

Section V

Factors Influencing and Constraining Resource Development and Management

**SECTION V
FACTORS INFLUENCING AND CONSTRAINING RESOURCE
DEVELOPMENT AND MANAGEMENT**

5-01. GENERAL

Development and management at Lake Shelbyville is influenced by both physical and social factors. Several factors, such as the geology, archeology, history, ecology, environmental and scenic qualities and recreational development, were previously discussed in Section IV. The influence of these and other factors on resource management and development are examined in this section. It is the objective of the Corps of Engineers to consider these factors in order to provide for the continued enjoyment and maximum sustained use by the public of the lands, waters, forests and associated resources, consistent with their carrying capacity and their aesthetic and biological values.

5-02. DEMOGRAPHIC AND AREA INFLUENCE

a. General. Lake Shelbyville is located in Shelby and Moultrie Counties, Illinois. It is part of the Decatur region and is situated in the Kaskaskia River Basin that includes these two counties and five others: Champaign, Douglas, Coles, Macon, and Piatt Counties, Illinois. Census of 2000 figures for this area show an increase in population between 1990 and 2000. Rural areas with little or no urbanization have experienced a positive growth when those areas are compared with urban clusters. Table 5 shows population figures and rates of change for the study area.

TABLE 5
POPULATION AND RATES OF CHANGE FOR MOULTRIE AND SHELBY
COUNTIES AND OTHER SELECTED AREAS

PLACE	1970	1980	1990	2000
Illinois				
Moultrie Co.	13,263	14,546	13,930	14,287
Sullivan	4,112	4,526	4,354	4,326
Shelby Co.	22,589	23,923	22,261	22,893
Shelbyville	4,597	5,259	4,943	4,971
Coles County	47,815	52,260	51,644	53,196
Mattoon	19,681	19,055	18,441	18,291
Macon County	125,010	131,375	117,206	114,706
Decatur	90,397	94,081	83,885	81,860
Vermillion Co.	97,047	95,222	88,257	83,919
Danville	42,570	39,019	33,828	33,904
McLean Co.	104,389	119,149	129,180	150,433
Champaign Co.	163,281	168,392	173,025	179,669
Springfield	91,753	99,637	105,227	111,454
Chicago Metro			8,065,633	8,272,768
Missouri				
St. Louis Metro Area (Missouri and Illinois)			2,444,099	2,603,607

SOURCE: US Census Bureau, Census 2000

b. Population

(1) Growth and Distribution. Moultrie and Shelby Counties are primarily agricultural. Approximately 56 percent of those living in Moultrie County and 83 percent of those living in Shelby County reside in cities or villages, with populations greater than 275 persons, rather than on farms. Shelby County, with an area of 759 square miles, has a lower density of people per square mile (30.2) than Moultrie County (42.5), which has an area of 336 square miles. While a high percentage of people in both counties live in cities and villages, the 1997 Census of Agriculture indicates that approximately 418,688 acres of land in Shelby County and approximately 172,657 of land in Moultrie County was in farms. Between 1990 and 2000, the population of both counties increased. Shelby County, which had a 1990 population of 22,261 increased to 22,803 in 2000. Moultrie County, which had

a 1990 population of 13,930 increased to 14,287 in 2000. The largest influence on Moultrie County's population is the town of Sullivan, the county seat population decreased from 4,354 in 1990 to 4,326 in 2000. The population of Shelbyville, the Shelby county seat, increased from 4,943 in 1990 to 4,971 in 2000. There are various reasons for changes in directions and rates of population growth in rural areas. One reason that may apply to the Lake Shelbyville area of influence is an individual's amenity preference. Both counties and communities have attracted residents due to their close proximity to urban areas and the amenities provided there. However, individuals may also choose to live in a rural area and commute to their urban work locations.

(2) Land Use and Area Development. Patterns of land use in Shelby and Moultrie Counties reflect a basically agrarian way of life, which has dominated the area since the early nineteenth century. Towns have formed either as market places around railroad junctions or centers of government. Roads served the primary purpose of enabling a farmer to get his goods to market. Recent trends toward mechanized farming and larger farms, however, have resulted in an expansion of towns, and the towns in turn have recognized the need for industry as an employment source. As the options and stability of the non-farming population have increased, more non-farm residences have appeared and dispersed throughout the counties. While non-farm residences are no longer restricted to the towns, most are still centered round them. Agriculture remains the dominant use of land in both counties, although recent developments are beginning to change the traditional agrarian pattern. Lake Shelbyville has been one of the main influences in attracting non-agricultural land uses.

(3) Existing Land Use. In 1964, Shelby and Moultrie Counties were almost entirely agricultural with the exception of scattered incorporated areas. This pattern remained reasonably intact until the construction of Lake Shelbyville, which removed thousands of acres from agricultural use. The most significant residential development has occurred since 1970, with the platting of 13 separate subdivisions adjacent to the federal lands around the Lake. To date, all contain some dwelling units or improvements and all have been residentially zoned and range in size from 4 to 170 lots. The subdivision represents a major change in the development pattern with residential construction being oriented toward the lake, rather than the surrounding towns.

(a) The second major change in land use is the public access to the lake shoreline. Considerable land is currently developed for either recreational or conservation use. In total, 34,408 acres in Shelby and Moultrie Counties have been changed from primarily agricultural use to that of primarily recreational.

(b) New commercial construction since 1970 has also resulted in some changes in land use to allow for recreation-oriented commercial activities. The principal businesses are bait shops, marinas, and storage sheds for recreational vehicles. There has also been new public and industrial construction in the towns around the lake, particularly Shelbyville and Sullivan, but land use changes in these categories have not been significant in terms of size during the period 1990-2000.

(4) Future Land Use. Future land use in Shelby and Moultrie Counties will be determined to a great extent by the amount of use Lake Shelbyville receives as a major regional recreation area. Land use forecasts made for both counties in 1980 indicated expected growth of residential development around the lake and a subsequent growth of the nearby towns, particularly Shelbyville and Sullivan. Judging from the amount of residential growth that has occurred near Lake Shelbyville since the year 2000 extensive growth appears likely. The land use plans also exhibit a growing awareness in the impact area of the value of conserving lands and limiting development in flood zones. Despite the projected urban growth and recreational facilities development, the major land use in terms of total acres in both counties is expected to remain primarily agricultural with some industrial components in the foreseeable future.

(5) Employment. Moultrie and Shelby Counties have experienced changes in their areas of employment, and subsequently their sources of income. Agricultural employment was the primary occupation for both counties until the late 1950's. Since then, agricultural employment has been rapidly declining while manufacturing, wholesale and retail trade and professional services have become the primary areas of employment. Recent years have experienced minimal fluctuations in employment characteristics. Table 6 displays the numeric and percentage breakdown by industry for civilian labor force employees of Moultrie and Shelby Counties.

Agriculture, however, remains a major factor in the economy of both Moultrie and Shelby Counties, as well as in the State of Illinois as a whole. Recent trends indicate a continued increase in the size and value of farming units, and value of products sold, for both counties and the state. Tables 7, 8, and 9 display these and other characteristics. The figures for both counties shown in Tables 7 and 8 approximate those for the State of Illinois shown in Table 9. The median age for all of the residents of Moultrie County in 2000 was 38.7 years old, for Shelby County 39.3 years old, and for Illinois 34.7 years old.

Lake Shelbyville Master Plan

TABLE 6

CIVILIAN EMPLOYMENT BY INDUSTRY, 2000

<u>COUNTY</u> Industry	<u>MOULTRIE COUNTY</u>		<u>SHELBY</u>	
	Employed Persons	Percent of Labor Force	Employed Persons	Percent of Labor Force
Ag., Forest, Fish, Mining	368	5.3	641	6.0
Construction	524	7.6	873	8.2
Manufacturing	1,862	26.9	2,674	25.0
Transportation	474	6.8	576	5.4
Wholesale Trade	187	2.7	348	3.3
Retail Trade	728	10.5	1,102	10.3
Finance, Ins., Real Estate	198	2.9	473	4.4
Professional, Scientific, Management, Administrative, and Waste Management Services	254	3.7	381	3.6
Educational, Health, and Social Services	1,257	18.1	2,021	18.9
Arts, Entertainment, Recreation, Accommodation, and Food Services	339	4.9	645	6.0
Other Services (except Public Administration)	356	5.1	448	4.2
Public Administration	187	2.7	305	2.9
TOTAL	6,734		10,487	

SOURCE: US Census Bureau, Census 2000

TABLE 7
 CHARACTERISTICS OF AGRICULTURE
 For Moultrie County, Illinois

	<u>1987</u>	<u>1992</u>	<u>1997</u>
Farms	561	491	464
Acres	184,566	184,599	172,657
Average Size (acres)	329	376	372
Value of Land and Buildings:			
Average/Farm	\$501,385	802,052	1,149,073
Average/Acre	\$1,588	2,043	2,909
Market Value of Products Sold (\$1000)	\$43,594	\$55,284	\$55,951
Crops (\$1000)	NA	\$47,052	\$48,635
Livestock (\$1000)	NA	\$8,232	\$7,315
Average/Farm	\$101,618	\$144,722	\$120,583
Market Value of all Machinery & Equipment (\$1000)	\$37,314	\$46,496	\$51,658
Average/Farm	\$66,513	\$94,697	\$111,332
Average Age	50.1	50.6	51.5

SOURCE: U.S. Census of Agriculture, 1997.

TABLE 8
 CHARACTERISTICS OF AGRICULTURE
 For Shelby County, Illinois

	<u>1987</u>	<u>1992</u>	<u>1997</u>
Farms	1,431	1,305	1,250
Acres	422,071	407,212	418,688
Average Size (acres)	295	308	335
Value of Land and Buildings:			
Average/Farm	\$352,209	\$442,085	\$651,007
Average/Acre	\$1,246	\$1,457	\$2,061
Market Value of Products Sold (\$1000)	\$84,723	\$101,020	\$112,466
Crops (\$1000)	N/A	\$77,972	\$87,783
Livestock (\$1000)	N/A	\$23,048	\$24,683
Average/Farm	\$84,385	\$111,995	\$89,973
Market Value of all Machinery & Equipment (\$1000)	N/A	\$85,053	\$92,227
Average/Farm	\$60,935	\$65,125	\$73,781
Average Age	49.8	52.4	53.3

SOURCE: U.S. Census of Agriculture, 1997.

TABLE 9
 CHARACTERISTICS OF AGRICULTURE
 For the State of Illinois

	<u>1987</u>	<u>1992</u>	<u>1997</u>
Farms	88,786	77,610	73,051
Acres	28,526,664	27,250,340	27,204,780
Average Size (acres)	321	351	372
Value of Land & Buildings:			
Average/Farm	\$402,970	\$539,181	\$773,141
Average/Acre	\$1,262	\$1,548	\$2,126
Market Value of Products			
Sold (\$1000)	\$6,376,801	\$7,336,864	\$8,556,486
Crops (\$1000)	\$4,158,936	\$5,251,328	\$6,567,164
Livestock (\$1,000)	\$2,207,865	\$2,085,535	\$1,989,323
Average/Farm	\$71,822	\$94,535	\$117,130
Market Value of all Machinery			
& Equipment (\$1000)	\$5,392,170	\$5,516,277	\$6,606,816
Average/Farm	\$60,935	\$71,219	\$90,447
Average Age	50.4	51.7	53.4

SOURCE: U.S. Census of Agriculture, 1997.

Lake Shelbyville Master Plan

While the number of farms has decreased, the average size of farms has increased in the impact area. The average value per acre has also increased for both counties.

Sales of farm products have increased for both counties at approximately the same rate.

(6) Income. Income is generally lower in rural areas than in urban or metropolitan areas. This can be seen in Table 10 which shows the median family and household incomes for Moultrie and Shelby Counties, as well as the largest city in each, along with the same information for several nearby counties and urban areas. For the purpose of discussion related to Table 10 the family is defined as two or more persons occupying the same housing unit who are related by birth, marriage, or adoption, and household is defined as one or more persons occupying the same housing unit who are not necessarily related by birth, marriage, or adoption.

(a) The difference in income is attributable to urban areas having more job opportunities at a higher wage rate than can be found in rural towns. This is a result of the concentration of commerce and manufacturing found in urban clusters, such as in major metropolitan areas.

TABLE 10
MEDIAN INCOMES FOR SELECTED AREAS, 2000

	<u>FAMILY</u>	<u>HOUSEHOLD</u>
Moultrie County	\$46,655	\$40,084
Sullivan	41,894	33,197
Shelby County	44,372	37,313
Shelbyville	39,205	32,458
Vermillion County	41,553	34,071
Danville	39,308	30,431
Macon County	47,493	37,859
Decatur	42,379	33,111
Coles County	45,708	32,286
Mattoon	43,780	31,800
Cook County	53,784	45,922
Chicago Metro	42,724	38,625

Lake Shelbyville Master Plan

SOURCE: U.S. Census Bureau, Census 2000.

Table 11 shows general labor force statistics for Moultrie and Shelby Counties obtained during the 2000 Census.

TABLE 11

CIVILIAN LABOR FORCE STATUS
MOULTRIE AND SHELBY COUNTIES AND THE STATE OF ILLINOIS
2000

	<u>MOULTRIE</u>	<u>SHELBY</u>	<u>ILLINOIS</u>
Population 16 years and over	11,086	17,866	9,530,946
Civilian Labor Force	7,167	11,102	6,230,617
Percent in Labor Force	64.6	62.1	65.1
Percent Employed	62.5	59.9	61.2
Percent Unemployed	2.2	2.3	3.9

SOURCE: U.S. Census Bureau, Census 2000.

(7) Housing. In 1980, approximately one-third of all housing in Shelby and Moultrie counties had been built since 1960. This is considered to be the period of influence or the period when the local people knew that Lake Shelbyville was being constructed. See section 5.02.b.(3) for a discussion of the current status of housing around the lake. Development of subdivisions has been slow, but of good quality due to the zoning and subdivision controls and implementation of Moultrie County. Shelby County also has zoning and subdivision controls assuring the prevention of low quality developments. Table 12 shows the single-unit residential construction history for both counties and the major city of each.

TABLE 12
SINGLE UNIT RESIDENTIAL HISTORY

MOULTRIE COUNTY		
	<u>1990</u>	<u>2000</u>
NUMBER OF HOUSING UNITS	5,384	5,743
PERCENT OWNER OCCUPIED	72.1	78.5
PERCENT RENTER OCCUPIES	23.0	21.5
PERCENT VACANT	4.9	5.9
CITY OF SULLIVAN		
	<u>1990</u>	<u>2000</u>
NUMBER OF HOUSING UNITS	1,884	1,945

Lake Shelbyville Master Plan

PERCENT OWNER OCCUPIED	67.0	72.1
PERCENT RENTER OCCUPIES	27.6	27.9
PERCENT VACANT	5.4	6.4

SHELBY COUNTY

	<u>1990</u>	<u>2000</u>
NUMBER OF HOUSING UNITS	9,329	10,060
PERCENT OWNER OCCUPIED	72.4	81.0
PERCENT RENTER OCCUPIES	19.4	19.0
PERCENT VACANT	8.2	10.0

CITY OF SHELBYVILLE

	<u>1990</u>	<u>2000</u>
NUMBER OF HOUSING UNITS	1,850	2,291
PERCENT OWNER OCCUPIED	68.8	71.5
PERCENT RENTER OCCUPIES	24.8	28.5
PERCENT VACANT	6.4	6.9

SOURCE: US Census Bureau, Census 2000.

5-03. ECONOMIC POTENTIAL

a. The economic potential relative to water recreation commercial uses can generally be based on the degree of visitor attraction the project possesses. At Lake Shelbyville, visitation increased rapidly from 1970 through 1972 as people first became aware of the lake's opening. Visitation then continued to climb slowly, reaching a peak in 1991. From 1992 through 1996 there was a decline in visitation, due in part to high water conditions during several of these years which made some facilities unusable and reduced the fishing success. Since 1996, visitation has increased every year except for 2002.

b. Severe weather conditions occurring during December, January and February generally restrict recreational use of the project during that period, except for bank fishing along the downstream spillway. The lake level, too, is usually much lower at this time of year. The peak visitation months are usually June, July and August.

c. Lake Shelbyville continues to be a regional magnet. The lake has unique physical qualities not found elsewhere in Central Illinois. The sloping, tree covered banks of the coves attract fishermen and the lake is considered one of the best bass fishing lakes in the state. The lake is quite scenic by boat, by automobile, or on foot. In the 1990s indicate that 40 percent of the

visitation consisted of sightseers. The project has an outstanding reputation with campers and statistics in the 1990s indicate that over 85 percent of the campers are return visitors.

d. Recent development in the state parks and private development in project area has the potential to attract additional visitation. Local area tourism groups work hard at promoting the project and its activities, which could also increase visitation. The increased interest in personal watercraft has changed the complexion of boating and shows indications of increasing project use. The development at the lake includes the Findlay Marina, the Lithia Springs Marina, the Sullivan Marina and Campground and the Eagle Creek State Park Resort.

e. Another positive factor of economic consideration is the project accessibility. The regional highway network allows ease of travel by Interstates 57 and 70. Although Chicago is 200 miles away, only 15 miles of this distance is improved two lane roads, the remainder is by Interstate 57. State roads carry visitation traffic from Decatur, Champaign-Urbana, Effingham, Springfield, and other urban areas. The St. Louis metropolitan area is slightly over 100 miles away via Interstate 70 and state two-lane highways.

f. Presently, there are three concessionaires at Lake Shelbyville offering water based recreational services. These include power boat sales and service, rental slips, boat rentals, marine supplies, fishing supplies, and food and drink concessions. Based on actual demand for facilities and services, these concessionaires may wish to expand their marina operations in future years. Requests for marina expansion will be carefully considered. However, any future energy crises, especially affecting gasoline supply and cost, could be a factor affecting the economic outlook of these commercial operations.

g. Areas where possible resort-type concession facilities could be constructed include Dam West within the area managed by the City of Shelbyville, Dam East, Wilborn Creek, and Whitley Creek Recreation Areas and Findlay Marina. These facilities would feature overnight accommodations, convention center, tourist center, golf, tennis, etc. These would be major developments not necessarily to be constructed at the same time.

h. A positive recommendation based on a market study will be required before construction of any more resort facilities at Lake Shelbyville.

(1) The Eagle Creek State Park Resort and Conference Center has 138 guest rooms, 10 executive suites with fireplaces, an indoor pool, an outdoor pool, saunas, whirlpool, exercise facilities, tennis courts, trails, a restaurant,

four large meeting rooms, a theater, a separate conference resort with 8 sleeping rooms and an 18 hole golf course that was named the “Best Resort Course” by Golf Digest Magazine.

(2) Because of ever increasing fuel costs, more families will vacation close to home rather than motoring across country. Overnight accommodations at Lake Shelbyville are attractive to people from St. Louis, Chicago, urban places in Central Illinois and families from western Indiana.

5-04. HIGHWAY AND ROAD ACCESS

a. Primary Roads. Lake Shelbyville is served by four state highways: Illinois 32 on the east, Illinois 16 to the south, Illinois 121 at the north, and Illinois 128 to the west. These major roads provide access to township and county roads, which in turn connect to project roads. Regional access to the project is by Interstate Highway 57, the north-south interstate route, for those visitors from east-central Illinois, north-east and southern Illinois. St. Louis area and Terre Haute visitors use Interstate Highway 70, the east-west interstate route, as access to the project.

Major project of interest that is tentatively scheduled during the FY 2004 – 2008 time frame includes the Interstate 57 New Interchange north of Mattoon in Coles County. The Illinois Department of Transportation has the construction of a new interchange and 9 miles of connecting highway programmed during FY 2004 – 2008 at the cost of \$22.3 million. The new highway will connect the interchange to US 45, the Bruce-Findlay Road to the west, and Illinois 130 to the east.

b. Secondary, Tertiary, and Access Roads. County and township roads connect the project recreation areas with the major roads. These minor roads are maintained by local, county, and township road districts. Generally, the conditions of these roads are good relative to their surface condition and width, and most have been rebuilt within the past ten years. The road network, access road problems, and priority of road needs are explained in Section 10-03.

Following is a descriptive listing of road network. All of the primary and secondary roads and part of the tertiary roads are shown and indexed on Plate 4.

Primary Roads.

Lake Shelbyville Master Plan

Road 1: Illinois Route 128 north from Shelbyville to Macon County. Western primary access road for Dam West, Opossum Creek, Coon Creek, and Lone Point Recreation Areas, Eagle Creek State Park, and Findlay Marina.

Road 2: Illinois Route 121 from Bethany to Sullivan and Allenville. Northern primary access road for Wilborn Creek Recreation Area. Highway bisects both West Okaw and Kaskaskia Wildlife Management Areas.

Road 3: Illinois Route 32 from north of Sullivan to Windsor and Illinois Route 16. Eastern primary access road for Whitley Creek, Sullivan Beach, and Forest W. "Bo" Wood Recreation Areas, Sullivan Marina and Campground, and Wolf Creek State Park.

Road 4: Illinois Route 16 from Shelbyville to Windsor. Southern primary access to Dam East, Dam West, Spillway, and Lithia Springs Recreation Areas and Lithia Springs Chautauqua Area. This is also the primary access for the operation lands that includes the Main Dam, Administration and Maintenance complexes, and Visitor Center.

Secondary Roads.

Road 5: Secondary road from Shelbyville to Findlay. Provides access to Opossum Creek, Coon Creek, and Lone Point Recreation Areas, and Eagle Creek State Park.

Road 6: Secondary road from Findlay to Bethany. Provides access to West Okaw Wildlife Management Area.

Road 7: Secondary road from Illinois Route 128 crosses Illinois Route 32 to Illinois Route 121. This road is commonly known as the Bruce-Findlay Road. Provides access to Coon Creek, Lone Point, and Whitley Creek Recreation Areas, Eagle and Wolf Creek State Parks, and Findlay Marina.

Road 8: Secondary road from Illinois Route 121 to Road 7. Provides access to Wilborn Creek Recreation Area and Coal Shaft Bridge.

Road 9: Secondary road from Illinois Route 32 to Road 8. Provides access to Camp Camfield Environmental Study Area.

Road 10: Secondary road from the Road 7 to Road 11. Provides access to Wolf Creek State Park.

Road 11: Secondary road from Illinois Route 32 to Lithia Springs Recreation Area.

Lake Shelbyville Master Plan

Provides access to Lithia Springs Recreation Area and northern access to Lithia Springs Chautauqua Area.

Road 12: Secondary road from Illinois Route 16 to Road 11. Provides access to Lithia Springs Recreation Area.

Access Roads.

Road 4a: Access road from Illinois Route 16 to Hunter Lake Multiple Resource Area.

Road 5a: Access road from Road 5 to Dam West Recreation Area. This road is Ninth Street in the City of Shelbyville.

Road 5b: Access road from Road 5 to Opossum Creek Recreation Area.

Road 5c: Access road from Road 5 to Bethel Multiple Resource Area.

Road 5d: Access road from Road 5 to Coon Creek Recreation Area.

Road 5e: Access road from Road 5 to Lone Point Recreation Area.

Road 5f: Access road from Road 5 to Arrowhead Multiple Resource Area. Provides access to the Illini Trail and the Little Illini gravel parking lot.

Road 6a: Access road from Road 6 to West Okaw Wildlife Management Area.

Road 7a: Access road from Road 7 to Houser Multiple Resource Area.

Road 7b: Access road from Road 7 to Bluestem Multiple Resource Area (Area F).

Road 7c: Access road from Road 7 to Whitley Creek Recreation Area.

Road 8a: Access road from Road 8 to Wilborn Creek Recreation Area.

Road 11a: Access road from Road 11 to Sand Creek Multiple Resource Area. Provides access to Woodard Road gravel hunter-fisherman parking lot.

Road 11b: Access road from Road 11 to Lithia Springs Chautauqua Area.

SOUTHWEST SECTOR

Tertiary roads in this sector connect Illinois Route 128 to project access points.

Lake Shelbyville Master Plan

NORTHWEST SECTOR

Tertiary roads in this sector connect the Findlay and Bethany secondary roads with the project and West Okaw Wildlife Management Area. There is minimal project development in this sector.

NORTH CENTRAL SECTOR

Tertiary roads connect Illinois Route 32 and 121 with project access points.

NORTHEAST SECTOR

Tertiary roads of this sector are used mainly for farm travel. They occur between Illinois Route 121 and 32. These roads also provide access to the Kaskaskia Wildlife Management Area.

SOUTHEAST SECTOR

Tertiary roads in this sector provide circulation connections between Illinois Route 16 and 32 and project access roads.

5-05. RELATED RECREATIONAL AREAS

Recreational facilities located within the area of influence (125 mile radius) are listed in Table 13. Some of the lakes listed are small water supply reservoirs which are also used for recreation. All are smaller than Lake Shelbyville except for Carlyle and Rend Lakes.

**TABLE 13
RECREATIONAL FACILITIES WITHIN AREA OF INFLUENCE**

Illinois	Fishing	Swimming	Boating	Camping	Picnicking	Hunting	Marina	Lodge	Trails	Principal Managing Agency	Miles from Lake Shelbyville
Beaver Dam State Park	X			X	X	X			X	IDNR	80
Cahokia Mounds State Park				X	X				X	IDNR	94
Carlyle Lake	X	X	X	X	X	X	X	X	X	USACE	98
Clinton Lake	X	X	X	X	X	X			X	IDNR	52
Coffeen Lake	X		X		X	X				IDNR	38
Frank Holten State Park	X		X		X					IDNR	110
Fox Ridge	X		X	X	X	X			X	IDNR	36
Illinois River	X		X	X	X			X	X	Various agencies	
Kickapoo State Park	X		X	X	X	X			X	IDNR	73
Lake Benton	X		X							City of Benton	97
Lake Bloomington	X		X							City of	74

Lake Shelbyville Master Plan

										Bloomington	
Lake Charleston	X		X		X					City of Charleston	34
Lake Decatur	X	X	X		X	X	X			City of Decatur	31
Lake Jacksonville	X	X	X							City of Jacksonville	80
Lake Mattoon	X	X	X		X		X			City of Mattoon	24
Lake Pana and City Park	X	X			X					City of Pana	15
Lake Sara	X	X	X	X	X		X			Effingham Water Authority	24
Lake Taylorville	X	X	X	X	X				X	City of Taylorville	26
Lake Lou Yaeger	X	X	X	X	X	X			X	City of Litchfield	48
Lincoln Log Cabin State Park					X					IDNR	28
Lincoln's New Salem State Park				X					X	IDNR	70
Lincoln Trail Homestead State Park	X		X	X	X	X			X	IDNR	60
Marshall State Fish & Wildlife Area	X		X	X	X	X			X	IDNR	65
Newton Lake	X		X		X	X			X	IDNR	45
Oakland Walnut Point	X			X	X	X			X	IDNR	45
Pere Marquette State Park	X		X		X			X	X	IDNR	92
Pickneyville Reservoir	X				X					City of Pickneyville	97
Pool at Dam 24	X		X		X	X				USACE	113
Pool at Dam 25	X		X		X	X				USACE	108
Pool at Dam 26	X		X		X	X	X			USACE	80
Pool at Dam 27	X		X		X	X				USACE	86
Ramsey Lake State Park	X		X	X	X	X			X	IDNR	24
Red Hills State Park	X		X	X	X	X			X	IDNR	69
Rend Lake	X	X	X	X	X	X	X	X	X	USACE	117
Rice Lake Conservation Area	X		X	X	X	X				IDNR	103
Sam Parr State Park	X		X	X	X				X	IDNR	45
Sanganois Conservation Area	X					X				IDNR	84
Sangchris	X		X	X	X	X			X	IDNR	46
Shelbyville City Park	X	X			X					City of Shelbyville	1.5
Spitler Wood State Park				X	X				X	IDNR	26
Springfield Lake	X	X	X		X		X		X	City of Springfield	52

	Fishing	Swimming	Boating	Camping	Picnicking	Hunting	Marina	Lodge	Trails	Principal Managing Agency	Miles from Lake Shelbyville
Illinois											
Stephen A. Forbes St. Pk.	X	X	X	X	X	X			X	IDNR	44
Twin Lakes	X		X		X					City of Paris	61
Vandalia Lake	X	X	X	X	X		X		X	City of Vandalia	53
Indiana											
Cagles Mill Lake	X	X	X	X	X	X		X	X	Indiana State Park	108
Madsfield Lake	X	X	X	X	X	X			X	Indiana State Park	88
Monroe Lake	X	X	X	X	X	X			X	Indiana State Park	123
Cataract Lake	X	X	X	X	X	X		X	X	Indiana DNR	108
Wabash River	X		X		X			X		Various agencies	100

5-06. RESERVOIR PLAN OF OPERATION

Operational concepts and plan of operation for Lake Shelbyville are explained in detail in the Operational Management Plan under separate cover.

5-07. ROAD, CEMETERY, AND UTILITY RELOCATIONS.

a. Railroads. Construction and operation of the lake necessitated raising the Illinois Central Gulf Railroad tracks at West Okaw and Kaskaskia River crossings. This included two new bridges and approximately 6,800 feet of track and embankment. Remedial measures were necessary for the protection of the existing embankment of the Chicago and Eastern Illinois Railway at the West Okaw Crossings.

b. Highways and Roads. Three bridges and approximately 7,300 feet of concrete pavement were constructed on Illinois Route 121. On Illinois Route 32, one bridge and about 3,600 feet of concrete pavement were constructed. One bridge, and 1,326 feet of asphalt pavement was constructed on FAS Route 642. Initial project operation necessitated construction of approximately 10 miles of new secondary roads and removal of 26 county road bridges.

c. Utilities, Cemeteries and Pipelines. Several minor alterations to cemeteries were necessary for project operation. One cemetery that is located in the Lone Point Recreation Area is cut off from land and becomes an island around the lake elevation of 603 feet above sea level. Fifty-six miles of local power lines and forty-five miles of telephone lines required relocation.

Prior to project operation, approximately 17,000 feet of gas and oil pipelines were either relocated or altered.

5-08. EARTH BORROW AND SPOIL AREAS

a. One large borrow area, which is part of Dam West Recreation Area, has been revegetated and transformed into a recreation area. There were several other unsightly borrow areas on project land which were used for road construction. These have been seeded and have re-vegetated.

b. The St. Louis District performed a contamination evaluation of the former municipal landfill located on the Forrest W. "Bo" Wood Recreation Area at Lake Shelbyville, Illinois. The landfill was in operation from 1904 until its

closure as part of Lake Shelbyville Reservoir construction in 1968. At that time the seven-acre landfill was consolidated to its present location which covers about 2.6 acres. It is estimated that the landfill contains approximately 140,000 cubic yards of household, commercial, and industrial wastes. The lower portion of the clay-capped landfill is submerged under normal lake levels. This investigation was initiated when shoreline erosion threatened to expose areas of the former landfill.

This landfill is located just north of the picnic shelter in Bo Wood Recreation Area. Part of the Shoreline Erosion Management Plan work that has been completed included re-protecting this landfill.

c. The purpose of the study was to gather adequate background and field data to determine whether contamination of lake water, lake sediment, ground water or site soils had occurred as a result of the landfill.

d. The results of the study indicate that although low levels of some contaminants are present in the ground water and surface water at the site no contamination has been identified which could conclusively be attributed to the former landfill site.

e. In addition to the Bo Wood landfill site it is known that other community or private dumps existed in the reservoir area prior to the formation of Lake Shelbyville. These sites could be potential sources of lake water and ground water contamination.

5-09. WATER QUALITY

A water quality-monitoring program is being conducted by Hydrologic and Hydraulics Branch, Environmental Quality Section, St. Louis District, Corps of Engineers. Sampling under this program began in 1984. The lake and downstream river channel maintains good water quality. Thermal stratification of the lake during summer months may cause dissolved oxygen levels to fall below minimum standards in the hypolimnion. Similar benthic communities were observed throughout the lake while highly dissimilar benthic communities occurred within the incoming tributaries. Benthic communities at all stations reflect the absence of gross pollution. Nitrogen to phosphorous ratios for the lake stations indicates primary production is phosphorous limited; thus any reduction in phosphorous input should result in improving the trophic condition of the lake. Fecal coliform concentrations are below the minimum allowable standards, except for isolated occurrences. Water supply is one of the authorized project purposes in which the lake meets all standards with suitable treatment with the exception of Atrazine, which occasionally exceeds the Maximum Contaminant Level (MCL). The Federal MCL allowable for

Atrazine in drinking water is 0.003 mg/l. Some studies indicate that Atrazine could cause cancer with the main source being from drinking water. The District policy is utilized to assist in inhibiting herbicides from entering and contaminating the lake. Mean concentrations of iron and manganese approach and/or exceed the state standards at various times during the hot summer months. Both are aquatic plant limiters, yet the higher levels do not affect plant growth adversely. Water quality in the Kaskaskia River immediately below the lake relative to above the lake was generally improved. Water quality monitoring provides early warning signs of possible future degradation within the lake area.

The Kaskaskia Watershed Association (KWA) is working with State and Federal government agencies to create a Conservation Reserve Enhancement Program (CREP) for the Kaskaskia River. CREP is a voluntary easement program that if implemented would help reduce sedimentation and non-point pollution and would increase water quality along the Kaskaskia River.

Another group, the Upper Kaskaskia River Ecosystem Partnership evolved from an organized group of landowners representing the five county Farm Bureaus and Soil and Water Conservation Districts in the watershed. Since 1995, the group has sought to promote nitrogen management, filter strips, no-till, and other best management practices. The history, goals, and plan of action for the Upper Kaskaskia River Ecosystem Partnership is explained in Section 10-18.c.

5-10. ADAPTABILITY OF SPILLWAY FOR PUBLIC USE

The Spillway Recreation Area is located on both sides of the spillway channel below the Lake Shelbyville Dam. A description of this area can be located in Section 8-04.p. Non-federal hydropower development proposal for this area is explained in Section 10-08.

5-11. FOREST AND MINERAL RESOURCES

a. Forests. Forest resources within and adjacent to the project area can be classified as an Oak-Hickory association consisting of several species of oaks and hickories at the higher elevations with lighter seeded bottomland species appearing along the shore line and tributaries. Maple, ash, hackberry, cottonwood, sycamore and willow predominate on these lower elevation bottomland sites. Open field left from former agricultural activities have become populated with large amounts of honey locust. Previous periods of high water have left debris and trees killed by flooding along the lower elevations adjacent to or on the shoreline. This loss of the vegetative

component along the shoreline contributed to the erosion problems at Lake Shelbyville.

b. Minerals. Mineral resources consist of oil, sand, gravel and coal. There are a few oil wells in the vicinity of Lake Shelbyville. Coal mining activities have long been abandoned. None of these mineral resources has a large impact on the local economy or a great impact on resource management operations at Lake Shelbyville. Ground subsidence caused by collapse of underlying abandoned coal mines could affect reservoir facilities such as comfort stations, parking lots, roadways and other structures surrounding the lake.

Mineral rights were retained by the original owners and assigned heirs on the Walter Welsh property located in Section 16 of T13NR5E, Moultrie County, Illinois. Approximately 20 to 30 loads (300 – 400 tons) of low-grade gravel are removed from the surface pit annually. If these mineral rights become available to be purchased it might be in the best interest of the government to purchase them.

5-12. RECREATION FACILITY REQUIREMENTS

a. Existing User Demand. Existing user demand is reflected with 2001 visitation used as a basis for computations. Existing facility requirements are based on current visitation, design criteria, and guidelines detailed in the Institute for Water Resources' Research Report 74-R1 (Estimating Recreational Facility Requirements, Volume IV of V). Facility requirements are oriented toward key facilities, which include campsites, picnic units, boat launching lanes and beach area. This planning methodology estimates the number of facilities necessary to satisfy recreation use on an average weekend day during the peak summer month of visitation.

(1) Facility Design Day Load. This determination represents the anticipated number of users visiting the project on an average weekend day during the peak month of use. Based on 1996 visitation, the present facility design day load is estimated at 41,109. (See Table 14, Actual and Estimated Annual Attendance).

(2) Summary of Existing User Demand. Utilizing the facility design day load, participation rates for each activity requiring facilities, and the appropriate activity turnover rates, the principal recreation facility requirements were estimated. The existing facility user demand is presented in Table 15.

(3) Summary of Existing Facility Supply. The existing supply of key park and recreation facilities is presented in Table 15. The principal agencies

developing facilities at Lake Shelbyville are the Corps of Engineers and the Illinois Department of Natural Resources.

(4) Evaluation of Existing Supply and Demand. Comparison of existing supply and demand, as presented in Table 15, indicates a sufficient supply of all facilities, except for the number of high water boat launch lanes. In 2002, the high water boat ramps were utilized most of the recreation season due to the lake reaching the second highest pool level. As presented in Table 14, the high lake level did not drastically effect the annual visitation. Since the existing high water ramps will not accommodate as many users as the primary ramps there were several occasions throughout the recreation season that the ramps did not meet customer demands resulting in loss of revenue and were congested creating traffic hazards. Increasing the number of high water boat launch lanes should alleviate the problems.

(5) Existing Campsite Utilization. Weekend campsite utilization percentages for all Corps of Engineers managed campgrounds at Lake Shelbyville are shown on Table 15a. In 2002, there was an overall decrease in the percentage of campsite utilized due to the lake reaching the second highest pool level. The most significant percentage decreases that occurred in 2002 were in the campgrounds that did not have a high water boat ramp located within the same recreation area as the campground. In 2003, the campsite utilization rebounded back and percentages were in close comparison to those that occurred in 2000 and 2001.

TABLE 14
LAKE SHELBYVILLE
ACTUAL AND ESTIMATED ANNUAL ATTENDANCE (1970 – 2020)

Actual Annual Attendance

Lake Shelbyville Master Plan

	Recreation Days	Visits
1970	1,193,000	
1971	2,628,000	
1972	3,901,000	
1973	2,803,000	
1974	2,828,000	
1975	3,077,000	
1976	2,997,000	
1977	3,542,000	
1978	2,937,241	
1979	2,640,415	
1980	2,813,522	
1981	2,636,245	
1982	2,777,302	
1983	2,815,026	
1984	3,108,404	
1985	3,275,904	
1986	3,390,884	
1987	3,201,590	
1988	3,410,220	
1989	3,704,914	
1990	3,622,523	
1991	4,010,874	
1992	3,688,976	2,880,925 ◆
1993	3,536,086	2,989,892 ◆
1994	3,069,358	2,651,996 ◆
1995	3,001,489	3,032,087 ◆
1996	2,804,417	2,842,717 ◆
1997	2,908,891	2,931,996 ◆
1998	2,958,829	2,996,709 ◆
1999	2,927,405	3,102,280 ◆
2000	2,884,436	3,218,075 ◆
2001	3,060,415	3,323,149 ◆
2002		3,021,764 ◆
2003		3,254,928 ◆
Estimated Annual Attendance		
2010		3,601,093
2020		3,855,143

◆ Visits calculated with VERS data

TABLE 15
Principal Recreation Facilities:
Existing Supply and Demand Summary

Facility	<u>Existing Supply</u>				Total	2010 Demand	2020 Demand	<u>Demand</u>
	Corps	State	Private Concessionaire	Existing Supply Excess/Shortage				
Camping Units	720 ^{1/}	582	233 ^{2/}	1535	1563	1674	-139	
Picnic Units	215 ^{3/}	205 ^{4/}	6 ^{5/}	426	394	419	+7	
Boat Launch Lanes								
Regular	26 ^{6/}	8 ^{7/}	3 ^{8/}	37	39	42	-5	
High Water	12 ^{9/}	4 ^{10/}	2 ^{11/}	18	29	32	-14	
Linear Swimming Beach	2620 ^{12/}	250	0	2870	3421 ^{13/}	3662	-792	

Source: U.S. Army Corps of Engineers, St. Louis District.

- 1/ Total camping units include sites designed for group camping.
- 2/ Total camping units at Sullivan Marina and Campground
- 3/ Corps total picnic units include 149 picnic sites; 11 group picnic shelters (66 tables).
- 4/ Illinois Department of Natural Resources total picnic units include 169 picnic sites and 6 picnic shelters (36 tables).
- 5/ One group picnic shelter (6 tables) at Findlay Marina.
- 6/ Corps of Engineers regular boat launch lanes (five 4-lane ramps; three 2-lane ramps).
- 7/ Illinois Department of Natural Resources regular boat launch lanes (two 4-lane ramps)
- 8/ Total includes 2 launching ramps (one two-lane ramp at Findlay Marina and a one-lane ramp at Sullivan Marina)
- 9/ Corps of Engineers high water boat launch lanes (six 2-lane ramps)
- 10/ Illinois Department of Natural Resources high water boat launch lanes (two 2-lane ramps)
- 11/ Total includes two-lane launching ramp at Findlay Marina (Only one launching ramp at Findlay Marina. The regular ramp can be utilized during high water conditions.
- 12/ Swimming Beach calculated at 75 linear ft. per 50 persons at waters edge.
- 13/ This total does not reflect the demand for a high water beach facility.

Lake Shelbyville Master Plan

TABLE 15a
Lake Shelbyville Campsite Utilization
Weekend Percentage Usage

Lithia Springs

	2000	2001	2002	2003
June	82%	82%	80%	80%
July	93%	95%	92%	91%
August	87%	84%	84%	90%
Average	87%	87%	85%	87%

Coon Creek

	2000	2001	2002	2003
June	64%	68%	50%	60%
July	80%	88%	65%	83%
August	66%	No Data	57%	69%
Average	70%	78%	57%	71%

Lone Point

	2000	2001	2002	2003
June	30%	35%	35%	26%
July	33%	47%	44%	43%
August	35%	31%	33%	39%
Average	33%	38%	37%	36%

Opossum Creek

	2000	2001	2002	2003
June	37%	52%	37%	39%
July	52%	59%	44%	51%
August	31%	33%	38%	44%
Average	40%	48%	40%	45%

Bo Wood

	2000	2001	2002	2003
June	86%	96%	81%	81%
July	95%	93%	94%	92%
August	84%	89%	88%	93%
Average	88%	93%	88%	89%

Whitley Creek

	2000	2001	2002	2003
June	24%	21%	7%	13%
July	32%	26%	19%	27%
August	25%	25%	21%	23%
Average	27%	24%	16%	21%

b. Projected User Demand. Utilizing projected visitation, current planning and design criteria, and the procedures and guidelines outlined in the Institute for Water Resources' Research Report 74-R1 (Estimating Recreational Facility Requirements, Volume IV), the projected recreation facility requirements through 2020 were computed and are presented in Table 16. According to the procedures noted above, a deficiency in the number of high water boat launch lanes and camping units is indicated. Only minor deficiencies are indicated for boat launch lanes and linear swimming beach. The existing number of high water boat launch lanes needs to be increased to meet customer needs, alleviate traffic congestion, and maintain utilization and generation of revenue. During the 2002 recreation season, Lake Shelbyville experienced the second highest lake level in the history of the lake. Visitation to the lake remained stable and due to the fact that there was fewer high water boat launching lanes than primary boat launching lanes customer demands were not met and the existing high water boat ramp areas were congested beyond capacity on several occasions.

TABLE 16

SUMMARY: PROJECTED RECREATION FACILITY REQUIREMENTS

	<u>2010</u>	<u>2020</u>
Camping Units	1563	1674
Picnic Units	394	419
Boat Launch Lanes	39	42
Swimming Beach Area (linear ft. at water edge)	3421	3662

Source: U.S. Army Corps of Engineers, St. Louis District, 1997.

5-13. ENVIRONMENTAL AND ECOLOGICAL FEATURES

The Lake Shelbyville project and vicinity provides potential habitat for two federally endangered and threatened wildlife species. The Bald Eagle is a federally threatened species that occasionally migrates through the Lake Shelbyville area. The Indiana Bat is a federally endangered species and although habitat exists at Lake Shelbyville, there are no documented sightings of the Indiana Bat. The Loggerhead Shrike is on the federal list of species of concern and although habitat exists at Lake Shelbyville, there are no documented sightings of the Loggerhead Shrike. The Lake Shelbyville project and vicinity provides habitat for one state threatened plant species. The False Hellebore is a state threatened species that is found at Lake Shelbyville.

On-going observations and field study are used to determine the presence or absence of any or all federal and state endangered or threatened species on project lands and waters. Any operation and maintenance plans or actions will consider any possible effects on all species documented in the area. Table 17 lists the federal and state threatened and endangered species that occur or may occur in the Lake Shelbyville area.

TABLE 17
FEDERAL AND STATE THREATENED AND ENDANGERED SPECIES
THAT OCCUR OR MAY OCCUR IN THE LAKE SHELBYVILLE AREA

Federal List Species	Status	Scientific Name
Bald Eagle *	Threatened	<u>Haliaeetus leucocephalus</u>
Indiana Bat **	Endangered	<u>Myotis sodalist</u>
Loggerhead Shrike	Species of Concern	<u>Lanius ludovivianus</u>
State List Species	Status	Scientific Name
False Hellebore ***	Threatened	<u>Veratrum woodii</u>

Information provided by U.S. Fish and Wildlife Service in a letter dated November 8, 1996; and the Illinois Department of Natural Resources in a letter dated October 25, 1996.

* The Bald Eagle is an occasional migrant through the Lake Shelbyville area. No documented resident population exists.

** Although habitat exists at Lake Shelbyville, there are no documented sightings of the Indiana Bat.

*** The False Hellebore has been sighted in the following areas at Lake Shelbyville, Coneflower Hill Prairie, Sullivan Woods, and Great Blue Heron Rookery. Coneflower Hill Prairie and Sullivan Woods is Illinois Natural Area Inventory Sites.