COMPREHENSIVE PLAN
FOR
KERSHAW COUNTY
SOUTH CAROLINA

2006 - 2016

PART IV
NATURAL RESOURCES ELEMENT

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INTRODUCTION

This element of the Comprehensive Plan consists of an inventory and assessment of natural resources and consideration of their role in the future development of the County. Principal among the County's natural resources are wetlands, floodways, farmlands, and forestland. An assessment of each follows. Also included is a inventory of the County's topography, soil composition, and climatic conditions.

GEOGRAPHIC PROFILE

Kershaw County is located in the north central part of South Carolina. The total land area is about 781 square miles, or 473,000 acres. It is bounded on the north by Lancaster County; on the east by Chesterfield and Lee Counties; on the south by Richland and Sumter Counties; and on the west by Fairfield and Richland Counties.

The County is relatively unique in its geographic diversity, with three regional land formations. Part of the County lies within the Piedmont Region, part is in the Sandhills Region, and part is in the Coastal Plains Region.

The large central part of the County is in the Sandhills Region. The part of the County generally east of Camden and S.C. Highway 15 is within the Coastal Plains Region. The area located generally west of Sawneys Creek south of the Wateree River and Grannies Quarter Creek north of the Wateree River is in the Piedmont region.

CLIMATE

Kershaw County has a temperate climate characterized by ample rainfall in all seasons, short and usually mild winters, and long warm summers. In winter the average temperature is 42 degrees (Fahrenheit) and the average daily minimum temperature is 30 degrees. In summer the average temperature is 78 degrees, and the average daily maximum temperature is 89 degrees.

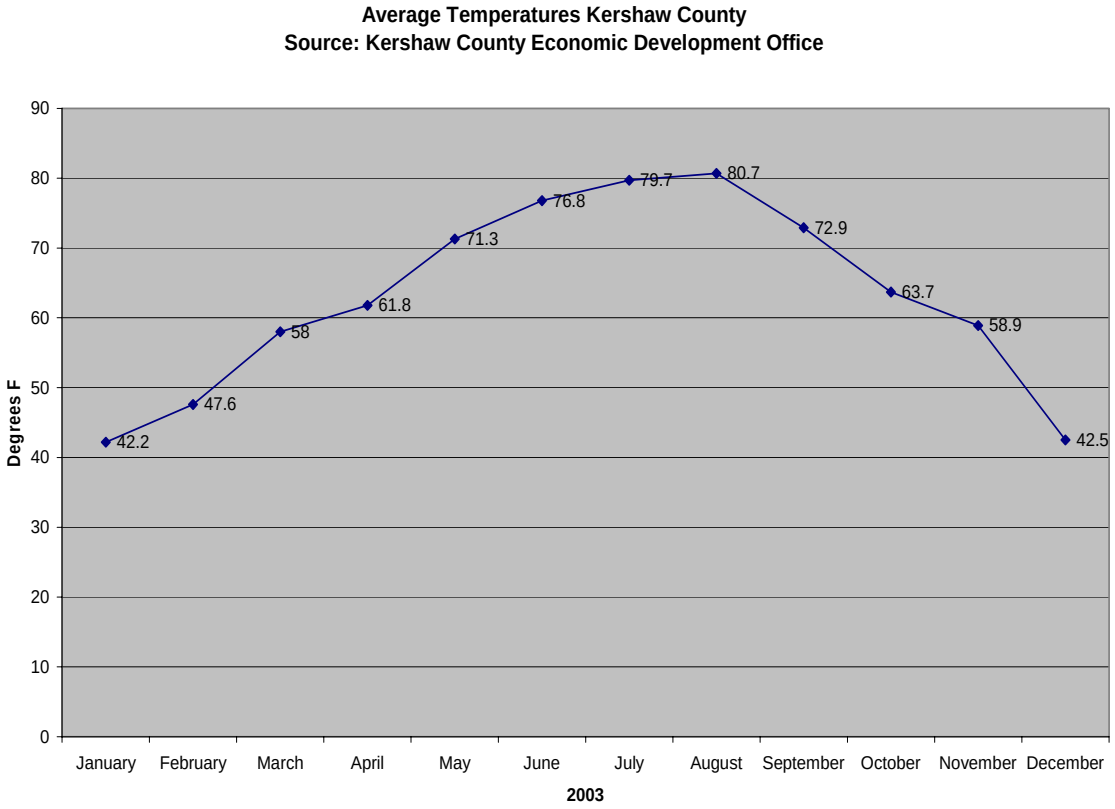
The total annual precipitation is about 50 inches. Of this, 50 percent usually falls from April through September during the growing season for most crops. Snowfall is rare. In 60 percent of the winters, there is no measurable snowfall.

The average relative humidity in mid-afternoon is about 50 percent. Humidity is higher at night and the average at dawn is about 90 percent. The sun shines 70 percent of the time possible in summer and 60 percent in winter. The prevailing winds are from the southwest. Average wind speed is highest, 8 miles per hour, in spring.

Climatic conditions are largely responsible for the physical, chemical, and biological relationships of the soils, and their present state. Climatic conditions are generally conducive to farming and agricultural pursuits, as well as to a wide range of outdoor recreational and

economic pursuits. Therefore, such conditions are favorable to future growth and development of the County.

Figure IV-1



WETLANDS

The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The principal criteria for determining wetlands are 1) hydrology, 2) soils, and 3) vegetation. Wetlands are considered by state and federal governments to be important to the public interest. As such, they are protected by state and federal laws. Prerequisite to the development of such lands is a "jurisdictional determination" by the U.S. Corps of Engineers.

Wetlands are located throughout Kershaw County. The predominant type is riparian freshwater forested/shrub which are most extensive in the Wateree and Lynches River systems.

Hydric Soils

Soils in these areas that are described as characteristically wet include the following:

Altavista	Iredell	Cantey
Pantego	Chewacla	Pelion
Congaree	Persanti	Goldsboro
Rains	Grady	Cartecay
Helena	Wehadkee	

The location and boundaries of these soils are contained in a Soil Survey of Kershaw County Area, South Carolina, 1989, prepared by the USDA, Soil Conservation Service. Figure IV-2 is a map of hydric soils in Kershaw County.

Wetlands mapping of the County is available through the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Program. The NWI delineates wetlands based on vegetation, apparent hydrology, and physical terrain. These maps do not identify wetlands for jurisdictional purposes but indicate potential wetlands that may require further on-site study. As a result, the County should require that persons intending to engage in activities involving development within, or adjacent to areas indicated by these maps, as well as the above referenced soils, first contact the U.S. Corps of Engineers for a precise determination of jurisdiction and the consequences of such development.

Not all proposed wetlands development will require a permit from the Corps. However, no local building permit should be issued where wetlands are present and have been determined by the Corps to perform functions important to the public interest. This includes:

1) Wetlands which serve significant natural biological functions, including food chain productions, general habitat, spawning, rearing, and nesting sites for aquatic or land species; and

2) Wetlands set aside for study of the aquatic environment or as sanctuaries or refuges; and

3) Wetlands, the destruction or alteration of which would detrimentally affect natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics; and

4) Wetlands that are significant in shielding other areas from erosion or storm damage; and

5) Wetlands which serve as valuable storage areas for storm and flood waters; and

6) Wetlands which are ground water discharge areas that maintain minimum base flows important to aquatic resources and those which are prime natural recharge areas; and

7) Wetlands which serve significant water purification functions; and

8) Wetlands which are unique in nature or scarce in quantity to the region or local area.

Where such conditions are found to exist, the Corps will evaluate each request for development on the basis of projected benefits to be derived from the proposed development in relation to the damage to the wetlands resource. Wetlands restrictions by the federal government may make development of wetlands tenuous at best. Where, in the past, development was constrained principally by the simple presence of wetlands, now it is further constrained by the need to plan around, or mitigate, the use and circumstances of development proposed for such areas.

Clearly, the presence of wetlands should alert the County and the developer to the need for a "wetlands determination." Failure to secure a wetlands determination and permit, if required, could result in work stoppage, restoration of the project site to its original state, fines, or other compensatory action. As a factor responsible for influencing development, wetlands, perceived as a natural resource, pose a greater deterrent to development than ever before.

FLOODWAYS

Floodways and flood hazard areas generally are avoided by developers, but encroachment over time has led to the promulgation of federal and local legislation regulating development of such areas. In Kershaw County encroachment has occurred principally along the shores of Lake Wateree. Kershaw County adopted a Flood Damage Prevention Ordinance, in 1990 which restricts encroachment in flood hazard areas. The ordinance must be updated to adopt 2005 Federal Emergency Management Agency Flood insurance Study maps.

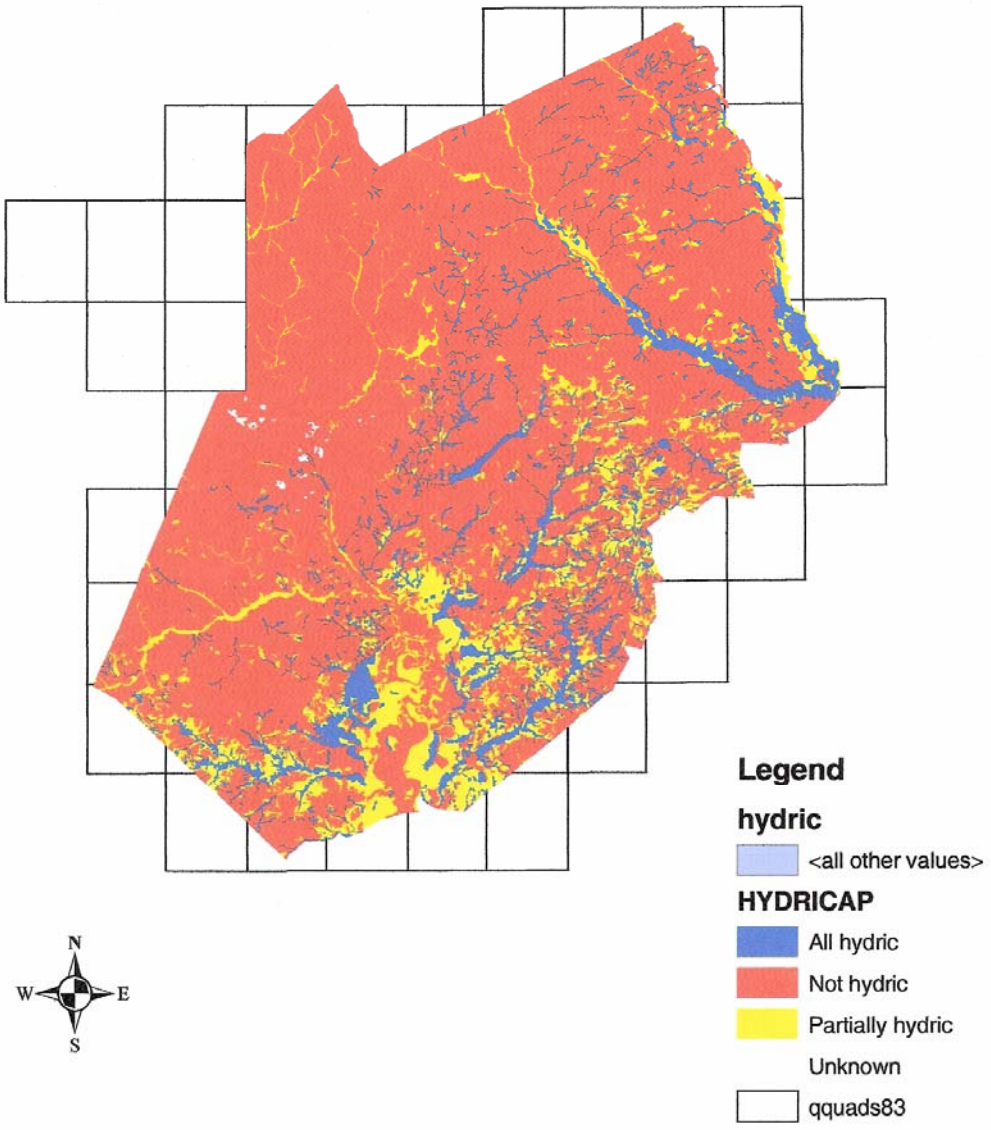
Many of the low-lying areas east of Camden are subject to flooding as well as areas paralleling Big Pine Tree Creek and Twenty-five Mile Creek. For a more precise location of areas subject to flooding in the County, see the Flood Insurance Rate Maps (FIRM) published by the Federal Emergency Management Agency (FEMA).

Also the location of major soil types subject to flooding may be found in the previously referenced Soil Survey of Kershaw County. Such soils include the following: Congaree, Toccoa, Dorovan, and Wehadkee.

Due to the inherent danger from flooding, the preservation of these areas is recommended. Such a recommendation is reinforced by the utility of these areas and soils as natural drainage ways, wildlife habitats, and open space. The Flood Damage Prevention ordinance should be reviewed to include these considerations.

Figure IV-2

Hydric Map of Kershaw County, SC



SOILS

Soils generally are assessed in terms of their suitability for agricultural purposes and/or urban development, two opposing uses. Unfortunately, lands best suited for agricultural use have the fewest constraints to urban development. Since development generally follows the path of least resistance, other factors being equal, there is always the potential for conflict wherever such lands exist in an urbanizing environment.

There are eight major soil associations or groups in Kershaw County as delineated on the accompanying General Soils Map, Figure IV-3. Each has differing characteristics. They are general by definition, requiring more site specific analysis for individual properties, but are helpful as a guide to development planning. A brief description of each follows:

(1) Madison-Cecil-Pacolet
These soils are moderately permeable with a loamy surface layer and a clayey subsoil. Most areas of this soil group are on ridge tops and side slopes adjacent to drainage ways of the Piedmont, mainly in and around Liberty Hill in the northwest section of the County.

This soil group makes up about nine percent of the County. It is about 70 percent Madison soils, 10 percent Cecil soils, 5 percent Pacolet soils, and 15 percent soils of minor extent. Most areas of this soil group are woodland. The rest is pastureland, cropland, or in miscellaneous uses. These soils are suitable for pastureland, woodland, row crops, and small grains. Erosion is a hazard, and steepness of slope is a limitation. The soils on the steeper slopes are not suited to cropland. The suitability of these soils for most urban purposes also varies. Slow percolation and steepness of slope are limitations affecting septic tank absorption fields. Steepness of slope is also a limitation affecting dwellings without basements, lawns, and landscaping.

(2) Durham-Cecil-Pacolet
These soils are slow to moderately permeable with a loamy surface layer and a loamy or clayey subsoil. Most areas in this soil group are on ridge tops and side slopes adjacent to drainage ways mainly north of Lake Wateree and south of Liberty Hill in the northwest section of the County.

This soil group makes up about four percent of the County. It is about 30 percent Durham soils, 25 percent Cecil soils, 10 percent Pacolet soils, and 35 percent soils of minor extent. Most areas of this group are woodland. The rest is cropland, pastureland, or in miscellaneous uses.

The soils in this group range from well suited to poorly suited for pastureland, woodland, row crops, and small grains. Erosion is a hazard, and steepness of slope is a limitation. The soils on steep slopes are not suited to cropland. The range in suitability of these soils for urban purposes also is quite wide, from well suited to poorly suited. Slow percolation and steepness of slope are limitations affecting septic tank absorption fields. Steepness of slope is also a limitation affecting dwellings without basements, lawns, and landscaping. These conditions invite closer inspection of such soils pending their development and use.

(3) Nason-Georgeville-Herndon
These soils are moderately permeable with a loamy surface layer and a clayey subsoil. Most areas in which this soil group is found are on ridge tops and side slopes adjacent to drainage ways mainly northeast and southwest of Lake Wateree.

This soil group makes up about 13 percent of the County. It is about 15 percent Nason soils, 15 percent Georgeville soils, 13 percent Herndon soils, and 57 percent soils of minor extent. The soils in this group range from poorly suited to well suited for row crops and small grains, but generally suited to pastureland and woodland, which are the principal uses of these soils. Their suitability for urban purposes ranges from suitable to poorly suitable. The principal constraints include slow percolation and steepness of slope for septic tank usage.

(4) Pelion-Goldsboro-Persanti
This soil group is moderately to slowly permeable with a sandy or loamy surface layer and a loamy or clayey subsoil. Most areas are in the middle and upper parts of the Coastal Plain, east and southeast of Camden in and around Boykin, St. Matthews, and Antioch.

This soil group makes up about 11 percent of the County. It is about 50 percent Pelion soils, 15 percent Goldsboro soils, 5 percent Persanti soils, and 30 percent soils of minor extent. Most areas of this soil group are woodland. The rest is pastureland, cropland, or in miscellaneous uses.

These soils are well suited to poorly suited for such purposes, the principal constraints being seasonal high water table and the potential of erosion. Such is not the case with pastureland and woodland, which are well suited to these soils. For urban purposes, high water table and slow percolation pose severe limitations to their use.

(5) Persanti-Cantey
These soils are slowly permeable with a loamy surface layer and a loamy or clayey subsoil in low and moderately low areas. Most of these soils are found on old marine terraces of the Coastal Plain, mainly southwest of Camden, south of Interstate 20 between U.S. Highway 601 and the Wateree River floodplain.

This soil group makes up about two percent of the County. It is about 50 percent Persanti soils, 20 percent Cantey soils, and 30 percent soils of minor extent. Most areas of this soil group contain woodland. The rest is pastureland, cropland, or in miscellaneous uses.

These soils are well suited to all agricultural uses. However, the seasonal high water table and the hazard of flooding are major concerns in crop management. As to urban usage, the high water table, susceptibility to flooding, and slow percolation make these soils generally unsuitable for such purposes.

(6) Lakeland-Blanton-Alpin
These soils range from very rapidly permeable to moderately permeable. They are sandy throughout or have a sandy surface layer and a sandy and loamy subsoil. Most of these soils are on broad, irregularly shaped ridge tops and side slopes of the Sandhills and the Coastal Plain, mainly in the northeast section of the County and in and around Elgin in the southwest section.

This group makes up about 50 percent of the County. It is about 35 percent Lakeland soils, 15 percent Blanton soils, 5 percent Alpin soils, and 45 percent soils of minor extent. Most areas of this group are woodland. The rest is pastureland, cropland, or in miscellaneous uses.

The soils in this group are poorly suited to crops and small grains. Drought and the low nutrient-holding capacity are major limitations. These conditions also pose problems to the use of these soils for pastureland and woodland. But these same conditions make the soils generally well suited to most urban uses, although drought is a limitation.

(7) Chewacla-Congaree
These soils are moderately permeable with a loamy surface layer and a loamy subsoil in underlying material. Most areas of this soil group are on broad floodplains in the upper part of the Coastal Plain and the Piedmont, mainly north and south of Camden along the Wateree River.

These soils make up about six percent of the County. They are about 60 percent Chewacla, 25 percent Congaree, and 15 percent minor extent. Most of these soils contain woodland or pastureland. The rest is cropland or in miscellaneous uses.

These soils are well suited to row crops, hay, small grains, and pastureland. However, the hazard of flooding and the seasonal high water table are limitations. These soils are also well suited to woodland, but poorly suited to most urban uses because of the potential for flooding and the seasonal high water table.

(8) Johnston-Pantego
These soils are rapidly to moderately permeable with a loamy surface layer and sandy underlying material. Most of these soils are on floodplains and lowlands of the Coastal Plain, mainly along the Lynches and Little Lynches Rivers in the northeast section of the County.

These soils make up about five percent of the County. They are about 50 percent Johnston, 30 percent Pantego, and 20 percent soils of minor extent. Most of these soils are in hardwoods or pasture. The rest is in crops or miscellaneous uses.

The soils in this area are poorly suited to row crops, small grains, and hay because of the seasonal high water table and the hazard of flooding. They are also poorly suited to pastureland, but well suited to woodland. Because of the high water table and hazard of flooding, they are also poorly suited to urban uses.

Summary of Soil Conditions and Land Use Implications
Cropland is scattered throughout the County, but most of it is in units 4, 5 and 6 on the General Soil Map (Figure IV-3). The soils in map units 4 and 5 generally are well suited to cropland. Steepness of slope and the hazard of erosion are concerns in some areas of these soils. The soils in map unit 6 generally are poorly suited because of drought and the low nutrient-holding capacity. The soils in map unit 7 are well suited to cropland, but flooding is a hazard. The soils in map units 1, 2, and 3 range from well-suited to poorly suited because of steepness of slope and the hazard of erosion. The soils in map unit 8 are poorly suited to cropland because of flooding and the high water table.

The soils in General Soil Map (Figure IV-3) units 3, 4 5, 6, and 7 generally are suited to well suited to pasture grasses. Most of the soils in map units 1 and 2 are suited to pasture grasses, but some are poorly suited. The soils in map unit 8 are poorly suited to pasture because of flooding and the high water table.

The soils in map unit 6 generally are well suited or suited to urban uses. Those in map unit 2 generally are suited to well suited, but some are poorly suited because of steepness of slope and the hazard of erosion. In map units 1, 3, and 4 the soils range from generally suited to poorly

suited to urban uses because of steepness of slope, wetness, or the hazard of erosion. The soils in map units 5, 7, and 8 generally are poorly suited to urban uses because of wetness or flooding.

PRIME FARMLANDS

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short and long range needs for food and fiber. The acreage of high quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise uses of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources. The farming of these soils results in the least damage to the environment.

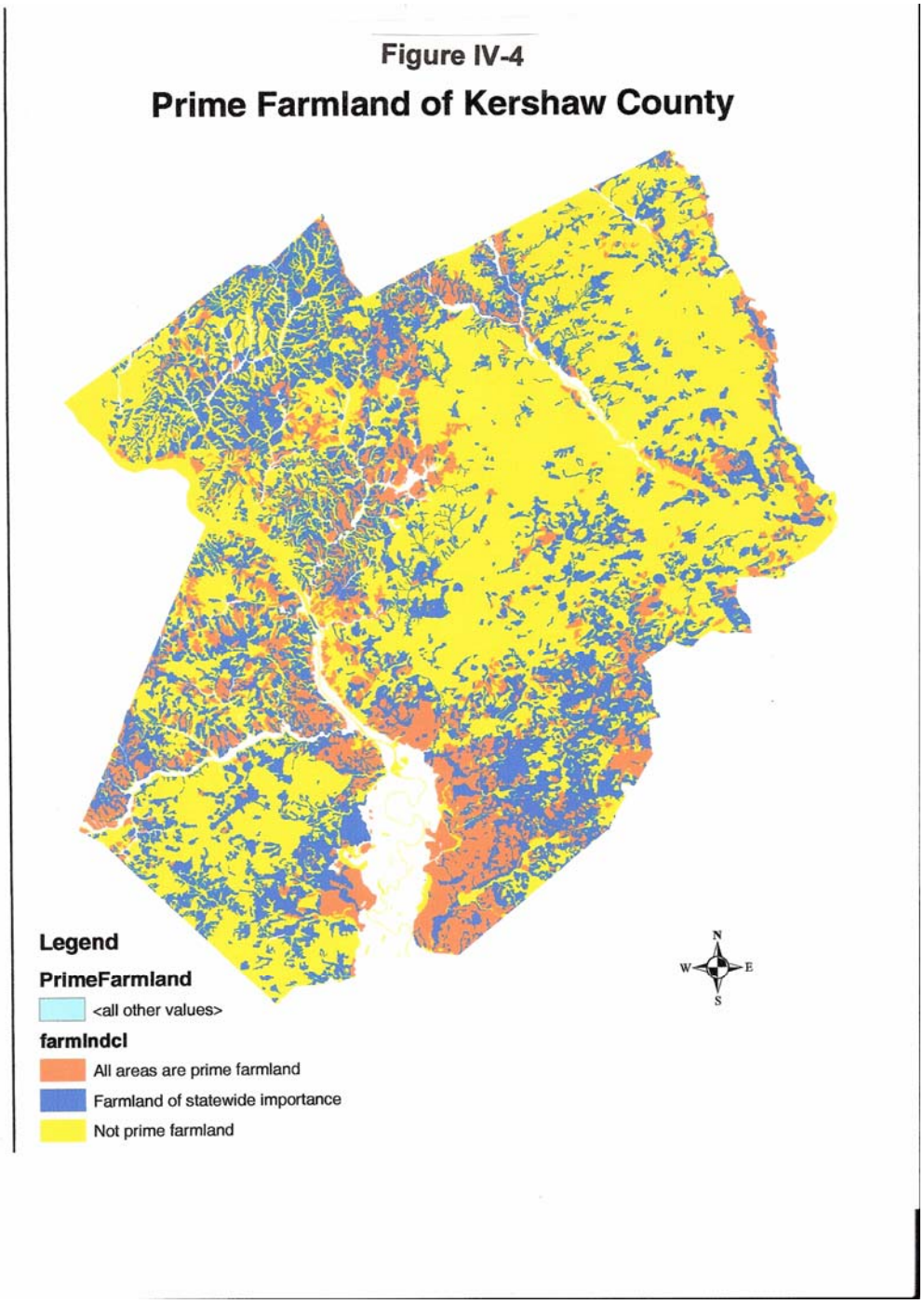
Nearly 20 percent, or about 93,000 acres of the soils in Kershaw County are classified as prime farmland. Prime farmland is located throughout the County, but is concentrated adjacent to the Wateree River alluvial plain. About a third of the prime farmland is used for crops; mainly corn and wheat for grain and soybeans which account for about 80 percent of the income from crops.

A second tier classification of soils suitable for agriculture is "Soils of Statewide Importance." These are productive soils, but may have express characteristics of steep slope, high water table, presence of gravel, low water holding capacity, or susceptibility to erosion or other concerns. Farmland classified of statewide importance can be found throughout the County with concentrations in the western portion of the County north of Twenty-five Mile Creek and the southeastern portion of the County.

Generally, the soils in Kershaw County are well suited to increased production of food. According to census of Agriculture statistics, Kershaw County was the second highest county in South Carolina in 2002 in agricultural sales at $84.5 million dollars. Historically, poultry production has accounted for about 80 percent of all agricultural sales in Kershaw County; and the trend is toward reduced crop production. Still, the value of these lands is such that care should be taken to retain and protect them to the extent practical for agricultural use. This includes, where they are threatened by pending urban development, avoidance of low density sprawl in favor of "in-fill" of existing subdivisions, higher density housing alternatives, i.e. cluster housing with open space set asides, and small lot subdivisions to minimize their usurpation for other than agricultural purposes.

Figure IV-4

Prime Farmland of Kershaw County



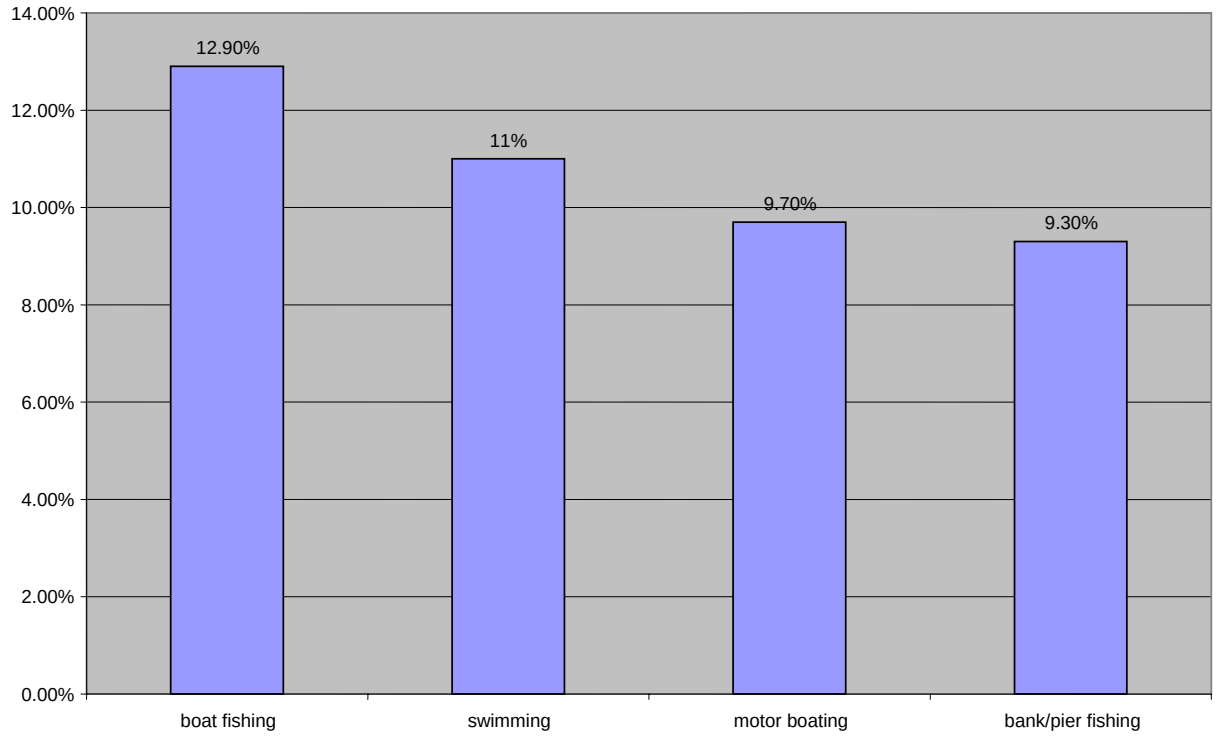
LAKE WATEREE

Lake Wateree, built in 1920, is located in three counties: Lancaster, Kershaw and Fairfield. It has 242 miles of shoreline and a surface area of 13, 710 acres at full pond level.

The lake is a multi-use resource with recreational opportunities for fishing, boating, sailing, skiing, swimming, and other water-oriented activities. Land-based activities on the lake include hunting, camping, hiking, and picnicking.

To accommodate the fishermen and boaters, Duke Energy has three boat landings in Kershaw County: one in the White Oak Creek Area on Highway 97, a second in the Lugoff area on Road 411, and the third in the Buck Hill area on Buck Hill Road. Additionally, the South Carolina Department of Natural Resources has an access landing in the Beaver Creek area on Highway 97. There are also two commercial marinas on the lake: Clearwater Cove Marina and Lakeside Marina.

Figure IV-5
Primary Recreational Activities on Lake Wateree - Duke Energy 2004-2005 Use Survey



The Lake has been assessed by Duke Energy as:

- Not being overcrowded; and
- Providing lake users with an enjoyable experience; and
- Providing adequate opportunities for boating.

Because of its many amenities, people not only want to recreate on the lake, but live on it. As a result, approximately 42 percent of the shoreline has been identified by Duke Power (Duke Energy) for residential use. As of 2001, 38.5 percent of the shoreline has been developed for residential use. Unfortunately, residential development and development in general, without

proper regulation can mar or compromise the resource amenities of the lake. Strong land use and development regulations must be developed and enforced around the lake to prevent shoreline misuse from incompatible and improper development.

Figure IV-6
Lake Wateree Shoreline land Use

Shoreline Classification	Shoreline Miles	Percent of Total
Commercial/Non-Residential	1.6	0.7%
Commercial/Residential	0.7	0.3%
Residential	82.7	38.5%
Business Industrial	0.1	0.0%
Public Recreation	0.9	0.4%
Public Infrastructure	1.9	0.9%
Project Operations	1.1	0.5%
Future Commercial/Non-Residential	24.0	11.1%
Future Commercial/Residential	8.0	3.7%
Future Residential	7.0	3.3%
Future Public Recreation	9.7	4.5%
Impact Minimization Zones	8.6	4.0%
Impact Minimization Zones (Dev)	0.1	0.0%
Environmental Area	62.1	28.9%
Natural Area	6.4	3.0%
Total	**214.9**	**100.0%**

Source: Duke Energy 2004-2005 Use Survey

F0RESTED LAND

The value and environmental contribution of trees and forested land are considerable. In an urban environment, trees act to protect and enhance property values, moderate climate extremes, provide screens and buffers, help improve air quality, and contribute to community beautification. In a rural environment, forested land contributes to clean water and air and provides natural habitats. Forested areas also help control erosion and provide outdoor recreation opportunities, jobs, and income. In sum, they contribute significantly to the economy and “lifestyle” of an area.

Forest land in Kershaw County is on the increase, due principally to the 1985 Farm Bill, Conservation Resource Program. This program was designed to turn highly erodible cropland to forested areas.

The “fields to trees” program produced in 1993 (latest figures available based on satellite imagery) 376,508 acres of forested land in Kershaw County, up 30,768 acres over 1986. This represents approximately 81 percent of the total land areas of the County, the majority of which is in private ownership. With so much of the County forested, and becoming increasingly so, responsible planning and management of this vast resource is essential.

Where such areas are proposed for development, Best Management Practices should be utilized; and to the extent feasible, such areas should be integrated into the urban fabric. The demolition or harvesting of forested areas should be tempered with preservation and maintenance programs designed to retain their utility and function in the ecosystem and their use for recreational purposes. Forested areas represent one of the County's most important natural resources, should be recognized as such, and treated accordingly.

NEEDS AND GOALS STATEMENT

Recognition and responsible stewardship of the County's natural resources are the greatest needs and concerns for the future development of the County. There is a need to preserve and protect these resources for future generations without foreclosing their use to today's generation.

Toward these ends, the following goals are hereby established.

NG-1: Preserve and protect the County's natural resources.

Given the speed and extent of growth in Kershaw County, without proper maintenance, planning, and regulation, the County's natural resources could be severely compromised and misused. To ensure their retention and role in the future of the County, the following measures are recommended:

1. Encourage and foster to the extent practicable and feasible the use of prime farm lands exclusively for agricultural purposes. The County may help by legislating the use of such lands exclusively for agricultural and related purposes; and
2. Conserve and protect the County's water resources through the enactment of more stringent development and use controls on adjoining property. The use of conservation/storm water maintenance easements in riverine floodways, especially along the Wateree and Lynches River, also should be included. Such measures would help control development along the banks of these resources without prohibiting their use; and
3. Restrict development to the more urbanized areas of the County away from wetlands and prime farmlands where it can be better and more efficiently served with water, sewer, fire, and police protection, etc; and
4. Limit the extension of public facilities into the rural areas not projected for development, thereby protecting the character of such areas by limiting other than low-density rural use.

NG-2: Ameliorate the impact of development on natural resources.

Where full preservation of the County's natural resources are not possible, necessary, or desirable, conservation measures to ameliorate the impact of impending development on or use of such resources are recommended. Proper development begins logically with an analysis of prevalent natural resources and environmental features.

1. Where such resources and features are present, require engineering solutions designed to reduce or eliminate any negative effect posed by development; and
2. Establish mitigation and procedures to require mitigation for ameliorating the impact of development on the County's natural resources. Include such practices and requirements in the Zoning, Land Development, and Flood Ordinances; and

3. Promote the use of cluster development as a means of conserving forested and open area resources and the integration of such resources into the urbanizing fabric.
4. Develop County GIS database to include suitability and capability of soils for development.

NG-3: Capitalize on the County's natural resources.

The County's many natural resources, i.e. rivers, lakes, soils, forested and agricultural areas, and wild game combined with a temperate climate to make it an attractive place to live, work, and visit. These assets are promoted locally by the Chamber of Commerce, Economic Development Board, and other agencies and organizations in pursuit of economic growth and development.

As the County moves inevitably closer to the larger Columbia MSA, promoting and marketing the County in a more logical central regional context will also help the County capitalize on its natural assets and provide additional growth and development opportunities.