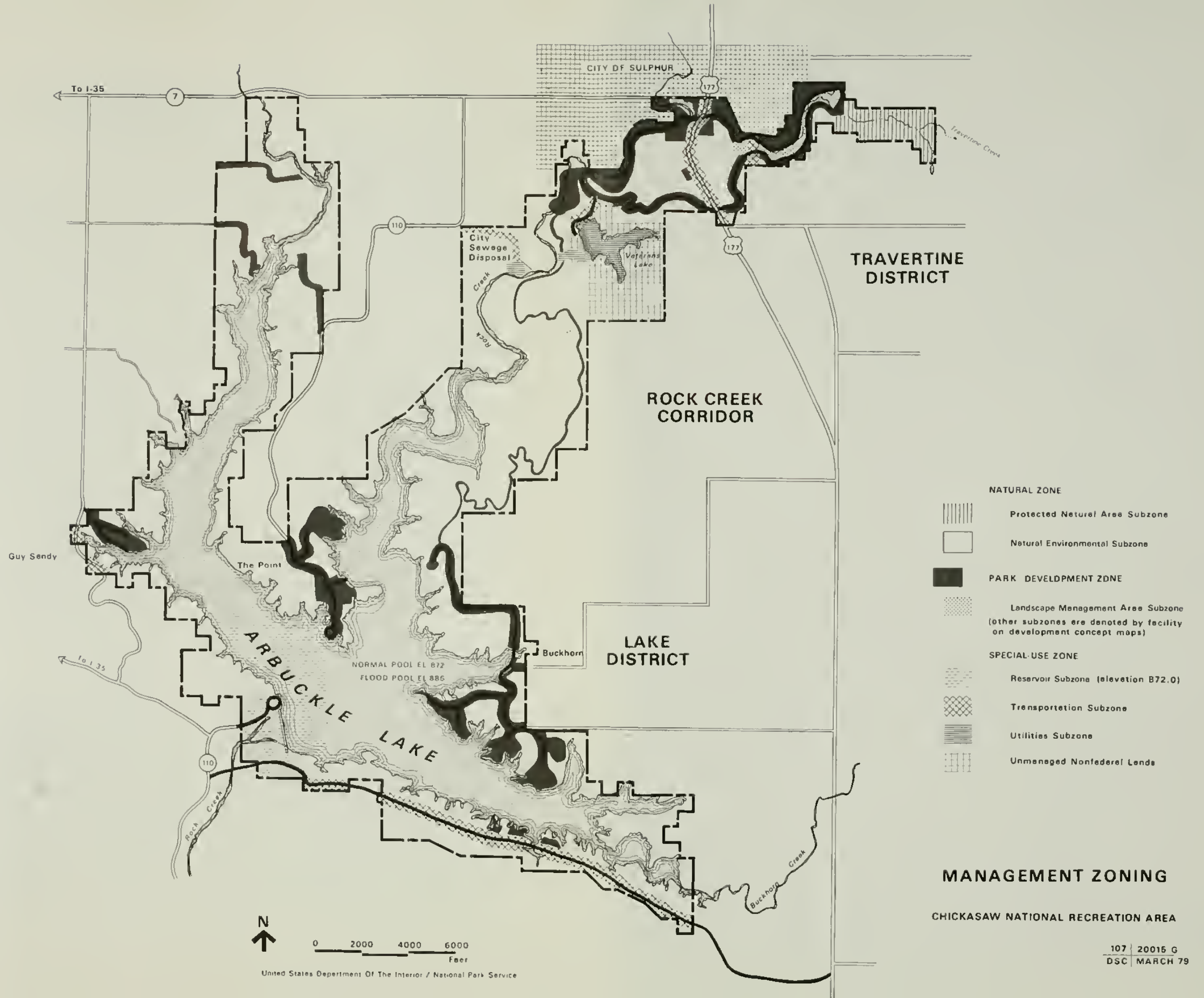


ZONE/Subzone	national policy	Management Emphasis application at Chickasaw NRA
SPECIAL USE ZONE	Uses carried out by other government agencies or private interests on land within exterior park boundaries. NPS administrative control over the use of lands in this zone is either lacking, or secondary to that of another party.	
Reservoir Subzone	Major impoundments and adjacent lands where the National Park Service lacks exclusive management authority.	Includes Arbuckle Reservoir and its dam where NPS operates the recreation function but where the water level is controlled by the Arbuckle Master Conservancy District under contract with the Bureau of Reclamation. Additionally the District has complete responsibility in a 190 acre tract at the damsite.
Transportation Subzone	Lands used for Federal, State, and local roads; railroads, waterways; airports, and other transportation facilities managed primarily or exclusively for non-park purposes.	Includes U.S. Highway 177 and corridor for its potential relocation onto an overpass across Travertine District. Also includes roads south and east of Arbuckle Reservoir that pass within the NRA.
Utilities Subzone	Nonpark lands used for aerial transmission lines, managed rights-of-way for underground utilities, pumping stations, storage facilities, and similar development operated primarily or exclusively to provide service to areas outside the park.	Includes City of Sulphur Sewage Disposal plant west of Travertine District, Veterans Lake, dam, and spillway.
Unmanaged Non-Federal Lands Subzone	Presently unmanaged non-NPS lands not associated with an identifiable land use.	Includes City-owned lands surrounding Veterans Lake.



## MANAGEMENT ZONING

CHICKASAW NATIONAL RECREATION AREA



C. Resources Management

1. Natural Resources Management

a. Hunting and Fishing

The legislation of 1976 extended the Service's authority for natural resources management into all parts of the Lake District (except the dam area) and rendered obsolete the former management agreement between the Bureau of Reclamation and the Oklahoma Department of Wildlife Conservation. An early step will be to develop a staff for the purpose of resources management and to initiate needed research into situations potentially requiring management solutions. Also, a new agreement will be made between NPS and the Oklahoma Department of Wildlife Conservation to continue their management of the fishery in Arbuckle Reservoir and of the hunting in the Lake District and Rock Creek Corridor, subject to periodic renewal at agency discretion under stated conditions. Such an agreement will include provisions that assure management in accord with National Park Service policies, particularly in regard to introduction on the land areas of any exotic species or gross artificial manipulations of animal or plant species mosaics. The public hunting area formerly designated on the northern Guy Sandy arm will not be specified for management different from that in the rest of the agreement area. Likewise, hunting seasons and closure areas will be according to state laws and regulations and subject to NPS approval. Programs to keep exotic fish species from moving upstream into natural environments will be employed. The goal of hunting will be sustained-yield cropping of native species that have grown up in a natural environment on the land where hunted. The goal of fishing in Arbuckle Reservoir will be sustained-yield harvest of suitable fish types, without planting except to introduce new species or to correct imbalances. Hunting will not be allowed in Travertine District, or at or around Buckhorn, The Point, Guy Sandy, Goddard Youth Camp, the dam, and other developed areas.

b. Vegetation

There is uncertainty as to what the natural vegetative mosaics throughout the recreation area would be had there not been townsite development, grazing, exclusion of fire, and concentrated visitor use at various locations. Research will first be done to reveal what the flora was at various periods (including the present) in different parts of the area. This will reveal what the "natural" compositions were that occurred in the late aboriginal period, and so allow determination of the successional stages that should be restored or preserved. Extraneous influences not present in the natural setting will also be determined (such as introduced grasses, drainage devices, animals introduced or extirpated, and the frequency and effect of fire). Experimental test areas will be established where the effects of various manipulative techniques will be observed and recorded for ultimate use in designing a program of resources management geared to the



selected goals. Generally, the resource type that will be selected will be that prevailing at the start of the historic period; however, in certain spots, such as around public use areas, other vegetational situations may be selected.

Agricultural practices have prevailed until quite recently in parts of the recreation area, particularly in the newly acquired corridor that connects the former separate units. There is also some cropping by private persons under permit with the Oklahoma Department of Wildlife Conservation of lands in the northern Guy Sandy arm. Agriculture will be discontinued throughout the area and the vegetation allowed to succeed to a more nearly natural state. Where wildlife cropping has been practiced, consideration will be given to gradually phasing out such cropping to minimize disruption of any species dependent upon it.

c. Fauna

Native species will be perpetuated, exotics will not be introduced but will be removed to the extent practical, and animals will be allowed to interact with their habitat in natural settings. An exception would be the limited indoors display of live specimens at Travertine Nature Center. Special attention will be provided to unusual species for the area, including those threatened regionally (none are on Federal lists of threatened and endangered species). Studies will be made to determine extirpated species and the feasibility of reintroducing any to the free-roaming state; the pronghorn is one such example.

d. Environmental Study Area

The environmental study area in Travertine District will be maintained without vehicular access, with foot trails developed for interpretive use. Intrusions such as the road abandoned when this study area was designated will be allowed to revert to natural conditions. A shallow, landscaped bypass channel will be developed to route flood flows around the Nature Center building (it spans the stream, serving also as a pedestrian bridge) rather than through it.

e. Water

Research will be continued to more clearly determine the relationship between eutrofication of Arbuckle Reservoir and the pollutants that Rock Creek brings to it from upstream farmland, recreational homesites, and municipal and industrial uses. Likewise, research will be continued to more clearly determine the relationships between aquifer utilization by the City of Sulphur and the decline or disappearance of flow volume of Buffalo and Antelope Springs, as well as the mineral springs in Travertine District.



It should be noted that some investigators have already found there to be these correlations and that action has been recommended. An initial step will be to diminish the flow of artesian sulphurous water from Vendome Well into Flower Park in Travertine District, now that this well is owned by the National Park Service. Flow will not be shut off here, however, until such action is proved to be feasible and it is also determined that there will be no significant impacts on organisms in the outflow stream. Secondly, it will be recommended to the City of Sulphur that flow of its wells be shut off when not needed for municipal purposes rather than shunted back to Travertine Creek; this will leave the water in the ground where it may help keep the water table and artesian pressure levels up and thus cause the park's springs to flow more often. Ultimately, studies might suggest that the problem can be further alleviated by discontinuing the City's use of the artesian water and relying instead on its rights to water stored in Arbuckle Reservoir, now unutilized.

A study of flooding patterns will be made for Rock Creek and Travertine Creek and criteria for development established, as well as an emergency flood operations plan. Effects of pollutants on Rock Creek from City dumping grounds south of the Travertine District will be determined; water from the dump flows via Veterans Lake (the City's emergency water supply) into Rock Creek above Arbuckle Reservoir.

f. Land Exchange

If City lands inside the recreation area are offered for donation or in exchange for NPS surplus lands nearby, present land uses compatible with park uses will be continued through special-use permits, should the City wish. A proviso for Veterans Lake in association with any such transfer would be that an engineering inspection of the dam, spillway, and reservoir area be first conducted, as well as an investigation of the quality of the water the lake holds, and a cleanup/ restoration of the upslope dump area.

g. Minerals Exploitation

Leasing of Federally owned minerals on land originally acquired by the Bureau of Reclamation will be done in accord with Federal policies and as provided for in the agreement with the Bureau. Oil or gas extraction may also occur on lands where such rights were retained by owners, again essentially those lands (in the Lake District) originally purchased by the Bureau. Minimal interference from these activities on surface developments and settings will be the NPS goal.

2. Cultural Resources Management

a. Historic

Preservation plans for the Leeper House and Lincoln Bridge will be prepared to guide management and

maintenance of these two structures on the NPS List of Classified Structures. Work undertaken prior to the completion of these plans will be in accord with existing NPS standards and policies, and under the guidance of a qualified historical architect. The Leeper House will house park-wide resources management and Travertine District Protection operational center once overall park administration is relocated to the visitor center; the Lincoln Bridge will continue serving as a pedestrian crossing of Travertine Creek.

b. Prehistoric

An archeological base map will be prepared, annotated as to the types of resources found. All projects involving land disturbance in new areas will be subject to the review of a qualified archeologist.

c. Park Collections

Only original objects directly pertinent to the area will be stored in the park, and then only if no other institution will accept the responsibility. Study aids for use in interpretation and staff work will be retained on site and indexed as needed, but will not become listed on the park's property records.

D. Interpretation and Visitor Use

1. Interpretive and Visitor Activities Theme

Chickasaw National Recreation Area has as its highest purpose the provision of diversified outdoor recreational opportunities to the population within its region. The visitor use program will be developed in response to this purpose and there will be many types of activities available. Emphasis will differ in the three sections of the park.

2. Travertine District

Use of the Travertine District will be oriented to the casual visitor interested in a pleasant outing and yet moderately interested in the stories behind what he sees. Visitors are mainly expected to be picnickers, walkers (not hikers), nature enthusiasts such as bird-watchers and plant identifiers, automobile tourers, family groups who may assemble as much or more to be together than to be in the park, and people with casual but nonetheless sincere interest in the area's features. These same types will comprise the overnight campers. Thus, the Travertine District visitors are expected to be somewhat more responsive to interpretive activities, and hence a fuller program will be developed here. There will be no strict limitation on the interpretive theme or directions interpretation might take; however, programs will in the main have relevance to the natural and cultural resources contained within the park and to environments and traditions representative of south-central Oklahoma. Of special interest will be the springs, their geologic occurrence, and the history of their use. The

traditions of the Chickasaw Indian Tribe and earlier Indian groups will also figure more prominently in the overall effort than some other subjects. Environmental education will be an appropriate activity in and of itself, although even it will automatically be inclined to draw on the resources present and will also integrate with the general interpretive program. The settlement history of the park area, and how Chickasaw came to be excluded from that pattern, will be pertinent.

In fact, these latter two topics--the springs and the local Chickasaw Indian history--along with visitor orientation to the area, will be the primary function of a visitor center to be located near the entrance to the Travertine District. Interpretation at wayside points such as spring pavilions and roadside pullouts will reinforce the general messages introduced at the visitor center. Recognition of Orville Hitchcock Platt's work on early Congressional Indian Committees and the original designation of the area in his honor will be made in this District.

The Travertine Nature Center, out of the main stream of visitor travel, and at the entrance to the non-road environmental area, will be used for nature study and environmental education tailored both for individual parties and organized groups. Self-guiding interpretive trails will be continued here.

The self-guiding automobile interpretive tour on the park loop road will be continued.

### 3. Lake District/Rock Creek Corridor

Use of the Lake District will be oriented to water and land recreation--water skiing, boating, fishing, swimming, camping, and hunting. There will be hiking and biking on trails in the Rock Creek Corridor. Interpretive services will respond to the needs of recreational users to the degree they themselves respond to the programs offered. Such programs will be oriented to visitors' recreational activities, for instance instructing them in the life histories, cooking methods, and fishing/hunting methods of the species they seek. Safety will be an important function, with presentation of rules of behavior. Courtesy will be stressed, and resource protection. Visitor contact points will be primarily at launching ramps.

### 4. User Fees

Fees for entrance by vehicle into Travertine District will be considered when access from through roads and via secondary entrances is controlled and there is only one entrance point. This situation will not occur until a future phase of development. At Lake District, entry fee collection will not be practical because of an excess of entry points. Camping fees will continue to be collected.

## E. Development Concept

### 1. Park-wide Carrying Capacity

Existing use in the recreation area is primarily weekend outings in the six warmer months of the year. During the period 1973 to 1977, these resulted in annual visitation figures that fluctuated narrowly in the 2 million range. This use level is being taken for the purposes of this plan as the "base." (The strong decline that occurred in 1978 primarily in the Travertine District is assumed here either to be an anomaly or caused by factors that this plan will begin correcting.) Within this overall level of visitation there has been an average of 135,000 campers and 23,500 boaters per year.

Judging by general visitor reaction and by staff attitudes, the park is able to "absorb" this much use and still provide varied experiences when wanted. Camping demand has been managed with a reservation system. However, typically there have been only two or three times in the summer season when visitors hoping to engage in a specific activity (camping or boating) have been turned away because the facility providing the activity had physically reached its capacity. These times have been primarily the second day of a threeday holiday weekend.

While systematic means of measuring resource parameters to indicate change are in the early stages of conception, excessive resource degradation from visitor wear is generally not apparent in the park. (The area has sufficient rainfall and length of growing season to be comparatively hardy in terms of vegetative regeneration. The significant resource deterioration that has been observed has been traced more to factors external to the park rather than to its visitors.

All this indicates the park is not in need of significant facility expansion at this time, and the plan conforms to this. Thus, the capacities that existing facilities provide will generally be maintained. New facilities will be offered more as additional activities within present use levels than as means to increase capacity; they will also be related to established standards of use density on an acreage basis.

### 2. District Carrying Capacity

#### a. Travertine District

Presently, Travertine Nature Center is the only building capable of providing interpretation/information services. It has 98 single parking spaces and 25 bus or trailer spaces, giving a maximum parking capacity of 774 persons. This compares favorably with the observed building capacity of 750 per hour. Building use should certainly continue to fit within demand once the proposed visitor center is completed and some of the functions now being fulfilled by the nature center are transferred to the visitor center.



The proposed visitor center/headquarters will provide the information/interpretation function for the park. It will have an instantaneous indoor capacity of some 200 persons (based on 2200 square feet of public use space). Similar parking capacity will be provided for 40 cars and 4 buses. It is projected that length of stay here will be 15 minutes, and thus the center is expected to be able to accommodate 800 per hour well over 5,000 people daily, a number that is expected to handle demand for this facility.

Picnicking capacity in Travertine District is approximately 250 tables. The only difficulty noted in connection with this activity to date is that of excessive parking along the road through this area. Yet it is not proposed to add parking areas, in the belief that the area is already adequately developed considering its size. Should parking congestion recur in the future, and yet picnic areas not be fully utilized, a circulation system study would be in order to consider transportation alternatives to developing more parking lots.

Standards for "instantaneous" use have been developed for certain visitor activities by various research groups, taking into account resource tolerance and user preferences, and these can be applied to both proposed facilities and activities at Chickasaw. (We use here the 1977 report done for the Bureau of Outdoor Recreation, Optimum Recreation Carrying Capacity.) The following chart shows how the acreage devoted to existing activities in the Travertine District compares with the "optimum" capacities from the report. (Note that "optimum" is not necessarily "maximum" where quality of experience is a goal.)



ACTIVITY	"OPTIMUM" CAPACITY (according to BOR, 1977)	EXISTING CAPACITY		PROPOSED CAPACITY	
		per unit	total sites	per unit	total sites
CAMPING(Tent/ Trailer)	7 sites/acre	5 sites/ acre	62	No change	62
Cold Springs		6 sites/ acre	106	No change	106
Rock Creek	7 sites/acres				
		total existing 168		total proposed 168	
CAMPING (group)	20 people/acre	36 people/ acre	18	No change	18
Central		28 people/ acre	2	No change	2
Cold Springs	20 people/acre				
		total existing 20		total proposed 20	
		per unit	total tables	per unit	total tables
PICNICKING	13 tables/acre	11 tables/ acre	250	No change	250
		total existing 250		total proposed 250	

b. Rock Creek Corridor Carrying Capacity

Rock Creek Corridor will be reserved as a part of Chickasaw National Recreation Area where low density concentrations of use will prevail. The only developments for visitor use will be bicycling and hiking trails, as follows:

ACTIVITY	"OPTIMUM" CAPACITY (according to BOR, 1977)	EXISTING CAPACITY		PROPOSED CAPACITY	
		per miles	total sites	per miles	total sites
BICYCLING	18 cyclists/mile	none	none	18	124 cyclists
HIKING	21 hikers/mile	none	none	21	191 hikers

c. Lake District Carrying Capacity

Developments at Lake District will remain much as at present, with some shifts in capacity to alleviate particular resource deterioration problems, to disperse use around the lake more evenly, and to provide more efficient management operations, in accordance with the following summary:

	"OPTIMUM" CAPACITY (according to BOR, 1977)	EXISTING CAPACITY		PROPOSED CAPACITY	
ACTIVITY		per unit	total sites	per unit	total sites
CAMPING Tent/Trailer)					
Buckhorn-loop A	7 sites/acre	6 site/ acre	27	No change	27
-loop C	7 sites/acre	5 Sites/ acre	28	No change	28
-loop D	7 sites/acre	5 sites/ acre	51	No change	51
-loop E	7 sites/acre	17 sites/acre	71	Decrease by 27 sites to 10 sites/ acre	44
The Point	7 sites/acre	3 sites/ acre	52	Increase by 48 sites to 5 sites/ acre	100
Guy Sandy	7 sites/acre	6 sites/ acre	39	Increase by 11 sites to 8 sites/ acre	50
		total existing	268	total proposed	300
PICNICKING	13 tables/acre	11 tables/ acre	108	No change	108
		total existing	108	total proposed	108

From the chart it is apparent that the majority of the Lake District's campgrounds already have a lower site density than the "optimum" standard. Management experience indicates that most of the campgrounds do not show evidence of visitor wear and do provide satisfactory visitor experiences. At Buckhorn, however, the campsites at Loop E not only show on the chart to be too dense (at 17 sites per acre) but also show evidence of erosion; consequently, the plan will decrease density here to 10 sites per acre, with a net loss in the Buckhorn area of 27 sites. Campgrounds at The Point and Guy Sandy are proposed for increases of 48 and 11 sites respectively. In the case of The Point, this would raise the density to 5 sites per acre and also provide better distribution of the camping opportunity at Arbuckle Lake among the three developed areas. At Guy Sandy, terrain is more restricted but will still allow an increase in sites to more effectively use this smallest of the three developed areas. Thus there will be a total of 300 campsites at the Lake150 at Buckhorn, 100 at The Point, and 50 at Guy Sandy.

Theoretically, it is possible to develop more campsites at Arbuckle Lake, as terrain exists. However, as most campers here also wish to boat on the Lake, and as there are also day visitors who wish to boat, a certain limit to development is obviously desirable. This plan relates that limit to the boating capacity of the lake and finds no purpose in adding camping capacity as the lake is not large enough to handle added demand.

A chart for comparing existing boat use on Arbuckle Lake with the Bureau of Outdoor Recreation "optimum" standard is complicated by the possibility of future increases in lake level fluctuations, the actual percentages of different types of boat use and the ways they vary, and the factor of available parking and launch capacity.

The available acreage of water surface at Lake Arbuckle is taken for the basic carrying capacity calculation to be that occurring at the top of the conservation pool, or elevation 872.0, a total of 2,260 acres. "Optimum" standards for each of the three boating categories (water skiing, general boating, and boat fishing) as given in the 1977 BOR report, and the capacities proposed in this plan for Arbuckle Lake are as follows:

ACTIVITY	"OPTIMUM" STANDARD	NUMBER OF BOATS POSSIBLE ON ARBUCKLE LAKE (AT 2260 ACRES)	PROPOSED NUMBER OF BOATS	
			ACRES	BOATS
Water Skiing	10 acres per boat	226	753	75
General Boating	5 acres per boat	452	753	151
Boat Fishing	2 acres per boat	<u>1130</u>	<u>753</u>	<u>377</u>
	(average)	603	2259	603
		(say 600)		(say 600)

If the lake surface were arbitrarily divided equally among these three types of use, there could be 600 boats on the lake at one time. Figures of 500-700 boats on the lake at one time have variously been cited in the past as the level at which "chaos" begins to develop. The existing launch ramps and trailer parking sites provide access for less boats than this (231 double parking sites with an average turnover rate from the 1977 BOR standards) of 2.16 per day gives 498 as the daily launching capacity. However, there are 122 single parking spaces adjacent to the three launch ramps that conceivably could add another 132 boats to the lake. (This assumes 122 single spaces equals 61 double spaces times 2.16 turnover per day) This would increase, theoretically, the parking capacity to 630 boats per day--slightly higher than the water surface capacity itself. Thus the lake launching capacity is already developed slightly beyond the "optimum" boating capacity. During high boating demand times, then, it is apparent that there may be conflicts among the higher speed boaters and between them and the slower speed boaters. Or competition for parking between boaters and nonboaters may occur. Management will monitor use at such time and determine the magnitudes of conflicts. Should solutions be required, the lake surface might be rezoned for differing boating speeds or activity types, either by surface area or by times of day or week. Or, launching capacity could be restricted to the "optimum" capacity of 600 boats per day, thus allotting the remaining parking to nonboaters. (There is also some parking capacity for lake use in addition to the parking adjacent to the launch ramps.)

This calculated boat carrying capacity of the lake, as noted earlier, is for the conservation pool acreage of 2,260 acres. At lesser acreages, there will be proportionately lower boat capacities. As a rule of thumb, a reduction in lake area of 10% would also result in a lowering of boating capacity by 10%, or from 600 to 540. Management experience will eventually replace such rules of thumb, as situations may develop during lower water stands where shoreline configurations or water depths preclude or allow boating uses in a proportion differing from the even one-third allotments assumed for each of the three types of boat use.

Another activity is small game hunting. This is planned for the Lake District and has typically occurred in the area surrounding the northern Guy Sandy Creek arm. Three designated entry points with unpaved roadways of minimum standard will provide access and dispersal for hunters. Four small unpaved parking areas totaling approximately 80 vehicle spaces will be installed. The land area served by these accesses is some 1,000 acres, and the "optimum" 1977 BOR standard is 10 acres/hunter group, with 1.2 hunters per group. Thus the area can accommodate 83 such hunter groups. During nonhunting seasons,

these areas will be available for primitive hikers, fishermen, or nature enthusiasts who prefer such minimally developed areas and the consequent low density of users.

In summary, Chickasaw National Recreation Area has been planned to provide for a large number of visitors, engaging in a variety of activities, with a range of visitor concentrations. The result will be the realization of a broad spectrum of visitor expectations without unduly stressing capacity of developed facilities, sociological tolerances, or natural resources.

### 3. General Character of Use and Areawide Concepts

Geographically and in terms of recreational offerings, there are three distinct portions of the park: Travertine, Lake and Rock Creek Corridor.

The Travertine District is highly developed recreationally, provides administrative functions, and focuses on the stream and mineral springs environment.

The Lake District is of medium recreational density, emphasizes camping, swimming, boating, fishing, and hunting and focuses on the flat water recreation potential of the reservoir.

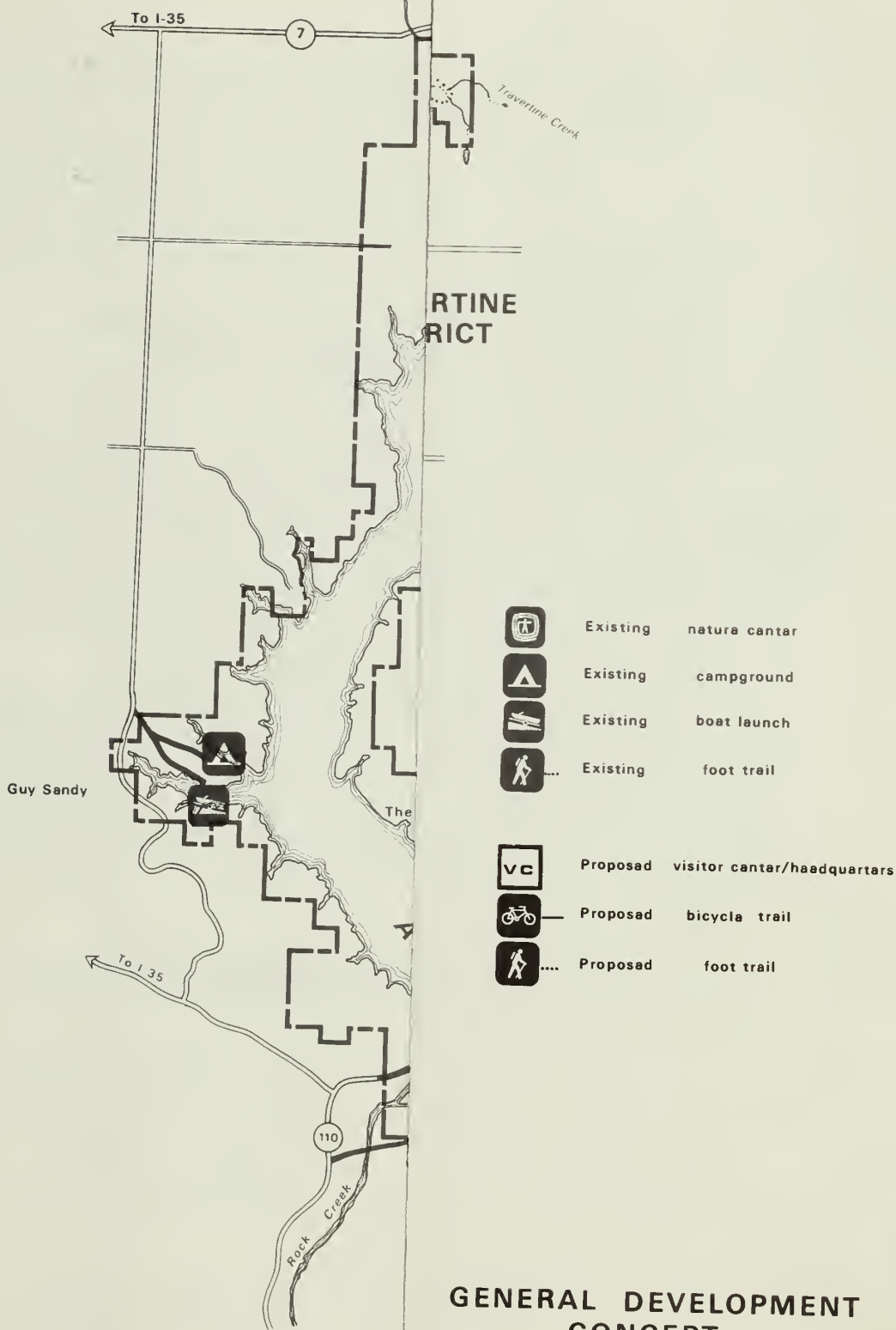
The Rock Creek Corridor joining the other two districts is of low recreational density and will emphasize hiking and bicycling and focus on the rolling hill environment.

In terms of management objectives and staff assignments, the park is divided into two areas: Travertine management district and Lake management district (which includes the corridor along Rock Creek).

Physical facilities, existing and proposed, for Chickasaw National Recreation Area are closely related to visitor uses, services, interpretation, resources management and legislative mandates. These activities and constraints as well as the capability of the resource to absorb use, are the determinants of facility size, location and function. In reality, facilities are only one means to achieve the visitor use and protection goals set forth in the management objectives. Management zoning and specific resource management practices are likewise important means of reaching these same goals.

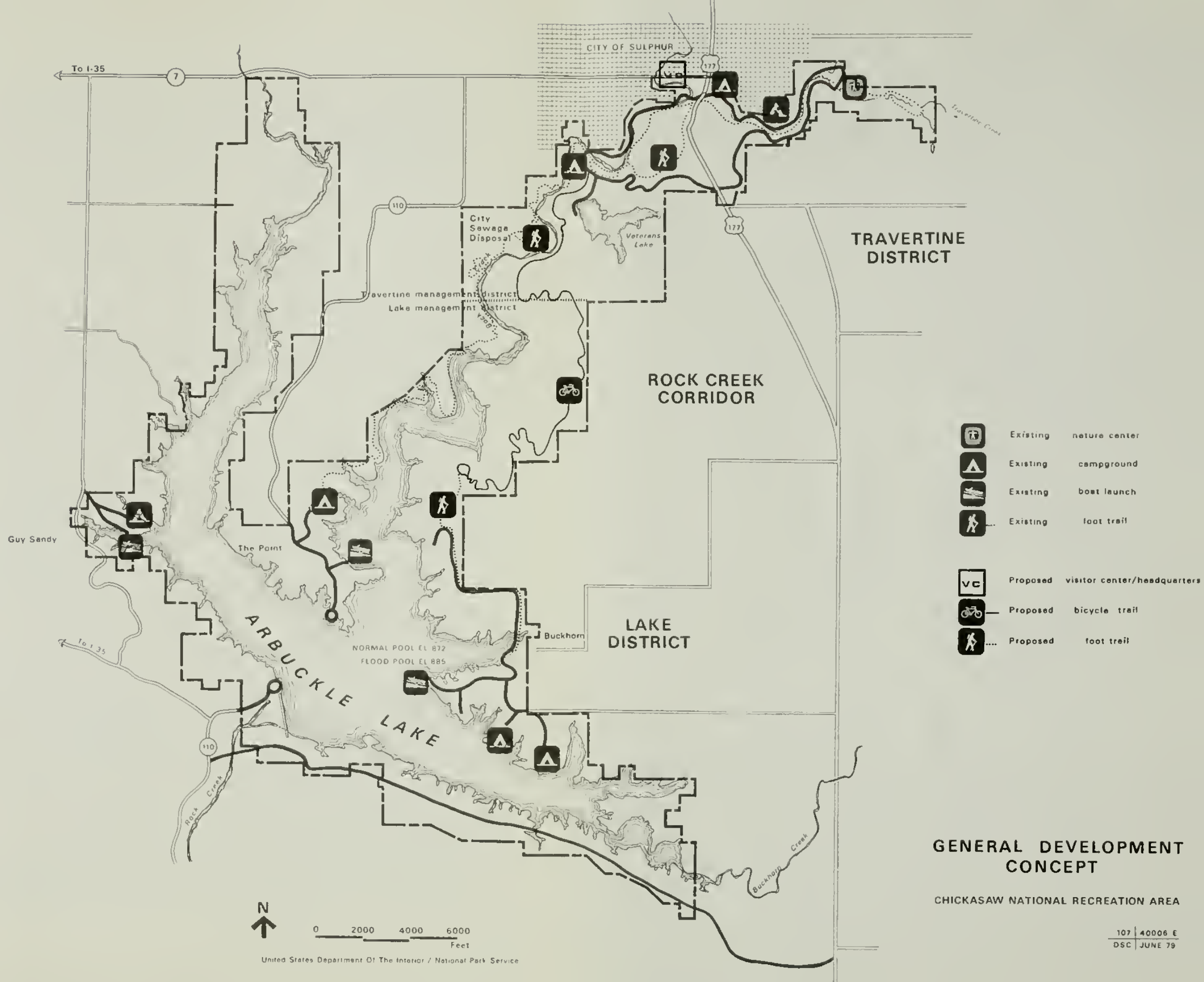
The areawide concept for development at Chickasaw National Recreation Area is shown on the General Development Concept Map. This graphic, because of scale, displays only the major elements of the plan for Chickasaw. Detail for specific structures and facilities is provided on the Development Concept Maps for Travertine District and for Rock Creek Corridor and the Lake District, in the text and on the summary chart.





## GENERAL DEVELOPMENT CONCEPT

CHICKASAW NATIONAL RECREATION AREA



The major features of overall development for Chickasaw include a new visitor center/park headquarters building adjacent to Sulphur, retention of the Travertine Nature Center and all campgrounds and picnic areas along Travertine and Rock Creeks, and new trails connecting north and south sections of the park (hiking on the west side of Rock Creek and bicycle/ hiking on the east side). At Arbuckle Reservoir, the three existing development nodes would continue to provide lake access for boats, and camping, picnicking, swimming, and fishing.

4. Development Concepts - Individual Districts  
a. Travertine District

A new park headquarters/visitor center will be constructed on the south side of the State Highway 7 access route to the park, a principal street of Sulphur, and also the park boundary. This building will provide office, administrative, visitor contact, and information-interpretation space in a location easily identifiable to the public while reinforcing the recreation area's close ties to the City of Sulphur. This structure will encompass approximately 3,500 square feet and require parking for about 40 cars and four buses. The structure itself will incorporate energy efficient heating/cooling design.

With the relocation of the headquarters function (superintendent, administration, and chiefs of other divisions), the present headquarters building (Leeper House) will be used as office space for resources management and to house Travertine District protection operations. These uses will not impair the local historical significance of the present headquarters building (as an example of an early Oklahoma ranch house) and will help ensure its continued maintenance and upkeep. District interpretation will operate from Travertine Nature Center.

With the transfer of district ranger functions to the ranch house, the present ranger station at Bromide Springs will be used for on-site visitor contact and interpretation.

The Travertine Nature Center will remain unchanged with one exception. Because the center was constructed partly as a bridge over Travertine Creek it has been subject to flooding. An unobtrusive stream bypass channel will be constructed in order to divert flood stage waters around the building. This will be surfaced in such a manner as to allow low vegetative growth to minimize visual impact and preclude erosion.

The Bromide Springs area will be the starting point for a proposed hiking trail to The Point and a proposed bicycle/hiking trail to Buckhorn. This will allow utilization of existing parking facilities and proximity to public contact personnel if trail users need information or safety messages.

Circulation by vehicle will remain as now until U.S. 177 is relocated. A corridor for a potential overpass to accomplish this relocation is designated in the Cold Springs area so that development will not foreclose this option. However, other alternatives will be considered. When the relocation option has been selected, environmental analysis will be required. Also, a traffic study will determine the feasibility of designating the southern part of the park loop road one way and eliminating the secondary entrance at Bromide Springs. Access to the City of Sulphur-owned Veteran's Lake will remain off the park road.

All other facilities in the Travertine District will remain with their locations and capacities unchanged.

b. Rock Creek Corridor

The corridor will be a low-density recreational area and provide non-motorized connections between the Travertine and Lake Districts. It will also provide foot access to Rock Creek and the Rock Creek arm of Arbuckle Lake.

Proposed in the corridor is a bicycle trail, 8 feet wide and hard-surfaced which will run 6.9 miles from Bromide Springs on the park loop road in Travertine District and terminate at an overlook to the lake in the Corridor. The bicycle trail will generally follow the ridges or higher points away from the creek, however short foot trail spurs will extend to creekside or a lake overlook at certain points along the trail. This will enable cyclists to obtain long-range views of the creek valley without leaving their bicycles unattended for long. A foot trail will proceed another 2.6 miles from the overlook terminus to Buckhorn in the Lake District and will provide an adaptive route for future extension of the bicycle trail.

On the opposite side of the creek from the bicycle trail is proposed a hiking trail connecting the foot trail in Travertine with the road system in The Point area of the Lake District. This trail will be 6.5 miles long, soft-surfaced, marked, and because of its narrow width, can parallel the creek in certain areas and provide access for fishing to those on foot.

Both trails can utilize portions of old roadbeds which may ease construction and lessen impact.

c. Lake District

Guy Sandy - The recreational facilities at Guy Sandy are proposed for expansion. The campground will be enlarged by 11 sites to bring the number of available sites to 50. Two comfort stations will be constructed to replace the chemical toilets presently in operation. One station will serve the campground and the other the boat launch. In order to upgrade





EXISTING	FACILITIES	-REMAIN
	roads/parking	foot trail
	ranger station	campground
	picnic area	comfort station
	amphitheater	spring pavilion
	interpretive auto road	interpretive foot trail
	maintenance area	employee residence
	nature center	camper check-in station
	trailer dump station	staff office/residence

PROPOSED FACILITIES OR ACTION	
	entrance/parking
	visitor center/headquarters
	bicycle trail
	foot trail
	stream overflow channel
	decrease/modify well flow
	potential overpass corridor for U.S. 177 relocation

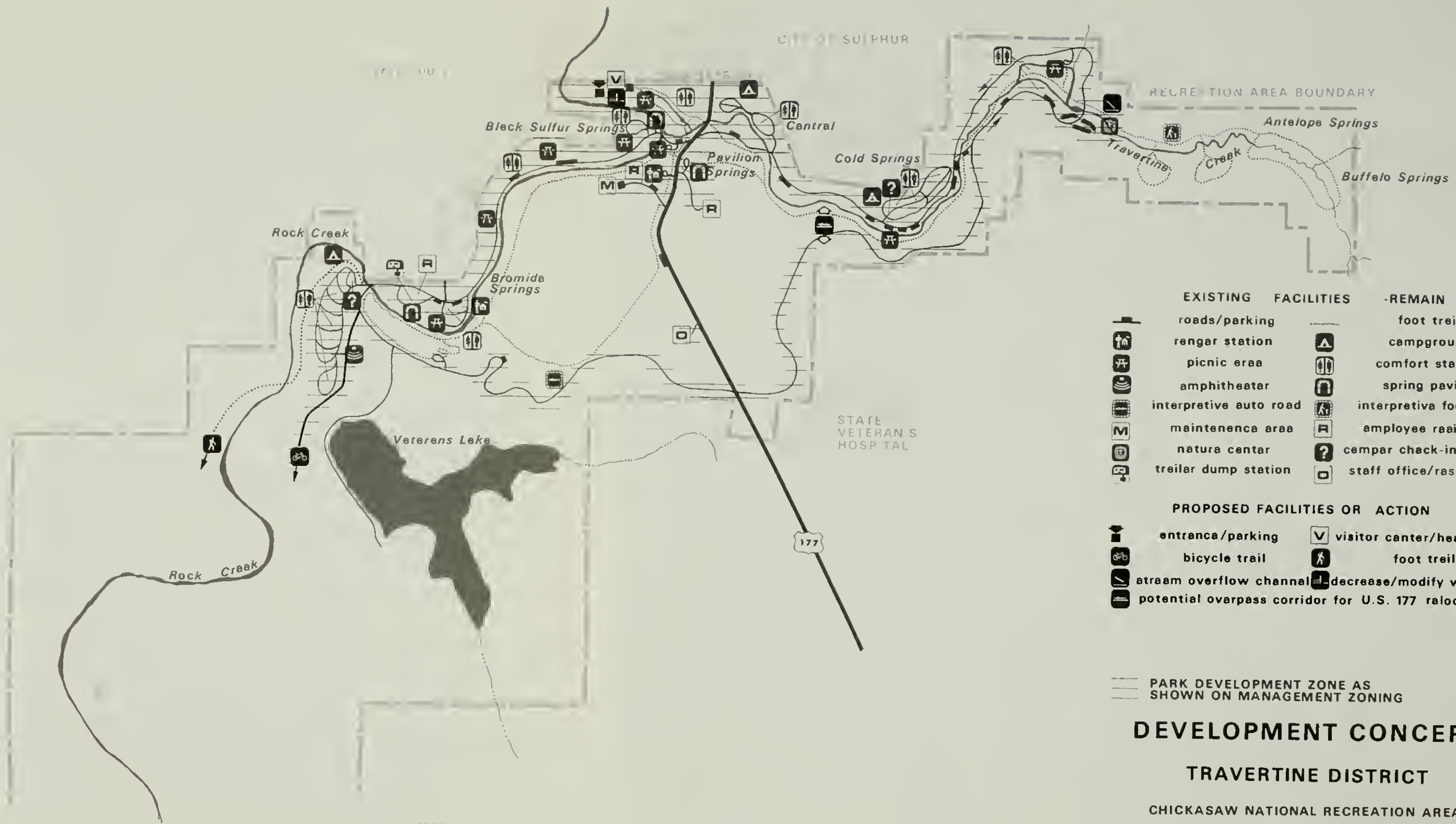
PARK DEVELOPMENT ZONE AS  
 SHOWN ON MANAGEMENT ZONING

## DEVELOPMENT CONCEPT

### TRAVERTINE DISTRICT

CHICKASAW NATIONAL RECREATION AREA





- | EXISTING FACILITIES           |   | -REMAIN |                             |
|-------------------------------|---|---------|-----------------------------|
|                               | roads/parking                                       |         | foot trail                  |
|                               | ranger station                                      |         | campground                  |
|                               | picnic area   |         | comfort station             |
|                               | amphitheater  |         | spring pavilion             |
|                               | interpretive auto road                              |         | interpretive foot trail     |
|                               | maintenance area                                    |         | employee residence          |
|                               | nature center                                       |         | camp check-in station       |
|                               | trailer dump station                                |         | staff office/residence      |
| PROPOSED FACILITIES OR ACTION |   |         |                             |
|                               | entrance/parking                                    |         | visitor center/headquarters |
|                               | bicycle trail                                       |         | foot trail                  |
|                               | stream overflow channel                             |         | decrease/modify well flow   |
|                               | potential overpass corridor for U.S. 177 relocation |         |                             |

PARK DEVELOPMENT ZONE AS SHOWN ON MANAGEMENT ZONING  
**DEVELOPMENT CONCEPT**  
**TRAVERTINE DISTRICT**  
 CHICKASAW NATIONAL RECREATION AREA

the protection of this isolated area and its visitors, an employee residence is proposed near the park boundary. A small maintenance yard with storage building will be provided.

The existing boat launching ramp and parking area will remain unchanged, a ranger station will be located between the park boundary and campground entrance road. This will allow it to absorb the camper check-in function. The temporary camper check station at the campground will be removed. A trailer sewage dump station will be provided. A small fishing dock is proposed adjacent to the launch ramp parking area. A fish cleaning station will be provided and a small picnic area.

All the expanded and new construction in the Guy Sandy area is dependent on provision of a sewer system. Proposed is a series of central collection tanks which will require pumping and removal of the waste by truck to the Sulphur City Plant for disposal. Four tanks will be required to handle the estimated gallonage. Two 6,000 gallon tanks will be pumped bi-weekly (residence and ranger station) and two 20,000 gallon tanks will be pumped weekly (comfort stations), during periods of high visitor use.

Additional operational costs will be incurred for provision of a pump truck or contracting that service and any fees charged by the City of Sulphur for disposal. This system, while not optimal, will not raise the cost of total development above the ceiling imposed in the 1976 enabling legislation. Should that ceiling be raised in the future, a reanalysis of the best system for Guy Sandy will be made. Also, the possibility may exist in the future of joint construction of a pressure sewer line with the City of Sulphur or with Murray County. To the extent homeowners hooked in, this would aid in reducing the number of septic leach fields in the vicinity of Arbuckle Lake, and which are suspected of contributing pollution to the lake. Because the length of such a pressure line could be 6 or 7 miles, it is not feasible for the park to undertake the project alone.

The Point - At The Point the emphasis will be on expansion and replacement of existing facilities. The campground there will be expanded by adding 48 new sites and a comfort station to bring the number of available sites in that area to 100. Camper check-in functions for all sites will remain in the present facility. A trailer sewage dump station will be provided. A permanent ranger station is proposed to replace the present trailer next to the launch ramp. The launch ramp and parking area at The Point will remain unchanged; however, a fishing dock will be constructed in that area. A fish cleaning station will be provided and a small picnic area. An enclosed, securable NPS boat storage facility will be constructed at the administrative boat dock. This

facility will provide space for two boats and hoist capability for repair or protection.

A permanent residence is proposed to replace the mobile home in The Point area, as is a permanent storage building to replace the various sheds in the maintenance area.

The swimming area at the southernmost cove will be improved by removing stumps and debris.

Buckhorn - Temporary facilities housed in trailers (a ranger station and an employee residence) will be replaced by permanent structures. The ranger/visitor contact station is adjacent to the boat launch area, where a storage facility for NPS boats will be constructed. This boat storage facility will be similar to that proposed at The Point. A permanent storage building is proposed for the existing maintenance area to provide better security, protection, and efficiency.

The campgrounds in the Buckhorn area will be slightly decreased in capacity by eliminating 27 sites, leaving 150 sites. The sites removed and revegetated will be those exhibiting signs of excessive erosion or providing insufficient space for a quality camping experience. A trailer sewage dump station will be provided. The swimming area adjacent to the Buckhorn picnic areas will be improved by removing stumps and debris. A fishing dock and fish-cleaning station will be provided.

Other existing facilities (picnic areas, launch ramp, etc.) in the Buckhorn area will remain with their locations and capacities unchanged.

It should be noted that development near Arbuckle Lake will be situated above the level of the 100 year flood pool. This includes all new or replacement structures--with the exception of launch ramps and fishing docks. This is at 885.85 feet elevation, 13.85 feet above the normal conservation pool level of 872.0. All existing applicable structures in the Lake District meet this criterion with the exception of the two temporary ranger stations (these are proposed to be replaced with permanent structures). The ranger station site at The Point is within 5 feet of this elevation in its present location and therefore can be adapted in design and construction. The proposed Guy Sandy station will be relocated near the boundary, thus placing it above even the 500 year flood line. The Buckhorn station is situated approximately 7 feet below the 100 year flood pool elevation and may require both a slight change in location plus some site or design adaptation for the new structure.



**EXISTING FACILITIES-REMAIN-EXPAND-REPLACE**  
(see text for exact action)

- |  |                    |  |                            |
|--|--------------------|--|----------------------------|
|  | roads/parking      |  | ranger station             |
|  | campground         |  | picnic area                |
|  | comfort station    |  | amphitheater               |
|  | employee residence |  | maintenance area           |
|  | boat launch        |  | swimming area              |
|  | bank fishing area  |  | park water treatment plant |
|  |                    |  | camp check-in station      |

**EXISTING FACILITIES -REMOVE**

- chemical toilets
- bank fishing area
- camp check-in station

**EXISTING -DECREASE CAPACITY**  
campground



**PROPOSED FACILITIES**

- |  |                                 |  |                      |
|--|---------------------------------|--|----------------------|
|  | road/parking                    |  | comfort station      |
|  | chemical toilet                 |  | fishing dock         |
|  | bicycle trail                   |  | foot trail           |
|  | maintenance area                |  | employee residence   |
|  | enclosed boat storage (NPS use) |  | sawage system        |
|  | picnic area                     |  | trailer dump station |
|  | ranger station                  |  |                      |

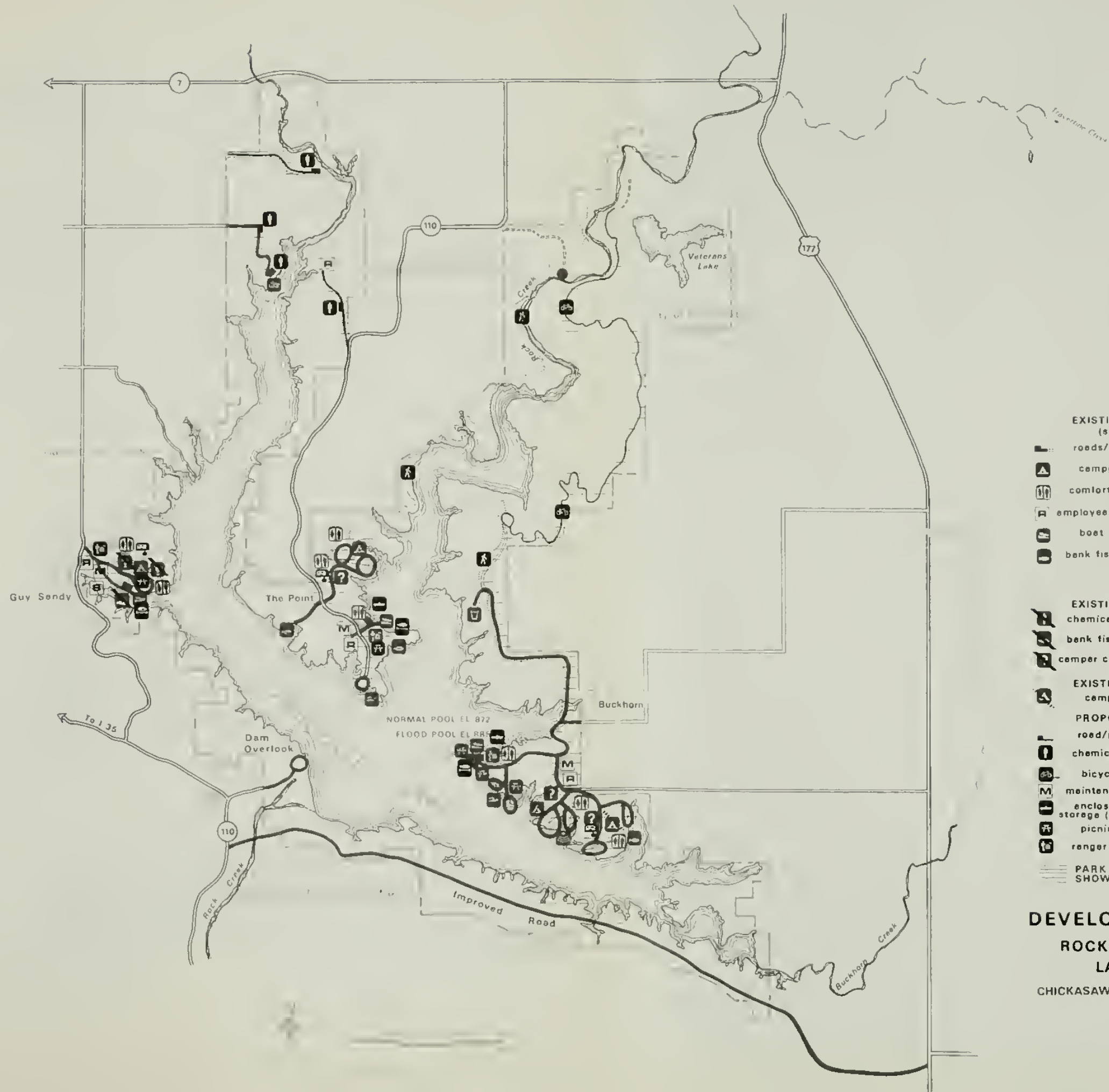
**PARK DEVELOPMENT ZONE AS SHOWN ON MANAGEMENT ZONING**

## DEVELOPMENT CONCEPT

### ROCK CREEK CORRIDOR LAKE DISTRICT

CHICKASAW NATIONAL RECREATION AREA





# EXISTING FACILITIES-REMAIN-EXPAND-REPLACE (see text for exact action)

- |  |                         |  |                            |
|--|-------------------------|--|----------------------------|
|  | roads/parking           |  | ranger station             |
|  | campground              |  | picnic area                |
|  | comfort station         |  | amphitheater               |
|  | employee residence      |  | maintenance area           |
|  | boat launch             |  | swimming area              |
|  | bank fishing area       |  | perk water treatment plant |
|  | camper check-in station |  | camper check-in station    |

## EXISTING FACILITIES -REMOVE

- chemical toilets
- bank fishing area
- camper check-in station

## EXISTING -DECREASE CAPACITY

- campground

## PROPOSED FACILITIES

- |  |                                 |  |                      |
|--|---------------------------------|--|----------------------|
|  | road/parking                    |  | comfort station      |
|  | chemical toilet                 |  | fishing dock         |
|  | bicycle trail                   |  | foot trail           |
|  | maintenance area                |  | employee residence   |
|  | enclosed boat storage (NPS use) |  | sewage system        |
|  | picnic area                     |  | trailer dump station |
|  | ranger station                  |  |                      |

PARK DEVELOPMENT ZONE AS SHOWN ON MANAGEMENT ZONING

## DEVELOPMENT CONCEPT

### ROCK CREEK CORRIDOR

### LAKE DISTRICT

CHICKASAW NATIONAL RECREATION AREA



Other areas in the Lake District which are zoned for development include a small portion of the land surrounding the northern arm of Guy Sandy Creek and the Goddard Youth Camp area.

The northern Guy Sandy Creek area will provide low-density recreational opportunities, primarily small boat launching and small game and deer hunting. The only facilities provided will be unpaved designated roadways and small unpaved parking areas in order to allow access to various portions of the arm. A chemical toilet (pump out) will be provided at each of these parking areas and a small concrete boat launch exists at one. An employee residence exists in the area and will remain.

The Goddard Youth Camp area is situated on the south bank of Arbuckle Lake and operates under a special use permit. The foundation's facilities presently fulfill their purposes.

SUMMARY OF  ACTIONS	AREA	Parking	Entrance	VC/Headquarters	Ranger Station/Hdq.	Ranger Station	Spring Pavilion	Nature Center	Employee Residence	Office/Residence	Maintenance Area	Comfort Station	Chemical Toilet	Campground	Group Campground	Picnic Area	Amphitheater	Camper Check-in	Trailer Dump	Boat Launch	NPS Boat Storage	Auto Interp. Trail	Foot Interp. Trail	Foot Trail	Bicycle Trail	Bank Fishing Area	Fishing Dock	Fish Cleaning Station	Swimming Area	Sewer System	Stream Flood Channel	Modify Well Flow	Potential Overpass	Corridor	
TRAVERTINE DISTRICT																																			
State Route 7		●	●	●								□					□							□									●		
Black Sulphur		□						□				□					□					□	□												
Bromide		□	□			■			□										□				□												
Rock Creek												□		□			□							●	●										
Pavilion		□					□		□			□						□					□	□											
Present Headquarters		□			■				□		□												□	□	□	□									
Central		□										□										□	□	□	□										
Cold Springs		□	□									□		□			□		□			□	□	□	□							●			
Travertine Creek		□						□				□					□					□	□	□							●		●		
U.S. Highway 177		□	□							□																									
ROCK CREEK CORRIDOR																																			
																									●	●									
LAKE DISTRICT																																			
Guy Sandy		□			●			●	●	●	●	★	★	★	●	●	●	★	●	●	●	●	●	●		★	●	●	●	●	●				
The Point		□	□									★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★				
Buckhorn		□	□		○			○	○	○	○	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★			
Guy Sandy Creek Arm		★	□					□				●									□														

ACTION

□

EXISTING - NO CHANGE

★

EXISTING - EXPAND

○

EXISTING - REPLACE

■

EXISTING - CHANGE IN FUNCTION

★

EXISTING - REMOVE OR DECREASE CAPACITY

●

PROPOSED



## APPENDICES



1. Summary of Proposed Development Projects

a. Current-year Cost Estimates for Capital Improvements

Construction Cost

Travertine District	\$ 814,000
Rock Creek Corridor	1,010,000
Lake District	<u>1,252,000</u>
Net construction cost	\$3,076,000
+ 46% 15% project planning	
15% project supervision	
16% contingencies	\$1,415,000
	<hr/>
Gross Amount	\$4,491,000

TRAVERTINE

Visitor Center/Headquarters	
3,500 sq. ft. @ \$125/sq. ft.	\$ 438,000
solar heating and cooling @ \$35/sq. ft.	123,000
Utility connections	20,000
site development and landscape planting (15%)	66,000
Parking 40 cars/4 buses	
48 spaces @ \$1,000 each	48,000
Reduce spring well flow	20,000
Construct stream bypass 250' x 12' = 3,000 sq. ft. 350 sq. yd. @ \$70/sq. yd.	25,000
Miscellaneous construction/development (10%)	<u>74,000</u>
Construction Cost	\$ 814,000

ROCK CREEK

Hiking trail 6.5 miles @ \$12,000/mile	\$ 78,000
Hiking trail 2.6 miles @ \$30,000/mile	78,000
Bike trail (paved) 6.9 miles @ \$100,000/mile	690,000



## ROCK CREEK (Continued)

Bridges	15' x 8' (5) = 600 sq. ft.	
	50' x 8' (3) = 1,200 sq. ft.	
	1,800 sq. ft. @ \$40/sq. ft.	\$ 72,000
Miscellaneous construction/development (10%)		<u>92,000</u>
Construction Cost		\$1,010,000

## LAKE

Grade/Gravel existing 12'-14' roadway (minimum construction) 2.5 miles @ \$50,000/mile		\$ 125,000
Grade/gravel existing parking areas (3) 30 spaces @ \$200/space		6,000
Construct ranger stations (3) 500 sq. ft./each = 1,500 sq. ft. @ \$80/sq. ft.		120,000
Utility connections for ranger stations		10,000
Site development/landscape planting for ranger stations (15%)		18,000
Remove/revegetate 27 campsites @ \$200/each		5,000
Construct 11 new campsites in existing campground @ \$600 each		7,000
Construct new campground - 48 sites @ \$4,000/site includes sites, parking, roads comfort station and utilities within area		192,000
Construct 2 comfort stations @ \$45,000 each		90,000
Maintenance building/storage (3) 600 sq. ft./each = 1,800 sq. ft. @ \$60/sq. ft.		108,000
Construct sewer system - 2 6,000 gallon tanks @ \$8,000 each		16,000
2 20,000 gallon tanks @ \$30,000 each		60,000
connections and piping		24,000
Enclosed 2 slip boat storage 2 @ \$28,000/each		56,000
Construct 3 residences @ \$60,000 each		180,000
Obtain/install chemical toilets 4 @ \$7,000/each		28,000
Construct 3 trailer sewage dump stations @ \$10,000 each		30,000
Construct small fishing docks (3) 60' x 6' = 1080 sq. ft. @ \$30/sq. ft.		33,000
Construct 3 fish cleaning stations @ \$10,000 ea.		30,000
Miscellaneous construction/development (10%)		<u>114,000</u>
Construction Cost		\$1,252,000

b. Current-year Cost Estimates for Operations; Staffing Requirements

Plan Phase	Staff (full-time positions are underlined; others are not.)					
	Park Budget	Supt. & Admin.	Resources Management	Visitor Protec.	Interpre- tation	Mainte- nance
Operate existing programs (present fiscal year)	\$1,100,000	<u>5</u> ,1	0	<u>7</u> ,25	<u>4</u> ,4	<u>15</u> ,10
Design (DSC) pro- facilities; initiate resources management research	1,150,000	<u>5</u> ,1	<u>2</u>	<u>7</u> ,25	<u>4</u> ,4	<u>15</u> ,10
Construction; resources manage- ment program formulation	1,160,000	<u>5</u> ,1	<u>2</u> ,1	<u>7</u> ,25	<u>4</u> ,4	<u>15</u> ,10
Operation of new facilities and programs (visitor center, bike/hike trail, campground expansions, resources management operations)	1,390,000	<u>5</u> ,1	<u>3</u> ,4	<u>7</u> ,28	<u>5</u> ,7	<u>16</u> ,15

## 2. Schedule for Proposed Management Actions

(other than planning and development projects; e.g., research projects, special studies, recreational programs, etc.) to the extent known.

	<u>Date to Initiate</u>
Establish a resources management unit on the park staff.	12/79
Complete new agreement with Oklahoma Department of Wildlife Conservation for managing fish and game in Lake District and Rock Creek Corridor.	10/79
Initiate liaison with regional water users in conservation-management of ground water, resource and clean-up of surface waters to state standards.	10/79
Explore with county/city feasibility of pro-rating costs to develop sewer line to serve west shore of Guy Sandy arm-- both NPS and private facilities.	1/80
Analyze economic feasibility of campground registration/reservation system	8/79
Produce areawide vegetation surveys	6/80
Produce faunal survey	6/80
Monitor visitor uses and indicated preferences for various experiences and degrees of visitor concentrations.	3/80

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#### 4. Lists of Planning Team Members and Consultants

Early planning preceding the authorization of Chickasaw National Recreation Area was performed by the following:

David Turello, Team Captain, (Office of Environmental Planning and Design, Western Service Center), Jack Stark, Superintendent (to 1971) (Platt National Park, Arbuckle Recreation Area), John Higgins, Superintendent (through 1978) (Platt National Park, Arbuckle Recreation Area), Glen Key, Local Representative (Sulphur, Oklahoma), George D. Nadeau, Landscape Architect (Office of Environmental Planning and Design, Western Service Center), William Rothschild, Engineer (Office of Environmental Planning and Design, Western Service Center), Gary Gardner, Appraiser (Office of Land and Water Rights, Western Service Center).

Although not serving as official team members, the following people also contributed materially to the earlier studies:

Robert Barrell, Regional Chief of Interpretation and Visitor Services (Southwest Regional Office), Robert Peters, Chief of Interpretation and Research Management (Platt National Park, Arbuckle Recreation Area), Bill Laubner, Landscape Architect (Denver Service Center).

Following enactment of legislation establishing the recreation area in 1976, the following completed the planning for the area:

Bill Jones, Park Planner and Environmental Analyst,  
Denver Service Center  
Kathleen Gavan, Landscape Architect,  
Denver Service Center  
Paul Wykert and staff, Superintendent (1979 ),  
Chickasaw National Recreation Area

Publication services were provided by the graphics staff of the Denver Service Center. NPS 729B

## 5. Legislation



## An Act

To establish the Chickasaw National Recreation Area in the State of Oklahoma, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in order to provide for public outdoor recreation use and enjoyment of Arbuckle Reservoir and land adjacent thereto, and to provide for more efficient administration of other adjacent area containing scenic, scientific, natural, and historic values contributing to public enjoyment of the area and to designate the area in such manner as will constitute a fitting memorialization of the Chickasaw Indian Nation, there is hereby established the Chickasaw National Recreation Area (hereinafter referred to as the "recreation area") consisting of lands and interests in lands within the area as generally depicted on the drawing entitled "Boundary Map, Chickasaw National Recreation Area," numbered 107-20004-A and dated February 1974, which shall be on file and available for inspection in the offices of the National Park Service, Department of the Interior. The Secretary of the Interior (hereinafter referred to as the "Secretary") may from time to time revise the boundaries of the recreation area by publication of a map or other boundary description in the Federal Register, but the total acreage of the recreation area may not exceed ten thousand acres.

SEC. 2. (a) The Secretary may acquire land or interests in lands within the boundaries of the recreation area by donation, purchase with donated or appropriated funds, or exchange. When any tract of land is only partly within such boundaries, the Secretary may acquire all or any portion of the land outside of such boundaries in order to minimize the payment of severance costs. Land so acquired outside of the boundaries may be exchanged by the Secretary for non-Federal lands within the boundaries, and any land so acquired and not utilized for exchange shall be reported to the General Services Administration for disposal under the Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended. Any Federal property located within the boundaries of the recreation area may be transferred without consideration to the administrative jurisdiction of the Secretary for the purposes of the recreation area. Lands within the boundaries of the recreation area owned by the State of Oklahoma, or any political subdivision thereof, may be acquired only by donation: *Provided*, That the Secretary may also acquire lands by exchange with the city of Sulphur, utilizing therefor only such lands as may be excluded from the recreation area which were formerly within the Platt National Park.

(b) With respect to improved residential property acquired for the purposes of this Act, which is beneficially owned by a natural person and which the Secretary determines can be continued in that use for a limited period of time without undue interference with the administration, development, or public use of the recreation area, the owner thereof may on the date of its acquisition by the Secretary retain a right of use and occupancy of the property for noncommercial residential purposes for a term, as the owner may elect, ending either (1) at the death of the owner or his spouse, whichever

Chickasaw  
National  
Recreation  
Area, Okla.  
Establishment act.  
16 USC 460hh.

Boundary  
revision,  
publication  
in Federal  
Register.

Land  
acquisition.  
16 USC  
460hh-1.

Residential  
property.

"Improved  
residential  
property."

occurs later, or (2) not more than twenty-five years from the date of acquisition. Any right so retained may, during its existence, be transferred or assigned. The Secretary shall pay to the owner the fair market value of the property on the date of such acquisition, less the fair market value on such date of the right retained by the owner.

(c) As used in this Act, "improved residential property" means a single-family year-round dwelling, the construction of which began before March 1, 1975, and which serves as the owner's permanent place of abode at the time of its acquisition by the United States, together with not more than three acres of land on which the dwelling and appurtenant buildings are located that the Secretary finds is reasonably necessary for the owner's continued use and occupancy of the dwelling: *Provided*, That the Secretary may exclude from improved residential property any waters and adjoining land that the Secretary deems is necessary for public access to such waters.

(d) The Secretary may terminate a right to use and occupancy retained pursuant to this section upon his determination that such use and occupancy is being exercised in a manner not consistent with the purposes of the Act, and upon tender to the holder of the right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination.

Hunting and  
fishing,  
16 USC  
4605b-2.

SEC. 3. The Secretary shall permit hunting and fishing on lands and waters within the recreation area in accordance with applicable Federal and State laws: *Provided*, That he may designate zones where, and establish periods when, no hunting or fishing will be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment. Except in emergencies, any regulations issued by the Secretary pursuant to this section shall be put into effect only after consultation with the appropriate State agency responsible for hunting and fishing activities.

Administration,  
16 USC  
4605b-3.

SEC. 4. (a) Except as otherwise provided in this Act, the Secretary shall administer the recreation area in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1, 2-4), as amended and supplemented.

(b) Nothing contained in this Act shall affect or interfere with the authority of the Secretary by the Act of August 24, 1962 (76 Stat. 395), to operate the Arbuckle Dam and Reservoir in accordance with and for the purposes set forth in that Act.

Repeal,  
16 USC  
4605b-4.

SEC. 5. The Act of June 29, 1906 (34 Stat. 837), which directed that certain lands now included by this Act in the recreation area be designated as the Platt National Park, is hereby repealed, and such lands shall hereafter be considered and known as an integral part of the Chickasaw National Recreation Area: *Provided*, That within such area the Secretary may cause to be erected suitable markers or plaques to honor the memory of Orville Hitchcock Platt and to commemorate the original establishment of Platt National Park.

16 USC  
4605b-5.

SEC. 6. Notwithstanding the provisions of section 7 of the Act of June 16, 1906 (34 Stat. 272), which retain exclusive jurisdiction in the United States, upon notification in writing to the Secretary by the appropriate State officials of the acceptance by the State of Oklahoma of concurrent legislative jurisdiction over the lands formerly within the Platt National Park, the Secretary shall publish a notice to that effect in the Federal Register and, upon such publication, concurrent legislative jurisdiction over such lands is hereby ceded to the State of Oklahoma: *Provided*, That such cession of jurisdiction shall not occur until a written agreement has been reached between the State of Oklahoma and the Secretary providing for the exercise of concurrent jurisdiction over all other lands and waters within the Chickasaw National Recreation Area.

Appropriation  
authorization,  
16 USC  
4605b-6.

SEC. 7. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, but not to exceed \$1,000,000 for the acquisition of lands and interests in lands, and \$1,500,000 for development.

Approved March 17, 1976.

#### LEGISLATIVE HISTORY:

HOUSE REPORT No. 94-803 (Comm. on Interior and Insular Affairs).  
SENATE REPORT No. 94-678 (Comm. on Interior and Insular Affairs).  
CONGRESSIONAL RECORD, Vol. 122 (1976):

Feb. 2, considered and passed House.

Mar. 5, considered and passed Senate.



## AN ACT

August 24, 1962  
[H. R. 23]

To authorize the Secretary of the Interior to construct, operate, and maintain the Arbuckle reclamation project, Oklahoma, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of the Interior is authorized to construct, operate, and maintain the Arbuckle Federal reclamation project, Oklahoma, in accordance with the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 358, and Acts amendatory thereof or supplementary thereto), for the principal purposes of storing, regulating, and furnishing water for municipal, domestic, and industrial use, and for controlling floods and for the conservation and development of fish and wildlife, and the enhancement of recreational opportunities. The project shall consist of the following principal works: A reservoir on Rock Creek near Sulphur, Oklahoma, pumping plants, pipelines, and other conduits for furnishing water for municipal, domestic, and industrial use, and minimum basic recreational facilities.

SEC. 2. In constructing, operating, and maintaining the Arbuckle project, the Secretary shall allocate the costs thereof among different

Interior Department.  
Arbuckle reclamation project,  
Okla.  
Construction authorization.  
43 USC 371 note.

Allocation of costs.



functions resulting from multiple-purpose development under the following conditions:

(a) Allocations to flood control, recreation, and the conservation and development of fish and wildlife shall be nonreimbursable and non-returnable under the reclamation laws;

(b) Allocations to municipal water supply, including domestic, manufacturing, and industrial uses, shall be repayable to the United States by the water users through contracts with municipal corporations, or other organizations as defined by section 2, Reclamation Project Act of 1939 (53 Stat. 1187) under the provisions of the Federal reclamation laws, and to the extent appropriate, under the Water Supply Act of 1958 (72 Stat. 319), as amended. Such contracts shall be precedent to the commencement of construction of any project unit affecting the individual municipality or industrial users, and shall provide for repayment of construction costs allocated to municipal water supply in not to exceed fifty years from the date water is first delivered for that purpose: *Provided*, That the water users' organization be responsible for the disposal and sale of all water surplus to its requirements, and that the revenues therefrom shall be used by the organization for the retirement of project debt payment, payment of interest, and payment of operation and maintenance cost. The interest rate used for purposes of computing interest during construction and interest on the unpaid balance shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which construction is initiated, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations, which are neither due nor callable for redemption for fifteen years from date of issue;

(c) Upon the completion of the payment of the water users' construction cost obligation, together with the interest thereon, the water users, their designee or designees, shall (1) have a permanent right to the use of that portion of the project allocable to municipal water supply purposes, so long as the space designated for those purposes may be physically available, taking into account such equitable reallocation of reservoir storage capacities among the purposes served by the project as may be necessary due to sedimentation, subject, if the project is then operated by the United States, to payment of a reasonable annual charge to the Secretary of the Interior sufficient to pay all operation and maintenance charges and a fair share of the administrative costs applicable to the project; (2) be conveyed title to such portions of the pipelines and related facilities as are used solely for delivering project water to the water users.

SEC. 3. Contracts may be entered into with the water users' organization pursuant to the provisions of this Act without regard to the last sentence of subsection (c) of section 9 of the Reclamation Project Act of 1939.

SEC. 4. The Secretary is authorized to transfer to a water users' organization the care, operation, and maintenance of the works herein authorized and, if such transfer is made, may deduct from the obligation of the water users the reasonable capitalized equivalent of that portion of the estimated operation and maintenance cost of the undertaking which, if the United States continues to operate the project, would be allocated to flood control and fish and wildlife purposes. Prior to taking over the care, operation, and maintenance of said works, the water users' organization shall obligate itself to operate them in accordance with criteria specified by the Secretary of the Army with respect to flood control and the Secretary of the Interior with respect to fish and wildlife and recreation.

43 USC 485a.

43 USC 390b  
note.

53 Stat. 1193.  
43 USC 485h.  
Transfer of operation.

SEC. 5. Construction of the Arbuckle project herein authorized may be undertaken in such units or stages as in the opinion of the Secretary best serve the project requirements and the relative needs for water. Repayment contracts negotiated in connection with each unit or stage of construction shall be subject to the terms and conditions of section 2 of this Act.

Stages of construction.

SEC. 6. The Secretary may (1) contract for the construction of any part of the minimum basic recreational facilities with any qualified agency of the State of Oklahoma or a political subdivision thereof, and (2) upon conclusion of a suitable agreement with any such agency or political subdivision for assumption of the administration, operation, and maintenance thereof at the earliest practicable date, construct or permit the construction of public park and recreational facilities on lands owned by the United States adjacent to the reservoir of the Arbuckle project, when such use is determined by the Secretary not to be contrary to the public interest, all under such rules and regulations as the Secretary may prescribe. No recreational use of any area to which this section applies shall be permitted which is inconsistent with the laws of the State of Oklahoma for the protection of fish and game and the protection of the public health, safety, and welfare. The Federal costs of constructing the facilities authorized by this section shall be limited to the nonreimbursable costs of the Arbuckle project for minimum basic recreational facilities as determined by the Secretary.

Recreational facilities.

SEC. 7. The Secretary may make such reasonable provision in connection with the works of the Arbuckle Federal reclamation project, in accordance with section 2 of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. 661, and the following), as he finds to be required for the conservation and development of fish and wildlife.

Fish and wildlife.

72 Stat. 563.

SEC. 8. Expenditures for Arbuckle Reservoir, and the water supply aqueduct system, may be made without regard to the soil survey and land classification requirements of the Interior Department Appropriation Act, 1954 (43 U.S.C. 390a).

67 Stat. 266.

SEC. 9. There is authorized to be appropriated for construction of the Arbuckle reclamation project the sum of \$13,340,000 (March 1962 prices), plus or minus such amounts as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indices applicable to the type of construction involved herein. There are also authorized to be appropriated such additional sums as may be required for the operation and maintenance of the project.

Appropriation.

Approved August 24, 1962, 9:30 a. m.

**SULPHUR SPRINGS.**

**Sulphur springs.**

**Cession of adjacent lands**

**Limit of acreage.**

**Vol. 30, p. 508.**

**Vol. 31, p. 237.**

**Price to credit of tribes**

**Improvements.**

61. The two tribes hereby absolutely and unqualifiedly relinquish, cede, and convey unto the United States a tract or tracts of land at and in the vicinity of the village of Sulphur, in the Chickasaw Nation, of not exceeding six hundred and forty acres, to be selected, under the direction of the Secretary of the Interior, within four months after the final ratification of this agreement, and to embrace all the natural springs in and about said village, and so much of Sulphur Creek, Rock Creek, Buckhorn Creek, and the lands adjacent to said natural springs and creeks as may be deemed necessary by the Secretary of the Interior for the proper utilization and control of said springs and the waters of said creeks, which lands shall be so selected as to cause the least interference with the contemplated town site at that place consistent with the purposes for which said cession is made, and when selected the ceded lands shall be held, owned, and controlled by the United States absolutely and without any restriction, save that no part thereof shall be platted or disposed of for town-site purposes during the existence of the two tribal governments. Such other lands as may be embraced in a town site at that point shall be disposed of in the manner provided in the Atoka agreement for the disposition of town sites. Within ninety days after the selection of the lands so ceded there shall be deposited in the Treasury of the United States, to the credit of the two tribes, from the unappropriated public moneys of the United States, twenty dollars per acre for each acre so selected, which shall be in full compensation for the lands so ceded, and such moneys shall, upon the dissolution of the tribal governments, be divided per capita among the members of the tribes, freedmen excepted, as are other funds of the tribes. All improvements upon the lands so selected which were lawfully there at the time of the ratification of this agreement by Congress shall be appraised, under the direction of the Secretary of the Interior, at the true value thereof at the time of the selection of said lands, and shall be paid for by warrants drawn by the Secretary of the

<p>Use of water, etc.</p> <p>Sale, etc., of Intoxicants forbidden.</p> <p>Proviso. Expenditures.</p>	<p>Interior upon the Treasurer of the United States. Until otherwise provided by law, the Secretary of the Interior may, under rules prescribed for that purpose, regulate and control the use of the water of said springs and creeks and the temporary use and occupation of the lands so ceded. No person shall occupy any portion of the lands so ceded, or carry on any business thereon, except as provided in said rules, and until otherwise provided by Congress the laws of the United States relating to the introduction, possession, sale, and giving away of liquors or intoxicants of any kind within the Indian country or Indian reservations shall be applicable to the lands so ceded, and said lands shall remain within the jurisdiction of the United States court for the southern district of Indian Territory: <i>Provided, however,</i> That nothing contained in this section shall be construed or held to commit the Government of the United States to any expenditure of money upon said lands or the improvements thereof, except as provided herein, it being the intention of this provision that in the future the lands and improvements herein mentioned shall be conveyed by the United States to such Territorial or State organization as may exist at the time when such conveyance is made.</p>
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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.





