

# ONSLOW COUNTY

## COMPREHENSIVE PLAN

### (CAMA Core Land Use Plan)

Adopted by the Onslow County Board of Commissioners: April 20, 2009  
Certified by the Coastal Resources Commission: \_\_\_\_\_, 2009

Prepared by:  
Holland Consulting Planners, Inc.  
Wilmington, North Carolina

The preparation of this document was financed in part through a grant provided by the North Carolina Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

ONslow COUNTY  
CAMA CORE LAND USE PLAN

**TABLE OF CONTENTS**

	<u>PAGE</u>
PREFACE .....	i
SECTION I. INTRODUCTION .....	1
A.    BACKGROUND .....	1
B.    HISTORY OF PLANNING IN ONSLOW COUNTY .....	3
C.    REGULATORY AUTHORITY AND PLANNING MODEL .....	4
D.    PLANNING PROCESS AND CITIZEN PARTICIPATION .....	5
SECTION II. HISTORY .....	6
SECTION III. REGIONAL SETTING .....	7
SECTION IV. ONSLOW COUNTY CONCERNS AND ASPIRATIONS .....	8
A.    IDENTIFICATION OF KEY ISSUES .....	8
B.    ONslow COUNTY COMMUNITY VISION .....	10
SECTION V. ANALYSIS OF EXISTING AND EMERGING CONDITIONS .....	12
A.    POPULATION, HOUSING, AND ECONOMY .....	12
1.    Onslow County Permanent Population .....	12
a.    Region P, North Carolina, and Onslow County .....	12
b.    Onslow County Population Profile .....	14
c.    Seasonal Population .....	16
d.    Population Summary .....	17
2.    Housing .....	18
a.    Housing Occupancy and Tenure .....	18
b.    Structure Age .....	19
c.    Housing Conditions .....	19
d.    Single- and Multi-Family Units .....	20
e.    Building Permit Activity .....	20
f.    Year Householder Moved Into Unit .....	21
g.    Housing Affordability .....	22
h.    Group Quarters .....	24
i.    Housing Summary .....	25
3.    Employment and Economy .....	25
a.    Introduction (General Economic Indicators) .....	25
b.    Household Income .....	26
c.    Employment by Industry .....	27
d.    Average Weekly Wage .....	29
e.    Industries .....	30
f.    Daytime Population .....	31

	g.	Employment and Economy Summary . . . . .	31
	4.	Population and Housing Forecast . . . . .	32
B.		NATURAL SYSTEMS ANALYSIS . . . . .	35
	1.	Mapping and Analysis of Natural Features . . . . .	35
	a.	Topography/Geology . . . . .	36
	b.	Climate . . . . .	37
	c.	Flood Zones . . . . .	37
	d.	Man-made Hazards . . . . .	41
		(1) Tier II Facilities . . . . .	41
		(2) Underground Storage Tanks (UST) . . . . .	41
		(3) Formerly Used Defense Sites (FUDS) . . . . .	42
		(4) North Carolina Superfund . . . . .	43
	e.	Soils . . . . .	43
	f.	Water Supply . . . . .	46
	g.	Fragile Areas and Areas of Environmental Concern (AEC) . . . . .	49
		(1) Estuarine Waters and Shorelines . . . . .	50
		(2) Public Trust Areas . . . . .	52
		(3) Coastal Wetlands . . . . .	53
		(4) Protected Lands and Significant Natural Heritage Areas . . . . .	58
		(5) Outstanding Resource Waters . . . . .	61
	h.	Areas of Resource Potential . . . . .	62
		(1) Regionally Significant Parks . . . . .	62
		(2) Marinas and Mooring Fields . . . . .	62
		(3) Floating Homes or Structures . . . . .	66
		(4) Channel Maintenance . . . . .	66
		(5) Marine Resources (Water Quality) . . . . .	67
		(6) Primary Nursery Areas, Anadromous Fish Spawning Areas, Submerged Aquatic Vegetation . . . . .	69
		(7) Prime Farmlands . . . . .	69
	2.	Environmental Composite Map . . . . .	71
	3.	Environmental Conditions (Water Quality, Natural Hazards, and Natural Resources . . . . .	73
	a.	Water Quality - Cape Fear River Basin . . . . .	74
		(1) Subbasin 03-06-22 . . . . .	75
		(2) Subbasin 03-06-23 . . . . .	77
		(3) Subbasin 03-06-24 . . . . .	78
		(4) Registered Animal Operations within Cape Fear River Basin . . . . .	81
	b.	Water Quality - White Oak River Basin . . . . .	82
		(1) Subbasin 03-05-01 . . . . .	83
		(2) Subbasin 03-05-02 . . . . .	84
		(3) Registered Animal Operations within White Oak River Basin . . . . .	85
	c.	Water Quality - Neuse River Basin . . . . .	86
		(1) Subbasin 03-04-11 . . . . .	87
	d.	Natural Hazards/Natural Resources . . . . .	88
C.		ANALYSIS OF EXISTING COMMUNITY FACILITIES/SERVICES . . . . .	88
	1.	Transportation . . . . .	88
	2.	Health Care . . . . .	90
	3.	Law Enforcement . . . . .	91

	<u>PAGE</u>
4. Onslow County Justice System . . . . .	92
5. Fire Services . . . . .	92
6. Emergency Medical Services and Homeland Security . . . . .	93
7. Administration . . . . .	94
8. Water System . . . . .	95
9. Sewer System . . . . .	97
10. Other Public Utilities Systems . . . . .	98
11. Schools . . . . .	98
12. Recreation . . . . .	101
D. LAND SUITABILITY ANALYSIS (LSA) . . . . .	103
E. CURRENT LAND USE PLANS AND POLICIES . . . . .	106
1. Zoning . . . . .	107
2. Subdivision Ordinance . . . . .	108
3. Minimum Housing Standards . . . . .	108
4. Flood Damage Prevention Ordinance . . . . .	108
5. Solid Waste Management Ordinance . . . . .	109
6. Parks and Recreation Master Plan . . . . .	109
7. Hazard Mitigation Plan . . . . .	109
8. Review of the 1997 Onslow County CAMA Land Use Plan . . . . .	109
F. ANALYSIS OF LAND USE AND DEVELOPMENT . . . . .	124
1. Introduction . . . . .	124
2. Land Use in Relation to Water Quality . . . . .	124
3. Existing Land Use . . . . .	127
SECTION VI. PLAN FOR THE FUTURE . . . . .	131
A. FUTURE DEMANDS . . . . .	131
1. Introduction . . . . .	131
2. Transportation . . . . .	131
3. Health Care . . . . .	137
4. Law Enforcement . . . . .	137
5. Fire Services . . . . .	138
6. Fire/Emergency Medical Services (EMS) . . . . .	138
7. Water and Sewer Utilities . . . . .	139
a. Introduction . . . . .	139
b. Future Water Supply and Demand . . . . .	140
(1) Water Demand . . . . .	140
(2) Water Supply . . . . .	141
c. Wastewater Treatment Need and Available Capacity . . . . .	146
(1) Wastewater Service Areas . . . . .	146
(2) Wastewater Treatment Need . . . . .	147
(3) Wastewater Available Capacity . . . . .	149
d. Capital Improvements Plan . . . . .	152
e. Water and Sewer Other Public Utilities . . . . .	153
8. Solid Waste . . . . .	153
9. Recreation . . . . .	155
10. Schools . . . . .	156
B. LAND USE/DEVELOPMENT GOALS AND IMPLEMENTING ACTIONS . . . . .	159



	<u>PAGE</u>
C. POLICIES/IMPLEMENTING ACTIONS . . . . .	160
1. Introduction . . . . .	160
2. Policies Regarding Land Use and Development in AECs . . . . .	164
D. LAND USE PLAN MANAGEMENT TOPICS . . . . .	164
1. Introduction . . . . .	164
2. Impact of CAMA Land Use Plan Policies on Management Topics . . . . .	166
3. Public Access . . . . .	166
4. Land Use Compatibility . . . . .	169
5. Infrastructure Carrying Capacity . . . . .	190
6. Natural Hazard Areas . . . . .	200
7. Water Quality . . . . .	202
8. Local Areas of Concern . . . . .	208
E. FUTURE LAND USE PLAN . . . . .	225
1. Introduction . . . . .	225
2. Locational Aspects of Land Use . . . . .	226
a. Conservation . . . . .	228
b. Agriculture/Forestry . . . . .	228
c. Residential . . . . .	230
(1) Rural Residential . . . . .	230
(2) Medium-Density Residential . . . . .	231
(3) High-Density Residential . . . . .	232
(4) Community Growth Areas . . . . .	232
d. Commercial . . . . .	235
(1) Community Growth Activity Center . . . . .	235
(2) Local Commercial Activity Center . . . . .	237
(3) Area-Wide Commercial Activity Center . . . . .	238
e. Industrial . . . . .	239
f. Military . . . . .	240
g. Urban Fringe . . . . .	241
h. Land Use Compatibility Matrix . . . . .	242
3. Future Land Use Acreages . . . . .	244
4. Land Demand Forecast . . . . .	247
SECTION VII. TOOLS FOR MANAGING DEVELOPMENT . . . . .	248
A. GUIDE FOR LAND USE DECISION MAKING . . . . .	248
B. EXISTING DEVELOPMENT PROGRAM . . . . .	248
C. ADDITIONAL TOOLS . . . . .	248
D. LAND USE PLAN AMENDMENTS . . . . .	249
E. ACTION PLAN/SCHEDULE . . . . .	250
1. Citizen Participation . . . . .	250
2. Action Plan/Schedule . . . . .	251

TABLES

Table 1	Onslow County, Region P, and North Carolina Total Population and Percentage Change, 1970-2000 . . . . .	12
Table 2	Demographic Summary, Camp Lejeune Marine Base . . . . .	16
Table 3	Onslow County Seasonal Population . . . . .	17

	<u>PAGE</u>
Table 4	Onslow County and North Carolina, Housing Conditions . . . . . 20
Table 5	Onslow County, Residential Building Permit Activity 2001-2005 . . . . . 21
Table 6	Onslow County, Year Householder Moved Into Unit . . . . . 21
Table 7	Onslow County Housing Income by Household . . . . . 22
Table 8	Onslow County Value of Owner-Occupied Housing . . . . . 23
Table 9	Onslow County Cost of Monthly Rent . . . . . 24
Table 10	Onslow County Population in Group Quarters . . . . . 24
Table 11	Onslow County and North Carolina, Summary of Economic Indicators . . . 25
Table 12	Onslow County, Agricultural Data . . . . . 27
Table 13	Onslow County, Wages by Industry, 2000 . . . . . 29
Table 14	Onslow County, Industrial Operators . . . . . 30
Table 15	Onslow County, Daytime Population . . . . . 31
Table 16	Onslow County Permanent and Seasonal Population Projections . . . . . 32
Table 17	Onslow County Population Projections . . . . . 33
Table 18	Onslow County, Anticipated Military Population Growth including Dependents . . . . . 34
Table 19	Population Projections/Historical Growth and Military Personnel Expansion - Induced Growth . . . . . 34
Table 20	Onslow County, Summary of Total County Acreage . . . . . 36
Table 21	Onslow County, Climatic Conditions Throughout the Calendar Year . . . . . 37
Table 22	Onslow County, Land Area by SFHA . . . . . 38
Table 23	Onslow County, Storm Surge Hurricane Inundation . . . . . 39
Table 24	Onslow County, Soil Types . . . . . 44
Table 25	Onslow County Permitted Water Use Permits . . . . . 49
Table 26	Onslow County, Wetland Areas by Type . . . . . 54
Table 27	Onslow County, Protected Lands . . . . . 58
Table 28	Onslow County, Significant Natural Heritage Areas . . . . . 59
Table 29	Onslow County, Public and Private Marina Facilities . . . . . 65
Table 30	Onslow County, Environmental Composite Map Layers . . . . . 71
Table 31	Onslow County, Environmental Composite Class Acreages Summary . . . . . 72
Table 32	Local Governments and Planning Units within the Cape Fear River Basin . . 74
Table 33	Cape Fear River Basin Registered Animal Operations . . . . . 81
Table 34	Local Governments and Planning Units within the White Oak River Basin . . 82
Table 35	White Oak River Basin Registered Animal Operations . . . . . 85
Table 36	Local Governments and Planning Units within the Neuse River Basin . . . . 86
Table 37	Onslow County Fire Departments . . . . . 93
Table 38	Onslow County EMS Stations . . . . . 94
Table 39	Onslow County Staffing . . . . . 94

	<u>PAGE</u>
Table 40	Onslow County Water System Average Daily Water Use by Month . . . . . 96
Table 41	Onslow County Water System Average Annual Daily Water Use by Type . 96
Table 42	Onslow County Wastewater System Average Daily Discharge by Month . . 97
Table 43	Onslow County Public Schools . . . . . 98
Table 44	Onslow County Park Locations and Amenities . . . . . 101
Table 45	Onslow County Land Suitability Analysis Criteria Table . . . . . 105
Table 46	Onslow County LSA Acreage . . . . . 106
Table 47	Onslow County Zoning Classifications . . . . . 107
Table 48	Onslow County Existing Land Use by Subbasin . . . . . 126
Table 49	Onslow County 2006 Existing Land Use Acreages . . . . . 127
Table 50	Onslow County Existing Land Use by "Community" Areas . . . . . 130
Table 51	Onslow County Transportation Improvement Projects . . . . . 132
Table 52	Onslow County Population Projections by ONWASA Service Area . . . . . 140
Table 53	Onslow County Water Demand Projections . . . . . 141
Table 54	ONWASA Service Regions Summary of Water Demand and Supply Projections . . . . . 144
Table 55	ONWASA Service Areas Summary of Current and Predicted Wastewater Treatment Demands . . . . . 150
Table 56	Onslow County Projected Per Capita Waste Disposal . . . . . 154
Table 57	Onslow County Public Schools 2005 Bond Referendum – Proposed School Improvements . . . . . 157
Table 58	Future Land Use Plan Compatibility Matrix . . . . . 243
Table 59	Onslow County Future Land Use by Sewer Service Area . . . . . 245
Table 60	Onslow County Land Demand Forecast . . . . . 247
Table 61	Onslow County Policy Analysis Matrix . . . . . 254

GRAPHS

Graph 1	Onslow County, Percent Population Growth by Township, 1970-2000 . . 13
Graph 2	Onslow County, Population by Township, 2000 . . . . . 13
Graph 3	Onslow County, Racial Composition, 1970-2005 . . . . . 14
Graph 4	Onslow County, Age Composition, 1990, 2000, 2005 . . . . . 15
Graph 5	Onslow County and North Carolina, Education Attainment, 2000 . . . . . 15
Graph 6	Onslow County Housing Tenure in Relation to Population, 1990-2000 . . 18
Graph 7	Onslow County and North Carolina, Housing Occupancy, 1990-2000 . . . 18
Graph 8	Onslow County Housing Structures, 2000 . . . . . 19
Graph 9	Onslow County and North Carolina, Percentage of Housing by Type . . . 20
Graph 10	Onslow County and North Carolina, Housing Income, 2000 . . . . . 26
Graph 11	Onslow County Employment by Industry, 2000 . . . . . 27
Graph 12	Water Supply and Demand for ONWASA Service Areas . . . . . 145

## EXHIBITS

Exhibit 1	Central Coastal Plain Capacity Use Area . . . . .	48
Exhibit 2	Coastal Wetland Plant Species . . . . .	54

## APPENDICES

Appendix I	Onslow County Citizen Participation Plan
Appendix II	Onslow County Land Use Plan Maps
	Map 1, Regional Location Map
	Map 2, North Carolina's Population Growth Map
	Map 3, Subbasins and 14-Digit Hydrologic Code
	Map 4, Flood Hazard Map
	Map 5, SLOSH Storm Surge Inundation
	Map 6, Soil Classification
	Map 7, Wetlands
	Map 8, Protected Lands
	Map 9, Significant Natural Heritage Areas
	Map 10, Water Quality
	Map 11, Prime Farmlands
	Map 12, Environmental Composite and Environmental Sensitivity
	Map 13, Community Facilities
	Map 14, Transportation Improvement Projects
	Map 15, Existing Infrastructure - Water and Sewer Lines
	Map 16, Land Suitability Analysis
	Map 17, Zoning Classifications
	Map 18A, Existing Land Use
	Map 18B, Existing Land Use Camp Lejeune Township
	Map 18C, Existing Land Use Hofmann Township
	Map 18D, Existing Land Use Jacksonville Township
	Map 18E, Existing Land Use Richlands Township
	Map 18F, Existing Land Use Stump Sound Township
	Map 18G, Existing Land Use Swansboro Township
	Map 18H, Existing Land Use White Oak Township
	Map 19, Land Use in Relation to Water Quality
	Map 20, Water Service Regions
	Map 21, Sewer Service Areas
	Map 22, Future Land Use Map
	Map 23, Future Land Suitability Analysis
Appendix III	Section V Datasets
Appendix IV	Onslow County Listing of Waterbodies
Appendix V	Onslow County Listing of Impaired Waters
Appendix VI	Demographic/Natural Systems Profile Holly Ridge and Richlands
Appendix VII	Planning Information for ONWASA Service Areas (ARCADIS)
Appendix VIII	ONWASA Five-Year CIP Forecast

Appendix IX	Smart Growth Concepts
Appendix X	JLUS Implementation Committee Report
Appendix XI	Agricultural and Forestry Best Management Practices
Appendix XII	Levels of Service
Appendix XIII	Onslow County Hazard Mitigation Plan Strategies
Appendix XIV	Onslow County Significant Historical Sites
Appendix XV	Absentee Property Owners Survey Results
Appendix XVI	Closed Shellfishing Areas

## MATRIX OF REQUIRED ELEMENTS

CAMA CORE LAND USE ELEMENT	ELEMENT DISCUSSED
(a) Organization of the Plan	i, 1-5
(b) Community Concerns and Aspirations	
(1) Significant Existing and Emerging Conditions	8-10, 12-127
(2) Key Issues	8-10
(3) A Community Vision	10-11
(c) Analysis of Existing and Emerging Conditions	
(1) Population, Housing, and Economy	
(A) Population:	
(i) Permanent population growth trends using data from the two most recent decennial Censuses;	12-16
(ii) Current permanent and seasonal population estimates;	16-17
(iii) Key population characteristics;	17
(iv) Age; and	15
(v) Income	26
(B) Housing Stock:	
(i) Estimate of current housing stock, including permanent and seasonal units, tenure, and types of units (single-family, multi-family, and manufactured); and	18-25
(ii) Building permits issued for single-family, multi-family, and manufactured homes since last plan update	20-21
(C) Local Economy	25-32
(D) Projections	32-35
(2) Natural Systems Analysis	
(A) Mapping and Analysis of Natural Features	
(i) Areas of Environmental Concern (AECs);	49-61
(ii) Soil characteristics, including limitations for septic tanks, erodibility, and other factors related to development;	43-45, 69-70
(iii) Environmental Management Commission water quality classifications and related use support designations, and Division of Environmental Health shellfish growing areas and water quality conditions;	67-69
(iv) Flood and other natural hazard areas;	37-38
(v) Storm surge areas;	39-40
(vi) Non-coastal wetlands including forested wetlands, shrub-scrub wetlands, and freshwater marshes;	
(vii) Water supply watersheds or wellhead protection areas;	46-49
(viii) Primary nursery areas, where mapped;	69
(ix) Environmentally fragile areas; and	58-61, 62-66
(x) Additional natural features or conditions identified by the local government.	35-37, 41-43

CAMA CORE LAND USE ELEMENT	ELEMENT DISCUSSED
(B) Composite Map of Environmental Conditions: (i) Class I (ii) Class II (iii) Class III	71-72
(C) Environmental Conditions (i) Water Quality: (I) Status and changes of surface water quality, including impaired streams from the most recent NC Division of water Quality Basinwide Water Quality Plans, 303(d) List and other comparable data; (II) Current situation and trends on permanent and temporary closures of shellfishing waters as determined by the Report of Sanitary Survey by the Shellfish Sanitation Section of the NC Division of Environmental Health; (III) Areas experiencing chronic wastewater treatment system malfunctions; and (IV) Areas with water quality or public health problems related to non-point source pollution (ii) Natural Hazards: (I) Areas subject to storm hazards such as recurrent flooding, storm surges, and high winds; (II) Areas experiencing significant shoreline erosion as evidenced by the presence of threatened structures or public facilities; and (III) Where data is available, estimates of public and private damage resulting from floods and wind that has occurred since the last plan update (iii) Natural Resources: (I) Environmentally fragile areas or areas where resource functions may be impacted as a result of development; and (II) Areas containing potentially valuable natural resources	73-88     69, 127   88  88  37, 88     49, 62, 88
(3) Analysis of Land Use and Development	124-130
(A) A map of land including the following: residential, commercial, industrial, institutional, public, dedicated open space, agriculture, forestry, confined animal feeding operations, and undeveloped;	Appendix II, Maps 18A - 18H

CAMA CORE LAND USE ELEMENT	ELEMENT DISCUSSED
(B) The land use analysis shall including the following: <ul style="list-style-type: none"> <li>(i) Table that shows estimates of the land area allocated to each land use;</li> <li>(ii) Description of any land use conflicts;</li> <li>(iii) Description of any land use-water quality conflicts;</li> <li>(iv) Description of development trends using indicators; and</li> <li>(v) Location of areas expected to experience development during the five years following plan certification by the CRC and a description of any potential conflicts with Class II or Class III land identified in the natural systems analysis</li> </ul>	127  129-130 124-127 128-129
(C) Historic, cultural, and scenic areas designated by a state or federal agency or by local government	App. XIV
(D) Projections of future land needs	247-249
(4) Analysis of Community Facilities	
(A) Public and Private Water Supply and Wastewater Systems	95-98
(B) Transportation Systems	88-90
(C) Stormwater Systems	
(D) Other Facilities	90-95, 98-103
(5) Land Suitability Analysis <ul style="list-style-type: none"> <li>(A) Water quality;</li> <li>(B) Land Classes I, II, and III summary environmental analysis;</li> <li>(C) Proximity to existing developed areas and compatibility with existing land uses;</li> <li>(D) Potential impacts of development on areas and sites designated by local historic commission or the NC Department of Cultural Resources as historic, culturally significant, or scenic;</li> <li>(E) Land use and development requirements of local development regulations, CAMA Use Standards and other applicable state regulations, and applicable federal regulations; and</li> <li>(F) Availability of community facilities, including water, sewer, stormwater, and transportation</li> </ul>	103-106
(6) Review of Current CAMA Land Use Plan	106-124
(A) Consistency of existing land use and development ordinances with current CAMA Land Use Plan policies;	
(B) Adoption of the land use plan's implementation measures by the governing body; and	
(C) Efficacy of current policies in creating desired land use patterns and protecting natural systems	
(d) Plan for the Future	
(1) Land Use and Development Goals:	
(A) Community concerns and aspirations identified at the beginning of the planning process;	8-10
(B) Needs and opportunities identified in the analysis of existing and emerging conditions	131-159



CAMA CORE LAND USE ELEMENT	ELEMENT DISCUSSED
<p>(2) Policies:</p> <ul style="list-style-type: none"> <li>(A) Shall be consistent with the goals of the CAMA, shall address the CRC management topics for land use plans, and comply with all state and federal rules;</li> <li>(B) Shall contain a description of the type and extent of analysis completed to determine the impact of CAMA Land Use Plan policies on the management topics, a description of both positive and negative impacts of the land use plan policies on the management topics, and a description of the policies, methods, programs, and processes to mitigate any negative impacts on applicable management topics;</li> <li>(C) Shall contain a clear statement that the governing body either accepts state and federal law regarding land uses and development in AECs or, that the local government's policies exceed the requirements of state and federal agencies.</li> </ul>	159-164
<p>(3) Land Use Plan Management Topics.</p>	161-222
<p>(A) Public Access</p>	166-169
<p>(B) Land Use Compatibility</p>	169-190
<p>(C) Infrastructure Carrying Capacity</p>	190-200
<p>(D) Natural Hazard Areas</p>	200-202
<p>(E) Water Quality</p>	202-208
<p>(F) Local Areas of Concern</p>	208-224
<p>(4) Future Land Use Map</p> <ul style="list-style-type: none"> <li>(A) 14-digit hydrological units encompassed by the planning area;</li> <li>(B) Areas and locations planned for conservation or open space and a description of compatible land use and activities;</li> <li>(C) Areas and locations planned for future growth and development with descriptions of the following characteristics: <ul style="list-style-type: none"> <li>(i) Predominant and supporting land uses that are encouraged in each area;</li> <li>(ii) Overall density and development intensity planned for each area;</li> <li>(iii) Infrastructure required to support planned development in each area</li> </ul> </li> <li>(D) Areas in existing developed areas for infill, preservation, and redevelopment;</li> <li>(E) Existing and planned infrastructure, including major roads, water, and sewer</li> </ul> <p>In addition, the plan shall include an estimate of the cost of any community facilities or services that shall be extended or developed. The amount of land allocated to various uses shall be calculated and compared to the projection of land needs. The amount of land area thus allocated to various uses may not exceed projected needs as delineated in Part (c)(3)(A)(iv) - Projection of Future Land Needs.</p>	225-249

CAMA CORE LAND USE ELEMENT	ELEMENT DISCUSSED
<ul style="list-style-type: none"> <li>(e) Tools for Managing Development               <ul style="list-style-type: none"> <li>(1) Guide for Land Use Decision-Making</li> <li>(2) Existing Development Program</li> <li>(3) Additional Tools.                   <ul style="list-style-type: none"> <li>(A) Ordinances:                       <ul style="list-style-type: none"> <li>(i) Amendments or adjustments in existing development codes required for consistency with the plan;</li> <li>(ii) New ordinances or codes to be developed</li> </ul> </li> <li>(B) Capital Improvements Program</li> <li>(C) Acquisition Program</li> <li>(D) Specific Projects to Reach Goals</li> </ul> </li> <li>(4) Action Plan/Schedule</li> </ul> </li> </ul>	250-270

## SECTION I. INTRODUCTION

### A. BACKGROUND

In the early 1970s, North Carolina and other coastal states found that their precious coastal areas, including coastal sound and estuarine areas like those within Onslow County, were under threat from pollution caused by population growth, industrial development, and increased recreational usage. In response to these threats, the North Carolina legislature passed CAMA in 1974 (see text box, below).

The NCAC 7B guidelines provide that each of the 20 coastal counties and the municipalities within those counties prepare and adopt a CAMA Core Land Use Plan that meets the planning requirements adopted by the Coastal Resources Commission (CRC). If a County chooses not to prepare a plan, the guidelines specify that the CRC will prepare and adopt a CAMA Land Use Plan for that County and the municipalities in the County which choose not to prepare their own plan. Municipalities not preparing their own plan will be included in the plan for the County in which the municipality is located. The towns of Holly Ridge and Richlands participated in the development of this plan.

As the threats to the coastal environment have only increased since CAMA's adoption, the following goals for coastal management set by CAMA in 1974 continue to summarize the benefits of planning in protecting sensitive coastal areas:

- (1) To provide a management system capable of preserving and managing the natural ecological conditions of the estuarine system, the barrier dune system, and the beaches, so as to safeguard and perpetuate their natural productivity and their biological, economic, and aesthetic values;

#### What is CAMA?

CAMA is the North Carolina Coastal Area Management Act (N.C.G.S. 113A-100, *et seq.*), which establishes a cooperative program of coastal area management between local and state governments. The Act, originally passed in 1974 and since amended, states that local governments shall have the initiative for planning, while the state government establishes areas of environmental concern. With regard to planning, the state government is directed to act primarily in a supportive, standard-setting, and review capacity, except in situations where local governments do not elect to exercise their initiative.

In addition, the CAMA establishes the Coastal Resource Commission within the Department of Environment and Natural Resources, whose duties include approval of Coastal Habitat Protection Plans and designation of Areas of Environmental Concern (AEC). After designation of these areas, the Commission is responsible for issuing all permits (Source: National Oceanic and Atmospheric Administration, Coastal Services Center).



Counties covered by CAMA

- (2) To ensure that the development or preservation of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water for development, use, or preservation based on ecological considerations;
- (3) To ensure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation;
- (4) To establish policies, guidelines, and standards for:
  - (a) Protection, preservation, and conservation of natural resources including but not limited to water use, scenic vistas, and fish and wildlife; and management of transitional or intensely developed areas and areas especially suited to intensive use or development, as well as areas of significant natural value;
  - (b) The economic development of the coastal area, including but not limited to construction, location and design of industries, port facilities, commercial establishments, and other developments;
  - (c) Recreation and tourist facilities and parklands;
  - (d) Transportation and circulation patterns for the coastal area including major thoroughfares, transportation routes, navigation channels and harbors, and other public utilities and facilities;
  - (e) Preservation and enhancement of the historic, cultural, and scientific aspects of the coastal area;
  - (f) Protection of present common-law and statutory public rights in the lands and waters of the coastal area (Source: N.C.G.S. 113A-102).

The data, analysis, goals, objectives, and implementing actions developed to complete the CAMA Land Use Plan (CAMA LUP) will be used to implement those policies formulated through the county's Citizen's Comprehensive Plan adopted in 2003. This document, together with the Comprehensive Plan, will provide consistent and comprehensive guidance for the physical development of the County.

Specifically, the CAMA LUP will be used by the North Carolina Coastal Resources Commission (CRC) to determine whether any given development proposal subject to a major CAMA permit is consistent with the County's goals for its future development and for environmental protection (see text box for a description of the CAMA permit system). No CAMA permits shall be issued for any proposal which is inconsistent with any of the policies contained within this plan. The CLUP will be used by the County's Planning Board and Board of Commissioners to determine the appropriateness of zoning classifications at specific sites and other land use decisions. Together, these planning documents will help guide the future land use within Onslow County and its participating municipalities. The policies and implementing actions which are included in this plan apply to the County and its participating municipalities. Demographic and natural systems profiles for the towns of Holly Ridge and Richlands are provided in Appendix VI.

#### **What is the CAMA Permit System?**

The CAMA permit system is divided into major and minor permits, based on the size and possible impacts of a project. Major permits are required for activities that require other state or federal permits, for projects that cover more than 20 acres, or for construction covering more than 60,000 square feet. Applications for major permits are reviewed by ten state and four federal agencies before a decision is made, and this process is coordinated by the CRC. General permits are an expedited form of major permit used for routine projects that usually pose little or no threat to the environment. Minor permits are required for projects, such as single-family houses, that do not require major permits or general permits. They are reviewed, issued, and administered to CRC standards by the Onslow County under contract with the Division of Coastal Management (Source: Association of National Estuary Programs).

#### **B. HISTORY OF PLANNING IN ONSLOW COUNTY**

Onslow County conducted its initial land use planning document in 1975. Since that time, the County has undergone several land use planning efforts in an attempt to manage growth that has occurred as a result of varying factors. During the 1980s, the Camp Lejeune Marine Base experienced substantial personnel expansion. This shift had a significant impact on the County's economy and land use trends. The County completed a basic land use planning document in 1981, which laid out a basic framework for how the County should develop in light of the mounting development pressures.

In 1991, the County adopted a CAMA Land Use Plan that, to some extent, expanded upon the efforts of the 1981 Land Use Plan. At this point, CAMA land use plans had a primary focus on the protection of Areas of Environmental Concern (AECs), but land use trends and policies related to land use and infrastructure concerns were addressed.

The County's initial comprehensive planning document, "Agenda for Change: Operation Onslow," was adopted by the Onslow County Board of Commissioners in July, 1995. This plan cited specific strategic policies, and assigned implementation tasks for each policy outlined in the document. The

1995 plan addressed a broad range of County issues and concerns ranging from land use topics to law enforcement and education. The Steering Committee for this plan was comprised of a citizen panel with oversight from the County staff members.

In 1997, the County adopted a CAMA Land Use Plan Updated to their existing 1991 plan. As with the 1991 plan, this document's primary concern was protection of AECs. This plan provides a review of the County's demographic trends, as well as community facilities services and needs, but does provide a detailed discussion of land use trends. An impediment to conducting detailed land use analysis at this time was a lack of affordable technology to complete the task. The 1997 plan has been essentially utilized as a document to regulate development (CAMA Major and Minor Permits, see page 3) within defined AECs, but has not served as a land use planning tool for the County.

On April 7, 2003, the Onslow County Board of Commissioners adopted the "Citizen's Comprehensive Plan for Onslow County." This document served as an update to the 1995 plan, "Agenda for Change." The "Citizen's Comprehensive Plan" utilized an extensive panel of citizens serving on four separate committees that addressed the following areas of concern: Land Use and Housing, Environmental Protection and Use, Transportation and Major Facilities, and Economy and Culture. This plan drew from the 1995 document as basis for determining where the County has been, and what direction the County should go with respect to development, environmental initiatives, and community services/infrastructure development and expansion. This plan included several detailed mapping efforts including a Land Suitability Map and a Growth Strategies Map. This document is the first true land use planning tool that Onslow County had developed.

This Fiscal Year 2005-2006/2006-2007 CAMA Core Land Use Plan will officially serve as an update to the County's 1997 CAMA Land Use Plan. Additionally, the County will use this opportunity to incorporate the goals, policies, and implementing actions from the 2003 Comprehensive Plan into one planning document. This plan will update the County's existing land use map, land suitability map, and future land use map (Growth Strategies map). Once completed, it is anticipated that this document will serve as the county's sole land use planning tool. Through incorporating the direction and focus of past planning efforts, the County may truly establish a grounded course of action to address the future land and community service needs of Onslow County.

### C. REGULATORY AUTHORITY AND PLANNING MODEL

This plan is intended to fulfill the Coastal Area Management Act (CAMA) requirements for the preparation of a Core CAMA Land Use Plan. This plan is organized to adhere to 15A NCAC 7B requirements, specifically rule .0702, which specifies the required content of CAMA land use plans. A matrix is provided immediately following the Table of Contents, which specifies how and where in this Plan compliance with 15A NCAC 7B is accomplished.

On December 31, 2007, copies of this draft land use plan were provided to Pender County, Duplin County, Jones County, Carteret County, the Town of Swansboro, the City of Jacksonville, the Town of Surf City, the Town of Topsail Beach, and the Town of North Topsail Beach with a request for review and comment. As of May 19, 2008, no comments had been received from any of the jurisdictions.

D. PLANNING PROCESS AND CITIZEN PARTICIPATION

At the beginning of the preparation of this document, Onslow County adopted a Citizen Participation Plan which is intended to ensure that all interested citizens have an opportunity to participate in the development of this plan through both oral and written comments. A copy of the Citizen Participation Plan is included as Appendix I. The citizen input received during the development of this plan has greatly influenced the final contents of the plan and its policies.

The Onslow County Board of Commissioners has designated a Land Use Plan Advisory Committee (LUPAC) for the CAMA LUP development process). The LUPAC's role was to discharge all duties required of a "principal local board" as defined at 15A NCAC 7I.0506, essentially overseeing and guiding the CAMA LUP development process and providing extensive input to the County's planning consultant, Holland Consulting Planners, Inc., as well as making a recommendation to the Board of Commissioners regarding adoption of the CAMA LUP.

The Onslow County LUPAC is composed of the following members:

Delma Collins	Pauline Joos
Richard L. Green	Pauline Kopka
Jerry Lynn Hinnant, Jr.	Dale Schmidt
David W. Stipe	Brian Wheat
Mercedes Stewart	

Following adoption of this Plan by the Onslow County Board of Commissioner on April 20, 2009, it was submitted to the CRC for certification. Certification of the plan was achieved on <Insert CRC certification date here>.

## **SECTION II. HISTORY**

Onslow County was settled in the early 18<sup>th</sup> century by the English, Germans, French Huguenots, and Africans. Most settlers migrated from New Hanover and Carteret counties because those areas had become crowded. Governor George Burrington granted a request for the establishment of a new county in 1731, but the assembly did not confirm it until 1734. The county was named for Arthur Onslow, who served as speaker of the British House of Commons for 33 years.

Important crops in the early 1800's were corn, cotton and peanuts. At that time, Swansboro was the largest shipping point in the world. The largest exports from Swansboro were turpentine and lumber. In response to needs brought on by World War II, about 86,173 acres, or approximately 16 percent of the county, was established as Camp Lejeune in 1940. The population of the county has increased from 17,939 in 1940 to 150,355 in 2000. Due to this increase, many acres of farmland and woodland have been converted to urban uses in order to accommodate the population influx.



### **SECTION III. REGIONAL SETTING**

Onslow County is located within the southeastern portion of the North Carolina Coastal Plain. The county is bounded by Carteret, Jones, Duplin, and Pender counties, as well as the Atlantic Ocean. Map 1 depicts the regional location (see Appendix II). Onslow County has a flat, gently rolling terrain which slopes from an altitude of 63 feet at the Town of Richlands to sea level, and covers a total of 756 square miles encompassing nearly 500,000 acres.

Onslow County's location is a key asset for its future economic development. The county is centrally located along the North Carolina coastline, creating a thriving economy centered around tourism and commercial activity centered on accommodating the Camp Lejeune Marine Base, which is located throughout the eastern portion of the county. US 17 is the county's main thoroughfare which leads to Wilmington in the south and New Bern to the north. US 258 is the main western connection through the county which leads to Kinston. The beach communities within Onslow County can be reached by utilizing NC Highway 210 located off US 17 south of Jacksonville.

Onslow County is home to 30 miles of beaches, an abundance of marine life and fisheries, and rich farmland. The New River also runs through the county. It is the only river in the continental United States with the headwaters and river mouth located in the same county, and is one of the few rivers in the United States that flows almost due south.

**SECTION IV. ONSLOW COUNTY CONCERNS AND ASPIRATIONS**

**A. IDENTIFICATION OF KEY ISSUES**

This document will attempt to assess all issues and concerns that may affect the growth and natural environment in Onslow County over the 20-year planning period. Due to resource and time limitations, however, primary or “key” issues must be identified and prioritized. These key issues are those that the County will spend additional resources in analyzing, assessing and developing goals, policies, objectives and implementing tasks to address over the planning period.

In order to identify these issues, the County held two Issues Identification Meetings on November 14, 2005, and November 17, 2005. These meetings were widely advertised, through direct solicitation of citizens with known interests in civic affairs and representatives of organizations with interest in these affairs. Additionally, a notice was sent to popular retail and commercial locations for posting and was published twice in the Jacksonville Daily News newspaper.

At the meetings, the County’s planning consultant, Holland Consulting Planners, Inc., provided an overview of the CAMA Land Use Planning process and then broke the assembled group at each meeting into smaller groups to “brainstorm” issues that the group adjudged to be significant to Onslow County’s growth and environment over the planning period. These issues were then listed on large writing pads and affixed to the wall of the Jacksonville Commons Middle School Cafeteria and Dixon Middle School Cafeteria where the meetings were held. At the end of the each meeting, participants received 10 “votes” and identified their 10 top issues (1 vote per issue - no “multi-voting” with multiple votes per issue). The results are recorded below.

Issues Identification (Ranked in Priority Order) - November 14, 2005

RANK	ISSUE	SCORE
1	Incentives for low-impact development and stormwater pond alternatives	15
2	Control stormwater runoff	13
3	True bypass (west side)	11
4*	Preserve existing natural barriers	10
5*	Loss of farmland to development	10
6*	Include sidewalk and greenway plans within developments to accommodate pedestrians and bicycles	10
7*	Wetland preservation	9
8*	Planning for water supply and sewer treatment systems	9
9*	Maintain water flow: (1) vegetation, (2) wildlife (beavers)	8

Section IV. Concerns and Aspirations

RANK	ISSUE	SCORE
10*	Diversifying the economy/providing for better paying jobs	8
11*	Stream classification impact analysis of development	8
12*	Avoid clear-cutting land	7
13*	Septic system maintenance programs and information programs	7
14*	Incorporate clean-up of roadside areas	7
15*	Evacuation routes	7
16*	Home for C & D debris other than landfill	6
17*	Improve vegetation along rights-of-ways	6
18*	Protecting surface water quality	6
19*	Containing sprawl/implementing zoning	6
20*	Continued promotion of agri-tourism	5
21*	Improving highway access	5
22*	Low income development areas affordable	5
23	Develop jobs for children	4
24*	Permitting for residential fill	3
25*	Wildlife preserve areas	3
26*	Don't encroach on base training	3
27*	Control trash burning and vegetation	3
28*	Improve gateways of Onslow County	2
29*	Planned communities for retirees	2
30*	Establish erosion control higher standards	2
31	Additional child care spaces	1
32	Utility company herbicides in ditches	0

\*Indicates a tie score.

Issues Identification (Ranked in Priority Order) - November 17, 2005

RANK	ISSUE	SCORE
1	Planning for water supply and sewer treatment systems	13
2*	Stormwater control	11
3*	Protection of primary nursery areas	11
4	Better ocean access for boaters (dredging) Marine Base participation	10
5*	Protecting surface water quality	8
6*	Containing sprawl/implementing zoning	8
7*	Preservation of open space for recreation	8
8*	Diversifying the economy/providing for better paying jobs	7

RANK	ISSUE	SCORE
9*	Education of the public over buffer zones and water quality issues	7
10*	Maintenance of public property (vegetation) right-of-way	6
11*	Improving highway access	6
12*	Requirements for maintaining undeveloped lots	5
13*	Quality of life/fitness facilities (recreation)	5
14*	Erosion control	5
15*	Building setbacks on waterfront development	5
16*	Need for more industry (jobs)	5
17*	Educate commercial fisherman on resource protection and aquaculture methods	5
18*	County-wide transit system	4
19*	Impact of capital improvements on taxpayers	4
20*	Need for more medical specialist	4
21*	Promote aquaculture (Dixon School)	4
22*	Lifeguards on county beaches	3
23*	YM/WCA	3
24	Need for county swimming pool	2

\*Indicates a tie score.

In addition, based on the results of these meetings a survey was developed and mailed out to a sampling of the county's absentee property owners. A total of 1,027 surveys were sent out; 183 completed questionnaires were received. See Appendix XV for the results of the absentee property owners survey.

#### B. ONslow COUNTY COMMUNITY VISION

Onslow County will grow as a balanced community, reflecting its heritage based on natural resources, rural culture, positive military influence, and a diversified economy. The County's future will be guided by a productive collaborative effort of its citizens, local units of government, and service providers. The following statements define the County's intent for the future:

- Onslow County shall employ advanced planning for orderly growth, so as to ensure the efficient use of land according to its suitability for development; the cost-effective, coordinated provision of infrastructure and services; the proper design and livability of its communities, neighborhoods and rural areas; harmony with the Marine Corps Air Station Camp Lejeune; and the continued preservation and productivity of its farms, woodlands, wetlands, and estuarine areas.

- Onslow County shall provide (or encourage others to provide) necessary infrastructure and services consistent with properly managed growth and desirable economic development. Priorities shall include a balanced, multi-modal transportation system; assured sources of quality drinking water; carefully planned wastewater treatment services; effective, environmentally sound stormwater management; and fiscally efficient, environmentally responsible solid waste management.
  
- Onslow County shall encourage the long-term management and wise use of its natural resources including, particularly, ocean and estuarine area resources, surface and ground water systems, wetland and floodplain ecosystems, and other important natural areas. Management efforts shall work to protect the natural productivity of these areas and their critical role in storm protection and hazard mitigation.
  
- Onslow County shall seek to ensure a high quality of life for its citizens, by working to attract and expand a diversified economic base (including a strong military component); ample parks and recreation facilities; an active arts and cultural community; affordable, quality health and elder care; an excellent public school system; sustained interest in the area's history and traditions; and area-wide support for community cleanliness and beauty.

**SECTION V. ANALYSIS OF EXISTING AND EMERGING CONDITIONS**

**A. POPULATION, HOUSING, AND ECONOMY**

*Refer to Appendix VI for data on the participating municipalities of Holly Ridge and Richlands.*

**1. Onslow County Permanent Population**

*a. Region P, North Carolina, and Onslow County*

North Carolina is divided into 18 regions based on locale for the purpose of coordinating planning efforts between neighboring counties. These designated regions are considered the Council of Governments. Onslow County is in Region P along with Carteret, Craven, Duplin, Greene, Jones, Lenoir, Pamlico, and Wayne counties. It is useful to compare the growth of Onslow County to the other counties within Region P due to their geographic proximity. Table 1 provides a summary of population change and population growth percentages for Region P counties and North Carolina. According to the 2000 US Census, Onslow County is the most populated county in the region.

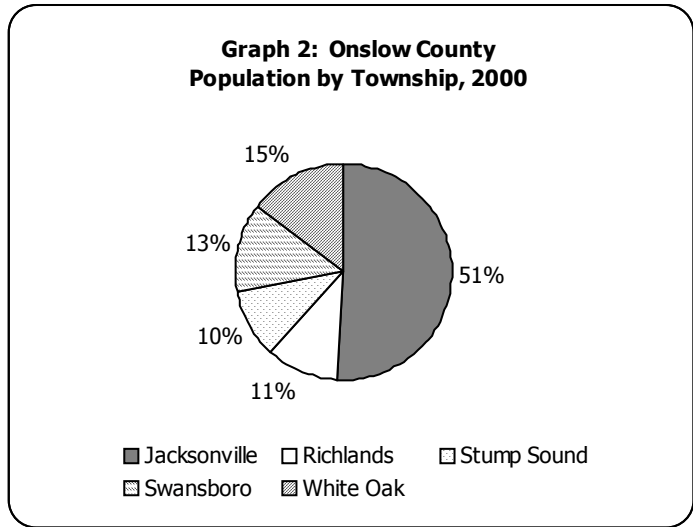
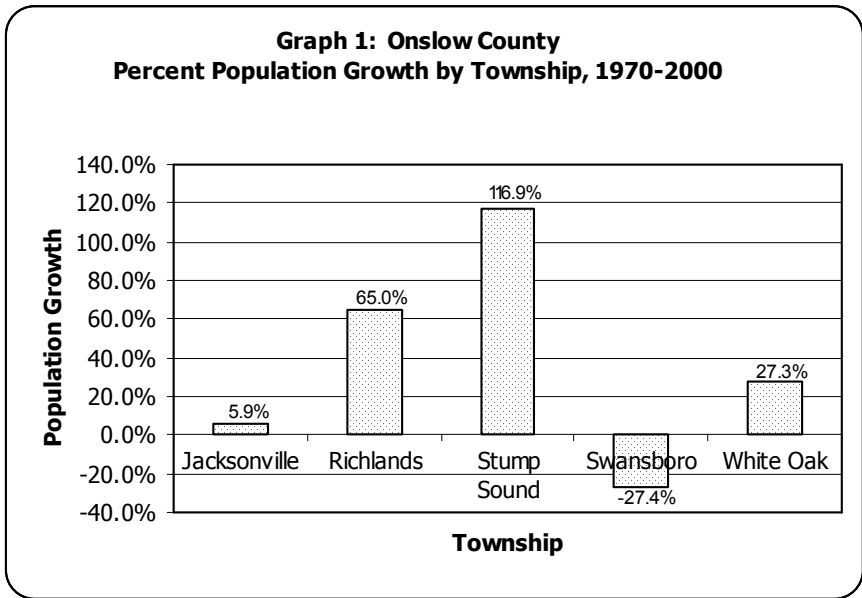
Table 1: Onslow County, Region P, and North Carolina  
Total Population and Percentage Change, 1970-2000

County	Total Population					Population % Change			
	1970	1980	1990	2000	2005	'70-'80	'80-'90	'90-'00	'70-'05
Carteret	31,603	41,092	52,553	59,383	62,766	30.0%	27.9%	13.0%	98.6%
Craven	62,554	71,043	81,613	91,523	92,688	13.6%	14.9%	28.8%	48.2%
Duplin	38,015	40,952	39,995	49,063	51,922	7.7%	-2.3%	19.8%	36.6%
Greene	14,967	16,117	15,384	18,974	20,167	7.7%	-4.5%	17.7%	34.7%
Jones	9,779	9,705	9,414	10,381	10,246	-0.8%	-3.0%	7.0%	4.8%
Lenoir	55,204	59,819	57,274	59,636	58,280	8.4%	-4.3%	-0.3%	5.6%
<b>Onslow</b>	<b>103,126</b>	<b>112,784</b>	<b>149,838</b>	<b>150,355</b>	<b>157,738</b>	<b>9.4%</b>	<b>32.9%</b>	<b>33.3%</b>	<b>53.0%</b>
Pamlico	9,467	10,398	11,368	12,934	13,068	9.8%	9.3%	24.4%	38.0%
Wayne	85,408	97,054	104,666	113,329	115,718	13.6%	7.8%	16.8%	35.5%
Region P	410,123	458,964	522,105	565,578	582,593	11.9%	13.8%	23.2%	42.1%
North Carolina	5,084,442	5,880,095	6,632,448	8,049,313	8,682,066	15.6%	12.8%	21.4%	70.8%

Source: US Census Bureau.

From 1970 to 2005, the county’s population increased by 53.0% from 103,126 to an estimated 157,738. By comparison, the Region P total population increased by 42.1% while the total state population increased by 70.8%. The only county to experience a more rapid growth rate over this period was Carteret County.

Graph 1 provides a summary of population growth by township from 1970 to 2000. The Stump Sound Township has been the fastest growing township with a 1970 to 2000 increase of 116.9%. However, the county's population is fairly evenly distributed among the five townships, with the exception of the Jacksonville Township which is home to the City of Jacksonville. Jacksonville is the commercial hub of the county. It is expected that in the next five to ten years the rate of growth of the Swansboro Township population will accelerate due to increased residential development aimed at drawing people to the coast. Graph 2 provides a visual representation of the 2000 population distribution by township. NOTE: In 2000, Camp Lejeune and Hofmann Forest were included as separate entities when broken down by Township. In 1970, 1980, and 1990, they were included as part of the five townships. The negative growth in the Swansboro Township is directly related to the fact that a portion of the Camp Lejeune population was once counted as part of the Swansboro Township (See Appendix III, Dataset 1).



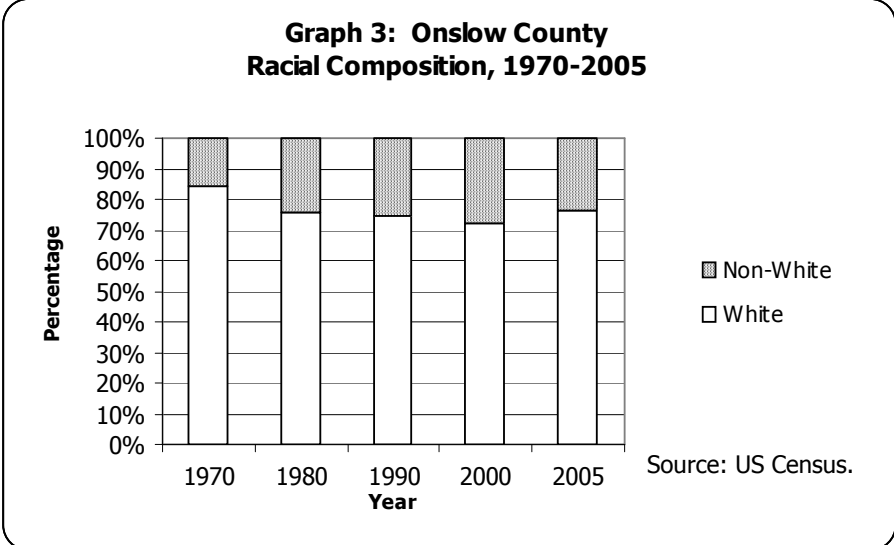
Source: 2000 US Census.

Much of Onslow County’s population growth over the last 30 years can be attributed to the expansion of Camp Lejeune. Due to this fact, in decades where military build up has not been a factor, the population growth within Onslow County has been very modest. The most significant population spike over the last 30 years took place between 1980 and 1990. This 32.9% increase in population can be directly attributed to an increase in personnel stationed at Camp Lejeune. It should also be noted that the accuracy of the 1990 census was the subject of some disagreement. It was determined that, subsequent to the 1990 US Census Report, the marine base population was overcounted by 7,000 individuals. Because of this, the actual increase in population between 1980 and 1990 was closer to 30,000 versus 37,000. This provides some basis for the lack of population growth between 1990 and 2000. Map 2 summarizes North Carolina Population Growth from 1990 to 2000 (see Appendix II).

*b. Onslow County Population Profile*

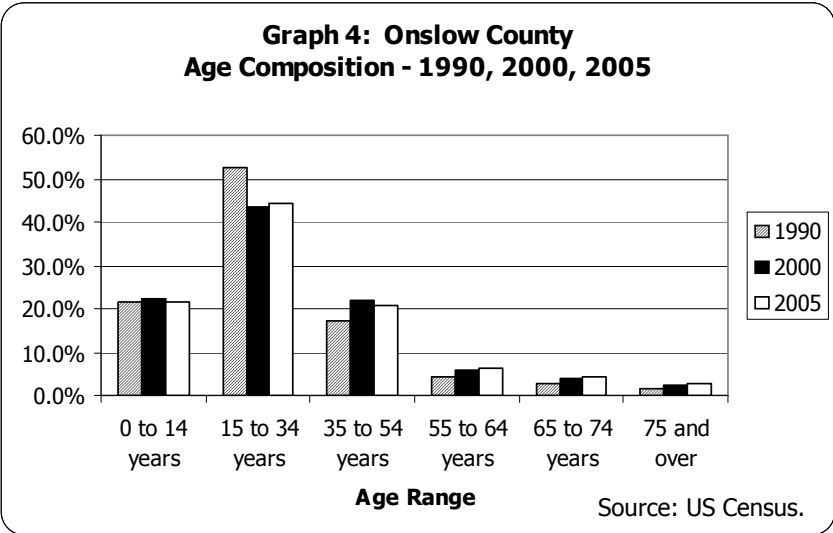
Graph 3 provides a summary of Onslow County’s population by racial composition from 1970 to 2005 (see Appendix III, Dataset 2). In slight contrast to North Carolina’s total population, Onslow County’s white population has decreased while its black population has increased. From 1970 to 2005, the white population as a percentage of the county’s total population decreased from 84.0% to 76.3%. By comparison, North Carolina’s white population as a percent of the state’s total population declined from 76.8% to 74.6%. From 1970 to 2000, the Onslow County black population as a percentage of total population had a moderate increase from 14.7% to 18.2%. It is difficult to make a determination through 2005 due to the fact that the 2005 estimate only distinguishes between white and non-white. There are currently no significant non-white or non-black racial groups in Onslow County. It should be noted that regardless of race 10,896 individuals, or 7.2% of the county’s population reported being of Hispanic or Latino origin, according to the 2000 Census.

Additionally, the county’s male/female population breaks down as follows: 55.2% male and 44.8% female. This is a sharp contrast to the North Carolina male/ female population, which nearly evenly split (49.0% male and 51.0% female).



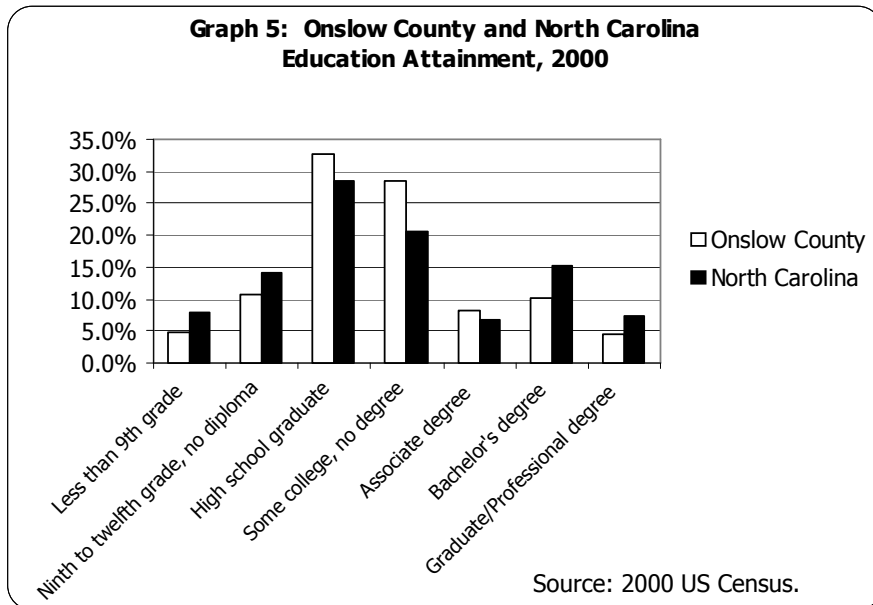


Graph 4 provides a summary of Onslow County's 1990, 2000, and 2005 population by age distribution (see Appendix III, Dataset 3). Over this period, the county has experienced a slight decrease in its working age population (-2.4%). Additionally, there has been slight increase in both the elderly population (2.4%) and the school age population (1.9%). It is anticipated that the elderly aging population in the county will continue to increase due to in-migration.



According to the 2000 census, the county's median age was higher than the median age for the entire state of North Carolina. According to Graph 4, the 15 to 34 year old age group is clearly the largest age group.

Onslow County compares favorably with North Carolina for those individuals having graduated from high school (North Carolina 28.4%; Onslow County 34.0%) and those having received at least some partial college education or Associate degree (North Carolina 49.8%; Onslow County 51.5%). The county lags behind the state in the percent of its population which has received a Bachelor's degree or Graduate/Professional degrees. Graph 5 provides a summary of the county's and the state's 2000 educational attainment based on persons 25 years old or older (see Appendix III, Dataset 4).



Within the discussion of population within Onslow County, we must address the Camp Lejeune Marine installation located throughout the eastern portion of the county. This military base is vital to the economic well being of the county. It is important to note that many of the military personnel stationed at the base are not counted in the county population because it is a federal installation and these individuals' assignment is considered within this installation. Due to this fact, the discussion of base personnel and their dependents will be considered independent of the overall discussion of population within the county. Table 2 summarizes overall demographics of the Camp Lejeune Marine Base. These numbers most definitely express how vital the base is to the economy of Onslow County and the region. From 1985 to the present, there has been a 29.7% increase in the number of individuals tied to the Camp Lejeune Marine Base. This includes all personnel, dependents, and civilian employees within a 50-mile radius of the base.

Table 2: Demographic Summary  
Camp Lejeune Marine Base

Year	Active Duty	Total Dependants	Total Retired & Dependants	Civilian Employees	Total Supported Personnel
1985	43,304	31,674	33,351	4,489	112,818
1990	44,026	52,565	25,033	4,691	126,315
1996	41,110	57,000	23,970	4,800	126,800
2004	41,372	52,678	47,620	4,674	146,344

Source: Camp Lejeune Marine Corps Base.

*c. Seasonal Population*

The following table provides a summary of seasonal population for Onslow County. Seasonal population has a moderate effect on the County. The noncoastal portions of the County do not experience as significant an influx of people as the beach communities. The estimates provided in table below are based on a study conducted by Paul D. Tschetter of East Carolina University in 1988. This study focused on recreational population for the coastal portions of Eastern North Carolina. This study established average per capita figures for a variety of seasonal housing types including: motel/hotel, campsites, boat slips, and private housing units for both counties and coastal municipalities. Based on these averages, the peak seasonal population for Onslow County is estimated to be 174,933, assuming the 2005 Office of State Planning population estimates are accurate.

Table 3: Onslow County  
Seasonal Population

Housing Type	Number of Units	Persons Per Unit	Seasonal Population
Campsites	440	3.50	1,540
Public Access Parking Spaces*	884	4.00	3,536
Seasonal Housing Units	2,906	4.00	11,624
Transient Boat Slips	165	3.00	495
Total			17,195
Permanent Population	157,738		
Peak Seasonal Population	17,195		
Total Peak Population	174,933		

\*All public beach access sites are located within North Topsail Beach.  
Source: Holland Consulting Planners, Inc.

*d. Population Summary*

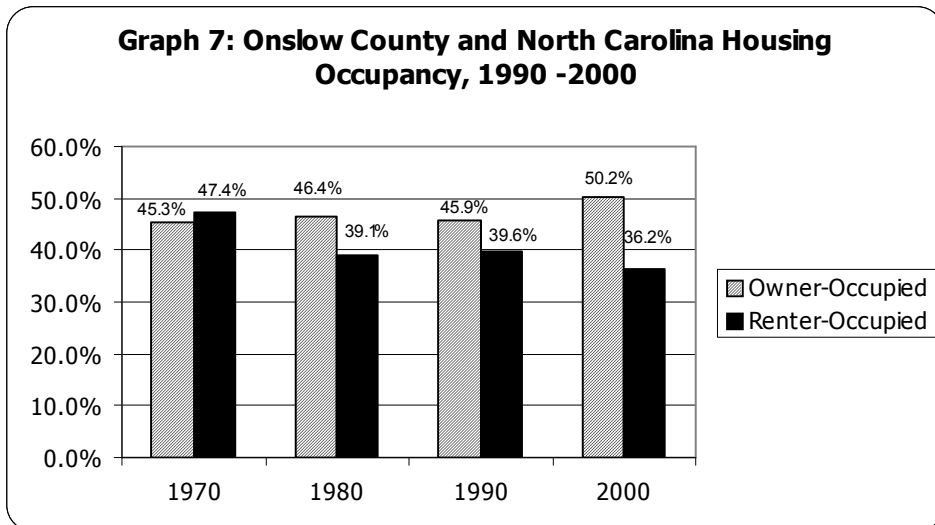
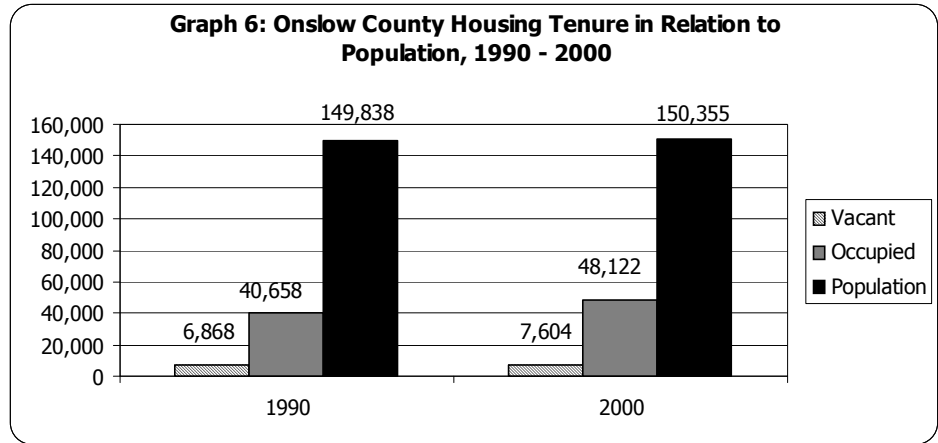
The following provides a summary of the significant demographic factors:

- From 1970 to 2005, Onslow County’s population increased by 53.0%, one of the highest rates of growth in Region P.
- Currently, the county’s population is almost evenly distributed amongst the county’s three townships, with the exception of Jacksonville.
- The county has experienced a very modest growth rate outside of the sharp population influx experienced during the 1980s.
- From 1970 to 2005, Onslow County’s white population has decreased while the black population has increased slightly.
- The county’s male population exceeds the female population by approximately 10%.
- Through high school and Associate degree level, the county ranks ahead of the state in educational attainment. However, for Bachelor’s and Professional degree attainment, the county ranks behind the state.
- The total population tied to the Camp Lejeune Marine Base (personnel, dependants, and civilian employees) is currently 146,344.

**2. Housing**

*a. Housing Occupancy and Tenure*

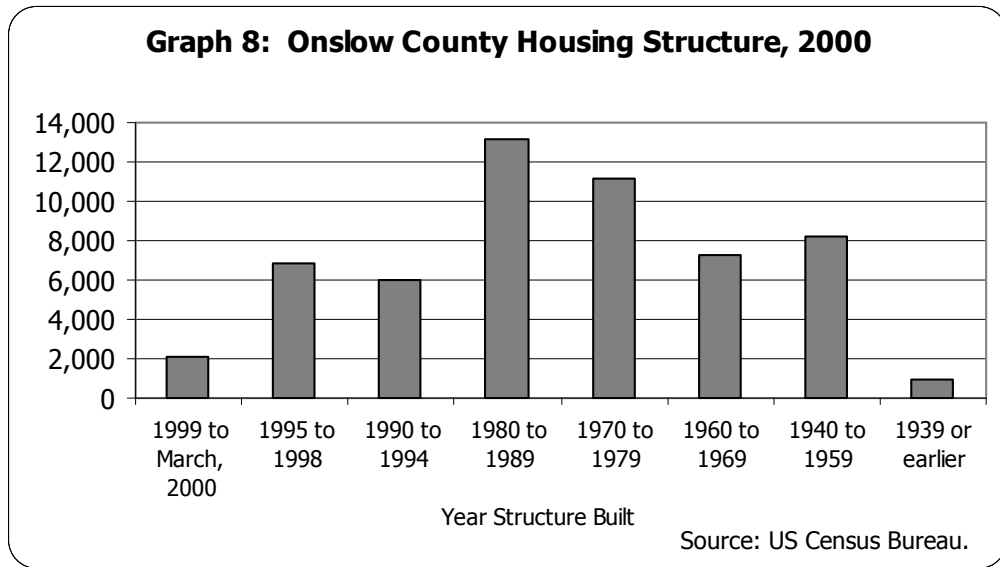
Graph 6 provides housing tenure in relation to the County’s population. Graph 7 provides the demographic breakdown for housing occupancy and tenure dating back to 1970. Data for 1970 and 1980 has been provided in a separate table (see Appendix III, Dataset 5), due to the fact that the census reporting was different than that of the 1990 and 2000 census years (see Appendix III, Dataset 6). According to the 2000 Census, 86.4% of all housing units within the County are currently occupied. This figure has decreased slightly since the 1970 Census (-6.3%). The total number of housing units within the County has increased by 127% (31,179) over the same period. The percentage of owner-occupied housing units within the County has also increased by a factor of 4.9%. Although the number of overall housing units has increased significantly since 1970, the percentage of housing units that are vacant has remained fairly low (13.6%).



Source: US Census Bureau.

*b. Structure Age*

In 2000, the median age of structures in Onslow County was 25 years. Graph 8 provides a graphic representation of the County’s housing structures by year built (see Appendix III, Dataset 7). Approximately 73.3% of the county's structures were built prior to 1980. Based on the graph below, residential development has remained steady in the county. The housing boom from 1980 to 1990 corresponds with the population spike during the same period. This was a result of a large influx of new military personnel into Onslow County.



*c. Housing Conditions*

Table 4 provides a summary of existing household size, as well as the percentage of units lacking general household needs. The statistics in this table provide a good summary of the condition of the county's housing stock.

Housing size, based on bedrooms and rooms per unit, is comparable to state averages. The percentage of homes in the county with 3+ bedrooms is 61.4%, compared to 60.8% for the state overall. The percent of homes lacking complete kitchen and plumbing facilities is both lower than state averages.

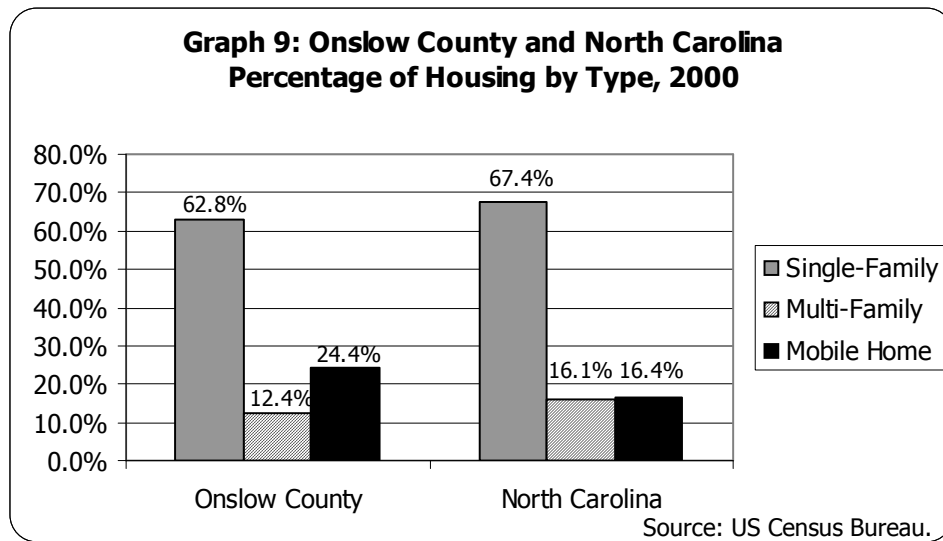
Table 4: Onslow County and North Carolina Housing Conditions

	Onslow County	North Carolina
Average Rooms Per Unit	5.3	5.5
Percent with no bedroom	0.9%	1.1%
Percent with 3+ bedrooms	61.4%	60.8%
Percent lacking complete kitchen facilities	0.6%	1.1%
Percent lacking complete plumbing	0.6%	1.1%
Percent occupied with telephones	96.7%	86.2%

Source: US Census Bureau.

*d. Single- and Multi-Family Units*

Graph 9 provides the number of single-family housing units versus multi-family units and the number of mobile homes in Onslow County (see Appendix III, Dataset 8). Onslow County has a slightly lower number of single-family housing (62.8%) than the state average (67.4%), and the percentage of multi-family housing is also much lower than the state. The percentage of residential structures in the county comprised of mobile homes is much higher than state averages.



*e. Building Permit Activity*

In order to provide some idea of how rapidly residential development has taken place in the county since the 2000 US Census report, the following table reports the building permit activity for the county from 2001 to the present. This data was gathered from the Onslow County Inspections department permit tracking system. The data is broken down between single-family

residential and multi-family building permits. The following types of construction were included in the count for single-family residences: single family residential; SWMH; DWMH; sheds; storage; decks; garage; carports; screen porches; and sunrooms. For multi family residential development, the following types of development were counted: duplexes; triplexes; and townhouses. Table 5 below summarizes this data.

Table 5: Onslow County  
Residential Building Permit Activity 2001-2005

Year	Single-Family Residential Development	Multi-Family Development
2001	1,083	24
2002	1,606	16
2003	1,522	29
2004	1,658	24
2005*	1,485**	52

\*2005 permit data covers calendar year to date (1/1/05 - 9/30/05)  
 \*\*2005 Residential building permit data includes Fire Permits & CAMA Permits  
 Source: Onslow County Planning and Building Inspections.

*f. Year Householder Moved Into Unit*

This demographic provides an interesting view of how the permanent population and owner occupancy have increased over time. Table 6 provides a summary of the year that owner-occupant householders moved into residential units within Onslow County. Approximately eighty-eight percent (87.5%) of all current owner-occupants have moved to Onslow County since 1980.

Table 6: Onslow County  
Year Householder Moved Into Unit

Year	Total	% of total
Total Occupied Units	48,122	100.0%
1999 to March 2000	14,998	31.2%
1995 to 1998	15,421	32.0%
1990 to 1994	5,889	12.2%
1980 to 1989	5,804	12.1%
1970 to 1979	3,336	6.9%
Before 1970	2,674	5.6%
Median year householder moved into unit	1997	

Source: 2000 US Census.

*g. Housing Affordability*

The following tables outline the housing cost for both renters and owner-occupants based on figures collected through the 2000 US Census. In order to provide an indicator of housing affordability in Onslow County, an assessment of income available for annual household housing revenue has been established based on several different data sources.

Table 7 outlines five separate pieces of information: household income in relation to County household median income (taken from NC Division of Community Assistance adopted income limits); income range for a given income category; percentage of population within each category; income available for housing cost purchase or rental (the accepted norm for housing affordability is 30% of monthly gross income); and reasonable cost of a home for owner-occupants (30% of monthly gross income dedicated to housing). The categories for income (very low, low, moderate, above moderate) are income limits adopted by the NC Division of Community Assistance for use as a benchmark to determine financial need for domestic grant in aid programs.

In order to determine whether housing is affordable within Onslow County, a monthly housing cost and total housing sales price was established for each of these income categories. Income available for housing was determined by calculating 30% of each category’s monthly gross income for housing. If a given household’s housing cost exceeds this percentage, it is not considered affordable (affordability for home purchase was based on 30-year mortgage with 7% fixed interest rate). In addition to available income for housing, a total sales price was established for each category in order to make a comparison to the housing cost table. In conclusion, approximately 83.3% of the owner-occupied housing stock within Onslow County, as of the year 2000, was affordable for moderate income residents. Additionally, 28.9% of the housing stock was affordable for very low income residents, and 72.6% for low income residents. This analysis does not factor in whether the housing determined to be affordable for low to moderate residents is in standard condition.

Table 7: Onslow County  
Housing Income by Household

Income Category	Income Range	% of Population in Category	Monthly Housing Income	Potential Cost of Homes (Owner-Occupant)
Very Low (≤30% of median)	<\$14,999	15.7%	\$375	\$60,000
Low (31-50% of median)	\$15,000- \$24,999	17.9%	\$625	\$100,000
Moderate (51-80% of median)	\$25,000- \$34,999	18.2%	\$875	\$140,000
Above Moderate (>80% of median)	>\$35,000	48.2%	>\$875	>\$140,000

Source: US Census Bureau.



Based on the income available for housing outlined above, approximately 72.6% of owner-occupied homes are within an affordable price range for very low to low income residents. This figure is based on 30% of income available for an average household size of three persons within unincorporated portions of the County. This would indicate that housing is fairly affordable for residents of Onslow County. Two factors not included in this table; however, could act as impediments to the provision of affordable housing. These factors include housing availability and escalating home prices.

According to the US Census, only 14.5% of housing within Onslow County was vacant as of the year 2000. Of these vacant homes, only 12.0% (821) of the homes were for sale. This is a very high occupancy rate, and has a serious impact on the availability of affordable housing. This becomes a more substantial problem when one factors in the issue of escalating housing cost. Since the 2000 Census, housing costs throughout the state (especially in coastal counties) have risen significantly. Additionally, the Onslow County tax office has recently undergone a tax reevaluation of all properties. The reevaluation effort resulted in significant increases in tax values throughout the County. This impacts existing, as well as potential, homebuyers through substantial increases in annual tax payments that are typically paid down through monthly mortgage payments.

Table 8: Onslow County  
Value of Owner-Occupied Housing, 2000

Value	Number of Housing Units	% of Total
\$0-29,999	3,180	11.4%
\$30,000 - \$59,999	4,899	17.5%
\$60,000 - \$99,999	12,231	43.7%
\$100,000 - \$124,999	2,988	10.7%
\$125,000 - \$174,999	2,779	9.9%
\$175,000 - \$199,000	507	1.8%
>\$200,000	1,384	4.9%
Total	27,968	100.0%
Median Home Value	\$78,200	

Source: US Census Bureau.

The following table shows the number of rental units in each range of cash rent paid monthly. When comparing this table to the available housing income outlined above, it appears that rental housing in the County is fairly affordable. It is anticipated, however, that the increased taxes will have a negative impact on the rental costs outlined below.

Table 9: Onslow County  
Cost of Monthly Rent (only units with cash rent reported)

Cost of Rent (Cash Receipts Only)	Number of Units	% of Total
Under \$100	386	2.4%
\$100 - \$249	1,445	9.0%
\$250 - \$399	6,102	38.0%
\$400 - \$599	6,142	38.3%
\$600 - \$749	1,428	8.9%
\$750 - \$999	420	2.6%
\$1,000 - \$1,499	117	0.7%
>\$1,500	8	<1.0%
<b>Total</b>	<b>16,098</b>	<b>100.0%</b>
Median Rental Value	\$403/month	

Source: US Census Bureau.

*h. Group Quarters*

Table 10 provide a summary outlining the percentage of County residents that were housed in group quarters between 1980 and 2000. Onslow County currently has the following group quarters: one public housing complex, 562 privately-owned subsidized housing units, one low income housing tax credit development, five USDA rural low income developments, 24 group home units, 6 adult care homes, 6 family care homes, and 2 nursing homes. From 1980 to 2000, the number of individuals living in group quarters within the County decreased by -15.4%. This drop was marked by a sharp decline in group quarters population between the 1990 and 2000 Censuses.

Table 10: Onslow County  
Population in Group Quarters, 1980 to 2000

Year	Population in Group Quarters	% of Total Population
1980	22,936	20.3%
1990	34,538	23.0%
2000	19,415	12.9%

Source: US Census Bureau.

*i. Housing Summary*

- According to the 2000 US Census, Onslow County contains a total of 55,726 dwelling units, of which approximately 13.6% are vacant. Out of the 86.4% occupied units, 50.2% are owner-occupied and 36.2% are rental properties.
- The median age of all residential structures in the county is 25 years.
- The percentage of homes in Onslow County with 3+ bedrooms is 61.4%, compared to 60.8% for the state overall.
- Onslow County has a much higher percentage of modular housing (24.4%) than the state average (16.4%).
- Approximately 88% of all current owner occupants moved into their homes within Onslow County since 1980.

**3. Employment and Economy**

*a. Introduction (General Economic Indicators)*

Onslow County ranks favorably to the state overall in nearly all economic categories. This can mainly be attributed to a fairly stable workforce that exists within the county. The one area where the county falls into the lowest percentile for the state is average weekly wage. Currently Onslow County ranks 94<sup>th</sup> out of 100 North Carolina counties for this category. Table 11 provides a summary of economic indicators for Onslow County and the State of North Carolina. Due to the lack of available data, the figures provided in Table 11 are from several different years. The unemployment rate for the county is slightly higher than the state overall according to 2005 reports from the NC Department of Commerce. The household income section (page 22) provides an indication of overall poverty levels within Onslow County.

Table 11: Onslow County and North Carolina Summary of Economic Indicators

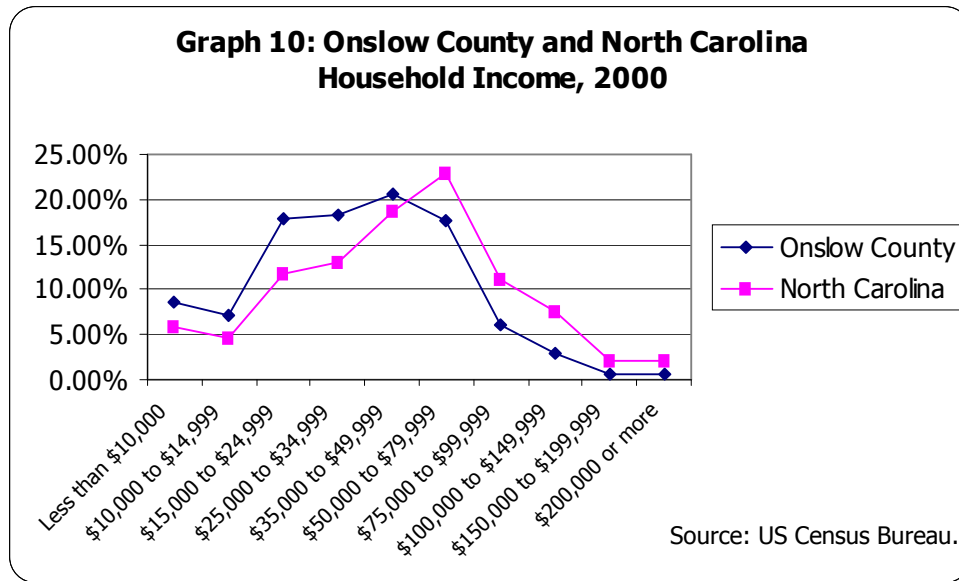
	Year	Onslow County	North Carolina
Gross Retail Sales (per capita)	2004	\$125,400,000	unavailable
Per Capita Income	2002	\$25,317	27,785
Average Weekly Wage	2004	\$446	639

	Year	Onslow County	North Carolina
Unemployment Rate	4th Q 2003	5.8%	6.4%
Unemployment Rate	2 <sup>nd</sup> Q 2005	5.5%	5.1%
% of Population in Labor Force	2000	76.2%*	49.4%*
Jobs Announced	2004	35	n/a
Job Losses	2004	6	n/a
Poverty Rate	2000	12.9%	15.2%

\*Addresses individuals in the workforce over 16 years of age  
 Source: NC Department of Commerce; US Census Bureau

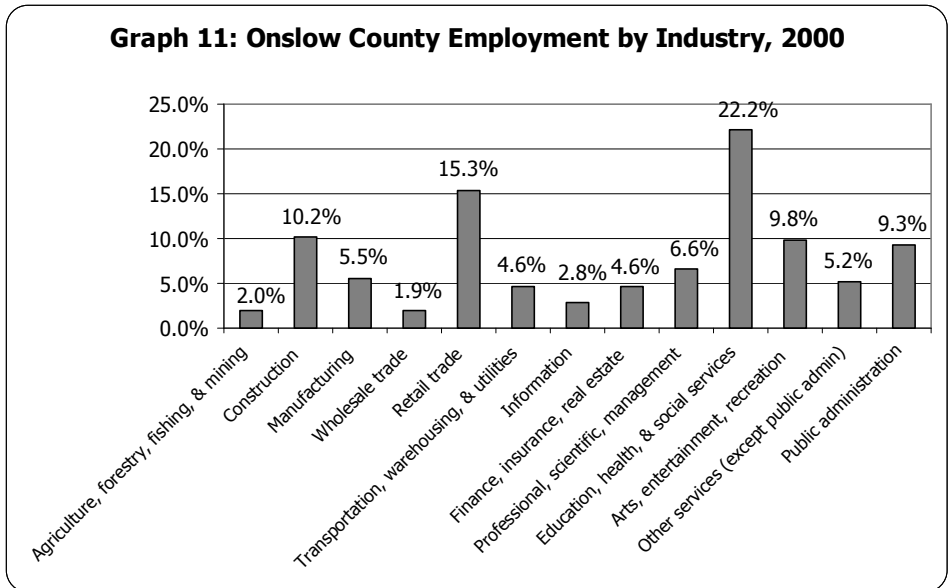
*b. Household Income*

Household Income is an effective way to evaluate the overall wealth of an area. Graph 10 provides the percentage of households within varying income brackets, and how these figures compare to state percentages. Onslow County's household incomes are somewhat comparable to state percentages. Approximately 48% of the county's households have an annual income in excess of the county's median of \$33,756. Within the household income table (see Appendix III, Dataset 9), indicators have been included specifying where the income limits for the County are considered to be "Very Low," "Low," and "Moderate." As noted earlier, these income limits are utilized by the NC Division of Community Assistance (DCA) for determining income ranges for grant in aid programs. The income limits are compiled on a county-by-county basis, and are a good indicator of relative poverty within the County. The limits are established based on an average household size of three persons. According to these limits, approximately 51.8% of the County's residents are considered very low to moderate income residents.



c. *Employment By Industry*

Graph 11 provides a summary of employment by industry in Onslow County for those persons 16 years and over (see Appendix III, Dataset 10). The leading employment industries are education, health, and social services (22.2%), retail trade (15.3%), and construction (10.2%). The industries with the least employment are wholesale trade (1.9%), and agriculture, forestry, fishing and hunting, and mining (2.0%).



Source: US Census Bureau.

It should be noted that the agriculture, forestry, fishing, and mining employment data that has been provided is somewhat misleading because the figures reflect insured employment and do not include many seasonal migratory workers. Although the exact number of individuals employed in these industries is unknown, this sector of industry only employs a small number of individuals within Onslow County. Beyond these figures, there is no quantitative method to track seasonal employment. Although farming is not a large employer within the county, it is a significant contributor to the county's economy. Table 12 provides a summary of agricultural data for Onslow County.

Table 12: Onslow County Agricultural Data

<b>Agriculture Cash Receipts (2002)</b>	Dollars	Rank
Livestock	\$51,407,000	23
Crops	\$19,833,000	49
Government Payments	\$2,170,000	30
Total	\$73,410,000	30
<b>Census of Agriculture (1997)</b>		
Number of Farms	404	
Total Land in Farms, Acres	63,804	
Average Farm Size, Acres	158	
Harvested Cropland, Acres	39,270	
Average Age of Farmers	55	

**Census of Agriculture (1997)**

Average Value of Farm and Buildings	\$427,198
Average Market Value of all Machinery and Equipment	\$78,796
Average Farm Production Expense	\$183,880

<b>Crops (2001)</b>	Acres Harv.	Yield	Production	Rank
Tobacco, lbs.	1,925	1,670	3,219,000	32
Cotton, 480 lb. bales	6,200	581	7,500	33
Soybeans, bu.	13,500	24	325,000	41
Corn, bu.	12,200	93	1,140,000	22
Corn for Silage, tons	*	*	*	*
Peanuts, lbs.	*	*	*	*
Small Grains:				
Wheat, bu.	3,500	38	132,000	29
Barley, bu.	*	*	*	*
Oats, bu.	*	*	*	*
Sweet Potatoes, cwt.	*	*	*	*
Irish Potatoes, cwt.	2,900	3.41	9,900	60
All Hay, tons	*	*	*	*
Sorghum, bu.				

<b>Livestock</b>	Number	Rank
Hogs and Pigs (December 1, 2001)	197,000	55
Cattle (January 1, 2001)	2,400	30
Beef Cows (January 1, 2002)	1,100	28
Milk Cows (January 1, 2002)	0	0
Equine		*
Broilers Produced (2001)	*	*
Turkeys Raised (2001)	2,000,000	5
All Chickens (December 1, 2001)	*	*

NOTE: Entries designated with an asterisk (\*) were not published if there were fewer than 50 harvested acres of a specific crop, 500 hogs, 200 beef or milk cows, 500 total cattle, 200,000 broilers, 300,000 turkeys, or 5,000 chickens in the county.

Source: NC Department of Agriculture.

Onslow County ranks 30th in total agricultural production within North Carolina. The county is much more active in livestock operations versus crop yields, and is the fifth largest producer of turkey in the state. Onslow County also produces a significant amount of the state's corn.

*d. Average Weekly Wage*

Table 13 provides a listing of average weekly wages by industry. The utilities industry yields the highest wages in Onslow County jobs (\$938 per week). Across the board, wages in Onslow County are significantly lower than state averages, with the exception of public administration.

Table 13: Onslow County  
Wages by Industry, 2000

Industry	Average Weekly Earnings	
	Onslow County	North Carolina
Agriculture, forestry, fishing, and hunting	\$497	\$525
Construction	\$536	\$729
Manufacturing	\$604	\$847
Wholesale trade	\$775	\$1,034
Retail trade	\$406	\$460
Transportation, warehousing	\$730	\$778
Information	\$446	\$1,024
Finance, insurance	\$615	\$1,151
Professional and technical services	\$662	\$1,150
Educational services	\$536	\$649
Arts, entertainment, and recreation	\$262	\$544
Mining	\$497	\$1,019
Utilities	\$938	\$1,208
Real estate, and rental/leasing	\$503	\$700
Management of companies and enterprises	\$683	\$1,440
Administrative and waste services	\$339	\$491
Health care and social assistance	\$617	\$755
Accommodation and food services	\$200	\$251
Other services (except public administration)	\$384	\$436
Public administration	\$717	\$715
Unclassified	\$428	\$651
Total government	\$574	\$718
Total private industry	\$436	\$717
Total all industry	\$485	\$715

Source: NC Department of Commerce.

*e. Industries*

The following table lists all industrial employers within the county. The largest industrial operator in the county is Convergys (formerly AT&T) which employs 600 total personnel. According to the Onslow County/Jacksonville Chamber of Commerce, industry within the county employs a total of 2,631 persons.

Table 14: Onslow County Industrial Operators

Industry Name	Specialty	# of Employees
Advanced Machine Group	custom machine parts	22
Coastal Enterprises	belt buckles assembly	230
Coastal Equipment	restaurant equipment supply	33
Convergys	outsourced customer care & billing solutions	600
Market Central	customer service/publishing	450
ENC Publications	commercial printing	25
Fiberglass International Inc.	restaurant equipment manufacturer	2
Jacksonville Daily News	newspaper	175
Lion Valley Industries, Inc.	Warehousing and repair of military gear	14
Mine Safety Appliances	respirators & filter cartridges	190
Omega World Travel	central data processing/ major account reservations	120
Progressive Service Die Co.	Cutting dies, fixtures, industrial molds	25
Resco Precision Components	CNC machining	1
Specialty Mode Inc.	Garment manufacturer	50
Stanadyne Automotive Corporation	diesel fuel pump system manufacturer	300
Telemarketing Concepts	outbound calling	275
Tiara Yachts	yacht building	89
Travel Management Partners	corporate travel	17
Truss Builders of Holly Ridge	roofing & floors	13
Total Industrial Employees		2,631

Source: Onslow County/Jacksonville Chamber of Commerce.



*f. Daytime Population*

Table 15 provides a summary of daytime population. Daytime population refers to the number of people who are present in an area during normal business hours, including workers. This demographic category is separate from the “resident” population present during the evening and nighttime hours. According to these Census estimates, the County’s population is actually reduced by 2.1% during working hours due to commuting residents.

Table 15: Onslow County Daytime Population

Total Resident Population (2000)	Total Workers Working in the Area	Total Workers Living in the Area	Estimated Daytime Population	Daytime Population Change due to Commuting	
(3)	(4)	(5)	(6) = (3) + (4) - (5)	Number	% Change
150,355	76,316	79,399	147,272	-3,083	-2.1

Source: US Census Bureau.

*g. Employment and Economy Summary*

- Onslow County compares favorably to all other North Carolina counties in all economic categories, with the exception of average weekly wage, which the county ranks 94<sup>th</sup> out 100 counties.
- The unemployment rate for the county as of 3<sup>rd</sup> Quarter FY05 is 5.5% which is slightly higher than the state overall (5.1%).
- According to the 2000 US Census the counties unemployment rate (12.9%) is slightly lower than the state overall (15.2%).
- Median income for Onslow County is \$33,756, compared to \$39,184 for North Carolina overall.
- The leading employment industries in the county are education, health, and social services employing 22.2% of the population, and retail trade at 15.3%. The industry employing the least number of individuals are wholesale trade (1.9%).

- Onslow County ranks 30 in total agricultural production within North Carolina. The counties agricultural production is comprised predominantly of livestock production, although the county ranks in the top 50<sup>th</sup> percentile for crop production as well.
- The industries in the county with the highest recorded weekly wage is utility work with a weekly wage of \$938, wholesale trade at \$775, and transportation and warehousing at 730%.
- .According to the Onslow County/Jacksonville Chamber of Commerce, there are 19 industrial facilities operating in Onslow County. Of these Convergys employees the largest number of individuals (600).

**4. Population and Housing Forecast**

The following summarizes the population and housing forecasts. These estimates also include a forecast of seasonal housing units. This excerpt has been taken from the Citizens’ Comprehensive Plan for Onslow County. There are many different methodologies that may be utilized to forecast housing needs and population, which all produce varying results. In the interest of continuity, and the need for having these two documents work in conjunction with one another, the forecast as reported in the 2003 plan have been utilized.

Data presented in earlier sections of this growth factors analysis contain several important pieces of information that together allow for projections of future housing demand. Those pieces of information are: total population growth, growth in housing relative to population growth, trends in persons per household, and trends in vacancy rates. This information is presented below.

Table 16: Onslow County Permanent and Seasonal Population Forecasts

	1970	1980	1990	2000	2010	2020
Total housing units	24,547	35,437	47,526	55,726	63,185	69,323
Total population	103,126	112,784	149,838	150,355	157,963	166,376
Persons per housing unit	4.2	3.2	3.2	2.7	2.5	2.4
Vacant housing units	1,585	3,932	6,868	7,604	9,478	11,092
% of all housing vacant	6.0%	11.0%	14.0%	14.0%	15.0%	16.0%
Seasonal housing units	201	1,198	1,870	2,906	3,791	4,853
% of all housing seasonal	1%	3.0%	4.0%	5.0%	6.0%	7.0%

Source: US Census, NC State Data Center, and Glen Harbeck Associates.

As can be seen, the growth of the housing stock has closely tracked the growth in population. The one exception was at the time of the 1990 Census; it appears that there was an influx of people into the country during the 1980s without a commensurate increase in the number of housing units. Looking at the table, a second observation is the steady decline in the number of persons per housing unit over the past three decades. This trend is expected to continue for the next two decades, through at a lesser rate, as members of the baby boom generation move into their retirement years. Thus, by 2020, it is anticipated that Onslow county will have about 16,000 more people and 13,600 more housing units.

In order to provide a more accurate overall assessment of projected population growth within the County, several different population estimates will be reported. The following table summarizes the population forecast (low growth scenario) reported by the NC Office of State Planning as of 2006. These estimates are based on NC Office of State Planning 2005 population estimates. These estimates do not include consideration of the influx of military, civilian, and dependent population at Camp Lejeune and the New River Air Station as a result of the military realignment. According to these estimates, Onslow County will increase by 10.6% (15,298) by the year 2030. These estimates contrast slightly with those outlined in the table above. The 2005 population reported by the NC Office of State Planning noted earlier in the plan is 157,738. Although this appears to be approaching the 2010 estimate listed above, it is difficult to make a determination on which projections are more accurate. The 2005 population figure is also compiled based on estimated growth rates from 2000-2005. The high growth scenario forecasts population increase based on growth rates established through the ARCADIS capital improvements planning process (refer to page 139 for discussion).

Table 17: Onslow County Non-Military Population Projections

	2000	2007	2010	2020	2030	% Change '00-'30
Low Growth Scenario	150,355	162,745	166,175	167,661	166,283	10.6%
High Growth Scenario*	150,355	163,121	177,446	212,264	233,221	55.1%

\*The high growth scenario accounts for growth within the City of Jacksonville, as well as the County overall. Source: Low Growth Scenario - NC Office of State Planning; High Growth Scenario - based on ONWASA Water and Wastewater Resources Plan (see Table 52).

The following table provides the anticipated growth of military, civilian personnel, and military dependents directly associated with Camp Lejeune and New River Air Station expansion.

Table 18: Onslow County  
Anticipated Military Population Growth Including Dependents

	FY2007	FY2008	FY2009	FY2010	FY2011	Totals
<b>Camp Lejeune</b>						
Active Duty	1,975	3,038	916	1,065	99	7,093
Civilians	0	194	240	240	239	913
Schools	0	529	0	0	0	529
Dependents	1,780	3,399	1,040	1,179	308	7,707
Subtotal - Camp Lejeune	3,755	7,160	2,196	2,484	646	16,242
<b>MCAS New River Air Station</b>						
Active Duty	0	0	0	0	466	466
Civilians	0	36	36	36	36	144
Dependents	0	33	33	33	455	553
Subtotal - MCAS New River	0	69	69	69	957	1,163
<b>TOTAL</b>	<b>3,755</b>	<b>7,228</b>	<b>2,265</b>	<b>2,553</b>	<b>1,603</b>	<b>17,405</b>

NOTE: 75% of military and dependent personnel will have to be accommodated in "off-base" housing. This equals approximately 3,500 "off-base" dwelling units.  
Source: US Department of Defense/US Marine Corps.

In addition, the North Carolina Eastern Region has forecast an induced growth of 0.6 people for each person in population growth directly associated with the military expansion (see Table18). The resulting induced population growth will be approximately 10,443 by 2011.

Table 19: Onslow County  
Population Projections/Historical Growth (NC Office of State Planning - Low Growth Scenario)  
and Military Personnel Expansion - Induced Growth

2000	2007	2010	2020	2030	% Change '00-'30
150,355	168,753	185,283	195,509	194,131	29.12%

Source: Low Growth Scenario - NC Office of State Planning; US Department of Defense/US Marine Corps.

The high growth scenario forecast has been utilized for planning purposes in the preparation of this plan. The high growth population forecast significantly exceeds the population forecast by the NC Office of State Planning which is based entirely on historical growth trends. The high growth forecast has been utilized for water and sewer planning purposes. It is acknowledged that the high growth forecast does not fully incorporate the 2007-2010 influx of personnel; however, the high

growth forecast through 2030 does show a forecast population increase sufficient to accommodate/respond to anticipated military related growth. It is difficult, if not impossible, to forecast short-term population increases which are not based on long-term historical trends. NOTE: The 2030 high growth scenario (Table 17) exceeds the low growth scenario with military expansion by 15,938 in 2020 and 38,240 in 2030.

**B. NATURAL SYSTEMS ANALYSIS**

*Refer to Appendix VI for data on the participating municipalities of Holly Ridge and Richlands.*

**1. Mapping and Analysis of Natural Features**

The purpose of this section of the CAMA Land Use Plan Update is to describe, analyze, and map the natural features and environmental conditions currently found in Onslow County and to assess their capabilities and limitations for development.

As required by CAMA regulations at Chapter 15A of the North Carolina Administrative Code, planning should be done on a watershed basis. As such, the six-digit and 14-digit hydrological unit codes (HUC) for Onslow County are depicted on Map 3 (see Appendix II) and will be referenced throughout this Plan. When discussing issues such as water quality, the classification system utilized by the state will be used. This system breaks the state down into what are referred to as river basins and subbasins. Onslow County falls within both the White Oak and Cape Fear River Basins, and within the county there are five separate subbasins. The water quality section of the plan will involve a more detailed description of both river basins, as well as the subbasins. Refer to the adjacent text box for a definition of the HUC and a description of its significance.

**What are Hydrological Units?**

The United States is divided and sub-divided into successively smaller hydrologic units which are classified into six levels. The first of these four are established by the U.S. Geological Survey and are as follows: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging units) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.

The Natural Resources Conservation Service (NRCS) has further subdivided the aforementioned cataloging units into smaller units - the 11-digit HUC (watershed) and the 14-digit HUC (sub watershed or local watershed).

Throughout the context of this document, acreage calculations will be compiled involving a wide range of natural and man-made factors. The acreage reported throughout this document will involve only the unincorporated portions of the county. Because none of the municipalities within the county are participating in the county's CAMA Land Use Plan Update, the natural features and land use trends within these areas will not be discussed or documented. The following table summarizes the total acreage for the county overall as well as

the incorporated acreage. For the purposes of this document, Camp Lejeune acreage has been included in the unincorporated acreage total. This will only include the portions of Camp Lejeune not falling within the ETJ or corporate limits of Jacksonville. The unincorporated portion of Onslow County is comprised of approximately 456,734 acres (713.65 square miles). This total county acreage will remain consistent throughout the context of the plan.

Table 20: Onslow County  
Summary of Total County Acreage

Jurisdiction	Acres	% of Total County
Unincorporated acreage	314,606	57.6%
Incorporated acreage	89,576	16.4%
Camp Lejeune Marine Base Acreage	142,128	26.0%
Total County Acreage	546,130	100.0%
Total Unincorporated Acreage	456,734	83.6%

Source: Onslow County GIS, Holland Consulting Planners, Inc.

*a. Topography/Geology*

Onslow County is located in the lower coastal plains region of North Carolina. The county is oriented southeast to northwest, running from the Atlantic Ocean inland roughly 36 miles. Much of the county is nearly level, and is dominated by undissected interstream segments. Water movement is extremely slow in throughout these interstream segments due to minimal relief, resulting in poorly drained soils within this areas. Elevation within the county runs from sea level along the coast to approximately 100 feet in the northeastern and western portions of the county. Central portions of the county lie at elevations ranging from 24 to 42 feet.

The main water systems draining the county are the White Oak River, New River, Southwest Creek, Northeast Creek, Back Creek, Sandy Run Swamp, Nine Mile Swamp, and Juniper Swamp. The White Oak and New Rivers, as well as the creek systems within the county that drain into the Intracoastal Waterway, have wide estuarial floodplains. Because of tidal flow these waterbodies are brackish running anywhere from one to ten miles inland.

The county is underlain by the following formations or aquifers. The order of these aquifers from the surface is as follows: NC surficial aquifer, Yorktown Aquifer, Castle Hayne Aquifer, Pee Dee Aquifer. Aquifers are defined as any geologic formation that contains water in sufficient quantity and with sufficient mobility to be useful as a water source. The surficial and Castle Hayne Aquifers provide the county with a majority of their potable water. The surficial aquifer within Onslow County yields large amounts of water because of the county’s high water table.

Sinkholes are a growing problem in Onslow County. There are three basic types of sinkholes: one caused by rotting debris (tree trunks and construction debris); one caused by leaking/damaged pipes or culverts; and one caused by Karst (limestone) geology. All three types are found in Onslow County. In 2008, the East Carolina Council, with the support of a grant from the NC Division of Water Quality, was conducting a study of the sinkhole problem in Onslow County. The study will address consistency in the reporting of sinkholes, collecting data on old as well as new sinkholes, creating a GIS layer of sinkhole locations, and ordinances/laws on sinkhole issues.

*b. Climate*

Onslow County is generally hot and humid in the summer, but the coast is cooled by sea breezes during these periods. Winter is cool, with an occasional cold spell. Rains occur throughout the year and can be heavy at times. Snowfall is rare in the county. Annual precipitation is adequate to support all crops commonly grown in the county. The following table provides a summary of climatic conditions throughout the calendar year.

Table 21: Onslow County  
Climatic Conditions throughout the Calendar Year

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Average temp. (°F)	46.2	46.7	52.0	59.9	65.9	75.9	80.8	79.3	76.3	64.8	56.8	44.0
High temperature (°F)	57.9	58.9	63.9	71.5	76.8	84.8	90.2	88.7	86.1	75.4	69.8	58.4
Low temperature (°F)	35.8	35.5	40.7	47.8	54.8	67.9	73.4	71.9	68.8	56	44.7	34.3
Precipitation (in)	4.50	3.59	4.03	3.06	3.85	4.88	7.08	6.47	6.23	3.32	3.33	3.69

Source: NC State Climate Office.

*c. Flood Zones*

Approximately 17.8% of Onslow County lies within a Special Flood Hazard Area (SFHAs). A SFHA is defined as a land area with a greater than 1% chance per year of flooding and is also known as a “floodplain.” SFHAs are indicated on Flood Insurance Rate Maps (FIRMs), which are considered the most reliable and consistent source for delineating SFHAs and are the source used to determine whether or not the purchase of flood insurance is mandatory for developed properties with mortgages. The FIRMs for all of Onslow County have recently been remapped, and were officially adopted on October 15, 2004. According to the Federal Emergency Management Agency, a home located within an SFHA has a 26% chance of suffering flood damage during the term of a 30-year mortgage.

Floodplains in the county can be broken down into “A zone” (A and AE) areas and “floodway areas.” A “floodway” is the channel of a river or stream, and the overbank areas adjacent to the

channel. This is the area where water flows are fastest and deepest and development is strictly prohibited in these areas under the National Flood Insurance Program (NFIP). An “A zone” is a riverine area with greater than 1% chance per year of flooding that is not a floodway. Some additional definitions of flood zone designations are outlined below. These definitions describe the flood zones in Onslow County not mentioned above.

**Zone AE:** Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by detailed methods of analysis. In most instances, Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

**Zone X:** Zone X is the flood insurance rate zone that corresponds to areas outside the 1-percent annual chance floodplain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

**Zone VE:** Zone VE is the flood insurance rate zone that corresponds to areas within the 1-percent annual chance coastal floodplain that have additional hazards associated with storm waves. Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

Flood hazard areas are depicted graphically on Map 4 (see Appendix II) and characterized in Table 22 below.

Table 22: Onslow County Land Area by SFHA

Flood Hazard Areas	Acres	% of Total Unincorporated County Land Area
A Zone	18,047	3.2%
AE Zone	59,914	10.7%
AEFW (Floodway)	3,200	0.6%
VE	9,784	1.7%
X (Outside of SFHA)	4,215	0.8%
TOTAL	95,161	17.0%

Source: NC Center for Geographical Information Analysis, Holland Consulting Planners, Inc.



Another source of flooding within the county is from storm surge. Storm surge is ocean overwash associated with hurricanes or other tropical or extra-tropical weather events. Primarily areas susceptible to flooding related to storm surge are located in coastal municipalities that do not fall under the jurisdiction of this plan. Storm surge resulting from tropical storm events also has an effect on land located within riverine floodplains. The flooding is not quite as severe as in coastal areas; however, in the case of a major storm event the damage caused by surge could be significant.

Map 5 (see Appendix II) shows the general areas of Onslow County which may be affected by hurricane-generated storm surge based on the SLOSH (Sea, Lake, and Overland Surges from Hurricanes) model developed by the National Oceanic and Atmospheric Administration (NOAA), which computes storm surge heights from tropical cyclones, such as hurricanes. The SLOSH model estimates the extent of storm surge inundation for storms with forward velocity greater than 15 miles per hour.

Table 23 provides a tabular representation of the areas in the county inundated by storm surge flooding at different category events.

Table 23: Onslow County Storm Surge Hurricane Inundation

Storm Inundation	Acres	% of Total County Land Area
Category 1/2	28,696	5.1%
Category 3	42,093	7.5%
Category 4/5	65,076	11.6%

\*The acreage totals for storms of increasing intensity include the acreage affected by storms of less intensity. In summary the acreage for areas affected by a category 3 storm event include the acres falling under a category 1-2 storm.

Source: National Oceanic Atmospheric Administration, Holland Consulting Planners, Inc.

The various categories of storm surge areas and a description of expected damages are provided below:

**Category 1:** Winds of 74 to 95 miles per hour. Damage primarily to shrubbery, trees, foliage, and unanchored mobile homes. No appreciable wind damage to other structures. Some damage to poorly constructed signs. Storm surge possibly 4 to 5 feet above normal. Low-lying roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

**Category 2:** Winds of 96 to 110 miles per hour. Considerable damage to shrubbery and tree foliage; some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing materials of buildings; some window and door damage. No major wind damage to buildings. Storm surge possibly 6 to 8 feet above normal. Coastal roads and low-lying escape routes inland cut by rising water 2 to 4 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation of some shoreline residences and low-lying island areas required.

**Category 3:** Winds of 111 to 130 miles per hour. Foliage torn from trees; large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. Storm surge possibly 9 to 12 feet above normal. Serious flooding at coast and many smaller structures near coast destroyed; larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives.

**Category 4:** Winds of 131 to 155 miles per hour. Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows, and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. Storm surge possibly 13 to 18 feet above normal. Major damage to lower floors of structures near shore due to flooding and battering by waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Major erosion of beaches.

**Category 5:** Winds greater than 155 miles per hour. Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of roofs on many residences and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. Storm surge possibly greater than 18 feet above normal. Major damage to lower floors of all structures less than 15 feet above sea level. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives.

It should be noted that the above data regarding storm surge presumes a "direct hit" by the eye of the storm to some portion of Onslow County. Actual inundation areas, damages, and impacts will likely be less severe than the model if the county receives a "glancing blow" from a storm.

*d. Man-Made Hazards*

There are four primary man-made hazards in the county (a majority of which are related to the presence of Camp Lejeune Marine Base). These are Tier II facilities, Underground Storage Tanks (UST), Formerly Used Defense Sites, and CERCLIS or Hazardous Waste Sites. These hazards are described below.

**(1) Tier II Facilities**

Facilities covered by the Federal Emergency Planning and Community Right-to-Know Act (EPCRA) must report the characteristics and quantities of chemicals stored on-site as well as emergency contact information by the first day of March every year. This information, known as Tier II reporting, is submitted to the State Emergency Response Commission, the Local Emergency Planning Committee (LEPC), and the fire department with jurisdiction over the facility. Once information is submitted by the facility, it must be reviewed and filed at the state and county levels.

In general, facilities that have Tier II reporting requirements contain materials that can be mildly to extremely (depending on the specific chemical) dangerous if mishandled, spilled, or burned. Such facilities should generally be located away from residential and retail commercial land uses. A listing of Tier II facilities in the County that the US Environmental Protection Agency (EPA) characterizes as Extremely Hazardous Substances (EHS) under Section 302 of the Emergency Planning and Community Right-to-Know Act is available through the NC Division of Emergency Management. There are currently 60 of these facilities located within the county.

**(2) Underground Storage Tanks (UST)**

A significant man-made hazard located throughout Onslow County are fuel storage tanks located at marinas, retail stores and service stations that are engaged in selling fuel. Because the County relies on groundwater for its water supply, the underground fuel tanks could pose a threat. There are 1,873 underground storage tanks registered with the Groundwater Section of the North Carolina Division of Waste Management, Department of Environment and Natural Resources within Onslow County. These facilities are located throughout the county, including the municipalities not participating in the county's land use plan update. A majority of these tanks are tied to gas/service station operations; however, approximately 30% (554) of the tanks within the county fall under the jurisdiction of Camp Lejeune. All problems relating to these tank facilities, with the exception of those falling within Camp Lejeune, should be reported to the North Carolina Department of Environment and Natural Resources (DENR) Division of Waste Management.

North Carolina's underground storage tank (UST) program is administered by the Division of Waste Management's UST Section within NCDENR. The UST Section enforces UST regulations and manages funds used to perform cleanups of petroleum and UST discharges or releases. The program was initiated in 1988 in response to growing reports of USTs leaking petroleum into soil and drinking water supplies. All tank removal and efforts to remove ground and groundwater contamination should be coordinated with the UST Section of DENR. The following should be accomplished concerning potential releases from underground storage tanks:

- The Wilmington Regional Office (WiRO) UST Section recommends removal of any abandoned or out-of-use underground storage tanks within the project area. The UST Section should be notified of any USTs to be permanently closed or installed. Owners and operators must obtain an operating permit and pay fees for all USTs "in use."
- Any UST systems installed within 500 feet of a public water supply or within 500 feet of any surface water classified as HQW, ORW, WS-I, WS-II, or SA must be secondarily contained and must employ interstitial monitoring.
- Any above-ground fuel tanks must be installed and maintained in accordance with applicable local, state, and federal regulations.
- Any petroleum spills must be contained and the area of impact must be properly restored. Spills of significant quantity must be reported to the UST Section (WiRO). Chemical and petroleum spills to the surface waters must be reported to the Division of Water Quality (WiRO).
- Any soils excavated during demolition or construction that show evidence of chemical or petroleum contamination, such as stained soil, odors or free product must be reported immediately to the local Fire Marshall to determine whether explosion or inhalation hazards exist. Contaminated soils must be properly disposed. The WiRO UST Section should also be notified.
- Any questions or concerns regarding USTs should be directed to the WiRO UST Section.

### **(3) Formerly Used Defense Sites (FUDS)**

There are three (3) formerly used defense sites in Onslow County. Two of the sites, Holly Ridge #104NC0519 and Onslow #USO-31-126, do not have any hazards potential. The Maryhill Bomb Target #104NC0946 does have hazards potential. All sites are located on Military/Department of Defense property.

**(4) North Carolina Superfund**

Developers are urged to examine the NC Superfund Section Site Maps to locate the proximity of CERCLIS or hazardous waste sites to their proposed project location. Presently, there are ten known hazardous waste sites identified throughout Onslow County. Seven of these sites are in or near Jacksonville. Two sites are in Holly Ridge and one is in Swansboro. The following describes these sites:

The Jacksonville Landfill Site (NCD 980 502 991), comprised of seven landfills scattered throughout Jacksonville, and the Stanadyne, Inc./Diesel Systems (NCD 084 167 444) have been removed from the CERCLIS list, but are still on the NC Inactive Hazardous Sites Branch (IHSB) Priority List. The Marine Corps Base, Camp Lejeune Site (NC6 170 022 580) has been added to the National Priorities List (NPL). This site has several Operable Units and is undergoing remediation under the Installation Restoration Program. The Sturgeon City Property Site (NONCD 0000 679), the Coastal Dry Cleaners Site (NONCD 000 1193) and the Southern Uniform Site (NONCDS 000 1146) are on the IHSB Inventory, but not on CERCLIS.

The two Holly Ridge sites are the Bostic Drum Site and the Renroh Site. Both have been removed from the CERCLIS list and have a No Further Action status from the IHSB. The Coastal Dry Cleaners Site (NONCD 000 1195), located on West Corbett Avenue in Swansboro, is under the jurisdiction of the NC Drycleaner Solvent Program.

There was no offshore oil exploration or drilling underway in recent years. However, future exploration and/or drilling could pose a threat for coastal portions of Onslow County if it were to occur.

*e. Soils*

A detailed soils survey of Onslow County was issued by the Natural Resources Conservation Service in 1992. This survey was conducted to provide information about the soils in Onslow County. The information includes a description of the soils and their location, and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; and the kinds of crops and native plants growing on the soils.

Based on that survey, there are 42 different soils types located within Onslow County's unincorporated areas. The conditions for site development for each of these soil types are provided in Table 24 below. Many of the soils within the County are hydric meaning that they are prone to flooding and thus present constraints to development. All hydric soils have been marked

with an asterisks in the table below. Soil maps are extremely difficult to decipher at the scale required to print map inserts. For a detailed county soils map, please reference the county's comprehensive soil survey, available at the Cooperative Extension Office, or visit the following web site [www.nc.nrcs.usda.gov/programs/soilsurvey](http://www.nc.nrcs.usda.gov/programs/soilsurvey). For general review purposes, a soil survey of the county has been provided as Map 6 (see Appendix II).

Table 24: Onslow County  
Soil Types

Map Symbol and Soil Name	Dwellings Without Basements	Local Roads and Streets	Lawns and Landscaping	Acres	% of Total Unincorporated County
AnB - Alpin <sup>2</sup>	Slight	Slight	Severe: droughty	1,469.8	0.3%
AuB - Autryville <sup>2 4</sup>	Slight	Slight	Moderate: droughty	9,553.0	2.1%
BaB - Baymeade <sup>2 3</sup>	Slight	Slight	Severe: droughty	40,829.9	8.9%
BmB - Baymeade	Slight	Slight	Severe: droughty	631.5	0.1%
Bo - Bohicket <sup>1</sup>	Severe: flooding, ponding, shrink-swell	Severe: low strength, ponding, flooding	Severe: excess salt, excess sulfur, ponding	8,455.2	1.9%
Ca - Carteret <sup>1</sup>	Severe: flooding, ponding	Severe: ponding, flooding	Severe: excess salt, ponding, droughty	133.5	0.03%
Co - Corrolla <sup>2</sup>	Severe: flooding	Moderate: flooding, wetness	Severe: droughty	260.4	0.1%
CrB - Craven	Moderate: wetness, shrink-swell	Severe: low strength	Slight	2,529.3	0.6%
CrC - Craven <sup>2 4</sup>	Moderate: wetness, shrink-swell	Severe: low strength	Slight	2,286.3	0.5%
Ct - Croatan <sup>1 4</sup>	Severe: flooding, wetness, low strength	Severe: wetness	Severe: too acid, wetness	33,522.6	7.3%
Da - Doravan <sup>1</sup>	Severe: flooding, ponding, low strength	Severe: ponding, flooding	Severe: ponding, flooding, excess humus	2,945.5	0.6%
Dc - Duckston <sup>1</sup>	Severe: flooding, wetness	Severe: flooding	Severe: droughty, flooding	357.3	0.1%
FoA - Foreston <sup>3 4</sup>	Slight	Slight	Moderate: droughty	27,304.8	6.0%
GoA - Goldsboro <sup>3 4</sup>	Moderate: wetness	Moderate: wetness	Slight	16,456.6	3.6%
GpB - Goldsboro	Moderate: wetness	Moderate: wetness	Slight	1,446.2	0.3%
Gt - Grifton <sup>1 3</sup>	Severe: wetness	Severe: wetness	Severe: wetness	677.9	0.1%
KuB - Kureb <sup>2 3</sup>	Slight	Slight	Severe: droughty	7,674.9	1.7%
La - Lafitte <sup>1</sup>	Severe: flooding, ponding, low strength	Severe: low strength, ponding, flooding	Severe: excess humus, ponding, flooding	1,145.8	0.3%
Le - Lenoir <sup>2 3 4</sup>	Severe: wetness	Severe: low strength	Moderate: wetness	930.7	0.2%
Ln - Leon <sup>1 3</sup>	Severe: wetness	Severe: wetness	Severe: wetness, droughty	29,185.5	6.4%

Map Symbol and Soil Name	Dwellings Without Basements	Local Roads and Streets	Lawns and Landscaping	Acres	% of Total Unincorporated County
Ly - Lynchburg <sup>2 3 4</sup>	Severe: wetness	Severe: wetness	Severe: wetness	10,669.2	2.3%
MaC - Marvyn <sup>2 3</sup>	Moderate: slope	Moderate: slope	Moderate: slope	17,457.9	3.8%
Md - Masontown <sup>3</sup>	Severe: flooding, ponding, low strength	Severe: ponding, flooding	Severe: ponding, flooding	875.8	0.2%
Mk - Muckalee <sup>1</sup>	Severe: flooding, wetness	Severe: wetness, flooding	Severe: wetness, flooding	29,623.3	6.5%
Mu - Murville <sup>1</sup>	Severe: ponding	Severe: ponding	Severe: ponding	14,827.5	3.2%
NeE - Newhan <sup>2</sup>	Severe: flooding, slope	Severe: slope	Severe: droughty, slope	1,527.8	0.3%
Nfc - Newhan	Severe: flooding	Moderate: flooding	Severe: droughty	587.0	0.1%
NnE - Newhan <sup>2</sup>	Severe: flooding, slope	Severe: slope	Severe: droughty, slope	664.5	0.1%
NoA - Norfolk <sup>3 4</sup>	Slight	Slight	Moderate: droughty	3,263.3	0.7%
NoB - Norfolk <sup>3 4</sup>	Slight	Slight	Moderate: droughty	22,622.8	5.0%
On - Onslow <sup>3 4</sup>	Moderate: wetness	Moderate: wetness	Moderate: wetness	15,385.3	3.4%
Pa - Pactolous <sup>2 3</sup>	Moderate: wetness	Moderate: wetness	Moderate: wetness, droughty, too sandy	5,203.6	1.1%
Pn - Pantego <sup>1 4</sup>	Severe: wetness	Severe: wetness	Severe: wetness	17,302.6	3.8%
Pt - Pits				589.9	0.1%
Ra - Rains <sup>1 4</sup>	Severe: wetness	Severe: wetness	Severe: wetness	27,547.1	6.0%
St - Stallings <sup>2 3 4</sup>	Moderate: wetness	Moderate: wetness	Moderate: wetness	16,701.0	3.7%
To - Torhunta <sup>1 4</sup>	Severe: wetness	Severe: wetness	Severe: wetness	25,532.1	5.6%
Ud - Udorthents				83.2	0.02%
Ur - Urban Land				190.8	0.04%
WaB - Wando <sup>2 3</sup>	Slight	Slight	Moderate: droughty	7,477.0	1.6%
Wo - Woodington <sup>1 3 4</sup>	Severe: wetness	Severe: wetness	Severe: wetness	26,702.9	5.9%
YaA - Yaupon <sup>3</sup>	Severe: wetness	Severe: low strength, shrink swell	Slight	214.2	0.05%
Water				23,508.5	5.2%
Total				456,354.2	100.0%

<sup>1</sup>Map units that are all hydric soils or have hydric soils as a major component.

<sup>2</sup>Map units with inclusions of hydric soils or have wet spots.

<sup>3</sup>Prime commercial forestlands, excludes soils with severe seedling mortality.

<sup>4</sup>Prime farmland soils (refer to page 69 for discussion of prime farmlands).

NOTES:

- (1) Hydric soils in this county cannot be farmed under natural conditions without removing woody vegetation or hydrology manipulation. Some map units and included soils listed as hydric soils in this county **may** not meet the definition of hydric soils and wetlands because the hydrology has been altered through drainage or other manipulations.
- (2) The total county acreage for this table does not match the total outlined in Table 20 due to an error in the state's data extent within the county.
- (3) If characteristics of a specific soil are left blank then information was not gathered for that series.

Source: US Soil Conservation Service, Holland Consulting Planners, Inc.

*f. Water Supply*

As noted earlier in the plan, Onslow County relies on groundwater for its water supply (see adjacent text box for a discussion of groundwater). Some portions of unincorporated Onslow County have water service, but private well systems are common throughout the county. A substantial number of these well systems rely on water available from the surficial sands (surficial) aquifer, which runs from approximately 10 to 30 feet deep. This aquifer yields large amounts of water, due to the high water table that exists throughout the county. Beneath the surficial aquifer is the Castle Hayne Formation (Aquifer). This groundwater source runs throughout large portions of the North Carolina Coastal Plain, and in combination with the surficial aquifer supplies approximately 90% of the county's domestic water supply. The Pee Dee formation underlies the Castle Hayne Aquifer, and is the deepest and oldest of the three aquifers supplying groundwater to Onslow County residents. This water source is primarily utilized for well systems in the northwestern portion of the county. The county's water supply system and treatment plant facilities will be discussed in Section V.C of the plan.

The most significant issue related to groundwater within Onslow County is saltwater intrusion and recharge rates within the Castle Hayne Aquifer. Salt water is present throughout the far eastern portion of this aquifer. The top of the salt water ranges from 250 to 800 feet below ground surface. There does not appear to be any impermeable strata separating the fresh and

**Groundwater - What Is it?**

The ground beneath our feet is not completely solid. It is more like a sponge with pores of many shapes and sizes. When rain falls, it soaks into the ground and moves throughout this pore space. Pore space may account for up to 50 percent of the total volume of some soils.

Near the soil surface, in the unsaturated zone, the pores contain a combination of air and water. Further down is the saturated zone where all of the pore space is filled with water. This water is called groundwater. The water table is the boundary between the saturated zone and the unsaturated zone. A well must reach down below the water table, into the saturated zone, to obtain groundwater.

**Groundwater**

*Aquifers and Confining Beds*

The word aquifer comes from the Latin for "water bearing" and is used for any geologic formation that contains water in sufficient quantity and with sufficient mobility to be useful as a water source (for example, a layer of sand or gravel).

When water mobility is very limited (such as in a layer of clay or silt), the formation is called a confining bed or an aquitard.

*Recharge and Discharge*

Aquifer recharge is the movement of water from the surface down into an aquifer. In a recharge area, the net movement of water is downward. Recharge usually occurs in the upland areas between streams.

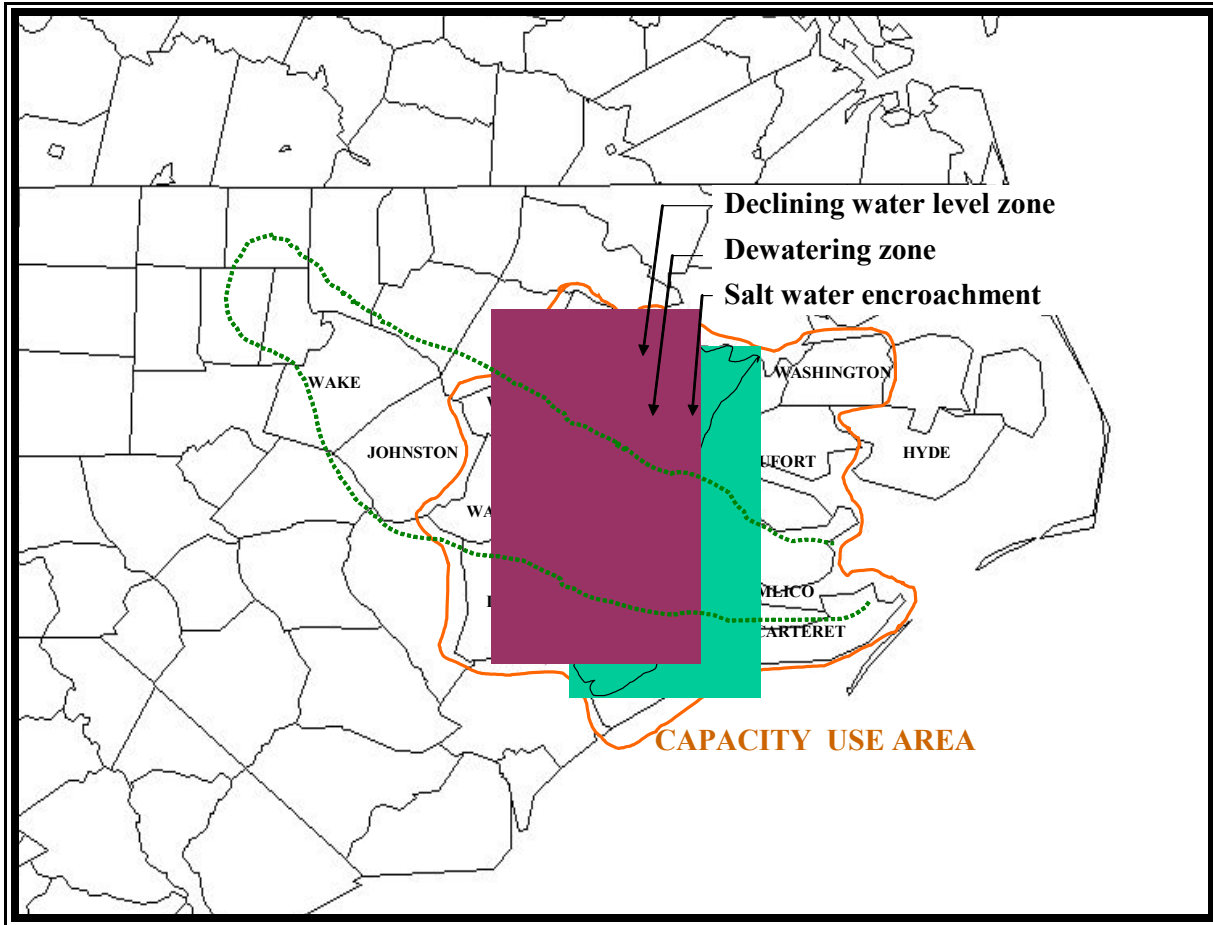
On the other hand, a discharge area is an area where the net movement of water is toward the surface. Groundwater discharge usually occurs in low areas close to streams and through the banks and beds of streams. (Source: Rodney L. Huffman, Publication Number AG-450, NC Cooperative Extension Service, 1996).



salt water. Based on reports coming from Camp Lejeune Marine Base, there has been an increase in chloride concentrations in groundwater which has historically been drawn as fresh water. Because of concerns regarding salt water intrusion and aquifer recharge rates, approximately 2,500 square miles of the Castle Hayne Aquifer, including a substantial portion of Onslow County, have been designated as a capacity use area by the NCDENR Groundwater Section. This designation can be attributed primarily to large withdrawals associated with increased urban development throughout the eastern portions of the state. A capacity use areas is defined as an area where the use of water resources threatens to exceed the replenishment ability to the extent that regulation may be required.

The Central Coastal Plain Capacity Use Area (CCPCUA) rules took effect on August 1, 2002, administered by the NC Division of Water Resources. The rules regulate water withdrawals within a 15-county area of east-central North Carolina, including a majority of Onslow County (see Exhibit 1 below). All those within the region who withdraw more than 10,000 gallons per day of groundwater and/or surface water must comply with the following criteria:

- Users of more than 10,000 gallons per day of groundwater and/or surface water must register and report their annual water use.
- Users of more than 100,000 gallons per day of groundwater must apply for a water use permit, and those permitted users of the Cretaceous Aquifer System in critical areas must reduce withdrawals in staged amounts over the next 16 years (at years 6, 11, and 16).
- Well pump intakes must be placed above the top of the aquifer from which water is withdrawn.
- Permitted users must monitor and report water levels and withdrawal amounts to the State.
- Owners of mines, sandpits, and quarries are required to apply for withdrawal permits and develop dewatering or depressurization monitoring plans. (Source: NC Rural Center)



**Exhibit 1: Central Coastal Plain Capacity Use Area**

NC State Law requires that the NC Division of Water Resources (DWR) publish a status report on the Central Coastal Plan Capacity Use Area (CCPCUA) two years after the effective date of the CCPCUA rules, which was August 1, 2004, and at five year intervals thereafter. Within the 2004 report, it was reported that there are currently five permits issued in Onslow County for entities with aquifer withdrawals in excess of 100,000 million gallons per day (MGD). Additionally, the report states that there are four additional facilities with permits awaiting approval. Both the existing permits and those awaiting approval are outlined below. It is not anticipated that the Capacity Use Rules will hinder economic development within Onslow County. The rules were adopted in order to institute monitoring procedures in response to depleting water levels in the Castle Hayne Aquifer. Since the adoption of these rules, it appears that the areas of concern, specifically in the Beaufort County area, are improving.

Table 25: Onslow County  
Permitted Water Use Permits (>100,000 MGD)

Company/Agency	Permitted Usage (MGD)	Water Use
Haugen Company	1.728	Mine dewatering
NCDOT - 2107A/BC	2.484	Mine dewatering
NDCOT - 2107D	Not reported	Mine dewatering
Onslow Water and Sewer Authority	11.461	Public water supply
City of Jacksonville	0.216	Public water supply
<b>Pending Permits (as of August 2004)</b>		
Town of Richlands		Public water supply
Northwest Onslow Water Association		Public water supply
Martin Marietta Onslow Quarry		Mine dewatering
Marine Corps Base Camp Lejeune		Public water supply

Source: Central Coastal Plain Capacity Use Area Status Report (NC Division of Water Resources Environmental Management Commission, August 2004).

This issue will be further addressed in the policy statement section of the plan.

*g. Fragile Areas and Areas of Environmental Concern (AEC)*

CAMA establishes "Areas of Environmental Concern" (AECs) as the foundation of the Coastal Resources Commission's permitting program for coastal development. An AEC is an area of natural importance: it may be easily destroyed by erosion or flooding; or it may have environmental, social, economic or aesthetic values that make it valuable.

The Coastal Resources Commission designates areas as AECs to protect them from uncontrolled development, which may cause irreversible damage to property, public health or the environment, thereby diminishing their value to the entire state. Statewide, AECs cover almost all coastal waters and less than three percent of the land in the 20 coastal counties (source: NC Division of Coastal Management, CAMA Handbook for Development in Coastal Areas, Section 2, 2002).

Fragile areas are those areas that are not explicitly defined as AECs but that could cause significant environmental damage or other degradation of quality of life if not managed. These include wetlands, natural heritage areas, areas containing endangered species, prime wildlife habitats, or maritime forests. These areas must be evaluated pursuant to State regulations at 15A NCAC 7H for the CAMA Land Use Planning process.

In this Section, the County will evaluate the following AECs and fragile areas located throughout the County: estuarine waters and shorelines, public trust areas, coastal wetlands, areas of excessive erosion, natural resource fragile areas, and outstanding resource waters.

**(1) Estuarine Waters and Shorelines**

An "estuary" can be defined as "a semi-enclosed coastal body of water which has a free connection to the open sea and within which sea water is measurably diluted with fresh water derived from land drainage." Estuaries basically serve as transition zones between fresh and salt water and are protected from the full force of ocean wind and waves by barrier islands, mudflats, and/or sand. As illustrated in the adjacent text box, estuaries provide significant environmental and economic benefits to Onslow County.

Within Onslow County all of the coastal waters, as well as the predominant river bodies, are considered estuarine waters. These waters include, but are not limited to, the following: the White Oak River, Bell Swamp Creek, Mill Creek, Goose Bay, Kings Creek, Turkey Creek, Stump Sound, Alligator Bay, the New River, Bear Creek, Queens Creek, and the Intracoastal Waterway. These estuarine waters are flushed with saltwater by a series of four inlets located along the southern coastline of the county. These inlets include: the New River Inlet, Browns Inlet, Bear Inlet, and Bogue Inlet.

**Why are Estuaries Important?**

The lands and waters of the estuarine system are home to fish nursery areas, spawning areas, shellfish beds and other habitats essential to North Carolina's commercial and recreational fishing industries.

More than 90% of North Carolina's commercial and recreational seafood species (such as shrimp, flounder, and crabs) depend on the protective habitat and nutrients found in coastal wetlands and estuarine waters for much of their lives.

The stems, roots, and seeds of many coastal wetland plants provide food and nesting materials for waterfowl and other wildlife.

Marsh plants guard against erosion and flood damage. Their leaves and stems dissipate wave energy, and their root systems bind soil. The nutrients and decayed plant material the marsh plants produce also contribute to the productivity of the estuarine system.

Estuarine plants trap debris and excess nutrients and help regulate the flow of fresh water into the estuary, maintaining the system's balance.

Estuarine shorelines act as natural barriers to erosion and flooding. Certain soil formations and plant communities along estuarine shorelines also help slow erosion.

Natural buffers along the shoreline protect the water from excess sediment and pollutants, and they protect nearby developments from flooding and erosion.

Estuarine waters and public trust areas are important for tourism, because they support commercial and recreational fishing, boating, swimming, and other recreational activities. (Source: NC Division of Coastal Management, "CAMA Handbook for Development in Coastal North Carolina, Section 2, 2002).

Estuarine shorelines are land areas leeward of mean high tide that are immediately adjacent to or bordering estuarine waters. These areas support the ecological function of estuaries and are highly vulnerable to erosion caused by wind or water and to damage caused by development.

Under CAMA rules, all lands 75 feet leeward from the mean high tide are classified as estuarine shorelines and are subject to CAMA development regulations at 15A NCAC 7H.0205-.0208, as follows:

- The location, design and construction of your project must give highest priority to conserving the biological, economic, and social values of coastal wetlands, estuarine waters and public trust areas, and protect public rights of navigation and recreation in public trust areas.
- Your project should be designed and located to cause the least possible damage to the productivity and integrity of:
  - coastal wetlands;
  - shellfish beds;
  - submerged grass beds;
  - spawning and nursery areas;
  - important nesting and wintering areas for waterfowl and other wildlife; and
  - important natural barriers to erosion, such as marshes, cypress fringes, and clay soils.
- Your project must follow the air and water quality standards set by the NC Environmental Management Commission. Generally, development will not be permitted if it lowers water quality for any existing uses of the water (such as shellfishing, swimming, or drinking). For more information, contact the NC Division of Air Quality or the Division of Water Quality.
- Your project must not significantly increase siltation or erosion, which can smother important habitats, block sunlight from aquatic plants, and choke fish and shellfish.
- Your project must not create a stagnant body of water, which can affect oxygen levels and accumulate sediments and pollutants that threaten fish and shellfish habitats and public health.

- You must time the construction of your project to have the least impact on the life cycles and migration patterns of fish, shellfish, waterfowl, and other wildlife. The life cycles of animals that depend on the estuarine system are especially sensitive during certain times of the year. For more information, contact the Coastal Management office nearest you.
- Your project must not cause major or irreversible damage to valuable archaeological or historic resources. Archaeological resources, such as the remains of Native and Early American settlements, shipwrecks, and Civil or Revolutionary War artifacts, provide valuable information about the history of the coastal region and its people. Information on the location of these sites is available from the NC Division of Archives and History in the Department of Cultural Resources.
- Your project must not reduce or prevent the use of, and public access to, estuarine waters and public trust lands and waters.
- Your project must comply with the local land use plan. A land use plan is a "blueprint" developed by local leaders to help guide decisions that affect the growth of the community. CAMA requires each of the 20 coastal counties to prepare a local land use plan and update it according to CRC guidelines. More than 70 cities and counties have adopted their own plans.

## **(2) Public Trust Areas**

The North Carolina Division of Coastal Management (DCM) defines "Public Trust Areas" as the coastal waters and submerged lands that every North Carolinian has the right to use for activities such as boating, swimming or fishing. These areas often overlap with estuarine waters, but they also include many inland fishing waters and creeks. The following lands and waters are considered public trust areas:

- all waters of the Atlantic Ocean and the lands underneath, from the normal high water mark on shore to the state's official boundary three miles offshore;
- all navigable natural water bodies and the lands underneath, to the normal high watermark on shore (a body of water is considered navigable if you can float a canoe in it). This does not include privately-owned lakes where the public does not have access rights;

- all water in artificially created water bodies that have significant public fishing resources and are accessible to the public from other waters; and
- all waters in artificially created water bodies where the public has acquired rights by prescription, custom, usage, dedication or any other means.

Although public trust areas must be delineated by on-site analysis, all submerged lands adjacent to the Intracoastal Waterway, or the creeks and rivers listed above are designated as public trust waters. Under CAMA regulations, all lands 30 feet leeward of public trust areas are subject to the restrictions specified above for estuarine shoreline areas.

### **(3) Coastal Wetlands**

Coastal Resources Commission's rules define "Coastal Wetlands" as any marsh in the 20 coastal counties (including Onslow County) that regularly or occasionally floods by lunar or wind tides, and that includes one or more of the following 10 plant species:

*Spartina alterniflora*: Salt Marsh (Smooth) Cord Grass

*Juncus roemerianus*: Black Needlerush

*Salicornia spp.*: Glasswort

*Distichlis spicata*: Salt (or Spike) Grass

*Limonium spp.*: Sea Lavender

*Scirpus spp.*: Bulrush

*Cladium jamaicense*: Saw Grass

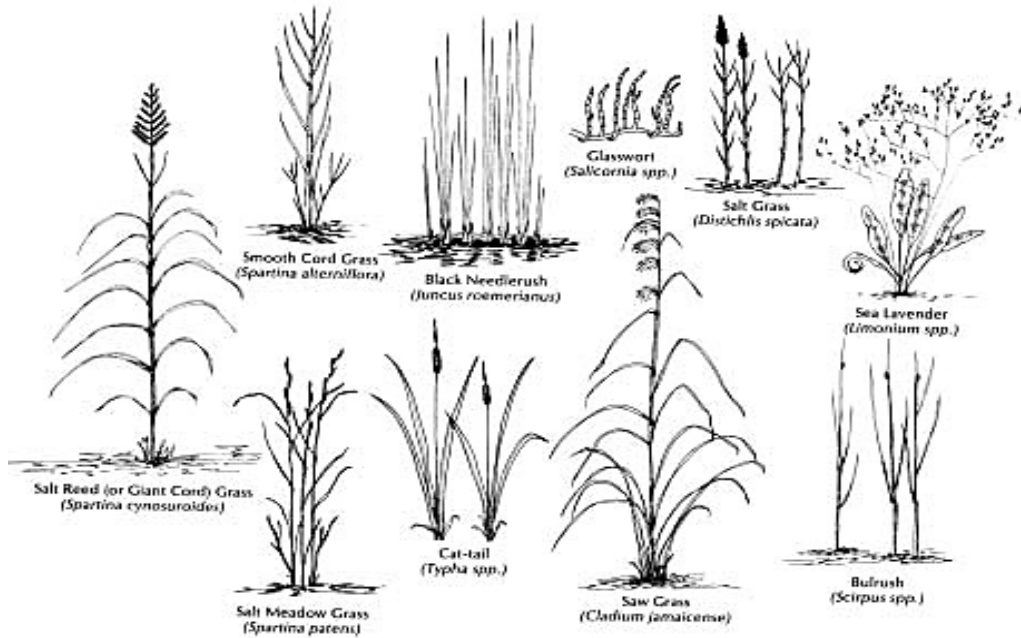
*Typha spp.*: Cattail

*Spartina patens*: Salt Meadow Grass

*Spartina cynosuroides*: Salt Reed or Giant Cord Grass

Coastal wetlands provide significant environmental and economic benefits to Onslow County. They protect against flooding, help maintain water quality, provide habitat to wildlife, and serve as part of the estuarine system described earlier in this plan.

**COASTAL WETLAND PLANT SPECIES**



**Exhibit 2: Coastal Wetland Plant Species** (Source: NCDWM, "CAMA Handbook for Development in Coastal North Carolina", 2002)

In 2003, NCDWM classified and mapped coastal wetlands based on an analysis of several existing data sets, including aerial photographs and satellite images of coastal areas in North Carolina, including Onslow County. Even though the presence of wetlands must be established by an onsite delineation and investigation of plants, NCDWM produced an excellent representation of wetlands within the county, and throughout coastal North Carolina (see Appendix II, Map 7).

According to NCDWM's 2003 Coastal Wetlands Inventory, approximately 33.14% of the county's land area, or 185,993 acres, were coastal wetlands (see Table 26 below).

Table 26: Onslow County Wetland Areas By Type

Wetland Type	Acreage	Percentage of Total County
Bottomland Hardwood	6,349.5	1.13%
Cleared Bottomland Hardwood	102.7	0.02%
Cleared Depressional Swamp Forest	37.4	0.01%
Cleared Estuarine Shrub/Scrub	13.6	<1.00%
Cleared Hardwood Flat	28.2	0.01%
Cleared Headwater Swamp	6.3	<1.00%



Wetland Type	Acreage	Percentage of Total County
Cleared Pine Flat	130.8	0.02%
Cleared Pocosin	31.9	0.01%
Cleared Riverine Swamp Forest	<1 acre	<1.00%
Cutover Bottomland Hardwood	355.2	0.06%
Cutover Depressional Swamp Forest	210.4	0.04%
Cutover Estuarine Shrub/Scrub	19.3	<1.00%
Cutover Hardwood Flat	150.0	0.03%
Cutover Headwater Swamp	96.0	0.02%
Cutover Pine Flat	1,344.5	0.24%
Cutover Pocosin	369.0	0.07%
Cutover Riverine Swamp Forest	1.2	<1.00%
Depressional Swamp Forest	7,547.2	1.34%
Drained Bottomland Hardwood	460.5	0.08%
Drained Depressional Swamp Forest	691.5	0.12%
Drained Freshwater Marsh	83.5	0.01%
Drained Hardwood Flat	1,263.3	0.23%
Drained Headwater Swamp	<1 acre	<1.00%
Drained Pine Flat	6,471.5	1.15%
Drained Pocosin	4,046.1	0.72%
Drained Riverine Swamp Forest	677.5	0.12%
Drained Salt/Brackish Marsh	1,306.0	0.23%
Estuarine Forest	67.2	0.01%
Estuarine Shrub/Scrub	1,492.5	0.27%
Freshwater Marsh	348.8	0.06%
Hardwood Flat	2,396.1	0.43%
Headwater Swamp	1,278.4	0.23%
Human Impacted	1,031.7	0.18%
Managed Pine Land	65,293.8	11.63%
Pine Flat	23,716.3	4.23%
Pocosin	29,915.1	5.33%
Riverine Swamp Forest	20,942.7	3.73%
Salt/Brackish Marsh	7,716.5	1.37%
Total	185,993.3	33.14%

Source: NC Division of Coastal Management, Holland Consulting Planners, Inc.

The following provides the NCDCM descriptions of the various wetland areas found in Onslow County (source: NCDCM Wetlands Inventory, 2003):

- *Salt/Brackish Marsh.* Any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses), as long as this flooding does not include hurricane or tropical storm waters. Coastal wetland plant species include: smooth cordgrass; black needlerush; glasswort; salt grass; sea lavender; salt marsh bullrush; saw grass; cattail; salt meadow cordgrass; and big cordgrass.
- *Estuarine Shrub/Scrub.* Any shrub/scrub dominated community subject to occasional flooding by tides, including wind tides (whether or not the tide waters reach these areas through natural or artificial watercourses). Typical species include wax myrtle and eastern red cedar.
- *Estuarine Forested.* A forested wetland community subject to occasional flooding by tides, including wind tides (whether or not the tide waters reach the marshland areas through natural or artificial watercourses). Examples include pine-dominated communities with rushes in the understory or fringe swamp communities.
- *Maritime Swamp Forest.* A forested community characterized by its stunted growth due to the stresses imposed by its proximity to salt spray from the ocean. Typical vegetation includes live oak, red maple, and swamp tupelo.
- *Freshwater Marsh.* Herbaceous areas that are flooded for extended periods during the growing season. Included are marshes within lacustrine systems, managed impoundments, some Carolina Bays, and other non-tidal marshes (i.e., marshes which do not fall into the Salt/Brackish Marsh category). Typical communities include species of sedges, millets, rushes, and grasses that are not specified in the coastal wetland regulations. Also included are giant cane, arrowhead, pickerelweed, arrow arum, smartweed, and cattail.
- *Bottomland Hardwood.* Riverine forested or occasionally shrub/scrub communities, usually occurring in floodplains, that are seasonally flooded. Typical species include oaks (overcup, water, laurel, swamp chestnut), sweet gum, green ash, cottonwoods, willows, river birch, and occasionally pines.

- *Swamp Forest.* Very poorly drained riverine or non-riverine forested or occasionally shrub/scrub communities which are semi-permanently flooded, including temporarily flooded depressional systems. Typical species include cypress, black gum, water tupelo, green ash, and red maple.
- *Headwater Swamp.* Wooded, riverine systems along first order streams. These include hardwood dominated communities with soil that is moist most of the year. Channels receive their water from overland flow and rarely overflow their own banks.
- *Hardwood Flat.* Poorly drained interstream flats not associated with rivers or estuaries. Seasonally saturated by high water table or poor drainage. Species vary greatly but often include sweet gum and red maple.
- *Pine Flat.* Freshwater, seasonally saturated pine communities on hydric soils that may become quite dry for part of the year. Generally occur in flat or nearly flat areas that are not associated with a river or stream system. Usually dominated by loblolly pine. This category does not include managed pine systems.
- *Managed Pineland.* Seasonally saturated, managed pine forests (usually loblolly pine) occurring on hydric soils. Since this category is based primarily on soils data and 30 meter resolution satellite imagery, it is less accurate than the other wetland categories.
- *Human Impacted (w-type 40).* Areas of human impact have physically disturbed the wetland, but the area is still a wetland. Impoundments and some cutovers are included in this category, as well as other disturbed areas, such as power lines.
- *Partially Drained Wetland.* Any wetland system described above that is, or has been, effectively drained (according to the National Wetlands Inventory).
- *Cutover Wetland.* Areas for which satellite imagery indicates a lack of vegetation in 1994. These areas are likely to still be wetlands; however, they have been recently cut over. Vegetation in these areas may be regenerating naturally, or the area may be in use for silvicultural activities. Note that marshes cannot be considered cutover.

- *Cleared Wetland.* Areas of hydric soils for which satellite imagery indicates a lack of vegetation in both 1988 and 1994. These areas are likely to no longer be wetlands.

Areas identified as coastal wetlands are subject to CAMA regulations as specified above for estuarine shoreline areas.

Freshwater swamps and inland, non-tidal wetlands are not in the CAMA permit jurisdiction, unless the CRC specifically designates them as AECs. However, these wetlands are protected by Section 404 of the Federal Clean Water Act. An Army Corps of Engineers "Section 404" permit (USACE 404) may be required for projects taking place in these wetlands. Site-specific delineation of potential wetlands is required, under USACE wetland delineation guidelines, in order to determine whether a specific proposed development project requires a USACE 404 permit. There are several different types of USACE 404 permits. In general, however, the basic premise of the USACE 404 program is that no discharge of dredge 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.

#### **(4) Protected Lands and Significant Natural Heritage Areas**

"Protected Lands" are areas dedicated to conservation and open space based uses that are protected from development by regulation or by ownership by governments or non-profit organizations. NCDWM has identified these areas through the assistance of the NC Center for Geographic Information and Analysis (NCGIA). NCDWM has identified seven protected lands within the unincorporated portions of Onslow County. Together, these facilities comprise approximately 116,537 acres of the county's total acreage, or 20.8%, of the land area of the county. These sites are identified in Table 27 below, and are delineated on Map 8 (see Appendix II).

Table 27: Onslow County  
Protected Lands

Protected Land	Acreage	Percentage of Total County
Hammocks Beach State Park	1,186.4	0.2%
WRC Turkey Creek Access Area	2.7	0.0005%
WRC White Oak Waterfowl Impoundment	167.6	0.03%
Camp Lejeune	115,180.9	20.50%
Total	116,537.5	20.80%

Source: NC Center for Geographical Information Analysis, Holland Consulting Planners, Inc.

“Significant Natural Heritage Areas” (SNHA) are areas containing ecologically significant natural communities or rare species. The North Carolina Natural Heritage Program of the NC Division of Parks and Recreation (NCDPR) identifies and helps facilitate the protection of these areas. NCDCM has identified these areas through the assistance of NCGIA.

Within Onslow County, NCDCM has identified 60 sites (47,176 acres) that are considered Significant Natural Heritage Areas (or 8.4% of the County’s total land area). These sites are scattered throughout the unincorporated portions of the county. These areas are summarize in the table below, and delineated on Map 9 (see Appendix II).

Table 28: Onslow County  
Significant Natural Heritage Areas

Significant Natural Heritage Area	Acreage
Alligator Bay Marshes and Forests	210.6
Camp Lejeune Dove Road Pocosin	99.9
Camp Lejeune Freeman Creek Meadow	4.7
Camp Lejeune French’s Creek Coastal Goldenrod	3.6
Camp Lejeune French’s Creek Limesinks	187.6
Camp Lejeune G-10 Impact Area	2,272.9
Camp Lejeune Great Sandy Run Pocosin	7,597.8
Camp Lejeune Hog Pen Road Flatwoods and Pocosin	401.4
Camp Lejeune Longleaf Pine Ridge	809.1
Camp Lejeune Loosestrife Pocosin	696.3
Camp Lejeune Lyman Road Cypress Savannah	252.6
Ball Pond Limesink Complex	1.8
Camp Lejeune Marine Road Sandhills	98.0
Camp Lejeune Mile Hammock Bay Sandhills	212.7
Camp Lejeune Millstone Creek Swamp	572.5
Camp Lejeune Mockup Road Coastal Goldenrod Site	5.0
Camp Lejeune New River Inlet	751.4
Camp Lejeune Old Bear Creek Road Pond	6.6
Camp Lejeune Padgett Swamp Road Natural Area	130.9
Camp Lejeune Pocosin Road Flatwoods	677.5
Camp Lejeune Pondspice Meadow	6.3
Camp Lejeune Powerline Road Sandhill	16.5
Batchelor Road Flatwoods	765.3
Camp Lejeune Salliers Bay Coastal Goldenrod Site	12.5

Significant Natural Heritage Area	Acreage
Camp Lejeune South Bay Road Natural Area	48.4
Camp Lejeune Southwest Creek	1,779.7
Camp Lejeune Spring Branch Limesinks	622.0
Camp Lejeune Starretts Meadow	69.5
Camp Lejeune Verona Loop Flatwoods	157.1
Camp Lejeune Wallace Creek Swamp	116.4
Cooleys Meadowrue Type Locality	52.3
Emerald Isle/West End Beach	8.5
Hammocks Beach State Park	960.3
Bogue Inlet/Bogue Sound Bird Nesting Islands	12.6
Hawkins Island	36.5
Haws Run Mitigation Site	316.9
Hofmann Forest Cypress natural Area	77.8
Hofmann Forest White Oak Pocosin	17,110.8
Holston Creek Natural Area	0.2
Huggins/Dudley Island	1,336.0
Maple Hill Limesink Complex	62.0
Morris Landing Maritime Forest	1.2
New River Inlet Bird Nesting Islands	259.2
Camp Lejeune Africa Pond Limesinks	430.9
New River Swamps and Marshes	618.2
Northeast Creek Tidal Forest	43.2
Queens Creek Tidal Marshes	385.7
Rock House Cave Natural Area	19.1
Sandy Run Swamp Powerline Savannah	480.0
Stones Creek Sandhills	1,121.2
Tate Road Savannah	74.7
Turkey Creek Marshes	247.4
White Oak River Marshes and Swamps	1,641.4
Camp Lejeune Alligator Meadow Limesinks	277.4
Camp Lejeune Browns Island	2,511.7
Camp Lejeune Corn Landing	126.3
Camp Lejeune Cowhead Creek Limesinks	378.3
Total	47,176.2

Source: NC Center for Geographical Information Analysis, Holland Consulting Planners, Inc.

**(5) Outstanding Resource Waters**

All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). "Outstanding Resource Waters" (ORW) is a supplemental classification 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 or fisheries,
- Unusually high level of waterbased recreation,
- Some special designation such as NC or National Wild/Scenic/Natural/Recreational River, National Wildlife Refuge, etc.,
- Important component of state or national park or forest, or
- Special ecological or scientific significance (rare or endangered species habitat, research or educational areas).

No new or expanded wastewater discharges are allowed, although there are no restrictions on the types of discharges to these waters. There are also associated stormwater runoff, building density, best agricultural practices, and landfill siting controls enforced by DWQ. There are several waterbodies located throughout the southern portion of the county that have been designated as Outstanding Resource Waters by NCDWQ. These waterbodies are summarized below by river basin:

**White Oak River Basin**

- Alligator Bay
- Everett Bay
- Bogue Inlet
- Cow Channel
- Gouse Bay
- Bear Island
- Portions of the Intracoastal Waterway south of the New River
- The waters between Hammocks Beach State Park and the Intracoastal Waterway

**Cape Fear River Basin**

- Turkey Creek
- Stump Sound
- Portions of the Intracoastal Waterway

*h. Areas of Resource Potential*

**(1) Regionally Significant Parks**

Onslow County operates seven park facilities which include: Onslow Pines Park, Hubert By-Pass Park, Richlands-Steed Park, Stump Sound Park, New River Waterfront Park, Tabernacle School Park, and Oakhurst Nature Park. These facilities primarily serve the citizens of Onslow and surrounding counties. The seven Onslow County parks are not considered regionally significant, although the parks are frequented by tourist, especially during peak summer travel months. The county parks will be discussed in detail within the community facilities section of the plan.

There are many resources located within Onslow County that provide an array of outdoor recreational opportunities for citizens and visitors. One example of the substantial efforts that the county has undertaken to ensure the provision of open space is the recently acquired Stone Creek Gamelands. This site is comprised of 2,500 acres of unspoiled open space and provides opportunities for hunting, fishing, canoeing, biking, and hiking. Acquisition of the Stone Creek Gamelands was a collaborative effort between the county, conservationists and environmentalists partnering with business leaders, public officials, and the Department of Defense. The site was purchased with grant funding from the NC Natural Heritage and Clean Water Management trust funds. The establishment of this land for public recreation has attracted visitors from all over the region.

The most important regionally significant recreational site located within Onslow County is Hammocks Beach State Park. Except for 33 acres on the mainland, Hammocks Beach State Park is located on Bear Island (located in southeastern Onslow County), an 892-acre barrier island. It is 3.5 miles long and less than a mile wide. The island is bordered by the Atlantic Ocean to the south and by salt marshes, estuarine creeks, and the Intracoastal Waterway to the north. Bogue Inlet lies at the northeast end of the island, while Bear Inlet lies to the southwest. Access to the island is provided via public ferry which operates from Memorial Day to Labor Day. Recreational opportunities at Hammocks Beach State Park includes hiking, camping, canoeing, swimming, fishing, and wildlife viewing.

**(2) Marinas and Mooring Fields**

“Marinas” are defined as any publicly- or privately-owned dock, basin, or wet boat storage facility constructed to accommodate more than ten boats and providing any of the following services: permanent or transient docking spaces, dry storage, fueling facilities, haulout facilities, and repair service. Not included in this definition are facilities that only allow boat access or temporary docking and that do not include the services provided by marinas specified above.



To receive a CAMA permit to construct a marina, a marina must meet the general CAMA rules for coastal wetlands, estuarine waters, and public trust areas specified above as well as the specific rules below (Source: 15A NCAC 7H .0208(b)(5)).

- Marinas should be built in non-wetland sites or in deep waters that do not require dredging. They must not disturb valuable shallow-water or wetland habitats, except for dredging necessary for access to high-ground sites. Marinas should be designed to protect the environment as much as possible. The following are four alternatives for siting marinas, ranked in order of Coastal Resources Commission preference:
  - 1) An upland site that requires no alteration of wetlands or other estuarine habitats and has adequate water circulation to prevent the accumulation of sediment and pollutants in boat basins and channels;
  - 2) An upland site that causes no significant damage to fisheries or wetlands and requires dredging for access only;
  - 3) An open water site that does not require dredging or wetland alteration and is not a primary nursery area; and
  - 4) An open water site that requires dredging in less productive habitat, but not deeper than any connecting channels.
  
- Marinas that require dredging may not be in primary nursery areas or in areas that require dredging a channel through nearby primary nursery areas to deeper waters. DCM will consider maintenance dredging in primary nursery areas for existing marinas on a case-by-case basis.
  
- Marinas that require dredging must provide acceptable disposal areas to accommodate future maintenance dredging.
  
- Marinas may not be enclosed within breakwaters that hinder the water circulation needed to maintain water quality. Breakwaters that obstruct or alter the circulation of estuarine waters can accumulate sediment and pollutants and accelerate erosion on nearby shorelines. This could threaten marine life and public health, and it requires more frequent maintenance dredging.
  
- Marinas serving residential developments and built in public trust waters must be limited to 27 square feet of public trust area for every one linear foot of adjacent shoreline. The square-footage limit shall not apply to fairways between parallel piers or any portion of the pier used only for access from land to the docking spaces.
  
- Marinas may not be located within areas where shellfish harvest for human consumption is a significant use, or in adjacent areas, if the proposed marina will cause closure of the harvest areas. Construction or enlargement of a marina must not lead to the closure of an open shellfishing area.

- Marinas should minimize interference with public waters by using a mixture of dry storage areas, public launching facilities, and docking spaces.
- Marinas may not be built without written confirmation that the proposed location is not subject to a submerged lands lease or deed. (State law requires that marina owners receive an easement from the State Property Office.)
- Marina basins must be designed to promote flushing: Basin and channel depths should gradually increase toward open water and must not be deeper than connecting waters. When possible, an opening shall be provided at opposite ends of the basin to promote flow-through circulation.
- Marinas must be designed to minimize adverse effects on boat traffic, federally maintained channels, and public rights to use and enjoy state waters.
- Marinas must meet all applicable requirements for stormwater management.
- Boat maintenance areas must be designed so that all scraping, sandblasting, and painting is over dry land and so that pollutants such as grease, oil, paint, and sediments do not flush into estuarine waters. Grease and sediment traps can protect water quality at the marina and throughout the estuarine system.
- Marinas shall post a notice prohibiting the discharge of waste from boat toilets and explaining the availability of information on pumpout services. If dumped overboard, marine sewage can present a threat to marine life and public health.
- Marinas must comply with all other applicable standards for docks and piers, bulkheading, dredging, and spoil disposal.
- Marina replacement may be allowed if all rules are met to the maximum extent practicable.
- New marinas over public trust bottoms are subject to the North Carolina Environmental Policy Act and must undergo a NCEPA review.
- Upland development associated with marinas must comply with coastal shoreline rules, which require that structures with non-water-dependent uses be located at least 30 feet from the water, unless the structures are located in a designated urban waterfront.

A "freestanding mooring" is any means to attach a ship, boat or other watercraft to a stationary underwater device, mooring buoy, buoyed anchor, or piling not associated with an existing or proposed pier, dock, or boathouse. When one or more freestanding moorings is used in the same general vicinity, it is known as a "mooring field." CAMA has

regulations for the safe siting and operation of moorings and mooring fields at 15A NCAC 7H.0208 (b) (10) or 7H.2200. There are no mooring field sites currently operating within Onslow County.

Due to the prevalence of water access throughout Onslow County, there are a number of public and private marina facilities. These marina facilities are summarized in Table 29. Although all of these marinas are not located within unincorporated portions of the county, these facilities are available for use by all county residents.

Table 29: Onslow County  
Public and Private Marina Facilities

<b>Marina Name</b>	<b>Location</b>
Bayshore Marina & Racquet Club	Sneads Ferry
Bogue Inlet Boatominium	Swansboro
Bogue Sound Yacht Club	Swansboro
Bowmans Seafood	Sneads Ferry
Caspers Marina	Swansboro
Courthouse Bay Marina	Camp Lejeune
Dudley's Marina	Swansboro
Gottschalk Marina	Camp Lejeune
Gulf Atlantic Seafood	Sneads Ferry
Ivey's Marine	Jacksonville
Jacksonville Marina	Jacksonville
Kerr Street Marina	Jacksonville
New River Marina	Sneads Ferry
Old Ferry Marina	Sneads Ferry
Olde Town Marina	Jacksonville
Outriggers Marina	Sneads Ferry
Paradise Landing	Sneads Ferry
Sea Haven Marina & RVs	Sneads Ferry
Swan Point Marina	Sneads Ferry
The Flying Bridge/Swansboro Yacht Basin	Swansboro
The Marina Café	Jacksonville
Tideline Marine	Jacksonville
Topsail Sound Pier Market & Marina	Topsail Beach
Waterway Inn	Swansboro
Waterway Marina	Swansboro

Source: Holland Consulting Planners, Inc.

### **(3) Floating Homes or Structures**

A floating home or structure is any structure, not a boat, supported by means of flotation and designed to be used without a permanent foundation which is used for human habitation or commerce. A structure is considered a floating home or structure if it is inhabited or used for commercial purposes for more than 30 days in any one location. A boat may be deemed a floating structure if its means of propulsion have been removed or rendered inoperative and it contains at least 200 square feet of living area. There are no known or permitted floating homes or structures within Onslow County at this time.

### **(4) Channel Maintenance**

The Atlantic Intracoastal Waterway (AIWW) traverses Onslow County at the southern extent along the interior of Topsail Beach, and other barrier islands located throughout the south-southeastern portions of the County.

The AIWW is a series of federally (i.e., USACE) maintained navigation channels that extend from Norfolk, VA to Miami, FL. For much of its length, the system consists of naturally deep estuaries, rivers, and sounds. These natural stretches are connected by man-made cuts through land areas and shallows, many of which require periodic dredging to maintain their depths. The authorized project depth of the AIWW is 12 feet (at low tide) from Norfolk, VA to Ft. Pierce, FL.

Proper maintenance of channels is vital to Onslow County because of the substantial economic impact of commercial fisheries and to a lesser extent, tourism and recreational fishing. If silt or other deposits fill in the channels and inlets leading to open ocean from the AIWW, safe and efficient movement of commercial fishing and recreational vehicles could be impeded. Recent cutbacks in the USACE budget for channel maintenance of the AIWW threaten the safe navigability of the waterway and should be carefully monitored.

There are numerous navigable channels maintained throughout the County with access to the AIWW. At low tide, navigation into and out of tributaries to and from the Atlantic Ocean must go through these marked channels.

A general CAMA permit can be obtained from the regional CAMA office for maintenance dredging of channels, canals, boat basins and ditches in estuarine waters, public trust areas and estuarine shorelines, as long as the maintenance does not remove more than 1,000 cubic yards of material (source: NC Division of Coastal Management, "CAMA Handbook for Development in Coastal North Carolina", 2002).

---

---

## (5) Marine Resources (Water Quality)

In North Carolina, the water quality of each stream mile of water is evaluated and rated by the NC Division of Water Quality (DWQ). The following provides the basic principles involved with water quality in North Carolina:

- *What Are Surface Water Classifications?* Surface Water Classifications are designations applied to surface water bodies, such as streams, rivers and lakes, which define the best uses to be protected within these waters (for example swimming, fishing, drinking water supply) and carry with them an associated set of water quality standards to protect those uses. Surface water classifications are one tool that state and federal agencies use to manage and protect all streams, rivers, lakes, and other surface waters in North Carolina. Classifications and their associated protection rules may be designed to protect water quality, fish and wildlife, the free flowing nature of a stream or river, or other special characteristics.
- *How Do They Affect Me?* Before you buy property, plan a new development project, construct a new road or undertake other land use activities, you should check with local, state, and federal agencies about the assigned surface water classification for the water body on your property. Many of the newer classifications, especially those designed to protect drinking water supplies and certain high quality waters, have protection rules which regulate some land disturbance and other human activities.
- *Why Do They Sometimes Overlap?* Many streams, rivers, and lakes may have several classifications applied to the same area. This is because surface waters are classified to protect different uses or special characteristics of the water body. For example, a stream or specific stream segment may be classified as Class WS-III Tr HQW by the NC Division of Water Quality (DWQ). This protects it as a drinking water supply (WS-III), as Trout Waters (Tr), and as High Quality Waters (HQW). The stream segments upstream or downstream may have different classifications based on other water uses or stream characteristics.
- *Stream's Classification?* DWQ classifies all surface waters. A water body's classification may change at the request of a local government or citizen. DWQ reviews each request for a reclassification and conducts an assessment of the water body to determine the appropriateness of the reclassification. DWQ also conducts periodic water body assessments which may result in a recommendation to reclassify the water body. In order for a water body to be reclassified it must proceed through the rule-making

process (Source: NC Department of Environment and Natural Resources, "Surface Freshwater Classifications Used in North Carolina", 1997).

**Appendix IV provides the water quality classifications for all stream segments falling within Onslow County.** 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). Supplemental classifications are sometimes added to the primary classifications by DWQ to provide additional protection to waters with special uses or values.

The following provides the definition of DWQ water quality classifications found within the boundaries of Onslow County:

<b>PRIMARY FRESHWATER AND SALTWATER CLASSIFICATIONS*</b>	
<u>CLASS</u>	<u>BEST USES</u>
C and SC	Aquatic life propagation/protection and secondary recreation
B and SB	Primary recreation and Class C uses
SA	Waters classified for commercial shellfish harvesting
WS	<i>Water Supply watershed.</i> There are five WS classes ranging from WS-I through WS-V. WS classifications are assigned to watersheds based on land use characteristics of the area. Each water supply classification has a set of management strategies to protect the surface water supply. WS-I provides the highest level of protection and WS-V provides the least protection. A Critical Area (CA) designation is also listed for watershed areas within a half-mile and draining to the water supply intake or reservoir where an intake is located.
<b>SUPPLEMENTAL CLASSIFICATIONS</b>	
<u>CLASS</u>	<u>BEST USES</u>
Sw	<i>Swamp Waters:</i> Recognizes waters that will naturally be more acidic (have lower pH values) and have lower levels of dissolved oxygen.
Tr	<i>Trout Waters:</i> Provides protection to freshwaters for natural trout propagation and survival of stocked trout.
HQW	<i>High Quality Waters:</i> Waters possessing special qualities including excellent water quality, Native or Special Native Trout Waters, Critical habitat areas, or WS-I and WS-II water supplies.
ORW	<i>Outstanding Resource Waters:</i> Unique and special surface waters that are unimpacted by pollution and have some outstanding resource values.
NSW	<i>Nutrient Sensitive Waters:</i> Areas with water quality problems associated with excessive plant growth resulting from nutrient enrichment

\*Primary classifications beginning with an "S" are assigned to saltwaters  
Source: NC Division of Water Quality.

**(6) Primary Nursery Areas, Anadromous Fish Spawning Areas, Submerged Aquatic Vegetation**

“Anadromous” fish are those that migrate up rivers (or into estuaries) from the sea to breed in fresh water. The North Carolina Marine Fisheries Commission (MFC) defines anadromous fish spawning areas as those where evidence of spawning of anadromous fish has been documented by direct observation of spawning, capture of running ripe females, or capture of eggs or early larvae as established under NCAC 15A 3I.0101 (20)C. Anadromous fish nursery areas are those areas in the riverine and estuarine systems used by juvenile anadromous fish as established at NCAC 15A 3I.0101 (20)D.

Primary nursery areas are located in the upper portions of creeks and bays. These areas are usually shallow with soft muddy bottoms and surrounded by marshes and wetlands. Low salinity and the abundance of food in these areas is ideal for young fish and shellfish. To protect juveniles, many commercial fishing activities are prohibited in these waters; including the use of trawl nets, seine nets, dredges or any mechanical methods used for taking clams or oysters. If a violator is caught in a primary nursery area, he/she faces a very substantial penalty.

The anadromous fish spawning areas and the fisheries nursery areas within Onslow County are depicted on Map 10 (see Appendix II). There are no instances of submerged aquatic vegetation (SAV) within Onslow County.

Map 10 (Appendix II) also delineates areas which have been closed to shellfishing by the NC Division of Water Quality. In addition, Appendix XVI provides a written description of each area closed to shellfishing.

**(7) Prime Farmlands**

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

Prime farmland soils, as defined by the US Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The

moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

The soils that make up prime farmland in Onslow County are listed below and are delineated on Map 11 (see Appendix II). This list does not constitute a recommendation for a particular land use. Several of the fourteen soils are considered to be highly suitable for agricultural practices. Based on information provided by the District Conservationist, the soil series have been ranked from one to three, with one being the most suitable and three being the least suitable.

- Autryville loamy fine sand (1)
- Craven fine sandy loam (2)
- Croatan muck (3)
- Foreston loamy fine sand (1)
- Goldsboro fine sandy loam (1)
- Lenior loam (2)
- Lynchburg fine sandy loam (1)
- Norfolk loamy fine sand (1)
- Onslow loamy fine sand (1)
- Pantego mucky loam (2)
- Rains fine sandy loam (1)
- Stallings loamy fine sand (1)
- Torhunta fine sandy loam (2)
- Woodington loamy fine sand (2)



**2. Environmental Composite Map**

Under the updated CAMA Planning Guidelines, there is a requirement for the preparation of an Environmental Composite Map. This map is intended to work in conjunction with the Land Suitability Map discussed later in this plan (Section V.D) and should be utilized for future land use map impact analysis (see Future Land Use Map, Appendix II). The Environmental Composite Map (Map 12, see Appendix II) breaks down land masses within the County into three categories based on natural features and environmental conditions. The categories utilized are as follows:

**Class I** – Land that contains only minimal hazards and limitations that can be addressed by commonly accepted land planning and development practices. Class I land will generally support the more intensive types of land uses and development.

**Class II** – Land that has hazards and limitations for development that can be addressed by restrictions on land uses, special site planning, or the provision of public services such as water and sewer. Land in this class will generally support only the less intensive uses, such as low density residential, without significant investment in services.

**Class III** – Land that has serious hazards and limitations. Land in this class will generally support very low intensity uses, such as conservation and open space.

The Environmental Composite Model was prepared in a similar fashion to the Land Suitability Map. An overlay analysis was performed, breaking the County into one acre cells utilizing only map layers determined to be environmental factors. The layers used and their assigned classes are outlined in Table 30.

Table 30: Onslow County Environmental Composite Map Layers

Layer	Class I	Class II	Class III
Coastal Wetlands			✓
Exceptional or Substantial Non-Coastal Wetlands			✓
Beneficial Non-Coastal Wetlands		✓	
Estuarine Waters			✓
Soils with Slight or Moderate Septic Limitations	✓		
Soils with Severe Septic Limitations			✓
Flood Zones		✓	

Layer	Class I	Class II	Class III
Storm Surge Areas		✓	
HQW Watersheds		✓	
Water Supply Watersheds		✓	
Significant Natural Heritage Areas		✓	
Protected Lands			✓

Source: North Carolina GIA and Coastal Area Management Act.

For a given cell, the computed value of the cell will be determined by the highest class theme that contains the cell. For example, if a cell is in a coastal wetland (Class III) and in a storm surge area (Class II) and intersects a soil with a slight or moderate septic limitation (Class I), the cell value will be Class III. In other words, if a cell does not meet the criteria for Class III, but qualifies as Class II, it has Class II for a value. If a cell does not qualify for either Class III or Class II, then it is Class I by default. This order enables the modeler to leave out themes that are not associated with Classes II or III to simplify the model (yielding the same results). The class acreages are summarized in Table 31.

Table 31: Onslow County  
Environmental Composite Class Acreages Summary

	Acres	% of Total
Class I	232,839.2	51.9%
Class II	65,834.5	14.7%
Class III	150,076.0	33.4%
TOTAL	448,749.7	100.0%

Sources: Holland Consulting Planners, Inc., and NC Center for Geographic Analysis.

The resulting Environmental Composite Map is similar to the Land Suitability Map in that Class III areas are consistent with the least suitable category and the Class I areas are related to the most suitable areas. The primary difference is the absence of infrastructure in the Environmental Composite Map that heightens the emphasis on environmental sensitivity and relative land conservation value. The Future Land Use Map reflects the Class I, II, and III criteria.

**3. Environmental Conditions (Water Quality, Natural Hazards, and Natural Resources)**

Onslow County is located in three river basins: Cape Fear River Basin, White Oak River Basin, and Neuse River Basin. Subbasins are geographic areas that represent part of a watershed/basin, made up of a combination of drainage areas and/or distinct hydroponic features, all draining to the primary watershed. The County is located in six subbasins which are listed below.

<u>Cape Fear River Basin</u>	<u>White Oak River Basin</u>	<u>Neuse River Basin</u>
Subbasin 03-06-22	Subbasin 03-05-01	Subbasin 03-04-11
Subbasin 03-06-23	Subbasin 03-05-02	
Subbasin 03-06-24		

In North Carolina, water quality is assessed primarily at the watershed or river basin level due to their interconnectedness. Basinwide water quality plans are prepared by the North Carolina Division of Water Quality (DWQ) for each of the 17 major river basins in the State and updated at five year intervals. The Cape Fear River Basin Water Quality Plan was updated in October 2005, the White Oak River Basin Water Quality Plan was updated in November 2001, and the Neuse River Basin Water Quality Plan was updated in July 2002.

Basinwide planning goals include:

- Identify water quality problems and restore full use to Impaired waters.
- Identify and protect high value resource waters.
- Protect unimpaired waters, yet allow for reasonable economic growth.

The preceding goals are accomplished through the following objectives:

- Collaborate with other agencies to develop appropriate management strategies.
- Assure equitable distribution of waste assimilative capacity.
- Better evaluate cumulative effects of pollution.
- Improve public awareness and involvement.

Map 3 (see Appendix II) delineates the boundaries of each of the river basins and subbasins represented in Onslow County. The following provides a summary of existing conditions in each river basin and subbasin. Also included are DWQ recommendations for the subbasin. Information was obtained from the water quality plans.

a. *Water Quality (Cape Fear River Basin)*

The Cape Fear River Basin is contained entirely within the State of North Carolina. Only three other basins lie entirely within the state’s boundaries. The basin originates in the upper Piedmont portion of the state in Rockingham and Forsyth Counties and flows southeast to the Atlantic Ocean. There are five major drainage basins: Haw River, Deep River, Northeast Cape Fear River, Black River, and the Cape Fear River. The population is centered around the Triad, Triangle, Fayetteville, and Wilmington areas. The highest population growths are expected to occur in the upper basin and in the coastal areas. The basin encompasses all or portions of 26 counties and 115 municipalities. The following table provides a listing of these local governments.

<b>Cape Fear River Basin Statistics</b>	
Total Land Area in Onslow County:	122,601 acres
Percentage of County in Basin:	23.1%
Total Area:	9,149 sq. miles
Freshwater Stream Miles:	6,386
Freshwater Lakes Acres:	31,135
Estuarine Acres:	31,753
Coastline Miles:	61
No. of Counties:	26
No. of Municipalities:	115
No. of Subbasins:	24
Population (1990):	1,465,451
Population (2000):	1,834,545*
Pop. Density (2000):	197 persons/sq. mi.*

Table 32: Local Governments and Planning Units within the Cape Fear River Basin

County	Council of Government Region	Municipalities
Alamance	G	Alamance, Burlington, Elon, Gibsonville*, Graham, Green Level, Haw River, Mebane*#, Swepsonville
Bladen	N	Dublin#, East Arcadia, Elizabethtown, Tar Heel#, White Lake
Brunswick	O	Bald Head Island, Belville, Boiling Spring Lakes#, Caswell Beach, Leland, Navassa, Northwest, Saint James, Sandy Creek, Southport
Caswell	G	None
Chatham	J	Cary*#, Goldston, Pittsboro, Siler City
Columbus	O	Bolton#, Sandyfield
Cumberland	M	Falcon*, Fayetteville, Godwin, Hope Mills, Linden, Spring Lake, Stedman, Wade
Duplin	P	Beulaville, Calypso, Faison, Greenevers, Harrells*, Kenansville, Magnolia, Mount Olive*#, Rose Hill, Teachey, Wallace*, Warsaw
Durham	J	Chapel Hill*, Durham*#, Morrisville*#
Forsyth	I	High Point*#, Kernersville*#
Guilford	G	Archdale*#, Gibsonville*, Greensboro, High Point*#, Jamestown, Kernersville*#, Oak Ridge, Pleasant Garden, Sedalia, Stokesdale#, Summerfield, Whitsett

County	Council of Government Region	Municipalities
Harnett	M	Angier, Broadway*, Coats, Dunn, Erwin, Lillington
Hoke	N	Raeford#
Johnston	J	Benson#
Lee	J	Broadway*, Sanford
Montgomery	---	Biscoe#, Candor#, Star#
Moore	---	Cameron, Carthage, Pinehurst#, Robbins, Southern Pines#, Taylortown, Vass, Whispering Pines
New Hanover	O	Carolina Beach, Kure Beach, Wilmington, Wrightsville Beach
Onslow	P	Holly Ridge, North Topsail#, Surf City*
Orange	J	Carrboro, Chapel Hill*, Durham*#, Mebane*#
Pender	O	Atkinson, Burgaw, Saint Helena, Surf City*, Topsail Beach, Wallace*, Watha
Randolph	G	Archdale*#, Asheboro, Franklinville, High Point*#, Liberty, Ramseur, Randleman#, Seagrove#, Staley
Rockingham	G	Reidsville#
Sampson	M	Autryville, Clinton, Falcon*, Garland, Harrells*, Newton Grove, Roseboro, Salemburg, Turkey
Wake	J	Apex#, Cary*#, Fuquay-Varina#, Holly Springs#, Morrisville*#
Wayne	P	Mount Olive*#

\*Located in more than one county.

#Located in more than one major river basin.

NOTE: Counties are not included as part of a river basin if only a trace amount of the county (<2%) is located in that basin unless there is a municipality located in that county.

Source: Cape Fear River Basinwide Water Quality Plan.

### (1) Subbasin 03-06-22

This subbasin is located in seven counties and includes the Northeast Cape Fear River, Rockfish Creek, Muddy Creek, and Limestone Creek. Land use is largely forest/wetland and agriculture. Table 48 (page 126) provides a detailed breakdown of existing land use by subbasin within Onslow County. Many of the streams drain the wetlands. There are 13 permitted dischargers in the subbasin and 449 registered swine operations. The largest dischargers are wastewater treatment plants: Wallace WWTP #1 (1 MGD), Wallace WWTP #2 (4.4 MGD), and Guilford East Mill WWTP (1.5 MGD).

Waters are classified according to their best intended uses. Determining how well a water body supports its designated uses is an important method of interpreting water quality data and assessing water quality. In subbasin 03-06-22, use support ratings were assigned for aquatic life and recreation. Appendices III and IV provide a comprehensive listing of use support ratings and impaired waterbodies for stream segments within Onslow County. Twenty-nine percent (29%) of waters evaluated for aquatic life were supporting, twenty-nine percent (29%) were impaired and forty-two percent (42%) were not rated. Ninety-six percent (96%) of waters evaluated for recreation were supporting and four percent (4%) were impaired. All waters in the subbasin are considered impaired for fish consumption. In 2002, the NC Department of Health and Human Services developed new guidelines to advise people as to what fish are safe to eat. DWQ considers uses of waters with a consumption advice or advisory for one or more species of fish to be impaired. Elevated methylmercury levels have been found in shark, swordfish, king mackerel, tilefish, largemouth bass, bowfin (or blackfish) and chain pickerel (or jack), and these fish species fall under the guidelines.

Stressors for water quality in this subbasin are: Chlorophyll a, Low Dissolved Oxygen, Habitat Degradation, and Fecal Coliform Bacteria. A possible source for Habitat Degradation is Land Clearing. Sources of the other stressors are unknown.

2005 Recommendations for Impaired Waters (taken from the Water Quality Plan)

\*NOTE: None of these waterbodies fall within Onslow County\*

*Goshen Swamp:* The NC Division of Water Quality will continue to monitor this watershed and require Dean Pickle and Specialty Products to reduce chloride discharges.

**Subbasin 03-06-22 Description**

Total Land Area in Onslow County: 25,497 acres  
 Percentage of County in Subbasin: 4.8%

**Land and Water**

Total area: 829 mi<sup>2</sup>  
 Land area: 828 mi<sup>2</sup>  
 Water area: 1 mi<sup>2</sup>

**Population Statistics**

2000 Est. pop.: 54,835 people  
 Pop. Density: 66 persons/mi<sup>2</sup>

**Land Cover**

Forest/Wetland: 58.6%  
 Surface Water: 0.3%  
 Urban: 1.3%  
 Cultivated Crop: 30.3%  
 Pasture/Managed Herbaceous: 9.6%

**Counties**

Duplin, Jones, Lenoir, Onslow, Pender, Sampson, and Wayne

**Municipalities**

Beulaville, Calypso, Faison, Greenevers, Harrells, Kenansville, Pink Hill, Rose Hill, Teachey, and Wallace

*Muddy Creek:* The NC Division of Water Quality will continue to monitor this watershed and determine stressors to the quality of the water.

*Northeast Cape Fear River:* The NC Division of Water quality will continue to monitor this watershed and use the NPDES compliance process to address permit violations.

*Panther Creek:* The NC Division of Water Quality will continue to monitor this watershed and require Dean Pickle and Specialty Products to reduce chloride discharges.

**(2) Subbasin 03-06-23**

This subbasin is located in four counties and includes the Northeast Cape Fear River, Burnt Mill Creek, Smith Creek and Burgaw Creek. Land use is mostly forested with some agriculture and areas of increasing development north of Wilmington. Many of the streams in this subbasin do not flow during summer months. There are seven individual NPDES wastewater discharge permits in the subbasin, one registered horse operation, and 52 registered swine operations. The largest dischargers are Global Nuclear Fuels (1.9 MGD) and Elementis Chromium (1 MGD).

In subbasin 03-06-23, use support ratings were assigned for aquatic life and recreation. Appendices III and IV provide a comprehensive listing of use support ratings and impaired waterbodies for stream segments within Onslow County. Fifty-one and one half percent (51.5%) of waters evaluated for aquatic life were supporting, sixteen percent (16.3%) were impaired and thirty-two percent (32.2%) were not rated. Almost seventy-eight percent (77.7%) of waters evaluated for recreation were supporting and twenty-two percent (22.3%) were not rated. All waters in the subbasin are considered impaired for fish consumption.

<b><i>Subbasin 03-06-23 Description</i></b>	
Total Land Area in Onslow County: 77,764 acres Percentage of County in Subbasin: 14.6%	
<b><u>Land and Water</u></b>	
Total area:	795 mi <sup>2</sup>
Land area:	789 mi <sup>2</sup>
Water area:	6 mi <sup>2</sup>
<b><u>Population Statistics</u></b>	
2000 Est. pop.:	117,200 people
Pop. Density:	148persons/mi <sup>2</sup>
<b><u>Land Cover</u></b>	
Forest/Wetland:	82.5%
Surface Water:	0.9%
Urban:	2.1%
Cultivated Crop:	11.2%
Pasture/Managed Herbaceous:	3.2%
<b><u>Counties</u></b>	
Duplin, New Hanover, Onslow, and Pender	
<b><u>Municipalities</u></b>	
Burgaw, Holly Ridge, Saint Helena, Watha, and Wilmington	

Stressors for water quality in this subbasin are: Chlorophyll a, Low Dissolved Oxygen, Habitat Degradation, Fecal Coliform Bacteria, Toxic Impacts, and Total Suspended Solids. Sources for Chlorophyll a are agriculture, impervious surfaces, and WWTP NPDES; the source for Low Dissolved Oxygen is WWTP NPDES; the source for Habitat Degradation is MS4 NPDES; the source for Fecal Coliform Bacteria is impervious surfaces; the source for Toxic Impacts is MS4 NPDES; and the source for Total Suspended Solids is WWTP NPDES. Some stressor sources in the subbasin are unknown.

2005 Recommendations for Impaired Waters (taken from the Water Quality Plan)

\*NOTE: None of these stream segments fall within Onslow County\*

*Burgaw Creek:* The NC Division of Water Quality will continue to monitor the Burgaw Creek watershed. DWQ recommends that the Burgaw WWTP optimize plant processes to reduce nutrients that may be causing algal blooms in Burgaw Creek.

*Burnt Mill Creek:* The NC Division of Water Quality will continue to monitor the Burnt Mill Creek watershed. The watershed will remain on the 303(d) list of Impaired waters. DWQ will work with NCEEP and watershed stakeholders to assist where possible in the implementation of the restoration strategy.

*Northeast Cape Fear River:* This watershed will be added to the 303(d) list of Impaired waters.

*Long Creek.* DWQ will continue to monitor the Long Creek watershed and evaluate impacts of NPDES discharges into Long Creek. DWQ will research the effectiveness of agricultural BMPs on the watershed's water quality.

*Smith Creek:* DWQ will continue to monitor the Smith Creek watershed. The NPDES compliance process will be used to address the significant permit violations noted above. The watershed will be added to the 303(d) list of Impaired waters.

### **(3) Subbasin 03-06-24**

This subbasin is located in three counties and includes Masonboro Sound, Topsail Sound and the Intracoastal Waterway (ICWW). The entire subbasin drains into the ICWW and the Atlantic Ocean. The population is primarily located within Wilmington and the beach communities. There are three individual NPDES wastewater discharge permits in the subbasin and one registered swine operation.



In subbasin 03-06-24, use support ratings were assigned for aquatic life and recreation. Appendices III and IV provide a comprehensive listing of use support ratings and impaired waterbodies for stream segments within Onslow County. Ninety-four percent (94%) of waters evaluated for aquatic life were supporting and four percent (4%) were impaired. One hundred percent (100.0%) of waters evaluated for recreation were supporting. All waters in the subbasin are considered impaired for fish consumption.

Stressors for water quality in this subbasin are: Low Dissolved Oxygen and Fecal Coliform Bacteria. The source for Low Dissolved Oxygen is MS4 NPDES. Sources for Fecal Coliform Bacteria are marinas, MS4 NPDES, and impervious surfaces. Some stressor sources in the subbasin are unknown.

***Subbasin 03-06-24 Description***

Total Land Area in Onslow County: 19,340 acres  
 Percentage of County in Subbasin: 3.6%

**Land and Water**

Total area:	162 mi <sup>2</sup>
Land area:	142 mi <sup>2</sup>
Water area:	20mi <sup>2</sup>

**Population Statistics**

2000 Est. pop.:	58,658 people
Pop. Density:	361 persons/mi <sup>2</sup>

**Land Cover**

Forest/Wetland:	63.0%
Surface Water:	17.5%
Urban:	8.3%
Cultivated Crop:	6.7%
Pasture/Managed Herbaceous:	4.5%

**Counties**

New Hanover, Onslow, and Pender

**Municipalities**

Carolina Beach, Holly Ridge, North Topsail Beach, Surf City, Topsail, Wilmington, and Wrightsville Beach

2005 Recommendations for Impaired Waters (taken from the Water Quality Plan)

\*NOTE: Stream segments located within Onslow County are in **bold**\*

*Banks Channel:* Specific areas of the channel will be added to the 303(d) list of Impaired waters.

***Batts Mill Creek, County Line Branch, and Cypress Branch: These segments will be added to the 303(d) list of Impaired waters.***

*Beckys Creek:* Beckys Creek will be added to the 303(d) list of Impaired waters.

***Everett Bay:* Everett Bay will be added to the 303(d) list of Impaired waters.**

*Everett Creek:* Everett Creek will be added to the 303(d) list of Impaired waters.

*Futch Creek:* Specific segments of Futch Creek will be added to the 303(d) list of Impaired waters.

*Hewletts Creek:* Specific segments of Hewletts Creek will be added to the 303(d) list of Impaired waters.

*Howe Creek:* Howe Creek will be added to the 303(d) list of Impaired waters.

*Intracoastal Waterway:* Specific segments will be added to the 303(d) list of Impaired waters. DWQ will work with Wilmington and New Hanover County to identify potential sources of bacteria and oxygen-consuming materials.

*Masonboro Sound ORW Area:* Specific segments will be added to the 303(d) list of Impaired waters.

*Mill Creek:* Mill Creek will be added to the 303(d) list of Impaired waters.

*Virginia Creek and Mullett Run:* Both creeks will be added to the 303(d) list of Impaired waters.

*Nixons Creek:* Nixons Creek will be added to the 303(d) list of Impaired waters.

*Old Mill Creek:* Old Mill Creek will be added to the 303(d) list of Impaired waters.

*Old Topsail Creek:* Specific segments of Old Topsail Creek will be added to the 303(d) list of Impaired waters.

*Pages Creek:* Specific segments of Pages Creek will be added to the 303(d) list of Impaired waters.

***Stump Sound and Stump Sound ORW:* Both segments will be added to the 303(d) list of Impaired waters.**

***Topsail Sound:* Specific segments of Topsail Sound will be added to the 303(d) list of Impaired waters.**

***Topsail Sound and Middle Sound ORW Area: Specific segments of this ORW area will be added to the 303(d) list of Impaired waters.***

***Turkey Creek: Specific segments of Turkey Creek will be added to the 303(d) list of Impaired waters.***

*Whiskey Creek: Whiskey Creek will be added to the 303(d) list of Impaired waters.*

**(4) Registered Animal Operations within Cape Fear River Basin**

The following table provides a summary of registered animal operations within Cape Fear River Subbasins 03-06-22, 03-06-23, and 03-06-24. It should be noted that the only registered animal operations within this River Basin consists of swine production. The number of operations in the subbasins that fall within Onslow County can be summarized as follows: Subbasin 03-06-22 - fourteen; Subbasin 03-06-23 - twenty; Subbasin 03-06-24 - one.

Table 33: Cape Fear River Basin  
Registered Animal Operations

Subbasin	Swine		
	No. of Facilities	No. of Animals	Total Steady State Live Weight*
44625	404	787,900	217,781,138
44990	46	204,757	25,636,095
45356	1	1,800	243,000

\*Steady State Live Weight (SSLW) is the result, in pounds, after a conversion factor has been applied to the number (head count) of swine, cattle, or poultry on a farm. The conversion factors, which come from the Natural Resource Conservation Service (NRCS) guidelines, vary depending on the type of animals on the farm and the type of operation (for example, there are five types of hog farms). Since the amount of waste produced varies by the size of the animal, SSLW is the best way to compare the sizes of the farms.

Source: NC Division of Water Quality Cape Fear River Basinwide Water Quality Management Plan.

*b. Water Quality (White Oak River Basin)*

The White Oak River Basin is contained entirely within the southern coastal plain. There are four separate river systems within the basin: the New River and its tributaries, the White Oak River and its tributaries, the Newport River and its tributaries, and the North River. In addition to these rivers, Bogue and Core Sounds are also in the basin. The New River watershed is the largest and most populated of the watersheds and is located entirely within Onslow County. The City of Jacksonville is located within this watershed. The river drains into the Atlantic Ocean. The White Oak watershed is the second largest watershed in the basin and is located just east of the New River. The river drains into the Atlantic Ocean. The Newport River watershed is located east of the White Oak watershed. The watershed originates in Craven County and drains into the Atlantic Ocean near Morehead City. The North River is located west of Core Sound. The watershed originates in Carteret County and drains into Back Sound near Harkers Island. The basin encompasses all or portions of 4 counties and 16 municipalities. The following table provides a listing of these local governments.

<b>White Oak River Basin Statistics</b>	
Total Land Area in Onslow County:	402,118 acres
Percentage of County in Basin:	75.8%
Total Area:	1,264 sq. miles
Stream Miles:	446
Estuarine Acres:	130,009
Atlantic Coastline:	91
No. of Counties:	4
No. of Municipalities:	16
No. of Subbasins:	5
Population (1990):	146,240
Estimated Pop. (2015):	188,403*
Pop. Density (1990):	141 persons/sq. mi.*

Table 34. Local Governments and Planning Units within the White Oak River Basin

County	Council of Government Region	Municipalities
Carteret	P	Atlantic Beach, Beaufort, Bogue, Cape Carteret, Cedar Point, Emerald Isle, Indian Beach, Morehead City, Newport, Peletier, Pine Knoll Shores
Craven	P	None
Jones	P	Maysville
Onslow	P	Jacksonville, North Topsail Beach*, Richlands, Swansboro

\*Located in more than one county.

NOTE: Counties are not included as part of a river basin if only a trace amount of the county (<2%) is located in that basin unless there is a municipality located in that county.

Source: White Oak River Basinwide Water Quality Plan.

**(1) Subbasin 03-05-01**

This subbasin is located in four counties and includes the White Oak River, Queens Creek, and Bear Creek. Land use is largely forest and preserved as such in the Croatan National Forest and Hofmann State Forest. The majority of the population is in Swansboro and Cape Carteret. There are nine minor dischargers and six registered animal operations in the subbasin. The largest discharger is the Swansboro WWTP.

In subbasin 03-05-01, use support ratings were assigned for aquatic life and secondary recreation, fish consumption, primary recreation, and shellfish harvesting. Eighty-six percent (86%) of the miles and one hundred percent (100%) of the acreage of water evaluated for aquatic life and secondary recreation were supporting. Coastal miles were not rated for aquatic life and secondary recreation. One hundred percent (100%) of coastal miles were impaired for fish consumption. Sixty-five percent (65%) of waters were supporting for primary recreation. One hundred percent (100%) of the coastal miles were supporting for primary recreation. Fifty-nine percent (59%) of water acreage was impaired for shellfish harvesting. All waters in the subbasin are considered impaired for fish consumption.

Stressors for water quality in this subbasin are: Low Dissolved Oxygen and low pH measurements. A possible source is swamp drainage into the White Oak River.

2002 Recommendations for Impaired Waters (taken from the Water Quality Plan)

\*NOTE: Stream segments located within Onslow County are in **bold**\*

***Bear Creek: The NC Cooperative Extension Service is using BMPs in the watershed to assist with reducing fecal coliform bacteria so as to restore shellfish harvesting.***

***Subbasin 03-05-01 Description***

Total Land Area in Onslow County: 106,884 acres  
Percentage of County in Subbasin: 20.1%

**Land and Water**

Total area: 351 mi<sup>2</sup>  
Land area: 322 mi<sup>2</sup>  
Water area: 29 mi<sup>2</sup>

**Population Statistics**

1990 Est. pop.: 39,388 people  
Pop. Density: 122 persons/mi<sup>2</sup>

**Land Cover**

Forest/Wetland: 76%  
Surface Water: 8%  
Urban: 1%  
Cultivated Crop: 11%  
Pasture/Managed  
Herbaceous: 3%

**Water Area**

Stream Miles: 116  
Estuarine Acres: 11,567  
Coastal Miles: 8  
Shellfish Harvest Acres: 11,239

***Queens Creek and tributaries:*** The NC Coastal Federation has purchased conservation easements along Queens Creek.

***White Oak River and tributaries:*** The NC Coastal Federation has purchased land along the White Oak River for conservation and demonstration projects.

**The *Atlantic Coastline* in this subbasin will be added to the 303(d) list of Impaired waters.**

**(2) Subbasin 03-05-02**

This subbasin is located entirely within Onslow County and includes the New River, Northeast Creek, and the Intracoastal Waterway. The City of Jacksonville is located within this subbasin, which is the most populated municipality in the White Oak River Basin.

In subbasin 03-05-02, use support ratings were assigned for aquatic life and secondary recreation, fish consumption, primary recreation, and shellfish harvesting. Thirty-six percent (36%) of the miles and ninety-six percent (96%) of the acreage of water evaluated for aquatic life and secondary recreation were supporting. Coastal miles were not rated for aquatic life and secondary recreation. One hundred percent (100%) of waters were determined to be impaired for fish consumption. Seventy-eight percent (78%) of the acreage and one hundred percent (100%) of coastal miles were supporting for primary recreation. Seventy-eight percent (78%) of the acreage was impaired for shellfish harvesting.

Stressors for water quality in this subbasin are nutrient enrichment and fecal coliform bacteria. Possible sources are stormwater runoff and WWTP dischargers.

<b><i>Subbasin 03-05-02 Description</i></b>	
Total Land Area in Onslow County: 295,234 acres	
Percentage of County in Subbasin: 55.6%	
<b><u>Land and Water</u></b>	
Total area:	462 mi <sup>2</sup>
Land area:	419 mi <sup>2</sup>
Water area:	43 mi <sup>2</sup>
<b><u>Population Statistics</u></b>	
1998 Est. pop.:	84,359 people
Pop. Density:	201 persons/mi <sup>2</sup>
<b><u>Land Cover</u></b>	
Forest/Wetland:	67%
Surface Water:	9%
Urban:	4%
Cultivated Crop:	13%
Pasture/Managed Herbaceous:	7%

2002 Recommendations for Impaired Waters (taken from the Water Quality Plan)

\*NOTE: Stream segments located within Onslow County are in **bold**\*

***Little Northeast Creek:* The four minor dischargers should pursue alternatives to discharge. DWQ will pursue the reclassification of the creek to reflect swampy conditions.**

***Southwest Creek:* New dischargers and discharge expansions should not be permitted. DWQ will pursue the reclassification of the creek to reflect swampy conditions.**

***New River:* DWQ recommends that the City of Jacksonville protect primary recreation and aquatic life as part of their stormwater program. DWQ will continue to monitor nutrients in the river to assess the risk of algal blooms to aquatic life.**

**(3) Registered Animal Operations within White Oak River Basin**

The following table provides a summary of registered animal operations within White Oak River Subbasins 03-05-01 and 03-05-02. It should be noted that the only registered animal operations within this River Basin consists of swine production. All of the swine operations listed within Subbasin 03-05-02 are located within Onslow County, while only four of those listed within Subbasin 03-05-01 are located within the County.

Table 35: White Oak River Basin Registered Animal Operations

Subbasin	Swine		
	No. of Facilities	No. of Animals	Total Steady State Live Weight*
36954	6	20852	2263920
37319	38	150427	17956695

\*Steady State Live Weight (SSLW) is the result, in pounds, after a conversion factor has been applied to the number (head count) of swine, cattle, or poultry on a farm. The conversion factors, which come from the Natural Resource Conservation Service (NRCS) guidelines, vary depending on the type of animals on the farm and the type of operation (for example, there are five types of hog farms). Since the amount of waste produced varies by the size of the animal, SSLW is the best way to compare the sizes of the farms.

Source: NC Division of Water Quality White Oak River Basinwide Water Quality Management Plan.

c. *Water Quality (Neuse River Basin)*

The Neuse River Basin is the third largest river basin in the state and one of four that are contained entirely within the state. The basin originates in the north central portion of the state in Person and Orange Counties and flows southeast to tidal waters upstream of New Bern. There are seven major tributaries within the basin: the Eno and Flat Rivers, Crabtree Creek, Swift Creek, Little River, Contentnea Creek, and Trent River. The population is centered around Raleigh, Durham, Hillsborough, Cary, Apex, and Wake Forest. However, there is significant population in other areas of the basin such as Goldsboro, Wilson, Greenville, Kinston, New Bern, and Havelock. The basin encompasses all or portions of 18 counties and 74 municipalities. The following table provides a listing of these local governments. It should be noted that there are no registered animal operations within this River Basin.

<b>Neuse River Basin Statistics</b>	
Total Land Area in Onslow County:	5,967 acres
Percentage of County in Basin:	1.1%
Total Area:	6,235 sq. miles
Freshwater Stream Miles:	3,497
Freshwater Lakes Acres:	16,414
Estuarine Acres:	369,977
Coastline Miles:	21
No. of Counties:	18
No. of Municipalities:	74
No. of Subbasins:	14
Population (2000):	1,353,617*
Pop. Density (2000):	211 persons/sq. mi.*

Table 36: Local Governments and Planning Units within the Neuse River Basin

County	Council of Government Region	Municipalities
Beaufort	Q	None
Carteret	P	None
Craven	P	Bridgeton, Cove City, Dover, Havelock, New Bern, River Bend, Trent Woods, Vanceboro
Duplin	P	Mount Olive*#
Durham	J	Durham*#, Morrisville*#
Franklin	K	Youngsville#
Granville	K	Creedmoor, Stem
Greene	P	Hookerton, Snow Hill, Walstonburg
Johnston	J	Benson#, Clayton, Four Oaks, Kenly*, Micro, Pine Level, Princeton, Selma, Smithfield, Wilson's Mills, Zebulon*
Jones	P	Pollocksville, Trenton
Lenoir	P	Kinston, La Grange, Pink Hill
Nash	L	Bailey, Middlesex
Orange	J	Durham*#, Hillsborough



County	Council of Government Region	Municipalities
Pamlico	P	Alliance, Arapahoe, Bayboro, Grantsboro, Mesic, Minnesott Beach, Oriental, Stonewall, Vandemere
Person	K	Roxboro#
Pitt	Q	Ayden, Farmville, Fountain#, Greenville#, Grifton, Winterville
Wake	J	Apex#, Cary*, Durham*#, Fuquay-Varina#, Garner, Holly Springs#, Knightdale, Morrisville*#, Raleigh, Rolesville, Wake Forest, Wendell, Zebulon*
Wayne	P	Eureka, Fremont, Goldsboro, Mount Olive*#, Pikeville, Seven Springs, Walnut Creek
Wilson	L	Black Creek, Kenly*, Lucama, Saratoga, Sims, Stantonsburg, Wilson

\*Located in more than one county.

#Located in more than one major river basin.

NOTE: Counties are not included as part of a river basin if only a trace amount of the county (<2%) is located in that basin unless there is a municipality located in that county.

Source: Neuse River Basinwide Water Quality.

**(1) Subbasin 03-04-11**

Subbasin 03-04-11 is mostly forest and agriculture with over 38,000 acres of public land largely associated with Croatan National Forest and Hofmann State Forest. There are three NPDES wastewater discharge permits in the subbasin and 64 registered animal operations.

In subbasin 03-04-11, use support ratings were assigned for aquatic life and secondary recreation, primary recreation, and fish consumption. One hundred percent (100%) of acres and 40.5% of miles were rated supporting for aquatic life and secondary recreation. One hundred percent (100%) of acres were rated supporting for primary recreation. All waters in the subbasin are considered impaired for fish consumption.

***Subbasin 03-04-11 Description***

Total Land Area in Onslow County: 5,967  
 Percentage of Subbasin in County: 1.1%

**Land and Water**

Total area:	444 mi <sup>2</sup>
Land area:	443 mi <sup>2</sup>
Water area:	1 mi <sup>2</sup>

**Population Statistics**

2000 Est. pop.:	15,914 people
Pop. Density:	36 persons/mi <sup>2</sup>

**Land Cover**

Forest/Wetland:	70.1%
Surface Water:	0.3%
Urban:	1.5%
Cultivated Crop:	24.7%
Pasture/Managed Herbaceous:	2.4%

**Counties**

Jones, Lenoir, and Onslow

**Municipalities**

Trenton and River Bend

2002 Recommendations for Impaired Waters (taken from the Water Quality Plan)  
\*None of these stream segments fall within Onslow County\*

*Trent River:* DWQ will investigate the potential for low flows to impact biological communities.

*Beaver Creek:* DWQ will continue to monitor Beaver Creek and continue to develop criteria that can be used to assign a bioclassification for future monitoring.

In addition to the data included in the Basinwide Water Quality Plans, the Onslow County On-Site Water Protection Supervisor has indicated that there are no health care/water quality problems resulting from nonpoint source pollution. However, septic tank failures have occurred throughout the County. It is noted that some systems are 60 years old or older. Onslow County has fully complied with Phase II stormwater requirements. The County has implemented a Comprehensive Stormwater Management Program.

*d. Natural Hazards/Natural Resources*

For detailed information on natural hazards and natural resources in Onslow County, refer to Sections V.B.1.c (page 37), V.B.1.g (page 49), and V.B.1.h (page 62). In addition, refer to Sections V.F.2 and 3 of the Analysis of Land Use and Development (page 124-130) for information regarding conflicts between land use, water quality, natural hazards, and natural resources.

**C. ANALYSIS OF EXISTING COMMUNITY FACILITIES/SERVICES**

Map 13 (see Appendix II) provides the location of the following Onslow County community facilities: hospitals, emergency medical service stations, fire departments, public schools, and park locations. *Refer to Appendix VI for data on the participating municipalities of Holly Ridge and Richlands.*

**1. Transportation**

US Highways 17 and 258 and NC Highways 24, 50, 53, 111, 172, and 210 are the major transportation routes in Onslow County. US Highway 17 is a north-south route through Onslow County and has four lanes in some areas to facilitate volumes of traffic. US Highway 258 enters the county in the northwest and leads to the City of Jacksonville. US Highway 258 is multi-lane from just north of Richlands to Jacksonville. NC Highway 24 runs east-west through the county, NC Highway 50 cuts across the southwest portion and leads to Topsail Island, NC Highway 53 enters from the southwest and leads to Jacksonville, NC Highway 111 enters from the west and connects with US Highway 258, NC Highway 172 cuts across the southeast side of Camp Lejeune Marine Base, and NC Highway 210 provides access to Topsail Island.

The North Carolina Department of Transportation (NCDOT) reported that, in 2004, the highest annual average daily traffic counts (AADT) occurred along US Highways 17 and 258 and on NC Highways 24, 210, and 172. The county has experienced increases as high as 104% in some areas since 2000. A location on NC Highway 210 just east of US Highway 17 experienced 104% increase. Other significant increases occurred at a location on NC Highway 210 just east of NC Highway 172 (56% increase), at a location on NC Highway 172 just north of NC Highway 210 (87.5% increase), and at a location on NC Highway 172 in Camp Lejeune (74% increase).

Onslow County is located in NCDOT Divisions 2 and 3. According to the Division 3 2006-2012 Transportation Improvement Program (TIP), there are two (2) rural and six (6) urban road projects that are either under construction or scheduled for development. The TIP also lists eight (8) bridge replacements in the County. These improvements will be discussed in detail in the Future Demands section of this plan. Map 14 (see Appendix II) depicts the NCDOT road projects and bridge replacements that have been identified on the TIP map. Some of the urban road projects do not appear on the TIP map.

The NCDOT has established the Strategic Highway Corridors Initiative. This program is intended to maximize the use of highway corridors that play a critical role in regional or statewide mobility in an ongoing effort to enhance transportation, economic development, and environmental stewardship throughout North Carolina. There are four strategic highways in Onslow County which are delineated on Map 14 (see Appendix II). All of these highways are limited or fully controlled access. The following summarizes the design criteria for the Strategic Highway Corridors in Onslow County:

**Freeways**

- 55 mph or greater
- Minimum 4 lanes with median
- Access only provided at interchanges
- All cross streets are grade-separated
- No traffic signals
- No driveways

**Expressways**

- Speed limit - 45 to 60 mph
- Minimum 4 lanes with median
- Access at interchanges for major cross streets, at-grade intersections for minor cross streets, median breaks for U-turns
- No traffic signals
- Limited/no driveway access encouraged

**Boulevards**

- Speed limit - 30 mph to 55 mph
- Minimum 2 lanes with median
- At-grade access at major and minor cross streets
- Traffic signals allowed
- Limited driveways allowed but access may be restricted to right-in/right-out

**Thoroughfares**

- Speed limit - 25 to 55 mph
- Minimum 2 lanes; no median
- Uncontrolled access onto facility
- Traffic signals allowed
- Driveways with full movements
- Continuous left turn lanes optional

Onslow County should support compatible land uses along the corridors which will support goals of the Strategic Highway Corridors initiative. The following summarizes these goals:

- Protect North Carolina’s taxpayer investment in critical highway corridors.
- Enhance major corridor mobility within and to destinations just outside North Carolina.
- Enhance connectivity of travel within and just outside North Carolina.
- Partner with stakeholders and all vested agencies to create a clear vision for each corridor.
- Influence the project level decision-making process to achieve broader goals through funding, project planning, design, access and land-use decisions.
- Support a statewide vision and identification of a desired facility type – freeway, expressway, boulevard or thoroughfare – for each corridor.

**2. Health Care**

Onslow Memorial Hospital is located in the heart of the County and is accredited by the Joint Commission on Accreditation of Healthcare Organizations. The 162 bed hospital is staffed with over 127 physicians. The hospital offers a variety of medical and surgical services. Following are some of the services provided at the facility. This is not a comprehensive list of services at the hospital.

- |                              |                            |
|------------------------------|----------------------------|
| ➤ Cardiac Rehab              | ➤ Nursing Services         |
| ➤ Cath Lab                   | ➤ Pediatric Asthma Program |
| ➤ Diagnostic Services        | ➤ Pharmacy Services        |
| ➤ Emergency Room             | ➤ Radiology Services       |
| ➤ Food Services              | ➤ Rehabilitation Services  |
| ➤ Heartburn Treatment Center | ➤ Special Procedures       |
| ➤ Laboratory Services        | ➤ Transport Services       |
| ➤ Minor Emergency Care       | ➤ Women’s Imaging Center   |
| ➤ Nursery and Pediatrics     |                            |

Source: Onslow Memorial Hospital.

Camp Lejeune Naval Hospital and Brynn Marr Behavioral Health Care also provide adequate major health care services for county residents. The Onslow County Health Department provides clinical and public health services to county residents. The county departments of Environmental Health, Solid Waste, and Mosquito and Animal Control contribute to the county’s public health efforts through the control of health hazards, nuisances, and private wastewater disposal.

**3. Law Enforcement**

Law enforcement is provided to the County by the Onslow County Sheriff’s Department. The department is located at 701 Mill Avenue in Jacksonville. The department operates 13 divisions. Following is a list of the divisions with a responsibility description. The Onslow County E-911 Call Center receives and dispatches emergency personnel for the entire County.

Division	Responsibility
Administration	Day to day supervision of all the divisions of the Sheriff’s Office.
Operations	Insuring that the operations of the department and the jail run efficiently. Duties also include training and the coordination of special activities and projects in an effort to better serve the citizens of Onslow County.
Special Operations	Consists of forensic imaging, forensic audio enhancing, information systems, wired and wireless networks, technology projects, and electronic surveillance.
Civil Division	Handles the business of the courts, security, orders, warrants, criminal summons, subpoenas, juvenile summons, civil process (all types), domestic violence orders, mental and detox transports, writs to bring out of county prisoners to court, judge’s orders to bring jurors to court, and entering all the processes into the computer system for the department and other agencies.
Crime Scene Investigations (CSI)	Investigating the scene of reported criminal activity and process crime related items in an effort to identify the method by which the crime was committed and those responsible for the crime. Maintain security of evidence and the chain of custody for evidence. Present evidence and relating testimony to the court. Fingerprinting criminals and applicants. Photographing crime scenes. Maintain all records relating to evidence.
Records	Handles over 30,000 incident reports per year. Responsible for jury summons, applicant checks for other agencies, handgun permits, and CCH handgun applications, among other things.
Patrol Division	Provides basic law enforcement for the county.
Training	Coordinates and provides training that is mandated by the North Carolina Sheriff’s Education and Training Standards Commission.

Division	Responsibility
Juvenile Division	Responsible for handling all the crimes involving juveniles in the County.
Jail	Responsible for the daily security of the jail and care of the inmates (approximately 110).
Narcotics	Fights the war on illegal drugs.
Criminal Investigations Division	Investigates all high profile criminal cases. It also tracks all criminal activity in the county and assists any agency requesting assistance.
School Resource Officers	Assigned to the high schools and middle schools within the county to protect and make for a safer educational environment.
Crime Prevention and Community Oriented Policing and D.A.R.E.	Organizes neighborhood watch programs, provides crime prevention speakers to local organizations, and provides extended patrols in problem areas.
Explorers Program	Educates and trains the youth of the county that are interested in pursuing law enforcement as a career.

Source: Onslow County Sheriff’s Department.

**4. Onslow County Justice System**

Onslow County is home to two separate courthouse buildings, both located within the City of Jacksonville. The original Onslow County Courthouse was constructed in 1904, and the Summersill Building was added in 1978 in order to add six additional courtrooms. In addition to the courtrooms, the Clerk of Court’s offices, the Trial Court Administrator’s offices, the Register of Deeds office, and the County Law Library are all located within the courthouse buildings. On an annual basis, the Onslow County Court System may hear up to 45,000 cases. The court system is part of the overall North Carolina Judicial System, and employs the following entities to oversee daily court operations and cases: a Superior Court Judge, District Court Judges, District Attorney, Clerk of Court, a Magistrate, and a Trial Court Administrator. Currently, the presiding Superior Court Judge for Onslow County is the Honorable Charles H. Henry.

**5. Fire Services**

Onslow County residents receive fire protection from 22 volunteer fire departments. Each fire department provides mutual aid service for fire calls. Table 37 provides a list of those departments, their locations, and the number of firefighters.

Table 37: Onslow County  
Fire Departments

Department Name	Location	# of Firefighters
Albert J. Ellis Airport/Fire Rescue	264 Albert J. Ellis Airport Rd, Richlands	5 career
Back Swamp Volunteer Fire Department	2957 Catherine Lake Rd, Richlands	25 volunteers
Bear Creek Volunteer Fire Department	677 Bear Creek Road, Hubert	32 volunteers
Belgrade Volunteer Fire Department	7561 New Bern Highway, Maysville	21 volunteers
Camp Lejeune Fire Protection District	18 Mchugh Blvd, Camp Lejeune	10 stations 119 career
City of Jacksonville Fire Department	206 Marine Blvd, Jacksonville	4 stations 71 career
Halfmoon Volunteer Fire Department	4835 Gum Branch Road, Jacksonville	25 volunteers
Haws Run Volunteer Fire Department	938 Haws Run Road, Jacksonville	26 volunteers
Holly Ridge Volunteer Fire and Rescue Department	109 Holly Street, Holly Ridge	22 volunteers
Hubert Volunteer Fire Department	118 Hubert Blvd., Hubert	40 volunteers
Loco Volunteer Fire Department	2731 White Oak River Road, Maysville	
Nine Mile Volunteer Fire Department	1131 Nine Mile Road, Richlands	31 volunteers
North Topsail Beach Fire Department	2049 New River Inlet Road, North Topsail Beach	2 stations 2 career 28 volunteers
Piney Green Volunteer Fire Department	2720 Piney Green Road, Midway Park	28 volunteers
Pumpkin Center Volunteer Fire Department	3285 New Bern Highway, Jacksonville	
Richlands Volunteer Fire Department	113 North Wilmington Street, Richlands	32 volunteers
Rhodes town Volunteer Fire Department	116 Rhodes town Fire Dept Road,	
Sneads Ferry Volunteer Fire Department	1576 Old Folkstone Road, Sneads Ferry	22 volunteers
Southwest Volunteer Fire Department	2031 Pony Farm Road, Jacksonville	
Swansboro Fire Department	502 Church Street, Swansboro	35 volunteers
Turkey Creek Volunteer Fire Department	115 Tar Landing Road, Holly Ridge	31 volunteers
Verona Volunteer Fire Department	101 Verona Road	
White Oak Volunteer Fire Department	1400 Old 30 Road, Maysville	25 volunteers

Source: Firedepartments.net

## 6. Emergency Medical Services and Homeland Security

Emergency Medical Services (EMS) are provided throughout the County from seven (7) stations. The division has 54 full-time and 34 part-time employees. A paramedic level service is provided with assistance from volunteer basic EMT and Advanced Rescue service. Onslow County EMS responds to over 15,000 calls per year, an increase in call of over 275% since 1987. The

average response time is approximately eight (8) minutes. The department is supported by eight (8) volunteer rescue squads. Following is a list of EMS stations, their addresses, and the name of the volunteer rescue squad that assists in the area. Each EMS station is staffed with two (2) Onslow County paramedics 24 hours a day, 7 days a week.

Table 38: Onslow County EMS Stations

EMS Station Name	Location	Supporting Volunteer Rescue Squad
Station 1	1180 Commons Drive N, Jacksonville	Jacksonville
Station 2	1250 Onslow Pines Road, Jacksonville	Haws Run
Station 3	1180 Commons Drive N, Jacksonville	Jacksonville
Station 4	264 Albert Ellis Airport Road, Richlands	Richlands
Station 5	118 Hubert Blvd., Hubert	Swansboro
Station 6	728 NC Highway 210, Sneads Ferry	Sneads Ferry and Holly Ridge
Station 7	3304 Gray Street, North Topsail Beach	North Topsail Beach and Holly Ridge

Source: Onslow County Emergency Medical Services Department.

## 7. Administration

The Onslow County Administration Office is located at 118 Old Bridge Street, Jacksonville. The County operates under a Board of Commissioners-Manager form of government and has approximately 1,183 budgeted positions. The following table provides a summary of the governmental departments and the number of employees in each.

Table 39: Onslow County Staffing

Department	Total Permanent Employees
Administrative Office	5
Albert J. Ellis Airport	15
Behavioral Health Services	121
Board of Commissioners	5
Board of Elections	15
Buildings and Grounds	24
Code Enforcement	14
Cooperative Extension Service	21
Council on Aging	117
Emergency Management	8
Emergency Medical Services	72



Department	Total Permanent Employees
Finance	11
Health Department & Animal Control	153
Human Resources	6
Information Technology Systems	14
Landfill/Solid Waste	28
Legal	1
Library	41
Mosquito Control	3
Museum	6
Parks and Recreation	37
Planning/Code Enforcement/ Keep Onslow Beautiful	27
Purchasing	7
Register of Deeds	7
Sheriffs Department	159
Social Services Administration	230
Soil & Water Conservation	3
Water Operations	72
Tax Administration	36
Vehicle Maintenance	3
Veteran's Services	3
Youth Services	16

Source: Onslow County Hazard Mitigation Plan.

## 8. Water System

According to the 2007 Onslow County Water Supply Plan, there were 38,787 residential, commercial, industrial, and institutional metered water service connections. It should be noted that all water service for Onslow County is provided by the Onslow Water and Sewer Authority (ONWASA). Map 15 (see Appendix II) provides an overview of ONWASA's existing water system. The County also supplied water to the Town of Swansboro, the Town of Holly Ridge, USMC Camp Lejeune, and Scientific Water and Sewer and purchased water from the City of Jacksonville and the Town of Surf City. The County operated 30 wells and 2 water treatment plants (Dixon and Hubert). The following provides a brief description of the 2007 water distribution system:

- Estimated total miles of distribution system lines - 980 miles
- Distribution lines replaced during 2007 - 8,324 feet
- New water mains added during 2007 - 216,788 feet

- Meters replaced in 2007 - 794
- Oldest meters in the system - 30 years
- Finished water storage capacity - 16.275 million gallons

North Carolina General Statute [GS 143-355(L)] requires all units of local government that provide or plan to provide public water supply service to prepare a Local Water Supply Plan and to update that plan at least every five years. A local water supply plan is an assessment of a water system’s current and future water needs and its ability to meet those needs. The following tables provide summaries of the water use information for Onslow County’s 2002 Water Supply Plan.

Table 40: Onslow County  
Water System Average Daily Water Use by Month (MGD), 2007

Month	Average Day Use	Max Day Use	Month	Average Day Use	Max Day Use	Month	Average Day Use	Max Day Use
Jan	6.24	7.16	May	8.17	10.86	Sep	7.39	8.77
Feb	6.37	7.28	Jun	8.57	9.95	Oct	6.95	8.41
Mar	6.48	8.37	Jul	8.18	9.35	Nov	6.57	8.32
Apr	7.43	9.16	Aug	7.99	9.31	Dec	6.35	7.76

Source: 2007 Onslow County Water Supply Plan.

Table 41: Onslow County  
Water System Average Annual Daily Water Use by Type (MGD), 2007

Type of Use	Metered Connections	Metered Average Use
Residential	32,372	5.556
Commercial	2,458	0.594
Industrial	1	0.023
Institutional	3,956	0.366

Source: 2007 Onslow County Water Supply Plan.

In July 2004, the Onslow Water and Sewer Authority (hereinafter referred to as the Authority) began operations with 96 employees and 32,000 customers. According to the Authority’s Rating Agency Update, the Authority was formed to provide water and sewer service to underserved areas of Onslow County and as a tool to enter into contracts with the Camp Lejeune United States Marine Corps Base (hereinafter referred to as MCB). The MCB will only negotiate with a single entity and will sell to the Authority under wholesale agreements. Water will be purchased from 2 separate MCB locations. A connection to the MCAS New River WTP is under construction and a connection to the Holcomb Boulevard WTP is anticipated in 2015. Onslow County, Holly Ridge, Richlands, and Swansboro have entered into long-term renewable Capital

Leases on their systems with the Authority. There are five county service districts under the Authority: White Oak, Swansboro, Jacksonville, Richlands, and Stump Sound.

The Rating Agency Update also reports that all raw water currently comes from groundwater wells installed in the Cretaceous and Castle Hayne aquifers. Water from the Castle Hayne aquifer is drawn from 15 wells and treated at the Hubert and Dixon water treatment plants. Water from the Cretaceous aquifer is drawn from 12 wells and chlorinated prior to distribution. There are also two Cretaceous wells in Richlands.

The influx of military personnel resulting from the BRAC action will place additional demands on ONWASA’s and Jacksonville’s water supply capabilities. However, this additional demand will be accommodated by:

- ONWASA recently completed Hubert and Dixon water treatment plant expansions.
- Currently, plans are underway to connect ONWASA’s water supply system to the Marine Corps Air Station system.
- An additional water treatment plant is under construction by the City of Jacksonville on the north side of the city.

**9. Sewer System**

The 2007 Onslow County Water Supply Plan reports that there were 2,736 sewer service connections. Map 15 (see Appendix II) provides an overview of ONWASA’s existing sewer system. There was one wastewater discharge interconnection with another system. The City of Jacksonville was the receiving system. There were 3 NPDES permits held by the system with Southwest Creek, Stone Creek, and Queens Creek receiving the discharge. Table 42 provides a list of the average daily wastewater discharge by month. The following summarizes capacity of the wastewater treatment plants: Stump Sound - 0.26 mgd; Northwest - 0.30 mgd; and Southeast - 0.30 mgd (see Table 53, page 141).

Table 42: Onslow County Wastewater System Average Daily Discharge by Month (MGD)

Month	Average Daily Usage	Month	Average Daily Usage	Month	Average Daily Usage
Jan	0.755	May	0.568	Sep	0.471
Feb	0.656	Jun	0.604	Oct	0.45
Mar	0.731	Jul	0.548	Nov	0.416
Apr	0.544	Aug	0.52	Dec	0.43

Source: Onslow County Water Supply Plan.

As mentioned in the discussion of the water system, the Authority began operations in July 2004. The wastewater facilities are comprised of sewer collection pump stations and four wastewater treatment plants. There is one WWTP spray field located in Holly Ridge. The treated effluent from all plants is discharged to surface water.

**10. Other Public Utilities Systems**

The City of Jacksonville and North Topsail Beach Utilities are also utility providers within the County, and serve some unincorporated portions of the County. In the case of Jacksonville, water and sewer lines run into the city’s extraterritorial jurisdiction. In most case, the provision of utility services prompts annexation action by the city; however, there are infrastructure lines that fall outside of Jacksonville’s contiguous corporate limit line. North Topsail Beach Utilities’ primary function is to provide water and sewer services to the Town of North Topsail Beach. As with ONWASA, this is a private water and sewer authority. A majority of the properties served by this authority are located within North Topsail Beach, although there are a few properties served along NC Highway 210.

In addition to these two independent utility authorities, there are currently 38 privately-owned and operated package treatment plants within the County. These plants are monitored by both the Onslow County Health Department and the NC Department of Environment and Natural Resources. It is anticipated that at some point in time some of these package plants may be absorbed by ONWASA, in an effort to provide a more extensive service area.

**11. Schools**

The Onslow County School System oversees all public schools providing service to Onslow County citizens. The system operates 35 educational facilities: 18 elementary schools, 8 middle schools, 7 high schools, 1 early childhood development center, and 1 alternative school. During the 2005-2006 school year, total enrollment in the county’s public schools was 22,558. The following table provides a summary of the schools that serve the county’s school age children. Map 13 (see Appendix II) provides the general location of all school sites.

Table 43: Onslow County Public Schools

Facility	Enrollment	Licensed Staffing	Student Capacity	Capacity Utilized	Shared Rec. Facilities
Bell Fork Elementary	415	33	515	80.6%	
Blue Creek Elementary	716	49	590	121.4%	
Carolina Forest Elementary	546	36	617	88.5%	
Clyde Erwin Elementary	413	33	427	96.7%	

Facility	Enrollment	Licensed Staffing	Student Capacity	Capacity Utilized	Shared Rec. Facilities
Dixon Elementary	773	53	644	120.0%	
Dixon Middle	488	34	634	77.0%	gym
Dixon High	560	44	555	100.9%	
Hunters Creek Elementary	818	55	701	116.7%	
Hunters Creek Middle	806	55	582	138.5%	gym
Jacksonville Commons Elementary	746	47	691	108.0%	
Jacksonville Commons Middle	739	56	884	83.6%	
Jacksonville High	1228	90	1335	92.0%	gym, annex gym
Morton Elementary	440	34	523	84.1%	ballfields
New Bridge Middle	520	36	494	105.3%	
Northside High	772	56	790	97.7%	
Northwoods Elementary	406	37	399	101.8%	
Northwoods Park Middle	656	48	722	90.0%	
OCLC	*	12	100	N/A	
Parkwood Elementary	591	38	444	133.1%	
Queens Creek Elementary	550	44	533	103.2%	
Richlands Primary	724	48	500	144.8%	
Richlands Elementary	641	50	646	99.2%	
Richlands High	829	57	640	129.5%	
Sand Ridge Elementary	539	41	516	104.5%	
Silverdale Elementary	473	36	320	147.8%	
Southwest Elementary	869	61	685	126.9%	
Southwest Middle	561	41	582	96.4%	gym
Southwest High	723	56	820	88.2%	
Summersill Elementary	727	49	644	112.9%	ballfields
Swansboro Elementary	529	36	400	132.3%	
Swansboro Middle	757	57	842	89.9%	gym, annex gym
Swansboro High	939	70	1100	85.4%	
Thompson Early Childhood PK	275	46	270	101.9%	
Trexler Middle	628	42	598	105.0%	gym, ballfields
White Oak High	1161	77	1075	108.0%	

\*Students assigned to the OCLC are included in the enrollment of the referring school.  
Source: Onslow County Schools.

Higher education is offered at Coastal Carolina Community College (CCCC). The college is located at 444 Western Boulevard in Jacksonville. The CCCC is a public institution supported by tax dollars. Originally established as Onslow County Industrial Education Center in July 1965, the center became Onslow Technical Institute in May 1967 and Coastal Carolina Community College in July 1970. The College has the following mission statement:

As a member of the North Carolina Community College System, Coastal Carolina Community College provides opportunities for quality post-secondary education, workforce training and lifelong learning for the civilian and military population of Onslow County, within the limits of available resources. Coastal values academic excellence, focuses on learning outcomes and student success, provides leadership for community cooperation and actively promotes the economic development of Onslow County.

The community college operates classes on a semester schedule and offers online courses and a variety of programs that lead to degrees, diplomas, or certificates. Following is a list of those programs.

Degrees

- Associate in Arts
- Associate in Fine Arts
- Associate in Science
- Associate in Applied Science
- Curriculum Online for Policing Services (C.O.P.S.)

Diplomas

- Air Conditioning, Heating, and Refrigeration Technology
- Autobody Repair
- Automotive Systems Technology
- Central Sterile Processing
- Cosmetology
- Dental Assisting
- Early Childhood Associate
- Electrical/Electronic Technology
- Electronic Servicing Technology
- Fire Protection Technology
- Heavy Equipment and Transport Technology
- Information Systems
- Information Systems/Network Administration and Support
- Practical Nursing
- Surgical Technology
- Welding Technology

Certificates

- Air Conditioning, Heating, and Refrigeration
- Autobody Repair
- Automotive Systems Technology
- Basic Law Enforcement Training
- CISCO Certificate
- Cosmetology Instructor
- Early Childhood Associate
- Electronic Servicing Technology

- Fire Protection Technology
- Heavy Equipment and Transport Technology
- Manicuring Instructor
- Manicuring/Nail Technology
- Nursing Assistant
- Office Systems Technology/Medical

**12. Recreation**

It is the Onslow County Park and Recreation Department’s mission to enhance the quality of life of the citizens by offering a variety of both active and passive activities. The Department accomplishes this through the provision of its District Parks, various recreation programs, beach access facilities, and its partnership with the community. The department offers the following athletic programs: Youth Baseball & Softball for ages 5-18, NYSCA Coaches Clinics, Youth Basketball for ages 7-18, Youth Cheerleading for ages 7-18, Adult Softball Co-Recreation, Adult Women’s Soccer, Adult Basketball Church, Adult Soccer for adults 30 and over. The county also offers instructional classes in Cheerleading, Golf, Kayaking, Tennis, and Boating Safety. There are seven parks throughout the County. The following table provides a summary of those facilities. The location of all park facilities are shown on Map 13 (see Appendix II).

Table 44: Onslow County Park Locations and Amenities

Park	Amenities
Onslow Pines Park 1244 Onslow Pines Road Jacksonville <b>55+ acres</b>	Department Administrative Office; 4 lighted tennis courts; 2 lighted regulation-size basketball courts; 1 regulation combination baseball, softball, football, and soccer field; 1 little league baseball field; 3 regulation sand volleyball courts; 2 covered pavilions for picnics and meetings with pig-cooking areas; 5 designated picnic areas with grills, trash receptacles, and nearby restrooms; a nature trail 4/10 of a mile long with rest shelters and 20 interpretive stations of foliage species common to the area; a tot-lot play area that consists of 2 mini-pavilions, swings, 2 multi-component composite play structures, and picnic tables; a 9/10 of a mile jogging fitness trail with exercise stations; 7-1/2 acre arena with a separate stage area; a senior citizen outdoor recreation area containing a Rotary pavilion with restrooms, shuffleboard, lawn bowling green, outdoor checker/chess tables, grills, picnic tables, croquet, and horse shoe pits; parking for 300 vehicles.

Park	Amenities
Hubert By-Pass Park 220 Hubert Boulevard Hubert <b>41+ acres</b>	a 3/4 mile long jogging trail with rest stops; a 1/2 mile Nature Trail with rest shelters and 27 interpretive stations of foliage species common to the area; picnic tables, grills, a tot-lot play area, and a combination football/soccer field; a tot-lot pavilion with restrooms; a paved basketball court; a sand volleyball court; a Rotary pavilion with restrooms, picnic tables, grills, and a pig cooker area.
Deppe Park in Hofmann Forest 5472 New Bern Highway Jacksonville <b>373 acres</b>	pavilion; tot-lot play area; walking trails.
Richlands-Steed Park 278 Francktown Road Richlands <b>195 acres</b>	CP&L picnic pavilion with restrooms; a tot-lot area with playground equipment; 2 basketball courts; large picnic shelter; 2 tennis courts; 18 hole disc golf course; 2 sand volleyball courts; shuffleboard court; horseshoe pits; 1 small soccer field; 1 medium soccer/football field; 4 field complex baseball and softball fields with restroom facilities; exercise trail; parking.
Stump Sound Park 1771 Highway 172 Sneads Ferry <b>56 acres</b>	1,590 feet nature trail with 17 interpretive stations of foliage species common to the area; 1,785 feet fitness trail; picnic tables, grills, 2 tot-lot play areas, and open playing space; a picnic pavilion with restrooms, picnic tables, grills, and a pig cooker area; a lighted basketball court; a volleyball court; 2 lighted tennis courts; 2 lighted baseball/softball fields; 2 soccer/football fields; concession stand with restrooms; parking for 150 vehicles.
New River Waterfront Park Downtown Jacksonville	lighted boardwalk from bridge to bridge; pier; 2 boat ramps; picnic tables; parking area.
Tabernacle School Park Belgrade Swansboro Road <b>23 acres</b>	soccer complex



Park	Amenities
Oakhurst Nature Park 244 Riverbend Road Jacksonville	trails; paddling access; parking.
<b>250 acres</b>	

Source: Onslow County Parks and Recreation Department.

The Parks and Recreation Department also has a Kayak/Canoe Paddling Trail. The trail is 16.86 miles long and travels the New River from Cow Horn Creek at Richlands-Steed Park to New River Waterfront Park in Jacksonville.

#### D. LAND SUITABILITY ANALYSIS (LSA)

A Land Suitability Analysis is a mandatory component of all local CAMA land use plans. The analysis is a Geographic Information Systems (GIS) based process that determines the areas of land that are most and least suitable for development of structures and infrastructure. The procedure is very similar to the practice developed by Ian McHarg, in which geospatial data layers are referenced to each other in an effort to determine what portions of a land mass appear to be the most favorable sites for a specific land use. Several factors are considered during the analysis, including the natural system constraints, compatibility with existing land uses and development patterns, existing land use policies, and the availability of community facilities. The primary output of the analysis is the Land Suitability Map. The map identifies vacant or under-utilized land that is suited for development and can be used as a foundation for the discussion and formation of county-wide land use policy. There are eight steps to completing the analysis:

1. **Define criteria for the analysis:** The criteria utilized for the LSA were based on CAMA guidelines and modified according to available GIS data sets. The criteria for land suitability are listed in Table 45 and were given a rating of high, moderate, low, and least suitable for each one-acre portion of land analyzed.
2. **Define data needed.** The GIS data used for the LSA was compiled from several sources. The majority of the data was provided by the North Carolina Center for Geographic Information & Analysis. Some of the data used was obtained from Onslow County. All of the data used in this process are listed on page 104-105.
3. **Determine what GIS analysis operations should be performed.** This step involved determining what GIS operations would be required to effectively execute the overlay analysis.

4. **Prepare the data.** All of the data sets defined in step 2 were prepared to be run through the model.
5. **Create a model.** This step involved the actual construction of the LSA computer model.
6. **Run the model.** The GIS data is run through the developed LSA model.
7. **Analyze results:** The LSA map, as depicted in Map 16 (see Appendix II), is the output of the model. The results of the model are analyzed to determine if the model needs to be revised.
8. **Refine model as needed.** If needed, modifications are made to the model and the process starts again from step 6 until satisfactory results are reached.

All of these steps have been completed and the end product is displayed on Map 16, Onslow County Land Suitability Map (see Appendix II). NOTE: The LSA map does not include Department of Defense, municipal, or other properties which are not under the jurisdiction of Onslow County. However, these areas would be considered least suitable for development. The criteria utilized in the LSA are listed below, along with the GIS data set associated with each criterion (the bold type indicates which GIS layer is a function of each criterion):

- Land within **Beneficial Non-Coastal Wetlands** has low suitability.
- Land within **Storm Surge Areas** has low suitability.
- Land with **Severe Septic Limitations** (based on soils data) has low suitability; moderate limitations have moderate suitability; slight limitations have high development suitability.
- Land within 100-year **Flood Zones** has low development suitability.
- Land within **HQW/ORW Watersheds** has low suitability.
- Land within **Water Supply Watersheds** has low suitability.
- Land within 500 feet of a **Significant Natural Heritage Area** has low suitability.
- Land within 500 feet of a **Hazardous Substance Disposal Site** has low suitability.
- Land within 500 feet of an **NPDES Site** has low suitability.
- Land within 500 feet of a **Wastewater Treatment Plant** has low suitability.
- Land within 500 feet of a **Municipal Sewage Discharge Point** has low suitability.
- Land within 500 feet of a **Land Application Site** has low suitability.
- Land within a half-mile of **Primary Roads** has high suitability; within a half-mile to a mile have moderate suitability; areas greater than one mile outside of primary roads have low suitability.
- Land within a half-mile of **Developed Land** has high suitability; areas within a half-mile to a mile have moderate suitability; areas further than one mile away from developed land have low suitability.
- Land within a quarter-mile of **Water Pipes** has high suitability; areas within a quarter-mile to a half-mile of water pipes have moderate suitability; areas further than a half-mile away from water pipes have low suitability.

- Land within a quarter-mile of **Sewer Pipes** has high suitability; areas within a quarter-mile to a half-mile of sewer pipes have moderate suitability; areas further than a half-mile away from water pipes have low suitability.
- Land within **Coastal Wetlands** is LEAST suitable.
- Land within **Exceptional and Substantial Non-Coastal Wetlands** is LEAST suitable.
- Land within **Protected Lands** is LEAST suitable.
- Land within **Estuarine Waters** is LEAST suitable.
- Land governed by the **Department of Defense** is LEAST suitable.

The following table displays a tabular account of what determines whether a specific portion of property has a high or low suitability rating based on the criterion listed above.

Table 45: Onslow County  
Land Suitability Analysis Criteria Table

Layer Name	Criteria and Rating			
	Least Suitable	Low Suitability	Moderate Suitability	High Suitability
	0	-2	1	2
Coastal Wetlands	Inside	--	Outside	--
Exceptional & Substantial Non-Coastal Wetlands	Inside	--	Outside	--
Estuarine Waters	Inside	--	Outside	--
Protected Lands	Inside	--	Outside	--
Department of Defense	Inside	--	Outside	--
Storm Surge Areas	--	Inside	--	Outside
Soils (Septic Limitations)	--	Severe	Moderate	Slight
Flood Zones	--	Inside	--	Outside
HQW/ORW Watersheds	--	Inside	--	Outside
Natural Heritage Areas	--	<500'	--	>500'
Hazardous Substance Disposal Sites	--	<500'	--	>500'
NPDES Sites	--	<500'	--	>500'
Wastewater Treatment Plants	--	<500'	--	>500'
Discharge Points	--	<500'	--	>500'
Land Application Sites	--	<500'	--	>500'
Developed Land (extracted from the Onslow County Existing Land Use survey)	--	>1 mi	.5 - 1 mi	<.5 mi
Roads	--	>1 mi	.5 - 1 mi	<.5 mi
Water Pipes	--	>.5 mi	.25 - .5 mi	<.25 mi
Sewer Pipes	--	>.5 mi	.25 - .5 mi	<.25 mi

\*Data layers that are slated as exclusion have a suitability of 0 or 1, meaning that if a specific one-acre piece of property falls within one of these areas, it is automatically considered least suitable for development.  
Source: NCCGIA and CAMA.

In order to complete the analysis, the County was divided into one-acre squares of land. Each of these one-acre squares of land was given a score based on how that respective piece of property related to each of the criteria listed above. The scores for each layer were added together to determine a suitability rating for that one-acre square of property.

The process utilized Arcview GIS software with the Spatial Analyst extension along with a variety of data layers as listed above including: several layers provided by the North Carolina Center for Geographic Information and Analysis (NCCGIA) and existing land use data discussed earlier in this plan.

According to the LSA, land in Onslow County is fairly suitable for development. The following table describes the land suitability acreage based on the results of the overlay analysis. Thirty and one half percent (30.6%) of the County was determined to be highly or moderately suitable for development. The overwhelming majority of the land determined to be least suitable for development is in either the Camp Lejeune Marine Corps Base or the Hofmann Forest. It should be noted that a low suitability score does not mean that an area cannot be developed. Development can occur in these areas with proper infrastructure and improvements. The LSA is to be used as a guideline to identify areas where development should be watched closely and developed with more caution.

Table 46: Onslow County LSA Acreage

Suitability	Acreage	% of Total
Least Suitable	89,630	47.4%
Low Suitability	41,676	22.0%
Moderate Suitability	47,748	25.2%
High Suitability	10,175	5.4%
Total	189,229	100.0%

Source: Holland Consulting Planners (April, 2006); North Carolina Center for Geographic Information and Analysis.

E. CURRENT LOCAL LAND USE PLANS AND POLICIES

Onslow County operates under the authority of a Board of Commissioners-Manager form of government. There are five county commissioners and twenty-one other boards and commissions that assist with the operation of the county. Four of those boards deal directly with planning and the use and development of land and they are listed below.

- Airport Commission - 7 members
- Planning Board - 7 members
- Parks and Recreation Advisory Committee - 7 members
- Zoning Board of Adjustment - 5 members and 2 alternates

The following provides a summary of the County’s land use-related instruments.

**1. Zoning**

The purpose of the Onslow County Zoning Ordinance is to “provide for the public health, safety and general welfare, encourage orderly development, protect the quality of the environment, and regulate the location and use of structures and land for commerce, industry and residences in accordance with a Comprehensive Land Use Plan”. To accomplish this, the ordinance provides information on the procedures and/or regulations for amendments, appeals, variances, interpretations, zoning and special use permits, enforcement, signs, group developments, and parking. The ordinance also establishes the official “Zoning Map of Onslow County, North Carolina” and zoning districts for the county. Specific requirements are set forth for permitted uses in each district as well as the minimum lot sizes, yard setbacks, and building heights.

Map 17 (see Appendix II) and Table 47 provide the locations and acreage figures for all zoning districts within Onslow County. The largest zoning district within Onslow County is the RA-Rural Agriculture District. This district accounts for almost 70% of the county’s jurisdiction. Over 80% of the county’s land is zoned for residential purposes, 1.3% is zoned for commercial purposes, 0.2% is zoned for heavy industry, and 17.2% is zoned conservation. At this time, all of Onslow County’s planning jurisdiction has been zoned.

Table 47: Onslow County Zoning Classifications

Districts	Acres	% of Total
RA	235,950	69.9%
R-90	164	0.05%
R-30M	5,735	1.7%
R-30	232	0.1%
R-20	2,974	0.9%
R-15	13,591	4.0%
R-10	3,594	1.1%
R-8M	9,502	2.8%
R-5	880	0.3%
HB	4,218	1.2%

Districts	Acres	% of Total
CB	447	0.1%
H-IN	814	0.2%
CON	58,013	17.2%

Source: Holland Consulting Planners, Inc., and Onslow County.

## **2. Subdivision Ordinance**

The Subdivision Ordinance provides guidance for the submittal and review of major, minor, and multi-family subdivision development proposals and outlines procedures for variance and amendment requests. Subdivision design standards are established for lots, access, easements, streets, utilities, buffering, and Planned Unit Developments.

## **3. Minimum Housing Standards**

The Minimum Housing Standards were created to ensure that all buildings are fit for human habitation. The standards establish minimums for structural condition; basic equipment and facilities; ventilation; space, use, and location; and control of insects, rodents, and infestations. The document also provides procedures for enforcement and responsibilities of owners and occupants.

## **4. Flood Damage Prevention Ordinance**

Onslow County participates in the National Flood Insurance Program (NFIP). The purpose of the ordinance is to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions within flood prone areas. This is accomplished by utilizing specific standards for flood hazard reductions and the following provisions:

- Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards or that result in damaging increases in erosion, flood heights or velocities;
- Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;

- Control filling, grading, dredging, and all other development that may increase erosion or flood damage; and
- Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters or which may increase flood hazards to other lands.

## **5. Solid Waste Management Ordinance**

The purpose of the ordinance is to promote the public safety, health, and welfare of the citizens of Onslow County through regulation of the storage, collection, and disposal of solid waste in the county. The ordinance establishes activities that are regulated for solid waste; abandoned, junked, and nuisance vehicles; open burning; and public health nuisance abatement. This is the most recent ordinance to have been adopted by the County.

## **6. Parks and Recreation Master Plan**

The Parks and Recreation Master Plan provides an inventory of existing parks and facilities and identifies parks and recreation deficiencies. The plan also provides a needs analysis to guide the county in ways to fill parks and recreation voids.

## **7. Hazard Mitigation Plan**

The plan was developed in response to federal and state legislation. The Disaster Mitigation Act of 2000 (DMA2K), the federal legislation, and Senate Bill 300, the state legislation, requires that all local governments have a FEMA approved Hazard Mitigation Plan in place in order to receive Hazard Mitigation Grant Program (HMGP) funding or Public Assistance (PA) funding following a natural disaster. The plan identifies those hazards to which the county is most susceptible, analyzes the vulnerability of the county to those hazards, and analyzes the county's ability to respond to those hazards. The primary output of the plan is the Mitigation Strategies that assist with the prevention of loss due to natural hazards.

## **8. Review of the 1997 Onslow County CAMA Land Use Plan**

The 1997 Onslow County CAMA Land Use Plan Update was adopted by the Board of Commissioners on February 11, 2000, and certified by the Coastal Resources Commission on March 24, 2000. The plan included 72 policy statements, 87 implementing actions, and a detailed summary of the county's storm hazard mitigation procedures, post-disaster recovery operations, and evacuation plans. Of the 87 implementing actions, 70 have either been accomplished, are in progress, or are ongoing. There are 17 implementing actions from the 1997 plan which have not been carried out. All implementing actions from the 1997 plan are listed below according to their status of completion. Actions that have not been completed will be revised, if needed, and addressed in the policy action sections of this plan.

**ACCOMPLISHED**

1. Onslow County will rely on the U.S. Army Corps of Engineers to enforce 404 wetland regulations.
2. Onslow County will enforce through the development and zoning permit process in zoned areas all current regulations of the NC State Building Code and North Carolina Division of Health Services relating to building construction and septic tank installation/replacement in areas with soils restrictions.
3. Onslow County will coordinate all development activity with appropriate county and state regulatory personnel, and in particular with the Onslow County Building Inspector and Sanitarian.
4. Onslow County will support planning for and the development of a central sewer system(s) to serve areas of Onslow County classified as urban transition, limited transition, and rural with services.
5. Onslow County will continue to coordinate all development within the special flood hazard areas with the county Community Development Department, the North Carolina Division of Coastal Management, FEMA, and the US Corps of Engineers.
6. Onslow County will support CAMA and NC Division of Environmental Management stormwater run-off regulations, and by coordinating local development activities involving chemical storage or underground storage tank installation/abandonment with Onslow County Emergency Management personnel and the Groundwater Section of the North Carolina Division of Environmental Management. The county will plan for an adequate long-range water supply. In the planning process, Onslow County will cooperate with adjacent counties to protect water resources.
7. The county will coordinate area development with the Albert Ellis Airport Master Plan.
8. Onslow County will coordinate the regulation of underground storage tanks with the North Carolina Division of Environmental Management. Onslow County will support 15A NCAC 2N, Sections .0100-.0800, which includes the criteria and standards applicable to underground storage tanks.
9. The county will support existing state regulations relating to stormwater runoff resulting from development (Stormwater Disposal Policy 15 NCAC 2H.001-.1003).



10. Onslow County supports control of agricultural runoff through implementation of US Soil Conservation Service "Best Management Practices" program, and/or North Carolina State "Best Management Practices."
11. Onslow County supports control of forestry runoff through implementation of "Forestry Best Management Practices" as provided by the North Carolina Division of Forest Resources.
12. Onslow County supports the policy that all State of North Carolina projects should be designed to limit to the extent possible stormwater runoff into coastal waters.
13. Onslow County will rely on its zoning ordinance in zoned areas and the CAMA permitting program to implement policies on industrial impacts on fragile areas.
14. Onslow County will rely upon the North Carolina Division of Water Quality and the county's staff to implement policies on package treatment plant use.
15. The county will rely on the CAMA permitting program to implement policies on marina and floating home development.
16. The county is presently considering no restrictions on off-road vehicle use and will rely on other government regulations to control usage.
17. County zoning in zoned areas, flood damage prevention ordinance, and CAMA minor or major permitting requirements must be met and will be relied upon to enforce the policy on sound and estuarine islands.
18. Huggins Island is singled out for a specific development policy. Located near Swansboro at the confluence of White Oak River and the ocean, this 100-acre (approximately) island contains maritime forest and has been studied by the NC Division of Coastal Management. The owners of the island have recorded deed restrictions prepared in association with the Division of Coastal Management and the staff of the Nature Conservancy. The intent of the deed restrictions is to limit development and protect the maritime forest and other resources. The deed restrictions are in the form of restrictive covenants.
19. Onslow County will rely on the Division of Coastal Management to enforce the policy on bulkhead construction.
20. Onslow County will cooperate with local, state, and federal efforts to inform the public of the anticipated effects of sea level rise.

21. The County shall rely on applicable state, federal, and local regulations to enforce all policies related to maritime forests.
22. The county will rely on the Division of Coastal Management to enforce policies related to estuarine systems.
23. Onslow County will rely on the Division of Coastal Management to enforce policies related to outstanding resource waters.
24. Onslow County supports implementation of the following actions through local ordinances to improve water quality:
  - Use watershed-based land use planning
  - Protect sensitive natural areas, including coastal wetlands
  - Establish buffer network
  - Minimize impervious cover in site design
  - Limit erosion during construction
  - Maintain coastal growth measures
  - Restoration of impaired waters
  - Protection of high value resource waters
  - Management of the cause and sources of pollution to ensure the protection of those waters currently supporting their uses allowing for reasonable economic growth
  - Reduction of nutrients in the New River and its tributaries
25. Onslow County supports the following actions by the General Assembly and the Governor:
  - Sufficient state funding should be appropriated to initiate a program of incentives grants to address pollution of our rivers from both point sources and nonpoint sources.
  - An ongoing source of state funding should be developed to provide continuous support for an incentives grant program.
  - The decision-making process for the award of incentives grants should involve river basin organizations representing local governments and other interest groups in the review of all applications for state funding.
  - The ongoing effort of the Department of Environment and Natural Resources to develop administrative rules implementing the proposed White Oak and Cape Fear River Basin Management Strategy should continue to involve local government officials in the development, review, and refinement of the proposal.

26. Onslow County will be responsible for implementing the policy on working cooperatively with the county's municipalities to provide a year-round recreation program.
27. Onslow County will rely on the Division of Coastal Management to implement the policy on protection of coastal wetland areas.
28. Onslow County will pursue grant funds to support development of a county-wide comprehensive recreation plan.
29. Onslow County policy will allow the market place to determine the exact location of golf course facilities; all subject to applicable restrictions, regulations, and availability of public facilities and service. All new golf course developments shall meet all local, state and federal guidelines applicable for their location. In addition, Onslow County establishes a natural, undisturbed 75-foot vegetative buffer extending landward of the mean high water line of the estuarine waters for golf course development. No development shall occur except that permits for utility line easements will be allowed. The Onslow County Planning Board will be considering the need for additional land use regulations to enforce this policy locally.
30. Through private farming operations, Onslow County supports and encourages use of the Natural Resources Conservation Service "Best Management Practices" program. This includes agricultural practices which limit the runoff of sediment.
31. Onslow County will rely on applicable state and federal regulations to discourage the direct point source discharge of agricultural runoff into primary nursery areas, productive shell-fishing waters, and ORW designated areas.
32. Onslow County will rely on applicable state and federal regulations to support aquaculture activities.
33. Onslow County will rely on private forestry operations to encourage and support forestry best management practices as defined in the Forest Best Management Practices Manual, 1989, North Carolina Division of Forest Resources.
34. Onslow County will rely on this plan and applicable federal, state, and local policies to implement policies related to residential, commercial, and industrial development impacts on resources.
35. Onslow County Board of Commissioners reserves the right to review and comment on individual questions concerning commercial and marine fisheries issues.

36. Onslow County will rely on the NC Marine Fisheries to identify areas suitable for shellfish bottom leases.
37. The county will rely on the Division of Coastal Management for regulation of the ORW areas.
38. Onslow County will rely on its zoning ordinance in zoned areas and applicable state and federal regulations to implement policies related to peat and phosphate mining.
39. The county is aware that inappropriate land uses near well fields increase the possibility of well contamination. Land uses near groundwater sources are regulated by the North Carolina Division of Environmental Management through N.C.A.C. Subchapter 2L and Subchapter 2C. Onslow County recognizes the importance of protecting potable water supplies, and therefore supports the enforcement of these regulations.
40. Onslow County supports all efforts to secure available state and federal funding for the construction and/or expansion of public and private water systems.
41. Onslow County supports the construction of water systems with adequate line sizes to ensure adequate water pressure and fire protection.
42. The county will secure federal or state grants, when feasible, to help carry out policies related to sewer system facilities.
43. Onslow County supports all efforts to secure available state and federal funding for the construction and/or expansion of public and private sewer systems.
44. Onslow County supports the findings of the Four County Regional Task Force Study.
45. Onslow County supports the operation of the new 198-acre Pony Farm Road landfill.
46. Onslow County favors the siting of recycling centers within all land classifications except the conservation category.
47. County officials are aware that a clean community projects a positive image for industry, new businesses, and visitors to the area and will continue to support the efforts of the Keep Onslow Beautiful Department. Complementing and supporting the primary goal of reducing litter and preserving and protecting natural resources, the Committee will address other community issues to include, but not be limited to, those listed below:

- The Keep Onslow Beautiful Department staff will work with schools, business and industry, civic clubs, governments, and the media to provide comprehensive involvement of the community in the Keep America Beautiful System.
  - The Department and staff will continue to educate the public regarding alternatives to landfilling solid waste, with an educational focus on recycling and the problems and damages to the environment caused by illegal dumping.
  - The Department and staff will continue to assist the beach community with organization of volunteer beach clean-up programs and a recycling program. The county will continue to furnish the Town of North Topsail Beach with trash receptacles.
  - The Department and staff will continue assisting with beautification of county container sites. Clean-up work at container sites will continue with the availability of court assigned community service workers.
  - The Keep Onslow Beautiful Department staff will continue to serve as an agency to utilize community service workers assigned by the courts to perform various tasks for improvement of the county.
  - The Department and staff will assist the County Commissioners in implementing local provisions of Senate Bill 111.
  - The Keep Onslow Beautiful Department staff will engage in activities to enforce the county ordinance relating to illegal dumping. This will include education of county law enforcement personnel with application of the county's solid waste ordinance. The ordinance will be updated in order to conform with state and federal guidelines.
  - The Onslow County Keep Onslow Beautiful staff will issue permits for debris removal in compliance with CAMA regulations.
48. The Onslow County Board of Commissioners will review proposals for development of electric generating plants on a case-by-case basis, judging the need for the facility by the county against all identified possible adverse impacts.
49. At present, Onslow County is not aware of any plans to construct an energy facility or off-shore drilling support operations in the county. County policy to deal with such a facility will be formulated if such a facility is proposed, and with the knowledge that such a facility would come under existing state and federal regulations prior to being located in the

county. However, Onslow County shall require that all North Carolina Environmental Policy Act requirements be met. Onslow County will rely on appropriate state and federal agencies to implement this policy.

50. The county will coordinate facility planning with the school system and the municipalities. All substantial reconstruction and new construction shall comply with the State Building Code and the Southern Building Congress International Code.
51. The county will support the development and enforcement of a Minimum Housing Code.
52. The county will apply for Community Development Block Grant Community Revitalization funds.
53. The county will coordinate redevelopment efforts with the Onslow County Building Compliance Division.
54. Continued enforcement of County Subdivision Regulations, Manufactured Home Ordinance, the Zoning Ordinance in zoned areas, Flood Damage Prevention Ordinance, Planned Unit Development provisions of the Subdivision Regulations, NC State Building Code, and Onslow County Sign Ordinance.
55. Jurisdiction of the County Zoning Ordinance should be expanded county-wide with staff resources provided to enforce the ordinance.
56. Upgrading those public facilities and services that are either at or near design capacity.
57. The Onslow County Planning Board and Board of Commissioners will consider the following in deliberation of all zoning petitions in zoned areas:
  - (1) All uses which are allowed in a zoning district must be considered. A decision to rezone or not to rezone a parcel or parcels of property cannot be based on consideration of only one use or a partial list of the uses allowed within a zoning district.
  - (2) Zoning decisions will not be based on aesthetic considerations.
  - (3) Request for zoning changes will not be approved if the requested change will result in spot zoning. Spot zoning is a form of discriminatory zoning whose sole purpose is to serve the private interests of one or more landowners instead of furthering the welfare of the entire community as part of an overall zoning plan. Although

changing the zoning classification of any parcel of land to permit a more intensive use could possibly constitute spot zoning, the test lies in its relationship to the existing zoning pattern and guidelines of the local comprehensive plan. Spot zoning is based on the arbitrary and inappropriate nature of a rezoning change rather than, as is commonly believed, in the size of the area being rezoned.

- (4) Zoning which will result in strip development will be discouraged. Strip development is a melange of development, usually commercial, extending along both sides of a major street. Strip development is often a mixture of auto-oriented enterprises (e.g., gas stations, motels, and food stands), truck-dependent wholesaling and light industrial enterprises along with the once-rural homes and farms that await conversion to commercial use. Strip development may severely reduce traffic-carrying capacity of abutting streets.
- (5) The concept of uniformity will be supported in all zoning deliberations. Uniformity is a basic premise of zoning which holds that all land in similar circumstances should be zoned alike; any different treatment must be justified by showing different circumstances.
- (6) Zoning regulations will be made in accordance with the Onslow County Land Use Plan and designed to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. The regulations shall be made with reasonable consideration, among other things, as to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of property and encouraging the most appropriate use of land throughout the Onslow County planning jurisdiction.
- (7) Specifically, the Planning Board and Board of Commissioners should ask the following questions:
  - Does the county need more land in the zone class requested?
  - Is there other property in the community that might be more appropriate for this use?
  - Is the request in accordance with the county's comprehensive plan?

- Will the request have a serious impact on traffic circulation, parking space, sewer and water services, and other utilities?
  - Is there a good possibility that the request, as proposed, will result in lessening the enjoyment or use of adjacent properties?
  - Will the request, as proposed, cause serious noise, odors, light, activity, or unusual disturbances?
  - Does the request raise serious legal questions such as spot zoning, hardship, violation of precedents, or need for this type of use?
  - Will the proposed zoning damage areas be classified as Conservation?
58. Onslow County supports the state's shoreline access policies as set forth in NCAC Chapter 15, Subchapter 7M. The county will conform to CAMA and other state and federal environmental regulations affecting the development of estuarine access areas.
59. As stated elsewhere in this policy section, the county will pursue expansion of its zoning ordinance to include the entire county. This will enhance the county's ability to regulate the location/development of industry.
60. County officials will continue to support state and federal programs that will benefit the county and its citizens. Onslow County will continue to fully support such programs, especially the North Carolina Department of Transportation road and bridge improvement programs, which are very important to Onslow County.
- Examples of other state and federal programs that are important to and supported by Onslow County include, but are not limited to: drainage planning and erosion control activities carried out by the Natural Resources Conservation Service, which is valuable to farmers; dredging and channel maintenance by the US Army Corps of Engineers; federal and state projects which provide efficient and safe boat access for commercial and sport fishing; and community development block grants, low-to-moderate income housing, housing rehabilitation, and North Carolina Housing Finance Agency housing improvement programs.
61. County officials will rely on the Army Corps of Engineers and any other state and federal agencies to ensure continued dredging and maintenance of channels and rivers as needed to keep these facilities open to navigation. These efforts shall comply with applicable state and federal regulations. Providing borrow or spoil areas and provision of easements for



work will be determined on case-by-case basis. The county would encourage spoil material being placed on those areas where easements for such use already exist. Channel maintenance has major economic significance and is worthy of state and federal funding.

- 62. The county will provide assistance in maintaining the waterway by helping to obtain or providing dredge spoil sites and, when possible, providing easements across county-owned property for work.
- 63. Onslow County will rely on the U.S. Army Corps of Engineers to implement policies related to interstate waterways.
- 64. Onslow County will continue to support the activities of the North Carolina Division of Travel and Tourism; specifically, the monitoring of tourism-related industry, efforts to promote tourism-related commercial activity, and efforts to enhance and provide shoreline resources.
- 65. Onslow County will continue to support the activities of the Onslow County Department of Tourism.
- 66. Onslow County will support projects that will increase public access to shoreline areas.
- 67. Onslow County will support North Carolina Department of Transportation projects to improve access to and within the county.
- 68. Onslow County will request and support the development of a county-wide thoroughfare plan.
- 69. Onslow County supports the following priorities for highway transportation improvements (\* indicates intrastate project):

ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH (MI) (KM)	SCHEDULE
US 17	R-2405*	I-40 at Wilmington to east	23.4	Design 1997-98
		corporate limits of Holly Ridge. Widen roadway to multi-lanes, part on new location.	37.7	Right-of-way 1997-98 Construction 1997-01
US 17	R-2406*	East corporate limits of Holly	17.0	Construction 1997-99
		Ridge to four lane section south of Jacksonville. Four lane divided facility with a bypass east of Verona.	27.4	

ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH		SCHEDULE
			(MI)	(KM)	
US 17	R-2514*	Multi-lanes north of Jacksonville to multi-lanes south of New Bern. Widen roadway to multi-lanes with bypasses of Belgrade, Maysville, and Pollocksville on new location.	21.0		Planning 1997
			33.8		Design 1997-03 Right-of-way 1999-03 Construction 2001-03
NC 24	R-2105*	Swansboro to US 70 at Morehead City. Widen roadway to multi-lanes.	19.4		Planning 1997
			31.2		Design 1997-99 Right-of-way 1997-99 Construction 1997-01
NC 111	R-2708	US 258-NC 24 to Albert Ellis Airport. Upgrade existing roadway or provide new access.	5.1		Identified future need
			8.2		
US 258	R-2235	NC 24 near Richlands to US 70 at Kinston. Widen to a four lane divided facility.	24.9		Identified future need
			40.1		
SR 1308	R-2621	Gum Branch Road, US 258-NC 24 in Richlands to SR 1336 in Jacksonville. Widen roadway to a multi-lane facility.	7.5		Identified future need
			12.1		
Jacksonville	U-2107*	Jacksonville bypass, US 17 South to US 17 North. Four lane divided facility on new location.	4.4		Design 1997-01
			7.1		Right-of-way 1997-01 Construction 1997-03
Jacksonville	U-2107A	Jacksonville bypass, US 258-NC 24 to US 17 South. Four lane divided facility on new location.	0.8		Design 1997-00
			1.3		Right-of-way 1998-00 Construction 2000-03
Jacksonville	U-2540	SR 1308 (Bell Fork Road), NC 24 to US 17. Widen roadway to a five lane curb and gutter facility.	2.1		Identified future need
			3.4		
Jacksonville	U-3439	US 17 relocation, Jacksonville byp. (U-2107) northward. Four lane divided facility on new location.	--		Identified future need
Jacksonville	U-3616	Western Boulevard, US 17 to SR 1308 (Gum Branch Road). Widen roadway to a multi-lane facility.	4.0		Planning 1999-00
			6.4		Design 2000-02 Right-of-way 2002 Construction 2003
NC 50	B-3008	Juniper Creek. Replace bridge No. 16	--		Right-of-way 1999 Construction 2000

ROUTE/CITY	ID NO.	LOCATION AND DESCRIPTION	LENGTH		SCHEDULE
			(MI)	(KM)	
SR 1101	B-2938	White Oak River. Replace bridge	--		Right-of-way 1999
SR 1442		No. 49			Construction 2000
SR 1225	B-2157	Branch of New River. Replace bridge No. 49	--		Under Construction
SR 1332	B-3009	White Oak River. Replace bridge	--		Construction 1999
SR 1118		No. 9			
SR 1406	B-3215	Northeast Creek. Replace bridge No. 119	--		Right-of-way 1998 Construction 1999
SR 1406	B-3216	Northeast Creek. Replace bridge No. 118	--		Right-of-way 1998 Construction 1999
SR 1423	B-3682	Little Northeast Creek. Replace bridge No. 3	--		Right-of-way 2002 Construction 2003
SR 1503	B-3217	Bear Creek. Replace bridge No. 21	--		Right-of-way 2000 Construction 2001
SR 1509	B-3358	Parrot Swamp. Replace bridge No. 91	--		Right-of-way 2000 Construction 2001
Jacksonville	E-3406	NC (Freedom Trail/Johnson Boulevard). Intersection improvements for bicyclist safety.	--		Under Construction
Jacksonville	E-3407	Northern US 17 rail trail, Phase 1: Onslow Drive to Kellum. Rail Trail	3.1 5.0		Scheduled for Feasibility Study
SR 1423	W-3413	North of SR 1411 to SR 1413. Improve horizontal curvature of roadway.	--		Identified future need
SR 1406	Z-3426A	Near Jacksonville at Southern Railroad Crossing 641 699J. Safety improvements	--		Funded - Construction not authorized
SR 1428	Z-3603I	Near Hubert at Norfolk Southern Railway Crossing 722 900K. Safety improvements	--		Construction 1997
SR 1432	Z-2926C	Near Swansboro at Camp Lejeune Crossing 722 899T. Install automatic warning devices.	--		Funded - Construction not authorized

70. Onslow County supports the following priorities for airport transportation improvements at the Albert Ellis Airport:

Project Description	Year	Total Cost
Sanitary Sewer Line to County Facility	1998	\$750,000
Rehabilitate Maintenance Hangar Roof	1998	\$25,000
Access Road Pavement Marking	1998	\$4,000
Runway 5-23 Joint Sealing & Marking	1998	\$190,000
General Aviation Terminal	1999	\$250,000
General Aviation Parking	1999	\$88,100
Runway 23 Runup Apron	1999	\$350,000
T-Hangar Taxilane	2000	\$200,000
ARFF Vehicle	2001	\$500,000
Rehabilitate Runway 5-23	2002	\$1,590,000

**NOT ACCOMPLISHED**

- 71. Onslow County shall coordinate all housing code enforcement/redevelopment projects with the NC Division of Archives and History, to ensure that any significant architectural details or buildings are identified and preserved.
- 72. Onslow County will coordinate all county public works projects with the NC Division of Archives and History, to ensure the identification and preservation of significant archaeological sites.
- 73. The county will investigate the development of an ordinance designed to oppose the location of floating structures and vessels for permanent occupancy in all public trust areas and estuarine waters.
- 74. The county will pursue the development of an ordinance to regulate the establishment of mooring fields.
- 75. In response to sea level rise, Onslow County will review all local building and land use related ordinances and consider establishing setback standards, density controls, bulkhead restrictions, buffer vegetation protection requirements, and building designs which will facilitate the movement of structures.

76. Onslow County will pursue development and adoption of a local ordinance to regulate intensive livestock operations.
77. The Onslow County Community Development Department will undertake a review of all local land use regulation ordinances to determine if revisions should be undertaken to respond to specific water quality management problems to include nutrient reduction, establishment of shoreline buffer zones, erosion reduction, reduction of impervious surfaces, and preservation of coastal wetland (marsh lands).
78. Onslow County will apply for all available grant funds to aid in the development of a shoreline access plan to define the need for additional publicly-owned waterfront recreational facilities. This effort should be closely coordinated with shoreline access planning by the municipalities.
79. Onslow County will be responsible for implementing the policy on repairing/replacing damaged/destroyed shoreline access facilities.
80. The county will encourage and support state and federal programs that work toward protection of nursery and seafood habitat areas. The county will also support efforts to secure Economic Development Grants to develop a seafood processing facility in the county.
81. Onslow County supports constructed wetlands "created" to aid in treating waste effluent.
82. Onslow County will adopt a local ordinance to require the preparation of environmental impact statements for on-shore support facilities for off-shore drilling operations.
83. During the planning period, Onslow County will develop a community services/facilities plan (as a stand-alone document, not as an expansion of this plan), which will define existing deficiencies in police protection, fire protection, local administrative buildings, public recreational facilities, public shoreline access, and public parks. This plan will not address school system needs. The plan will prioritize needs and make specific recommendations concerning financing and budgeting the high priority needs.
84. The county will prepare a county-wide housing strategy to increase the quantity and quality of affordable housing.
85. Development of a county-wide campground ordinance.

- 86. Onslow County will apply for CAMA and other funding to assist in financing the funding of a shoreline access plan.
- 87. The county will develop industrial park standards to be incorporated into the county's zoning ordinance. Industrial park development will be encouraged in areas zoned for industrial development.

F. ANALYSIS OF LAND USE AND DEVELOPMENT

*Refer to Appendix VI for data on the participating municipalities of Holly Ridge and Richlands.*

**1. Introduction**

The Division of Coastal Management Land Use Plan Guidelines (15A NCAC 7B.0207) require that existing land uses and water uses be mapped. Protection of water quality is a major concern in Onslow County. The protection of water quality is clearly linked to the location of land uses within the county. The land and water use maps should be utilized as working documents and serve as a basis for the development of the future land use map(s). Map 18, Existing Land Use (see Appendix II), aids in showing the relationship of land use to water quality. The Coastal Management Land Use Plan Guidelines require that this section of the plan address the following:

- Table that shows estimates of the land area allocated to each land use;
- Description of any land use conflicts;
- Description of any land use – water quality conflicts;
- Description of development trends using indicators. These development trends may include, but are not limited to the following: building permits and platted but un-built lots; and
- Location of areas expected to experience development during the five years following plan certification by the CRC and a description of any potential conflicts with Class II or Class III land identified in the natural systems analysis.

**2. Land Use in Relation to Water Quality**

This section analyzes how land use in Onslow County's planning jurisdiction relates to water quality. This section has been compiled with information provided by the North Carolina Division of Water Quality (DWQ). Under the Basinwide Management Program, the DWQ completes Basinwide Water Quality Plans. (Note: Please refer to Section V.B.3., Environmental Conditions).

Basinwide water quality planning is a non-regulatory, watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. Preparation of a basinwide water quality plan is a five-year process, which is divided into three phases. While these plans are

prepared by the DWQ, their implementation and the protection of water quality entails the coordinated efforts of many agencies, local governments, and stakeholder groups in the state. The first cycle of plans was completed in 1998, but each plan is updated at five-year intervals.

The results of the monitoring efforts are not intended to provide precise conclusions about pollutant budgets for specific watersheds. Since the assessment methodology is geared toward general conclusions, it is important not to manipulate the data to support policy decisions beyond the accuracy of the data.

Two primary methods of water quality testing were performed in Onslow County's planning jurisdiction. The details of this methodology are described below so that the information on the results of this testing can be better understood. The methods utilized were Ambient Monitoring System and Fish Tissue Analysis. DWQ also observes water bodies for the existence of algal blooms, which are an indication of poor water quality.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine (saltwater) water quality monitoring stations (about 420 statewide) strategically located for the collection of physical and chemical water quality data (or parameters). Water quality parameters are arranged by freshwater or saltwater water body classification and corresponding water quality standards. Under this arrangement, waters are assigned minimum monthly parameters with additional parameters assigned to waters with classifications such as trout waters and water supplies.

Since fish spend their entire lives in the aquatic environment, they incorporate chemicals from this environment into their body tissues. Therefore, by analyzing fish tissue, determinations about what chemicals are in the water can be made. Contamination of aquatic resources, including freshwater, estuarine, and marine fish and shellfish species has been documented for heavy metals, pesticides, and other complex organic compounds. Once these contaminants reach surface waters, they may be available for bioaccumulation either directly or through aquatic food webs and may accumulate in fish and shellfish tissues. Therefore, results from fish tissue monitoring can serve as an important indicator of contamination of sediments and surface water. Fish tissue analysis results are also used as indicators for human health concerns, fish and wildlife health concerns, and the presence and concentrations of various chemicals in the ecosystem.

In evaluating fish tissue analysis results, several different types of criteria are used. Human health concerns related to fish consumption are screened by comparing results with federal Food and Drug Administration (FDA) *action levels* and US Environmental Protection Agency (EPA) recommended *screening values* for contaminants.

Map 19, Land Use in Relation to Water Quality (see Appendix II), delineates the existing land use by subbasins and includes water quality sampling stations. The water quality issues are discussed in Section V.B.3, pages 73 to 88. Table 48 provides a summary of the existing land uses by subbasin.

Table 48: Onslow County  
Existing Land Use by Subbasin\*

Subbasin 03-04-11	Acres	% from Total	Subbasin 03-06-22	Acres	% from Total
Residential	653.3	11.8%	Residential	9,416.3	39.3%
Office & Institutional	0.0	0.0%	Office & Institutional	23.9	0.1%
Commercial	0.0	0.0%	Commercial	61.0	0.3%
Industrial	0.0	0.0%	Industrial	271.0	1.1%
Transportation/Utilities	0.0	0.0%	Transportation/Utilities	320.9	1.3%
Forest Lands	1,245.6	22.4%	Forest Lands	0.0	0.0%
Military	0.0	0.0%	Military	0.0	0.0%
Vacant	3,659.8	65.8%	Vacant	13,883.0	57.9%
Total	5,558.7	100.0%	Total	23,976.1	100.0%
Subbasin 03-05-01	Acres	% from Total	Subbasin 03-06-23	Acres	% from Total
Residential	24,830.6	27.4%	Residential	3,592.1	2.8%
Office & Institutional	57.4	0.1%	Office & Institutional	4.7	0.0%
Commercial	234.4	0.3%	Commercial	4.4	0.0%
Industrial	104.3	0.1%	Industrial	0.0	0.0%
Transportation/Utilities	18.8	0.0%	Transportation/Utilities	9.3	0.0%
Forest Lands	18,630.2	20.6%	Forest Lands	0.0	0.0%
Military	7,946.6	8.8%	Military	95,825.1	73.8%
Vacant	38,799.0	42.8%	Vacant	30,362.8	23.4%
Total	90,621.3	100.0%	Total	129,798.4	100.0%
Subbasin 03-05-02	Acres	% from Total	Subbasin 03-06-24	Acres	% from Total
Residential	44,637.1	22.9%	Residential	3,227.5	27.4%
Office & Institutional	787.2	0.4%	Office & Institutional	0.0	0.0%
Commercial	713.5	0.4%	Commercial	0.0	0.0%
Industrial	5,998.1	3.1%	Industrial	0.0	0.0%
Transportation/Utilities	348.2	0.2%	Transportation/Utilities	0.0	0.0%
Forest Lands	24,231.4	12.4%	Forest Lands	0.0	0.0%
Military	38,245.4	19.6%	Military	111.2	0.9%
Vacant	80,041.2	41.0%	Vacant	8,439.3	71.7%
Total	195,002.1	100.0%	Total	11,778.0	100.0%

\*NOTE: Acreages do not include the County's municipalities.  
Source: Holland Consulting Planners, Inc.



The impaired waters within Onslow County and those threatened to become impaired are identified in Appendix V. These areas are indicative of water quality-land use conflicts. Additionally, Onslow County’s shellfishing closure areas are concentrated in subbasin 03-05-01 and the southern one-half of subbasins 03-05-01 and 03-05-02. NOTE: Refer to Map 10 and Appendix XVI for descriptions of these closed shellfishing areas.

**3. Existing Land Use**

Map 18A (see Appendix II) delineates the existing land use within Onslow County’s jurisdiction. Maps 18B through 18H (see Appendix II) depict the existing land use for each of the County’s townships. These maps were prepared based on a land use survey conducted by Holland Consulting Planners, Inc., in late 2005-early 2006. Table 49 provides a summary of the existing land use acreages within Onslow County’s entire planning jurisdiction.

Table 49: Onslow County  
2006 Existing Land Use Acreages\*

<b>Land Use</b>	<b>Acreage</b>	<b>Percentage</b>
<u>Residential</u>		
Single-Family Residential	16,544.1	3.62%
Multi-Family Residential	98.8	0.02%
Residential Agricultural	68,601.1	15.02%
Manufactured Home Park	<u>1,113.0</u>	<u>0.24%</u>
Subtotal	86,357.0	18.90%
<u>Office &amp; Institutional</u>		
O&I	272.2	0.06%
Church	78.2	0.02%
Recreation	472.3	0.10%
School	<u>50.5</u>	<u>0.01%</u>
Subtotal	873.2	0.19%
<u>Commercial</u>		
Commercial	970.4	0.21%
Mixed Use	<u>42.9</u>	<u>0.01%</u>
Subtotal	1,013.3	0.22%
<u>Industrial</u>		
	6373.4	1.40%
<u>Transportation/Utilities</u>		
Airport	655.5	0.14%
Utilities	<u>41.8</u>	<u>0.01%</u>
Subtotal	697.3	0.15%
<u>Vacant</u>		
	175,184.1	38.36%

<b>Land Use</b>	<b>Acreage</b>	<b>Percentage</b>
<u>Non-County Jurisdiction</u>		
Forest Lands	43,590.9	9.54%
NC State Property	516.3	0.11%
Camp Lejeune MCAS	<u>142,128.3</u>	<u>31.12%</u>
Subtotal	<u>186,235.5</u>	<u>40.77%</u>
Grand Total	456,733.8	100.00%

\*NOTE: Acreages do not include the County's municipalities.  
Source: Holland Consulting Planners, Inc.

It should be noted that the county's transportation/utilities acreage includes approximately 10,088 acres of public right-of-ways (primarily roads). This represents approximately 2% of the total area within Onslow County's planning jurisdiction. The Citizen's Comprehensive Plan for Onslow County, 2003 states that the county's right-of-ways included approximately 22% of the county's total land area. However, the 22% included right-of-ways within the county's municipalities and their extraterritorial jurisdictions.

The Onslow County, North Carolina 1997 Land Use Plan divided the county into "communities" for comparison. The following discussion from the 1997 plan is included.

*"Onslow County Communities.* Most existing land uses within the county relate directly to the following three factors:

- Camp Lejeune
- Coastal Environment
- Agriculture and Forestry Operations

These formative factors created three primary "communities" within the county including the following:

- Jacksonville Urban Area/Camp Lejeune Community
- Traditional Rural Community/Commercial and Educational Forestry
- Coastal Community

These communities are depicted on Map 18, Existing Land Use (see Appendix II).

*Jacksonville Urban Area/Camp Lejeune Community.* This community contains Camp Lejeune, New River Air Station, City of Jacksonville, and an urbanized crescent of housing and commercial development. This community overlaps the portions of Jacksonville, Swansboro, White Oak, and Stump Sound Townships.

*Traditional Rural Community.* This community is typical of many such rural areas in eastern North Carolina. Traditional rural standards and values remain predominant. Agriculture and forestry operations and low density residential/ commercial development characterize this community. Richlands, a town with 1,268 persons, is a commercial center for this community. This community includes all of Richlands Township, and portions of Stump Sound, Jacksonville, and White Oak Townships. In reality, this community does not stop at the county line, rather it extends into Pender, Duplin, and Jones Counties.

*Coastal Community.* This community consists of two separate areas – the land east of Highway US 17 including North Topsail Beach and Sneads Ferry, and the Swansboro area. This community is oriented primary to the estuarine and ocean environment. The townships involved include the southeastern portions of Stump Sound and Swansboro Townships. This community continues into Pender and Carteret Counties.

In addition to the three primary formative factors previously discussed, several other secondary factors influence land use patterns in Onslow County. A few of these factors include the following:

- Major highway corridors (US 17 and 258, NC 24)
- Wetlands
- Soil characteristics
- Land uses surrounding the county
- Water and wastewater services
- Governmental regulations and policies”

These community divisions are considered to continue to be applicable and are delineated on the Existing Land Use map, Map 18 (see Appendix II). The coastal community areas within these communities’ development are accelerating. Growth is also rapidly increasing within the traditional rural community area along the US 17 corridor. Onslow County building permit data for years 2001 to 2005 is summarized in Table 5 on page 21. From 2001 to 2005, the number of building permits increased from 1,107 to 1,537, an increase in permits issued annually of 38.8%. The majority of the building permits were issued for development within the community areas and along the US 17 corridor.

Non-residential land uses within the County tend to be scattered. The exceptions are some commercial concentrations located along US 17, NC 172, NC 210, NC 24, and US 258. Multi-family development consists primarily of manufactured home parks. These area is largely concentrated on the west side of Jacksonville along US 17 and US 258, NC 111 west of US 258, the Queens Creek Road area southwest of Swansboro, and around Sneads Ferry.

The development within these cited areas will continue during the next five to seven years. The following increasing land use conflicts are expected:

- A proliferation of strip commercialization.
- Increasing development on Class III land along the US 17 corridor (see Map 12, Environmental Composite) and in both community areas.
- Increasing development pressure on the areas of environmental concern.
- Increasing conflicts between residential development and unplanned non-residential development.
- Increasing development along waters classified as impaired (see Map 19).
- Development resulting in the loss of wetlands and prime agricultural lands.
- Development in areas lacking adequate infrastructure.
- Development in areas which provide valuable wildlife habitats.

The existing land use acreages for each community area are delineated in Table 50, Onslow County "Community" Areas.

Table 50: Onslow County Existing Land Use by "Community" Areas\*

Land Use	Jacksonville Urban Area/ Camp Lejeune Community		Traditional Rural Community		Coastal Community	
	Acres	% from Total	Acres	% from Total	Acres	% from Total
Residential	10,771.2	6.3%	65,814.7	27.4%	9,771.2	21.4%
Office & Institutional	144.7	0.1%	728.5	0.3%	0.0	0.0%
Commercial	108.5	0.1%	904.7	0.4%	0.0	0.0%
Industrial	13.3	0.0%	6,360.1	2.7%	0.0	0.0%
Transportation/Utilities	1.1	0.0%	696.2	0.3%	0.0	0.0%
Forest Lands	627.6	0.4%	43,479.6	18.1%	0.0	0.0%
Military	133,201.5	77.8%	679.8	0.3%	8,247.0	18.0%
Vacant	26,323.2	15.4%	121,182.9	50.5%	27,679.0	60.6%
Total	171,191.1	100.0%	239,846.5	100.0%	45,697.2	100.0%

\*NOTES

- (1) Acreages do not include the County's municipalities.
- (2) Existing land use totals for the entire County are provided in Table 49.

Source: Holland Consulting Planners, Inc.

---

---

## SECTION VI. PLAN FOR THE FUTURE

### A. FUTURE DEMANDS

#### 1. Introduction

One of the primary purposes of this land use plan is to project the demand for various types of public services in the future, so that the County can ensure provision of sufficient infrastructure and public facilities (e.g., water/sewer services, schools, and recreation/open spaces) based on expected land use trends and population growth. This section of the plan projects future demands for infrastructure and public services based on these factors in an attempt to provide a comprehensive discussion of existing and proposed needs. This will not only guide the County in regard to financial planning, but also assist in forecasting where future services will be in highest demand in relation to the Future Land Use Map that will be discussed later in the plan. This discussion relates to future improvements on existing community facilities that have been outlined within the community facilities section of the plan beginning on page 88.

**It is emphasized that the BRAC realignment will result in the influx of approximately 27,848 military and non-military population between 2007 and 2011. The long-range population forecasts utilized in this plan will accommodate the population growth. However, the short-range surge in population may exceed the 2007-2010 forecasts. The demand for future services and facilities must be carefully monitored and adjustments to plans for the future made as necessary.**

#### 2. Transportation

Table 51 below outlines all of the projects within Onslow County that are proposed for construction between the years of 2007 and 2013. These projects are outlined in the North Carolina Department of Transportation's (NCDOT) 2007-2013 Transportation Improvement Program (TIP). The 2007-2013 TIP was under public review through the end of 2006 and adopted in early 2007.

There are a total of 31 projects proposed within Onslow County in the 2007-2013 TIP. These projects are broken down as follows: five rural projects, ten urban projects, one feasibility study, five federal bridge projects, one mitigation project, two bicycle and pedestrian projects, three enhancement projects, and four hazard elimination projects. For the purposes of this plan, projects located within Jacksonville as well as other non-participating municipalities have been included in the table below. The reason for their inclusion is the fact that these road and bridge improvements will have an impact on traffic flow throughout the County.

Table 51: Onslow County  
Transportation Improvement Projects

Route/City	ID No.	Activities	Work Type	Cost Estimates (Thou)	Schedule (Fiscal Years)
<b>Rural Projects</b>					
US 17	R-2405	I-40 at Wilmington to east corporate limits of Holly Ridge. Widen to multi-lanes, part on new location (23.4 miles).		106915	Prior years
	A	East of I-40 at Wilmington to northeast of SR 1571 (Scotts Hill Loop Road).	Construction		In progress
	BA	Northeast of SR 1571 (Scotts Hill Loop Road) to southeast of Whitebridge Road.	Construction		Complete
	BB	South of SR 1582 (Washington Acres Road) to SR 1593 (Jenkins Road).	Construction		Complete
	BC	SR 1593 (Jenkins Road) to north of SR 1675 (Long Leaf Drive).	Construction		Complete
	C	North of SR 1675 (Long Leaf Drive) to northeast of SR 1561 (Sloop Point Road).	Construction		Complete
	D	SR 1561 (Sloop Point Road) to north of NC 50 at Holly Ridge.	Construction		Complete
	E	SR 2082 (Greenview Drive) to SR 1402 (Porters Neck Road).	Construction		Complete
US 17	R-2514	Multi-lanes north of Jacksonville to multi-lanes south of New Bern. Widen to multi-lanes with bypasses of Belgrade, Maysville, and Pollocksville on new location (21.4 miles).	Planning/Design Mitigation	287634703	Prior years In progress FY10
	A	Multi-lane section north of Jacksonville to south of Belgrade.	Construction		In progress
	B	South of Belgrade to north of Maysville.	Right-of-way Construction	340077300	FY09 FY11
	C	North of Maysville to north of NC 58.	Right-of-way Construction	340018900	FY09 FY12
	D	North of NC 58 to the New Bern bypass.	Right-of-way Construction	630071900	FY12 Unfunded
US 17, US 74, US 76, US 117, NC 24, NC 87	R-4405	National highway system guardrail rehabilitation. Upgrade substandard guardrail, end treatments and bridge anchor units.	Construction	360	FY08

Table 51 (continued)

Route/City	ID No.	Activities	Work Type	Cost Estimates (Thou)	Schedule (Fiscal Years)
<b>Rural Projects</b>					
US 258	R-2235	NC 24 near Richlands to US 70 at Kinston. Widen to multi-lanes (24.9 miles).			
	A	NC 24 west of Richlands to NC 41.	Right-of-way Construction	437027050	Unfunded Unfunded
	B	NC 41 to SR 1136 (P.A. Nobles Store Road).	Right-of-way Construction	385040000	Unfunded Unfunded
	C	SR 1136 (P.A. Nobles Store Road) to US 70 at Kinston	Right-of-way Construction	353035700	Unfunded Unfunded
New Route	R-4443	SR 1825 (Charles Wood Road) - SR 1715 in Duplin County to SR 1245 (Bryan Road) - SR 1209 in Onslow County. Two lanes on new location (1.4 miles)	Right-of-way Construction	2303550	Unfunded Unfunded
<b>Urban Projects</b>					
NC 111	U-4905	US 258-NC 24 to SR 1221 (Marrow Prong Road). Upgrade roadway (5.1 miles).	Right-of-way Mitigation Construction	100252350	FY09 FY09 FY10
SR 1308 Gum Branch Road	U-4906	East city limits of Richlands to SR 1322. Widen to three lanes (7.5 miles)	Right-of-way Mitigation Construction	1,000 35 7,300	FY09 FY10 FY11
SR 1324 Ramsey Road	U-4904	SR 1308 (Gum Branch Road) to SR 1327 (Kellum Loop Road). Upgrade roadway (6.7 miles).	Right-of-way Mitigation Construction	100292600	FY09 FY09 FY10
SR 1403 Country Club Road	U-4907	North of Office Park Drive to SR 1406 (Piney Green Road). Widen to three lanes (1 mile).	Right-of-way Mitigation Construction	50021500	FY09 FY09 FY10

Table 51 (continued)

## Section VI. Plan for the Future

Route/City	ID No.	Activities	Work Type	Cost Estimates (Thou)	Schedule (Fiscal Years)
<b>Urban Projects</b>					
Jacksonville	U-2107	Jacksonville Bypass, US 17 South to US 17 North. Four lanes divided on new location (7.4 miles).		167982	Prior years
	B	US 17 southwest of Jacksonville to Wilson Bay	Construction		Complete
	BA	Bridge over Wilson Bay	Construction		Complete
	C	Wilson Bay to NC 24 east of Jacksonville	Construction		Complete
	D	NC 24 east of Jacksonville to US 17 North of Jacksonville	Construction		In progress
Jacksonville	U-3810	SR 1406 (Piney Green Road), NC 24 to US 17. Widen to multi-lanes, part on new location (6.6 miles)	Planning/Design Right-of-way Mitigation Construction	1.17 6101e+16	Prior years In progress FY09 FY10 FY11
Jacksonville	U-4007	US 17, Jacksonville Bypass (U-2107) to Drummer Kellum Road. Widen to freeway/expressway (1.4 miles)	Planning/Design Right-of-way Mitigation	1.00 0220e+12	Prior years In progress FY09 FY10
	A	White Street extension	Construction	13200	FY11
	B	Country Club Road to Western Boulevard	Construction	26900	FY11
	C	Western Boulevard to Fairway Drive	Construction	46700	Unfunded
	D	Fairway Drive to Drummer Kellum Road	Construction	28400	Unfunded
Jacksonville	U-4409	SR 1876 (Hemlock Drive) extension to Corbin Street. Construct multi-lane connector and upgrade existing facility (2 miles)	Right-of-way Construction	2550009700	Prior years Unfunded Unfunded



Table 51 (continued)

## Section VI. Plan for the Future

Route/City	ID No.	Activities	Work Type	Cost Estimates (Thou)	Schedule (Fiscal Years)
<b>Urban Projects</b>					
Jacksonville	U-4439	US 17 - Curtis Road, US 17 to "A" Street. Safety, intersection, and capacity improvements		2143	Prior years
	A	US 17 and Curtis Road intersection	Construction		In progress
	B	Curtis Road, US 17 to "A" Street on United States Marine Corp Base (New River Air Station).	Construction		In progress
Jacksonville	U-4707	SR 1403 (Country Club Road), SR 1308 (Bell Fork Road) to SR 1406 (Piney Green Road). Widen to multi-lanes with bicycle and pedestrian accommodations (2.5 miles)	Right-of-way Construction	705010500	Unfunded Unfunded
<b>Feasibility Studies</b>					
Jacksonville	FS-0303C	New route, northwest loop, US 258 - NC 24 to SR 1308 (Gum Branch Road). Multi-lanes on new location. <b>Feasibility Study In Progress</b>			
<b>Federal Bridge Projects</b>					
US 17	B-4214	New River. Replace bridge no. 24	Right-of-way Mitigation Construction	7007114600	Prior years In progress FY08 FY09
NC 210	B-4215	Stone Creek. Replace bridge no. 19	Right-of-way Construction	2221700	Prior years In progress FY07
SR 1101 SR 1442	B-2938	White Oak River. Replace bridge no. 49	Construction	9706	Prior years In progress
SR 1423	B-3682	Little Northeast Creek. Replace bridge no. 3 (LET with W-3413)	Construction	4639	Prior years In progress
SR 1557	B-4781	Branch of New River. Replace bridge no. 226	Right-of-way Mitigation Construction	807047700	Prior years Unfunded Unfunded Unfunded

Table 51 (continued)

Route/City	ID No.	Activities	Work Type	Cost Estimates (Thou)	Schedule (Fiscal Years)
<b>Mitigation Projects</b>					
Various	EE-4903	Ecosystems enhancement program for Division 3 projects	Mitigation	2364	Prior years In progress
<b>Bicycle and Pedestrian Projects</b>					
Jacksonville	E-3407	US 17 - USMC Rail Trail, Onslow Drive to Marine Junction along US 17, continuing along the USMC Railroad to Camp Lejeune Marine Base Main Gate (5.2 miles).	Construction	1620	Prior years In progress
Jacksonville	E-4705	Lejeune Boulevard Greenway, south side of NC 24 (Lejeune Boulevard) from E-3407 to Montford Point Road (2.8 miles)	Construction	650	FY07
<b>Enhancement Projects</b>					
Jacksonville	E-4916	Installation of a concrete monolithic island and lightguard (in pavement lighting system) on SR 1403 (Hargett Street)	Construction Construction	28112	FY07 FY07
North Topsail Beach	E-4913	NC 210, Regional Beach Access #2 to the south city limits of Town. Construct an on-road paved shoulder along both sides.	Construction	335	Prior years In progress
Swansboro	E-4911	NC 24, Main Street to White Oak Manor Apartments. Construct sidewalk along southern side.	Construction Construction	1938152	Prior years FY07 FY07
<b>Hazard Elimination Projects</b>					
SR 1105 Haws Run Road	W-5000	NC 50 to NC 53. Install paved shoulders and widen curves.	Right-of-way Construction	1449	FY07 FY08
SR 1213 Blue Creek Road	SF-4903A	South of SR 1241 (Blake Road). Install paved shoulders, rumble strips, and guardrail.	Construction	13102	Prior years FY07
SR 1423	W-3413	North of SR 1411 to SR 1413. Improve horizontal curvature of roadway (LET with B-3682)	Construction	1369	Prior years In progress
SR 1501 Sand Ridge Road	W-4804	SR 1500 (Starling Road) to SR 1509 (Queens Creek Road). Install 1.5' paved shoulders along both sides of roadway.	Construction	250	Prior years In progress

Source: NCDOT TIP.

---

---

### 3. Health Care

As noted earlier in the plan, the citizens of Onslow County rely on Onslow Memorial Hospital for comprehensive medical facilities. This facility was originally constructed in 1974 and is currently undergoing a substantial renovation. The \$31.3 million dollar renovation began in July of 2006, and will result in a much more modern facility. The updated facility will not only provide more beds, but will also provide new services. These services will include:

- A new Emergency Room with more than double the current capacity.
- Four larger and better-equipped operating rooms.
- Separate waiting areas for the ER and outpatient services.
- Bedside registration in the ER (to lessen wait times).
- An enhanced triage space for major emergencies.
- A larger area for treating minor emergencies (clinic-type services).
- Six observation beds in the ER, for monitoring patients up to 23 hours.
- A family conference room in the ER for discussing sensitive patient-care issues.
- Pre-op and post-op care in the same convenient location.
- A central sterile supply area situated so as to increase efficiency and speed up service.
- Eventually, the old OR and recovery areas could be used for outpatient care, conveniently locating all such services (such as endoscopy) on the first floor. Also, there will be space available to have CT and other radiology services in the ER at some point in the future.

In addition to Onslow Memorial Hospital, Onslow County citizens also rely on medical facilities located in Wilmington (New Hanover Regional Medical Center) and Greenville (Pitt County Memorial Hospital). Both of these facilities offer state of the art medical support, and cooperate with Onslow Memorial Hospital in the operation of AirLink. This service provides emergency air transport to and from these larger hospitals on an as needed basis. The County is also supplemented by healthcare facilities located in New Bern (Craven Regional Medical Center) and Morehead City (Carteret General Hospital).

### 4. Law Enforcement

County-wide law enforcement services are provided by the Onslow County Sheriff's Department. The department is located within downtown Jacksonville at 701 Mill Avenue. At this time, the department does not have any notable plans for expansion of personnel or acquisition of new equipment (see 3. Law Enforcement, page 91).

The most substantial change to take place with respect to law enforcement in the County is construction of a new jail facility. Funding for the new jail has already been approved, and will result in the construction of a 500-bed facility with office space for the Sheriff's department.

## **5. Fire Services**

Fire services are provided County-wide through a network of volunteer fire departments. A comprehensive list of these departments and their locations are provided in Table 37 (page 93) of this plan. These departments receive revenue from the County on annual basis; however, maintenance and expansion of these facilities are the responsibility of each individual department.

It is evident that as population growth continues to increase, it will become necessary for these departments to address facility, vehicle, truck, and equipment upgrades. At this time, it is very difficult to determine how and when this will occur. The volunteer fire departments must operate with very limited financial resources. These departments must typically rely on grant funds and donations to address any necessary expansion or upgrades in infrastructure and equipment.

In 2007, the Onslow County Fire Commission was assessing ways to improve funding by providing a steady revenue stream from property taxes as opposed to funding through the County's general fund. Adequate funding is crucial to maintaining fire insurance ratings which are based on a number of factors including, training, maintenance, responses to calls, and certifications. Ratings range from 1 (best) to 10 (worst) and affect insurance rates for property owners. National Insurance Services Organization standards require four firefighters and one engine from the primary department to respond to every structure fire and alarm activation in the department's area. If fewer than the four from the primary district respond, it is counted as a nonresponse. If a station has two or more nonresponses in a year, it can lose its insurance rating and be classified a 10.

## **6. Fire/Emergency Medical Services (EMS)**

Emergency Medical Services (EMS) are provided by the Onslow County Emergency Management Department on a County-wide basis. These services are provided through seven strategically located EMS facilities. A summary of these facilities, including location, is provided in Table 38 (page 94) of this plan. Two of these facilities are currently located within close proximity to the County's emergency operations center. Rapid development and population growth have generated an increased burden on these existing facilities, which has led to discussions of constructing an 8th station. Additionally, the County currently leases the space for two of its stations (Stations 5 & 7), and would prefer to construct more modern facilities.

The County has initiated talks regarding construction funding for Station 8, and according to the County's Emergency Management Director funding for this project was approved in the FY07-08 budget cycle. At this time, estimates for the cost of this project have not been established. The proposed location of this facility will be at a site between NC 24 and the Jacksonville Bypass. This location will provide the department with efficient access to the highway, in addition to being centrally located. This site was determined through research based on call volume by geographic location. In addition to establishing this new station, emergency management officials have been working with ONWASA to secure an agreement that would allow for the construction of a new facility at their wastewater treatment plant site in Hubert. If this site were developed, it is likely that it will replace one of the County's more antiquated stations and would rely on infrastructure that is already available at the ONWASA site.

In addition to the construction of new facilities, County emergency management officials are also concerned about updating aging stations. At this time all available revenues will be dedicated to construction of the new station discussed above. As funding becomes available the County will begin to update the remaining stations under County ownership. At this time, Station 2 (1250 Onslow Pines Road) is the highest priority for the County with respect to renovation.

## **7. Water and Sewer Utilities**

### *a. Introduction*

As explained in the existing community facilities section, Onslow County is provided water and sewer service by ONWASA. The Onslow Water and Sewer Authority (ONWASA) is a joint utility serving the unincorporated areas of Onslow County and the towns of Richlands, Swansboro, Holly Ridge, and North Topsail Beach, and the City of Jacksonville as a wholesale water customer. ONWASA was formed in order to provide county-wide water and wastewater services to meet long-term service area needs.

In 2003, the ONWASA Water and Wastewater Resources Plan (ARCADIS) was finalized, which outlined a master plan for meeting county-wide water and wastewater needs. This report was presented as a general plan and concluded that phasing of water and wastewater projects would need to be flexible and should be based upon the demand needed to support development. Since that time, ONWASA has commissioned multiple studies to obtain a more thorough understanding of supply and demand within the County and the service options available within the various service areas of the County. In 2007, ONWASA prepared an updated water and wastewater plan to forecast demand needs through 2030. **Appendix VII provides additional comments submitted by ARCADIS, the ONWASA consulting engineer, which may influence future plans.** The draft water and wastewater plan includes population projections for the ONWASA service areas through 2030. The service areas are as follows: Stump Sound,

Southwest, Northwest, Southeast, White Oak, North Topsail Beach, and Jacksonville ETJ. Table 52 provides the service area population projections. NOTE: These population projections for the ONWASA service areas are consistent with the population forecasts in Section V.A.4 which reflect anticipated military personnel increases.

Table 52: Onslow County  
Population Projections by ONWASA Service Area

Service Area	2000	2005	2008	2010	2020	2030	Interim Growth Rate <sup>1</sup>	Growth Rate <sup>2</sup>
Stump Sound	7,574	8,521	9,089	10,172	15,586	21,001	2.5%	5.96%
Southwest	20,335	22,877	24,402	25,622	31,722	37,823	2.5%	2.50%
Northwest	11,151	12,545	13,381	14,050	17,396	20,741	2.5%	2.50%
Southeast	14,692	16,529	17,631	19,390	28,188	36,986	2.5%	4.99%
White Oak	17,758	19,977	21,309	22,828	30,424	28,020	2.5%	1.44%
North Topsail Beach	1,135	1,277	1,362	1,444	1,852	2,261	2.5%	3.00%
Jacksonville ETJ on ONWASA water	3,769	3,769	3,769	3,769	3,769	3,769	0.0%	0.00%
<b>Total</b>	<b>76,414</b>	<b>85,495</b>	<b>90,943</b>	<b>97,275</b>	<b>128,937</b>	<b>150,601</b>	<b>2.4%</b>	<b>3.50%</b>

<sup>1</sup>Growth rate for 2000-2008 based on historical information and water data.

<sup>2</sup>Expected rate after year 2008. Growth rate was either determined from a detailed service area development study, or historical data for Onslow County.

Source: ONWASA Water and Wastewater Resources Plan, ARCADIS, 2007.

The Onslow County population projections included in Section V.A.4, page 32, provide high and low forecast permanent population scenarios. The high scenario was based on the growth rates reflected in Table 52. The future service needs and the demand capacity analysis are based on the population forecasts included in Table 17.

*b. Future Water Supply and Demand* (Source: 2007 Water and Wastewater Resources Plan, ARCADIS)

### **(1) Water Demand**

The service area populations were used to determine future water demands. The majority of the population in the County is already connected to the public water system; therefore, the increase in water demands is a direct result of anticipated growth in Onslow County. It was assumed that approximately 95% of residents in the Stump Sound, Southeast, and North Topsail Beach service areas and 80% of residents in the remaining service areas are connected to ONWASA infrastructure. Table 53 summarizes projected

average day and maximum day water demands, based upon the current daily per capita usage of 100 gallons per capita per day (gpcd).

In addition to the service regions described in subsection 7.a., ONWASA also provides water to the rifle range at Marine Corps Base Camp Lejeune (MCBCL) from the Dixon WTP and one area of the Jacksonville ETJ from the Hubert WTP. The Northwest Onslow Water Association provides water to approximately 2,500 customers in the northwest portion of the County. Demands for this area were subtracted from the total water demand projections for the County. Maximum day water demands were calculated using a peaking factor of 1.5. Total average day and maximum day demands in million gallons per day (mgd) for the County are shown on Graph 12.

Table 53: Onslow County  
Water Demand Projections

Service Area	2008		2010		2020		2030	
	Average Day Flow (mgd)	Peak Day Flow (mgd)	Average Day Flow (mgd)	Peak Day Flow (mgd)	Average Day Flow (mgd)	Peak Day Flow (mgd)	Average Day Flow (mgd)	Peak Day Flow (mgd)
Stump Sound	0.9	1.4	1	1.5	1.5	2.3	2	3
Southwest	2.4	3.6	2.5	3.8	3.1	4.7	3.6	5.4
Northwest	1.3	2	1.4	2.1	1.7	2.6	2	3
Southeast	1.7	2.6	1.9	2.9	2.7	4.1	3.6	5.4
White Oak	2.1	3.2	2.2	3.2	2.9	4.4	3.7	5.6
North Topsail Beach	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.5
Rifle Range at MCBCL	0.07	0.2	0.07	0.2	0.07	0.2	0.07	0.2
ETJ Customers	0.07	0.1	0.07	0.1	0.07	0.1	0.07	0.1
<b>Total</b>	<b>8.5</b>	<b>12.7</b>	<b>9.1</b>	<b>13.6</b>	<b>12.0</b>	<b>18.0</b>	<b>15.1</b>	<b>22.6</b>

<sup>1</sup>Peak day to average day peaking factor of 1.5.

<sup>2</sup>Demand for Northwest Onslow Water Association (0.252 mgd average day) is subtracted from the total demand.  
Source: ONWASA Water and Wastewater Resources Plan, ARCADIS, 2007.

## (2) Water Supply

ONWASA has divided the County into three water service regions. These areas are the Dixon, Hubert, and Well Field Service Regions. The majority of the population in the County is already connected to the public water system. The service regions were delineated based on the current water supply system. In general, the Dixon Service Region includes the Stump Sound and North Topsail Beach Service Area, the Hubert Service Region includes the White Oak and Southeast Service Areas, and the Well Field Service Region

includes the Southwest and Northwest Service Areas. The water service regions are illustrated on Map 20.

Onslow County provides water to individual customers in the unincorporated areas of Onslow County, some customers within the City of Jacksonville's ETJ, the Rifle Range of MCBCL, and to the Towns of Holly Ridge, North Topsail Beach, and Swansboro. Swansboro, Holly Ridge, and the MCBCL Rifle Range purchase water from Onslow County under bulk customer agreements and operate separate water distribution systems. The residents of North Topsail Beach are served directly via the County's water distribution system. The Town of Richlands previously maintained its own potable water distribution system, but there is now an interconnect between the Richlands and ONWASA systems.

The majority of potable water in Onslow County is currently provided by the Cretaceous aquifer, a deep-water aquifer. The only treatment required for this source is chlorination. The other major water source in the County is the shallower Castle Hayne aquifer. Water from this source requires more extensive treatment than that from the Cretaceous aquifer, as it has high levels of organic carbon, iron, and manganese. Onslow County is currently served by three separate water systems, including the Dixon Water Treatment Plant (WTP), Hubert WTP, and the Well Field Service Region. The Dixon and Hubert WTPs withdraw and treat water from the Castle Hayne aquifer.

The following sections describe existing facilities and other considerations relating to water supply in Onslow County.

*Dixon WTP Service Region.* The Dixon WTP was originally constructed with a capacity of 2.0 mgd, but was designed to be capable of expansion to 6.0 mgd. In 2004, an Environmental Assessment (EA) was prepared and a Finding of No Significant Impact (FONSI) was received to allow the plant to be upgraded to 4.0 mgd. The expansion was completed in 2006, but additional raw water supply will not be available until 2007. The total capacity will increase to 3.8 mgd in 2007 and to 4.0 mgd in 2008. An upgrade to 6.0 mgd is not currently planned until 2015 or later. A connection to the Holcomb Boulevard WTP on MCBCL is also being planned. The connection will be completed by 2015. This will provide an additional 1.4 mgd to the Dixon Service Region.

*Hubert WTP Service Region.* The Hubert WTP was originally constructed with a capacity of 2.0 mgd, but was designed to be capable of expansion to 6.0 mgd. In 2004, an EA was prepared and a FONSI was received to allow the plant to be upgraded to 6.0 mgd. The expansion was completed in 2006. The total capacity increased to 3.2 mgd in 2006, and will increase to 4.4 mgd in 2007 and to 6.0 mgd in 2008.



*Well Field Service Region.* Onslow County operates 11 wells withdrawing from the Cretaceous aquifer, with a total capacity of 5.61 mgd. An additional 27 wells can provide 1.15 mgd from the Castle Hayne aquifer. On August 1, 2002, the Central Coastal Plain Capacity Use Area (CCPCUA) regulations went into effect. Deep water aquifers in this region are currently being overused; these regulations are intended to decrease aquifer withdrawals to a sustainable rate of use. Most of Onslow County is affected by the CCPCUA reductions. Withdrawals from wells in the Cretaceous aquifer must be decreased by 25% by the year 2008, 50% by the year 2013, and 75% by the year 2018. The reductions in the annual withdrawal are based on each water user's permitted base rate, which is 5.61 mgd for Onslow County. This will decrease the available county-wide Cretaceous well supply from the current average day usage to 4.21 mgd in 2008, 2.81 mgd in 2013, and 1.40 mgd in 2018.

A connection to the MCAS, New River WTP is planned for the Well Field Service Region. This connection will provide an additional 0.5 mgd during Phase 1 in 2013 and will be increased to 1.0 mgd during Phase 2 in 2014. Decreases in withdrawals to the Cretaceous aquifer will be offset by the connections to the Holcomb Boulevard WTP on MCBCL and the MCAS, New River WTP.

*Black Creek Aquifer Banking.* Onslow County has significantly reduced withdrawals from the Black Creek aquifer in the last few years. Under the CCPCUA regulations, the difference in the permitted and actual withdrawals from this aquifer may be banked for future use. Accumulated banked water credits could potentially be used to delay expansions to existing WTPs or construction of a new WTP. However, water banking was not considered in this report due to the uncertainty associated with calculating these amounts.

*New WTP.* The water demand graph shows the need for a third WTP within Onslow County by 2022. This treatment plant will be constructed with an initial capacity of 4.0 mgd.

*Summary.* A graph showing the total demand and supply for all ONWASA service regions is provided in Graph 12. This graph shows the Cretaceous aquifer withdrawal reductions, planned WTP expansions, and connections to the MCAS New River WTP and Holcomb Boulevard WTP.

Table 54 shows a summary of the water demand and supply projections for the ONWASA service regions. Because of the fluctuations in water supply, it is important to consider both Table 54 and Graph 12. This table shows that the Dixon service region will have an available supply of 3.9 mgd in 2030, while the Hubert service region will have a

deficit of 5.0 mgd. The Well Field region will also have a deficit of approximately 4.5 mgd. However, a new WTP is anticipated within the County by this time, and the location has not yet been determined. The total available supply in 2030 will be 20.0 mgd, and the total deficit will be 2.6 mgd. Interconnections are planned between the three service regions, and this table emphasizes the need for such interconnections.

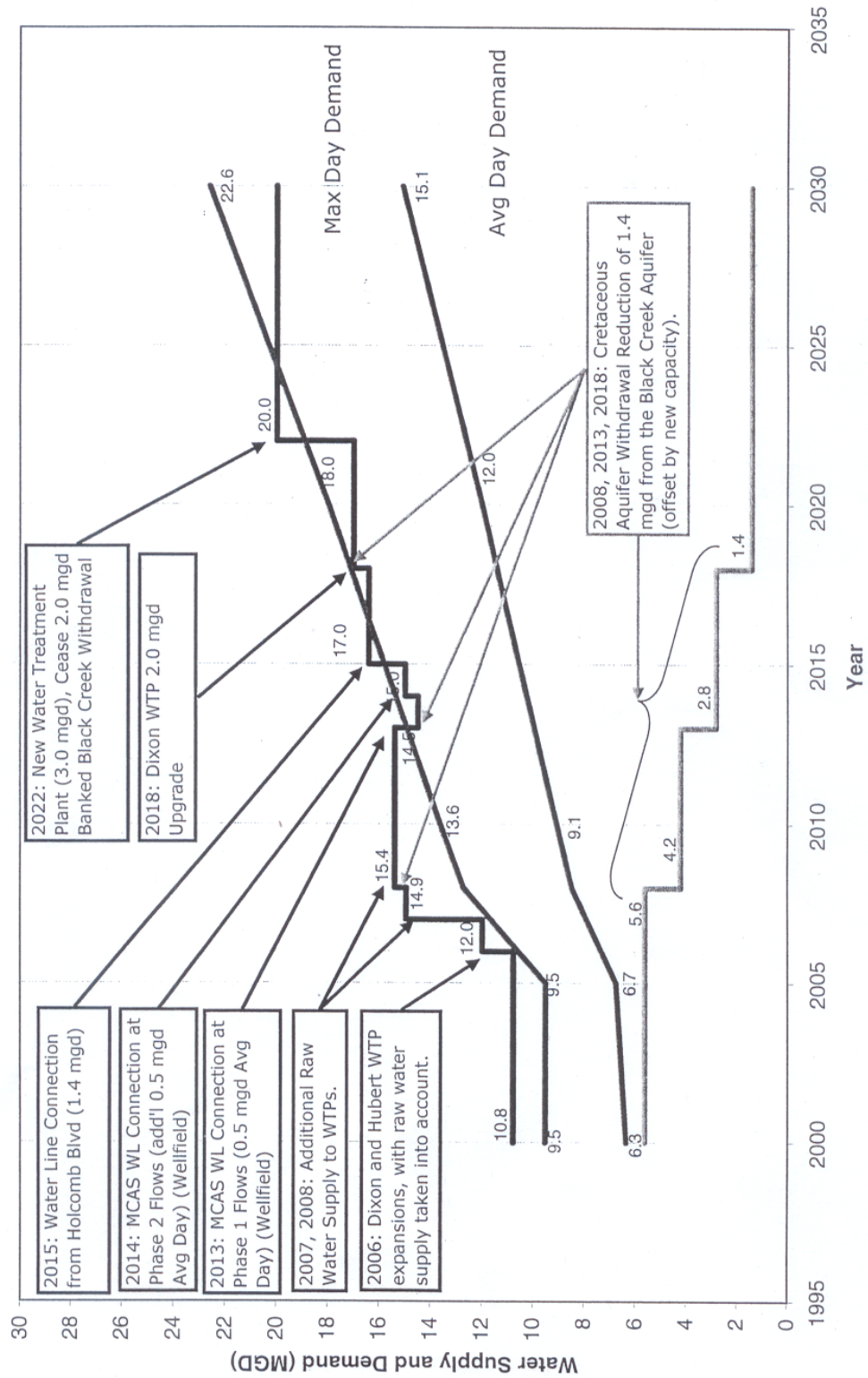
Table 54: ONWASA Service Regions  
Summary of Water Demand and Supply Projections

Projections by Region	2000	2005	2010	2020	2030
<b>Dixon Service Region</b>					
Avg. Daily Demand (mgd)	0.8	0.8	1.3	1.8	2
Max. Day Demand (mgd)	1.1	1.2	1.9	2.7	3.6
Supply	2	2	4	7.4	7.4
Supply Available/Deficit	0.9	0.8	2.1	4.8	3.9
<b>Hubert Service Region</b>					
Avg. Daily Demand (mgd)	3.1	3.3	4.2	5.7	7.4
Max. Day Demand (mgd)	4.7	4.9	6.2	8.5	11
Supply	2	2	6	6	6
Supply Available/Deficit	-2.7	-2.9	-0.2	-2.5	-5
<b>Well Field Service Region</b>					
Avg. Daily Demand (mgd)	2.5	2.6	3.6	4.5	5.3
Max. Day Demand (mgd)	3.7	4	5.5	6.8	8
Supply	6.8	6.8	5.4	3.6	3.6
Supply Available/Deficit	3.1	2.8	-0.1	-3.3	-4.5
<b>TOTAL</b>					
Avg. Daily Demand (mgd)	6.3	6.7	9.1	12	15.1
Max. Day Demand (mgd)	9.5	9.5	13.6	18	22.6
Supply	10.8	10.8	15.4	17	20.01
Supply Available/Deficit	1.3	1.3	1.8	-1	-2.6

<sup>1</sup>New 3.0 mgd WTP location not determined.

Source: Onslow County Water and Wastewater Resources Plan, ARCADIS, 2007.

Graph 12  
**Water Supply and Demand for ONWASA Service Areas**



- c. *Wastewater Treatment Need and Available Capacity* (Source: 2007 Water and Wastewater Resources Plan, ARCADIS)

### **(1) Wastewater Service Areas**

The 2003 Resources Plan divided the County into five wastewater service areas. These service areas and proposed sewer service are depicted on Map 21. These areas are the Southwest, Stump Sound and North Topsail Beach, White Oak, Southeast, and Northwest Service Areas. These service areas were originally delineated based on the township boundaries. Service area boundaries have been modified slightly since 2003 based on detailed studies of the wastewater treatment alternatives for each service area, including field reconnaissance, information from developers, and evaluation of the watershed sub-drainage basins.

The Southwest Service Area is located to the west of the City of Jacksonville and the Marine Corps Air Station (MCAS) at New River on the MCBCL, south of the Northwest Service Area, and north of the Stump Sound Service Area. The Southwest Service Area excludes areas included in the City of Jacksonville's ETJ.

The Stump Sound and North Topsail Beach Service Area is located in the southeast portion of Onslow County, and includes Sneads Ferry, the Town of Holly Ridge, and the Town of North Topsail Beach. For the wastewater evaluation of the Stump Sound Service Area, four geographical areas were identified: Eastern Zone including Sneads Ferry, Central Zone including the Dixon Schools, Western Zone, and the Holly Ridge Zone including the Town of Holly Ridge ETJ.

The White Oak Service Area is located in the eastern portion of Onslow County, north of Swansboro. Wastewater treatment evaluations for the White Oak Service Area have focused primarily on the Piney Green area. This area was identified as the most developed portion of the service area and the portion most in need of wastewater service.

The Southeast Service Area is located in the eastern part of Onslow County, southeast of the Hofmann Forest, and east of the MCBCL, with the Atlantic Ocean bordering the service area to the east and south. The Southeast Service Area includes the Town of Swansboro and unincorporated areas.

The Northwest Service Area is located in the northwest portion of Onslow County, and is bordered by the Southwest Service Area to the south, Hofmann Forest and the City of Jacksonville's ETJ to the east, and the county line to the north and west. The Northwest Service Area includes the Town of Richlands and unincorporated areas.

---

---

## **(2) Wastewater Treatment Need**

Service area studies have been performed for the Southwest, Northwest, Stump Sound, and Southeast Service Areas, and the Piney Green area within the White Oak Service Area. In these studies, flow projections were estimated using existing (current flow) and potential (future flow) development to determine future wastewater treatment needs.

To predict current wastewater flow rates, the County-wide per capita flow rate developed in the 2003 Water and Wastewater Resources Plan, 90 gpcd, was used. The current population information was determined using year 2000 Census data projected to year 2006 and cross-checked with house counts using aerial photography. This data was correlated to zoning data obtained from the County GIS department, and flows were tabulated using dwelling unit criteria identified in each study.

In order to predict future wastewater flow rates, existing population was projected out to the year 2030. Flow projections for future development were estimated using land acreages and the potential for maximum development based on county and city zoning criteria. The acreage for each tract of land was compiled using GIS data. The flow calculation then took into consideration the area that would realistically be developed, less roads, buffers, easements, wetlands, etc.

Service goals delineated in the 2003 Water and Wastewater Resources Plan for serving new and existing development across the entire County were applied to the total flow prediction. These goals include:

1. Serve 45% of properties with existing septic tanks.
2. Serve 80% of new growth.
3. Serve 90% of existing package wastewater treatment plants (WWTPs).

In addition to planning for future wastewater treatment, ONWASA must also develop a plan for disposal of treated effluent from WWTPs. The DWQ has stated that they will not allow new or expanded discharges within the White Oak River Basin, including the New River. Deep-well injection of WWTP discharges is also not allowed in North Carolina. These rules limit the options for disposing of WWTP effluent. Wastewater treatment alternatives for each service area were identified to meet these restrictions.

The following provides wastewater treatment needs determined for each of the five service areas in Onslow County.

*Southwest Service Area.* The Southwest Service Area Development Report found that in 2030, the Southwest Service Area will reach 20% of the total build-out population, based on an average growth rate of 2.5%. Existing average day flows within the Service Area to septic systems and package WWTPs total 1.84 mgd. The study found that the projected average day flow for 2030 is 1.39 mgd, if service goals are included.

*Stump Sound and North Topsail Beach Service Area.* The Stump Sound Service Area Development Report reported that the build-out flow population for the Stump Sound service area will be reached in the year 2030. This was determined using a 6% growth rate, as recommended by the ONWASA technical advisory committee. The Town of North Topsail Beach was excluded from this study due to the service provided by a private utility, North Topsail Utilities. However, it was assumed that North Topsail Utilities would not be able to serve any additional future wastewater flows associated with growth in the Stump Sound service area.

By 2030, the total unserved wastewater flow in the Stump Sound service area will be approximately 4.3 mgd. Of this, the Town of Holly Ridge has an expected average day wastewater flow of 1.0 mgd in the near term (approx. year 2015) and 2.0 mgd by year 2030, which estimates to a year 2030 unserved flow of 1.775 mgd (2.0 mgd less 0.225 mgd). The Holly Ridge Town Council reports the need for 2.0 mgd by 2030 based on flow allocation requests and heavy developer interest. Peak day build-out flows were estimated by applying a peaking factor of 2.5 to the estimated build-out average day flow.

*White Oak Service Area.* The Piney Green Service Area Development Report found that build-out population for this service area will occur between 2026 and 2027, using the 5% growth rate developed in the Resources Plan. The average day wastewater flow for the entire service area in 2004 was 0.970 mgd, and the build-out flow with consideration of service goals was found to be 3.95 mgd.

*Southeast Service Area.* The Southeast Service Area was reported to have a 5.0% growth rate for the Town of Swansboro and ETJ. Population growth estimates in the Southeast Service Area Evaluation memorandum show that Swansboro will require approximately 1.4 mgd of wastewater treatment capacity by the year 2015 and 3.0 mgd of wastewater treatment capacity by the year 2030.

*Northwest Service Area.* The Northwest Service Area Development Report found that in the year 2030, the Northwest Service Area will reach 10.9% of the build-out population. This percentage was determined using an average growth rate of 2.5%. Existing wastewater flows within the service area, including septic systems and flows to the Richlands WWTP and other wastewater treatment package plants, are approximately 1.5

mgd. In 2030, a total treatment capacity of 1.5 mgd will be required for the Northwest Service Area based on the service goals.

### **(3) Wastewater Available Capacity**

Three of the four municipalities served by ONWASA (Holly Ridge, Richlands, and Swansboro) own and operate sewer systems consisting of wastewater collection systems and WWTPs to serve their citizens with limited extensions outside the corporate limits. The fourth, North Topsail Beach, is served with wastewater collection and treatment by a private utility, North Topsail Utilities. Jacksonville owns and operates its own wastewater collection system and WWTP. MCBCL operates a collection system serving several portions of the base and operates an advanced facility, the French's Creek WWTP.

Wastewater treatment for the remaining, unincorporated areas of Onslow County is currently provided by a mixture of decentralized wastewater treatment systems. These systems include a number of privately-owned wastewater treatment package plants serving limited services areas (i.e., subdivisions, mobile home parks, and apartment complexes) and on-site treatment (septic) systems, many of which are poorly-performing or failing due to age or soil conditions.

Table 55 summarizes total plant capacities, current wastewater flow to each plant, current capacities available, predicted wastewater treatment demands and planned future capacities. Predicted demands represent the total wastewater flow predicted for the service area, using the established service goals. It is important to note that this assumes that infrastructure is in place to provide service to the entire service area and that all service goals are being met; actual wastewater flow to the WWTP will depend on the rate of infrastructure construction and implementation of service goals. The following sections summarize the wastewater treatment facilities located in each service area.

Table 55: ONWASA Service Areas  
Summary of Current and Predicted Wastewater Treatment Demands

Service Area	Current ONWASA Operated Facility Capacity (mgd)	Current Avg. Day Demand (mgd) <sup>1</sup>	Planned Treatment Capacity (mgd)	Available Capacity After Expansion (mgd)	Total Predicted Demand <sup>3</sup>		
					2010	2020	2030
Stump Sound	0.26	0.12	1.3	1.18			4.3
Northwest	0.25	0.34	2	1.66	0.7	1.1	1.5
Southeast	0.3		0.6		1	1.8	3
Southwest	0	0	--	--	0.7	1	1.4
White Oak	0	0	5.02	5.02		2.5	5

<sup>1</sup>From DMR data.

<sup>2</sup>Maximum capacity available from MCBCL French's Creek WWTP.

<sup>3</sup>Includes demand served by septic tanks and package treatment plants.

Source: Onslow County Water and Wastewater Resources Plan, ARCADIS, 2007.

*Southwest Service Area.* Wastewater generated in the unincorporated areas of the Southwest Service Area is currently treated by septic systems and three small package WWTPs. The package WWTPs include the Kenwood WWTP, the Hinson Arms Apartments WWTP, and the Cabin Creek Campground and Mobile Home Park WWTP. The Kenwood WWTP is currently owned and operated by ONWASA, and has a design capacity of 60,000 gallons per day (gpd) and a permitted flow of 49,000 gpd. This facility is in acceptable condition. The remaining two package WWTP's are privately owned and operated. The Hinson Arms Apartments WWTP is permitted for 15,000 gpd and is currently in poor condition. The Cabin Creek Campground and Mobile Home Park WWTP is permitted for 18,000 gpd and is in good condition.

Jacksonville's WWTP and land application system is centrally located within the Southwest Service Area, but treats only City of Jacksonville wastewater. This facility comprises approximately 6,249 acres west of Fire Tower Road and north of Burgaw Highway. The City of Jacksonville is currently planning to expand the WWTP from 6.0 mgd to 9.0 mgd and add 1,144 acres of land application area, bringing the total acreage to 7,393.

The City of Jacksonville and ONWASA held a series of meetings in late 2005 to July 2006 to discuss the possibility of trading treatment capacity between the two entities, or "flow swap." This "flow swap" would have allowed Jacksonville to utilize approximately 1.6 mgd of capacity in the Piney Green Sewer Collection system to serve wastewater needs in the eastern portion of the city, and would have provided ONWASA's Southwest Service Area with approximately 1.0 mgd of wastewater treatment capacity at the Jacksonville WWTP. At the conclusion of those meetings, ONWASA and the City of Jacksonville came to the decision that a flow swap was not currently in their best interest.



*Stump Sound and North Topsail Beach.* Wastewater in portions of the Stump Sound Service Area is currently treated by a private utility, North Topsail Utilities, or is transmitted to the municipal WWTP for the Town of Holly Ridge. The remainder of the wastewater is treated by septic systems. The Town of Holly Ridge owns and operates a 0.225 mgd wastewater treatment and land application system that treats wastewater flows generated primarily within the town limits. The Holly Ridge WWTP became an asset of ONWASA as of January 1, 2006. ONWASA is currently investigating alternatives to increase wastewater treatment capacity at the Holly Ridge WWTP to 1.3 mgd.

North Topsail Beach and limited portions of the mainland are serviced by a private utility, North Topsail Utilities, Inc., which owns and operates a land application system located along NC 210 south of NC 172.

*White Oak Service Area.* Wastewater generated in the White Oak Service Area is currently treated by septic systems or by privately-owned package plants. There are no municipal WWTPs within the White Oak Service Area. Wastewater treatment evaluations for the White Oak Service Area have focused primarily on the Piney Green Area. The Piney Green service area boundaries have been revised since the original Piney Green Service Area Development Report. The current service area include eight package plants, which were found to have varying degrees of operation, maintenance, and performance issues between 2001 and 2004. However, all eight package plants were given a good rating by DWQ inspectors. Three of the eight existing package plants will initially be incorporated into the new collection system, including the Hunter's Creek, Sherwood Mobile Home Park, and Collins Trailer Park WWTPs.

In February 2004, ONWASA signed a Wastewater Sales Agreement with the US Government that allows ONWASA to discharge wastewater flow to the MCBCL French's Creek WWTP. The agreement specifies that ONWASA may discharge up to 2 mgd, 3.5 mgd, and 5 mgd on a monthly average basis in Phase 1, 2, and 3, respectively. The agreement stipulates that a connection to the MCBCL French's Creek WWTP must be made within 5 years of the signed agreement. In October 2005, a Wastewater Sales Agreement Addendum #1 was signed that details the connection between ONWASA and MCBCL facilities for Phase 1 flow from the Piney Green area.

*Southeast Service Area.* The majority of the wastewater generated within the Swansboro town limits is treated at the Swansboro WWTP. All other wastewater is treated by septic systems. The Swansboro WWTP has a treatment capacity of 0.3 mgd, and is currently being expanded to treat 0.6 mgd with upgrades to the system to produce reuse quality effluent. The 0.3 mgd expansion capacity will provide wastewater treatment to several planned communities inside Swansboro's ETJ and in the Bear Creek area within the

service area. The National Pollution Discharge Elimination System (NPDES) permit (permit #NC0036153) will be replaced by a non-discharge permit once the expansion is complete, and effluent will be disposed of using four 4-acre infiltration ponds.

*Northwest Service Area.* Within the Northwest Service Area are two privately-owned wastewater treatment plants, the Rock Creek Golf and Country Club WWTP and the Albert J Ellis Airport WWTP. The Albert J Ellis Airport WWTP serves only the airport and does not have a discharge permit issued by the North Carolina Division of Water Quality (DWQ). ONWASA currently has no plans to assume operation of this facility. Also located within the service area is the Richlands WWTP, a 0.25 mgd municipal treatment plant that primarily treats wastewater generated within the Town of Richlands. The Richlands WWTP exceeded the 90% of permitted flow threshold established by the Division of Water Quality (15A NCAC 02H.0223) in 2003 and is currently under a moratorium for sewer line extension. Design of a plant expansion is currently nearing completion.

*d. Capital Improvements Plan*

The Capital Improvements Plan (CIP) is a schedule of water and wastewater project expenditures by fiscal year. The CIP includes cost estimates and proposed project schedules for a five-year planning period. Beyond five years, the CIP projects expenditures and schedules in five-year increments through 2032.

To create the CIP, detailed cost estimates for all projects proposed for the ONWASA service areas were compiled. Total costs for each project were broken into 11 categories: Construction, Construction Administration, Resident Administration, Legal and Administration, Permitting, Land/Property Acquisition, Design, Environmental Studies, Surveying, Planning, and Contingencies.

Assumptions were made concerning project scheduling and total time required for design and construction. Water projects were ranked in order of importance by ONWASA, based on recommendations from Rivers and Associates. Timing of wastewater projects was based on demand projections found in the service area development reports, where available.

The CIP lists and prioritizes improvements and expansions to Onslow County water and wastewater infrastructure. The CIP is a dynamic document that reflects needs and priorities identified by the County. Priorities and County resources may change on a yearly basis. Additionally, County populations are expected to be dependent on the availability of water and wastewater infrastructure. Once the initial projects are in place, the effects of these projects on development will need to be evaluated. Changes to growth rates will effect the year of expenditure for future projects. Therefore, it is very important that the CIP be revisited and updated yearly to reflect these changes. It is also important to note that total project costs are in January 2007

dollars and have not been escalated for the year of expenditures. The 25-year CIP forecast is provided in Appendix VIII.

*e. Water and Sewer Other Public Utilities*

The future of water and sewer services by other providers including the City of Jacksonville, North Topsail Beach, and Surf City is evolving. The City of Jacksonville is affected by a state mandated Special Order by Consent (SOC) for wastewater treatment and locating an alternate water source for the Black Creek aquifer. It is anticipated that ONWASA will continue to provide water and sewer services outside of the City of Jacksonville ETJ area. There may be inter-service area boundary exchanges of service between ONWASA and the City of Jacksonville. However, such exchanges will be negotiated over time. Based on the City of Jacksonville 2006 Growth Management Plan and the 2007 Draft CAMA Land Use Plan, the city does not expect any "large-scale" annexations. In addition, the city's growth management policies support in-fill development as opposed to the expansion of its service areas and ETJ.

The Town of Surf City is building water and wastewater treatment plants which should be completed in 2008 or 2009. The potential availability of surplus capacity for water supply and sewer service could affect ONWASA, Holly Ridge, and Pender County services. The decisions concerning water and sewer services in the Stump Sound Service Area will greatly influence annexation decisions.

**8. Solid Waste**

In 2006, Onslow County prepared the three year update to the Onslow County Ten-Year Solid Waste Plan. The plan was prepared in accordance with NC General Statute 130A-309.09A(b) for the purpose of meeting local solid waste needs and protecting public health and the environment. Through implementation of the solid waste management plan update, Onslow County provides for the management of solid waste and the reduction of solid waste for the next ten years. The planning area includes Onslow County and the following municipalities: Holly Ridge, Jacksonville, North Topsail Beach, Richlands, and Swansboro.

Onslow County's long-range goal is for a comprehensive waste management program that best meets the needs of its citizens and its environmental quality. This program provides disposal capacity, waste collection services, and waste reduction programs to all Onslow County citizens. The County's goal includes the elimination of improper disposal of waste and the expansion of waste reduction opportunities that are convenient for residents. This goal is expanded into the following five specific long-range planning goals:

- To provide everyone in the community with waste disposal, waste collection services, and waste reduction opportunities.
- To increase the efficiency and cost-effectiveness of the solid waste program.
- To meet the established local waste reduction goals.
- To educate the general public on source reduction, recycling, reusing, and environmental issues.
- To protect public health and the environment.

The 2006 Ten-Year Solid Waste Management Plan is designed to reduce Onslow County’s waste by 2% by FY2013 and 5% by FY2016. To do this, Onslow County will target residential, non-residential, construction, and demolition waste.

The waste reduction goals can be converted from percentages to tons diverted by examining population estimates and past waste disposal figures. The baseline year (FY1991-1992) disposal rate was 1.04 tons per capita (figure provided by the NC Solid Waste Section). In 2004-2005, the baseline per capita rate was 1.12 tons per year. At this per capita disposal rate, Onslow County will dispose of 145,239 tons in FY2012-13 and 149,576 tons in FY2015-16. These projects will have to be updated, to extend through 2030, at the appropriate time.

Table 56: Onslow County  
Projected Per Capita Waste Disposal

Year	Population	Waste Disposal	Per Capita Disposal Rate
Baseline 1991-1992	107,643	111,948.72	1.04 tons/year
FY 2004-2005	117,168	131,685	1.12 tons/year

Year	Projected Population	Projected Waste Disposal (Tons)	Per Capita Disposal Rate
FY 2012-13	129,678	145,239	1.12 tons/year
FY 2015-16	133,550	149,576	1.12 tons/year

Source: State of North Carolina Demographic Website and are based on the 2004 Official Certified Estimates <http://demog.state.nc.us>. The baseline per capita – NC Solid Waste Section.

In 2007, there were no properties which had been purchased and/or studied for future landfill sites. Onslow County was in the process of identifying potential future sites. When specific future sites are identified/acquired, the impact of those sites will have to be assessed and the Future Land Use Map amended.

## 9. Recreation

Onslow County is committed to providing its citizens with a variety of recreational activities. The County's Parks and Recreation Department has established this by providing recreational programs in conjunction with development of a County-wide regional parks system. A summary of Onslow County's recreational programs, as well as park facilities, is provided on pages 101-103 of the plan.

The County has developed the current parks system with a philosophy to provide large district parks of 50 acres or more in size. The County has been very successful in implementing this strategy, and still holds large portions of land at established park sites that may be developed with additional facilities. Additionally, the County sees its role as being charged with the duty of providing convenient and efficient access to rivers and beaches throughout coastal and inland portions of the County. This is evidenced by the County's network of paddle trails and large public regional beach access sites located along the banks of North Topsail Beach.

The following provides a summary of park sites where the County currently has plans for establishment of new park facilities, or expansion of existing facilities:

**Onslow Pines Park:** This facility is currently 55 acres in size and provides a large number of recreational activities.

**Richlands-Steed Park:** This park is comprised of 195 total acres; however, only 37 of these acres have been developed. The County intends to develop the remaining acreage in accordance with recreational needs and available funding.

**Deppe Park.** This park is a 373-acre facility located within Hofmann Forest that is being developed through a partnership with North Carolina State University and the Hofmann Forest Foundation. This facility will be focused on environmental education and passive recreation. This is a large project that will be developed in phases. The first phase, which involved development of a youth playground, trails, and a picnic area, was completed in 2008. Facilities related to future phases of the park have not yet been determined, but will be developed in accordance with available funding sources.

**Oakhurst Nature Park:** This facility was acquired through grant funding provided through the Clean Water Management Trust Fund and Land & Water Conservation Fund. Currently, this facility provides trails and canoe/kayak paddle access points. The County intends to continue expansion of these facilities; however, a specific plan related to this expansion is not in place at this time.

**Hubert By-Pass Park:** This facility is a 41-acre mostly passive park which provides a large number of recreational activities.

**Stump Sound Park:** This facility is currently 56 acres in size and provides a large number of recreational activities.

The County has an existing parks and recreation plan that was approved on August 17, 2008. Many of the activities outlined in this section will be discussed in further detail within this document.

## **10. Schools**

The Onslow County School System has been substantially impacted by the recent growth trends occurring throughout the County. The County has struggled to keep pace with population growth, which has resulted in crowded schools, and a severe need for new and upgraded facilities. In order to determine how to address this problem, Onslow County Schools conducted a long range needs assessment in 2005. The results of this report established that the school system needed approximately \$237 million dollars in improvements in order to catch up with the current student population. The County decided to phase these improvements. In order to fund the first phase, a bond referendum was voted on and approved in FY05 in the amount of \$105 million dollars. Table 57 below provides a detailed summary of all activities to be completed under the current bond referendum. All schools will benefit in some way from the bond referendum; however, Phase I of the school improvements will only begin to address the needs identified in the school systems 2005 report. These activities should be completed in 2008, and at that time the County will review the needs assessment and consider implementation of a second round of improvements.

Table 57: Onslow County Public Schools  
2005 Bond Referendum - Proposed School Investments

School Name	2008-2009 Student Population Estimate	Current Mobile	Highlights of Proposed Projects	Projected Necessary Investment	Projected Completion Date
Bell Fork Elementary	468	4	1 to 3 classrooms, multipurpose instructional building, roof repairs, technology	\$1,789,118	9/08
Blue Creek Elementary	761	11	1 to 3 classrooms, multipurpose instructional building, parking, electrical upgrade, technology	\$1,853,186	9/08
Carolina Forest Elementary	570	0	4 to 7 classrooms, parking, technology	\$1,640,713	5/08
Clyde Erwin Elementary	426	6	library, renovations, parking, canopy removal, magnet	\$1,237,575	5/07
Dixon Elementary	796	13	8 to 11 classrooms, HVAC system, parking/driveway, renovations, technology	\$4,398,359	6/08
Hunters Creek Elementary	976	10	2 to 5 classrooms, renovations, technology	\$1,693,072	12/07
Jacksonville Commons Elem.	779	3	technology	\$135,689	12/08
Morton Elementary	479	7	9 to 12 classrooms, library, cafeteria expansion, multipurpose instructional building, electrical upgrade, parking/driveway, technology	\$6,048,283	4/09
Northwoods Elementary	402	8	2 to 3 classrooms, multipurpose instructional building, technology	\$1,581,605	9/08
Parkwood Elementary	631	8	5 to 8 classrooms, parking/driveway, multipurpose instructional building, technology	\$2,840,904	10/08
Queens Creek Elementary	630	6	9 to 12 classrooms, renovations, technology	\$2,738,131	3/08
Richlands Elementary	677	2	land purchase for replacement school, toilet renovations, technology	\$1,069,139	7/07
Richlands Primary	732	10	8 to 10 classrooms, renovations, technology	\$1,603,035	9/07
Sand Ridge Elementary	633	7	8 to 10 classrooms, renovations, technology	\$2,199,040	3/08
Silverdale Elementary	455	5	6 to 9 classrooms, multipurpose instructional building, parking/driveway, sewer system upgrade, asbestos removal, roof repairs, technology	\$3,887,384	8/08
Southwest Elementary	1005	14	technology	\$118,932	12/08

Table 57 (continued)

## Section VI. Plan for the Future

School Name	2008-2009 Student Population Estimate	Current Mobile	Highlights of Proposed Projects	Projected Necessary Investment	Projected Completion Date
Summersill Elementary	811	8	6 to 9 classrooms, renovations, cafeteria expansion, technology	\$3,113,037	10/08
Swansboro Elementary	521	6	1 to 4 classrooms, library, multipurpose instructional building, technology	\$3,470,462	3/08
New Gum Branch Road Area Elementary	N/A	N/A	600 to 725 student new elementary school	\$11,736,744	5/09
Dixon Middle	537	0	gym AC, land purchase for replacement school, technology	\$1,043,500	7/08
Hunters Creek Middle	879	16	10 to 13 classrooms, library expansion, cafeteria expansion, renovations, parking/driveway, technology	\$4,809,653	5/08
Jacksonville Commons Middle	780	0	technology	\$128,825	12/08
New Bridge Middle	564	0	gym AC, parking/driveway, technology	\$383,019	12/06gym 10/08 rest
Northwoods Park Middle	711	3	renovations, technology	\$184,169	12/09
Southwest Middle	565	3	roof replacement, technology	\$791,792	2/07
Swansboro Middle	881	0	2 to 5 classrooms, gym AC, library, renovations, electrical upgrade, technology	\$2,161,864	6/08
Trexler Middle	620	1	1 to 3 classrooms, gym AC, fire alarm upgrade, technology	\$1,195,780	12/07
Dixon High	621	1	3 to 6 classrooms, ADA renovations, technology	\$1,355,338	8/08
Jacksonville High	1305	7	1 to 3 classrooms, library expansion, cement canopy repairs, roof repairs, renovations, technology	\$2,170,403	8/08
Northside High	866	0	9 to 12 classrooms, 1-3 science classrooms, 5-7 voc. ed. classrooms, 4-6 other instructional spaces, electrical upgrade, technology	\$5,933,585	8/08
Richlands High	807	3	9 to 12 classrooms, expand HVAC system, parking/driveway, electrical upgrade, technology	\$4,059,934	8/08
Southwest High	790	5	library, renovations, new gym floor, HVAC repairs, technology	\$2,708,751	9/08
Swansboro High	1085	3	2 to 5 classrooms, cafeteria expansion, auditorium, parking/driveway, electrical upgrade, roof repairs, technology	\$5,098,826	9/08



School Name	2008-2009 Student Population Estimate	Current Mobile	Highlights of Proposed Projects	Projected Necessary Investment	Projected Completion Date
White Oak High	1264	11	4 to 7 classrooms, cafeteria expansion, auditorium, parking/driveway, electrical upgrade, asbestos removal, technology	\$4,958,831	4/09
Thompson Early Childhood Center	N/A	4	technology	\$24,708	12/08
Onslow County Learning Center	N/A	6	technology	\$37,161	12/08
Security (Buses)	N/A	N/A	video cameras - all buses	\$143,000	7/07
IT Network Security	N/A	N/A	computer network security	\$280,350	12/08
Totals	24028	191		\$90,623,897	

Source: Onslow County.

## B. LAND USE/DEVELOPMENT GOALS AND IMPLEMENTING ACTIONS

This section of the plan is intended to guide the development and use of land in Onslow County and the participating municipalities of Holly Ridge and Richlands. The future land use map and policies are intended to support Onslow County's and CAMA's goals. The future land use map and the specified development goals are based on the Onslow County community concerns (identified on pages 8-10 of this plan) and the future needs/demands (identified in Section VI.A of this plan). Additionally these policies should serve as a basis for carrying out the Land Use Plan Vision Statement, which can be found on pages 10-11.

Specifically, this section of the plan, the future land use map (Map 22, Appendix II), and the carrying capacity analysis will implement the following 15A NCAC 7H Land Use Plan objectives:

"This element of the plan is intended to guide the development and use of land in the planning jurisdiction in a manner that achieves its goals for the community and CAMA. Policies affecting AECs shall also be used in making CAMA permit decisions. The plan for the future includes the local government's goals, land use and development policies, and future land use map:

1. Land Use and Development Goals. The following shall be considered in the development of the plan's goals:

- a. Community concerns and aspirations identified at the beginning of the planning process; and
  - b. Needs and opportunities identified in the analysis of existing and emerging conditions.
2. Policies:
- a. Policies included in the land use plan shall be consistent with the goals of the CAMA, shall address the CRC management topics for land use plans, and comply with all state and federal rules. The CAMA Land Use Plan shall demonstrate how the land use and development goals, policies and future land use map will guide the development and use of land in the planning jurisdiction in a manner that is consistent with the specific management goal(s), planning objective(s), and land use plan requirements of each Management Topic.
  - b. The plan shall contain a description of the type and extent of analysis completed to determine the impact of CAMA Land Use Plan policies on the management topics; a description of both positive and negative impacts of the land use plan policies on the management topics; and a description of the policies, methods, programs, and processes to mitigate any negative impacts on applicable management topics.
  - c. The plan shall contain a statement that the governing body either accepts state and federal law regarding land uses and development in AECs or, that the local government's policies exceed the requirements of state and federal agencies. If local policies exceed the state and federal requirements, the CAMA Land Use Plan shall identify which policies exceed these requirements and to what extent. If the governing body intends to rely on federal and state laws and regulations it shall reference these in the plan."

C. POLICIES/IMPLEMENTING ACTIONS

**1. Introduction**

Onslow County and its participating municipalities of Holly Ridge and Richlands intends for the policies included in this plan to be consistent with the goals of CAMA. This plan addresses the CRC management topics for land use plans and complies with all state and federal rules and regulations. Implementation of this land use plan will aid the development and use of land consistent with the County's management goal(s) and planning objective(s). The stated

policies/implementing actions will apply in the county as a whole, excluding the jurisdictional areas of the Camp Lejeune Marine Corps Base and the non-participating municipalities. All policies/implementing actions shall be used for consistency review by appropriate state and federal agencies.

Resource conservation and impact analysis issues are addressed throughout the policies and implementing actions included in this plan. However, the following conservation related policies and implementing actions are emphasized:

- Public Access, page 167.
- Conservation, page 184.
- Stormwater Control, page 188.
- Natural Hazard Areas, page 200.
- Water Quality, page 203.
- Cultural and Historical Sites, page 209.

Specifically, in implementing this plan, the following should serve as guiding land use/planning principles:

- Consider the future land use map as part of the policies included in this plan.
- Consult the Land Use Plan, including the future land use map, during the deliberation of all re-zoning requests and proposed text amendments, as required by NCGS 160A-387.
- Consider the following in deliberation of all zoning petitions:
  - » Consider the policies and implementing actions of this plan and all applicable CAMA regulations in their decisions regarding land use and development (including 15A NCAC 7H).
  - » All uses that are allowed in a zoning district must be considered. A decision to re-zone or not to re-zone a parcel or parcels of property cannot be based on consideration of only one use or a partial list of the uses allowed within a zoning district.
  - » Re-zoning decisions will not be based on aesthetic considerations.

- » Requests for zoning changes will not be approved if the requested change will result in spot zoning. Spot zoning is a form of discriminatory zoning whose sole purpose is to serve the private interests of one or more landowners instead of furthering the welfare of the entire community as part of an overall zoning plan. Spot zoning is based on the arbitrary and inappropriate nature of a re-zoning change rather than, as is commonly believed, on the size of the area being re-zoned.
- » Zoning which will result in strip development should be discouraged. Strip development is a melange of development, usually commercial, extending along both sides of a major street. Strip development is often a mixture of auto-oriented enterprises (e.g., gas stations, motels, and food stands), and truck-dependent wholesale and light industrial enterprises along with the once-rural homes and farms that await conversion to commercial use. Strip development may severely reduce traffic-carrying capacity of abutting streets by allowing for excessive and conflicting curb cuts.
- » The concept of uniformity should be supported in all zoning deliberations. Uniformity is a basic premise of zoning which holds that all land in similar circumstances should be zoned alike; any different circumstances should be carefully balanced with a demonstrated need for such different treatment.
- » Zoning regulations should be made in accordance with the Onslow County Land Use Plan and designed to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. The regulations shall be made with reasonable consideration, among other things, as to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout Onslow County's planning jurisdiction.
- » Specifically, the Planning Board and Board of Commissioners should ask the following questions:
  1. Do Onslow County and the participating municipalities need more land in the zone class requested?

2. Is there other property in the County/participating municipalities that might be more appropriate for this use?
3. Is the request in accordance with the Onslow County land use plan?
4. Will the request have a serious impact on traffic circulation, parking space, sewer and water services, and other utilities?
5. Will the request have an impact on other County municipal services, including police protection, fire protection, or the school system?
6. Is there a good possibility that the request, as proposed, will result in lessening the enjoyment or use of adjacent properties?
7. Will the request, as proposed, cause serious noise, odors, light, activity, or unusual disturbances?
8. Does the request raise serious legal questions such as spot zoning, hardship, violation of precedents, or need for this type of use?
9. Does the request adversely impact any CAMA AEC's or other environmentally sensitive areas including water quality?
10. Does the request adversely impact water quality?

It is intended that this plan will serve as the basic tool to guide development/growth in Onslow County subject to the following:

- Onslow County Ordinances should be revised from time to time to be consistent, as reasonably possible, with the recommendations of this plan and the evolving nature of the County's growth and development policy.
- Land development regulations should be designed: to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

- Onslow County will coordinate all development proposals with appropriate State and/or Federal agencies.
- Onslow County will support the planning principles set forth in the concept of "Smart Growth." The smart growth principles are defined in Appendix IX. It is acknowledged that in some rural areas smart growth may not be desirable.

## **2. Policies Regarding Land Use and Development in AECs**

**Unless specifically stated otherwise, Onslow County accepts state and federal law regarding land uses and development in AECs (15A NCAC 7H).** By reference, all applicable state and federal regulations are incorporated into this document.

All policies and implementing actions are to be utilized by the State of North Carolina for consistency review. Note the following:

- No policy is subordinate to another, all policies carry equal weight.
- All management topics have equal status.
- The future land use map may show some areas in a developed category which may also include areas considered least suitable for development. The intent is that development should be designed/permitted to protect these areas through utilization of concepts such as cluster development. Development/project approval will be based on project design which avoids negative impact on least suitable areas.

## **D. LAND USE PLAN MANAGEMENT TOPICS**

### **1. Introduction**

The purposes of the Coastal Resources Commission (CRC) management topics are to ensure that CAMA Land Use Plans support the goals of CAMA, to define the CRC's expectations for the land use planning process, and to give the CRC a substantive basis for review and certification of CAMA Land Use Plans. Each of the following management topics (Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazard Areas, Water Quality, and Local Areas of Concern) include three components: a management goal, a statement of the CRC's planning objective, and requirements for the CAMA Land Use Plan. These policies also apply to the Town of Richlands and the Town of Holly Ridge planning jurisdictions. Most of the policies and implementing actions are continuing activities. In most situations, specific timelines are not applicable. Refer to page 253 for a list of those policies/implementing actions which have a specific schedule.

Please 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.

The policies and implementing actions frequently utilize the following words: should, continue, encourage, enhance, identify, implement, maintain, prevent, promote, protect, provide, strengthen, support, work. The intent of these words is defined below:

- Should: An officially adopted course or method of action intended to be followed to implement the community goals. Though not mandatory as "shall," it is still an obligatory course of action unless clear reasons can be identified that an exception is warranted. County staff and Planning Board involved at all levels from planning to implementation.
- Shall/Will: Expresses determination to implement/take action.
- Continue: Follow past and present procedures to maintain desired goal, usually with County staff involved at all levels from planning to implementation.
- Encourage: Foster the desired goal through County policies. Could involve County financial assistance.
- Enhance: Improve current goal to a desired state through the use of policies and County staff at all levels of planning. This could include financial support.
- Identify: Catalog and confirm resource or desired item(s) through the use of County staff and actions.
- Implement: Execute actions intended to guide the accomplishment of the Plan recommendations.
- Maintain: Keep in good condition the desired state of affairs through the use of County policies and staff. Financial assistance should be provided if needed.
- Prevent: Stop described event through the use of appropriate County policies, staff actions, Planning Board actions, and County finances, if needed.
- Promote: Advance the desired state through the use of County policies and Planning Boards and staff activity at all levels of planning. This may include financial support.

- Protect: Guard against a deterioration of the desired state through the use of County policies, staff, and, if needed, financial assistance.
- Provide: Take the lead role in supplying the needed financial and staff support to achieve the desired goal. The County is typically involved in all aspects from planning to implementation to maintenance.
- Strengthen: Improve and reinforce the desired goal through the use of County policies, staff, and, if necessary, financial assistance.
- Support: Supply the needed staff support, policies, and financial assistance at all levels to achieve the desired goal.
- Work: Cooperate and act in a manner through the use of County staff, actions, and policies to create the desired goal.

## **2. Impact of CAMA Land Use Plan Policies on Management Topics**

The development of this land use plan has relied heavily on the CAMA-prescribed land suitability analysis which is included in Section V.D of this document. It is intended that this document is supportive of the CAMA regulations for protection of AECs (15A NCAC 7H).

This plan is intended to support the Onslow County vision statement which was developed based on the key issues identified on pages 8-10 of this document and the CAMA AEC regulations. No negative impacts are anticipated by the implementation of the goals, objectives, and policies which are included in this plan. Also refer to Tools for Managing Development, page 250.

Note: It is intended that all policies are consistent with (do not exceed) applicable State and Federal requirements when State and Federal requirements apply.

## **3. Public Access**

### *a. Management Goal*

Onslow County will maximize public and private access to its estuarine shorelines and public trust waters for pedestrian, boating, and visual access.



*b. Planning Objective*

Onslow County will utilize local, state, federal, and private funds to provide improved recreational and commercial fishing access to its public trust waters.

*c. Land Use Plan Requirements*

The following are Onslow County's policies/implementing actions for shoreline access. All policies are continuing activities.

**Policies:**

- P.1 Onslow County encourages the State of North Carolina, as well as all area local governments, to diligently pursue the purchase or donation of fee simple ownership or easement for development of waterfront properties for public use, particularly regarding boating access.
- P.2 When waterfront properties are developed, Onslow County encourages the incorporation of significant common open space along the water's edge, rather than a row of exclusive waterfront lots, so as to equally benefit all properties in the development, and to forge an attitude of common interest and community spirit.
- P.3 Future park development and open space preservation shall be planned to provide for the proper distribution of recreation and open space opportunities within the County.
- P.4 In determining future sites for park, recreation, and water access facilities, multiple objectives for natural area conservation, visual enhancement, promotion of cultural and historic preservation, watershed and floodprone area protection shall be considered.
- P.5 Land acquisition for new park, recreation, and shoreline access sites in advance of need shall be encouraged to achieve desirable locations at cost effective levels.
- P.6 All new residential development shall provide for adequate open space and recreation area, including shoreline access, in proportion to the demand created by the development. This may be determined according to the number of dwelling units in the development and/or by a percentage of the total acreage in the development.

- P.7 Given the limited number of boating access sites in Onslow County, a rapidly growing population, extensive water resource areas, and a diminishing number of properties suitable for boating access, the County shall make the provision of additional boating access areas a high priority for property acquisition.
- P.8 Onslow County opposes the loss/abandonment of any facilities dedicated to public shoreline/water access.
- P.9 Onslow County supports providing shoreline access for persons with disabilities.
- P.10 Onslow County supports the frequency of shoreline access as defined by 15A NCAC 7M, Section .0300, Shorefront Access Policies.
- P.11 Onslow County supports the development of estuarine access areas to ensure adequate shoreline access within all areas of the County. Areas that have traditionally been used by the public will be given special attention.
- P.12 Onslow County supports the preservation of commercial fishing access sites.

**Implementing Actions:**

- I.1 Onslow County will consider preparing a shoreline access plan and requesting Division of Coastal Management funding for the preparation of the plan. The plan shall address the following:
- Preservation of existing public and private access sites.
  - Procedures to secure/support the establishment of additional public and private access sites.
  - Identification of potential access sites.
  - Establishment of boating access sites in the Swansboro Township, Sneads Ferry, New River, and White Oak River.
  - Preservation of commercial fishing access along all shorelines within County's jurisdiction to include:
    - » Provision of commercial fishing dock facilities.
    - » Ensure zoning is supportive of commercial fishing access.
    - » Identify potential sites for a commercial fishing upland marina.
    - » Determine/identify easements which may be used for commercial fishing access.

***Schedule: Fiscal Year 2010-2011.***

- I.2 Onslow County will pursue funding under the North Carolina CAMA Shoreline Access funding program (15A NCAC 7M, Section .0300, Shorefront Access Policies). ***Schedule: Continuing Activity.***
- I.3 Onslow County will pursue private sources of funding for the development of shoreline access facilities, including donation of land. ***Schedule: Continuing Activity.***
- I.4 Onslow County will establish a capital reserve fund (budget line item) for the purchase and development of shoreline access sites. ***Schedule: Fiscal Year 2010-2011.***
- I.5 Onslow County will amend its subdivision regulations, as allowed by State law, to require *land dedication for open space and parks* including shoreline access sites in proportion to the size of the development or number of housing units being created and/or provide for the collection of a *fee in lieu of land dedication* for the purpose of parkland acquisition. NOTE: This may be included in the preparation of an Onslow County Unified Development Ordinance. ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.6 Onslow County will establish an educational brochure and disseminate shoreline access information including, at a minimum, the following:
- Location of access sites.
  - Education of property owners as to the tax benefits of donating *conservation easements*.
  - Continued support for the promotion and use of area waterways for paddle boating and recreational development.
  - Illustrate the advantages of developing waterfront properties with common open space along shoreline areas.
- Schedule: Fiscal Year 2010-2011.***

#### **4. Land Use Compatibility**

##### *a. Management Goal*

Onslow County and its participating municipalities will support a comprehensive planning program, including implementation of this plan to accomplish orderly growth and ensure the efficient use of land according to its suitability for development, proper design of its communities, preservation of neighborhoods and rural areas, cost effective and coordinated provision of infrastructure and the preservation of farms, woodlands, wetlands, and estuarine areas.

*b. Planning Objectives*

- i. Adopt policies and implementing actions which will support the concepts of “smart growth” (see Appendix IX).
- ii. Adopt policies and implementing actions which will balance the protection of natural resources/fragile areas with economic development.
- iii. Adopt policies and implementing actions which will minimize inconsistent/conflicting land uses.
- iv. Adopt policies and implementing actions which support the continued positive existence of the Onslow County civilian and military communities.
- v. Adopt policies and implementing actions which will provide direction to the day-to-day local decision making process.

*c. Land Use Plan Requirements*

15A NCAC 7H guidelines require that CAMA certified Land Use Plans address the following land use compatibility concerns:

- i. Establish building intensity and density criteria, such as floor area ratio and units per acre, consistent with the land suitability analysis for each land use designation on the Future Land Use Map.
- ii. Establish local mitigation criteria and concepts. These may include, but are not limited to, the following: cluster subdivision design, and enacting local buffers, impervious surface limits, and innovative stormwater management alternatives.

In addition to these requirements, Onslow County’s land use compatibility policies and implementing actions should address affordable housing, housing standards, in-fill development, control of strip development, green space preservation, infrastructure development (including transportation), and compatible economic development.

**Policies - Residential:**

- P.13 Onslow County shall encourage development to occur at densities appropriate for their location. Location factors shall include whether the development is within an environmentally sensitive area, the type of sewage treatment available to the site, and the proximity of the site to existing urban services.
- P.14 Developments in the unincorporated areas of the County shall be encouraged to employ cluster development as an environmentally sound, economically cost-effective, and visually attractive alternative to large lot sprawl.
- P.15 Onslow County will support the protection and rehabilitation of viable neighborhoods to ensure their continued existence as a major housing source. Housing shall be required to meet or exceed minimum standards for health, safety, and welfare.
- P.16 Onslow County will discourage residential development which will expose residents to the harmful effects of incompatible development or to environmental hazards.
- P.17 Onslow County will encourage flexible land planning and development practices to create neighborhoods which better safeguard land, water, energy, and historic resources.
- P.18 Onslow County will encourage all residential development to accommodate/provide adequate infrastructure.
- P.19 Onslow County will discourage all forms of housing development from "leapfrogging" into the countryside, thereby destroying the rural character of Onslow County, breaking up farmland, and making the provision of urban services more costly to homebuyers and taxpayers.
- P.20 Onslow County will seek to accommodate the development and appropriate placement of a variety of housing types, including site built homes, apartments, townhouses, garage apartments, accessory living units, and manufactured homes.
- P.21 Onslow County shall discourage residential and commercial strip development along the county's primary roads. Flag lots shall also not be permitted along primary roads unless justified by unusual or unforeseeable parcel or topographic constraints.

- P.22 New residential developments shall provide for the installation of paved public roadway and associated drainage infrastructure at the time of development.
- P.23 Onslow County and its participating municipalities support provision of diversity in housing including price, style, and type (i.e., single-family/multi-family).
- P.24 Onslow County and its participating municipalities will emphasize the provision of affordable housing.
- P.25 Onslow County and its participating municipalities support smart growth land use concepts for residential development (see Appendix IX).
- P.26 Onslow County and its participating municipalities will encourage the location of residential developments with emphasis on convenience to town or core/nodal-based services to reduce transportation, infrastructure, and service delivery costs.
- P.27 Onslow County and its participating municipalities will support redevelopment/revitalization in areas that have substandard housing conditions.
- P.28 Onslow County and its participating municipalities support revisions to the North Carolina General Statutes which would allow the local imposition of special legislation or impact fees levied against land developers in order to establish a revenue source to support the additional demand for services such as roads, schools, sewer infrastructure, improved water supply systems, and recreational facilities.
- P.29 Onslow County and its participating municipalities support utilization of office/institutional development or open space areas as acceptable transitional space between light industrial and commercial development and adjacent residential land uses.
- P.30 Onslow County and its participating municipalities support greater residential densities in areas that are already accessible to sewer service(s). Agricultural and low-density residential land uses should be located in areas that do not have or do not plan to have central sewer service. The distribution of land uses are included on the future land use map and associated densities are provided in Section VI.E.2, Locational Aspects of Land Use, page 226.

**Implementing Actions - Residential:**

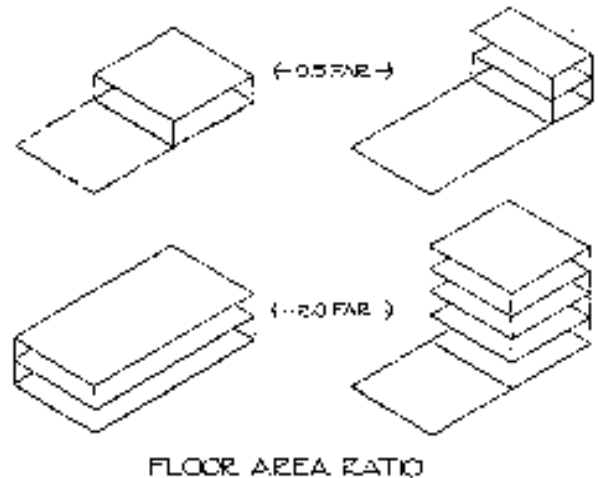
- I.7 The Onslow County Future Land Use Map (Map 22) reflects a suitability analysis. The considerations for the location of residential land uses include the following analyses which should be relied on to influence future land use decisions:
- Suitability for moderate- to high-intensity residential development with sewer - based on soil suitability for structural support and septic systems, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to Jacksonville or ONWASA sewer lines, proximity to private centralized sewer systems, proximity to designated commercial development/activity center/node, proximity to school, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.
  - Suitability for moderate- to high-intensity residential development without sewer - based on soil suitability for structural support and sewer systems, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to designated commercial development/activity center/node, proximity to school, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.
  - Suitability for low-density residential development with sewer - based on soil suitability for structural support and septic systems, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to Jacksonville or ONWASA sewer lines, proximity to private centralized sewer systems, proximity to designated commercial development/activity center/node, proximity to school, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.
  - Suitability for low-density residential development without sewer - based on soil suitability for structural support and septic systems, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to designated commercial development/ activity center/node, proximity to school, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.

***Schedule: Continuing Activities.***

I.8 Onslow County will prepare a Unified Development Ordinance (UDO). A UDO will merge zoning, subdivision, and other development regulations into a single ordinance as permitted by NCGS 153A (NOTE: A UDO will not address ordinances adopted under the county's general ordinance-making authority such as noise or nuisance lot ordinances). Preparation of the UDO should include but not necessarily be limited to the following:

- Establishing floor area ratio requirements to ensure that development is consistent with the density and intensity requirements of this plan.

*Comment.* Floor area ratio (FAR) is determined by dividing the gross floor area of all buildings on a lot by the area of that lot. The floor area ratio (FAR) was developed as a more refined and adaptable measure of intensity than building coverage. It expresses in one measure, instead of several, the mathematical relation between volume of building and unit of land. However, FAR cannot replace more traditional bulk controls entirely. Often, it is not a sufficient height control nor does it regulate the placement of the building on the site.



- Reducing/controlling driveway entrances/connections, especially along major roads.
- Improving the control of flag lots, especially along major roads.
- Requiring access to residential lots which is internal to subdivisions.
- Requiring traffic impact studies for larger subdivisions.
- Supporting the following growth principles:
  - Encourage compact building design.
  - Create a range of housing opportunities and choices.
  - Create walkable neighborhoods.
  - Foster distinctive, attractive communities with a strong sense of place.
  - Preserve open space, farmland, natural beauty, and critical environmental areas.
  - Strengthen and direct developments towards existing communities.
  - Provide a variety of transportation choices.



- Make development decisions predictable, fair, and cost effective.
- Encourage community and stakeholder collaboration in development decisions.
- Considering inclusionary zoning to address affordable housing.
- Requiring buffers/transition areas between residential and nonresidential development.
- Encouraging cluster development.
- Improving/strengthening zoning regulations to protect agricultural and forestry use.
- Requiring open space preservation (coordinate with Future Land Use Map).
- Including Planned Unit Development regulations.
- Considering inclusion of low impact development standards to address stormwater impacts.
- Improving subdivision interconnectivity requirements.
- Ensuring that the UDO is consistent with current state statutes.
- Providing for residential/nonresidential mixed use zoning.
- Requiring sidewalks in subdivisions.
- Requiring that private roads are constructed to NCDOT standards.
- Consider actions to support the NCDOT Strategic Highway Corridors initiative.
- Requiring impact studies for all “major” residential rezonings.
- Adjusting the zoning map to accomplish greater consistency with the Future Land Use Map.
- Curtailing the proliferation of residential lots stripped along major highways.
- Using zoning to discourage/curtail development from encroaching upon the Albert J. Ellis Airport.
- Encouraging commercial development to locate in clusters/nodes.
- Incorporating commercial off-street parking requirements which (1) require parking to be located to the side or rear of businesses, (2) require adjoining parking lots to be connected, and (3) support the use of structured parking.
- Incorporating/coordinating with a voluntary agricultural district program.
- Incorporating zoning provisions to support the preservation of commercial fishing.
- Addressing sustainable energy issues, including structure siting for optimal solar access, green roofs and cool roofs, wind energy generation and transmission issues, and parking lot shading.
- Incorporating the JLUS Implementation Committee Report recommendations (included as Appendix X to this plan).

***Schedule: Fiscal Year 2009-2010 and continuing.***

- I.9 The Onslow County Planning Board and Board of Commissioners will consult this Land Use Plan concerning all decisions, including rezoning and subdivision approvals, which will affect residential land use. ***Schedule: Continuing Activity.***
- I.10 Onslow County will 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. ***Schedule: Continuing Activity.***
- I.11 Onslow County will enforce its minimum housing code to require the improvement or removal of substandard housing. ***Schedule: Continuing Activity.***
- I.12 Onslow County and its participating municipalities will permit residential development to occur in response to market needs provided that the following criteria are met:
- (1) Due respect is offered to all aspects of the environment.
  - (2) If deficient community facilities and services are identified, the County should attempt to improve such to the point of adequately meeting demands.
  - (3) Additional residential development should concurrently involve planning for improvements to community facilities and services if excess capacity does not exist within those facilities and services.
  - (4) Residential development is consistent with other County policies and the land use map contained in this plan update which reflects adequate suitability analysis.

This implementing action will be enforced through Onslow County's and its participating municipalities' zoning and subdivision ordinances (NOTE: This will include the Onslow County UDO once it is adopted). ***Schedule: Continuing Activity.***

- I.13 All residential development proposals shall be closely coordinated with ONWASA, affected municipal infrastructure systems, and the Onslow County School System. ***Schedule: Continuing Activity.***

**Policies - Commercial:**

- P.31 Onslow County actively supports preservation/protection of its commercial fishing activities and operations.
- P.32 Onslow County supports commercial development in areas of environmental concern that is consistent/supports 15A NCAC 7H and is water dependent, including commercial fishing.
- P.33 Onslow County and its participating municipalities strongly support commercial nodes and the prohibition of strip commercialization along its highways.
- P.34 Onslow County encourages/supports commercial development (nodes) at the intersections of major roads consistent with the County's future land use map (Map 22).
- P.35 Onslow County and its participating municipalities will support highway beautification and landscaping of commercial areas.
- P.36 Onslow County and its participating municipalities support utilization of office and institutional development as a transitional buffer between residential and commercial development.
- P.37 Onslow County supports a wide range of shopping choices and services.
- P.38 Onslow County supports locating large commercial centers adjacent to the intersections of major roadways and convenient to mass transit routes; planned concentrations of employment and housing should be encouraged to locate convenient to these centers.
- P.39 Onslow County will support the following commercial design and locational considerations:
- Commercial and office development shall be encouraged to be located in mixed-use shopping centers and office parks to minimize the proliferation of strip development.
  - Mixed-use developments, planned from the outset, which allow for a compatible mixture of uses with a pedestrian scale and design, are encouraged. Similarly, businesses may be located adjoining (and therefore

convenient to) an existing residential area, when such businesses can be shown to satisfy design considerations similar to a newly planned, pedestrian-scaled, mixed use development.

- Neighborhood and convenience commercial centers should be encouraged to locate at the intersection of a collector street or secondary street with a street of equal or greater size. They may also be near other neighborhood facilities such as schools and parks.
- 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.
- Commercial uses shall be encouraged to develop by consolidation and expansion of existing commercially zoned property, when such consolidation and expansion does not encroach upon a viable residential area.
- Strip development along the area's major streets and highways shall be discouraged. Existing strip development shall be reduced and/or development standards should be made more restrictive when redevelopment opportunities permit. New strip development on isolated single lots along major streets and highways shall be discouraged.
- Attractive, environmentally beneficial landscaping shall be provided by new commercial or office developments, and in the rehabilitation and upgrading of existing developments. Effective buffering shall be provided when commercial or office development adjoins existing or planned residential uses.
- New or redeveloped commercial development along major county roadways shall be encouraged to retain or create a buffer of trees adjoining the road right-of-way. The intent is to retain or create the look of "corridors of trees" along the County's major travel ways.
- Office and institutional development shall be encouraged to locate as a transitional land use between residential areas and commercial and industrial activities of higher intensity, where appropriate. "Activities of higher intensity" are typically automobile oriented commercial development but may also include heavily traveled thoroughfares.

- Businesses shall be encouraged to coordinate their site designs with other nearby businesses. Design factors should include, at a minimum, shared or connected parking and access, convenient pedestrian and vehicular movement, and consistent sign standards.
- Commercial and office development shall be encouraged to employ low profile signage and subtle outdoor lighting consistent with attractive building appearance and design, and to reduce light pollution. New, as well as replacement, signage and lighting shall be subject to this policy.

**Implementing Actions - Commercial:**

I.14 The Onslow County Future Land Use Map (Map 22) reflects a suitability analysis. The considerations for the location of commercial land uses including the following analysis which should be relied on to influence future land use decisions:

- Suitability for Commercial Development/Activity Centers/Nodes with sewer - based on soil suitability for structural support and septic systems, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to Jacksonville or ONWASA sewer lines, proximity to intersecting major thoroughfares, proximity to existing commercial use, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.
- Suitability for Commercial Development/Activity Centers/Nodes without sewer - based on soil suitability, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to intersecting major thoroughfares, proximity to existing commercial use, proximity to fire service and emergency management service, existing land use, and location regarding Base flight path zones.

***Schedule: Continuing Activities.***

I.15 The preparation of an Onslow County UDO (see I.8, some residential standards will affect commercial development) will include the following commercial considerations:

- Support preservation of the County's commercial fishing enterprises.
- Provide controls to limit strip commercialization.

- Improve site planning/requirements for planned building groups.
- Improve signage standards.
- Improve landscaping requirements.
- Require traffic impact studies.
- Require impact analysis for “major” commercial development(s).
- Establish commercial building design standards.
- Include mixed use zoning.

***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.16 When intensive development is initiated, specific development plans will be prepared for each commercial development node as shown on the Future Land Use Map. ***Schedule: Continuing Activity.***
- I.17 All commercial development proposals should be coordinated with ONWASA and affected municipal infrastructure systems. ***Schedule: Continuing Activity.***
- I.18 Onslow County will 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. ***Schedule: Continuing Activity.***

**Policies – Industrial:**

- P.40 Onslow County will support the following industrial locational policies:
- Heavy industries (large physical plants, extensive land requirements, and low worker to land ratios) will be directed to locations remote from existing incompatible non-industrial land uses.
  - Heavy industries should have direct access to major public transportation facilities and supporting public infrastructure.
  - 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 areas and not introduce additional traffic into residential 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 shall be encouraged.
  - Industrial uses should be located in or near existing built up areas to take advantage of available services and to minimize home to work distances. Careful design and/or buffering shall be required to ensure compatibility with surrounding areas.
  - Warehousing, storage, and distribution facilities shall have access to appropriate thoroughfares and shall be visually buffered according to their location.
  - New industrial development shall be encouraged to locate in existing and/or planned mixed-use industrial parks.
- P.41 Heavy industrial uses shall be separated from incompatible, non-industrial areas by natural and man-made features such as green belts, major transportation facilities, transitional land uses, and/or other suitable means.
- P.42 Onslow County shall encourage a public service and regulatory environment conducive to industrial development, compatible with environmental quality considerations and the availability of public financial resources.
- P.43 Onslow County will support the preservation of commercial fishing as a valuable industry.
- P.44 Onslow County supports the provision of both public and private dockage for commercial fishing, including upland marinas.
- P.45 Onslow County supports properly permitted Class I and Class II mining activities within its borders.
- P.46 Onslow County supports the recruitment and siting of environmentally compatible industrial uses in areas that are already similarly developed or in public or private

industrial parks to minimize the sacrifice of prime agricultural lands for such development.

- P.47 Onslow County will continue to support an active industrial recruitment program giving preference to low pollution, light industrial uses.

### **Implementing Actions – Industrial**

- I.19 The Onslow County Future Land Use Map (Map 22) reflects a suitability analysis. The considerations for the location of residential land uses include the following analyses which should be relied on to influence future land use decisions:

- Suitability for Industrial Development - based on soil suitability, proximity to a municipality, proximity to Jacksonville or ONWASA water lines, proximity to Jacksonville or ONWASA sewer lines, proximity to major thoroughfares, proximity to designated commercial development/activity center/node, existing land use, and location regarding Base Flight Path Zones.

***Schedule: Continuing Activity.***

- I.20 The preparation of an Onslow County UDO shall include the following industrial considerations:

- Address preservation and enhancement of the County's industrial fishing enterprises.
- Improve site planning and subdivision requirements for industrial development.
- Require traffic impact studies (where applicable).
- Require impact analysis for "major" industrial development(s).
- Address light industrial development/location in industrial park locations.
- Address aquaculture activities/production.
- Address wind energy generation and transmission issues, including height exceptions for wind turbines.

***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.21 Industrial development within fragile areas and areas with low land suitability is acceptable, only if the following conditions are met:

- (1) CAMA minor or major permits can be obtained (compliance with 15A NCAC 7H).
- (2) Applicable UDO provisions are met.



- (3) No industrial use will be permitted within coastal wetlands, estuarine waters, and public trust waters, unless such use is water-related and fully complies with 15A NCAC 7H.

This policy applies to both new industrial development and to expansion of existing industrial facilities. ***Schedule: Continuing Activity.***

- I.22 The protected lands and natural heritage areas, which are depicted on Maps 8 and 9, should be protected from negative impacts resulting from industrial development and/or expansion through implementation of the UDO. ***Schedule: Continuing Activity.***
- I.23 Onslow County will regulate mining activities by enforcing its UDO regulations and relying on state permitting agencies. The County will take a more active stance regarding the State permitting authorities and their oversight of mining activities by communicating grievances to the appropriate State agencies and officials. ***Schedule: Continuing Activity.***

#### **Policies – Agricultural and Forestry Preservation**

- P.48 Rural lands already devoted to active agricultural and forestry uses or having a high productive potential for such uses shall be conserved, to the extent possible, for appropriate agricultural and/or forestry use.
- P.49 Farms and woodlands shall be recognized as an integral part of the County's open space system.
- P.50 New development shall be discouraged from "leapfrogging" from existing urban areas to locations in the midst of active agricultural or forestry areas.
- P.51 Onslow County regulatory actions should protect existing agricultural and forestry activities from incompatible land uses.

#### **Implementing Actions – Agricultural and Forestry Preservation:**

- I.24 The Onslow County Future Land Use Map (Map 22) reflects a suitability analysis. The considerations for the location of residential land uses include the following analyses which should be relied on to influence future land use decisions:
- Suitability for Agricultural Development - based on soil suitability and existing land use.

- Suitability for Forestry Development - based on levels of soil suitability and existing land use.

***Schedule: Continuing Activity.***

- I.25 All zoning decisions and revisions to the future land use map, Map 22, should be based on consideration of and consistent with policies P.48 to P.51. ***Schedule: Continuing Activity.***
- I.26 The preparation of the Onslow County UDO should support policies P.48 to P.51 through establishment of agricultural/forestry preservation districts. Such districts should limit development to agricultural or forestry activities and directly related residential activities and directly support nonresidential activities. ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.27 Onslow County will support agricultural and forestry best management practices (see Appendix XI). ***Schedule: Continuing Activity.***

**Policies – Conservation:**

- P.52 Onslow County and its participating municipalities support protection/preservation of all AECs (15A NCAC 7H). Only residential, commercial, and industrial development which meets 15A NCAC 7H use standards will be allowed in estuarine shoreline, estuarine water, and public trust areas.
- P.53 Onslow County supports efforts to maintain and enhance public and private gamelands, including habitat protection and management, and the proper management of hunting clubs and hunting activities.
- P.54 Onslow County shall encourage the acquisition of high quality tracts of maritime forest for conservation purposes.
- P.55 Onslow County shall avoid undertaking any activity or approving of any activity that would destroy remaining habitat for loggerhead turtle nesting.
- P.56 Onslow County shall support the wise use of barrier islands within the planning jurisdiction of Onslow County. The County encourages initiatives at the local, state, or federal government level to manage these environmentally sensitive areas for the benefit of all residents of the County, state, and nation.

- P.57 Onslow County shall take no action which would irreparably harm the long term viability of valuable natural heritage sites in the County. 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.58 Onslow County will support beach municipalities in maintenance/protection of beaches as a valuable natural resource as well as protecting shorelines under County jurisdiction.
- P.59 Onslow County supports increasing usable open space in major subdivisions.
- P.60 Onslow County supports forestation to maintain key wildlife species (see Appendix XI).
- P.61 Onslow County supports reuse of existing/abandoned commercial and industrial sites in lieu of developing valuable open space.
- P.62 Commercial forestry activities shall be supported in Onslow County, provided significant adverse impacts on natural resource systems are fully mitigated (see Appendix XI).
- P.63 Mining activities that would jeopardize the short- or long-term viability of valuable natural resources or create hazardous conditions in Onslow County shall not be permitted.
- P.64 Onslow County supports efforts to maintain and enhance the fisheries resource of its waters, including water quality protection measures, nursery and habitat preservation, proper fisheries management and enforcement, aquaculture development, and artificial reef activities.
- P.65 Onslow County shall discourage the use of off-road vehicles in all fragile areas because of potential adverse environmental impacts.

### **Implementing Actions – Conservation**

- I.28 The Onslow County Future Land Use Map (Map 22) reflects a suitability analysis. The considerations for the location of residential land uses include the following analyses which should be relied on to influence future land use decisions:

- Suitability for Natural Conservation - based on flood hazard, storm surge, wetlands, protected lands, significant natural heritage areas, proximity to fisheries nursery areas, proximity to anadromous fishing spawning areas, and existing land use.

***Schedule: Continuing Activity.***

- I.29 Onslow County shall work proactively with the Hofmann Forest Foundation and NC State University, and the State of North Carolina to act as a proper steward for the long-term management and use of this important natural resource area.

***Schedule: Continuing Activity.***

- I.30 The preparation of an Onslow County UDO should include the following conservation considerations:

- Address wetlands/swamp protection.
- Require bike paths/trails adjacent to natural areas under public ownership and/or for which such access is appropriate.
- Address preservation of all AECs.
- Require cluster development where needed to protect natural areas and resources.
- Address preservation/protection of natural heritage areas and protected lands.
- Require open space preservation in subdivisions that protects natural areas and resources.
- Identify and preserve prime agricultural and forest lands.
- Require the following to be delineated on all preliminary subdivision plats for lands within and adjacent to the proposed subdivision: AECs, prime farmlands, 404 wetlands, significant natural heritage areas, protected areas, historic sites, 100-year floodplain areas, and public gamelands.
- Limit development within maritime forests, if unavoidable, to no more than one dwelling unit per five acres. In no case shall more than 12% of a building site property be cleared or otherwise disturbed.
- Encourage developments which support the NC Wildlife Resources Commission's "Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality" (refer to the following website for a copy of this memo: [www.ncwildlife.org/pg07\\_wildlifespeciescon/pg7c3\\_impacts.pdf](http://www.ncwildlife.org/pg07_wildlifespeciescon/pg7c3_impacts.pdf)).

***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.31 Onslow County will 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. ***Schedule: Continuing Activity.***
- I.32 Onslow County will consider the adoption of a tree preservation program which will address the following:
- Require increased buffering along areas of deforestation or clear cutting.
  - Recommend vegetative medians as a best management plan as highways are expanded or improved when feasible.
  - Educate the public of the benefits of controlled burns on “natural areas” by certified professional foresters.
- Schedule: Fiscal Year 2010-2011.***
- I.33 Onslow County will coordinate all housing code enforcement/redevelopment/public works projects with the NC Division of Archives and History to ensure preservation and identification of significant historic structures and archaeological sites. ***Schedule: Continuing Activity.***
- I.34 Onslow County will collaborate with universities to provide areas for sampling and access for water quality studies. ***Schedule: Continuing Activity.***
- I.35 Onslow County will undertake the following activities to increase public awareness of, and educate the public about, environmental issues and the need to protect natural areas and resources:
- (1) Expand public awareness of the importance of natural areas and resources.
    - Prepare a newsletter for public distribution.
    - Present programs to schools and civic organizations.
    - Promote youth interest in environmental issues with local activities (e.g., beach cleanup, turtle watches, boat rides, field trips to protected lands, ecologically-oriented day camps, roadside cleanup activities, etc.)
    - Provide information on G10 Government Public Access TV Channel.
  - (2) Prepare quick facts for consumers and developers with list of action items that help protect these environments.
  - (3) Advise property owners on backyard conservation activities that protect streams and rivers.
  - (4) Expand the Onslow County website with links to local, regional, state, and national agencies and groups focusing on environmental issues.
- Schedule: Continuing Activities.***

**Policies – Stormwater Control**

- P.66 Onslow County supports federal, state, and local efforts to protect the quality of surface area waters, whether such protection involves controls over point source discharges, surface runoff, or other appropriate means, including upstream activities.
- P.67 Onslow County supports coordinated efforts to preserve and protect the ecological and flood hazard benefits of freshwater wetlands, as protected under Section 404 of the Clean Water Act of 1972.
- P.68 Onslow County supports the City of Jacksonville Wilson Bay Initiative.
- P.69 Onslow County supports agricultural and forestry best management practices (see Appendix XI).
- P.70 Onslow County will encourage the use of constructed wetlands to receive stormwater runoff.
- P.71 Onslow County and its participating municipalities will continue to support a proactive role in the development of stormwater management and design standards intended to protect the quality of the County’s streams, rivers, marshes, and estuarine systems.
- P.72 Onslow County and its participating municipalities will support reducing soil erosion, runoff, and sedimentation to minimize the adverse effects on surface and subsurface water quality.

**Implementing Actions – Stormwater Control**

- I.36 The preparation of an Onslow County UDO should include the following stormwater considerations:
- A program of vegetated buffers adjacent to all streams, rivers, marshes, and estuarine waters in the County, with the intent of reducing the flow of nutrients and other contaminants into area surface waters.
  - Accomplish stormwater runoff management to replicate predevelopment conditions where feasible and practicable in accordance with state requirements.
  - Incorporate agricultural and forestry best management practices (see Appendix XI).

- Reduce impervious surface areas and encourage use of pervious paving materials.
- Encourage the use of constructed wetlands to receive stormwater runoff.
- Improve regulation, design, and maintenance of detention and retention facilities.
- Encourage preservation of environmentally-significant natural drainage areas.
- Establish "clear cutting" limitations for vegetation.
- Incorporate low impact development (LID) standards encouraging design that uses the natural capacity of land to soak up rainfall and prevent contaminated stormwater runoff from entering waterbodies.
- Incorporate living shoreline considerations. A living shoreline relies on shoreline stabilization through natural vegetation and preservation of wildlife habitats.

***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.37 Onslow County will formulate an educational program to inform the public of its need for adequate stormwater management. ***Schedule: Fiscal Year 2010-2011 and continuing.***
- I.38 Onslow County will develop a program to support clearance of streams following major storm events. ***Schedule: Fiscal Year 2010-2011 and continuing.***
- I.39 Onslow County will take the lead in coordinating and fostering interlocal cooperation among state, local, and federal enforcement programs. ***Schedule: Continuing Activity.***
- I.40 Onslow County will create an action plan to acquire strategic sites and properties to protect and restore water quality. Sites will be targeted according to a comprehensive selection method, and will be acquired from willing property owners by partnerships with the nonprofit community and state and federal agencies. ***Schedule: Fiscal Year 2010-2011 and continuing.***
- I.41 Onslow County will identify sites for water quality "retrofit" to reduce or eliminate unwanted runoff. The County will work with state agencies and non-profit organizations to secure funding to address targeted sites. ***Schedule: Continuing Activity.***
- I.42 Onslow County will consider adoption of a stormwater utility ordinance. ***Schedule: Fiscal Year 2010-2011.***

- I.43 Onslow County will rely on the state to enforce stormwater regulations. ***Schedule: Continuing Activity.***

**5. Infrastructure Carrying Capacity**

*a. Management Goal*

Onslow County will support (or encourage others to support) necessary infrastructure and services consistent with properly managed growth and desirable economic development. Priorities shall include a balanced, multi-modal transportation system; assured sources of quality drinking water; carefully planned wastewater treatment services; effective, environmentally sound stormwater management; and fiscally efficient, environmentally responsible solid waste management.

*b. Planning Objective*

Onslow County and its participating municipalities will encourage/require that the future needs as identified in this document be considered in all future infrastructure planning.

*c. Land Use Plan Requirements*

Please refer to the discussion of water and sewer needs on page 139. The following are Onslow County's and its participating municipalities' policies for infrastructure carrying capacity.

**Policies – Water and Sewer**

- P.73 Onslow County shall continue to work proactively with ONWASA, the City of Jacksonville, the military, and private service providers on regional solutions to water and sewer services.
- P.74 Centralized water and sewer services should be concentrated within targeted service areas, where development densities will make the provision of services economically efficient, or where the characteristics of the land make it particularly well suited for development. (NOTE: See Future Land Use, pages 225-249).
- P.75 Centralized sewer services shall generally avoid parts of the county intended primarily for agriculture to protect farmland from development pressures brought about by such sewers. Exceptions to this policy may include extensions for major economic development initiatives, and extensions to address imminent public health problems or related environmental hazards.



- P.76 Major extensions of water and sewer services that could result in scattered, non-directed development and costly provision of other urban services shall be discouraged.
- P.77 The County shall support the provision and/or expansion of centralized sewer services when such services:
- (1) 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.
  - (2) Will result in a positive payback to the County's taxpayers, in terms of the taxes generated by the new development versus the costs incurred.
  - (3) Will encourage a more compact development pattern in areas adjoining existing urban areas, thereby conserving farmland and other open spaces.
  - (4) Will serve to steer dense development away from valuable environmental areas, such as floodplains, water supply watersheds and fragile, highly productive coastal ecosystems.
  - (5) Will not burden taxpayers in areas of the County not served by such services.
  - (6) Will comply with the other policies contained in this plan.
- P.78 Development away from centralized sewage treatment facilities may employ package sewage treatment plants or other alternative sewage treatment systems as a means of achieving more efficient land use. Such systems shall be (1) designed for assimilation into centralized systems and (2) bonded so as to guarantee their proper operation and management for the life of the system.
- P.79 Onslow County and its participating municipalities support wastewater treatment in areas of need that is responsive to the conservation policies and implementing actions identified in this plan, see pages 184-187.
- P.80 Onslow County and its participating municipalities support directing more intensive land uses to areas that have existing or planned infrastructure.
- P.81 Onslow County and its participating municipalities support the enforcement of Health Department regulations and local development regulations regarding lot sizes and waste disposal system placement.
- P.82 Onslow County and its participating municipalities will encourage re-use of effluent for irrigation. Where feasible, package treatment plants should use treated effluent for irrigation.

- P.83 Onslow County and its participating municipalities will encourage the NC Department of Environment and Natural Resources to investigate the feasibility of using alternative waste processing systems such as flushless toilets, incineration, and artificial wetlands in areas with severe soil limitations.
- P.84 Onslow County supports the construction of lines to and through conservation areas to serve development which meets all applicable state and federal regulations.
- P.85 Onslow County supports wetlands “created” to aid in treating waste effluent.

### **Implementing Actions – Water and Sewer**

- I.44 When considering new public facilities and private developments, Onslow County will review new proposals against the Future Land Use Map to ensure consistency. If the proposal is inconsistent, the proposal will be revised or the County will review the Land Use Plan to see if revision is needed. ***Schedule: Continuing Activity.***
- I.45 Malfunctioning septic tanks will be inspected by the Onslow County Health Department and corrective action required for implementation by the owner. ***Schedule: Continuing Activity.***
- I.46 Onslow County and its participating municipalities will encourage ONWASA to implement state of the art vigorous control and monitoring for possible contamination of its primary water sources including the Castle Hayne Aquifer. ***Schedule: Continuing Activity.***
- I.47 Onslow County will encourage ONWASA to coordinate its project(s) planning with the future land use map when considering new public facilities and service to private development. ***Schedule: Continuing Activity.***
- I.48 Onslow County will annually consider its water and sewer policies to ensure that public/private cooperation in the provision of infrastructure to serve new development is encouraged. Such review will be coordinated with ONWASA, the City of Jacksonville, and the military. ***Schedule: Continuing Activity.***
- I.49 Onslow County will rely on the Department of Environment and Natural Resources to oversee the operation and management of all package treatment plants in the County. ***Schedule: Continuing Activity.***

- I.50 Onslow County will support only water systems which are constructed with lines designed and sized for adequate fire protection and sufficient water pressure. ***Schedule: Continuing Activity.***
- I.51 Onslow County will consider the adoption of a local ordinance requiring water-conserving plumbing fixtures in all new construction. ***Schedule: Fiscal Year 2010-2011.***
- I.52 As part of its UDO deliberation, Onslow County will consider the adoption of an adequate public facilities ordinance (APFO) which will require that public facilities and services be available when needed to serve new development at a defined/acceptable level of service. The development of an APFO should be coordinated with ONWASA and the City of Jacksonville. ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.53 Onslow County will consider developing an inter-governmental agreement (IGA) with the City of Jacksonville, ONWASA, and other service providers. Such an agreement would address growth within defined service areas and establish participants responsibilities through a cooperative growth management program. The IGA may include: infrastructure projects, public safety, administrative procedures, standards for public facilities, extraterritorial jurisdiction, and other areas of concern. ***Schedule: Fiscal Year 2010-2011 and continuing.***
- I.54 Onslow County will coordinate with the City of Jacksonville to ensure that County and City decisions regarding the type and intensity of land uses within and adjacent to the ETJ area are consistent with the County and City Future Land Use Maps. ***Schedule: Continuing Activity.***
- I.55 Onslow County will coordinate with the City of Jacksonville to ensure that residential development relying on wells and/or on-site wastewater systems will be limited to anticipated areas (see Future Land Use Map, Map 22) where centralized water and wastewater systems are in place or will be provided. ***Schedule: Continuing Activity.***
- I.56 Onslow County will seek mutually acceptable standards for public facilities and services with ONWASA, the military, and the City of Jacksonville to ensure that services can be provided relatively seamlessly across jurisdictional boundaries. ***Schedule: Continuing Activity.***

- I.57 Onslow County will require development applications to include an analysis of the development's infrastructure and service demands relative to the available capacity. ***Schedule: Continuing Activity.***
- I.58 Onslow County will coordinate wastewater and water treatment facility improvements with land use planning to ensure appropriately-sized infrastructure to meet projected demand derived from the Future Land Use Map (Map 22), and revising the Future Land Use Map, as necessary, to reflect proposed infrastructure improvements. ***Schedule: Continuing Activity.***

**Policies – Solid Waste:**

- P.86 Onslow County supports efforts and measures to efficiently and economically collect and dispose of solid waste, and supports recycling and the establishment and maintenance of recycling centers.
- P.87 Local area requirements for solid waste collection and disposal shall continue to be anticipated through advanced, cooperative planning between the County, its municipalities, and area service providers.
- P.88 The County shall continue to pursue a variety of waste reduction strategies, including waste prevention, source reduction, recycling and reuse.
- P.89 Onslow County encourages residential composting and mulching, as well as the development and use of regional sites for recycling of organic materials and yard waste in larger volumes.
- P.90 Onslow County supports educational programs that reduce litter and illegal dumping, encourage recycling and reuse, and encourage participation in programs such as Adopt-A-Highway and the Governors Litter Sweep.
- P.91 Onslow County supports solid waste program financing strategies so as to (1) ensure that the solid waste program is self-supporting and (2) discourage illegal dumping. Part (2) may require mandatory service commitments by all homes and businesses, and a universal fee schedule.

**Implementing Actions – Solid Waste:**

- I.59 Onslow County shall enforce harsh penalties against those who would seek to dump trash illegally. ***Schedule: Continuing Activity.***

- I.60 County waste convenience/collection and recycling sites shall continue to be designed, located, improved, and maintained to facilitate their use. There shall be no household tipping fees at any County waste collection facility, provided the universal fee (P.165) has been paid. ***Schedule: Continuing Activity.***
- I.61 Onslow County will continue to support implementation of the Onslow County Ten-Year Solid Waste Plan. ***Schedule: Continuing Activity.***

**Policies – Transportation:**

- P.92 Transportation planning shall be employed to promote a hierarchical, functional transportation system, to prioritize needed improvements, and to promote the proper arrangement of land patterns by controlling the location of streets, highways, trails, and other modes of transportation.
- P.93 A program of improvements and maintenance to maximize the use of existing roadways shall be employed as a cost effective and environmentally sound means of meeting area transportation needs.
- P.94 Onslow County supports and shall fully participate in regional transportation and lobbying efforts.
- P.95 The construction of bikeways, sidewalks, and trails shall be encouraged on or across new roadways and roadway expansions, and new development as part of the UDO initiative. Particular attention should be given to the priority bicycle and pedestrian needs as submitted for inclusion in the State Transportation Improvement Program.
- P.96 The County shall encourage street connections between adjoining residential neighborhoods, as well as connections between parking lots of adjoining commercial developments.
- P.97 Access to higher intensity development shall generally not be permitted through an area of lower intensity development. For example, access to a multi-family development, major park facility, or other large traffic generator should not be permitted through a single-family residential neighborhood.
- P.98 Onslow County supports efforts to provide for greater choice and lower airfares at Albert Ellis Airport, thereby increasing passenger volume and enhancing opportunities for continued improvements at the airport. The County also encourages on-going efforts to improve roadway access to the airport.

- P.99 Onslow County and its participating municipalities' continued use and planned development of the Atlantic Intracoastal Waterway, including dredging, will be encouraged.
- P.100 Onslow County and its participating municipalities support cost effective public transportation.
- P.101 Onslow County and its participating municipalities support the provision of safe evacuation routes.
- P.102 Onslow County and its participating municipalities support implementation of the 2007-2013 North Carolina Transportation Improvement Program (see page 132).
- P.103 Onslow County and its participating municipalities support maintaining an effective signage and addressing system for all streets, roads, and highways.
- P.104 Onslow County supports the provision, enhancement, and/or prevention of loss of existing access for public fishing when bridges are replaced or improved.
- P.105 Onslow County will ensure that future development along key corridors is consistent with the proposed improvements and alignments to avoid costly acquisitions or roadway realignments in the future. In addition to protecting right-of-way through official maps, major street plans and setbacks, the County will exercise greater control of access to arterial streets (e.g., driveways, local and collector streets) to preserve street capacity.
- P.106 Onslow County will continue to integrate transportation planning with land use planning to ensure that proposed transportation improvements safely and compatibly meet demands from planned development.
- P.107 Onslow County will support maintaining an adequate transportation network including:
- Maintaining adequate road capacity and minimizing delays due to traffic congestion;
  - Maintaining road safety, so that roads are safe for drivers, pedestrians, and bicyclists, as well as the residents and businesses located along the roads;
  - Protecting primary road corridors from inappropriate development patterns;
  - Protecting scenic road corridors from clearing and encroachment of development.

---

---

**Implementing Actions – Transportation:**

I.62 Onslow County will prepare a Unified Development Ordinance which should include the following transportation considerations:

- (1) Support interconnected street systems for residential and non-residential development.
- (2) Support limited access from development along all roads and highways to provide safe ingress and egress.
- (3) Support subdivision development which utilizes the North Carolina Department of Transportation Traditional Neighborhood Development Street Design Guidelines. A Traditional Neighborhood Development (TND) is a human scale, walkable community with moderate to high residential densities and a mixed use core. Compared with conventional suburban developments, TNDs have a higher potential to increase modal split by encouraging and accommodating alternate transportation modes. TNDs also have a higher potential for capturing internal trips, thus reducing vehicle miles traveled. A dense network of narrow streets with reduced curb radii is fundamental to TND design. This network serves to both slow and disperse vehicular traffic and provide a pedestrian friendly atmosphere. Such alternate guidelines are encouraged by NCDOT when the overall design ensures that non-vehicular travel is to be afforded every practical accommodation that does not adversely affect safety considerations. The overall function, comfort, and safety of a multi-purpose or “shared” street are more important than its vehicular efficiency alone. TNDs have a high proportion of interconnected streets, sidewalks, and paths. Streets and rights-of-way are shared between vehicles (moving and parked), bicycles, and pedestrians. The dense network of TND streets functions in an interdependent manner, providing continuous routes that enhance non-vehicular travel. Most TND streets are designed to minimize through traffic by the design of the street and the location of land uses. Streets are designed to only be as wide as needed to accommodate the usual vehicular mix for that street while providing adequate access for moving vans, garbage trucks, fire engines, and school buses. It is NCDOT’s intent that the development encourage walking and biking, enhance transit service opportunities, and improve traffic safety through promoting low speed, cautious driving, while fully accommodating the needs of pedestrians and bicyclists. Such developments should have the potential to reduce the number of external vehicle trips, and thus vehicle miles traveled, by 15% or more through provision of commercial, recreational, and other resident-

- oriented destinations within a walkable community. Traffic impacts, both on-site and off-site, should be minimized.
- (4) Employ adequate level of service standards on public roadways to accommodate the safe and efficient flow of traffic. Strive to achieve a level of service C or better on arterial, minor arterial, and collector streets for existing and design year traffic projections. Level of service D may be approved on a case-by-case basis for congested areas. New development should be required to demonstrate that it will not reduce levels of service below adopted standards. See Appendix XII.
  - (5) Enhance connectivity in neighborhoods by reducing reliance on private streets and cul-de-sacs in order to improve the County's ability to provide safe and efficient public services.
  - (6) Support maintaining an effective signage and addressing system for all streets, roads, and highways.
  - (7) Require where reasonably possible the utilization of frontage roads in non-residential development along federal and state major highways.
  - (8) Establish a requirement for reverse frontage lots within subdivisions to orient lots towards internal subdivision streets, not secondary roads and highways.
  - (9) Require the construction of acceleration/deceleration lanes for the entrances to major commercial and residential developments.
  - (10) Establish traffic impact study requirements. Such studies should demonstrate that level of service will not be reduced.
  - (11) Encourage the development of joint or shared driveways in newly approved subdivisions.
  - (12) Incorporate requirements for the construction of bike and pedestrian paths in major subdivisions.
  - (13) Protect air space for the Albert J. Ellis Airport and the MCAS New River Air Station to include:
    - Height restrictions;
    - Adoption and enforcement of Air Installation Compatible Use Zones (AICUZ) and Installation Compatible Use Zones (ICUZ) compliant zoning regulations;
    - Agriculture and open space preservation adjacent to critical operation areas such as firing ranges and flight lines;
    - Federal Aviation Administration review and comment on proposed structures.
  - (14) Support the NCDOT Strategic Highway Corridors initiative.

***Schedule: Fiscal Year 2008-2009 and continuing.***



- I.63 Onslow County will continue to support bikeways, pedestrian paths, and blueways by implementing the following:
- Encourage appropriate thoroughfares (state-maintained roads) to include bike lanes as they are designed and expanded.
  - Coordinate efforts for construction of bike and pedestrian paths with County and municipal park systems.
  - Include bike and pedestrian trails at all County parks.
  - Secure access to and provide for bike and pedestrian trails along rivers and streams.
  - As part of the UDO initiative, Onslow County shall consider developing requirements for bikeways and pedestrian paths to access schools and other key destination points where practicable.

***Schedule: Continuing Activity.***

- I.64 Onslow County will encourage the following actions to support maintenance of safe hurricane evacuation routes:
- Identify and support improvements to roads that serve as hurricane evacuation routes.
  - Encourage routine bridge and culvert maintenance, and raise bridges over streams that have documented flooding during significant rain events.
  - Support the planning and implementation of regional roadways.

***Schedule: Continuing Activity.***

- I.65 Onslow County will coordinate all proposed development with the 2007-2013 Transportation Improvement Program (see page 132). ***Schedule: Continuing Activity.***

- I.66 Onslow County will support and consider improvements to the following roads in all planning considerations and review/approval of project proposals:

- NC 53, Piney Green Road.
- NC 24 approach to the Marine base.
- North West Bridge Road
- US 258 approach to Richlands.
- Queen Creek Road.
- Old Maplehurst Road

***Schedule: Continuing Activity.***

- I.67 Onslow County will coordinate land use planning and transportation considerations with the Jacksonville Urban Area Metropolitan Planning Organization and the Down East Rural Planning Organization. ***Schedule: Continuing Activity.***

- I.68 Onslow County will support public transportation services and will encourage through public service announcements private taxi, bus, and van services as alternative to the private automobile. The special transportation needs of the elderly and disabled will be emphasized. To assist in making such services economical, the County will encourage in-fill and compact land development patterns. ***Schedule: Continuing Activity.***

## **6. Natural Hazard Areas**

### *a. Management Goal*

Onslow County will encourage the long-term management and wise use of its natural resources. The County will protect/maintain its floodplains, shorelines, and other coastal features for their natural storm protection functions.

### *b. Planning Objective*

Onslow County will support policies that minimize threats to life, property, and natural resources resulting from development located in or adjacent to hazard areas, including those subject to erosion, high winds, storm surge, flooding, or sea level rise.

### *c. Land Use Plan Requirements*

The following are Onslow County's policies/implementing actions for natural hazard areas. All policies are continuing activities.

### **Policies – Natural Hazard Areas**

- P.108 Onslow County will require development within areas susceptible to sea level rise, shoreline erosion, and/or wetland loss to consider such conditions in project design and development.
- P.109 In the event development(s) is (are) threatened by shoreline loss, the County shall support the AEC use standards governing shoreline protection and management.
- P.110 Onslow County supports educating the public concerning the problems/impacts of developing/locating in natural hazard areas.
- P.111 Onslow County will support development which will minimize flooding and resulting damage to life and property during normal and significant rainfall events in order

to restore and preserve water quality so residents and visitors can enjoy water-related activities.

- P.112 Onslow County supports the installation of properly engineered and permitted bulkheads to protect against erosion and sea level rise.
- P.113 Onslow County supports the US Army Corps of Engineers' regulations, the applicable guidelines of the Coastal Area Management Act, and the use of local land use ordinances to regulate development of fresh water swamps, marshes, and 404 wetlands.
- P.114 Onslow County supports relocation of structures endangered by erosion, if the relocated structure will be in compliance with all applicable policies and regulations.
- P.115 Onslow County supports cooperation with local, state, and federal efforts to inform the public of the anticipated effects of sea level rise.
- P.116 Onslow County supports hazard mitigation planning. The Land Use Plan and the Hazard Mitigation Plan should be consistent with one another. When either are revised, the other should be reviewed for consistency. Should there ever be conflicting policies, the Land Use Plan shall take precedence. The Hazard Mitigation Plan goals, objectives, and mitigating actions are included in Appendix XIII.
- P.117 Onslow County supports strengthening local regulations to discourage/decrease the density of development within floodprone areas, including areas impacted by Category 4 and 5 generated storm surge and sea level rise.

### **Implementing Actions – Natural Hazard Areas**

- I.69 Onslow County will monitor development proposals for compliance with Section 404 of the Clean Water Act and will continue to enforce local land use ordinances to regulate development of fresh water swamps, marshes, and 404 wetlands.  
***Schedule: Continuing Activity.***
- I.70 As part of the development of a UDO, Onslow County will review and consider strengthening 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.  
***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.71 Onslow County will continue to permit the redevelopment of previously developed areas provided all applicable policies, regulations, and ordinances are complied with. Redevelopment, including infrastructure, should be designed to withstand natural hazards. Relocation out of natural hazard areas is encouraged. ***Schedule: Continuing Activity.***
- I.72 Onslow County will utilize the future land use map as a development management tool. The map is coordinated with the land suitability map and proposed infrastructure map. The land use densities specified by the future land use categories will be supported. ***Schedule: Continuing Activity.***
- I.73 As part of the hazard mitigation planning process, Onslow County will support educating its citizens and businesses on the importance of properly storing hazardous materials. ***Schedule: Continuing Activity.***
- I.74 Onslow County will review its local regulations to ensure that fuel and chemical storage tanks are installed above ground in all flood hazard areas. ***Schedule: Fiscal Year 2009-2010.***
- I.75 Onslow County will develop an educational program designed to advise the public of the potential problems associated with development/location in natural hazard areas. The educational material will be displayed on the Onslow County website and distributed in informational brochures prepared by the County. ***Schedule: Fiscal Year 2009-2010 and continuing.***

## **7. Water Quality**

### *a. Management Goal*

In keeping with the Onslow County vision statement (see page 10-11), the County will protect its environmental assets to preserve sound and ocean water quality. This includes consideration of the waters in all coastal wetlands, estuarine waters, both natural and man-made drainage corridors, and groundwater resources.

### *b. Planning Objective*

Onslow County's water quality planning objective is to adopt/enforce implementing actions which will support the Cape Fear, White Oak, and Neuse River Basin water quality management plans and to maintain water quality and improve/eliminate impaired waters.

*c. Land Use Plan Requirements*

The following policies/implementing actions are intended to control nonpoint discharges and to protect shellfishing waters. The reader should refer to I.8, floor area ratio requirements, page 174; the conservation policies/implementing actions, page 184; and the stormwater policies/implementing actions, page 186.

**Policies – Water Quality**

P.118 Onslow County supports the goals of the Cape Fear, White Oak, and Neuse River Basin Water Quality Management Plans (see pages 73-88).

P.119 Onslow County will oppose all aquaculture activities which will have a negative impact on water quality.

P.120 Onslow County supports the guidelines of the Coastal Area Management Act and the efforts and programs of the NC Department of Environment and Natural Resources, Division of Coastal Management and the Coastal Resources Commission to protect/preserve the coastal wetlands, estuarine waters, estuarine shorelines, 404 wetlands, and public trust waters of the County.

P.121 Onslow County supports commercial and recreational fishing and will cooperate with other local governments and state and federal agencies to control pollution to improve water quality so that commercial and recreational fishing will increase.

P.122 Onslow 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 (Stormwater Disposal Policy 15 NCAC 2H.001-.1003 and CAMA rule 15A NCAC 7H.0205-.2008). The County also supports development of more stringent impervious surface requirements based on the following DWQ findings:

- Areas with impervious surfaces of 10% or greater can be linked to local stream degradation.
- Biological diversity has been shown to drop when impervious surfaces increase beyond 10-15%.
- Stream stability is affected when impervious surfaces approach 10% in an area.
- Estuaries generally degrade with impervious surfaces of 10% or greater.
- Sensitive fish species loss increases after about 12% impervious surface.

- P.123 Onslow County supports the policy that all public and private projects will be designed to limit stormwater runoff into coastal waters and areas of environmental concern, see Map 12.
- P.124 Onslow County supports the following actions by the General Assembly and the Governor:
- Sufficient state funding should be appropriated to initiate a program of incentives grants to address pollution of our rivers from both point sources and nonpoint sources.
  - An ongoing source of state funding should be developed to provide continuous support for an incentives grant program.
  - The decision-making process for the award of incentives grants should involve river basin organizations representing local governments and other interest groups in the review of all applications for state funding.
  - The ongoing effort of the Department of Environment and Natural Resources to develop administrative rules implementing the White Oak River Basin Management Strategy should continue to involve local government officials in the development, review, and refinement of the proposal.
- P.125 Onslow County supports and encourages the activities of the state's Shellfish Management Program. The County shall continue to promote estuarine water quality through its stormwater management planning and stormwater runoff policies.
- P.126 Onslow County's groundwater resources, including but not limited to the Castle Hayne Aquifer, shall be recognized as an invaluable source of public and private potable water and shall receive the highest level of protection when considering County policies, standards, and actions.
- P.127 Onslow County supports a reduction of dependence on septic tanks within the County and its participating municipalities in order to improve water quality.
- P.128 Onslow County supports federal, state, and local efforts to protect the quantity and quality of water in the Cape Fear, White Oak, and Neuse Rivers, whether such protection involves controls over point source discharges, surface runoff, interbasin water transfers, or other appropriate means, including upstream activities.
- P.129 Onslow County supports a program of vegetated buffers adjacent to all streams, rivers, marshes, and estuarine waters in the County, with the intent of reducing the flow of nutrients and other contaminants into area surface waters.

- P.130 Onslow County supports low impact development (LID). NOTE: LID is an ecologically friendly approach to site development and stormwater management that aims to minimize development impacts to land, water, and air. The approach emphasizes the integration of site design and planning techniques that conserve natural systems and hydrologic functions on a site. Low impact development is not a land use control, but a management and design strategy that is integrated into the proposed land use. It has also been shown to decrease costs to developers and to increase the desirability and value of the property. LID practices can also benefit the environment by helping maintain the integrity of a natural ecosystem and protecting water quality.
- P.131 Onslow 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.132 Onslow County supports regulation of underground storage tanks in order to protect its groundwater resources.
- P.133 Onslow County supports the policy that all State of North Carolina projects should be designed to limit to the extent possible stormwater runoff into coastal waters.
- P.134 Onslow County supports protection of those waters known to be of the highest quality or supporting biological communities of special importance.
- P.135 Onslow County supports development practices which minimize the discharge of wastewater from package treatment plants and septic tanks into any areas classified as coastal wetlands, freshwater wetlands (404), or natural heritage areas. This policy does not apply to constructed wetlands.
- P.136 Onslow County opposes the location of floating homes and mooring fields within its jurisdiction.
- P.137 Onslow County supports continued state funding of the incentive-based Community Conservation Assistance Program to install best management practices on urban, suburban, and rural lands to help treat polluted stormwater runoff and improve water quality in the County.

---

---

**Implementing Actions – Water Quality**

- I.76 Onslow County should implement the following actions through preparation of a UDO (see I.8, page 174) to improve water quality:
- Incorporate LID standards.
  - Use watershed-based land use planning.
  - Protect sensitive natural areas, including coastal wetlands.
  - Establish buffer network.
  - Minimize impervious cover in site design.
  - Limit erosion during construction.
  - Maintain coastal growth measures.
  - Restoration of impaired waters.
  - Management of the cause and sources of pollution to ensure the protection of those waters currently supporting their uses allowing for reasonable economic growth.
  - Reduction of nutrients in Onslow County waters.  
***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.77 Onslow County should include regulations for aquaculture activities in the preparation of the UDO (see I.8, page 174). ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.78 Onslow County should include consideration of underground chemical and gasoline storage regulations in the preparation of its UDO (see I.8, page 174) to ensure a minimum of risk to local groundwater resources. ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.79 Onslow County should continuously enforce, through the development and zoning permit process, all current regulations of the NC State Building Code and NC Division of Health Services relating to building construction and septic tank installation/replacement in areas with soils restrictions. ***Schedule: Continuing Activity.***
- I.80 Through a public awareness/education program, Onslow County will support the following water quality and water conservation related actions:
- Avoid planting turf in areas that are hard to water such as steep inclines and isolated strips along sidewalks and driveways.
  - Use the garbage disposal sparingly; compost instead.



- Plant during the spring and fall when the water requirements are lower.
- Use a layer of organic mulch around plants to reduce evaporation.
- Divide your watering cycle into shorter periods to reduce runoff and allow for better absorption.
- Only water lawns when needed.
- Adjust lawn mowers to a higher setting. Longer grass shades root systems and holds soil moisture better than a closely clipped lawn.
- Use porous materials for walkways and patios to keep water in the yard and prevent wasteful runoff.
- Direct downspouts and other runoff towards shrubs and trees, or collect and use water in gardens.
- Limit watering of lawns to no more than one inch of water per week.
- Reduce the amount of grass in yards by planting shrubs, and organic ground cover.
- Do not water lawns on windy days.
- When watering grass on steep slopes, use a soaker hose to prevent wasteful runoff.
- While fertilizers promote plant growth, they also increase water consumption. Apply the minimum amount of fertilizer needed based on soil test.
- When adding or replacing a flower or shrub, choose a low water use plant for year-round landscape color.
- Landscape with natural vegetation trees, plants, and groundcovers. The local conservation office has more information about these water thrifty plants.
- Water only as rapidly as the soil can absorb the water.
- Aerate or "punch holes" in lawns about six inches apart so water will reach the roots rather than run off the surface.

***Schedule: Fiscal Year 2009-2010 and continuing.***

- I.81 Onslow County will adopt a water use plan to address floating home and mooring field issues/control. ***Schedule: Fiscal Year 2010-2011.***
- I.82 Onslow County will comply with CAMA and the NC Department of Environment and Natural Resources stormwater runoff regulations, and by coordinating local development activities involving chemical storage or underground storage tank installation/abandonment with Onslow County Emergency Management personnel and the Groundwater Section of the NC Department of Environment and Natural Resources. The County will plan for an adequate long-range water supply. In the

planning process, Onslow County will cooperate with adjacent counties to protect water resources. ***Schedule: Continuing Activity.***

I.83 Onslow County will continuously enforce, through the development and zoning permit process, all current regulations of the NC State Building Code and North Carolina Division of Health Services relating to building construction and septic tank installation/replacement in areas with soils restrictions. ***Schedule: Continuing Activity.***

I.84 Onslow County supports regulation of well fields and land uses near such fields by the North Carolina Department of Health and Natural Resources. ***Schedule: Continuing Activity.***

I.85 Onslow County will monitor and coordinate with appropriate state and private agencies the control of invasive aquatic weeds. ***Schedule: Continuing Activity.***

## **8. Local Areas of Concern**

### *a. Management Goal*

Onslow County supports and will reflect the overall CAMA goals in its planning for local concerns. Those CAMA goals are stated on pages 1 and 2 of this plan. The County will also seek to ensure a high quality of life for its citizens, by working to attract and expand a diversified economic base (including a strong military component), ample parks and recreation facilities, an active arts and cultural community, affordable, quality health and elder care, an excellent public school system, sustained interest in the area's history and traditions, and area-wide support for community cleanliness and beauty

### *b. Planning Objectives*

Defined local policies/implementing actions should broaden the scope of this document as a "comprehensive plan" and include emphasis on: cultural and historic sites, community appearance, economic development, military/community cooperation, general health/human services, redevelopment, and funding options.

### *c. Land Use Plan Requirements*

The following provides Onslow County's policies/implementing actions for areas of local concerns.

**Policies – Cultural and Historic Sites**

- P.138 Onslow County supports preservation of historic sites, buildings, written records, and oral history.
- P.139 Onslow County encourages efforts to protect cultural and historic resources to preserve their cultural, educational, and aesthetic values and qualities.
- P.140 The County supports local, state, and federal efforts to protect historic properties within the County and to perpetuate its cultural heritage. Sites of historic significance are included as Appendix XIV.
- P.141 Onslow County will encourage multiple and appropriate adaptive reuse of historic resources.
- P.142 Onslow County will encourage the development of the tourism and educational potential of the area’s architectural, historic, and cultural resources.
- P.143 Onslow County will discourage the destruction of its significant architectural, historic, and archaeological resources.
- P.144 Onslow County will support, to the extent possible, efforts to restore downtown Jacksonville as the cultural and social center of Onslow County. Similar efforts in other urban centers of the County, such as Richlands, Swansboro, Holly Ridge, and Sneads Ferry, shall also be supported.

**Implementing Actions – Cultural and Historic Sites**

- I.86 Onslow County will support a County-wide survey of historical sites by local volunteers or state and federal agencies and will seek grant monies for the complete inventory of historically significant structures and sites. ***Schedule: Fiscal Year 2009-2010 and continuing.***
- I.87 Onslow County will coordinate housing code enforcement/redevelopment projects with the NC Division of Archives and History to ensure that any significant architectural details or buildings are identified and preserved. ***Schedule: Continuing Activity.***

- I.88 Onslow County will coordinate public works projects with the NC Division of Archives and History to ensure the identification and preservation of significant archaeological sites. ***Schedule: Continuing Activity.***
- I.89 Onslow County will support establishment of local historic preservation districts. This will include the possible development of zoning regulations when the County's UDO is prepared (see I.8, page 174). ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.90 Onslow County will support public education of significant historic sites by placing an inventory of significant historic sites/properties on the Onslow County website. ***Schedule: Fiscal Year 2009-2010 and continuing.***

### **Policies – Economic Development**

- P.145 Onslow County supports the Marine Corps Base Camp Lejeune and the New River Air Station as the primary economic engines of the local economy. County actions shall be consistent with preserving and protecting this pivotal major industry.
- P.146 Onslow County will encourage new and expanding industries and businesses which: (1) diversify the local economy, (2) train and utilize a more highly skilled labor force, and (3) increase per capita income.
- P.147 Onslow County shall protect, enhance, and encourage a high quality of life, including the conservation and management of natural and man-made resources, as an effective component of an economic development and diversification strategy.
- P.148 Onslow County supports travel and tourism industry which is compatible with a high quality of life – as a means to facilitate diversification in the local economy.
- P.149 Onslow County shall seek to foster an agricultural industry that is compatible with a high quality of life – as a means to facilitate diversification in the local economy.
- P.150 Onslow County will promote coordination of economic development resources among various local institutional agencies and seek regional cooperation and interaction among areas with shared economic interests.
- P.151 Onslow County will support a pro-business/pro-growth attitude, balanced by a concern for preserving the natural assets and quality of life factors that make the area attractive to visitors and permanent residents alike.

- P.152 Onslow County supports the proper management of growth, including wise land use planning, and the coordinated provision of water and sewer utilities, as important factors in economic development.
- P.153 Onslow County supports on-going efforts to retain and enhance commercial air service at Albert J. Ellis Airport.
- P.154 Onslow County supports applicable state and federal programs regarding economic and community development, especially those programs related to better jobs, water quality, fisheries, sustainable energy generation, and water and land transportation system improvements.
- P.155 Onslow County will encourage industrial and commercial development in areas with existing infrastructure that does not infringe on environmentally sensitive areas.
- P.156 Onslow County supports preservation of its commercial fishing industry.
- P.157 Onslow County will pursue/support state/federal funding opportunities for commercial or industrial projects to enhance economic development.

### **Implementing Actions – Economic Development**

- I.91 In order to support tourism, commercial fishing, and provide a solid foundation for overall economic development, Onslow County will:
- Encourage the appropriate state and/or federal agencies to take lead roles in the effort to establish a State program for regular channel maintenance.
  - Seek the continued assistance of the United States Coast Guard in marking channels.
  - Request assistance from the United States Coast Guard to remove abandoned or sunken vessels.
  - Request that the United States Soil Conservation Service take the lead role in providing technical assistance to accomplish “snagging” and general stream/river cleanup.
  - Request that cleanup programs be coordinated among local, state, and federal agencies as appropriate.
  - Request that local, state, and federal agencies work together to develop a plan of action to deal with abandoned or sunken vessels.
  - Request that all sand and dredge spoil materials be stockpiled.

***Schedule: All work items listed above are Continuing Activities.***

- I.92 Onslow County will implement the following activities to support economic development:
- Formulate and expand local incentives to attract industry.
    - Support the continued inventory of unused business facilities.
    - Support County water and sewer systems and other infrastructure.
    - Support and enhance incubator programs for startup businesses.
    - Identify and recruit industries that are compatible with and complement Onslow County’s geography, culture, and climate.
    - Create awareness of incentives for the employment of the elderly.
  - Encourage clean industry to locate in Onslow County to promote a healthy environment.
    - Support businesses involved with computer software business, medical technology, and telecommunications.
    - Promote awareness of service industry catering to tourists’ opportunities.
    - Support sustainable ocean-based aquaculture and energy generation and transmission as economic development initiatives, as feasible.
  - Expand opportunities (both public and private) for employment and procurement by using local vendors.
- Schedule: Continuing Activities.***
- I.93 Onslow County will continue to support, within the County, the activities of the North Carolina Division of Travel and Tourism; specifically, the monitoring of tourism-related industry, efforts to promote tourism-related commercial activity, and efforts to enhance and provide shoreline resources. ***Schedule: Continuing Activity.***
- I.94 The County will support projects that will increase public access to shoreline areas. ***Schedule: Continuing Activity.***
- I.95 Onslow County will support North Carolina Department of Transportation projects to improve access to and within the County. ***Schedule: Continuing Activity.***
- I.96 Onslow County will investigate strategies such as providing self-guided tour materials to increase tourist activity at local historic sites. ***Schedule: Fiscal Year 2009-2010 and continuing.***
- I.97 Onslow County will conduct a survey of the incomes of business and property owners to determine owner eligibility for possible grant-funded commercial rehabilitation. ***Schedule: Continuing Activity.***

- I.98 Onslow County will develop a specific plan of action to preserve its commercial fishing industry to include but not be limited to the following:
- Preserving existing seafood operations.
  - Encouraging the use of new technologies and practices.
  - Preventing conflicts between existing and future seafood operations and new residential/commercial development.
  - Planning for reuse of land on and near failed and failing seafood operations.
  - Encouraging the use of new technologies and practices, including ocean-based aquaculture.
- Schedule: Fiscal Year 2009-2010.***
- I.99 Onslow County will encourage all aquaculture activities which meet applicable local, state, and federal policies and permit requirements. However, the County reserves the right to comment on all aquaculture activities that require Department of Environment and Natural Resources permitting. ***Schedule: Continuing Activity.***

### **Policies – Military/Community Cooperation**

- P.158 Onslow County will support coordinated intergovernmental and military-community planning for land use and development, transportation, utilities, environmental management, law enforcement and public safety, education, recreation, tourism, and economic development.
- P.159 Onslow County encourages special committees, advisory panels, educational forums, workshops, leadership seminars, community meetings, and media contacts to enhance the level of community involvement and awareness of military-community issues.
- P.160 Onslow County supports working proactively with the Marine Corps Base Camp Lejeune, and the New River Air Station, to determine those policies and actions that will strengthen the operational viability of the military while also enhancing the community at large.
- P.161 In support of military personnel, Onslow County will provide for an enhanced quality of life in the area, including better housing, more and better parks, cleaner coastal waters, better schools, more efficient land use patterns, more attractive development and scenic beauty, protection of important natural resources, and continued economic development.

---

---

**Implementing Actions – Military/Community Cooperation**

- I.100 Onslow County will continue to support the recommendations of the Onslow County Joint Land Use Study, February 2003. ***Schedule: Continuing Activity.***
- I.101 Onslow County will review its zoning in those areas adjoining the Marine Corps Base to provide buffer areas to mitigate encroachment by incompatible land uses. This will be accomplished during preparation of the Onslow County UDO (see I.8, page 174). ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.102 Onslow County will continue to work cooperatively for the effective operation of ONWASA, the Onslow Water and Sewer Authority. Operations employ utilities extensions wisely to direct new growth to locations away from mission critical activity areas of the military base. ***Schedule: Continuing Activity.***
- I.103 Onslow County will continue to support cooperative agreements with the military for the provision of police, fire, and EMS services. ***Schedule: Continuing Activity.***
- I.104 During the implementation of this plan, Onslow County will support the following mutually supporting interests which are identified in the 2003 Citizen's Comprehensive Plan for Onslow County:
- What Camp Lejeune Believes the Community Wants
    - » A base that maintains or expands its current population.
    - » Continued good relations with base.
    - » More tax revenues.
    - » Continued cooperation in police, fire, EMS, emergency response.
    - » More access to base land for recreation (hunting, boating).
    - » Base waste water capacity.
    - » Base water.
    - » A voice in base infrastructure and economic development that impacts community.
    - » Improved quality of life.
    - » Better schools.
    - » Wide range of jobs.
    - » Better commercial air service.
    - » Expanded business development and less competition from the base.
    - » Minimize range noise.



- What Camp Lejeune Wants
  - » Improved operational viability in future years.
  - » Continued good relations with community.
  - » Support for the Department of Defense mission.
  - » Continued cooperation in police, fire, EMS, and emergency response.
  - » Support of infrastructure improvements to facilitate strategic deployment.
  - » Buffer areas to mitigate encroachment.
  - » Local government actions that ensure compatible development adjacent to base boundaries.
  - » Joint planning with community for utilities and land use.
  - » Improved quality of life.
  - » Better schools.
  - » Wide range of jobs.
  - » Improved off base housing.
  - » Community support for PPV business development on base.
  - » Improve the percent of eligible families supported with on-base housing.

***Schedule: Continuing Activities.***

**Policies – General Health and Human Services Needs**

- P.162 Onslow County supports advanced planning for the location of new public schools. Such locations shall serve to reinforce compact growth rather than promoting sprawl in more rural locations. New elementary school locations shall be viewed as a cornerstone of the neighborhoods they are intended to service.
- P.163 Onslow County encourages offers of land for the siting of new schools, particularly in conjunction with new development. Acceptance of such properties shall be based on approved criteria and cooperative planning with the County school administration.
- P.164 Onslow County supports site planning for traffic management and safety in the vicinity of public schools.
- P.165 Onslow County supports the mission of Coastal Carolina Community College in meeting the educational and job readiness requirements of area residents.
- P.166 Onslow County supports the efforts of the County Library System in fostering the development of a literate and well-informed resident population.

- P.167 Onslow County supports efforts to equitably assign the costs of new school construction based on those benefitting most directly from the new facilities. This will include soliciting Department of Defense funding support for additional school facilities.
- P.168 Onslow County supports intergovernmental cooperation with its municipalities.
- P.169 Onslow County supports the continued provision of solid waste disposal, law enforcement, and educational services to all citizens of the County.
- P.170 Onslow County supports North Carolina Division of Waste Management regulation of underground storage tanks.
- P.171 Onslow County generally 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.172 Onslow County supports efforts and initiatives to provide quality, affordable health care to its citizens including support of the construction of a hospital or primary care facility in or near the County, and the continued effective operation of the Onslow County Health Department.
- P.173 Onslow County supports improvement and expansion of fire protection and emergency management services including fire/rescue services.
- P.174 Onslow County generally supports efforts, programs, laws, and regulations that create a safe, crime free environment for its citizens and visitors.
- P.175 Onslow County supports, subject to available funds, a comprehensive recreational program to provide a broad range of recreational facilities for its citizens.
- P.176 Onslow County supports future park development and open space preservation which will provide for the distribution of recreation and open space opportunities within the County.
- P.177 In determining future sites for park, recreation, and water access facilities, multiple objectives for natural area conservation, visual enhancement, promotion of cultural and historic preservation, watershed and flood prone area protection shall be considered.

- P.178 Onslow County shall 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.
- P.179 Onslow County supports identifying, planning for, and developing a system of open space greenways and hiking trails within the County. The use of (1) natural corridors such as streams and floodplains, and (2) man-made corridors such as utility and transportation rights-of-way and easements, shall be emphasized.
- P.180 Onslow County shall work proactively with other local and state governments, utility companies, industries, and other major landowners in the development of walking and bicycling trails for the public.
- P.181 Land acquisition for new park, recreation, and shoreline access sites in advance of need shall be encouraged to achieve desirable locations at cost effective levels.

**Implementing Actions – General Health and Human Services Needs**

- I.105 Onslow County will prepare an adequate public facilities ordinance, as part of the preparation of the Onslow County UDO, to require that public facilities are available to support/service any approved developments (see I.8, page 174). ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.106 Onslow County will incorporate the provisions of NCGS 153A-331 in the preparation of an Onslow County UDO to ensure that during the approval process of the subdivision of land the consideration of/requirement for recreation and fees dedicating school site reservation and construction of community service facilities is included. ***Schedule: Fiscal Year 2008-2009 and continuing.***
- I.107 To effectively manage Onslow County's investment in existing and proposed community facilities and services, the County will:
- Develop a specific capital improvements plan (CIP) with emphasis placed on services and facilities which affect growth and development. ***Schedule: Fiscal Year 2010-2011.***
  - Provide the Onslow County Board of Education with locational information for all residential development. ***Schedule: Continuing Activity.***

- 
- 
- If the Onslow County Board of Education identifies specific school sites/properties for future acquisition, the County will amend this plan to identify those sites on the future land use map. **Schedule: Continuing Activity.**
- I.108 Onslow County will continue to provide governmental services including solid waste disposal, law enforcement, educational services, and fire/rescue services to all areas of the County to accommodate anticipated growth. **Schedule: Continuing Activity.**
- I.109 Onslow County will prepare and update annually a capital facilities improvements plan (CIP). **Schedule: Fiscal Year 2009-2010 and continuing.**
- I.110 Onslow County will seek grant monies and/or technical assistance to study the development of a recreational facilities plan (update of the 1998 Park and Recreational Master Plan). This plan should address greenways, canoe trails, and programs for donating/preserving conservation easements. **Schedule: Fiscal Year 2009-2010 and continuing.**
- I.111 Onslow County will encourage developers to incorporate new school sites into the overall design of subdivisions and mixed use planning developments. **Schedule: Continuing Activity.**
- I.112 Onslow County will seek state and federal technical and financial assistance to provide facilities for physically challenged persons. **Schedule: Continuing Activity.**
- I.113 Onslow County will investigate, with the Institute of Government, the use of impact fees as a way of making new development pay for the services demanded. **Schedule: Fiscal Year 2009-2010.**
- I.114 Onslow County will seek educational grants to subsidize in-county continuing education by nearby colleges and universities and support community education programs. **Schedule: Continuing Activity.**
- I.115 Onslow County will implement the following concerning potential releases from home heating oil underground storage tanks:
- Removal of any abandoned or out-of-use underground storage tanks as recommended by the NCDENR Wilmington Regional Office Underground Storage Tank (UST) section.

- Installation and maintenance of above-ground fuel tanks in accordance with applicable local, state, and federal regulations.
- Contain and properly restore areas impacted by any chemical or petroleum spills. Ensure that spills of significant quantity are reported to the NC Department of Environment and Natural Resources, Division of Water Quality (Wilmington Regional Office).
- Report immediately to the local Fire Marshall any soils excavated during demolition or construction that show evidence of chemical or petroleum contamination to determine whether explosion or inhalation hazards exist.  
***Schedule: Continuing Activities.***

I.116 Onslow County will implement the following activities to support health care:

- Prevention/intervention.
  - » Expand the Onslow County website with links to federal, state, and local organizations that focus on wellness and/or provide health care resources.
  - » Sponsor public health fairs.
  - » Support wellness initiatives via bike rallies, marathons, fishing tournaments, etc., that provide the County a link with regional and private resources.
  - » Work with state and federal legislators to obtain grant money for initiatives to reduce health care costs.
- Crisis management – individual and area-wide.
  - » Work with local religious groups to provide emergency support systems for large scale or traumatic events.
  - » Continue County-wide test drills of the County’s emergency preparedness system.

***Schedule: Continuing Activities.***

I.117 Onslow County will improve the distribution of information on County programs through the following actions:

- Identify existing outlets that are accessible to all citizens to distribute information about County-wide services.
  - » County government.
  - » Municipal governments.
  - » Nonprofit and other civic organizations.

- Create new outlets to distribute information on County-wide services.
  - » Information center at the County government complex.
  - » "How to/Where to" guide for County residents.
  - » Towns and County help each other in distribution of printed information and brochures.
  - » Create a "County Corner" at public libraries where information is available to citizens.

***Schedule: Continuing Activities.***

I.118 Onslow County will coordinate its development 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.
- Coordinate with the municipalities to ensure that all new development requiring wells and/or on-site wastewater systems will not be permitted in designated municipal/ONWASA service areas, whenever practicable.
- Seek mutually acceptable standards for public facilities and services with the municipalities to ensure that services can be provided relatively seamlessly across jurisdictional boundaries. While service standards should be the same for similar types of development, regardless of the location of development, they should differentiate the type of planned development (urban, suburban, or rural).
- Coordinate municipal capital improvements plans with those of the County, school districts and other service providers to more efficiently serve the community.

***Schedule: Continuing Activities.***

**Policies – Community Appearance**

P.182 The important economic, tourism, and community image benefits of attractive major travel corridors through Onslow County shall be recognized. Such entryway corridors shall receive priority attention for improved appearance and development standards, including landscaping, signage, and tree preservation.

- P.183 Landscape improvements at existing and new commercial developments, particularly as related to breaking up and softening the appearance of expansive parking areas, shall be encouraged.
- P.184 Onslow County shall discourage the inappropriate use of manufactured or site built homes for storage or their abandonment without proper disposal.
- P.185 New development, redevelopment, rehabilitation and maintenance of structures and sites should be consistent and supportive of the neighborhood and architectural context of the surrounding area.
- P.186 The significance of street trees in providing visual relief, summer cooling, improved air quality, and livability shall be recognized through public policies to encourage their planting and maintenance.
- P.187 Sign policies and standards shall be periodically updated to enhance community identity and create a high quality business image.
- P.188 Littering of public roadsides and properties, whether from individual "litterbugs" or drivers of inadequately covered trucks, shall not be tolerated. Those who would abuse our local environment and denigrate the image of our area shall be held accountable through appropriate programs and enforcement of litter laws.

### **Implementing Actions – Community Appearance**

- I.119 Onslow County will continue to support its Keep Onslow Beautiful (KOB) program. Specific programs include:
- Swat a Litter Bug Program.
  - Loan a Litter Receptacle Program.
  - Environmental Elf Program.
  - Living Tribute Tree Program.
- Schedule: Continuing Activity.***
- I.120 Onslow County will incorporate building appearance (commercial design standards), landscaping, and signage regulations into the UDO to support the community appearance policies. This will include consideration of special highway corridors along Highways 17, 258, 24, 210, 50, and 53. ***Schedule: Fiscal Year 2008-2009 and continuing.***

- I.121 Onslow County will designate a Community Appearance Committee or Commission with a charge to establish guidelines and procedures for community appearance awards and to conduct studies and make recommendations addressing problems of litter on beaches and along roads. ***Schedule: Fiscal Year 2009-2010 and continuing.*** Example activities will include the following:
- Promote “Adopt-a-Beach,” “Beach Sweep,” and/or “Adopt-a-Highway” programs and educate the public through local media concerning community appearance needs.
  - Use prison labor to clean up and remove debris from road rights-of-way.
  - Select recipients of Community Appearance awards and advise the Board on methods by which the community’s appearance might be improved including studies and recommendations as may be necessary to address the problem of litter on beaches and along roads.
- I.122 Onslow County will continue to enforce its junked/inoperable vehicle ordinance to require the removal of junked/abandoned vehicles. ***Schedule: Continuing Activity.***
- I.123 Onslow County will continue to implement current actions to remove abandoned manufactured homes. ***Schedule: Continuing Activity.***

### **Policies – Redevelopment**

- P.189 Onslow County supports repair and reconstruction of privately-owned substandard dwelling units through private funds and/or grants. It supports the enforcement of existing regulations of the District Health Department regarding sanitary conditions.
- P.190 Onslow County will not displace families or unreasonably require building demolition.
- P.191 Onslow County will support redevelopment as specified in the County’s Hazard Mitigation Plan.
- P.192 Onslow County supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic and cultural structures and sites.



**Implementing Actions – Redevelopment**

- I.124 Onslow County will seek state and federal financial and technical assistance for community improvements. The County may apply for Community Development Block Grants for the rehabilitation of areas of substandard housing by identifying such areas. ***Schedule: Continuing Activity.***
- I.125 Onslow County will consider updating its minimum housing code. ***Schedule: Fiscal Year 2009-2010.***
- I.126 Onslow County will allow the reconstruction of any structures demolished by natural disaster which will comply with all applicable local and state regulations. ***Schedule: Continuing Activity.***
- I.127 Onslow County will consider accepting donations of unbuildable lots. ***Schedule: Continuing Activity.***
- I.128 Onslow County will consider the need to purchase unbuildable lots on a case-by-case basis. ***Schedule: Continuing Activity.***
- I.129 Onslow County will cooperate with owners who may have to move threatened structures to safer locations and will expedite local permit approvals. ***Schedule: Continuing Activity.***
- I.130 Onslow County will consider the following actions in redevelopment/revitalization areas:
- Waive or reduce administrative, inspection, and/or connection fees to:
    - » Encourage desirable redevelopment proposals that provide for jobs and improved wages.
    - » Stimulate additional redevelopment activity.
    - » Preserve the County’s historic properties.
    - » Support public purpose projects.
  - Revise the development regulations to be responsive to innovative development proposals and existing conditions, including:
    - » Waive site plan requirements for redevelopment proposals if there is no substantial change in use or structure.
    - » Reduce site plan requirements for redevelopment proposals if there is a minor (to be defined in the development regulations) change in use or structure.
- Schedule: Continuing Activities.***

**Implementing Actions – Funding Options:**

I.131 Onslow County will continue to support state and federal programs that are deemed necessary, cost-effective, and within the administrative and fiscal capabilities of Onslow County. ***Schedule: Continuing Activity.*** These include but are not limited to the following:

- Community Development Block Grant Program.
- Area Agency on Aging.
- Emergency Medical Services.
- JTPA Work Program.
- Coastal Area Management Act, including shoreline access funds.
- Small Business Association.
- Economic Development Administration Funds.
- Farmer's Home Administration – Federal Grant Program.
- Federal Emergency Management Program.
- Aid to Families with Dependent Children.
- MEDICAID.
- Day Care.
- Crisis Intervention.
- Department of Defense.

I.132 Onslow County will selectively support state and federal programs related to Onslow County. The County, through its Boards, Commissions, and Committees, will monitor state and federal programs and regulations. It will use opportunities as they are presented to voice support for or to disagree with programs and regulations that are proposed by state and federal agencies. ***Schedule: Continuing Activity.***

I.133 Onslow County officials will continue to work with the US Army Corps of Engineers and any other state and federal agencies to ensure continued dredging and maintenance of channels and rivers as needed to keep these facilities open to navigation. These efforts shall comply with applicable state and federal regulations. Providing borrow or spoil areas and provision of easements for work will be determined on case-by-case basis. The County would encourage spoil material being placed in those areas where easements for such use already exist. Channel maintenance has major economic significance and is worthy of state and federal funding. ***Schedule: Continuing Activity.***

E. FUTURE LAND USE PLAN

*Refer to Appendix VI for data on the participating municipalities of Holly Ridge and Richlands.*

**1. Introduction**

The future land use plan or “map” is an essential tool for implementing land use planning. The map is intended to serve as a guide for the Planning Board and Board of Commissioners when they review private development proposals and make decisions on the location of public facilities.

The land use plan also provides the framework upon which zoning and subdivision regulations and the capital improvements program should be based. In fact, the preparation of a land use plan and map is mandated by legislation as a prerequisite for zoning. North Carolina General Statute 153A-341 states the following about the purpose for land use plans:

“Zoning regulations shall be made in accordance with a comprehensive plan. Prior to adopting or rejecting any zoning amendment, the governing board shall adopt a statement describing whether its action is consistent with an adopted comprehensive plan and explaining why the board considers the action taken to be reasonable and in the public interest. That statement is not subject to judicial review.

The Planning Board shall advise and comment on whether the proposed amendment is consistent with any comprehensive plan that has been adopted and any other officially adopted plan that is applicable. The Planning Board shall provide a written recommendation to the Board of County Commissioners that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the comprehensive plan shall not preclude consideration or approval of the proposed amendment by the governing board.

Zoning regulations shall be designed to promote the public health, safety, and general welfare. To that end, the regulations may address, among other things, the following public purposes: to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to lessen congestion in the streets; to secure safety from fire, panic, and dangers; and to facilitate the efficient and adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. The regulations shall be made with reasonable consideration as to, among other things, the character of the district and its peculiar suitability for particular uses, and with a view of conserving the value of buildings and encouraging the most appropriate use of land throughout the County. In addition, the regulations shall be made with reasonable consideration to expansion and development of any cities within the County, so as to provide for their orderly growth and development.”

A land use plan is intended to accomplish three primary objectives. These objectives are as follows:

- To promote economic efficiency by coordinating the size and location of publicly provided future community facilities with the location and intensity of future private residential, commercial, and industrial activity.
- To optimize resources by allocating land for its most suitable use. For example, a county may want to encourage industrial development on sites accessible to existing water and sewer lines and in areas with suitable soil conditions. Or, a county may choose to arrange land uses in such a way as to protect environmentally sensitive areas.
- To provide a land use form that reflects the vision of the county's residents, is unified, avoids conflicting land uses, optimizes resources, preserves the county's character and is pleasing: providing open space, vistas and distinguishable districts.

There may be areas on the Future Land Use Plan that are considered least suitable for development (resulting from the Environmental Composite - Map 12 and the Land Suitability Analysis - Map 16) which have been assigned a Future Land Use category other than Conservation or Low Density Residential. In most of those cases, they are considered least suitable because of their location in a floodplain or wetland area, or a significant natural heritage area. For those undeveloped parcels with wetlands coverage, the County will make every effort to ensure that any development that occurs will be located outside of the wetland areas or that the negative impact to the environment is minimal, if any. For those undeveloped parcels with all or portions located within a floodplain, the County will encourage the location of development on the portions outside of the floodplain.

## **2. Locational Aspects of Land Use**

The purpose of this section is to describe the reasoning behind the location of land uses as shown on the land use maps. It should be noted that the land use plan depicts a desired or optimum pattern of land uses. For land areas that are already developed, the desired land use may not be consistent with the existing land use. In cases where the planning process resulted in a desired land use that deviated from the existing land use, preferred land use is indicated. It is not being suggested that the County cannot deviate from the portrayed land uses. However, it is recommended that as the need for changes in the land use map become apparent that the map be revised and approved by the Board of Commissioners, to include adjustments necessitated by revisions to proposed infrastructure defined in this plan.

The future land use maps (Maps 22, I-2, and II-2) were drafted with consideration given to key land use issues. The locational factors include consideration of the future land suitability analysis map (Map 23) which identifies the following concerns:

- Conservation areas (flood hazard areas, category 1 & 2 storm surge areas, fragile areas and areas of environmental concern, primary fish nursery areas, significant natural heritage areas - see Sections B.1.c, g, and h).
- Prime farmlands (also includes prime forestland areas - see page 68).
- Prime forestlands (see Table 24, page 40).
- Moderate/high suitability land use areas (see page 103 and Map 16, Appendix II).

NOTE: Aircraft operations/land use compatibility - it should be noted that the creation or establishment of an obstruction may affect existing and future instrument approach minimums of the civilian and military airport/landing facilities, and that obstructions may present hazards to air navigation and/or reduce the size of areas available for the safe landing, takeoff, and maneuvering of aircraft. The County should:

- Accommodate the development and expansion of airport/landing facilities and the development of land uses that directly support or are closely related to and in scale with the airport's air transport uses (such as aircraft service and repair, cargo storage, and commercial uses serving passenger and employee needs – and for regional airports, hotels, restaurants, and car rental).
- Prohibit development of any land use that is likely to result in obstructions to air navigation, and strictly limit any land use that might preclude the future use of the land for the intended airport or airport-related use.

A description of future land use categories for Onslow County, Holly Ridge, and Richlands by type follows.

NOTE: Depending on sewer and other infrastructure availability, and as determined necessary to facilitate the implementation of specific Policies and Implementing Actions of this Comprehensive Plan and those goals and objectives to be established in the Unified Development Ordinance, densities in the following land-use categories, districts, growth areas, and activity centers may be increased, sometimes significantly, above those listed in these categories in accordance with the standards and procedures set forth in the Unified Development Ordinance.

*a. Conservation*

The Conservation land use category includes land and water areas which are environmentally sensitive and important to the future of Onslow County. Such areas include fragile areas, areas of environmental concern, floodplains, open space, and recreational areas. Intensive use of these areas for residential, commercial, or industrial purposes will not be permitted.

Corresponding zoning district: CON - Conservation

Appropriate uses: Parks, playgrounds, open space, campsites, greenways, hunting clubs, and certain agricultural uses.

Inappropriate uses: Any intensive development.

Allowable densities: To be determined by Onslow County depending upon the impact of the proposed use.

Minimum lot size: To be determined by Onslow County depending upon the impact of the proposed use.

*b. Agriculture/Forestry*

The purpose of the Agriculture/Forestry district is to preserve large areas in which most lands are, or have a high potential to be, actively farmed or forested in an economically sustainable manner. The delineation of Agriculture/Forestry areas is based on the identification of those lands within the County most suitable for agriculture or forestry. These areas include most concentrations of Level 1 and 2 prime farmlands and prime forestlands which are to be protected from urban/high intensity encroachment. Some Level 1 and 2 prime forestlands are classified for more intensive uses in developing areas. In areas classified as Agriculture/Forestry, the County will:

- Promote the retention, expansion, and new development of agricultural and/or forestry uses, as appropriate to the land's potential;
- Accommodate the development of land uses that directly support existing agricultural and forestry uses and need to be, or are customarily, located on the same site as the agricultural or forestry use they support (such as housing for the farmer and extended family, housing for farm laborers, barns, silos, access roads, storage of farm or forestry equipment, preparation of crops and livestock products for market);
- Generally limit development of land uses unrelated to agricultural or forestry uses to other predominantly open space land uses, and prohibit development of other

land uses - particularly those uses that might preclude the future use or productivity of the land for agricultural or forestry use - or strictly limit any such development at such very low intensities as will ensure retention of sufficient contiguous open space to allow continued or future agricultural or forestry use;

- Ensure that any allowed development unrelated to agricultural or forestry uses is clustered, or otherwise sited and designed, so as to maximize the continued availability of productive farmland or forestland and minimize conflicts with existing or potential agricultural and forestry uses;
- Ensure that development unrelated to agricultural or forestry uses minimizes the visual disruption of the natural and other open space features that define the area's rural character to passers-by – that is, ensure that roads, utilities, and new structures are sited and designed so as to avoid substantial modification to topography, significant vegetation, and other natural features;
- Ensure that development unrelated to agricultural or forestry uses retains and incorporates existing features that define the area's rural character (such as barns, silos, tree lines, farm roads, stream crossings, significant vegetation).
- Promote the use of Best Management farming and forestry practices that help conserve the land's physical capacity for future agricultural and forestry production.
- Support/encourage voluntary agricultural districts.
- Establish performance standards for non-agricultural/forestland activities.

Corresponding zoning district: RA - Agricultural and R-90 - Residential

Appropriate uses: Agricultural and forestry preservation/production activities; uses supportive of agricultural/forestry production; low density residential; scattered, clustered, limited commercial convenience and service establishments intended to serve the immediate surrounding area; within the Airport Overlay, uses which directly support the airport.

Inappropriate Uses: Medium to high intensity residential development, industrial development, commercial development serving more than the immediate surrounding area, uses detrimental to agricultural/forestry production.

Allowable density: 2 dwelling units per acre.

Minimum lot size: Without sewer - 20,000 square feet; with sewer - 15,000 square feet.

---

---

*c. Residential*

Residential land uses have been divided into four separate land use categories based on associated variable residential densities and mixture of residential/non-residential land uses. These categories include rural residential, medium-density residential, high-density residential, and community growth areas. The location of residential land uses by density was based on existing residential development patterns and constraints to development: floodplains and wetlands, availability of water and sewer services, availability of municipal/urban services, and deterrents, such as location in aircraft flight paths.

**(1) Rural Residential**

The purpose of the rural residential district is to preserve undeveloped or sparsely developed lands not classified as Agriculture/Forestry that significantly contribute to the recognition or impression of rural character (being “in the country”), or that provide separation of, or well-defined edges or gateways to, high-density areas. In areas classified as rural residential, the County will:

- Promote the retention or development of agriculture, forestry, parks, outdoor recreational, and other predominantly open space land uses;
- Strictly limit new development unrelated to predominantly open space land uses to scattered residential development at low to medium intensities (conforming to those typical of rural areas), and in which open space is the dominant feature;
- Encourage such development to be clustered, or otherwise sited and designed, so as to maximize the amount of open space on the site and maintain the impression of the site as predominantly open space;
- Support/encourage development which will preserve the district’s rural character to passers-by – that is, ensure that roads, utilities, and new structures are sited and designed so as to avoid substantial modification to topography, significant vegetation, and other natural features; and
- Ensure that development unrelated to predominantly open space land uses retains and incorporates existing features that define the area’s rural character (such as barns, silos, tree lines, farm roads, stream crossings, significant vegetation).



It should be noted that this category includes extensive freshwater wetlands which may impact local development decisions (see Map 7). This land use category primarily includes areas which do not have central sewer service. However, some low-density residential areas may have access to central sewer service. Such areas will be considered traditional and may be reclassified to medium-density residential as development occurs.

Corresponding zoning districts: RA - Agricultural, R-90 - Residential, R-30M - Residential, R-20 - Residential, and R-15 - Residential with central sewer service.

Appropriate uses: Agricultural and forestry preservation/production activities, uses supportive of agricultural/forestry production, low density residential, scattered clustered local commercial activity centers including convenience and service establishments intended to serve the immediate surrounding area. Within the Airport Overlay, uses which directly support the airport.

Inappropriate Uses: Medium to high intensity residential development, uses detrimental to rural residential development, industrial development, large commercial development serving more than the immediate surrounding area, uses detrimental to agricultural/forestry production.

Allowable densities: Without sewer - 2.2 dwelling units per acre; with sewer - 2.9 dwelling units per acre.

Minimum lot size: Without sewer - 20,000 square feet; with sewer - 15,000 square feet.

## **(2) Medium-Density Residential**

The purpose of the medium-density residential land use category is to provide for stable predominantly single-family residential areas which may also accommodate planned multi-family developments and some limited commercial service nodes. Medium-density residential areas should have access to central water and sewer services, be located in areas with moderate or high suitability for development, commercial service nodes, and proximity to community facilities.

Corresponding zoning district: R-15 - Residential and R-10 - Residential

Appropriate uses: Medium density residential, multi-family residential, local commercial activity centers including convenience and service establishments, and public facilities/activities.

Inappropriate uses: Industrial development, large commercial development serving more than the immediate surrounding area, and uses detrimental to medium density residential and multi-family development.

Allowable densities: Single-family - 4 dwelling units per acre; Multi-family - 10 dwelling units per acre.

### **(3) High-Density Residential**

The purpose of the high-density residential land use category is to accommodate high density single-family residential areas and multi-family development. High density residential areas should have access to central water and sewer services, be located in areas with moderate or high suitability for development, be located in proximity to municipal services, commercial service nodes, and proximity to community facilities. All high-density multi-family development should be planned development.

Corresponding zoning district: R-8 - Residential and R-5 - Residential

Appropriate uses: High density residential, multi-family residential, and public facilities/activities.

Inappropriate uses: Industrial development, large commercial development serving more than the immediate surrounding area, and uses detrimental to high density residential and multi-family development.

Allowable densities: 10 dwelling units per acre.

Minimum lot size: 5,000 square feet.

### **(4) Community Growth Areas**

Residential use/development will be the principal use of a community growth area. However, these areas will be blended with other land use categories, such as high density residential, to accomplish a "mixing" of uses. Neighborhood activity centers will be an integral part of each community growth area (neighborhood activity centers are discussed as a separate commercial land use category). The primary land use is the community growth area, interspersed with high density residential and neighborhood activity centers. Community growth areas should be developed as pedestrian-oriented, identifiable, and cohesive residential areas that surround, and focus on, Community or Neighborhood Activity Center(s). Each community growth area encompasses land surrounding a

Neighborhood Activity Center(s). The community growth areas are delineated on the future land use map (Map 22) with a "boundary" line which may include multiple land uses. In areas classified as Community Growth Areas, the County will:

- Promote the pedestrian-oriented development of a cohesive residential neighborhood surrounding, oriented to, and integrated with Neighborhood Activity Center(s), and containing the following:
  - Low-to-moderate density housing that provides and integrates a variety of housing densities, ownership opportunities, prices, and building types.
  - Public recreation-oriented uses that serve surrounding residents (such as parks, recreation facilities, and community centers), with small (1 to 4 acre) parks distributed throughout the community growth area and mid-sized (5 to 10 acre) neighborhood parks with large playing fields located near the Neighborhood Activity Center(s) and/or in conjunction with schools.
  - Schools and community parks, if needed to meet neighborhood and community needs, located adjacent to the edge of the Activity Center(s) where they are within convenient walking distance of, and with easy non-arterial access from, the Center's core commercial area(s) and transit stop(s).
  - Day care facilities located in conjunction with neighborhood or community parks and schools.
- Encourage the location of moderate-density residential development (4 to 10 du/ac) adjacent to the Neighborhood Activity Center, with developments of decreasing density as distance from the Activity Center increases.
- Ensure that the Community Growth Area is served by a formalized and easily recognizable local street system that:
  - Provides multiple, direct, and interconnected routes converging to the Center's core commercial area (as well as to the area's schools and neighborhood parks), avoiding complex and circuitous routes.

- Allows autos, bicycles, and pedestrians to travel to any location in the Neighborhood area and Center along small local streets, with a minimal of arterial crossings.
  - Does not provide a through-route alternative to arterials.
  - Is designed to provide adequate access for automobiles and service vehicles, yet be pedestrian friendly - that is, streets have sidewalks and travel and parking lanes sufficiently narrow to slow traffic and allow street trees to form a pleasing canopy over the street.
  - Provides the interconnections necessary to foster a sense of neighborhood, avoiding long cul-de-sacs and isolated areas.
- Ensure that development is sited and designed to be functionally and visually compatible with, or provide an orderly transition from, adjacent development.

In yet-to-be-developed areas classified as Community Growth Areas, the County will strictly limit land uses and development design that might preclude the future development of the area into a viable Neighborhood area.

The Community Growth Areas are expected to have a great demand for intensive or high impact development. Detailed analysis of land use at a parcel by parcel scale is desirable. Such "micro" planning should be undertaken with the involvement of the "stakeholders" in each community growth area. While a specific schedule for area plan development is not provided, such plan development should begin immediately following the development of the Onslow County UDO (see I.8, page 174). A specific priority is not recommended for which community growth area plan should be prepared first. That decision will be somewhat subjective but should consider: impacted environmentally sensitive areas, rate of subdivision approvals, rate of rezoning requests, rate of building permits for new construction, and proposed public facilities projects which will impact/stimulate growth. Fiscal and staff constraints will not permit simultaneous preparation of all the area plans.

Corresponding zoning districts: R-15 - Residential, R-10 - Residential, R-8 - Residential, and R-5 - Residential

Appropriate uses: Medium density residential, high density residential, community services, recreation, conservation, and small-scale, widely-scattered limited convenience commercial services which support adjacent residential development.

Inappropriate uses: Large-scale, non-local commercial and professional services, light and heavy industrial development, military activities, and, in general, any use detrimental to residential growth and stability.

Allowable densities: 2 to 10 dwelling units per acre.

Minimum lot size: 5,000 square feet to 20,000 square feet. See Table 58, Future Land Use Plan Compatibility Matrix.

d. *Commercial*

**(1) Community Growth Activity Center**

Community Growth Activity Centers are intended to be pedestrian-oriented, transit supportive, and act as a focal point for activity. They differ from automobile dependent Local and Area-Wide Community Activity Centers in that they involve a reduced retail and service trade area and scale (community-wide rather than area-wide, convenience shopping rather than comparison shopping), a mix of uses emphasizing residential uses, and thus a reduced intensity of development and activity. In areas classified as Community Growth Activity Center, the County will:

- Promote the pedestrian-oriented development of a core commercial area making up 10-40% of the Community Growth Area's land area, and containing:
  - Moderate-intensity retail and service development that principally serves the convenience retail and service needs of workers and residents of the Center and the surrounding Community Growth Center (such as convenience retail and services, retail shops, supermarkets, drugstores, professional offices, restaurants, and cinemas, health clubs, and other entertainment uses).

- Small-scale, employment-intensive, office/service development (that is, development involving a high employee per acre ratio).
- Moderately high-density residential development ( $\geq 10$  du/ac) that is principally located on the upper floors of buildings housing lower floor commercial uses.
- Public greens and plazas, and civic and community service facilities and uses serving workers and residents of the Center and surrounding Community Growth Areas (such as community centers, clinics, post offices, libraries, governmental offices, police and fire stations, day care facilities, schools, and churches), that are centrally located and designed to serve as a focal point for community activities and add a strong sense of identity to the Center and the surrounding neighborhood.
- Public recreation-oriented uses that serve surrounding residents (such as parks, recreation facilities, and community centers), with small (1 to 4 acre) parks distributed throughout the residential area and mid-sized (5 to 10 acre) neighborhood parks with large playing fields located on the edge of the Center and/or in conjunction with schools.
- Day care facilities located adjacent to the core commercial area, recreation facilities, and schools.

Corresponding zoning districts: R-10 - Residential, R-15 - Residential, R-5 - Residential, R-8 - Residential, and CB - Community Business District.

Appropriate uses: Medium to high density residential, mix uses (i.e., residential over commercial), services, offices, commercial, public-semi-public, recreational, and other uses limited to the service of the surrounding Community Growth Center.

Inappropriate uses: Low-density residential, land uses that rely extensively on autos or trucks (such as auto sales and repair, free-standing car washes, mini-storage facilities, motels, distribution centers), industrial uses, and any other land uses that might preclude development of high-intensity land uses (such as low-density residential uses).

Allowable densities: Up to 10 dwelling units per acre.

Minimum lot size: None.

## **(2) Local Commercial Activity Center**

Local commercial activity centers are located where adequate auto access from an arterial exists or is planned, and so as to maximize accessibility within the Center and from the surrounding areas and minimize the need to use arterials. Centers are generally dispersed to avoid overlapping market areas for basic retail goods.

A local commercial activity center must be big enough to accommodate the basic mix of uses necessary to serve as a focal point for local community activities and retail trade. But it must be small enough so that all parts of the Center are internally connected by pedestrian and auto access, without requiring use of an arterial road. Local commercial activity centers incorporate existing development that is, or can be redeveloped to become, consistent with the Center's compact and pedestrian-oriented design. In areas classified as Local Commercial Activity Centers, the County will:

- Promote the pedestrian-oriented and transit-supportive development of a core commercial area.
- Ensure that buildings are sited and designed to create a pedestrian-friendly environment – that is, have primary entrances oriented toward streets and public greens or plazas (rather than parking areas).
- Ensure that economically viable existing developments incorporated in the Center are integrated into the form and function of the Center (by providing for enhancement of their intensity, pedestrian orientation, and interconnections with surrounding areas while respecting their on-going operations, basic access requirements, and existing building design).
- Provides multiple, direct, and interconnected routes converging to the transit stop and core commercial area (as well as to the Center's schools and neighborhood parks).
- Surround the commercial core with residential development which decreases in density as it moves away from the core.

Corresponding zoning districts: R-5 Residential, R-8 Residential, and CB Community Business District. NOTE: The existing Onslow County zoning districts do not lend themselves to support of the local commercial activity center.

*Appropriate uses:* High-intensity retail and service development that serves the retail and service needs of workers and residents of the Center and nearby neighborhoods (such as convenience retail and services, retail shops, major supermarkets, department stores, professional offices, restaurants, small hotels, and cinemas, health clubs, and other entertainment uses); employment-intensive office and light industrial development; high-density residential development that is principally located on the upper floors of buildings housing lower floor commercial uses; public greens and plazas, and civic and community service facilities; and uses serving workers and residents of the Center and nearby neighborhoods (such as community centers, hospitals and clinics, post offices, libraries, governmental offices, police and fire stations, day care facilities, schools, and churches), that are centrally located and designed to serve as a focal point for community activities and add a strong sense of identity to the Center and the surrounding neighborhood areas.

*Inappropriate uses:* Uses that rely extensively on autos or trucks (such as auto sales and repair, free-standing car washes, mini-storage facilities, motels, distribution centers), industrial uses with very low employment intensities (i.e., involving a low employee per acre ratio), any other land uses that might preclude development of the Center as a concentration of high-intensity land uses (such as low-density residential uses), and heavy industrial uses.

*Allowable densities:* Up to 10 dwelling units per acre.

*Minimum lot size:* None.

### **(3) Area-Wide Commercial Activity Center**

The Area-Wide Commercial Activity Center includes areas that are developed, or are highly suitable to being developed, for those land uses that are auto-oriented. Such uses include: those generally travel-commercial land uses that rely substantially on auto travel to generate business; those generally light industrial, warehousing, and distribution land uses that almost exclusively rely on direct access to major inner-city arterials or rail lines to ship supplies and products; and those generally industrial uses that have a very low employees-per-acre ratio.

Area-Wide Commercial Activity Centers are principally located on major inter-city arterials, or on major arterials near their intersection with a major inter-city arterial. Highway-oriented centers are sufficiently spaced from Community and Local Activity Centers to limit competing commercial uses and traffic impacts that might be incompatible to the viability and compact character of Activity Centers. In Area-Wide Commercial Activity Centers, the County will:



- Ensure that development is sited and designed to avoid or minimize direct access to adjacent major arterials, and otherwise to minimize conflict points, congestion, and other potential threats to traffic safety on major arterials.
- Be buffered from medium and low density residential development.

Corresponding zoning districts: HB Highway Business District.

Appropriate uses: Commercial land uses related to the sales and service of motor vehicles (such as auto sales and repair, gas stations, car washes, auto parts stores), commercial land uses related to retail or wholesale trade and storage services that generally involve expansive storage of consumer goods or property and their frequent pickup and shipping by motor vehicle (such as lumber yards, building supply stores, mini-storage facilities), industrial land uses related to major manufacturing, distribution, and storage facilities that rely substantially on vehicular access to major highways for frequent shipping and temporary storage of supplies and products, light industrial uses, and travel-commercial uses whose business predominantly caters to, and relies substantially on, customers traveling in automobiles (such as motels, drive-thru restaurants).

Inappropriate uses: Residential use, any uses which may preclude the effective development of an area-wide commercial activity center, heavy industrial uses, and any uses disruptive to effective vehicular transportation.

Allowable densities: None.

Minimum lot size: None.

*e. Industrial*

Industrial areas will be located in scattered locations which encourage industrial park design. Future industrial development should be primarily located: along major transportation routes, adjacent to water and sewer services, in areas environmentally suitable for development, and near municipalities. Industrial land uses that are adjacent to residential land uses should be buffered with conservation/open space land uses. Buffering has been provided to help prevent land use conflicts between industrial development and neighboring land uses. The width of the buffer should be based on the type of industry and its potential to create compatibility problems. It is not the County's intention to acquire land to be utilized as buffer areas, but rather to encourage industries to incorporate adequate buffers into their development plans.

Corresponding zoning district: L-IN, Light Industrial and H-IN, Heavy Industrial

Appropriate uses: Industrial uses which are not detrimental to Onslow County's health, safety, or welfare.

Inappropriate uses: Non-industrial land uses and all industrial uses which will be detrimental to Onslow County's health, safety, or welfare.

Allowable density: None

Maximum height: None.

Minimum lot size: None.

*f. Military*

The Military land use district includes military installations under federal authority within the County's planning jurisdiction. Onslow County will limit activities/land uses to those which are conducted by the military. If property is sold/abandoned by the military, the land use plan will be amended to consider private or non-military public use of the property.

Corresponding zoning district: MR, Military Reservation

Appropriate uses: As determined by the military.

Inappropriate uses: As determined by the military.

Allowable density: As determined by the military.

Maximum height: As determined by the military.

Minimum lot size: As determined by the military.

*g. Urban Fringe*

The Urban Fringe boundary delineates an area that is anticipated to primarily become a part of the continuous City of Jacksonville urban area during the planning period. This is an area delineation and not a separate land use category. The urban fringe area includes lands that will not be considered rural, are near the City of Jacksonville corporate limits and entry corridors, and include the following:

- Lands containing existing residential, commercial, industrial, office and institutional uses that are served by the type and density of public facilities and the levels of public services generally supporting urban development (public or community water supply and sewerage, urban roads, transit, urban stormwater management, door-to-door solid waste collection, police stations, etc.), or that are likely to be so served within the planning period;
- Undeveloped lands, underdeveloped lands, or sparsely developed lands having physical, locational, and other characteristics that make them likely to be served within the planning period by the type and density of public facilities and levels of public services generally supporting urban development, and that otherwise make them highly suitable for development of urban land uses at urban intensities.

Within the Urban Fringe boundary, the County will:

- Promote in-fill development;
- Ensure that development occurs at locations where, and times when, it can be efficiently served by those public facilities and services appropriate to urban development – that is, where and when such facilities and services can be provided to the development site concurrent with the development, and can serve the development without overloading or adversely impacting the capacity of the facility or service system to serve existing development;
- Ensure that development is designed and constructed to meet appropriate urban standards so it can be efficiently incorporated into the adjacent municipality;
- Ensure that development is sited and designed to maximize its compatibility with, and minimize its potential adverse impacts on, adjacent development;

- Promote development that is sited and designed to accommodate transit service, to orient buildings and activity areas to nearby transit routes, to encourage pedestrian access and mobility, and otherwise to maximize use of existing or potential transit facilities by its occupants and users.
- Ensure the close coordination with and support of policies P.8 and P.73, and implementing actions I.48, I.52, I.53, I.54, I.55, I.56, I.67, I.68, and I.118 by all land use related decisions and land uses located within the urban fringe area.

*h. Land Use Compatibility Matrix*

Each of the land use categories is supported by zoning districts contained in the County's existing Zoning Ordinance. Table 58 provides a comparison of the land use categories and the County's existing zoning districts. The reader is cautioned that this is an "overview" and detailed analysis must be based on careful review of the County's Zoning Ordinance. *Refer to Appendix VI for land use compatibility matrices for the participating municipalities of Holly Ridge and Richlands.*

Table 58. Future Land Use Plan Compatibility Matrix – Onslow County  
 Consistency Review of Future Land Use Map Designations and Existing Zoning Districts

Zoning Districts	RA	R-90	R-30M	R-30	R-20	R-15	R-10	R-8M	R-5	HB	CB	H-IN	L-IN	MR	CON
Min. Lot Size (SF)	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	5000	5000	None	None	None	None	Note 2	Note 3
Designations															
Area-wide Commercial Activity Center/Commercial	x	x	x	x	x	x	x	x	x	g	x	x	x	x	x
Community Growth Activity Center	c	c	c	c	c	c	c	x	x	x	g	x	x	x	x
Local Commercial Activity Center	c	c	c	c	c	c	c	c	c	x	g	x	x	x	x
Community Growth Area	x	x	x	x	x	c	c	c	c	x	c	x	x	x	c
Industrial	x	x	x	x	x	x	x	x	x	x	x	x	g	g	x
Military	x	x	x	x	x	x	x	x	x	x	x	x	x	g	x
Low-Density Residential	g	g	g	g	g	c	x	x	x	x	x	x	x	x	c
Medium-Density Residential	x	x	x	x	x	g	g	x	x	x	x	x	x	x	c
High-Density Residential	x	x	x	x	x	x	x	g	g	x	x	x	x	x	x
Conservation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	g

g = generally consistent; c = conditionally consistent; x = inconsistent

Note 1: Without sewer - 20,000 square feet; with sewer - 15,000 square feet.

Note 2: As determined by the military.

Note 3: To be determined by special use permit.

### **3. Future Land Use Acreages**

The following table summarizes the future land use acreages by ONWASA sewer service area for Onslow County (see Appendix VI for future land use tables for the participating municipalities of Holly Ridge and Richlands). The future land use plan map depicts areas for development which are generally consistent with the land suitability analysis (Maps 16 and 23). The future land use map is based on the existing and future land suitability analysis maps and no known conflicts exist between the future land use map and the land suitability analysis maps. Transitional buffers are encouraged between areas of conflicting land use. All future land use acreages are based on suitability of land for development and not forecast market demand for future acreages. The land uses in each of these areas have been coordinated with the County's zoning classifications. The zoning classifications specify allowable uses for each land use category. A complete list of the land use categories utilized on the future land use map, the zoning classifications that should be included in each category, and the assumed development patterns that are to occur in the County are provided in Section VI.E.2. These categories are intrinsically tied to the policy section of the plan.

Table 59: Onslow County Future Land Use by Sewer Service Area

Northwest Service Area			Southwest Service Area		
	Acres	% from Total		Acres	% from Total
Conservation	13,424.6	15.1%	Conservation	5,785.6	8.4%
Agriculture/Forestry	53,828.2	60.6%	Agriculture/Forestry	14,345.2	20.8%
Rural Residential	18,885.8	21.3%	Rural Residential	27,666.8	40.1%
Medium-Density Residential	849.6	1.0%	Medium-Density Residential	9,224.7	13.4%
High-Density Residential	0.0	0.0%	High-Density Residential	1,143.8	1.7%
Community Growth Areas	0.0	0.0%	Community Growth Areas	2,776.9	4.0%
Community Growth Activity Center	0.0	0.0%	Community Growth Activity Center	386.8	0.6%
Local Commercial Activity Center	231.0	0.3%	Local Commercial Activity Center	102.1	0.1%
Area-Wide Commercial Activity Center	0.0	0.0%	Area-Wide Commercial Activity Center	705.6	1.0%
Industrial	1,640.0	1.8%	Industrial	1,019.8	1.5%
Military	0.0	0.0%	Military	5,885.1	8.5%
<b>Total</b>	<b>88,859.2</b>	<b>100.0%</b>	<b>Total</b>	<b>69,042.3</b>	<b>100.0%</b>

Stump Sound Service Area			Southeast Service Area		
	Acres	% from Total		Acres	% from Total
Conservation	13,350.4	28.2%	Conservation	3,118.5	23.9%
Agriculture/Forestry	8,078.8	17.1%	Agriculture/Forestry	5.7	0.0%
Rural Residential	0.4	0.0%	Rural Residential	2,518.1	19.3%
Medium-Density Residential	12,985.2	27.4%	Medium-Density Residential	4,432.6	34.0%
High-Density Residential	4,227.6	8.9%	High-Density Residential	1,677.3	12.9%
Community Growth Areas	6,655.3	14.1%	Community Growth Areas	935.4	7.2%
Community Growth Activity Center	1,313.1	2.8%	Community Growth Activity Center	280.6	2.2%
Local Commercial Activity Center	77.2	0.2%	Local Commercial Activity Center	0.0	0.0%
Area-Wide Commercial Activity Center	0.0	0.0%	Area-Wide Commercial Activity Center	71.3	0.5%
Industrial	0.0	0.0%	Industrial	0.0	0.0%
Military	632.7	1.3%	Military	0.0	0.0%
<b>Total</b>	<b>47,320.7</b>	<b>100.0%</b>	<b>Total</b>	<b>13,039.4</b>	<b>100.0%</b>

Table 59 (continued)

White Oak Sewer Service Area			Hofmann Forest Area		
	Acres	% from Total		Acres	% from Total
Conservation	14,817.5	23.6%	Conservation	36,103.7	90.2%
Agriculture/Forestry	22,740.3	36.2%	Agriculture/Forestry	3,038.9	7.6%
Rural Residential	9,386.2	14.9%	Rural Residential	0.0	0.0%
Medium-Density Residential	13,619.6	21.7%	Medium-Density Residential	889.8	2.2%
High-Density Residential	1,305.0	2.1%	High-Density Residential	0.0	0.0%
Community Growth Areas	0.0	0.0%	Community Growth Areas	0.0	0.0%
Community Growth Activity Center	0.0	0.0%	Community Growth Activity Center	0.0	0.0%
Local Commercial Activity Center	248.7	0.4%	Local Commercial Activity Center	0.0	0.0%
Area-Wide Commercial Activity Center	483.0	0.8%	Area-Wide Commercial Activity Center	0.0	0.0%
Industrial	229.1	0.4%	Industrial	0.0	0.0%
Military	29.0	0.0%	Military	0.0	0.0%
<b>Total</b>	<b>62,858.3</b>	<b>100.0%</b>	<b>Total</b>	<b>40,032.4</b>	<b>100.0%</b>

Total - All ONWASA Service Areas		
	Acres	% from Total
Conservation	86,600.3	27.0%
Agriculture/Forestry	102,037.0	31.8%
Rural Residential	58,457.3	18.2%
Medium-Density Residential	42,001.4	13.1%
High-Density Residential	8,353.8	2.6%
Community Growth Areas	10,367.6	3.2%
Community Growth Activity Center	1,980.6	0.6%
Local Commercial Activity Center	658.9	0.2%
Area-Wide Commercial Activity Center	1,259.8	0.4%
Industrial	2,888.9	0.9%
Military	6,546.8	2.0%
<b>Total</b>	<b>321,152.4</b>	<b>100.0%</b>

\*The acreages in this table indicate total acreage to be available in each land use category and do not necessarily represent total build-out acreages. The areas delineated do not reflect need but indicate desirable locations for each identified land use category. Thus, the future land use map does not exceed the projected land use demand/need plus 50%.

NOTE: (1) Acreages do not include the planning jurisdictions of the County's municipalities or Military/Department of Defense property not served by ONWASA; (2) The Conservation category includes some land that is designated as developed on the Existing Land Use.

Source: Holland Consulting Planners, Inc.



#### 4. Land Demand Forecast

The land demand forecast section is intended to provide a snapshot of future demand for each future land use designation as outlined starting on page 227 of the plan. The result of this analysis is an anticipated growth rate and pattern for the county based on geographic regions defined in ONWASA's draft water and wastewater resources plan. The existing land use survey outlined on page 127 of the plan serves as the basis for these forecasts. Existing land use acreages have been forecasted out through 2030 based on the population projections defined on page 32 of the plan in conjunction with development rates discussed throughout the context of this document. The result of this analysis provides an anticipated demand for buildable land that may be utilized in concert with ONWASA's updated water and wastewater resources plan.

Table 60: Onslow County  
Land Demand Forecast

	<u>Residential/Housing Demand</u>			
	2010	2020	2030	Total through 2030
Increased Population (2007-)*	8,022	19,498	11,736	39,256
Persons per Household**	2.72	2.72	2.72	N/A
Dwelling Units Required	2,949	7,168	4,315	14,432
Acreage Required (average lot size of 0.85 acre)	2,536.1	6,092.8	3,667.8	12,296.7
	<u>Non-Residential Land Use Demand</u>			
	2010	2020	2030	Total through 2030
<b>Commercial/Non-Residential</b>				
Persons per Acres (2006)	0.021	0.021	0.021	N/A
Increased Demand (acres)***	168.5	409.5	246.5	824.4
Total Acreage ****	2,055.0	2,464.4	2,710.9	2,710.9
<b>Industrial</b>				
Persons per Acres (2006)	0.07	0.07	0.07	0.07
Increased Demand (acres)	561.5	1,364.9	821.5	2,747.9
Total Acreage ****	6,934.9	8,299.8	9,121.3	9,121.3
<b>Transportation/Utilities</b>				
Persons per Acres (2006)	0.008	0.008	0.008	0.008
Increased Demand (acres)	64.2	156.0	93.9	314.0
Total Acreage ****	761.5	917.5	1,011.3	1,011.3

\*Population increase addresses growth within the County from the high growth forecast outlined on page 33, as well as participating jurisdictions. The baseline year for these forecasts is 2007. In order to derive the population increase figures, 44% of the overall County population was subtracted from population estimates. This percentage is consistent with figures reported within the City of Jacksonville CAMA Land Use Plan. These estimates also account for military personnel influx resulting from BRAC efforts.

\*\*Includes multi-family development, mobile home parks, and single-family housing.

\*\*\*Increased acreage demand is based on the population increase outlined in the housing demand table above in conjunction with the persons per acre factor derived from 2006 population and existing land use figures.

\*\*\*\* Total acreage represents the increased demand plus the existing land use acreage outlined on page 127.

Source: Holland Consulting Planners, Inc.

## **SECTION VII. TOOLS FOR MANAGING DEVELOPMENT**

### **A. GUIDE FOR LAND USE DECISION MAKING**

It is intended that this document be an integral part of the Onslow County decision making process concerning future land use. This document should be consulted prior to any decision being made by the Onslow County staff, Planning Board, and/or Board of Commissioners concerning land use and development. For further explanation on how to use and implement this document, refer to Section VI.C (page 160).

### **B. EXISTING DEVELOPMENT PROGRAM**

The existing management program includes the following ordinances: Onslow County Zoning Ordinance, Onslow County Subdivision Ordinance, Minimum Housing Code, Flood Damage Prevention Ordinance, Solid Waste Management Ordinance, Parks and Recreation Master Plan, and Hazard Mitigation Plan. Preparation of the this Land Use Plan has been coordinated with the land use related codes.

### **C. ADDITIONAL TOOLS**

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

- Conduct annual training sessions for the Onslow County Planning Board and Board of Adjustment.
- The Planning Department staff, in concert with the Planning Board, shall prepare an annual report assessing the effectiveness of plan implementation. This report shall be presented to the Board of Commissioners.
- At a minimum, update the Land Use Plan and implementation process every five years.
- Prepare an Onslow County Unified Development Ordinance.
- The county will, at least annually, conduct a joint meeting of the Onslow County Board of Commissioners and the County's Planning Board to identify planning issues/needs. Involvement of the participating municipalities will be invited.

D. LAND USE PLAN AMENDMENTS

When the Onslow County CAMA Core Land Use Plan needs to be amended, the County will apply the guidelines for Land Use Plan Amendments under Subchapter 7B, Section 0.400 of the North Carolina Administrative Code. A brief summary of the County's amendment process is provided below:

- The Land Use Plan may be amended as a whole by a single resolution or in parts by successive resolutions. The successive resolution may address geographical sections, county divisions, or functional units of subject matter. Participating municipalities may make amendments to the land use plan as it affects their jurisdictions.
- The County/participating municipality must hold a public hearing of which the public has been properly notified.
- Copies of the proposed amendment(s) must be available for review at the County's Planning Department or participating municipalities' primary governmental office during designated hours.
- The executive secretary or a designated agent of the Coastal Resources Commission shall be given notice of the public hearing, a copy of the proposed amendment(s), and a reason for the amendment(s).
- Amendments must be consistent with the Coastal Resources Commission's Land Use Planning Guidelines (15A NCAC 7B) and, if possible, with the Land Use Plans of adjacent jurisdictions.
- If possible, the County/participating municipality will adopt the plan amendments expeditiously following the close of the public hearing.
- The County/participating municipality will provide the executive secretary of the Coastal Resources Commission with a copy of the amended text or maps, and certification of adoption within seven days of adoption.
- Any changes to this plan affecting areas within the jurisdiction of a participating municipality will not be considered/approved without prior review and recommendation by the governing body of the affected municipality.

- The advertising cost of amendments to this plan which are not initiated by the Onslow County Board of Commissioners will be paid for by the individual, organization, or other entity requesting the amendment.

E. ACTION PLAN/SCHEDULE

**1. Citizen Participation**

For the preparation of this plan, Onslow County and all participating municipalities adopted a citizen participation plan. A copy of that plan is included as Appendix I. Following adoption of this plan, Onslow County and all participating municipalities will implement the following to ensure adequate citizen participation:

- The county will encourage public participation in all land use decisions and procedure development processes and encourage citizen input via its boards and commissions.
- Onslow County will advertise all meetings of the county's Planning Board and Board of Adjustment through newspaper advertisements and public service announcements.
- Onslow County will utilize advisory committees to assess and advise the county on special planning issues/needs.
- All Planning Department activities will be outlined on the county's web-site. The site will include this plan.
- All public hearings for changes to land use related ordinances that affect AECs shall include in the notice a specific description of the impact of the proposed change on the AECs.
- Ensure that the membership of all planning related and ad hoc advisory committees has a broad cross section of the County's citizenry.

## 2. Action Plan/Schedule

The following describes the priority actions that will be taken by Onslow County and its participating municipalities to implement this CAMA Core Land Use Plan and the fiscal year(s) in which each action is anticipated to begin and end. This action plan will be used to prepare the implementation status report for the CAMA Land Use Plan.

Policy References	Implementing Actions	Schedule	
		Begin	End
P.1 - P.12	Onslow County will consider preparing a shoreline access plan and request Division of Coastal Management funding for the preparation of the plan.	FY2010	FY2011
P.1 - P.12	Onslow County will establish a capital reserve fund (budget line item) for the purchase and development of shoreline access sites.	FY2010	FY2011
P.1 - P.12	Onslow County will amend its subdivision regulations, as allowed by State law, to require land dedication for open space and parks including shoreline access sites in proportion to the size of the development or number of housing units being created and/or provide for the collection of a fee in lieu of land dedication for the purpose of parkland acquisition.	FY2008	FY2012
P.1 - P.12	Onslow County will establish an educational brochure and disseminate shoreline access information.	FY2010	FY2011
P.13 - P.30 P.31 - P.39 P.40 - P.47 P.48 - P.51 P.52 - P.65 P.66 - P.72 P.92 - P.107 P.108 - P.117 P.118 - P.137 P.158 - P.161 P.162 - P.181 P.182 - P.188	Onslow County will prepare a Unified Development Ordinance (UDO).	FY2008	FY2012
P.52 - P.65	Onslow County will consider the adoption of a tree preservation program.	FY2010	FY2011
P.66 - P.72	Onslow County will formulate an educational program to inform the public of its need for adequate stormwater management.	FY2010	FY2011
P.66 - P.72	Onslow County will develop a program to support clearance of streams following major storm events.	FY2010	FY2011
P.66 - P.72	Onslow County will create an action plan to acquire strategic sites and properties to protect and restore water quality.	FY2010	FY2012

Section VII. Tools for Managing Development

Policy References	Implementing Actions	Schedule	
		Begin	End
P.66 - P.72	Onslow County will consider adoption of a stormwater utility ordinance.	FY2010	FY2011
P.73 - P.85	Onslow County will consider the adoption of a local ordinance requiring water-conserving plumbing fixtures in all new construction.	FY2010	FY2011
P.73 - P.85	Onslow County will consider the adoption of an adequate public facilities ordinance (APFO) which will require that public facilities and services be available when need to serve new development at a defined/acceptable level of service.	FY2008	FY2012
P.73 - P.85	Onslow County will consider developing an inter-governmental agreement (IGA) with the City of Jacksonville, ONWASA, and other service providers.	FY2010	FY2011
P.108 - P.117	Onslow County will review its local regulations to ensure that fuel and chemical storage tanks are installed above ground in all flood hazard areas.	FY2009	FY2010
P.108 - P.117	Onslow County will develop an educational program designed to advise the public of the potential problems associated with development/location in natural hazard areas.	FY2009	FY2012
P.118 - P.137	Through a public awareness/education program, Onslow County will support the water quality and water conservation actions.	FY2009	FY2012
P.118 - P.137	Onslow County will adopt a water plan to address floating home and mooring field issues/controls.	FY2010	FY2011
P.138 - P.144	Onslow County will support a County-wide survey of historical sites by local volunteers or state and federal agencies and will seek grant monies for the complete inventory of historically significant structures and sites.	FY2009	FY2012
P.138 - P.144	Onslow County will support establishment of local historic preservation districts.	FY2008	FY2012
P.138 - P.144	Onslow County will support public education of significant historic sites by placing an inventory of significant historic sites/properties on the Onslow County website.	FY2009	FY2012
P.145 - P.157	Onslow County will investigate strategies such as providing self-guided tour materials to increase tourist activity at local historic sites.	FY2009	FY2012
P.145 - P.157	Onslow County will develop a specific plan of action to preserve its commercial fishing industry.	FY2009	FY2010
P.162 - P.181	Onslow County will develop a specific capital improvements plan (CIP) with emphasis placed on services and facilities which affect growth and development.	FY2010	FY2011
P.162 - P.181	Onslow County will prepare and update annually a capital facilities improvements plan.	FY2009	FY2012

Policy References	Implementing Actions	Schedule	
		Begin	End
P.162 - P.181	Onslow County will investigate, with the Institute of Government, the use of impact fees as a way of making new development pay for the services demanded.	FY2009	FY2010
P.182 - P.188	Onslow County will designate a Community Appearance Committee or Commission with a charge to establish guidelines and procedures for community appearance awards and to conduct studies and make recommendations addressing problems of litter on beaches and along roads.	FY2009	FY2012
P.189 - P.192	Onslow County will consider updating its minimum housing code.	FY2009	FY2010

Table 61 provides an analysis matrix which summarizes this plan's policies and identifies them as beneficial, neutral, or detrimental.

Table 61. Onslow County Policy Analysis Matrix - Land Use Plan Management Topics

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
Public Access:						
P.1	B	B	N	B	N	B
P.2	B	B	N	B	N	B
P.3	B	N	N	N	N	B
P.4	B	N	N	B	B	B
P.5	B	B	N	N	N	B
P.6	B	N	B	N	N	B
P.7	B	B	N	N	N	B
P.8	B	N	N	N	N	B
P.9	B	B	N	N	N	B
P.10	B	B	N	N	N	B
P.11	B	B	N	N	N	B
P.12	B	B	N	N	B	B



Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
Land Use Compatibility: P.13	N	B	B	N	B	B
P.14	N	B	B	N	B	N
P.15	N	B	B	N	N	B
P.16	N	B	N	B	N	B
P.17	N	B	B	N	B	B
P.18	N	B	B	N	N	B
P.19	N	B	B	N	N	B
P.20	N	B	B	N	N	B
P.21	N	B	B	N	N	B
P.22	N	B	B	N	B	B
P.23	N	B	B	N	N	B
P.24	N	B	B	N	N	B
P.25	N	B	B	N	N	B
P.26	N	B	B	N	N	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.27	N	B	B	N	N	B
P.28	N	B	B	N	B	B
P.29	N	B	B	N	B	B
P.30	N	B	B	N	B	B
P.31	N	N	N	N	N	B
P.32	N	B	B	N	N	B
P.33	N	B	B	N	N	B
P.34	N	B	B	N	N	B
P.35	N	B	B	N	N	B
P.36	N	B	B	N	B	B
P.37	N	B	N	N	N	B
P.38	N	B	B	N	N	B
P.39	N	B	B	B	B	B
P.40	N	B	B	B	B	B
P.41	N	B	B	N	B	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.42	N	B	B	N	B	B
P.43	N	B	N	N	N	B
P.44	B	B	B	N	N	B
P.45	N	B	N	N	D	B
P.46	N	B	B	N	N	B
P.47	N	B	B	N	N	B
P.48	N	B	B	N	N	B
P.49	N	B	B	N	N	B
P.50	N	B	B	N	N	B
P.51	N	B	B	N	N	B
P.52	N	B	B	N	B	B
P.53	N	B	B	N	N	B
P.54	N	B	B	N	B	B
P.55	N	B	B	N	B	B
P.56	N	B	B	N	B	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.57	N	B	B	N	B	B
P.58	B	B	B	N	N	B
P.59	N	B	B	N	B	B
P.60	N	B	B	N	B	B
P.61	N	B	B	N	B	B
P.62	N	B	B	N	B	B
P.63	N	B	B	N	B	B
P.64	N	B	B	N	B	B
P.65	N	B	B	N	B	B
P.66	N	B	B	N	B	B
P.67	N	B	B	N	B	B
P.68	N	B	B	B	B	B
P.69	N	B	B	B	B	B
P.70	N	B	B	N	B	B
P.71	N	B	B	B	B	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.72	N	B	B	N	B	B
Infrastructure Carrying Capacity: P.73	N	N	B	N	B	B
P.74	N	B	B	N	B	B
P.75	N	B	B	N	N	B
P.76	N	N	B	N	N	B
P.77	N	B	B	N	B	B
P.78	N	N	B	N	B	B
P.79	N	N	B	N	B	B
P.80	N	B	B	N	B	B
P.81	N	N	B	N	B	B
P.82	N	N	B	N	N	B
P.83	N	N	B	N	N	B
P.84	N	N	B	N	D	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.85	N	N	B	N	B	B
P.86	N	N	B	N	N	B
P.87	N	N	B	N	N	B
P.88	N	N	B	N	B	B
P.89	N	N	B	N	B	B
P.90	N	N	B	N	B	B
P.91	N	N	B	N	B	B
P.92	B	N	B	N	N	B
P.93	N	N	B	N	N	B
P.94	N	N	B	N	N	B
P.95	N	N	B	N	N	B
P.96	N	B	B	N	N	B
P.97	N	B	B	N	N	B
P.98	N	N	B	N	N	B
P.99	N	N	B	N	D	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.100	N	N	B	N	N	B
P.101	N	N	B	B	N	B
P.102	N	N	B	N	N	B
P.103	N	N	B	B	N	B
P.104	B	N	B	N	N	B
P.105	N	B	B	N	N	B
P.106	N	B	B	N	N	B
P.107	N	B	B	B	B	B
Natural Hazard Areas:						
P.108	N	B	B	B	N	B
P.109	N	B	B	B	N	B
P.110	N	N	B	B	N	B
P.111	N	B	B	B	N	B
P.112	N	B	B	B	N	B
P.113	N	B	B	B	B	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.114	N	N	B	B	N	B
P.115	N	N	B	B	N	B
P.116	N	B	B	B	N	B
P.117	N	B	B	B	N	B
Water Quality: P.118	N	B	N	N	B	B
P.119	N	N	N	N	B	B
P.120	B	B	N	N	B	B
P.121	N	N	N	N	D	B
P.122	N	N	N	N	B	B
P.123	N	B	N	N	B	B
P.124	N	N	N	N	B	B
P.125	N	N	N	N	B	B
P.126	N	N	B	B	B	B
P.127	N	N	N	N	B	B



Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.128	N	N	N	N	B	B
P.129	N	B	N	B	B	B
P.130	N	B	B	N	B	B
P.131	N	N	N	N	B	B
P.132	N	N	N	N	B	B
P.133	N	B	N	N	B	B
P.134	N	N	N	N	B	B
P.135	N	N	B	N	B	B
P.136	N	N	N	N	B	B
P.137	N	B	N	B	B	B
Local Areas of Concern: P.138	B	N	N	N	N	B
P.139	B	N	N	N	B	B
P.140	N	N	N	N	N	B
P.141	N	N	N	N	N	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.142	B	N	N	N	N	B
P.143	N	N	N	N	N	B
P.144	N	B	N	N	N	B
P.145	N	B	N	N	N	B
P.146	N	B	N	N	N	B
P.147	N	B	N	N	B	B
P.148	N	B	N	N	B	B
P.149	N	N	N	N	N	B
P.150	N	N	N	N	N	B
P.151	B	B	B	N	B	B
P.152	N	B	B	B	N	B
P.153	B	N	N	N	N	B
P.154	N	N	N	N	N	B
P.155	N	N	B	N	B	B
P.156	N	N	N	N	N	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.157	N	N	N	N	D	B
P.158	N	B	N	N	N	B
P.159	N	B	N	N	N	B
P.160	N	B	N	N	N	B
P.161	N	B	N	N	B	B
P.162	N	N	B	N	N	B
P.163	N	N	B	N	N	B
P.164	N	B	N	N	N	B
P.165	N	N	N	N	N	B
P.166	N	N	N	N	N	B
P.167	N	N	B	N	N	B
P.168	N	N	N	N	N	B
P.169	N	N	N	N	N	B
P.170	N	N	N	N	B	B
P.171	N	N	N	N	N	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.172	N	N	N	N	N	B
P.173	N	N	N	B	N	B
P.174	N	N	N	B	N	B
P.175	B	B	N	N	N	B
P.176	B	B	N	N	N	B
P.177	B	B	B	N	N	B
P.178	N	N	N	N	N	B
P.179	B	N	N	N	N	B
P.180	B	N	N	N	N	B
P.181	B	B	N	N	N	B
P.182	N	B	N	N	N	B
P.183	N	B	N	N	N	B
P.184	N	B	N	N	N	B
P.185	N	B	N	N	N	B
P.186	N	B	N	N	N	B

Management Topics	Policy Benchmarks – Indicate whether the policy is <u>beneficial</u> (B), <u>neutral</u> (N), or <u>detrimental</u> (D)					
	Public Access	Land Use Compatibility	Infrastructure Carrying Capacity	Natural Hazards	Water Quality	Local Concerns
<b>Land Use and Development Policies</b>	<ul style="list-style-type: none"> <li>• more planned access locations</li> <li>• upgrades to existing access locations</li> <li>• increase pedestrian access</li> <li>• comply with state access standards to enhance opportunities for state funding</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in habitat loss and fragmentation related to impacts of land use and development</li> <li>• reduction of water resource and water quality degradation</li> <li>• balance growth demands with protection of the environment</li> </ul>	<ul style="list-style-type: none"> <li>• water, sewer, and other key community facilities and services being available in required locations at adequate capacities to support planned community growth and development patterns</li> <li>• during construction of infrastructure systems, AECs and other fragile areas should be protected</li> <li>• transportation improvements should support the efficiency of traffic flow and pedestrian safety</li> </ul>	<ul style="list-style-type: none"> <li>• land uses and development patterns that reduce vulnerability to natural hazards</li> <li>• land uses and development patterns that take into account the existing and planned capacity of evacuation infrastructure</li> <li>• minimize development in floodplains, AECs, wetlands, and other fragile areas</li> </ul>	<ul style="list-style-type: none"> <li>• land use and development criteria and measures that abate impacts that degrade water quality</li> <li>• coordinate water quality efforts with Onslow County</li> </ul>	<ul style="list-style-type: none"> <li>• preservation of cultural, historic, and scenic areas</li> <li>• support of economic development</li> <li>• development of human resources</li> <li>• preservation of the County's rural character</li> <li>• decrease residential density within County</li> </ul>
P.187	N	B	N	N	N	B
P.188	N	B	N	N	B	B
P.189	N	B	N	N	N	B
P.190	N	B	B	N	N	B
P.191	N	B	B	B	N	B
P.192	N	B	N	N	N	B

**Notes to the Policy Analysis Matrix for those policies deemed Detrimental:**

- (1) Land Use Compatibility Policy P.45 (D) - Water Quality Management Topic: Mining activities could have a potential negative impact. An Environmental Impact Statement should be prepared with emphasis placed on preservation of water quality.
- (2) Infrastructure Carrying Capacity Policy P.84 (D) - Water Quality Management Topic: It is acknowledged that the provision of infrastructure will require construction in some environmentally sensitive areas. Mitigative actions will be required. Please refer to Section VI.E.4 and Section VI.E.5, Land Demand and Carrying Capacity Discussions.
- (3) Infrastructure Carrying Capacity Policy P.99 (D) - Water Quality Management Topic: Dredging activities must be based on environmentally acceptable disposal of dredge/spoil materials and avoid disruption of sensitive estuarine environments, including nursery and shellfishing areas.
- (4) Water Quality Policy P.121 (D) - Water Quality Management Topic: Potential detrimental action may result from possible over-fishing of coastal fisheries.
- (5) Local Areas of Concern Policy P.157 (D) - Water Quality Management Topic: Proper environmental safeguards must be imposed on industrial projects to minimize or prohibit adverse impacts on water quality.