

OCONEE COUNTY PLANNING COMMISSION

415 South Pine Street - Walhalla, SC



TEL (864) 638-4218 FAX (864) 638-4168

AGENDA

6:00 pm, Monday, April 1st, 2019

Council Chambers - Oconee County administrative complex

1. Call to Order
2. Invocation by County Council Chaplain
3. Pledge of Allegiance
4. Public Comment for *Non-Agenda Items* (3 minutes per person)
5. Approval of minutes from 03182019
6. Census Mapping
 - a. Public Comment (3 minutes per person)
 - b. Discussion/Vote
7. Discussion by County Attorney regarding procedure
 - a. Public Comment (3 minutes per person)
 - b. Discussion/Vote
8. Comprehensive Plan / Corridor Plan
 - a. Natural Resources Element
 - b. Executive summary discussion
 - c. Public Outreach
 - d. District meetings
 - e. Corridor Plan discussion
9. Old Business
10. New Business
11. Adjourn

Anyone wishing to submit written comments to the Planning Commission can send their comments to the Planning Department by mail or by emailing them to the email address below. Please Note: If you would like to receive a copy of the agenda via email please contact our office, or email us at achapman@oconeesc.com.

OCONEE COUNTY PLANNING COMMISSION

415 South Pine Street - Walhalla, SC



TEL (864) 638-4218 FAX (864) 638-4168

Minutes

March 18th, 2019

Members Present

Alex Vassey

Andrew Gramling

Frankie Pearson

Gwen McPhail

Mike Johnson

Mike Smith

Stacy Lyles

Staff Present

Adam Chapman

Media Present

Caitlin Herrington, The Journal

1. Call to Order: Frankie Pearson called the meeting to order at 6 p.m.

2. Invocation: Stacy Lyles

3. Pledge of allegiance

4. Approval of Minutes: Mr. Pearson requested a motion to amend the agenda to include approval of minutes from the meeting of March 4th, 2019. Mr. Gramling made the motion to approve, Mr. Johnson seconded. Mrs. McPhail and Mrs. Lyles noted some edits; Mrs. McPhail made a motion to approve with edits, Mr. Gramling seconded. Vote was 5-0 in favor.

5. Public Comment:

Mary Grabarchyeck : Mrs. Grabarchyeck noted she was interested in assisting with getting the survey for the comprehensive plan out to the people.

7. Letter to County Council regarding transportation issues:

Mr. Pearson noted that this issue is in relation to a Planned Development off of South Cove Road, within the city limits of Seneca, which will directly impact traffic onto Keowee School Road and Blueridge Highway. Mrs. Lyles would like to know the outcome of the developer's and City of Seneca's traffic studies. Mrs. McPhail noted a language change indicating that "if the developer's, and City of Seneca's traffic studies, does not include the intersection of concern then the County should fund a study". Mrs. Lyles agreed this language would improve the intent of the letter. Mrs. Lyles made a motion to send the

letter with the language change, Mrs. McPhail seconded it, and the vote was 6-1 in favor, with Mr. Gramling against.

8. Highway 123 Corridor Study - Presentation by Alta Planning + Design

Public Comment

Devoe Blackstone: Mr. Blackstone noted that the County should work with SCDOT when creating this plan.

Discussion:

Kat Maines, of Alta Planning and Design, presented an outline of process, goals, and possible outcomes for the Corridor Plan. Ms. Maines indicated a need for community input and showcased some opportunities and strengths. After a brief presentation she asked the Planning Commission and the members of the public present to circle around some laid out maps and give input. Ms. Maines and her team then conducted a SWOT analysis using input from the approximately 40 citizens presents.

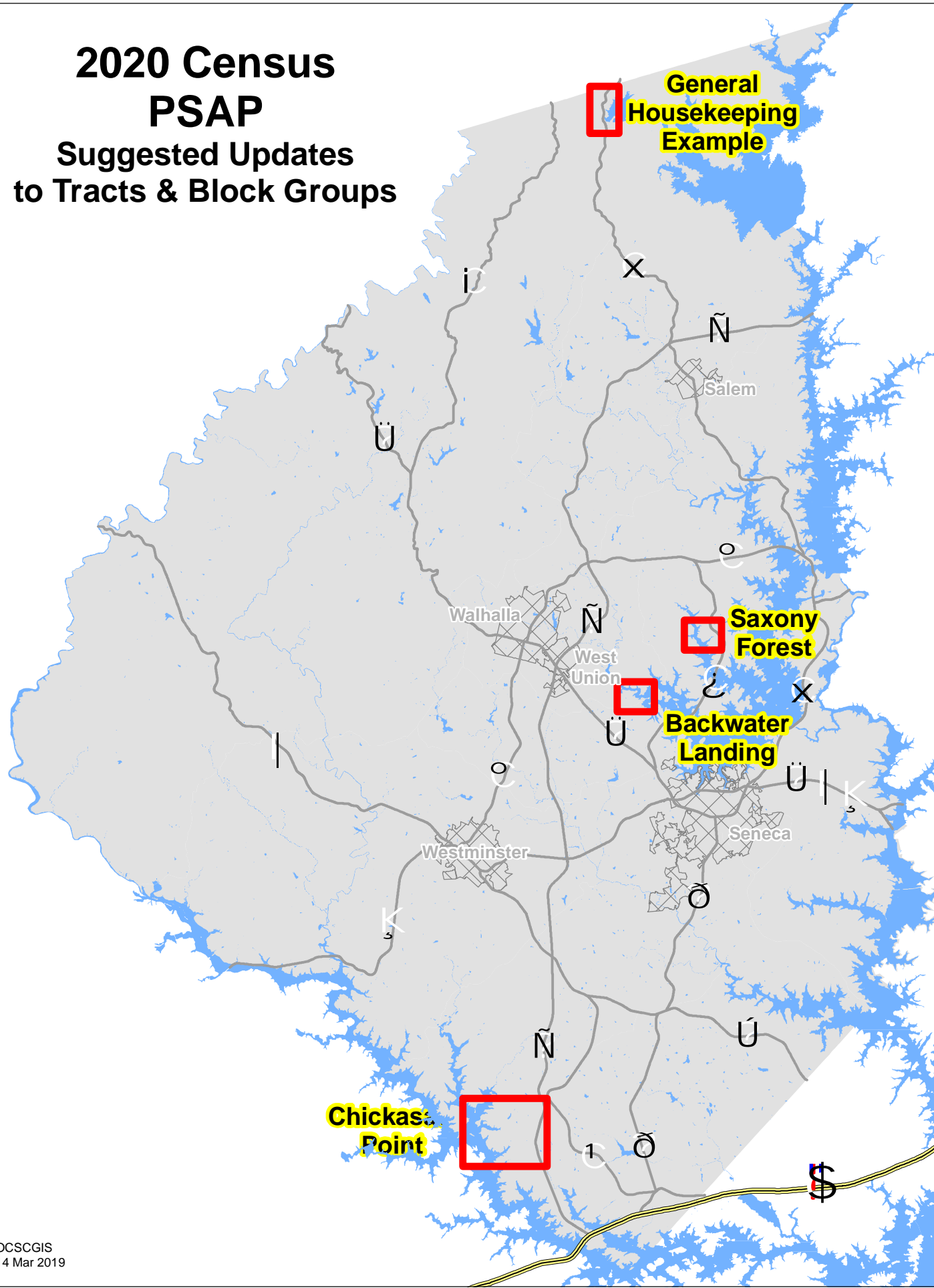
9. Old Business: None

10. New Business: None

11. Adjourn: The meeting adjourned at 7:20

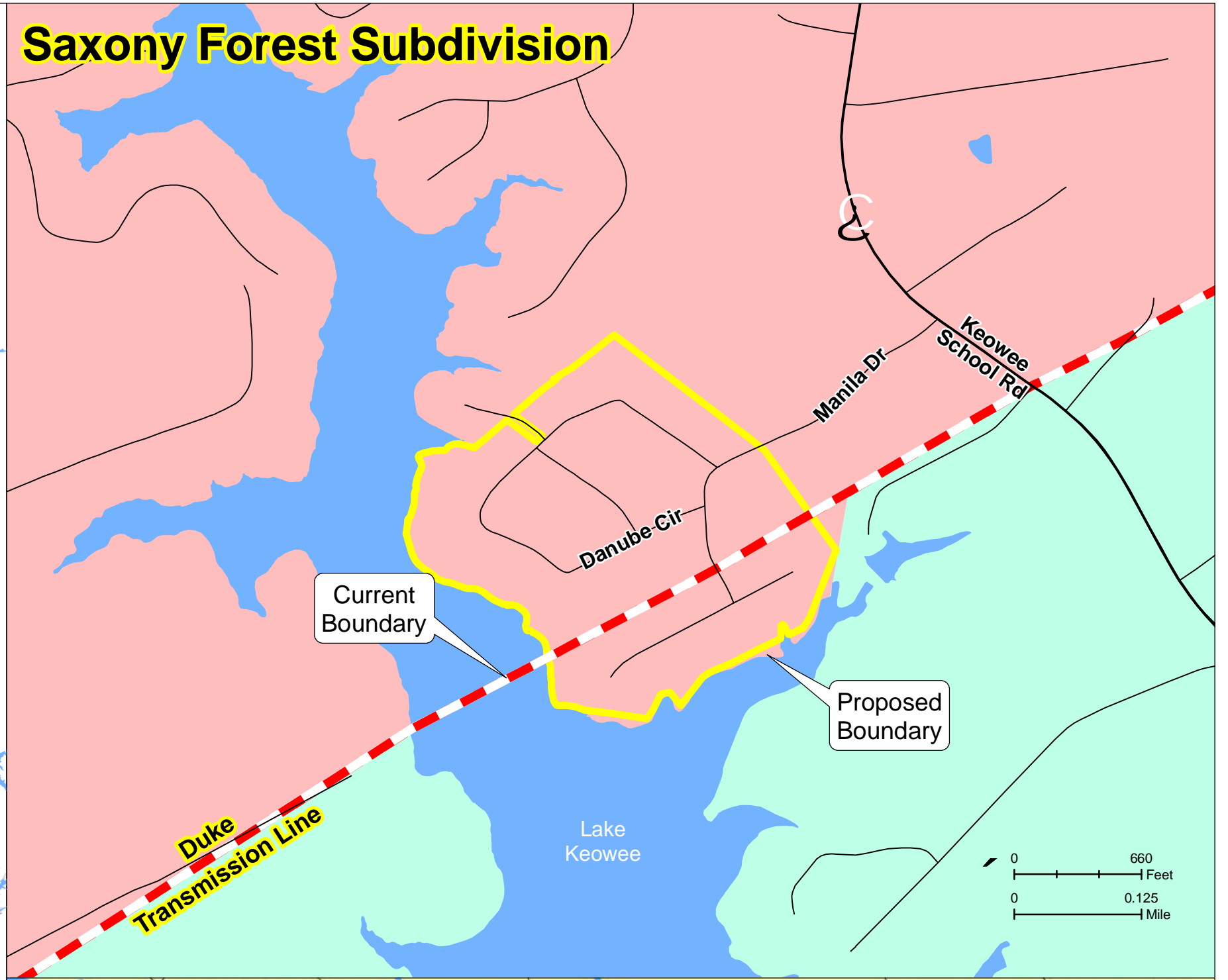
The 2020 Census Participant Statistical Areas Program (PSAP) enables invited participants to review and update selected statistical area boundaries for 2020 Census data tabulation following U.S. Census Bureau guidelines and criteria. Proposed 2020 Census tract and block group boundaries were reviewed by Adam Chapman (Planning Director), Bill Huggins (Planner), and Lisa Simmering (GIS Manager) on March 13, 2019. This map depicts updates to be considered by the Oconee County Planning Commission and the U.S. Census Bureau.

**2020 Census
PSAP
Suggested Updates
to Tracts & Block Groups**

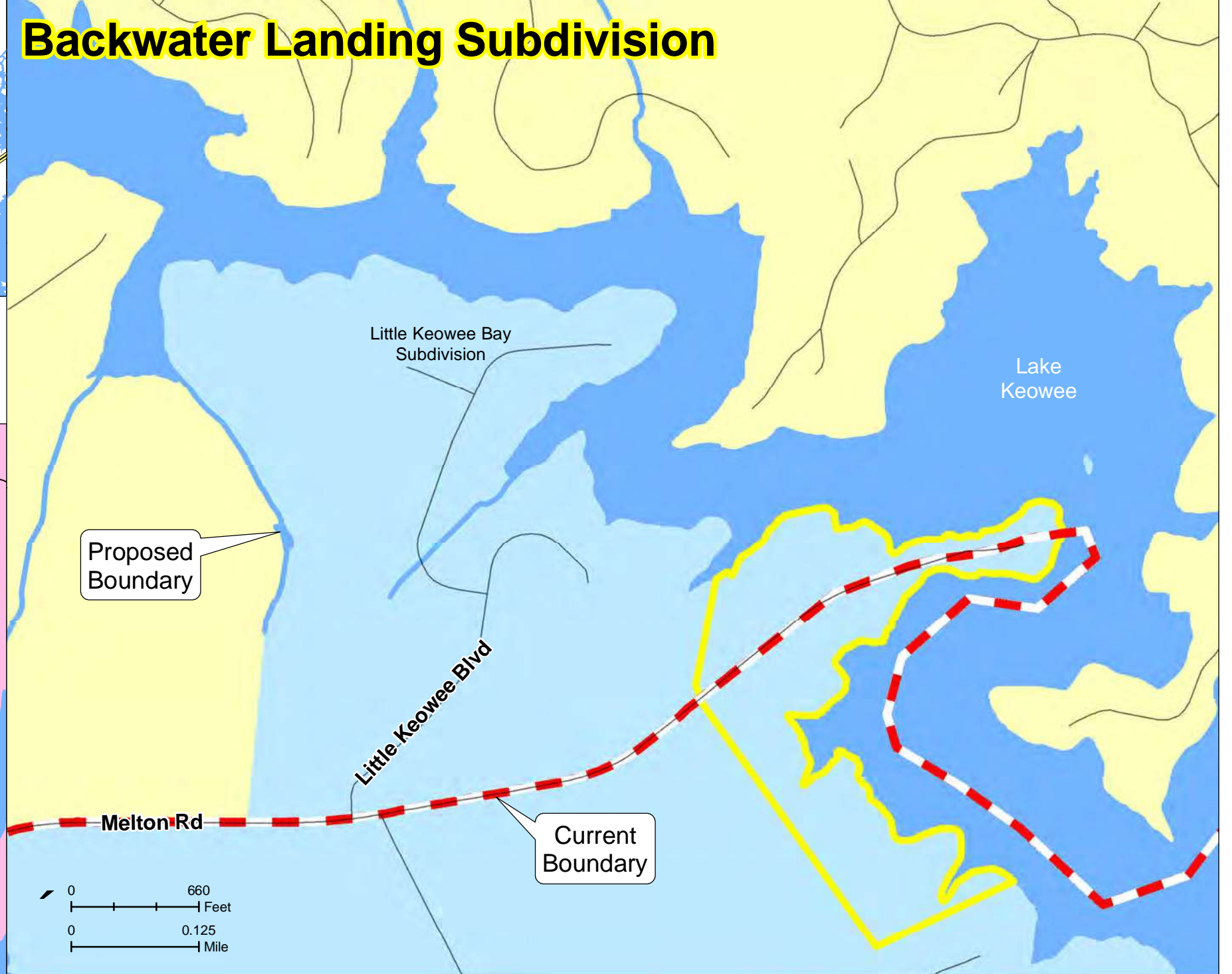


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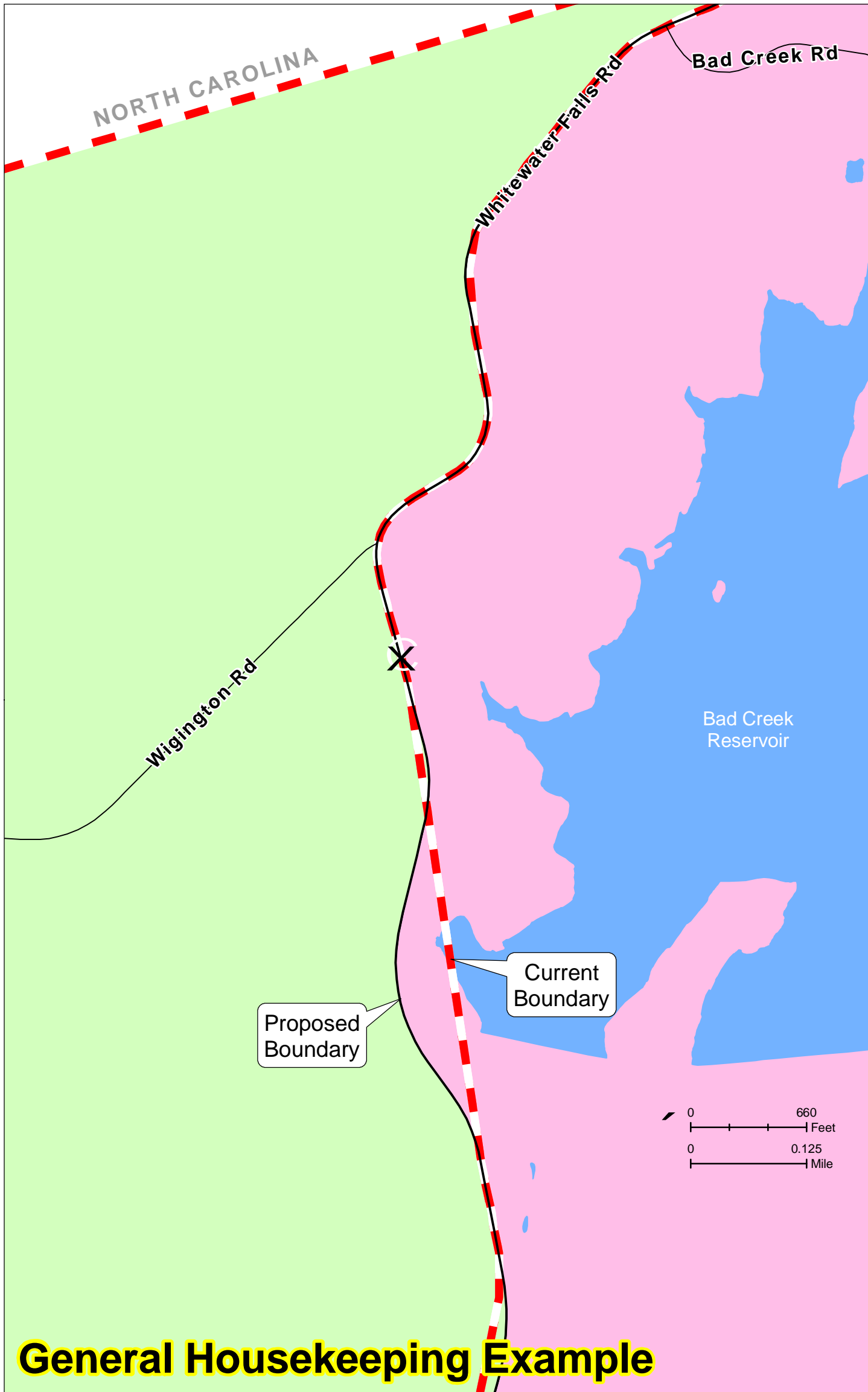
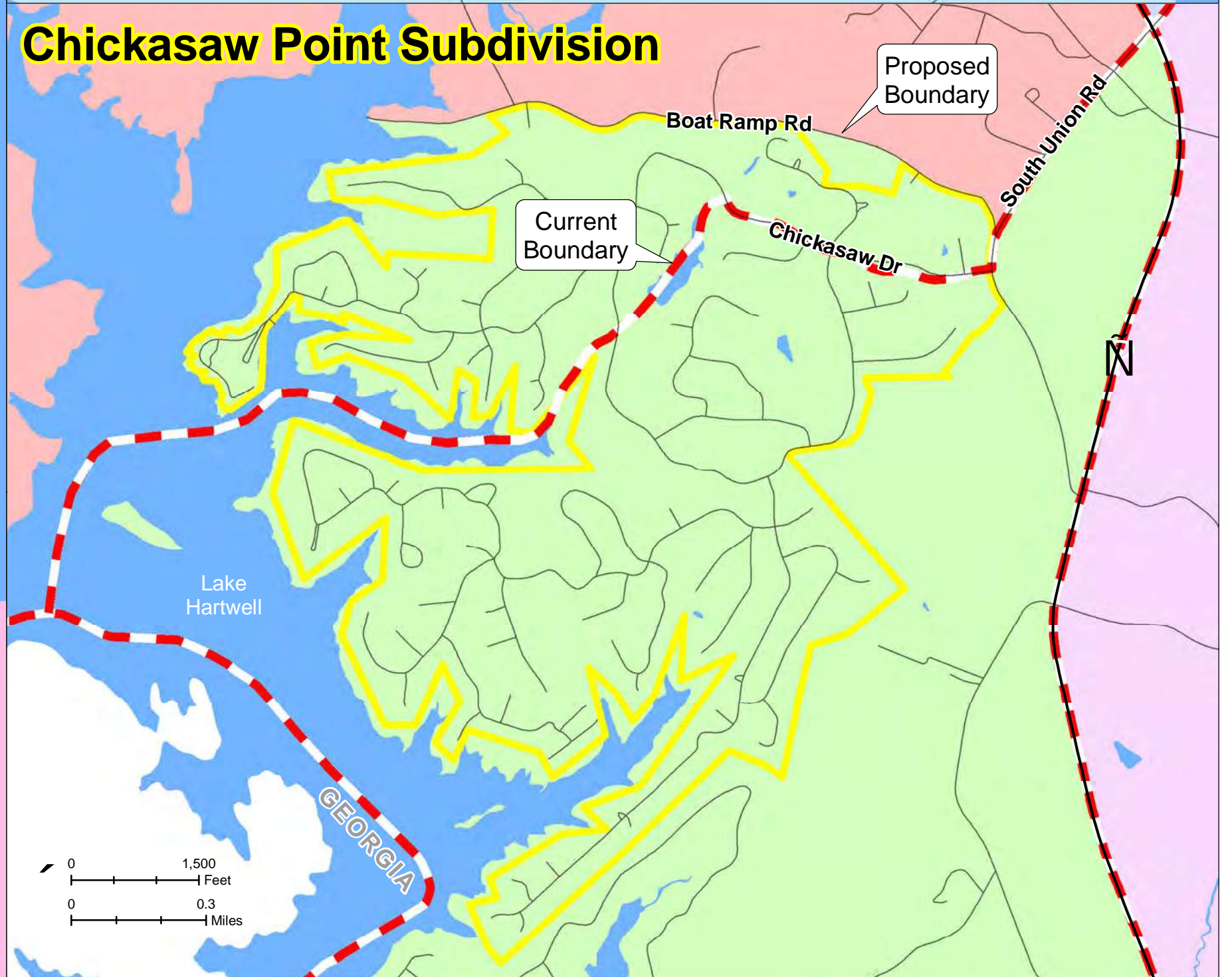
Saxony Forest Subdivision



Backwater Landing Subdivision



Chickasaw Point Subdivision



General Housekeeping Example

Chapter 6. Natural Resources Element

Located at between the Blue Ridge Mountains and Lakes Jocassee, Keowee, and Hartwell, Oconee County has abundant natural resources. Residents and visitors have access to lakes, parks and trails, rivers, streams, waterfalls, and forests. These natural resources provide land for development with scenic and environmental amenities, while offering an opportunity for sustainable development. The aesthetic and recreational appeal of natural resources can also increase land development pressures to accommodate both new residents and tourists. The resulting challenge is to achieve a balance in natural resources planning that promotes productive use of land and resources, maintenance of critical ecological functions, and protection of residents and property from natural hazards.

The Natural Resources Element includes information on local geographic and geologic conditions, climate, agricultural and forest lands, plant and animal habitats, unique parks and open space, scenic areas, water resources, wetlands and flood plains, and other factors that significantly impact the natural environment and shape the future development of Oconee County. A thorough assessment of the County natural resources base and incorporation of this information into planning efforts is necessary to avoid depletion or destruction of sensitive, and often irreplaceable, assets. Valuing and investing in efforts to protect and improve the natural resource base supports the quality of life for all County residents.

A. CLIMATE

As part of the South Carolina Upstate, Oconee County enjoys a warm and temperate climate, with an average annual temperature of 55.8 degrees (Table 6-1). Winters are mild, with the earliest freeze or frost occurring between late October and early November and the latest freeze in early April (*S.C. State Climatology Office, 2019*). While local summers are considerably cooler than in southern areas of the State, they can still be quite warm. When combined with an average humidity of 72.64%, the heat index can rise substantially in mid-to-late summer. Winters are also comparatively cooler in Oconee County, with an average low temperature of 67.9 degrees and average snowfall of 3.3 inches – the fourth highest annual snowfall statewide. Moderate temperatures and an average yearly precipitation of 67.4 inches make the County ideal for agriculture, with a growing season that spans more than two-thirds of the year.

Table 6-1. Temperature Summary for Oconee County

Type	Data and State Ranking
Average Temperatures	Annual: 55.8° F (3 rd lowest) ¹ Annual Average Low: 43.64° F (2 nd lowest) ¹ Annual Average High: 67.91° F (3 rd lowest) ¹
Average Humidity	72.64% (12 th lowest) ¹
Average Annual Precipitation	67.44 inches (4 th highest) ¹
Average Annual Snowfall	3.29 inches ¹

Sources: ¹World Media Group - USA.com, 2019; ²Weatherspark.com, 2019



B. AIR QUALITY

Air quality affects the public health, weather, quality of life, and economic potential of a community. Air pollution can have adverse economic effects on a community. Specific economic effects of air pollution include: damage to vegetation; reduced crop yields; increased corrosion of metals; and deterioration of stone and paint on buildings, cars and cultural landmarks. These potential impacts are of particular concern in Oconee County, where agriculture is an important economic sector and the success of the tourism sector is largely dependent on the preservation of scenic natural resources. In addition, air quality problems can impede recruitment of new industries and businesses to the area, resulting in reduced investment and employment opportunities.

One of the primary air quality concerns in South Carolina is ozone. The Environmental Protection Agency (EPA) developed and periodically updates the *National Ambient Air Quality Standard* (NAAQS) for Ozone. The EPA designates geographic areas as attainment (meeting the air quality standard) or nonattainment (not meeting the standard) using long-term air quality monitoring data. For areas designated as nonattainment, the State and local governments must prescribe specific actions for reaching attainment within a specified time period. These requirements can significantly impact existing industry, economic recruitment efforts, and transportation in nonattainment and surrounding areas. For instance, the *Nonattainment New Source Review* requirement for areas lapsing into nonattainment status mandates a required level of emission reductions for new and modified industrial facilities. The expansion or improvement of local transportation infrastructure to support development can also be impacted under the Clean Air Act requirement that transportation plans, programs, and projects cannot create new violations to air quality standards, increase the severity or frequency of existing violations, or delay attainment of standards.

SCDHEC maintains a State Implementation Plan (SIP) that outlines the State's strategies for meeting NAAQS standards for six common pollutants as set forth by the Clean Air Act. SCDHEC has operated an air quality monitoring station in Oconee County as part of its air quality monitoring network since 1983. The station is located in the Longcreek area on Round Mountain Tower Road. The location offers a unique vantage point for the continuous monitoring of transported pollutants including ozone, sulfur dioxide, and particulate matter.

As of February 2019, all counties in the State are within the threshold for ambient air quality and are designated as attainment. However, increased urbanization in the nearby Greenville-Anderson-Mauldin metropolitan area may have future impacts on the air quality in Oconee County. As part of the larger region, it is important that local leaders analyze and monitor the factors that contribute to higher ozone levels and develop local solutions to maintain acceptable levels that ensure the health of residents, as well as the economic health of the County.



Oconee County joined SCDHEC, the EPA, and the counties of the Appalachian Council of Governments Region in an 8-hour *Ozone Early Action Compact* (EAC) in 2002. The regional EAC was part of a statewide effort that included all ten council of government regions and resulted in an early action State Implementation Plan. Under the terms of the EAC, participants worked together to develop and implement local, regional, and state action plans to attain the EPA's 8-hour ozone standard by the end of 2007. The EAC was a success, with all counties in the region meeting attainment status by the target date.

Oconee County was also a participant with nine other counties, the U.S. EPA, and SCDHEC in a collaborative effort to develop a multi-pollutant, risk-based air management strategy for the Upstate South Carolina region that began in 2013 (*U.S. EPA, 2016*). The goals of the plan were to identify local emission reduction measures, maintain compliance with NAAQS, demonstrate selected strategies to reduce population risk from exposure to pollutants, transition to a multi-pollutant air quality management strategy, and foster greater collaboration. The project results were published in 2016 and demonstrate that improving air quality in areas already attaining air quality standards can yield significant health benefits.

C. LAND RESOURCES

Oconee County is bordered by Pickens County to the northeast, Anderson County to the southeast, the state of North Carolina to the north, and the state of Georgia to the west. The County covers more than 626 square miles, ranking 26th largest among the State's 46 counties. More than 47 square miles of the County are comprised of water, primarily Lake Jocassee, Lake Keowee, and Lake Hartwell, along with numerous rivers, streams, and ponds. The Chattooga and Tugaloo Rivers form the County's northwestern and southwestern borders, respectively.

1. Soils

Local soil conditions are an important consideration in planning for future development. Soil properties directly influence building construction and costs, roads and other improvements, prevalence of prime agricultural lands and activities, and the location and design of septic tanks and drain fields. Both soil suitability and stability should be examined when considering the feasibility of new development or major redevelopment of a site. Soils on individual sites also determine suitability for specific types of development such as low density residential (single-family), high density residential (multi-family), commercial, and industrial. Although this level of detail must be determined by an individual soil survey for the particular site, large-scale soils data from the S.C. Department of Natural Resources (SCDNR) may be useful in an examination of future development potential for broader areas and districts within a community.

Oconee County general soil series primarily consist of well-drained soils of varying slope (*USDA Soil Data Mart*). These soils are profiled in Table 6-2, with distribution illustrated in Map 6-1.



Table 6-2. General Soil Series within Oconee County

Soil Name	Slope Range	Percentage (Acres)	Characteristics
Pacolet-Hiwassee-Cecil	30-45%	28.9% (122,263)	Well drained, moderately permeable soils
Tusquitee-Tallapoosa-Saluda-Evard-Edneytown	60-95%	14.2% (60,067)	Well drained, moderately to moderately rapidly permeable soils
Hiwassee-Cecil	0-5%	13.8% (58,137)	Well drained, moderately permeable soils
Cecil	0-5%	13.6% (57,567)	Well drained, moderately permeable soils
Saluda-Hayesville-Evard-Brevard-Bradson	15-30%	9.3% (39,367)	Well drained, moderately to moderately rapidly permeable soils
Pacolet-Madison-Davidson-Cecil	15-30%	7.1% (29,938)	Well drained, moderately permeable soils
Chester-Ashe	45-60%	4.7% (20,072)	Somewhat excessively drained, moderately to moderately rapidly permeable soils
Wilkes-Hiwassee-Cecil	5-15%	3.4% (14,444)	Well drained, slow to moderately slow to moderately permeable soils

Sources: USDA NRCS Soil Data Access, 2019; USDA NRCS Official Soil Series Descriptions, 2019

Five of the general soil series in Oconee County include Cecil soils. Cecil soils are very deep, well drained, and moderately permeable soils found on ridges and side slopes in the uplands of the Piedmont. Pacolet-Hiwassee-Cecil is the dominant soil series in the County, comprising nearly 29% of County soils (122,263 acres). The Wilkes-Hiwassee-Cecil series is the smallest group, found in the southeastern corner of the County near Lake Hartwell. Although well-drained, these soils can have slower permeability. Soils with slow permeability have limitations affecting septic tank absorption fields, though other factors such as slope may impact septic tank suitability. Permeability in the County generally ranges from moderate to rapidly permeable.

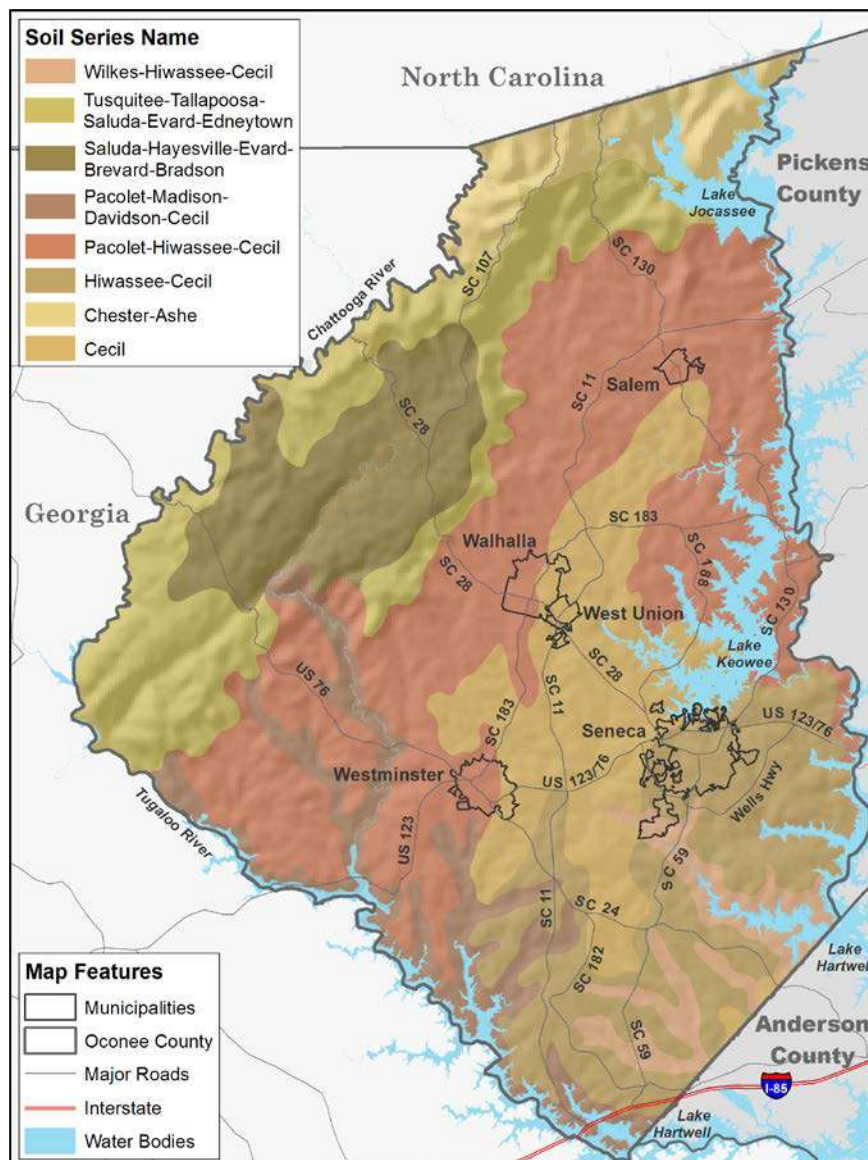
The general soil series map at 6-1 shows broad areas that have a distinctive pattern of soils, relief and drainage. While the depicted soils data is valuable in assessing the suitability of large areas for general land uses, it reflects only general limitations on urban development and should only be used for broad planning analysis. A detailed soil analysis should accompany site-specific development decisions.

Soil erosion is a concern for more than 60% of the County (*USDA NRCS Web Soil Survey, 2019*). Less than half (45%) of the County's land is considered to be at moderate risk of erosion, indicating that some erosion is likely and erosion control measures may be needed. Risk of erosion is severe or very severe for 15.4% of the County. A rating of severe (10.6% of the County or 45,416 acres) indicates that erosion is very likely and that erosion control measures such as replanting of bare areas is advised. Erosion is expected in areas considered to have a very severe risk (4.8% of the County or 20,741 acres). All of the soils at very severe risk of erosion and most at severe risk are in the western area of the County in the Sumter National



Forest. Loss of soil productivity and off-site damage is more likely on these lands where erosion control measures are typically costly and impractical to employ.

Map 6-1. General Soil Series



Source: USDA NRCS Soil Data Access, 2019

2. Slope

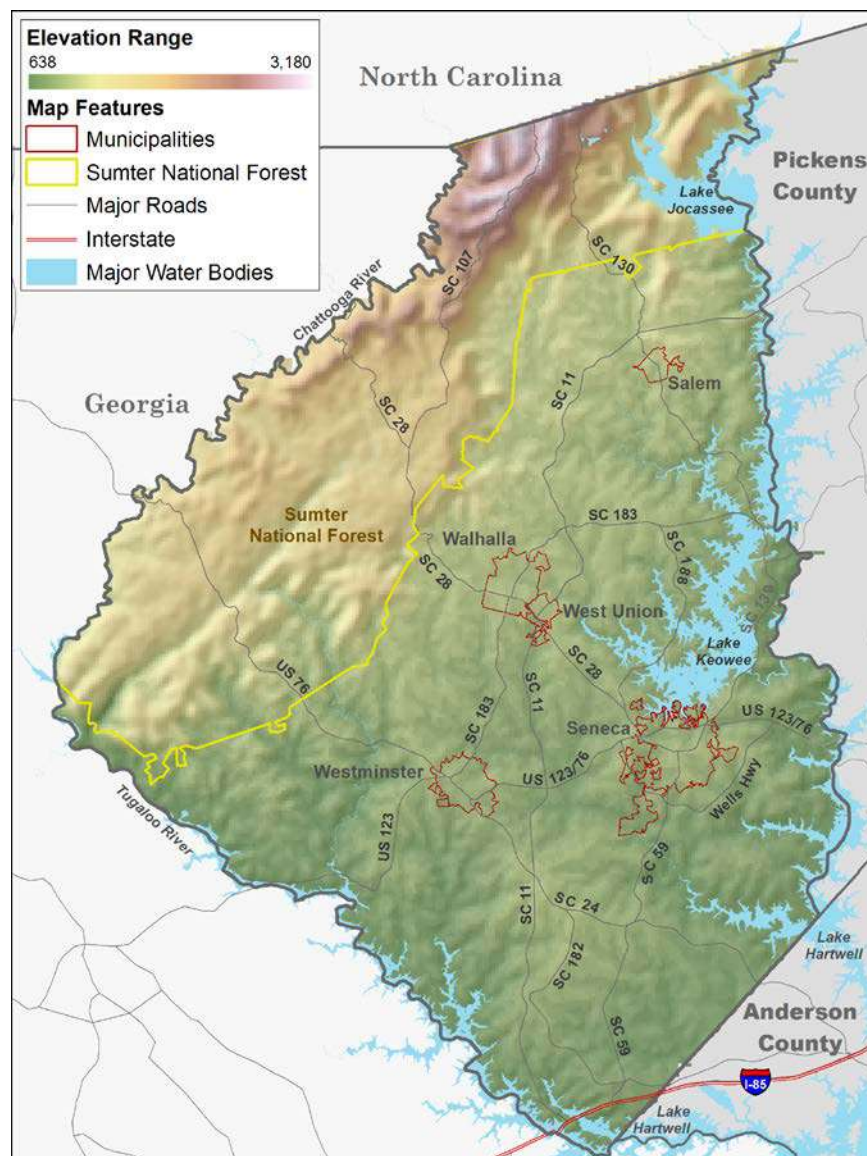
Slope characteristics have a direct impact on the types of land uses that have developed or may be developed in the future. Sites with slopes of less than 8% are typically most easily and cost-effectively developed, and are appropriate for most types of land uses. An increase in the slope makes a site more difficult and expensive to develop, with increased limitations on the types of land uses that are appropriate. Table 6-3 provides a general listing of land uses and their



associated slope limitations. In addition to slope, other factors that determine development suitability include soil limitations such as wetness, permeability, drainage, and flooding. These conditions may be difficult and expensive to mitigate, and can fall under regulatory limitations.

Elevation in Oconee County ranges from 638 feet above sea level to 3,180 feet. The County's lowest elevations are found along the river and creek beds and the lakes. The highest elevations are in the northern area of the County in the Sumter National Forest. Map 6-2 illustrates the topography of Oconee County using 2017 contour data.

Map 6-2. Elevation



Source: Oconee County GIS Department, 2019

The topography of Oconee County is largely conducive to many types of development, with some limitations in higher elevations and low-lying areas. Representative slope data is available



from the USDA Soil Survey for most of Oconee County, with the exception of 79,297 acres in the Sumter National Forest. Based on the general slope range characteristics and data provided in Table 6-3, one-third of the land area in Oconee County (115,717 acres) has a slope of 8% or less and is suitable for all types of land uses. However, it is important to note that soils with no slope primarily include rivers and drainage basins and may be subject to flood plain regulations. Development suitability is only slightly more limited for 13.5% of the County (47,245 acres), where a slope range of 9% to 16% accommodates residential and light commercial development.

Areas at the higher end of the slope range may not be as suitable for all types of development. The slope range for 26.5% (92,595 acres) of the County's land area is between 17% and 24%. Much of this land is generally suitable for low density residential uses, but not for commercial or industrial development. The slope range for more than a quarter (27%) of the County's land (94,415 acres) is 25% or greater. These lands are not suitable for any type of intense development such as higher density subdivisions or commercial or industrial developments.

Table 6-3. Slope Percentage and Use in Oconee County

Slope Range and Associated Land Uses	Acres	Percentage
Slope 8% or less All types of land use where there is no danger of periodic flooding	115,717.34	33.1%
Slope 9% to 16% Residential and light commercial development	47,245.24	13.5%
Slope 17% to 24% Low-density residential, not suited for commercial or industrial development	92,594.83	26.5%
Slope 25% and Greater Not suitable for any type of intense development	94,415.37	27.0%
Data not Available (areas within the Sumter National Forest)	79,297.20	18.5%
Total Acres	429,269.98	100.0%

Source: USDA NRCS Web Soil Survey, 2019

3. Mineral Deposits and Mines

The identification and location of mineral deposits can be important to the local economy. In South Carolina, mineral resources range from limestone, crushed stone, clay, and sand to granite, marble, and vermiculite. According to the U.S. Geological Survey's *2013 Minerals Yearbook for South Carolina*, a large majority of South Carolina's nonfuel mineral production results from the mining and production of construction minerals and materials. SCDHEC records indicate that there are two active mining operations in Oconee County as of 2019. One is a gold mining operation in the northern area of the County, and the other is the Oconee County Rock Quarry, a granite mining operation on Rock Crusher Road near Walhalla.



4. Residential Development Limitations

Access to wastewater treatment is limited in Oconee County. Wastewater treatment is provided by three municipalities through Seneca Light and Water and the Cities of Walhalla and Westminster. Public sewer treatment for wastewater collected by the municipalities is provided by the Oconee Joint Regional Sewer Authority. Wastewater collection and treatment is available within the Cities of Seneca, Walhalla, and Westminster, in the Town of West Union. Also included are a few unincorporated areas of the County near these municipalities and along major corridors that connect these communities. Service also extends north from Seneca along S.C. Highway 130 near Lake Keowee, south from Seneca along S.C. Highway 59, east from Seneca along U.S. Highway 123, and north from Walhalla along S.C. Highway 11. Private authorities provide wastewater service to several of the County's larger residential developments including Chickasaw Point and Foxwood Hills on Lake Hartwell and Keowee Key on Lake Keowee.

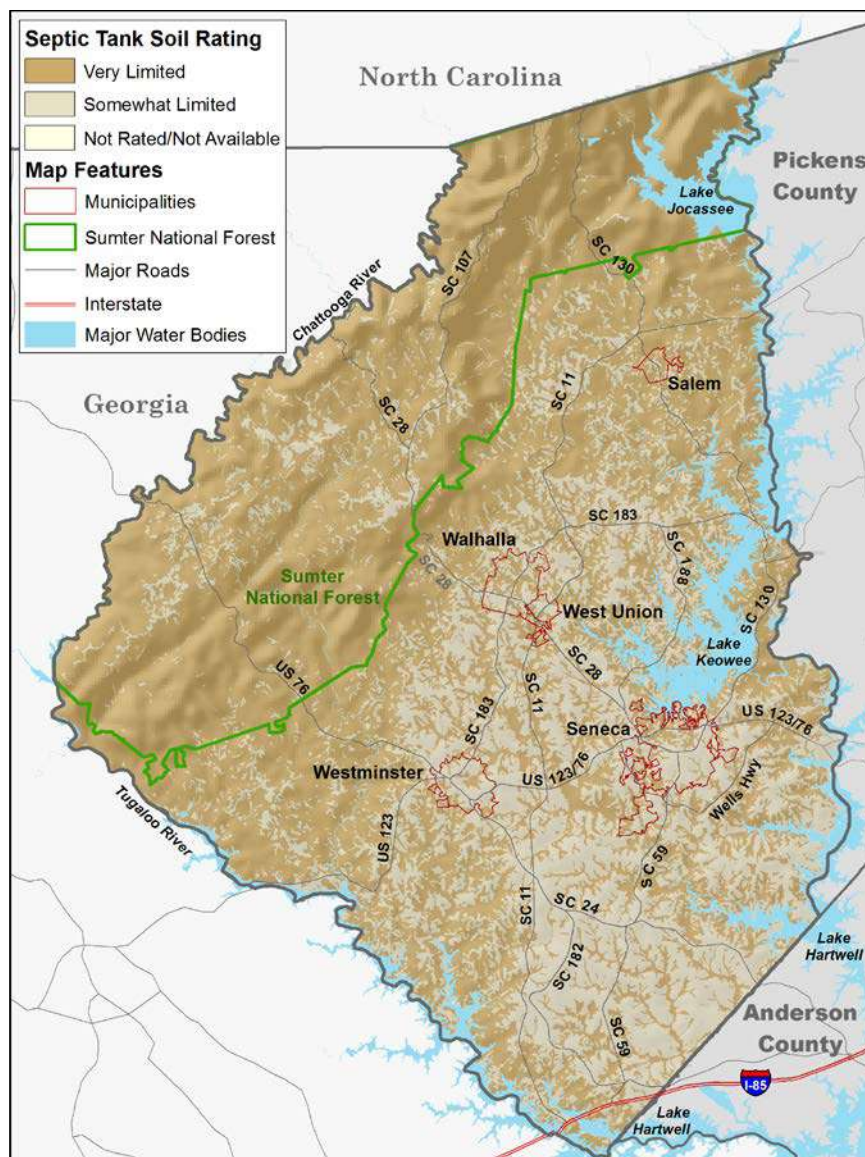
Due to limited access to sewer service, residential development in much of Oconee County must rely on septic tanks. The use of septic systems for sewage disposal places additional limitations on residential development, impacting both location and lot sizes. State law, enforced by SCDHEC, requires that a parcel of land proposed for septic service is capable of allowing proper operation of the individual system, including a drain field. Suitability criteria are based on factors including soil type and parcel size. Excessive slope is also a factor and may cause seepage in down-slope areas. Percolation tests are conducted by SCDHEC on individual properties to evaluate the suitability of soil for septic tank absorption fields as part of the permitting process for residential construction in areas where public sewer is not available.

Map 6-3 illustrates areas in the County with soils rated as "very limited" or "somewhat limited" under the *Septic Tank Soil Absorption Field Ratings* of the USDA Natural Resources Conservation Service (NRCS). These ratings are used to guide site selection for safe disposal of household effluent based on soil properties that affect absorption of the effluent and impact construction and maintenance of the system. Public health impact is also a consideration. While the ratings provide general information on soil suitability for septic tanks, onsite evaluation is required before final site selection. In addition, the ratings apply to the soils in their present condition and do not consider potential impacts on soil quality by current and future land uses.

More than two-thirds (67.3%), or 288,903 acres, of land for which detailed soil data is available in Oconee County has been rated as "very limited" for septic tank soil absorption. The soils in much of the Sumter National Forest are included in this soil rating, in large part due to the steeper slope of the land in the northwestern area of Oconee County. This rating indicates that the soil has one or more features that are unfavorable for use as a septic system absorption field. Poor performance and high maintenance can be expected on systems installed in such soils. An additional 30.2% of County soils (129,787 acres) are rated as "somewhat limited," indicating that the soils have features that are moderately favorable for use as a septic system absorption field.



Map 6-3. Septic Tank Soil Absorption Ratings



Source: USDA NRCS Web Soil Survey, 2019

5. Plant and Animal Habitats

Wildlife habitat is comprised of an interrelated and often complex combination of land and soil properties, food sources and vegetative cover, water, and other physical factors that contribute to the survival of a species population. The number, quality and scope of animal and plant species are directly dependent on the quality and size of their habitat. In turn, habitats are affected directly by natural and man-made factors that include agricultural, residential, industrial, and commercial development, as well as fires and other natural disasters. Habitats declared critical to species identified as endangered or threatened are protected under Federal and State laws to safeguard and promote recovery of the species. Endangered species are those for which there is a danger of extinction throughout all or a significant portion of its range,



while threatened species are those identified to likely become endangered within the foreseeable future throughout all or a significant portion of its range.

Protective measures for endangered plant and animal species include the development of recovery plans, the acquisition of habitat, and protection from disturbance for listed species. The definition of protection from disturbance differs between endangered plant and animal species. No penalties are incurred if endangered plant species are harmed in the course of legal land management practices. However, the intentional or negligent taking of an endangered animal species or destruction of its critical habitat is subject to prosecution under the *Endangered Species Act*. Destruction of an endangered plant is subject to prosecution under the *Act* if the plant is on federal lands including private land under management practices that require federal permits, or if the destruction occurs during the course of another illegal act such as trespassing.

All states must maintain lists of rare, threatened and endangered species under the National Heritage program. Species can be included on state lists, while not appearing on the national list, due to declining species populations in certain regions. The South Carolina Heritage Trust program of the SCDNR has identified plant and animal species at risk in South Carolina. The rare, threatened and endangered species inventory for Oconee County includes 34 animal species and 118 plant species.

Federal and State status denote those species that have formal protections in place by a Federal or State agency or Act, or that are under review by the U.S. Fish and Wildlife Service. *Endangered* species are those in danger of extinction throughout all or a significant portion of its range. *Threatened* species are likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The *At Risk Species, Priority* classification is given to either a former candidate species or an emerging conservation priority species that is under review or on the agenda for review for designation as endangered or threatened. While a full and current list is available on the SCDNR website, a listing of the animal and plant species most at risk based on Federal and State designation is provided in Table 6-4.

Table 6-4. Rare, Threatened, and Endangered Species Inventory for Oconee County, 2019

Scientific Name	Common Name	State Status
ANIMALS		
Federal Status: <i>Endangered</i>		
Myotis sodalis	Indiana Myotis	<i>Endangered</i> - species whose prospects of survival or recruitment within the State are in jeopardy or likely within the foreseeable future to become so
Federal Status: <i>Threatened</i>		
Myotis septentrionalis	Northern Long-eared Bat	No state status



Table 6-4. Rare, Threatened, and Endangered Species Inventory for Oconee County, 2019

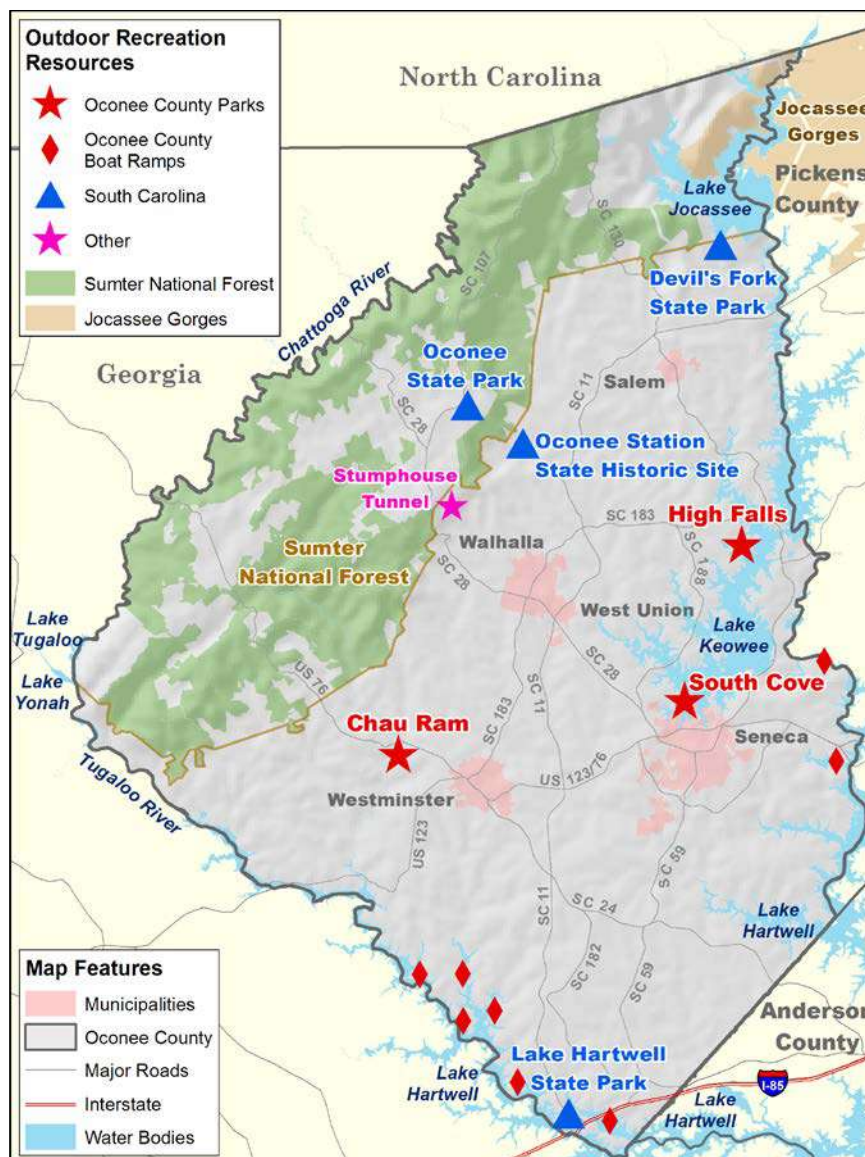
Scientific Name	Common Name	State Status
Federal Status: At Risk Species, Priority		
<i>Alasmidonta varicosa</i>	Brook Floater	No state status
<i>Aneides aeneus</i>	Green Salamander	No state status
<i>Cryptobranchus alleganiensis</i>	Hellbender	No state status
<i>Danaus plexippus</i>	Monarch Butterfly	No state status
<i>Eurycea chamberlaini</i>	Chamberlain's Dwarf Salamander	No state status
<i>Megaleuctra williamsae</i>	Smokies Needlefly	No state status
<i>Myotis leibii</i>	Eastern Small-footed Myotis	<i>Threatened</i> - Species likely to become endangered and in need of management
<i>Ophiogomphus edmundo</i>	Edmund's Snaketail	No state status
<i>Perimyotis subflavus</i>	Tricolored Bat	No state status
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	No state status
PLANTS		
Federal Status: Endangered		
<i>Echinacea laevigata</i>	Smooth Coneflower	No state status
<i>Trillium persistens</i>	Persistent Trillium	No state status
Federal Status: Threatened		
<i>Isotria medeoloides</i>	Small Whorled Pogonia	No state status
Federal Status: At Risk Species, Priority		
<i>Rudbeckia heliopsisidis</i>	Sun-facing Coneflower	No state status
<i>Symphyotrichum georgianum</i>	Georgia Aster	No state status
<i>Tsuga caroliniana</i>	Carolina Hemlock	No state status
Federal Status: Species of Concern		
<i>Shortia Galacifolia</i>	Oconee Bell	No state status

Sources: S.C. Department of Natural Resources, January 2019; Oconee County Planning & Zoning, March 2019

6. Outdoor Recreation and Scenic Areas

Oconee County residents and visitors are fortunate to have access to numerous and diverse land and water opportunities for outdoor recreation. These resources include the Sumter National Forest, four State parks, three County parks, eight County boat ramps, nature and hiking trails, multiple camping areas, and a number of smaller parks and recreation facilities. Water resources include three major lakes, the Chattooga, Chauga and Tugaloo Rivers, and numerous waterfalls. Locations of the County's major outdoor recreation resources are shown on Map 6-4.

Map 6-4. Major Outdoor Recreation Resources



Sources: Oconee County GIS Dept., December 2018; SCDNR, January 2019

a. Sumter National Forest

Located within the northwestern portion of Oconee County are almost 84,000 acres of the nearly 371,000 acre **Sumter National Forest** – one of only two national forests in South Carolina. The Forest was established in 1936 and is managed by the USDA Forest Service for multiple uses including watershed protection and improvement, timber and wood production, habitat for wildlife and fish species, wilderness area management, and recreation. The **Andrew Pickens Ranger District** in Oconee County is one of three ranger districts that comprise the Sumter National Forest. Management of the District emphasizes habitat restoration and enhancement for a diverse range of wildlife and plant species, particularly rare, threatened,



endangered, and sensitive species. Popular attractions in the District include hunting, fishing, hiking, fall color sightseeing, camping, horseback riding, and whitewater rafting and kayaking on the Wild and Scenic Chattooga River. The District includes numerous waterfalls and hiking trails. The Ellicott Rock Wilderness Area offers opportunities for off-trail hiking and primitive camping. Map 6-4 illustrates the extent of Sumter National Forest (SNF) lands in Oconee County, including lands owned by the USDA Forest Service.

b. State Parks

Devils Fork State Park is located on Lake Jocassee near S.C. Highway 11 (Map 6-4). The 644-acre park provides the only public access to the Lake, with four boat ramps and a courtesy dock. The Park also provides 20 lakeside villas, 59 campsites with water and electricity, 25 tent camping sites, two picnic shelters, two playgrounds, an indoor meeting room, a two-mile hiking trail, a one-mile nature trail, and a campground that is accessible only by boat. Devils Fork is located in the middle of the Jocassee Gorges and includes several waterfalls accessible only by boat. One of South Carolina's most unique and rare wildflowers can be found blooming from mid-March to early April on the Oconee Bell Nature Trail in the Park.

Lake Hartwell State Park is located in the southern area of the County in the Fair Play community near Highway 11 (Map 6-4). The 680-acre park includes 14 miles of Lake Hartwell shoreline. The park provides two boat ramps, a courtesy dock, and a 140-foot fishing pier. Also provided are 115 campsites with water and electricity, 13 walk-in tent sites, two camper cabins, a 0.75 mile nature trail, two playgrounds, and a picnic shelter.

Oconee State Park is located in the Mountain Rest community near S.C. Highway 107 (Map 6-4). The 1,165-acre park was built by the Civilian Conservation Corps in the 1930s and is on the National Register of Historic Places. The park offers 139 standard campsites with water and electricity, 15 designated rustic tent sites, 19 historic cabins, four picnic shelters, three playgrounds, two lakes that can be used for fishing and boating, a swimming area with lifeguards, and an 18-hole miniature golf course. Oconee State Park includes six trails ranging from easy to strenuous in difficulty and serves as the southern trailhead for the Foothills Trail, the State's 77-mile wilderness hike on the Blue Ridge Escarpment.

The ***Oconee Station State Historic Site*** is located north of Walhalla near S.C. Highway 11 on Oconee Station Road. Originally used as a military compound and later a trading post, the 210-acre Historic Site provides a unique representation of 18th and 19th century South Carolina. The site includes two buildings on the National Register of Historic Places - a stone blockhouse built in 1792 as an outpost for the S.C. State Militia and the William Richards House, built in 1805. The Site also includes a four-acre fishing pond, a 1.5-mile nature trail, the four-mile Oconee Connector trail that joins Oconee Station with Oconee State Park, and the 60-foot Station Cove Falls waterfall at the end of the nature trail.

c. County Parks and Recreation Facilities

There are 32 County and municipal outdoor park and recreation facilities encompassing nearly 553 acres in Oconee County. Eleven of the parks and facilities are owned and maintained by Oconee County, eight by the City of Seneca, seven by the City of Walhalla, five by the City of Westminster, and one by the Town of West Union. The new 14-acre Foothills YMCA is also currently under construction just outside of Seneca.

These resources highlight the abundance of natural resources in the County and accommodate a wide range of outdoor activities. Visitors to these parks enjoy access to hiking trails, boating, fishing, camping, and swimming. Active opportunities include a disc golf course, public pool, baseball, softball and soccer fields, and courts for basketball, tennis, pickleball, horseshoes, and volleyball. Major County parks, including the Stumphouse Tunnel/Issaqueena Falls Park, are described below and shown on Map 6-4. Additional parks and recreation resources in Oconee County are described in more detail in the Community Facilities Element.

Chau Ram County Park is located at the confluence of Ramsey Creek and the Chauga River, west of Westminster off of U.S. Highway 76. The 198-acre County Park offers 26 campsites with water and electricity, additional tent sites, five picnic shelters, a recreational building, a playground, and shower facilities. Main attractions of the Park include over a mile of the Chauga River, a handicap accessible 40-foot waterfall, a 160-foot suspension bridge spanning the River, and more than three miles of hiking trails. Guests enjoy tubing, hiking, fishing, picnicking, camping, and enjoying the Park's unique and spectacular vistas. Oconee County is working with Upstate Forever on an option to purchase an available 218-acre parcel of land adjacent to Chau Ram County Park. This addition would enable the County to plan for expansion of camping and hiking opportunities, as well as mountain biking.

High Falls County Park is on Lake Keowee, located east of Walhalla off of S.C. Highway 183. The 46-acre County Park provides 91 campsites with water and electricity (10 waterfront), shower and restroom facilities, two shelters, a recreational building, miniature golf course, a tennis/basketball court, horseshoe and volleyball courts, picnic areas, and a playground. Two boat ramps, a swimming area, and a fishing pier offer access to Lake Keowee for water sports and fishing. Oconee County is working with Duke Energy on the possibility of utilizing what is currently referred to as the Keowee-Toxaway project as an addition to the High Falls County Park. The potential expansion, known as High Falls II, would add 36 acres and provide additional amenities for park visitors. A master plan for High Falls II has been completed in partnership with Duke Energy and is awaiting funding availability.

South Cove County Park is located on a peninsula of Lake Keowee just north of Seneca on South Cove Road. The location combines close proximity to restaurants and other amenities in the City of Seneca with prime access to Lake Keowee and nearby Clemson University. The 48-acre County Park offers 86 campsites with water and electricity, including 46 waterfront sites, and shower and restroom facilities. Also provided are four pickleball courts, three tennis courts,

basketball and horseshoe courts, a playground, picnic areas, and a recreational building and shelter for gatherings. Three boat ramps, a handicapped accessible fishing pier and a waterfront sand beach provide access to Lake Keowee for boating and fishing.

Oconee County also maintains eight public boat ramps on Lake Hartwell (Map 6-4). The **Fair Play**, **Mullins Ford** and **Lawrence Bridge Recreation Areas** all provide a boat ramp, a courtesy dock, picnic areas, and restrooms. The Fair Play Recreation Area also provides a playground and swimming area. The **Choestoea**, **Mountain Bay**, **Port Bass**, **Seneca Creek**, and **South Union** boat access areas are leased to the County by the Corp of Engineers. The Mountain Bay access area also offers a courtesy dock. Upgrades are planned for the Seneca Creek facility that will include restrooms, a trail, bank fishing, picnic area, kayak launch, fishing pier, and a courtesy dock.

The City of Walhalla's 7.13-acre **Stumphouse Tunnel/Issaqueena Falls Park** is home to two unique features. The 1,617-foot Stumphouse Tunnel was started in 1852 to allow connection from Charleston to Knoxville. However, the Civil War and lack of funding brought construction to a halt before completion. Clemson University purchased the tunnel in 1951 and originally used it to cure their signature blue cheese. While the tunnel is still owned by the University, it is managed by the City of Walhalla. Down a short path from the tunnel is Issaqueena Falls, a 100-foot cascade waterfall that can be viewed from several points including a lookout platform. In addition to the tunnel and falls, the Park includes a hiking trail, picnic shelter, and picnic areas.

Oconee County is among several partners working closely with the City on development of the new **Stumphouse Mountain Bike Park**. The Park is a state-of-the-art facility with multi-purpose trails that will total more than 20 miles when completed. Phase one of the project opened the 1.5-mile Stumphouse Passage of the Palmetto Trail and 2.5 miles of loop trails that accommodate mountain biking and hiking. Phase two will add six additional miles when completed in late 2019. Phase three is in the planning stages and is expected to complete the trail over the next several years.

c. Lake and River Recreation Resources

There are many access points for residents and visitors to enjoy Oconee County's water resources. Major lake and river recreation resources are described below and shown on Map 6-4.

Lake Keowee covers 18,372 acres, with 387 miles of shoreline that includes access from Oconee County's High Falls and South Cove Parks. The Lake is managed by Duke Energy. There are nine public boat ramps on the Lake, including six in Oconee County. In addition to three marinas with pumpouts, there are several fishing access locations, including the pier and boat dock at the Duke World of Energy at Oconee Nuclear Station, piers at the two County parks, and Stamp Creek Access Pier (SCDNR, 2019).

Lake Hartwell is 56,000 acres in size, with a 962-mile shoreline that includes access from Lake Hartwell State Park in Oconee County. The Lake is managed by the U.S. Army Corp of Engineers. There are 45 boat ramps on Lake Hartwell, with 14 in Oconee County. Eight of the boat ramps are managed by the County. The Corp manages eight campgrounds on the Lake, with two in Oconee County. The *Coneross Campground* on Coneross Creek Road provides 106 camp sites, of which 94 have water and electricity. Also included are a boat ramp and courtesy dock, shower and restroom facilities, a playground, and a swimming beach. The *Oconee Point Campground* is located off of South Friendship Road and provides 70 campsites with water and electricity, shower and restroom facilities, boat ramp and courtesy dock, and a playground. Oconee County manages several areas for day use only (no camping allowed) including the Fair Play Recreation Area, Lawrence Bridge Recreation Area, and Mullins Ford Recreation Area. All recreation areas provide boat ramps, courtesy docks, restrooms, and picnic areas. The Fair Play recreation area also provides a swimming beach and playground.

Lake Jocassee is 7,565 acres in size, with 75 miles of mostly undeveloped shoreline that includes access from Devil's Fork State Park. The Lake is owned and managed by Duke Energy. Lake Jocassee is the deepest lake in the State, with a maximum depth of approximately 351 feet and an average depth of 157 feet. The mountain rivers that feed the Lake keep it cool and clear year-round, making it popular for fishing, diving, swimming, paddling, and other water sports. There are four boat ramps on the Lake, with two in the State Park. One of the State Park's campgrounds can only be accessed by boat.

The **Chauga River** is a 31.3-mile long tributary of the Tugaloo River that flows from the north in the western area of Oconee County before joining with Ramsey Creek in the Chau Ram County Park. The River includes Class IV rapids ideal for whitewater kayaking near the Cassidy Bridge but slows before flowing into Lake Hartwell to provide paddling opportunities. As a hatchery-supported trout stream, the Chauga is also a very popular fishing destination. Access to the River from Oconee County and is available at the Cassidy Bridge access and parking area.

The **Chattooga River** has been protected since 1974 as a National Wild and Scenic River. Nearly 40 miles of the River have been designated as "wild," 2.5 miles as "scenic," and 14.6 miles as "recreational." Known as the "Crown Jewel" of the southeast, the Chattooga was the first river east of the Mississippi to be granted the Wild and Scenic designation and is still the only one where commercial rafting is allowed. The area surrounding the River is managed by the U.S. Forest Service. On commercially rafted sections (III and IV) there is a quarter-mile long protected corridor of the National Forest on both sides of the River that allows no roads to the river or development of any kind. The segment above the S.C. Highway 28 bridge is generally reserved for fishing for trout or redeye bass, while below the bridge is the 26-mile stretch of what is considered some of the best whitewater rafting available in the east, with class II, III, IV, and V rapids available. However, the number of trips and people per trip is strictly regulated to protect the River.

The **Tugaloo River** is a 45.9-mile long river that serves as a portion of the western border of Oconee County and South Carolina with Georgia. The River is fed by the Tallulah and Chattooga Rivers and ends as an arm of Lake Hartwell. The River is popular for boating, sailing, fishing, and other water sports. **Lake Yonah** is a 525-acre lake on the Tugaloo River in the westernmost area of Oconee County, with over nine miles of shoreline. The Lake provides opportunities for paddling and other water sports and fishing, with access available at the Yonah Boat Ramp in Tallulah Falls, Georgia. **Lake Tugaloo** is a 597-acre lake with 18 miles of shoreline. The Lake is fed by the Tallulah and Chattooga Rivers and is known as the perfect place to paddle and fish. Access to Lake Tugaloo for Oconee County residents is available at the boat ramp on Bull Sluice Road in the Long Creek community.

d. Hiking Trails and Waterfalls

Oconee County is known as the “Golden Corner” of South Carolina because of its temperate climate, beautiful lakes and rivers, and the Blue Ridge Mountains. Adventurers, backpackers, hikers, photographers, campers, nature lovers, and families are drawn to the County’s natural and recreational resources. Chief among the draws for visitors and residents are the 193 miles of trails in Oconee County, ranging in size from small spurs of less than a mile to the 77-mile Foothills Trail. Many of these trails lead hikers to the County’s nearly 150 waterfalls, to the Wild and Scenic Chattooga River, and to County and State parks. Table 6-6 lists the trails in Oconee County and describes the waterfalls and other destinations accessed along these trails. More detailed descriptions and photos of some of the County’s spectacular waterfalls are provided at <http://scmountainlakes.com/play/waterfalls-in-sc/>.

Of particular note are two larger trail systems that include passages within Oconee County. The 77-mile **Foothills Trail** extends from Oconee State Park to Table Rock State Park in Pickens County. The first 28 miles of the Trail from Oconee State Park to Upper Whitewater Falls was designated a *National Recreation Trail* in 1979. While numerous trailheads offer opportunities for day hikes, the full trek can take more than a week for backpackers who wish to hike the entire trail and include some of the many spur trails and connectors. Rated as “one of the best long trails (50 miles or more) in the Country” by Backpacker magazine, hiking difficulty on the Foothills Trail varies from moderate to strenuous. Primitive camping is allowed at various places along the trail and campsites are available at Burrell’s Ford Campground, Cherry Hill Recreation Area, and Oconee State Park in Oconee County and Table Rock State Park in Pickens County.

The **Palmetto Trail** is South Carolina’s longest pedestrian and bicycle trail, with 27 passages totaling 350 miles through 14 counties completed to date. Trails range from 1.3 miles to 47 miles in length. When completed, the route will extend 500 continuous miles from Oconee County to the Intracoastal Waterway. The trail was established in 1994 to provide free access to trails of all levels of difficulty and varying length. The entire Trail is open to hiking and backpacking, with designated passages available for mountain biking, horseback riding, and camping. One of only 16 cross-state trails in the United States, the Palmetto Trail is a federally designated Millennium Legacy Trail. Two passages of the Palmetto Trail are in Oconee County –



the Oconee Passage that connects Oconee State Park to the Oconee Station State Historical Site, and the new Stumphouse Passage that is the first phase of the planned 20-mile Stumphouse Mountain Bike Park (Table 6-6).

Table 6-6. Hiking Trails and Water Falls

Trail and Water Falls	Length (miles)	Description
Bad Creek Spur	0.6	Moderately difficult hike in Lake Hartwell State Park connecting with Coon Branch, Foothills, and Lower Whitewater Falls Trails
Bee Cove Falls	2.1	Difficult 2-3 hour hike to multi-tiered Bee Cove Falls
Beech Bluff	0.8	Easy natural trail in Lake Hartwell State Park with scenic views
Big Bend	3.3	Moderately easy hike to the Chattooga River and 30' Big Bend Falls
Blue Hole Falls	0.5	Moderately difficult hike into pristine wilderness and to 75' Blue Hole Falls and the pool that gives the area its name
Blue Ridge Railroad	2.5	Moderately difficult walk that follows incomplete 19 th century Blue Ridge Railroad rail bed, includes 3 abandoned tunnels
Brasstown Falls	0.3	Short but moderately difficult hike to 120' Brasstown Falls and the calm swimming hole at the base of the upper falls
Bruce Hill-Shaver	0.7	Easy walking trail that links the Shaver Complex with the Bruce Hill community, part of the Seneca Greenway system
Bull Sluice	0.2	Moderately steep paved access to Chattooga River flat water or moderately difficult gravel path to Bull Sluice
Chauga Narrows	0.6	Easy walk to the Chauga Narrows that includes both turbulent whitewater (Class IV rapid) and nearby flatwater
Chau Ram County Park	4.0	Easy to moderate hike along Chauga River that includes the 40' Ramsey Creek Falls waterfall
Choestoea	0.8	Easy hike along old road bed on Lake Hartwell peninsula
Coon Branch Natural Area	6.0	Moderate hike along Coon Branch, intersects with Lower Whitewater Trail to Lower Whitewater Falls waterfall
Ellicott Rock Trail	6.8	Easy hike the follows the Chattooga River to Ellicott Rock, part of the greater Chattooga River Trail
Foothills Access	1.2	Moderate hike as an access trail to the Foothills Trail
Hidden Falls	2.1	Moderate hike to 50' Hidden Falls
Issaqueena Falls	0.2	Easy hike beginning at Stumphouse Tunnel to platform to view the 100' cascade of Issaqueena Falls
Keowee Elementary	0.2	Easy scenic walking trail that circles a multi-purpose field
Oconee State Park Lake	1.2	Easy hike around the State Park's lake
Lee Falls	1.5	Difficult hike with no official trail to 75' Lee Falls, provides opportunities to view Oconee Bell flowers
Licklog and Pigpen Falls	0.9	Easy hike to 25' Pigpen Falls and two-tiered 80' Licklog Falls
Long Creek Falls	3.3	Moderately difficult hike to 50' Long Creek Falls that cascades into the Chattooga River
Lower Whitewater Falls	2.0	Moderately difficult hike to an observation platform for the dramatic 200' drop of Lower Whitewater Falls

Table 6-6. Hiking Trails and Water Falls

Trail and Water Falls	Length (miles)	Description
Miuka Falls	1.2	Easy hike to 75' Miuka Falls, a spur trail off Winding Stairs Trail
Moss Mill Creek	0.4	Hike to Moss Mill Creek, a hatchery-supported trout fishing stream
Mountain Rest Community	0.4	Easy hike to the Mountain Rest Community Club
Oconee	2.3	Moderately difficult trail around Oconee State Park lake
Oconee Bells Nature	1.5	Easy hike within Devils Fork State Park offering sightings of Oconee Bell wildflowers
Oconee Station	1.5	Easy nature hike circling the pond in Oconee Station State Historical Site
Old Waterwheel	1.4	Moderately difficult, occasionally steep trail leading to stone remnants of a former waterwheel
Sandy Ford	0.3	Easy, moderately steep hike to gentle rapids of the Chattooga River
Secret Falls	3.5	Easy downhill hike to 60' Secret Falls
Stumphouse Passage of the Palmetto Trail/Stumphouse Mountain Bike Park	4.0	Recently opened Phase I includes 1.5-mile passage of the Palmetto Trail and 2.5 miles of loop trails for both mountain biking and hiking
Tamassee Knob	2.2	Strenuous hike to the top of Tamassee Knob
Thrift's Ferry	0.4	Easy hike to flat shoals of Chattooga River, ideal for canoe/kayak launching
Westminster Elementary	0.6	Walking trail
Woodall Shoals	0.2	Moderately difficult, steep hike to Woodall shoals on the Chattooga River
Sumter National Forest		
Big Bend Falls	3.4	Strenuous hike to the 30' Big Bend Falls hydraulic, the largest drop on the Chattooga River; primitive camping allowed
Chattooga River Trail	15.5	Primitive hiking/backpacking trail ranging from moderately to extremely difficult along the Chattooga River; shared sections with the Foothills and Bartram Trails; primitive camping allowed
Earls Ford	0.3	Easy hike to Chattooga River
East Fork	2.5	Easy hike along the north bank of the Chattooga River with two trailheads – one at Chattooga Picnic Area and the other at Burrells Ford, primitive camping allowed
Fall Creek Falls	2.0	Strenuous primitive hike along Fall Creek to the Chattooga River that includes 3 waterfalls, each 30-50' high
Foothills Trail	76.0 (16.6 miles in SNF)	Moderate to strenuous hike from Oconee State Park to Table Rock State Park in Pickens County (28-mile section from Oconee State Park to Upper Whitewater Falls in N.C. is designated as a National Recreation Trail); primitive camping allowed
Fork Mountain	6.4	Moderately difficult remote hike from Sloan Bridge Picnic Area to Ellicott Rock Wilderness Area (N.C.) joining Bad Creek Trail and leading to Chattooga Trail; primitive camping allowed
King Creek Falls	0.5	Moderately difficult hike to 70' King Creek Falls

Oconee Passage of the Palmetto Trail	3.2	Moderately difficult hiking/difficult mountain biking section of the Palmetto Trail that begins in Oconee State Park and ends at Oconee Station State Historical Site
Opossum Creek Falls	2.0	Difficult hike past the Chattooga River to the base of the 50' Opossum Creek Falls; primitive camping allowed
Riley Moore Falls	0.7	Moderately difficult hike to the 12' Riley Moore Falls, with a 100' wide cascade, on the Chauga River; primitive camping allowed
Rocky Gap/Willis Knob	12.4	Difficult but scenic trail for hikers and horses – known as Rocky Gap in S.C. and Willis Knob in N.C. (15 miles) – that descends into the Chattooga Wild and Scenic River corridor and loops back and forth across the River
Spoonauger Falls	0.5	Easy hike to 50' multi-tiered Spoonhauger Falls; primitive camping allowed
Station Cove Falls	0.5	Easy hike into the Sumter National Forest and ending at 60' stepped Station Cove Falls, intersects with the Oconee Passage of the Palmetto Trail
Winding Stairs	3.5	Easy hike, mostly along Townes Creek, that includes access to 75' Miuka Falls via a spur trail
Yellow Branch Falls	1.3	Moderately difficult hike to the base of the spectacular 50' cascade of Yellow Branch Falls
Yellow Branch Nature	0.4	Moderately difficult nature trail along Yellow Branch Creek, connects to Yellow Branch Falls trail
Total Miles	192.8	

Sources: Oconee County Parks and Recreation Dept., SCtrails.net, USDA Forest Service, February 2019

e. Scenic Views and Sites

Beautiful vistas and scenic sites are so abundant in Oconee County that it is not feasible to list them all. Amazing views of pristine forests, dramatic gorges, pastoral lakes, rushing rivers, and picturesque waterfalls are available, whether by car along the scenic byways, by boat from the lakes and rivers, or on foot, horseback, or mountain bike via the area's many trails. Many of these sites are found in the Sumter National Forest and the State and County Parks, and have been described in the preceding sections of this Element. Other notable sites and views are summarized in the following paragraphs.

A series of steep sided gorges carrying eight major mountain streams down to the Piedmont have carved a generally uniform sloping face of an escarpment with dramatic elevation changes. These gorges together are known as the *Jocassee Gorges*. Defining the end of the South Carolina Piedmont, the Jocassee Gorges run parallel to the North Carolina border and climb 2,000 vertical feet in elevation in just one to two miles. In the creation of the gorges, the mountain streams produced a spectacular concentration of waterfalls, one of the primary reasons why National Geographic named the Jocassee Gorges region as a "Destination of a Lifetime" in a special edition highlighting "50 of the World's Last Great Places." The region has benefitted from major conservation and land preservation in recent decades that involved



federal and state agencies, land trusts, conservations groups, and corporations. Cooperative acquisition efforts between the S.C. Department of Natural Resources (SCDNR), Duke Energy, the Richard King Mellon Foundation, and the Conservation Fund have ensured the continued protection of the natural and recreational resources of the 43,500 Jocassee Gorges tract. SCDNR owns most of the Gorges, with activities governed by a management plan. The primary consideration in the plan is to maintain the natural character of the area, with the secondary objective of providing public recreation that is compatible with the area's natural character. Recreational activities accommodated in the Plan include hunting, fishing, horseback riding, and hiking. The Jocassee Gorges is largely wild and forested, with access limited to managed areas through gateways that include State Parks and other established locations for day use and overnight ventures. The management plan also recognizes that Jocassee Gorges provides tremendous opportunity for scientific study and education. The area is home to rare plant and animal species and has been the site of important wildlife and fisheries restoration projects.

The Jocassee Gorges is home to more than 60 species of rare and endangered plants. One of South Carolina's most unique and rare plants is the *Oconee Bell flower*, a white and yellow blossom with red stem and red-tinged leaves found in only a few locations in the mountains of South Carolina, North Carolina, and Georgia (Figure 6-1). The flower grows in humid, rocky outcrops around rugged gorges and cool, shady woods along streams and waterfalls. Among the best places to see the Oconee Bell is along the Oconee Bell Trail in Devils Fork State Park. The plant blooms annually from mid-March to early April.

Oconee Bell Flower



Source: South Carolina State Parks, 2019

The **Old Highway 123 Fishing Pier (Old Tugaloo River Bridge)** is an historic truss bridge that once connected South Carolina to Georgia along U.S. Highway 123 over Lake Hartwell in the Madison community near Westminster. The bridge was replaced in the 1950s and disconnected and is now known as the "Broken Bridges." The separate ends of the bridge now serve as

peaceful and scenic fishing piers. The Pier is managed by the U.S. Corp of Engineers, with parking provided.

The ***Oscar B. Wigington Scenic Byway*** is only 20 miles long, but it leads to one of the most spectacular overlooks in the State. The ***Oscar Wigington Overlook*** offers stunning views of Lake Jocassee and the Blue Ridge Mountains. The Byway is lined on both sides by remote forestland and is especially beautiful during the fall color season and in early summer when the rhododendron are blooming. Along the Byway are access roads to several waterfalls, the Walhalla Fish Hatchery, the Chattooga River, state and national forest campgrounds, and miles of hiking trails.

The ***Walhalla State Fish Hatchery (WSFH)***, located off of S.C. Highway 107 in the Sumter National Forest, was built by the Work Progress Administration and the Civilian Conservation Corps in the 1930s. Originally managed by the U.S. Fish and Wildlife Service, management of the Fish Hatchery has since been transferred to the S.C. Department of Natural Resources. The WSFH is SCDNR's only cold water fish hatchery, raising brown, brook, and rainbow trout to stock the State's public waters, including Oconee County. Approximately 500,000 trout are produced and stocked annually by WSFH in support of recreational fishing. Very large trout are also kept at the hatchery on display for the public. Visitors are welcome to tour the hatchery, to fish in the East Fork of the Chattooga River that runs through the Hatchery grounds, and to picnic in designated areas.

7. Land Conservation

The preservation and conservation of Oconee County's abundant and unique land resources continues to be a high priority for County residents. While conservation and protection of much of the County's resources is carried out by Federal, State and local agencies, non-profit organizations continue to conserve and preserve land through outright purchase and conservation easements. A conservation easement is a voluntary contract between a landowner and a qualified land trust or public entity that allows the landowner to legally restrict certain land uses such as subdivisions, commercial or industrial operations, or mining from occurring on their property while allowing traditional rural uses such as farming, grazing, hunting, and timbering to continue. The easement is permanent and remains with the land after it has been sold or conveyed to heirs. There are a number of additional organizations that are working to conserve and preserve land in Oconee County including the S.C. Department of Parks, Recreation and Tourism, the U.S. Forest Service, and county and municipal governments.

The mission of the ***South Carolina Conservation Bank*** is "to improve the quality of life in South Carolina through the conservation of significant natural resource lands, wetlands, historical properties, archeological sites, and urban parks." The Bank is considered one of the State's most important land protection tools and a key funding source for land conservation statewide. Since its inception in 2002, the Bank has protected nearly 250,000 acres in 42 counties. Funding for the Bank is provided by a portion of the real estate transfer fee. The Bank provides grants



for woodlands/wetlands, farmlands, urban parks, and historical and archaeological sites through a competitive grant application process. Funding from the Bank has been used to conserve more than 5,000 acres in Oconee County, including farmland and tracts adjoining lakes, rivers and creeks. Other tracts adjoin Sumter National Forest, State Parks and Chau Ram County Park, as well as Stumphouse Mountain, which is now in use as Stumphouse Tunnel/Issaqueena Falls Park. The Oconee County Soil and Water Conservation District, Upstate Forever, and Naturaland Trust have been awarded grants to conserve these tracts.

The *Heritage Trust Program* of SCDNR has preserved and protected natural and cultural properties throughout the State since 1974. Heritage Trust staff work with related agencies to identify and document rare plants, animals, archaeological sites, and other significant features of South Carolina's heritage. This information is used to determine the locations that have the most conservation potential. One of the program goals is to permanently protect the best examples of these features through a system of heritage preserves. These preserves are managed to sustain or improve habitat for species that are already on the property, those that may return to the area, and species that may colonize the area following improvement. There are four Heritage Preserves in Oconee County, including the Brasstown Creek, Buzzard Roost, and Stumphouse Mountain Heritage Preserves/Wildlife Management Areas. SCDNR sets and regulates the methods of harvest, bag limits, and other hunting requirements in wildlife management areas. While the Sumter National Forest is owned by the U.S. Forest Service, it is managed in a cooperative partnership with SCDNR and is considered a Heritage Preserve.

The *Oconee County Soil and Water Conservation District* is "dedicated to the preservation and protection of the natural resources of Oconee County and all of South Carolina." The District's conservation easement program is designed to protect the County's "precious resources and productive farmland." Through the program, the Soil and Water Conservation District has secured 19 conservation easements that protect approximately 2,200 acres. The District is currently working to secure protections on an additional 450 acres.

The *Oconee County Conservation Bank* (OCCB) was established by the Oconee County Council in 2011 as an independent body whose mission is to leverage available funds to protect significant natural, cultural, and historic resources in the County (*OCCB Press Release, 2012*). The OCCB provides financial incentives to willing landowners of properties that meet specific criteria to convey either a conservation easement or fee simple title to eligible recipients such as non-profits managed to hold conservation lands or government bodies. Oconee County Council must approve all projects. Through this process, the program seeks to simultaneously protect valuable natural resources and private property rights. The Board has protected three properties totaling 174.04 acres since 2011, through private donations from corporations, non-profits, and citizens.

A number of private conservation groups are also working towards protecting critical lands and water through the creation of voluntary conservation easements and other providing conservation work



E. WATER RESOURCES

The quality and availability of water have played a key role in the development of Oconee County, and will continue to shape its future development. This influence is reflected in the County's name, derived from the Cherokee word "Aconnee" that means "land beside the water." Oconee County relies on both surface and ground water from local sources to accommodate residential, commercial, and industrial need.

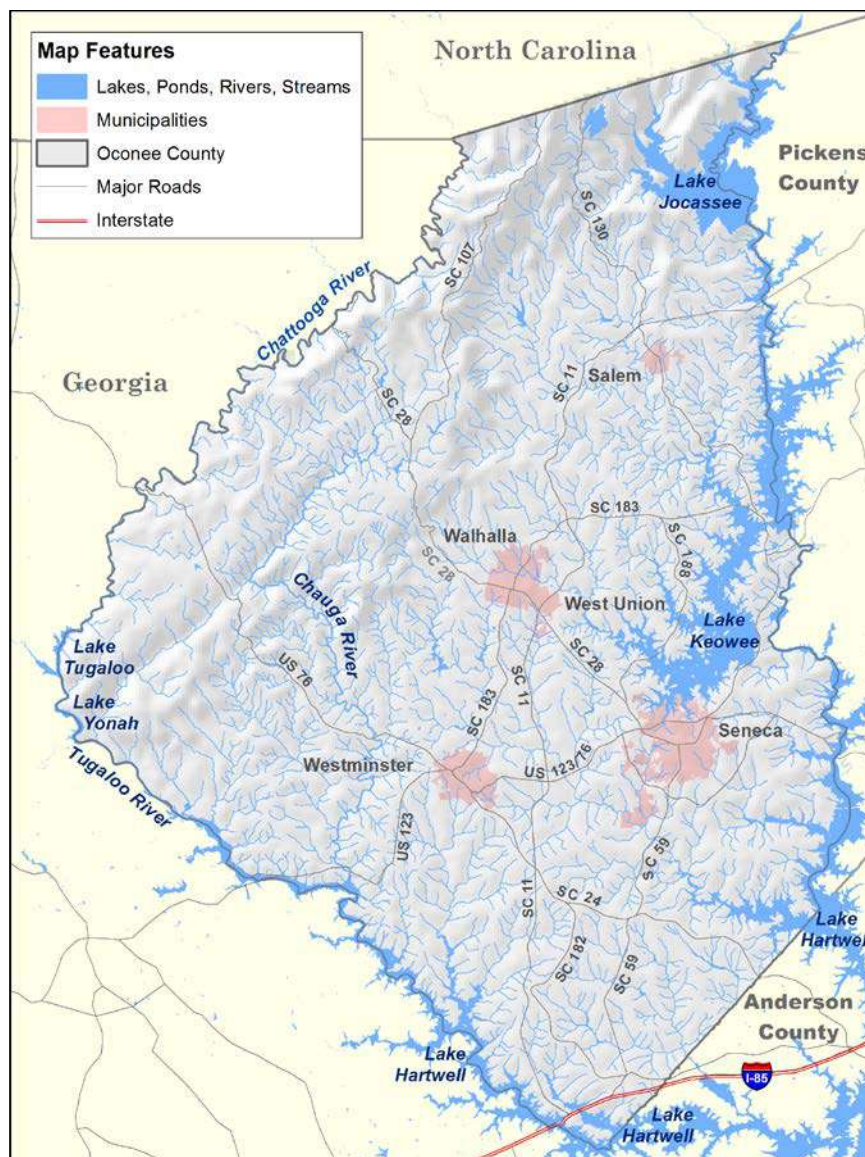
1. Surface Water

Oconee County has an abundance of surface water, generally sustained by ample rainfall, that includes several major water bodies as well as numerous rivers, creeks, ponds and streams. Surface water accounts for nearly all (99.2%) of the public water supply in Oconee County, with 4,099.88 million gallons withdrawn in 2016 (*SCDHEC, 2016 Reported Water Use in South Carolina, 2017*). An additional 45.9 million gallons of the County's groundwater were withdrawn for irrigation use and 30.49 million gallons for golf course use. Map 6-5 illustrates the surface water resources in Oconee County.

At 56,000 acres, **Lake Hartwell** is the largest water body that extends into Oconee County. The Lake borders the County on the west, south, and east, and is fed by the Tugaloo and Seneca Rivers. The largest portion of the Lake is within Anderson County, with branches also reaching into Pickens County and three Georgia counties. The Lake was created between 1955 and 1963 through the damming of the Savannah River by the U.S. Army Corps of Engineers for the purposes of flood risk management, water quality, water supply, downstream navigation, hydropower production, fish and wildlife protection, and recreation (*U.S. Army Corps of Engineers, 2019*). Full pool elevation for Lake Hartwell is 660 feet above mean sea level, with a maximum depth of 185 feet and an average depth of 45 feet (*SCDNR, 2019*). The Lake and the Hartwell Power Plant are under the management of the U.S. Army Corps of Engineers. The Corps' Shoreline Management Program for Lake Hartwell provides guidelines for general uses of the Lake's public lands, including the types of permitted private uses and activities such as the construction of boat docks and underbrushing.



Map 6-5. Surface Water



Source: USGS National Hydrography Dataset, December 2018

Duke Power, now Duke Energy, developed the **Keowee-Toxaway Hydroelectric Project** to generate electricity. The project includes the Keowee Hydro and Jocassee Pumped Storage facilities. Duke Energy is the Federal Energy Regulatory Commission (FERC) licensee for the Keowee-Toxaway Project that includes management of Lakes Keowee and Jocassee. Duke Energy's Shoreline Management Plan (SMP) was developed to assist in guiding responsible construction, shoreline stabilization, and excavation activities within the lake boundaries of both lakes. The goal of the SMP is to provide continued public and private access to the lakes while protecting their natural resource value.



Lake Keowee was formed in 1970 by the construction of dams across the Keowee River and the Little River, creating a reservoir with two distinct halves, connected by an excavated canal. Much of 18,372-acre Lake is in Oconee County, with a northern portion also extending into Pickens County. In addition to providing hydroelectric power at the Keowee Hydro station, the Lake is a crucial source of water for cooling for the Oconee Nuclear Station. Full pool elevation at Lake Keowee is 800 feet above mean sea level (*Duke Energy, 2019*), with a maximum depth of 297 feet and average depth of 53 feet (*SCDNR, 2019*).

Lake Jocassee was created in 1973 with the construction of the Jocassee Dam and is the second lake developed as part of the Keowee-Toxaway Hydroelectric Project. Much of the 7,565-acre Lake is in the northeastern area of Oconee County, with a portion in Pickens County. A confluence of four rivers supplies Lake Jocassee - the Whitewater, Thompson, Horsepasture, and Toxaway Rivers. The Jocassee Hydro Station in the southeast corner of the Lake separates it from the beginning of Lake Keowee. When generating electricity, the Jocassee Pumped Storage Facility serves as a conventional hydroelectric station. However, the facility can also reverse its turbines and pump previously used water from Lake Keowee into Lake Jocassee. The Lake also serves as the lower reservoir for the Bad Creek Pumped Storage Facility. Full pool elevation for Lake Jocassee is 1,110 feet above mean sea level (*Duke Energy, 2019*). Average Lake dept is 157 feet, with a maximum depth of 351 feet (*SCDNR, 2019*).

Lake Tugaloo is a 597-acre lake that is fed by the Tallulah and Chattooga Rivers. The Lake was created in 1923 with the completion of the Tugaloo Dam and is the fifth lake in a six-lake series created by hydroelectric dams operated by Georgia Power that follows the original course of the Tallulah River. The Lake stretches along South Carolina's border with Georgia from the Chattooga River to its confluence with the Tallulah River and provides a portion of the western Oconee County border. The Lake is owned and operated by Georgia Power. Full pool elevation for Lake Tugaloo is 891.5 feet above mean sea level.

Lake Yonah is a 525-acre lake that was created in 1925 with the completion of the Yonah Dam and is the sixth and last lake in a series created by Georgia Power that follows the original course of the Tallulah River. Lake Yonah forms a portion of South Carolina's border with Georgia, as well as the western Oconee County border. The Tugaloo River flows through Lake Yonah and continues through Lake Hartwell before joining the Savannah River. The Lake is owned and operated by Georgia Power. Full pool elevation for Lake Yonah is 744.2 feet above mean sea level.

The **Chattooga River** forms the northwest border of Oconee County. The Chattooga is the main tributary of the Tugaloo River, flowing 57 miles from its headwaters in North Carolina to its confluence with the Tallulah River in Lake Tugaloo. The River drops nearly half a mile in elevation along the way. The Chattooga has been protected since 1974 as a National Wild and Scenic River, including the surrounding 15,432-acre corridor. Nearly 40 miles of the River are considered "wild," meaning that these segments are relatively inaccessible. Most of the area surrounding the River is managed by the U.S. Forest Service.

The 31.3-mile **Chauga River** is a long tributary of the Tugaloo River that begins near Mountain Rest and flows to Chau Ram County Park where it merges with Ramsey Creek before flowing south to Lake Hartwell. The 45.9-mile **Tugaloo River** serves as a portion of the southwestern border of Oconee County. Formed by the Tallulah and Chattooga Rivers, the Tugaloo flows along South Carolina's border with Georgia and through the impoundments at Lake Tugaloo, Lake Yonah, and Lake Hartwell to the Savannah River.

There are also a number of smaller lakes of various sizes throughout Oconee County. Smaller lakes include **Lake Becky** below Oconee State Park, **Lake Chattooga** near Mountain Rest, **Lake Cheohee** and **Lake Cherokee** in the northwest area of the County, **Crystal Lake** near S.C. Highway 28 above Stumphouse Tunnel, **Lake Jemiki** west of Walhalla, **Mountain Rest Lake** in Mountain Rest, and **Whitewater Lake** northwest of Salem. Many of these lakes include associated residential communities.

Several rivers and creeks of note are the **Thompson River** north of Lake Jocassee, **Brasstown Creek** that flows through the westernmost area of the County through the Sumter National Forest to the Tugaloo River, and **Coneross Creek** that begins near Stumphouse Tunnel and flows southeast to Lake Hartwell. Additional smaller rivers and streams include **Whitewater River** that flows into Lake Jocassee, **Little River** that begins above Salem and flows to Lake Keowee, **Choestoea Creek** that originates west of Westminster and flows to Lake Hartwell, **Cheohee Creek** west of Salem, **Tamassee Creek** in the Sumter National Forest west of Salem, and **Station Creek** that flows from the Sumter National Forest north of Walhalla.

2. Groundwater

Groundwater is a significant source of drinking water, particularly in rural areas, and an important source of water for manufacturing, irrigation, and power generation. Groundwater is also vital for maintaining aquatic ecosystems by recharging streams, lakes, and wetlands and sustaining surface water supplies during droughts. It is estimated that about 60% of the water in South Carolina streams originates as groundwater (*S.C. Water Plan, 2004*). However, groundwater accounts for less than one percent (0.8%) of the public water supply in Oconee County, with fewer than 35 million gallons withdrawn in 2016 (*SCDHEC, 2016 Reported Water Use in South Carolina, 2017*).

Groundwater supplies are subject to seasonal variation and decline due to prolonged drought, but usually to a lesser degree than surface water supplies. Groundwater levels are lower during the summer due to increased pumping and reduced recharge, but usually recover during the winter and spring because of increased aquifer recharge and reduced pumping. Multi-year droughts lower aquifer water levels by limiting the recharge that normally occurs during the wet winter and spring months.

SCDHEC, SCDNR, and the South Carolina Water Science Center (SCWSC) of the U.S. Geological Survey (USGS) have cooperatively developed and are maintaining groundwater level monitoring



networks within the major aquifers of the State. SCDNR routinely collects groundwater level data for 85 wells statewide. While there are no monitored wells in Oconee County, there are several nearby in Anderson and Greenville counties (SCDNR, *South Carolina Groundwater Data, 2019*).

3. Public Water Supply

More than 10.8 million gallons of water are withdrawn in Oconee County each day by water suppliers. This water is conveyed for uses including domestic, commercial, industrial and public water use. Of the water withdrawn, 0.24 million gallons were drawn from surface water sources such as lakes, rivers, and streams and 10.58 million gallons from groundwater sources located beneath the earth's surface (*USGS National Water Information System, 2015*).

Water is provided to Oconee County residents by 21 *community water systems* (Table 6-7). Community water systems serve the same customers in residences or businesses year-round. Six of these systems are public systems that serve nearly 75,700 residents and 15 are private systems serving more than 8,100 residents.

Additional water systems serving Oconee County residents include one *non-transient, non-community water system* and 35 *transient, non-community water systems* (*US EPA Envirofacts, SDWIS, 2019*). Non-transient, non-community water systems provide water for uses that serve the same people, but not year-round, such as schools that have their own water systems. Transient, non-community water systems provide water for uses that do not consistently serve the same users year-round such as rest stops, campgrounds, and gas stations.

Table 6-7. Community Water Systems in Oconee County

Water System Name	Primary Water Source Type	Population Served
Public Community Water Systems		
City of Seneca	Surface water (Lake Keowee)	33,374
City of Walhalla	Surface water (tributaries of Coneross Creek)	15,740
City of Westminster	Surface water (Chauga River)	7,582
Pioneer Rural Water District	Surface water purchased	16,236
Town of Salem	Surface water purchased	2,278
Town of West Union	Surface water purchased	468
Private Community Water Systems		
Bay Ridge Subdivision	Ground water	62
Camp Ghigau	Ground water	35
Cherokee Creek Boys School	Ground water	26
Chickasaw Point	Surface water purchased	490
Harts Cove and Tory Pointe	Surface water purchased	560
Highpointe at Clemson	Surface water purchased	864
Isaqueena Point Utility System	Surface water purchased	36
Keowee Bay Subdivision	Ground water	115
Keowee Key Utility System Inc.	Surface water purchased	3,602
Port Bass I	Ground water	590
Port Bass II	Ground water	178
Tesi-Foxwood Hills	Surface water purchased	1,226
Timber Lake I	Ground water	202
Timber Lake II	Ground water	96
Turtlehead Subdivision	Ground water	32

Source: U.S. EPA, Envirofacts, Safe Drinking Water Information System (SDWIS), January 2019

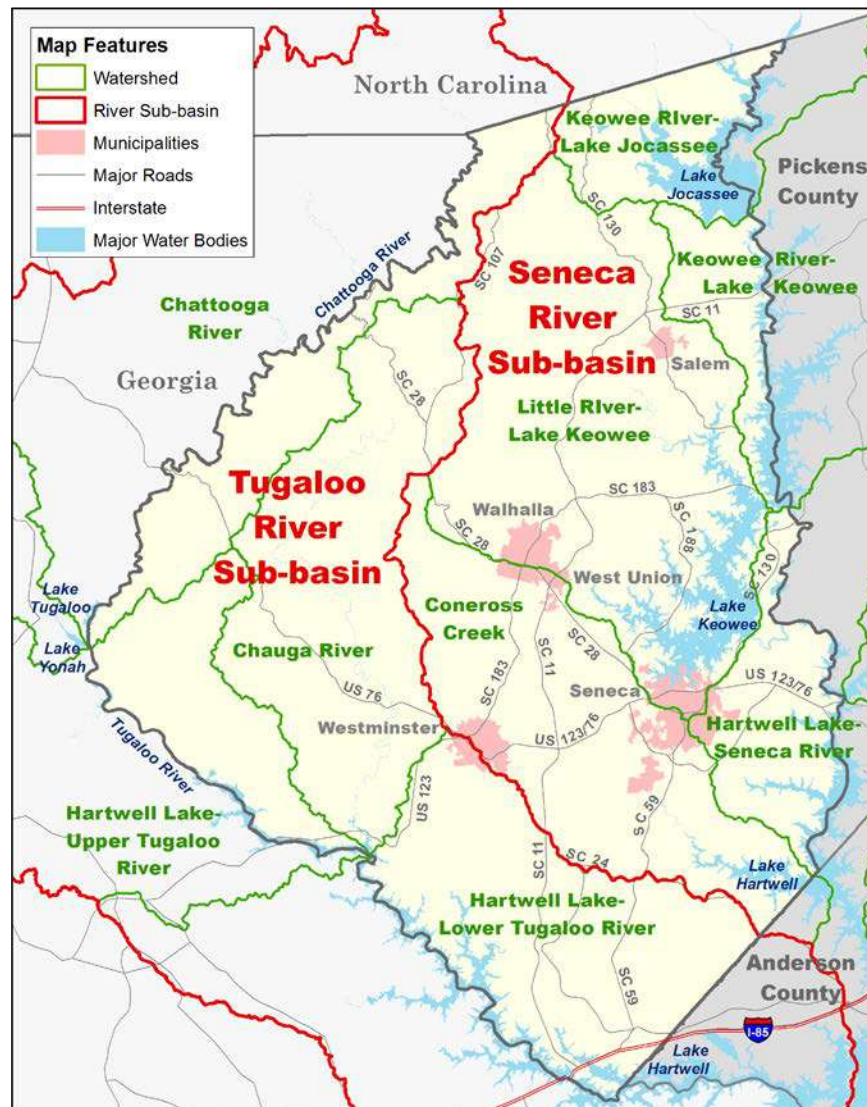
4. River Basins and Sub-basins

The precipitation that falls in South Carolina is drained by four major river systems – the Pee Dee, Santee, Ashley-Combahee-Edisto, and Savannah River Basins. The streams and rivers that drain each region are collectively called drainage basins. These basins generally traverse the State from the northwest to the southeast. The distribution of these systems is a key factor in the geographic disparity in water supply and demand that exists among regions.

Oconee County is located within the **Savannah River Basin**. The basin includes a small portion of North Carolina and all of the land in South Carolina and Georgia that drains to the Savannah River. In South Carolina, the Savannah River Basin is described in two sections – the Upper Savannah River Basin that includes Oconee County and the Lower Savannah River Basin. The Upper Savannah River Basin encompasses seven watersheds and 1,164 square miles (744.8 acres). There are approximately 1,341 stream miles and 43,677 acres of lake waters in the basin.

In Oconee County, the Savannah River Basin is further divided into the *Tugaloo River* and *Seneca River* sub-basins. SCDHEC describes the two eight-digit sub-basins as the Tugaloo/Seneca River Basin (hydrologic units 03060102 and 03050101). The Tugaloo/Seneca River Basin is located in Oconee, Anderson, and Pickens Counties and encompasses 12 watersheds and 1,269 square miles, extending into Georgia and North Carolina. There are approximately 3,832 stream miles and 67,532 acres of lake waters in the two sub-basins. Map 6-6 depicts the sub-basins and watersheds in Oconee County.

Map 6-6. River Sub-basins and Watersheds



Source: USDA, Geo Spatial Data Gateway, February 2019

A watershed is a geographic area into which the surrounding waters, precipitation, sediments, and dissolved materials drain and flow to a single outlet. Watershed resources include both groundwater and surface water, making watershed protection vital to preserving water quality. As water flows across or under a watershed on its way to a lake, river, or stream, it is exposed



to potential contaminants in the form of stormwater runoff and other pollutants. Development of natural areas can adversely impact water quality through the replacement of vegetation and forests with impervious surfaces.

Oconee County is impacted by nine watersheds – five located in the Seneca River Sub-basin and four in the Tugaloo River Sub-basin (Map 6-6). The Chauga, Coneross, and Little River-Lake Keowee watersheds cover substantial areas within the County. Detailed watershed data including the impacted counties, primary water bodies, and coverage area is included in Table 6-8.

Table 6-8. Watersheds in Oconee County

Watershed	Counties; State	Primary Waterbodies	Area (acres)	Stream Miles	Lake/Pond Waters (acres)
Seneca River Sub-basin (03060101)					
Keowee River-Lake Jocassee (03060101-01)	Oconee, Pickens and NC	Keowee River and its tributaries flowing through and forming Lake Jocassee	93,945 (31,875 in SC)	229.7	8,490.2
Keowee River-Lake Keowee (03060101-02)	Oconee, Pickens and NC	Keowee River and its tributaries from Lake Jocassee Dam to Keowee Dam forming Lake Keowee	79,952 (78,837 in SC)	309.8	7,598.2
Little River-Lake Keowee (03060101-03)	Oconee	Little River and its tributaries as is flows through Lake Keowee	104,996	339.5	9,758.4
Coneross Creek (03060101-05)	Oconee	Coneross Creek and its tributaries, which form an arm of Lake Hartwell	68,125	236.4	2,304.2
Hartwell Lake-Seneca River (03060101-08)	Oconee, Pickens, Anderson	Seneca River arm of Lake Hartwell	68,085	170.6	13,028.6
Tugaloo River Sub-basin (03060102)					
Chattooga River (03060102-02)	Oconee and NC/Georgia	Chattooga River and its tributaries	178,648 (34,895 in SC)	570.6	629.3
Chauga River (03060102-03)	Oconee	Chauga River and its tributaries	70,770	323.4	456.3
Hartwell Lake-Upper Tugaloo River (03060102-04)	Oconee and Georgia	Upper Tugaloo River and its tributaries from its origin in the Chauga River	83,089 (27,005 in SC)	259.7	2,288.6
Hartwell Lake-Lower Tugaloo River (03060102-05)	Oconee, Anderson	Lower Tugaloo River and its tributaries from Chauga River through Lake Hartwell	179,670 (84,992 in SC)	544.1	17,041.2

Source: SCDHEC, Watersheds, February 2019

5. Water Quality

South Carolina's abundant water supply has been a key resource in the development and growth of the State's economy. The quantity of this water supply is integral to future



community and regional development efforts, while the health and safety of residents depends on the quality of these resources. Although overall water quality is good in most parts of the State, increased urbanization and a growing population have contributed to rising levels of point source and non-point source pollution. Sustained growth will place greater demand on the water supply and make the protection of water resources a long-term priority.

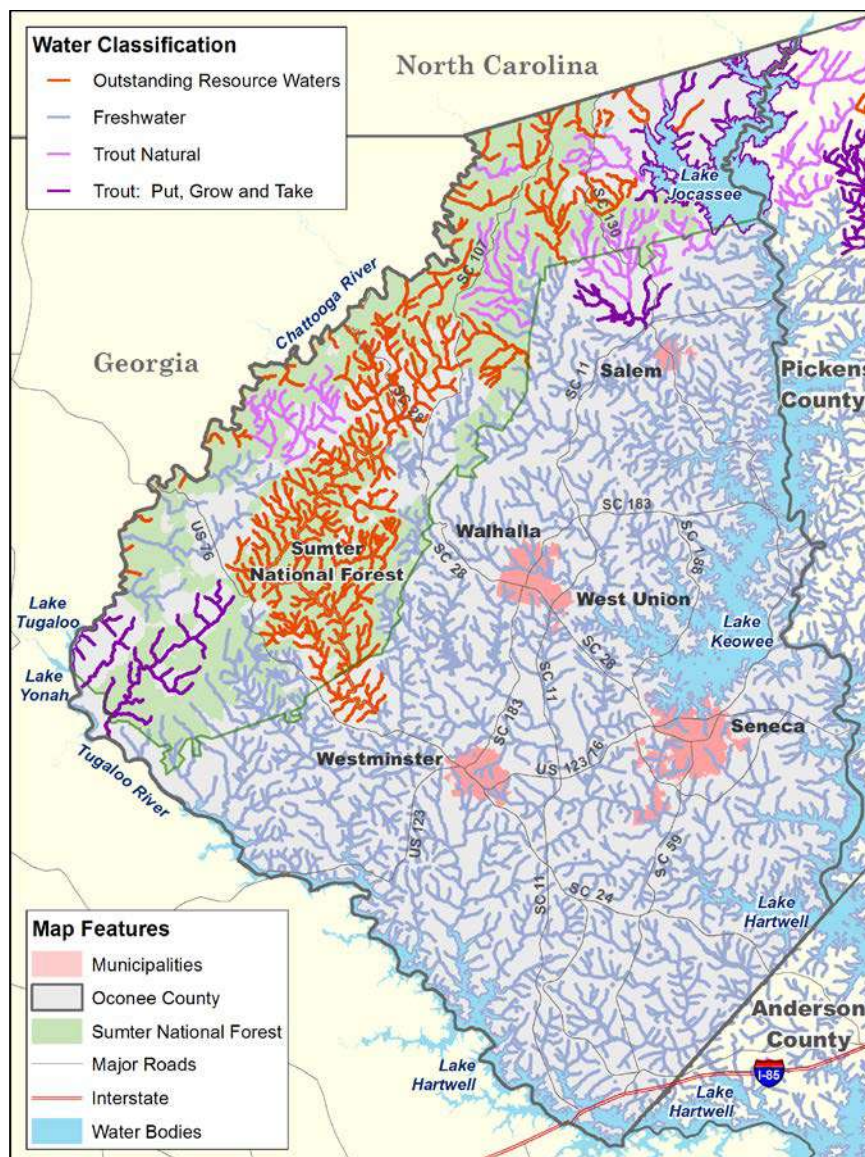
Section 208 of the Federal Clean Water Act, as passed in 1972 and amended in 1987, established criteria for a regionally integrated approach to addressing surface water quality protection. The State of South Carolina continues to use regional planning agencies throughout much of the State as a means of administering these requirements. In 1978, the Appalachian Council of Governments (ACOG) was designated as the water quality management planning agency for a six-county region that includes Cherokee, Greenville, Pickens, Oconee, and Anderson County. As the designated planning agency, the ACOG is responsible for updating and amending the *Water Quality Management Plan (WQMP)* that identifies policy priorities and recommendations for water quality management across the region. The most recent update of the *Appalachian Regional Water Quality Plan* was adopted by Council in 2011.

The SCDHEC Bureau of Water has developed a *Watershed Water Quality Assessment* for each major river basin in the State. Included in each assessment is an in-depth description of the watershed and its resources; an analysis of surface water quality, an analysis of groundwater quality; a listing of National Pollutant Discharge Elimination System (NPDES) permits; the Nonpoint Source (NPS) pollution management, water quantity and usage, growth potential within each watershed related to wastewater needs; watershed protection and restoration strategies; and available state and citizen-based watershed stewardship programs. Updates to Watershed Water Quality Assessments for South Carolina river basins can be found online in the SCDHEC *SC Watershed Atlas*. While more complete assessments of local water quality are included in the SCDHEC data, pertinent findings for Oconee County water quality are summarized in this section.

Statewide standards have been established to protect the suitable uses indicated in each classification and to maintain and improve water quality. The standards determine permit limits for treated wastewater dischargers and any other activities that may impact water quality. As illustrated in Map 6-7, most waters in Oconee County are classified as *Fresh Water* by SCDHEC. Per SCDHEC *Regulation 61-68 – Water Classification and Standards*, fresh waters are suitable for primary and secondary contact recreation (swimming, water skiing, boating, and wading), for industrial and agricultural uses, and as sources of drinking water supply after conventional treatment. Fresh waters are also suitable for fishing and provide a suitable environment for the survival and propagation of a balanced aquatic community of flora and fauna.



Map 6-7. Water Classification in Oconee County



Source: SCDHEC, S.C. Watershed Atlas, 2019

Many of the waters in the Sumter National Forest, as well a portion of the Chauga River and some of its tributaries that extend beyond SNF, are classified as *Outstanding Resource Waters*. Outstanding Resource Waters are “of exceptional recreational or ecological importance or of unusual value.” Such waters may include, but are not limited to “waters in national or state parks or wildlife refuges; waters supporting threatened or endangered species; waters under the *National Wild and Scenic Rivers Act* or *South Carolina Scenic Rivers Act*; waters known to be significant nursery areas for commercially important species or known to contain significant commercial or public shellfish resources; or waters used for or having significant value for scientific research and study.”



Some waters in the Sumter National Forest, as well as a few outside of the SNF just above Salem, are freshwaters that have also been recognized by SCDHEC as trout waters. *Trout Natural* waters are suitable for supporting reproducing trout populations. The waters are also suitable for primary and secondary contact recreation and fishing, as a source of drinking water supply after conventional treatment, and for industrial and agricultural uses. The criteria for *Trout: Put, Grow, and Take* waters are similar to those of the Trout Natural Waters, however these waters are also suitable for supporting the growth of stocked trout populations.

a. NPDES Permitted Activities

As authorized by the *Clean Water Act of 1972*, the National Pollutant Discharge Elimination System (NPDES) permit program reduces water pollution by regulating point sources that discharge pollutants into waters. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge are exempt from NPDES permitting. However, industrial, municipal, and other facilities must obtain permits to discharge directly into surface waters. Accordingly, discharges from wastewater treatment systems owned by governments, private utilities, and industries are required to obtain NPDES permits.

Wastewater facilities are monitored by SCDHEC regional offices of Environmental Quality Control for compliance with NPDES permits. SCDHEC issues permits for *municipal* facilities (municipal utilities), *domestic* facilities (private utilities), and *industrial* facilities (industrial pump and haul operations that generate non-hazardous process wastewater and domestic wastewater generated at industrial facilities). Table 6-9 lists permitted NPDES facilities in Oconee County, sorted by type of activity.

Table 6-9. NPDES Permitted Facilities in Oconee County, 2019

Facility Name	Watershed	Description (SIC)
Municipal		
City of Seneca WTP	030601010305	Water Supply
City of Walhalla Coneross Creek WTP	030601010502	Water Supply
Oconee County Coneross Creek WWTF	030601010502	Sewerage System
Domestic		
Chickasaw Association Inc/Chickasaw Pointe Subdivision	030601020507	Operator of Dwellings other than Apartment Buildings
Chickasaw Utilities/Chickasaw Point	030601020502	Combination Utilities, NEC
Clemson University WWTF	030601010803	Colleges, Universities, and Professional Schools
SCPRT I-85 Info and Rest Area	030601020507	Miscellaneous Personal Services, NEC
Keowee Key Utility Systems Inc	030601010304	Operators of Dwellings Other Than Apartment Buildings
SCPRT Oconee State Park	030601020301	Amusement and Recreation Services, NEC
Tamassee DAR School	030601010301	Elementary and Secondary Schools

Table 6-9. NPDES Permitted Facilities in Oconee County, 2019

Facility Name	Watershed	Description (SIC)
Total Environ/Foxwood Hills Subdivision	030601020502	Operators of Dwellings Other Than Apartment Buildings
West-Oak High School/Oconee County School District	030601020502	Elementary and Secondary Schools
Industrial		
Clemson University/Central Energy	030601010803	Colleges, Universities, and Professional Schools
Duke Energy/Oconee Nuclear	030601010802	Electric Services
Duke Energy/Oconee Nuclear	030601010802	Electric Services
Duke Energy/Oconee Nuclear	030601010802	Electric Services
Duke Energy/Oconee Nuclear	030601010204	Electric Services
Greenfield Industries Inc. Seneca	030601010803	Metal Sanitary ware
Koyo Bearings USA	030601010305	Ball and roller bearings
Oconee County Rock Quarry	030601010501	---
Sandvick, Inc.	030601010502	Cutting Tools, Machine Tool Accessories
SCDNR Walhalla Fish Hatchery	030601020204	Fish Hatcheries and Preserves
Thrift Group/Thrift Brothers Mine	030601010803	Miscellaneous Nonmetallic Minerals
Tyco Healthcare/Kendall	030601010305	Orthopedic, Prosthetic, and Surgical Appliances and Supplies
WP Prop Clemson/Clemson Finishing Plant	030601010803	Finishers of Textiles, NEC

Source: SCDHEC GIS Clearinghouse, February 2019

b. Water Quality Monitoring

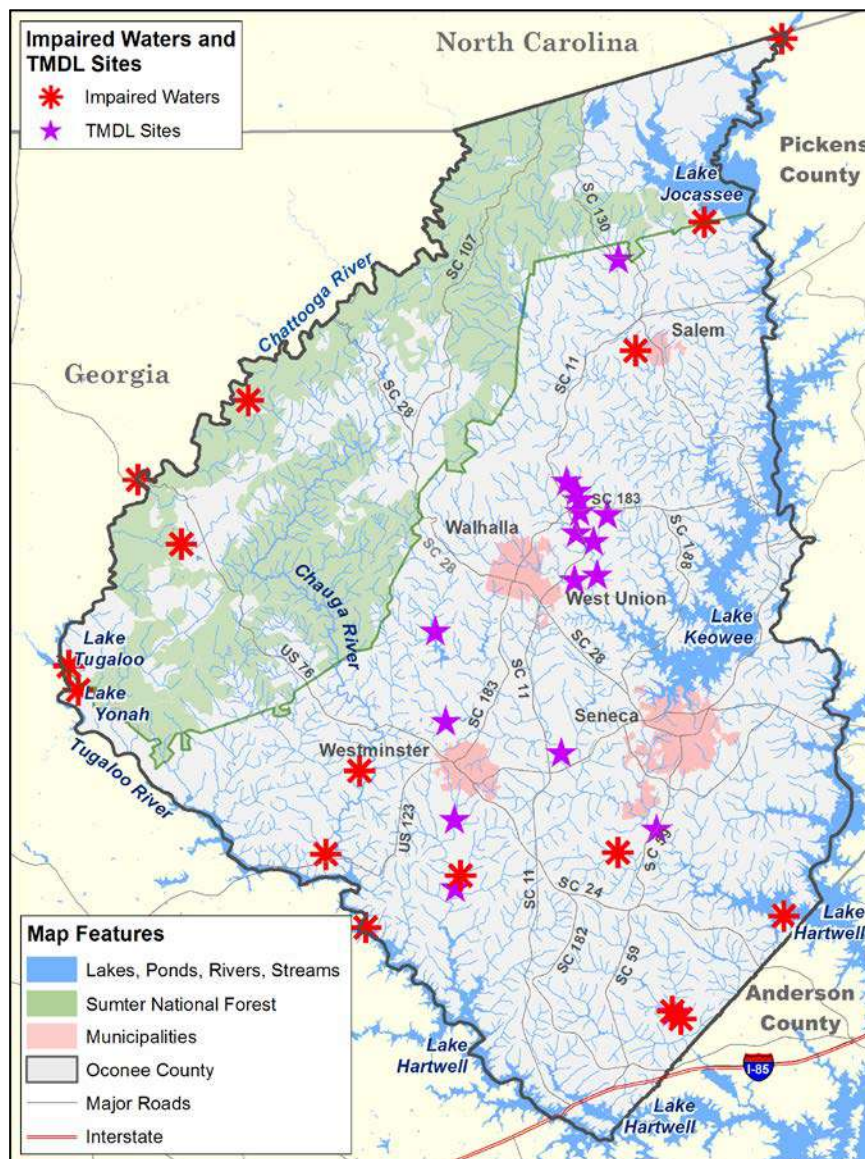
SCDHEC evaluates water quality through the collection of data from a statewide network of primary and secondary ambient monitoring stations supplemented by rotating watershed monitoring stations. Network data is used to determine long-term water quality trends and attainment of water quality standards, identify locations that warrant attention, and plan and evaluate stream classifications and standards. Data is also used to formulate permit limits for wastewater discharges in accordance with State and Federal water quality standards and the goals of the *Clean Water Act*. Assessments of water quality monitoring data for watersheds are regularly updated and published on the Department's *SC Watershed Atlas* website.

SCDHEC prepares a bi-annual list of impaired waters in compliance with *Section 303(d)* of the U.S. EPA *Clean Water Act*. The list is based on a five-year data compilation from multiple water quality monitoring stations in major and secondary waterbodies in Oconee County, along with data gathered from other qualified sources. Impaired waterbodies appearing on the 303(d) list do not meet water quality standards. The most recent list in *The State of South Carolina's 2018 Integrated Report* includes 16 locations in Oconee County (Map 6-8). Once a site is included in the 303(d) list of impaired waters, a Total Maximum Daily Load (TMDL) must be developed by SCDHEC and approved by the EPA. TMDL refers both to the amount of a single pollutant



entering a waterbody on a daily basis and to an associated document and implementation plan with specific measures to improve water quality and attain water quality standards. TMDL implementation has the potential to reduce pollution sources within a watershed and restore full use of the waterbody. Sites covered under an approved TMDL are also shown in Map 6-8.

Map 6-8. Impaired Waters and TMDL Sites in Oconee County



Source: SCDHEC GIS Clearinghouse, February 2019

c. Nonpoint Source Pollution

Nonpoint source (NPS) pollution is untraceable to a single origin or source. Such pollution includes fertilizers, herbicides and pesticides, animal waste, sediment, pathogens, household wastewater from failing septic systems, and contaminants such as street litter carried into water sources by urban runoff. Runoff occurring after a rain event transports pollutants to the



nearest waterbody or storm drain where they can impact water quality in creeks, rivers, lakes, estuaries, and wetlands. NPS pollution can also impact groundwater when it seeps into aquifers. Adverse effects of NPS pollution include physical destruction of aquatic habitat, fish kills and closure of fishing areas, limitations on recreational use, reduced water supply, taste and odor problems in drinking water, and increased potential for flooding when waterbodies become choked with sediment.

To comply with the Federal *Clean Water Act*, the State of South Carolina manages several programs to reduce the impact of non-point source pollution. The State's Non-point Source Management Program provides a framework for addressing the major causes and sources of nonpoint source pollution. SCDHEC is the responsible agency for nonpoint source monitoring as part of its biannual assessment of the condition of the State's waters. Nonpoint sources monitored by SCDHEC include mining operations, livestock operations, agriculture, landfills, and land applications of effluent from wastewater treatment facilities. Multiple facilities are monitored under the SCDHEC Nonpoint Source Management Program within Oconee County watersheds. Up-to-date mapping and information for these facilities are found online in the *SC Watershed Atlas*.

SCDHEC also regulates stormwater activity in Oconee County. The County has adopted complimentary drainage and stormwater requirements that require review of proposed developments to ensure that all stormwater runoff is removed to perpetually maintained drainage systems, stormwater drainage systems are separated from sanitary sewer systems, there is adequate provision for storm or floodwater channels or basins, and other provisions designed to protect properties.

Local and regional water quality management efforts recognize that the quality of the water supply is directly linked to development activities, demand, and land use practices within the watershed. When considering water quality in the comprehensive planning process, it is important to incorporate measures that protect valuable water resources from excessive runoff and discharge that may create unsafe levels of dangerous chemicals or bacteria. Attention to stormwater retention, percentage of impervious surfaces within developments, and industrial discharge are critical to ensuring water quality in Oconee County.

6. Lake and River Protection

A number of public and private entities are involved in shoreline and river corridor management in Oconee County.

a. Lake Keowee and Lake Jocassee Shoreline Management

Duke Energy is the Federal Energy Regulatory Commission (FERC) licensee for the Keowee-Toxaway Hydroelectric Project that includes the Jocassee and Keowee development in Upstate South Carolina and Western North Carolina. FERC licensees must supervise and manage



shoreline development to ensure consistency with project purposes, including protection and enhancement of scenic, recreational, cultural and other environmental values. Duke Energy developed a Shoreline Management Plan (SMP) to assist in guiding responsible construction, shoreline stabilization, and excavation activities within the lake boundaries of Lake Keowee and Lake Jocassee. The goal of the SMP is to provide continued public and private access to these reservoirs while protecting and enhancing their natural resource values.

Any occupancy or use of land and waters within the project boundaries of Lake Jocassee and Lake Keowee requires prior written authorization by Duke Energy's Lake Services department. The project boundary for Lake Keowee follows the 800-to-810 foot contour elevation around the Lake. The Lake Jocassee project boundary follows the 1,110-to-1,120 foot contour elevation around the Lake (*FERC, Duke Energy License Renewal, 2016*).

Duke Energy manages uses within the project boundary, including marinas, piers, residential access from lots adjacent to the Lake boundary, clearing or cutting trees or other vegetation, shoreline stabilization measures (rip-rap, seawalls), excavation, bridges, and line crossings. Miscellaneous uses such as fish attractors and water ski courses must also apply for a permit. A number of activities are not allowed within the project boundaries of the Lakes such as the planting of non-native species, septic tanks and fields, stormwater pipes, littering, washing and painting of watercraft (except with biodegradable detergents), any part of a permanent dwelling, swimming pools, camping, kennels and pens for pets, fences, and aquaculture operations.

Protection of the riparian zone, or vegetated area adjacent to the Lakes, is required by Duke Energy. The riparian zone provides critical habitat for fish and wildlife, helps reduce erosion of soils into the water, and serves as a filter for runoff of fertilizers and other chemicals. Removal of vegetation from the project boundary is allowed only by prior written authorization.

b. Lake Hartwell Shoreline Management

The Lake Hartwell shoreline is managed by the U.S. Army Corps of Engineers to promote safe and healthful use while maintaining environmental safeguards that will ensure a quality resource for future generations. The primary objective of the Hartwell Project Shoreline Management Program is the preservation of public access and use while maintaining a balance between permitted private uses and the long-term protection of lake resources. The prescribed boundary for Lake Hartwell shoreline is the 670-foot contour elevation. While the Corps maintains identifying markers for the boundary line, it is the responsibility of landowners to identify the boundary location on their specific property.

The SMP includes shoreline allocations that are intended to manage the type, number, and location of private facilities and activities on public land and water. Approximately 50% of the shoreline is in Limited Development Areas, which allow private docks and certain land-based activities. Approximately 26% of the shoreline is in Protected Shoreline Areas intended to

reduce conflicts between public and private use and maintain aesthetics, fish and wildlife habitat, cultural, or other environmental values. Docks, improved walkways, and utility rights-of-way are generally prohibited in these areas. Approximately 24% of the shoreline is in Public Recreation Areas that are designated for Federal, State, and other public use, including commercial concessions. No private use facilities or activities are allowed in these areas. Less than one percent of the shoreline is in Prohibited Access Areas, where public boating, pedestrian access, and private use facilities and activities are either not allowed or restricted for safety and security reasons.

Shoreline use permits/licenses, also known as consolidated permits, must be obtained prior to the installation or use of any facility or the implementation of any action on project land or water. Permits can be considered for boat docks, underbrushing, utility rights-of-way, improved walkways, and bank stabilization. Shoreline use permits/licenses are issued for a five-year term and do not convey if the property is sold or transferred to a new owner. The construction of new roads, ramps, turnarounds, land-based boathouses, marine ways, fixed gangwalks, pump houses, picnic shelters, and patios within the Lake boundary is prohibited, though repairs may be made on existing facilities. The Corps also maintains a list of approved plants that may be used within the Lake boundary area.

c. Chattooga River Land and Resource Management

Designated as one of the Nation's first Wild and Scenic Rivers in 1974, the 57-mile Chattooga River is one of the longest free-flowing rivers in the southeast. The River is bordered by three National Forests – the Sumter National Forest in South Carolina, the Nantahala in North Carolina, and the Chattahoochee-Oconee in Georgia. The U.S. Forest Service is responsible for the management of the 15,432-acre Chattooga Wild and Scenic River Corridor, of which 4,544 acres are in South Carolina (Map 6-9). Sumter National Forest is the lead authority for all boating and floating use on the Chattooga River on the main channel from Burrel's Ford to Lake Tugaloo, as well as the West Fork.

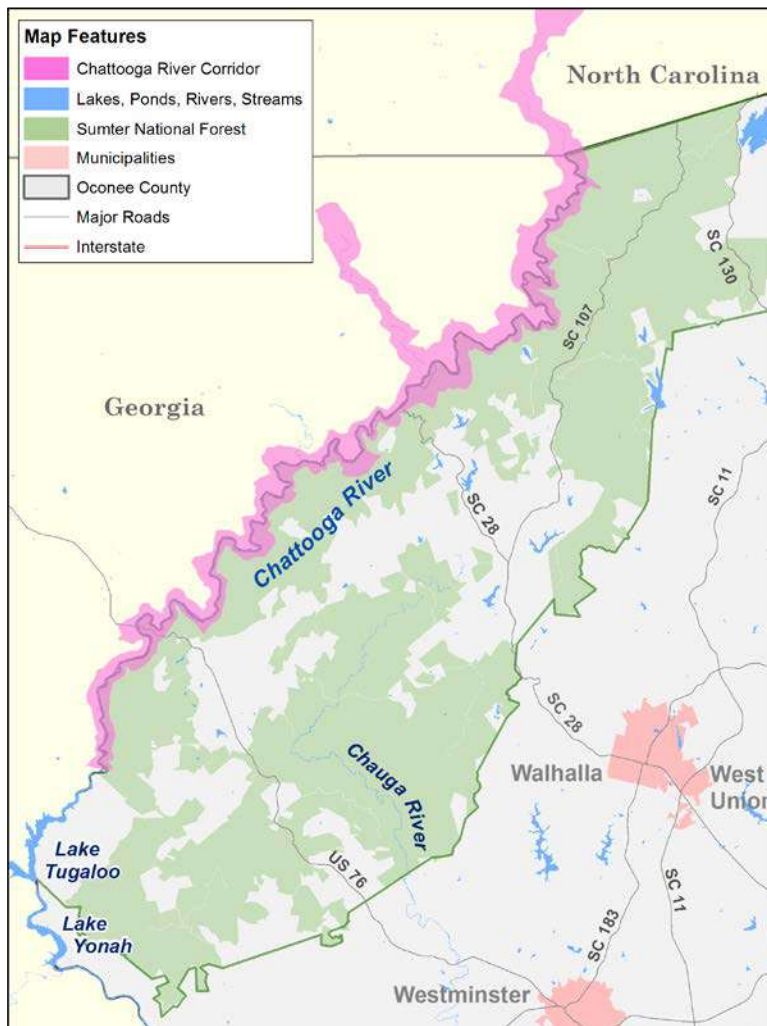
The *Revised Land and Resource Management Plan for Sumter National Forest* includes a number of standards for the Chattooga River Corridor that provide direction for on-river and in-corridor recreation capacity and address water quality issues within the watershed. The Plan does not allow motorized watercraft on the River or floating upstream of S.C. Highway 28. Trip size (persons and watercraft) and frequency is also regulated. Only three companies are commercially licensed by the U.S. Forest Service to operate on the two more difficult and dangerous sections of the Chattooga River.

Access to the 3,290 acres of the Chattooga designated as *Wild* in South Carolina is limited to non-motorized trails. This is considered to be the most primitive and remote segment, with restrictions that protect and preserve the natural environment and processes from human influences. While the 224 acres of the River in South Carolina designated as *Scenic* are slightly more developed than the Wild segments, the River's shorelines are undeveloped with limited



road or bridge crossings, parking areas, and trailheads. A range of recreational opportunities that complement the natural setting are provided in the 1,030 acres along the River designated as *Recreational*. The River is readily accessible by road in these areas with parking areas, signage, restrooms, boat launches, fishing platforms, and picnic sites. Camping is permitted at any location within the Chattooga River Corridor that is at least 50 feet from the River or any stream or trail and at least one-quarter mile from any road. Several designated campsites with fire rings are located at sites along the Chattooga Trail.

Table 6-9. Chattooga River Corridor



Source: USDA National Forest Service, FSGeodata Clearinghouse, 2019

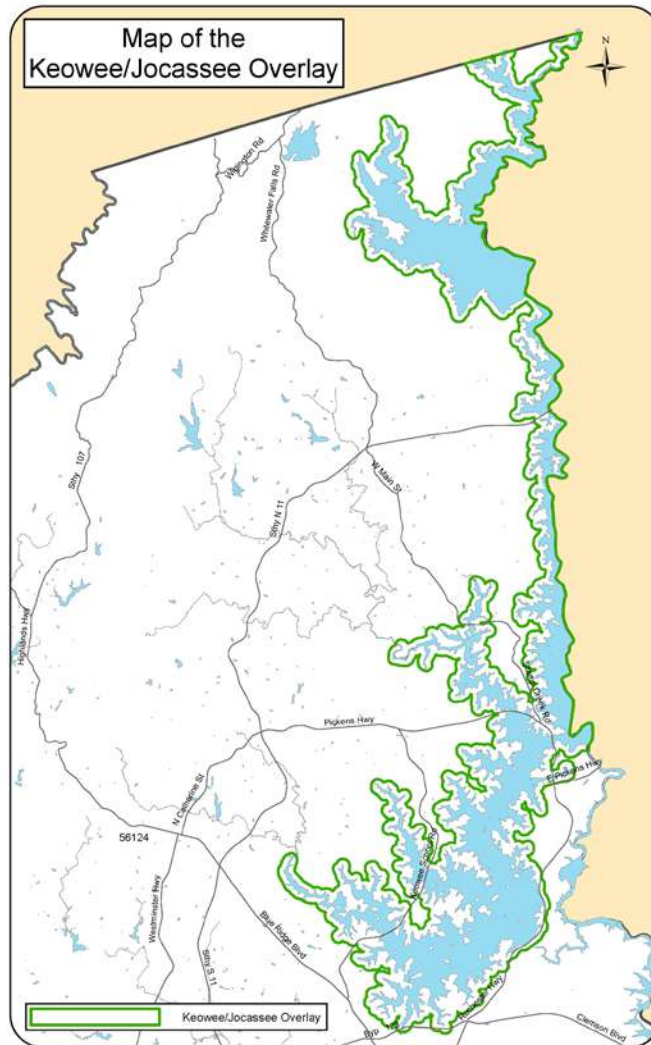
d. Oconee County Lake Overlay District

Oconee County created a *Lake Overlay District* as an amendment to the Zoning Ordinance in 2012 to protect water quality, maintain natural beauty, and limit secondary impacts of new development on residents living near lakeshores. The Overlay is also intended to ensure the enjoyment of the Lakes by all residents. Lake Overlay District boundaries are applied to Lake



Jocassee and Lake Keowee as shown in Map 6-10. Measurements for lake boundaries used in conjunction with the Overlay District are based on full pond levels of 800 feet above mean sea level on Lake Keowee and 1,110 feet above mean sea level on Lake Jocassee.

Map 6-10. Oconee County Keowee/Jocassee Lake Overlay



Source: Oconee County, 2019

A natural vegetative buffer of 25 feet from full pond level is required from the lakeshore. Within the buffer, no trees larger than six-inch caliber can be removed unless certified to be a hazard, and new manicured lawns or managed spaces cannot be established. A view lane of no more than 15% of the natural buffer area is allowed and trees may be limbed up to 50% of their height. No development activity or soil disturbance can occur in buffer areas, with buffer protection required during construction or development. The preservation of existing natural vegetation is encouraged. The Lake Overlay District prohibits a net density of greater than two dwelling units per acre in both single-family and multi-family development, and building height for structures must be no greater than 65 feet above finished grade. Marinas and commercial



boat storage cannot be located within a mile radius of an existing subdivision. Proposed non-residential projects must be reviewed as a Special Exception by the Board of Zoning Appeals.

7. Wetlands

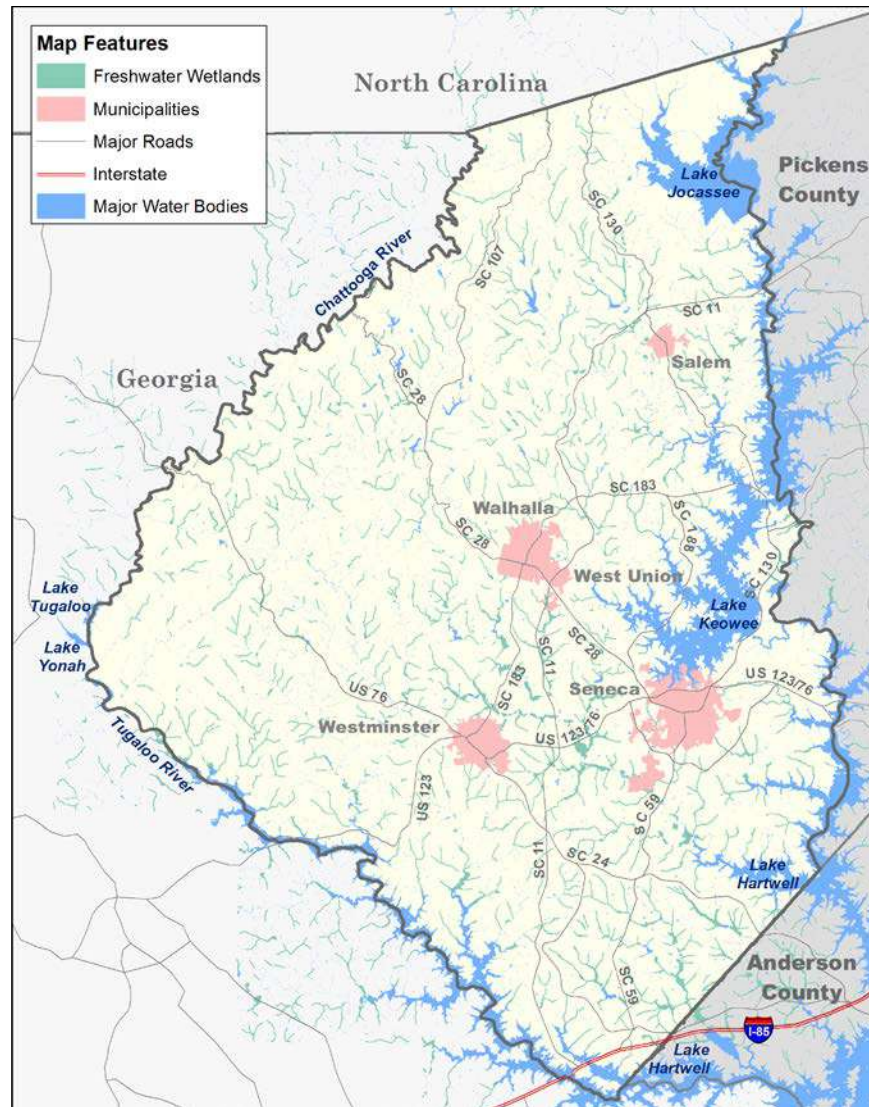
Wetlands are among the most productive ecosystems in the world, comparable to rain forests and coral reefs, with profound ecological, aesthetic, and economic value. Wetlands provide a natural filtration system for sediment and pollution, while serving as critical habitat for numerous species. Socio-economic benefits of wetlands include flood protection, erosion control, groundwater recharge, pollution abatement, sediment filtering, and the provision of a variety of harvestable natural products. There are also recreational values in wetlands for boating, fishing, hunting, and nature watching.

Wetlands generally include swamps, marshes, bogs, and similar areas. All Oconee County wetlands are classified as *freshwater*. Freshwater wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Freshwater wetlands store excess stormwater to reduce flooding impact, purify water by holding and breaking down pollutants, and trap silt and soil to reduce clogging of nearby streams. Some wetlands store water in the rainy season and release the water later into nearby aquifers or underground streams, recharging the groundwater that supplies many South Carolinians with drinking water.

Wetlands are susceptible to naturally occurring changes and the negative human impacts of urban development. Development activities such as pond construction, filling, draining of lands for farming, and pollution have resulted in wetland loss or degradation. The loss of wetlands, especially through filling, increases runoff and impairs beneficial functions of flood control, groundwater recharge, and water quality improvement. Total wetlands acreage in South Carolina has declined by one-quarter since the late 1700s, primarily as a result of human activities (*USGS National Water Summary on Wetlands Resources, 2016*).

Freshwater, forested wetlands now comprise approximately 80% of the State's wetlands. National Wetlands Inventory (NWI) data indicates the presence of wetlands in the vicinity of creeks and streams throughout Oconee County (Map 6-11). Factors considered in wetlands designation include the presence of hydric soils, hydrophytic vegetation, and hydrological conditions that involve a temporary or permanent source of water that can cause soil saturation. However, NWI data is generated on a large scale, necessitating that the exact location of any wetlands be determined on a parcel-by-parcel basis.

Map 6-11. Wetlands in Oconee County



Source: U.S. Fish and Wildlife Service, National Wetlands Inventory, 2019

F. NATURAL HAZARDS

Natural hazards endanger the health and safety of community residents, jeopardize economic vitality and imperil environmental quality. The Federal Emergency Management Agency (FEMA) encourages local governments to initiate mitigation actions to reduce or eliminate the risks to humans and property from natural hazards. The *Anderson and Oconee Natural Hazard Mitigation Plan* was most recently updated and adopted in August 2018. The Plan identifies the hazards that threaten the two counties and provides estimates of the relative risks posed to each community by these hazards. This is supported by a set of goals, objectives, strategies, and actions that guide mitigation activities, with a detailed plan for implementation and monitoring.



While Oconee County is vulnerable to a number of natural hazards, it ranks 14th lowest among the State's 46 counties in terms of both the number of past natural hazards and future probability of natural hazards (*South Carolina Hazard Mitigation Plan, 2018*). The Plan identifies winter storms as the top hazard faced by Oconee County in recent decades, followed by lightning and severe storms, tornados and high winds, floods, drought and heat wave, and hail storms and thunderstorms.

1. Winter Storms

Winter storms include snow, sleet, ice, and cold temperatures, and can range from moderate precipitation lasting only a few hours to blizzard conditions. Many winter storms are accompanied by low temperatures, some resulting in temperatures below freezing. Agricultural production can be seriously impacted when temperatures remain below the freezing point for an extended period of time.

These storms are often accompanied by sleet and freezing rain. Ice storms occur when freezing rain falls and freezes immediately upon impact forming a glaze of ice. Even small accumulations of ice cause a significant hazard, especially on sidewalks and roads, power lines, and trees, that can disrupt transportation, communications, and power for days. A winter weather event is considered notable when it causes \$50,000 or more in combined property and crop damages.

The County's Natural Hazard Mitigation Plan reports a 50% probability of one or more winter weather events in any one-year time frame, resulting in a moderate level of vulnerability for these storms. The Plan lists 28 notable winter storm events that impacted Oconee County from 1960 through 2015, with the most costly events in terms of property damage occurring in 1973 and 1979. The *NOAA Storm Events Database* also reports two winter storms in 2016 and two in 2017. Past events indicate that winter storms can cause significant property damage and disruption of daily life and commercial operations.

2. Severe Thunderstorms with Lightning and Hail

A thunderstorm is a rainstorm event that is classified as severe when at least one of the following occurs: wind speeds exceed 58 miles per hour, tornadoes develop, or hail exceeds 0.75 inches in diameter (*S.C. Hazard Mitigation Plan, 2018*). Accompanying lightning can cause injury and death, as well as structural and equipment damage.

Oconee County has a moderate level of vulnerability to lightning and severe thunderstorms, with a 41.8% probability of occurrence of these events within any one-year time frame (*Anderson and Oconee County Natural Hazard Mitigation Plan, 2018*). There were 23 notable lightning severe storms/thunderstorms (causing \$50,000 or more in damage) recorded in Oconee County from 1960 through 2015. These storms caused more than \$8.2 million in property damage and \$2 million in crop damage, cumulatively. Since 2015 there has one



recorded lightning event - in Westminster in 2017 (*NOAA Storm Events Database, February 2019*).

One of the three criteria of a severe thunderstorm is that it includes hail larger than 0.75 inches in diameter. Because of its association with severe storms, hail can occur year-round and in any location. While hail can be very small, it can also be as large as a grapefruit or softball and capable of damaging property and injuring or killing animals and people (*S.C. Hazard Mitigation Plan, 2018*). The County's Natural Hazard Mitigation Plan predicts a 12.7% probability that more than one hail producing storm will occur in the County in a one-year time frame.

There were seven notable hail storms/thunderstorms (with \$50,000 or more in damage) reported from 1960 through 2015 in Oconee County. These storms caused \$1.06 million in property damage and more than \$480,000 in crop damage. The largest recorded hail size in Oconee County was three inches in April 2002 (*Anderson and Oconee County Natural Hazard Mitigation Plan, 2018*). This hail and thunderstorm event was also the most costly to date in Oconee County, resulting in \$658,747 in property damage. Hail two inches in size was reported in Oconee County in June 2014. Fourteen additional hail events have been reported in Oconee from 2016 to the present (*NOAA Storm Events Database, February 2019*).

3. Tornadoes and High Winds

Tornadoes are violent windstorms characterized by a twisting, funnel shaped cloud that extends to the ground. They are often generated by thunderstorm activity, but are also associated with hurricanes and tropical storms. Tornadoes are more likely to occur during the spring and early summer months of March through May. They are most likely to form in the late afternoon and early evening. Although most tornadoes are a few dozen yards wide and touch down briefly, some can carve a path more than a mile wide and several miles long.

The National Weather Service reports that tornado wind speeds range from 40 miles per hour to more than 300 miles per hour. While tornado damage is generally the result of high winds and wind-blown debris, tornadoes are often accompanied by potentially damaging lightning or large hail. The destruction caused by tornadoes depends on the intensity, size, and duration of the storm. The greatest damage is typically to structures of light construction such as manufactured homes, with generally localized impacts. Since 1950, there have been 47 casualties and 1,057 persons have been injured by tornadoes in South Carolina, with an average of eleven tornadoes a year (*S.C. Emergency Management Division, 2019*).

Eighteen notable tornadoes (with \$50,000 or more in damage) were reported in Oconee County from 1960 through 2015, resulting in more than \$7 million in property damage, \$5.1 in crop damage, 15 injuries, and one death (*Anderson and Oconee County Natural Hazard Mitigation Plan, 2018*). NOAA data indicates no recorded tornadoes since 2015 in the County. The strongest tornado to impact Oconee County to date was on March 27, 1994 when an F3 tornado touched down in the Long Creek area, causing 12 injuries, \$4.8 million in property

damage, and nearly \$4 million in crop damage. The most recent tornado event was reported on October 10, 2014, when an EF0 tornado briefly touched down near Westminster, with damage limited to a number of uprooted trees (*NOAA Storm Events Database, February 2019*). A high wind event was recorded on September 11, 2017 when prolonged winds gusting up to 50 mph associated with Tropical Storm Irma moved through the County, causing downed trees and power lines and multi-day power outages.

The probability of one or more tornadoes touching down in Oconee County in any given year is 14.5% and the probability for one or more high wind events is 18%. The County's Natural Hazard Mitigation Plan notes that, although this is a relatively low level vulnerability to these events, the data shows that tornadoes and high wind events have the potential to do significant damage in the County.

4. Flooding

Floods are broadly classified as either general floods that are usually long-term events or flash floods caused by locally heavy rains in areas where water runs off quickly, moving at very high speeds. While flooding can occur almost anywhere given atmospheric conditions or lack of proper maintenance to flood control and drainage systems, flooding typically occurs in floodplains. Floodplains are areas that consist of a stream or river (floodway) and the adjacent areas that have been or can be covered by water (floodway fringe). Floodplains perform a critical function by temporarily storing and carrying floodwaters, reducing potential flood peaks, recharging groundwater supplies, and providing plant and animal habitats. Development within a floodplain expands the floodplain boundary and increases the volume of runoff, making more areas and properties susceptible to flooding. Local development review processes should ensure that new construction and activity will not increase flooding on adjacent and nearby properties.

Congress created the National Flood Insurance Program (NFIP) with passage of the *National Flood Insurance Act* in 1968. The Act called for identification and publication of all floodplain areas that have special flood hazards and the establishment of flood-risk zones in all such areas. Flood Insurance Rate Maps (FIRM) are prepared and updated by FEMA to delineate the boundaries of each community's special flood hazard areas using available data or other approximation methods. FIRMs denote the portion of the floodplain that is subject to inundation by the base flood and/or flood-related erosion hazards. The maps are intended to assist communities in managing floodplain development and to assist insurance agencies and property owners in identifying areas where the purchase of flood insurance is advisable.

The goal of the NFIP is to reduce the impact of flooding on private and public structures by providing affordable insurance for property owners. Recognizing that local planning is a crucial tool for minimizing future flood damage, the program encourages communities to adopt and enforce floodplain management regulations to mitigate the effects of flooding on new and improved structures. The ability to determine and supervise the use of land within their



jurisdictions makes local governments the frontline agent of comprehensive floodplain management. The primary requirement for community participation in the NFIP is the adoption and enforcement of floodplain management regulations that meet the minimum NFIP regulatory standards. The impetus for obtaining financial and technical assistance from the state and federal levels also originates with the local community. Managing development can reduce losses by avoiding encroachment into flood-prone areas, protecting floodplain resources, and building with flood-resistant measures.

Floodplain management minimizes the potential for flood damages to new construction and avoids aggravating existing flood hazard conditions that could increase potential flood damage to existing structures. To protect structures in flood-prone areas, NFIP regulations require that the lowest floor of all new construction, and substantial improvements of existing residential structures, be elevated to or above the Base Flood Elevation (BFE). Figure 6-1 illustrates the various aspects of a 100-year floodplain.

Oconee County is bordered on all but its northernmost border by rivers and lakes. While these water bodies and their tributaries are the primary drainage outlets for water flowing into and through the County, they can overflow when inundated by heavy rains, causing flooding in low lying areas. Based on data provided in the *Anderson and Oconee County Natural Hazard Mitigation Plan*, Oconee County has a low level of vulnerability to notable flooding events, with an 18% probability of such an event in any year. However, the Plan notes that the southeastern area of the County has a high potential for flash flooding.

The Natural Hazard Mitigation Plan lists 13 notable flood events that caused \$50,000 or more in combined property and crop damages in Oconee County from 1960 through 2015. The 13 recorded events caused nearly \$7.89 million in property damage and \$452,522 in crop damage. The most recent notable flood event was recorded in September 2004, when widespread flooding of creeks and streams resulted in more than \$1.6 million in property damage. The only flood event listed in the *NOAA Storm Events Database* since 2015 occurred in 2018 in the northern area of the County, resulting in \$300,000 in property damage.

Flood hazard areas identified on FIRMs are denoted as *Special Flood Hazard Areas* (SFHA). The SFHA is an area that will be inundated by flood events having a 1% chance of being equaled or exceeded in any given year – also known as the base flood or 100-year flood. Considered as high risk areas for flooding, SFHAs are denoted on Oconee County FIRMs as Zone A and Zone AE. These areas are found along the shores of Lakes Hartwell, Keowee, and Jocassee; along the Chattooga, Chauga, and Tugaloo Rivers; and along other creeks and tributaries.

Moderate risk flood hazard areas are those between the limits of the base flood and the 0.2% annual chance of being equaled or exceeded in any given year – also known as a 500-year flood. The only area with this designation on the FIRM is found along a Coneross Creek tributary that generally flows from just south of North 1st Street to Cross Creek Drive in Seneca. This hazard area totals less than 13 acres. All other areas outside of the SFHA and higher than the elevation



of the 0.2% annual chance of flood are considered to have minimal chance of flood hazard and are denoted on the Oconee County FIRMs as Zone X.

Regulatory floodways are also delineated on FIRMs. A floodway consists of a channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation over a designated height. Communities are required to regulate development in these floodways to ensure that there are no increases in upstream flood elevations. As with the 500-year flood zone, the only area in the County with this FIRM designation is located along the Coneross Creek tributary in Seneca and totals less than 25.38 acres.

Oconee County adopted a *Flood Damage Prevention Ordinance* in 2009. The Ordinance applies to all areas of special flood hazard as identified by the FEMA maps for Oconee County. The Oconee County Floodplains Manager is responsible for implementing the Flood Damage Prevention Ordinance in the unincorporated area of the County. No structure may be located, extended, converted, structurally altered, or developed in the County without full compliance with the regulations. The Cities of Seneca, Walhalla, and Westminster have all adopted flood ordinances and administer and enforce those regulations.

Specific flood zone determinations must be made by the Oconee County Floodplains Manager in consultation with FEMA map data. The Manager reviews all development permits to determine if a proposed development is located within a Special Flood Hazard Area. A floodplain development permit is required for all developments identified as within, or including, a SFHA. Such development is required to meet all elevation and flood proofing requirements. For new construction, the lowest floor must be elevated at least three feet above the base flood elevation, with no basements permitted. Non-residential construction in SFHA Zone A may be flood proofed in lieu of elevation provided specific requirements are met, as certified by a professional engineer or architect. Variances may be considered for the wet-proofing of agricultural structures. No fill, new construction, substantial improvements or additions, manufactured homes outside of existing manufactured home parks or subdivisions, or other developments are allowed within designated floodways.

5. Drought and Heat Wave

Drought is caused by a lack of precipitation over an extended period of time, often resulting in water shortages. Unlike other environmental hazards, droughts develop slowly over a period of weeks, months, or years. Periodic droughts are documented throughout South Carolina's climate history, with every decade since 1900 including three or more years of below normal rainfall (SCDNR, 2016). Recent droughts have impacted agriculture, forestry, tourism, power generation, public water supplies, fisheries, and ecosystems. Drought conditions can also impact water and air quality and contribute to public health and safety risks (S.C. Hazard Mitigation Plan, 2018).



There were eight notable drought or heat wave events (with \$50,000 or more in damage) recorded in Oconee County from 1960 through 2015, causing a collective \$9.65 million in property damage and \$16.6 million in crop damage. The 1993 drought and associated heat wave hit at the height of the growing season in May and June, costing \$22.5 million in crop damage statewide and \$11 million in Oconee County. Property damage associated with the 1993 drought reached \$9.4 million.

In 2015, all South Carolina counties were in an incipient or moderate drought. By 2016, lack of rainfall caused the State's westernmost counties including Anderson, Pickens, and Oconee to be declared in severe drought status – just one step below the highest designation of extreme drought. Lake Hartwell was down to eight feet below normal level, Lake Jocassee was down 10 feet, and Lake Keowee was down four feet (*Greenville News, 2016*). The drought status of the three counties was finally downgraded to normal in June 2017 (*SCETV, 2017*). The extended period of abnormally dry weather brought rain deficits of 15 to 20 inches that significantly impacted agricultural production and prompted voluntary water restrictions in most communities (*NOAA Storm Events Database, 2019*). As of February 2019, all counties in the State were back to normal drought-free status (*S.C. State Climatology Office, 2019*). Despite this recent experience with a lengthy and costly drought, the County's Natural Hazard Mitigation Plan reports a relatively low 14% probability that the region will suffer a notable drought within a one-year time frame.

Note: GOIS on the next page are coded for ease of review

- **Black text is directly from the current comprehensive plan**
- **Blue text was developed per input from focus group meetings**
- **Red text was developed by consultants to address issues in background data**
- **Time frames in yellow cells should be added by staff and PC**



G. GOALS, OBJECTIVES AND STRATEGIES FOR IMPLEMENTATION

The goals, objectives and strategies for implementation (GOIS) table summarizes the actions that will be undertaken in the coming decade to achieve to achieve the goals and objectives identified in the Natural Resources Element.

Goals/Objectives/Strategies	Accountable Agencies	Time Frame for Completion
Goal 6.1. Protect and improve air quality in Oconee County.		
Objective 6.1.1. Continue to support local, regional, and state plans and initiatives related to air quality.		
Strategy 6.1.1.1. Continue coordination and partnership in the S.C. Early Action Ozone Reduction Compact with other jurisdictions in the Appalachian COG Region, adopting and maintaining ozone-reducing reduction strategies as necessary.	<ul style="list-style-type: none"> • Oconee County • Appalachian COG (ACOG) • ACOG Counties • SCDHEC and EPA 	On-going
Strategy 6.1.1.2. Amend and adopt standards as necessary to maintain compliance with the Clean Air Act.	<ul style="list-style-type: none"> • Oconee County 	On-going
Goal 6.2. Preserve, protect, and enhance Oconee County's land resources.		
Objective 6.2.1. Promote partnerships and voluntary conservation easements to preserve significant lands, habitats, and scenic areas under development pressure.		
Strategy 6.2.1.1. Support existing land conservation organizations in their efforts to preserve and protect rural lands, sensitive areas, and significant natural resources.	<ul style="list-style-type: none"> • Oconee County • Oconee County Soil and Water Conservation District • Land Trusts and Conservation Organizations 	On-going
Strategy 6.2.1.2. Continue to support the Oconee County Conservation Bank in its mission and efforts to provide for the transfer of development rights and conservation easements to protect rural lands, sensitive areas, and significant natural resources.	<ul style="list-style-type: none"> • Oconee County • Land Trusts and Conservation Organizations 	On-going
Strategy 6.2.1.3. Provide appropriate assistance from County departments and agencies in efforts to identify and preserve historic structures, significant lands, and scenic areas.	<ul style="list-style-type: none"> • Oconee County 	XXXX
Objective 6.2.2. Protect rare and endangered species habitat within the County.		
Strategy 6.2.2.1. Identify opportunities to protect rare and endangered species habitat such as development of greenways and protection of floodplains.	<ul style="list-style-type: none"> • Oconee County • Municipalities 	On-going
Strategy 6.2.2.2. Support efforts of public and private organizations to protect critical habitats in Oconee County through conservation easements and other measures as appropriate.	<ul style="list-style-type: none"> • Oconee County • Property/Business Owners • Conservation Organizations • SCDNR 	On-going
Objective 6.2.3. Manage natural assets to ensure natural resources enhance the quality of life for residents and visitors and increase economic opportunities.		
Strategy 6.2.3.1. Continue to protect and conserve natural resources for recreational use and develop new opportunities for recreational access.	<ul style="list-style-type: none"> • Oconee County • Municipalities • SCDNR • SCPRT • USFS 	XXXX
Strategy 6.2.3.2. Work with public conservation partners to identify additional significant natural resources including viewsheds and habitats that warrant protection.	<ul style="list-style-type: none"> • Oconee County • Conservation Organizations • SCDNR • SCPRT • USFS 	XXXX
Strategy 6.2.3.3. Continue to expand and promote parks and recreation facilities as part of a comprehensive countywide parks and recreation system.	<ul style="list-style-type: none"> • Oconee County • Municipalities • SCDNR • SCPRT • USFS 	On-going



Goals/Objectives/Strategies	Accountable Agencies	Time Frame for Completion
<u>Strategy 6.2.3.4.</u> Continue to maintain public parks and recreation spaces to a uniform standard of excellence.	<ul style="list-style-type: none"> • Oconee County • Municipalities • SCDNR • SCPRT • USFS 	On-going
Objective 6.2.4. Continue to promote reasonable access to Oconee County's public natural amenities for residents and visitors.		
<u>Strategy 6.2.4.1.</u> Encourage compatible land use adjacent to National and State Forests, wildlife management area, and County, State and municipal parks to protect such lands from incompatible uses.	<ul style="list-style-type: none"> • Oconee County 	XXXX
<u>Strategy 6.2.4.2.</u> Review existing regulations and policies to identify barriers and additional opportunities to protecting current natural areas and open space.	<ul style="list-style-type: none"> • Oconee County • Municipalities 	XXXX
<u>Strategy 6.2.4.3.</u> Encourage and support efforts by public and private organizations to provide public access when conserving open space, natural areas and scenic vistas in Oconee County.	<ul style="list-style-type: none"> • Oconee County • Property Owners • Conservation Organizations 	On-going
<u>Strategy 6.2.4.4.</u> Work with community partners to promote programs for residents of all ages to discourage littering and encourage participation in litter pickup programs and initiatives.	<ul style="list-style-type: none"> • Oconee County • Keep Oconee Beautiful Assn. • School District of Oconee County • Local Civic Groups 	XXXX
Goal 6.3. Preserve, protect, and enhance the quality and quantity of the water resources of Oconee County.		
Objective 6.3.1. Continue expansion of sewer service to additional areas as feasible to reduce dependence on septic systems and reduce risk of contamination of surface and groundwater sources.		
<u>Strategy 6.3.1.1.</u> Support wastewater treatment providers in the extension of sewer service to currently unserved or underserved areas to minimize the need for septic tanks where conditions are not suitable or water sources may be compromised.	<ul style="list-style-type: none"> • Oconee County • Oconee Joint Regional Sewer Authority (OJRSA) • Municipal Providers • Other Public and Private Providers 	On-going
<u>Strategy 6.3.1.2.</u> Support wastewater treatment providers in the upgrade and expansion of existing treatment facilities to accommodate the expansion of sewer service.	<ul style="list-style-type: none"> • Oconee County • Oconee Joint Regional Sewer Authority (OJRSA) • Municipal Providers • Other Public and Private Providers 	On-going
Objective 6.3.2. Monitor, maintain and improve water quality and quantity to meet the needs of County residents, employers, and institutions.		
<u>Strategy 6.3.2.1.</u> Partner with adjacent jurisdictions on comprehensive water studies detailing availability of all water sources, usage, and outflow.	<ul style="list-style-type: none"> • Oconee County • Municipalities • Adjacent Jurisdictions 	On-going
<u>Strategy 6.3.2.2.</u> Explore local and regional strategies to minimize non-point source pollution and institute Best Management Practices for the protection of water resources.	<ul style="list-style-type: none"> • Oconee County • Municipalities • Utility Providers • SCDHEC 	On-going
<u>Strategy 6.3.2.3.</u> Support and coordinate with SCDHEC to mitigate identified water quality impairments.	<ul style="list-style-type: none"> • Oconee County • Municipalities • Utility Providers • NPDES Permitted Dischargers • SCDHEC 	On-going
<u>Strategy 6.3.2.4.</u> Utilize incentives, technical assistance, and regulations to promote sustainable environmental best practices by individuals, businesses, and developers to maintain and improve water quality.	<ul style="list-style-type: none"> • Oconee County • Property Owners and Developers 	On-going
<u>Strategy 6.3.2.5.</u> Study the potential water quality impact of higher-density residential development near the lakes and explore options for mitigating any negative impacts.	<ul style="list-style-type: none"> • Oconee County • Developers • SCDHEC • U.S. Army Corps of Engineers (USCOE) • Duke Energy 	XXXX



Goals/Objectives/Strategies	Accountable Agencies	Time Frame for Completion
Objective 6.3.3. Encourage development practices that protect and preserve water resources.		
<u>Strategy 6.3.3.1.</u> Establish strategies and adopt measures necessary to create a framework for the efficient implementation of erosion and sediment control regulations.	<ul style="list-style-type: none"> Oconee County 	XXXX
<u>Strategy 6.3.3.2.</u> Develop a County stormwater management program to prepare for efficient and cost-effective implementation in the event of Federal designation.	<ul style="list-style-type: none"> Oconee County 	XXXX
Objective 6.3.4. Manage water quantity and quality to ensure efficient utilization and appropriate conservation of the County's water resources.		
<u>Strategy 6.3.4.1.</u> Participate in and support regional efforts to protect watersheds.	<ul style="list-style-type: none"> Oconee County SCDHEC Public and Non-profit Organizations 	On-going
<u>Strategy 6.3.4.2.</u> Explore partnerships to develop a master plan for preserving the Lake Keowee watershed.	<ul style="list-style-type: none"> Oconee County U.S. Army Corps of Engineers SCDHEC 	XXXX
<u>Strategy 6.3.4.3.</u> Identify and explore ways to protect the water quality of lesser known waterways and "hidden gems" such as the Little River in Salem.	<ul style="list-style-type: none"> Oconee County Municipalities 	On-going
<u>Strategy 6.3.4.4.</u> Explore and promote best practices to protect waterways in agricultural and developing areas.	<ul style="list-style-type: none"> Oconee County Municipalities 	On-going
<u>Strategy 6.3.4.5.</u> Support regulatory authorities in their efforts to preserve water quality and habitat through shoreline management policies and regulation.	<ul style="list-style-type: none"> Oconee County Duke Energy USCOE USFS 	On-going
Objective 6.3.5. Minimize flooding risk to County residents and business owners through the protection of floodplains and floodways.		
<u>Strategy 6.3.5.1.</u> Periodically review floodplain regulations and procedures to ensure protection per FEMA requirements and to evaluate conditions that may require more stringent standards.	<ul style="list-style-type: none"> Oconee County 	On-going
<u>Strategy 6.3.5.2.</u> Review and update the Oconee County Flood Damage Prevention Ordinance as needed.	<ul style="list-style-type: none"> Oconee County 	On-going
Goal 6.4. Enhance and promote access to natural resources and associated recreational activities for residents and visitors.		
Objective 6.4.1. Encourage coordination among County and municipal recreation and natural resource managers.		
<u>Strategy 6.4.1.1.</u> Explore opportunities for coordination and cooperation in Oconee County to include planning for and implementing public and private recreation and natural resource programs and activities.	<ul style="list-style-type: none"> Oconee County Municipalities SCDNR SCPRT Duke Energy USFS USCOE 	On-going



Comprehensive Plan / Corridor Plan

- a. Natural Resources
Element
- b. Executive summary
discussion
- c. Public Outreach
- d. District meetings
- e. Corridor Plan discussion