

## **II. NATURAL CONDITIONS**

### **A. INTRODUCTION**

Natural features of the land have an effect on settlement patterns. The features of topography, soils, geology, water, and vegetation establish the basic suitability and capacity of the land for development. These features affect the way in which particular parcels of land can be used, greatly influencing overall land use patterns, and they also affect the cost of public facilities and service.

Natural features are important to Southampton County, not so much as a strong influence on development patterns but as a very important influence on the economy of the County and the quality of life of its inhabitants.

### **B. AGRICULTURAL LANDS AND FORESTLANDS**

The economic significance derived from agricultural lands and forestlands is discussed in detail in Chapter IV – ECONOMY. As integral parts of the natural conditions of Southampton County, these lands represent the rural and unspoiled heritage the County has sought to perpetuate.

Of the 384,000 acres that make up Southampton County, 185,496 acres or 48.4% are devoted to agriculture. Peanuts, cotton, corn for grain or seed, and soybeans are the primary crops.

Forestlands are perhaps the most important aesthetic, environmental, and economic resources of Southampton County. While their annual value as a cash crop can be determined, their economic value as the scenic backdrop of the County is incalculable. They provide most of the beauty which the County offers as a residential community and tourist attraction and are of great importance in reducing soil erosion and in creating wildlife habitats. Major stands of trees that remain along traffic arteries and between or within smaller residential neighborhoods reduce noise levels, provide a sense of privacy, create scale, protect residential values, and make urban development less noticeable by isolating smaller units.

Forestry is a recycling industry of sorts with the replanting of seedlings on sites where logging of mature trees has occurred. With a large paper mill located in the neighboring county, the need for land to provide ample quantities of timber proves to be an added factor in the land use plan of Southampton County. The State Department of Forestry promotes best management practices during forestry operations that assist in the preservation of water quality in the County.

The pattern of fields and forests throughout the County is not completely accidental. The best-drained soils lie generally along the County's broad and gentle topographic ridges.

These areas have been cleared for farming and are also connected by the County’s ridge road network. Other lands less suitable for crops remain wooded. Although there are additional good soils which have not been cleared, the balance between forest and fields will continue to be determined by the economics of farming and timber production and the intricate roles played by government programs in both areas.

Forests are reported to cover more than 60% of the County’s total land area. However, there is some overlap in acreage totals as some lands devoted to agriculture are counted in the forest inventory. Dominant forest types include both hard and soft woods. The lowland forests are generally confined to the swamps and swampy areas, with hardwoods such as oak, gum, and cypress predominating. Extensive upland areas have been harvested and reforested in pine. EXHIBIT II-A which follows breaks down the County’ forest inventory by species and acres.

<b>EXHIBIT II-A SOUTHAMPTON COUNTY, VIRGINIA FOREST INVENTORY – SPECIES AND ACRES</b>	
<b>SPECIES</b>	<b>ACRES</b>
Loblolly - Shortleaf	90,403
Oak – Pine	34,307
Oak – Hickory	69,043
Oak – Gum - Cypress	45,090
Elm – Ash - Cottonwood	2,739
<b>TOTAL</b>	<b>241,582</b>

*Source: Virginia Department of Forestry.*

EXHIBIT II-B lists the County’s forest inventory by age groups and acres.

<b>EXHIBIT II-B SOUTHAMPTON COUNTY, VIRGINIA FOREST INVENTORY – AGE GROUP DATA AND ACRES</b>	
<b>AGE GROUP DATA</b>	<b>ACRES</b>
Hardwood & Pine Sawtimber	103,209
Pole Timber	64,575
Sapling - Seedling	71,060
Non-stocked	2,738
<b>TOTAL</b>	<b>241,582</b>

*Source: Virginia Department of Forestry.*

### **C. AIR QUALITY**

According to the Virginia Department of Environmental Quality, Office of Air Monitoring, no monitoring activity has occurred in Southampton County in recent history. No air quality problems exist in the County. As far as National Air Quality Standards are concerned, Southampton County in 2000 is in compliance.

### **D. CLIMATE**

A moderate climate prevails in Southampton County with an average annual temperature of 58.8 degrees. Summer temperatures average 78.3 degrees while winter temperatures average 40.5 degrees. The frost-free growing season extends from about April 15th to October 20th, providing a growing season of approximately 188 days.

The annual rainfall averages 45.22 inches. Snowfall averages 8.2 inches annually.

Winds prevail from a southwesterly direction and are of low velocity. Some light winds can be expected during storms.

### **E. GEOLOGY, SOILS, AND MINERALS**

The soils of the County have resulted from various layerings of marine and alluvial deposits and local weathering. They are generally all unconsolidated beds of sand, silt, and clay; bedrock is hundreds of feet below the surface. The soils were mostly developed under a forest cover, which consisted originally of a nearly pure stand of loblolly pine on the uplands, and are therefore deficient in organic matter, at least in comparison with certain mid-western soils which were developed in a grasslands environment. Nevertheless, the soils in most of the County are suitable for growing crops and trees. Except for the surface mining of sand, mostly near the Nottoway and Blackwater Rivers, extraction of minerals has not been an important activity in the County.

Variations in relief and drainage have been controlling factors in differences between upland soils. The diversity in soils of the stream bottoms and terraces are owing mainly to differences in the material from which these soils were formed. Since such conditions vary locally, there is considerable local variation in the soils. The Norfolk soils, with the exception of the Norfolk fine sand, are agriculturally the most important because they are the soils best suited for growing peanuts, the County's best money crop. These soils exist extensively in the western part of the County and also to the northeast. Other soils in the County are also suitable for production of a variety of crops or for growing trees. Even so, management of the soils is practically as important as the quality of the soil, since less suitable soils properly managed are capable of producing yield comparable to average yields on better soils.

Because of their drainage characteristics, the best soils for agriculture are also the best soils for septic tank drainage fields. The soils immediately surrounding the towns and

Franklin are not particularly good either for development with septic tanks or for agriculture. Moreover, the soils vary enough throughout the County that localized testing is necessary to determine soil qualities. A comprehensive soil survey has been completed (but is not yet published) for Southampton County under the supervision of the U. S. Department of Agriculture, Soil Conservation Service. This study will give considerably more detailed soils information than is currently available.

The Health Department has added to its requirements relating to septic tanks for the set-aside of a reserve area in drainfields for future expansion.

## **F. TOPOGRAPHY, DRAINAGE, AND FLOOD PLAINS**

The topography of the County is perceived as being basically flat. There are, however, some variations in topography. The County lies altogether within the southern part of the coastal plain of Virginia. The elevation of the upland parts of the County ranges only from about 15 feet above sea level in the east to about 130 feet above sea level in the west. At the confluence of the Blackwater and Nottoway Rivers in the southeastern corner of the County, the elevation lies near sea level itself. Most of the County has adequate relief for drainage, the western part being somewhat more rolling than the eastern part, but there are broad flat areas, such as those in the vicinity of Ivor, Corinth, and Branchville, and south of Franklin and Boykins, where drainage is poor.

The coastal plain of Virginia developed as a series of oceanic or marine terraces and there is topographic evidence of former successive shorelines. Several of these terraces and escarpments cross Southampton County. All of the County's main streams flow slowly toward the south and generally parallel to the principal topographic belts. The main streams have broad floodplains, substantial portions of which are covered by wooded swamps. Tributaries to the main streams may also flow through swamps, but these swamps are generally not so wide.

Except for the swamps and the streams themselves, there are no severe topographic obstacles either to development or to agriculture and forestry. The swamps and nearby wetlands actually play an important role in maintenance of water quality and wildlife as well as the aesthetic quality of the rural area and should be considered as natural assets rather than liabilities. Perhaps the most obvious and easily understood conservation area is the flood plain, the area where water spreads out beyond the normal creeks or riverbanks in times of heavy rain. The flood areas that are not so obvious are the floodway fringe areas. These are areas in which flooding may occur once every 50 to 100 years.

Southampton County was severely impacted by Hurricane Floyd and the subsequent flooding in September 1999. The flood was a result of the excessive rain from earlier Hurricane Dennis and Hurricane Floyd overwhelming drainage basins and rivers. Southampton County was affected by both the Nottoway and Blackwater River, as well as the Tarrara Creek (Boykins). Communication, transportation, electricity and utilities were

all affected by the disaster. Approximately 180 households were damaged or destroyed. Seventy-five percent of our secondary routes had sections under water or parts washed out.

Southampton County, through the Federal Emergency Management Agency Hazard Mitigation Grant Program, has acquired 67 parcels of land containing 38 structures at an estimated value of over \$1.7 million dollars. This program is ongoing and the property purchased by the County will remain in open space, as required by the grant program.

The Southampton County Board of Supervisors leased land in the Southampton County Agri-Business Park to the Federal Emergency Management Agency (FEMA) for establishment of a "Temporary Manufactured Housing Park" for residents of Southampton, Isle of Wight, and the City of Franklin. Residents utilized single-wide manufactured homes or travel trailers as living quarters until a long-term housing solution could be determined.

Southampton County is also utilizing a Virginia Department of Housing and Community Development (VDHCD) "Community Improvement Grant" to provide rehabilitation assistance to flood damaged properties.

The stream and river flood plains in Southampton County have been mapped by the Federal Emergency Management Agency (FEMA) in Washington, D.C. The County and the City of Franklin qualify for the National Flood Insurance Program. This program provides those structures within the mapped flood hazard areas with flood insurance coverage at moderate premium rates. Insurance under the program is underwritten by private insurance companies in conjunction with Federal monetary support.

The flood plain areas will be an integral part of the Comprehensive Plan. The knowledge of these areas will benefit both the public and individuals. The County can protect itself and flood plain property owners from disastrous life and property losses by controlling the location and uses within the flood plain.

Flood Insurance Rate Maps (FIRMs) and Floodway Boundary and Floodway Maps are available for Southampton County from FEMA. Copies of these maps are available for public inspection in the County's administrative offices.

## **G. WATER RESOURCES**

Practically all local public, private, and industrial use of water is dependent on wells. The same is generally true for agriculture, although in this case some water is made available for irrigation from streams and ponds. International Paper in Isle of Wight County is by far the largest local user. Largely as a result of the company's wells, the water table has been lowered considerably in past years. The City of Norfolk takes water from the Nottoway and Blackwater Rivers during periods of adequate flow. One intake is located above Courtland and the other above Franklin. In the past, proposals for major reservoirs on the Nottoway and Blackwater have been discussed, but these projects are not being actively pursued at the present time.

While the County's water-bearing aquifers have been capable of supplying large quantities of water, this resource is one which must be guarded very carefully, both from depletion and pollution. The State established a Groundwater Management Area for five counties and seven cities in southeastern Virginia, including Southampton County, in an effort to control water use. Currently the water table is stable and the existing permitting program should keep it so. The availability of water is a key element to the agricultural and industrial economy of the County, not to mention the every day water needs of the County's residents. Careful monitoring should be continued together with additional research needed for better understanding of the complex groundwater system.

Concerns about water quality and fishery landings, both commercial and recreational, in the Albemarle and Pamlico Sounds resulted in a study by the U.S. Environmental Protection Agency and the State of North Carolina. The Albemarle-Pamlico Estuarine Study (APES) was to identify current and potential problems in the estuary and to develop a management plan to improve and maintain the health of the estuary. The study area encompassed those parts of North Carolina and Virginia that drain to the Sounds. This area covered nearly 31,000 square miles and a population of approximately 2,000,000.

Southampton County's connection to the APES program is through the Chowan River watershed, part of which is located in Virginia, and consists of the Blackwater, Meherrin and Nottoway River subbasins. The Meherrin River serves as Southampton County's western boundary with Greensville County, and the Blackwater River serves as the County's eastern boundary with Isle of Wight County and City of Suffolk. The Nottoway River winds through the central portion of Southampton County from Sussex County to eastern North Carolina.

Nutrient enrichment, particularly by phosphorus and nitrogen, is seen as the major cause of water quality problems in the Chowan River and its tributaries. Other factors adding to the impairment of the Chowan River and its tributaries are nutrient rich runoff from agricultural and urban areas, animal waste management systems, failing or inadequate septic systems, wetland drainage, and natural conditions. These factors are known as non-point source pollution and are by far the largest contributor to water quality problems of the

Chowan River System.

Ways to reduce the effects on the Sounds and minimize the effects of non-point source pollution are being researched. The APES Plan was formally approved by the Governor of North Carolina and the Administrator of EPA on November 9, 1994. No recommendations for specific actions by Virginia were included, but it does recommend that the two states work together to develop an agreement on future planning and implementation activities.

## **H. CONCLUSIONS**

Natural resources contribute to the environmental quality of Southampton County. Natural resources can be a very positive aspect in the development of a rural county such as Southampton, although the same development can adversely affect those same natural resources. These negative effects can create a vulnerability of imbalance in the system and environmental damage. Intervention and protection of our natural resources needs to be addressed to avoid the depletion of our resources or the costly expenses of restoring them.

Different measures can be taken to undertake and achieve the natural resource goals and objectives. Regulation through the zoning ordinance can help in the County's efforts to preserve and improve its natural resources and environmental quality. Management of the floodplain within the County is currently addressed within the zoning ordinance. Preservation of rural area and good farmland can be achieved through amendments to the zoning ordinance as relating to development and the compatibility between various uses. In response to "Right to Farm" legislation, Southampton County has amended its ordinance in regard to "intensive agricultural operations" to set developmental standards for such uses. The amendments are seen as a way to promote harmony in county agricultural-zoned districts in relation to agricultural uses and residential uses. Setbacks from roads, property lines, existing structures and water supplies, as well as limits on the maximum number of animals per site have been developed to allow for such operations. This serves the farmer from the standpoint of knowing what is expected up front.

Southampton County's natural conditions are a huge drawing card for visitors and a source of pride for residents. The County must work in concert with private, State, and Federal entities to protect and preserve resources while providing for jobs and necessary community facilities.