Section IV

Recreational and Environmental Resources

4-01. GEOLOGIC

a. Physiography. The flood plain in the upper reaches of the Kaskaskia River is fairly narrow varying in width from one-quarter mile to approximately one mile. The drainage basin is long and narrow. The river is a slow, turbid, meandering stream that has an average fall of less than one foot per mile. Tributaries are few and small, and the uplands are mainly undissected. Remnants of terrace deposits, which are very similar in composition to the recent alluvium, are scattered along the valley. Glacial drift of Illinoisan and Wisconsinan age blankets most of the uplands and forms the drift hills that consist of an intimate mixture of clay with pebbles and a few small rocks. Boulders larger than one-half cubic foot are rarely found in the area. Underlying the glacial drift is Pennsylvanian deposits of shale and sandstone.

The present area topography is largely a result of the past glacial deposition and subsequent stream erosion. The vertical change in relief is quite extensive in this portion of the Kaskaskia Valley. Here narrow, deep valleys have been submerged by the formation of Lake Shelbyville. Shoreline erosion has occurred since the creation of the lake, primarily during periods of sustained high pool levels. These high water levels plus wave action caused erosion especially along the lakeshores' steeper slopes.

b. Soils and Minerals. The surficial soils in the immediate project area consist of alluvial deposits in the valleys and floodplains of the major streams and Wisconsinan age glacial tills in the uplands. Sandy and gravelly clay tills are the predominant soil types in the uplands and silt and lean clays in the bottomlands.

Bedrock in the area consists of Pennsylvanian age strata that occur in sequences of sandstones and shale. Mineral resources consist of oil, coal, sand, and gravel. There are a few oil wells in the vicinity of Lake Shelbyville. The local coal workings extracted the Shelbyville Coal, a 2-foot thick coal seam that was mined by the room and pillar method. Access to the coal was obtained through vertical shafts or through stopes driven in the valley walls. The abandoned mine workings located in the dam and spillway foundations were thoroughly explored and sealed by cement grouting. As these and the surrounding coal workings were already old and abandoned at the time of dam construction the extent of the mines in the reservoir area is not known. Although abandoned, the existence of these workings underlying areas of reservoir lands creates the potential for future ground subsidence.

c. Ground-Water Resources. The major source of ground water in the area is within the sand and gravel deposits of the alluvial valleys and the sand bodies contained in the glacial drift. Alluvial aquifers are primarily limited to areas within the flood plain of the Kaskaskia River. The glacial drift aquifers fill buried bedrock valleys created by the advances and retreats of the Pleistocene

ice sheets. The City of Shelbyville withdraws its water supply from wells founded in the Kaskaskia River alluvium. These wells produce from 200 to over 500 gallons per minute (gpm). The City of Sullivan, near Bo Wood Recreation Area, draws its water from wells that tap sands and gravels of the glacially deposited Glasford Formation. These wells individually produce from 150 to over 600 gpm.

c. Summary of Geologic Resources. The major geologic resources present in the reservoir area consist of the soils and ground water. The potential for future ground subsidence and subsequent reparations exists due to collapse of abandoned mines. Special programs for protection beyond the basic management procedures of controlling soil erosion and ensuring wellhead protection are not warranted.

4-02. ARCHAEOLOGICAL

a. Archaeological Studies. Two important management documents prepared in the late 1980's guide compliance and summarize our current knowledge of historic properties at the lake. Together they provide the basic references for managing the lake's archaeological resources and should be the first sources consulted. Both should be updated at the same time as the master plan.

(1) The St. Louis District Historic Properties Management Plan, Lake Shelbyville (HPMP), completed in 1986, is a guide to assist lake and other District personnel in meeting federal regulations concerning historic properties management at Lake Shelbyville. The HPMP includes chapters on organizational structure, compliance procedure, long term resource management, tasks and priorities (tied to the Operational Management Plan), training, staffing, and budget.

(2) The second important management document, Historic Properties Data Synthesis: Compliance Document, Lake Shelbyville, Illinois was completed in 1989. This document summarizes the lake's archaeological background. It includes chapters on the lake environment, previous archaeological investigations, all historic properties identified at the lake and the lake's cultural history. The concluding chapter establishes priorities for future historic properties investigations at the lake.

b. Previous Archaeological Survey and Investigation Results. During the pre-impoundment investigations conducted by the National Park Service (NPS) from 1960 to 1965, much of the reservoir was surveyed. Surveys focused almost exclusively on prehistoric sites (no historic sites or standing buildings) in plowed fields (no shovel testing in woods). Surveys recorded 62 sites, of which one was tested and four were excavated. Sites ranged from the Middle Archaic

(about 5000 B.C.) thru Mississippian periods and were most numerous adjacent to the Kaskaskia River.

(1) Post-impoundment investigations began in 1978. Three shoreline surveys between 600 and 610 feet elevation were conducted in 1978, 1981, and 1983 respectively. Most of the lake shoreline below the Wildlife Management Areas was surveyed. A small portion of the Kaskaskia Wildlife Management Area was surveyed. These surveys recorded 255 sites, and revisited numerous previously recorded sites. Many sites were tested and five sites (11Mt-5, -14, -53, -56, and 11Sy-64) were extensively excavated. Other post impoundment projects recorded 19 more new sites, revisited several known sites, tested 23 sites, and excavated portions of 10 sites.

(2) The University of Illinois – Urbana (U of I) performed virtually all of these investigations except a 1985 excavation project conducted by the University of Missouri, St. Louis. As a result, two U of I doctoral dissertations were written on Shelbyville archaeology: “The Mississippian Occupation of the Upper Kaskaskia Valley: Problems in Culture History and Economic Organization” by Charles R. Moffat, P. McGowan, 1990. Projects on land outgranted for state parks to the Illinois Department of Conservation, now known as the Illinois Department of Natural Resources (IDNR), including the Eagle Creek Resort, were conducted by the Illinois State Museum and published in the annual cultural resources studies of the IDNR state parks and recreation areas.

(3) In 1986, the St. Louis District began a five-year program of site revisiting and monitoring prescribed by the HPMP. By 1989, a total of almost 400 archaeological sites had been recorded, revealing the presence of human groups during every major cultural period, from the Paleo Indian to the historic. The most numerous components (occupation during a specific period, sites may have more than one component) are the Middle Woodland, Late Woodland and Mississippian; this may be related to the length of occupation, the presence of diagnostic pottery and the intensity of study. The high number of Late Archaic components is likely related to length of occupation also. Few components have been recorded as Early Woodland because there are few artifacts diagnostic of this period. There are relatively few Paleo Indian, Dalton, Early Archaic, and Middle Archaic components due to low occupation density. Protohistoric, Historic Indian and Historic Settlement components are under represented because they were not systematically recorded until recently. The highest investigative priority is immediate recovery of exposed human skeletal remains, followed by periods for which there is little or no information: Paleo Indian, Dalton, Protohistoric and Historic Indian.

c. Current Archaeological Surveys and Investigations.

(1) In 1988 in response to 36 CFR 79, the St. Louis District developed a curation program to store all District artifacts from the State of Illinois at the Illinois State Museum, Springfield, Illinois. All Lake Shelbyville artifacts collections, including pre-impoundments ones recovered by the NPS, post-impoundment collections from the U of I and elsewhere, and miscellaneous collections at the lake office were moved to the Illinois State Museum. At the museum the artifacts and associated documents (field notes, photographs, contract papers, etc.) were inventoried and re-boxed for long-term storage. Required NAGPRA compliance is also being conducted on the Shelbyville museum collection.

(2) From 1989 – 1996 several in-house archaeological surveys were conducted prior to construction or maintenance projects. The Opossum Creek Land Treatment Plant surveys (1989, 1993) located two small upland prehistoric sites (ineligible). In 1992, the boundaries of eligible Late Woodland site 11Mt-151 were determined and the Bruce Wetland borrow area was moved to avoid the site. In 1994, the proposed Whitley Creek Wastewater Land Treatment System location was surveyed; no sites, only isolated prehistoric chert flakes and worked chert were found. In 1995 at Coon Creek Campground, prehistoric upland site 11Sy-300 was investigated by a volunteer archaeologist assisted by the local Kaskaskia Archaeological Society. Also in 1992, sites 11Mt-5 (George Ward), 11Mt-14 (Neva Fultz), 11Mt-56 (Stop Sign) and one historic and archaeological site, Lithia Springs Chautauqua were investigated. In 1993, an eroding burial at Whitley Creek Recreation Area was removed under the Native American Graves Protection and Repatriation Act (NAGPRA).

(3) In the winter, 1996, fieldwork for the Shelbyville Shoreline Erosion Project (SSEP), (construction of Phase I) began. The work was done in-house since these were small projects at eight recreation areas near the lake's south end. Five previously reported sites were revisited and two isolated finds were recorded. Of these sites, sites 11Sy-79, -85, -97, and the two isolated finds were determined ineligible; site 11Sy-98 had been destroyed, and 11Sy-183 was considered potentially eligible, but would not be impacted by the project.

(4) In the summer, 1996, as part of SSEP (the construction of Phase II) Southwest Missouri State University archaeologists surveyed upland areas at Bo Wood and Lone Point Recreation Areas, where campground relocations are planned (total 120 acres). Two previously recorded sites at Lone Point (11Sy-159, -186) were revisited; 18 new sites and 9 isolated finds were recorded. Six sites were evaluated for eligibility: 11Sy-305 at Lone Point and 11Mt-203, -207, -208, -209, -211 at Bo Wood. Further testing at 11Mt-203, -207, and -209, revealed that only 11Mt-209 was eligible.

(5) In the near future, SSEP, construction Phases III and IV areas will be surveyed. Testing and possibly followed by mitigation is planned at three known sites in Wolf Creek State Park (11Sy-4, -86, -189).

4-03. HISTORIC

The only known historically significant property within the lake boundaries is the Lithia Springs Chautauqua Area. The Chautauqua, a Seneca Indian word meaning assembly lasting several days, was a national movement to bring culture, education, and religion to rural America. Jasper Douthit, a self-taught Unitarian minister, built a religious and educational gathering place on his family land east of Shelbyville. The natural lithium springs were a focal point for the annual gatherings from 1890 to 1921. Comfortable cabins and famous speakers including Carrie Nation and Billy Sunday also attracted people from all over the state. The permanent facilities consisted of privately owned and rental cabins, dormitories, pavilions, a library, and chapel. No buildings remain, but many foundations lie buried, making this an important historic archaeological site. This area functioned as a religious facility for about thirty years. Today, however, Lithia Springs Chautauqua shows little trace of its former history, with the exception of the springs, which are still active. In 1992 the Chautauqua area was formally determined eligible for the National Historic Register, based on documentary and archaeological investigations conducted by American Resources Group, Ltd, Carbondale, Illinois. Plans to nominate the Chautauqua area to the National Register of Historic Places are pending. A special event has been conducted with the cooperation of the Shelby County Historic Society, which includes an interpretive walk throughout the area and old photographs are passed around so that the participants in the walk can get a concept of what the area looked like. A plaque has been placed at the entrance that explains the historical significance of the area. Future plans include placing a shelter over the springs and establishing a self-guided interpretive trail.

4-04. ECOLOGIC

a. Wildlife Resources. Located within the Lake Shelbyville Area are numerous species of wildlife native to this area of Illinois including numerous types of rodents, small game birds and mammals, waterfowl, shore birds, song birds, furbearers, white-tailed deer, wild turkey, and predatory mammals and birds. Wildlife management procedures on the lake lands have benefited the species present. The flooded timber area provides nest trees for woodpeckers and wood ducks. In addition, the number and diversity of shore birds and waterfowl using this area has steadily increased.

(1) Non-recreation areas are being managed to provide quality wildlife habitat. Vegetation, including trees, is being planted to provide cover and a certain amount of food. These plantings are in contrast to the "clean

farm" agricultural practices on adjacent lands and are planned to maintain existing edge. Together, the private farms and public wildlife areas provide a more balanced relationship of food and cover for wildlife over much of the project. The Operational Management Plan explains in detail the fish and wildlife management plan for Lake Shelbyville.

(2) Agricultural subleases on state property are managed to provide the same relationship in addition to furnishing a food supply for waterfowl in the two-subimpoundment areas. The Corps of Engineers continues to construct and place wood duck nesting boxes at Lake Shelbyville.

b. Aquatic Resources. The fish population of Lake Shelbyville and its tailwater is typical of midwestern waters. Major sport and forage species are white and black crappie, bluegill, green sunfish, longear sunfish, warmouth, muskie, white bass, walleye, yellow and black bullhead, channel and flathead catfish, largemouth bass, freshwater drum, carp, numerous species of buffalo fishes, bowfin, gizzard shad, brook silversides, and many species of minnows, shiners, and darters. There are approximately 50 species of fish found in this area. The water of the lake and tailwater support a diversity of forms of phytoplankton, zooplankton, aquatic insects, crustaceans, and mollusks indicating the health of the food chain supporting the lake fisheries.

The Corps of Engineers and the Illinois Department of Natural Resources (IDNR) work together to manage twenty-one fishing ponds ranging from one-quarter acre to 27 acres in size. They have placed over 20,000 discarded Christmas trees in the lake over a 25-year period. The trees help provide fish habitat. Over the past eight years the Fin and Feathers Nursery Pond has produced over $216,000 worth of walleye and largemouth bass fingerlings.

c. Vegetative Resources. Prior to construction, the lower elevations of the basin, generally the portion inundated to form the lake, were dominated by an overstory of pin oak, cottonwood, sycamore and soft maple. The understory was composed of a variety of shrubs and minor associations of grasses. Remnants of this vegetative association can still be found along uncleared stream channels in the upper reaches of the lake, along the subimpoundments, and on some lower elevation shoreline slopes.

(1) The upper slopes of the hillsides above the lake have an oak-hickory association that is the climax forest type for this area. White oak, northern red oak, black oak, post oak, pignut hickory, shagbark hickory, white ash, and elm are the major species present in the overstory. The understory consists primarily of oak-hickory seedlings and saplings with minor occurrences of shrubs and grasses where sufficient light is available through canopy openings. Numerous old field sites occur along the perimeter of Corps fee

lands and on high points of land existing between tributary streams feeding into the lake.

(2) These old fields are in various stages of succession. Plant associations vary from weedy growth of grasses and forbs to early successional tree growth of elms, ash, and honey locust on open areas with later successional species of oaks and hickories encroaching from the forested edges. Vegetative management practices vary from tree planting in recreation areas and some old field sites to succession control of other sites by mowing or burning to create wildlife openings. The objective of the wildlife management activities is to achieve and maintain as natural a setting as possible through minimal cultural practices on existing woodlands and by planting tree and shrub species which are beneficial in promoting wildlife populations and encouraging recreational activities.

d. Federal Threatened and Endangered Species. At the present time Lake Shelbyville provides no critical or nesting habitat for any federal threatened or endangered species of plants or animals. The Lake Shelbyville area may provide seasonal non-critical habitat for the federal threatened wildlife species, the Bald Eagle, the federal endangered wildlife species, the Indiana Bat, and the federal listed species of concern, the Loggerhead Shrike. Potential habitat exists, but there has been no documented sighting of the Indiana Bat or the Loggerhead Shrike at Lake Shelbyville

4-05. ENVIRONMENTAL AND SCENIC QUALITIES

a. Topographic Qualities. The Kaskaskia and Okaw River Valleys in the vicinity of Lake Shelbyville have been shaped by water erosion creating a deep valley with steep banks. Many small tributaries enter the major valley system above the dam site creating an irregular shoreline dissected by a system of valleys and ravines. Most of the valley slopes above the lake are covered with second growth predominately oak-hickory forest. These steep wooded slopes and ravines provide the camper, boater, naturalist, and the casual visitor with aesthetically pleasing views of wooded vistas in this largely agricultural section of central Illinois. The body of the lake now occupying the valley bottom is confined by the steep slopes and timbered arms. The maximum relief at the dam site area is approximately 125 feet. The topography changes from a streambed elevation of 535 feet NGVD to an elevation of 650 to 660 feet NGVD on the bordering uplands.

Developed lookout points take advantage of the excellent scenic qualities along the lake edge. Scenic views can also be seen from some off project roads as the wooded project lands provide stark contrast to the flat agricultural lands that are adjacent. Further description of the topography is presented in Section 4-01a.

b. Vegetative Qualities. The plant resources at Lake Shelbyville include a diverse forested area ranging from light seeded species which usually populate stream valleys prone to seasonal flooding to the complex association on the upper slopes classified by the generic oak-hickory forest type which actually includes many other species trees and shrubs. Occasional sitings of tall grass prairie species is a reminder that these persistent plants once populated the flat prairie adjacent to the forested river valley. In sharp contrast to the surrounding farmland, the vegetative resources and qualities of the project land is an aesthetic change of pace. Vegetative resources are discussed in Section 4-04c, and the ecological and cultural aspects of the forest resources are discussed in the Operational Management Plan contained under separate cover.

c. Land Uses. The lands at Lake Shelbyville provide opportunities for land and water based recreation, wildlife management, forest management and for historic, cultural and ecologic study and interpretation. These activities are for the most part complementary to varied scenic qualities of the area. Specific tracts of land have been developed, revegetated, or succession controlled to provide the maximum recreational value to the public while preserving and increasing the scenic diversity and wildlife management opportunities. The zoning of the land and water resources is discussed in Section 8-01.

d. Water Quality. The water quality of Lake Shelbyville has been designated as suitable for aquatic life, agricultural use, water supply, primary and secondary contact recreation, and industrial uses. A more extensive description of water quality is presented in Section 5-09.

e. Visual Qualities. The lake itself is the largest, strongest visual element in this geographic area. The steep valley carved by an ancient river system provides an abrupt topographic change in the surrounding glaciated prairie. The steep wooded slopes of the valley, dissected by tributary streams provide a shoreline with unusual visual contrast. These visual qualities add a unique aesthetic experience to recreational activities at Lake Shelbyville.

f. Status of Environmental Impact Statement. The Final Environmental Impact Statement on operation and maintenance for Lake Shelbyville was completed and circulated in 1975. As required by law, Environmental Assessments have been conducted when specific activities not covered by the Environmental Impact Statement are considered.

4-06. RECREATION

a. Recreational Development Description. The recreational developments at Lake Shelbyville provide opportunity for outdoor recreation activities such as sightseeing, fishing, boating, water skiing, camping, picnicking, swimming, hiking, and hunting. Areas around the lake have been

developed to provide both extended-use and day-use opportunities. Presently there are thirteen recreation areas, two wildlife management areas, and three marinas at Lake Shelbyville. Eleven recreation areas are operated by the Corps of Engineers, two state parks and two wildlife management areas are operated by the Illinois Department of Natural Resources, and private concessionaires operate three marinas. Included in these areas are 9 campgrounds, providing 1,505 public campsites. There are 217 picnic sites, 6 beaches, a Visitor Center, 23 trails, and 30 boat launching areas (12 primary, 10 minor, and 9 high water - the launching ramp at Findlay Marina serves as a primary and a high water ramp). A description of land use and recreational development is presented in Section VIII.