



COLUMBUS COUNTY, NORTH CAROLINA

COMPREHENSIVE LAND USE PLAN

Adopted by the Columbus County Board of
Commissioners: January 3, 2012

Prepared by:

HCP
Holland Consulting Planners, Inc.

Wilmington, North Carolina

**Columbus County
Comprehensive Plan**

Vision Statement

Columbus County will be a community which values and preserves its rich agricultural history and strives to expand and diversify its overall economy while preserving valuable natural assets.



TABLE OF CONTENTS

SECTION I. INTRODUCTION

A. Plan Purpose 1
 B. Planning Process 2
 C. Regional Location 2
 D. History 5

SECTION II. COMMUNITY PROFILE

A. Introduction 6
 B. Population 6
 1. Population Growth 6
 2. Population Age 8
 3. Gender and Racial Composition 8
 4. Population Summary 9
 C. Housing 9
 1. Dwelling Unit Growth 9
 2. Age of Dwelling Units 10
 3. Housing Cost/Condition 10
 4. Housing Summary 10
 D. Economy 12
 1. Employment by Industry 12
 2. Per Capita Income 14
 3. Travel Time To Work 14
 4. Industrial Parks 15
 5. Economy Summary 15

SECTION III. ENVIRONMENT/EXISTING CONDITIONS

A. Community Facilities/Services 17
 1. Transportation 17
 2. Health Care 23
 3. Law Enforcement 23
 4. Recreation 24
 5. Education 26
 6. Libraries 27
 7. Natural Gas 28
 8. Air Emissions 28
 9. Electricity 28
 10. Telecommunications 28
 11. Solid Waste 28
 12. Water System 29
 13. Sewer System 30
 14. Administration 32
 15. Current Land Use Regulations and Planning Program 32
 B. Environmental Factors 34
 1. Climate 34
 2. Geology/Topography 34
 3. Water Resources 35
 a. Groundwater 35
 b. Surface Water 36
 c. Water Classifications 40
 d. Scenic Rivers 41
 4. Flood Hazard Areas 42



5.	Soils	42
a.	Prime Farmlands	45
b.	Wetlands	46
c.	Hydric Soils	47
6.	Farmland Preservation Areas	47
7.	Natural Heritage Areas	50
8.	Conservation Properties	50
9.	Historic Properties	53
C.	Land Suitability Analysis	53
1.	Analysis Description	53
2.	Objectives and Limitations	53
3.	Data Preparation	54
4.	Technical Approach	55
5.	Suitability Classes	56
a.	Least Suitable	56
b.	Low Suitability	57
c.	Moderate Suitability	58
d.	High Suitability	59
D.	Existing Land Use	61
E.	Environment/Existing Conditions Summary	63

SECTION IV. PROJECTIONS/FUTURE DEMAND

A.	Population	64
B.	Housing	64
C.	Economy	65
D.	Community Facilities	66
1.	Administrative Facilities	66
2.	Fire/EMS Services	66
3.	Healthcare Facilities	67
4.	School Facilities	67
5.	Recreational Facilities	67
6.	Transportation System	68
7.	Water and Sewer	70

SECTION V. FUTURE LAND USE

A.	Local Commercial Service Nodes	74
B.	Regional Commercial Service Nodes	74
C.	Industrial	75
D.	Community Service Area	75
E.	Rural/Transitional Community Service Area	76
F.	Residential/Agriculture	77
G.	Agricultural/Rural Area	78
H.	Conservation	79
I.	Airport Height Control Area	79

SECTION VI. POLICIES AND IMPLEMENTING ACTIONS

A.	Introduction	80
B.	Land Use Compatibility	81
C.	Natural Environment	87
D.	Economic Development	89
E.	Agriculture/Silviculture Production	91
F.	Community Services and Facilities	92
G.	Land Use Plan Administration	95



List of Tables

Table 1: Population Growth, Columbus County and Adjacent NC Counties 6

Table 2: Population by Age, Columbus County and North Carolina 8

Table 3: Total Housing Units, Columbus County 9

Table 4: Housing Summary, Columbus County 11

Table 5: Income Levels, Columbus County 11

Table 6: 2010 4th Quarter Employment by Industry 12

Table 7: Largest Employers, Columbus County 13

Table 8: 2005-2009 Per Capita Income, Columbus County, NC, and US 14

Table 9: 2008 Commuting Patterns, Columbus County 14

Table 10: Significant Industrial Parks, Columbus County 15

Table 11: Index Crime Rate per 100,000, Columbus County 23

Table 12: Columbus County School System 26

Table 13: Whiteville City Schools 27

Table 14: Wastewater Treatment Capacity, Columbus County 30

Table 15: Land Suitability Classification Summary 59

Table 16: Existing Land Use, Columbus County 61

Table 17: Population Forecasts, Columbus County and Selected Areas 64

Table 18: Recreation Facility Needs, Columbus County 67

Table 19: Transportation Improvement Plan, Columbus County Municipal Airport 68

Table 20: Future Land Use Acreages, Columbus County 72

List of Maps

Map 1: Regional Location 3

Map 2: Townships 4

Map 3: Population Density 7

Map 4: Industrial Park Sites 16

Map 5: Existing Road System 20

Map 6: AADT Traffic Counts 21

Map 7: County Recreational Facilities 25

Map 8: Water and Sewer 31

Map 9: Zoned Areas 33

Map 10: River Basins/Surface Water Classifications 37

Map 11: Flood Hazard Areas 43

Map 12: General Soils Map 44

Map 13: Prime Farmlands, Hydric Soils, and Voluntary Agricultural Districts 48

Map 14: Wetlands 49

Map 15: Significant Natural Heritage Areas 51

Map 16: Conservation Properties 52

Map 17: Land Suitability Analysis 60

Map 18: Existing Land Use 62

Map 19: Future Land Use 73

Appendices

Appendix 1: Agricultural and Forestry Best Management Practices



SECTION I. INTRODUCTION

A. Plan Purpose

While the preparation of a comprehensive plan is encouraged by North Carolina Legislation, there are broader and more important reasons to engage in the planning process. Basically, planning should begin with understanding Columbus County and its people and learning how to care for them. Choices must be made about the natural, manmade, and financial resources in the county. The county's budget should be compared to the plan to ensure that public money will be spent in accordance with the county's goals and objectives.

The plan should be:

- Comprehensive in setting goals and objectives for all aspects of the county.
- Part of a continuous planning process that is timely and responsive to the needs and desires of the county.
- The legal basis for land use regulations and a guide for a capital improvements plan for county budgeting.

The planning process is divided into four steps:

1. *Basic Goals:* For local planning, determining basic goals may mean asking questions such as the following: Do we want to grow? Do we want to arrest decline? Do we want to be a center for high-tech industry? What balance do we want between investment in highways and in mass transit?
2. *Study and Analysis:* Among other things, planners address land use, population trends, the economic base of the community, and physiographic features.
3. *Plan or Policy Preparation:* Plans or policies will be prepared for the county as a whole or for a segment of it. It is a basic statement of how the county will develop, in what direction, and perhaps at what pace.
4. *Implementation and Effectuation:* To carry out the plan, tools such as county ordinances, capital improvements programs, and general guidelines for private development and public investment will be specified.



In summary, the plan will:

- Review historical data.
- Discuss principal issues.
- Define problems associated with growth.
- Define main trends and produce forecasts.
- Provide a generalized future land use map.
- Define public, private, or public-private programs which should be implemented or improved.
- Define goals, policies, and implementing actions.

B. Planning Process

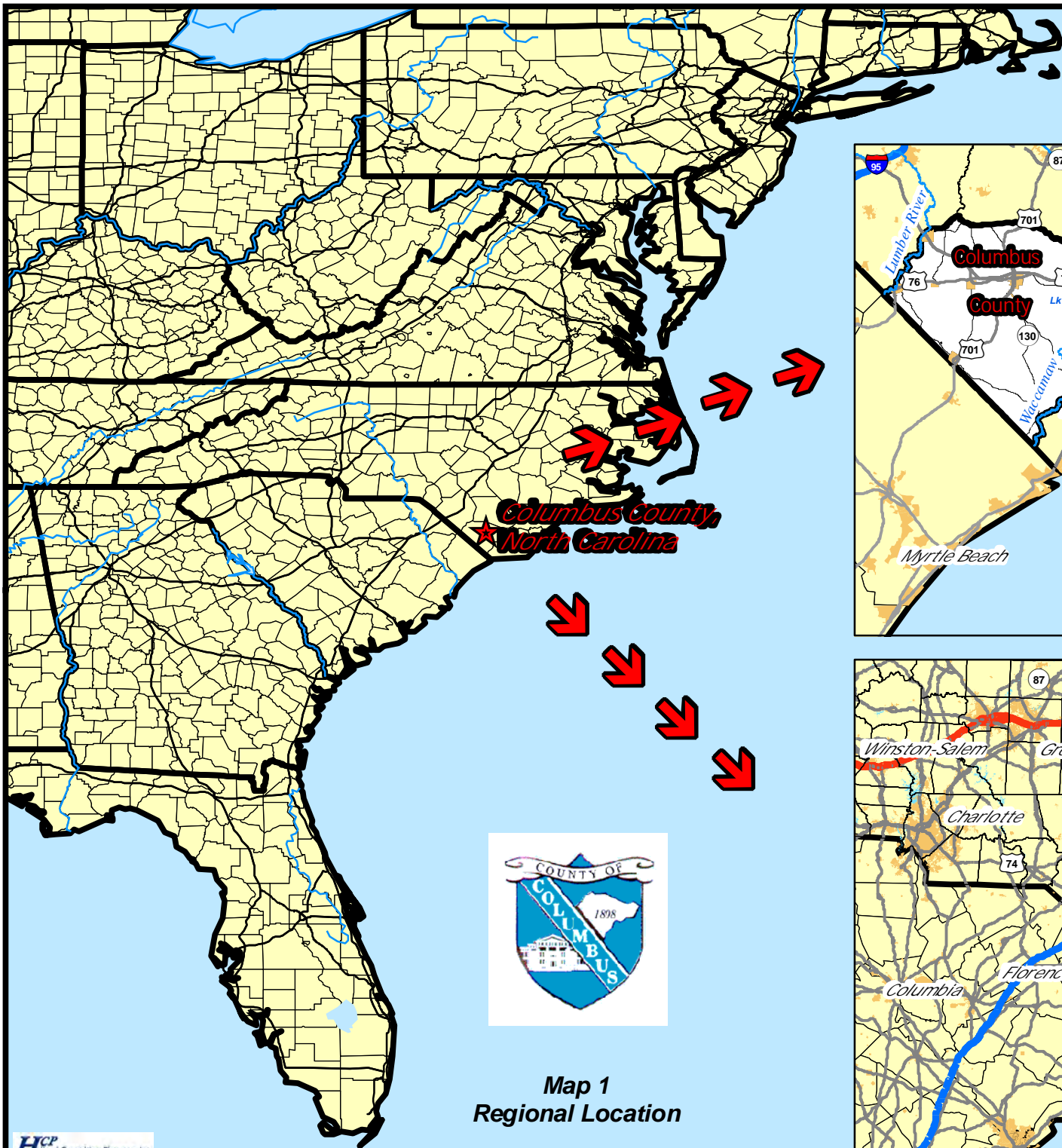
This plan is the first comprehensive plan adopted by Columbus County. Preparation of this document was undertaken to produce a workable, creative, and dynamic plan to guide future long term growth and development throughout the next twenty years. The intent of this plan is to establish a solid foundation of the ongoing planning program and to serve as the primary policy guide for short- and long-range planning and programmatic decision-making within Columbus County.

The Columbus County Planning Board supervised preparation of the plan and recommended it to the Columbus County Board of Commissioners for adoption. A public hearing on the plan was conducted on January 3, 2012, prior to its adoption.

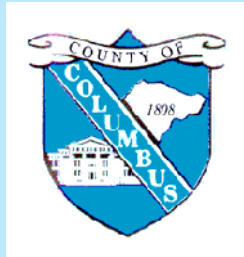
C. Regional Location

Columbus County is located in the Coastal Plain area of southeastern North Carolina (see Map 1). The County is located approximately 15 miles east of I-95 midway between New York City and Miami. Wilmington, North Carolina, which is home to the North Carolina State Port, is located approximately 15 miles to the east via US 74/76, a four-lane divided highway which is currently being upgraded to Interstate status. The Greensboro-Durham-Triad area of North Carolina is located approximately 85 air miles northeast of Columbus County and accessible via federal four-lane divided highways.

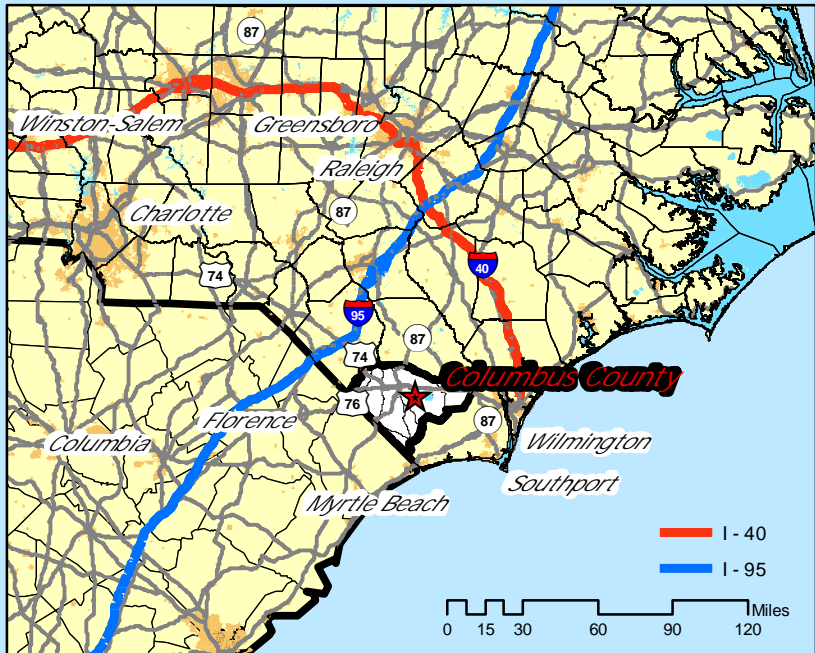
Columbus County has a total area of 953 square miles, of which 937 square miles is land and 16 square miles is water. The County's largest body of water is Lake Waccamaw, an environmentally diverse water body located in the eastern one-third of the County. The County is divided into 15 townships: Bogue, Bolton, Bug Hill, Cerro Gordo, Chadbourn, Fair Bluff, Lees, Ransom, South Williams, Tatums, Waccamaw, Welch Creek, Western Prong, Whiteville, and Williams (see Map 2). There are ten municipalities which include: Boardman, Bolton, Brunswick, Cerro Gordo, Chadbourn, Fair Bluff, Lake Waccamaw, Sandyfield, Tabor City, and Whiteville.

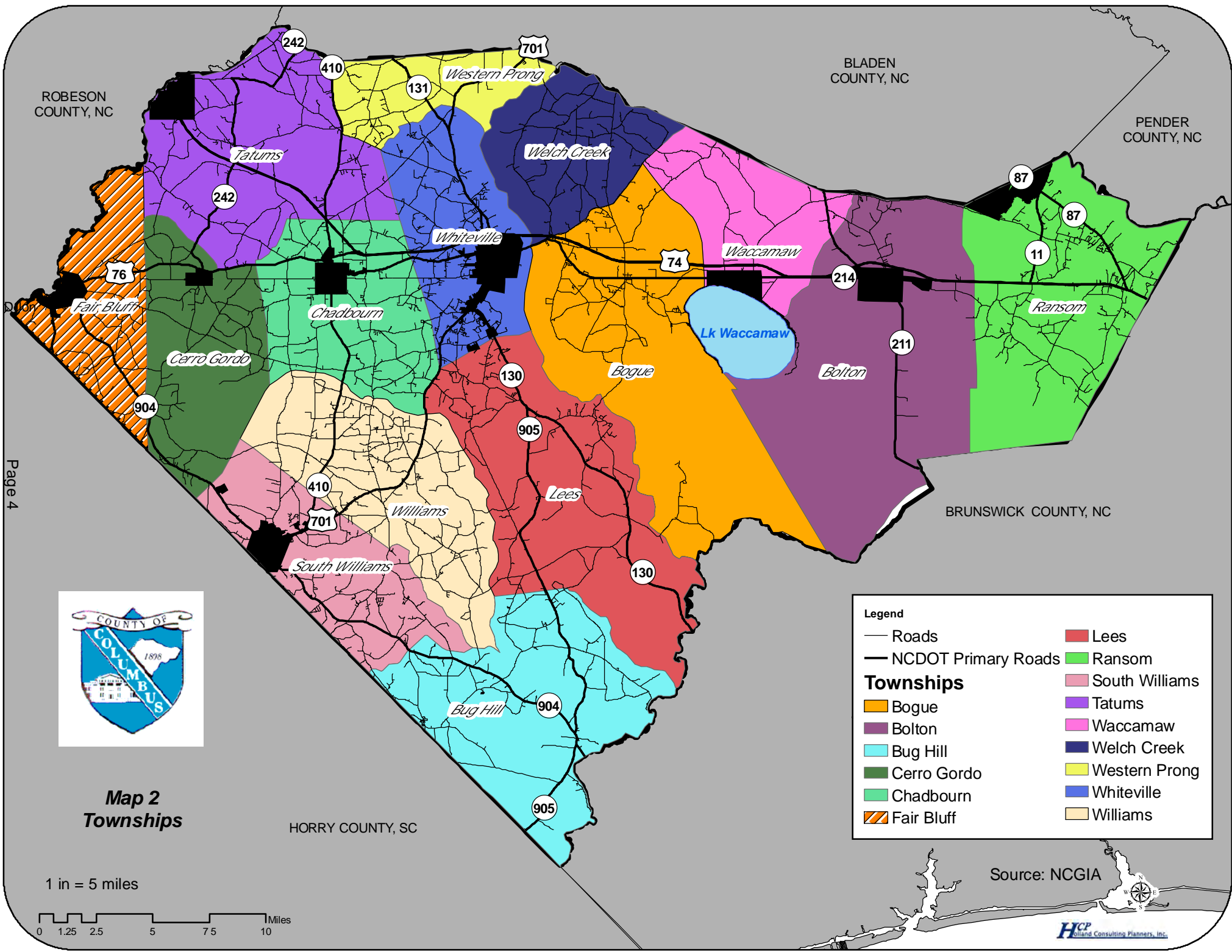


**Columbus County,
North Carolina**



**Map 1
Regional Location**





ROBESON COUNTY, NC

BLADEN COUNTY, NC

PENDER COUNTY, NC

BRUNSWICK COUNTY, NC

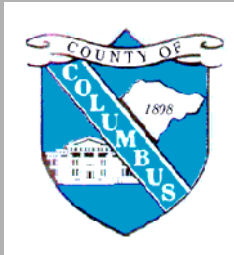
HORRY COUNTY, SC

Legend

- Roads
- NCDOT Primary Roads

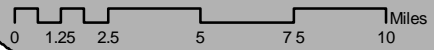
Townships

Bogue	Lees
Bolton	Ransom
Bug Hill	South Williams
Cerro Gordo	Tatums
Chadbourn	Waccamaw
Fair Bluff	Welch Creek
	Western Prong
	Whiteville
	Williams



**Map 2
Townships**

1 in = 5 miles



Source: NCGIA



Page 4

**D. History**

Columbus County was formed in 1808 from parts of Bladen County and Brunswick County. It was named for Christopher Columbus. The County and its citizens have been touched by many of the major episodes of American history – the Indian presence, the Colonial period, the Revolutionary War, the establishment of railroads, the Civil War, and Reconstruction. The County is culturally and historically diverse.

Natural history also shapes Columbus County's heritage. Lake Waccamaw, the largest natural lake between New York and Florida, was the site of Indian habitation long before the arrival of white men. The Waccamaw River, which flows from the lake, has linked the southeastern section of the county with South Carolina and its coastal ports. Lake Waccamaw sits at the edge of the Green Swamp Preserve, one of the best examples of the region's longleaf pine savanna with an understory filled with carnivorous plants, including pitcher plants, Venus flytraps, and sundews. The Green Swamp is a refuge for rare plant and animal species. The swift, dark waters of the Lumber River define the western limits of the county, while the Cape Fear River comprises a section of the northeastern border. The County is one of the most ecologically diverse areas of the nation. Access to the Cape Fear and the port city of Wilmington has been a major factor in the settlement and commercial development of Columbus County. Before construction of roads, the Cape Fear, Lumber and Waccamaw Rivers were the main arteries that penetrated the dense woodlands of the area.



SECTION II. COMMUNITY PROFILE

A. Introduction

This section provides a summary of selected demographic, housing, and economic data. The selected data has been provided for the total County which includes the municipal population. Detailed comparisons of some of the 2000 and 2010 Census data is not possible because at the time of plan preparation complete, detailed 2010 Census data was not available.

B. Population

1. Population Growth

Columbus County's population increased from 54,749 in 2000 to 58,098 in 2010, an increase of 6.1%. By comparison, North Carolina's total population increased from 8,049,313 in 2000 to 9,535,483 in 2010, an increase of 18.5%. A generalized distribution of the population in Columbus County is delineated on Map 3.

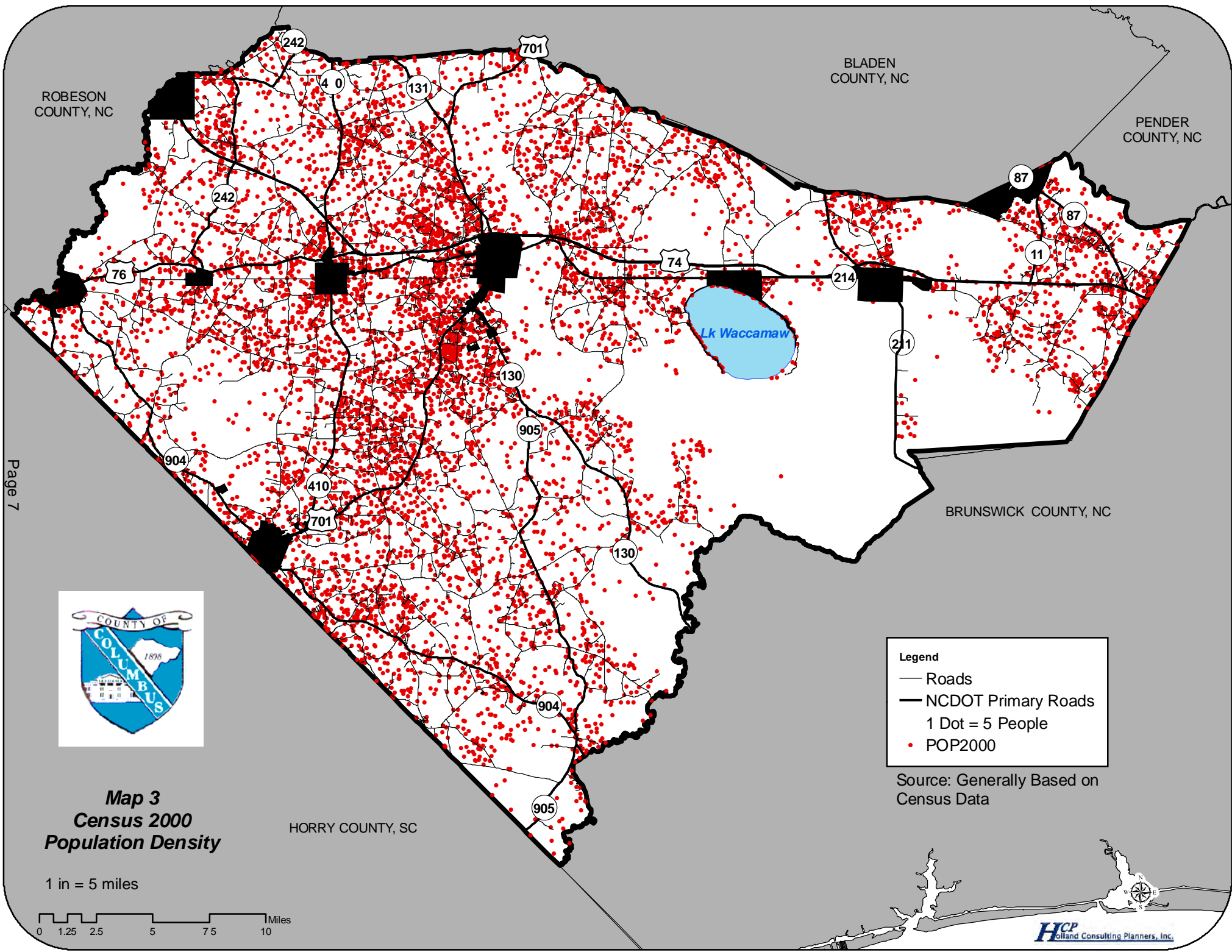
Table 1 provides a comparison of Columbus County's 2000-2010 population to that of the surrounding counties of Brunswick, Pender, Bladen, and Robeson.

Table 1. Population Growth, Columbus County and Adjacent NC Counties

Location	2000	2010	% Change
Bladen County	32,278	35,190	9.0%
Brunswick County	73,143	107,431	46.9%
Columbus County	54,749	58,098	6.1%
Pender County	41,082	52,217	27.1%
Robeson County	123,339	134,168	8.8%
North Carolina	8,049,313	9,535,483	18.5%

Source: US Census Bureau.

Columbus County's rate of growth significantly lagged behind that of the State and slightly trailed the adjacent North Carolina counties. However, unlike many predominantly rural eastern North Carolina counties, Columbus County is not losing population. The County's population size is influenced by the overall growth in southeastern North Carolina.



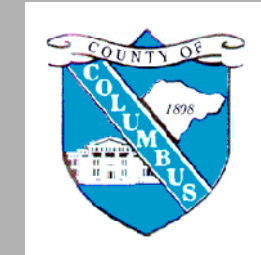
ROBESON COUNTY, NC

BLADEN COUNTY, NC

PENDER COUNTY, NC

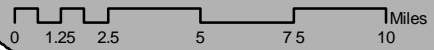
BRUNSWICK COUNTY, NC

HORRY COUNTY, SC



Map 3
Census 2000
Population Density

1 in = 5 miles



Legend

- Roads
- NCDOT Primary Roads
- 1 Dot = 5 People
- POP2000

Source: Generally Based on Census Data



2. Population Age

Table 2 provides a summary of Columbus County and North Carolina's 2000 and 2010 population by age distribution. The County's overall population is older than that of the State. For the County overall, 43.9% of the population is below the age of 35, while 46.8% of North Carolina's population falls below the age of 35. In addition, 15.2% of the County's overall population is over the age of 65, while 12.9% of North Carolina's population is over the age of 65. The population is aging as evidenced by the increase in the 55 to 64 age group from 2000 to 2010.

Table 2. Population by Age, Columbus County and North Carolina

	Columbus County			North Carolina		
	2000	2010	% Change	2000	2010	% Change
0 to 14 years	11,475	11,143	-2.9%	1,653,429	1,899,089	14.9%
15 to 34 years	14,231	14,357	0.9%	2,330,854	2,567,757	10.2%
35 to 54 years	15,849	15,948	0.6%	2,372,270	2,695,797	13.6%
55 to 64 years	5,656	7,820	38.3%	723,712	1,138,761	57.4%
65 to 74 years	4,278	5,192	21.4%	533,777	697,567	30.7%
75 years and over	3,260	3,638	11.6%	435,271	536,512	23.3%
Total Population	54,749	58,098	6.1%	8,049,313	9,535,483	18.5%
Median Age	36.9	39.8	-	35.3	37.4	-

Source: US Census Bureau.

The 2000 median age for Columbus County was 36.9, which increased to 39.8 in 2010. The 2010 median age for North Carolina was 37.4.

3. Gender and Racial Composition

Columbus County's population gender and racial composition has been constant. In 2000, the male/female composition was 26,323/28,426, for a 48%/52% mix. By 2010, the male/female composition was almost the same at 28,753/29,354, for a 49%/51% mix. By comparison, the 2010 North Carolina distribution was 48.7% male and 51.3% female.

In 2000, 63.5% of the County's population was White, with 30.9% Black and 5.6% Other. By 2010, the racial mix was 61.5% White, 30.5% Black, and 8.0% Other. The Other racial category increased from 5.7% in 2000 to 8.0% in 2010. This trend is expected to continue. The Black percent of total population decreased from 30.9% to 30.5% while the White population decreased from 63.5% to 61.5%. Thus, in 2010, the County's total minority population was 22,363, or 38.5% of the total population.



4. Population Summary

- Columbus County's population is slowly increasing, while many eastern North Carolina counties are experiencing a decline in population.
- The County's population growth is affected by the overall growth of southeastern North Carolina.
- The age of the County's population is increasing faster than that of the state, suggesting an out-migration of the younger population.
- The County's overall minority population is increasing, led by an increase in the County's Other minority racial category.

C. Housing

1. Dwelling Unit Growth

From 2000 to 2010, the total dwelling units in Columbus County increased from 24,060 to 26,042, an increase of 8.2%. This increase in dwelling units greatly exceeded the population growth rate from 2000 to 2010. Table 3 provides a summary of housing changes from 2000 to 2010.

Table 3. Total Housing Units, Columbus County

	2000		2010	
	Units	% of Total	Units	% of Total
Occupied Housing Units	21,308	88.6%	22,489	86.4%
Owner-Occupied	16,275	67.6%	15,985	61.4%
Renter-Occupied	5,033	20.9%	6,504	25.0%
Vacant Housing Units	2,752	11.4%	3,553	13.6%
For Rent	607	2.5%	845	3.2%
For Sale Only	338	1.4%	267	1.0%
Rented/Sold, Not Occupied	260	1.1%	247	0.9%
For Seasonal, Recreational, or Occasional Use	776	3.2%	698	2.7%
Other Vacant	771	3.2%	1,496	5.7%
Total Housing Units	24,060	100.0%	26,042	100.0%

Source: US Census Bureau.

The vacant housing units increased from 2,752 to 3,553, a 29.1% increase. This increase, coupled with the increase in total housing units, reflects the economic decline experienced from 2000 to 2010.



2. *Age of Dwelling Units*

In 1990, 36.5% of Columbus County's housing inventory was 30 years old or older. By 2000, this had increased slightly to 40.5% for a total of 8,639 dwelling units. For comparison, in 2000, approximately 35.4% of North Carolina's housing inventory was over 30 years old.

3. *Housing Cost/Condition*

Table 4 provides a summary of Columbus County housing problems based upon 2000 Census data. The summary has been compiled by the US Department of Housing and Urban Development (HUD) through its 2000 Comprehensive Housing Affordability Strategy. More current HUD data is not available.

Of Columbus County households reporting in 2000, 36.5% of rental households and 29.8% of owner-occupied households had some housing problems. Approximately 31.5% of renters and 27.7% of owners had a cost burden greater than 30% of gross income, and 16.8% of renters and 12.6% of owners had a cost burden greater than 50% of their gross income. Most measures of housing affordability consider 30% of gross income an allowable/affordable expenditure for housing.

The 2011 Columbus County median family income is \$45,500. The moderate, low, and very low income levels are based on 80%, 50%, and 30% of median income, respectively. Table 5 provides a detailed definition of very low ($\leq 30\%$ of median), low ($\leq 50\%$ of median) and moderate ($\leq 80\%$ of median) income levels adjusted for family size.

In Columbus County, the key housing question is the availability of standard housing which is economically achievable to the average income person or family.

4. *Housing Summary*

- From 2000 to 2010, the percent of owner-occupied dwelling units to total occupied units decreased by 6.2%.
- Of the total 2000 to 2010 dwelling unit increase, 1,790 units were rental, comprising 86.2% of the County's total dwelling unit increase.
- Economically achievable standard housing is a continuing need in Columbus County.



Table 4. Housing Summary, Columbus County

Income Level	Renters				Owners				Total All Households
	Total Renter Households	% Reporting Housing Problems	% Cost Burden >30%	% Cost Burden >50%	Total Owner Households	% Reporting Housing Problems	% Cost Burden >30%	% Cost Burden >50%	
Very Low ≤30% MFI	1,666	61.9	59.7	43.5	2,312	70.8	69.5	47.8	3,978
Low >30% to 50% MFI	1,010	54.1	47.5	11.5	2,119	49.7	47.2	22.0	3,129
Moderate >50% to 80% MFI	871	18.0	11.7	0.5	2,958	38.2	34.7	12.7	3,829
Above LMI >80% MFI	1,478	6.9	0.3	0.0	8,903	11.6	9.9	1.3	10,381
Total Households	5,025	36.5	31.5	16.8	16,292	29.8	27.7	12.6	21,317

Source: 2000 Comprehensive Housing Affordability Strategy.

Table 5. Income Levels, Columbus County

Columbus County, NC	Income Level	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
FY2011 MFI: \$45,500	Very Low ≤30% MFI	\$10,400	\$11,900	\$13,400	\$14,850	\$16,050	\$17,250	\$18,450	\$19,650
	Low >30% to 50% MFI	\$17,350	\$19,800	\$22,300	\$24,750	\$26,750	\$28,750	\$30,700	\$32,700
	Moderate >50% to 80% MFI	\$27,750	\$31,700	\$35,650	\$39,600	\$42,800	\$45,950	\$49,150	\$52,300

Source: US Department of Housing and Urban Development.



D. Economy

1. Employment by Industry

Table 6 provides a summary of the 2010 Columbus County employment by industry. The combined categories of public administration; educational services; and health care and social assistance employed a total of 7,059 or approximately 44.6% of the County's workforce.

Table 6. 2010 4th Quarter Employment by Industry

Industry	Employment
Agriculture, Forestry, Fishing & Hunting	339
Utilities	0
Construction	431
Manufacturing	1,999
Wholesale Trade	384
Retail Trade	2,098
Transportation and Warehousing	230
Information	138
Finance and Insurance	458
Real Estate and Rental/Leasing	146
Professional and Technical Services	241
Management of Companies and Enterprises	0
Administrative and Waste Services	1,036
Educational Services	1,942
Health Care and Social Assistance	3,250
Arts, Entertainment, and Recreation	29
Accommodation and Food Services	928
Other Services (except Public Administration)	318
Public Administration	1,867
Total	15,834

Source: NC Employment Security Commission.

Table 6 does not reflect the significance of agriculture/forestry products and production in the Columbus County economy. According to the NC Rural Economic Development Center, agriculture accounted for more than \$140 million in annual cash receipts in 2009, which was 6.7% of the 2009 Sales and Receipts for All Businesses. Major food crops include corn, oats, peanuts, soybeans, wheat, and various fruits. Livestock production includes broilers, hogs, and cattle. The County has some of the most productive agricultural lands in the nation.



While not shown as an employment sector, small business is a major component of the County's economy. Much of the County's small business activity is supported by agricultural/forestry income and transient tourist traffic traveling to coastal destinations. Employment by small business is scattered throughout industry sectors such as retail trade, food services, construction, and real estate. Table 7 provides a summary of the County's largest employers for June 2011.

Table 7. Largest Employers, Columbus County

Company Name	Industry Description	Employment
Columbus County Board of Education	Education & Health Services	1,000+
International Paper Co., Inc.	Manufacturing	500-999
State of NC Department of Correction	Public Administration	500-999
Columbus County	Public Administration	500-999
Columbus Regional Healthcare System	Education & Health Services	500-999
Allegiant Professional	Professional & Business Services	500-999
BB&T	Financial Activities	250-499
Whiteville City Schools	Education & Health Services	250-499
Southeastern Community College	Education & Health Services	250-499
Wal-Mart Associates, Inc.	Trade, Transportation & Utilities	250-499
West Fraser Inc., Sylvia Allen	Manufacturing	100-249
Liberty Healthcare Group, LLC	Education & Health Services	100-249
Carolinas Home Care Agency, Inc.	Education & Health Services	100-249
Atlantic Corporation	Information	100-249
Heartland Home Care Agency, Inc.	Education & Health Services	100-249
National Spinning Co., Inc.	Manufacturing	100-249
Food Lion, LLC	Trade, Transportation & Utilities	100-249
Community Innovations, Inc.	Education & Health Services	100-249
Top Tobacco LP	Manufacturing	100-249
Interim Health Care	Education & Health Services	100-249
Premier Living Rehab Center LLC	Education & Health Services	100-249
Lowes Home Centers, Inc.	Trade, Transportation & Utilities	100-249
US Postal Service	Trade, Transportation & Utilities	50-99
Boys & Girls Homes of NC, Inc.	Education & Health Services	50-99

Source: Columbus County Economic Development Commission.



2. Per Capita Income

Columbus County has continued to lag behind the state and nation in personal income. Table 8 provides a summary of per capita income from 2005 to 2009.

Table 8. 2005-2009 Per Capita Income, Columbus County, North Carolina, and United States

	2005	2006	2007	2008	2009
Columbus County	\$26,978	\$27,571	\$28,333	\$29,660	\$29,822
North Carolina	\$32,037	\$33,562	\$34,968	\$35,683	\$34,879
United States	\$35,424	\$37,698	\$39,461	\$40,674	\$39,635

NOTE: Data not adjusted for inflation.

Source: Bureau of Economic Analysis, Regional Accounts Data.

It should be noted that in 2011, Columbus County was designated a Tier 1 county by the North Carolina Department of Commerce. A Tier 1 county is the most economically distressed while a Tier 3 is the least stressed economically.

Teenage pregnancy rates are viewed as an indicator of a community's economic and social challenges. In 2011, the Columbus County birth rate per 1,000 female population age 15 to 19 was 71. By comparison, the national rate per 1,000 was 22 and the North Carolina rate per 1,000 was 50.

3. Travel Time to Work

The Columbus County labor force is very mobile. In 2008, approximately one-half of the County's workforce traveled out of the County to their place of employment. By comparison, in North Carolina, approximately 70% of the workforce travels over 30 minutes to their place of employment.

Table 9. 2008 Commuting Patterns, Columbus County

Total Workers Commuting out of Columbus County 10,439
Total Workers Commuting into Columbus County 6,211
10,290 Columbus County Residents Live and Work in Columbus County

Out of Columbus County		Into Columbus County	
Destination County	Number of Workers	Origin County	Number of Workers
Horry County, SC	1,561	Horry County, SC	505
New Hanover County, NC	1,449	New Hanover County, NC	874
Brunswick County, NC	1,035	Brunswick County, NC	781
Wake County, NC	971	Robeson County, NC	555
Bladen County, NC	829	Bladen County, NC	967
Other Areas	4,594	Other Areas	2,529

Source: US Census Bureau.



4. Industrial Parks

Columbus County has four significant industrial sites/parks (see Table 10). These properties are delineated on Map 4.

Table 10. Significant Industrial Parks, Columbus County

Site/Park Name	Size	Location
Tabor City Industrial Park	36 acres	Tabor City
Southeast Regional Park	350 acres	Whiteville
Columbus County Cape Fear River Site	942 acres	Riegelwood
International Logistics Park of North Carolina	1,100 acres	Delco

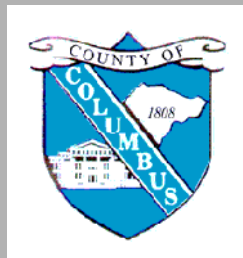
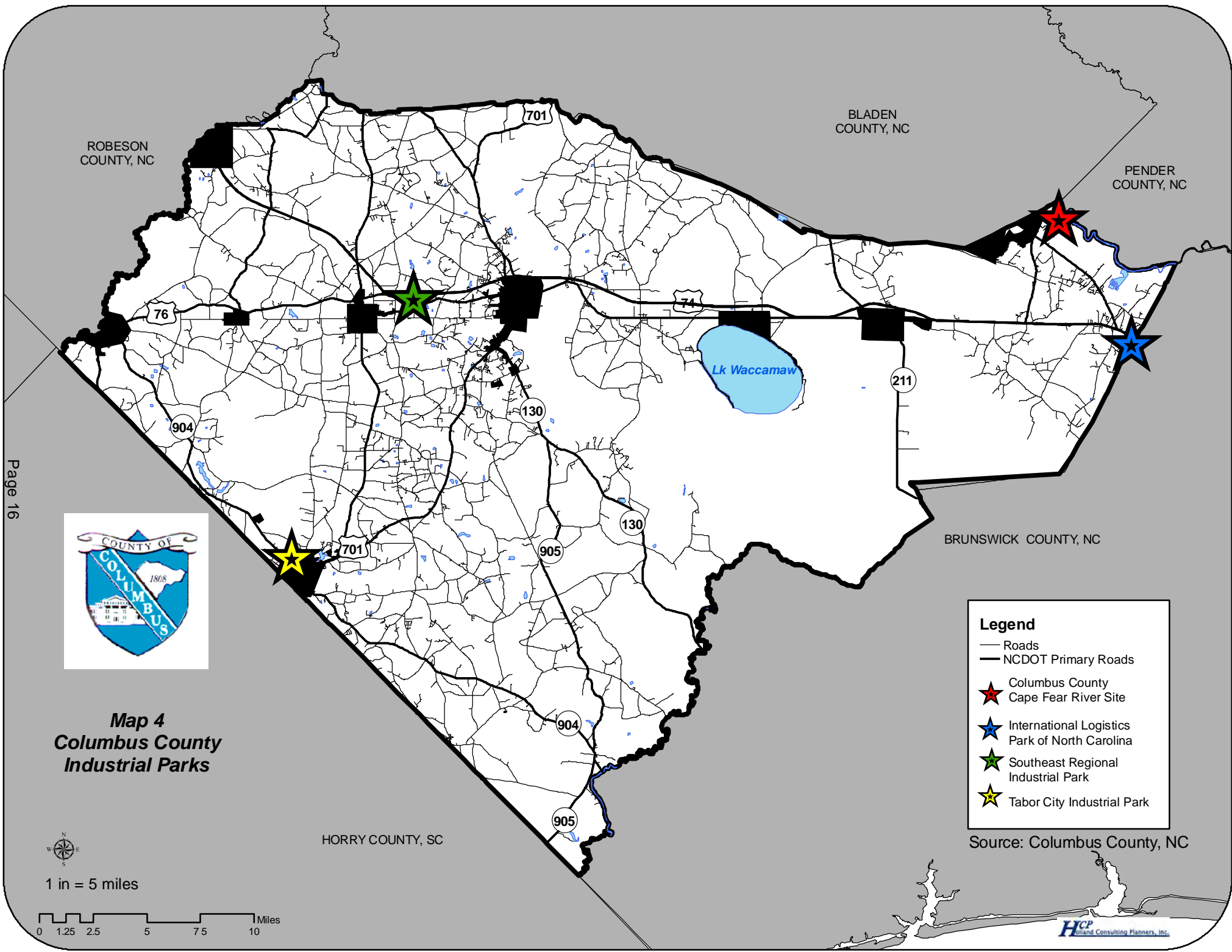
Source: Columbus County Economic Development Commission.

The International Logistics Park of North Carolina is a joint venture by Columbus and Brunswick counties. The park is situated on US 74/76 on the Columbus/Brunswick County line with 216.05 acres in Columbus County and 883.95 acres in Brunswick County. Brunswick County provides sewer serve to the park and Columbus County provides water service. There is an interlocal government agreement governing the participation of the two counties which includes shared distribution of taxes from the industrial park.

5. Economy Summary

Major issues confronting economic growth and development in Columbus County including the following:

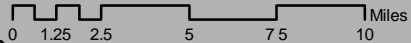
- Protect/preserve existing industrial sites.
- Protect the development potential of the US 74/76 interchange areas.
- Expand water and sewer infrastructure.
- Improve educational opportunities and attainment.
- Increase skilled workers.
- Adopt a County land use plan.
- Protect the County's agricultural/forestry industries.
- Support development of the North Carolina State Port at Wilmington as a deep water port.
- Improve internet access.



Map 4
Columbus County
Industrial Parks



1 in = 5 miles



Legend

- Roads
- NCDOT Primary Roads
- ★ Columbus County Cape Fear River Site
- ★ International Logistics Park of North Carolina
- ★ Southeast Regional Industrial Park
- ★ Tabor City Industrial Park

Source: Columbus County, NC



SECTION III. ENVIRONMENT/EXISTING CONDITIONS

A. Community Facilities/Services

1. Transportation

US 74/76 (east/west) and US 70 (north/south) are the major highways serving Columbus County. These routes are supported by NC 87 (east/west), NC 211 (north/south) and NC 11 (north/south). The existing road system is depicted on Map 5. US 74/76 is currently the most significant connector to regional influences which impact the Columbus County economy and landscape. This four-lane highway connects directly to I-95 to the west and the Wilmington Metropolitan area to the east. Via I-95, Columbus County has excellent highway access to the entire United States east coast.

According to the NC Department of Transportation (NCDOT), there are approximately 1,100 miles of state maintained roads in Columbus County. Map 6 provides the 2005 annual average daily traffic counts (AADT) and roadway capacity for reported locations on federal and state highways.

The Columbus County Comprehensive Transportation Plan was prepared by NCDOT and adopted in December 2007. This discussion is included in existing conditions because many of the improvements are currently underway or will be completed soon. The following provides a summary of the recommendations for major long-range road improvements included in the plan:

- Proposed I-74
In accordance with the NCDOT Strategic Highway Corridors (SHC) Report and the R-3436 feasibility study, it is recommended that I-74 be constructed as a freeway on new location from 1.0 mile west of the US 74/76 and NC 211 intersection southeast to the Brunswick County line.

Interchanges should be constructed at the intersections of US 74 and NC 211. Grade separations should be constructed at the intersections of NC 214 and Tram Road (SR 1706).

- Proposed I-20
In accordance with the SHC report, it is recommended that I-20 be constructed as a freeway on new location from the South Carolina state line north of US 76 to the southwestern boundary of the Chadbourn planning area.

Interchanges should be constructed at the intersection of NC 904 and Rough and Ready Road (SR 1004). Grade separations are recommended at US 76, Old Stake Road (SR 1300), and Cedar Grove Church Road (SR 1410).



- US 74

In accordance with the SHC Report, it is recommended that US 74 be upgraded to freeway standards from the Robeson County line to the Chadbourn planning area boundary. In accordance with the TIP Project R-4900, an interchange is recommended at NC 242. An interchange at Macedonia Church Road (SR 1506) is also recommended.

In accordance with the TIP Project R-4462, the recommendations are as follows: the section of roadway from Red Hill Road (SR 1700) to the western boundary of the Lake Waccamaw planning area is to be upgraded to freeway standards with an interchange at the Hallsboro Road (SR 1001) intersection. The section of roadway from the eastern boundary of the Lake Waccamaw planning area to 0.5 miles west of the NC 11 intersection is recommended to be upgraded to freeway standards with interchanges at the proposed I-74 and NC 214. In accordance with TIP Project R-61C, an interchange is recommended at NC 211. These improvements will improve safety and increase the capacity of the roadway.

From 0.5 miles west of the NC 11 intersection, US 74 will be realigned as a freeway on new location south of the existing alignment in accordance with feasibility study FS-9903A. This facility will intersect with the existing alignment of US 74/76 in Brunswick County. This will improve safety and increase capacity of the roadway while avoiding potential impacts. Interchanges are recommended at the intersections with existing US 74/76, Livingston Chapel Road (SR 1843), Water Tank Road (SR 1824), and at the proposed extension of NC 87.

- NC 87

In accordance with the SHC Report and TIP Project R-2561, it is recommended that NC 87 be improved to expressway standards. It is also recommended to extend NC 87 on new location from existing US 74/76 to the recommended new location of US 74/76. An interchange is recommended at the intersection of NC 87 and the proposed new location of US 74/76 and a grade separation is recommended at the existing US 74/76 and NC 87 intersection. This recommendation includes upgrading NC 87 to a four-lane divided facility and the implementation of access management strategies to improve safety, increase mobility, and reduce congestion.

- US 74/76 Business

It is recommended that the section of roadway from US 74 to the western boundary of the Whiteville planning area be improved to boulevard standards. The existing two- and three-lane facility should be improved to a four-lane divided highway with partial control of access. Improvements will increase capacity, improve safety, and relieve congestion.



- US 701
It is recommended that the section of roadway from NC 131 to the northern boundary of the Whiteville planning area and the section from the southern boundary of the Whiteville planning area to the northern boundary of the Tabor City planning area be upgraded to boulevard standards. The existing two- and three-lane facility should be improved to a four-lane divided highway with partial control of access. Improvements will increase capacity, improve safety, and relieve congestion.
- NC 130
It is recommended that NC 130 from the southern boundary of the Whiteville planning area to the Brunswick County line be upgraded to boulevard standards. The existing facility should be improved to a four-lane divided highway with partial control of access. Improvements will increase capacity, improve safety, and relieve congestion.

The Cape Fear Area Rural Planning Organization (RPO) is one of twenty multi-county rural transportation planning organizations established by the North Carolina Department of Transportation (NCDOT). The Cape Fear Area RPO covers Brunswick, Columbus, and Pender Counties and serves as the intergovernmental organization for local elected officials, the North Carolina Department of Transportation, and residents of the region to work cooperatively to address transportation issues. The FY2012 to FY2020 RPO Transportation Improvement Plan includes the following projects, some of which support achievement of the long-range projects:

Route	ID Number	Location/Description (Length)
US 74/US 76	R-0061	US 74/US 76 at NC 211. Construct interchange.
US 74	R-5511	US 74, Robeson County line to US 76. Resurface. (11.76 miles)
US 74	R-5509	US 74, US 74 Business to NC 214. Resurface. (17.6 miles)
US 74	R-5508	US 74, US 76 to US 74 Business. Resurface. (8.5 miles)
US 74	R-5507	US 74, NC 214 to Brunswick County line. Resurface. (9.6 miles)
US 74	R-4900	US 74 at NC 242. Construct interchange.
US 701 Bypass	R-5020	US 701 Bypass (Madison Street-Powell Boulevard), SR 1166 (Pleasant Plains Road) to US 74/76 Bypass in Whiteville. Widen to multi-lanes. (4 miles)
NC 87	R-2561	NC 87, US 74/76 to Elizabethtown Bypass. Widen to multi-lanes (30.4 miles)
US 74	FS-1106B	US 74, NC 41 in Lumberton to SR 1585 (Union Valley Road) in Columbus County. Upgrade to interstate standards. (24.9 miles)
NC 130	B-4077	Waccamaw River overflow. Replace Bridge No. 25.
NC 130	B-4078	Waccamaw River overflow. Replace Bridge No. 10.
NC 904	B-4471	Juniper Swamp. Replace Bridge No. 44.
NC 904	B-5338	Flood control canal. Replace Bridge No. 79
SR 1005	B-5115	Grissett Creek. Replace Bridge No. 94 and Bridge No. 95.
SR 1006	B-5528	Monte Swamp. Replace Bridge No. 41.

Public Transportation and Rail Map



Columbus County

Comprehensive Transportation Plan

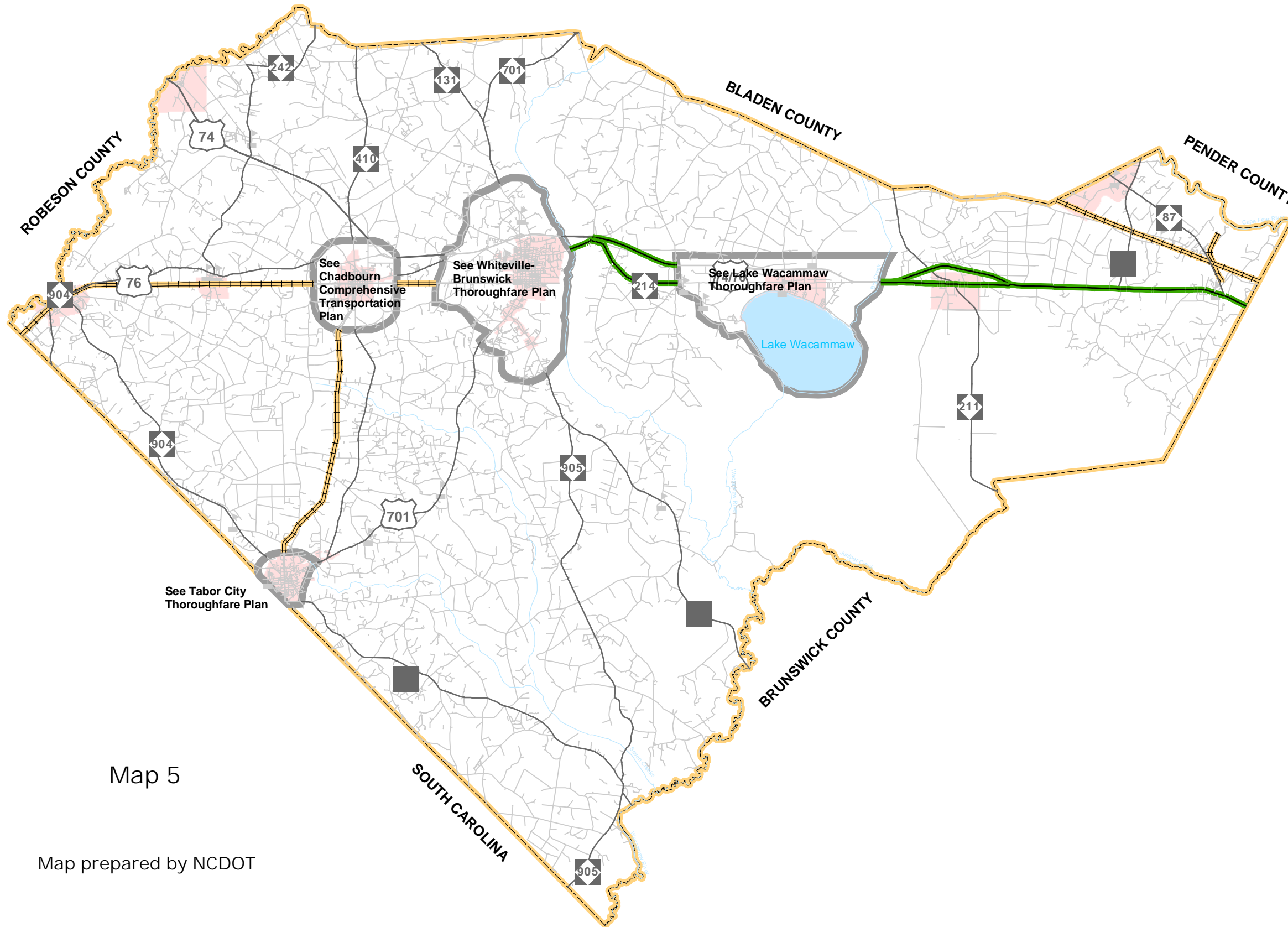
Plan date: August 4, 2006

- Bus Routes**
 - Existing
 - Needs Improvement
 - Recommended
- Fixed Guideway**
 - Existing
 - Needs Improvement
 - Recommended
- Operational Strategies**
 - Existing
 - Needs Improvement
 - Recommended
- Rail Corridor**
 - Active
 - Inactive
 - Recommended
- High Speed Rail Corridor**
 - Existing
 - Recommended
- Rail Stops**
 - Existing
 - Recommended
- Intermodal Connector**
 - Existing
 - Recommended
- Park and Ride Lot**
 - Existing
 - Recommended



Sheet 3 of 5

Base map date: December 8, 2005
Refer to CTP document for more details



Map 5

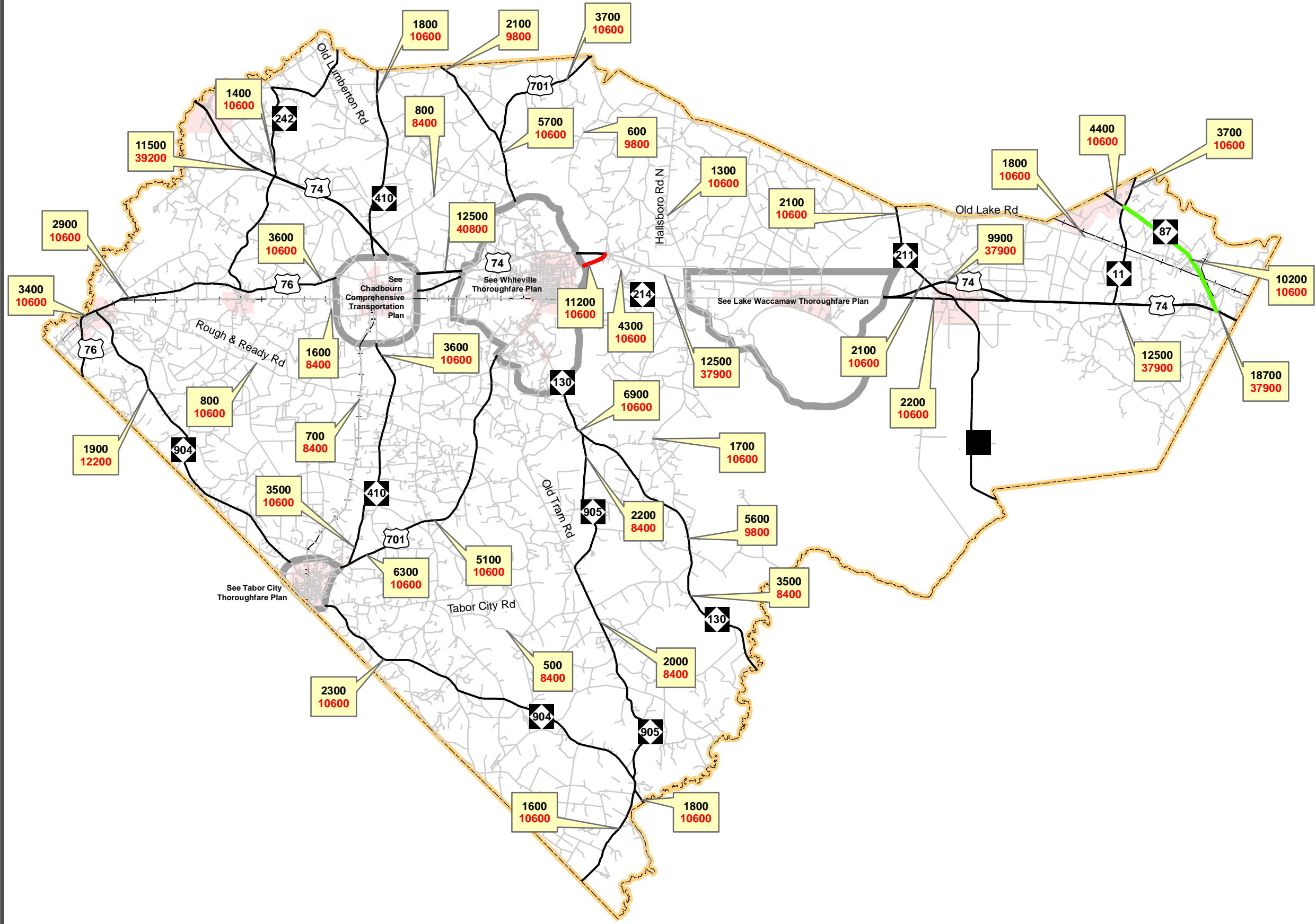
Map prepared by NCDOT

Map 6 2005 VOLUMES AND ROADWAY DEFICIENCIES

Columbus County Comprehensive Transportation Plan

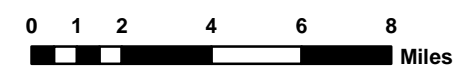
LEGEND

- COUNTY BOUNDARY
- NETWORK ROADS
- LOCAL ROADS
- OVER CAPACITY
- NEAR CAPACITY
- CITY BOUNDARY
- EXISTING PLANNING AREAS
- BODIES OF WATER
- RAILROADS
- 2005 AADT
- CURRENT ROADWAY CAPACITY



COUNTY OF COLUMBUS NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING BRANCH
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



BASE MAP DATE: APRIL 30, 2005



Columbus County has prepared a supplemental list of desired future road projects which has been submitted to the RPO for consideration. These projects include the following:

- Proposed overpass at the intersection of Highway 74 and Old Lake Road. High volume traffic area due to proximity to East Columbus High School.
- Proposed adjustment to traffic patterns at the intersection of NC 87 and Highway 74 in Delco. Needs traffic light to control accidents.
- Proposed overpass at the intersection of Highway 74 and Cronly Drive in Delco. High volume of traffic accidents.
- Traffic light at intersection of TV Tower Road and Highway 74 in Delco.
- Overpass at Highway 74 where it crosses Old 74 from Evergreen to Chadbourn. Concerns include high traffic volume in that area crossing Highway 74.
- Proposed overpass at intersection of Highway 74 and Old Boardman Road.
- New traffic pattern at the intersection of 701 Business and 701 Bypass. Recent traffic studies have indicated a high volume of accidents in this area. Solutions that can be provided to reduce the number of accidents should be a project priority in this area.

Railroad access is provided by CSX and Carolina Southern Railroad. The CSX line runs through the northeastern portion of the County. Carolina Southern Railroad operates in the southeastern corner of North Carolina between Whiteville and Mullins, SC, and between Chadbourn and Conway, SC. Accessible to the line are industrial parks in Whiteville as well as Marion, SC. The railroad connects with CSX Transportation at Mullins, SC, and the Waccamaw Coast Line in Conway, SC. These lines provide access to the national rail system.

Air transportation and access to the national air transportation system is most readily available at the Columbus County Municipal Airport, located east of US 701 approximately seven miles south of Whiteville. The airport is a full service instrumented general aviation facility with a 5,500 foot runway with medium intensity runway lights (MIRLs) and runway end identifier lights (REILs). There is a non-directional beacon (NDB) approach with a GPS overlay and an automated weather observation system (AWOS). The airport provides critical access to regional healthcare and can accommodate all normal corporate aircraft operations. Air carrier service is available at the Wilmington International Airport located fifteen miles east of the County via US 74/76, the Myrtle Beach International Airport located approximately 30 miles southeast of the County via



US 701, and the Fayetteville Regional Airport located approximately 40 miles northwest of the County via US 701/NC 53.

The 390-acre North Carolina State Port (Foreign Trade Zone #66), located in Wilmington, provides daily access to world-wide ocean shipping. In 2010, 3,429,327 total tonnage of cargo moved through the port. The operation of State Port facilities on the Cape Fear River will provide a significant economic asset for the County’s future development.

2. *Health Care*

Columbus County is provided readily accessible healthcare by the Columbus Regional Healthcare System (CRHS). The hospital, located in Whiteville, was established in 1935. The facility has been replaced twice, with the current facility dedicated in 1977 and licensed for 154 beds. The facility underwent major renovation in 2005, adding the Donayre Cancer Care Center, the Birthing Center, and the Imaging Center. In 2007, Carolina Healthcare Systems assumed management of CRHS. The hospital is accredited by the Joint Commission on Accreditation of Healthcare Organizations. Services include: cardiac services, critical care unit, cancer care, emergency department, imaging, infection control, laboratory services, physical therapy, speech pathology, surgical services, and birthing center. CRHS services are supported by the New Hanover Regional Medical Center, a major trauma center, located in Wilmington, NC, fifteen miles east of Columbus County.

3. *Law Enforcement*

The Columbus County Sheriff’s Office is comprised of 104 employees dedicated to providing a professional and courteous, full-service law enforcement agency for the County’s more than 55,000 residents. This agency offers patrol services to Columbus County’s unincorporated areas and provides varying degrees of support to all of the County’s municipal police departments. County municipal police departments are located in Bolton, Chadbourn, Fair Bluff, Lake Waccamaw, Tabor City, and Whiteville.

Table 11 provides a comparison of the 2008 total index crime rate versus the 2007 total index crime rate per 100,000 individuals based on the NC Uniform Crime Reporting (UCR) Program. Index crime offenses includes the total number of violent crimes (murder, rape, robbery, and aggravated assault) and property crimes (burglary, larceny, and motor vehicle theft).

Table 11. Index Crime Rate Per 100,000, Columbus County

2007	2008	% Change
5,559.9	6,278.4	+0.89%

Source: NC Uniform Crime Reporting Program.

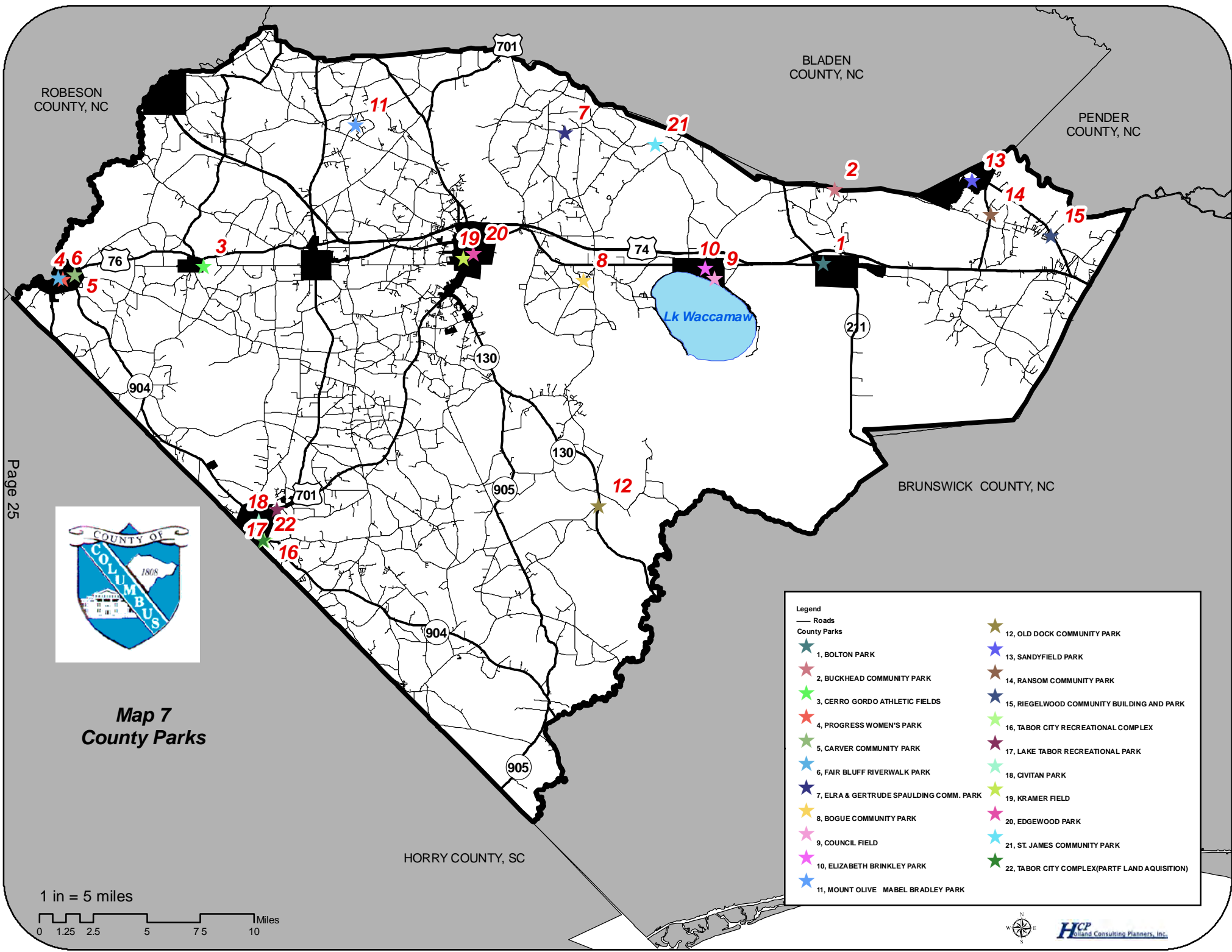


4. Recreation

The Columbus County Department of Parks and Recreation was established by an ordinance adopted on January 1, 1977. The Department has a full-time director and staff. A Recreation Advisory Board provides input on the operation of recreation programs and facilities. The primary objective of the Parks and Recreation Department is to provide a well-rounded recreation program for Columbus County's citizens. Recreation is vital to the County's overall quality of life and is a valuable aid in business recruitment.

Activities include seasonal programs for Easter, Halloween, and Christmas with special activities at sites scattered throughout the County. Ball programs for all youth run through seasonal months with County centers facilitating and maintaining fields for play; in the fall, Church League Adult Softball programs utilize fields at the Tabor City Complex. The Columbus County Parks and Recreation Department administers recreation programs for municipalities in the County with the exception of Chadbourn and Whiteville which have their own recreation departments. The department also assists with food distribution programs. Many programs, including all seasonal activities, are offered to residents within the City limits of Whiteville, along with maintenance to facilities developed by the County Recreation Department. The County recreation program depends on the following facilities, located throughout the County, to implement its recreation programs (see Map 7):

- Bolton Park
- Buckhead Community Park
- Cerro Gordo Athletic Fields
- Progress Women's Park
- Carver Community Park
- Fair Bluff Riverwalk Park
- Elra & Gertrude Spaulding Community Park
- Bogue Community Park
- Council Field
- Elizabeth Brinkley Park
- Mount Olive - Mabel Bradley Park
- Old Dock Community Park
- Sandyfield Park
- Ransom Community Park
- Riegelwood Community Park and Community Building
- Tabor City Recreational Complex
- Lake Tabor Recreational Complex
- Civitan Park
- Kramer Field
- Edgewood Park
- St. James Community Park
- Tabor City Complex (PARTF - Land Acquisition)



ROBESON COUNTY, NC

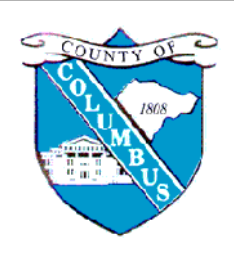
BLADEN COUNTY, NC

PENDER COUNTY, NC

BRUNSWICK COUNTY, NC

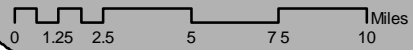
HORRY COUNTY, SC

- Legend**
- Roads
 - County Parks
- | | |
|---|--|
| ★ 1, BOLTON PARK | ★ 12, OLD DOCK COMMUNITY PARK |
| ★ 2, BUCKHEAD COMMUNITY PARK | ★ 13, SANDYFIELD PARK |
| ★ 3, CERRO GORDO ATHLETIC FIELDS | ★ 14, RANSOM COMMUNITY PARK |
| ★ 4, PROGRESS WOMEN'S PARK | ★ 15, RIEGELWOOD COMMUNITY BUILDING AND PARK |
| ★ 5, CARVER COMMUNITY PARK | ★ 16, TABOR CITY RECREATIONAL COMPLEX |
| ★ 6, FAIR BLUFF RIVERWALK PARK | ★ 17, LAKE TABOR RECREATIONAL PARK |
| ★ 7, ELRA & GERTRUDE SPAULDING COMM. PARK | ★ 18, CIVITAN PARK |
| ★ 8, BOGUE COMMUNITY PARK | ★ 19, KRAMER FIELD |
| ★ 9, COUNCIL FIELD | ★ 20, EDGEWOOD PARK |
| ★ 10, ELIZABETH BRINKLEY PARK | ★ 21, ST. JAMES COMMUNITY PARK |
| ★ 11, MOUNT OLIVE MABEL BRADLEY PARK | ★ 22, TABOR CITY COMPLEX(PARTF LAND AQUSITION) |



**Map 7
County Parks**

1 in = 5 miles





5. Education

The Columbus County School System includes nineteen (19) public schools. Table 12 provides the current Columbus County System schools.

Table 12. Columbus County School System

School	Grades	Location
Acme-Delco Elementary	K-5	Riegelwood
Acme-Delco Middle	6-8	Delco
Boys and Girls Home	6-12	Lake Waccamaw
Cerro Gordo Elementary	K-8	Cerro Gordo
Chadbourn Elementary	K-5	Chadbourn
Chadbourn Middle	6-8	Chadbourn
East Columbus High	9-12	Lake Waccamaw
Evergreen Elementary	K-8	Evergreen
Guideway Elementary	K-5	Tabor City
Hallsboro/Artesia Elementary	K-5	Hallsboro
Hallsboro Middle	6-8	Hallsboro
Nakina Middle	6-8	Nakina
Old Dock Elementary	K-5	Whiteville
South Columbus High	9-12	Tabor City
Southeastern Early College High	9-10	Whiteville
Tabor City Elementary	K-5	Tabor City
Tabor City Middle	6-8	Tabor City
West Columbus High	9-12	Cerro Gordo
Williams Township	K-8	Whiteville

Source: Columbus County Schools.

The Columbus County public school system offers career technical education in a number of areas, including agriculture. Coursework consists of agricultural production and management, agricultural engineering technology, horticulture and more. The Golden LEAF Foundation of North Carolina recently awarded \$1.75 million to the Columbus County School System to retrofit the former Fair Bluff Elementary building. The Columbus Career and College Academy opened for the first time to students in August, 2011. The facility has a current enrollment of 83 ninth grade students. Each year the district will add an additional grade with the school ultimately consisting of grades 9-12. The facility offers students several career pathways which include Broadcast/Communications, Culinary Arts, Metals Manufacturing, Green Construction, Interior Design, and Video Game Design. Columbus County Schools has partnered with Southeastern Community College to provide instruction and certification.



There is currently one charter school (year-round) in Columbus County: Columbus Charter School is located in Whiteville and serves grades K-6. The City of Whiteville maintains a separate school system. Table 13 provides a listing of the City schools.

Table 13. Whiteville City Schools

School	Grades
Central Middle	6-8
Edgewood Elementary	3-5
North Whiteville Academy	3-12
Whiteville High	9-12
Whiteville Primary	PK-2

Source: Columbus County Economic Development Commission.

In addition to the public school systems, there are three private schools located in the County: Carolina Adventist Academy serves grades K-10, Columbus Christian Academy serves grades K-12, and Waccamaw Academy serves PK-12. All three schools are located in the Whiteville area.

Higher education is provided by the Southeastern Community College (SCC), which is located on NC 30 west of Whiteville. The campus includes approximately 246 acres and 21 buildings. Southeastern Community College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award certificates, diplomas and associate degrees. The college seeks to further serve the community at large by offering basic skills and literacy education for adults, by supporting economic development through services to business and industry, and by providing programs and services that improve the quality of life. In 2007, 19,201 individuals were enrolled in 821 different workforce development classes with 149 students in New and Expanding/Focused Industrial Training programs. In addition, the JobLink Career Center served 200 businesses and 1,776 customers requesting 14,575 services; and the Small Business Center served 1,893 participants in 32 different types of seminars/classes.

6. Libraries

The Columbus County Library System provides six library locations, a bookmobile, and outreach programs. The main library, the Carolyn T. High Memorial Library, is located in Whiteville and contains the most comprehensive collections and services. It serves as a resource center for the bookmobile and all the branches. The five branches are located in Chadbourn, Fair Bluff, Lake Waccamaw, Tabor City, and Riegelwood. The bookmobile serves as a mobile branch delivering library services to rural areas of the County. Circulation materials can be sent from one library to another using its courier service.



The Southeastern Community College Library is open to SCC students, its personnel, and to the general public. The library has a large collection of books, periodicals, tapes, and other materials available for use. The library has over 12,000 square feet of floor space containing over 66,000 books. Materials that the SCC library does not have may be borrowed from other libraries. Patrons may place requests for such materials by using the online catalog, CCLINC link, which lists the materials in the libraries at most of the North Carolina Community Colleges.

7. Natural Gas

Natural gas service is provided to Columbus County by Piedmont Natural Gas. Exact line locations are available from Piedmont Natural Gas; however, Federal Homeland Security provisions prohibit the publication of the specific locations of gas distribution lines. The Tabor City, Southeast Regional, and International Logistics industrial parks have natural gas service.

8. Air Emissions

Columbus County is not currently nor on schedule to be included in a non-attainment area.

9. Electricity

Electrical service is available throughout the County. Depending upon location, service is provided by one of the following: Brunswick Electric Membership Corporation, Progress Energy, or Four County Electric Membership Corporation.

10. Telecommunications

CenturyLink is the primary local telephone service provider. Additional telephone service is available from other providers in some limited areas of the County. The following internet services are available: CenturyLink, LocalNet, NCEZ.NET, Road Runner, and TDS Internet Services.

11. Solid Waste

The Columbus County solid waste collection system is limited to household service and is managed by the Columbus County Public Utilities Director. In 1998, Columbus County started house-to-house garbage collection for solid waste. The cost of collection is recovered from the citizens through user and tipping fees. The waste is taken to the transfer station located at 354 Landfill Road in the New Hope Community outside of South Whiteville. The waste is then taken to the Sampson County Landfill about 58 miles north of Columbus County.



12. Water System

Columbus County has a developed water supply system which is maintained and operated by the Columbus County Public Utilities Department. Map 8 delineates the water supply districts and distribution line locations. The system includes 425.44 miles of distribution lines. The following provides a description of the system:

Water District #1

Distribution System 12" - 2" lines	90.7 miles of pipe
Elevated Tanks	1 each 200,000 gallons total capacity
Wells	0 each (supplied from Tabor City)
Booster Pump Station	1 each 450 GPM total capacity
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	1,145 total

Water District #2

Distribution System 12" - 2" lines	144.8 miles of pipe
Elevated Tanks	2 each 750,000 gallons total capacity
Wells	2 each 900 GPM total capacity (both wells running)
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	1,377 total

Water District #3

Distribution System 12" - 2" lines	80.4 miles of pipe
Elevated Tanks	1 each 250,000 gallons total capacity
Wells	2 each 950 GPM total capacity (both wells running)
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	1,007 total

Water District #4 (Acme & Delco)

Distribution System 16" - 2" lines	36.54 miles of pipe
Elevated Tanks	1 each 500,000 gallons total capacity
Wells	2 each 550 GPM total capacity (both wells running) (Also supplied by City of Northwest 6" connection)
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	678 total

Water District #4 (Lakeland & Deerfield)

Distribution System 6" - 2" lines	3.2 miles of pipe
Hydrostatic Pressure Tanks	2 each 10,000 gallons total capacity
Wells	3 each 250 GPM total capacity (all wells running)
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	89 total



Water District #5

Distribution System 8" - 2" lines	69.8 miles of pipe
Elevated Tanks	1 each 250,000 gallons total capacity
Wells	0 each (supplied from WD#1 & Tabor City)
Booster Pump Station	1 each 500 GPM total capacity
Chlorinate with 15% liquid Sodium Hypochlorite	
Customers	409 total

Source: Columbus County Public Utilities Department.

Depending on receipt of grant funding, the District 4 system will be expanded to serve the Hallsboro area. In addition, design is underway to interconnect Water District 1 and Water District 2. It is the County's intention to expand the system as demand and user fee will support expansion. The County does not have a mandatory hook-up policy.

13. Sewer System

Table 14 provides the wastewater treatment capacity permitted flow, as built flow, average flow, and the percentage of permitted flow discharged for wastewater treatment facilities in Columbus County for the period of January 1, 2008, through December 31, 2008. Map 8 generally delineates the service areas. The facilities listed are publicly-owned treatment works (POTWs). According to the NC Division of Water Quality, it is not possible to accurately estimate an "unused flow" capacity for each facility, as many of the facilities have ongoing concerns about inflow and infiltration during storming events. While only four facilities have un-built expansion capacity, many of the POTWs are operating well below their permitted flows due to loss of industry and other factors. A POTW consistently operating at 80% or greater of permitted capacity must update its long-range sewer plan. The Town of Fair Bluff (including its Cerro Gordo to Boardman line), operating in excess of 80%, connected to the Fairmont Regional System in 2009.

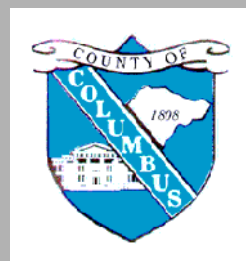
Table 14. Wastewater Treatment Capacity, Columbus County

Owner	Facility	Permitted Flow (mil gal/day)	As Built Flow (mil gal/day)	Average Flow (mil gal/day)	Percent of Permitted Flow Used
Town of Fair Bluff	Fair Bluff WWTP	.2300	.2300	.1900	82.61
Town of Lake Waccamaw	Lake Waccamaw WWTP	.4000	.4000	.2140	53.50
City of Whiteville	Whitemarsh WWTP	3.0000	3.0000	1.1580	38.60
Town of Tabor City	Tabor City WWTP	1.1000	1.1000	.3100	28.18
Town of Chadbourn	Chadbourn WWTP	1.0000	1.0000	.3700	37.00
Columbus County	Columbus County POTW*	.1250	.1250	.0150	12.00

*Publicly-owned treatment works.

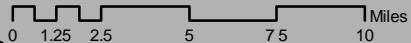
Source: Columbus County Economic Development Commission.

Map 8 also delineates the sewer service area for the Grand Strand Water and Sewer Authority. The Authority was established in the early 1970s and has expanded from South Carolina into areas of Columbus County west of the Waccamaw River.

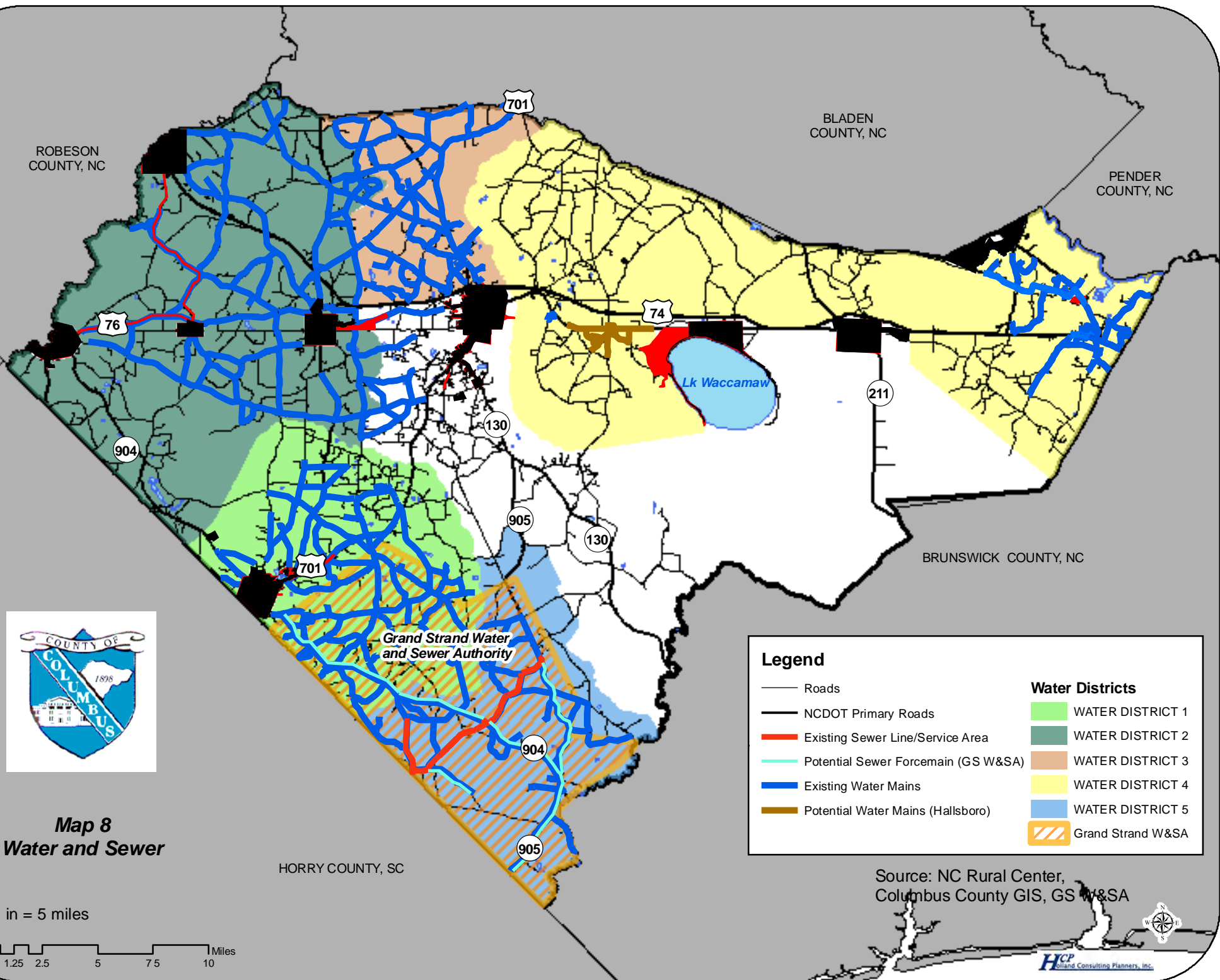


**Map 8
Water and Sewer**

1 in = 5 miles



HORRY COUNTY, SC



Legend

- Roads
- NCDOT Primary Roads
- Existing Sewer Line/Service Area
- Potential Sewer Forcemain (GS W&SA)
- Existing Water Mains
- Potential Water Mains (Hallsboro)

Water Districts

- WATER DISTRICT 1
- WATER DISTRICT 2
- WATER DISTRICT 3
- WATER DISTRICT 4
- WATER DISTRICT 5
- Grand Strand W&SA

Source: NC Rural Center, Columbus County GIS, GS W&SA





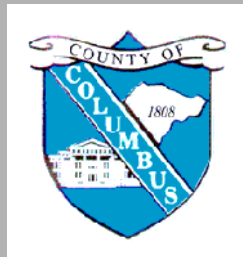
14. Administration

Columbus County is governed by a seven-member Board of Commissioners. The County's day-to-day operation is directed by a full-time County Manager. County services are provided by the following departments: Administration, Airport, Building Inspections, Cooperative Extension, Economic Development, Emergency Services, Fire Marshal, Health, Planning, Public Utilities, Soil and Water Conservation, Solid Waste, and Tax Office.

The primary Columbus County Government offices are located in Whiteville in multiple buildings located near the Columbus County Courthouse. The Columbus County Government Complex, consisting of about 56 acres, was initially developed in the early to mid-1990s with the Solid Waste Convenient site and the Department of Social Services (DSS) being the first inhabitants. In the late 1990s, USDA - Farm Service Agency, USDA - Natural Resources Conservation Service, Columbus Soil and Water Conservation District, and the Cooperative Extension Service moved into their new building. Government Complex Road dead ended just beyond DSS and in the early 2000s, the Farmers' Market was constructed. The Government Complex Road extension was completed in the mid-2000s tying US 701 Business with the Bypass. This connection made the Government Complex more convenient to travelers.

15. Current Land Use Regulations and Planning Program

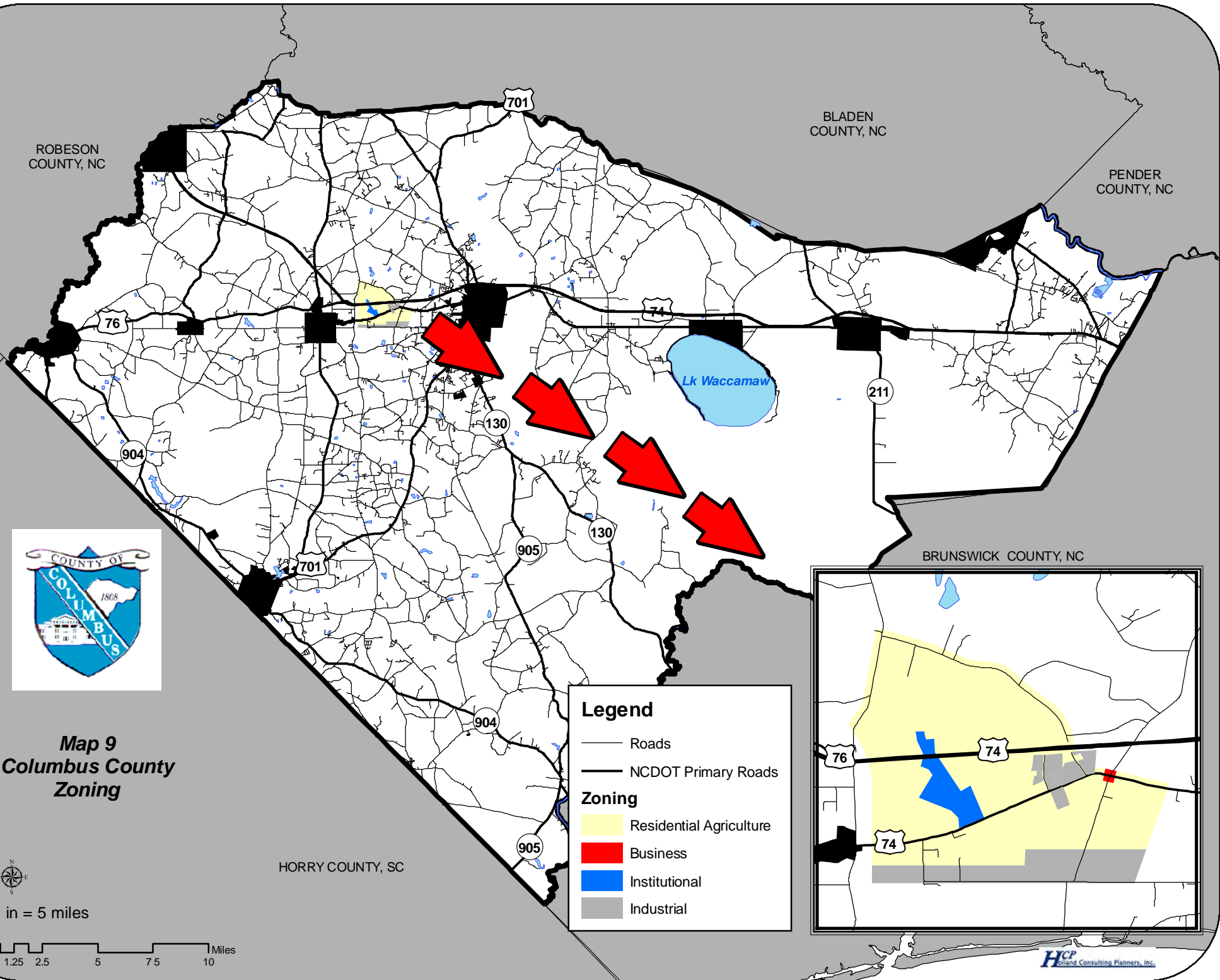
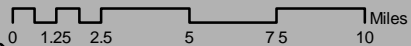
Columbus County has a full-time Planning Director. The County has an active Planning Board and Board of Adjustment which oversee the County's planning/land use management program. The County's land use-related regulatory ordinances include: Subdivision Ordinance, Manufactured/Mobile Home Park Ordinance, Abandoned Structure Ordinance, and the Southeastern Community College Area Zoning Ordinance. Map 9 delineates the area of the County which was zoned.



Map 9 Columbus County Zoning



1 in = 5 miles

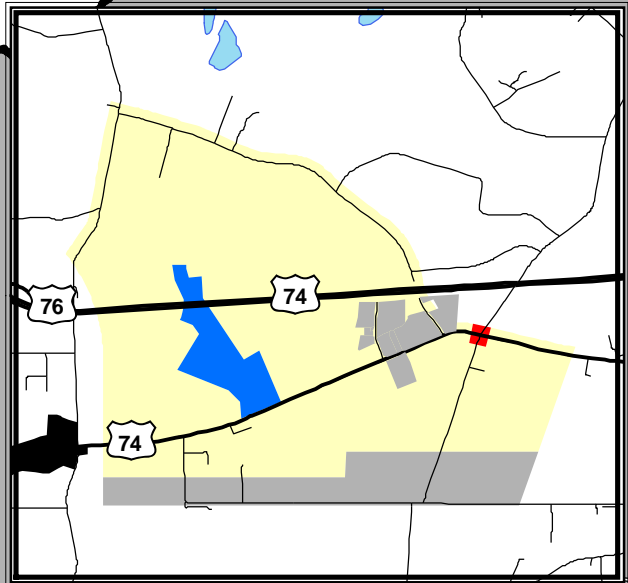


Legend

- Roads
- NCDOT Primary Roads

Zoning

- Residential Agriculture
- Business
- Institutional
- Industrial





B. Environmental Factors

This section addresses environmental conditions which impact land use. These factors may be either a stimulant for or deterrent to the utilization of land, depending upon the proposed land use. The considered environmental factors have been consolidated into a land suitability analysis map which is provided in this section. This map and associated analysis provide a general indication of those areas of the County which may provide limiting conditions for particular land uses, especially intensive land uses. The reader is cautioned that the suitability analysis map (Map 17) is not a build/no build map. Rather, it is an indicator of where more significant development obstacles may be encountered.

1. Climate

In winter, the average temperature is 45° Fahrenheit, and the average daily minimum temperature is 33° Fahrenheit. The lowest temperature on record, which occurred at Whiteville on February 12, 1973, is 5° Fahrenheit. In summer, the average temperature is 77° Fahrenheit, and the average daily maximum temperature is 88° Fahrenheit. The highest recorded temperature, which occurred on June 27, 1954, is 105° Fahrenheit.

Of the total annual precipitation, 29 inches, or 55%, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 23 inches. The heaviest 1-day rainfall during the period of record was 6 inches at Whiteville on August 26, 1958. Thunderstorms occur on about 46 days each year, and most occur in summer.

The average seasonal snowfall is 3 inches. The greatest snow depth at any one time during the period of record was 15 inches. On the average each year, one day has at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

2. Geology/Topography

Columbus County is located in the Southern Coastal Plain and the Atlantic Coast Flatwoods physiographic regions. The Surry Scarp separates these regions. It has a toe elevation of about 94 feet. The Southern Coastal Plain region is west of the scarp, and the Atlantic Coast Flatwoods region is east. The Surry Scarp extends southwest from the Bladen County line near Slap Swamp to an area north of Whiteville, southwest across Beaverdam Swamp to Tabor City, and then southeast to the North Carolina state line. Elevation on the west side of the scarp (Sunderland geomorphic surface) ranges from 95 to 131 feet above sea level and on the east side (Wicomico geomorphic surface) ranges from 45 to 94 feet.



The Southern Coastal Plain region is drained by the Lumber and Waccamaw Rivers. It is characterized by broad, nearly level to gently sloping uplands that are dissected by a network of intermittent perennial streams. The soils near the drainageways are well drained and moderately well drained. Toward the center of the interstream divides, they are dominantly somewhat poorly drained to very poorly drained.

The Atlantic Coast Flatwoods region is drained by the Waccamaw and Cape Fear Rivers and their tributaries. In the Acme-Delco, Armour, and Riegelwood areas, the landscape is nearly level to gently sloping and is dissected by a network of drainageways. The landscape is broad, flat, and undissected in the Friar Swamp, Green Swamp, and Slap Swamp areas and in Bolton. Surface runoff is slow or very slow. The underlying material is slowly permeable, and internal drainage is slow. Organic material accumulates in this region. As a result, organic soils are common in Friar Swamp and Green Swamp.

Shallow, oval depressions, called Carolina Bays, are on broad interstream divides. These bays are oriented northwest to southeast. They range from 1 to 2,000 acres or more. Unless artificially drained, most bays are wet throughout the year.

Marl is near the surface in the Old Dock, Lake Waccamaw, Hallsboro, and Green Swamp areas of the County, generally at a depth of 3 to 15 feet. It outcrops along the banks of Lake Waccamaw and the Cape Fear River.

3. *Water Resources*

Water, both on and beneath the land surface, originates as rainfall. Rain may run off the land surface into streams, infiltrate into the ground recharging the groundwater system, or be lost to respiration. Infiltrating water percolates through the groundwater system and discharges into stream channels. Thus, the sustainability of water is crucial, whether the immediate source of the water is ground or surface water (streams, rivers, or lakes) and whether it is drawn directly by the end user or whether it is drawn and distributed by a public water system, such as a municipality. Land use should be sensitive to the quality, preservation, and replenishment of both surface and groundwater supplies.

a. Groundwater

Based on the 2005 US Geological Survey water use tables, approximately 97.8% of the County's 2005 population of 54,746 relied on groundwater for its daily water supply. This supply was divided with 31,100 people relying on private wells and 22,456 relying on public wells.

The following groundwater factors should be considered in Columbus County:

- Droughts significantly alter the hydrologic system (including groundwater) in the County.



- Population growth (potential excess demand) and land use (increased runoff with corresponding reduction in subsurface recharge) also affect the amount of groundwater available on a long-term, sustainable basis.
- If groundwater supplies become depleted (due to drought, excess runoff, or excess demand), springs and wells can become dry, baseflow in streams may decrease significantly, and the effects of well interference may become more pronounced.
- Land use significantly affects runoff (and thus the amount of groundwater recharge).

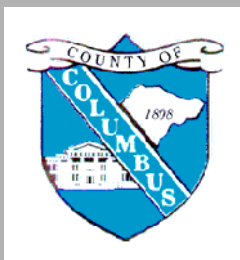
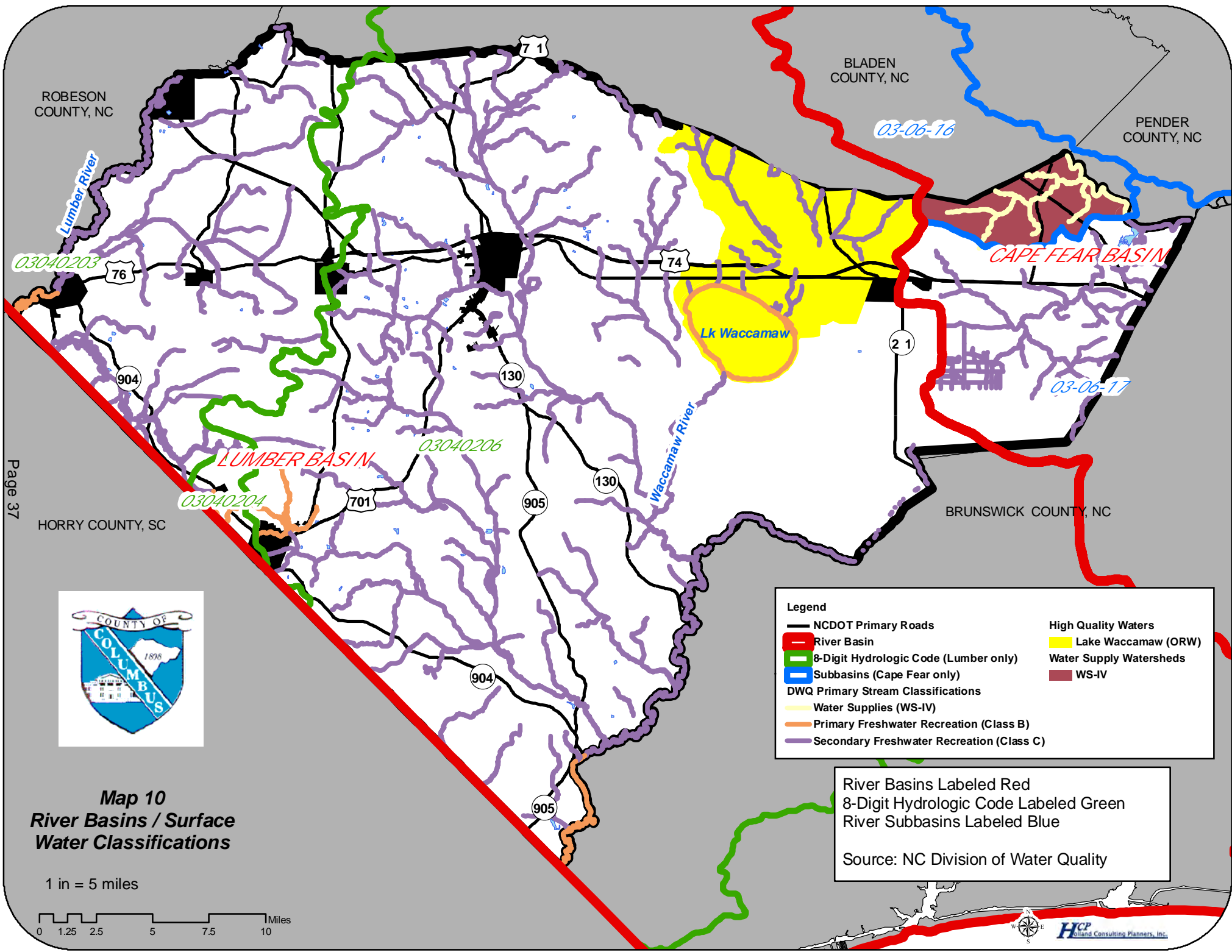
A sustainable water supply is greatly affected by land use. The NC Department of Environment and Natural Resources (NCDENR) reported that the relative groundwater recharge rate of an undisturbed forest is 62 times greater than a highly disturbed and compacted lawn. The recharge rate for slightly disturbed woodlands is 22 times greater and former farmland 9.5 times greater than a lawn.

b. Surface Water

Most of Columbus County is located in the Lumber River Basin. The area of the County generally east of Bolton is located in the Cape Fear River Basin. Map 10 delineates the river basin areas within the County. The following excerpts from the Lumber River Basinwide Water Quality Plan, 2010 and the Cape Fear River Basinwide Water Quality Plan, 2005, provide descriptions of the river basins and applicable subbasins.

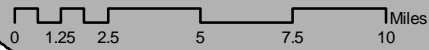
Lumber River Basin

"The Lumber River Basin is made up of three main ecoregions: the sandhills, loam plains, and Carolina flatwoods. The sandhills region is typically characterized by upland pine forest and wiregrass. Soils in the sandhills are well drained and provide a reliable source of groundwater recharge to the streams that run through the area. This is not the case in the loam plains and Carolina flatwoods regions where flow is often slow and ephemeral. All the rivers in this basin flow into South Carolina except for the Shallotte River and Lockwoods Folly River, which drain to the Atlantic Ocean. The Lumber River flows into the Little Pee Dee River about 10 miles after it crosses the state line. The Little Pee Dee River continues for several miles after this confluence eventually draining to the Pee Dee River. The Waccamaw River links to the Pee Dee River by forming a braided river system shortly before the two rivers discharge to Winyah Bay near Georgetown, SC.



Map 10
River Basins / Surface
Water Classifications

1 in = 5 miles



Legend

- NCDOT Primary Roads
- River Basin
- 8-Digit Hydrologic Code (Lumber only)
- Subbasins (Cape Fear only)
- Water Supplies (WS-IV)
- Primary Freshwater Recreation (Class B)
- Secondary Freshwater Recreation (Class C)
- Lake Waccamaw (ORW)
- Water Supply Watersheds
- WS-IV

River Basins Labeled Red
 8-Digit Hydrologic Code Labeled Green
 River Subbasins Labeled Blue

Source: NC Division of Water Quality



The basin covers an area of approximately 3,329 square miles. It has approximately 2,222 miles of freshwater streams, 9,865 acres of freshwater lakes, and 4,680 acres of estuarine or saline waterbodies. In addition, there are 26 miles of coastline along the basin. Over 80% of all assessment units in the basin are supplementally classified as swamp waters and have different assessment standards than other waters.

The estimated population for the basin is just over 315,000 people based on the 2000 US Census. The majority of the population growth is occurring in Brunswick, Hoke, and Moore counties. These areas are experiencing rapid growth while the rest of the basin is undergoing small, neutral, or even negative growth. Land use seems to mirror population, thus as areas become more populated there is a greater percentage of impervious surfaces. An increase in impervious surfaces leads to an increase in runoff which correlates to an increase in pollution and habitat degradation."

Lumber River Subbasin 03040203

"The Lumber River subbasin encompasses about 1,631 square miles within North Carolina. The Lumber River headwaters are located in the sandhills of Hoke, Montgomery, Moore, Richmond, and Scotland counties. The Robeson and Columbus County portions of the basin lie within the Inner Coastal Plain. All 115 miles of the Lumber River have been designated as a North Carolina Natural and Scenic River. In addition, 81 miles of the Lumber River are designated as a Federal Wild and Scenic River. These designations allow restrictions to be placed on dam construction and other water resource projects. The Lumber River State Park, created in 1989, currently protects 8,438 acres along the Lumber River, as well as providing recreational opportunities. The Lumber River discharges to the Little Pee Dee River in South Carolina.

Population for this subbasin is estimated to be around 160,368 people, or 98 people per square mile, based on the 2000 Census. Lumberton, Pinehurst, and Southern Pines are currently the only municipalities with populations greater than 5,000. The municipalities of Aberdeen, Foxfire Village, Pinebluff, Pinehurst, and Southern Pines are the fastest growing areas and are all located in southern Moore County. Agriculture dominates much of the land use at just over 30%; however, the headwaters have remained heavily forested. Close to a quarter of this subbasin is comprised of wooded wetlands found mainly in the floodplains of the braided river systems."

Waccamaw River Subbasin 03040206

"This subbasin contains some of the most unique environments in the state. Lake Waccamaw, the largest Carolina bay lake and the second largest



natural lake in the state, can be found here. The lake contains three species of endemic fish and four species of endemic mollusk as well as many other rare species. The eastern and southern shore of the lake have been protected by the Lake Waccamaw State Park since 1976. Lake Waccamaw has been designated as an Outstanding Resource Water (ORW) and all waters draining to it are part of the ORW management strategy area [15 NCAC 02B.0225(c)(10)]. A portion of the Green Swamp, a large natural pine wetlands preserve with many carnivorous plants, is partially located in this subbasin.

All of the waters in the subbasin are supplementally classified as Swamp Waters. Swamp waters have lower pH and dissolved oxygen standards than other waterbodies. In addition to the chemical/physical differences, swamp waters are also evaluated for biological communities using modified criteria.”

Cape Fear River Basin

“The Cape Fear River Basin drains the middle portion of North Carolina and includes portions of 26 counties and 115 municipalities. It is also one of four river basins completely within North Carolina. DWQ subdivides all river basins into subbasins. The Cape Fear River basin contains 24 subbasins. The basin is composed of five major drainages: Haw River, Deep River, Northeast Cape Fear River, Black River, and the Cape Fear River.

The Cape Fear River basin is one of the fastest developing basins in the state; the effects of development are impacting water quality. Population in the Cape Fear River basin has grown from just under 1.5 million to over 1.8 million people from 1990 to 2000. The overall population of the basin based on 2000 Census data is 1,834,545, with approximately 197 persons/square mile. This growth is expected to continue especially around existing urban areas. The 26 counties with some land area in the Cape Fear River basin are expected to increase population from just under 3 million to over 5 million people (28.9%) over the next 20 years. Associated with this growth will be increasing strain on water resources for drinking water, wastewater assimilation and runoff impacts. There will also be loss of natural areas and increases in impervious surfaces associated with construction of new homes and businesses.”

Cape Fear River Subbasin 03-06-16

“Subbasin 03-06-16 includes the Cape Fear River and many streams that drain coastal plain wetlands and bay lakes. Most of the watershed is forested with some agriculture present. Development is occurring in the Cumberland County portion of the subbasin. Population is expected to grow by 100,000 people in counties with portions or all of their areas in this subbasin by 2020.



Use support ratings were assigned for waters in subbasin 03-06-16 in the aquatic life, recreation, fish consumption, and water supply categories. All waters are Impaired on an evaluated basis in the fish consumption category because of fish consumption advice that applies to the entire basin. In the water supply category, all WS classified waters (82.7 miles) are Supporting on an evaluated basis based on reports from DEH regional water treatment plant consultants."

Cape Fear River Subbasin 03-06-17

"Subbasin 03-06-17 is in the coastal plain with slow-moving tannin stained tributary streams and the large Cape Fear River estuary and tidal creeks. Most of the watershed is forested with urban areas growing on the west side of the Cape Fear River in Brunswick County. Population is expected to grow by 140,000 people in counties with portions or all of their areas in this subbasin by 2020.

Use support ratings were assigned for waters in subbasin 03-06-17 in the aquatic life, recreation, fish consumption, and water supply categories. All waters are Impaired on an evaluated basis in the fish consumption category because of fish consumption advice that applies to the entire basin. In the water supply category, all WS classified waters (1.6 miles) are Supporting on an evaluated basis based on reports from DEH regional water treatment plant consultants."

c. Water Classifications

All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). All waters must at least meet the standards for Class C (fishable/swimmable) waters. The other primary classifications provide additional levels of protection for primary water contact recreation (Class B) and drinking water (Water Supply Classes I through V). Map 10 delineates the Columbus County surface water classifications which were applicable in March, 2009. The following describes the water classifications:

Class B. Waters protected for all Class C uses in addition to primary recreation. Primary recreational activities include swimming, skin diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis. There are ten waterbodies in Columbus County classified as Class B: Black Creek, Boggy Hill Branch, Calf Ford Creek, Grissett Swamp (Lake Tabor), Heron Lakes, Huggins Creek, Lumber River (portion), Lake Waccamaw, Simmons Branch, and Waccamaw River (portion).



Class C. Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. Except for high quality waters (HQW), watershed areas, and the ten Class B waterbodies listed above, all surface waters in Columbus County are classified C.

Water Supply IV (WS-IV). Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II, or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas.

Outstanding Resource Waters (ORW). Outstanding resource waters are a subset of High Quality Waters. This supplemental classification is intended to protect unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance. To qualify, waters must be rated Excellent by DWQ and have one of the following outstanding resource values:

- Outstanding fish habitat and fisheries,
- Unusually high level of waterbased recreation or potential for such kind of recreation,
- Some special designation such as North Carolina Natural and Scenic River or National Wildlife Refuge,
- Important component of state or national park or forest, or
- Special ecological or scientific significance (rare or endangered species habitat, research or educational areas).

d. Scenic Rivers

Columbus County contains two rivers which are internationally recognized for their natural beauty and environmental significance. These are the Lumber River, located along the County's western border and the Waccamaw River, which flows south from Lake Waccamaw to the North Carolina state line. Both rivers are black water rivers which traverse largely undeveloped areas.

The Lumber River is designated as a North Carolina Scenic River and is considered one of North Carolina's top natural wonders. Riverwalks have been established in Lumberton and Fair Bluff. The Columbus County section of the river flows through the Lumber River State Park.



The upper Waccamaw River swamp contains some of the most extensive cypress gum swamp within the state. The river and its associated floodplain/swamp also contain the greatest concentration of native animals in the state. Access to the river is available at NC 130 and NC 904 (NC Wildlife Boat Ramp). This section of the river includes 16.6 miles.

4. *Flood Hazard Areas*

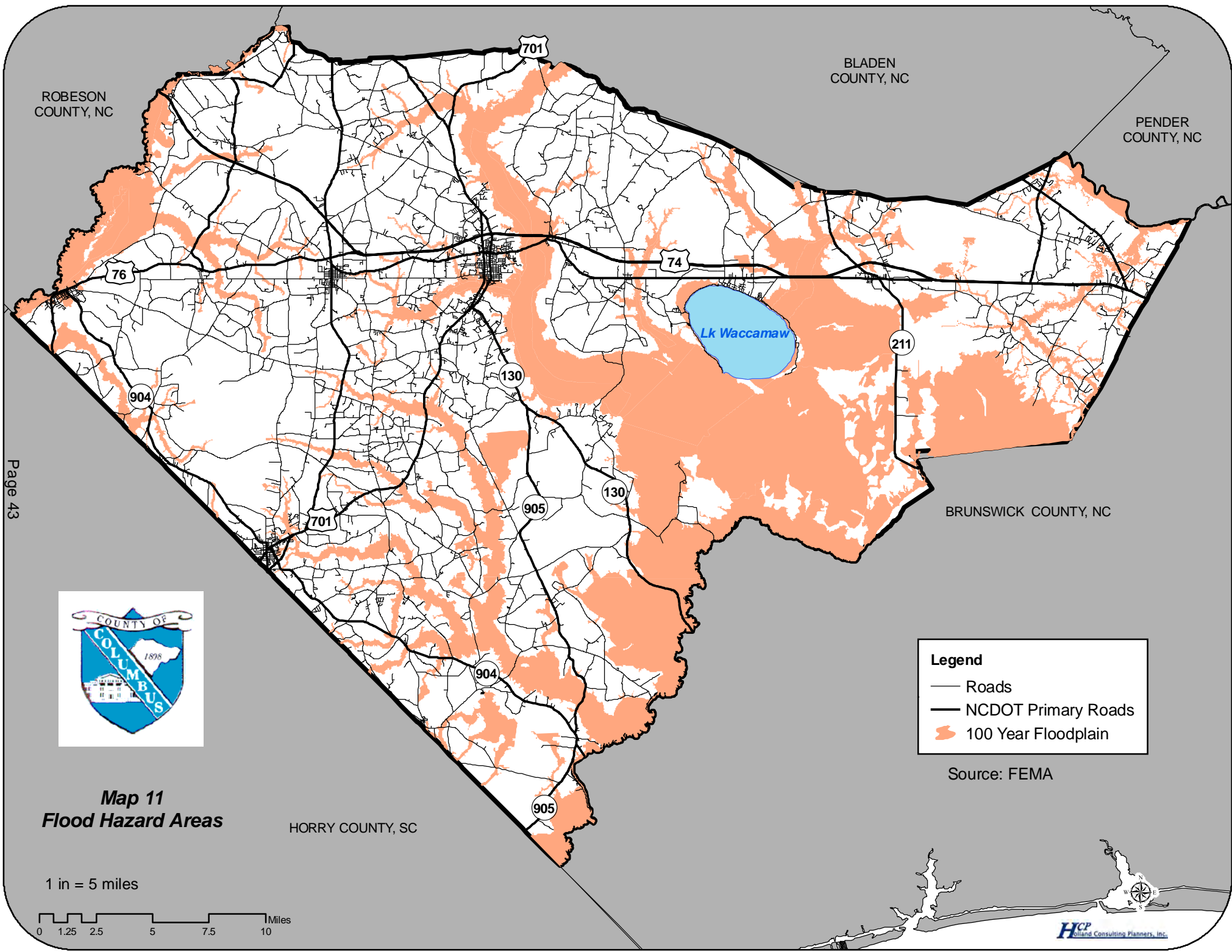
Based on the Flood Insurance Rate Maps (FIRMs) for Columbus County, approximately 192,897 acres, or 31.6%, of the County is located in the 100-year floodplain. The County's FIRMs were approved in 2006/2007. The State of North Carolina, as part of the state's flood mapping program, completed updated Flood Insurance Rate Maps for the Lumber and Cape Fear River Basins. The locations of flood zone areas within the County are delineated on Map 11. The County Floodplain Ordinance requires two (2) feet of freeboard above flood elevation.

5. *Soils*

Map 12 provides the general soils map for Columbus County. This map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils or miscellaneous areas. Each map unit is named for the major soils. The components of one map unit can occur in another but in a different pattern.

The general soils map can be used to compare the suitability of large areas of general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified. Because of its small scale, the map is not suitable for planning the management of a farm or field, or for selecting a site for a road, a building, or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management. The following describes the characteristics of each general soil association:

- *Norfolk-Lynchburg-Goldsboro.* Nearly level to gently sloping, well drained to somewhat poorly drained soils that have a sandy or loamy surface layer and a loamy subsoil; on uplands.
- *Rains-Lynchburg-Goldsboro.* Nearly level, moderately well drained to poorly drained soils that have a loamy surface layer and a loamy subsoil; on uplands.
- *Foreston-Torhunta-Autryville.* Nearly level, moderately well drained, very poorly drained, and well drained soils that have a sandy or loamy surface layer and a loamy and sandy subsoil; on uplands.



ROBESON
COUNTY, NC

BLADEN
COUNTY, NC

PENDER
COUNTY, NC

Lk Waccamaw

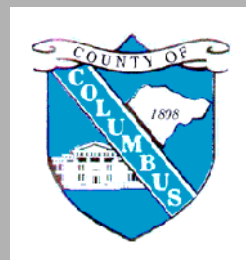
BRUNSWICK COUNTY, NC

HORRY COUNTY, SC

Legend

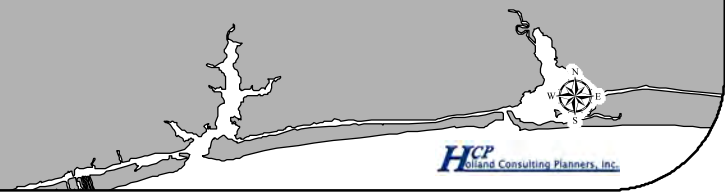
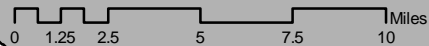
- Roads
- NCDOT Primary Roads
- 100 Year Floodplain

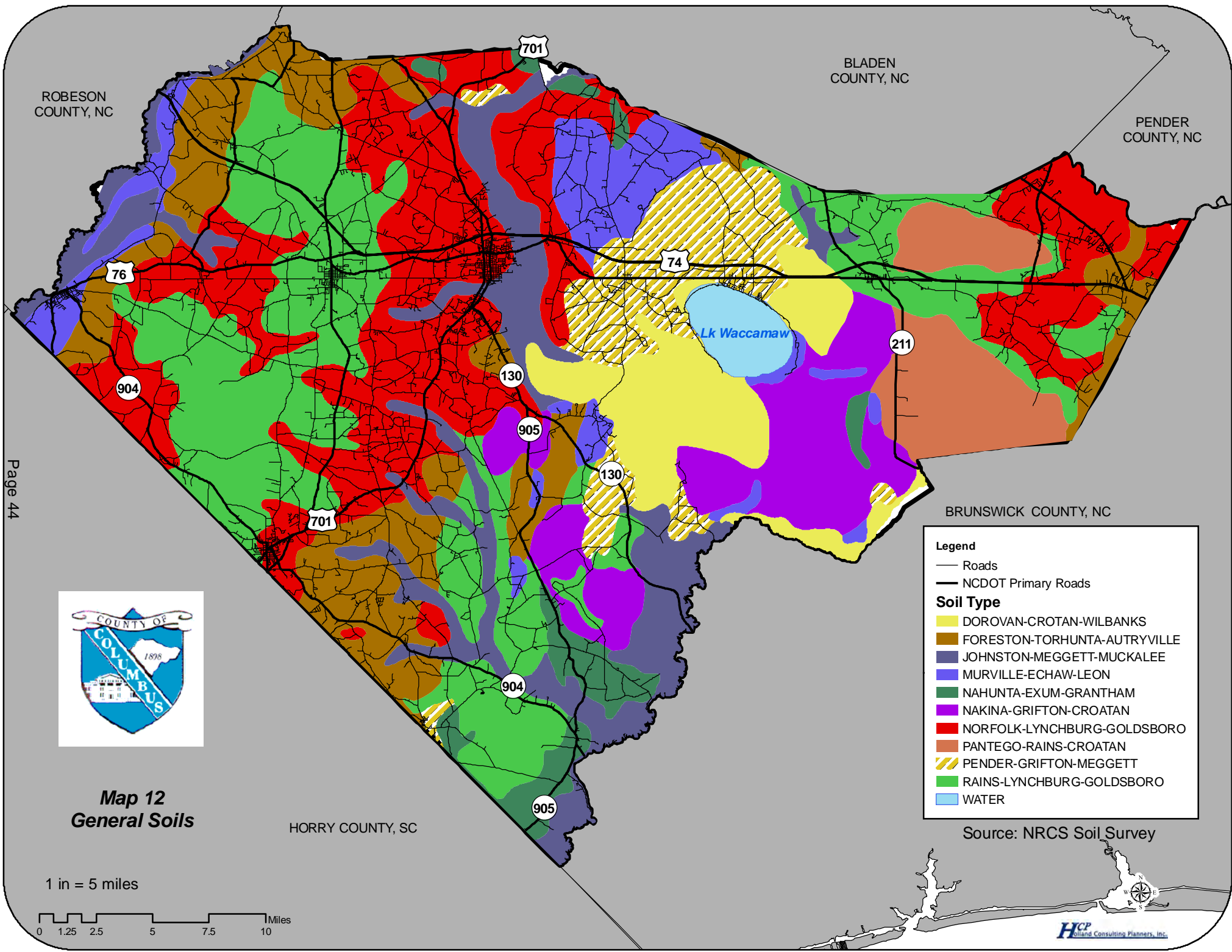
Source: FEMA



Map 11
Flood Hazard Areas

1 in = 5 miles





ROBESON COUNTY, NC

BLADEN COUNTY, NC

PENDER COUNTY, NC

BRUNSWICK COUNTY, NC

HORRY COUNTY, SC

Lk Waccamaw

Legend

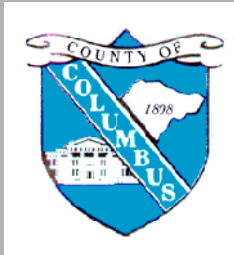
- Roads
- NCDOT Primary Roads

Soil Type

- DOROVAN-CROTAN-WILBANKS
- FORESTON-TORHUNTA-AUTRYVILLE
- JOHNSTON-MEGGETT-MUCKALEE
- MURVILLE-ECHAW-LEON
- NAHUNTA-EXUM-GRANTHAM
- NAKINA-GRIFTON-CROATAN
- NORFOLK-LYNCHBURG-GOLDSBORO
- PANTEGO-RAINS-CROATAN
- PENDER-GRIFTON-MEGGETT
- RAINS-LYNCHBURG-GOLDSBORO
- WATER

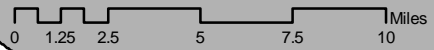
Source: NRCS Soil Survey

Page 44



**Map 12
General Soils**

1 in = 5 miles





- *Pantego-Rains-Croatan.* Nearly level, poorly drained and very poorly drained soils that have a loamy surface layer and a loamy subsoil or have a mucky surface layer and loamy underlying material; on uplands.
- *Nakina-Grifton-Croatan.* Nearly level, very poorly drained and poorly drained soils that have a loamy surface layer and a loamy subsoil underlain by marly material or have a mucky surface layer and loamy underlying material; on uplands.
- *Johnston-Meggett-Muckalee.* Nearly level, very poorly drained and poorly drained soils that have a loamy surface layer and a loamy and sandy underlying material or have a loamy surface layer and a loamy and clayey subsoil; on floodplains and low terraces.
- *Dorovan-Croatan-Wilbanks.* Nearly level, very poorly drained soils that have a thick murky surface layer and loamy underlying material or have a loamy surface layer and mucky and clayey underlying material; on floodplains.
- *Pender-Grifton-Meggett.* Nearly level, moderately well drained to poorly drained soils that have a loamy surface layer and a loamy or loamy and clayey subsoil underlain by marly material; on uplands, terraces, and floodplains.
- *Murville-Echaw-Leon.* Nearly level to gently sloping, very poorly drained, moderately well drained, and poorly drained soils that have a sandy surface layer and a sandy subsoil; on uplands and terraces.
- *Nahunta-Exum-Grantham.* Nearly level, moderately well drained to poorly drained soils that have a loamy surface layer and a loamy subsoil; on uplands.

Detailed Columbus County soils maps may be found in the Soil Survey of Columbus County, North Carolina, 1990.

a. Prime Farmlands

The preservation of prime farmland is important to Columbus County's agricultural interest and the County's economy. 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. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of the nation's prime farmland.



Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are factors needed for the soil to economically produce sustained high yields of crops when proper management techniques, including water management and acceptable farming methods, are applied.

Generally, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable levels of acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during the growing season or is protected from flooding.

Columbus County's prime farmland areas are delineated on Map 13. There are approximately 218,084 acres of prime farmland, 35.7% of the County. The specific soil types for prime farmland area provided in the Soil Survey of Columbus County, North Carolina.

b. Wetlands

Wetlands is a generic term for all the different kinds of wet habitats where the land is wet for some period of time each year but not necessarily permanently wet. Many wetlands occur in areas where surface water collects or where underground water discharges to the surface, making the area wet for extended periods of time. The Federal Clean Water Act defines wetlands as "areas that are inundated or saturated by surface or groundwater 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, bogs, and similar areas."

Wetlands have both upland and aquatic characteristics, and thus they often have richer flora and fauna than other environments. In practice, wetlands are hard to define, precisely because they are transition zones. It is important to recognize that an area does not have to be wet all year long to be considered a wetland – as few as two or three consecutive weeks of wetness a year is all it takes for this determination to be made.

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and



conversion of wetlands to uplands for farming and forestry. The basic premise of the program is that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. Map 14 delineates the general location of wetlands in Columbus County.

c. **Hydric Soils**

Hydric soils, as defined by the U.S. Department of Agriculture, are soils that are wet frequently enough to periodically produce anaerobic conditions, thereby influencing the species composition or growth, or both, of plants on those soils. Hydric soils may or may not be subject to 404 wetlands regulations. Map 13 delineates hydric soils in Columbus County. There are approximately 332,693 acres of hydric soils in Columbus County, 54.5% of the County's total area.

6. *Farmland Preservation Areas*

Farmland preservation areas are delineated on Map 13. These lands include either voluntary agricultural districts or enhanced voluntary agricultural districts. The following summarizes the requirements for inclusion in a farm preservation area:

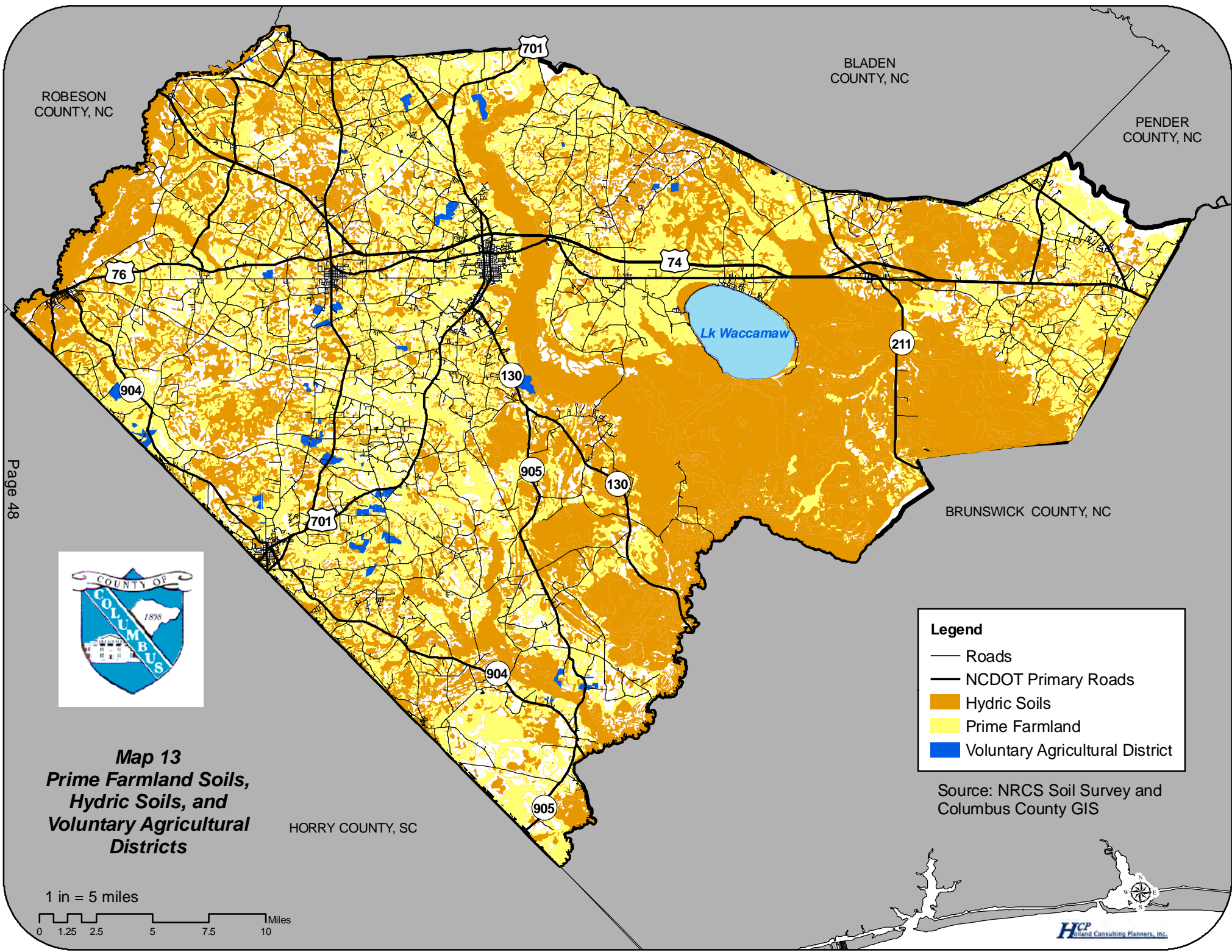
Voluntary Agricultural Districts (VAD):

- Farm participating in the farm present-use-value taxation program or is otherwise determined by the County to meet all the qualifications of this program.
- Farm managed in accordance with the Soil Conservation Service defined erosion control practices that are addressed to highly erodible land.
- Farm is the subject of a conservation agreement between the County and the owner of such land that prohibits nonfarm use or development of such land for a period of at least 10 years, except for the creation of not more than three lots that meet applicable County zoning and subdivision regulations. By written notice to the County, the landowner may revoke this conservation agreement (if a VAD). Such revocation shall result in the loss of qualifying farm status.
- Other eligibility requirements required by the individual County.

Enhanced VADs:

- Includes all terms of a VAD agreement plus:
- Conservation agreement between the county and the landowner prohibits nonfarm use or development of such land for an irrevocable period of 10 years.
- Automatic renewal of conservation agreement for 3 years without a written notice to the county revoking the conservation agreement as required by the ordinance.

Columbus County includes 3,926.23 acres of voluntary agricultural districts.



ROBESON COUNTY, NC

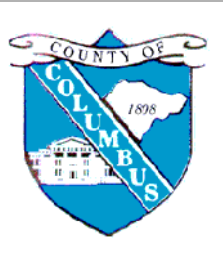
BLADEN COUNTY, NC

PENDER COUNTY, NC

BRUNSWICK COUNTY, NC

HORRY COUNTY, SC

Lk Waccamaw



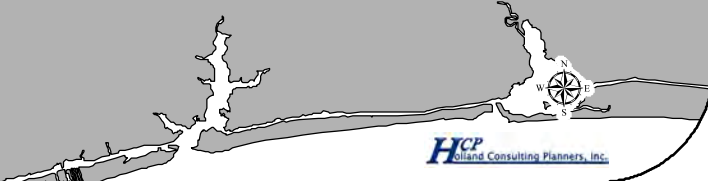
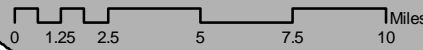
Map 13
Prime Farmland Soils,
Hydric Soils, and
Voluntary Agricultural
Districts

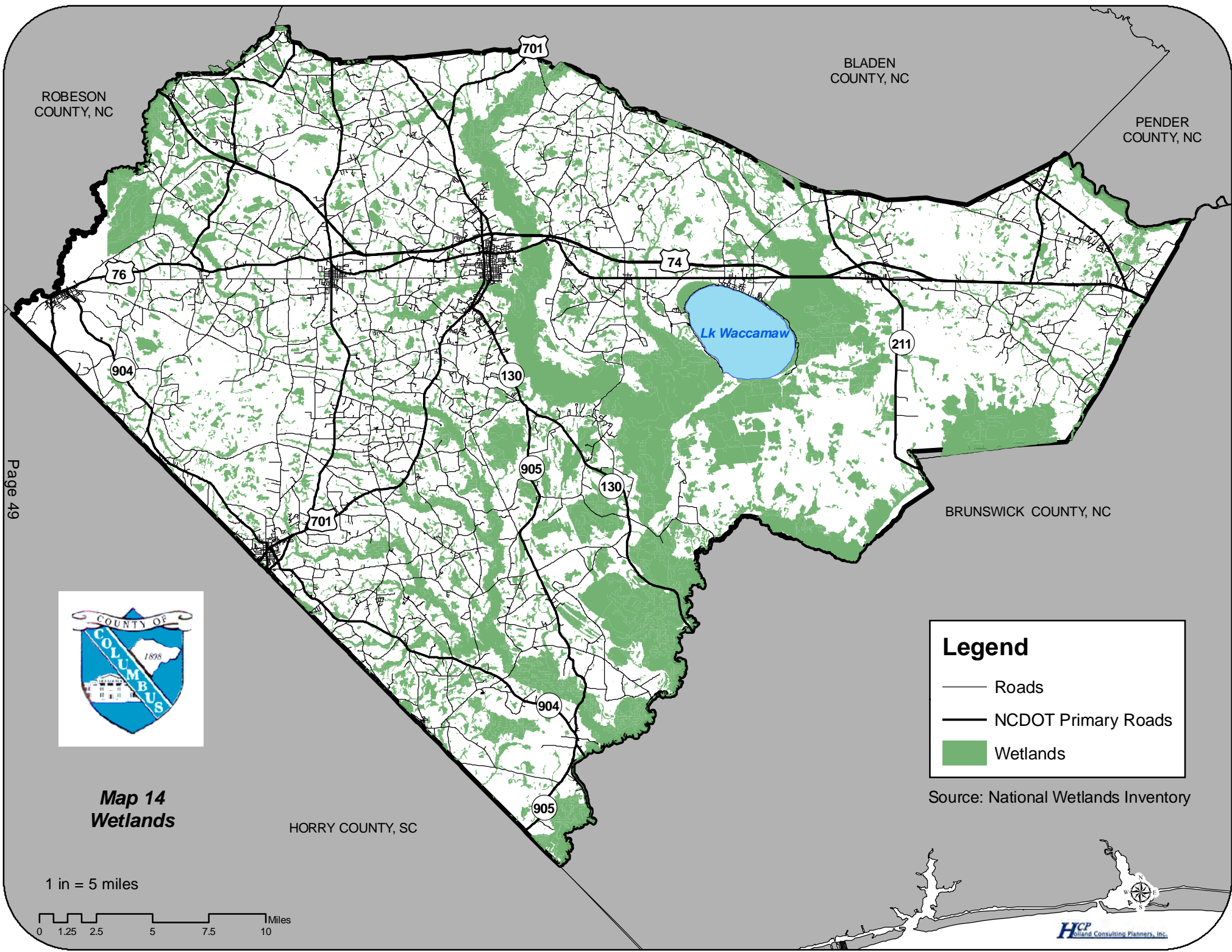
Legend

- Roads
- NCDOT Primary Roads
- Hydric Soils
- Prime Farmland
- Voluntary Agricultural District

Source: NRCS Soil Survey and Columbus County GIS

1 in = 5 miles





ROBESON
COUNTY, NC

BLADEN
COUNTY, NC

PENDER
COUNTY, NC

BRUNSWICK COUNTY, NC

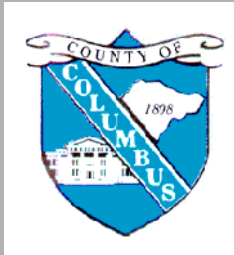
HORRY COUNTY, SC

Lk Waccamaw

Legend

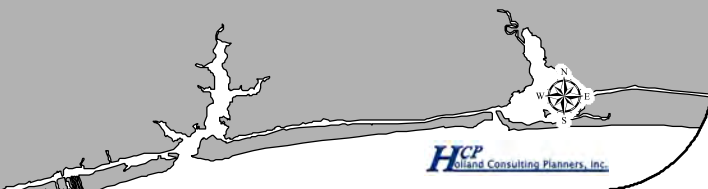
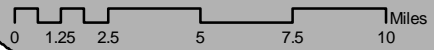
- Roads
- NCDOT Primary Roads
- Wetlands

Source: National Wetlands Inventory



**Map 14
Wetlands**

1 in = 5 miles





7. *Natural Heritage Areas*

The North Carolina Natural Heritage Program maintains the state’s list of significant “Natural Heritage Areas” as required by the Nature Preserves Act (NCGS Chapter 113A-164 of Article 9A). The list is based on the program’s inventory of the natural diversity in the state. Natural areas (sites) are evaluated on the basis of the occurrences of rare plant and animal species, rare or high quality natural communities, and geologic features. The global and statewide rarity of these elements and the quality of their occurrence at a site relative to other occurrences determine a site’s significance rating.

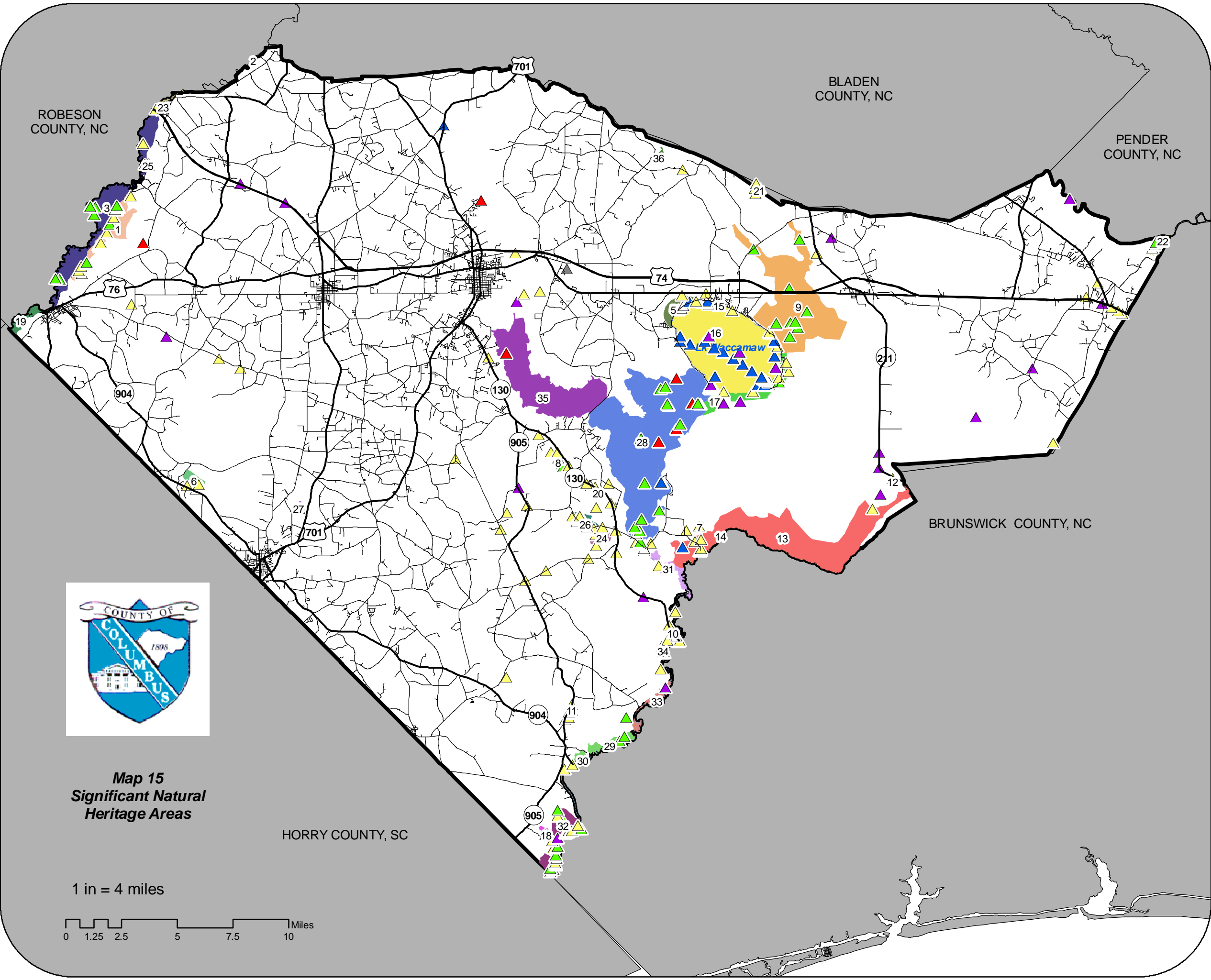
The North Carolina Natural Heritage Program identifies 2,344 significant natural heritage areas within North Carolina, of which 36 are located in Columbus County. The approximate locations of these sites, which include 53,449.12 acres, are provided on Map 15. The sites included on this list are the best known representatives of the natural diversity of the County and therefore should have priority for protection. Inclusion on this list does not mean that public access exists or is appropriate. Permission of the landowner is recommended in all cases. Inclusion on this list does not confer protection to a site, nor does it give regulatory status. The list includes both protected and unprotected areas. This list of sites and their significance ratings are based on the best available information as derived from the Natural Heritage program staff and databases. More information on these natural areas may be obtained from the Natural Heritage Program.

Map 15 also delineates natural heritage element occurrences. These provide the locations of the observation of natural heritage elements which are prerequisite to the designation of an area as a natural heritage area.

8. *Conservation Properties*

There are 18,122.53 acres of land in Columbus County that are held in conservation properties. These properties are delineated on Map 16. The areas are controlled by one of the following management agencies:

Management Agency	Acres
NC Division of Parks and Recreation	3,598.99
The Nature Conservancy	51.83
US Fish and Wildlife Service	66.79
NC Wildlife Resources Commission (Bear Sanctuary)	14,404.92
Total	18,122.53



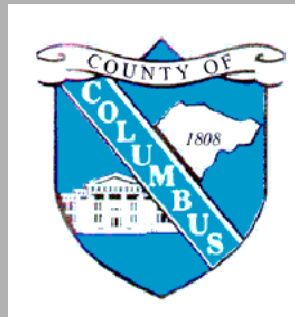
Legend

Natural Heritage Element

- ▲ Animal Assemblage
- ▲ Invertebrate Animal
- ▲ Natural Community
- ▲ Nonvascular Plant
- ▲ Vascular Plant
- ▲ Vertebrate Animal

Site Name

- 1. Big Sandy Ridge
- 2. Big Swamp/Old Whiteville Road
- 3. Bluff Swamp/Princess Ann Swamp
- 4. Bryant Mill (Greenbank) Bluff
- 5. Cove Swamp
- 6. Cross Bay Savanna
- 7. Crusoe Island Savanna
- 8. Cypress Creek Bay
- 9. Friar Swamp
- 10. Highway 130/Waccamaw River Rare Plant Site
- 11. Highway 905/Seven Creeks Rare Species Site
- 12. Hoy Savanna Remnant
- 13. Juniper Creek Floodplain
- 14. Juniper Creek/Driving Creek Aquatic Habitat
- 15. Lake Waccamaw Aquatic Habitat
- 16. Lake Waccamaw Aquatic Habitat
- 17. Lake Waccamaw/Council Ridge
- 18. Lay's Lake
- 19. Lumber River Swamp/Devils Elbow
- 20. Mark Pine Bay Cooleys Meadowrue Site
- 21. Meares Millpond
- 22. Neils Eddy Landing
- 23. Net Hole/Buck Landing Swamp
- 24. Old Dock Savanna
- 25. Parkers Landing Sand Ridge
- 26. Schulkens Savanna
- 27. Tabor City Longleaf Stand
- 28. Upper Waccamaw River Swamp
- 29. Waccamaw Island Savanna and Bottomlands
- 30. Waccamaw River Aquatic Habitat
- 31. Waccamaw River Cross Swamp Bottomlands
- 32. Waccamaw River Oxbow Site
- 33. Waccamaw River Reeves and Gore Lake Bottomlands
- 34. Wards Lake
- 35. White Marsh Swamp
- 36. Winnie Moore Bay Flatwoods



Map 15
Significant Natural
Heritage Areas

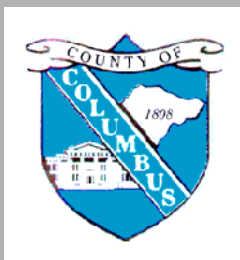
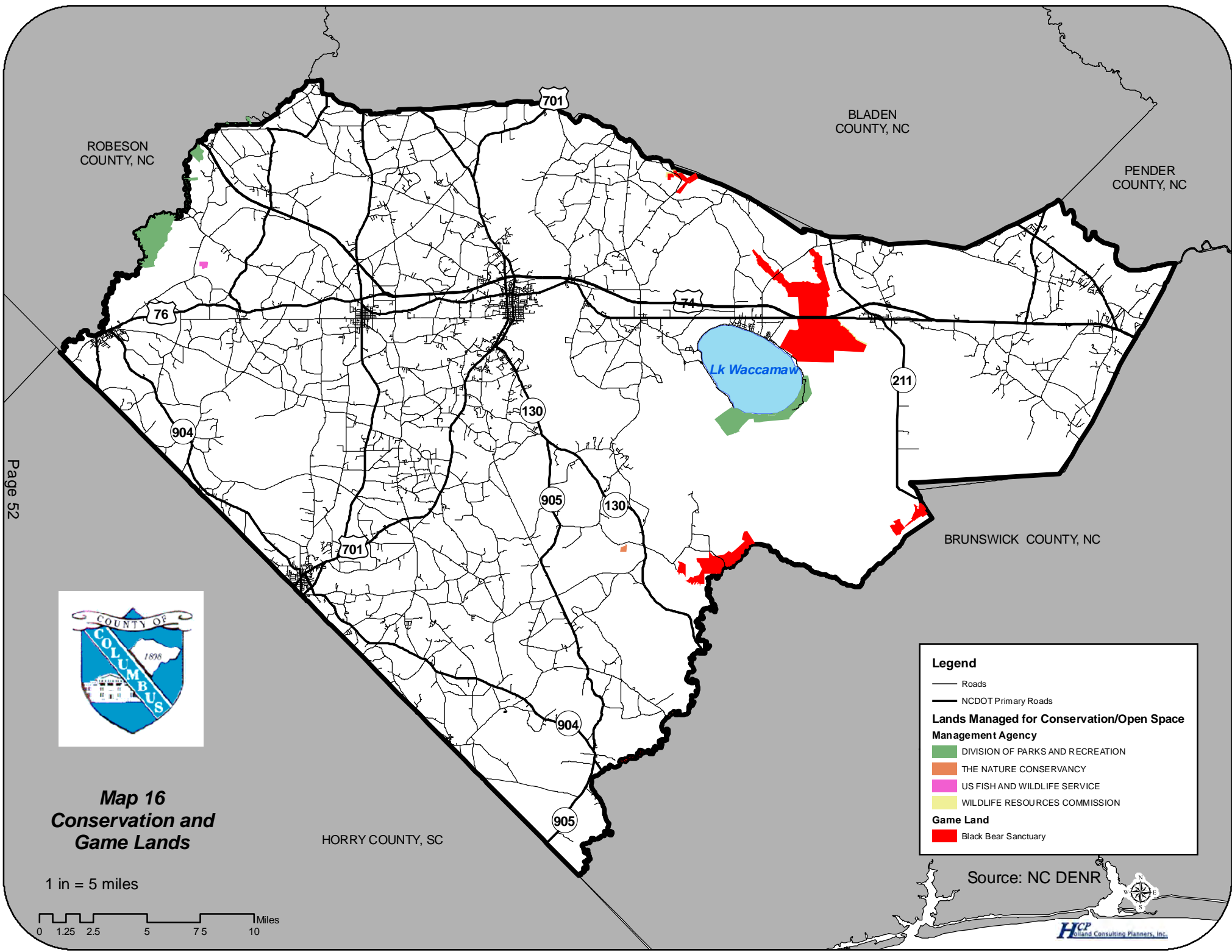
HORRY COUNTY, SC

1 in = 4 miles



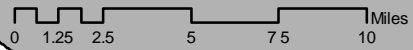
Source: NC DENR





Map 16
Conservation and
Game Lands

1 in = 5 miles



Legend

- Roads
- NCDOT Primary Roads

Lands Managed for Conservation/Open Space Management Agency

- DIVISION OF PARKS AND RECREATION
- THE NATURE CONSERVANCY
- US FISH AND WILDLIFE SERVICE
- WILDLIFE RESOURCES COMMISSION

Game Land

- Black Bear Sanctuary

Source: NC DENR





9. *Historic Properties*

The following three Columbus County sites are listed on the National Register of Historic Places: Columbus County Courthouse (Whiteville), Lake Waccamaw Depot (Lake Waccamaw), and Powell House (Fair Bluff). However, there are numerous properties which have local historic significance.

C. Land Suitability Analysis

1. *Analysis Description*

The Land Suitability Analysis (LSA) is a Geographic Information Systems (GIS) based tool for evaluating the relative suitability of land for development in Columbus County, North Carolina. The end product is a generalized map showing areas of the County that are categorized as having either least, low, moderate, or high suitability for development. The analysis does not provide site-specific results, nor does it make recommendations about how individual landowners may or may not use their land.

Suitability, for the purpose of this analysis, can be primarily defined in terms of physical limitations and/or regulatory restrictions. Physical limitations such as poorly drained soils make land less suitable for development. Features subject to regulatory restrictions, such as water supply watersheds, also pose challenges to development.

2. *Objectives and Limitations*

The results of the LSA will be used to support planning efforts throughout the unincorporated areas of Columbus County. Objectives of the LSA and appropriate uses of the final analysis include the following:

- Identify areas that are more or less suitable for development on a coarse scale;
- Inventory existing spatial information available for Columbus County;
- Identify data gaps that may be filled during later planning stages;
- Develop a tool that will assist the County in the implementation of new policies;
- Provide a base for GIS analysis to be used in other long range planning projects.

Limitations of the LSA include the following:

- The LSA results are not a zoning map, but will be used to support planning processes in Columbus County;
- Results and analyses do not support site-specific planning;
- The LSA does not make recommendations about how an individual landowner may or may not use their land;



- The LSA does not result in recommendations about where particular land uses (i.e., commercial vs. residential) should be concentrated;
- Results do not factor in projected population, carrying capacity, or commercial/housing demand.

3. Data Preparation

Spatial data sets were gathered from Columbus County, local, state, and federal agencies, and private organizations. Data from the following sources were used in the analysis:

- Columbus County GIS
- Columbus County Tax Records
- North Carolina Center for Geographic Information and Analysis (NCGIA)
- North Carolina Natural Heritage Program (NCNHP)
- North Carolina Clean Water Management Trust Fund (NCCWMTF)
- North Carolina Department of Environment and Natural Resources (NCDENR)
 - Division of Water Quality (DWQ)
 - Wildlife Resources Commission (WRC)
 - Division of Parks and Recreation (DPR)
- U.S. Department of Agriculture (USDA)
 - Natural Resources Conservation Service (NRCS)
- U.S. Fish and Wildlife Service (USFWS)
 - National Wetlands Inventory (NWI)

The spatial data sets were prepared for each suitability class using the following techniques:

- Each data set was **clipped** to only include data within Columbus County's geographic boundary. For example, some of the data sets included information for the entire State of North Carolina. The Columbus County boundary was used to remove any data outside the County.
- Some data sets were **queried** to select subsets of the data. Some data sets included information not relevant to the criteria developed for each suitability class. For example, distribution of data within watershed areas was queried and divided among the proper suitability classes.
- Some non-spatial data sets were **joined** to spatial data as a way to add information to spatial data. For example, tabular data for hydric soils and important farmland soil classifications were joined to soil polygons using unique soil map unit codes.



4. Technical Approach

The LSA map considers regulatory, legal, and environmental constraints to development, which are defined as follows:

- **Regulatory Constraints** – These constraints are created by a regulatory body to mitigate impact in designated areas. Often, these constraints are temporary and are not legally binding in nature. The following layers are classified as regulatory constraints in the analysis of land more or less suitable for development in Columbus County.
 - Water Supply IV Waters (WS-IV)
- **Legal Constraints** – Any legally binding or permanent agreement to preserve or conserve land areas in perpetuity. The following layers are classified as legal constraints in the analysis of land more or less suitable for development in Columbus County.
 - Lands Managed for Conservation and Open Space
 - Wildlife Resources Commission Public Game Lands
- **Environmental Constraints** – Any natural or physical resources that limit an area's potential for development. The two main types of environmental constraints in Columbus County arise as a result of (1) the presence of valued natural resources (i.e., high quality waters) that are likely to be adversely affected by development and as such should be preserved or protected where possible; and (2) a hazard issue (i.e., flooding). These areas are delineated due to the potential for adverse effects on human life or property. The following layers are classified as environmental constraints in the analysis of land more or less suitable for development in Columbus County.
 - High Quality Water Management Zones (HQW)
 - National Wetlands Inventory
 - Significant Natural Heritage Areas
 - Surface Waters
 - 100-Year Floodplain
 - Prime Farmland Soils
 - Hydric Soils



5. Suitability Classes

Suitability areas are ranked in hierarchical order from 1 to 4, with Area 1 (Least Suitability) posing the greatest constraints to development. **Areas of least suitable land take precedence over the remaining three suitability classes as they pose the most significant challenges to development.** For example, wetland areas (included in the least suitable category) may also include prime farmland soils or floodplain, but will be shown as least suitable because they hold a greater significance than the latter. The following layers were used in the formation of the Land Suitability Analysis Map (Map 17).

a. Least Suitable

Areas of Least Suitable land are more restrictive to development than other land in the County as they are either protected or environmentally sensitive areas.

- High Quality Water Management Zones (HQW) (see Map 10)
 - The North Carolina Department of Environment and Natural Resources, Division of Water Quality, in cooperation with the NC Center for Geographic Information and Analysis, developed the GIS data set, High Quality Water Management Zones, to enhance planning, siting and impact analysis in areas directly affecting waters considered as having excellent (high) water quality or designated as an outstanding resource. Point and non-point source pollution management strategies are applicable to these waters.
- High Quality Waters (HQW)
 - Supplemental classification intended to protect waters which are rated excellent based on biological and physical/chemical characteristics through Division monitoring or special studies, primary nursery areas designated by the Marine Fisheries Commission, and other functional nursery areas designated by the Marine Fisheries Commission. Source: NCDENR, NC Division of Water Quality.
- Surface Waters (see Map 10)
 - All above ground waterbodies in Columbus County.



- Significant Natural Heritage Areas (see Map 15)
 - The North Carolina Department of Environment and Natural Resources, Division of Parks and Recreation, Natural Heritage Program in cooperation with the NC Center for Geographic Information and Analysis, developed the Significant Natural Heritage Areas digital data to determine the areas containing ecologically significant natural communities or rare species. A Significant Natural Heritage Area is an area of land or water identified by the NHP as being important for conservation of the State's biodiversity. SNHAs contain one or more Natural Heritage elements - high-quality or rare natural communities, rare species, and special animal habitats. The inventory consists of information compiled from a broad range of sources including herbarium and museum collections, published and unpublished literature, and field surveys by volunteers, contracted workers, and staff. Source: The NC Natural Heritage Program.

- National Wetlands Inventory (NWI) (see Map 14)
 - NWI digital data files are records of wetlands locations and classifications as defined by the U.S. Fish & Wildlife Service. When completed, the series will provide coverage for all of the contiguous United States, Hawaii, Alaska, and U.S. protectorates in the Pacific and Caribbean. The digital data as well as the hardcopy maps that were used as the source for the digital data are produced and distributed by the U.S. Fish & Wildlife Service's National Wetlands Inventory project. Base map dates range from Oct. 1981 to present. Source: The U.S. Fish & Wildlife Service, National Wetlands Inventory.

b. Low Suitability

Areas of Low Suitability contain development limitations and are more restrictive to development than areas of moderate or high suitability.

- 100-Year Floodplain (see Map 11)
 - Areas subject to a one percent or greater annual chance of flooding in any given year. Digital flood data was compiled by the North Carolina Flood Mapping program.



- Prime Farmland Soils (see Map 13)
 - Prime farmland soils, as defined by the U.S. Department of Agriculture (USDA), are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. Spatial and tabular soil data was compiled by the USDA's Natural Resources Conservation Service.

- Hydric Soils (see Map 13)
 - Hydric soils, as defined by the U.S. Department of Agriculture, are soils that are wet frequently enough to periodically produce anaerobic conditions, thereby influencing the species composition or growth, or both, of plants on those soils. Spatial and tabular soil data was compiled by the USDA's Natural Resources Conservation Service.

c. Moderate Suitability

Areas of Moderate Suitability are more restrictive to development than areas of High Suitability.

- Water Supply IV Waters (WS-IV) (see Map 10)
 - The North Carolina Department of Environment and Natural Resources, Division of Water Quality, in cooperation with the NC Center for Geographic Information and Analysis, developed the digital Water Supply Watersheds data to enhance planning, siting, and impact analysis in areas directly affecting water supply intakes. This file outlines the extent of protected and critical areas and stream classifications for areas around water supply watersheds in which development directly affects a water supply intake. Water Supply IV waters are used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II, or III classification is not feasible. WS-IV waters are generally in moderately to highly developed watersheds or protected areas. Source: NCDENR, NC Division of Water Quality.



- Land mass not covered by an existing layer.
 - Due to the hierarchical nature of the Land Suitability Analysis, areas of land not occupied by another layer are by default classified as moderately suitable for development.

d. High Suitability

Areas of High Suitability take precedence over land classified as low or moderately suitable due to the availability of water and sewer infrastructure.

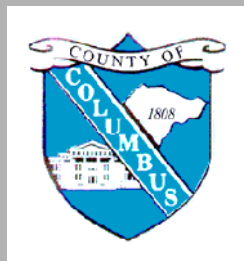
- Public Sewer Systems (see Map 8)
 - The NC Center for Geographic Information and Analysis developed the GIS data set, as mapped by contractors to the NC Rural Center during 2004, 2005, and 2006 to facilitate planning, siting, and impact analysis in the 100 individual counties of North Carolina. This file enables the user to make various county-level determinations when used in conjunction with other data layers.
- Water Lines and Mains (see Map 8)
 - Locations of water lines and water mains in Columbus County, NC. Compiled by Columbus County, NC GIS department.

Table 15 provides a summary of the acreages included in each suitability classification.

Table 15. Land Suitability Classification Summary

Class	Acres	% of Total
High Suitability	44,201	7.4%
Moderate Suitability	56,749	9.5%
Low Suitability	283,122	47.6%
Least Suitability	210,957	35.5%
Total	595,029	100.0%

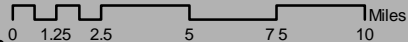
Source: Holland Consulting Planners, Inc.



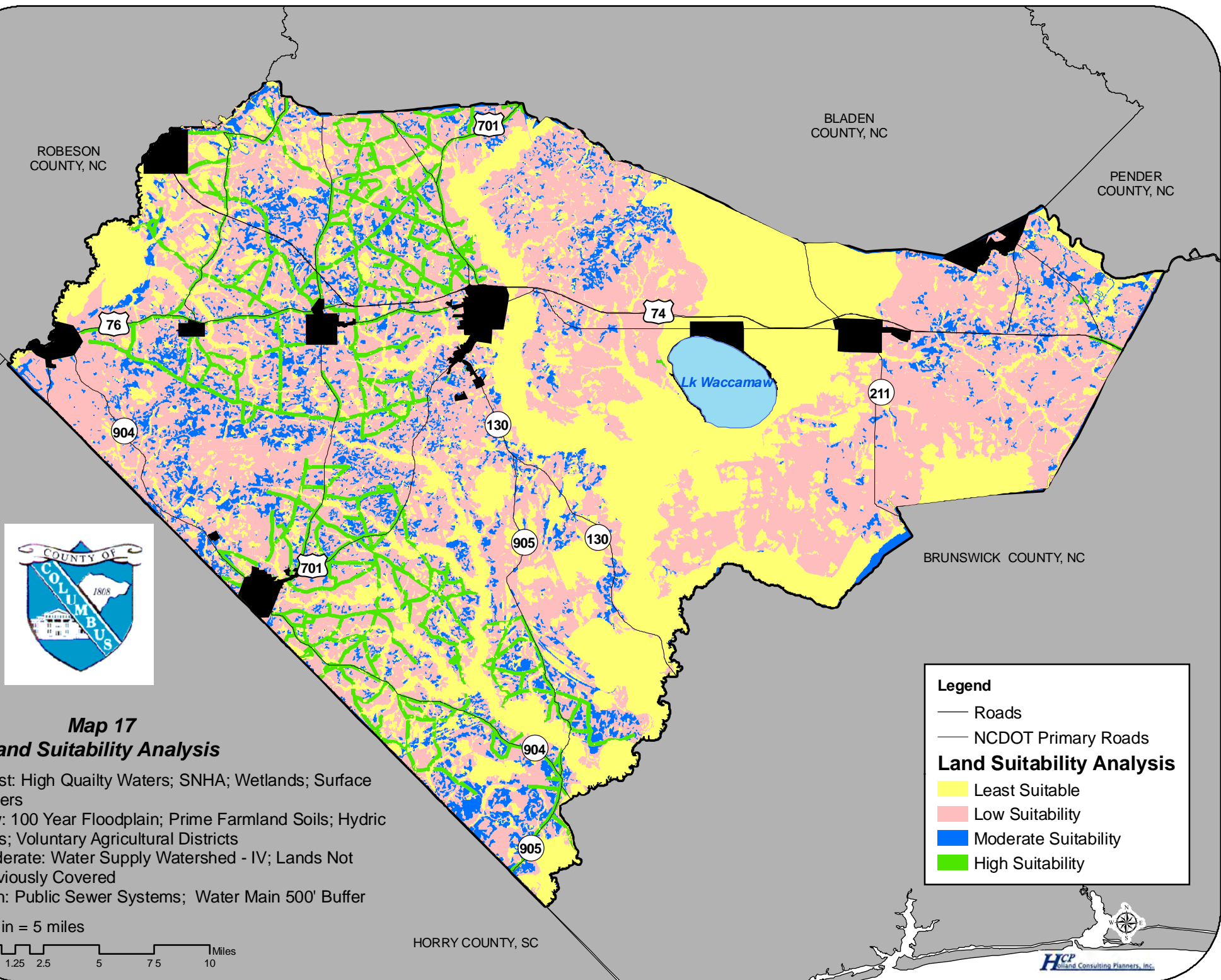
Map 17 Land Suitability Analysis

Least: High Quality Waters; SNHA; Wetlands; Surface Waters
 Low: 100 Year Floodplain; Prime Farmland Soils; Hydric Soils; Voluntary Agricultural Districts
 Moderate: Water Supply Watershed - IV; Lands Not Previously Covered
 High: Public Sewer Systems; Water Main 500' Buffer

1 in = 5 miles



HORRY COUNTY, SC



Legend

- Roads
- NCDOT Primary Roads

Land Suitability Analysis

- Least Suitable
- Low Suitability
- Moderate Suitability
- High Suitability





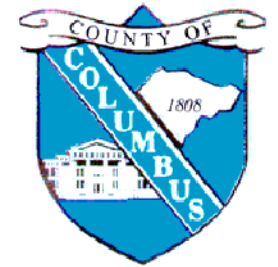
D. Existing Land Use

Map 18 provides a generalized depiction of existing land use in Columbus County as of July, 2011. The delineation and categorization of land use is based on Columbus County tax records. Table 16 provides a summary of land use by both parcels and acreages. The three largest acreage categories are: (1) vacant land, (2) agriculture, and (3) low density single-family residential. However, the largest number of parcels are used for (1) vacant land, (2) low density single-family residential, and (3) agriculture. Much of the vacant land is used for forestry production. The majority of both residential and agricultural land use is found to the west of NC 130. This area is where the majority of the County's better soils are located.

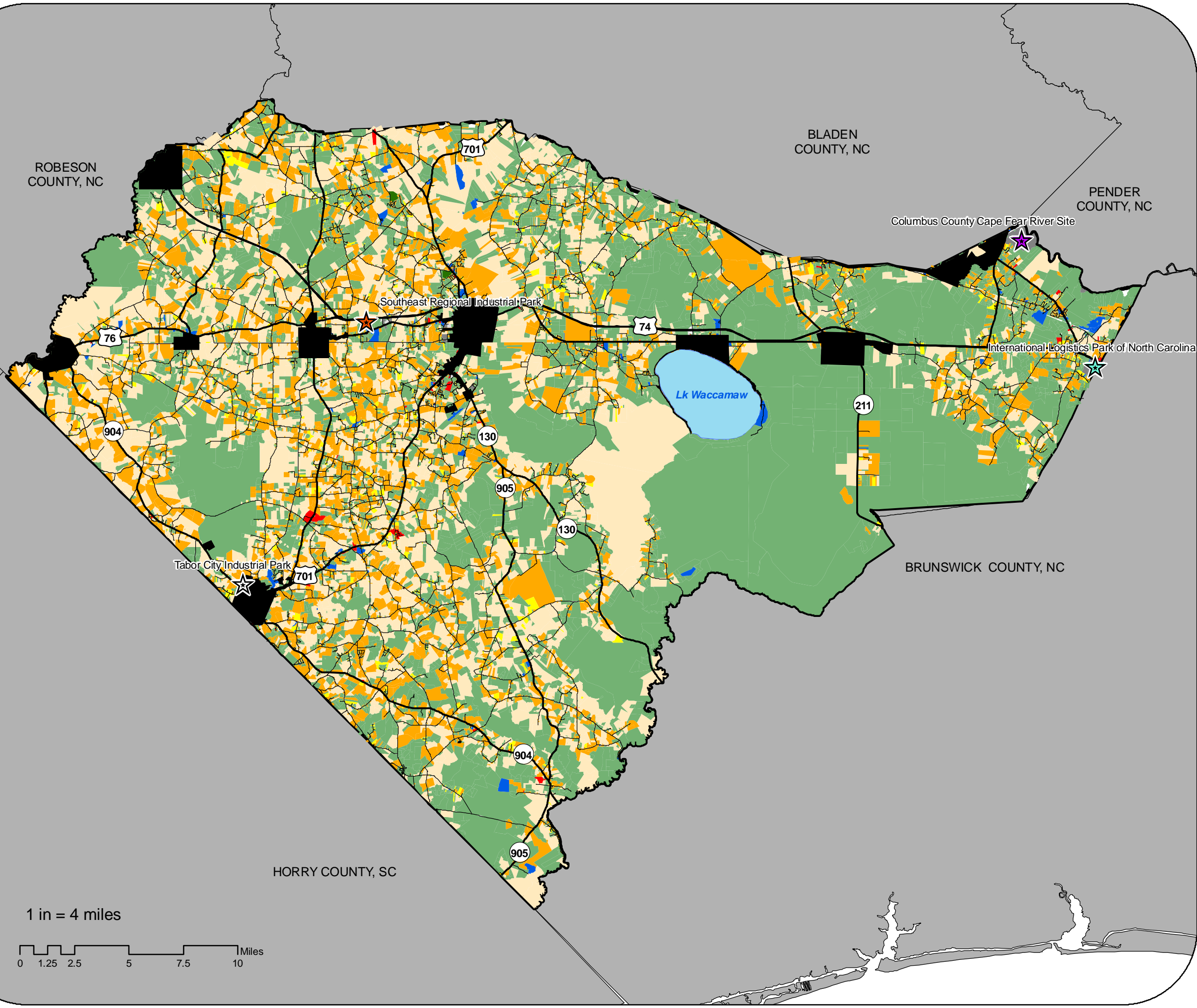
Table 16. Existing Land Use, Columbus County

Land Use Category	Parcels	Acres*	% of Total
Commercial	223	1,099.80	0.2%
Office	58	1,270.70	0.2%
Institutional	299	2,007.54	0.4%
Light Industrial	33	224.05	0.0%
Industrial	17	388.29	0.1%
Mobile Home	2,686	8,429.23	1.5%
Multi-Family Residential	21	30.41	0.0%
Single-Family Residential	9,101	100,505.88	17.6%
Recreation	2	169.24	0.0%
Agriculture	3,993	165,811.62	29.0%
Vacant	15,803	292,277.47	51.1%
Total	32,236	572,214.23	100.0%

Source: Holland Consulting Planners, Inc.



Map 18 Existing Land Use

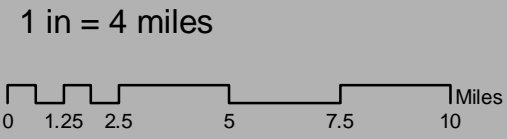


Legend

- Roads
- NCDOT Primary Roads
- Nonparticipating Municipalities
- ★ Columbus County Cape Fear River Site
- ★ International Logistics Park
- ★ Southeast Regional Industrial Park
- ★ Tabor City Industrial Park

ELU

- Commercial
- Office and Institutional
- Light Industrial
- Industrial
- Mobile Home
- SFR
- MFR
- Agriculture
- Recreation
- Vacant



Source: Columbus County GIS,
Columbus County Tax Assessor





E. Environment/Existing Conditions Summary

- Columbus County has an excellent transportation system which provides easy, fast access to the surrounding region.
- The Columbus County hospital provides the foundation for an improving local healthcare system.
- Columbus County is moving towards a County water system to reduce its dependance on groundwater.
- Columbus County has a varied and complex ecological system.
- Columbus County has high quality surface waters.
- There are over 18,122 acres of conservation properties in Columbus County.
- There are approximately 218,084 acres of prime farmland soils in the County.
- Approximately 83% of Columbus County's area has natural limitations for intensive development.
- There are 53,449.12 acres of natural heritage areas in the County.
- The majority of the County's "intensive land use" is concentrated in and around its municipalities.
- There are 210,957 acres of land in the County which are considered least suitable for development (see Map 17).



SECTION IV. PROJECTIONS/FUTURE DEMAND

Because of the 2011 national and international economic uncertainties, forecasting demographic/economic change and associated service demand is, at best, difficult. The reader should not become too engrossed in the forecast data. The forecasts are a “moving target” which must be carefully and continuously monitored. More importantly, this plan outlines the future path which Columbus County will follow. The forecast data provides general parameters within which the County’s path will be charted.

A. Population

Table 17 provides population forecasts for Columbus County, the State, and surrounding counties through 2030. With the exception of Bladen County, Columbus County’s forecast growth lags well behind that of the surrounding counties and the State. However, the County expects that a spillover effect from the surrounding higher growth counties will result in an acceleration of the County’s growth rate. A long-term growth rate of +/- 11% may occur which would result in an 2030 population of 64,498, an annual average growth of 320.

Table 17. Population Forecasts, Columbus County and Selected Areas

County	2010	2015	2020	2030	% Chg. 2010-15	% Chg. 2015-20	% Chg. 2020-30	% Chg. 2010-30
Bladen	35,190	36,132	37,022	38,802	2.7%	2.5%	4.8%	10.3%
Brunswick	107,431	122,926	137,677	167,178	14.4%	12.0%	21.4%	55.6%
Columbus	58,098	59,230	60,620	63,277	1.9%	2.3%	4.4%	8.9%
Pender	52,217	57,772	62,408	70,082	10.6%	8.0%	12.3%	34.2%
Robeson	134,168	141,301	148,103	161,701	5.3%	4.8%	9.2%	20.5%
Horry	270,500	291,080	316,810	367,680	7.6%	8.8%	16.1%	35.9%
North Carolina	9,535,483	10,313,097	11,039,342	12,463,244	8.2%	7.0%	12.9%	30.7%

Source: NC Office of State Planning and SC Budget and Control Board.

B. Housing

In 2010, there were 22,489 occupied dwelling units with an average of 2.58 persons per occupied dwelling unit. With a forecast 2030 population of 63,277 and an assumed constant 2.58 persons per dwelling, the demand for additional occupied dwelling units will be an increase of 2,037 units. The demand for additional units could be higher because of the increasing age of the County’s housing inventory. As the age of the housing increases, the number of dwellings declining to a substandard status may increase, stimulating a need for replacement housing.



It is expected that the availability of financially achievable housing will continue to be a problem for the labor force. In-migration, especially in the eastern end of the County, may increase land cost and further drive up the cost of housing. Therefore, it is expected that the increase in rental housing which occurred during the 1990s will continue through the planning period.

C. Economy

It is difficult, if not impossible, to provide any meaningful economic forecasts. In general, it is expected that the County's economy will grow, but at a slower rate than that of the state and the southeastern United States. Through the planning period, economic growth is expected to be supported by the following:

- Improved port facilities at Wilmington, including possible development of deep water access/capability.
- Continued strength of the agriculture and silviculture sectors of the local economy.
- Continued growth in the food processing industry.
- Development and protection of the County's industrial park sites.
- Continued skilled work training in the public school system and Southeastern Community College.
- Strengthening of the County's tourism, including eco-tourism.
- Targeting businesses/industries which are in the growth sectors of food processing, health care, and forestry products.
- Continued support and development of the County's entrepreneurial/proprietorship sector.
- Continued development of the County's water system.

Economically, the County will face the following challenges:

- Improvement of internet access, including County-wide high-speed access.
- In-migration may lead to higher land values.
- Financially achievable standard housing will be a continuing challenge for the work force.



- County growth will place greater demands on infrastructure, including water, sewer, schools, and recreational facilities.
- Expansion of sewer service in the County, especially to the County's industrial park sites.
- Land use planning and zoning of key industrial and high growth areas will be an important tool for economic growth.
- Expanding the County's skilled work force.
- Protection of the 74/76 interchange areas for economically productive purposes.
- Control of the County's tax rate to remain competitive with surrounding counties.
- Protecting prime farmland and other natural assets from development.

Columbus County land use planning and the Port of Wilmington global trade activity have a strong connection and relationship with each other. During the 1990s, the global economy's impact on our country and State's manufacturing base began to create a new demand for land use at or near major seaports in the US. This demand is known in the global supply-chain and logistics industry as the Ports Industrial Real Estate Model. Over the past 15+ years of the evolving global economy, the demand by globally-dependent companies and industries for industrial sites and facilities, located within 25 miles or less of a major container cargo port, has grown substantially and is projected to significantly increase in the future. This demand has created a direct "cause and effect" on the growth of ports capacity and infrastructure, and equally important the creation of new jobs and expanded tax base for local cities, counties, and states. The Columbus County industrial sites, in particular the International Logistics Park and Southeast Regional Park are, and will be, key connections to the southeastern North Carolina cargo container port.

D. Community Facilities

1. Administrative Facilities

At the time of plan preparation, the only anticipated County administrative capital improvement was the construction of a new courthouse facility in Whiteville.

2. Fire/EMS Services

There are no plans for new fire or emergency management facilities during the planning period.



3. *Healthcare Facilities*

The Columbus Regional Healthcare System (CRHS) is committed to continuous improvement and growth to better meet the needs of the communities it serves. Near-term service expansions include adding operating room capacity and support space to its existing surgical suite and recruitment of 12-15 new physicians to Columbus County over the next 3-5 years. Though national and state turmoil surrounding health reform, a shift to electronic health records, and a gloomy governmental payer (Medicare and Medicaid) reimbursement outlook all contribute to tremendous uncertainty for CRHS as it charts its strategic course to serve its communities, there is little doubt that healthcare delivery will continue to shift from inpatient towards outpatient and that increasing focus must be put on coordinating a broader continuum of care, including wellness and prevention. To meet these needs, CRHS anticipates significant growth and investment over the next 10 years in providers, employees, services, and facilities, both on its acute care campus and geographically throughout the County, in order to ensure access to care for the entire community. CRHS intends to accomplish these expansions in service without taxpayer subsidy.

4. *School Facilities*

No significant school facility improvements are currently planned.

5. *Recreational Facilities*

The existing recreation facilities which the County relies on for implementation of its recreation programs are generally described in Section III. The County does not own the facilities and relies on contractual arrangements for use of the facilities. Columbus County does not have a recreation plan which addresses existing or future recreation facilities needs.

The recreation facilities which are available to the County's recreation programs have been compared to National Recreation and Parks Association standards to provide an approximate estimate of need. The reader is cautioned that these are national standards which may not necessarily fit with the local demands of the Columbus County populace. Table 18 provides a summary of need based on the national standards.

Table 18. Recreation Facility Needs, Columbus County

Facility	County Standards (1/population)	Existing Facilities	Demand	
			2010 (58,098)	2030 (63,277)
Adult Baseball	1/10,000	12	6	6
Youth Baseball/Softball	1/4,000	12	15	16
Football Fields	1/10,000	1	6	6
Soccer Fields	1/5,000	1	12	13



Facility	County Standards (1/population)	Existing Facilities	Demand	
			2010 (58,098)	2030 (63,277)
Multi-purpose Fields	No standard	3	No standard	No standard
Courts				
Basketball (outdoor)	1/10,000	12	6	6
Tennis	1/2,000	5	29	32
Outdoor Areas				
Picnic Shelter	1/5,000	11	12	13
Playground	1/5,000	17	12	13
Specialized				
Community Center	1/20,000	1	3	3
Swimming Pool (indoor)	1/20,000	0	3	3
Swimming Pool (outdoor)	1/20,000	0	3	3

Source: National Recreation and Parks Association, and Holland Consulting Planners, Inc.

6. Transportation System

Transportation and the NCDOT Transportation Improvements Program (TIP) is discussed on page 17. The table on page 19 includes proposed highway improvements and assistance to public transportation needs. The TIP will be updated through the planning period and should be closely coordinated with this plan.

The following Columbus County Municipal Airport improvements are included in the current NCDOT Division of Aviation Transportation Improvement Plan.

Table 19. Transportation Improvement Plan, Columbus County Municipal Airport

Project	Description	Fiscal Year	Cost
Parallel Taxiway-East End and Hangar Taxilane	This project includes construction of the partial parallel taxiway, east of the terminal area, towards Runway 24. The airport currently has a grant for Parallel Taxiway in the amount of \$954,000. As requested by the NCDOT - Division of Aviation, the airport has also agreed to utilize Grant #36244.18.5.1 towards the parallel taxiway construction and their 2009 Vision 100 funds towards the design of the parallel taxiway. The airport is also utilizing Grant #36244.18.4.1 towards wetlands permitting and runway safety area improvements which will be included with this project. With the local match, the total current construction funding available will be \$1,270,526, current design funding available will be \$166,667 and current wetlands permitting funding is \$244,550. The intent would be to construct the west parallel taxiway at the same time as the east parallel taxiway. In addition, the runway 24 safety area improvements will be made with this project and Hangar Taxilane would be constructed.	2012	
PAPI for Runway 24	This project will include installation of a new 2-Box PAPI on the Runway 24 End including installation of new cables back to airfield lighting vault.		
GCO	This project will include installation of a Ground Communications Outlet at the Airport.	2013	\$13,000.00



Project	Description	Fiscal Year	Cost
Hangars and Hangar Taxiways-Phase 1	Includes construction of new hangars (1-8 T-hangars) and apron for both T-Hangars, located on the west side of the terminal area. The airport has agreed to utilize the FY08 Rural Airport Grant received for a portion of this project for the hangar taxilane project to be constructed with the parallel taxiway project.	2013	\$630,000.00
Standard Instrument Approach Procedure	Establish LNAV and LPV approach to Runway 24 (survey and coordination costs only).		
Relocate Existing Forest Service Hangar	Removal of existing 40'x90' Forest Service Hangar and construction of a new 40'x90' Hangar.	2014	\$500,000.00
Apron Expansion	Project includes construction of a 170'x170' Apron Expansion to provide additional aircraft parking on the west side of the existing apron.	2014	\$280,000.00
Parallel Taxiway-West End	This project includes construction of the partial parallel taxiway west of the terminal area, to connect with the taxiway turnaround at Runway 6. Design of the full parallel taxiway and associated wetlands permitting will be completed under project number CPC-09-01. The airport would like to complete this construction together with the east end partial parallel taxiway.	2012	\$1,145,000.00
Runway Rehabilitation (2" Overlay) and Widening	Project involves rehabilitation and strengthening of the existing runway pavement including crack cleaning and sealing, application of a DBST and 2" Bituminous Overlay and widening runway to 100'	2014	\$1,700,000.00
New Terminal Building (Disaster Recovery Center)	Includes construction of a new terminal building	2014	\$600,000.00
Hangars and Hangar Taxiway-Phase 2	Includes construction of 1-8 unit T-Hangar, 3 new 50'x50' corporate hangars and taxiways on the west side of the Phase 1 hangars	2015	\$1,300,000.00
Perimeter Fencing	6' high Chain Link Fence installed in the terminal area	2016	\$150,000.00
Apron Rehabilitation	This project includes rehabilitation of the existing terminal area pavement. The existing pavement is in poor condition and has severe cracking. This project includes cleaning and sealing the existing cracks, performing full depth pavement repairs where necessary, placement of a double bituminous surface treatment to help retard reflective cracking and placement of 2" bituminous surface course. The intent would be to complete design with the parallel taxiway project and perform rehabilitation if funding is available.	2012	\$270,000.00
Approach Light System	With the recent completion of the approach clearing for Runway 24, and upcoming LPV approaches being published, the airport is interested in installing Approach Light System for Runway 24 to reduce visibility minimums.	2016	\$800,000.00

Source: NCDOT-Division of Aviation.



7. Water and Sewer

There is no long-range comprehensive water or sewer plan for Columbus County. The County does not have any immediate plans for the establishment of a County-operated sewer system beyond a publicly-owned wastewater treatment plant located in Delco. It is the County's objective to expand the existing water system when user demand and/or grant/loan assistance is sufficient to make water system expansions economically feasible. The County's immediate 2011 water system plans include:

- Water line service west of Hallsboro.
- Interconnection of Water Districts 1 and 2 along US 701 south of Whiteville.
- Potential service to the Silverspoon Road area.

These potential improvements are delineated on Map 8. The threshold for County water service is a cost of \$65,000 per mile for service to 10 homes. This is based on at least 30% of the cost paid by a grant and availability of loan funds. Cost above this threshold makes water service economically unfeasible.

The following describes the Hallsboro need and proposed water system. Residents of the Hallsboro community are pumping from private wells which have never been tested for water quality. There are many complaints about the smell of sulphur and high iron content in the water. It is questionable whether many of these private wells would pass a bacteria test or be permitted to be built under today's current building codes due to proximity to septic tanks and high ground water table. The villages of Lakeland and Deerfield near the Hallsboro community were each constructed with community water systems in the late 1960s and early 1970s. Both water systems were dedicated to Columbus County Water District #4 around 2003. The existing pumps, tanks, and wells in the Lakeland and Deerfield communities are antiquated and head for inevitable failure.

At the time of plan preparation, Columbus County was pursuing funding options for an estimated \$1,978,800 project that would help alleviate the concerns in the Hallsboro area. The project would be managed as an extension of the existing Water District #4 and would involve the following improvements:

- Installation of a community water system in the Hallsboro community consisting of 2" through 12" water mains to serve the residents and a public school.
- Installation of a 100,000 gallon elevated water tank to supply the system.
- Rehabilitation of the existing wells and pumps in the Lakeland and Deerfield communities and abandonment of hydrostatic tanks.



- Interconnection of the Hallsboro community water system with the existing Lakeland and Deerfield systems for water supply and install a telemetry system to monitor the combined water systems.

The proposed Water District #1 and District #2 system interconnection will include a line paralleling US 701. The proposed line is delineated on Map 8. The project is expected to cost \$1,800,000 and will be funded with 50% grant funds and 50% loan from the NC Division of Water Quality. A project schedule is not set.

Water service along Silverspoon Road has been petitioned for by 45 potential customers. This is not a sufficient number to make construction of a water line feasible without grant funds to significantly lower the County's cost. The potential service area includes 4.1 miles and the construction cost is estimated at \$400,000.

As discussed in the existing conditions section and delineated on Map 8, the Grand Strand Water and Sewer Authority provides sewer service in southeast Columbus County. The Grand Strand Authority intends to expand this service. While a construction schedule has not been established, the proposed sewer lines are delineated on Map 8.

There has been some discussion of providing sewer service to East Arcadia, Sandyfield, and Hexion from the County-owned sewage treatment plant located at Delco. This service would be provided from the 8" sewer line currently located along NC 87. However, at the time of plan preparation, no commitment had been made to pursue funding of the project.



SECTION V. FUTURE LAND USE

This section provides the delineation of future land use for Columbus County. Establishing a future land use map is critical toward laying out a preferred pattern of growth for the County. The County has been classified into one of the following land use sectors (based on the development criteria and land use types outlined for each sector): Local Commercial Service Area, Regional Commercial Service Area, Industrial, Community Service Area, Rural/Transitional Community Service Area, Residential Agriculture, Agricultural/Rural Area, and Conservation. In addition to establishing stated guidelines for development throughout the County, the resulting policies and implementing strategies (Section VI) for future land use will serve as a guide for staff, elected officials, citizens, and developers. The future land use map (Map 19) and supporting policies/implementing strategies should be used on a daily basis to make judgments regarding growth and development of the County.

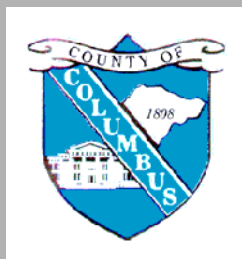
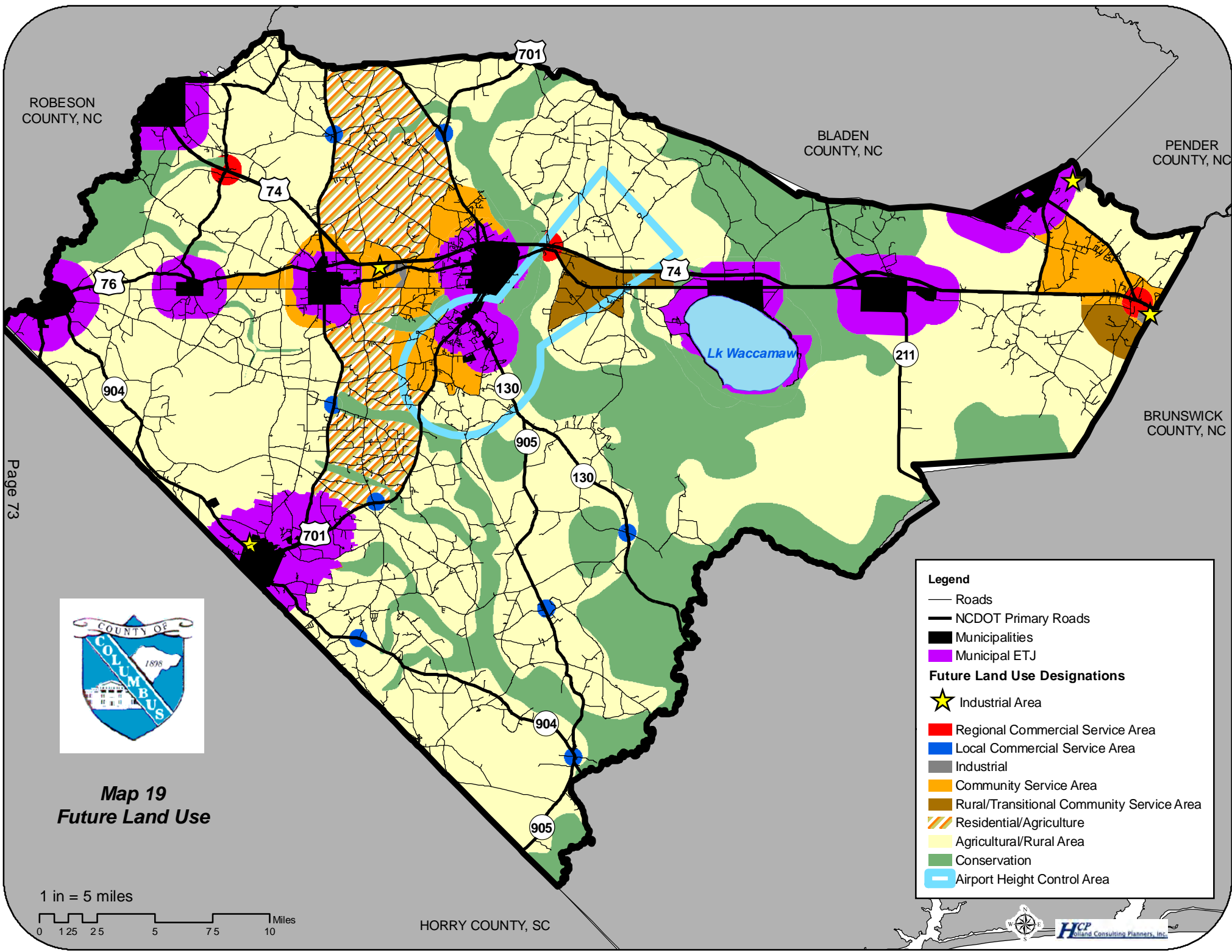
Table 20. Future Land Use Acreages, Columbus County

Land Use	Acres*	% of Total
Local Commercial Service Nodes	2,487.17	0.5%
Regional Commercial Service Nodes	2,232.64	0.4%
Industrial	657.97	0.1%
Community Service Area	23,251.74	4.4%
Rural/Transitional Community Service Area	8,098.55	1.5%
Residential Agriculture	38,078.09	7.2%
Agricultural/Rural Area	312,404.37	58.8%
Conservation	144,506.60	27.2%
Total	531,717.13	100.0%

*Acreages does not include municipalities or ETJ areas.
 Source: *Holland Consulting Planners, Inc.*

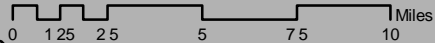
In drafting the future land use map, all factors were taken into consideration, including existing uses, density, land suitability, etc., (see Sections III and IV). The Land Suitability Analysis Map (Map 17) provides a snapshot of which portions of the County may be more appropriate for intensive development; however, this map alone should not dictate how the various sectors are laid out.

The Future Land Use Map is not intended to provide precise, parcel-level detail concerning future land use. Rather, it is intended to serve as a general guide for important infrastructure development and other decisions. The Future Land Use Map is intended to be dynamic and continually evolving with changing conditions. Also, it should be periodically revised to reflect important changes affecting schools, recreation, transportation, sewer/water infrastructure, and economic development planning.



Map 19
Future Land Use

1 in = 5 miles



Horry County, SC

Legend

- Roads
- NCDOT Primary Roads
- Municipalities
- Municipal ETJ

Future Land Use Designations

- ★ Industrial Area
- Regional Commercial Service Area
- Local Commercial Service Area
- Industrial
- Community Service Area
- Rural/Transitional Community Service Area
- Residential/Agriculture
- Agricultural/Rural Area
- Conservation
- Airport Height Control Area





A. Local Commercial Service Nodes (LCS)

The following provides a description of the LCS nodes land use sector and its support services:

- LCS nodes are intended to be intensive, efficient, defined concentrations of mixed services that meet the needs of the surrounding community and local service areas.
- LCS nodes are appropriate for a mixture of commercial uses scaled to the service area in question; residential uses of varying densities depending upon available services; and community facilities such as schools, parks, community centers, and other similar community facilities.
- The mixture and intensity of land uses contained within LCS nodes are intended to be dictated by the service demand of the surrounding community.
- The surrounding community should dictate detailed planning for the local commercial service node.
- LCS nodes should be located in unified development concentrations at intersections of selected thoroughfares and in central locations that are convenient to nearby residential development so as to minimize problems associated with "strip" commercial development.
- LCS nodes should be priority targets of investments for sewer and water, public transportation, greenways, other general road improvements, and other appropriate infrastructure improvements.
- Numerous local community service nodes are identified on Map 19, Future Land Use Map. Other LCS nodes throughout the County may be identified during the planning period.

B. Regional Commercial Service Nodes (RCS)

The following provides a description of the RCS nodes land use sector and its support services:

- RCS nodes should be located at key regional transportation access points.
- RCS nodes can overlap with Industrial areas.
- RCS nodes are intended to service a regional market area. As such, they generate high volumes of traffic and should be located on major roadways. Water and sewer services to RCS nodes are desired.



- RCS nodes should include a variety of retail sales and services, public and private administrations, offices and all other uses done primarily for sale or profit on the local, community, and regional level.
- RCS nodes should be compatible with adjacent development and the surrounding community and should minimize congestion and sprawl.

C. Industrial (I)

The following provides a description of the Industrial land use sector and its support services:

- Industrial areas should mostly lie within the CSA sector, and in other areas on a very limited basis.
- Most industrial uses should be segregated from other uses with the exception of RCS nodes.
- Industrial park development is the County's desired pattern of industrial development.
- Industries which use noxious materials or produce hazardous materials are not desired.
- The location, extent, and intensity of future industrial areas should be coordinated with the Columbus County Economic Development Commission.

D. Community Service Area (CSA)

The following provides a description of the CSA land use sector and its support services:

- The CSA sector is that area within which most urban services and urban-scale development is currently concentrated, and within which such development should generally be concentrated through the year 2030.
- Growth and development will be proactively managed through planning. Some of the CSA sector may be absorbed into municipal planning jurisdictions and eventually managed by those jurisdictions. Land use planning for those areas within the County's jurisdiction should be comparable and compatible in its approach and intensity with planning conducted within the various municipal jurisdictions.



- Wide ranges of residential densities will exist. Over the long term, land use regulations and policies should favor higher density development, consistent with natural constraints and the availability of urban services.
- The CSA sector will contain considerable commercial development at a mixture of scales. Commercial development should be in keeping with the surrounding community.
- The CSA sector will contain virtually all existing and future industrial development and will be the focus of future economic development activities.
- The County's economic development activities should be focused within the CSA sector.
- Development within the CSA sector should be accessible by roads which are developed to urban standards, with capacities to accommodate increasingly complex volumes of traffic. Access along roads should be managed appropriately.
- Transportation planning should be conducted within a regional framework, with active participation by all units of local government impacted by the CSA sector.
- Land use planning should acknowledge the presence of sensitive natural areas such as floodplains, wetlands, and other natural and cultural assets, and should strive to protect these areas from development that would damage them or diminish their integrity.
- Sewer and water infrastructure investments should be focused within the CSA sector first and foremost. Priority should be given to economic development sites, commercial districts, dense residential areas, schools, and existing areas prone to septic failure within the CSA sector.
- The extent of the CSA sector should be periodically reviewed in light of any changes in sewer and water services.
- Residential density will exceed an average of > 0.5 persons per acre.

E. Rural/Transitional Community Service Area (RTCSA)

The following is a description of the patterns of development envisioned within the RTCSA sector:

- The RTCSA sector is currently predominantly rural in character, with existing pockets of limited higher density residential and commercial development. The primary factor preventing more urban development in the RTCSA sector is the



absence of sewer and water service. The RTCSA sector may be expected to continue to experience extensive development through 2030.

- Clustering of development and conservation design will be encouraged with the intent of maintaining a rural environment, protecting sensitive natural areas, and reserving land for future development with the expansion of the RTCSA sector.
- Economic development activities may take place within the RTCSA sector in limited form. Most industrial and regional commercial land uses should be discouraged, except in limited circumstances.
- Farmland protection measures should be aggressively pursued within the RTCSA sector.
- The precise extent of the CSA sector and RTCSA sector should be periodically reviewed in light of any changes in sewer and water capacity or other factors. As urban densities within the CSA sector and development pressures within the RTCSA sector increase and ad sewer and water capacities within the RTCSA sector are developed, areas of the RTCSA sector should be pulled into the CSA sector and allowable densities substantially increased.
- Population and residential densities should be generally lower than the more urban population densities found with the CSA sector and should be generally in keeping with septic limitations, and school and transportation capacities. Residential density will normally average 0.1 to < 0.5 persons per acre.

F. Residential/Agriculture (RA)

The following is a description of the patterns of development envisioned within the RA sector:

- The RA sector is an area which has historically been predominantly rural/agricultural but is transitioning into a mixed residential/agricultural area.
- Economic development activities may take place within the RA sector in limited form. Most industrial and regional commercial land uses should be discouraged.
- Conflicts between development and VAD's should be minimized/discouraged.
- Both central water and sewer service will be increasingly available during the planning period.
- Areas of the RA sector will transition into the CSA sector during the planning period.



- Land use planning should acknowledge the presence of sensitive natural areas such as floodplains, wetlands, and other natural and cultural assets, and should strive to protect these areas from development which would damage such resources or diminish their integrity.
- Incentives should be incorporated into the County's land development ordinances in order to encourage the protection of sensitive natural areas and key farmland.
- Average population density will be 0.05 to < 0.1 persons per acre.

G. Agricultural/Rural Area (AR)

The following is a description of the patterns of development envisioned within the AR sector:

- The AR sector covers those portions of the County that are predominantly rural and are characterized by low-density residential development with substantial land areas devoted to agriculture and undeveloped lands. Land use policies should seek to retain that character.
- Most sections of the AR sector are so far from sewer services as to make their extension largely impossible. Land development policies should recognize this by not encouraging densities that would require sewer services or introduce traffic capacity problems.
- Densities should be considerably lower than that of the CSA sector or the RTA sector. The suitability of land within these regions of the County should be a principal consideration in determining developmental densities and segregation of incompatible land uses.
- Care should be taken in these areas to preserve their rural character and to protect valuable farmlands as well as environmental and cultural resources. Farmland protection measures should be aggressively pursued within the AR sector.
- Land use planning should acknowledge the presence of sensitive natural areas such as floodplains, wetlands, and other natural and cultural assets, and should strive to protect these areas from development which would damage such resources or diminish their integrity.
- Commercial development and community facilities will be directed to defined LCS nodes, which are located at key intersections. Commercial development should be of a local service nature, and most industrial and regional commercial land uses



should be prohibited. Large economic development activities should normally be discouraged in the AR sector.

- Density should average $<.05$ persons per acre.

H. Conservation (C)

This category includes land areas that are intended to remain largely in their natural state, with only limited development. Such areas should be targeted for protection through regulations and incentives. Conservation areas are lands that generally exhibit any of the following characteristics:

- Sensitive natural areas such as floodplains, major wetlands, forest reserves and wildlife conservation areas, key watersheds, and natural heritage areas.
- Areas of historic and archeological significance.
- Local, state or federally-mandated natural areas.
- Areas managed for agricultural or forestry land uses.
- Areas shown as least suitable on the Land Suitability Analysis Map (Map 17).

I. Airport Height Control Area (AHC)

The Airport Height Control Area is regulated by the Columbus County Municipal Airport Height Hazard Ordinance. This ordinance regulates the height of structures, not uses, located within the normal aircraft flight areas in the vicinity of the airport. Height regulation is critical to the safety of all aircraft using the airport and those living or operating businesses in the vicinity of the airport.



SECTION VI. POLICIES AND IMPLEMENTING ACTIONS

A. Introduction

One of the major objectives of this plan is to establish policy on the land use/quality of life issues that will affect Columbus County during the planning period. This section of the land use plan provides goals and implementing actions designed to address land development and growth management issues which will confront Columbus County throughout the implementation of this plan.

Policy statements will aid Columbus County by establishing guidelines for planning endeavors such as subdivision plat review. The policy statements and recommendations will also assist County officials in making long-range decisions in such areas as environmental management, provision of utilities and other public services, thoroughfare planning, water supply, watershed protection planning, development of economic development policies and strategy, school facility planning, and intergovernmental coordination.

In order to effectively support the policies and strategies included in this plan and achieve the desired land use patterns portrayed on the County's future land use map, numerous specific implementing actions must occur. This section of the plan includes policies and specific implementing actions for each of the following five areas of concern:

- Land Use Compatibility
- Natural Environment
- Economic Development
- Agriculture/Silviculture Production
- Community Services and Facilities
- Land Use Plan Administration

The adoption of this plan is not the end but rather the beginning of a continuous process. Columbus County has started to feel development pressure. A window of opportunity exists for the County to provide positive direction to development as it occurs. How well this plan serves depends on the quality of the plan and how Columbus County officials administer local land use ordinances and capital spending programs. Local administration is often the weakest feature of a County's planning efforts. The creation of a County plan, workable conditions, and capital spending programs is not overly difficult. The true test will come in putting this plan, ordinances, and programs into action on a day-to-day basis. Implementation of the policies contained in this plan will be an ongoing process. Some of the strategies contained in this plan may be implemented in months while others may require years to effectively accomplish. Planning is only as good as the commitment and abilities of the people responsible for implementing the plan.



This plan supports the following Columbus County planning goals:

- To increase and diversify economic development.
- To improve and expand, when economically feasible, the County's infrastructure.
- To improve educational opportunities.
- To improve healthcare.
- To protect and preserve its residential areas.
- To preserve its natural assets.
- To preserve and protect agriculture/silviculture production.

B. Land Use Compatibility

Land use compatibility includes multiple interrelated subcategories including: housing, farmland preservation, commercial/industrial land use, public facilities land use, and general/regulatory controls. While these land uses/concerns are interrelated and impact one another, policies are provided for each individual subcategory. The Board of Commissioners will be responsible for directing the County's support of the policies and effective implementation.

Note: policies and implementing actions are numbered consecutively throughout this document with the letter "P" denoting a policy and the letter "I" denoting an implementing action.

Policies – Housing:

- P.1** Columbus County shall encourage development to occur at densities consistent with this plan.
- P.2** Columbus County will discourage residential development which will expose residents to the harmful effects of incompatible development or to environmental hazards.
- P.3** Residential developments should be consistent with Columbus County's ability to provide services.
- P.4** Columbus County shall discourage residential and commercial strip development along the County's NC and US designated primary roads.
- P.5** Columbus County considers the provision of financially achievable housing to be a high residential priority.
- P.6** Columbus County considers the preservation and expansion of its standard housing inventory essential to effective commercial and industrial development.



- P.7** Columbus County supports expansion of housing which meets the special needs of the elderly.
- P.8** Columbus County will support redevelopment/revitalization in areas that have substandard housing conditions.
- P.9** Columbus County supports greater residential densities in areas that are accessible to water and/or sewer service(s). Agricultural and low-density residential land uses should be located in areas that do not have central water or sewer service.

Implementing Strategies - Housing:

- I.1** Consider revising the County's Subdivision Ordinance to allow cluster development.
- I.2** Continue to pursue Community Development, NC Housing Finance Agency, and US Department of Agriculture funds from state and federal sources for rehabilitation or redevelopment of substandard housing.
- I.3** Explore different approaches to creating an ample workforce/financially achievable housing stock within the County.
- I.4** Consider establishing a land banking program to acquire individual plots through tax foreclosure. Such properties may be committed to the provision of financially achievable housing.
- I.5** Consider a minimum housing code to ensure that all occupied residential structures are fit for human habitation.

Policies – Commercial/Industrial Land Use

- P.10** Columbus County supports the development of commercial nodes as indicated on the future land use map. Commercialization should be concentrated in the nodes and not allowed to extend in continuous strips along the County's roads.
- P.11** Columbus County supports the recruitment and siting of environmentally compatible light industrial establishments within its borders in areas that are already similarly developed or in public or private industrial parks to minimize the sacrifice of prime agricultural lands and conservation areas for such development.
- P.12** The desirability of industries which are noxious by reason of the emission of smoke, dust, glare, noise, odor, and vibrations, and those which deal primarily in hazardous products such as explosives, should be accessed by Columbus County on a case-by-case basis, weighing the anticipated positive economic impact against any identified adverse environmental impact.



P.13 Industry should be located in conformance with this plan. This includes placing emphasis on light industrial development and location in industrial parks.

P.14 Industrial development is crucial to economic growth in Columbus County.

Implementing Strategies – Commercial/Industrial Land Use

I.6 Implement the following commercial design and locational considerations in review and approval of development proposals:

- Highway oriented commercial uses should be clustered along segments of highways and contain land uses which are mutually compatible and reinforcing in use and design; they should be designed in such a way as to minimize signage, access points, and uncontrolled strip development.
- Strip development along the County's major streets and highways shall be discouraged.

I.7 Prepare specific development plans for each development node as shown on the Future Land Use Map, when intensive development is initiated (a surge in building permits or rapid increase in acreage included in development proposals). This should be reviewed annually as part of the continuing land use plan administration.

I.8 Implement the following industrial locational strategies:

- Light industries (lower impact/generally smaller than heavy industry) should have easy access to major transportation facilities and infrastructure but be compatible with nearby residential, agricultural, and conservation areas.
- Industrial development shall not be located in areas that would diminish the desirability of existing and planned non-industrial areas, nor shall incompatible non-industrial uses be allowed to encroach upon existing or planned industrial sites.
- Industrial development shall be located on land that is physically suitable and has unique locational advantages for industry. Advanced planning for the identification of such land should be encouraged. The special districts land use category may be used for this purpose.
- Industrial uses should be located in or near existing built up areas to take advantage of available services. Careful design and/or buffering shall be required to ensure compatibility with surrounding areas.
- Warehousing, storage, and distribution facilities should have access to appropriate thoroughfares.
- New industrial development should be encouraged to locate in existing and/or planned industrial parks.

**Policies – Public Facilities Land Use**

- P.15** Columbus County supports implementation of the North Carolina Transportation Improvement Program (see page 17).
- P.16** Columbus County supports providing sufficient water and sewer service to promote economic development and to alleviate public health problems created by the absence of public water and sewer services in the County.
- P.17** Columbus County supports directing more intensive land uses to areas that have existing or planned infrastructure.
- P.18** Columbus County shall encourage local access street connections between adjoining residential subdivisions which have public roads, and connections between parking lots of adjoining commercial developments.
- P.19** Columbus County supports the provision of public recreational facilities and will pursue grant funds for recreation facilities.
- P.20** Columbus County supports programs and efforts to provide affordable, adequate, and dependable high-speed internet services.
- P.21** Columbus County supports the expansion of natural gas service within the County.
- P.22** Columbus County supports the location of commercial wind-driven power generating facilities within the County.
- P.23** If the NC Department of Environment and Natural Resources approves any package treatment plants, the County requests preparation of a specific contingency plan specifying ongoing private operation and maintenance of the plant detailing provisions for assumption of the plant into a public system or other approved system should private operation fail.

Implementing Strategies – Public Facilities Land Use

- I.9** Support provision and/or expansion of centralized water services when such services:
- Will provide water service to critical public service and health care facilities in Columbus County.
 - Will result in the development of new or expanded industry and the creation of permanent jobs and salaries at levels commensurate with the level of support required.



- Will encourage a more compact development pattern in areas adjoining existing urban areas, thereby conserving farmland and other open spaces.
 - Will serve to steer development away from valuable environmental areas, such as floodplains, water supply watersheds, and fragile, highly productive, diverse ecosystems.
 - Will comply with the other policies contained in this plan.
- I.10** Review new proposals against the Future Land Use Map to ensure consistency, when considering new public facilities. If the proposal is inconsistent, the proposal will be revised or the County will review this plan to see if revisions are needed.
- I.11** Review of all development proposals will be coordinated with the Columbus County School System to determine and mitigate impact(s) on the school system.
- I.12** Require that water systems be constructed with lines designed and sized for adequate fire protection and sufficient water pressure.
- I.13** Provide sufficient emergency management facilities to adequately serve the projected population growth.
- I.14** Coordinate all proposed development with the Transportation Improvement Program (see page 17).
- I.15** Support regional intergovernmental planning and cooperation for transportation improvements to and within southeastern North Carolina and northeastern South Carolina.
- I.16** Prepare a detailed community facilities plan to address solid waste disposal, law enforcement, emergency management, recreation, and educational services needs.
- I.17** Vigorously pursue grants to expand the water system.
- I.18** Support development of the Columbus County Municipal Airport to serve the full range of corporate aircraft.
- I.19** Make all Columbus County locational decisions for community facilities in consideration of the facility impact on adjacent land uses and infrastructure capacity for support including the water system and transportation system.
- I.20** Require that all necessary infrastructure firefighting capability/capacity be provided in new subdivisions and non-residential developments.

**Policy – General/Regulatory:**

P.24 It is Columbus County’s policy to support the following growth principles in the establishment and implementation of its land use regulatory documents:

- Support a range of housing opportunities and choices.
- Create walkable neighborhoods.
- Preserve open space, farmland, natural beauty, and critical environmental areas.
- Direct developments towards existing communities.
- Encourage community and stakeholder collaboration in development decisions.
- Provide locations to support broad-based economic development.

Implementing Strategies – General/Regulatory:

I.21 Consider revising the Columbus County Subdivision Ordinance to accomplish the following:

- Allow/encourage cluster development.
- Encourage road interconnectivity of subdivisions.
- Where practical, make subdivisions “walkable” communities.
- Provide specific stream protection requirements through vegetative buffering.
- Require tree preservation plans for all major subdivisions. Emphasis shall be placed on preserving trees along roadways.
- Consider impact on prime agricultural lands.
- Allow for the dedication of public park property, public access sites, and/or open space. This may include a provision for payment in lieu of dedication if approved by the County.
- Require reverse frontage lots within subdivisions to orient lots towards internal subdivision streets, not secondary roads and highways.
- Require the construction of acceleration/deceleration lanes for the entrances to residential subdivisions.
- Consider incorporating the following low impact design criteria:
 - Protect sensitive natural areas.
 - Establish buffer networks.
 - Minimize impervious cover in site design.
 - Limit erosion during construction.

I.22 Prepare a Columbus County Recreation Plan.



- I.23** Consider zoning areas of the County when such action is supported by a majority of the affected property owners. Emphasis will be placed on zoning industrial park and US highway interchange areas.
- I.24** Continue to support protection of the Columbus County Municipal Airport through enforcement of the Airport Height Hazard Ordinance.

C. Natural Environment

Policies:

- P.25** Columbus County supports preservation of its rural atmosphere.
- P.26** Columbus County considers the protection of its natural assets to be crucial to the preservation of the County's overall quality of life.
- P.27** Columbus County shall discourage action(s) which would irreparably harm the long term viability to valuable natural heritage areas. If action must be taken to achieve public health, safety, and welfare objectives, project designs shall seek to incorporate features which preserve and protect natural features as an integral part of the project design.
- P.28** Columbus County will, in approval of development, support reducing soil erosion, runoff, and sedimentation to minimize the adverse effects on surface and subsurface water quality.
- P.29** Columbus County supports federal, state, and local efforts to protect the quantity and quality of water in the Waccamaw and Lumber Rivers, whether such protection involves controls over point source discharges, surface runoff, or other appropriate means, including upstream activities.
- P.30** Columbus County recognizes the value of water quality maintenance to the protection of fragile areas and supports the control of stormwater runoff to aid in the preservation of water quality. The County will support existing state regulations relating to stormwater runoff resulting from development.
- P.31** Columbus County supports the maintenance of vegetative buffers along its streams and rivers with the intent of reducing the flow of nutrients and other contaminants into the county's surface waters.
- P.32** Columbus County supports a long-term sustainable ground water supply.



- P.33** Columbus County opposes the disposal of any toxic wastes, as defined in the US Environmental Protection Agency's Listing of Hazardous Substances and Priority Pollutants (developed pursuant to the Clean Water Act of 1977), within its planning jurisdiction.
- P.34** Columbus County supports the policy that all State of North Carolina projects should be designed to limit to the extent practicable storm-water runoff into public waters.
- P.35** Columbus County will support septic systems approved by the Columbus County Health Department and package treatment plants approved by the NC Department of Environment and Natural Resources.

Implementing Strategies:

- I.25** Utilize the future land use map as a development management tool to protect valuable resources. The map is coordinated with the land suitability map (Map 17).
- I.26** Work with economic development agencies to promote reuse of abandoned commercial and industrial sites, and to explore funding opportunities for brownfield site cleanup and redevelopment.
- I.27** New development and redevelopment activities which would significantly degrade the quality of natural and scenic resources in Columbus County, prematurely diminish the predominantly rural character of the area, or create incompatibilities of scale, design or land use, shall not be permitted.
- I.28** Monitor development proposals for compliance with Section 404 of the Clean Water Act and continue to enforce local land use ordinances to regulate development of freshwater swamps, marshes, and 404 wetlands.
- I.29** Continue to enforce its floodplain ordinance and participate in the National Flood Insurance Program. Subdivision regulations will be enforced – requiring elevation monuments to be set so that floodplain elevations can be more easily determined.
- I.30** Support the protection of natural heritage and other natural resource areas through easements and outright acquisition by private entities and state/federal agencies.
- I.31** Consider establishing a County Conservation Fund to support the acquisition of conservation properties and/or easements.
- I.32** Support the development of a management plan for utilization of the Waccamaw River within Columbus County.

**D. Economic Development****Policies:**

- P.36** Columbus County supports the development of the County's education system to produce a skilled workforce appropriate for County needs.
- P.37** Columbus County supports a competitive environment for agriculture and cultural activities to maintain the rural atmosphere of the County.
- P.38** Columbus County supports development of new businesses which will create new products, new processes, and new business models.
- P.39** Columbus County fully supports the establishment of a deep water international port in southeastern North Carolina.
- P.40** Columbus County will support a diversified local economy, while at the same time protecting the natural and manmade environment and improving the area as a more attractive community in which to work, live, and play.
- P.41** Columbus County encourages the development of clean industry in locations where appropriate services can be provided, where transportation facilities are adequate, where environmental impacts can be fully mitigated, and where surrounding land uses are compatible in nature.
- P.42** Columbus County will continue to encourage the development of tourism trade as an element of the County's economic future.
- P.43** Columbus County supports a more diversified economic base including development of health care services.
- P.44** Columbus County considers local entrepreneurship to be crucial to a stable local economy.
- P.45** Columbus County will give preference to "clean" industries/businesses including eco- and agri-tourism.
- P.46** Columbus County supports efforts to improve overall community appearance as an aid to industrial/business recruitment.

**Implementing Strategies:**

I.33 Support the Economic Development Commission's (EDC) efforts to develop a job creation strategy focusing on agriculture, tourism, and health care. These segments of the economy have numerous economic multipliers including retail sales, education programs, restaurants, and lodging.

I.34 Support the EDC's efforts to accomplish the following:

- Target and recruit companies specializing in food processing, including research and development and field-testing operations.
- Use a broad based incentives grants program to create conditions in the County that support private investment in developing suitable buildings for manufacturing.
- Enhance the County leisure activity infrastructure by encouraging private investment in the leisure-based industry.
- Encourage agriculturally-based industries including research and development.
- Develop a comprehensive county-wide farmland preservation management plan that includes utilizing farm based support industries suitable for future recruitment such as farm equipment manufacturing, farmland research management and testing equipment manufacturing, and natural resource management testing equipment manufacturing.

I.35 Continue to implement the following activities to support ecotourism:

- Promote ecotourism to enhance traditional tourism.
 - Develop brochures to publicize existing ecotourism/tourism attractions.
 - Publicize through multimedia to make ecotourism data available to the general public.
 - Form a relationship with local tourist development agencies to utilize their contacts and advertising media.
 - Identify and publicize ecotourism/agri-tourism attractions that could be successful in Columbus County.
 - Work with NC Cooperative Extension to set up a task force to support the training of individuals in eco/agri-tourism.
- Promote new farm crops to develop alternate farming methods and make effective use of farmlands.

I.36 In support of economic development, formulate and expand local incentives to attract industry.

- Maintain inventory of unused business facilities.



- Support County water and sewer systems and other infrastructure.
- Support and enhance incubator program for startup businesses.
- Identify and recruit industries that are compatible with and complement Columbus County's geography, culture, climate, and agricultural production.

I.37 Continue to work with economic development to promote reuse of abandoned commercial and industrial sites, and to explore funding opportunities for brownfield site cleanup and redevelopment.

E. Agriculture/Silviculture Production

Policies:

P.47 Columbus County considers the preservation of farmland essential to maintaining a strong local economy.

P.48 Columbus County will not support heavy industries which generate air pollution, damage surface and ground water, and have other side effects detrimental to agriculture.

P.49 Columbus County supports development/expansion of the agri-tourism industry.

P.50 Columbus County will support land use decisions which will protect agricultural lands and encourage new developments to locate near towns and existing subdivisions.

P.51 Farms and woodlands shall be recognized as an integral part of the County's open space system.

P.52 Columbus County will strive to protect existing agricultural and forestry activities from incompatible land uses.

P.53 Columbus County supports the preservation of prime farmlands (see Map 13, page 48) as both natural and economic assets.

Implementing Strategies:

I.38 Encourage proper agricultural and forestry management practices (see Appendix 1).

I.39 Pursue grant funds which may assist with the preservation of agricultural lands.

I.40 Continue to support expansion of the voluntary agricultural district areas.



- I.41** Require that all prime farmland soils be delineated on site plans and major subdivision preliminary plats.
- I.42** Support commercial forestry activities, provided significant adverse impacts on natural resource systems are fully mitigated. Such activities should be considered in accordance with the standards and recommendations of the US Forest Service. The County also advocates the voluntary participation of commercial forestry interests in the State of North Carolina's best management practice program for forestry management.
- I.43** Support the use of best management practices recommendations of the US Soil Conservation Service for both agricultural and forestry areas (see Appendix 1).

F. Community Services and Facilities

Policies:

- P.54** Columbus County supports the mission of Southeastern Community College in meeting the educational and job readiness requirements of county residents.
- P.55** Columbus County supports the efforts of the County's libraries in fostering the development of a literate and well-informed resident population.
- P.56** Columbus County supports intergovernmental cooperation with its municipalities for the provision of community facilities and services.
- P.57** Columbus County supports efforts, initiatives, and programs – both public and private – that provide new buildings and facilities, or serve to make existing buildings and facilities accessible and available to physically challenged persons.
- P.58** Columbus County supports efforts and initiatives to provide quality, affordable health care to its citizens and the continued effective operation of the Columbus County Health Department.
- P.59** Columbus County supports improvement and expansion of fire protection and emergency management services including fire/rescue services.
- P.60** Columbus County will support implementation of its hazard mitigation plan.
- P.61** Columbus County supports a comprehensive recreational program to provide a broad range of recreational facilities for its citizens.



P.62 Columbus County supports future park development and open space preservation which will provide for the distribution of recreation and open space opportunities within the County.

Implementing Strategies:

I.44 Implement the following hazard mitigation actions:

- Re-establish floodplain/wetlands in the GIS system with the capability to generate maps when needed.
- Establish a program to identify critical areas (roads) that will be monitored during storm events and incorporate to GIS.
- Comply with DENR stormwater regulations.
- Ensure that any new structures built in a floodplain are elevated above the Base Flood Elevation.
- Assist communities within the County for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
- Exercise response and recovery plans in place for all natural hazards.
- Evaluate shelters and identify back up shelters in accordance with American Red Cross standards.
- Add GIS layer to the main County web page that identifies evacuation routes.
- Improve emergency notifications to citizens in the County by utilizing emergency notification system and weather radios.
- Develop and implement "lightning safety" training for coaches, referees, schools, pools, and parks.
- Educate community on value of "Low Impact Design" practices for existing homes, businesses and future developments.
- Develop pamphlets to be distributed to the public regarding the dangers of drought and how they can prepare for drought events.
- Educate on fire prevention by using Fire Administration and Forestry Resources.
- Reduction of fire fuels around existing homes, businesses, and future developments by using Fire Administration and Forestry Resources.
- Educate – alternative heat/safety issues using CDC and FEMA materials.

Responsibility for implementing these actions is assigned in the Columbus County Multi-Jurisdictional Hazard Mitigation Plan.

I.45 Consider the multiple objectives of natural area conservation, visual enhancement, promotion of cultural and historic preservation, watershed and floodprone area protection in determining future sites for park, recreation, and water access facilities.



- I.46** Continue to work cooperatively with the county school system to maximize the use of recreation facilities located at existing public school sites, and to foster the joint development of additional public park facilities at new public school sites.
- I.47** Consider preparing and updating annually a capital facilities improvements plan (CIP).
- I.48** Seek state and federal technical and financial assistance to provide facilities for physically challenged persons.
- I.49** Seek educational grants to subsidize in-county continuing education by nearby colleges and universities and support community education programs.
- I.50** Coordinate development in the County's jurisdiction with that contained in municipal jurisdictions by supporting the following:
- Coordinate with municipalities to ensure that municipality and County decisions regarding the type and intensity of land uses within and adjacent to the municipal planning areas are consistent with the Future Land Use Map.
 - Seek mutually acceptable standards for public facilities, infrastructure, and other services with the municipalities to ensure that services can be provided relatively seamlessly across jurisdictional boundaries.
 - Coordinate municipal capital improvements plans with those of the County and other service providers to more efficiently serve the County residents/businesses.
- I.51** Pursue funding to provide and improve sewer service to all industrial park sites.
- I.52** The impact of all County-funded community services and facilities on the County's tax rate will be carefully considered. The County will strive to maintain a tax rate which is economically competitive with other counties.
- I.53** Support development/improvement of the following community facilities:
- Expansion of the Columbus County water system.
 - Expansion/improvement of school facilities.
 - Improvements to the Southeastern Community College facilities.
 - Continued development of senior care facilities/services.
 - Improvement of healthcare facilities.

(NOTE: Support of these facilities does not necessarily commit County fiscal resources.)



G. Land Use Plan Administration

This land use plan must be utilized in the County's day-to-day decision-making processes. If it is not, the time and money invested in the preparation of this document will have been wasted. The impact of deviations from the guidance offered by this plan should be carefully considered. This is an integrated document and changes to one "part" may affect the whole. This plan provides the framework upon which zoning and subdivision regulations and the capital improvements programming should be based. In implementing this plan, the future land use map should be considered as part of the policies included in the plan.

Columbus County will utilize the following additional tools to implement this plan:

- Conduct annual training sessions for the Columbus County Planning Board and Board of Adjustment.
- At least annually, conduct a joint meeting of the Columbus County Board of Commissioners and the County's Planning Board to identify planning issues/needs.
- Annually review the County's existing land use related regulatory ordinances to ensure their consistency with the recommendations of this plan and the evolving nature of the County.

Following adoption of this plan, Columbus County will implement the following to ensure adequate continuing effective citizen participation:

- Encourage public participation in all land use decisions and procedure development processes and encourage citizen input via its boards and commissions.
- Publicize all meetings of the County's Planning Board and Board of Adjustment through newspaper advertisements and public service announcements.
- Utilize advisory committees to assess and advise the County on special planning issues/needs.
- All Planning Department activities will be available on the County's website. The site will include this plan.
- Ensure that the membership of all planning related and ad hoc advisory committees has a broad cross section of the County's citizenry.



Appendix 1
Agricultural and Forestry Best Management Practices

AGRICULTURAL BEST MANAGEMENT PRACTICES

I. Crop and Pasture Lands

A. BMPs for Sediment Control

- Conservation Tillage System
- Critical Area Planting
- Diversion
- Field Border
- Filter Strip
- Grade Stabilization Structure
- Grassed Waterway
- Rock-Lined Waterways or Outlets
- Sediment Control Structure
- Sod-Based Rotation
- Stripcropping
- Terrace
- Water Control Structure
- Pastureland Conversion

B. BMPs for Nutrient Control

- Legumes in Rotation
- Soil Testing
- Liming
- Setting Realistic Crop Yield Goals (determines fertilization rates)
- Fertilizer Waste Application (method, rate, and timing)
- Sediment Control BMPs

C. BMPs for Pesticide Control

- Alternative Pesticides
- Optimize Pesticide Formulation, Amount, Placement, Timing, Frequency
- Crop Rotation
- Resistant Crop Varieties
- Other Cultural or Biological Controls
- Optimize Crop Planting Time
- Plant Pest Quarantines
- Proper Disposal of Obsolete Pesticides and Containers
- Certification of Applicators
- Sediment Control BMPs



II. Animal Production (esp. Confined Animal Operations)

BMPs for Bacteria and Nutrient Control

Grade Stabilization and Nutrient Control
Heavy Use Area Protection
Livestock Exclusion
Spring Development
Stock Trails and Walkways
Trough and Tank
Waste Management System
Waste Storage Pond
Waste Storage Structure
Waste Treatment Lagoon
Land Application of Waste
Water Control Structure

Source: North Carolina Department of Agriculture and Consumer Services.

FORESTRY BEST MANAGEMENT PRACTICES

1. Properly design and place access roads, skid trails, and loading areas on forestland.
 - a. Avoid streambanks and channels except when crossing streams.
 - b. Install water management structures and techniques.
 - c. Stabilize bare soil areas.
 - d. Prevent steep slopes on roads and trails.
2. Designate streamside management zones (SMZ) which are undisturbed strips of vegetation parallel and adjacent to the stream channels.
3. Avoid placing debris in stream channels (Stream Obstruction Law).
4. Use practices which minimize soil exposure when reforesting.
5. Use environmentally safe procedures when applying chemicals in forested areas.
6. Train forestry related personnel in nonpoint source pollution control methods.

Source: NC Division of Forest Resources.