

APPENDIX F

**FINAL RECREATIONAL NEEDS ANALYSIS
FOR THE PROPOSED JACKSON COUNTY
LAKE PROJECT**

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FINAL

**Recreational Needs Analysis
for the
Proposed Jackson County Lake Project**



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1.0 INTRODUCTION

1.1 PURPOSE

This report documents an analysis to determine the present and future recreational needs in the area of a proposed lake in Jackson County, Kentucky. The proposed lake would primarily be used as a water supply reservoir for Jackson County and perhaps the surrounding counties. Recreational use of the lake would be an added benefit. Future recreational development around the proposed Jackson County lake may include a public dock, boat landings, picnic and camping areas, and a public beach. This study focuses only on recreational activities associated with such a proposed lake.

1.2 PROJECT LOCATION

Over one quarter of Jackson County is located within the Daniel Boone National Forest, which includes over 670,000 acres in eastern Kentucky. Twenty-five to thirty percent of this land is owned by DBNF, while the rest is land located within their legal purchase boundaries, but is privately owned. Two primitive campgrounds are currently located within Jackson County: S-Tree Campground and Turkey Foot Campground. Both sites offer trailer/tent spaces for camping, picnicking facilities, hiking trails, and horseback riding. Neither facility is located near lake or water related activities. The Mill Creek Wildlife Management Area offers opportunities for hunting. One 89-acre lake, Beulah (or Tyner) Lake, is found in Jackson County, providing fishing and non-motor boating.

Within 75 air miles of Jackson County, there are 31 lakes offering recreational activities such as boating, fishing, swimming, canoeing, and water sports. Ten of these lakes are associated with a national or state resort park, thus providing more types of outdoor recreation such as camping, hiking, tennis, miniature golf, etc.

1.3 RECREATIONAL STUDY

Generally there are three main components to recreational planning studies:

- ♦ Needs analysis – evaluates the present and future needs for recreational facilities in the area;
- ♦ Use estimation – projects the estimated use of the recreational facility if it's built; and
- ♦ Economic benefit analysis – quantifies the potential economic benefits of the facility based on the estimated use.

This study focuses on recreational needs analysis for the proposed Jackson County lake. Use estimation and economic benefit analysis are discussed in Section 5 as further studies to follow this analysis.

1.4 STUDY AREA

The study area for the proposed lake is 75 miles in radius around Jackson County, encompassing 52 counties in Kentucky, 4 counties in Tennessee, and 2 counties in Virginia (see Figure 1-1).

A study area was selected for this analysis to determine the potential market area and the potential of the proposed lake to meet the recreational needs in the area. Market area is typically

defined in terms of the travel distance from which about 75 to 85 percent of visitors to the facility originate (NRCS, 1997). Based on the latest available data (KYDLG, 1989), approximately 58 to 81 percent of the population in the study area travel less than two hours to their recreational destination. A professional judgement was made that 75 miles would represent a reasonable driving distance and recreation supply area for this study. This area is also very similar to the smaller of the two survey areas (75-mile and 150-mile radius) defined in the 1997 Daniel Boone National Forest (DBNF) National Survey on Recreation and the Environment (Fenton, 1997). The 150-mile radius represents the market area for the DBNF. Even though the proposed lake would not have the same market area as the DBNF because of limitation of access in Jackson County, the location of the lake within or near the DBNF would potentially attract visitors going to the DBNF.

1.4.1 TWO-HOUR DRIVING LIMITATION

Straight-distance miles, or air miles, do not always translate into driving miles. The study team determined that the casual recreation user (those intending to use a lake's resources for no more than one day) would probably not wish to drive more than two hours to get to their destination. Therefore, the team considered the different terrain throughout the study area and how it would affect driving time. Driving times may be affected by several factors such as speed limits, weather conditions, road conditions, construction, etc. This topic is discussed further in Section 4.1.5 and Appendix E.

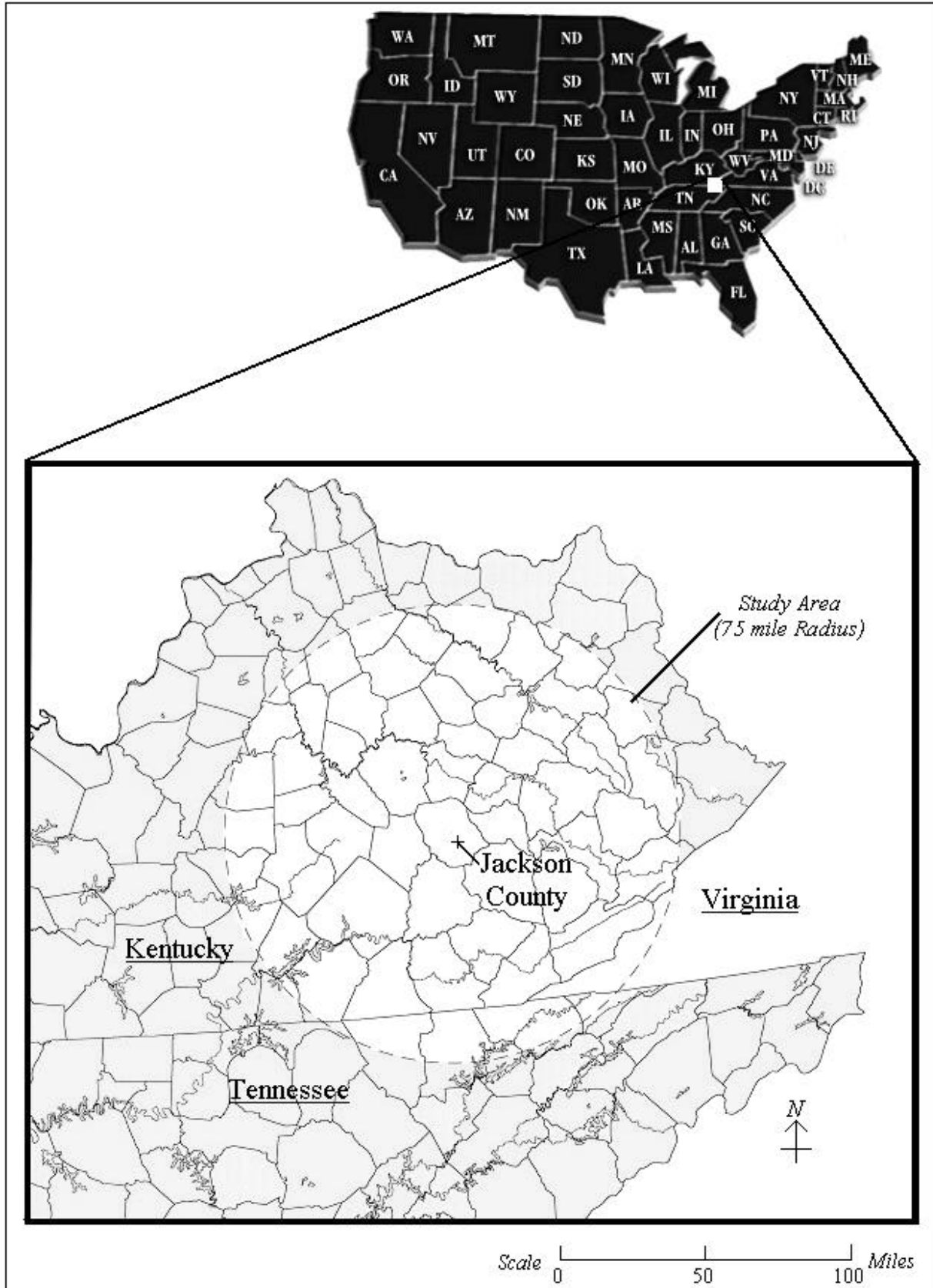
2.0 LITERATURE REVIEW

An extensive literature review was done to assess the existing recreation studies and surveys in the project region and to evaluate recreational studies of similar projects. Data compiled from the literature review were evaluated to determine the best approach to assess the recreational needs in the area surrounding the proposed Jackson County lake. The selected approaches for this analysis are described in Section 3.0, Methodology and Results. The following sections present the results of the literature review.

2.1 SCORP

Statewide Comprehensive Outdoor Recreation Plans (SCORPs) are the primary statewide planning studies used to prioritize funding for recreation needs and to guide the development of resources and programs (Yuan, 1995). The 1989 Kentucky SCORP (KYDLG, 1989) is the latest study to evaluate recreational facility needs in Kentucky. This report quantifies facility supplies and needs in the 1989-1994 planning period and breaks down the results into Kentucky's 15 Area Development Districts (ADD). The study area for the proposed lake covers most of the counties in the following six ADD's: Big Sandy, Bluegrass, Cumberland Valley, Gateway, Kentucky River, and Lake Cumberland.

Figure 1-1. Recreational Study Area of the Proposed Jackson County Lake



Using data from the 1989 SCORP, Table 2-1 summarizes the facility supplies and needs of the study area for recreational activities typically associated with lakes. A “0” in the need column indicates a surplus of facilities.

Table 2-1. Recreational Facility Supplies and Needs in the Study Area, 1989-1994			
Activity (unit)	1989		1994
	Supply	Deficiency	Deficiency
Camping (sites)	4,780	3,284	3,635
Picnicking (tables)	6,907	1,797	2,206
Hiking (miles)	283	52	66
Fishing (acres)	93,643	0	0
Boating (acres)	91,679	0	0
Water Skiing (acres)	65,060	0	0
Canoeing (miles)	1,954	0	0
Swimming (100 sq. ft)	4,427	7,467	7,988
Swimming (acres)	13	22	24

As shown by the results, during the planning period of 1989-1994, surplus facilities existed for fishing, boating, water skiing, and canoeing in the study area of this analysis, while there were needs for camping, picnicking and swimming facilities. The data presented above is used in this analysis to project future recreational needs in the study area (see Section 3.1).

2.2 EXISTING RECREATIONAL SURVEYS

Kentucky

For the 1995-1999 planning period, the report “Outdoor Recreation in Kentucky: A Five-Year Assessment and Policy Plan” (KYDLG, 1995) did not include a recreational needs analysis because of limited budget. Instead, the report includes the results of a statewide recreational survey conducted in 1993. Using 32 questions, a total of 655 telephone interviews were completed. The results show public opinions and attitudes

Table 2-2. Ten most popular activities by percentage of respondents participating in 1993		
Activity	At least once	Over 10 times
Hiking/walking	78.5	60.5
Picnicking	77.5	25.9
Swimming	53.3	32.5
Fishing	45.2	23.4
Basketball	36.5	20.1
Boating/skiing	34.7	14.8
Baseball/softball	31.5	14.5
Volleyball	30.4	12.1
Bicycling	28.6	15.5
Tent camping	25.6	6.8

toward recreation, as well as current levels of public participation in outdoor activities. Table 2-2 shows the ten most popular activities as tabulated by the survey. The data presented is used in this analysis to compare past and present recreational participation (see Section 3.1).

Table 2-3. Top five activities most limited by facility in Kentucky

Activity	Percentage of respondents
Hiking/walking	19.7
Swimming	18.2
Fishing	16.6
Tent camping	10.5
Tennis	9.3

The survey also included a question which asked what activities the respondent would have participated in more often, or would have liked to participate in, if good public facilities and programs had been available. Table 2-3 shows the top five responses to the survey question. Among the activities, hiking, swimming and fishing were considered limited by facilities. A perceived limitation would suggest a need for additional facilities for that activity, at least within the state as a whole.

Daniel Boone National Forest

As a part of the National Survey on Recreation and the Environment to understand people’s outdoor behavior and interests in the United States, a survey was conducted in the Daniel Boone National Forest area (Fenton, 1997). Two regions were defined for use in conducting the participation analysis: one encompassing 75 miles in radius from the center of the DBNF, while the other is 150 miles in radius. The 150-mile study area encompasses the entire 75-mile radius area. The region with a 75-mile radius is virtually identical to the study area of this recreational analysis. Table 2-4 shows public participation of several lake-related activities in this region, as selected from the survey results. Some of the more popular activities include visiting the beach, picnicking, and visiting outdoor nature. However, the results of the survey only show participation patterns and cannot be used directly to evaluate recreational needs in the area. The results are used in this analysis to compare past and present recreational participation in the study area (see Section 3.1).

Table 2-4. Popular lake activities in the DBNF region (75-mile radius)

Activity	% Participation
Visit the beach	61
Picnicking	54
Visit outdoor nature	45
Swimming pool/non-pool	49/32
Day hiking	31
Boating	30
Fishing	27
Camping	23

Table 2-5. Constraints to Participation in the DBNF region (150-mile radius)

Constraints	% Respondents
Not enough time	53
Not enough money	53
Outdoor pests	42
Personal Health reasons	32
Inadequate information on places	25
Poorly maintained activity areas	25
No one to do activities with	23
Crowded activity areas	18
Inadequate facilities in areas	16
Pollution in activity areas	14

The survey also questioned respondents about constraints to participation in recreational activities. The results from the 150-mile region are shown in Table 2-5. The main reasons are not having the time or money to participate in the activities. Even though inadequacy of activity areas, such poor maintenance, crowding, inadequate facility and pollution were not considered as major constraints, a portion of the population (14 to 25

percent) expresses needs for improvement in recreational facilities in the area.

2.3 SURVEY METHODS

Surveys provide empirical data that describes the actions, opinions, and desires of people. By directly questioning about wants or requesting individuals to rate or compare various recreational activities, a planner can obtain much useful information. The data can also be used to analyze the motivation and opinions of people with their participation in recreation, to compare assumptions of available recreational with the actual opportunities, and if administered properly over time, to detect trends in perception, attitudes, and preferences.

Although surveys indicate much about the recreation needs of the public, they also have many shortcomings (DOI, 1975). As a result of questioning a limited number of people, survey results are derived from the preferences of only those people surveyed. Since recreational planning focuses on particular activities, this method fails to collect data about substitute activities that would satisfy the same needs. Surveys usually lists activities because, without a list, respondents experience difficulty in recalling their past participation in activities; invariably errors of omission may occur. Data collected is not always shared between geographical and geopolitical units, and state boundaries are inappropriate divisions for recreational planning, since opportunities may be available across such boundaries. Another disadvantage is the focus of surveys on public outdoor recreation rather than the entire recreation system. By overlooking private and indoor opportunities, the scope becomes extremely limited.

Due to the time and budget constraints of this recreational need analysis, as well as uncertainties of surveys in quantifying recreational need, conducting a survey for this analysis was ruled out.

2.4 RECREATIONAL STUDIES OF SIMILAR PROJECTS

Several recent environmental and recreational studies were reviewed to assess how other agencies address recreational needs.

The most recent study found concerning lake activities in Kentucky was the Environmental Assessment for the Proposed Cedar Creek Recreational Lake, Lincoln County, Kentucky (KYDFWR, 1995). Recreational needs were determined using the 1989 Kentucky SCORP data for the Bluegrass ADD, where Lincoln County is located. The size of the proposed lake is 784 acres in surface area. Needs were also assessed by evaluating the current usage of state parks in the surrounding area, as determined by lodge, cottage, and campsite occupancy rates. The study found that there are critical needs for water-based recreation in the Bluegrass ADD and that the proposed lake would help meet those needs.

In the Environmental Impact Statement for Recreational Lake and Complex on Porter Creek, Homochitto National Forest, Franklin County, Mississippi (USFS, 1998), evaluation of recreational needs was based on the 1990 and 1995 Mississippi SCORP data. The alternative sizes of the proposed lake range from 650 to 1,160 acres in surface area. Current usage of recreational facilities in the surrounding area was also evaluated based on campsite and picnic site occupancy. The study concluded that the proposed recreational complex would provide recreational opportunities closer to rural residents who currently must travel greater distances for recreation.

A recreation study (NRCS, 1997) was done for the Environmental Impact Statement, North Fork Hughes River Watershed Project, Ritchie County, West Virginia. The proposed recreational development would be 305 acres in surface area. Needs were qualitatively evaluated from the 1988 West Virginia SCORP data, showing participation patterns of the SCORP regions that lie within the defined market area. The study also included an inventory of water-based recreation facilities in the market area. Even though there was no definitive statement of recreational needs, the study evaluated the estimated use and the potential economic benefits of the project. The study used the similar project method for estimating use and the unit day value method for economic benefit analysis (see Section 5.0).

In the Jennings Randolph Lake 1997 Master Plan Update and Integrated Programmatic Environmental Impact Statement (USACE, 1997), recreational needs were assessed by integrating 1992 SCORPs data from West Virginia, Maryland, and Pennsylvania. The study also included an inventory of recreational facilities in the market area. The study found that there's a deficit of water-based recreational facilities in the area. It concluded that the proposed development would not be primarily based on the needs analysis, but on a combination of the needs analysis; project objectives; resource capabilities and constraints; input from other agencies; and information from the visitor needs survey, the visitor logbook, and the customer comment cards. In addition, the study included national and regional economic benefit analyses as established by the Water Resources Council's "Principles and Guidelines" (see Section 5.0).

By reviewing the methods used in recreational need analysis of similar projects, as well as assessing the existing recreational data in the study area, the most suitable methods were chosen for this analysis to evaluate present and future recreational needs (see the following section).

3.0 METHODOLOGIES AND RESULTS

From the literature review of recreational studies and methods, it is apparent that quantifying recreational need is an imprecise task. By using available data, two approaches were chosen for this analysis to assess the present and future recreational needs in the study area:

1. Utilize the 1989 SCORP analysis to assess present and future needs.
2. Evaluate the current levels of use of the 31 lakes in the study area. An overall high usage would indicate a potential need for additional recreational lakes, whereas a low usage would suggest a surplus.

3.1 SCORP ANALYSIS

Since the 1989 SCORP is dated and no new recreational needs analysis has been done, an attempt was made to update the 1989 SCORP analysis using new data. After consultation with Kentucky Department of Local Government, which is responsible for SCORP studies, the most recent recreational facility inventory data and the participation results from a 1993 statewide survey were used to update the analysis (see Appendix A). However, the updated analysis did not yield credible results because the most recent facility inventory data were vastly inconsistent with the 1989 data (e.g., fishing acres in 1989 was 388,982 acres, while it decreased to 212,444 acres in 1995). The discrepancy may be due to inconsistent collection of inventory data at local levels (Barker, 1998). Furthermore, the participation rates calculated from the 1993 survey results were not credible because of the small sample size of the survey. Therefore, another way of using the SCORP analysis was needed.

Recreational need is a primarily a function of supply and demand. A simple way to express this is: Need = Demand – Supply. The demand for recreation depends upon population size and personal attitudes. Personal attitudes are addressed in this document through the study of various surveys done within the state. The supply is a function of the availability of recreational assets. Using this process we attempted to adapt the 1989 SCORP for this analysis.

Based on the 1989 SCORP analysis, projections of future recreational needs could be made directly using current population growth projections. Such projection would be valid if the recreational facility supply and public attitudes toward recreational activities have not changed significantly since 1989 and are not expected to change in the future.

Since no comparison can be made between 1989 and current facility inventory data, an evaluation of when the lakes in the study area were built may indicate if water-based recreational facilities have changed since 1989. Most of the 31 lakes in the study area were built well before 1989 (between 1926 and 1979). Cedar Creek Lake will be built in the near future. Therefore, it is likely that facilities for water-based recreation have not increased significantly since 1989. Table 3-1 compares public attitudes toward recreational activities from the 1984 survey (1989 SCORP), the 1993 statewide survey, and the 1997 DBNF survey. Even though the 1993 survey data could not be used to calculate participation rate, a comparison of overall percentage of participation is still valid for this purpose.

Table 3-1. Comparison of Recreational Activities (1984, 1993, and 1997 Surveys)			
Activity	Percentage of Participation (%)		
	1984 Statewide	1993 Statewide	1997 DBNF
Picnicking	57.1	77.5	54.0
Hiking/Walking	26.0/34.9	78.5	31.0/66.0
Camping	31.6	25.6	23.0
Fishing	37.9	45.2	27.0
Boating	29.4	34.7	30.0
Swimming	51.3	53.3	49.0

As shown by the comparison, participation in picnicking and hiking/walking increased significantly from 1984 to 1993, while it increased slightly for fishing, boating, and swimming. However, the 1997 DBNF survey results are very similar to the 1984 results and reflect more on the study area of this analysis. Therefore, using 1989 SCORP data regarding both supply and participation patterns to project future recreational needs in the study area would be valid.

Since the 1989 SCORP analysis was grouped by regions (Area Development Districts – ADD), the study area was modified slightly to fit the ADDs. Marginal counties of Fleming, Elliot, Washington, and Marion were removed, while Green, Clinton, Cumberland, Martin, and Pike Counties were added. The modified study area covers the following six ADDs: Big Sandy, Bluegrass, Cumberland Valley, Gateway, Kentucky River, and Lake Cumberland. Population projections for the counties in the six ADDs are presented in Appendix B.

Population projections were based on estimates made by Kentucky Population Research (KPR), a demographic research program of the University of Louisville. KPR, in conjunction with the U.S. Census Bureau, is the state’s official source of population estimates and forecasts. Because of uncertainties of future population changes, three growth scenarios were considered for this

analysis: low, moderate and high. Under the low growth scenario, population in the study area is expected to decline by 0.11% from 2000 to 2010 and by 1.55% by the year 2020. Under the moderate growth scenario, population is projected to increase by 2.77% from 2000 to 2010 and by 3.51% by the year 2020. Under the high growth scenario, population would increase 8.25% by the year 2010 and 13.89% by the year 2020. Although the efforts of the Kentucky Highlands Empowerment Zone may affect population growth in Jackson County, such effects are unlikely to significantly change the overall study area's population.

Using the 1989 demand from SCORP as the baseline, recreational demands in the study area were projected for the years 2000, 2010, and 2020 under low, moderate, and high growth conditions. Needs were calculated by subtracting the 1989 supply from the projected demands (see Appendix C). The results are summarized in Table 3-2. A "0" in the need column indicates a surplus of facilities.

Table 3-2. Projected Recreational Needs in the Study Area under Low, Moderate, and High Population Growth Conditions (2000-2020)

Activity (unit)	Year 2000 Need			Year 2010 Need			Year 2020 Need		
	Low	Mod	High	Low	Mod	High	Low	Mod	High
Camping (sites)	2,801	3,144	3,668	2,749	3,332	4,317	2,605	3,363	4,778
Picnicking (tables)	1,276	1,645	2,212	1,219	1,849	2,912	1,064	1,883	3,410
Hiking (miles)	32	46	68	30	54	95	24	55	114
Fishing (acres)	0	0	0	0	0	0	0	0	0
Boating (acres)	0	0	0	0	0	0	0	0	0
Water Skiing (acres)	0	0	0	0	0	0	0	0	0
Canoeing (miles)	0	0	0	0	0	0	0	0	0
Swimming (100 sq.ft.)	6,755	7,260	8,034	6,677	7,538	8,991	6,466	7,584	9,671
Swimming (acres)	20	22	24	20	23	27	19	23	29

The results show that even under high growth conditions, facilities for fishing, boating, water skiing, and canoeing will remain in surplus into 2020. Based on the amount of surplus (see Appendix C), the current supply will adequately meet the demand for these activities in the study area beyond the year 2020. However, there will be increasing needs for additional camping, picnicking, hiking, and swimming facilities in the future. Based on the current facility plans, the proposed Jackson County lake would help meet some of the needs for picnicking facilities, and all of the needs for swimming facilities, which is projected to reach a maximum of only 29 acres for the planning period.

3.2 LEVEL OF USE OF SURROUNDING LAKES

This approach evaluates the current levels of use of the 31 lakes in the study area. An overall high usage would indicate a potential need for additional recreational lakes, whereas a low usage would suggest a surplus. Recreational use data was collected via phone interview, facsimile, and the World Wide Web, for the 31 lakes in the 75-mile vicinity surrounding Jackson County. Recreational use data is extremely limited for most parks and lakes, and thus it was necessary to gather as much information as possible in order to find common variables for analysis and comparison. Information gathered included lake size, proximity to Jackson County, number of yearly visitors, visitor hours, participation days, meals served, and overnight guests/campers (see Appendix D). Specific recreational use data was collected on boating, fishing, camping, hiking, swimming, and several other popular activities within the area.

Agencies and organizations contacted include U.S. Army Corps of Engineers, U.S. Army Corps of Engineers Waterways Experimentation Station, Kentucky Department of Fish and Wildlife Resources, Central Kentucky Parks Office, Office of the Deputy Commissioner of Kentucky, Daniel Boone National Forest Supervisor, Kentucky Division of Water, Kentucky Utilities, University of Kentucky, Eastern Kentucky University, numerous park managers and marina operators, and park rangers from the Louisville, Huntington, Nashville, and Fort Worth Districts.

There is no reliable way to quantify whether a recreational site is being used at full capacity over the use season. Recreational activities are not evenly distributed during the week. Therefore, if a facility reports an “average” weekly occupancy rate, that figure may mask days (presumably weekend days) when the facility is at full capacity and perhaps turning people away. Therefore, as a rule of thumb, a facility operating at an average of 40% capacity is probably at 100% occupancy on weekends and holidays, with perhaps additional potential users either turned away or deterred from coming (USFS, 1998). Campsite occupancy is considered an indicator of capacity; another indicator is picnicking. Camping figures were available only for five of the 31 lakes located within the study area (see Appendix E). Two of the sites were likely operating at full weekend occupancy during the use season. During 1997, Mill Creek Lake was operating at an average 57% occupancy and Green River Lake was operating at 58% occupancy. The campgrounds located at Dewey Lake (31%), Lake Cumberland (23%) and Carr Fork Lake (17%), were operating at moderate to heavy occupancy. Since the population of the study area is expected to increase in the future, the use of the lakes in the area are expected to increase as well. Based on population projections, usage for the five lakes were projected into 2020, assuming that usage would grow at the same rate as population. Table 3-3 presents the results of the projections.

Table 3-3. Projected Average Usage of Surrounding Lakes under Low, Moderate, and High Population Growth Conditions (2000-2020)

Lake Name	1997 Use (%)	2000 Usage (%)			2010 Usage (%)			2020 Usage (%)		
		Low	Mod	High	Low	Mod	High	Low	Mod	High
Green River	58	52	55	58	52	56	63	52	57	66
Mill Creek	57	52	54	57	51	55	62	51	56	65
Dewey	31	28	29	31	28	30	34	28	30	35
Cumberland	23	21	22	23	21	22	25	20	22	26
Carr Fork	17	15	16	17	15	16	18	15	17	19

The results show that under low growth conditions, as detailed earlier in section 3.1, the usage would decline and remain below the 1997 level. Under moderate growth conditions the usage would decline from 1997 to 2010 and then increase to near the 1997 level in 2020. Under high growth condition, the usage would increase from 1997 to 2020, when three of the five lakes would be operating above or near capacity. Based on the limited amount of data, the projections suggest that under high growth conditions, additional lakes may be needed in the study area because lake usage in the area are approaching full capacity. The proposed Jackson County lake would help meet that need.

4.0 METHODOLOGY AND FURTHER STUDIES

Section 3.0 presented the results of needs analysis that suggested there is and will be more demand for recreation than is or will be met by existing area lakes. This section discusses the estimation of how much use a new lake in Jackson County might experience.

To estimate this, one approach is to look at the amount of use other lakes in the study area experience. We reasoned that there might be a relationship between the size of the lake’s surrounding population and how much it is used. If so, such a “rule of thumb” could be helpful in predicting the usage of a proposed lake. However, with the limited lake usage data available, no reliable rules of thumb concerning population versus usage could be reliably determined. Similarly, lake usage did not seem to correlate with road access.

4.1 USE ESTIMATION

These sections address the Use Estimation methodology utilized for this study, a Comparison of Visitor Hours and Lake Size (Section 4.1.1), and three other methodologies used for estimating potential visitation to various recreational facilities. The three generally accepted procedures for estimating recreational use have been established in the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies* (U.S. Water

Resources Council, 1983), commonly known as “Principles and Guidelines.” The Principles and Guidelines identify three methods for estimating quantities of recreation use at a site. The Principles and Guidelines’ hierarchy of methods for estimating quantity of use, listed in descending order of preference and level of sophistication, is as follows: (1) use estimating models – Section 4.1.2; (2) similar project method – Section 4.1.3; and (3) capacity method – Section 4.1.4.

4.1.1 COMPARISON OF VISITOR HOURS AND LAKE SIZE

As suggested by the Corps of Engineers, we used lake size to predict potential lake usage. Table 4-1 shows the limited data available. At this time, the likely size of a Jackson County lake, depending upon its location, could be between 300 and 1200 acres. For the purposes of this study, we used nominal surface area sizes of 300, 600, 900, and 1200 acres. From Table 4-1, we used Martin Ford Lake, with 340 acres, as the model to compare to a 300 acre Jackson County Lake. The process involved Martin Ford Lake’s 340 acres and 400,000 visitor hour and comparing that to a possible 300 acre lake receiving the same proportion of visitors. The calculation would be:

$$300 \text{ acres}/340 \text{ acres} \times 400,000 \text{ visitor hour} = 350,000 \text{ visitor hours}$$

Table 4-1. Available visitation data from the lakes in the study area.				
Name	Size (Acres)	Miles from Jackson County	1997 Visitor Hours*	1997 Visits**
Martins Fork Lake	340	58	400,000	200,000
Carr Fork Lake	750	55	1,521,300	544,300
Dewey Lake	1,100	72	2,827,646	831,378
Paintsville Lake	1,140	65	2,497,341	832,445
Buckhorn Lake	1,230	30	1,434,200	282,600
Laurel River Lake	5,600	32	800,000	300,000
Green River Lake	8,200	70	9,997,100	943,700
Cave Run Lake	8,270	53	1,238,600	540,700
Lake Cumberland	50,250	67	76,400,000	4,900,000
*VISITOR HOUR - A visitor hour of use is the presence of one or more persons on an area of land or water for the purposes of engaging in one or more recreation activities. Visitor hours of use will not include time spent by people passing over, through or along the project, where such travel is unrelated to recreation activities.				
**VISITS - A "visit" is defined as one person visiting the project for recreation purposes for any period of time. For instance, one person sightseeing for 15 minutes is 1 visit; one person camping for 14 days is also one visit. This number is available on the VERS report. Round to the nearest hundred.				

The “Visitor Hour” versus “Visit” relationship indicates the average length of stay per visitor. This seems to reflect the availability of multiple recreational assets but there is not sufficient data at this time to draw specific inferences to a potential Jackson County lake as there is no specific plans available at this time to indicate the complete variety of assets at the potential lake.

Table 4-2 summarizes potential usage estimates. As shown in the example, Martins Fork lake is the model for a projected 300 acre lake. The average of Martins Fork lake and Carr Fork lake will be used as the model for a 600 acre lake. The average of Carr Fork lake and Dewey lake will be used as the model for a 900 acre lake. And finally, the average of Dewey Lake, Paintsville Lake, and Buckhorn Lake will be used to estimate usage for a 1200 acre lake.

Table 4-2. Estimated Usage of Potential Jackson County Lake.		
Size in acres	Average use per acre	Projected Use
300	1,175	353,000
600	1,750	1,057,000
900	1,850	2,115,000
1200	1,950	2,337,000

We then postulated that the number of visitor hours at a lake will change as the population changes in the surrounding areas. We therefore applied the population change projections (as previously discussed in Section 3.1) for 2000, 2010 and 2020 to the estimates of visitor hours for each lake size. These results are shown in Table 4-3. These are conservative figures for the area and do not attempt to factor in the potential growth of Jackson County as a result of the Empowerment Zone. The rationale used was one of a regional versus a county application of growth potential and also to provide a conservative estimate of growth potential.

Table 4-3. Low Growth Projections			
Lake Surface Area (acres)	Estimated visitor hours		
	2000	2010	2020
300	319,000	318,000	314,000
600	1,100,000	1,099,000	1,083,000
900	1,783,000	1,781,000	1,755,000
1,200	2,113,000	2,110,000	2,080,000

Table 4-4. Moderate Growth Projections			
Lake Surface Area (acres)	Estimated visitor hours		
	2000	2010	2020
300	332,000	341,000	344,000
600	1,146,000	1,178,000	1,186,000
900	1,856,000	1,908,000	1,922,000
1,200	2,200,000	2,261,000	2,278,000

Table 4-5. High Growth Projections			
Lake Surface Area (acres)	Estimated visitor hours		
	2000	2010	2020
300	354,000	383,000	403,000
600	1,222,000	1,323,000	1,392,000
900	1,980,000	2,144,000	2,255,000
1,200	2,347,000	2,541,000	2,673,000

The conclusion is that even under low growth population projections, there would be a considerable utilization of even a small lake in Jackson County.

4.1.2 USE ESTIMATING MODELS

A use estimating model is a mathematical relationship expressing visitation from a study area to a recreational facility as a function of one or more of the following explanatory variables:

- Price of a visit to a site, measured directly as travel cost or indirectly as distance
- Characteristics of the community population, such as income or age profile
- Characteristics of the recreational facility
- “price” and attractiveness of substitute facilities

After an exhaustive review of literature and inquiries with numerous agencies and organizations we concluded that a regional model to predict recreational use at the proposed lake could not be developed due to the scarcity of available data. Contacts included park managers and rangers, Daniel Boone National Forest, the Kentucky Fish and Wildlife Service, University professors, Corps of Engineers Institute for Water Resources and the Corps of Engineers Waterways Experiment Station. Information needed to develop such a model includes visitation data for all of the lakes in the study area, and visitor origin data. At a minimum the origin data would need to include county or zip code of the visitor, number in the party, and number of days of the visit. To collect and analyze this amount of data from all of the lakes within the study area is a massive multi-year effort; well beyond what is needed or possible for this study.

4.1.3 SIMILAR PROJECT METHOD

The similar project method is based on the premise that recreation demand for a proposed project can be estimated from observations of visitation patterns at one or more existing projects that have similar resources, operation, and anticipated recreation use characteristic.

The analyst begins by identifying a recreation facility that is similar but not necessarily near to the proposed project. Visitor origin data is collected. Next, a distance-visitation profile for the similar site is developed. A distance-visitation profile is a graph or a table of values that relates distance of a population grouping (for example, the population from within a county or a 10-mile travel zone) to the annual number of visits per capita to the site from the population grouping. The analyst then uses this data to estimate per capita usage.

The methodology was not used for this study because a lake has not been found at this time that would closely mirror the situation of a proposed Jackson County lake.

4.1.4 CAPACITY METHOD

The capacity method involves the estimation of annual recreation use based on facility capacities and expected daily, weekly, and seasonal use patterns. Because the method does not involve the estimation of site-specific demand, it’s use is valid only when it has already been determined that sufficient need exists to use all of the project’s capacity. The Principles and Guidelines advise that the method should be limited to small projects having a restricted market area and a facility orientation as opposed to a resource attraction. The methodology was not used for this study because of insufficient data.

4.1.5 TWO HOUR DRIVING TIME

As previously stated in Section 1.4.1, air miles do not always translate into driving miles. Therefore, the study team considered how long the casual recreation user would be willing to travel to use a lake's recreational resources in a one-day period. It was then determined using a common sense approach that such users would prefer to drive no more than approximately two hours.

Only 13 of the 31 lakes are within approximately two hours driving distance. They are as follows: Beulah/Tyner Lake, Wood Creek Lake, Bert Combs Lake, Lake Linville, Taylor Valley Lake/Wilgreen, Mill Creek Lake, Cedar Creek Lake (proposed), Buckhorn Lake, Laurel River Lake, Campton Lake, Pan Bowl Lake, Stanford Reservoir and Herrington Lake.

As shown in the previous paragraph, the two-hour driving distance decreases the number of lakes available for recreation in the 75-mile radius from 31 lakes to 13 lakes. Therefore, the number of water related recreation activities become limited. For example, the number of lakes that allow motor boats are cut from 24 lakes to only 8 lakes. Fishing opportunities are cut back from 25 lakes to 8 lakes. Swimming opportunities are also decreased, from 13 lakes to only 3 lakes. A Jackson County Lake could help with some of these shortfalls. For additional information, Appendix E lists the water related recreational activities for each of the 31 lakes within the 75-mile radius.

4.2 ECONOMIC BENEFIT ANALYSIS

The Principles and Guidelines emphasize the concept of "net benefit", recognizing that a water resources project may both create and displace recreation opportunities. Net recreation benefits are defined as the difference between the value of recreation opportunities created and the value of recreation opportunities displaced. The Principles and Guidelines identify the following three methods for valuing use: (1) travel cost; (2) contingent valuation; and (3) unit day value.

The travel cost methodology regards travel cost as an alternative for pricing figures. It relies on the premise that if travel cost increases, the user will make fewer trips; and if the travel cost decreases, the user will make more trips. The travel cost method of estimating value is generally well regarded because it is based on actual, observable behavior. However, this method does possess several weaknesses. The most notable weakness is the conversion of travel time into a dollar measure of cost to the traveler.

The contingent valuation methodology is based upon the creation of a hypothetical market by asking a sampling of park visitors or regional residents their willingness to pay for the recreational services. This method yields an average of the visitor's willingness to pay for recreational services that can be applied to an estimate of use. A good contingent valuation survey requires substantial effort and expertise to administer. Critical steps include design of the questionnaire, pre-testing, designing and drawing the sample, training and supervising interviewers, and analysis of results. Careful design and execution of a survey promotes, but does not guarantee, reliable results. According to the level of effort reported in the Corps of Engineers Guide for using the contingent valuation method the time and budget required would be well beyond what is possible or needed for this report.

The unit day value methodology involves the application of average consumer surplus/net economic value measures to previously-derived estimates of site use. When published, the Principles and Guidelines favored this valuation method least, primarily because of the large role of the analyst's judgement in determining unit values. However, since publication of the Principles and Guidelines in 1983, the U.S. Forest Service has developed a schedule of willingness to pay measures based on extensive statistical-based surveys of existing travel cost and contingent valuation studies. The Forest Service estimates are region-specific, activity-specific values. For application in a unit day value approach, the Forest Service values are the most widely acceptable recreation values.

This methodology is more suited to a cost benefit analysis to be contained in any NEPA analysis of a proposed Jackson County Lake. The analysis would not provide definitive needs analysis required of the current effort.

5.0 CONCLUSIONS

Based on SCORP analysis (Section 3.1), a surplus of facilities exists for fishing, boating, water skiing, and canoeing, in the study area of the proposed Jackson County lake. Based on the amount of surplus (see Appendix C), the current supply will adequately meet the demand for these activities in the study area beyond the year 2020. However, there will be increasing needs for additional camping, picnicking, hiking, and swimming facilities in the future. Based on the current facility plans, the proposed Jackson County lake would help meet some of the needs for picnicking facilities, and all of the needs for swimming facilities, which is projected to reach a maximum of only 29 acres for the planning period.

The Level of Lake Use (Section 3.2) in the area cannot be adequately assessed because recreational use data is very limited for the existing lakes in the study area. Based on the limited data, the current use of the lakes can be described as moderate to heavy. Since population is expected to increase in the study area under moderate and high growth scenarios, the proposed lake may help alleviate the potential heavy use of the surrounding lakes in the future.

Using the Comparison of Visitor Hours and Lake Size (Section 4.1.1) analysis, it is possible to forecast a sizable level of visitation to a proposed lake in Jackson County. However, it must also be noted these figures may be somewhat liberal in light of the limited road access to the county as a whole compared to the other facilities considered.

As mentioned in Two-Hour Driving Time (Section 4.1.5), a two-hour drive time frame lessens the water related recreational activities. A Jackson County Lake could provide the additional recreational opportunities that are decreased when taking this driving limitation into consideration.

Overall, there is a demand for recreational facilities in the region. This demand is likely to increase with population growth in the region. Additionally, this growth could be spurred by the economic impacts associated with the Empowerment Zone.

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APPENDIX A

**SCORP ANALYSIS FOR THE
PROPOSED JACKSON COUNTY LAKE PROJECT**

1.0 Methodology

After reviewing the Kentucky 1989-1994 and 1995-1999 Statewide Comprehensive Outdoor Recreation Plans (SCORP), and a literature review of other methods of determining recreation needs, the methodology used in the 1989-1994 SCORP was adopted to determine the recreation needs in the study area of the Jackson County Lake Project. The 1989-1994 SCORP analysis was modified using the updated recreation facility inventory data and the participation results from the 1993 statewide survey. This methodology was developed through consultation with the Kentucky Department of Local Government, which is responsible for SCORP studies.

1.1 Study Area

The recreation study area for the proposed Jackson County Lake Project is 75 miles in radius around Jackson County, encompassing 52 counties in Kentucky, 4 counties in Tennessee, and 2 counties in Virginia. This study area is very similar to the smaller of the two areas defined in the 1997 National Survey on Recreation and the Environment, Daniel Boone National Forest. Because the facility inventory and population projection data were unavailable for Tennessee and Virginia, the six marginal counties were excluded from the study area. Thus, only the 52 counties in Kentucky are included in the following analysis.

1.2 Recreational Activities

The recreational activities considered in this study are primarily water-related, along with other activities that typically occur around lakes. After considering the SCORPs, survey data, and the available facility inventory data, the list of activities and the corresponding units were narrowed down to the following:

<u>Activity</u>	<u>(Unit)</u>	<u>Activity</u>	<u>(Unit)</u>
Camping	(sites)	Boating	(acres)
Picnicking	(tables)	Water Skiing	(acres)
Hiking	(miles)	Canoeing	(miles)
Fishing	(acres)	Swimming	(sq. ft.)

1.3 DEMAND INPUT VARIABLES

The input variables for the recreation demand calculation were based on the 1989-1994 SCORP methodology. The data were updated for Available Facilities and Annual Participation Rate, and the calculations were done as follows:

(A) Available Facilities: The available facilities data were updated with the latest facility inventory data from the KY Department of Local Government. The data output were compiled for the 52 Kentucky counties in study area for the eight activities listed above with the corresponding units.

(B) Annual Facility Capacities Per Unit: The standards provided by Department of Local Government in the 1989-1994 SCORP were used for this analysis.

$$(C) \text{ Total Annual Facility Capacities} = \text{Available Facilities (A)} \times \text{Annual Facility Capacities Per Unit (B)}$$

(D) Annual Participation Rate: The annual participation rate from the 1984 recreation study were updated using the 1993 recreation survey results. The weighed average of the survey response on the number of times a person participated in each activity was calculated to represent the annual participation rate. For example, a hypothetical calculation for tent camping may include:

	Number of Times Annually									
	0	1	2	3	4	5	6	7	8	9
% All Response	75	2	3	5	7	3	3	2	1	0

$$\text{Ann. Part. Rate} = 0(.75) + 1(.02) + 2(.03) + 3(.05) + 4(.07) + 5(.03) + 6(.03) + 7(.02) + 8(.01) + 9(0) = 1.06$$

$$(E) \text{ Total Annual Participation Occasions} = \text{Annual Participation Rate (D)} \times \text{Population}$$

$$(F) \text{ Use Ratio} = \frac{\text{Total Annual Participation Occasions (E)}}{\text{Total Annual Facility Capacities (C)}}$$

1.4 Demand and Need Calculations

The recreational demand and need of the study area were calculated using the following equations:

$$\text{Demand} = \text{Use Ratio (F)} \times \text{Available Facilities (A)}$$

$$\text{Need} = \text{Demand} - \text{Available Facilities (A)}$$

Demand and need projections were made using the population projection data from the Kentucky Population Research (KPR) for the 52 counties in the study area. Projections of recreational needs were made into the year 2020 under baseline, moderate, and high growth scenarios.

2.0 Results and Discussion

Compilation of facility inventory data from the 52 counties in study area is presented in Attachment 1. Because the inventory data differ in category and units between the 1989 and current data (e.g., boating acres vs. boating lanes), no calculations could be done for boating, water skiing, and canoeing. Calculation of participation rates using the 1993 survey data is

presented in Attachment 2. Calculations of projected needs under baseline, moderate, and high growth scenarios are presented in Attachment 3. Population projection data used in the needs calculation is presented in Attachment 4. Table 1 summarizes the results of the recreational need calculations.

Table 1. Projected Recreational Needs under Baseline Growth

Activity (Unit)	1989 Needs (SCORP)	Projected Recreational Needs		
		2000	2010	2020
Tent Camping (sites)	3,284	9,678	9,666	9,506
Picnicking (tables)	6,907	24,004	23,969	23,517
Hiking/walking (miles)	283	15,753	15,735	15,503
Fishing (acres)	0	63,334	63,267	62,266
Boating (lanes)	NA	NA	NA	NA
Swimming (100 sq. ft.)	7,467	23,013	22,984	22,602

As shown by the results, the calculated needs are exceedingly high when compared to the 1989 SCORP analysis. This is due in part to the inconsistency between the 1989 and the current inventory (e.g., available fishing acres statewide for the 1989 SCORP is 388,982, compared to 212,444 acres in the current inventory). Comparison between the two data sets is also limited because some activities were categorized differently, and the units were also different.

In addition, the participation rates calculated from the 1993 survey were much higher than the 1989 data (e.g., for fishing, it is 4.37 days per individual in the 1989 SCORP, compared to 12.37 days per individual from the 1993 survey). The 1993 survey data may not be a reliable indication of participation rate because of the small sample size. Because of the two inventory data sets are incompatible and the 1993 survey results are unreliable, no further update of the 1989 SCORP was done. The results of the calculations were reviewed by the Kentucky Department of Local Government, which concurred that this update may not be feasible (see Attachment 5).

Attachment 1

Recreation Facility Inventory Data (Source: KY Department of Local Government, June 22, 1998)

County	Tent Camp (sites)	Picnicking (tables)	Hiking Trail (miles)	Fishing (acres)	Boat Ramp (lanes)	Swimming (sq ft)
Adair	126	60	1	4	7	4100
Anderson	12	35	1	178	2	6500
Bath	20	43	1	5	2	3915
Bell	0	162	9	327	0	10125
Bourbon	0	108	0	3	2	0
Boyle	60	209	1	6	3	1008
Breathitt	0	15	1	81	1	0
Casey	0	22	0.1	85	1	3200
Clark	0	91	15	30	43	6689
Clay	0	65	1	46	0	3550
Elliot	0	0	0	0	0	3200
Estill	0	16	4	9	2	8025
Fayette	10	409	9	11	2	72454
Fleming	100	54	0	77	0	3696
Floyd	100	340	7.2	1100	2	13680
Franklin	0	533	8.6	9	2	15763
Garrard	25	83	2	18	7	0
Harlan	5	156	9	379	1	11399
Harrison	0	58	0	115	1	2800
Jackson	2	55	35	98	2	600
Jessamin	0	71	0.5	11	2	0
Johnson	0	12	0	0	4	9062
Knott	34	65	14.4	713	4	6350
Knox	0	100	0	8	0	3950
Laurel	71	233	15.5	1004	5	11700
Lee	23	47	19	8.5	3	4125
Leslie	28	72	0	41	2	3652
Letcher	0	99	22	60	3	6975
Lincoln	0	64	0	81	1	0
Madison	0	546	29	210	0	9200
Magoffin	0	18	0	0	0	0
Marion	10	71	1	40	1	1860
McCreary	10	77	31	0	1	4700
Menifee	0	35	0	0	1	4036
Mercer	20	155	0	13	8	7876
Montgomery	0	48	0	74	1	6750
Morgan	0	9	0	0	0	4050
Nicholas	0	24	4	169	1	3465
Owsley	0	38	0	3	0	0
Perry	66	281	11	8	4	7512
Powell	0	338	11	46	0	8800
Pulaski	94	438	3.5	15	10	12001
Rockcastle	100	75	2	403	1	4418
Rowan	40	178	10.6	88	4	7806
Russell	254	542	9	0	14	5700
Scott	50	87	1	61	0	8170
Taylor	80	473	0	85	9	5000
Washington	0	98	11	198	2	2600
Wayne	10	82	3.5	35	8	3200
Whitley	47	315	18	63	4	18257
Wolfe	0	36	39	0	0	0
Woodford	1	116	6	2	2	1950

TOTAL	1396	7357	333.9	020.5	175	343869
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Attachment 2

Annual Participation Rate Calculation (Fall 1993 Survey Data)

Swimming		
#times/yr	Percent	Wt. AVG
0	46.4	0
1	1.1	0.011
2	3.1	0.062
3	1.2	0.036
4	1.5	0.06
5	4.6	0.23
6	1.7	0.102
7	0.8	0.056
8	0.5	0.04
9	0.2	0.018
10	6.4	0.64
12	1.7	0.204
14	0.9	0.126
15	3.4	0.51
16	0.3	0.048
20	3.8	0.76
25	1.8	0.45
30	5.3	1.59
35	0.3	0.105
36	0.2	0.072
40	1.4	0.56
45	1.1	0.495
50	2.7	1.35
52	0.3	0.156
55	0.2	0.11
60	2.6	1.56
62	0.2	0.124
70	0.3	0.21
75	0.3	0.225
80	0.3	0.24
90	1.7	1.53
95	0.2	0.19
100	1.1	1.1
120	0.5	0.6
122	0.2	0.244
150	0.3	0.45
200	0.6	1.2
300	0.2	0.6
350	0.2	0.7
360	0.2	0.72
365	0.2	0.73
Total		18.214

Picnicking		
#times/yr	Percent	Wt. AVG
0	22.3	0
1	4.6	0.046
2	9.9	0.198
3	5.2	0.156
4	5.3	0.212
5	9.3	0.465
6	3.8	0.228
7	2.3	0.161
8	0.6	0.048
10	10.5	1.05
12	2.9	0.348
13	0.2	0.026
14	1.1	0.154
15	3.5	0.525
16	0.3	0.048
18	0.2	0.036
20	5.6	1.12
24	0.3	0.072
25	1.7	0.425
30	4	1.2
35	0.3	0.105
36	0.2	0.072
40	1.1	0.44
45	0.2	0.09
48	0.2	0.096
50	0.9	0.45
52	0.3	0.156
55	0.2	0.11
60	0.5	0.3
65	0.2	0.13
70	0.2	0.14
75	0.2	0.15
90	0.3	0.27
100	0.6	0.6
120	0.3	0.36
200	0.2	0.4
300	0.2	0.6
Total		10.987

Hiking/walking		
#times/yr	Percent	Wt. AVG
0	21.2	0
1	0.6	0.006
2	1.4	0.028
3	1.8	0.054
4	1.2	0.048
5	4	0.2
6	1.5	0.09
7	0.8	0.056
8	0.6	0.048
9	0.2	0.018
10	6	0.6
12	0.2	0.024
14	0.2	0.028
15	2	0.3
17	0.2	0.034
20	5	1
21	0.2	0.042
24	0.5	0.12
25	2.4	0.6
30	4.9	1.47
32	0.2	0.064
35	0.5	0.175
40	2	0.8
45	0.2	0.09
48	0.2	0.096
50	6	3
52	0.5	0.26
60	2.1	1.26
62	0.2	0.124
65	0.2	0.13
70	0.6	0.42
75	0.8	0.6
80	0.3	0.24
90	2.1	1.89
100	6.1	6.1
104	0.2	0.208
120	0.5	0.6
125	0.2	0.25
150	2	3
160	0.3	0.48
165	0.2	0.33
175	0.2	0.35
180	1.1	1.98
200	3.4	6.8
250	1.7	4.25
300	3.5	10.5

310	0.2	0.62
325	0.2	0.65
330	0.9	2.97
352	0.2	0.704
360	0.3	1.08
365	7.6	27.74
Total		82.527

Tent camping			Fishing			Boating		
#times/yr	Percent	Wt. AVG	#times/yr	Percent	Wt. AVG	#times/yr	Percent	Wt. AVG
0	74	0	0	54.5	0	0	65	0
1	2.3	0.023	1	1.8	0.018	1	3.2	0.032
2	3.5	0.07	2	4.7	0.094	2	4.1	0.082
3	2.6	0.078	3	2.1	0.063	3	2.3	0.069
4	1.5	0.06	4	1.7	0.068	4	1.8	0.072
5	3.2	0.16	5	4.3	0.215	5	2.7	0.135
6	0.6	0.036	6	1.1	0.066	6	0.9	0.054
7	1.5	0.105	7	1.1	0.077	7	0.6	0.042
8	0.8	0.064	8	0.9	0.072	8	0.5	0.04
9	0.2	0.018	10	4.6	0.46	10	4	0.4
10	2.6	0.26	11	0.2	0.022	12	0.5	0.06
12	0.9	0.108	12	1.2	0.144	14	0.6	0.084
14	0.6	0.084	14	0.8	0.112	15	2	0.3
15	1.1	0.165	15	1.5	0.225	20	1.8	0.36
20	1.2	0.24	17	0.2	0.034	1.4	0	
25	0.6	0.15	20	4.4	0.88	2.6	0	
30	1.2	0.36	21	0.2	0.042	0.2	0	
40	0.2	0.08	25	1.4	0.35	0.2	0	
50	0.2	0.1	27	0.2	0.054	0.9	0	
60	0.6	0.36	30	3.4	1.02	0.2	0	
150	0.2	0.3	35	0.6	0.21	0.8	0	
Total		2.821	40	1.7	0.68	0.2	0	
			45	0.2	0.09	1.1	0	
			50	1.1	0.55	1.1	0	
			52	0.3	0.156	0.5	0	
			60	1.5	0.9	0.2	0	
			75	0.9	0.675	0.3	0	
			80	0.2	0.16	0.2	0	
			90	0.9	0.81	Total		
			100	0.5	0.5			
			110	0.2	0.22			
			115	0.2	0.23			
			120	0.5	0.6			
			150	0.5	0.75			
			200	0.2	0.4			
			353	0.2	0.706			
			360	0.2	0.72			
			Total		12.373			

Attachment 3

Recreation Needs Calculation (Baseline Growth)

Year 2000

Activity	Available Facility	Ann Facil Cap / Unit	Total Ann Facil Cap	Ann Partic Rate	Population	Total Ann Partic Occ	Use Ratio	Demand	Need
Tent Camping (sites)	1396	327	4.56E+05	2.82	1284109	3.62E+06	7.93	11074	9678
Picnicking (tables)	7357	450	3.31E+06	10.99	1284109	1.41E+07	4.26	31361	24004
Hiking/walking (miles)	333.9	6588	2.20E+06	82.53	1284109	1.06E+08	48.18	16086	15753
Fishing (acres)	6020.5	229	1.38E+06	12.37	1284109	1.59E+07	11.52	69364	63344
Boating (lanes)	175	???		???	1284109				
Swimming (100 sqft)	3438.69	884	3.04E+06	18.21	1284109	2.34E+07	7.69	26452	23013

Year 2010

Activity	Available Facility	Ann Facil Cap / Unit	Total Ann Facil Cap	Ann Partic Rate	Population	Total Ann Partic Occ	Use Ratio	Demand	Need
Tent Camping (sites)	1396	327	4.56E+05	2.82	1282682	3.62E+06	7.92	11062	9666
Picnicking (tables)	7357	450	3.31E+06	10.99	1282682	1.41E+07	4.26	31326	23969
Hiking/walking (miles)	333.9	6588	2.20E+06	82.53	1282682	1.06E+08	48.12	16069	15735
Fishing (acres)	6020.5	229	1.38E+06	12.37	1282682	1.59E+07	11.51	69287	63267
Boating (lanes)	175	???		???	1282682				
Swimming (100 sqft)	3438.69	884	3.04E+06	18.21	1282682	2.34E+07	7.68	26423	22984

Year 2020

Activity	Available Facility	Ann Facil Cap / Unit	Total Ann Facil Cap	Ann Partic Rate	Population	Total Ann Partic Occ	Use Ratio	Demand	Need
Tent Camping (sites)	1396	327	4.56E+05	2.82	1264161	3.56E+06	7.81	10902	9506
Picnicking (tables)	7357	450	3.31E+06	10.99	1264161	1.39E+07	4.20	30874	23517
Hiking/walking (miles)	333.9	6588	2.20E+06	82.53	1264161	1.04E+08	47.43	15837	15503
Fishing (acres)	6020.5	229	1.38E+06	12.37	1264161	1.56E+07	11.34	68287	62266
Boating (lanes)	175	???		???	1264161				
Swimming (100 sqft)	3438.69	884	3.04E+06	18.21	1264161	2.30E+07	7.57	26041	22602

Attachment 4. Population Projections for 52 Kentucky Counties in the Study Area

Source: "Population and Household Projections," Kentucky Population Research, University of Louisville.

County	Baseline Growth Series			Moderate Growth Series			High Growth Series		
	2000	2010	2020	2000	2010	2020	2000	2010	2020
Adair	15,370	15,174	14,921	15,690	15,777	15,667	17,170	18,425	19,515
Anderson	17,252	19,318	20,783	17,319	19,455	20,991	19,375	22,917	26,394
Bath	9,281	8,868	8,523	9,623	9,510	9,368	10,594	11,177	11,565
Bell	28,118	25,518	23,311	30,751	29,853	28,798	30,720	30,467	29,762
Bourbon	19,532	19,762	19,958	19,976	20,500	20,900	20,303	21,612	22,676
Boyle	25,041	24,222	23,189	25,703	25,208	24,991	27,202	27,821	27,926
Breathitt	14,778	13,940	13,172	15,756	15,638	15,333	15,654	15,926	15,911
Casey	13,315	12,550	11,826	13,950	13,659	13,278	15,257	16,199	16,795
Clark	30,055	30,013	29,485	30,558	30,967	30,774	31,798	33,279	34,264
Clay	20,125	19,122	18,200	21,851	22,087	22,051	23,703	24,712	24,770
Elliott	6,689	6,947	7,352	7,155	7,803	8,542	7,281	8,451	9,661
Estill	14,417	14,121	13,665	14,863	14,927	14,749	16,297	16,954	17,163
Fayette	236,322	242,602	241,406	244,713	257,621	261,936	260,861	290,000	317,032
Fleming	12,143	11,896	11,657	12,396	12,374	12,290	13,849	15,059	16,110
Floyd	38,082	34,483	31,739	42,570	41,741	40,743	45,901	48,066	49,160
Franklin	44,972	45,254	44,663	45,672	46,554	46,466	47,494	49,108	49,901
Garrard	12,613	13,329	13,772	12,677	13,443	13,927	13,775	14,998	16,100
Harlan	31,677	28,247	25,566	35,491	34,525	33,449	36,312	36,256	35,557
Harrison	17,413	18,269	18,751	17,596	18,623	19,246	17,908	19,227	20,300
Jackson	11,920	11,867	11,787	12,316	12,560	12,682	13,689	15,069	16,214
Jessamine	35,124	38,471	40,389	35,277	38,756	40,828	38,075	43,761	48,984
Johnson	21,520	20,089	18,650	23,073	22,715	21,993	25,532	27,169	27,976
Knott	17,702	17,472	17,053	18,436	18,769	18,713	19,810	21,682	22,974
Knox	28,453	27,476	26,527	30,000	30,164	30,074	33,802	36,905	39,384
Laurel	47,733	50,665	51,874	48,229	51,588	53,114	51,709	56,791	60,670
Lee	7,084	6,914	6,740	7,386	7,431	7,384	8,075	8,490	8,718
Leslie	12,297	11,364	10,611	13,659	13,637	13,472	14,903	16,083	16,795
Letcher	23,396	20,922	18,902	26,203	25,445	24,478	28,726	30,344	30,929
Lincoln	21,548	22,453	22,996	21,814	22,953	23,672	22,677	24,375	25,854
Madison	64,335	69,204	72,454	64,837	70,111	73,773	67,802	74,475	79,965
Magoffin	12,103	11,468	10,856	13,197	13,270	13,180	14,256	14,880	14,999
Marion	14,605	13,251	12,200	16,045	15,700	15,318	17,053	17,626	17,814
McCreary	15,475	15,271	14,847	16,366	16,819	16,969	17,214	18,522	19,551
Menifee	4,982	4,828	4,648	5,155	5,147	5,063	5,478	5,759	5,961
Mercer	19,014	18,627	18,101	19,509	19,547	19,378	20,951	22,117	22,925
Montgomery	18,777	17,985	17,226	19,719	19,630	19,335	21,057	21,619	21,764
Morgan	10,985	10,434	9,975	11,697	11,691	11,599	14,220	15,294	16,106
Nicholas	6,218	5,780	5,390	6,551	6,361	6,146	1,220	7,548	7,747

Owsley	4,236	3,706	3,311	4,722	4,482	4,258	5,624	5,842	5,958
Perry	26,310	23,495	21,064	29,796	29,170	28,233	32,414	33,623	33,998
Powell	12,157	12,534	12,702	12,480	13,117	13,499	13,423	15,032	16,240
Pulaski	52,823	54,154	53,963	53,459	55,373	55,641	58,552	63,545	67,009
Rockcastle	15,588	16,053	16,166	15,790	16,410	16,637	16,321	17,552	18,480
Rowan	20,855	20,893	20,736	21,540	22,096	22,364	23,190	25,298	27,188
Russell	15,874	16,492	16,598	16,074	16,889	17,168	17,066	18,520	19,926
Scott	26,169	27,829	28,841	26,460	28,405	29,662	29,558	33,016	35,856
Taylor	20,903	20,479	20,070	21,421	21,419	21,283	23,851	25,462	26,668
Washington	10,171	9,852	9,549	10,478	10,416	10,281	10,846	11,221	11,457
Wayne	17,504	17,321	16,872	18,019	18,246	18,112	19,391	20,690	21,626
Whitley	32,299	31,390	30,300	33,807	34,058	33,950	37,257	40,460	43,452
Wolfe	6,094	5,787	5,387	6,525	6,534	6,375	7,832	8,775	9,536
Woodford	22,660	24,521	25,437	23,016	25,243	26,493	23,413	25,992	28,045
SUM	1,284,109	1,282,682	1,264,161	1,337,366	1,374,417	1,384,626	1,426,441	1,544,191	1,631,331

APPENDIX B

Appendix B – Population Projections for Counties within the Six ADDs in the Study Area

County	Baseline Growth Series*			Moderate Growth Series**			High Growth Series***		
	2000	2010	2020	2000	2010	2020	2000	2010	2020
Adair	15,370	15,174	14,921	15,690	15,777	15,667	17,170	18,425	19,515
Anderson	17,252	19,318	20,783	17,319	19,455	20,991	19,375	22,917	26,394
Bath	9,281	8,868	8,523	9,623	9,510	9,368	10,594	11,177	11,565
Bell	28,118	25,518	23,311	30,751	29,853	28,798	30,720	30,467	29,762
Bourbon	19,532	19,762	19,958	19,976	20,500	20,900	20,303	21,612	22,676
Boyle	25,041	24,222	23,189	25,703	25,208	24,991	27,202	27,821	27,926
Breathitt	14,778	13,940	13,172	15,756	15,638	15,333	15,654	15,926	15,911
Casey	13,315	12,550	11,826	13,950	13,659	13,278	15,257	16,199	16,795
Clark	30,055	30,013	29,485	30,558	30,967	30,774	31,798	33,279	34,264
Clay	20,125	19,122	18,200	21,851	22,087	22,051	23,703	24,712	24,770
Clinton	8,809	8,478	8,104	9,134	9,059	8,869	9,531	9,740	9,797
Cumberland	6,299	5,885	5,590	6,581	6,396	6,256	6,842	6,817	6,742
Estill	14,417	14,121	13,665	14,863	14,927	14,749	16,297	16,954	17,163
Fayette	236,322	242,602	241,406	244,713	257,621	261,936	260,861	290,000	317,032
Floyd	38,082	34,483	31,739	42,570	41,741	40,743	45,901	48,066	49,160
Franklin	44,972	45,254	44,663	45,672	46,554	46,466	47,494	49,108	49,901
Garrard	12,613	13,329	13,772	12,677	13,443	13,927	13,775	14,998	16,100
Green	9,593	8,899	8,375	10,006	9,623	9,266	10,401	10,304	10,176
Harlan	31,677	28,247	25,566	35,491	34,525	33,449	36,312	36,256	35,557
Harrison	17,413	18,269	18,751	17,596	18,623	19,246	17,908	19,227	20,300
Jackson	11,920	11,867	11,787	12,316	12,560	12,682	13,689	15,069	16,214
Jessamine	35,124	38,471	40,389	35,277	38,756	40,828	38,075	43,761	48,984
Johnson	21,520	20,089	18,650	23,073	22,715	21,993	25,532	27,169	27,976
Knott	17,702	17,472	17,053	18,436	18,769	18,713	19,810	21,682	22,974
Knox	28,453	27,476	26,527	30,000	30,164	30,074	33,802	36,905	39,384
Laurel	47,733	50,665	51,874	48,229	51,588	53,114	51,709	56,791	60,670
Lee	7,084	6,914	6,740	7,386	7,431	7,384	8,075	8,490	8,718
Leslie	12,297	11,364	10,611	13,659	13,637	13,472	14,903	16,083	16,795
Letcher	23,396	20,922	18,902	26,203	25,445	24,478	28,726	30,344	30,929
Lincoln	21,548	22,453	22,996	21,814	22,953	23,672	22,677	24,375	25,854
Madison	64,335	69,204	72,454	64,837	70,111	73,773	67,802	74,475	79,965
Martin	11,082	10,108	9,339	12,548	12,538	12,384	13,547	14,224	14,443
Magoffin	12,103	11,468	10,856	13,197	13,270	13,180	14,256	14,880	14,999
McCreary	15,475	15,271	14,847	16,366	16,819	16,969	17,214	18,522	19,551
Menifee	4,982	4,828	4,648	5,155	5,147	5,063	5,478	5,759	5,961
Mercer	19,014	18,627	18,101	19,509	19,547	19,378	20,951	22,117	22,925

Montgomery	18,777	17,985	17,226	19,719	19,630	19,335	21,057	21,619	21,764
Morgan	10,985	10,434	9,975	11,697	11,691	11,599	14,220	15,294	16,106
Nicholas	6,218	5,780	5,390	6,551	6,361	6,146	1,220	7,548	7,747
Owsley	4,236	3,706	3,311	4,722	4,482	4,258	5,624	5,842	5,958
Perry	26,310	23,495	21,064	29,796	29,170	28,233	32,414	33,623	33,998
Pike	63,086	55,952	49,869	70,252	67,365	63,660	74,783	74,262	71,125
Powell	12,157	12,534	12,702	12,480	13,117	13,499	13,423	15,032	16,240
Pulaski	52,823	54,154	53,963	53,459	55,373	55,641	58,552	63,545	67,009
Rockcastle	15,588	16,053	16,166	15,790	16,410	16,637	16,321	17,552	18,480
Rowan	20,855	20,893	20,736	21,540	22,096	22,364	23,190	25,298	27,188
Russell	15,874	16,492	16,598	16,074	16,889	17,168	17,066	18,520	19,926
Scott	26,169	27,829	28,841	26,460	28,405	29,662	29,558	33,016	35,856
Taylor	20,903	20,479	20,070	21,421	21,419	21,283	23,851	25,462	26,668
Wayne	17,504	17,321	16,872	18,019	18,246	18,112	19,391	20,690	21,626
Whitley	32,299	31,390	30,300	33,807	34,058	33,950	37,257	40,460	43,452
Wolfe	6,094	5,787	5,387	6,525	6,534	6,375	7,832	8,775	9,536
Woodford	22,660	24,521	25,437	23,016	25,243	26,493	23,413	25,992	28,045
SUM	1,339,370	1,330,058	1,304,680	1,399,813	1,433,105	1,438,630	1,492,516	1,607,181	1,688,572

*Baseline Growth projections used 1990 census as a starting point, and assumed continued annual average net migration based on migration data from 1980-1989

**Moderate Growth projections used 1990 census as a starting point, with reduction of rates of net out migration from baseline projections, maintenance of net immigration rates

***High Growth projections used 1994 estimates as a starting point and derived migration assumptions from the 1990 to 1994 period, assuming survivorship and life expectancy would increase in the future

Source: "Population and Household Projections," Kentucky Population Research, University of Louisville.

[Http://www.louisville.edu/cbpa/kpr](http://www.louisville.edu/cbpa/kpr)

APPENDIX C

Appendix C - Projected Future Demands and Needs Based on 1989 SCORP Analysis

BASELINE GROWTH

Activity	Units	1989 Supply	1989 Demand	1989 Need	2000 Demand	2000 need	2010 Demand	2010 need	2020 Demand	2020 need
Camping	Sites	4780	8064	3284	7581	2801	7529	2749	7385	260
Picnicking	Tables	6907	8704	1797	8183	1276	8126	1219	7971	106
Hiking	Miles	283	335	52	315	32	313	30	307	2
Fishing	Acres	93643	26886	-66757	25277	-68366	25101	-68542	24622	-6902
Boating	Acres	91679	21808	-69871	20503	-71176	20360	-71319	19972	-7170
Water Skiing	Acres	65060	29268	-35792	27516	-37544	27325	-37735	26804	-3825
Canoeing	Miles	1954	108	-1846	102	-1852	101	-1853	99	-185
Swimming	100 sq. ft.	4427	11894	7467	11182	6755	11104	6677	10893	646

MODERATE GROWTH

Activity	Units	1989 Supply	1989 Demand	1989 Need	2000 Demand	2000 need	2010 Demand	2010 need	2020 Demand	2020 need
Camping	Sites	4780	8064	3284	7924	3144	8112	3332	8143	336
Picnicking	Tables	6907	8704	1797	8552	1645	8756	1849	8790	188
Hiking	Miles	283	335	52	329	46	337	54	338	5
Fishing	Acres	93643	26886	-66757	26418	-67225	27046	-66597	27150	-6649
Boating	Acres	91679	21808	-69871	21428	-70251	21938	-69741	22022	-6965
Water Skiing	Acres	65060	29268	-35792	28758	-36302	29442	-35618	29556	-3550
Canoeing	Miles	1954	108	-1846	106	-1848	109	-1845	109	-184
Swimming	100 sq. ft.	4427	11894	7467	11687	7260	11965	7538	12011	758

HIGH GROWTH

Activity	Units	1989 Supply	1989 Demand	1989 Need	2000 Demand	2000 need	2010 Demand	2010 need	2020 Demand	2020 need
Camping	Sites	4780	8064	3284	8448	3668	9097	4317	9558	477
Picnicking	Tables	6907	8704	1797	9119	2212	9819	2912	10317	341
Hiking	Miles	283	335	52	351	68	378	95	397	11
Fishing	Acres	93643	26886	-66757	28167	-65476	30331	-63312	31867	-6177
Boating	Acres	91679	21808	-69871	22847	-68832	24603	-67076	25848	-6583
Water Skiing	Acres	65060	29268	-35792	30663	-34397	33018	-32042	34691	-3036
Canoeing	Miles	1954	108	-1846	113	-1841	122	-1832	128	-182
Swimming	100 sq. ft.	4427	11894	7467	12461	8034	13418	8991	14098	967

APPENDIX D

APPENDIX D - RECREATIONAL USE DATA*

Name	Surface area	Miles from Jackson Co.	1997 Visitor Hours	1997 Visitors	1997 Visitor days	1997 Meals served	1997 Overnight Guests	1997 Campers (Apr-Oct)	1997 Participation days	1996 Partic. days
Kingdom Come Lake	3.5	60							56,689	39,227
Mill Creek Lake	41	24				102,543	27,927	57% 20,521	326,169	337,249
Martins Fork Lake	340	58	400,000	200,000						
Carr Fork Lake	750	55	1,521,300	544,300			2,309	17% 3,921	6,921	7,831
Dewey Lake	1,100	72	2,827,646	831,378	235,643	69,769	23,216	31% 23,061	244,586	307,274
Paintsville Lake	1,140	65	2,497,341	832,445	208,117					
Buckhorn Lake	1,230	30	1,434,200	282,600		37,123	6,549		127,541	98,181
Laurel River Lake	5,600	32	800,000	300,000						
Green River Lake	8,200	70	9,997,100	943,700			25,411	58% 58,775	89,384	86,617
**Cave Run Lake	8,270	53	1,238,600	540,700						
Lake Cumberland	50,250	67	76,400,000	4,900,000		112,473	37,314	23% 22,347	492,232	615,428

APPENDIX E

Appendix E - Lakes Within a 75-mile Radius of the Proposed Jackson County Lake

Name	Surface Area (Acres)	Location (County)	Distance/ Direction from Jackson (miles)	≤ 2 Hour Driving Distance	Water-Related Recreational Activities	Current Capacity (%)*
Beulah/Tyner Lake	87	Jackson	5	Yes	Boating (no motors), canoeing, fishing	NA
Wood Creek Lake	672	Laurel	17 / S	Yes	Launching, boat dock, canoeing, kayaking	NA
Bert Combs Lake	36	Clay	19 / SE	Yes	Boating (no motors), fishing, launching ramp (only facility available)	NA
Lake Linville	274	Rockcastle	20 / W	Yes	Launching ramp, boat dock	NA
Taylor Valley Lake/ Wilgreen	169	Madison	24 / NW	Yes	Boat and motor rental (electric motors only), boat ramp, dock	NA
Mill Creek Lake	41	Wolfe/ Powell	24 / NE	Yes	Boat dock, boating (motors allowed)	57
Cedar Creek Lake (Proposed)	784	Lincoln	30 / W	Yes	Boating, pontoons, swimming	NA
Buckhorn Lake	1,230	Perry/ Leslie	30 / SE	Yes	Boating, fishing, swimming	NA
Laurel River Lake	5,600	Whitley/ Laurel	32 / S	Yes	Boating (houseboats), fishing, swimming, scuba diving, snorkeling	NA
Campton Lake	26	WOLFE	35 / NE	Yes	Boating (electric motors only), fishing, launching ramp (only facility available)	NA
Pan Bowl Lake	98	Breathitt	35 / E	Yes	Boating, launching ramp, fishing	NA
Stanford Reservoir	43	Lincoln	37 / W	Yes	Fishing; no boat ramp	NA
Herrington Lake	1,860	Boyle/ Garrard/ Mercer	45 / NW	Yes	Boating, fishing	NA
Cannon Creek Lake	243	Bell	50 / SE	No	Boating, fishing, launching area (only facility available)	NA

Chenoa Lake	37	Bell	50 / SE	No	Fishing, swimming	NA
Cave Run Lake	8,270	Bath/ Morgan/ Rowan/ Menifee	53 / NE	No	Boating, sailing, fishing, swimming, water skiing	NA
Carr Fork Lake	750	Knott	55 / E	No	Boating, fishing, swimming	17
Martins Fork Lake	340	Harlan	58 / SE	No	Boating, fishing, swimming, canoeing, water sports	NA
Kingdom Come Lake	3.5	Harlan	60 / SE	No	Pedal boats (no motors, no boats), fishing, swimming	NA
Cranks Creek/ Herb Smith Lake	219	Harlan	62 / SE	No	Launching ramp, boating (10 hp), fishing	NA
Lake Carnico	114	NICHOLAS	63 / N	No	Boating, fishing, swimming	NA
Paintsville Lake	1,140	Morgan/ Johnson	65 / NE	No	Boating (pedal, pontoons, houseboats), fishing, swimming, water sports	NA
Lake Cumberland	50,250	Russell/ Wayne/ Clinton/ Pulaski/ McCreary/ Laurel	67 / SW	No	Boating (open slips, pontoons, ski boats, houseboats), canoeing, fishing, swimming	23
Spurlington Lake	36	Taylor	67 / W	No	Boating, fishing	NA
Willisburg Lake	126	WASHINGTON	68 / NW	No	Boating, fishing	NA
Beaver Lake	158	Anderson	68 / NW	No	Privately owned dock with boats and motors	NA
Marion County Lake	21	MARION	69 / W	No	Boating, fishing	NA
Green River Lake	8,200	Taylor/ Adair	70 / W	No	Boating (pontoons & ski boats), fishing, canoeing, jet skiing, swimming	58
Dewey Lake	1,100	Floyd	72 / E	No	Boating (open slips, pontoons, houseboats), fishing, swimming, water sports	31
Fishpond/ Payne Gap Lake	32	Letcher	72 / SE	No	Boating, fishing (no swimming allowed)	NA
Norris Lake	34,200	Anderson (Tennessee)	72 / S	No	Boating (houseboats, pontoons), fishing, swimming, water skiing, jet skiing, scuba diving	NA

* Camping area occupancy rate (April – October, 1997)

APPENDIX F

Appendix F – Correlation of Usage with Population and Road Access

Name	Size (Acres)	MILES FROM Jackson County	1997 Visitor hours	1997 Participant days	County and population	Immediately Surrounding counties	Combined pop. of surrounding counties	Approximate pop. density of surrounding counties (people per square mile)	Roads within 10 miles of the study area	
									Prim.	Sec.
Kingdom Come Lake	3.5	60	NA	56,689	Harlan-35,411	Bell, Leslie, Perry, Letcher	101,659	70	1	5
Mill Creek Lake	41	24	NA	326,169	Wolfe / Powell-19,772	Clark, Montgomery, Menifee, Morgan, Magoffin, Breathitt, Lee, Estill, Madison	188,104	68	4	7
Martins Fork Lake	340	58	400,000	NA	Harlan-35,411	Bell, Leslie, Perry, Letcher	101,659	70	3	2
Carr Fork Lake	750	55	1,521,300	6,921	Knott-18,214	Magoffin, Floyd, Pike, Letcher, Perry, Breathitt	204,520	77	2	10
Dewey Lake	1,100	72	2,827,646	244,586	Floyd-43,744	Magoffin, Johnson, Martin, Pike, Knott	142,212	73	5	5
Paintsville Lake	1,140	65	2,497,341	NA	Morgan / Johnson-44,639	Menifee, Elliot, Rowan, Lawrence, Martin, Floyd, Magoffin, Wolfe	126,872	55	4	10
Buckhorn Lake	1,230	30	1,434,200	127,541	Perry / Leslie-44,722	Clay, Owsley, Breathitt, Knott, Letcher, Harlan, Bell	154,419	58	4	5
Laurel River Lake	5,600	32	800,000	NA	Whitley / Laurel-84,853	McCreary, Pulaski, Rockcastle, Jackson, Clay, Knox, Bell	184,550	62	4	7

Green River Lake	8,200	70	9,997,100	89,384	Taylor / Adair-39,172	Russell, Cumberland, Metcalfe, Green, Larue, Marion, Casey	87,602	40	3	7
Cave Run Lake	8,270	53	1,238,600	NA	Bath / Morgan / Rowan / Menifee-57,886	Powell, Montgomery, Bourbon, Nicholas, Fleming, Lewis, Carter, Elliot, Lawrence, Johnson, Magoffin, Wolfe	172,341	48	5	8
Lake Cumberland	50,250	67	76,400,000	492,232	Russell / Wayne / Clinton / Pulaski / McCreary Laurel-165,206	Whitley, Knox, Clay, Jackson, Rockcastle, Lincoln, Casey, Adair, Cumberland	178,107	51	4	11
Jackson County Lake	Unknown	0	NA	NA	Jackson-12,829	Madison, Estill, Lee, Owsley, Clay, Laurel, Rockcastle	182,539	79	3	4