SOUTH CAROLINA ELECTRIC & GAS COMPANY

COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

FERC NO. 516

RECREATION ASSESSMENT STUDY REPORT

FINAL

APRIL 2007

Prepared By:

Kleinschmidt

Energy & Water Resource Consultants

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1.0 INTRODUCTION

Lake Murray and the lower Saluda River (LSR) are located in Richland, Lexington, Saluda, and Newberry counties, which comprise the Capital City/Lake Murray Country tourism region. The region includes portions of the Sumter National Forest, Sesquicentennial State Park, Harbison State Forest, and Congaree Swamp National Park. Numerous trails, game management sites, and state heritage preserves are also located in close proximity to the Saluda Hydroelectric (Project).

Both Lake Murray and the LSR are used extensively for recreation. The lake supports many on-water recreation activities including several national and local fishing tournaments. There are 15 public access sites on Lake Murray owned by South Carolina Electric and Gas (SCE&G) and all but one, Dreher Island State Park, is managed by SCE&G. The LSR extends 11 miles below Saluda Dam to the confluence of the Broad River forming the Congaree River. The LSR supports an active recreational fishery and offers a range of paddling experiences from flat water to whitewater with class II to V rapids. Approximately 10 miles of the river, from approximately 1 mile downstream of the Dam to the confluence with the Broad River, is designated by the South Carolina General Assembly (SC Code of Laws Title 49, Chapter 29 South Carolina Scenic Rivers Act) as a State Scenic River (SC Legislature, 1989). There are three formal public access sites owned by SCE&G on the lower Saluda River and all but one, Saluda Shoals Park, is managed by SCE&G. Two other informal sites are on property leased to the Riverbanks Zoological Society.

1.1 Purpose of Study

This assessment of existing and future recreational use, opportunities, and needs for the Saluda Project was completed in support of ongoing relicensing efforts. The assessment provides information pertinent to the current and future availability and adequacy of public access at Lake Murray and the LSR. Results meet the study purpose by addressing the following goals and objectives:

Goal 1: *Characterize existing recreational use of SCE&G's recreation sites on Lake Murray and the LSR. This was accomplished by meeting the following objectives:*

i. Identification of recreation points; inventory of services and facilities offered at each; and general condition assessment of each site (including compliance with the American with Disabilities Act [ADA]).
ii. Identification of patterns of use at each site (type, volume, and daily patterns of use).

Goal 2: *Examine future recreational needs relating to public recreation sites on Lake Murray and the LSR. This was accomplished by meeting the following objectives:*

i. Estimation of future recreational use of existing recreation sites.
ii. Identification of user needs and preferences, including perceptions of crowding at recreation sites.
iii. Identification of future needs for new recreation sites and facilities.

The following sections are organized as follows. Section 2.0 details the methodology used to for data collection and analyses activities. Results are provided in Section 3.0, and conclusions are provided in Section 4.0.

2.0 METHODOLOGY

This section describes data collection and analysis efforts used for this study. Data collection focused on obtaining information related to existing recreation sites and facilities owned by SCE&G, estimating recreational use of those sites, and learning recreation user perceptions and site capacities. Analysis was completed to support study objectives, to characterize existing and potential future recreational use at SCE&G's public access sites, and to assess future needs to support public recreational use of the Project resources.

2.1 Data Collection

The information needed to address study objectives is identified in Table 2.1-1 Primary data collection included site inventories and assessments, counts of vehicles at recreation sites, user surveys and opinions of a waterfowl focus group. Secondary data collection included information from the South Carolina Department of Parks, Recreation and Tourism (SCPRT), aerial photographs of boating use on the lake, and other relevant literature.

Table 2.1-1: Recreation Assessment Study Plan Objectives and Efforts

Objectives	Information Needed	Source
Goal 1: Characterize existing recreational use of recreation sites on Lake Murray and the lower Saluda River		
Identify formal recreation sites, inventory the services and facilities offered at each, and assess the general condition and ADA compliance of each site	• Physical inventory of all boat ramps, grills, shelters, restrooms, parking capacity, etc., at each site • General assessment of site condition to include maintenance, basic rehabilitation needs, etc. • Visitors' assessment of site conditions • Identification of activities that occur at each site • ADA compliance assessment	• Recreation Site Inventory • Survey of Recreation Site Users
Identify the patterns of use at each site (type, volume, and daily patterns of use)	• Use vehicle counts as proxy for people • Estimate of # people/vehicle • Estimate of # vehicles/site • Parking capacity • Visitation records for Dreher Island State Park • Aerial photographs of use occurring at Bundrick Island	• Counts of Vehicles at Recreation Sites • Survey of Recreation Site Users - # of people per vehicle • Recreation Site Inventory - # of parking spaces • Focus group of waterfowl hunters • South Carolina Parks, Recreation and Tourism (SCPRT) • Aerial photographs from SCE&G
Goal 2: Identify future recreational needs relating to public recreation sites on Lake Murray and the lower Saluda River		
Estimate future recreational use of existing recreation sites	• Current inventory and use data from Goal 1 • Population projections for the project area • Recreational use trends	• Results of Goal 1 • SC Division of Research & Statistics • SC Recreation Participation & Preference Study
Identify existing user needs and preferences, including perceptions of crowding at recreation sites	• User preferences and opinions of needs and crowding at sites • Condition assessment	• Survey of Recreation Site Users • Recreation Site Inventory • Focus group of waterfowl hunters
Identify future needs for new recreation sites and facilities	• Population projections • Recreation use trends • Expert focus group (stakeholders) knowledge of recreation resources and need	• Results of above research

2.1.1 Recreation Site Inventory

Site inventories were completed at 15 recreation sites on Lake Murray and five sites on the lower Saluda River (Table 2.1-2). SCE&G owns all 15 sites on the lake, and operates all but Dreher Island State Park, which is leased to SCPRT. SCE&G also owns all five recreation sites on the lower Saluda River, but manages two of these sites. Of the three remaining LSR sites; Saluda Shoals Park is leased to the Irmo Chapin Recreation Commission (ICRC), and the two Mill Race sites, both of which are outside of the project boundary, are located on property leased to the Riverbanks Zoological Society.

Site inventories were completed in May of 2006. Data on the types of activities supported, parking capacity, the type, number, and size of facilities (bathhouses/restrooms, boat ramps, picnic shelters and tables, etc.) were collected for each location, along with a general condition of recreation facilities, a qualitative assessment of each site's compliance with the ADA, and Geographical Information System (GIS) coordinates.

At sites with paved parking areas, parking capacity was obtained by counting the number of designated parking spaces available. At sites with gravel parking lots, two separate means of estimating capacity were used. If, during the site inventory, a parking area was full, then the number of vehicles observed was used to estimate the capacity of the lot. If the lot was not full, parking capacity was estimated by a civil design engineer based on parking capacity standards for vehicle length, width, available turn around space, and lot size (in sq ft), assuming optimal space utilization. At locations that accommodate multiple uses, parking capacity was estimated for both passenger vehicles and vehicles with boat trailers. At locations designed as boat launches, capacity was estimated for vehicles with boat trailers only (e.g., Shull Island). At locations without boat launches, parking capacity was estimated for passenger vehicles only (e.g., Parksite).

Table 2.1-2: Recreation Sites Studied at the Saluda Project

Lake Murray	Lower Saluda River
Dam Site	Mill Race A[a]
Parksite	Mill Race B[a]
Larry L. Koon Boat Landing	Gardendale
Shull Island	James R. Metts Landing
Bundrick Island	Saluda Shoals Park
Murray Shores	
River Bend	
Higgins Bridge	
Kempson Bridge	
Lake Murray Estates Park	
Macedonia Church	
Sunset	
Rocky Point	
Dreher Island State Park	
Hilton	

[a] Outside the project boundary.

2.1.2 Vehicle Counts

Vehicle counts were conducted at public access sites on a stratified random sample of 30 days from May 27 (Memorial Day) to September 30, 2006. The sample of days was stratified by day type (weekdays, weekends, and holidays) and time of day (morning and afternoon). Generally, most recreation activity at public access sites occurs on weekends and holidays. Because of this, weekends and holidays were sampled at a higher rate than weekdays, in order to maximize the efficiency of the data collection effort. Table 2.1-3 presents the sample frame for this effort.

Table 2.1-3: Sample Frame for Vehicle Counts

	Weekdays		Weekends		Holidays	
	Total Number of Days (N)	Sample Size (n)	Total Number of Days (N)	Sample Size (n)	Total Number of Days (N)	Sample Size (n)
Lake Murray Sites	86	13	31	14	10	3
Lower Saluda River Sites	86	13	31	14	10	3

Sample days were divided into morning (AM) and afternoon (PM) shifts, which were sampled with equal probability (50 percent). Each shift was 6.5 hours long, extending from either 6:30 am to 1:00 pm (AM shift) or 1:00 pm to 7:30 pm (PM shift). Survey clerks recorded the number of vehicles entering recreation sites during each 6.5 shift for all sites with the exception of Bundrick Island. Bundrick Island is a popular beach area used informally by boaters. There is no vehicular access for the public, with the exception of occasional group activities sanctioned by SCE&G.

2.1.3 Recreation Site Surveys

The preferences and perceptions of people using SCE&G's recreation sites were obtained via exit interviews that were conducted concurrently with vehicle counts.[1] Questionnaires were designed to collect user characteristics (origin, gender, age, group size, etc.), the type of land-based and/or water-based recreation activities individuals were participating in, length of stay, perceptions of crowdedness, and conditions of recreation sites at the Project. At Lake Murray sites, respondents who reported boating on the lake were asked to indicate where on the lake they spent the most time on that day, why they selected that part of the lake to recreation on, and how crowded it was on the water. At LSR sites, survey respondents were asked a series of questions regarding their knowledge of the SCE&G warning sirens on the river, and their reactions to the sirens.[2]

[1] Exit interviews were attempted with boaters using the beach at Bundrick Island. However, boaters who remained on their vessels and never accessed the beach were not interviewed.

[2] SCE&G maintains a warning system on the lower Saluda River to warn river users of sudden changes in water level. The system includes warning sirens installed at three locations on the lower river. A strobe light and informational signs that aid in drawing attention to rising water levels support each siren. One siren is located at Metts Landing boat launch (directly across the river from the boat launch at Saluda Shoals). A second siren is located upstream of Riverbanks Zoo and above the rapids. The third siren is located downstream of Riverbanks Zoo at Shandon Rapids.. Sirens are activated by a float switch upstream; on every three-inch rise of the river, the sirens are activated. Strobe lights are activated concurrently with the sirens. Once activated, strobe lights remain on for 16 minutes.

The survey was pre-tested in the field, prior to implementation, on May 6, 2006 and minor revisions were incorporated, as necessary. Revisions primarily consisted of providing interviewers with additional direction for recording responses to open-ended questions. Two survey versions were implemented – one for Lake Murray and one for the lower Saluda River (Appendix A).

Studies show that providing incentives to potential survey respondents can aid in achieving higher response rates (Bishop, Heberlein and Kealy, 1983; Church, 1993). For this study, floating key chains were distributed to respondents who completed interviews, as a gesture of appreciation for their participation. The key chains were bright yellow, in the shape of a life jacket, with the Saluda Hydro Relicensing logo and website address printed on them.

All survey clerks were trained as a means of quality control and were provided detailed information on the study purpose, schedule, data collection protocols and data sheet chain of custody, and direction on appropriate interviewing techniques and attire. Clerks were monitored regularly during the entire study period.

A total of 100 surveys per recreation site were targeted, for a grand total of 2,000 completed questionnaires. A total of 1,611 useable surveys were completed. This total falls short of the targeted 2,000 for three reasons. First, interviewing was suspended during periods of inclement weather, particularly during severe storms, to ensure interviewer safety. Every attempt was made to reschedule these dates, but some occurred so late in the season that they could not be rescheduled. Second, some sites, such as Rocky Point, did not receive enough patronage to achieve the goal of 100 surveys per site. Finally, some interviews could not be completed due to language barriers, age restrictions, and refusals. Response rates are provided in Table 2.1-4.

Table 2.1-4: Survey Response Rates

	Lake Murray	Lower Saluda River
Total Number Attempted	1,386	424
Individual Did Not Speak English	3	1
Individual Was a Minor	10	2
Refusals	58	67
Total Number Completed	1,257	354
Survey Response Rate[a]	92%	84%

[a] Response rates are estimated as a percentage of valid number of attempted surveys. Individuals who were not eligible to complete the survey (minors) or who could not complete the survey (due to a language barrier) are not included in the valid number of attempted surveys.

2.1.4 Waterfowl Hunter Focus Group

Waterfowl hunting occurs outside the traditional summer recreation season, and, therefore, was not addressed by the vehicle count and recreation survey. Waterfowl hunters who use Lake Murray were identified to serve as an expert panel, or focus group, and speak for all waterfowl hunters using the lake. Similar to the recreation survey, the purpose of conducting the focus group of waterfowl hunters was to:

a) understand how waterfowl hunters use public access sites and areas of Lake Murray (identify access sites used, time of day hunting, locations on the lake where hunting occurs);
b) identify the perceptions of existing resource conditions that they use for waterfowl hunting activity (adequacy and condition of existing recreation sites);
c) identify needs for public access to Lake Murray for waterfowl hunting (need for additional access sites or facilities at existing sites); and
d) identify perceptions of crowding on the water during waterfowl hunting activities.

Waterfowl hunters were selected from a list of hunters compiled from Resource Conservation Group (RCG) personal references and Ducks Unlimited. Of the 11 hunters recruited, 5 participated in the group. The focus group was conducted in October, 2006. A two-person team, consisting of a group moderator and a note taker familiar with the goals of the group, facilitated the meeting using a predetermined script to identify and discuss the opportunities and needs of waterfowl hunters using SCE&G recreation sites on Lake Murray. A summary of the focus group is provided in Appendix B. Results are incorporated here where appropriate.

2.2 Analysis

The following sections describe the approach for estimating existing and future recreational use, and potential future recreation needs.

2.2.1 Current Recreation Use Estimates

Estimates of recreation use were developed for weekdays, weekends, and holidays for each public access site.[3] Use at most recreation sites was estimated from vehicle counts. Use at Dreher Island State Park was obtained from park officials. Access to Bundrick Island is primarily from the lake by boaters, and has no vehicular access. Use for this site was estimated in a manner similar to the public access sites, using aerial photographs of boats at the island.

With the exception of Dreher Island State Park, all public access sites are day use areas. Occasional overnight camping does occur at a few locations, but that use is usually attributed to the occasional overnighter – where an individual or group of individuals informally pitch a tent and spend a single night. The number of vehicles observed entering each site during each 6.5 hour survey shift was converted to people by multiplying the number of vehicles by the average

[3] Recreation use estimates are provided in recreation days, which the Federal Energy Regulatory Commission (FERC) defines as "each visit by a person to a development for recreational purposes during any portion of a 24-hour period." Providing use estimates in this fashion allows for comparisons between sites, as well as between FERC projects around the country.

number of people per vehicle (from the survey data) for each day type (weekdays, weekends and holidays). This resulted in an estimate of the number of people visiting sites per survey shift.

The AM and PM sites were sampled with equal probability (0.50). Thus, the estimate of use per survey shift divided by 0.50 provided daily use estimates, which were multiplied by the total number of days within each day type (population of weekdays, weekend days and holidays) for the study period (May 27 through September 30, 2006) to provide a total estimate of use by day type. Survey data were used to allocate use by activity.

Dreher Island State Park. Park officials provided the estimate of annual use of Dreher Island State Park, and a breakdown of the percent of use that occurs within each month. This estimate, which includes day use, camping and villa use, is an annual estimate for the park's fiscal year, July 2005 through June 2006. For this study, the percentage of use reported for May - June 2006 and July - September, 2005 was used as a proxy for the May 27 (Memorial Day) through September 30, 2006 study period. Total visitors reported for the month of May was adjusted by the number of days in the sample period (e.g., 2 weekdays and 3 holiday days in May). Survey data were used to allocate use by activity and day type.

Bundrick Island. Use estimates were developed from aerial photographs of Bundrick Island taken in 2001, inflated by population growth and recreation participation rates. Survey data were used to convert counts of boats to people and to allocate use by activity and day type.

Photographs of Bundrick Island were taken on 5 days in 2001: 4 weekend days and 1 holiday. The number of boats on the shoreline shown in the photographs was averaged by day type. Boat counts were adjusted to account for population growth using data from South Carolina Division of Research and Statistics (SCBCB, 2005), for counties surrounding the Project. Average boat counts by day type were multiplied by the average number of people per boat by

day type, which was obtained from the survey data. These totals were treated as instantaneous counts of boaters, representing the total number of boaters at the site in any given hour. Survey results showed that 93 percent of people interviewed at Bundrick Island were there between the hours of 9AM and 3PM. Using this information, the day length for activities at Bundrick Island was estimated to be 6 hours long.

Multiplying the average counts by the number of hours in a day (6 hours) provided a daily estimate of boaters for weekends and holidays. Daily use estimates were multiplied by the total number of days within each day type (weekend days and holidays) for the study period (May 27 through September 30, 2006) to provide a total estimate of use by day type. Weekday use was estimated as a percentage (45 percent) of weekend use, based on the distribution of use estimated for all other Lake Murray recreation sites.

2.2.2 Future Recreation Use Estimates

There is no truly accurate means of predicting future recreational use over the next 25-50 years, primarily because recreation activity is dependent on leisure time, discretionary income, and new technologies. These factors have a significant level of uncertainty associated with them. However, it is accepted that population growth is the major driver of participation in outdoor recreation (Cordell, 2004). As a result, estimated projections of future recreation use at the project were developed based on projected population increases.

Estimated projections in population growth over the next 25 years was obtained in 5 year increments from South Carolina Division of Research and Statistics (SCBCB, 2005), for counties surrounding the Project. For example, assume the population of the study area was projected to increase by 30 percent over the next 25 years. In this example, projected future participation in fishing at the project is equal to the current estimate of people fishing multiplied by the projected increase in population rate.

Future use estimates are provided for Lake Murray and the lower Saluda River by activity in Section 3.2.1.

2.2.3 Recreation Site Capacities

The estimated capacity at which a site is being used is calculated as the ratio of the maximum average number of vehicles at the site versus the available number of parking spaces. The maximum average number of vehicles on site was calculated by estimating the average hourly vehicle count for each site. The average trip length in hours (from survey results) was used to estimate the length of time vehicles were occupying spaces at each site. Average hourly vehicle counts were summed over the average length of time on-site across the day (6:30 am to 7:30 pm). The maximum number of vehicles at the site at a given time was then derived from the totals. For example, suppose a recreation site had 5 parking spaces, and survey results show that people using that site spent an average of 3.5 hours there. If one vehicle arrives at 6 am, three arrive at 7 am and another arrives at 8 am, then the parking area would be full until the first vehicle departed around 9:30 am. If additional vehicles arrive before 9:30 am, then there are not enough parking spaces (capacity) to accommodate demand (number of vehicles). An example is provided in Table 2.2-1; fictitious numbers are used for ease of reference.

Table 2.2-1: Example Calculation of Estimated Average Demand for Parking Spaces

On average, length of time that individuals spend at the recreation site	Time of Interview	Time of Arrival	Length of Stay
	9:00 am	5:30 am	3:30 hours
	12:30 pm	10:00 am	2:30 hours
	5:00 pm	12:30 pm	4:30 hours
	8:30 am	5:00 am	3:30 hours
	Average Length of Stay		3:30 hours
Average vehicle counts by hour	56 vehicles at 6:00 AM 50 vehicles at 7:00 AM 64 vehicles at 8:00 AM 48 vehicles at 9:00 AM 62 vehicles at 10:00 AM 50 vehicles at 11:00 AM 50 vehicles at 12:00 PM		

Vehicle counts are summed across the average length of stay	Vehicles at the site from 6:00 AM to 9:30 AM = 56+50+64+48=208 Vehicles at the site from 7:00 AM to 10:30 AM = 50+64+48+62=224 Vehicles at the site from 8:00 AM to 11:30 AM = 64+48+62+50=224 Vehicles at the site from 9:00 AM to 12:30 PM = 48+62+50+50=210 Vehicles at the site from 10:00 AM to 1:30 PM = 62+50+50=162 Vehicles at the site from 11:00 AM to 2:30 PM = 50+50=100 Vehicles at the site from 12:00 PM to 3:30 PM = 50 = 50 Vehicles begin departing at 9:30 AM, resulting in a maximum average estimate of 224 vehicles at the recreation site.
Ratio of maximum average vehicles at site to parking capacity	Site parking capacity = 250 spaces Maximum average vehicles = 224 Capacity at which the site is used = 224/250 = 90%

2.2.4 Recreation Needs Assessment

The need for additional resources to accommodate existing and future use is generally determined based on multiple factors. In this case, the needs assessment will be based on all of the information collected in support of this study, including the inventory, condition, and capacity assessment; use estimates and projections; and user preferences and opinions, and in consultation with the SCE&G's relicensing Recreation Management Technical Working Committee. Consideration will also be given to site opportunities and constraints, as well as, support facilities such as signage and maintenance.

3.0 RESULTS

This section presents study results for Lake Murray and the lower Saluda River. Readers can find additional, detailed, site-specific results in Appendix C (site inventory information), Appendix D (use estimates and site-specific survey responses for Lake Murray), and Appendix E (use estimates and site specific survey responses for the lower Saluda River).

3.1 Characterization of Existing Use

The first goal of this study was to understand recreational use occurring at the project. This includes characterizing the existing recreation sites and facilities that provide public access to project lands and waters, and identifying how those sites and facilities are currently used.

3.1.1 Recreation Site Inventory

Within the project boundary, there are approximately 130 private, commercial, and public recreation sites in the study area. Most of these sites support boat launches, marinas, boat slips, wet and dry storage, campgrounds, picnic areas, beaches, fishing areas and piers, trails, playgrounds, and other facilities. Twenty three sites are informal sites that are primarily used for bank fishing. Eighteen of the sites, plus the two Mill Race sites, which are outside the project boundary, are owned by SCE&G and are addressed here (Table 3.1-1, Figure 3.1-1, and Figure 3.1-2). All 20 sites function primarily as some kind of lake or river access, providing boat launches, shoreline fishing, picnicking, and swimming areas.

Formally developed sites collectively support 3 swimming areas, 15 boat launches, 6 fishing piers, and 1 campground. Restroom facilities are provided at 9 of the 20 sites, and picnic tables are provided at 12 sites.

Table 3.1-1: Public Recreation Site Inventory Summary

Site	Size (in acres)	Boat Launch	Fishing Docks/Piers	Picnic Tables	Camp Sites	Restrooms	Swimming Area
Lake Murray Sites							
Dam Site	6.8	×	×	×		×	
Parksite	17.9			×		×	×
Larry L. Koon Boat Landing	2.2	×		×		×	
Shull Island	0.4	×					
Murray Shores	1.6	×		×		×	
River Bend	11.6	×	×	×		×	
Higgins Bridge	1.1	×					
Kempson Bridge	1.1	×	×				
Lake Murray Estates Park	5.0	×	×	×			
Macedonia Church	5.3			×			
Sunset	2.3	×	×	×		×	
Rocky Point	1.7	×		×			
Bundrick Island	87.9						
Dreher Island State Park	348.0	×		×	×	×	×
Hilton	4.4	×	×	×		×	
Lower Saluda River Sites							
Mill Race A	0.4						
Mill Race B	0.5						
Gardendale	4.6	×					
Saluda Shoals Park	240.0	×	×	×		×	
James R. Metts Landing	1.0	×					

Figure 3.1-1: Lake Murray Recreation Sites

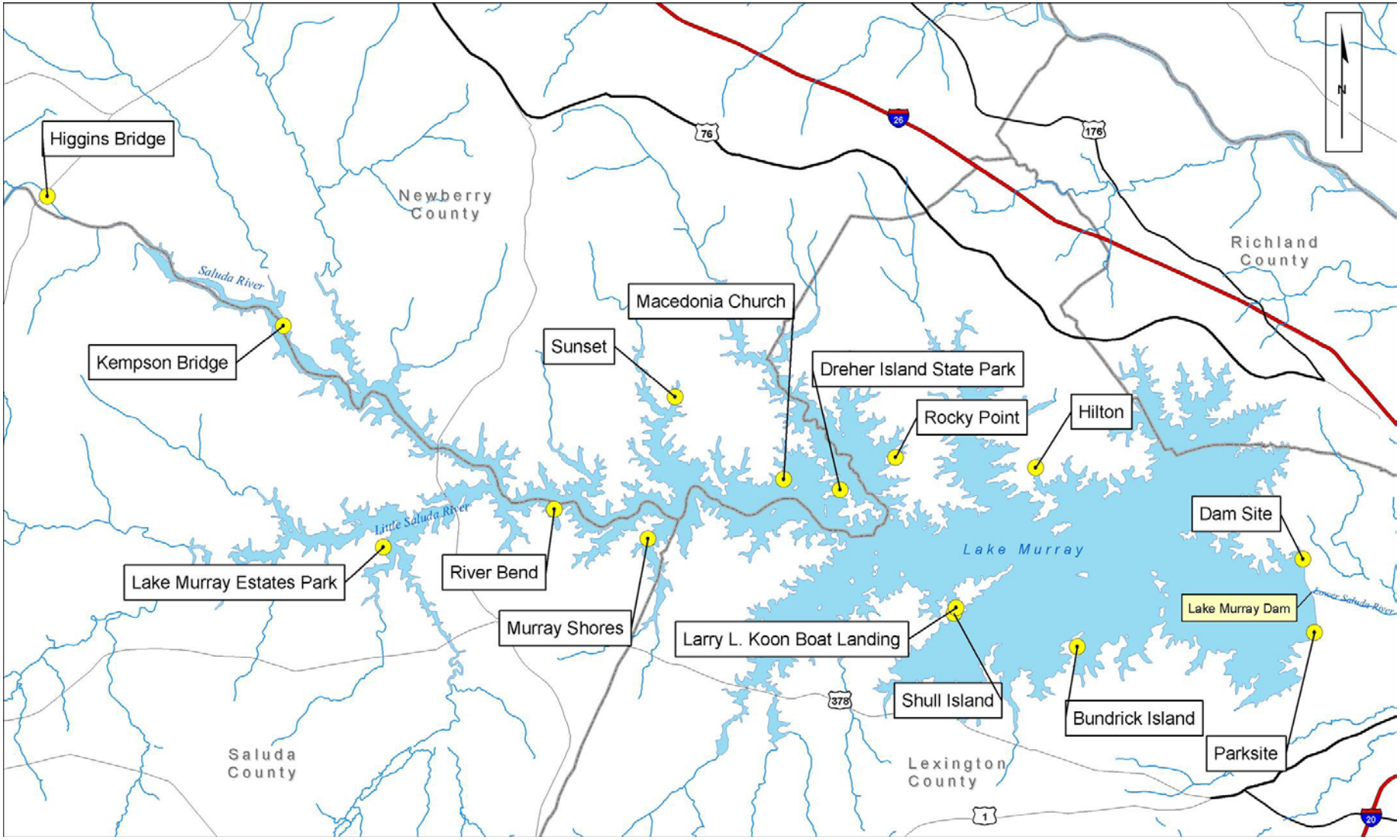
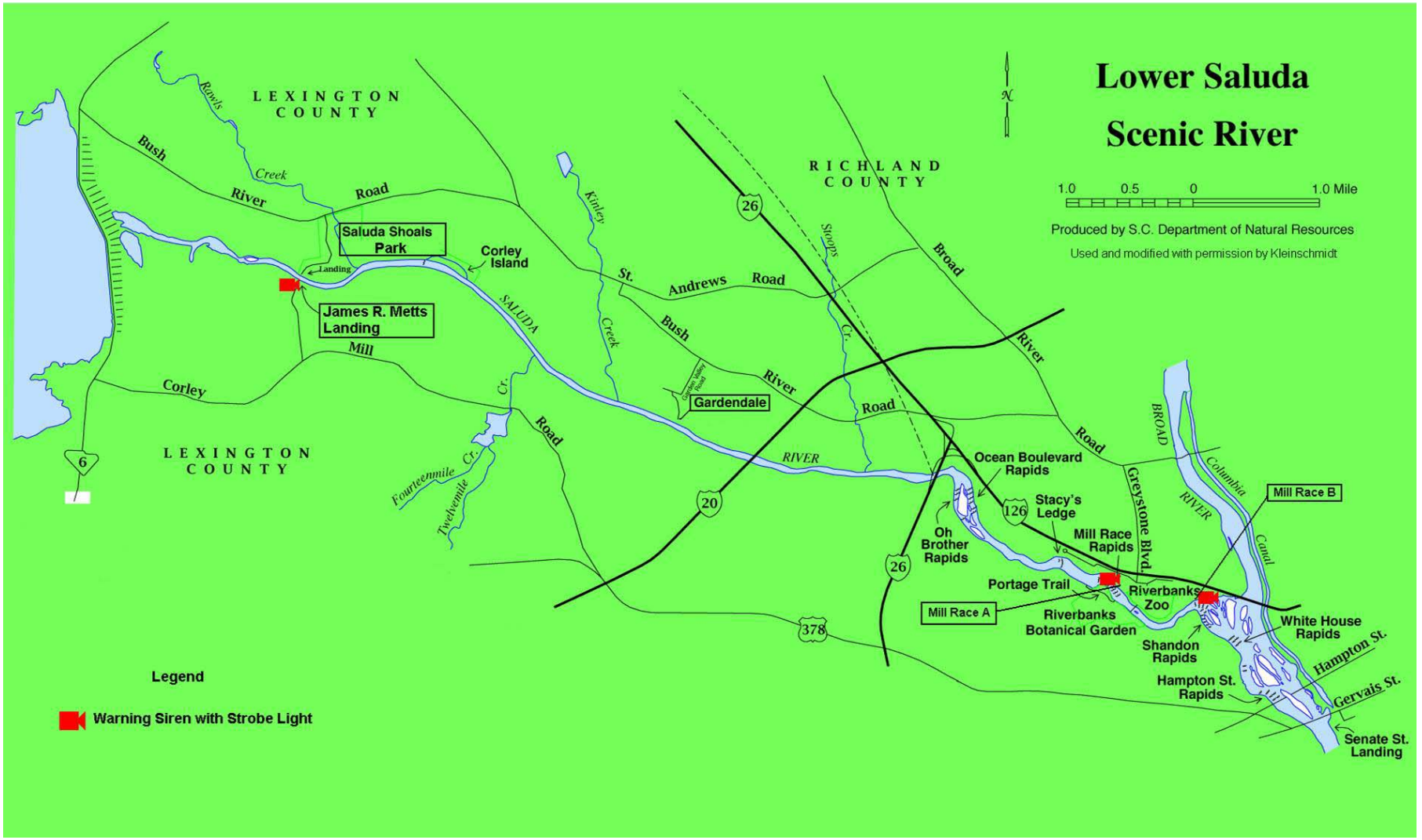


Figure 3.1-2: Lower Saluda River Recreation Sites



3.1.1.1 Lake Murray

Of the 15 public recreation sites on Lake Murray, all but Dreher Island State Park are day use sites. Dreher Island State Park offers both day use opportunities such as boat launches, picnic facilities, and beaches, and overnight uses such as camping and villa rentals. Eleven of the remaining lake sites are boat launches: Dam Site, Larry L. Koon Boat Landing, Shull Island, Murray Shores, River Bend, Higgins Bridge, Kempson Bridge, Lake Murray Estates Park, Sunset, Rocky Point and Hilton. Three are considered picnic areas: Parksite, Macedonia Church, and Bundrick Island.

Dam Site

Dam Site (Photo 3-1) is a day use area, providing lake access for boating and fishing, and picnicking. The site is located on the northern end of Saluda Dam; and is accessible from Route 6. It is a large seasonal site providing parking for 106 vehicles with trailers and 75 regular spaces (including 3 ADA-compliant spaces). There are also 23 picnic tables, 13 grills, shoreline access, a fishing pier, and restrooms. Swimming is prohibited at this site.

This site is staffed 7 days a week from 11:00 am to 8:00 pm and is open to the public from April 1 through September 30. An entrance fee is charged when the site is staffed.

Most survey respondents – 66 percent of 62 individuals interviewed at this site – indicated that the site is in very good to excellent condition.

Photo 3-1: Damsite

Parksite

Parksite (Photo 3-2) is located on the southern end of Saluda Dam, also off Route 6. This is a day use site, designed primarily for swimming, picnicking, and sightseeing. Newly renovated in July 2006, Parksite is a seasonal facility and offers 80 picnic tables, 45 grills, 2 firepits, and 27 shelters. There are 343 parking spaces, including 4 spaces compliant with the ADA. It is the only site managed by SCE&G with a designated swimming area. The site also provides a concession and overlook. This site is seasonally staffed from 11:00 am to 8:00 pm, and is open April 1 through September 30. An entrance fee is charged when the park is staffed.

Two-thirds of respondents interviewed at this site (67 percent of 55 respondents) rated the condition to be very good to excellent. Most of the respondents who stated that the site was in fair to poor condition (10 percent) were interviewed early in the 2006 recreation season, while portions of the site were still under construction. The beach area was closed until later in the season, due to ongoing construction, low water, and potential hazards in the water beyond the swimming area.

Photo 3-2: Parksite

Larry L. Koon Boat Landing

Larry L. Koon Boat Landing (Photo 3-3.) is located on the southern shore of Lake Murray, on Shull Island. The site is accessible from Shull Island Road, is open year round and is unstaffed; there are no entrance fees for this site. This site is a day use site primarily used for boat access and picnicking. This site features 4 picnic tables, 2 grills, and 1 firepit/ring. There are approximately 49 paved parking spaces, including 2 ADA spaces and 39 vehicle and trailer spaces.

Of the 103 respondents interviewed at Larry Koon, half rated the site as excellent and 28 percent rated the site as very good.

Photo 3-3: Larry Koon

Shull Island

Shull Island (Photo 3-4) is located on the southern shore of Lake Murray, on Shull Island and adjacent to Larry L. Koon Boat Landing. Shull Island is leased to the Lexington County Recreation Commission, but is owned and operated by SCE&G. The site features a gravel parking area and a concrete ramp. Parking also occurs below the high water line when lake levels are low. Generally, this site serves as overflow when parking at Larry Koon facility is full. This site supports boating and bank fishing opportunities. The picnic area and restrooms provided at Larry Koon Landing are within walking distance of the Shull Island site.

A majority – 77 percent – of 79 survey respondents stated that the site was in either very good or excellent condition.

Photo 3-4: Shull Island

Bundrick Island

Bundrick Island (Photo 3-5) is an undeveloped recreation area that is used primarily by boaters. There is no parking associated with this site. The access road is gated at the entrance. Entrance is permitted by foot or bicycle from Brady Porth Road. This site is located on a peninsula and is used for picnicking, informal camping, and swimming. SCE&G permits use of the site by organized groups such as the Boy Scouts and will unlock the gate to allow for vehicular access for these purposes under prior arrangement.

Of the 86 individuals providing a condition rating for this site, half reported that Bundrick Island is in very good to excellent condition. Eighteen percent of respondents stated that the site was in fair to poor condition, trash cans and restrooms were cited most often as being needed.

Photo 3-5: Bundrick Island

Murray Shores

Murray Shores (Photo 3-6) is located on the southern shore of the lake and is accessible from Robberts Lane. The site is a day use boat launch facility that also has 7 picnic tables, 3 grills, and 1 firepit/ring, and provides shoreline access for fishing. It is unstaffed and open year round; a sign at the entrance to the site indicates that the park closes to all uses except boat launching at sundown. This site is also home to SCE&G's Shoreline Stabilization Demonstration Project. The project, designed and implemented in cooperation with Clemson University and Shoreline Restoration Service, LLC., consists of a section of shoreline that has been stabilized with various native vegetation.

The majority of respondents – 93 percent of 51people – stated that the site is in good to excellent condition.

Photo 3-6: Murray Shores

River Bend

River Bend is a day use site located on the lake's southern shore (Photo 3-7) on River Bend Point, and is accessible via River Bend Point Road. The site is used primarily for boat access to the lake. It supports boating, fishing, and picnicking activities. In addition to the half-acre paved parking lot, the site features additional gravel parking areas that are gated except during high use days. The site also features 5 picnic tables, a grill, restrooms, a boat launch, and a fishing pier.

Over half of the 107 respondents (64 percent) indicated that they considered River Bend to be in good to excellent condition.

Photo 3-7: River Bend

Higgins Bridge

Higgins Bridge (Photo 3-8) is located on the far western shore of Lake Murray on the upper Saluda River, at the headwaters of the lake. The site is used for boat access and bank fishing. The site is located off the Higgins Ferry Road, off Route 121. It is a day use site with gravel parking and a paved boat ramp.

Almost half of the 37 individuals providing a condition rating for this site considered it to be in good condition. Thirty-eight percent considered the site to be in very good to excellent condition and 14 percent stated the site is in fair to poor condition. Trash cans were indicated as the most needed improvement.

Photo 3-8: Higgins Bridge

Kempson Bridge

Kempson Bridge (Photo 3-9) is also located on the headwaters of Lake Murray on the upper Saluda River. This site is accessible from Route 395, adjacent to the Kempson Ferry Bridge. Newly renovated in 2006, Kempson Bridge features parking for 16 vehicles with trailers, a fishing pier, and boat ramp. The site is open year round, is unstaffed, and is a day use site providing boat access and shoreline fishing.

All of the 39 individuals responding to this question stated the site is in good to excellent condition; though approximately 60 percent of the 29 respondents stating that additional facilities are needed indicated need for picnic facilities and restrooms.

Photo 3-9: Kempson Bridge

Lake Murray Estates Park

Lake Murray Estates Park (Photo 3-10) is located on the southern shore of Lake Murray, at the end of Ruby River Road, in a residential subdivision. It is a day use site that is unstaffed and open year round. The site supports boating, fishing and picnicking activities. This site features a boat ramp, parking for 22 vehicles with trailers, a fishing pier, and 2 picnic tables.

Over 90 percent of the 150 survey respondents interviewed here stated Lake Murray Estates Park to be in good to excellent condition. As with Kempson Bridge, however, the majority of individuals stating a need for additional facilities (95 percent of 84 respondents) interviewed indicated a need for restrooms.

Photo 3-10: Lake Murray Estates Park

Macedonia Church

Macedonia Church (Photo 3-11) is located adjacent to the Macedonia Lutheran Church, on the northern shore of the lake. The site is accessible from the Macedonia Church Road which dead ends at the site. There are some facilities associated with the church, such as an outdoor chapel, as well as 4 picnic tables. This site is a used primarily for shoreline fishing. A sign at the entrance indicates that the park is open from sunrise to sunset and fishing is not permitted on Sundays.

Only 24 individuals rated the condition of this site when interviewed, and 75 percent stated that the site was excellent.

Photo 3-11: Macedonia Church

Sunset

Sunset (Photo 3-12) is located on the northern shore of the lake, off Sunset Road. The site is unstaffed and managed for day use only. The site provides opportunities for picnicking, boating, and fishing. This site features a picnic table, 2 firepits/rings, portable toilets, a fishing pier, boat ramp, and shoreline access.

All of the 119 individuals rating this site stated that Sunset was in good to excellent condition.

Photo 3-12: Sunset

Rocky Point

Rocky Point (Photo 3-13) is located on the northern shore of the lake, accessible from Rocky Ramp Road. Parking occurs roadside. This site offers a boat ramp and a covered picnic table.

This site receives very little use; only two individuals were interviewed here. Both stated the site is in good condition.

Photo 3-13: Rocky Point

Dreher Island State Park

Dreher Island State Park is operated by the SCPRT and encompasses all of Dreher Island (Photo 3-14) on the northern shore of the lake. The park is accessed from State Park Road, off Dreher Island Road. This is a multiple use park providing opportunities for day use and overnight activities, including boating, fishing, picnicking, camping, and swimming, among others. The park supports a wide array of recreation facilities such as 15 tent and 97 RV campsites and a designated primitive camping area, 5 villas, shoreline access, beaches, 3 boat ramps (including a tournament ramp), parking for 609 vehicles, 3 playgrounds, 12 picnic shelters and 219 tables, 133 fire rings, hiking and biking trails, a tackle shop, a marina, and a visitor's center. The park is open year round. Entrance fees are collected. There is an entrance fee which is remitted via the honor system during unstaffed times. There are also fees for camping, cabin rentals, marina slip rentals, picnic shelter and lodge facility rentals, and fishing tournaments.

Ninety-one percent of the 138 individuals who provided a condition rating for this site stated that Dreher Island State Park is in very good to excellent condition.

Photo 3-14: Dreher Island State Park

Hilton

Hilton (Photo 3-15) is located on the northern shore of Lake Murray, off Cove Launch Road. The site is primarily used for picnicking, boating, and fishing. It is an unstaffed, day use site with a 2-lane boat launch, a fishing pier, 5 picnic tables, and restrooms.

The majority of respondents – 88 percent of 120 people – stated the site is in excellent condition.

Photo 3-15: Hilton

3.1.1.2 Lower Saluda River

Of the 5 public access sites on the lower Saluda River, Saluda Shoals Park and Metts Landing have motorized boat launches, and Gardendale has a carry-in boat launch. Both of the Mill Race sites are considered picnic areas, although they are undeveloped.

SCE&G has taken measures to help recreators be aware of the river flow on the LSR, including a recently established website with information on releases. The website provides current and planned operations with links to specific safety and educational information

associated with the LSR. SCE&G currently has a warning system in place that covers the area from the Riverbanks Zoo to the confluence with the Broad River, as well as the area around James R. Metts Landing. A float switch upstream activates the sirens. At Metts Landing the siren is activated with a 2 inch rate of rise (ROR). The ROR is measured every 10 seconds and averaged with 5 readings over a 1-minute interval. The siren sounds for three minutes once activated. There is a hold-off period of 16 minutes at the Metts Landing siren and an override if the water level rises two feet during the 16-minute hold-off period; the siren will activate again and reset itself for the next 16-minute hold-off period. A strobe light activates and remains on for 16 minutes concurrently with the siren activation. At the Zoo location, the siren activates with a 1 inch ROR. The sirens sound for three minutes once activated. There is a hold-off period of 60 minutes at the Zoo location sirens and an override if the water level rises three inches during that 60-minute hold-off period; the sirens will activate again and then reset for the next 60-minute hold-off period. A strobe light activates and remains on for 16 minutes concurrently with the siren activation. Sirens are active 24 hours per day, and were tested in 2004 to calibrate the volume to cover an area 1500 feet upstream and downstream of the Zoo siren, and 500 feet upstream and downstream of the Metts Landing siren. Since 2004 additional sirens and strobe lights were installed downstream of the Zoo. Their activation is based on the Zoo location float switch. Prominent warning signs posted near the strobe lights and sirens warn people that the activation of the sirens and/or the light signals potentially dangerous conditions caused by a rising water level. Further, SCE&G is coordinating safety efforts with the River Alliance to ensure compatibility with the Three Rivers Greenway Project.

SCE&G also manages an electronic call system that is initiated upon the start of generation by Saluda Hydro. Once activated, a message is sent to selected individuals via e-mail and telephone, alerting them to the change in flow.

The Lower Saluda Scenic River Advisory Council and American Whitewater, with assistance from SCE&G, established a series of color-coded river markers that are positioned along the LSR for use by boaters, anglers and other recreators. The markers help users interpret danger associated with rising water levels.

Mill Race (Sites A and B)

Mill Race A and B are not formal recreation sites. These shoreline areas are located on the north shore of the LSR, approximately 9 miles downstream of the dam and outside the project boundary, upstream and downstream of the Riverbanks Zoo. The Riverbanks Zoological Society manages the Zoo and leases the property, which borders the popular Mill Race rapid, where boaters access Class II to Class V whitewater, depending on flow (Photo 3-16 to Photo 3-17). Mill Race A, at the bottom of Mill Race rapid, has paved parking associated with the zoo. Mill Race B, which is located just above the confluence with the Broad River and is just above Shandon rapids, has a gravel parking area. Use of both of these areas are primarily by individuals gaining access to the rocky outcroppings of the rapids for sun bathing, picnicking, kayaking, fishing, and other leisure activities. There are no formal facilities to support this use.

Of the 63 individuals who rated the site at Mill Race A, 43 percent reported the site to be in good condition. Twenty-five percent of individuals indicated the site is in fair to poor condition. Of the 43 individuals indicating a need for additional facilities, 30 percent suggested restroom facilities and 42 percent suggested trashcans. For users of Mill Race B, 40 percent of the 70 respondents stated that the site is in good condition; while 41 percent indicated it was in very good to excellent condition. The remaining individuals indicated the site was in fair to poor condition. Restrooms and trash cans were cited as the most needed improvements.

Photo 3-16: Mill Race A

Photo 3-17: Mill Race B

Gardendale

Gardendale is located on the north shore of the lower Saluda River, approximately 6 miles downstream of the dam. This site is located in a residential neighborhood and is accessible from Garden Valley Road off the Bush River Road. The site provides carry-in river access and a multi-purpose trail about one mile long (Photo 3-18).

Seventy-two percent of the 58 respondents surveyed at this site stated that it is in good to very good condition. Fifty percent of 52 respondents who suggested additional facilities are needed cited a need for restroom facilities.

Photo 3-18: Gardendale

Saluda Shoals Park

Saluda Shoals Park, the largest site on the river, is managed by the Irmo Chapin Recreation Commission. Saluda Shoals Park is located on the north shore of the LSR, approximately 2 miles downstream of the dam and is accessible from the Bush River Road. It is a large park providing multiple facilities in various sites around the park (Photo 3-19) which, which support picnicking, hiking, boating, fishing, and swimming, among other activities. This site has multiple picnic areas and pavilions, playgrounds, a splash park, a visitor's center and an environmental education center, a boat ramp, dog park, multiple trails, concessions, and canoe/kayak rentals. The site is open year round, from 7:00 am to sunset. The park is staffed and charges a fee for entrance, though annual passes are also available.

Over three-quarters of the 76 respondents interviewed stated this site is in excellent condition.

Photo 3-19: Saluda Shoals Park

James R. Metts Landing

James R. Metts Landing is located across the river from Saluda Shoals Park on the southern shore of the lower Saluda River, approximately 2 miles downstream of the dam it is often referred to as Hope Ferry. The site is accessed via the Hope Ferry Road, off Corley Mill Road. The site provides both motorized and non-motorized access to the river (Photo 3-20). This site has parking for 18 vehicles with trailers and two boat ramps (one boat ramp is a carry-in launch). The site is unstaffed, and is managed for day use only.

Nearly 50 percent of the 86 individuals rating the condition of Metts Landing stated the site is in very good condition; 34 percent reported that the site is in excellent condition.

Photo 3-20: Metts Landing

3.1.2 Public Access Site Users

Knowledge of who is using project sites and why they are using them can be useful in understanding future needs and how best to accommodate them. In this section, the characteristics of public access site users and their reasons for recreating at the project are described.

3.1.2.1 Lake Murray

Most often, the individuals interviewed were male (84 percent). The average age of individuals interviewed was 45, and was generally consistent across the recreation sites.

Visitors to public access sites on Lake Murray were predominantly local residents who do not own a seasonal or permanent lakefront home. In fact, a majority of survey respondents reside in local communities surrounding the project (Table 3.1-2). Fully 79 percent of respondents *do not* own shoreline property. Only 19 percent own a permanent home on the lake, and 2 percent own a seasonal home on the lake.

Table 3.1-2: Location of Residence for Lake Murray Public Access Site Users Who Do Not Own Waterfront Property [a]

Public Access Site	Zip Code	City	Number of Respondents[a]	Percent Reporting
Dam Site	29210 & 29212	Columbia	25	48%
Parksite	29203 & 29169	Columbia & West Columbia	51	16%
Larry L. Koon Boat Landing	29054	Gilbert	61	59%
Shull Island	29054	Gilbert	40	55%
Bundrick Island	29072 & 29073	Lexington	56	36%
Murray Shores	29070	Leesville	107	18%
River Bend	29053	Gaston	72	14%
Higgins Bridge	29108	Newberry	36	39%
Kempson Bridge	29108	Newberry	32	56%
Lake Murray Estates Park	29138	Saluda	146	30%
Macedonia Church	29127	Prosperity	23	30%
Sunset	29127	Prosperity	106	38%
Rocky Point	29148	Summerton	1	100%
Dreher Island State Park	29127 & 29036	Prosperity & Chapin	118	19%
Hilton	29036	Chapin	105	36%

[a] Total number of respondents reporting they do not own permanent or seasonal waterfront property on Lake Murray.

Approximately 54 percent of survey respondents selected the site at which they were interviewed as a place to recreate because it is located close to their homes. For most individual sites, well over half of the individuals interviewed stated that proximity was their main motivation for visiting the site. The exceptions to this were Parksite with only 25 percent of respondents indicating proximity to home as their primary reason; Dreher Island at 40 percent; Macedonia Church at 13 percent; and Bundrick Island at 12 percent. The remaining reasons varied across recreation sites. At Larry Koon and Shull Island, individuals reported selecting the sites based on recommendations. A popular reason for choosing Shull Island was because it is considered less crowded. Available facilities at Bundrick Island, Kempson Bridge, and Rocky Point were cited most often as the reason individuals visited those locations,

even though these sites have few developed facilities. At Bundrick Island, people also reported choosing the site because it has a beach. At Parksite, Macedonia Church, Dam Site, Murray Shores, River Bend and Dreher Island, familiarity with the site was a popular reason for selecting the site.

Waterfowl hunters follow a similar pattern: they do not discriminate among public access sites, and will most often the nearest to the area where they will be hunting. This reduces their travel time on the water in cold and often inclement weather conditions. Kempson Bridge, Lake Murray Estates, Hilton, and the Dam Site were mentioned as access sites used by hunters in the past, as well as numerous private access sites.

In general, people tend to recreate in areas on the lake that are close to where they launched. The most popular area on the lake was the western portion of the lake where Sunset, River Bend, and Murray Shores are located, with 29 percent of respondents who went boating/fishing stating that they spent the most time in this area. This was followed by the area where Shull Island and Bundrick Island are located (16 percent) and the lake area near Lake Murray Estates Park (14 percent).

Over 65 percent of individuals interviewed at Shull Island, Murray Shores, River Bend, Higgins Bridge, Kempson Bridge, Lake Murray Estates Park, Sunset and Dreher Island State Park spent most of their time on the lake close to the their launch site. Users of Dam site, Larry Koon and Hilton, while spending the most time nearby their launch site (37 percent, 40 percent, and 32 percent, respectively), also ventured further away. Twenty-one percent of respondents at Dam site ventured northeast near Hilton. Eighteen percent of respondents at Larry Koon ventured a distance west of the boat landing to the Hollow Creek arm of the Lake, and 21 percent of respondents at Hilton spent the most time further east, in the northeast corner of the lake.

Survey respondents were consistent in their reasons for selecting areas on the lake for boating or fishing. For all areas, good fishing was cited among the top three reasons for going to a specific area on the lake. This result supports the results of a recent survey of Lake Murray bass anglers, in which 78 percent of respondents rated the quality of the striped bass fishery on Lake Murray as excellent or good (South Carolina Department of Natural Resources, 2000.) Two other popular reasons for selecting areas on the water included lack of crowding, the area is close to the launch (and therefore close to home), and the area provides good recreation opportunities (such as swimming, beach area, restaurant on the water, etc.)

3.1.2.2 Lower Saluda River

A majority of visitors interviewed at lower Saluda River access sites (98 percent) were local residents who do not own a seasonal or permanent waterfront home on Lake Murray (Table 3.1-3). No one reported owning a seasonal home on the lake and only 2 percent reported owning a permanent home on the lake. The majority of respondents live proximate to the site where they were interviewed, or the river in general.

Table 3.1-3: Location of Residence for Lower Saluda River Access Site Users Who Do Not Own Waterfront Property on Lake Murray

Public Access Site	Zip Code	City	Number of Respondents[a]	Percent Reporting
Mill Race A[b]	29063	Irmo	33	15%
Mill Race B[b]	29205	Columbia	46	15%
Gardendale	29210	Columbia	30	30%
Saluda Shoals Park	29212	Columbia	68	32%
James R. Metts Landing	29072	Lexington	73	26%

[a] Total number of respondents reporting they do not own permanent or seasonal waterfront property on Lake Murray.
[b] Outside the project boundary.

Survey respondents were predominantly male (74 percent). The average age of individuals interviewed was 38, slightly younger than the average Lake Murray recreationist. The average age of respondents varied significantly across recreation sites ($F(4, 341) = 6.34$, $p<.05$). Recreationists at the Mill Race sites were slightly younger at an average age of 36 for Mill Race A recreationists and 32 for Mill Race B recreationists.

Although important, proximity to home was less of a motivating factor for visitors to lower Saluda sites than it was for those visiting Lake Murray recreation sites. Thirty-percent of respondents stated that they selected the recreation site at which they were interviewed because it is close to their home. Other reasons given for visiting lower Saluda River sites included familiarity with the site, curiosity about the site, and event attendance (e.g. birthday parties). Other reasons cited included available site facilities, convenience, good fishing and recommendations.

Site facilities were identified most frequently as a motivating factor for Gardendale and Saluda Shoals Park, the latter of which offers the most amenities such as interpretive centers, a dog park, hiking trails, boat launch, among other amenities. Facilities were also identified for Mill Race B, which essentially has none. But in this case, it is the lack of facilities that individuals enjoy. Good fishing was identified as a primary motivator by some Metts Landing visitors. Water levels were identified as a motivating factor for a number of Mill Race A visitors. Specifically, this site was identified as having good whitewater kayaking opportunities.

3.1.3 Current Use

Recreation use estimates and identification of recreation activities are provided below for the Saluda Project, followed by total and site-specific estimates for Lake Murray and the lower Saluda River.

3.1.3.1 Project

The Saluda Project supported approximately 443,800 recreation days within the project boundary, between May 27 (Memorial Day) and September 30th. The Mill Race sites, which are outside the project boundary, supported approximately 45,000 recreation days, for a total of roughly 489,000 recreation days (Table 3.1-4). Weekday use accounts for 17 percent of total use; 38 percent of total use occurs on weekends; and 45 percent of total use occurs on holidays.

Table 3.1-4: Estimate of Recreation Days for Lake Murray and Lower Saluda River Sites by Month and Day Type, May 27 (Memorial Day) through September 30, 2006

	Lake Murray Sites	Lower Saluda River Sites	Mill Race Sites[a]	Total
May				
Weekdays	2,300	1,800	180	4,280
Weekends	0	0	0	0
Holidays	18,770	3,780	1,650	24,200
June				
Weekdays	52,800	23,850	13,390	90,040
Weekends	43,440	8,760	6,910	59,110
Holidays	0	0	0	0
July				
Weekdays	34,300	22,780	4,200	61,280
Weekends	29,860	11,390	5,530	46,780
Holidays	20,950	6,500	1,690	29,140
August	0			
Weekdays	26,170	8,180	3,360	37,710
Weekends	30,270	13,350	2,790	46,410
Holidays	0	0	0	0
September				
Weekdays	20,310	16,310	1,790	38,410
Weekends	24,430	5,770	2,580	32,780
Holidays	13,210	4,480	880	18,570
Total				
Weekdays	135,880	72,920	22,920	231,720
Weekends	128,000	39,280	17,810	185,080
Holidays	52,930	14,760	4,220	71,910
TOTAL	**316,810**	126,960	44,950	**488,720**

[a] Outside the project boundary.

3.1.3.2 Lake Murray

Overall, Lake Murray supported an estimated 317,000 recreation days during the study period (Table 3.1-5). The most used sites were Dreher Island State Park (78,750 recreation days),[4] and Bundrick Island (64,290 recreation days), Dam Site (36,890 recreation days), and Larry Koon (36,690 recreation days). The sites with the least amount of use were Rocky Point (230 recreation days), Higgins Bridge (2,130 recreation days), and Kempson Bridge (3,830 recreation days). Over half of all use during the study period occurs during the months of June and July.

[4] Dreher Island accounted for an estimated 78,750 patrons during the 2006 study period (personal communication, Ashley Berry, Manager, Dreher Island State Park, October 5, 2006). Approximately 77 percent of the total use at the park is attributed to day use and 23 percent is attributed to overnight visitation (camping and villa rentals). The park is a popular location for hosting fishing tournaments on the lake: during fiscal year 2005-2006, 63 fishing tournaments were hosted at the park.

Table 3.1-5: Estimated Recreation Days by Site, Month, and Day Type for Lake Murray, May 27 (Memorial Day) through September 30, 2006

	Dam Site	Parksite	Larry L. Koon Boat Landing	Shull Island	Bundrick Island	Murray Shores	River Bend	Higgins Bridge	Kempson Bridge	Lake Murray Estates Park	Macedonia Church	Sunset	Rocky Point	Dreher Island State Park	Hilton	Total
May																
Weekdays	400	0	130	50	540	70	100	10	40	220	50	0	0	390	300	2,300
Weekends	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Holidays	1,670	430	1,980	450	3,280	1,740	2,780	140	200	350	270	1,190	20	3,760	510	18,770
June																
Weekdays	2,430	460	13,780	7,020	5,950	1,940	3,200	600	1,140	1,890	2,750	770	180	9,780	910	52,800
Weekends	2,220	750	4,850	2,250	7,770	2,190	4,730	250	270	1,360	80	2,050	20	12,800	1,850	43,440
Holidays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July																
Weekdays	4,530	310	6,730	2,290	5,130	840	710	90	290	920	160	670	0	10,550	1,080	34,300
Weekends	4,910	140	910	1,870	7,770	2,150	1,510	230	290	760	50	1,340	0	7,010	920	29,860
Holidays	1,770	900	1,630	1,010	4,380	620	2,880	110	270	360	90	2,010	0	4,240	680	20,950
August																
Weekdays	5,480	40	1,560	300	6,220	980	420	110	310	1,380	70	210	0	7,750	1,340	26,170
Weekends	4,910	400	1,750	690	7,770	1,700	1,460	200	190	880	930	1,020	0	7,760	610	30,270
Holidays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September																
Weekdays	3,990	0	1,250	470	5,400	690	960	80	400	630	0	40	10	5,510	880	20,310
Weekends	3,590	580	1,260	120	6,800	900	1,930	200	230	1,330	70	590	0	5,780	1,050	24,430
Holidays	990	180	860	150	3,280	960	720	110	200	310	170	1,350	0	3,420	510	13,210
Total																
Weekdays	16,830	810	23,450	10,130	23,240	4,520	5,390	890	2,180	5,040	3,030	1,690	190	33,980	4,510	135,880
Weekends	15,630	1,870	8,770	4,930	30,110	6,940	9,630	880	980	4,330	1,130	5,000	20	33,350	4,430	128,000
Holidays	4,430	1,510	4,470	1,610	10,940	3,320	6,380	360	670	1,020	530	4,550	20	11,420	1,700	52,930
TOTAL	36,890	4,190	36,690	16,670	64,290	14,780	21,400	2,130	3,830	10,390	4,690	11,240	230	78,750	10,640	316,810

Because all of the recreation sites surveyed provide access to Lake Murray, it is not surprising that the majority of activities that individuals participate in at these sites are water-based recreation activities (80 percent). Fishing, from either a boat or the bank, is by far the most participated in activity by users of Lake Murray sites (Table 3.1-6). After fishing, motor boating, swimming, and picnicking are popular activities. These sites also support limited land-based activities such as walking/hiking, sightseeing and picnicking.

The activities participated in at individual sites varies by the amenities available at each site. For example, pier/dock fishing is participated in by a greater percentage of people at Kempson Bridge and the Dam Site – both of which have fishing piers -- than at the lake overall. With the exception of Parksite, Macedonia Church, and Bundrick Island, all of the Lake Murray recreation sites have boat launches. As a result, the predominant activities occurring at sites with launches are boating and fishing. At Parksite, picnicking is the predominant activity. Because Bundrick Island is accessed primarily by boat (recall that there is no parking area to accommodate walk-in or bike-in use), the majority of individuals interviewed at this site were participating in boating activities.

Although fewer people were interviewed during weekdays, a greater percentage of them participated in fishing activities (66 percent), when compared with weekends (49 percent of respondents) and holidays (47 percent of respondents). In contrast, a greater percentage of weekend and holiday respondents reported pleasure boating as being their primary activity as compared with weekdays. This result may be due to anglers preferring to fish on weekdays, when there are fewer pleasure boaters on the lake. A greater percentage of land-based activities (e.g., picnicking, camping and sightseeing) occur on weekends and holidays than occurs on weekdays.

Waterfowl hunters reported hunting on all day types, but primarily on weekends.

Study results do reveal a few interesting patterns of use at Lake Murray recreation sites.

- Although Parksite and Dreher Island State Park are the only recreation sites with formal swimming beaches, swimming does occur at several boat launches, including Larry Koon, Shull Island, Murray Shores, River Bend, and Sunset.
- Likewise, only Dreher Island State Park provides camping, though informal camping occurs occasionally at Bundrick Island, River Bend and Sunset.
- Of those individuals indicating "other" as their primary activity, socializing with friends and rest and relaxation were the activities reported most often.

Table 3.1-6: Primary Activities at Lake Murray

Activity	Day Type			Total
	Weekday	Weekend	Holiday	
Water-Based Activities				
Bank Fishing	17%	14%	11%	14%
Boat Fishing	46%	33%	34%	37%
Pier/Dock Fishing	3%	2%	2%	2%
Canoeing/Kayaking	0%	1%	0%	0%
Jet Skiing	2%	3%	3%	3%
Motor Boating	4%	8%	10%	8%
Pontoon/Party Boating	4%	7%	6%	6%
Sailing	1%	0%	0%	0%
Waterskiing/Tubing/Tow	1%	3%	2%	2%
Swimming	8%	9%	7%	8%
Water-Based Activities Total	***85%***	***78%***	***76%***	***80%***
Land-Based Activities				
Bicycling	0%	0%	1%	0%
Camping	1%	3%	4%	3%
Event	0%	1%	0%	0%
Picnicking	3%	5%	7%	5%
Playground	1%	0%	0%	0%

Activity	Day Type			Total
	Weekday	Weekend	Holiday	
Sightseeing	1%	3%	4%	3%
Sunbathing	1%	1%	2%	1%
Walking/Hiking/Backpacking	3%	3%	1%	2%
Other	4%	5%	4%	4%
Land-Based Activities Total	***15%***	***22%***	***24%***	***20%***
Total	**100%**	**100%**	**100%**	**100%**
n	**351**	**621**	**312**	**1,284**

3.1.3.3 Lower Saluda River

The lower Saluda River supported an estimated 127,000 recreation days within the project boundary, and roughly 45,000 recreation days outside the project boundary during the study period (Table 3.1-7). The most used sites were Saluda Shoals Park (100,000 recreation days), Mill Race B (27,790 recreation days), Metts Landing (18,240 recreation days), and Mill Race A (17,160 recreation days). The site with the least amount of use was Gardendale (8,720 recreation days). Over half of all use during the study period occurred during the months of June and July.

Table 3.1-7: Estimated Recreation Days by Site, Month, and Day Type for the Lower Saluda River May 27 (Memorial Day) through September 30, 2006

	Mill Race A[a]	Mill Race B[a]	Gardendale	Saluda Shoals Park	James R. Metts Landing	Total
May						
Weekdays	70	110	100	1,400	300	1,980
Weekends	0	0	0	0	0	0
Holidays	830	820	170	3,020	590	5,430
June						
Weekdays	3,630	9,760	810	19,830	3,210	37,240
Weekends	2,900	4,010	340	6,780	1,640	15,670
Holidays	0	0	0	0	0	0
July						
Weekdays	1,310	2,890	1,090	18,350	3,340	26,980
Weekends	1,400	4,130	690	9,170	1,530	16,920
Holidays	850	840	360	5,520	620	8,190

	Mill Race A[a]	Mill Race B[a]	Gardendale	Saluda Shoals Park	James R. Metts Landing	Total
August						
Weekdays	2,400	960	1,470	4,960	1,750	11,540
Weekends	1,890	900	1,800	10,140	1,410	16,140
Holidays	0	0	0	0	0	0
September						
Weekdays	660	1,130	1,150	14,040	1,120	18,100
Weekends	780	1,800	360	3,210	2,200	8,350
Holidays	440	440	370	3,580	530	5,360
Total						
Weekdays	8,070	14,850	4,620	58,580	9,720	95,840
Weekends	6,970	10,840	3,200	29,300	6,780	57,090
Holidays	2,120	2,100	900	12,120	1,740	18,980
TOTAL	**17,160**	**27,790**	**8,720**	**100,000**	**18,240**	**171,910**

[a] Outside the project boundary.

Activities participated in by users of the lower Saluda River sites were varied (Table 3.1-8). A higher percentage of individuals recreating at lower Saluda River sites participate in land-based activities as compared with Lake Murray recreation sites. Fishing constituted 19 percent of weekday use, 25 percent of weekend use, and 18 percent of holiday use at lower Saluda River sites. Boating and floating activities (e.g., canoeing and kayaking, rafting and tubing), comprised 19 percent of weekday use, 26 percent of weekend use, and 21 percent of holiday use. Unlike Lake Murray recreation sites, a greater percentage of land based activities occur on weekdays than weekends and holidays.

Table 3.1-8: Primary Activities on the Lower Saluda River Within the Project Boundary[a]

Activity	Day Type			Total
	Weekday	Weekend	Holiday	
Water-Based Activities				
Bank Fishing	10%	11%	0%	9%
Boat Fishing	9%	16%	7%	11%
Pier/Dock Fishing	1%	0%	4%	1%
Wading Fishing	0%	0%	4%	0%
Flatwater Canoe/Kayak	9%	17%	18%	13%
Rafting	0%	0%	0%	0%
Tubing/Floating	4%	6%	4%	5%
Whitewater Canoe/Kayak	8%	7%	7%	7%
Swimming	3%	2%	14%	4%
Water-Based Activities Total	43%	58%	57%	51%
Land-Based Activities				
Bicycling	1%	4%	4%	3%
Camping	0%	0%	0%	0%
Dog Walking	9%	7%	4%	7%
Event	5%	2%	0%	3%
Nature Study/Wildlife	2%	0%	0%	1%
Picnicking	1%	1%	4%	1%
Playground/Spraypark	4%	9%	7%	6%
Sightseeing	18%	6%	14%	12%
Sunbathing	0%	0%	4%	0%
Walking/Hiking/Backpacking	4%	6%	7%	5%
Other	14%	7%	0%	9%
Land-Based Activities Total	57%	42%	43%	49%
Total	100%	100%	100%	100%
n	102	89	28	219

[a] Does not include Mill Race A and Mill Race B, which are outside the project boundary.

Activities participated in at individual sites are dependent upon the support facilities provided. Both shoreline and boat access are provided on the lower Saluda River. Two sites provide motorized boat launches, one site provides a carry-in launch only and two sites provide shoreline access to the water but no formal boat launch.

Boating activities are most popular at Metts Landing, which has both motorized and carry in boat launches. Canoeing and kayaking

activities are most popular at Gardendale, which has a carry-in launch and Mill Race A, which provides shoreline access to Mill Race Rapids. Land-based activities make up the majority of use at Saluda Shoals Park (75 percent), which is the most developed site and offers the most amenities.

A greater percentage of individuals participate in water based activities on weekends and holidays during the study period, (62 percent and 56 percent, respectively). Of these, boating is slightly more popular than fishing; 23 percent of total use compared with 22 percent of total use. Over 50 percent of use on weekdays was attributed to land-based activities. Sightseeing was the most popular land-based activity, comprising 14 percent of total weekday use. Use at Saluda Shoals Park was generally consistent across day types though the splash park was more popular on weekends and holidays (27 percent and 22 percent of use respectively).

Study results do reveal a few patterns of use at lower Saluda River sites:

- Boat fishing at Metts Landing, which provides both motorized and carry-in boat launches, is more popular on weekdays and weekends (25 percent and 31 percent of respondents, respectively) compared with holidays (18 percent). Other boating activities, on the other hand, occurred more often on weekends and holidays (29 percent and 27 percent of respondents, respectively).
- Patterns of use at Mill Race A and B coincide with anticipated uses (whitewater boating, sightseeing, picnicking, etc.,), but activity did differ by day type. Sightseeing is reported as the most popular activity on holidays at Mill Race A; boating activities are more popular on weekdays and weekends at this site. Mill Race

B is primarily used for sunbathing and swimming on weekdays and weekends; bank fishing was reported as the primary activity most often by holiday users. Although there are no camping facilities at lower Saluda River sites, camping was reported as a primary activity at Mill Race A (2 percent of respondents).

- Sightseeing occurred most often on weekdays and holidays at Gardendale (34 percent and 38 percent respectively). Canoeing/kayaking was most popular at this site on weekends (45 percent) and holidays (38 percent).
- Land based activities were consistently popular across all day types for Saluda Shoals Park, though the specific activities differed. Dog walking and special events were more popular during the week, while use of the playground/splash park was popular on weekends and holidays. Swimming and hiking were equally popular on holidays.

3.2 Characterization of Potential Future Use and Needs

The second goal of this study was to learn about demand for public access sites at the project, and the ability of existing access sites to accommodate that need. This includes estimating potential future use and learning whether current sites and facilities are adequate for long term management needs.

3.2.1 Future Use

National trends of participation in outdoor recreation show significant increases in camping (37.9 percent), boating (31.8 percent), and fishing (27.7 percent) between 1995 and 2001 (Cordell et al., 2004). In South Carolina, walking for pleasure is reportedly the primary recreation activity in which individuals aged 18 years or older participate and participation has grown

approximately 15 percent in the last 25 years (USC, 2005a). Water-based activities such as beach swimming and sunbathing have increased over these 25 years, from 47.5 percent in 1979 to 62.4 percent in 2005. Freshwater angling has consistently been among the top ten activities participated in South Carolina but generally experienced a decline in participation rates between 1979 and 1990 of approximately 16.7 percent. In the last 15 years, participation in freshwater fishing has leveled off to approximately 38 percent of the public participating (USC, 2005a). The top 25 recreation activities for the counties surrounding the Project (Lexington, Richland, Saluda, and Newberry) are provided in Table 3.2-1. It is not surprising that survey respondents participate in activities at Lake Murray and on the lower Saluda River at different rates than residents of the four county area: survey respondents are mostly residents of the four county area, but they are a subset of individuals who have chosen to visit public recreation sites beside water bodies for a specific purpose.

Table 3.2-1: Recreation Participation (2005), Age 12 and Older, for the Four Counties Surrounding the Saluda Project

Activity	Four County Area (Percent)	State (Percent)
1. Walking for pleasure or exercise	81.8	83.2
2. Attending outdoor sporting events	70.3	63.4
3. Weights or exercise machines	68.9	57.1
4. Ocean Beach swimming/sunbathing	68.3	62.5
5. Visiting a zoo	58.8	34.1
6. Pool swimming	54.1	53.2
7. Driving for pleasure	53.5	58.2
8. Picnicking	52.1	53.4
9. Visiting historical sites	51.5	52.1
10. Bicycling	51.1	42.8
11. Visiting a museum	45.2	38.4
12. Playing basketball	45.0	34.5
13. Jogging/running	42.7	33.9
14. Motor boating	35.4	34.1
15. Fresh water fishing	34.8	37.2
16. Visiting an unusual natural feature	34.4	34.7
17. Watching wildlife	34.0	33.4
18. Lake/river swimming	29.3	28.0
19. Playing football	28.8	22.4
20. Golf	26.1	21.1
21. Guided nature trail/study	26.1	20.2

Activity	Four County Area (Percent)	State (Percent)
22. Playing volleyball	24.5	17.2
23. Off-road vehicle riding	23.8	23.5
24. Camping	22.2	23.1
25. Hiking	20.9	18.2

Source: USC, 2005b

Cordell et al. (2004) reports that "Population has been, is, and will be the major driver of outdoor recreation participation growth in this country." In fact, between 1960 and 2000, the population of southern states grew more rapidly than any other region in the United States (Cordell and Tarrant, 2002). The population of the counties around the lake (Richland, Newberry, Saluda, and Lexington) increased by 4.1 percent between 2000 and 2005 and is projected to increase by another 24.0 percent by the year 2030 (SCBCB, 2005). For counties surrounding the lower Saluda River – Richland and Lexington – population is expected to increase by 31.3 percent from 2005 to 2030, with Lexington County having the fastest population growth of the area, at 41.6 percent from 2005 to 2030 (SCBCB, 2005). If participation in recreation increases at a similar rate, one can expect to see significant increased demand for recreation opportunities in the future, including at those sites that are estimated to be reaching capacity and, in a few cases, exceeding capacity under current use levels.

3.2.1.1 Project

Estimated recreation use stemming from public access sites on Lake Murray and the lower Saluda River could total 604,520 recreation days in the year 2030 -- an increase of approximately 115,500 recreation days (23 percent) over 2006 levels (Table 3.2-2).

Table 3.2-2: Estimated Future Recreation Days for the Saluda Project

	Use Estimates by Activity (2006)	Estimated Future Participation				
		2010	2015	2020	2025	2030
Population Growth Rates		4.87%	4.62%	4.37%	4.19%	3.68%
Lake Murray Sites	316,810	332,190	347,550	362,750	377,930	391,850
Lower Saluda River Sites	126,940	133,130	139,240	145,370	151,450	157,030
Mill Race Sites	44,970	47,150	49,310	51,480	53,650	55,640
TOTAL	488,720	512,470	536,100	559,600	583,030	604,520

3.2.1.2 Lake Murray

Population in the four counties surrounding the Project is expected to increase by an average of approximately 4.4 percent for each of the five year periods over the next 25 years for a total increase of 24.0 percent from 2005 to 2030 (SCBCB, 2005). Use of Lake Murray public access sites could increase by roughly 75,000 recreation days (or visits to the project by recreators) by the year 2030 (Table 3.2-3). Applying current outdoor recreation trends and existing public recreation facilities, fishing may likely continue to be the dominant activity at the Project in the year 2030.

Table 3.2-3: Estimated Future Recreation Days for Lake Murray by Activity, 2010-2030

	Use Estimates by Activity (2006)	Estimated Future Participation				
		2010	**2015**	**2020**	**2025**	**2030**
Population Growth Rates		4.87%	4.62%	4.37%	4.19%	3.68%
Activity						
Bank Fishing	45,700	47,920	50,140	52,330	54,520	56,530
Boat Fishing	121,930	127,870	133,780	139,630	145,470	150,830
Pier/Dock Fishing	6,780	7,110	7,440	7,760	8,090	8,390
Canoeing/Kayaking	1,200	1,260	1,320	1,370	1,430	1,480
Jet Skiing	7,930	8,310	8,690	9,070	9,450	9,800
Motor Boating	21,570	22,610	23,660	24,690	25,730	26,670
Pontoon/Party Boating	16,700	17,520	18,330	19,130	19,930	20,660
Sailing	1,740	1,830	1,910	2,000	2,080	2,160
Waterskiing/Tubing/Tow	6,040	6,330	6,620	6,910	7,200	7,460
Bicycling	1,350	1,410	1,480	1,540	1,600	1,660
Camping	8,470	8,880	9,290	9,700	10,100	10,480
Event	1,210	1,270	1,330	1,390	1,450	1,500
Nature Study/Wildlife	380	390	410	430	450	460
Picnicking	14,620	15,330	16,040	16,740	17,440	18,090
Playground	1,540	1,610	1,690	1,760	1,830	1,900
Sightseeing	8,640	9,060	9,480	9,890	10,310	10,690
Sunbathing	3,250	3,400	3,560	3,720	3,870	4,020
Swimming	26,320	27,600	28,870	30,140	31,400	32,550
Walking/Hiking/Backpacking	8,050	8,440	8,830	9,220	9,610	9,960
Other	13,390	14,040	14,680	15,330	15,970	16,560
TOTAL	**316,810**	**332,190**	**347,550**	**362,750**	**377,930**	**391,850**

3.2.1.3 Lower Saluda River

Recreation use at public access sites on the lower Saluda River sites within the project boundary could increase by roughly 30,000 recreation days (visits to the project by people) by the year 2030 (Table 3.2-4).

Table 3.2-4: Estimated Future Recreation Days for Lower Saluda River Within the Project Boundary by Activity, 2010-2030[a]

	Use Estimates By Activity (2006)	Estimated Future Participation				
		2010	2015	2020	2025	2030
Population Growth Rates		4.87%	4.62%	4.37%	4.19%	3.68%
Activity						
Bank Fishing	11,560	12,120	12,680	13,240	13,790	14,300
Boat Fishing	13,660	14,320	14,990	15,640	16,300	16,900
Pier/Dock Fishing	1,240	1,300	1,360	1,420	1,480	1,530
Wading Fishing	530	560	580	610	630	660
Flatwater Canoe/Kayak	15,690	16,450	17,210	17,970	18,720	19,410
Rafting	0	0	0	0	0	0
Tubing/Floating	5,600	5,870	6,140	6,410	6,680	6,930
Whitewater Canoe/Kayak	9,420	9,880	10,330	10,790	11,240	11,650
Bicycling	3,000	3,150	3,290	3,440	3,580	3,710
Camping	0	0	0	0	0	0
Dog Walking	9,610	10,080	10,540	11,000	11,470	11,890
Event	4,450	4,670	4,880	5,100	5,310	5,500
Nature Study/Wildlife	1,430	1,500	1,570	1,640	1,710	1,770
Picnicking	1,680	1,760	1,840	1,920	2,000	2,080
Playground/Spraypark	7,440	7,800	8,160	8,520	8,880	9,200
Sightseeing	17,190	18,030	18,860	19,680	20,510	21,260
Sunbathing	530	560	580	610	630	660
Swimming	5,130	5,380	5,630	5,870	6,120	6,350
Walking/Hiking/Backpacking	6,120	6,420	6,710	7,010	7,300	7,570
Other	12,660	13,280	13,890	14,500	15,100	15,660
TOTAL	**126,940**	**133,130**	**139,240**	**145,370**	**151,450**	**157,030**

[a] Does not includes Mill Race A and Mill Race B, which are outside the project boundary.

3.2.2 Recreation Site Use Density

Public recreation sites at the project are generally well used with several sites reportedly being used at their design capacity, particularly on weekends and holidays. In the discussion below, sites were considered to be utilized within their design capacities if parking areas are regularly less than 75 percent full. Use is considered to be approaching capacity if parking areas are regularly between 75 and 99 percent full. Use is considered to be exceeding capacity if parking areas are regularly greater than 99 percent full. It is important to note that high levels of use typically experienced on holidays are regarded as special circumstances, as these use levels are experienced only a few times a year. Recreation capacity should be considered for typical weekday and weekend use in management and site design decisions.

3.2.2.1 Lake Murray

The capacity at which public access sites are currently used was estimated for all sites with the exception of Bundrick Island, which does not have a parking area, and which is used mainly by boaters.

Results suggest that four sites are consistently used within their design capacities, regardless of day type, and could accommodate additional use: Dam Site, Parksite, Rocky Point, and Dreher Island State Park (day use only). Three sites are currently used at rates approaching capacity: Riverbend, Higgins Bridge, and Kempson Bridge. For Riverbend and Kempson Bridge, this trend was only observed on holidays. Higgins Bridge was observed as nearing capacity only on weekends.

The remaining seven sites were observed to be used at rates that regularly meet or exceed their design capacities on some or all day types. Larry Koon and Shull Island are used beyond their capacities, regardless of day type. Lake Murray Estates Park is utilized at rates that exceed its capacity on weekends, and use exceeds capacity on weekends and

holidays at Sunset and Hilton. Capacity is exceeded on holidays at Murray Shores but this site is consistently used within its design capacity on weekdays and weekends although, use at Macedonia Church is considered to exceed design capacity on weekdays and weekends.

While results suggest that public access sites are being very well used during the summer season, frequently at rates at or above their intended capacities, additional information can help in interpreting these findings to better understand how sites are used. First, parking capacity at many sites, particularly those with gravel parking areas, is estimated. The actual parking capacity most likely varies from this estimate sometimes accommodating more vehicles than estimated. Second, at some sites, people were observed parking in areas that are not considered parking areas (on lawns, roadside, etc.). Third, vehicle counts include people who may have just driven through a site, but did not stay (either because the site was already full, or for some other reason).

Perceptions of crowding can influence a person's enjoyment of his recreation experience. Understanding how crowded people perceive a site to be can be used by managers when making decisions about whether a site can accommodate additional use. Table 3.2-5 provides a breakdown of user perceptions of crowding at Lake Murray access sites by day type. Crowdedness was rated on a scale from 1 (light) to 5 (heavy). Waterfowl hunters reported hunting with at least one additional person, and they often arrive at access sites in separate vehicles. Hunters reported no issues at access sites with respect to crowding or capacity.

Table 3.2-5: Crowdedness Ratings for Lake Murray Recreation Sites [a]

	Rating by Day Type							
	Weekday		Weekend		Holiday			
Site	Average	Mode	Average	Mode	Average	Mode	Average	Mode
Dam Site	1.71	1	2.48	2	3.42	4	2.45	1
Parksite	1.00	1	1.22	1	1.74	1	1.38	1
Larry L. Koon Boat Landing	3.29	5	4.52	5	4.05	4	4.02	5
Shull Island	3.59	5	3.59	3	3.23	4	3.53	5
Bundrick Island	1.17	1	1.94	1	1.89	1	1.82	1
Murray Shores	1.98	1	2.71	3	3.11	3	2.60	3
River Bend	1.97	1	2.54	3	3.00	4	2.45	1
Higgins Bridge	1.00	1	2.67	2	2.11	1	2.11	1
Kempson Bridge	1.47	1	3.00	3	3.25	1	2.46	1
Lake Murray Estates Park	1.09	1	1.59	1	1.19	1	1.37	1
Macedonia Church	1.00	1	2.00	1	1.00	1	1.29	1
Sunset	1.00	1	2.34	1	3.63	5	2.34	1
Rocky Point					1.00	1	1.00	1
Dreher Island State Park	1.71	1	2.29	1	2.80	1	2.32	1
Hilton	1.06	1	3.24	5	2.71	1	2.27	1

[a] Crowding at Lake Murray recreation sites was rated on a scale from 1 to 5, where a 1 equals “light” and a 5 equals “heavy”

Overall, respondents stated that crowding was relatively light on weekdays for all sites. On weekends, the crowdedness rating for all sites combined was 2.57, generally moderate. Crowdedness ratings slightly increased overall on holidays to 2.63.

Over 40 percent of Larry L. Koon Boat Landing and Shull Island visitors felt that crowding was moderate on weekdays, while the remainder of sites indicated light use during the week. Hilton, Kempson Bridge, and Shull Island were reported to have moderate use, with other sites slightly less crowded, and Larry L. Koon Boat Landing to have moderately heavy use on weekends. Crowding was perceived to be the greatest on holidays at Sunset, River Bend, Murray Shores, Shull Island, Larry L. Koon Boat Landing, and Dam Site. Each of these sites reported moderate to heavy crowding on holidays.

In summary, Larry L. Koon Boat Landing is perceived to be the most crowded of all the lake sites, with an overall rating of 4.02, and weekend and holiday ratings of 4.52 and 4.05, respectively. The site reported to be the least crowded was Rocky Point. There were only five cars observed during 23 sample days at this site.

People who reported boating on Lake Murray also rated crowding on the lake on a scale from 1 (light) to 5 (heavy) for the area in which they spent the most time boating. For convenience, results are reported by 12 lake segments, which were drawn to assist respondents in identifying their locations on the lake. Crowding on the lake was perceived as light during on weekdays, with the exception of Segment 5, which received an average crowdedness rating between moderate and heavy (Figure 3.2-1). Segment 5 is home to Larry Koon Boat Landing, which receives the third largest amount of weekday use, and is near to Dreher Island State Park, which is identified as receiving the highest level of use of all the parks studied. Though, Larry Koon is the second busiest site overall during the week, it receives the greatest amount of boating use with an estimated 20,100

recreation days of boating activity on weekdays, as compared with 8,980 for Dam site and 13,150 for Dreher Island State Park.

On weekends, perceptions of crowding increased somewhat (Figure 3.2-2). Segments 11 and 12 are still perceived to be light, but on segments 2, 3, 4, 8, 9 and 10, respondents reported light to moderate crowding. Segments 1, 5, 6, and 7 received average crowding ratings of moderate to heavy, however, the average ratings are at the lower end of that range: no segments received average crowding ratings of heavy (between a 4 and a 5 rating). Segment 11 is home to Higgins Bridge and Kempson Bridge, which receive the least amount of boating use on weekends (about 5 percent of the total). Though Lake Murray Estates Park receives approximately 7 percent of the total boating activity on weekends, crowding on Segment 12, in which the site is located, is also reported to be relatively light (1.13 rating).

Boaters' and anglers' opinions on crowding differed on holidays (Figure 3.2-3). On holidays, only segments 2 and 12 are perceived to be lightly crowded, on average. Segments 3, 6, 7, 9, and 11 are perceived to receive light to moderate crowding, and segments 1, 4, 5, 8, and 10 are perceived to receive moderate to heavy crowding. It is worth noting that for several of the latter segments, the average ratings are at the low end of that range. No segments were reported to be heavily crowded. Even though Segment 5 was reported to be most crowded during the week (3.83 rating) and was reported to be the least crowded during holidays, the average rating still falls within the "moderate to heavy" range. This pattern corresponds with use estimates for Larry Koon Boat Landing, located on Segment 5, where the site received 64 percent of its total use during the week.

Weekends were reported to be more crowded, on average, than holidays for Segments 2, 6, and 7 (Table 3.2-6). However, these segments were not the most often reported segments on which respondents spent

their time, and accounted for less than 10 percent each of the on-water activity reported. The resulting higher opinions of crowding for these segments, which were reported to be less used by public access site users, may be a result of increased use by shoreline property owners or marina patrons on weekends.

Table 3.2-6: Crowdedness Ratings for Lake Murray Segments [a]

Lake Segment	Rating by Day Type							
	Weekday		Weekend		Holiday			
	Average	Mode	Average	Mode	Average	Mode	Average	Mode
1	1.60	1	3.20	4	3.00	3	2.78	3
2	1.25	1	2.58	3	1.80	1	1.82	1
3	1.84	1	2.27	1	2.41	1	2.21	1
4	1.32	1	2.60	1	3.00	4	2.21	1
5	3.83	5	3.70	5	3.00	3	3.58	5
6	1.00	1	3.15	3	2.60	1	2.71	3
7	1.57	1	3.19	2	2.75	1	2.47	1
8	1.89	1	2.73	3	3.57	5	2.68	1
9	1.88	1	2.88	3	2.67	3	2.42	3
10	1.83	1	2.78	3	3.12	3	2.66	3
11	1.42	1	1.78	1	2.85	3	1.98	1
12	1.13	1	1.62	1	1.44	1	1.44	1

[a] Recreation sites were rated on a scale of 1 to 5, where a 1 was “light” and a 5 was “heavy”.

Figure 3.2-1: Crowdedness by Lake Segment – Weekdays

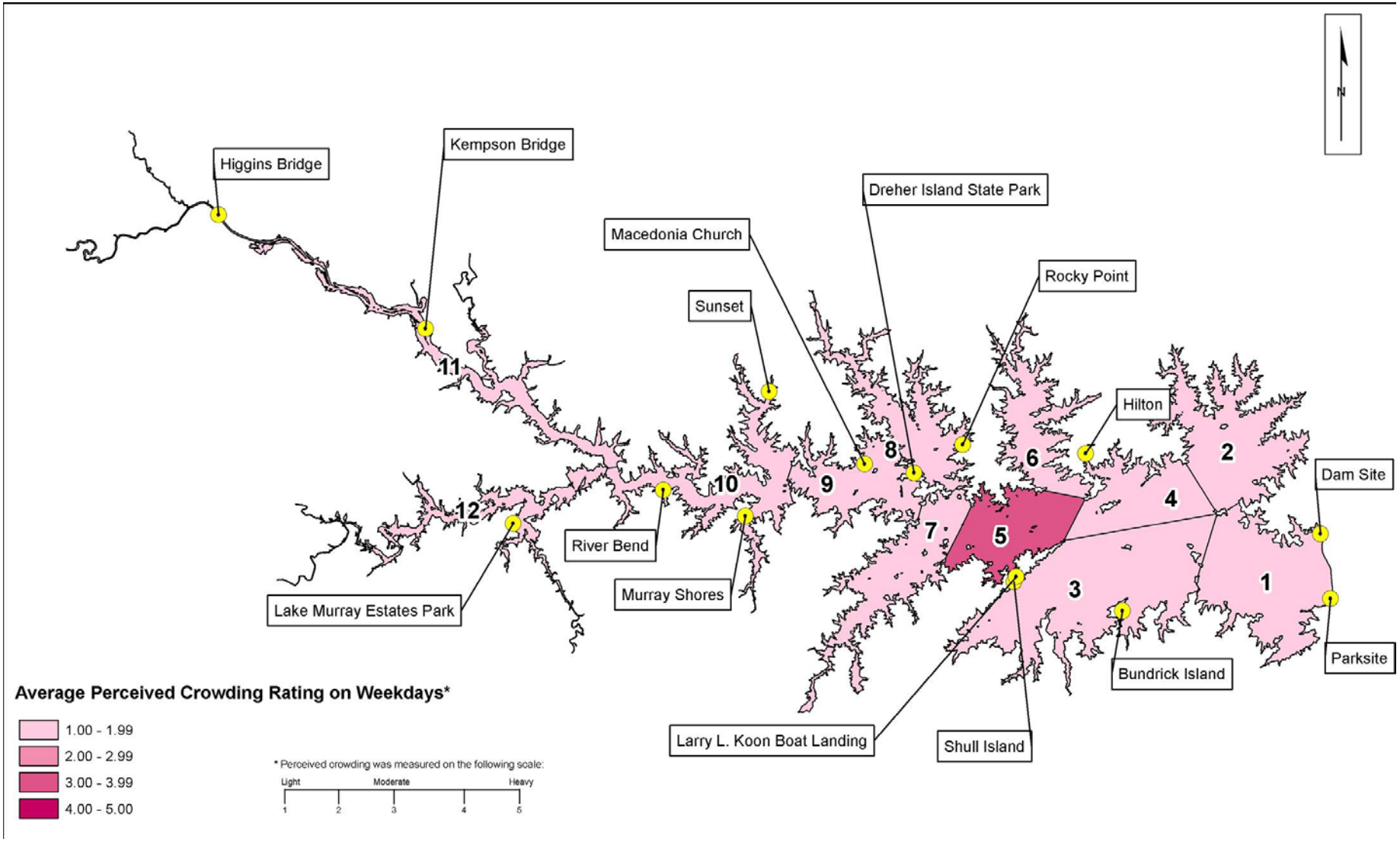


Figure 3.2-2: Crowdedness by Lake Segment – Weekends

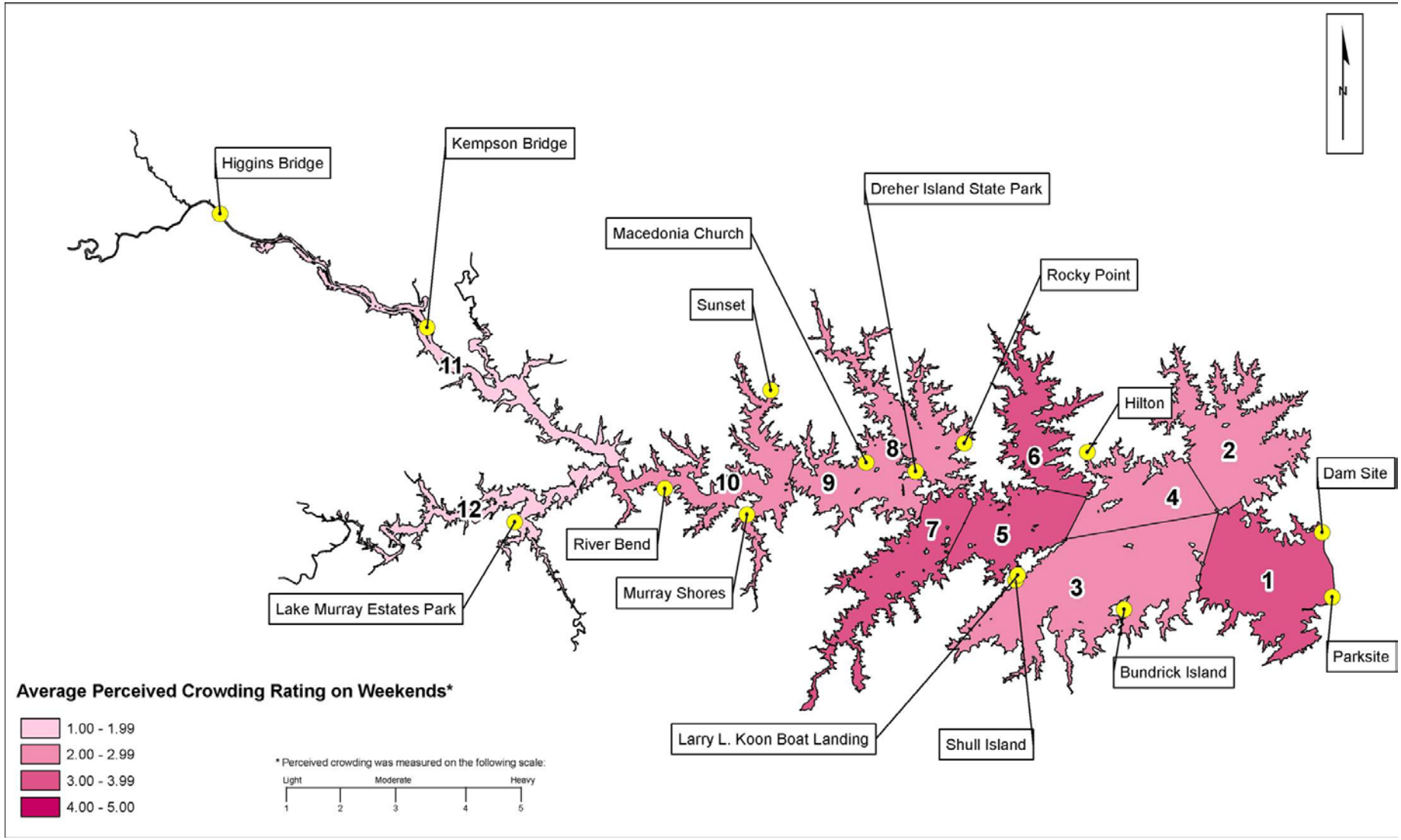
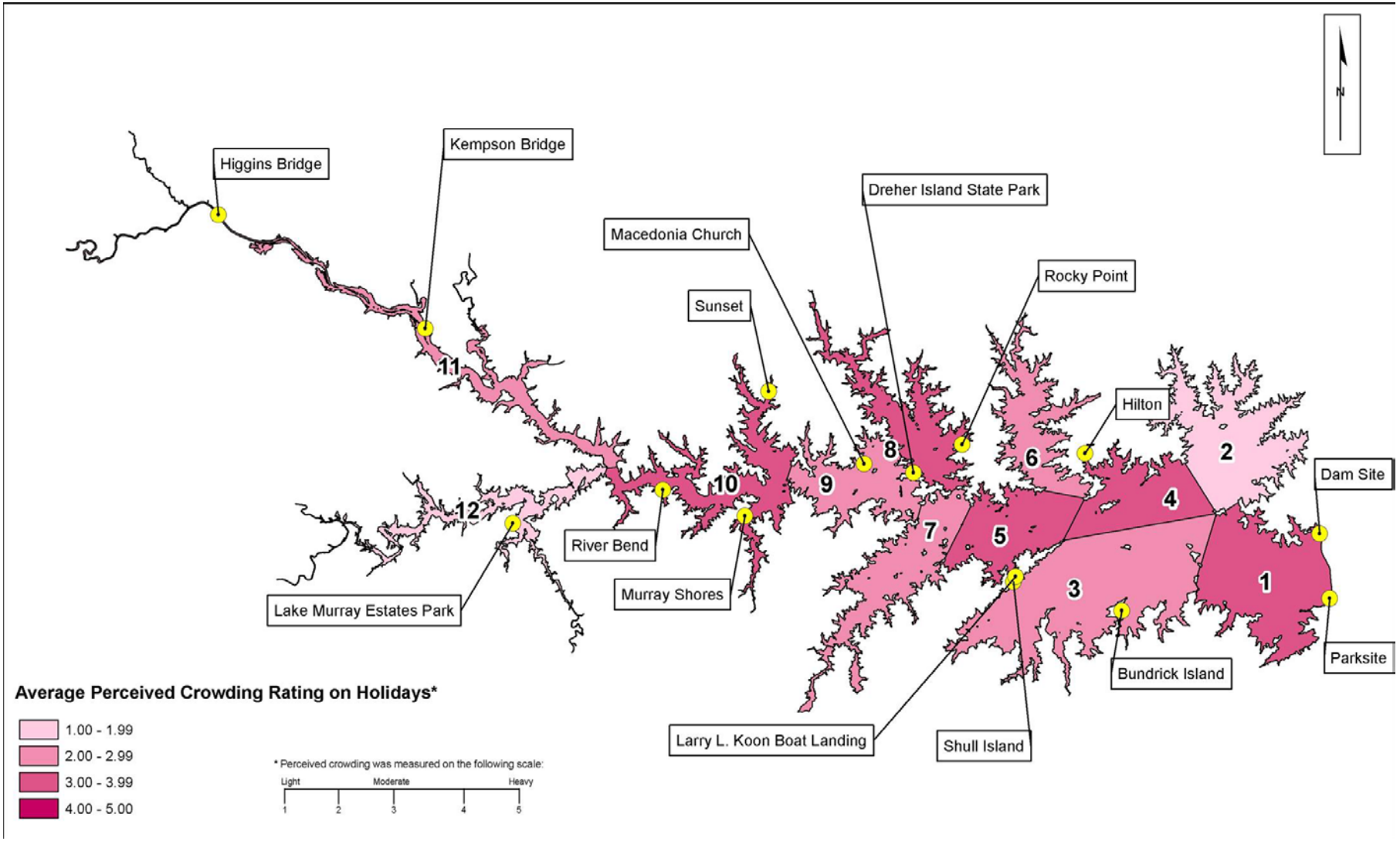


Figure 3.2-3: Crowdedness by Lake Segment – Holidays



Waterfowl hunters reported no issues with crowding on the water among themselves, but did identify conflicts with other users, particularly anglers and shoreline residents. The hunters stated that anglers often interfere with their set of decoys, and they believe this to be intentional, and shoreline residents also attempt to interfere with hunting activity.

3.2.2.2 Lower Saluda River

Results suggest that all public access sites on the lower River are well used: only Saluda Shoals Park is consistently used within its design capacity. The remaining sites are used at or above their estimated design capacities on weekends. Use of Metts Landing and Mill Race A is also approaching capacity on weekdays.

Similar to results for Lake Murray sites, these results suggest that public access sites are being very well used, frequently at rates at or above their intended capacities. Here again, however, additional information can help in understanding how sites are used. First, parking capacity at some sites is estimated, the actual parking capacity most likely varies from this estimate. Second, the parking areas at the two Mill Race sites are actually overflow parking for Riverbanks Zoo. As a result, some zoo patronage was likely included in this assessment. Third, vehicle counts potentially include drive throughs.

Most people reported low levels of crowding on weekdays at all recreation sites on the lower River (Table 3.2-7). Mill Race B received the highest average crowdedness rating. Millrace B also received the second highest volume of visitation on weekdays, where 52 percent of respondents primarily participate in sunbathing and swimming, primarily on weekdays. Most people reported perceptions of slightly more crowding on weekends and holidays, but still within the range of low to moderate for all sites.

Table 3.2-7: Crowdedness Ratings for Lower Saluda River Access Sites [a]

	Rating by Day Type							
	Weekday		Weekend		Holiday			
Site	Average	Mode	Average	Mode	Average	Mode	Average	Mode
Mill Race A[b]	1.31	1	2.18	1	2.14	2	1.95	1
Mill Race B[b]	2.14	1	2.17	3	1.33	1	2.09	1
Gardendale	1.28	1	1.85	2	1.78	1	1.55	1
Saluda Shoals	1.73	1	2.43	3	2.89	3	2.14	1
James R. Metts Landing	1.47	1	2.13	3	3.00	3	1.97	1

[a] Recreation sites was rated on a scale of 1 to 5, where a 1 was "light" and a 5 was "heavy".
[b] Outside the project boundary.

3.2.3 User Perceptions of Site Conditions and Needs

This section addresses user perceptions of recreation site conditions, and their recommendations for additional facilities and site improvements.

3.2.3.1 Lake Murray

Site Conditions. Overall, respondents considered recreation sites to be in very good to excellent condition (Table 3.2-8). On a scale of 1 to 5 where a 1 is "poor" and a 5 is "excellent," several sites were reported as being in near excellent condition, and all but two sites received above average condition ratings, regardless of day type. Larry Koon, Shull Island, Kempson Bridge, Lake Murray Estates Macedonia Church, Sunset, Dreher Island State Park, Rocky Point, and Hilton are considered to be in very good to excellent shape, with Kempson and Hilton reported to be in near excellent condition.

All other sites generally received above average condition ratings, with only two exceptions. On weekdays, Parksite received low condition ratings. Although the average rating was only slightly below average, the most common response was a "poor" rating. Higgins Bridge received relatively low ratings when compared with other sites, hovering at an

"average" rating, particularly on weekdays. There is no correlation between increased use levels and condition ratings.

Waterfowl hunters agreed that SCE&G maintains their public access sites very well, and noted that all public sites are well equipped, "pretty nice", and reasonably clean.

Need for Additional Facilities. Respondents were asked to indicate what, if any, additional facilities were needed at the site at which they were interviewed (Table3.2-9). Half of all respondents indicated that the Lake Murray recreation sites at which they were interviewed were in need of additional facilities or improvements. Of those indicating a need for additional facilities, restrooms were identified as the most needed additional facility at Lake Murray recreation sites 30 percent of the time. This was particularly true for Lake Murray Estates, where almost all survey respondents requested bathrooms. In addition, many individuals indicated a need for picnic facilities (10 percent of responses), lighting (9 percent of responses), parking lot improvements (9 percent of responses), and trashcans (9 percent of responses). The majority of individuals interviewed at Parksite and Dreher Island State Park had varying suggestions for additional facilities, but did not focus on any single recommendation. At Parksite, individuals most often requested a swimming pool and sports venues such as volleyball courts. At Dreher Island State Park, individuals most often requested septic service, presumably for RV campsites. Not surprisingly, additional parking was frequently requested at Larry Koon and Shull Island.

Waterfowl hunters unanimously agreed that boat access to the lake is adequate for their purposes and no additional access sites are needed. Some stated that boat ramps are not always useable during the winter months. SCE&G extended its public ramps prior to its dam remediation activity. Because of this, we believe this comment can be attributed to the private and/or commercial boat ramps that were not extended to

accommodate low water events. Trash cans and cabins were the only facilities suggested for additional resources. All recognized that the addition of trash cans would require an increase in maintenance needs at the sites, as they would need to be emptied.

Need for Improvements. Fifty-seven percent of respondents identified improvements needed at recreation sites (Table 3.2-10). Improvements ranged from needing expansions of existing facilities (such as improved lighting or parking lot expansions) to increased maintenance (such as more frequent trash collection and landscaping). Improved or expanded restroom facilities was cited most often (17 percent of responses). The need for aesthetics and maintenance activities such as cleaning restrooms, removal of trash, and improved landscaping was cited second most often (14 percent of responses). This was followed by improved or additional lighting (13 percent of responses). Restroom facilities were the most often cited improvements at Murray Shores (20 percent of responses) and Lake Murray Estates Park (67 percent of responses) and were also the most often cited additional facilities needed at these sites. Murray Shores provides portable toilets; whereas there are no restroom facilities at Lake Murray Estates Park.

Aesthetic and maintenance activities were cited most often as being needed at the Dam site, Parksite, Macedonia Church, Bundrick Island and Dreher Island State Park. At the Dam site, these activities were primarily restroom cleaning. For Parksite, maintenance of restrooms was also requested in addition to general trash pick up and pest management. Macedonia Church received the highest percentage of responses indicating a need for maintenance activities; specifically, grass cutting. Dreher Island State Park visitors indicated a need for restroom cleaning and pest control, primarily. Improved lighting was most often requested for Riverbend (35 percent of responses) and Murray Shores (17 percent of responses).

An improved swimming area was requested at Sunset 22 percent of the time even though this site does not have a formal swimming area. Nevertheless, there is a sandy shoreline and 10 percent of individuals interviewed at Sunset indicated swimming as their primary activity.

An improved boat launch was requested most often at Higgins Bridge, which has an existing one-lane, concrete boat launch. An equal number of responses (21 percent) indicated a need for higher water levels at Higgins Bridge to accommodate boat launching. An improved boat launch was also requested at Hilton, which has an existing two-lane concrete launch, 40 percent of the time; at Shull Island, which has an existing single lane concrete launch, 32 percent of the time; and at Murray Shores, which has an existing single lane paved launch,19 percent of the time.

Parking lot improvements were requested most often for Kempson Bridge and Larry Koon but were also requested for Shull Island. Kempson Bridge was renovated in 2006; which included repaving the parking area. However, additional parking, including ADA-complaint spaces, was requested for this site. Larry Koon, which has a paved lot in good condition, often sees use levels at or approaching capacity. As such, 35 percent of responses indicated a need for an expanded parking lot at this site. Shull Island, which generally serves as an overflow site for Larry Koon, has a small, gravel lot. Respondents indicated a need for additional parking at this site.

Waterfowl hunters provided several comments that would enhance their recreational experience, none of these suggestions were site specific:

- Maintain higher water levels through the end of January to improve hunting conditions. In their opinion, this is the

single most important thing SCE&G could do to benefit waterfowl hunters.

- Establish food or habitat plantings to enhance and/or attract waterfowl and waterfowl habitat around the shoreline, particularly-though not exclusively – in undeveloped areas.
- Slow residential development along the shoreline to allow some pockets of protected (undeveloped) lands, particularly in the upper reaches of the lake (e.g., Saluda and little Saluda Rivers).[5]
- Protect and/or provide habitat.

Table 3.2-8: Condition Ratings for Lake Murray Recreation Sites [a]

	Rating by Day Type							
	Weekday		Weekend		Holiday			
Site	Average	Mode	Average	Mode	Average	Mode	Average	Mode
Dam Site	4.00	5	3.79	3	4.33	4	3.95	5
Parksite	2.60	1	3.88	4	4.06	5	3.82	4
Larry L. Koon Boat Landing	4.31	5	4.14	5	4.00	4	4.17	5
Shull Island	4.30	5	3.82	5	4.23	5	4.05	5
Bundrick Island	3.67	5	3.49	3	3.41	3	3.49	3
Murray Shores	3.74	4	3.95	4	3.97	4	3.90	4
River Bend	3.91	4	3.76	3	3.55	4	3.77	4
Higgins Bridge	3.00	3	3.08	3	3.63	4	3.35	3
Kempson Bridge	4.80	5	4.81	5	4.88	5	4.82	5
Lake Murray Estates Park	4.40	4	4.38	4	4.33	4	4.37	4
Macedonia Church	4.50	5	4.57	5	4.67	5	4.58	5
Sunset	4.63	5	4.65	5	4.37	5	4.58	5
Rocky Point	--	--	--	--	4.00	4	4.00	4
Dreher Island State Park	4.87	5	4.54	5	4.41	5	4.57	5
Hilton	4.96	5	4.89	5	4.68	5	4.87	5

[a] Condition ratings on a scale from 1 "poor" to 5 "excellent"

[5] State law requires waterfowl hunting setback from houses and marinas at least 350 yards in Lexington/Richland Counties and 250 yards in Newberry/Saluda Counties. Houses and marinas should be excluded from any areas planned for waterfowl hunting.

Table 3.2-9: Additional Facilities Recommended for Lake Murray Access Sites

Site	Access Road	Concession/Store	RV Camping	Bank Fishing Area	Drink Machines	Signs and Information	Bilingual Signs and Information	Fish Cleaning Station	Swimming Area	Boat Dock	Fishing Pier/Dock	Tent Camping	Boat Fueling	Lighting	Trails	Boat Launch/Ramp	Parking Lot	Trash Cans	Boat Pump Outs	Picnic Tables/Shelter	Water Fountains	Camping Area	Restrooms	Other Recommendation	n	Total
Dam Site	0%	2%	0%	2%	7%	0%	0%	5%	5%	14%	9%	0%	2%	14%	2%	7%	0%	7%	0%	2%	9%	2%	7%	5%	44	100%
Parksite	0%	13%	0%	2%	9%	2%	0%	2%	2%	0%	2%	0%	0%	0%	4%	4%	0%	0%	0%	0%	6%	2%	6%	47%	53	100%
Larry L. Koon Boat Landing	0%	1%	1%	0%	4%	1%	0%	0%	2%	1%	0%	1%	0%	6%	0%	7%	29%	6%	0%	15%	1%	1%	23%	0%	136	100%
Shull Island	0%	0%	1%	0%	0%	1%	0%	1%	1%	1%	1%	0%	1%	6%	2%	10%	25%	7%	0%	15%	0%	0%	27%	1%	143	100%
Bundrick Island	2%	3%	0%	0%	3%	0%	0%	0%	0%	2%	0%	0%	0%	0%	1%	1%	0%	24%	0%	13%	2%	0%	37%	15%	117	100%
Murray Shores	1%	1%	0%	1%	3%	0%	0%	2%	2%	9%	4%	1%	1%	18%	0%	5%	6%	3%	0%	2%	10%	0%	27%	2%	220	100%
River Bend	0%	1%	1%	0%	2%	0%	1%	0%	4%	7%	5%	0%	1%	19%	0%	4%	2%	8%	1%	8%	7%	1%	24%	4%	164	100%
Higgins Bridge	0%	0%	0%	4%	0%	0%	0%	0%	0%	11%	7%	0%	0%	0%	0%	2%	0%	15%	0%	28%	4%	2%	24%	2%	46	100%
Kempson Bridge	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	2%	0%	2%	0%	0%	2%	14%	0%	35%	6%	2%	33%	0%	49	100%
Lake Murray Estates Park	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	2%	3%	3%	0%	1%	2%	0%	83%	1%	96	100%
Macedonia Church	0%	6%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	22%	17%	0%	50%	0%	18	100%
Sunset	7%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	4%	7%	29%	0%	7%	14%	0%	18%	11%	28	100%
Rocky Point	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	1	100%
Dreher Island State Park	0%	4%	0%	0%	0%	9%	0%	0%	11%	0%	0%	0%	0%	2%	2%	4%	4%	0%	0%	4%	2%	2%	13%	41%	46	100%
Hilton	3%	9%	0%	3%	6%	3%	0%	0%	0%	3%	0%	0%	0%	16%	0%	3%	9%	31%	0%	3%	3%	0%	3%	3%	32	100%

Table 3.2-10: Improvements Recommended for Lake Murray Access Sites

	Access Road	Concession/Store	Drink Machines	Signs and Information	Swimming Area	Boat Dock	Fishing Pier/Dock	Tent Camping	Lighting	Trails	Boat Launch/Ramp	Parking Lot	Trash Cans	Picnic Tables/Shelter	I Water Fountains	Restrooms	Other Facilities	Water Levels	Patrolling/Security	Aesthetics and Maintenance	Miscellaneous	n	Total
Dam Site	0%	0%	5%	0%	0%	10%	5%	0%	10%	0%	0%	0%	0%	0%	5%	15%	0%	10%	10%	25%	5%	20	100%
Parksite	0%	3%	0%	6%	9%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	3%	31%	0%	3%	37%	6%	35	100%
Larry Koon	10%	0%	0%	2%	0%	4%	0%	2%	8%	0%	2%	35%	0%	4%	0%	4%	2%	2%	0%	23%	0%	48	100%
Shull Island	4%	0%	0%	0%	4%	0%	0%	0%	7%	0%	32%	25%	4%	0%	0%	7%	4%	4%	0%	7%	4%	28	100%
Bundrick Island	5%	0%	0%	5%	0%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	5%	42%	15%	62	100%
Murray Shores	4%	0%	1%	0%	0%	11%	2%	0%	17%	0%	19%	8%	0%	1%	6%	20%	2%	3%	1%	4%	2%	186	100%
Riverbend	1%	0%	0%	0%	2%	5%	0%	1%	35%	0%	5%	0%	5%	4%	8%	16%	6%	1%	2%	8%	2%	124	100%
Higgins Bridge	0%	0%	0%	0%	0%	7%	7%	0%	0%	0%	21%	0%	7%	7%	0%	14%	0%	21%	0%	7%	7%	14	100%
Kempson Bridge	0%	0%	0%	0%	0%	20%	0%	10%	0%	0%	0%	30%	0%	10%	0%	0%	0%	10%	10%	10%	0%	10	100%
Lake Murray Estates Park	4%	0%	0%	0%	1%	0%	0%	0%	8%	0%	6%	6%	1%	1%	0%	67%	3%	0%	3%	0%	0%	72	100%
Macedonia Church	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	82%	0%	11	100%
Sunset	8%	0%	0%	0%	22%	3%	0%	0%	3%	0%	6%	6%	14%	3%	8%	6%	8%	3%	8%	3%	0%	36	100%
Dreher Island State Park	3%	0%	0%	2%	5%	2%	0%	7%	2%	5%	2%	2%	0%	0%	5%	10%	7%	10%	2%	29%	8%	59	100%
Hilton	4%	0%	0%	0%	0%	24%	0%	0%	4%	0%	40%	0%	12%	0%	4%	4%	0%	8%	0%	0%	0%	25	100%

3.2.3.2 Lower Saluda River

Site Conditions. In general, lower Saluda River recreation sites are considered by respondents to be of average or good average condition (Table 3.2-11). On a scale of 1 to 5 where 1 equals "poor" and 5 equals "excellent", Saluda Shoals Park and James R. Metts Landing were reported to be in very good condition. Gardendale was reported to be in slightly above average condition, while Mill Race A and B were considered in average condition. There were no clear patterns of condition ratings by day type. Only the condition rating for Mill Race B followed a declining pattern with increasing use.

The sites with the highest condition ratings, Saluda Shoals Park and Metts Landing, are also the sites that provide the most amenities. The average condition ratings for Mill Race A and Mill Race B, which are not formally defined recreation sites, are lower on average comparatively speaking.

Need for Additional Facilities. Approximately 40 percent of respondents stated that additional facilities were needed at the site where they were interviewed (Table 3.2-12). Of those indicating a need for additional facilities, restrooms were identified as the most needed additional facility at lower Saluda River recreation sites 33 percent of the time. Restrooms were recommended everywhere except for Saluda Shoals. Many individuals recommended that trash cans be added to the sites, particularly at Mill Race A and B. Saluda Shoals Park received a broad range of recommendations for additional facilities. Most of the facilities requested are already provided at the park. For example, individuals identified playgrounds, water park, and a dog park as needed, suggesting that they believe an expansion of these facilities would be appropriate. Security and patrols were cited most often by individuals stating "other" recommendations for additional facilities at Mill Race A.

Need for Improvements. Thirty six percent of respondents stated that recreation sites could be improved and/or expanded. Most respondents who would recommend improvements recommended improvements to aesthetics and site maintenance, such as cleaning restrooms, removing trash, and improving the landscaping (Table 3.2-13). This was followed by improved regulations and security. Aesthetic and maintenance activities were cited most often as being needed at Mill Race B and Gardendale and were cited as being needed at Mill Race A 38 percent of the time. Regulations and security were identified as being needed most at Mill Race A (42 percent of responses) and Mill Race B (20 percent of responses). Improved trails was cited most often at Saluda Shoals Park in addition to other recommendations for such improvements as a swimming pool and water fountain for dogs at the dog park. Gardendale was identified as needing an improved access road (24 percent of responses).

Table 3.2-11: Condition Ratings for Lower Saluda River Recreation Sites [a]

	Rating by Day Type							
	Weekday		Weekend		Holiday			
Site	Average	Mode	Average	Mode	Average	Mode	Average	Mode
Mill Race A[b]	2.94	3	3.08	3	2.86	3	3.02	3
Mill Race B[b]	3.36	3	3.36	3	2.83	2	3.31	3
Gardendale	3.59	4	3.60	3	3.56	3	3.59	4
Saluda Shoals	4.73	5	4.70	5	4.78	5	4.72	5
James R. Metts Landing	4.00	4	4.18	4	4.45	5	4.14	4

[a] Condition ratings on a scale from 1 "poor" to 5 "excellent".
[b] Outside the project boundary.

Table 3.2-12: Additional Facilities Needed at Lower Saluda River Recreation Sites

Site	Access Road	Fish Cleaning Station	Signs and Information	Bank Fishing Area	Fishing Pier/Dock	Sirens	Lighting	Swimming Area	Boat Dock	Trails	Boat Launch/Ramp	Picnic Tables/Shelter	Trash Cans	Camping Area	Restrooms	Water Fountains	Concession/Store	River Level Markers	Drink Machines	Other Recommendation	n	Total
Mill Race A[a]	0%	0%	5%	0%	0%	0%	4%	0%	0%	0%	5%	0%	32%	0%	23%	7%	0%	0%	0%	23%	56	100%
Mill Race B[a]	1%	1%	4%	0%	0%	6%	4%	1%	0%	1%	3%	1%	27%	0%	34%	4%	1%	1%	1%	8%	77	100%
Gardendale	3%	0%	3%	3%	3%	0%	5%	0%	5%	0%	18%	5%	0%	3%	34%	8%	3%	0%	0%	8%	38	100%
Saluda Shoals Park	11%	0%	0%	0%	0%	0%	0%	11%	0%	0%	0%	11%	0%	6%	0%	6%	0%	0%	0%	56%	18	100%
James R. Metts Landing	1%	4%	1%	0%	1%	0%	4%	0%	4%	1%	1%	8%	3%	0%	48%	5%	1%	0%	9%	7%	75	100%

[a] Outside the project boundary.

Table 3.2-13: Improvements Recommended for Lower Saluda River Recreation Sites

	Additional or Improved Access Road	Additional or Improved Signs and Information	Additional or Improved Bank Fishing Area	Additional or Improved Sirens	Additional or Improved Lighting	Additional or Improved Parking Lot	Additional or Improved Trails	Additional or Improved Boat Launch/Ramp	Additional or Improved Picnic Tables/Shelter	Additional or Improved Trash Cans	Additional or Improved Restrooms	Additional or Improved Other Facilities	Maintenance and Aesthetics	Regulations and Security	Water Levels	Miscellaneous	n	Total
Mill Race A[a]	0%	4%	0%	0%	0%	0%	0%	0%	4%	0%	0%	8%	38%	42%	4%	0%	26	100%
Mill Race B[a]	9%	0%	0%	0%	0%	0%	11%	3%	0%	3%	0%	20%	34%	20%	0%	0%	35	100%
Gardendale	24%	0%	3%	0%	0%	3%	12%	15%	0%	0%	0%	3%	36%	0%	0%	3%	33	100%
Saluda Shoals Park	6%	0%	0%	0%	0%	0%	35%	6%	0%	6%	6%	29%	6%	0%	6%	0%	17	100%
Hope Ferry	5%	10%	0%	5%	5%	19%	0%	14%	0%	10%	0%	10%	14%	0%	5%	5%	21	100%

[a] Outside the project boundary.

Knowledge of Siren Warning System. A majority of visitors to lower Saluda River public access sites are aware of the siren warning system, and almost all of those who are aware of it understand its purpose (Tables 3.2-14 and 3.2-15). Of those respondents who are aware of the system, most have never actually heard or seen the sirens or lights for themselves at the recreation site at which they were interviewed (Table 3.2-16). This is not a surprising result for Saluda Shoals Park, as it is a multi use park and many visitors never approach the river. It could be considered a surprising result for the remaining sites, where visitors congregate at the water's edge, on the water, or on boulders in the river. However, we do not know visitors' experience with these sites: some respondents may have been interviewed during their one and only visit, while others may have been interviewed during a repeat visit. Visitors to Mill Race A were most likely to have heard or seen the warnings, while visitors to Mill Race B, Gardendale, Saluda Shoals and Metts Landing were significantly less likely to have observed it.

Of those individuals who were aware of the warning system and who had observed it, roughly half were on or in the water when the siren sounded (Table 3.2-17). Of those, slightly more than half exited the water and/or left the area (Table 3.2-18), while the remainder did nothing or remained where they were.

Table 3.2-14: Respondent Knowledge of the Presence of Siren and Strobe Lights on the Lower Saluda River

Site	Percent Responding		Total	n
	Yes	No		
Mill Race A[a]	95%	5%	100%	63
Mill Race B[a]	86%	14%	100%	70
Gardendale	84%	16%	100%	50
Saluda Shoals Park	61%	39%	100%	74
James R. Metts Landing	90%	10%	100%	86
Total – All Respondents	83%	17%	100%	343

[a] Outside the project boundary.

Table 3.2-15: Respondent Knowledge of the Reasons for Siren and Strobe Lights on the Lower Saluda River [a]

	Percent Responding					
Site	Don't Know	Warn of Danger	Warn of Release from Dam	Warn of Water Level Rising	Total	n
Mill Race A[a]	0%	3%	7%	90%	100%	60
Mill Race B[a]	0%	3%	20%	77%	100%	60
Gardendale	5%	12%	61%	22%	100%	41
Saluda Shoals Park	2%	0%	27%	71%	100%	45
James R. Metts Landing	1%	3%	16%	81%	100%	77
Total – All Respondents	1%	4%	23%	72%	100%	283

[a] Outside the project boundary.
[a] Reported as a percent of respondents who are aware of the siren system.

Table 3.2-16: Percent of Respondents Who Have Heard the Siren or Seen the Flashing Lights on the Lower Saluda River [a]

	Percent Responding			
Site	Yes	No	Total	n
Mill Race A[a]	73%	27%	100%	60
Mill Race B[a]	18%	82%	100%	60
Gardendale	29%	71%	100%	42
Saluda Shoals Park	36%	64%	100%	45
James R. Metts Landing	42%	58%	100%	77
Total – All Respondents	40%	60%	100%	284

[a] Outside the project boundary.
[a] Reported as a percent of people who are aware of the Siren system.

Table 3.2-17: Location of Respondents When They Heard the Siren [a]

	Percent Responding			
Site	Yes	No	Total	n
Mill Race A[a]	68%	32%	100%	44
Mill Race B[a]	73%	27%	100%	11
Gardendale	17%	83%	100%	12
Saluda Shoals Park	6%	94%	100%	16
James R. Metts Landing	42%	58%	100%	31
Total – All Respondents	47%	53%	100%	114

[a] Outside the project boundary.
[a] Reported as a percent of respondents who have heard the sirens.

Table 3.2-18: Reaction to the Siren and Strobe Lights [a]

	Got out of the water	Stayed in the boat	Did nothing	Left area	Total	n
Mill Race A[b]	47%	17%	33%	3%	100%	28
Mill Race B[b]	88%	0%	0%	13%	100%	6
Gardendale	100%	0%	0%	0%	100%	15
Saluda Shoals Park	0%	0%	0%	0%	0%	0
James R. Metts Landing	42%	8%	42%	8%	100%	3
Total – All Respondents	54%	12%	29%	6%	100%	52

[a] Reported as a percent of respondents who have heard the sirens.
[b] Outside the project boundary.

4.0 CONCLUSIONS

Study results provide information about SCE&G's public access areas at Lake Murray and the lower Saluda River, and the use of those areas. The assessment also provides insights as to what actions may be needed to better accommodate this use, and to plan for the anticipated license term. In this section, study results are discussed in the context of the overall study goals and objectives, as described in Section 1.0.

4.1 Characterization of Existing Use

SCE&G supports 18 public access sites in the Project area, that accommodated almost a half million people between May 27 (Memorial Day) and September 30, 2006. Recreation sites are well distributed around the Lake and on the lower Saluda River, provide a variety of settings, levels of development, and opportunities. All provide some kind of water access, and collectively, recreation sites provide a variety of experiences, with some being urban and others rural, and some providing riverine access while others serve primarily lake users.

Results of the recreation site assessment, supported by survey results, suggests that sites are generally in good condition overall, and several have recently been renovated. However, while many sites accommodate ADA compliant parking, few sites are developed to provide a high level of barrier free access. Several of the sites are regularly staffed. Sites that are not staffed are frequented regularly by managing personnel and/or law enforcement to check on site and safety conditions.

4.1.1 Lake Murray

Fifteen public access sites on Lake Murray were studied throughout this project. Based on the site inventory and user perceptions, it is clear that recreation sites on the lake are in good condition. Sites are primarily water-based, and all have a clear nexus to the Project.

Site users are predominantly local residents who do not have shoreline access via private residences. They tend to use recreation sites that provide the recreation experience and/or facilities they seek, but which are also located close to their homes. Because of this, public access sites should generally be considered community parks rather than tourist destinations. There are two exceptions to this. First, Dreher Island State Park, which may well be viewed as serving the local community while supporting the tourism industry at the same time. Second, Lake Murray is popular for hosting fishing tournaments, which may bring in contestants from significant distances. When recreation sites are chosen to host tournaments, they could be considered a tourist draw, as they support many people from outside the local community. It is likely, however, that this occurs at the expense of community residents, who could be displaced when sites are full on tournament days. This would hold true for all sites but Dreher Island State Park, which maintains facilities designed to accommodate tournament use without displacing traditional day use.

Not surprisingly, the primary activities in which people using public access sites engage in are water based activities. While some of those activities occur on shore, most of the sites are designed for and used to access the lake for boat fishing, and many provide access for shoreline or pier fishing, which comprise the second most popular activity observed. Even pleasure boating takes a distant back seat to fishing at Lake Murray. Fishing is most popular on weekdays: pleasure boating is most popular on weekends. This result is similar to the result of the 2005 survey of individuals around Lake Murray, which showed fishing to be the primary recreation activity (Lake Murray Association, 2006).

Of the 15 public access sites on Lake Murray, all but four (Parksite, Macedonia Church, Bundrick Island, and Dreher Island State Park) are primarily boat launches, supporting this demand for water access. Even Macedonia Church, which does not have a boat launch, supports large numbers of shoreline anglers, and Dreher Island State Park supports large numbers of anglers who access the lake from the boat launch. More passive boating – canoeing or kayaking -- tends to occur on the upper Saluda River, at Higgins Bridge and Kempson Bridge.

Other types of activities do occur and are supported at the project sites. Day use activities, such as picnicking and sightseeing are supported at a variety of sites. Swimming and sunbathing tends to occur at numerous sites, including those with beaches (Parksite, Bundrick Island, and Dreher Island State Park) and more informally at sites without beaches (e.g., Larry L. Koon boat landing, Shull Island, etc.). Camping occurs at several sites (Bundrick Island, River Bend, and Sunset, although it is only sanctioned at the State Park.

Damsite, Larry L. Koon boat landing, Bundrick Island, and Dreher Island State Park, accommodate the greatest numbers of patrons over the course of the summer. Parksite, Shull Island, Murray Shores, River Bend, Lake Murray Estates, Macedonia Church, Sunset, and Hilton accommodate a moderate level of use, while Higgins Bridge, Kempson Bridge, and Rocky Point accommodate modest levels of use.

While public access sites are generally well used, they are in good condition. With respect to compliance with the ADA, of the 14 Lake Murray access sites with parking areas, five are paved sites with designated ADA compliant parking spaces, three are paved sites without designated ADA compliant parking spaces, and six are gravel lots. None of the fishing piers at six of the Lake Murray access sites are ADA compliant due to railing height and/or lack of paved access. With the exception of Dreher Island State Park, none of the boat launches at 11 Lake Murray access sites are compliant with ADA standards due to gaps between the floating docks and access ramps. In addition, the slope of the access ramps is prohibitively steep at high water. Furthermore, there is an overall lack of paved access to picnic facilities as Lake Murray access sites. Of the permanent restroom facilities at six sites, only three were found to be compliant with the ADA. The other three sites did not have ADA compliant stalls and washing facilities and/or did not have paved trail access to the restrooms.

4.1.2 Lower Saluda River

Five public access sites on the lower Saluda River were included in this study. Three of these sites are within the project boundary. These sites serve as river access for whitewater boaters, paddle boaters and anglers; shoreline access for sunbathers, occasional campers, and occasional swimmers; and as a community park and conference center for local residents. Based on the site inventory and user perceptions, recreation sites are generally considered to be in good condition. However, Saluda Shoals Park and Metts Landing were found to experience moderate crowding during holidays.

Similar to park patrons on the lake, typical site users on the river are predominantly local residents who do not have shoreline access via private residences. They tend to use recreation sites that provide recreation experience and/or facilities they seek, but which are also located close to their homes. Here again, public access sites should generally be considered community parks rather than tourist destinations. The use of Mill Race A (outside the project boundary) as a whitewater boating site could be an exception to this when boaters from far away come to train at this site. Furthermore, little sampling occurred during the regular university school year and much use of the Mill Race A and B areas is expected to be from this group.

The primary activities in which people using public access sites engage in include bank fishing, whitewater and flatwater boating, swimming and sightseeing. Shoreline access at these sites is equally as important as water access. Of the activities observed at the site, the above mentioned are all popular, but no one activity dominates the action at the river sites.

The sites on the lower Saluda River offer a variety of different experiences and levels of service. Saluda Shoals is the largest of the sites (240 acres), providing many community park services, conference rooms, and water access. Metts Landing provides trailered and cartop launches, while Gardendale provides only throw-in launching. Mill Race A and B are undeveloped shoreline with no

facilities, at the Riverbanks Zoo (and outside the project boundary), yet located in the heart of the city.

Swimming and sunbathing tends to occur at Mill Race A and B – swimming in particular is popular at Mill Race B. Camping also occurs at Mill Race A.

Saluda Shoals Park accommodated the greatest numbers of patrons over the course of the summer, followed by Mill Race B, Metts Landing, Mill Race A, and then Gardendale.

While public access sites are generally well used, they are in good condition. Only Saluda Shoals Park offers fully ADA compliant facilities. The park has designated ADA parking, paved trails, and ADA compliant restrooms and picnic facilities. The remainder of the LSR sites are either informal with no facilities (Mill Race A and B), do not provide ADA compliant parking (Gardendale), or do not have ADA compliant amenities (Metts Landing).

4.2 Characterization of Future Use

There are many uncertainties when predicting future recreational use, both in general, and specific to the Saluda Project. Among the general uncertainties are new technologies, shifting demographic patterns, economic growth, etc. Among the uncertainties specific to the Saluda Project are the Three Rivers Greenway and the Lower Saluda Corridor Plan and Update. The Three Rivers Greenway and the Lower Saluda Corridor Plan and Update were originally planned to be a system of parks and walking trails connecting Saluda Shoals Park to the Congaree River and up to the Broad River to the Columbia Canal Project. Currently, the Three Rivers Greenway consists of a series of walking trails from the Columbia Canal Project to Granby Park and the Cayce Riverwalk. Unfortunately for recreation planning efforts, it is unknown how these changes will affect recreational use of the lower Saluda River. Recreational use forecasting for the Three Rivers Greenway does not exist, but has been estimated at up to 450 people per hour (Recreation Resource Conservation Group Meeting Notes, July 20, 2006). No known

estimates of future recreational use attributable to the Lower Saluda Corridor Plan and Update on the lower Saluda River are available. Nevertheless, it is likely these two projects will affect future recreational use, in terms of numbers and types of recreation, on the lower Saluda River.

5.0 REFERENCES

Bishop, Richard C., Thomas A. Heberlein, and Mary Jo Kealy. 1983. Hypothetical Bias in Contingent Valuation: Results from a Simulated Market. Natural Resources Journal. 23:2:619-633. cited in Using Surveys to Value Public Goods: The Contingent Valuation Method. Robert C. Mitchell and Richard T. Carson. Resources fo rthe Future. Washington, D.C. 1989.

Church, A. H., 1993. Estimating the effect of incentives on mail survey response rates: a meta-analysis. Public Opinion Quarterly, 57:62-79. cited in Mail and Internet Surveys: The Tailored Design Method. Don A. Dillman.John Wiley & Sons, Inc. 2000.

Cordell, H. Ken, et al. 2004. Outdoor Recreation for 21st Century America: A Report to the Nation: The National Survey on Recreation and the Environment. State College, PA: Venture Publishing Inc.

H.K. Cordell and M.A. Tarrant, 2002. Changing Demographics, Values, and Attitudes. Journal of Forestry. 100:7 pp28-33.

Lake Murray Association, Inc., 2006. Report on September 2005 Lake Murray User Survey. Draft document dated April 28, 2006. 13pgs.

South Carolina Budget and Control Board, Office of Research and Statistics. 2005. South Carolina Statistical Abstract 2005: South Carolina Population Projections 2005 – 2030. [Online] URL: http://www.ors2.state.sc.us/population/proj2030.asp. Accessed July 25, 2006.

South Carolina Department of Natural Resources, 2000. Striped Bass Anglers' Attitudes Toward Fisheries Management on Lake Murray. Conducted for the Fisheries Section of the South Carolina Department of Natural Resources.

South Carolina Department of Parks, Recreation and Tourism, Recreation, Planning and Engineering Office. 2002. South Carolina Statewide Comprehensive Outdoor Recreation Plan.

South Carolina Legislature. 1989. South Carolina Code of Laws: Title 49 - Waters, Water Resources and Drainage; Chapter 29 – South Carolina Scenic Rivers Act. [Online] URL: http://www.scstatehouse.net/code/t49c029.htm. Accessed March 22, 2007.

University of South Carolina, Institute of Public Service and Policy Research. 2005a. South Carolina Recreation Participation & Preference Study. Prepared for the South Carolina

Department of Parks, Recreation and Tourism, Recreation, Planning and Engineering Office.

University of South Carolina, Institute of Public Service and Policy Research. 2005b. Special Report from South Carolina Recreation Participation & Preference Study. Prepared for the South Carolina Department of Parks, Recreation and Tourism, Recreation, Planning and Engineering Office.