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APPENDIX D – RECREATIONAL RESOURCES

I. Introduction

Recreational open space is defined in the 1995 Texas Outdoor Recreation Plan (TORP) – Assessment and Policy Plan, as “undeveloped land and/or water areas devoted to recreational activities which are compatible with conserving open space for designated purposes. Intensely developed parks with facilities which preclude participation in open space activities would not be defined as recreational open space.”

As documented in the 1990 and 1995 TORP Assessment and Policy Plans, rapid increases in population and population shifts from rural to metropolitan areas in Texas have resulted in shortages of open space and outdoor recreational opportunities predominantly near urban centers. During the 1980s, marginal lands were developed in response to escalating land prices and migration to urban areas, which resulted in increasing encroachment on flood plains, stream corridors, abandoned railroads and privately owned open space. In addition to environmental, safety and economic concerns associated with this development, open space has declined in and around urban areas and land prices have escalated, thus increasing the cost of open space land acquisitions. Demand for passive, open, green space for recreation, flood protection, and to provide natural buffers for wildlife habitat has also increased in urbanizing areas.

The 1990 TORP identified nine issues regarding recreation in Texas. Several of these issues were also restated in the 1995 report and included financing parks and recreation; improving outdoor recreation implementation programs; liability and outdoor recreation; meeting recreational open space needs; conserving natural resources for recreational use; tourism and outdoor recreation; maintenance and renovation of parks and recreation facilities and tourism and outdoor recreation. These issues and their impact upon design of recreational amenities are described below. Recommendations per item are listed in Attachment A, *Check List for Recreational Planners*, hereto.

II. Trends in Statewide Recreation

A. Tourism And Nature-Based Recreation

The tourism industry encompasses economic activity generated by travel for leisure or recreation. During the 1980s, Texas cities and counties increased activities to draw tourism dollars to diversify eroding agricultural and oil based economies, provide jobs and opportunities for economic growth, and to moderate the effects of recession periods. The travel industry in Texas includes all trips away from home of 100 miles or more, and totaled \$23 billion in revenues in 1993 according to the Texas Department of Commerce, thus making Texas the second-most visited state in the nation; however, in Gunn’s book, *Tourism Planning: Basics, Concepts, Cases*, tourism was defined as “encompassing all travel with the exception of commuting.” Gunn further stated, “there is a prevailing misconception that tourism is an industry. Instead, it is an agglomeration of land development and programs designed to meet the needs of travelers.”

According to the 1983 Outdoor Recreation Trip Expenditure in Texas study, tourists spent nearly \$9.3 billion on recreation trips in Texas for twenty outdoor recreational activities. Sightseeing and driving for pleasure ranked first and generated over \$2 billion. Towns and cities near or adjacent to high-quality natural resource-based

recreation areas or in mild winter areas of the Rio Grande Valley have substantial economic return from tourism based activities.

There has been an increase in sports complexes and competition for the tourist dollar among Texas' cities. Many areas in the state have an abundance of resources that could be developed to attract the tourist industry by offering more facilities, activities, events and options. Regional marketing and development of complementary attractions is desirable. Coordination among various interest groups and business entities is needed to maximize investments and reduce duplication and resource abuse.

Too much tourism can stress services and infrastructures of small towns and lead to unhappy clients, increased conflicts between local residents and out-of-town tourists, stressed tax base structures, constriction of highways and degradation of natural resources.

The concepts of eco-tourism and sustainable development are receiving considerable attention in present outdoor recreation initiatives. A special task force in 1993 created a report titled Nature Tourism in the Lone Star State, which heralded the term "nature tourism" as opposed to eco-tourism, and defined it as "discretionary travel to natural areas that conserves the environmental, social, and cultural values while generating economic benefit to the local community." This definition illustrates the holistic approaches advocated in recreational planning and stresses economic development and preserving and marketing cultural heritages in the recreational environment.

Recommendations to include concessions into public recreational sites and opportunities for private industry investment has resulted in an increase of Bed and Breakfast facilities, hotels, bike shops, restaurants, outdoor equipment suppliers, and other economic growth aspects. With addition of these "added value" establishments, the quality of the recreational experience has been altered and opened to more user groups, and in some cases have negatively impacted areas now in high use.

Development of trails has spurred new recreational sports, such as in-line skating and mountain biking. With new "toys" comes new needs, and the Texas public desires more facilities to enhance recreational experiences using these new sports, in addition to older, more traditional forms of outdoor recreation. The advent of "extreme sports" has also increased the demand for different approaches and facilities in recreational design, which include skateboard parks, dirt-bike obstacle courses, and off-road vehicular trails. New initiatives to diversify the Olympic Sports competition has also created new demands and opportunities for additional, outdoor, recreational facilities, particularly trail-based (equestrian endurance rides and driving competitions) and extreme sports.

B. Behavioral & Liability Issues

Liability concerns have played a major factor in decision-making and availability of recreational opportunities. These concerns are increasing with the advent of "extreme sports" including rock climbing, skate boarding competitions, and extreme mountain bike races. Texas legislation has been passed to address some of these

concerns, particularly in regards to equestrian activities. Legislation was also passed to redefine “agriculture products” to include consumable wildlife, thus reducing the recreational tax roadblock that reduced participation of many private landowners in opening up their lands for hunting and other recreational opportunities. This law however, did not reduce the tax burden for those providing non-consumptive recreational opportunities, such as trail-based activities, bird watching, wildlife photo safaris and wildflower viewing.

The 1995 TORP again stressed liability issues inhibiting outdoor recreation on private lands. According to the 1995 report, liability was increasing in regards to pollution and destruction of natural resources, which could result in reluctance of agencies to acquire property for conservation purposes and decrease private landowner interest in providing recreational opportunities on private lands. According to the recently released Land and Water Resources Conservation and Recreation Plan, (2002), the Texas Parks and Wildlife Department (TPWD) now offers liability protection to landowners that allow outdoor recreational use on their property. With liability protection, more landowners are increasingly interested in providing recreational opportunities to the public. TPWD plans to explore additional incentives to create new economic opportunities and more involvement of private landowners.

Some human activities conflict with natural resource management and accelerate deterioration of fragile resources, increase pollution and conflict with other outdoor recreational activities and user groups. Restriction of various user groups has increased activity in illegal or unmanaged use of lands, and planners have not provided recreational areas for these activities to occur in a less obtrusive manner. Some activities need to be segregated and planned for less fragile areas and management considerations, such as costs of operation and maintenance must be provided for during the planning processes. Ecological concerns and awareness of impacts caused by recreational activities are often not considered by the recreational user, and costs of repair, control and rehabilitation are typically hidden costs that consumers do not readily equate to recreational activities.

C. Demographic Factors

Population shifts occurring in the State of Texas are resulting in the concentration of the states’ population around major business centers and depopulation of rural areas. The Texas population is growing and new residents are moving into the state. As the population changes, socio-demographic changes will continue to alter the recreational needs of communities and regions. These dynamics are described in more detail in the Economics section of this report.

According to the 1995 TORP- Assessment and Policy Plan, Texans listed camping, fishing, swimming, hiking, and baseball as the most important recreational activities.

Sixty-five percent of surveyed Texans participated in walking, which was more than any other activity. Picnicking and pool swimming were listed as second with only 45% participation. Eighty-nine percent of the population reported that they participated at least once a year in recreational activity away from home, with eleven percent not participating in distant recreational activity annually. Table D-1 lists the most important outdoor, nature-based recreation as reported in the 1995 TORP.

Participation in recreational activities varies with age, ethnicity, and location within the state and population centers. The most active age group is 16-29 year olds, which preferred walking (65%), visiting the beach (61%), family gatherings (60%) and sightseeing (55%). Walking required little investment in equipment and gear and could be done by most age groups. Walking was particularly popular in urban areas where 80% of Texans lived in 1995. Wildlife photography and viewing showed the greatest increase between the 1995 TORP and the 1990 TORP surveys; 30% of the respondents (all age classes) participated in these activities. Bicycling and hunting showed significant decreases in the 1995 report among the 16 years and older group. Table D-2 illustrates the percentage of population (16 years and older) participating in various outdoor recreation activities in Texas.

Gender and Ethnicity Males participated in more outdoor recreational activities than females did, with males more active in sports and women active in passive recreation. Caucasians participated at higher rates than other ethnic groups for most of the activities surveyed. Significant differences were apparent for boating, hiking, golf, and horseback riding. Non-Caucasians were more active in sports such as softball, basketball, football and running/jogging, and they also visited Texas State Parks less often than Caucasians. (In some regions of Texas, particularly those near large metropolitan areas, these generalizations may not apply and parks and recreation planners are reporting more use of regional parks, greenways and urban parks by Hispanics and other non-caucasian groups.)

Income Income was not found to be a significant factor in the ability of citizens to recreate, or in the types of recreation chosen. Citizens in the \$25,000-\$50,000 bracket participated in 16 outdoor recreation activities, compared to 13 activities for those earning \$50,000 or more. Citizens earning \$25,000 and under participated in most activities and were particularly more active in basketball. Golf was the most restrictive activity based upon income. In 1990 over 18% of the state's population lived in poverty, and needed recreational opportunities closer to home.

Family Size Families with three or more people participated more in outdoor recreation than those with two or one members. Singles participated more in golf than other activities, while couples reported the most activity in birding activities, and represented mostly the senior citizen (age 50 and older) bracket.

Table D- 1. Outdoor Recreational Activities Most Important to the Citizens of Texas

Rank	Activity	Percent of Total
1	Camping	12.0
2	Fishing	11.5
3	Swimming	6.9
4	Hiking	5.3
7	Walking	3.6
9	Boating	3.0
10	Bicycling	2.9
11	Picnicking	2.7
13	Hunting	2.4
17	Water Skiing	1.5
19	Sightseeing	1.2
20	Jogging/Running	0.9

Adapted from DeLoney, Statewide Planning and Research, TPWD 1996
from Love, McGregor and Compton 1993.

**Table D- 2. Participation in Outdoor Recreation Activities by Texas Residents
Ages 16 and Older, In 1994, by Level of Education
(Percentage of Population Participating by Level of Education)**

Activity	College Grad	HS/TS Some College	Some H/S
Walking	72	65	49
Visit the Beach	66	59	54
Sightseeing	67	56	23
Visit Outdoor Nature Museums or Zoos	55	46	31
Picnicking	52	45	28
Visit Historic Sites	57	41	23
Swimming in non-pool	42	34	34
Camping	22	34	35
View/Photo Wildlife	33	30	19
Freshwater Fishing	24	37	39
Boating	30	29	25
Running/Jogging	26	24	36
Birding	32	23	16
Bicycling	23	25	29
Hiking	17	20	15
Off-road Driving	12	18	23
Hunting	8	14	18
Saltwater Fishing	12	12	9
Horseback Riding	6	4	12

Selected data from 1995 TORP Table 4.6 by DeLoney, Statewide Planning and Research, TPWD 1996 from Cordell, Distefano, and Lewis 1995.

Average Number of Participation Days The “average number of days of participation annually,” represented how often citizens recreate during a given year. Surveys showed that walking was the most frequently used activity, followed by birding and wildlife viewing. Citizens walked an average of 63.5 days per year.

Constraints to Participation The predominant constraints recorded in the 1995 TORP for outdoor recreation participation were (1) not enough time, (2) not enough money and (3) no one to participate with. Health reasons and outdoor pests also rated high. Crowding was not reported as a major problem. The main factor in non-participation was considered to be the increasingly, diverse recreational

opportunities available. According to a 1993 survey, most improvements needed in recreational opportunities were in safety/security and promotion/awareness.

D. Pollution & Quality of Life Issues

According to the 1990 and 1995 TORPs, tourists and recreation user groups desire clean, safe environments to recreate in. With increasing occurrence of asthmatic conditions in the U.S. population, air quality is an increasing concern and factor in visitation and quality recreational experiences. Air quality should be considered in the design phases to reduce negatives where possible. Design considerations to address air quality include reforestation, designing for alternative transportation and pedestrian friendly landscapes, and planning for affordable public transportation options.

Water quality is a major concern as recreationists desire increased access to water resources. Visitation and health are significantly reduced with poor water quality. Odors and pests associated with low water quality reduce the overall quality of life of residents as well as tourists. With increasing regulation and monitoring, the public is more aware of toxic wastes and the costs incurred to reclaim sites. Opportunities exist to address these sites using new technology and development in constructed wetlands and bioremediation techniques using plants. Utilization and design of these features clean sites at much reduced costs and reduce the need for landfill storage of toxic wastes. Many sites can be reclaimed if design and public awareness is sensitive to the problem and expanding growth in the field of hazardous waste reclamation.

It is recommended that designers and planners look for opportunities to educate the public and incorporate problem solving reclamation practices, particularly the use of constructed wetlands and bioremediation practices. Using these features in designs and planning educational usage of the property can greatly enhance public awareness and support for better management of contaminated areas, while providing living classrooms to Texas students. Designers should consider involving public and private schools in design, planting and monitoring of these sites as part of system curriculums and science programs. Care should be taken to consider and maintain safety for all users. Incorporation of boardwalks and interpretive signage should be considered in these designs.

E. Historical and Cultural Heritage

Although not mentioned in detail in the 1990 and 1995 TORPs, the recent TPWD publication Land and Water Resources, Conservation and Recreation Plan (2002), provides an entire section discussing the “Priorities for Historic Sites in Texas.” Historic sites are operated by the federal, state, and some private organizations, and are highly desirable tourist attractions. Data on visitation and net revenue information can be indicators of public interest; demand and the quality of experience was considered important in assessing historic parks. These factors are often affected by location or proximity to population centers. TPWD site priorities for the next decade are listed in Table D-3.

Table D- 3. Texas Parks and Wildlife Department Historic Site Priorities

Low	Medium	High	Highest
Acton	Casa Navarro	Admiral Nimitz	Battleship Texas
Confederate	Eisenhower	Fannin	Caddoan Mounds
Lipantitlan	Landmark Inn	Fort Lancaster	Fort McKavett
Starr Family Home	Monument Hill	Fort Richardson	Hueco Tanks
	Sabine Pass	Fulton Mansion	Mission Espiritu
	Sebastopol	Kreische Brewery	San Jacinto
	Zaragoza Birthplace	Lyndon B. Johnson	Seminole Canyon
		Magoffin Home	Washington-on-the-Brazos
		Mission Rosario	
		Port Isabel Lighthouse	
		Sam Bell Maxey	
		San Felipe	
		Varner-Hogg	

Sources: Land and Water Resources Conservation and Recreation Plan, 2002, TPWD

F. Conservation Issues and Recreational Resources

According to the TORP reports, the Texas Parks and Wildlife Department identifies significant resources throughout the state park system, the wildlife management areas system and the Texas Natural Heritage Program (TNHP). The TNHP contains inventories and tracking information designed to identify areas of natural diversity, and focuses on species preservation, which conflict with recreational use. In addition to the TNHP, the Biological Conservation Database (BCD) maintained by the Endangered Resources Branch of TPWD’s Wildlife Division includes sites of statewide and national significance.

Some cities identify resources for preservation in land use plans and park acquisition plans; however, few counties have developed open space plans identifying resources to preserve. Various conservation organizations have inventories of natural areas and manage sites. Many sensitive sites exist on private lands and private landowners have shown willingness to manage for these sites once made aware of them. Private landowners are often more willing to work with private conservation organizations than governmental entities, reflecting conflicts with “takings” legislation and movements active in the late 1980s and early 1990s.

G. Water-Based Resources

As reported in the 1990 TORP, there is a demand for more nature preserves, large tracts of land to support nature study, wildlife observation, hiking, primitive camping, access to water resources, and for spaces where “unstructured outdoor activities can occur.” Citizens also desired more diverse water recreational opportunities, particularly near reservoirs and stream channels. In Texas, rivers and streams are considered public property; however, adjacent lands are often in private ownership, where access to streams and rivers is limited.

In regards to water resources, water quality, quantity and intrinsic values need to be assessed on both river systems and coastal waters. Water quality needs evaluation and monitoring as recommended in both TORPs. Water quality affects health of

plant, animal and human populations and is considered a high priority for recreational use and quality experiences of all water resources.

Lakes, Rivers and Streams According to the 1990 TORP the number of reservoirs in Texas has increased from eleven in 1920 to nearly two hundred in 1990; the report mentions shortfalls in traditional and current planning used for reservoirs, which included weak assessments of intrinsic values of free-flowing streams and downstream amenities. Shoreline development and lack of design for shallow water areas in reservoirs has often resulted in reduced recreational opportunities and limited participation to those segments of society that could afford to own, maintain and operate boats.

According to Land and Water Resources Conservation and Recreation Plan, current public access to rivers is inadequate. Need for access will continue to be insufficient to meet the public demand as population centers grow over the next 10 years. Predominant access to water is located at road crossings, which are seldom adequate for safe access. Most access points lacked adequate parking areas, trash receptacles, signage and restroom facilities. Legal access to rivers was limited and trespass was listed as a problem, since confusion existed between public and private land boundaries.

Public reservoirs are the principal freshwater recreation sites, but access is threatened by lowered water levels as draw-down occurs from municipal, agricultural and industrial uses. The fluctuating water levels often cause decreased access and harm to fish communities.

Water-based recreational activities are shifting within the Texas population with less fishing and more paddle craft activity. To address these changes, TPWD has recently created a series of paddling trails along the Gulf Coast and garnered local community support to build access points and facilities for these trails. Promotional activities have been increased to regenerate the angling activities and draw in younger age groups. Surveys indicated that the restricted factors for fishing are limited access, lack of recruitment of younger populations and the increased diversity and quantity of recreation and leisure activities.

Conflicts between the various water-based recreation and fishing industry groups are on the increase. According to Texas Parks and Wildlife for the 21st Century, 25% of freshwater anglers reported conflicts with jet-skiers. Streambeds have been damaged by off-road vehicles, and there are increasing conflicts between landowners and various user groups. The State of Texas is interested in developing more access points, creating more opportunities for water-based recreation, protecting fragile stream and river resources, and reducing user conflicts. Private landowners are being encouraged to venture into additional recreational-based businesses.

Coastal Marshes Coastal waters and beaches attract both instate and out-of-state recreational users including beach activities, saltwater fishing and boating, and bird watching. Income from tourism is a major revenue source for local coastal communities. Access to the beaches and dune conservation is important for quality recreational experiences, as is water, litter and visual qualities. As reported in the 1990 TORP, litter is predominantly coming from ships and offshore oilrigs dumping

waste outside state waters. The petroleum industry is responsible for causing significant pollution in the form of oil spills and tank flushing waste.

Coastal marshes and wetlands are critical habitat for various species of fish, amphibians, birds and mammals. Impacts to local fishing industries are also important to local economic bases. Dredging and disposing of dredged materials in open bays and wetlands have significant impact on these resources. The Texas Legislature (1989) authorized the General Land Office (GLO) to develop a coastal zone management plan to address coastal resource issues with integrated approaches.

H. Open Space Resources

Public open space in Texas is low in comparison to other states, with ninety-seven percent of the state under private control. Along with TPWD state parks and wildlife management areas, the federal, regional and local governmental entities provide open space to the public. Private entities have ventured into nature-based recreation, providing hunting, wildlife viewing, and trail based recreation. Texas leads the nation in the actual number of hunters, the overwhelming majority of which hunt on private lands.

Texas ranks second in the nation in overall biodiversity nationwide, and TPWD has delineated 10 ecoregions, which they use for planning. The Land and Water Resources, Conservation and Recreation Plan, 2002 described conservation goals for these regions. As for describing public open space the report utilizes MSAs or Metropolitan Statistical Areas. The main priority areas that TPWD is focusing on is land acquisition within a 100 mile radius (90 minute drive) of the I10/I35/I45 triangular corridor, which is where population projections indicate most of the future growth will occur within the state. This area includes Greater Houston, Greater Dallas, Greater Fort Worth, Greater San Antonio, Greater Austin, Bryan-College Station, and Greater Galveston. Other priority areas include stream and river protection and areas known to have endangered species.

Statewide Recreational Amenities for the major metropolitan statistical areas above are listed in Table D-4. This data does not include trail miles, campsites, fishing opportunities and other activities provided by local sources, since data is not readily available for all cities and counties. The TPWD report used number of acres available per year including camping, biking, hiking, hunting and horseback riding. The data is stored in a Geographical Information System for 388 Texas communities, using actual city limits.

I. Trail-Based Resources

Interest in trails was reported as increasing in the 1995 TORP. As of 1995, statewide inventories of trails (hiking, horseback riding, walking, biking and jogging trails), was 1903 miles. Counties, cities and other local entities provided 27% (523 miles), while the state provided 42% (801 miles). According to *Recreation in Texas: the 1993 Citizen Survey*, hiking and walking activities ranked within the top 10 most important recreational activities.

Cities and local and regional governments are active in acquiring floodways and riparian corridors and in installing trail based recreational opportunities, and some cities such as Austin have placed acquisition of stream corridors as a high priority. In some areas, conversion of abandoned railroads and utility right-of-ways into greenway and recreational corridors has occurred; however, many abandoned railways have already been lost to other development including highway construction.

Table D- 4. Statewide Recreational Amenities for Major MSA's

City Unit	Amenity*	City Population	Federal	TPWD	Total
Abilene	Bike Trails	117,415	0	0	0
Abilene	Campsites	117,415	33.9	47.2	81.1
Abilene	Equestrian Trails	117,415		0	0
Abilene	Hiking Trails	117,415	0	6.22	6.22
Abilene	Hunting AC/100,000	117,415	3	0	3
Abilene	No. of Properties 5000 ac	117,415	0		0
Amarillo	Bike Trails	181,989	0	14.84	14.84
Amarillo	Campsites	181,989	0	28.8	28.8
Amarillo	Equestrian Trails	181,989	0	9.34	9.34
Amarillo	Hiking Trails	181,989	5.75	13.74	19.49
Amarillo	Hunting AC/100,000	181,989	30.3	0	30.3
Amarillo	No. of Properties 5000 ac	181,989	1		1
Bryan - College Station	Bike Trails	138,166	0.81	18.96	19.77
Bryan - College Station	Campsites	138,166	2.4	4.5	6.9
Bryan - College Station	Equestrian Trails	138,166	0	54.28	54.28
Bryan - College Station	Hiking Trails	138,166	1.11	28.3	29.41
Bryan - College Station	Hunting AC/100,000	138,166	34.9	61.5	96.4
Bryan - College Station	No. of Properties 5000 ac	138,166	1		1
Centro-Plex	Bike Trails	194,353	13.3	24.13	37.43

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Centro-Plex	Campsites	194,353	45.9	16.9	62.8
Centro-Plex	Equestrian Trails	194,353	67.98	1	68.98
Centro-Plex	Hiking Trails	194,353	99.01	38.49	137.5
Centro-Plex	Hunting AC/100,000	194,353	5	17.9	22.9
Centro-Plex	No. of Properties 5000 ac	194,353	3		3
El Paso	Bike Trails	625,539	0.53	3.52	4.05
El Paso	Campsites	625,539	0	32.7	32.7
El Paso	Equestrian Trails	625,539	0.21	3.52	3.73
El Paso	Hiking Trails	625,539	4.42	4.72	9.14
El Paso	Hunting AC/100,000	625,539	0	0	0
El Paso	No. of Properties 5000 ac	625,539	1		1
Greater Austin	Bike Trails	951,234	0	6.75	6.75
Greater Austin	Campsites	951,234	43.4	2.6	46
Greater Austin	Equestrian Trails	951,234	0	1.82	1.82
Greater Austin	Hiking Trails	951,234	0.32	15.33	15.65
Greater Austin	Hunting AC/100,000	951,234	3.5	12.3	15.8
Greater Austin	No. of Properties 5000 ac	951,234	3		3
Beaumont-Port Arthur	Bike Trails	267,431	0	4.23	4.23
Beaumont-Port Arthur	Campsites	267,431	0	3.4	3.4
Beaumont-Port Arthur	Equestrian Trails	267,431	0	4.49	4.49
Beaumont-Port Arthur	Hiking Trails	267,431	3.24	12.08	15.32
Beaumont-Port Arthur	Hunting AC/100,000	267,431	15.7	61.5	77.2
Beaumont-Port Arthur	No. of Properties 5000 ac	267,431	1		1
Greater Brownsville	Bike Trails	163,975	0.64	0	0.64

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Greater Brownsville	Campsites	163,975	0	1.5	1.5
Greater Brownsville	Equestrian Trails	163,975	0.46	0	0.46
Greater Brownsville	Hiking Trails	163,975	4.49	2.32	6.81
Greater Brownsville	Hunting AC/100,000	163,975	17.7	3.7	21.4
Greater Brownsville	No. of Properties 5000 ac	163,975	0		0
Greater Corpus Christi	Bike Trails	278,017	4.27	2.88	7.15
Greater Corpus Christi	Campsites	278,017	9	11.5	20.5
Greater Corpus Christi	Equestrian Trails	278,017	0	6.47	6.47
Greater Corpus Christi	Hiking Trails	278,017	14.64	1.91	16.55
Greater Corpus Christi	Hunting AC/100,000	278,017	44.1	2.9	47
Greater Corpus Christi	No. of Properties 5000 ac	278,017	2		2
Greater Dallas	Bike Trails	3,094,075	0	3.67	3.67
Greater Dallas	Campsites	3,094,075	28.6	8.7	37.3
Greater Dallas	Equestrian Trails	3,094,075	0	3.1	3.1
Greater Dallas	Hiking Trails	3,094,075	1.1	3.92	5.02
Greater Dallas	Hunting AC/100,000	3,094,075	2.2	13.7	15.9
Greater Dallas	No. of Properties 5000 ac	3,094,075	5		5
Greater Dennis-Sherman	Bike Trails	67,669	0.11	99.75	99.86
Greater Dennis-Sherman	Campsites	67,669	17	6.2	23.2
Greater Dennis-Sherman	Equestrian Trails	67,669	0.11	82.02	82.13
Greater Dennis-Sherman	Hiking Trails	67,669	0	102.41	102.41
Greater Dennis-Sherman	Hunting AC/100,000	67,669	8.7	32.6	41.3
Greater Dennis-Sherman	No. of Properties 5000 ac	67,669	3		3
Greater Fort Worth	Bike Trails	1,531,517	5.07	4.57	9.64

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Greater Fort Worth	Campsites	1,531,517	44.9	5.8	50.7
Greater Fort Worth	Equestrian Trails	1,531,517	0	4.11	4.11
Greater Fort Worth	Hiking Trails	1,531,517	96.98	5.4	102.38
Greater Fort Worth	Hunting AC/100,000	1,531,517	2.9	11.5	14.4
Greater Fort Worth	No. of Properties 5000 ac	1,531,517	2		2
Greater Galveston	Bike Trails	121,647	3.16	20.55	23.71
Greater Galveston	Campsites	121,647	0	9.7	9.7
Greater Galveston	Equestrian Trails	121,647	7.58	9.86	17.44
Greater Galveston	Hiking Trails	121,647	21.47	32.39	53.86
Greater Galveston	Hunting AC/100,000	121,647	8	9.9	17.9
Greater Galveston	No. of Properties 5000 ac	121,647	1		1
Greater Harlingen	Bike Trails	100,310	0	0	0
Greater Harlingen	Campsites	100,310	0	29.6	29.6
Greater Harlingen	Equestrian Trails	100,310	0	0	0
Greater Harlingen	Hiking Trails	100,310	0	3.79	3.79
Greater Harlingen	Hunting AC/100,000	100,310	18.2	3.7	21.9
Greater Harlingen	No. of Properties 5000 ac	100,310	0		0
Greater Houston	Bike Trails	3,899,400	0	0.84	0.84
Greater Houston	Campsites	3,899,400	2.5	4.5	7
Greater Houston	Equestrian Trails	3,899,400	0	1.8	1.8
Greater Houston	Hiking Trails	3,899,400	0	1.51	1.51
Greater Houston	Hunting AC/100,000	3,899,400	10.1	38.4	48.5
Greater Houston	No. of Properties 5000 ac	3,899,400	3		3
Greater McAllen	Bike Trails	487,388	6.73	0.62	7.35

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Greater McAllen	Campsites	487,388	0	8.9	8.9
Greater McAllen	Equestrian Trails	487,388	6.73	0	6.73
Greater McAllen	Hiking Trails	487,388	12.34	1.4	13.74
Greater McAllen	Hunting AC/100,000	487,388	17.2	3.7	20.9
Greater McAllen	No. of Properties 5000 ac	487,388	0		0
Greater San Antonio	Bike Trails	1,354,003	2.57	5.41	7.98
Greater San Antonio	Campsites	1,354,003	14.4	6.5	20.9
Greater San Antonio	Equestrian Trails	1,354,003	6.17	5.56	11.73
Greater San Antonio	Hiking Trails	1,354,003	19.55	6.34	25.89
Greater San Antonio	No. of Properties 5000 ac	1,354,003	3		3
Greater Waco	Bike Trails	158,343	1.44	26.52	27.96
Greater Waco	Campsites	158,343	103.6	10.9	114.5
Greater Waco	Equestrian Trails	158,343	0	0	0
Greater Waco	Hiking Trails	158,343	4.92	34.86	39.78
Greater Waco	Hunting AC/100,000	158,343	5.6	6.7	12.3
Greater Waco	No. of Properties 5000 ac	158,343	2		2
Laredo	Bike Trails	168,032	6.98	0	6.98
Laredo	Campsites	168,032	0	86.8	86.8
Laredo	Equestrian Trails	168,032	0	0	0
Laredo	Hiking Trails	168,032	23.93	1.79	25.72
Laredo	Hunting AC/100,000	168,032	0	72.7	72.7
Laredo	No. of Properties 5000 ac	168,032	1		1
Longview	Bike Trails	89,254	0	55.46	55.46
Longview	Campsites	89,254	34.7	2.6	37.3

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Longview	Equestrian Trails	89,254	52.24	39.21	91.45
Longview	Hiking Trails	89,254	23.22	47.5	70.72
Longview	Hunting AC/100,000	89,254	11.3	77.2	88.5
Longview	No. of Properties 5000 ac	89,254	3		3
Lubbock	Bike Trails	216,488	0.55	29.7	30.25
Lubbock	Campsites	216,488	0.3	14.3	14.6
Lubbock	Equestrian Trails	216,488	2.13	29.7	31.83
Lubbock	Hiking Trails	216,488	2.62	29.7	32.32
Lubbock	Hunting AC/100,000	216,488	0	0	0
Lubbock	No. of Properties 5000 ac	216,488	0		0
Midland-Odessa	Bike Trails	188,031	1.11	0	1.11
Midland-Odessa	Campsites	188,031	0	7.1	7.1
Midland-Odessa	Equestrian Trails	188,031	1.63	0	1.63
Midland-Odessa	Hiking Trails	188,031	2.61	2.02	4.63
Midland-Odessa	Hunting AC/100,000	188,031	0	0	0
Midland-Odessa	No. of Properties 5000 ac	188,031	0		0
San Angelo	Bike Trails	90,041	0	55.53	55.53
San Angelo	Campsites	90,041	15.2	67.8	83
San Angelo	Equestrian Trails	90,041	0	55.53	55.53
San Angelo	Hiking Trails	90,041	0	55.86	55.86
San Angelo	Hunting AC/100,000	90,041	0	50.5	50.5
San Angelo	No. of Properties 5000 ac	90,041	1		1
Tyler	Bike Trails	103,377	0	91.41	91.41
Tyler	Campsites	103,377	41.5	44	85.5

Table D- 4. (continued)

City Unit	Amenity*	City Population	Federal	TPWD	Total
Tyler	Equestrian Trails	103,377	0	66.75	66.75
Tyler	Hiking Trails	103,377	0.46	84.35	84.81
Tyler	Hunting AC/100,000	103,377	56.5	34.6	91.1
Tyler	No. of Properties 5000 ac	103,377	3		3
Wichita Falls	Bike Trails	116,802	0	4.45	4.45
Wichita Falls	Campsites	116,802	0	3.1	3.1
Wichita Falls	Equestrian Trails	116,802	0	12.59	12.59
Wichita Falls	Hiking Trails	116,802	0	14.47	14.47
Wichita Falls	Hunting AC/100,000	116,802	0	0	0
Wichita Falls	No. of Properties 5000 ac	116,802	0		0

* Within a 90 Minute Drive Time from Service Area
Source: Land and Water Resources Conservation and Recreation Plan, 2002, TPWD

III. Financing Parks and Open Space

A. Funding Sources

Trends in the late 1980s showed all recreation providers affected by economic downturns and taxpayer reform initiatives. Declining tax revenues resulted in budget reductions and recreational needs greater than appropriations. This decline in revenues resulted in shortages of facilities, reduced maintenance of facilities and grounds, staff reductions, reduced park acquisitions and lowered “quality-of-life” for residents in most state regions. Surveys conducted for the 1990 and 1995 TORPs showed public demands for a wider variety and higher quality outdoor recreational opportunities. Citizens decreased visitation to distant parks and desired more opportunities closer to home and nearby communities. Rural areas reported difficulty in obtaining recreational opportunities because of traditionally low revenues to acquire land for public recreation and private land access restrictions.

Recommendations for the development of long-range, outdoor recreational plans has not materialized in most areas. Other recommendations in the 1990 and 1995 TORPs have been more successful in meeting the recreational needs of the growing, shifting Texas population. There has been a growth in activity in acquiring linear parks and greenbelts, and a decrease in large block park acquisitions. Planning with multi-use objectives increased support for acquiring and developing many greenways and linear parks.

Marketing of eco-tourism (nature tourism) and economic development has become big business in many areas of the state. Private landowners have initiated marketing and are supplying recreational opportunities to the public. This revenue supplements declining agricultural profits, and in some areas is the private landowner's major source of income. Recreational planners have utilized creativity, community-based initiatives and increased marketing and funding from nontraditional government and private sources, including partnerships with local, state, federal agencies and private grant foundations. This partnership emphasis and multi-use objectives including diversification of traditional economic bases has significantly changed the way recreation planning is being performed in the state of Texas.

In 1990, the two primary sources of outdoor recreational grants were the Land and Water Conservation Fund (LWCF) and the State Local Parks, Recreation and Open Space Fund (LPF). Currently (2002) funding sources include federal funding, (U. S. Department of Transportation, Corps of Engineers, Environmental Protection Agency, U. S. Fish and Wildlife Service, U. S. Department of Agriculture, etc.), alternative state funding sources, (Texas Department of Transportation, Texas Parks and Wildlife, Texas Health Department, etc.) and private organizations such as the Nature Conservancy, Partners for Flight, Ducks Unlimited, Quail Unlimited, Audubon Society, and many more.

There has also been growth in volunteer activities as trail building crews and park cleanup crews have been active under community initiatives and grass roots organizations, such as the Sierra Club, Texas Trails Network, Lion's Club, Local Chapters of Boy Scouts and Girl Scouts of America, American Youth Corps, Texas Equestrian Trail Riders Association and many others. Clearly the Texas public is demanding more outdoor recreational opportunities. They are willing to volunteer labor and to fight for opportunities and public consideration of recreational needs.

B. Implementation Issues

According to the *1995 TORP*, funding sources for parks and recreation are falling behind public demand and parks are facing an aging infrastructure, which require increased maintenance costs. The *1990 TORP* made recommendations for improving the outdoor recreation implementation, which included forming partnerships, joint use of facilities, cost-sharing, lease and maintenance agreements, grants, increased awareness and education regarding concerns and opportunities, potential funding sources, and acquiring technical assistance. Increased physical and economic accessibility to all segments of the community was needed.

Both the *1990 and the 1995 TORPs* suggested the need to form international, interstate and regional cooperation and committees to share ideas and concerns. Recommendations included increasing private industry investment and participation in providing recreational opportunities and concessions on public lands. Education of user groups was needed to increase multi-use cooperation and concern for natural resources, as was the increase of awareness and use of the various forms of technical assistance use of the Local Assistance Branch of Texas Parks and Wildlife Division (TPWD).

The branch offers planning and needs assessment assistance to small towns and rural areas. The TPWD also offers wildlife habitat management assistance to private landowners, along with various other governmental agencies. Inclusion in the

planning process of other non-traditional groups such as the National Park Service, Texas Agricultural Extension Service, Council of Governments, Texas Colleges and Universities and private groups such as the Rails-to-Trails Conservancy, American Rivers, Texas Recreational Parks Society and private consultants was desired.

For the most part, Texas planners have increased the use of partnerships, and generated private industry interest, investment and participation over the past decade. However, there has been poor advancement made in performing recreational needs assessments and recreational master planning. This lack of planning and assessment is considered to be a major stumbling block for recreation planners.

The 1995 TORP shifted away from using regional data and stressed local planning using the “Project Priority Scoring System,” which is based upon local assessments. Few communities have invested in creating these assessments for recreational planners to utilize, and the 1995 TORP presents data in a statewide format, which is less applicable for use in regional planning. In addition to weakening the TORP’s applicability for planners, Texas lawmakers passed legislation in 1993 to require needs to be determined at the local level before applying for Texas Recreation and Parks Account (TRPA) grant moneys. Lack of funding has been the primary reason provided for foregoing this important aspect of planning, and recreational efforts may currently be wasteful, unused and more costly than desired. Planning initiatives need to address this lack of funding, and alternative recreational funding sources need to be found to assist local governments in developing current needs assessments and long-term recreational master plans.

C. Operation and Maintenance Issues

With aging infrastructures, existing parks and recreational amenities are requiring more maintenance and need higher funding than has been available in the past decades. New facilities are often designed and built without consideration of future maintenance. Citizens want higher quality park experiences and maintenance affects their perception of quality experiences. Surveys indicate that citizens want existing structures maintained more than they want new park acquisitions. Planners need to consider designs in regards to maintenance and operation costs and design for low maintenance where possible. Consider incorporating management tools such as maintenance trust funds, volunteer service groups, adopt-a-park programs, implementing a regular maintenance schedule, and keeping detailed records of inspections and repairs.

IV. Providers of Open Space

There are many different groups of providers of outdoor recreation throughout Texas including federal, state, county, local governments and commercial providers. The 1995 TORP made recommendations for the various groups and the roles that providers should plan in the future according to citizen input throughout the state. The Texas Outdoor Recreation Inventory System includes all recreation areas open to the general public either for free or for a fee. According to the 1995 TORP, the survey was last updated in 1986, and includes federal, state, local and commercial recreation. Table D-5 lists acreage (1995) managed by various nature-based recreational providers in the State.

A. Federal Recreation Providers

The main federal recreational providers in the state include the U.S. Army Corps of Engineers (USACE), National Park Service (NPS), U.S. Forest Service (USFS), and U.S. Fish and Wildlife Service (USFWS). Recreation opportunities provided to the public have traditionally been natural resource-based activities, such as camping, picnicking, fishing, boating, swimming and trail use.

U. S. Army Corps of Engineers (USACE) The Corps administers most of the Federal reservoirs and lands adjacent to them in the state. The Corps also participates in planning and funding water development and ecosystem restoration along the streams, rivers, lakes, estuaries and coastlines in the state. USACE works with local, state and federal government agencies to build partnerships and to inventory resources and administer federal laws affecting the nations' water resources. Recreational amenities are included in most Corps projects, and are based upon community-identified needs and desires, as well as federal and state statutes and limitations. The Corps also has a regulatory role in wetlands throughout the state.

National Park Service (NPS) The National Park Service administers the Land and Water Conservation Fund, which assists state and local recreation providers in the acquisition and development of parks, and has a branch to provide planning and marketing assistance to local and private industry and to assist with master plan development. The National Park Service also manages several National Parks and monuments within the state.

Natural Resources Conservation Service (NRCS) The Natural Resources Conservation Service offers technical assistance, funding opportunities to address erosion, research, training, information, watershed management and wildlife habitat development and management. Important programs administered by NRCS and their sister agency, Farm Services Agency (FSA), include the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP) and the Environmental Quality Incentives Program (EQIP). Private lands under these programs are often marketed to the public for outdoor recreation. The NRCS and its citizen partners, local Soil Conservation Districts, are important players in garnering private landowner participation in addressing natural resource concerns and in partnership building to promote recreational opportunities on private lands.

U.S. Forest Service (USFS) and The Bureau of Reclamation (BOR) The U.S. Forest Service manages natural resources on several national forest lands including the National Grasslands found within the state. The USFS creates many recreational opportunities for multiple uses of these properties, and can provide technical assistance, financial assistance, management, research, training and information for recreational planners. The Bureau of Reclamation also participates in the construction of reservoirs, management of lands and creation of recreational amenities and opportunities.

Table D- 5. Recreational Amenities Per Provider

Facility	NPS	USFWS	USFS	COE	State Parks	WMA	TxDOT	OtherState	RiverAuth.	Counties	Cities	OtherLocal	Comm	T
reas	43	20	55	256	137	42	13	11	55	566	4,684	215	1,610	7707
cres	1,115,642	256,227	673,620	235,895	587,939	722,770	35	5,556	4,753	39,836	161,095	21,906	226,662	4,051,936
	3,628	490	3,019	22,359	17,547	147	9	742	1,400	15,388	67,638	6,757	40,746	179,870
	7,139	5,913	155,889	60,827	156,277	320	21	273	3,348	18,418	69,801	9,343	152,552	640,121
	1,104,875	249,824	514,712	152,709	414,115	722,303	5	4,541	5	6,030	23,656	5,806	33,364	3,231,945
ater	40	8	58	606	152	6	14	0	92	183	290	71	788	2,308
ater	0	4	0	4	8	0	0	0	0	48	28	42	126	260
	698	36	1,248	5,996	7,081	33	0	0	906	2,332	2,521	738	64,698	86,287
ccess,	0	25,700	18,226	143,270	48,102	7,700	100	440	32,540	44,943	178,707	16,108	61,646	577,482
	256	7,920	93	2,635	3,147	100	13	0	1,413	2,613	15,400	2,649	31,491	67,730
	0	0	0	70,230	10,497	0	0	0	0	11,647	13,770	24,040	11,733	141,917
	104	2	168	33	498	0	0	0	2	14	63	14	12	910
	126	0	0	21	80	0	0	0	0	9	36	0	72	344
	1,775	0	720	830	23	0	0	0	0	1,656	136	0	5,966	11,106
	298	56	248	2,087	3,866	0	1	38	440	8,809	22,065	817	3,912	42,637
	2	17	3	12	223	0	0	0	4	47	284	56	1	649

Other Federal Agencies According to the 1995 TORP, several other federal entities participate in the creation of recreational opportunities through partnerships. Many of these agencies were identified in the 1995 TORP. Planners and community leaders should consider inclusion of these agencies as partners to create holistic plans and additional recreational opportunities.

Recommended Roles of Federal Agencies The 1995 TORP described citizen-based recommendations for federal agencies to play within the state of Texas. Below are only those described for the U.S. Army Corps of Engineers.

- Increase efforts to establish cooperative agreements with state and local governments and private sector to develop and operate parks on Corps' land, and where appropriate, to provide law enforcement support for those parks.
- Continue to upgrade existing parks and increase maintenance to improve recreational experiences.
- Continue to work with volunteer and user groups to expand available recreation opportunities.

B. State Providers

Various state agencies support recreational activities and are listed in the 1995 TORP. Among the players, Texas Parks and Wildlife Department (TPWD) is the lead agency for most recreational activities and grant programs. Federal funding is often funneled through state agencies. Texas Parks and Wildlife Department manages funds under the Land and Water Conservation Fund (L&WCF), Texas Recreation and Parks Account (TRPA), which replaced the Local Parks, Recreation and Open Space Fund (LPF), and the Texas Recreational Trails Fund (TRTF).

Cities, counties, river authorities and some special districts of the state may apply for financial assistance through the TRPA grant program. Projects are evaluated using the TRPA Project Priority Scoring System available from the Grants-in-Aid Program at TPWD. The Texas Recreational Trails Funds are derived from federal funds and motor fuel tax used by off-road vehicles. Funding under this authority became available in 1993. Texas Parks and Wildlife Department has several other programs established to improve planning and recreational opportunities as well as to enhance wildlife habitat.

Texas Forest Service. The Texas Forest Service manages five state forests and provides recreational opportunities. The Texas Forestry Association's Woodlands Trails program has eleven trails in designated scenic portions of privately owned timberland. The Texas Forest Service provides technical assistance and information to landowners and public agencies.

Other state agencies playing significant roles in providing recreational opportunities or have the potential to are the General Land Office (GLO), Texas Department of Transportation (TxDOT), Texas Conservation Foundation, state universities, Texas Agricultural Extension Service (TAES), Texas Department of Commerce (TxDOC) and the Interagency Abandoned Rail Corridor Committee (IARCC). Of these, TxDOT is a major source of funding for hike and bike trails and bike lanes used by the bicycling touring enthusiasts. Funding has been provided through the now-defunct Intermodal Surface Transportation Efficiency Act (ISTEA) and the expiring

Transportation Equity Act for the 21st Century (TEA-21). Continued funding for trails under the proposed new transportation act has not been determined, and may be significantly reduced if not eliminated altogether in the next Transportation Act.

Recommendations in the 1995 TORP for state agencies to consider included the continuance of most activities and specifically a need for additional public lands within a one-and one-half-hour drive from major metropolitan areas (100 miles). The public desired increased efforts from TxDOT for funding acquisition from the National Recreation Trails Program, as well as, increased efforts to retain and promote scenic roadways and provide maps and signs for these roads.

C. Regional and Local Providers

Council of Governments The two major regional governmental entities involved in outdoor recreational planning are the councils of governments (COGs) and the river authorities. River authorities' boundaries often overlap with one or more COGs, thus increasing difficulty in quantifying needs and analyzing demographic data. In some metropolitan areas, major urban centers are partnering and forming their own planning groups, such as the San Antonio-Austin Corridor Council. The councils of government were established to provide coordination between the state and local governmental entities. They also provide planning and technical assistance to local governments, but their abilities to provide assistance has declined in many areas due to eroding tax bases and reduced funding.

River authorities were established to manage specific rivers and watersheds and provide water for regional citizens. Recreational opportunities vary among these entities. Many authorities are actively partnering and considering cost-sharing to provide water-based recreational opportunities and to own land in which the public can recreate for a small use fee.

The writers of the 1995 TORP recommended regional governments to continue to act as coordinators between state and local governments and to continue to offer assistance and coordination of regional outdoor recreation and open space planning, with greater emphasis on rural outlying communities. The public desired more development of regional tourism packages and access to navigable streams and public reservoirs, more waterfront parks and greenbelts. Regional and local resources as described by the 1995 TORP were those provided by river authorities, counties, cities and other local entities. River authorities provided 4,753 acres of regional and local parklands per the 1990 TORP, which is less than 1% of the total Texas parklands.

Counties, Cities and Other Local Entities Counties, cities and other local entities provided 222,837 acres of parkland in 1995. Counties provided approximately 18%, while cities provided approximately 71% of the local acreage for recreation. According to the *Land and Water Resources, Conservation and Recreation Plan, 2002* report, four of the largest 25 cities in Texas have more recreation acres per capita than the statewide average of 52-acres per 1000 population. However, several of the most populous cities are listed as being under served, including Houston (40.3 ac/1000 people), El Paso, Austin, Dallas, Fort Worth and San Antonio with 9.9 acres per 1000 people. Therefore, TPWD plans to focus acquisition efforts within the I10/I35/I45 corridor.

Of the 388 cities represented in the 2002 report, TPWD reported that 133 (38%) have less than 10 acres of local parks per 1,000 population; ninety (23%) had 10-25 acres per 1,000 population, 32 (8%) had 25-100 acres of local parks per 1,000 population and 6 (1.5%) had over 100 acres of local parks per 1,000 population. Cities with populations over 100,000 had an average of 15.5 acres/1000 population. Those with the most were Grand Prairie, Austin, Carrollton and Fort Worth. Those with the fewest included Laredo, Pasadena, McAllen, El Paso, Abilene and San Antonio. Austin had the most acres per 1,000 with 37 acres/1000 population. The Rio Grande Valley was severely lacking in recreational opportunities per 1000 population. Table D-6 lists local park acres per 1,000 people for cities over 100,000.

V. Recreational Resources in Texas

The recently approved *Land and Water Resources, Conservation and Recreation Plan*, by The Texas Parks and Wildlife Department lists the most current information on the state's recreational priorities. Seventy five percent of the Texas population lives within a 60-mile radius from the I35/I10/I45 triangle, but only 27% of TPWD lands are within this area. The state parks with "high priority for expansion" are Bastrop/Buescher, Bentsen-Rio Grande, Brazos Bend, Colorado Bend, Dinosaur Valley, Enchanted Rock, Fort Boggy, Government Canyon, Guadalupe River, Palo Duro, Pedernales Falls, Resaca de la Palma, Village Creek and Inks Lake. Most of these parks are within 90-minutes of the I35/I10/I45 triangle.

The report also lists plans for the state wildlife management areas (WMAs) and the possible transfer of some parks to more suitable, public land providers. WMAs of top priority for expansion include Alazan Bayou, Big Lake Bottom, Chaparral, Keechi Creek, Kerr, Old Sabine Bottom, Peach Point, Playa Lakes, Sierra Diablo, Walter Buck and Winterman. The state is also planning on transferring management to other entities in some areas, particularly those most used as urban parks or serving a single community. The lower Colorado River region has one of the state parks scheduled for transfer to local entities – McKinney Falls in Travis County.

According to the report, TPWD recognizes 5,000 acres as the minimal size for optimal wildlife habitat and minimum acreage for high quality outdoor recreation. The ideal situation would have more than one 5,000-acre state park or WMA for each major population center to meet recreation needs.

VI. Lower Colorado River Basin

The lower Colorado River basin (LCRB), which is designated as Region K, comprises the lower portion of the Colorado River watershed (Figure D-1). The Mansfield Dam near Austin is the primary regulator of water flow in the lower Colorado River basin. Onion Creek in Travis County and Cummins Creek in Colorado County are the only two tributaries below Austin with watersheds greater than 300 square miles. The basin contains 14 counties and lies within four, regional council of governments. Table D-7 lists the 14 counties in the basin and their corresponding Council of Government. Figure D-1 shows their relative locations. These COGS include Central Texas Council of Government (Region 23), Capital Area Planning Council (Region 12), Houston-Galveston Area Council (Region 16) and the Alamo Area Council of Governments (Region 18).

Table D- 6. Local Park Acres per 1,000 People for Cities Over 100,000 Population

City	Acres per 1,000 Population	City Population	Total City Park Acres
Houston	1030	1,953,631	20,107.83
Dallas	19.70	1,188,580	23,378.63
San Antonio	7.90	1,144,646	9,064.05
Austin	37.20	656,562	24,408.10
El Paso	5.10	563,662	2,891.98
Fort Worth	21.10	534,694	11,302.91
Arlington	10.00	332,969	3,328.46
Corpus Christi	8.00	277,454	2,210.07
Plano	15.80	222,030	3,505.76
Garland	10.00	215,768	2,153.10
Lubbock	17.80	199,564	3,546.13
Irving	9.00	191,615	1,733.15
Laredo	0.90	176,576	164.15
Amarillo	15.00	173,627	2,601.72
Pasadena	1.20	141,674	172.37
Brownsville	7.00	139,722	984.94
Grand Prairie	43.10	127,427	5,494.94
Mesquite	15.30	124,523	1,907.99
Abilene	5.80	115,930	675.81
Beaumont	20.30	113,866	2,307.38
Waco	49.10	113,726	5,586.99
Carrollton	23.10	109,576	2,532.38
McAllen	1.20	106,414	129.42
Wichita Falls	18.30	104,197	1,902.13

Source: TPWD Local Pak Analysis, 2002

Table D- 7. Counties and Councils of Governments in the LCRB

LCRB County	Council of	(COG)
Bastrop	Capital Area	12
Blanco	Capital Area	12
Burnet	Capital Area	12
Colorado	Capital Area	12
Fayette	Capital Area	12
Gillespie	Alamo Area	18
Hays	Capital Area	12
Llano	Capital Area	12
Matagorda	Houston-Galveston	16
Mills	Central Texas	23
San Saba	Central Texas	23
Travis	Capital Area	12
Wharton	Capital Area	12
Williamson	Capital Area	12

The LCRB boundary also overlaps with five of the 10 state, vegetational (ecological) zones. The five ecological zones include the Cross Timbers and Prairies, Edwards Plateau, Blackland Prairies, Post Oak Savannah, and Gulf Prairies and Marshes. Small portions of the Brazos, Guadalupe and Lavaca River Basins also lie within the region. The predominant rural landscape of the Edwards Plateau region is predominantly rangeland with motts of trees and shrubs. The Blackland Prairie rural areas consist of cropland and forage production lands with rangeland and irrigated pasturelands. The Post Oak Savannah zone is predominantly a mixture of post oak and rangeland. Significant portions of Post Oak Savannah region were cultivated in the 1940s and have been allowed to return to a native grass or tame pasture condition.

The Gulf Prairies and Marshes Ecological Zone includes Matagorda, Wharton, and Colorado Counties (eastern tip). The area is a 30-80 mile strip of lowlands, with low, coastal, wet marshes, and nearly flat topography. Elevations range from sea level to 250 feet. The original Gulf Prairie vegetation consisted of tall grasses and post oak savannahs, but is now predominated by thickets of shrubs. Cultivation has always been low due to saline soils, flooding, industrial and recreational development. One third of the ecological region is irrigated cropland, which is predominantly in rice cultivation. According to the Region "K" Water Supply Plan for the Lower Colorado Regional Water Planning Group, Vol. 1, the Gulf Prairies and Marshes zone has seen "more industrialization than anywhere in Texas since WWII."

As per the above report, recreational activities important to the rural counties included hunting and wildlife viewing opportunities marketed by private landowners and on public lands. Deer, exotic game species, turkey, squirrel, dove and bobwhite quail were popular species hunted in the region. Javalina, wild hogs, and neo-tropical songbirds were also plentiful in the region. Various important ecological areas exist, predominantly in tributaries of the Colorado River, which contain several endangered or threatened wildlife species.

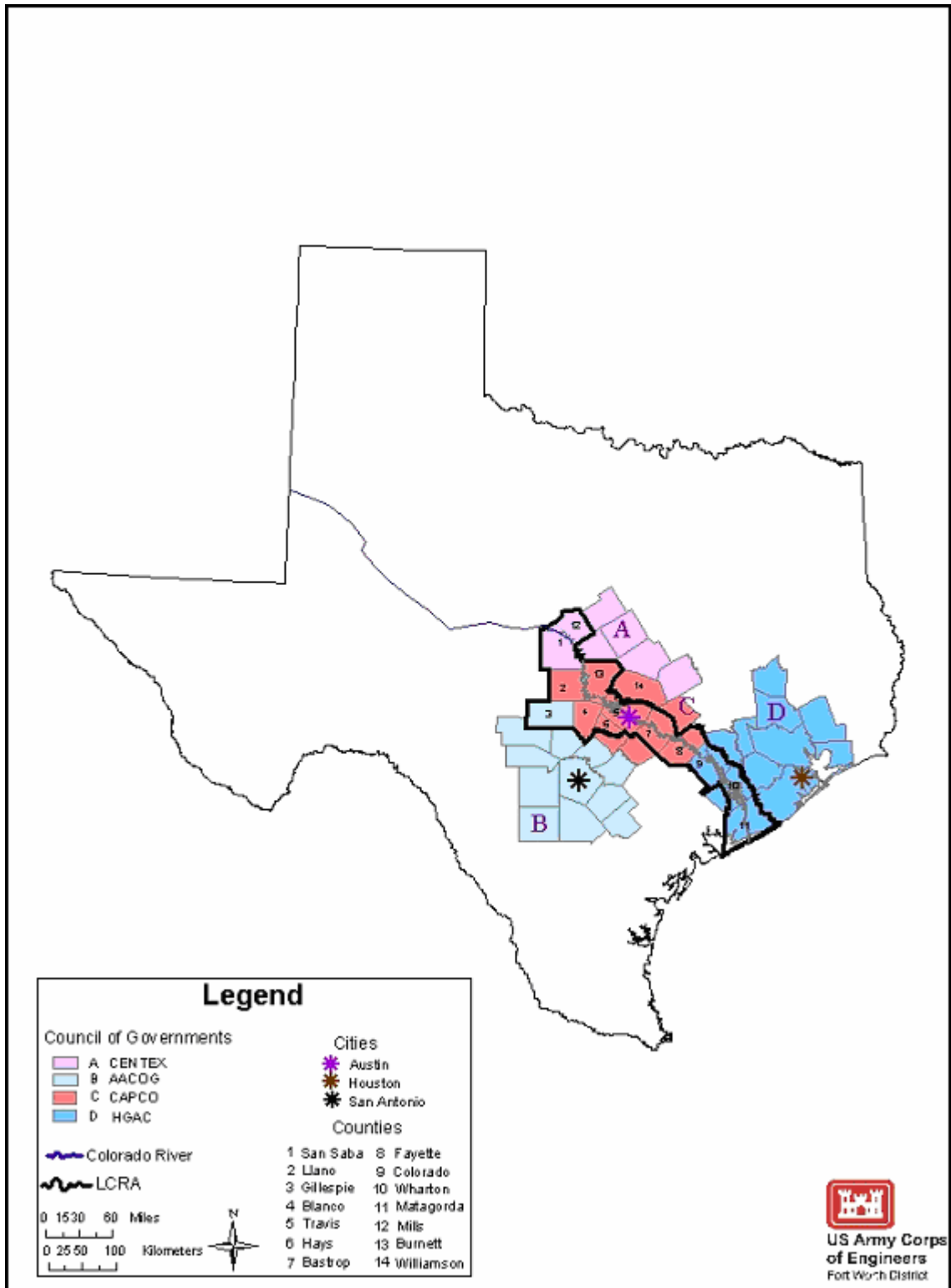


Figure D-1. Boundaries of the Council of Governments and the Lower Colorado River Basin

A. Population and Economic Trends

Seventy-five percent of the lower Colorado River basin’s population resides in the Austin Metropolitan Area in the middle portion of the basin. The population is expected to approximately double by year 2040, with most of the concentration in the middle portion of the basin in Blanco, Burnet, Hays, Travis, Williamson, Bastrop and Fayette counties. Table D-8 illustrates county population projections for the next 40 years for the 14 counties included in the Lower Colorado River Regional Water Planning area .

Table D- 8. County Population Projections for the LCRB Region

County	2000	2010	2020	2030	2040
Bastrop	57,733	75,386	97,601	123,734	153,392
Blanco	8,418	9,946	11,756	13,487	15,002
Burnet	34,147	41,924	51,044	60,382	69,271
Colorado	20,390	21,101	22,032	22,550	22,760
Fayette	21,804	22,869	24,766	26,279	27,523
Gillespie	20,814	21,438	22,572	23,154	22,965
Hays	97,589	135,450	178,784	223,665	268,766
Llano	17,044	16,040	15,249	14,565	14,266
Matagorda	37,957	40,506	43,295	44,991	45,925
Mills	5,151	5,137	5,414	5,476	5,537
San Saba	6,186	6,387	6,746	7,059	7,332
Travis	812,280	963,120	1,105,551	1,245,654	1,371,840
Wharton	41,188	43,560	46,045	47,647	48,567
Williamson	249,967	341,322	449,652	581,210	724,667
Totals	1,430,668	1,744,186	2,080,507	2,439,853	2,797,813

Source: Texas State Data Center and Office of the State Demographer

The basin contains the Austin Metropolitan Statistical Area, which contains the State Capital and is home to one of the major state universities (University of Texas). The state government is a major player in the region’s economic base. The three largest employers are the state and local governments, wholesale/retail trade sector, and the business/social sciences sector. Seventy percent of the jobs in the LCRB are in the trade, government/services, and manufacturing sectors, which are predominantly located within the major metropolitan areas. Manufacturing is an important economic component and includes technology, semiconductor, petroleum refining, petrochemicals, food processing, lumber, wood products, supplies, declining textile and apparel industries, construction (residential prison facilities, shopping malls), and mining. Agriculture comprised 4%, construction 8%, and manufacturing 10% respectively.

Throughout most of the counties included in the LCRB boundary, agriculture plays a major role; sixty percent of the agricultural production is livestock. Predominant crops grown in the region are rice, hay, wheat and cotton. Irrigated agriculture (predominantly rice production) is predominant in Colorado and Wharton counties, making them the largest water consumers in the region. Income derived from hunting is significant in Blanco, Burnet, Gillespie, Hays, Llano, Matagorda, San Saba, and Wharton counties. Tourism is significant in Bastrop, Blanco, Burnet, Fayette, Gillespie, Hays, Llano, Matagorda, San Saba, and Travis counties.

B. Public Land Within Lower Colorado River Basin

There are 14 state parks, (28,223 acres) which offer opportunities such as camping, hiking, fishing, boating, water, skiing, swimming, wildlife viewing, picnicking, tours of nature, exhibits, and historical amenities. The Texas Parks and Wildlife Department (TPWD) manages two Wildlife Management Areas (WMA) within the LCRB, which consist of approximately 7,500 acres, and provide bird and other wildlife viewing, hunting and fishing on seasonal basis, hiking, camping, bicycling, and horseback riding. The LCRB contains four National Wildlife Refuges in Texas, (comprising over 83,338 acres). Table D-9 provides information on the state parks, wildlife refuges and management areas within the lower Colorado River basin.

Table D-9. State and Federal Recreation Areas Within the Lower Colorado River Basin

Facilities	County	Acreage	Major Recreational Attraction
State Parks			
Admiral Nimitz Museum & Historical Center	Gillespie	7	Historical WWII exhibits
Bastrop State Park	Bastrop	3,504	Lost Pines habitat
Blanco State Park	Blanco	105	Fishing
Buescher State Park	Bastrop	1,017	Bird Watching, 250 species of birds
Colorado Bend State Park	San Saba	5,328	Gorman Falls, birding
Enchanted Rock State Park	Gillespie & Llano	1,644	National Natural Landmark, National Historic Site
Inks Lake State Park	Burnet	1,202	Inks Lake
Lake Bastrop S. Shore Park	Bastrop	773	Lake
Longhorn Cavern State Park	Burnet	639	Natural Landmark, prehistoric site
LBJ State Historical Park	Gillespie	718	History and wildlife viewing
Matagorda Island State Park	Matagorda	7,325	Birding
McKinney Falls State Park	Travis	744	Falls
Monument Hill State Historical Park/Kreische Brewery State Historical Park	Fayette	5	History – Salado Creek Battle 1842, brewery
Pedernales State Park	Blanco	5,212	Edwards Plateau terrain, wildlife viewing
National Wildlife Refuges			
Attwater Prairie Chicken	Colorado	8,000	Birding
Balcones Canyonlands	Travis	14,144	Birding
Big Boggy	Matagorda	4,526	Birding
Matagorda Island	Matagorda	56,668	Birding and wildlife viewing
Wildlife Management Areas			
Mad Island	Matagorda	7,281	Hunting and wildlife viewing
Dr. R. Wintermann	Wharton	246	Restricted access

C. Water Sources

Seventy-seven percent of the dependable water supplies come from surface water, which is provided by man-made reservoirs and the Colorado River and tributaries. The major water sources in the lower Colorado River basin are the Highland Lakes and run of the river (ROR) water rights on the lower portions of the Colorado River, below Austin. There are eleven water supply reservoirs including the Highland Lakes System, which contains lakes Buchanan, Inks, Lyndon B. Johnson, Marble Falls, Travis and Austin. Other major reservoirs in the region are lakes Goldthwaite, Blanco, Llano, Cedar Creek, and Lake Walter E. Long.

Other surface water reservoirs in the region include the City of Llano's City Lake and City Park, Lake Walter E. Long (Decker Lake) owned by the City of Austin, the Lower Colorado River Authority's (LCRA) Lake Bastrop, a small pond used for cooling at Sam Gideon Power Generation Station, Lake Fayette on Cedar Creek, and the City of Goldthwaite's two reservoir system. Landowners are allowed to construct water impoundments with up to 200 ac-ft of storage throughout the region. Recreation is not permitted at all of these reservoirs.

Five major and five minor aquifers occur within the lower Colorado River basin. Major aquifers include the Carrizo-Wilcox, Edwards, Edwards-Trinity, Gulf Coast, and Trinity. Five minor aquifers are Ellenburger-San Saba, Hickory, Marble Falls, Queen City, and Sparta. Groundwater makes up 28% of the region's water supply.

Due to the expected continuing decline in irrigated agriculture within the region, LCRA expects an overall decrease in water demand; however, as discussed in the "Region K" report there is a future potential for four off-channel reservoirs and pipelines from the lower reaches of the Colorado (Bay City), which would permit LCRA to sell water to the City of San Antonio and others. Revenues from the sell of water could be used to pay for improvements throughout the lower Colorado River basin. The four off-channel reservoir sites have not been selected, but would be within a 5-mile distance from the Colorado River. Recreation potential may exist in association with these reservoirs. Additional surface water diversion is planned somewhere between the cities of Austin and Bastrop. Rain harvesting and brush control throughout the watershed would be promoted to maintain water quality, conserve water and to reduce flooding negatives.

Members of the Texas Trail Network report high interest in developing more multi-use trails in the Lower Colorado Region, predominantly natural surfaced, meandering, and 3-feet wide. Wider trails were not considered desirable due to decreased "natural" experiences. However, trails of this narrow width are often over crowded and do not permit two way traffic; planners and designers should consider user groups and potential conflicts in designing these trails. Separate trails for pedestrians, horses, and bicycles may be needed.

D. Significant Natural Resources

The lower Colorado River basin has numerous sensitive and ecologically fragile habitats within the watershed. Barton Springs, which borders the City of Austin, is one of the fragile sites and is designated as an ecological region stream and home to the endangered *Eurycea sosorum* salamander. Recharge stretches within the

Barton Springs area include Barton, Bear, Little Bear, Onion, Slaughter and Williamson Creeks in Travis and Hays counties.

Bull Creek is listed as “nearly pristine” and contains the Bull Creek Preserve. Bull Creek is rated with high aesthetic values, and is home to another endangered salamander *Eurycea* specie as well as listed as suitable habitat for a variety of rare and endangered species including the Golden-cheeked Warbler, Black Capped Vireo, Tooth Cave Spider, Tooth Cave Pseudo Scorpion, Bull Creek Cave Harvestman, Bone Cave Harvestman, Tooth Cave ground beetle, Kretshenam Cave mold beetle and Jollyville Plateau salamander. Main areas of concern are between the confluences with Lake Austin upstream to the headwaters in Travis County.

On the Colorado River, TCEQ segments listed as 1409 and 1410, which include Gorman Creek in Burnet, Lampasas and Mills counties are listed as containing high aesthetic values, and home to the endangered Concho water snake and rare mollusks. These segments are also white bass spawning areas. The Colorado River segments designated as 1428 and 1434 in Travis, Bastrop, and Fayette counties have riverine and riparian habitat important for aquatic life and are home to the endangered blue sucker and Houston toad. The segment designated as 1402, which includes Shaws Bend in Fayette, Colorado, Wharton, and Matagorda counties, is riverine habitat within the Central Flyway and home to the endangered blue sucker.

The “Region K” report describes several sensitive sites in the lower Colorado basin. The Cummins Creek area between the confluence of the Colorado River upstream to FM 159 in Fayette County is designated as an “ecological region” stream. TCEQ segment 1415 on the Llano River between the Johnson Creek confluence to CR 2768 near Castell in Llano County is rated with exceptional aesthetic value. On the Pedernales River, segment 1414 in Kimball, Gillespie, Blanco and Travis counties contains two state parks, one national park and one city park. Segment 1414 is also rated as a significant nature area with exceptional aesthetic value. In addition to these, Rocky Creek, from the confluence with the Lampasas River upstream to the union of North Rocky Creek and South Rocky Creek in Burnet County, is designated as an “ecoregion” stream.

The same report identified eight specific reservoir sites and one reservoir enhancement project within the lower Colorado River basin as potentially “unique reservoir sites”. These sites included (1) Mills County: off-channel reservoir alternatives for Blanket, Pompey, Browns, and Bennett Creeks, plus an in-channel alternative on the Colorado River. (2) Shaws Bend site in Fayette & Colorado counties, (3) Small in-channel check dams in Llano County, and (4) the Clear Creek site in Fayette County.

E. Existing LCRA Recreational Facilities and Future Plans

Existing LCRA Facilities by Region are listed in Table D-10. LCRA currently records a total of 66 miles of trails within four counties, including Burnet (19), Travis (17), Bastrop (22) and Fayette (8) counties. All other counties do not contain LCRA owned trails. Additional trails are planned at the McKinney Roughs Nature Center and include hiking, mountain biking and equestrian trails, as well as educational nature trails around the main complex.

LCRA is planning a kayak trail network in the Matagorda region to supply water-based recreation. According to one LCRA recreational planner, additional launch sites, other than those at Matagorda, are not planned. The LCRA reports 9 fishing piers, 19 boat ramps, 9 canoe launches, 22 boat slips, and 17 swimming areas. Rafting trips can be arranged through the LCRA recreation programs. Per the Region K water plan, LCRA is considering building at least four off channel reservoirs, which could be designed to supply additional water and land recreation opportunities. Proposed modifications to the Highland Lakes system could result in lower water storage in one or more lakes. It has not been determined how the change will affect existing water-based recreational amenities and could include additional changes to the system. Table D-11 summarizes resources existing in these metropolitan areas.

Table D- 10. Existing Lower Colorado River Authority Facilities by Region

County	Saba	Lamp	Burnet	Llan	Blanco	Travis	Bastro	Colorado	Fayette	Wharton	Matagorda	Total
				o			p					
Total Acres	0	0	3,885	352	0	7,684	2,473	24	350	36	1,611	16,415
Entrance Station			21			19	2		2			44
Trail Miles			19			17	22		8			66
Picnic Tables			79	6		616	87	8	37	4	11	848
Improved Tent Camping Sites			58	36		43						137
Multiple Use/RV S			25	15		20	70		21			151
Shelters							6		8			14
Cabins			65			1			8			74
Dump Stations			1			1	2		1			5
Restrooms (with plumbing)			14	4		28	9	1	5			61
Restrooms (self contained)			2			9			1	1	1	14
Showers			6	1		4	2		2			15
Pavilions							4	1	1		1	7
Meeting Rooms			6			4	5		1			16
Amphitheaters			2			2	1					5
Fishing Piers			1				2	1	3		2	9
Boat Ramps			4	1		9	2		2		1	19
Canoe Launches			3			1	1	1	2	1		9
Marinas (no. of boat slip							14		8			22
Swimmi Areas			2			10	2		1		2	17
Playscapes							2		2		1	5
Athletic Fields			2			4	6	2	4			18
Concessions			3			3	2		1			9
Total LCRA Acres per Regio					4,237	7,684			2,847		1,647	16,415
Population per Re					83,557	812,260			79,537		99,535	1,074,909
LCRA acres/ 1000					51	9			36		17	113

Table D- 11. Summary of Lower Colorado River Basin Resources

Resource Area	Attribute
State o Hou San Aus	15.5 rec. acres/1000 pop. 40.3 rec. acres/1000 pop. 9.9 rec. acres/1000 pop. 37.2 rec. acres/1000 pop.
I35/I10/ Pop TPWD Recreational Lands	75% of Entire State Population 27% of State Population
Austin MSE Population within LCRB 1996 population = 939, 811	75% of total LCRB population 2050 projected population = 1,800,000
Lakes/Reservoirs within LCRB L. Buchanan L. Ink L. Lyndon B. Johnson L. Marble Falls L. Travis L. Austin L. Goldthw ite L. Blanco L. Llano L. Cedar Creek L. Walter E. Long L. Fayette L. Bastrop Llano City Lake	Other Recreational Amenities within Lower Colorado River basin 14 State Parks 2 TPWD Wildlife e Management Areas 4 National Wildlife Refuges 66 Trail Miles Kayak Trail Miles
Local Parks Acreage per 1,000 people (TPWD, 2002) San Antonio Austin	1030 (20,107.83 acres) 7.9 (9,064.05 acres) 37.2 (24,408.10 acres)
walking (State)	63.5 days/year

Counties showing none or limited recreational opportunities are San Saba, Lampasas, Blanco, Colorado, Wharton, and Matagorda. With populations in the middle counties expected to double in the next 50 years, increasing demand for more outdoor recreational opportunities will be expected. As reported in previous sections, the state of Texas (TPWD) plans to concentrate efforts to acquire 5000-

acre parks, expansion of parks and promote trail and greenway development along streams and rivers within the I35/I10/I45 triangle, which included most of the Lower Colorado River basin. Population projections in this triangle are the highest and recreation demands will increase. Demand is already higher than available amenities in many areas, as evident in frequent State Park closings due to overcrowding. The Austin Metropolitan Area is the major population center within the LCRB boundary; however, the area also services many residents and tourists utilizing the San Antonio-Austin area, while the lowest reaches are closer to the Houston-Galveston Metropolitan areas. More detailed recreation information per section can be found in additional feasibility publications pertaining to Onion Creek, Wharton, and the Highland Lakes sections.

ATTACHMENT A
Check List for Recreational Planners

Statewide Concerns:

Financing Parks and Recreational Recommendations:

- Incorporate holistic planning and public and private cooperation and partnerships.
- Evaluate economic evaluation of intrinsic values of parks.
- Consider concessions and partnering with private concessionaires to generate revenue for maintenance and operations.
- Create opportunities based upon local needs that attract additional grant funding opportunities for the recreational provider.
- Expand use of foundations and trusts to help fund and build partnerships.
- Incorporate design features that demonstrate positives of recreational use in fighting crime.
- Plan for low maintenance and including maintenance and operations considerations in the planning process.

Improving Outdoor Recreation Implementation Programs:

- Form partnerships where feasible.
- Plan for joint use of facilities.
- Incorporate cost-sharing, lease, and maintenance agreements
- Increase awareness and education regarding concerns and opportunities, potential funding sources, and acquiring technical assistance.
- Increase physical and economic accessibility to all segments of the community.
- Perform recreational needs assessment and recreational master planning at local level.
- Find funding sources to perform needs assessments.
- Develop 5-year recreational master plans.

Liability and Outdoor Recreation Issues:

- Increase individual user responsibility and education regarding hazards of their chosen activities.
- Obtain adequate insurance protections to cover self in chosen activities.
- Increase provider awareness of regulations and need for insurance and tort law reform.
- Increase legislative reform of insurance and tort laws, placing more responsibility on the user and less on the provider of services.
- Create a Comprehensive Risk Management Plan, which includes maintenance programs, regular safety inspections, record keeping, employee/volunteer education and prompt action to correct problems and potential hazards
- Emphasize safety in design and construction of facilities and (7) design for low maintenance is needed to reduce the need for maintenance and thus reduce the cost for these activities.

Meeting Recreational Open Space Needs:

- _____ Consider flood plains and stream corridors as high priority sites for conservation and recreation linkages.
- _____ Incorporate the use of easements, incentives, donations of land and other forms of land acquisition in the planning process.
- _____ Encourage governmental clients to create, review, or amend local floodplain ordinances to maintain buffers along streams.
- _____ Create opportunities for partnerships and easements that are attractive to landowners and limit landowner liability.
- _____ Develop master plans, which address park and open space needs.
- _____ Emphasize importance of sites accessible to urban areas.
- _____ Continue to incorporate bicycling routes within the transportation master plans.
- _____ Retain visual qualities when constructing roadways and bridges.
- _____ Evaluate existing recreational and scenic potential.
- _____ Consider easements and dedications of lands to provide incentive for private landowner participation.
- _____ Measure local needs.
- _____ Consider using convict labor for community service and maintenance.

Conserving Natural Resources for Recreational Use:

Lakes, Rivers and Streams

- _____ Increase water quality emphasis such as monitoring, research and enforcement, and address non-point source pollution.
- _____ Utilize the best technology available to improve quality of water discharges from reservoirs.
- _____ Improve coordination with agencies involved in water planning, financing and development and regulation of water quality.
- _____ Incorporate rules, enforcement and funding for these activities to deter polluters and negative social behavior.
- _____ Emphasize and design for water conservation in all state parks and new projects.
- _____ Consider and implement partnerships and shared infrastructure for coastal and riparian resources in cooperation with Mexico and New Mexico.
- _____ Identify intrinsic values of riparian systems, which have unique and extraordinary values in their natural, free-flowing state.
- _____ Encourage the development of state-approved reservoir recreation plans, which include functional access points and lakeside facilities at all reservoir projects suitable for outdoor recreation.
- _____ Monitor lakes for pollution.
- _____ Conduct a river assessment to identify, evaluate and comparatively assess a variety of river corridor resources of value to the public, and to improve decision-making to determine priorities among river interests and to reduce conflict among user groups. Assessments should include full public involvement, consensus-building and cooperation among different interests. (The 1990 TORP provides some guidance on how to conduct river assessments.)

(1) Coastal Marshes:

- _____ Consider long-range navigational dredging and disposal plans.
- _____ Consider using dredge materials as beach nourishment, soil building for uplands, and island replenishment.
- _____ Consider effects of navigational cuts on estuary ecosystems.
- _____ Plan for control of vehicular traffic on beaches and to regulate glass containers on beaches.
- _____ Consider the state coastal management plan if one exists.
- _____ Limit activities and access to sensitive dune areas.

(2) Air Quality:

- _____ Design for alternative transportation and pedestrian friendly environments.
- _____ Consider reforestation benefits on air quality.
- _____ Consider existing air quality effects on selected plant species.
- _____ Plan for affordable public transportation options.

(3) Hazardous Wastes Sites:

- _____ Consider feasibility of constructed wetlands and bioremediation.
- _____ Consider site disturbance factors
- _____ Consider value as outdoor classroom
- _____ Provide boardwalks, interpretive signage, and field sampling opportunities in outdoor classroom setting.
- _____ Consider accessibility and safety of all user groups.
- _____ Consider maintenance needs and potential negatives, such as insect or wildlife pests.

Public Behavior and Resource Management:

- _____ Consider leaving large portion of parks undeveloped for wildlife habitat and low impact recreational activities.
- _____ Determine and establish carrying capacities for areas with fragile resources.
- _____ Provide signage and educational opportunities to increase public awareness of conservation and rules.
- _____ Encourage recycling by providing for separate containers in parks.
- _____ Perform thorough resource evaluations on park sites before preparing development plans.
- _____ Involve the public in development of management plans, design, and implementation.
- _____ Relocate high impact activities to areas more suitable and less fragile.
- _____ Assess more fully the benefits of outdoor recreation in regards to multiple use goals.
- _____ Clearly identify public and private boundaries to reduce trespass and conflicts among recreational users and landowners.
- _____ Identify opportunities for acquiring more public recreation areas along rivers and streams, which are in high demand by the public.
- _____ Increase the number of access points suitable for recreational uses.
- _____ Consider need for parking, trash receptacles, and restrooms while planning bridges or river crossings.

Identify Resources to Conserve:

- _____ Use the TNHP (Texas Natural Heritage Program) database to identify significant resources.
- _____ Use the USFWS Gap Analysis database to locate vegetation and wildlife information for Texas.
- _____ Work cooperatively with private landowners and create incentives for participation.
- _____ Design to preserve or conserve sensitive sites within project areas, particularly those with high biodiversity and most threatened or rare ecosystems.
- _____ Coordinate with conservation organizations willing to manage sites and control visitation.
- _____ Maintain and protect biodiversity in natural areas and promote reintroduction of extirpated species where feasible.
- _____ Reduce federal management and increase state and local management.
- _____ Create technical and education information exchange.
- _____ Encourage land uses compatible with natural resources.
- _____ Develop greenbelts and bike routes.

Maintenance and Renovation of Parks and Recreational Amenities

- _____ Consider maintenance and operation costs in the design and planning stages.
- _____ Incorporate where feasible maintenance trust funds, volunteer service groups, adopt-a-park programs, regular maintenance schedules, record keeping of inspections, problems, and repairs.

Tourism and Outdoor Recreation

- _____ Involve communities to promote tourism on a regional basis, including nature tourism, natural and cultural heritage, trails and other forms of outdoor recreation.
- _____ Create touring maps and signs to encourage sightseeing and use of scenic roadways.
- _____ Incorporate user fees in appropriate sites to fund operations and maintenance.
- _____ Utilize need assessments that address the recreation demand generated by tourists.

- _____ Identify adverse impacts of tourism and costs associated with these impacts and address the problems.
- _____ Create education and marketing information and include information on private property rights.
- _____ Become familiar with local and state tourism and recreation initiatives and goals.
- _____ Enhance tourism with diverse recreational opportunities, especially those with water access, by providing physical linkage between hotel/motel districts, historical and cultural centers and open space/trails.