

TABLE OF CONTENTS

LEGISLATIVE AUTHORITY----- 2

SECTION ONE: INTRODUCTION AND FRAMEWORK-----6
FOR PLANNING

SECTION TWO: POPULATION CHARACTERISTICS----- 13
AND TRENDS

SECTION THREE: ENVIRONMENTAL CHARACTERISTICS ----- 18
AND NATURAL RESOURCES

SECTION FOUR: LAND USE -----51

SECTION FIVE: TRANSPORTATION-----66

SECTION SIX: COMMUNITY FACILITIES ----- 77
AND PUBLIC SERVICES

SECTION SEVEN: THE ECONOMY-----92

State of Virginia Statutory Authority for this Plan

The preparation, adoption, and implementation of a local comprehensive plan are governed by the Code of Virginia of 1950, as amended. Relevant portions of the Code follow:

Title 15.2
Article 3

The Comprehensive Plan

§ 15.2-2223. Comprehensive plan to be prepared and adopted; scope and purpose.

A. The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

In the preparation of a comprehensive plan, the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities.

The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature, including any road improvement and any transportation improvement, shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.

This section of the Virginia Code continues on regarding information that shall be outlined in the Comprehensive Plan, specifically transportation planning and coastal zone management which applies to Essex County.

§ 15.2-2224. Surveys and studies to be made in preparation of plan; implementation of plan.

A. In the preparation of a comprehensive plan, the local planning commission shall survey and study such matters as the following:

1. Use of land, preservation of agricultural and forestal land, production of food and fiber, characteristics and conditions of existing development, trends of growth or changes, natural resources, historic areas, ground water, surface water, geologic factors, population factors, employment, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, dam break inundation zones and potential impacts to downstream properties to the extent that information concerning such information exists and is available to the local planning authority, the transmission of electricity, road improvements, and any estimated cost thereof, transportation facilities, transportation improvements, and any cost thereof, the need for affordable housing in both the locality and planning district within which it is situated, and any other matters relating to the subject matter and general purposes of the comprehensive plan.

However, if a locality chooses not to survey and study historic areas, then the locality shall include historic areas in the comprehensive plan, if such areas are identified and surveyed by the Department of Historic Resources. Furthermore, if a locality chooses not to survey and study mineral resources, then the locality shall include mineral resources in the comprehensive plan, if such areas are identified and surveyed by the Department of Mines, Minerals and Energy. The requirement to study the production of food and fiber shall apply only to those plans adopted on or after January 1, 1981.

2. Probable future economic and population growth of the territory and requirements therefor.

B. The comprehensive plan shall recommend methods of implementation and shall include a current map of the area covered by the comprehensive plan. Unless otherwise required by this chapter, the methods of implementation may include but need not be limited to:

1. An official map;
2. A capital improvements program;
3. A subdivision ordinance;
4. A zoning ordinance and zoning district maps;
5. A mineral resource map;
6. A recreation and sports resource map; and
7. A map of dam break inundation zones.

§15.2-2230. Plan to be reviewed at least once every five years.-At least once every five years, the comprehensive plan shall be reviewed by the local commission to determine whether it is advisable to amend the plan.

§15.2-2231. Inclusion of incorporated town in county plan; inclusion of adjacent unincorporated territory in municipal plan.-Any county plan may include planning of incorporated towns to the extent to which, in the county local commission's judgment, provided, however, that the plan shall not be considered as a comprehensive plan for any incorporated town unless recommended by the town commission, if any, and adopted by the governing body of the town.

Any municipal plan may include the planning of adjacent unincorporated territory to the extent to which, in the municipal local commission's judgment, it is related to the planning of the incorporated territory of the municipality; provided, however, that the plan shall not be considered as a comprehensive plan for such unincorporated territory unless recommended by the county local commission, if any, and approved and adopted by the governing body of the county.

§15.2-2232. Legal status of plan.-Whenever the local commission shall have recommended a comprehensive plan or part thereof for the county or municipality and such plan shall have been approved and adopted by the governing body, it shall control the general or approximate location, character and extent of each feature shown on the plan. Thereafter no street, park or other public area, public building or public structure, public utility facility or public service corporation facility other than railroad facility, whether publicly or privately owned, shall be constructed, established or authorized, unless and until the general location or approximated location, character, and extent thereof has been submitted to and approved by the local commission as being substantially in accord with the adopted comprehensive plan or part thereof. In connection with any such determination the commission may, and at the direction of the governing body shall, hold a public hearing, after notice as required by §15.2-2204.

The commission shall communicate its findings to the governing body, indicating its approval or disapproval with written reasons there for. The governing body may overrule the action of the commission by a vote of a majority of the membership therefore. Failure of the commission to act within sixty days of such submission, unless such time shall be extended by the governing body, shall be deemed approval.

SECTION ONE

INTRODUCTION AND FRAMEWORK FOR PLANNING

Background Description

Essex County is a predominantly rural County situated on the northeastern most section of the Middle Peninsula in the Commonwealth of Virginia. It is bounded on the north by King George and Westmoreland Counties, on the east by Richmond County, south by Middlesex County, and by Caroline and King and Queen Counties on the west. The east boundary of Essex County is the Rappahannock River (See Map 1-1). The land area of the County is approximately 257 square miles (165,000 acres).

Formed in 1692 when Old Rappahannock County was divided into Essex and Richmond, the County was named for either the English County or the Earl of Essex. In 1652, a port settlement began in the area of New Plymouth, later renamed Tappahannock for the Indian name meaning Town on the River. Tappahannock was incorporated in 1926 and serves as the County seat covering an area of roughly 2.75 square miles and located near the center of the County. An elected Board of Supervisors and an appointed County Administrator govern the County and a Town Council-Town Manager form of government serves the Town.

Tappahannock is the employment and population center for the County and the commercial center for the Middle Peninsula region. Residential developments exist as small rural communities along the Rappahannock River or as strip residential along primary roadways. Growth has been gradual and slow allowing the County to retain its predominantly rural character. As the County grows and changes over the next 20 years, this Comprehensive Plan will serve as a guide for making growth management decisions in Essex County. The Plan is a culmination of a cooperative effort, pulling together the knowledge and skills of diverse residents, business leaders and government staff. This plan represents a vision of Essex County along with recommendations for bringing that vision to fruition. The ideas of the Plan are a distillation of the community's many desires, tempered by what is necessary, feasible, and reasonable to foster a good quality of life for Essex residents. This Plan is not intended to be a static document. It should be reviewed and updated periodically to reflect new development trends, shifts in the economy, or changes in the community goals and objectives.

Essex County is a special place with a unique character, culture and history that distinguishes the community from others in the region. This Comprehensive Plan, particularly the plan goals and objectives, addresses the preservation and enhancement of these special qualities and the distinctive personality felt by the residents. This sense of uniqueness and pride of place are the guiding forces and strongest motivation for those who have contributed to the realization of this document. The opportunities presented by a shifting economy, technological changes, and a strategic location present the County with the chance to shape a bright future.

MAP 1-1 (VICINITY OR LOCATION MAP)

The Comprehensive Plan Defined

The overall goal of the Comprehensive Plan is to: "**Maintain and enhance the quality and character of the County by promoting the efficient use of the County's land and natural resources in order to effectively meet the social and economic needs of present and future residents providing for a more balanced and sustainable community.**"

The Comprehensive Plan is an official public document adopted by the County Planning Commission and Board of Supervisors. The Plan is a general, long-range, policy and implementation guide for decisions concerning the overall growth and development of the County. It brings together the elements of land use, economy, transportation, public infrastructure and environmental protections to implement the vision of a sustainable Essex County community.

The Plan is comprehensive in that the elements cover the entire range of development, preservation infrastructure and economic issues which can be influenced significantly by the County Board of Supervisors and other governing authorities. Consideration is given to these categories and issues arising over the next twenty years. Planning should be viewed as an opportunity for a community to control its own destiny. It is a process by which Essex County has:

- assessed its current state of development, needs, problems, and resources;
- determined its desirable future physical form and character;
- established public policies designed to help bring about the necessary changes and guide private actions to achieve community objectives

The purpose of such a process is to ensure rational allocation of finite resources to meet the community's priority needs and to mitigate whenever possible, future environmental, social, and economic issues. Planning is a means for expressing the will of the community; regulatory actions the means by which the community's will be implemented. In other words, regulations are not ends in themselves, but means of achieving the desired ends i.e. goals identified during the planning process.

The Comprehensive Plan has evolved as the primary vehicle through which this process is conducted. The Plan generally consists of:

- an analysis of existing conditions and an inventory of available resources;
- goals and objectives;
- future plans; and

- recommendations for implementation.

The Plan is most effective when it contains input from all segments of the community and must be continuously evaluated and updated as necessary. Public participation and outreach are essential to knowing and understanding the goals and objectives of the County.

The Comprehensive Plan update was conducted by a Steering Committee consisting of Essex County residents and members of the business community, Essex County staff and Planning Commission members and Middle Peninsula Planning District Commission.

Although adopted as an official public document, the Comprehensive Plan is not a development and preservation ordinance. This plan serves as a catalyst and guide to the establishment of, or revisions to, other ordinances or planning tools including the zoning and subdivision ordinances. The Land Use Plan Map, included in this plan, serves to illustrate how and where the Plan's policies and recommendations will be carried out. This mapped information is general in nature and not appropriate for determining the suitability of specific sites for any specific use.

The Purpose of the Plan

This Plan provides the basic policy framework to manage and direct future development in Essex County. It is designed to address imminent issues as well as to provide a long term planning strategy for implementing future actions and policies. As such, the Plan is designed to address the County's needs through the year 2030 and thereby provide the County with a means to ensure orderly, managed growth and development throughout the planning period. Various projections, policies, and recommendations are prepared in the context of balancing the many objectives attendant to this Plan. This general theme when interpreted in terms of land use says that:

The County should adopt a "growth management " philosophy toward the use of the land over which it has zoning authority; and that development should be of a controlled nature, channeled into the most appropriate areas and discouraged in other areas. Moreover, the County has determined that such a philosophy is necessary to cost effectively sustain adequate levels of public services and facilities in the form of schools, transportation networks, sewer, water, police, fire and health care services which will be required to support present and future residents.

The goals and objectives framed in the elements of this Plan serve as a formally adopted growth management guide to Essex County's future. They provide guidance for public decisions concerning how development will be managed or regulated, where and how it should occur, and where capital improvements and public services should be provided or not provided to support it. In this context, the Plan serves to inform County residents, the development community, and State and Federal agencies of the County's intent regarding its future. It identifies controls, management measures, financial or human resource investments, and incentives necessary to achieve County objectives.

Finally, the Plan provides the basis for a number of County actions and management decisions and serves as a tool for evaluating the merits of proposals which will surface over time. Undoubtedly, County residents, the Planning Commission and the County Board of Supervisors will be faced with proposals which could affect many aspects of life in the County. This Plan in particular, its policies and objectives, provide guidance in decision-making and establish a basis for evaluating proposals of this kind.

Goals, objectives, and recommendations of the Comprehensive Plan are influenced by reports prepared as part of the process toward its completion. Likewise, it will, in turn, influence revisions in the construction of companion documents which serve to implement the Plan including the County Zoning Ordinance and Land Subdivision Regulations. Since the Plan concurrently influences and is influenced by these related Planning Program documents, a brief description of each follows.

Legal Basis for Comprehensive Planning

Essex County's first Comprehensive Plan was drafted in 1967. Preparation of the Comprehensive Plan is the legal responsibility of the County Planning Commission and is mandated by the Virginia Planning Enabling Legislation, Title 15.2, Article III, of the Code of Virginia, 1950, as amended. The Plan also serves to satisfy the requirements of VAC 10-20-10 et seq. Chesapeake Bay Preservation Area Designation and Management Regulations, which established standards for local Comprehensive Plan Elements designed to implement Chesapeake Bay Water Quality Improvement objectives. Any ordinance pertaining to the use of land or the growth and development of the County should conform to the goals, objectives, and policies as they are presented in this Plan.

Zoning Ordinance

The Essex County Zoning Ordinance was first adopted in 1976 and serves as a primary planning tool for implementing the Comprehensive Plan. Zoning is a means by which private properties are regulated in the public interest. The Zoning Ordinance and its official map delineate and describe conservation, agriculture, residential, business and industrial areas throughout the County. The permitted uses and development regulations for each of these areas are described within the ordinance and through a schedule of district regulations and an official zoning map.

The Zoning Ordinance sets out how property in the County may or may not be used. It prescribes a series of zoning districts and enumerates uses permitted and establishes performance standards for future development in each district. The standards are designed to ensure achievement of certain objectives established in the Plan including protection of sensitive environmental features and enhancement of future environmental qualities.

Subdivision Regulations

Revised in 1998, Essex County has enforced subdivision regulations for as a part of the growth management process. Subdivision regulations assure adequate provision of services for residential communities. By use of this planning tool, unnecessary burden of public funds for streets, recreation and utilities is mitigated in the future.

These regulations provide guidance and controls for the configuration and layout of land subdivision in the County. They further establish standards for subdivision plat content and procedural submission requirements. Standards contained in these Regulations will also be designed to ensure implementation of certain Comprehensive Plan policies and objectives.

Site Plan Regulations

Another tool to implement the Comprehensive Plan is the establishment of site plan requirements which provide for the review of proposed developments of a designated scale prior to their location within the County. In this way the provision of public services, impact on adjacent land uses and overall impact can be negotiated with the developer prior to approval by the County.

Storm Water Management

Essex County implements a countywide storm water management plan based on guidelines from the Statewide Storm Water Management Programs. The plan includes provisions from the previous Erosion and Sedimentation Control Ordinance. Through the Storm Water Management Program, development requests are reviewed and monitored so as to assure that sedimentation is minimized and storm water erosion is prevented during land disturbance. This serves to control development to the extent that compliance with environmental protection factors must be met.

Housing and Building Codes

Housing and building codes include the fire code, electrical code, housing code, building code and plumbing code. These are designed to protect the health, safety and general welfare of the residents of the County by providing minimum standards for all types of structures. Most of these codes have been incorporated into the Uniform Statewide Building Code and are in effect through the Office of the Building Inspector.

Conservation Easements & Historic Districts

The provisions of Virginia law permit County ordinances to include protection against destruction of or encroachment upon historic areas. This can be included within the zoning ordinance or it can exist independently in the form of historic easements. The historic easement

is a means for private owners of historic properties to preserve these properties for public enjoyment without giving up their ownership. The easement includes a dedication of restrictions on future use and development of the property and places it in trust with a public or semi-public agency. The property owner, however, retains the right of continued ownership and usage as long as uses are consistent with the restrictions. There is also a provision for tax deductions. The County may wish to encourage owners of historic properties to consider their options in preserving identified historic sites and structures in the County. Similar State statutes permit a landowners voluntary formation of agricultural and forestry district. Encouraging landowners to create such districts further the comprehensive plan objectives for preserving farmland, forestland and rural character.

Capital Improvements Program

Essex County is currently exploring creation of a Capital Improvements Program. A capital improvements program lists the local public improvements needed for a specified period. It identifies the estimated construction costs and the proposed funding source as well as the timetable under which such projects will be implemented. A capital improvements program serves to assist the County in carrying out the goals and objectives within the limits of the County's financial capabilities, and to assure adequate funding for capital improvements needed to facilitate delivery of services to County residents.

SECTION TWO

POPULATION CHARACTERISTICS AND TRENDS

Study of the County population tells us more than just the number of people residing in Essex County. Historic accounts of population numbers and analysis of the change in numbers, by migration or natural increase, indicate population projections for future years. This enables the County to plan what types and amounts of various land uses and services will be required to accommodate and manage future growth. Age, education, and other demographic composition changes in the population indicate what types of services will be necessary in the future.

The 2010 Census shows the Essex Population to be 11,151, an increase of 1,162 people or 11.6% growth from the 2000 Census which reported the population at 9,989, Population is not rapidly growing in Essex County and the low to moderate trend in growth is expected to continue. Table 2-1 below shows moderate projections for Essex County over the next decade in comparison with the region and the Commonwealth.

Table 2-1: Population Estimates and Projections

	2000	2010	2020	2030
Essex County	9,989	11,151	11,884	12,477
Middle Peninsula	90,826	93,684	97,061	102,761
Virginia	NA	8,001,024	8,811,512	9,645,281

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-2 shows a breakdown of the current population on Essex County by age groups. The table indicates that about 24% of the population is dependents. It also shows that 18% of the population is of retirement age. The median age of Essex County residents is 43.

Table 2-2 Population Age Distribution

Age	Number	Percentage	Age	Number	Percentage
Under 19 years	2,740	24.5%	55 to 59 years	831	7.5%
20 to 24 years	625	5.6%	60 to 64 years	821	7.4%
25 to 34 years	1,162	10.4%	65 to 74 years	1,078	9.6%
35 to 44 years	1,344	12%	75 to 84 years	621	5.6%
45 to 54 years	1,692	15.4%	85 years and over	237	2.1%

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-3 shows population growth in relation to housing units.

Table 2-3: Population and Housing

	2010	2011	2012
Housing (units)	5761	5770	5778
Population	9,989	11,233	11,884

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-4 gives projected age distribution of the Essex population and projections. The County population aged somewhat during the period. A corresponding modest reduction in the school age population was also evident through the same period. These trends suggest County programs may at some point require redirection in meeting the special needs (health care/transportation) of an older population.

The elderly (over 65 years of age) comprise 17 percent of the County's population and reflects the fact that people live longer and families retire or pre-retire to the Essex County waterfront. There is a significant decrease in the children under 5 due to the aging population as well. The 20-24 age group is significantly low due to out-migration as a result of migration education and job opportunities. The 45-54 age group decreases significantly due to migration and aging population.

Table 2-4 Population Projections by Age

	2011	2020	2030
Total	11,151	11,884	12,479
Under 5	649	602	646
5-19 years	2091	2,167	1,841
20-24 years	625	517	649
25-44 years	2506	2,766	2,911
45-54 years	1692	1495	1,443
55-64 years	1652	1778	1,581
65-74 years	1078	1576	1,702
75-84 years	621	740	670
85 and greater	237	243	186

U.S Census Bureau, American Fact Finder 2007-2011

Figure 2-1 shows the makeup of households in Essex County. The numbers indicate that 67% of households in Essex County are parents with dependents living at home. 46 % are married couples with dependents at home while 33% of households have no dependents living at home. More than 27% of

households have one member. Almost 21% of household have a single parent. 30% of households have children under 18, 30 %of households with individuals 65 and over.

Figure 2-1 Distribution of Household and Families

Total households	4,517	100.0
Family households (families)	3,028	67.0
With children under 18 years	1,130	25.0
Husband-wife family	2,093	46.3
With children under 18 years	641	14.2
Single parent householder	702	20.7
With children under 18 years	489	10.8
Nonfamily households	1,489	33.0
Householder living alone	1,235	27.3
65 years and over	168	3.7
65 years and over	326	7.2
Households with individuals under 18 years	1,370	30.3
Households with individuals 65 years and over	1,372	30.4
Average household size	2.43	(X)
Average family size	2.92	(X)

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-5 shows that while 91% of the 25-34 population has obtained a high school education or equivalent, only 12 % have a college degree. This pattern is consistent throughout the age groups. This pattern shows that a low percentage of the population is college educated.

Table 2-5 Population Educational Attainment

Age	18 to 24	25 to 34	35 to 44	45 to 64	65 & over
Total	1,114	787	1,534	3,318	1,910
High school or equivalent (GED)	35.1	91.2	84.7	81.9	65.5
Some College or Associates	34.3				
Bachelor's Degree	7.6	12.1	13.1	19.4	14.8

Figure 2-2 shows that average household income in Essex County is \$44, 581 with more than 26% of families living below the median income. Nonfamily household median income is only \$25, 949 with 47% of nonfamily household living below the median income for their category. Nonfamily households compose 33% of the household population

Figure 2- 2 Household Income Distributions

	Household	Families	Married-couple families	Nonfamily households
	Estimate	Estimate	Estimate	Estimate
Total	4,420	2,899	2,057	1,489
Less than \$10,000	8.1%	4.3%	1.1%	16.6%
\$10,000 to \$14,999	4.4%	1.4%	0.9%	9.9%
\$15,000 to \$24,999	12.1%	9.0%	5.8%	20.6%
\$25,000 to \$34,999	14.8%	11.1%	10.4%	21.2%
\$35,000 to \$49,999	16.1%	19.9%	18.5%	11.8%
\$50,000 to \$74,999	18.5%	20.4%	22.7%	10.8%
\$75,000 to \$99,999	14.1%	17.5%	19.7%	5.7%
\$100,000 to \$149,999	8.2%	11.2%	14.5%	2.0%
\$150,000 to \$199,999	3.4%	4.6%	5.8%	1.2%
\$200,000 or more	0.3%	0.4%	0.6%	0.0%
Median income (dollars)	44,581	52,892	63,856	25,949
Mean income (dollars)	54,377	63,773	N	33,241

U. S. Census Bureau, 2007-2011 American Community Survey

SECTION THREE

ENVIRONMENTAL CHARACTERISTICS AND NATURAL RESOURCES

Goal:

Manage and enhance the natural resources and environmental quality of the County.

Objectives:

- * Protect and improve the water quality of the Chesapeake Bay and its tributaries through the implementation of federal state and local regulations, while at the same time encouraging economic growth.
- * Protect and enhance the natural resources and environmental quality of the County through measures which safeguard the County's natural resources and environmentally sensitive lands and waters.
- * Minimize adverse impacts of gas or oil drilling and development activities on public health, safety, welfare, the character of the County's communities, the environment and the Chesapeake Bay, thereby preserving the County's agricultural and rural character.
- * Protect important tidal and non-tidal wetland resources within the county. Protect the important natural function of floodplains within the County by limiting disturbance caused by development activity.
- * Protect and conserve the agricultural and forestry resources within the County, maintaining Essex's rural character, and supporting these important components of the County's economy.
- * Preserve County shorelines by protecting against shoreline erosion.
- * Protect and conserve areas that are important to plant and wildlife habitats within the County.
- * Coordinate environmental quality protection efforts with future opportunities to establish public parks, natural recreation areas, and open spaces. Improve environmental quality on a site-by-site basis through the establishment of performance standards for environmentally sensitive development.

Introduction

The impact of future growth and development on environmental quality in Essex County is an issue of concern and should be considered at both the planning and implementation phases. The effects of increased population and physical development manifest themselves on the natural environment in many ways, including: clearing of trees and natural vegetation, loss of plant and wildlife habitat, loss of valuable wetlands and aquatic habitat, lower groundwater levels, groundwater contamination and saltwater intrusion, degradation of surface water quality in streams and rivers, disruption of natural water drainage systems, air pollution, increased amounts of solid wastes, and loss of scenic natural views. Growth can manifest without unduly threatening the County's environmental quality by taking steps to ensure new development is designed and built in an environmentally sensitive manner.

Certain areas of Essex are more susceptible to environmental degradation than others due to the presence of sensitive natural features. Future development should be directed away from sensitive areas and guided to areas of the County where environmental impacts will be less severe. Proper management of the use of these will allow for conservation and enjoyment of the natural environment. All future development should meet minimum performance standards for environmental protection.

Description of Natural Features & Environmental Quality Issues

Soil qualities, topography, and the presence of wetlands, floodplains, tidal shorefront and agricultural characteristics of Essex County influence development and are adversely affected by land disturbances brought on by development activity. An understanding of these natural resources and their limitations will assist in determining overall land use suitability as well as provide an indication of how and why such resources should be protected to maintain County environmental quality. The following sections identify those natural features that are considered significant in the County as a basis for determining how they influence and can in turn be influenced by development.

The Virginia Department of Environmental Quality administers state laws and regulations to improve and protect Virginia's streams, rivers, bays, wetlands and ground water for aquatic life, human health and other beneficial water uses. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits, permit fees, ground water management areas, ground water withdrawals and petroleum storage tanks. A report on specific regulations can be obtained from the following link to the Legislative Information System database, for each of the pertinent chapters listed in the [Virginia Administrative Code](#). As of July 1, 2013, the Chesapeake Bay Preservation Act, Erosion and Sediment Control Law and the Storm water Management Act are consolidated under the State Water Control Law and are under the jurisdiction of the State Water Control Board.

Groundwater

The groundwater serving Essex County occurs in three major aquifer systems. Uppermost is the water table aquifer which is a reliable source of domestic water supply. This water source occurs 50 to 140 feet below surface and may be highly mineralized in some locations.

Occurring 150 to 200 feet below surface is the upper artisan aquifer system. It occurs consistently, making it a reliable source of individual domestic and subdivision groundwater supply. This system is currently providing water to light and moderate water users throughout Essex County for individual industrial and agricultural purposes and is of good quality.

Of great importance is the principal artisan aquifer system occurring 200 to 400 feet below surface in Essex County. Although deeper and more costly to access, this aquifer remains a future possibility for water supply.

Adequate groundwater supplies exist in Essex County for the present and foreseeable future. However, farming activities and the cumulative effect of attendant fertilizer, biosolids and pesticide application necessary for crop production over time can impair the quality of groundwater resources, particularly in areas where highly permeable soils permit these nutrients or pesticides to leak into water sources which also serve as drinking water supplies.

Likewise, improperly functioning on-site septic systems can degrade water quality as development of on lot systems grows over time. Finally, leaking underground storage tanks can also cause groundwater contamination. The County as well as state and federal agencies, has preventive measures in place through regulations to protect groundwater resources for future use

Surface Water Quality

Water serves as a major attraction to tourists, residents and potential residents of Essex County. The entire eastern coast of the County is the Rappahannock River and several major inlets also attract development and are enjoyed for water sports. Swimming, boating, fishing, shell fishing and other water-oriented activities are dependent upon the maintenance of high standards of water quality.

Surface water quality is affected by run-off from agricultural and paved areas, wildlife, sewage treatment discharge, leaching of septic tank effluent and shoreline activity during construction. It is important to consider the impacts which various land uses will have upon waterways and identify potential environmental problems and solutions.

Several areas are presently condemned for commercial shellfishing by the Virginia Department of Health Bureau of Shellfish Sanitation. Commercial shellfishing is prohibited in these areas due to the quality of the water as tested periodically. As of March 2013, the boundaries of the

condemned area include all of the Upper Rappahannock River and its upstream tributaries and the Bowler's Wharf, Mark Haven Beach area. However the areas are tested frequently for water quality levels and condemnation statuses are subject to change.

The Rappahannock River has been over-enriched with biological nutrients such as phosphorous and nitrogen attributable to many of these causes. In tidal waters these nutrients are not flushed downstream as quickly as in nontidal waters. When these nutrients are oversupplied, algal blooms result which cause unpleasant tastes and odors in the water. Water turbidity reduces the availability of light to bottom growing submerged aquatic vegetation which is an important food source for wildlife and waterfowl. Public and private agencies such as Three Rivers Soil and Water Conservation District in cooperation with the Department of Conservation & Recreation have implemented Best Management Practices (BMPs) in Essex County to promote nutrient management deposited from land use activities such as manure, legumes, and residual nitrogen as well as commercial fertilizer. The conservation specialist consults with the farmer to develop a nutrient management plan, which includes soil analysis, manure or bio-solid analysis, and commercial fertilizer recommendations. In addition to the NM-1 (Nutrient Management) practice of plan writing by private planners, 20,446.5 acres were written for our district cooperators.

The Virginia Department of Environmental Quality recommends best management practices for agriculture such as maintaining vegetated buffers or filter strips along rivers and tributaries, using grass swales for drainage in agricultural fields, containing animal wastes, and limiting fertilizer applications. The County reinforces many of these measures through the Erosion and Sediment Control Laws, which are enforced by local ordinances.

Taylorsville Basin Shale Deposit

Since 2011, Texas-based Shore Exploration & Productions Corporation has leased mineral rights on the Middle Peninsula, including over 13,000 acres of land located on the north end of Essex County, north of Route 360 and predominantly west of Route 17. The leases are located within the Taylorsville Basin, a shale deposit that stretches from central Virginia to southern Maryland. Although no drilling has occurred to date in the County, it is important for Essex County to address the subject of energy production from hydrocarbon formations in the Taylorsville Basin.

Oil & Gas Exploration

Advances in non-conventional oil and gas drilling, known as hydraulic fracturing, have heightened interest in energy production from hydrocarbon formations in Virginia, including the Taylorville basin in Essex County. While energy development can bring jobs and economic development to the County, the industrial nature of oil and gas hydraulic fracturing can also bring unintended consequences that create conflicts with other important County goals and plans.

The term "oil and gas exploration and development" as used in the Comprehensive Plan is

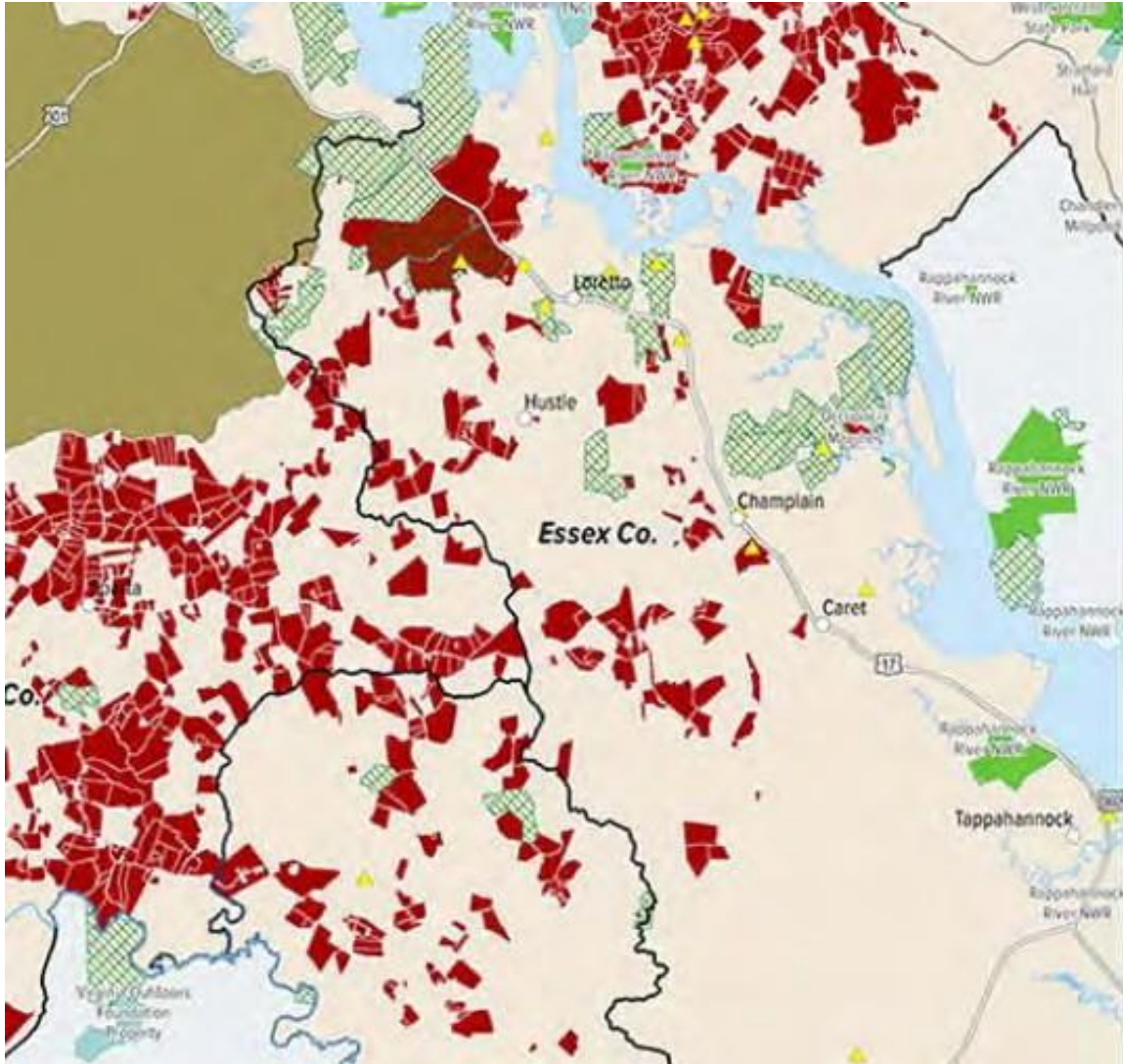
synonymous with and encompasses all on and off-site activities related to oil and gas exploration, extraction, development, infrastructure, site closure, completion, reclamation and transportation. The term "most effective performance technologies and practices" as used herein refers to the application of proven and emerging techniques, technologies or other Best Management Practices used in conducting oil and gas exploration and development which avoid, neutralize, exclude, eliminate, mitigate or minimize adverse on and off- site impacts to public health and the environment, landowners, and natural resources, and which may reduce conflicts between the goals and policies of the Essex County Comprehensive Plan, potentially affected landowners, and the oil and gas industry. These technologies and practices should be required if possible at every level and stage of oil and gas exploration and development.

Essex County recognizes that landowners with property in the Taylorsville Shale Basin or similar hydrocarbon resource areas identified in the future may choose to enter into leasing agreements to allow oil and gas exploration and drilling and related activities where hydrocarbon formations are productive and may become commercially viable. It is the County's objective to protect public health, safety, and welfare, the character of its communities, and the environment and its natural resources from adverse effects of industrial scale activities related to energy production from oil and gas exploration and drilling and to minimize potential long and short term land use conflicts between those activities and current or planned land uses. These include: compatibility with traditional rural economic sectors, such as agriculture, forestry, fisheries, recreation and tourism; increased costs in providing community services to address impacts to roads, emergency services, criminal justice, public health and affordable housing that could potentially result from oil and gas extraction; protection of air quality and water quality and supply; and conservation of natural resources and the Chesapeake Bay.

The County further intends to ensure that activities related to the conversion of hydrocarbon resources to energy will not jeopardize the County's long term commitments to its traditional rural economic sectors (e.g. agriculture, forestry, fisheries, recreation, tourism, etc.), or impact environmentally sensitive areas. Industrial activities related to energy production and oil and gas exploration should be located in non-agricultural areas where they are compatible with the character of the district and transportation infrastructure, and where utilities are sufficient to support such highly intensive land uses. County land use policies for oil and gas exploration are intended to augment Federal and State operational regulations governing energy development. Essex County seeks to provide guidelines for minimizing potential land use conflicts and to ensure that industrial uses related to energy production are sited with other comparable land uses and facilities.

Map 3-1

ESSEX COUNTY PROPERTIES WITH LEASES ALLOWING FOR OIL AND GAS EXPLORATION



Commercial and Recreational Fisheries

The Rappahannock River adjacent to Essex County, serves as spawning ground to millions of shad, herring and striped bass, yellow perch during the months of April and May each year. Below the fall line at Fredericksburg, the Rappahannock broadens into a tidal estuary where fish, oysters, and crabs are abundant. Watermen make a living from the river and contribute the County's economy; the river primarily supports recreational fishing interests in tributaries along the Rappahannock, particularly larger creeks such as the Piscataway near Tappahannock.

Of the 2,848 square mile in the Rappahannock basin, 61% is forested and 35% is covered by cropland and pasture, while only 4% is developed. The Rappahannock is impacted very little by development growth in the County, however, oxygen concentrations in the waters have dropped to lower levels due to periodic algal blooms which decay and rob the water of oxygen. Stands of submerged aquatic vegetation throughout the river have adversely impacted the aquatic habitat. Catches of certain fish and shellfish species, such as shad, river herring, and oysters, have declined in recent years.

Since 35% of the land in the Rappahannock basin is used for agricultural purposes, much of its pollution is believed to come from agricultural runoff including soil, pesticides, and fertilizer. Fertilizers over enrich the water with nutrients, in turn depleting oxygen supplies.

The Rappahannock River, tidal waters, and flowing streams of the County are resources for recreation and commerce and are essential to the growth and diversification of the economic base for the area. With the subdivision of large tracts of waterfront property into numerous smaller lots, each under private ownership comes the competing interests of those owners seeking privacy and the upland residents and tourists seeking use of the waters. This concern leads to the need of greater management capability over waterfront access and uses.

The surface waters of Essex County hold various fish species for commercial fisheries as well as sport species. A disruption in the ecosystem can cause far-reaching effects, threatening the livelihood and health of those dependent upon these resources. Groundwater travels slowly through the unconsolidated soils of the region, making its way to the surface springs and wetlands. Along the way, contaminants from the land can be swept along the groundwater and find their way into the open water systems. Based on these observations, two things are evident. First, there are direct relationships and pathways between the uplands, wetlands, and water bodies as well as the inhabitants of each. A second fact is that a number of small, seemingly insignificant environmental degradations add and multiply in overall impact and damage.

Since an entire watershed or creek can impact shellfish growing water quality due to non-point pollutants, the entire land area should be subject to reserve drainfield and five-year pump-out requirements for on-site sewage disposal systems. Aquaculture projects, including shellfish depuration facilities, should be considered "Water Dependent Facilities" for purposes of compliance with local land use ordinances. Waters presently approved for the harvest of shellfish should be protected from degradation due to pollution from point and non-point sources

by including surrounding lands in Chesapeake Bay Preservation Areas.

The County Chesapeake Bay Preservation Program offers an opportunity to incorporate fisheries protection measures in local land use ordinances. The designation of Chesapeake Bay Preservation Areas will offer protection to wetlands and other shallow water habitat vital to fisheries. In addition, requiring reserve drainfield areas and five-year pump-outs for septic systems should reduce pollutants contributing to restrictions on shellfish harvest.

The Essex County Zoning Ordinance incorporates the performance criteria related to the CBPA, including those which aid in the protection of commercial and recreational fisheries. The studies of critical fisheries habitat related to expanding Preservation Areas or watershed planning should be pursued as part of assistance programs provided by the CBLAD.

There are two broad recreational uses of the waterfront. First, the use of the waterfront for boating access, whether at a marina, a boat dock, ramp and pier, or car-top boat landing. Second is the utilization of the shoreline and near-shore areas for recreational activities such as swimming, bank fishing, nature studying, and picnicking. Both activities can be accommodated by public or private facilities. Both boating and shore recreation are allowed exemption as "water dependent facilities" under the requirements of the CBPA, provided that non-water dependent components are located outside of the RPA.

Boating access to the tidal waters of Essex County is provided at several public docks and ramps, several private marinas, and by individual or community piers.

Commercial marinas in the County are limited to two locations. The June Parker Marina or Tappahannock Marina is located at the edge of the town along the Rappahannock shorefront just north of the Bridge. The facility provides slips for some 40 boats. Boat storage facilities are also provided. Garretts Marina provides facilities to accommodate some 60 water craft and is located downstream near the southern end of the County's riverfront at Bowler's Wharf.

Publicly owned lands which are County or Town owned provide limited boat launching or swimming/fishing beach facilities in Essex County. These facilities which are largely unimproved include:

- the Layton Launching Ramp located at the end of route 637 just south of Otterburn Marsh;
- Wares Wharf, located at the end of Route 611, located below Lowry's Point;
- the Bowlers Wharf boat ramp located at the end of Route 660;
- Boat Launching area at the foot of Prince Street in Tappahannock, and;
- Boat Launching facilities at Hoskins Creek in Tappahannock.

A public boat launching area adjacent to Route 17 along Piscataway Creek provides access to fresh water fishing opportunities in the County and is perhaps the most actively used boat

launching facility in the County.

Limited boating activity is also accommodated in 4 to 5 community subdivisions or developments along the County's riverfront below Tappahannock. These facilities generally consist of a shared pier facility and moorings for only a few boats owned and managed by Community Homeowner Associations. They include the Jones Point Community Association; the Point Breeze and Rappahannock Shores Community Association (both near Dunnsville), and the River Oaks Community Association located south of Garrett's Marina. The location of most of these facilities which provide boating access to the Rappahannock is shown on Map 15-1.

Due to the limited number of boating facilities and generally low level of boating activity in the County, no significant water quality problems are known to exist as a result of boating activity. The County will need to monitor such activities as growth occurs.

With the demand and subsequent subdivision of waterfront property comes the increase in piers and docks associated with waterfront housing construction. In some areas, individual private piers have proliferated. Some subdivision developments have provided a community docking facility to serve the needs of all residents including both waterfront and landlocked homeowners. This option eliminates the numerous private piers and consolidates all boating activity to one area and under a single management structure; however, there may need to be limits and controls on the size and operation of such a facility.

Waterfront recreation areas are also provided through public and private avenues. Public beaches and parks are options for recreation and nature study. Private recreation areas can also be found in some residential developments, usually in conjunction with a community boating facility. The management of waterfront access options and opportunities concerns the competing interests and costs of public facilities and private facilities and the protection of the environment. Public and private access to the water and shoreline areas is important to the economy and environment of Essex County.

Operation of boating facilities can induce activities which can also bring about impacts once facilities are constructed. Several factors indicate demand for additional boating facilities is low in Essex County at the present time. The location of the County is upstream from saltwater fishing opportunities and therefore access to these opportunities can be more readily provided from facilities located downstream outside the County. The population in the County does not significantly drive demand for waterfront boating facilities.

Potential for the location of additional marina facilities is also limited by the features or characteristics of the County shorefront. Tidal marshes front 84% of the County shorefront. Along many of these reaches boating facilities would require wetland disturbances to secure access and would likely have adverse impact on wetland habitat. Moreover, shallow water depths in near shore locations would require dredging to provide access for boating causing bottom disturbance to fish and other aquatic habitat.

Many areas of the County shorefront, particularly north of the Town of Tappahannock, are also distant from the Route 17 corridor and are served by narrow rural roads in areas dominated by agricultural uses and lack both the access and facilities necessary to support commercial marina facilities. In such locations, the introduction of boating facilities would be incompatible with the rural character of the shoreline and present land uses.

Shoreline Condition

The flatland of Essex County ranges from low shore to high shore with bluff, with several areas of artificial fill. Although eighty-nine percent of the shoreline is low or moderately low shore (sometimes with bluffs), flooding is not usually a problem except in a few specific areas.

The Middle Peninsula Planning District Commission has done some modeling of sea level rise in order to assist local governments in future planning. The maps depict which waterfront areas will experience flooding and to what degree flooding will impact these areas, many of which are currently undeveloped.

Tidal marshes, including fringe, embayed and extensive marshes, comprise eighty-four percent of the County's shoreline. The Virginia Wetlands Act of 1972 controls any proposed alterations to these areas, as marshes, especially embayed and extensive marshes, serve vital ecological functions, serve to filter nutrients in runoff and have valuable flood and erosion protection qualities.

Fringe marshes occur intermittently along the Rappahannock shoreline, and frequently along the creek shores. Eighty-six percent of the shoreline has some marsh frontage. Though there are several nice beaches fronting private residences, most areas have thin, strip beaches, often with vegetation. No public beach areas presently exist. Only 16.62 miles of the total 120.68 miles does not have marsh present. In contrast, there are very few beaches; only 1.88 total miles were observed. Bulkheads, groins, and riprap are installed along the Rappahannock shoreline for shore protection. There are no surveyed protection structures along the creeks. Shore protection structures are difficult to detect using remote sensing techniques and imagery at this resolution. Therefore, the absence of shore protection structures in areas above the bridge is not verified. Private, recreational structures are noted throughout the area.

Majority of the Essex county shoreline is use for agricultural purposes, such as farming and forestry. Only a small percentage is developed for residential uses. The current status of the Essex County shoreline is best characterized in the Essex County and Town of Tappahannock Shoreline Situation Report, prepared by the Virginia Institute of Marine Sciences (VIMS) in June, 2001. Of the 317 miles of shoreline in Essex County the report noted that only 7.5% is developed for residential or commercial use. 92.5% remains in forest, agricultural or other open space use.

Shoreline Erosion

Shoreline retreat in Essex County is dependent upon several factors, combinations of which control the rate of erosion or accretion in a given area at a given time. There are three basic causes of erosion which can affect a river system such as the Rappahannock River. A prevalent cause of shoreline retreat is downhill rain runoff. This is a basic weathering of the shoreline due to rain waters. Continued washing away of the soil causes the trees to eventually fall, carrying with them large amounts of soil suspended in the root systems.

Runoff erosion and the ensuing pollution from agricultural areas can and is increasingly being eliminated with better farming practices which have evolved as a result of concern for bay water quality and the efforts of the U.S. Natural Resource Conservation Service to develop Soil and Water Conservation Plans in conjunction with farm landowners.

Wave action is the primary cause of most erosion along the County's shoreline from Beverly Marsh east toward the river mouth. The longest fetches and usually the most powerful wind generated waves are from the southeast, north, and the northwest along this section of the County's shoreline. Those winds from the south are very powerful and thus can cause much erosion even without a large fetch.

The 100-year average erosion rate for much of this section of the shoreline is 1.5 to 2.5 feet per year, with several areas having rates of from 3 to 4 feet per year. Approximately 7.4 miles of the shoreline have been artificially stabilized, however, erosion is continuing in unprotected areas. Beaches and marshes are natural barriers against erosion of the flatland. Both absorb the incident wave energy and therefore inhibit the erosion of the flatland. However, the beaches are usually very thin along the shoreline of Essex County due to a limited supply of sand in the littoral drift. Many areas, especially around Tappahannock and east of the town, have been artificially stabilized. These structures have usually been constructed on an individual basis, as compared to a sectional or community basis.

The 2001 Shoreline Situation Report indicated that only 4.3% of the total shoreline is bordered by accorded structural protection from erosion in the form of bulkhead or rip-rap. Within the County there are a significant number of piers, boat houses, boat ramps and other accessory structures, most of which are located south of Tappahannock on the Rappahannock River shoreline.

MPPDC conducted a study to determine the efficacy of incentivizing the use of living shorelines in Virginia through the establishment of a revolving loan fund. The study gauged the extent to which access to low-interest loans might influence a homeowner's decision as to whether to install a living shoreline as opposed to a more conventional erosion control system, MPPDC partnered with VIMS, CCRM to survey property owners who had recently installed shoreline erosion control measures. The Center for Coastal Resources Management, Virginia Institute of

Marine Science gathered information on property owners' interest primarily through a questionnaire, in low-interest loans for living shorelines projects.

The conclusion drawn from the 155 questionnaires collected supported the option of a below-market loan to provide an incentive for use of living shorelines. Almost half (49%) of the respondents answered "yes" and "maybe" represented 23% to whether a low interest loan would influence their selection of a living shoreline approach to erosion control on their property.

Soils

An important determinant of future development is the quality of the County's soils. Construction of roadways, building foundations, septic systems, forests, agriculture, and waste disposal depend upon soil conditions for their location. Therefore, type of land use, to a major degree, is dependent upon soils. The recent development and usage of alternative waste water systems has opened much of the land area that was previously considered undevelopable to potential future development.

A detailed soils survey was prepared for the County in April 1989. The survey outlined numerous types of soils found in the County. Each soil association area contains soils of major extent and others of minor extent, with the overall soil area being named for the dominant soils. For more detailed evaluation of soils on a particular site, the County Soil Survey should be consulted.

- **Emporia - Rumford - Slagle Association**
- **Emporia- Slagle – Atlee Association**
- **Tetotum - Tomotley - State Association**
- **Rappahannock - Molena - Pamunkey Association**
- **Rumford – Suffolk – Emporia Association**

More information on these various soil types of soil may be obtained through the

<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> or by contacting the Virginia Department of Health.

Highly Erodible Soils

Highly erodible soils are those soils which have a high potential for erosion and sedimentation. Both of these factors act to increase precipitation runoff velocity which in turn serves to loosen and remove certain soil particles. The extent to which soil particles are moved or the soils "erodibility factor" varies depending on soil texture, infiltration rate, permeability and other

factors. Soils which are highly erodible in Essex County are identified on Map 3-2. Over half of the County land area is characterized by the presence of highly erodible soils. These soils are less frequently present along the County's Rappahannock shorefront, but are often located near inland stream systems.

Highly erodible soils, if improperly disturbed or exposed, can contribute to water quality degradation through sedimentation and siltation of water bodies. In addition, nutrients and toxics may be attached to soil particles which can be transported and released to the aquatic environment through erosion.

When development occurs in highly erodible soil locations, plans required for sediment and erosion control should be carefully reviewed and Best Management Practices (BMPs) should be employed to minimize soil erosion. Such practices should include minimizing the land disturbance necessary and protecting indigenous vegetation on the site to the maximum extent feasible. Additional BMP's should also be considered as may be recommended by the Chesapeake Bay Local Assistance Department.

The County should also encourage the preparation and implementation of Soil Conservation and Water Quality Plans and Nutrient Management Plans on farms in the County, particularly on farms where the presence of highly erodible soils is indicated or where farming activities are concentrated in Resource Management Areas, that are adjacent to County stream systems.

Highly Permeable Soils

Highly Permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrient and other chemicals and sewage wastes to infiltrate, undegraded, into nearby surface water and groundwater systems. Highly permeable soils are those which can be characterized as having permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches. Map 3-3 identifies the general location and extent of highly permeable soils in Essex County. These soils are present in widely scattered locations throughout the County.

Highly permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrients and other chemicals and sewage wastes to infiltrate, undegraded, into the nearby surface water and groundwater systems. Highly permeable soils are highly susceptible to pollutant leaching, and thus have a greater potential for groundwater pollution as well as pollution of surface waters. Soil permeability is particularly important in relation to design of soil drainage systems and septic tank absorption fields. Excessive seepage or infiltration from septic tank absorption fields can cause health problems through pollution of underground sources of domestic drinking water. Shallow groundwater resources or surface aquifers are also a source of water for streams in the County which flow into the Rappahannock River and the Chesapeake Bay.

County policies should discourage development in areas characterized with highly permeable soils by limiting permitted residential development densities. The County should periodically review the County Land Use Plan and Zoning structure to limit the density of development permitted on highly permeable soils in these areas, particularly when no waste treatment facility alternatives to conventional septic systems are practical.

In rural County locations, where there are no plans for extension of wastewater treatment facilities, the areal extent of residential districts as shown on both the land use plan map or zoning map(s) should be limited in size and where possible removed from locations where highly permeable soils are concentrated.

Use of alternative waste treatment technologies should also be considered as an alternative to use of onsite waste disposal (OSWD) systems in those areas with sensitive soils (either highly erodible or highly permeable). However, until such time as alternative waste treatment technologies can be demonstrated to be both cost effective and protective of surface water and groundwater quality, the County should rely on measures to better manage the design, operation, and maintenance of septic systems while limiting their prospective location through density limits established in the Zoning Ordinance to the extent possible.

Topography

The terrain of Essex County varies from flat to gently rolling. Land of less than 8% slope comprises the majority of the southern and eastern portion of the County, with greater slopes (over 8%) occurring intermittently along creeks and swamp areas. Steep slopes are generally not considered a major deterrent to development. Map 3-4 provides a general representation of the location of steep slopes (over 25%) in the County.

Floodplains

Floodplains serve a number of resource protection functions including moderating the impact of floodwaters which in turn reduces erosion and sedimentation. Floodplains help maintain water quality, recharge groundwater supplies, protect fisheries, and provide habitat and natural corridors for wildlife movement.

Floodplains are nearly level land areas which border streams and rivers are occasionally flooded unless artificially protected. The actual boundary of a floodplain varies significantly depending on the designated frequency of flooding. The 100-year floodplain is the area which has a 100 percent probability of being flooded at least once during a 100 year time period; or a 1 percent change of flooding each year. Floodplains are areas which are subject to predictably recurring overflows from nearby bodies of water, including streams, rivers, bays, and oceans. A floodplain acts as a natural reservoir for such an overflow by storing excess water and thus reducing the volume and speed of the flood water's effects downstream. The removal of natural vegetation through land development within a floodplain diminishes the natural flood control

capacity of the area. The result can be an increase in non-point source pollution of the water body through severe soil erosion.

The floodplain is divided into two sections; the floodway and the floodway fringe. Federal Emergency Management Agency (FEMA) requirements address the direct aspect of potential damage that can occur if new development takes place in areas subject to flooding. To qualify for flood insurance, floodway development is prohibited, and floodway areas are, therefore, well protected. The floodway is the land areas which is directly adjacent to the water channel. Although FEMA does not prohibit construction in the floodway fringe, development is not encouraged. Floodplain development can result in a major loss in the storage capacity of flood waters, alter drainage patterns, and cause an increased velocity and volume of runoff. While development located on the filled floodplain is reasonably safe from flooding, areas downstream may experience increased flood heights and greater channel water velocity.

The Biggert Water Flood Insurance Reform Act of 2012 calls on the Federal Emergency Management Agency (FEMA), and other agencies, to make a number of changes to current flood maps and the way properties are categorized as it pertains to flood risks. The proposed changes will mean premium rate increases for some—but not all—policyholders over time.

FEMA offers Community Rating System (CRS), a voluntary program for National Flood Insurance Program (NFIP)-participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. The CRS has been developed to provide incentives in the form of premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. These discounts are passed on to the individual property owners through a reduction in their flood insurance premiums. A community must be in full compliance with the NFIP to be eligible.

While protection of life and property provided the initial basis for protection of floodplains, there has been a growing recognition in recent years that limiting disturbances within floodplains can serve a variety of additional functions with important public purposes and benefits.

The minimum requirements of the National Flood Insurance Program do not prohibit development within the 100-year floodplain. However, to adhere to the minimum federal requirement, the County requires development and new structures in the floodplain to meet certain flood protection measures, including elevating the first floor of structures a minimum of one foot above 100 year flood elevations and utilizing flood-proof construction techniques. Moreover, where alternative building sites on a parcel are available for construction outside the 100-year floodplain, construction outside of the floodplain is preferred.

Map 3-5 identifies the general location of floodplains in Essex County. These areas are generally located along the Rappahannock shoreline or are located adjacent to County stream

systems. More detailed maps of the County's 100-year floodplain are available for inspection in the office of the County Administrator. Therefore in most cases, extending protection measures recommended for streams to provide a 100 foot buffer will provide substantial protection to co-located or adjacent floodplain resources which are often located within the buffer.

The County should consider increasing the size or width of the 100 foot stream buffer where more extensive wetlands are located between streams and development disturbances.

Groundwater Resources

Earlier sections of this plan indicate that groundwater supplies generally appear adequate to satisfy projected demand for water consumption in the foreseeable future in Essex County. Nevertheless, the County should make every effort to protect groundwater resources for future use. The chief sources of potential groundwater contamination in the County are from contamination by improperly functioning septic systems, long term agricultural use, and the isolated impacts of leaking underground storage tanks. The following Strategic Plan for managing water resources in Essex County has been developed:

Map 3-2

Highly Erodible Soils

Map 3-3

Highly Permeable Soils

Map 3-4
Steep Slopes

Map 3-5
Flood plains

Wetlands

Wetlands are valuable for the many physical, hydrological, biological, and cultural functions which they provide. In Virginia, tidal wetlands are protected by the 1972 Wetlands Protection Act, as amended. This law requires a special permit prior to starting construction, dredging, or filling a tidal wetlands. The Act also empowers local jurisdictions to establish Wetlands Boards which may review and decide permit requests. Essex County has a Wetlands Board. The Virginia Marine Resources Commission has the ultimate authority to administer the Wetlands Protection Act and reviews all decisions issued by local boards.

Nontidal wetlands are currently federally regulated by Section 404 of the 1977 Clean Water Act, as amended, which prohibits disposal of dredged or fill material into "waters of the United States" and adjacent wetlands. This has been broadly interpreted by the Environmental Protection Agency (EPA) to include virtually all surface waters in the nation, regardless of size. The Virginia General Assembly is currently considering statewide nontidal wetlands protection legislation.

The Chesapeake Bay Preservation Act and Chesapeake Bay Preservation Area Designation and Management Regulations establish mandatory provisions for local Tidewater jurisdictions to protect wetlands and water quality. This legislation and its implications for Essex are discussed later in this chapter.

Tidal Marshes

Tidal Marshes are located along 84% of the County's Rappahannock River shorefront and in many cases are extensive in the land areas they occupy. Noteworthy are Otterburn and Beverly Marshes as well as extensive marsh areas along Broad Creek, Taylors Creek, Hoskins Creek, Piscataway Creek and Dragon Run Swamp.

With decreases in salinity in the upper reaches of the creeks and rivers, vegetation becomes more diverse. The wildlife species present depend on salinity, marsh elevation, soils, and other factors. Those marshes have the greatest diversity of vegetation, such as those in brackish waters, have the highest wildlife values.

Nontidal Wetlands

Nontidal wetlands typically include freshwater swamps, bogs and low lying areas where water stands on or close enough to the surface to create oxygen poor conditions in the soil. Special types of plants called hydrophytes are adapted to these conditions and usually indicate the presence of wetlands. Other nontidal wetland indicators are waterlogged soils and drainage patterns that show physical evidence of flooding.

The U.S. Fish and Wildlife Service has mapped all County nontidal wetlands of three acres or

more in size as part of the National Wetlands Inventory. Map 3-6 provides a general representation of the location of both Tidal and Nontidal Wetlands in the County.

Forest Resources

The forest industry in Essex County is an important component of the County economy and County rural character. Roughly 64.5% of the total County land area is established in forest cover. The management of forest resources is important when considering forested areas as biological habitat or for their value in protecting water quality. Forested areas provide habitat for numerous plant and wildlife species and also are an excellent filter area for wetlands groundwater recharge. Forests also form an excellent windbreak in agricultural areas and serve to prevent windblown soil erosion. In addition, forested areas serve as an effective visual and noise buffer between land uses. Best management practices for the timber industry ensure the conservation of the County's extensive forest resources.

Wildlife

The number and diversity of wildlife species present in an area is determined in part by the quantity and quality of wildlife habitat which is available, especially food availability and cover. The major threat to indigenous species in developing areas is the fracturing and fragmenting of habitat areas. When habitat is cleared for development or agriculture, not only is the cleared habitat area lost, but the habitat area is also degenerated at the development edge. This results in disturbance to interior habitat areas as well. Certain species of wildlife require large, unfragmented habitat areas in order to survive.

The Virginia Department of Conservation and Historic Resources' Natural Heritage Program and the Department of Game and Inland Fisheries' Fish and Wildlife Information System currently maintain inventories of wildlife resources and habitats for the County. Endangered and threatened plant species are protected by the Virginia Department of Agriculture and Consumer services, which uses information from the Natural Heritage Program inventory. The U.S Fish and Wildlife Service has acquired and developed two bald eagle refuge sites, each located north and south of Tappahannock on Piscataway Creek. The two sites, consisting of over 1000 acres of land, is home to black duck, mallards, Canada geese, a variety of fish that spend their life in the salt and migrate to fresh water to spawn (anadromous fish) as well as various plant life.

The Natural Heritage Program was established in 1986 in joint cooperation with the Nature Conservancy to identify elements of natural biological diversity which are of rare or special concern in Virginia. The program focuses on rare plants, animals, geological landmarks, natural ecological communities, and other natural features. The Natural Heritage Program also makes information on acquiring environmental easements available to property owners. The Department of Game and Inland Fisheries has a similar information base of wildlife for planning and management purposes.

Map 3-6
Wetlands

Map 3-7
Resource Protection Area Map

The Chesapeake Bay Preservation Act

The Chesapeake Bay is an important natural resource in the Tidewater Region of Virginia. The State of Virginia adopted the Chesapeake Bay Preservation Act which mandates all Tidewater Virginia localities to establish programs, plans, and ordinances to protect and improve Bay water quality. These "local programs" must be in conformance with the Chesapeake Bay Preservation Area Designation and Management Regulations adopted by the Virginia Legislature in September 1989. In Essex County, the Rappahannock River watershed and all associated tributaries are affected by these regulations.

The purpose of the Act is to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effects of human activity on the Bay and its tributaries. The Chesapeake Bay Preservation Act provides for the definition and protection of certain lands called Chesapeake Bay Preservation Areas (CPBA). The Act establishes the criteria for identifying properties to be identified as CBPA and regulations used by local governments in granting, denying, or modifying requests to rezone, subdivide, or to use and develop land in Chesapeake Bay Preservation Areas. The regulations identify the requirements for changes which local governments shall incorporate into their comprehensive plans, zoning ordinances, and subdivision regulations to protect the quality of state waters pursuant to the Chesapeake Bay Preservation Act. Essex County with the assistance of the Middle Peninsula Planning District Commission has identified and mapped Resource Protection Areas with all other County land area designated Resource Management Areas consistent with the Acts requirements. Effectively, both classifications render the entire County within the Chesapeake Bay Preservation area.

Essex County Chesapeake Bay Preservation Program

The purpose of Essex County Chesapeake Bay Preservation Program Comprehensive Plan Element is to use the collection and analysis of water and land use data and characteristics to develop and implement policies and strategies to protect and improve the water quality of the Bay and its tributaries. The most current and accurate information sources available are utilized for the adoption of the program.

The goal of the inventory of natural and manmade features is to identify the areas within the County which require and should be considered for preservation under the Chesapeake Bay Preservation Act (CBPA) regulations. These areas include: tidal wetlands, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, tidal shores, floodplains, highly erodible soils, highly permeable soils, other nontidal wetlands, and other lands whose characteristics may have a significant impact on water quality protection.

MPPDC has published the Comprehensive Water Quality Management Plan for the Middle Peninsula which provides analysis, and policy review concerning water quality issues in the region. Specifically, the two elements of the Management Plan provide information relevant to Middle Peninsula localities' on-site wastewater treatment, potable water supply, boating

facilities, living resources, waterfront access, existing land use and water quality (including pollution sources), and a general description and economic analysis of the region.

Other documents referenced directly or through familiarity include the CBLAD's Local Assistance Manual; the Virginia Institute of Marine Science's (VIMS) Shoreline Situation Report for Essex County; and other federal, state, and local studies.

Resource Protection Areas

Resource Protection Areas (RPAs) perform natural pollution control functions. Biological activities and physical characteristics in these areas are especially effective in controlling runoff, trapping sediment, and recycling nutrients and pollutants. Components of RPAs are certain wetlands, tidal shorelines, and buffer areas.

Tidal shore stability is generally governed by three main determinants; the amount of beach material, the intensity of natural and human forces, and the stability of sea level. The occurrence of tidal shore erosions is considered a natural process and becomes a serious problem when human structures and activities unnaturally intrude into this process. Vegetated buffer areas provide a wide variety of environmental benefits, including sediment control, nutrient assimilation, stream bank stabilization, in-stream temperature maintenance, flood control and protection, groundwater recharge area protection, and runoff volume reduction.

The RPA's purpose is to protect environmentally sensitive land and water areas from the adverse effects of human activities, thus improving and protecting the quality of water both locally and regionally. The components of the RPA are prescribed by Virginia statute, with the local option to include other lands where RPA designation is necessary to provide a high level of protection to the quality of state waters. Essex County has designated an RPA which consists of all tidal wetlands and nontidal wetlands. The extent of the County RPA is shown on Map 3-4.

The implementation of the RPA goals is through an RPA overlay district of the Essex County Zoning Ordinance. The zoning ordinance includes a general designation RPA map in addition to the performance criteria to be included on specific site plans. The subdivision, erosion and sedimentation control, and floodplain ordinances include provisions related to preserving water quality as related to CBPA. To provide successful implementation, it is necessary to improve the capacity of both the county staff and general public through supporting educational opportunities related to Chesapeake Bay Program enforcement and management.

Resource Management Areas

The Chesapeake Bay Preservation Act and Criteria Regulations establish the Resource Management Area (RMA) as the landward component of Chesapeake Bay Preservation Areas. RMAs are important in terms of water quality primarily because if improperly used or developed, they could release significant amount of non-point source pollutants into the surface

and ground water systems. The regulations do not limit the types of land use and development that may occur within the RMA. Instead, a variety of performance criteria will be applied to any use or development within RMAs to ensure that those land disturbances that do occur will minimize the adverse impact on water quality. The performance criteria apply to stormwater management, on-site sewage disposal, and land disturbance /stabilization.

Essex County has chosen to designate the entire County as a Resource Management Area (RMA). The extent and distribution of the land features considered as RMA components are such that few areas of the County are lacking in these features. In order to maintain the goal of high water quality within the County and region, the policy of the County is to include all lands as RMAs when those lands are not designated as RPAS.

The implementation of the RMA goals will be accomplished by specific provisions in the County zoning, subdivision, erosion and sedimentation control, and floodplain ordinances. Implementation will also rely on an effort to improve the capacity of staff and general public through supporting educational opportunities related to managing and enforcing the Chesapeake Bay Program.

Development Suitability

The land and water within Essex County varies in characteristics and natural function. Features such as topography, hydrology, soil type, vegetation, and geographic location all serve to influence land development. With the advances in construction methods and materials and sewage disposal technology together with the increase in population and property values, land which once may have been considered undevelopable is being engaged for development pursuits.

The Chesapeake Bay Preservation Act has highlighted the concern for land disturbing activities which cause water quality degradation through non-point source pollution. In addition, the use of methods of limiting or preventing non-point source pollution, such as Best Management Practices (BMP's), indicate that there are reasonable means to reasonable development. To further explore the compatibility of development to the land site, additional steps of analyzing the suitability and capacity of the site are needed.

A detailed, site-specific soils survey would provide the information necessary to match the suitability with the uses proposed for the site. The topography and hydrology of the site should be of a detail such that overland sheet flows of storm water can be predicted. Knowledge of the vegetation and wildlife habitat is important for a site as well as for the surrounding areas. The comprehensive analysis of all these features can lead to development sensitive to the natural resources.

When development activities are proposed, options to mitigate impacts and utilize BMPs must be considered. It is envisioned that the level of detail of the suitability analysis will provide the owner with the information to balance the management options presented by the site.

Essex County has determined a comprehensive development suitability analysis to be necessary to the optimum function, design, and environmental preservation of land development sites. The comprehensive development suitability analysis should include a detailed inventory of soils with the capacities for on-site sewage treatment, erosion potential, and vegetation growth documented. Discussion of wildlife habitat and other significant environment should be included. Mitigating factors, such as the use of BMP's should be included.

The requirement to conduct a comprehensive development suitability analysis will be implemented through the County's plan of development procedures, including zoning and subdivision ordinances.

Protection of Potable Water Supply

The Coastal Plain aquifers of Virginia provide the groundwater for domestic and industrial uses. The upper aquifers are used primarily for domestic purposes because of lower yields. These are the Yorktown-Eastover and the Columbia aquifers. High yield can be found in the artesian aquifers known as the Chickahominy-Piney Point and Aquia aquifers. Sufficient groundwater quantities for subdivision, light industry, and agriculture uses can be tapped in these layers. The lower three aquifer layers, the Brightseat-Upper Potomac, Middle Potomac, and Lower Potomac, can supply large amount of water; however, the quality is impaired by high concentrations of minerals and chlorides. Based on the capacity of each of these aquifers, Essex shows a good potential for future development utilizing groundwater.

The types of land uses and the practices in an area can affect the quality of both surface and ground water supplies. Runoff from land adjacent to surface water reservoirs can contain chemical and biological contaminants. Groundwater can be contaminated by infiltration through the soil to the water table. One significant pollutant of groundwater is nitrate. Nitrate can come from a variety of sources including fertilizers, animal wastes, and septic systems. From the types and sources of contamination of drinking water supplies, it is evident that responsibility lies among all stakeholders.

A priority in the protection of groundwater is the understanding of the movement and recharge in the aquifer, the movement of pollutants, and the effect of high withdrawal rates. This can best be accomplished under the modeling studies conducted by the U.S. Geological Survey (U.S.G.S.). There should be attempts to secure adequate funds to cooperate with the U.S.G.S. in such a study effort in the Middle Peninsula region. Wellhead protection areas would be identified utilizing future studies by the U.S.G.S., an extensive mapping project, or the presence of highly permeable soils in the vicinity of water wells.

The Town of Tappahannock provides a large concentration of County residents which are dependent on municipal water supply facilities. Given the larger population currently served by these municipal water supply facilities and expected growth around the Town of Tappahannock,

the potential effect of pollution sources on the County's water supply should be investigated in cooperation with the Town. Such sources may include abandoned wells, former dump sites, and underground storage tanks and urban run-off as well as septic systems near the Town. The County and Town should request technical assistance from the Middle Peninsula Planning Commission to mutually define an appropriately sized well-head protection district for the Town.

Existing Pollution Sources

Pollution discharges can be defined as either point or non-point in their origin. Point source inputs represent discharges from discrete and identifiable points, i.e., discharge pipes, and play a major role in determining the quality of surface waters. Such sources include both municipal and industrial dischargers which may contain an array of toxic and nutrient material which tend to vary in chemical and physical composition as well as fluctuate in their concentrations.

The other major category of physical, chemical, and biological factors impacting surface water quality is known as non-point sources. This category is by far the most significant in terms of its impact to surface water quality in the Middle Peninsula Planning District. Basically, non-point sources encompass all those inputs to surface water which cannot be identified as having originated from a discrete discharge point. Nationwide, non-point source pollutants are responsible for 73% of the oxygen demand, 84% of the nutrients, 98% of the bacteria counts, and 99% of suspended solids.

The Virginia Water Control Board (VWCB) regulates existing point source pollution dischargers. Essex County's role in the enforcement of, and compliance with, permit conditions is primarily tied to land use ordinance approvals. The Essex County Chesapeake Bay Preservation Program, Erosion and Sedimentation Control Ordinance, and participation in the activities of the local Soil and Water Conservation District are means of local management of non-point source pollution.

A periodic review of the effectiveness of local ordinances can determine where changes or amendments may be needed to achieve the goals of reducing non-point source pollution. To that end, the County should review all land use ordinances at least every five years to determine the best means to effective management of point and non-point source pollution sources. The County will also seek assistance from the Chesapeake Bay Local Assistance Board (CBLAD), VWCB, Division of Soil and Water Conservation, MPPDC, and other state and federal agencies to produce an inventory of land uses at such a degree of accuracy so as to provide management and modeling parameters necessary for effective control of pollution sources in the future.

Local Program Development

The performance criteria for land use and development established in the County Chesapeake Bay Preservation areas district was reviewed by the State prior to County adoption and is referenced as part of Essex County's Comprehensive Plan. In addition to designation of County

Chesapeake Bay Preservation Areas, the County has incorporated resource protection criteria into its subdivision regulations, and erosion and sediment control ordinance. The County Plan establishes a development review and approval process for building permit issuance for development within designated Chesapeake Bay Preservation Areas. The County established administrative and enforcement procedures as part of its overall Local Program for Chesapeake Bay Preservation.

Resource Protection Policies

Streams and Stream Buffers

Land in Essex County which are designated Resource Protection Area include those lands which are required to bear such designation under the terms of the Chesapeake Bay Preservation Act including tidal wetlands, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, tidal shores, and buffer areas.

The County has also designated all stream systems in the County as RPA's and set buffering requirements for a distance of 100 feet from the impacts associated with development activities. requiring protection of streamside (riparian) forest cover where it exists, through proper implementation of BMPs, and encouraging re-establishment of forest cover or reforestation where it does not presently exist along streams.

Air Quality

In 1990, Congress passed and the President signed into law amendments to the federal Clean Air Act. These amendments require cleanup of polluted areas in accordance with a specific schedule, tighten emissions standards and grant federal agencies greater powers to enforce the Act's requirements. Those portions of the Act having the most direct impact on Essex County and the Town are those relating to ozone pollution. Ozone is formed by chemical reactions in the atmosphere when hydrocarbons and nitrogen oxides are emitted. Ozone at ground level is particularly dangerous to human life. Ozone levels are continually monitored at various locations in the Richmond metropolitan area.

Land uses that increase ozone emissions a relatively low in the county and the town. Automobiles would contribute more to ozone emissions than industrial uses in and around the town. As of 2012, the Richmond area was attainment for all applicable national air quality standards including ozone.

Implementation

The following is a list of specific measures the County should undertake to achieve its environmental quality goals and objectives set forth in Part III of this Plan:

- Requirements should specify minimum areas that must remain undisturbed and available for stormwater infiltration and site vegetation.
- Continue to promote Best Management Practice for storm water management and water runoff.
- The majority of future County development should be directed to designated Development Service Districts where public sewer services are in place or planned. The future use of on-site sewage treatment systems should be limited to those areas where public sewage systems are unavailable. Larger concentration of individual on-site sewage treatment facilities in rural and environmentally sensitive areas should be discouraged through density controls, particularly in areas with soil constraints for septic systems.
- Coordinate with state and federal agencies and non-profit conservancy organizations to protect environmentally sensitive lands through acquisition and/or protective easement programs.
- Explore best management practices for future high volume water users.
- Explore techniques to obtaining a Certified Rating System designation through the Federal Emergency Management Agency in an effort to assist Essex County residents with the expected increase in flood insurance premiums due to the Flood Insurance reform Act of 2012.
- Work with the Middle Peninsula Planning District Commission and Virginia Institute of Marine Science to identify resources for development of a comprehensive shoreline management plan. The plan should provide a coordinated strategy for managing the impacts of shore erosion and provide firm recommendations.
- Oil and gas development activities should be located in areas with the necessary transportation and utility infrastructure to support uses which are industrial in nature. Drilling operations should not be located in areas where they are likely to adversely impact the use and enjoyment of property rights of other property owners. In order to avoid conflict between the owner of property where a drilling site is proposed and other property owners or the public, criteria prescribing the standards applicable to the siting of drilling operations and production activities shall be developed and articulated in the land use ordinances of Essex County.
- Regulations should be designed to mitigate the impacts of oil and gas exploration, drilling and development activities and all related accessory and ancillary uses on public health, safety and welfare, and the environment and its natural resources to the extent permitted by State and Federal Law. All applicable standards for noise, dust, odor, vibration, and other

County code requirements intended to mitigate off site impacts of uses of an industrial nature shall also apply to oil and gas exploration, drilling and development uses.

- Advocate for the use of the most effective performance technologies and practices among oil and gas exploration, drilling and development operators. The County should require adherence to the most stringent guidelines and standards available for regulating all phases of gas and oil exploration, drilling and production for these types of industries, and seek commitments for voluntary restrictions that exceed minimum requirements.
- Preserve rural character and protect agricultural lands and sensitive ecological features by directing that the location of oil and gas operations, drilling and development activities are sited in areas appropriate for land uses of an industrial nature, and do not adversely impact planned agricultural areas or areas of significant agricultural activity, such as lands in the Agricultural Preservation District, which are zoned for agriculture under the County Land Use program. Such operations will also be prohibited in environmentally sensitive areas, tidal wetlands and marshes, and locations identified as Resource Protection Areas (Preservation Areas Map) per the Chesapeake Bay Act and limited in Resource Management Areas as determined by the County.
- Reserve pits, ponds and waste water containment facilities used to collect drilling fluids resulting from oil and gas exploration or production shall be adequately buffered, lined, sealed, fenced and enclosed or covered by netting, to ensure that there is no runoff of the fluids and no access by, or exposure to, unauthorized persons, wildlife, birds, or livestock. No reserve ponds, pits or waste containment facilities shall be located in an area where a leak or overflow could be reasonably anticipated to flow into any stream, creek, river, other water body, drainage ditch, floodplain, wetlands, marshes or other environmentally sensitive areas.
- Encourage operators to share existing and proposed infrastructure and to co-locate facilities required for oil and gas exploration, drilling and development and to use existing utilities and transmission right of ways to minimize installation of new facilities and avoid additional land disturbance to the greatest extent possible in order to avoid introduction of potentially incompatible new land uses of an industrial nature into residential, rural and agricultural areas, and to minimize the impacts of such development on landowners, neighboring property owners, the environment, farm activities and environmental resources.
- Require that applicants for oil and gas exploration, drilling and development activities provide information about the proposed quantity and source for any water required in the production, processing and exploration of hydrocarbon based resources and for all related oil and gas development activities. All such activities should adhere to local and regional

water supply and protection plans and should not use public water supplies and should not make excessive use of groundwater resources. Require baseline testing and monitoring of surface, groundwater and well water quality within and adjacent to drilling and extraction sites prior to construction and during production.

- Require that applicants for oil and gas exploration, drilling and development activities directly engage with local communities, residents and other stakeholders at each phase of the development plan, starting prior to exploration, to provide sufficient notification of planned activities, including disclosure of chemicals, opportunity for comment on plans, operations, and performance, listen to concerns and respond appropriately and promptly.
- Oil and gas drilling, operations and development located in proximity to agricultural uses will be required to: i) avoid construction activity during growing seasons; ii) restore and reclaim all on and off-site agricultural lands impacted by any activity related to exploration, development, infrastructure installation, closure, and transportation to soil condition, pasture land, productivity, and/or drainage patterns that were in place prior to the initiation of oil and gas operations; iii) restore water resource systems disturbed by infrastructure to their former condition.
- To the extent permitted by State law, limit the impact of oil and gas exploration, drilling and development activities on residents and property owners of Essex County by regulating hours of use, related industrial traffic and access routes, so as to avoid hazardous use of County roadways and to minimize potential conflicts with school bus routes and schedules, school traffic and other local traffic patterns, and the exercise of other property rights. Access through residential streets will not be permitted.
- To the extent permitted by State law, require explicit commitments, including financial commitments such as posting of a bond when deemed appropriate, by applicants who wish to pursue oil and gas exploration, drilling and development activities in productive hydrocarbon formations such as the Taylorsville Basin, and their operators and contractors, to accept responsibility and liability for compensation and/or mitigation of directly and indirectly related costs, nuisances, damages and adverse impacts as a condition for issuance of permits dealing with oil and gas resource exploration, drilling and production. Such direct and indirect adverse impacts may be on-site or off-site and include, but not be limited to, damage to public and private roads, degradation of public or private water supplies or aquifers, degradation of environmentally sensitive areas, and loss of livestock, crops or damage to structures on-site or on surrounding properties.
- The discharge or disposal of wastewater by-products or other contaminated matter from oil and gas exploration, drilling and development activities in the County should not be permitted except where there exists waste treatment facilities that are certified by the State and Federal government to have the capability of safely treating such waste, in order to

protect and safeguard Essex's waters, environmentally sensitive areas, such as wetlands, public water supplies, groundwater recharge areas, future water supplies, and the waters of the Commonwealth.

The County will continue to monitor legal opinions, regulations, and legislative changes in Virginia that addresses local authority to restrict or prohibit oil and gas exploration or drilling activities within the jurisdiction of the County. It is the goal of the County to ensure that its Comprehensive Plan and its Zoning Ordinances are interpreted, administered, and amended when necessary, to protect, preserve, and safeguard, to the maximum extent possible, the County's agricultural, rural, scenic and environmentally sensitive lands and the lifestyles and welfare of its residents from the adverse impact of oil and gas development and related activities.

SECTION FOUR LAND USE

Goal:

Guide the course of future development to promote balance in the types of land uses that will serve the current and future needs of Essex County and contribute to a sustainable community.

Objectives:

- * Direct the majority of future County development to areas already served or proposed to be served with adequate public facilities such as sewer, water, roads, schools, etc.
- * Conserve farmland, forested areas, open space, and rural character.
- * Encourage development that is in keeping with the character of existing land uses
- * Plan for adequate public facilities to be in place or proposed prior to development approval, regardless of where the development is located.
- * Provide land areas for balanced future commercial and industrial development in locations which are compatible with existing and planned residential development.
- * Develop a cost sharing process that requires the development community to contribute to the costs for meeting the demands of additional public facilities and services brought about as a result of new development.
- * Improve the quality of future development and redevelopment through improved site planning and design standards.
- * Encourage uses that will assist in strengthening the economy but are sensitive to the character and natural resources of the community.
- * Offer employment locations and opportunities that promote the use of alternative modes of transportation.

The Essex County Land Use Plan will set the stage for guiding or managing the direction of future development in the County. As such, it establishes the skeletal framework for all plan elements. This element envisions a more efficient land use pattern for future development. The basic intent of the conceptual land use plan and map is that the County channel most of its population into and around the areas delineated as a development services district surrounding the Town of Tappahannock while development in other areas of the County be limited to a greater extent in order to minimize the impact of service delivery cost to remote areas. The land use element is also vital to ensuring a balance land is made available to accommodate a wide variety of uses in the County. While Essex is predominantly rural in

character, it is understood that providing for all land uses is paramount to a balanced, sustainable community.

The various County land use districts will serve as a basis for county structuring of zoning classifications with the intent and purpose for each district to be achieved or accomplished through land use controls and performance standards appropriately consistent with each district's purpose.

The County future land use concept plan is presented on the Land Use Plan Map (Map 12-1) and is shown in terms of general areas or districts. Each has been derived from the objectives and is in consonance with the general theme and philosophy of "contained growth". They have directly shaped the development of the recommended Land Use Concept Plan Map.

Community Assessment

The regulation of land uses is the primary method of managing growth in communities. The Essex County zoning code, zoning map and development codes are tools used to manage potential growth in the county. Uniform application of land use regulations and policies are essential to creating balanced and harmonious communities by influencing the pattern and designating locations for growth. For planning purposes, the pattern of development is more significant than the total acreage in each category of land use. These patterns in Essex County have been a product of residential development preferences, economic forces, environmental factors, and social forces. The County also has had the benefit of zoning and subdivision regulations which have influenced the pattern and pace of residential, commercial and industrial development.

The primary land uses in Essex County consist of agricultural and rural residential. The most predominant use of land in Essex County is forestry. Forest land dominates approximately 64½% of the total County land area and is predominately privately owned.

Land Uses

Agricultural

The primary goal of the agricultural district is to preserve and protect agricultural land uses from growth demands. Agricultural uses involve 31% of the total land area of Essex County and is dominates the County's economy. Forested and agricultural uses combined amount to 94% of the County. The remainder of 6.0% includes urban, industrial, residential, transportation, and wildlife land. Agricultural and natural environment is a key element in the preservation of Essex County's rural characters and its resident's rural lifestyle. Conservation of working and natural lands is key to protecting rural quality of life and long term economic vitality of farming, forestry, tourism and other natural environment based activities.

Farming

Farming is the principal occupation of Essex County. Although employment in agriculture tends to fluctuate, farming is still an important source of local employment and an important part of the local economy.

In 2012, agricultural, farming and fishing constituted approximately 1.8% of the employment sector of

Essex County accounting for 94 industry jobs. 2007 AgCensus data indicates that there are 102 active farms in Essex County providing international commodities such as grain, beans, poultry and livestock to state, national and international markets. These farms total over 53,346 acres throughout the county, a slight decrease since the 2000 census. While the number of farms has decreased, the average size of farms in Essex is increased by more than 60 acres since 2000. The market value of crop sales is \$9,233,000. In 2007, the average total income from farm related activity reached \$49,836 excluding taxes and expenses.

Forestry

The forest resource plays an important role in the economic growth and quality of life that is enjoyed by the residents of Essex County. These forest resources also provide soil and water protection for the Chesapeake Bay and its tributaries, habitat for abundant wildlife, outdoor recreation and aesthetic beauty.

Forestry also contributes substantially to Virginia's economy. In 2011, the forestry industry of Essex County contributed 19.8 million dollars to Virginia's economy and 371 direct and indirect forestry related jobs to Virginia's forestry industry.

Essex County supports two sawmills and one planing mill that employ approximately 50 people. The wood that is harvested in this County helps to support 22 sawmills, 5 planing mills, 5 treatment plants, 4 pulpwood concentration yards, 2 pallet manufactures, and 5 pulpmills in and around the Middle Peninsula and Northern Neck area.

Residential

Residential uses in Essex County are primarily designated for single family uses with variations in lot sizes. Seasonal housing is located in the lower half of the County, on or near the shoreline, however, numbers have decreased over the past decade, converting to permanent housing.

According to housing unit trends, residential development has decreased significantly since 2002 when issuance of residential development permits reached triple digits but has since decreased dramatically due to the economic downturn. Essex is gradually seeing an increase in residential permits over the past few years mostly due to manufactured homes sales. Mobile homes have become more numerous than conventional housing, although many are replacements for older mobile homes. Lack of affordable housing also contributes to the disproportionate number of mobile homes located in the County. The pace of residential development has remained slow.

Commercial

Commercial development is almost non-existent within the County due to the presence of those activities in Tappahannock. Because Tappahannock serves as the regional commercial hub, most of the commercial development is planned in and adjacent to the Town. This is not unusual given the need for central sewer and water facilities associated with the use.

Rural service centers are planned along major intersections along the major highway corridors of Highway 17 and State Route 360. The location of these service centers will serve to reduce traffic on the major routes into town

Industrial

Limited land area is designated for industrial use and can be found along sections of major routes. Essex County in corporation with the Economic Development Authority is looking at ways to expand and attract industrial jobs such as manufacturing to the county. The Town and County have agreed to a joint water and sewer agreement whereby water and sewer services can be extended into the County by the Town to serve future industrial and commercial users. The first area to be served is the industrial districts at Bray's Fork on Rt. 360 where recent commercial activity has begun. In the future, this service can be further extended along Rt. 360 where the County owns 700 acres of property.

Town

The Town of Tappahannock is the cornerstone for the County's Comprehensive Plan. The town serves to anchor County identity and to provide the central focus for activity in County life. As the major settlement in the County, it also represents the major investment in infrastructure to support growth. The fate of County and Town are mutually intertwined. The quality and character that development and time bring to one will clearly influence the other. Therefore, the County Comprehensive Plan acknowledges the Town of Tappahannock as the underpinning for the Land Use Plan framework. Guiding growth to near town areas where facilities can be most logically extended permits protection or rural character and reduced demand for County services in more outlying rural areas.

Planning Districts

The county's land area is broken down into eight planning districts which includes the Town of Tappahannock. Each district has distinct characteristics and guidelines for uses and development based on existing character and surrounding uses as well as the goals and objectives of the County's growth management plan.

Estimated Land Area by Planning District

DISTRICT	ACRES	% of TOTAL
Development Service District	3,200	2%
Deferred Development Service District	5,000	3%
Business & Employment	337	0.2%
Rural Service Centers	0	0
Rural Residential District	15,000	10%
Countryside District	90,000	54%
Agricultural Preservation	50,000	30%
Tappahannock Limits	1,760	1.1%
Total	165,000	100%

Business and Employment District

The Business and Employment District is noteworthy in that it reserves specific areas of land near the County's

airport and major industry settlement for future growth of the same kind. Roughly four hundred acres, of which some three hundred appear suitable for development, are identified for business and employment park development, including the airport complex.

Specific industry land area requirements and site suitability factors will need to be assessed when considering a location in this district. Therefore portions of the Development Service District, particularly along route 360 west of Bray's Fork may represent alternate sites for business and industry use. Business and industrial uses should be served with sewer and water facilities and situated with direct access to either arterial or major collector routes. Industrial development within the district or in the Bray's Fork area near Route 360 affords such access and both areas are generally removed from residential development. To encourage high development standards, "business park development form should be encouraged. This permits the collocation of businesses in an attractive campus-like setting while minimizing individual industry points of access to the highway system. The County should consider creating a conceptual master plan that includes development and design guidelines that should be implemented when development proposals are presented in fragments.

Regardless, in addition to the designated area on the Land Use Plan Map, the Business/Employment District can be located as a floating zone district within the Development District and areas adjacent to major routes if the criteria described above are met. A business park district which is approved as a floating zone should be developed in accordance with a comprehensive site plan. Implementation of the site plan assures compatibility of industrial operations with surrounding areas. A park-like atmosphere is created which provides an attractive buffer between industrial uses and other neighboring land uses.

Rural Service Centers

Several rural service centers including most of which are located along the Route 17 and 360 corridors provide opportunities for provision of services necessary to support rural development in some County areas. Designated as rural service centers, they are intended to accommodate limited commercial use and provide basic levels of support services to residents who may be located in a one to six mile area or radius.

These rural service centers or villages perform a number of functions in the growth management program. These include servicing as centers for rural residential development and providing for commercial services for rural areas of the County and the traveling public. The ability of these centers to accommodate some portion of the future growth of the County is a function of their location and the existing scale of development and range of services provided to surrounding rural areas. Characteristics common to most of these rural service centers are the existence of post offices and country stores, gas stations, or churches, providing each with its own sense of identity.

The concept of the rural service center is included in the land use plan in order to recognize and provide for the special needs of these County unincorporated centers. These centers are often very different in character.

These rural service centers serve a multitude of functions in Essex County. They range in scale from fork in the road where a general store and beauty parlor are located, to a rapidly expanding community that is beginning to emerge as a service center of larger scope. Their distribution throughout the County is shown on the Plan Land Use Map. Many have historic qualities or structures which suggest future development near them should be limited in scale or, if unchecked, could overwhelm or disrupt their more rural character.

All of the rural service centers do, however, share much in common, and collectively they play an important part in Essex County life. In general, these Centers tend to be somewhat residential in character, or offer some employment through limited commercial services as well as public or institutional uses. In general, they presently function as rural service centers and the County should preserve and enhance their present character in order that they may continue to act as rural service areas and to serve their traditional roles in the County life.

Generally, these areas shown as Rural Service Centers should:

- remain small in population size
- remain small in physical area
- be allowed to continue to provide limited, highly located commercial services (such as a gas station or general store, etc.)
- be allowed to serve as home for community facilities and services when needed
- be allowed to continue to provide limited employment opportunity
- have a population density of one dwelling unit per acre, which is greater than the surrounding more rural areas.

Areas directly adjacent to existing uses in each village could provide for their continued development consistent with the degree and scale of the individual village centers. To this end, architectural themes should be framed for each rural service center with development in its confines subject to architectural review for compatibility with the particular centers image.

The need for central water and sewer is not anticipated in the rural service centers villages. However, in centers where land application of waste water is a feasible treatment technology (i.e. soils are potentially suitable), these systems can allow greater clustering of residences and opportunities for commercial use.

The following settlements have been designated rural service centers in the Land Use Plan:

- Hustle
- Champlain
- Caret
- Dunnsville
- Center Cross
- Miller's Tavern

In the future it is possible that additional rural service center sites might be identified. However, their future designation should be a function of their need to serve as service centers in the context of their existing distribution in the County. These new centers would be limited to providing the most basic retail services for the convenience of the rural population.

Rural Residential District

The Rural Residential District identifies areas which have manifested rural residential development character or qualities as a result of past construction in the County. This district includes about 15,000 acres or 10% of the County's land area. The Rappahannock River fronts north of the Town as well as areas west of the Town near Kino are so designated, as well as an area near Howerton's, south of Tappahannock. These areas are intended to absorb between fifteen and twenty-five percent of County growth over the twenty year planning period at a low density, rural residential scale. Densities for residential use in this district will be approximately 1 dwelling unit per acre depending on existing settlement patterns and past zoning treatment for lands in the district. Commercial services and employment opportunities in the town or the adjacent Development Service District are intended to provide the shopping and employment opportunities that residents in the Rural Residential district will require.

Planned Residential or Planned Unit Developments

Planned Residential or Planned Unit Developments, although not shown on the Land Use Concept Plan Map, are established to provide for areas within the Development Service District where higher density or more intense development can be accommodated. Planned Unit and Planned Residential Developments will be established as floating zone districts, which can be "brought to land" only in those areas which meet the standards framed in County ordinance consistent with the concept outlined herein.

Rather than mapping each of their future locations in advance, Planned Residential or Planned Unit Developments will be designated in accordance with performance standards to be structured in the County Zoning Ordinance. These developments will be limited to locations within the Development Service District where public benefits, in the form of highway improvements, provision of affordable housing, provision of parks, provision for sites appropriate for construction of needed community facilities, are provided as part of the development approval process in exchange for higher densities. Threshold size and location requirements for their designation would also be framed in County ordinances to guide decisions concerning their location.

While used as a tool to permit higher density residential development in portion of the development district, this concept does not encourage densities that are higher than would be consistent with the surrounding, established neighborhoods or adjacent town developed lands. Moreover, development approval and designation of the district should not proceed absent substantial public benefits and demonstrated consistency with Plan objectives.

Furthermore, Planned Residential or Planned Unit Development densities for new sites adjacent or near to established neighborhoods would be required to buffer the edges to minimize impact to established neighborhoods. This approach acknowledges existing development patterns and recognizes historic development conditions. In short, higher residential densities or mixed use will be permitted only in such areas of the development district where infrastructure in the form of sewer, water and transportation systems would not be adversely impacted or could be accommodated within a defined geographic cell.

Countryside District

The Countryside District is the largest in physical land area (about 90,000 acres or 55% of County land area) and is intended to limit development to a level which should never be expected to require substantial support services from the County. One acre lots will be permitted in the Countryside District in the zoning ordinance, but the number of lots will be limited to one per each 5 acres owned to assure the maximum level of development is somewhat limited but equitably distributed among land owners in the district.

Agricultural Preservation District

The Agricultural Preservation District is established at the northern end of the County straddling both sides of the Route 17 Corridor and essentially serves as a gateway to the County from the north. The district currently is dominated by agricultural use and is remote in its location from existing County services. To minimize future impacts on the County for costs of services, and to maintain the agricultural land base necessary to support a continued viable agricultural economy this district substantially limits residential development.

Within the district for the first twenty acres owned and for all parcels under twenty acres in size, a property owner would be permitted one house for each five acres owned. Beyond the first twenty acres owned the property owner would be entitled to an additional one house for each twenty acres in the parcel. By way of example, a property owner with one hundred acres would be permitted eight lots. Four homes for the first twenty acres (1 per 5) and four homes for the additional eighty acres owned (1 per 20). The district includes about 50,000 acres (30% of County land area).

When comparing the Rural Residential, Countryside, and Agricultural Preservation Districts, one should note that the minimum lot size permitted for homes in any of the three districts is the same, one acre. However, the number of lots permitted declines somewhat in the Countryside District to one house per 5 acres and somewhat more in the Agricultural Preservation District at 1 house per 20. In effect, the property owner in any of the three districts can develop the same product, a one acre lot.

The only distinction between the districts is the number of lots permitted within each. Such an approach presumes to be reasonably equitable in that it permits any land owner the opportunity to sell a few one acre lots, yet protects

the County from large scale development in areas where it is not prepared to provide services to support it. Moreover the results provide opportunity for clustering development particularly in the Countryside and Agricultural Preservation Districts and virtually assure large masses of open space are maintained over time. These open spaces will serve to maintain farmland in farm use or preserve sensitive lands and wooded areas to yield natural resource protection benefits over time.

Development Service District

The Development Service District generally corresponds to locations where growth can be most cost effectively supported within the planning period. The Development Service District contains roughly 3200 acres and surrounds the existing principal center of population, services and employment within Essex County. How development is managed in this district will be dependent on both the County and Town's relationship as they will guide growth in the area based on mutual decisions. It will be important for the County and Town to mutually determine how growth objectives may best be accommodated while protecting the qualities of rural character both currently enjoy.

The Development Service District comprises the most suitable areas for new population growth. Growth in these areas will prevent the outward sprawl of residential development into rural County areas, and keep the new population close to the existing centers where residents can be economically provided with utilities, services, and employment. In addition, the impact upon the County road system will be minimized due to the opportunity for location in close proximity to jobs and services.

These services include an existing or planned transportation system that can accommodate the movement of people and goods and sewer and water facilities that can service development at greater residential densities or can service industrial and commercial uses. The major advantage of the development district concept is to map in advance those areas where the County and Town will plan to provide infrastructure and will work with the development interests of the County to ensure provisions are met. In providing opportunities for development in these areas, the County can better achieve its resource protection and its agricultural preservation objectives by reducing pressures for development in areas dominated by farming activity or natural resources.

Current population and growth trends show no indication of significant growth for the Town or the County over the next decade, therefore current services are adequate to provide capacity for residents. In addition, the Town of Tappahannock in cooperation with the Middle Peninsula Planning District Commission has developed the 2005 Tappahannock Buildout Plan for residential development. Being that the Town has not reach the capacity outlined in the Buildout Plan and growth is moderate, expansion of higher density residential into the County is not necessary.

To improve the visual and functional qualities of development within the Development Service District, the County has revised its land use ordinances to establish performance standards for landscaping, control of access, lot coverage, and buffering from adjacent transportation corridors. Future commercial and industrial forms of development within this district on sites not presently zoned for such uses should be carefully evaluated to assure site characteristics permit these objectives to be achieved. The past linear form of commercial development, particularly along the Route 17/360 corridor, has not always enhanced the visual quality of development and has reduced the ability of major roads to serve through-traffic.

Future areas within the

Development Service District which may be designated for commercial or industrial development should be large in size (e.g. 10 to 15 acres) and should be located at intersections providing site frontage on at least two streets with adequate depth to provide space for service roads. Such sites can use the access provided by these streets and are adequate in size to house several uses with shared access, thereby minimizing outlets to the major road system. Their larger size permits sufficient land to accommodate landscaping between use and highways to enhance development visual qualities. Clustering of residential development should be encouraged within the development district to maintain open space. Such development, even when exclusively residential in nature, should be buffered

and separated by landscaping from major routes or adjacent incompatible land uses.

All portions of the Development Service District (DSD) are immediately adjacent to Tappahannock's corporate limits and include areas at Bray's Fork, areas east of Bray's Fork, toward the Rappahannock River and areas west of Bray's Fork along the 360 corridor.

Deferred Development Service District

The Deferred Development Service District is basically intended to facilitate future development beyond a 10 year time horizon. It is designated in the plan to protect its qualities so that it will be ready for a planned pattern of "town-scale" development in serviceable form. Designated rural residential or prematurely developed at non sewer and water densities, the Deferred Development District would essentially freeze future opportunities for growth in "serviceable" form as the Town Core expands. Some 5000 acres are designated as Deferred Development Service District.

Since the purpose of this district is the same as the Development Service District (DSD), much of the description of the DSD is equally applicable to this district. The chief distinctions between the two districts are their location relative to the town and anticipated time frames for development.

The County owned landfill property, about 700 acres, is included in the Deferred Development Service District. Development of this property is not planned for the near future; however, the availability of this large area of publicly owned property and the ability to provide water and sewer in the next two years could provide a site for an industrial area which requires a large area not available elsewhere.

Chesapeake Bay Preservation Areas

The objectives indicate that special emphasis should be placed on the preservation of sensitive resources. These resources are often located at or near waterfront areas of Essex County. Without a firm commitment to preserve the natural beauty and environment resources in these areas, the County could find this natural asset spoiled by intensive residential development. Such a commitment is further prompted by the shared objectives of the County and State of Virginia Chesapeake Bay Preservation Act in improved water quality of County tributaries to the Bay.

In keeping with these objectives:

- A high degree of restriction should be placed upon the use of all waterfront land that lies outside the Development Services Districts and Town and Rural Service Centers.
- These restrictions should take the form of low residential densities, and high levels of protection of sensitive resources and in keeping with the Chesapeake Bay Preservation Acts requirements.
- Strict Resource Protection Performance Standards for development in the areas designated should be established in Zoning, and Land Subdivision and Resource Protection Areas and Resource Management Areas (Both subparts of the Chesapeake Bay Preservation Areas of the County) and Site Plan requirements and regulations.
- Strong emphasis should be given to the provision of public assets to the waterfront including the establishment of Natural Parks.

Resource Protection Areas

Essex County has designated a RPA which consists of all tidal wetlands; nontidal wetlands, including impounded lakes and ponds connected by surface flow and contiguous to tidal wetlands or tributary streams; tidal shores; and an additional buffer area of 100 feet in width, except where reductions are

allowed within its jurisdictional boundaries. The RPA serves the purpose of protecting environmentally sensitive land and water areas from the adverse effects of human activities to thus improve and protect the quality of water both locally and regionally.

The intent of RPA designation is to limit land disturbance and development to only those activities classified as "water dependent" or otherwise exempted in the County Chesapeake Bay Preservation Area Overlay Zoning District. The integrity of the RPA and associated mechanisms with the CBPA Program will serve the goal of preserving those features most associated with the high standard in quality of life in Essex County, namely clean water and attractive landscapes for the beneficial use by both society and the natural ecosystem.

The implementation of the RPA goals will be through an overlay district of the Essex County Zoning Ordinance. The zoning ordinance will include a general designation RPA map in addition to the performance criteria to be included on specific site plans. The subdivision, erosion and sedimentation control, and floodplain ordinances will also include provisions related to preserving water quality as related to CBPA. To truly provide for successful implementation, it is necessary to improve the capacity of both the county staff and general public through supporting educational opportunities related to Chesapeake Bay Program enforcement and management.

Resource Protection Areas (RPAs) perform natural pollution control functions. Biological activities and physical characteristics in these areas are especially effective in controlling runoff, trapping sediment, and recycling nutrients and pollutants. Components of RPAs are certain wetlands, tidal shorelines, and buffer areas.

Buffer areas are zones of undeveloped vegetated land that are managed to reduce the impact on water quality of land disturbing operations in adjacent areas. Vegetated buffer areas provide a wide variety of environmental benefits, including sediment control, nutrient assimilation, stream bank stabilization, in-stream temperature maintenance, flood control and protection, groundwater recharge area protection, and runoff volume reduction.

The components of the RPA are prescribed by Virginia statute, with the local option to include other lands which RPA designation is necessary to provide a high level of protection to the quality of state waters.

Resource Management Areas-Forest Management Program

The Chesapeake Bay Preservation Act and Criteria Regulations establish the Resource Management Area (RMA) as the landward component of Chesapeake Bay Preservation Areas. Lands to be considered for designation as RMA include the following: nontidal wetlands, floodplains, highly erodible soils, highly permeable soils, and other lands at local discretion. RMAs are important in terms of water quality primarily because if improperly used or developed, they could release significant amount of non-point source pollutants into the surface and ground water systems. The regulations do not limit the types of land use and development that may occur within the RMA. Instead, a variety of performance criteria will be applied to any use or development within RMAs to ensure that those land disturbances that do occur will minimize the adverse impact on water quality. The performance criteria apply to stormwater management, on-site sewage disposal, and land disturbance /stabilization.

The designation of RMAs in Essex County has been based on the consideration of the sensitive land types

listed above and described below. County designation of other lands to be included in the RMA classification is based on several factors, including the distribution of the other land types listed above, the hydrology of the locality, and the general characteristics of the landforms in the locality. The regulations of the CBPA also require the RMA to be contiguous to the RPA.

Essex County has chosen to designate the entire County as a Resource Management Area (RMA). The extent and distribution of the land features considered as RMA components are such that few areas of the County are lacking in these features. It is also recognized that all lands within the County are contained within the Chesapeake Bay watershed and activities upon these lands can act to impact the water quality of the Bay. In order to maintain the goal of high water quality within the County and region, the policy of the County is to include all lands as RMAs when those lands are not designated as RPAS.

Essex County has an active forest management program and reforestation program through the Virginia Department of Forestry, industry sponsored forest management programs, and private consulting foresters. Because of the intensive forest management efforts, the forest resource in Essex County is healthy and productive.

Highway Corridor Enhancement District

The purpose of the Highway Corridor Enhancement District is to protect and improve the quality of visual appearances along these linear corridors and to provide guidelines to ensure that buffering, landscaping, lighting, signage, and proposed structures are internally consistent and of a quality which contributes to County character. The Highway Corridor District when implemented through zoning will provide for special access and buffering, and setback requirements along the County's major highways.

The Highway Corridor Enhancement District is an area within which certain specific public policies relating to development review would be administered by the County through overlay zone regulations in the Zoning Ordinance. Views afforded to drivers and passengers, whether residents, workers or visitors, traversing the major transportation routes of Essex County provide a lasting visual and, therefore mental, impression of the County's character. Although the visual experience probably forms only a small part of a person's overall experience in the County, it, nevertheless, is of special public concern and requires public attention if the County's image is to be a positive one now and in the future.

Not all development in Essex County requires the same level of public scrutiny. The most critical visual areas lie along the major transportation routes since they are shared by all residents and tourists. Hence, corridors of 500 feet from either side of the right-of-way of the major transportation route rights-of-way are identified for specific regulatory implications.

The visual character today along these corridors is diverse, ranging from areas primarily rural, natural, and scenic to areas with disorganized and cluttered roadside development. The intent of the policies for the Highway Corridor Enhancement District is not to preclude the diversity that already exists; but, rather to encourage and better articulate the variety of visual experiences along the current highways as well as along the corridor of the proposed future routes for the County's major roads (e.g. Tappahannock Bypass/Parkway).

Future development of lands within the Corridor shall be subject to the particular zoning district in which they occur, as well as the following policies that are specific to the overlay corridor. These policies are not intended to restrict or prevent the construction of buildings within each Corridor, nor to require the

removal of existing structures. The Corridor Enhancement policies are not simply setback requirements, although certain minimum setbacks will be required to protect highway rights-of-way and maintain sight clearances for traffic safety.

The Route 17, 17/360, and Route 360 corridors and lands within 500 feet from their respective rights-of-way are designated as Corridor Enhancement Districts on the Land Use Plan Map. Other routes may be established in the future as determined appropriate.

Policies specific to the Highway Corridors include:

- Increased buffering requirements to screen unattractive buildings from view which provide for a mix of canopy, understory tree and shrub level plantings.
- Special standards for signage height, design, size, materials, and lights to maintain and enhance visual qualities.
- Landscaping to be used to soften lighting and signage impacts and to be located in groupings to identify entrances to sites.
- Special consideration of new development within this district including assessment of visual impact of development, assessing pre-development visual conditions and how the proposed development will affect them.
- The review of projects in the Highway Corridor will acknowledge the existing rural service centers as integral to the unique visual character of the corridor.
- Require service roads, when appropriate, as a tool to achieve access control within the Highway Corridor Enhancement District.

Historic Districts

Essex County has a rich cultural and historical heritage that is reflected in sites, structures and landmarks throughout the county and town. This heritage lends to the quality of life of County residents as well as the unique identity the county strives to preserve. This preservation can be achieved through policies and guidelines for development in around historic areas.

These districts are described in terms of their respective roles in directing County growth in the remaining sections of this Plan element. Demonstrated on the Land Use Plan Map are districts derived from a combination of a number of determinants including: existing land use patterns; projected growth and development trends; the natural capacity and suitability of the land to support development; the availability or proposed availability and adequacy of development infrastructure (roads, sewer and water); and the Goals and Objectives established in Part III of this document. Each district description outlines the general type, intensity and character of development that should be encouraged within the district. The Land Use Plan Map shows the general location of different districts throughout the County. The Land Use Plan also establishes the framework and basis for a further refined classification of land into districts for zoning purposes pursuant to adoption of the Comprehensive Plan.

Map 4-1
Land Use Plan Map

In addition to serving as a general guide for implementing land use policy, the Land Use Plan also should serve as a guide to County decision makers regarding community facilities (primarily water and sewer) and transportation (roads) planning.

Although not shown on the Land Use Plan Map, both Resource Protection Areas and Resource Management Areas are considered Land Use Districts. Their location and extent are generally represented on Map 4-1, based on mapping efforts conducted by the Middle Peninsula Planning District Commission in 1990/91. Larger scale maps which identify their location with greater precision are available for review through the office of the County Administrator. Greater discussion of the Chesapeake Bay Preservation Act and its implications for future County planning efforts is located in the Chesapeake Bay Preservation Program Plan element. Protection standards for resources in these areas will be implemented through overlay district provisions in the County Zoning Ordinance, and through County subdivision and Erosion and Sediment Control Ordinances.

Land Use Plan Summary

The County is not expected to witness substantial growth in the next ten to twenty year period. Therefore the Plan does not seek to dramatically limit any one particular property owner's development options, but instead at the downside permits virtually any property owner to develop one acre lots. However, at the simplest level it recognizes that the number of those lots and the scattered format that they take can prompt service delivery costs that will not be desired by the County. Therefore it seeks to locate development in "serviceable form" in the Development Service Districts over the near term five to ten and long term ten to twenty year planning period. Furthermore, the plan seeks to limit the degree of development that occurs in other districts consistent with objectives to protect natural resources, rural character, and minimize service delivery costs.

Implementation

- Adopt and implement a land use plan and land use map which reflects the goals of growth management. Update the current land use map to be consistent with the goals and objectives of the Comprehensive Land Use Plan. Create and implement policy that will reflect said goals and objectives. Consistently use these tools as an effective guide to development and meeting the need of a balanced community.
- Draft policies and incentive programs to encourage quality development that support economic growth.
- Coordinate County growth management plans with plans and policies of the incorporated Town of Tappahannock, and adjacent Counties.
- Consider flexible standards that seek to encourage and accommodate innovative and

varied approaches to development and redevelopment

- Coordinate the use of the land use plan map, the zoning map, the capital improvements plan, and the master water and sewer plan implementation in terms of districts, locations, and planned expansions to assure growth management efforts are cohesive.
- Revise the County's zoning structure to provide for distinct and varied development options including cluster development provision in rural and agricultural districts which will also achieve preservation goals.
- Use land use controls and ordinances to implement standards for development which improve its quality of development.
- Foster partnerships and working relationships with the development community to encourage cooperation in meeting development needs for all stakeholders.
- Create and administer an Agricultural and Forestry Strategic Plan that will preserve and expand farming and forestry uses in Essex County
 - Amend zoning ordinance to create a Historic District in the County that allows for designation of properties with historic significance, regulations for development and an approval process for architectural alterations or improvements to designated structures. The Ordinance should also be amended to adopt preservation guidelines and development standards in the Planning Districts outlined in the Comprehensive Plan.
 - improve the capacity of staff and general public through supporting educational opportunities related to managing and enforcing the Chesapeake Bay Program

SECTION FIVE TRANSPORTATION

The Transportation Plan identifies both needs and planned improvements in order to create a transportation network that is consistent with the objectives and implementation of the Land Use Plan. This element of the Comprehensive Plan sets the framework for addressing transportation needs and considerations. The transportation plan and the land use plan are the essential tools needed to effective growth management as they work in tandem to achieve the goals of the Comprehensive Plan.

Another key consideration in managing future growth in the County will be the location of public facilities to the County highway system. Planning and/or providing infrastructure such as water and sewer services along highways serves as a map to developers when considering developing projects in Essex County.

Highway travel is the primary mode of transport of both people and goods. The framework for Essex County's transportation system includes primary and secondary roadways constructed and maintained by the Virginia Department of Transportation. Alternative modes of transportations such as airport facilities, waterways are available in the County.

Most of the highways in the county and the Town Tappahannock are operating at acceptable levels of service. Future growth will undoubtedly require ongoing investment in highway improvements to maintain safe and adequate levels of service delivery.

Goals:

Provide for the safe and efficient movement of people and freight throughout the County.

Ensure adequate maintenance and improvements to the County's transportation system to achieve operation at acceptable levels

Objectives:

Plan roadway development to support and enhance the Comprehensive Plan and Future Land Use Plan.

Cooperate with and actively provide input to the State Department of Transportation in developing highway maintenance and improvement plans for the County. Actively assist in improving transportation facilities to efficiently meet increased demand in the County.

Develop a circulation system that provides alternate routes for vehicular traffic along local streets.

Provide pedestrian connectivity between developments

Encourage limited access management along principal corridors; discourage strip development on secondary roads.

Preserve and enhance opportunities for greater industrial use of the County's airport complex to support economic development objectives.

Minimize transportation impacts to historic, cultural, and environmental resources and local communities.

Include public awareness and outreach in planning and development of projects

Highway Transportation System

Though the Virginia Department of Transportation (VDOT) has primary responsibility for the highway system, Essex County is a strong partner in transportation planning. This occurs because of its role in identifying highway improvement needs and its policies and regulations which guide land use and development in the County.

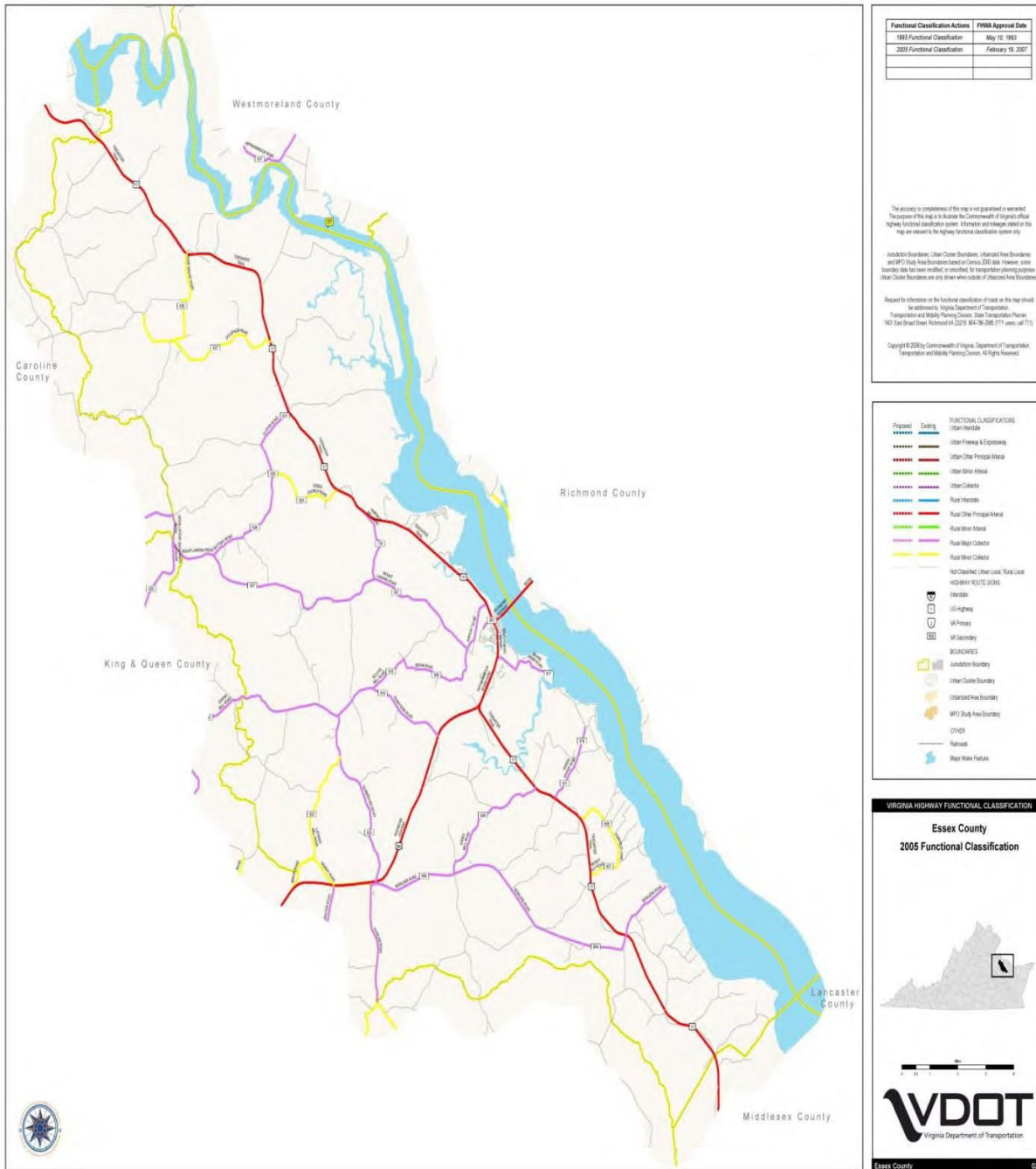
Highways

The skeletal framework of the County's highway system is the arterial and collector highways shown on Map 5-1. The map also reveals that the majority of the highway system is composed of local roads and secondary highways primarily functioning to provide service to local properties. A significant amount of the land in Essex County is dedicated for agricultural uses, therefore, the collector and local routes are heavily used by farm and logging equipment. Based on the Functional Classification of Highways described above, the following characterizes the basic highway network in the County.

Principal Arterial: Carries a high volume of traffic for intrastate, inter-county and inter-city travel. Traffic on this type of road normally has the right-of-way except in areas of high hazard, then controls are used. US 17 and US 360 are the two principal arterial that serves motorists traveling through Essex County. US 17 connects travelers to major employment centers as far north as Fredericksburg and south to Hampton Roads and is identified as a VTran Corridor of Statewide Significance by Virginia Department of Transportation. US 360 provides access to Richmond. These two arterials also provide links to the I-95 and I-64 interstate system.

Major Collector. Serves intra-county and inter-community travel, but at a lower volume, and usually connects to an arterial to provide access to the surrounding land. Access is not directly from this road but from a sub-road connected to the collector. Major collectors may also serve community shopping areas, schools, parks and cluster developments. Those routes in Essex County include:

Map 5-1 2005 Functional Roadway Classification



Secondary Roadways

Utilized mostly for intra-county travel, secondary roadways are of a major importance for rural areas in transporting farm products and equipment, timber to mills, residents to work and services and tourists to waterfront areas. Several of the roads in the County secondary system serve a great deal of inter-county travel to Tappahannock for employment and services.

The condition of secondary roadways in Essex County is reasonably sound with on-going programs of expansion, improvements and maintenance being carried out by the Virginia Department of Transportation. The County has adequate opportunity for recommendations for highway improvements in the Highway Plan for the secondary roadway system developed and revised by the State Highway Department annually. Recent traffic counts indicate the airport road which serves both the County and Town is at capacity and should be planned for upgrade in the near term depending on how its traffic volumes may be influenced by a Town bypass.

Waterways & Bridges

As a part of the 2035 Rural Long Range Transportation Plan, bridge infrastructure throughout the Middle Peninsula was evaluated and rated for functionality and structural integrity. The plan identified four bridges in Essex County as functionally obsolete and four other bridges structurally obsolete. The Virginia Department of Transportation's Six Year Improvement Plan lists a 2016 improvement project for the bridge at Route 691 (Gordon's Mill Road) and Piscataway Creek.

Travel on the Rappahannock River is limited to private pleasure craft and some commercial grain transport. A public wharf was rebuilt in the early 80's and is maintained in Tappahannock by the Virginia Department of Transportation. Navigable waters do have potential for expanded shipping and transportation in the future which would have potential to relieve traffic through the County. Additional access points would allow for increase in both recreational and commercial use of the water. Essex County is an active member of the Middle Peninsula Chesapeake Public Access Authority (PAA). The PAA will be instrumental in assisting the County in obtaining additional waterfront access.

Railways

No railroad passes through Essex County. West Point, Richmond, Ashland and Bowling Green are the nearest available freight stations. Richmond, Ashland and Fredericksburg have the only complete rail services, including commuter rail services (Virginia Railway Express) to Washington D.C. and Amtrak which provides commuter services nationwide.

Airways

The airport facilities are located five miles west of Tappahannock. The airport opened to the

public in 2007 and consists of approximately 421 acres and is developed with public infrastructure such as water and sewer services and broadband services are available. The airport is approved for planes up to 30,000 lbs and currently does not charge landing fees. The airport facilities are equipped with partial parallel taxiways, fuel services, maintenance services, hangars and tie-downs, pilot supplies, courtesy car service and wireless internet.

The airport supports agricultural and forestry services including fertilizing, seeding and insect and disease control.

Traffic Volumes, Trends and Recommended Improvements

Average daily traffic volumes (ADT) on primary roadway segments, available from VDOT are identified in Table 5-1, Average Daily Traffic Volume on Primary Routes. Due to socioeconomic changes, traffic volumes experienced a significant increase from 2003 to 2010 before declining in 2012. While volume is expected to increase over the next twenty years, the rate will largely depend on economic growth both locally and regionally.

**TABLE 5-1
Average Daily Traffic Volume on Primary Routes**

Route #	To		2003	2010	2012	% Trailer Traffic
17S	Caret	Tappahannock	5600	6000	5300	4%
17N	Bray's Fork	Center Cross	4900	5600	5300	1%
360	Bray's Fork	Miller's Tavern	8300	8700	8600	4%

Traffic projections made by the Virginia Department of Transportation (VDOT) indicate that the average daily traffic on Rt. 17 through Town will increase from its current level of 27,000 vehicles per day to 30,500 vehicles per day by 2010, assuming no other alternative route is built. Volumes of this degree indicate a need for additional lane capacity on the Town's major transportation artery and/or underscore the need for a town by-pass or alternate parkway within the planning period.

Level of Service Descriptions

Highway traffic congestion is expressed in terms of Level of Service (LOS) as defined by the Virginia Department of Transportation Manual and the Highway Capacity Manual LOS is a letter code ranging from "A" for excellent conditions to "F" for failure conditions. The conditions defining the LOS for roadways are summarized as follows:

LOS A- Free-flow (FF) operation

LOS B- Reasonably free-flow, Ability to maneuver is only slightly restricted, Effects of minor incidents still easily absorbed

LOS C- Speeds at or near FF, Freedom to Maneuver is noticeably restricted, Queues may form

LOS D- Speeds decline slightly with increasing flows, Density increases more quickly, Freedom to maneuver is more noticeable limited, Minor incidents Create queuing

LOS E- Operation near or at capacity, any disruption causes queuing, no usable gaps in traffic stream

LOS F- Breakdown in flow, demand is greater than capacity.

The LOS for a roadway should reflect the projected demands of the Land Use Map. Circulation systems are generally adopted within the Transportation Element, and traffic volumes and flows generated from the aggregate of the land uses and densities of the Land Use Map must be supported within that LOS. The current LOS for major collectors in Essex County is at or above level B. These being the case, all major collectors currently have available capacity.

Highways outside of the Town of Tappahannock are currently operating at acceptable levels. The County's Future Land Use Map proposes no substantial change in land uses in the near future that would have a major impact on level of service. High density, commercial and industrial land use designations are minimal in the County and County highways have adequate capacity for an increase in volume. Proposed major collector road improvements continue to provide the County with a reasonably sound secondary road system. Continued coordination of improvements with the Virginia Department of Transportation will be required on an annual basis to continually assess needs and priorities as they shift, based on future development patterns.

Table 5-2 outlines the deficiencies in the Essex County transportation system as identified in the 2035 Rural Long Range Transportation Plan.

Table 5-2 Essex County Roadway System Deficiencies and Recommendation

ID #	Location Information	Deficiencies	Recommendation
1	VA 659 (Desha Road) from VA 618 to South City Limit of Tappahannock	Safety: Segment has series of short horizontal curves that limit sight distance. Congestion: Turn lanes that could improve operations are missing along segment.	Long-Term: Safety/Congestion: Upgrade to current design standards and install turn lanes where appropriate.
2	US 17 at VA 631	Safety: Crashes at this location exceed the planning threshold (nine crashes over three-year period).	Long-Term: Safety: Deficiency with low priority. Continue to monitor for potential improvements.
3	US 360 (Richmond Road) from Begin Downing Bridge to End Downing Bridge / Richmond County Line	Congestion: Segment will operate at LOS E in 2035.	Long-Term: Congestion: Urban - 4 Lane With Median.
4	VA 606 (Fairfield Lane) from VA 607 to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.

5	VA 607 (Muddy Gut Road) from US 17 to VA 606	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
6	VA 609 (Essex Mill Road) from US 17 to VA 684	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
7	VA 617 (Island Farm Road) from End of Road to VA 697	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 20 Feet
8	VA 617 (Island Farm Road) from VA 697 to Eastern City Limit of Tappahannock	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
9	VA 618 (Scotts Mill Road) from VA 619 to VA 659	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
10	VA 619 (Sunnyside Road) from VA 620 East to King And Queen County Line	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
11	VA 620 (Dunbrooke Road) from US 360 to VA 619 East	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
12	VA 621 (Midway Road) from US 360 to VA 622	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
13	VA 624 (Essex Church Road) from VA 630 / VA 629 to US 17 North	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
14	VA 624 (Essex Church Road) from VA 631 to VA 630 / VA 629	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
15	VA 627 (Mount Landing Road) from Caroline County Line to VA 665 West	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
16	VA 629 (Battery Road) from VA 627 to VA 624	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
17	VA 635 (Occupacia Road) from VA 639 East to VA 635 East	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
18	VA 637 (Occupacia Road) from VA 635 East to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet
19	VA 716 (Warings Mill Road) from VA 627 to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.

From the analysis and the discussion of growth management three important transportation planning directions seem apparent:

- The capacity of the major arterials is key to growth management of the County and should be carefully conserved. This implies strict access control and residential and nonresidential design standards that emphasize internalization of circulation systems.
- Within the designated growth areas, pre-planned expansion of the highway system is required to ensure that the function and viability of the growth centers do not impact negatively on the quality of life, supporting the need for a Tappahannock by-pass.

- Increasingly, the private sector will have to be a part of the solution of transportation issues, including providing incentives to encourage alternative modes of transportation and developments that reduce vehicular dependency.

Beyond a strict capacity-based approach to highway systems evaluation, consideration of the impact of roads and traffic on community character also needs to be considered. This is particularly true in the rural areas where development historically has been heavily highway oriented. Stripping the rural roads of the County with residential and nonresidential development will undoubtedly result in a loss of the rural character that the County wants to retain.

Transportation Demand Management

Mass Transit

Essex County has a transportation system typical of rural counties. This system depends heavily on automobile use and has significant morning and afternoon traffic peaks. Car pooling, van pooling and transit use are less than the national averages for rural areas.

Essex County partners with Bay Transit to provide a “call for service” bus transit system in the County. This system is funded by Federal and State grants along with local support. Ridership is over 14,000 people per year. Most users utilize the system for work or healthcare. No other form of mass transportation exists. The rural spatial character of the County and the region makes providing fixed route service significantly costly.

The Middle Peninsula Planning District Commission administers the Middle Peninsula Rideshare Program that is available to Middle Peninsula residents including Essex County. The Rideshare Program is a transportation demand management tool that provides an alternative to the drive alone commute for those traveling to throughout the region. The Rideshare Program provides ridesharing services to assist persons seeking transportation options within the Middle Peninsula region to destinations inside and outside the region. Ridesharing through vanpool and carpool serves residents in the counties of Essex, Gloucester, King and Queen, King William, Mathews and Middlesex and the towns of Tappahannock, Urbanna and West Point.

Park & Rides

There are two VDOT maintained park and ride lots in Essex County:

Loretto, #266

Address / Nearest Intersection:

US 17 (Tidewater Trail) & Rte 654 (Rectory Road)

Parking spaces: 18
Handicapped spaces: 1
Paved: Yes
Lights: Yes
Bike accommodations: None
Signed as P&R lot: Yes



Transit service: Unknown
Comments: N/A

Watts Supermarket / Miller's Tavern, #306

Address / Nearest Intersection:
US 360 (Richmond Highway) & Route 620
(Howerton Road)



Parking spaces: 40
Handicapped spaces: 0
Paved: No
Lights: Yes
Bike accommodations: None
Signed as P&R lot: No

Transit service: No
Comments: Commuter parking is in lot on right side of super market. Lot is gravel.

Pedestrian and Bicycle Facilities

Essex County's rural character provides natural scenery easily accessible by pedestrians and cyclist due to low traffic volume on county roads. Currently there are no existing bicycle route plan or bicycle facilities with the exception of a few "Share the Road" signs.

Implementation

The transportation plan cannot succeed without proper support and leadership from County government. The following implementation strategies establish the policy framework from which the County will create and maintain a functioning transportation system within the context of planned growth in the County.

Capital Improvement Programming - Capital programming has been recognized as a proactive way of avoiding transportation capacity problems. The County will need to monitor changing growth and development trends and to advise the Department of Transportation accordingly. The annual process involving the County and VDOT will evaluate the relationship between the State's available resources and the demands upon the County's primary and secondary road systems created by proposed land uses and land use trends.

The County should continue to plat rights-of-ways for new roads and streets when the land use patterns allow. This will permit the coordinated completion of road improvements if undertaken by different entities such as private developers.

Maintain Coordination of the Land Use/Transportation Planning Process - Continuing emphasis should be placed on coordination between the Town, County, VDOT, and MPPDC staff on matters related to planning and programming improvements and transportation systems management. There are several steps that can be taken to improve the current transportation planning process: the State and County should work very closely together to evaluate the transportation system implications of the County's new growth plans; elected officials should be major participants in this process; and coordinated State and County transportation management policy should evaluate the need to expand upon the current level of commuter ridesharing in order to reduce single-occupant vehicles. Plan for and coordinate right of way acquisitions for future improvements at the development review and permitting phase whenever possible.

Traffic Impact Analysis - As part of the Zoning process and development process, the County in conjunction with the state requires a traffic impact analysis of all new major projects. This analysis is used to determine if post-development traffic levels and patterns will be consistent with the County's Transportation Plan and highway policies and will minimize potential safety and congestion problems. Where the County has short-term planned improvements scheduled, it may permit the development to include such improvements in the traffic impact analysis. The County standards should be reviewed periodically to ensure.

Access Management - An access management program should be created, initiated, and supported by appropriate ordinances to ensure that access is not unnecessarily violated along key road links or near major intersections, particularly along the proposed Highway Corridor Districts.

- Remove turning volumes or queues from sections of the through lanes by pavement marking alterations, geometric design modifications, right-of-way acquisition (including acquisition for such techniques as constructing a service road or bypass road), or requiring adequate internal site circulation.

Zoning and Subdivision provisions should require that development projects adhere to all VDOT standards.

Commercial and Industrial Parks - Interior uses should be encouraged when developing planned parks where access control. Local roads, rather than arterial or collector roads should provide access to the site. When between two to five commercial uses can use a single access, substantial improvement to the flow of traffic can result.

Highway Corridor Overlay Zoning – Draft language in the zoning ordinance to implement a Highway Corridor Overlay Zoning District. Overlay zoning brings to the area additional requirements and standards above those of the underlying zone. Special transportation related improvements in the Highway Corridor District shown on the Land Use Concept Plan should include access controls and transportation impact analysis for high-volume uses.

Transportation Management Strategies - The County should encourage innovative mechanisms, including private cooperation, and financial support by developers and the business community which could be incorporated into financing policies. Transportation Management Activities (TMA's) have traditionally been a coalition of employers who engage in a wide range of activities including the promotion of ridesharing, the purchasing of vans for vanpools, the financing of areawide street improvements such as signal upgrades, and even the planning for long-range transportation projects. Diversify options for transporting of freight by boosting use of waterways and providing necessary infrastructure to promote alternative modes of transportation.

Alternative Modes of Transportation- the County will seek to promote a more pedestrian friendly environment by providing a variety of transportation options for its residents. The County will explore techniques and programs that will provide safe, accessible bicycle and pedestrian facilities in an effort to decrease vehicle dependency and encourage quiet enjoyment of the County natural environment.

The County will work with the PAA and state agencies to adopt methods of obtaining increased access to its waterways.

SECTION SIX

COMMUNITY FACILITIES AND PUBLIC SERVICES

Goal:

To provide a system of community facilities, public services, and infrastructure that is consistent with existing and future needs and resident well-being and that encourages a form of development consistent with the Land Use Plan.

Objectives:

Maintain and improve existing facilities to serve future demand.

Encourage the development of Parks and Recreation facilities to serve the needs of County residents. Explore opportunities to provide greater public access to the river and creeks.

Ensure that the economic burden of providing public service is equally borne and distributed by all those who benefit.

Reduce cost of providing facilities by effective planning and prioritization of projects

Provide, maintain and improve public services and facilities to meet the needs of residents of the County and foster economic development. Review the performance and effectiveness of existing services and public facilities and proceed with necessary changes.

Ensure that the costs of additional public facilities and services required by new development are equitably borne by those benefitting.

Develop a Capital Improvement Program and annual Capital Budget to satisfy projected facilities and service needs and to permit acquisition of sites of proper size and location for facilities in advance of development.

Promote and foster an environment that stimulates economic development and presents an attractive environment for businesses and entrepreneurs.

Introduction:

Ensuring the provisions of community service and facilities are phased with the needs of residents is important to management of future County financial resources. Community facilities and public services are those minimum facilities and services the County provides for the common good. The quality of public facilities contributes to the quality of life in the County. Some facilities, such as clean drinking water and adequate sewerage disposal are necessities; others, such as parks, are highly desirable for quality of life enrichment. The quality of public facilities contributes to the quality of life in the County. Some facilities, such as clean drinking

water and adequate sewerage disposal are necessities; others, such as parks, are highly desirable for quality of life enrichment.

Although the majority of the public facilities and services enjoyed by Essex County residents are centrally located within the Town of Tappahannock, and in many cases shared with Town residents, their future depend upon adequate planning by the County and are therefore vital to the Essex County Comprehensive Plan.

Community facilities planning efforts will need to be continually re-evaluated during the planning period within the dynamic real estate market financial conditions, and regulatory climate with which Essex County will be faced. With this context in mind, however, several community facility improvement needs can be anticipated during the 20 year planning period. This section of the plan will focus on identifying the issues and needs for selected services in the context of expected growth.

Public facilities and services include land, buildings, equipment, and whole systems of activities provided by the County on behalf of the public and are costly to provide and operate in a rural county. The problems are more pronounced due not only to a lower population and revenue, but also the lack of concentrated development pattern. This means the people must travel further to services or the services must be extended further to be accessible by residents. This is expensive and often results in decreased services.

Land use regulations can promote community development and discourage scattered stripping of commercial uses. In this way, services can be localized; fewer centers serving more people are more efficient. The future land use plan, in coordination with public services and facilities planning, must address needs with respect to location of development and the provision of services at least cost.

Citizen tax dollars support a variety of public services provided to Essex County residents. Conveniently, almost all are located in and around the Town of Tappahannock. Services attract population and commerce increasing the need for community facilities and public infrastructure. When growth and development exceed the capacity of services, public officials are faced with difficult choices on funding sources and how to meet the demand for services and facilities.

Analyzing growth projections and creating a strategy of how to address the issues beforehand is key to smart growth management and eliminates the concern for overtaxing existing facilities and resources. It also helps to control where and how future growth takes place; a primary function of the Comprehensive Plan. Analysis of existing services and facilities and projection of need based upon population and economic data can assist in anticipating what additional services and facilities will be required in the future. In this way, necessary appropriations from the budget can be anticipated in advance.

Health and Welfare

Essex County has a variety of medical services available to its residents. Riverside Tappahannock Hospital located in Tappahannock is a one hundred bed facility offering X-Ray, Nuclear Medicine, Laboratory, Physical Therapy and Respiratory Therapy services. The surgical suite can handle major surgery and complicated orthopaedic surgery. Physician specialties utilized in the hospital include Family Practice, Internal Medicine, Emergency Medicine, General Surgery, Cardiology, and Orthopaedic Surgery. The Emergency Department is well equipped to treat all types of injuries and is staffed 24 hours each day by an Emergency Room Physician. Urgent Care services are also provided through Riverside Hospital.

In addition to private medical services, the County Health Department, located in Tappahannock, provides cost efficient medical services to Essex residents which include regular family planning, child health, obstetrics, Medicaid and immunization clinics. The Health Department also provides expertise in planning and approving individual sewage systems (septic), testing private water supplies, inspecting food selling establishments as well as assisting with rabies control. State and locally funded, the Health Department operates on an ability-to-pay basis serving those County residents unable to afford private care. The Tappahannock Free Clinic is also available and currently provides various free screening and medical services for indigent residents in the county.

Social Services are provided by the Essex County Department of Social Services located also in Tappahannock. Staffing includes a director, two social workers, three eligibility workers and three clerks. The department administers the Supplemental Nutrition Assistance Program (SNAP), auxiliary grants for the aged and disabled, general relief funds, Aid to Families of Dependent Children, child protective services, foster care and numerous services through Title XX Funds.

There are several adult nursing home/convalescence facilities in Essex County and the surrounding region, with additional facilities being planned.

A significant percentage of Essex residents are retirement age or older which is why Carrington Manor, a private long term care facility, is a vital service available to Essex County residents. This 128 bed senior care facility provides assisted living and nursing services to its residents in a live in environment.

Safety and Emergency Services

It is the responsibility of the elected officials to ensure that necessary resources are readily available to law enforcement and emergency service response teams who protect and serve Essex County residents.

The Sheriff's Department, located in Tappahannock, is staffed by the Sheriff and eleven officers.

The department cooperates with other counties in the Middle Peninsula in minimum classroom and on-the-job training and in emergency services operations. In addition to the original building houses six offices. The Town employs an additional 5 officers through its police department and five state police are assigned to the Town/County area. Essex County also participates in service sharing with other localities in the region. Essex County uses the regional detention facilities in Middlesex County to hold adult and juvenile offenders.

A single volunteer organization, the Tappahannock-Essex County Volunteer Fire Department serves Essex County from a new facility located in Tappahannock. The Department consists of over more than fifty members is equipped with a three Class A pumpers, two large capacity water tankers, three brush trucks and one mini pumpers and two staff vehicles. There are three fire stations located throughout the county with the newest addition located in the Occupacia District.

Essex County formed a hybrid EMS system consisting of paid employees and volunteers. Essex County EMS was formed in Sept 2011 and employs full time personnel. Tappahannock Rescue Squad, INC. consists of volunteers who work closely with Essex County EMS to meet the service needs of both Essex County and the Town of Tappahannock. The county-town rescue squad is composed of about forty members operating four (4) rescue vehicles. The units are dispatched county-wide from the County Sheriff's Department. Both EMS agencies are funded by the county, Tappahannock Rescue Squad, INC. still receives private donations and local contributions.

Standards for law enforcement personnel requirements for Counties with a population of 10,000 indicate the number of personnel typically ranges from 1.5 to 3 employees per 1,000 population. The combined personnel of the Sheriff's department, town police department, together with four State Police assigned to the area indicate a total of approximately 25 personnel suggesting law enforcement resources are presently adequate.

Essex County Red Cross

Since 2006, River Counties Chapter of the American Red Cross has been supporting Essex County with volunteers residing in the county. The chapter provides limited services of assisting with small disasters such as house fires, blood drives and Armed Forces Emergency Services.

In the event of a disaster, residents receive immediate assistance with food, clothing and lodging. River Counties Chapter supports Essex, Lancaster, Middlesex, Richmond and Westmoreland from local donations.

Other Services

Rappahannock Legal Services is a non-profit corporation that provides free, high-quality, civil legal assistance to low income individuals and families. We are funded by a wide range of local

individuals, churches, banks, agencies, governments and organizations, including the Rappahannock United Way and Piedmont United Way.

The Haven Shelter & Services, Inc. provides assistance to domestic violence and sexual assault victims in the Essex County and the Northern Neck region. Their mission is to provide advocacy and shelter for identified victims of partner abuse and sexual assault as well as to provide support services to victims and their families.

Education

The Essex County School Board operates a consolidated public school system at three sites in Tappahannock. A 78.9 percent graduation rate was report for Essex County high schools in 2012. This number is consistent with trends dating back to 2007. 79.9 percent of Essex residents are high school graduates, however, only 16.2 percent of the population 25 of over hold a bachelor’s degree or higher. The following table (Figure 6-1) shows the population of students enrolled in school in 2012.

Figure 6-1 Population School Age Children Enrolled in a Learning Institution

	Public	Private
Population 3 years and over enrolled in school	2,348	86.6% 13.4%
Nursery school, preschool	129	29.5% 70.5%
Kindergarten to 12th grade	1,803	91.2% 8.8%
Kindergarten	112	75.9% 24.1%
Elementary: grade 1 to grade 4	473	83.9% 16.1%
Elementary: grade 5 to grade 8	629	93.3% 6.7%
High school: grade 9 to grade 12	589	97.8% 2.2%
College, undergraduate	401	85.0% 15.0%

Table 6-1 Essex County Enrollment History and Projections

School	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Essex High										
# pupils	515	497	472	490	472	474	459	429	447	421
Essex Int.										
# pupils	453	469	488	465	460	432	428	413	386	384
Essex Elem.										
# pupils	641	636	616	592	568	562	547	539	533	513
Total Students	1609	1602	1576	1547	1500	1468	1434	1381	1366	1318

Source: 2014 Essex County Public Schools Comprehensive Plan

Several private schools options are available to Essex County residents. The institutions and their range in grades are as follows:

Aylett Country Day School - Early Childhood 3 yr. olds - Grade 8

Saint Margaret's School - Grades 8 – 12 (girls only)

*Tappahannock Junior Academy – Pre K – 8

*offers high school distant learning

School populations are expected to remain stable or slightly decline due to fewer children in the

lower age groups entering the school system. Table 6-2 below shows projections in growth for school age residents in Essex County through 2030. The projections show slight changes in the 9 years and under age group while the 10 to 14 year old age group experiences significant growth. This change is consistent with the number of younger parent households migrating into and out of the County while middle age residents settle in the county long term.

Table 6-2 Population projection of Essex County school age resident

Population Projections by Age	2010	2020	2030
Under 5 yrs	649	602	646
5 yrs to 9 yrs	649	659	741
10 yrs to 14 yrs	668	833	777
15 yrs to 19 yrs	774	675	690

In 2002, an addition to the elementary and other renovations was completed. A construction project to renovate and expand Essex County High is currently underway. The renovations include an auditorium with seating capacity for 600 people. Recent unexpected enrollment increases place the school over capacity.

Essex County is in close proximity to numerous institutions of higher education, several within an hour commute time. These colleges and universities support the labor market of Essex County and are vital to its overall competitiveness in the labor market. The programs of study range from business professional to doctoral programs. The convenience of obtaining higher education is offered through distant learning and online courses at several of these higher learning institutions.

Institution	Location	Distance
*Rappahannock Community College	Glenns Warsaw	21 miles 8 miles
College of William & Mary	Williamsburg	46 miles
Virginia Commonwealth	Richmond	39 miles
University of Richmond	Richmond	39 miles
University of Mary Washington	Fredericksburg	44 miles

*Two year college with guaranteed admissions with most state schools. Offers lifelong learning programs and a transfer incentive that is recognized through most public higher education institutions.

Broadband Facilities

Public transportation provides access to job, education, and medical care. By providing

broadband facilities, the demand on transportation infrastructure would lessen, allowing for redirection of funding toward other transportation projects. Broadband services are essential to the economic vitality of Essex County. While broadband services are more readily available in the Town of Tappahannock, providing efficient service to rural parts of the county has proven to be a challenge.

Essex County is an active participant and works closely with the Middle Peninsula Broadband Authority. The Broadband authority is a committee of representatives from localities in the Middle Peninsula who are tasked with identifying the most practical and economically feasible approach to overcoming the challenges that rural counties face in providing broadband services. The Broadband Authority is exploring various models that were recommended as a part of CIT broadband study.

The broadband study shows that 81% of Essex County is serviced by DSL internet service. Essex County ranks 105 out of the 131 counties in broadband speed. The County's population density, 42.1 persons per square mile, contributes significantly to the difficulties and high cost of providing broadband services. Service providers to Essex County resident include Metrocast, Hughes Net and Virginia Broadband.

Waste Disposal

Waste collection and disposal operations in Essex County are carried out by a regional solid waste authority. Waste is collected and transported to commercial landfills outside of the County. Recycling services are available as a part of the collection service. Solid waste collection services to Essex County residents are available through a private waste management entity.

Water & Sewer Services

Due to the higher residential density and a concentration of the commercial uses, public water and sewer facilities in Essex County are located in the Town of Tappahannock. These services may be extended into the county to accommodate residential subdivisions in close proximity to the Town of Tappahannock. Many of the private subdivisions have privately owned and operated central water supplies. The largest of these include: Gwynnfield, Maryfield, Coleman Island Beach, Point Breeze, Markhaven Beach, Essex Acres, Laurel Park, Wilson Acres and South Hill Banks.

A \$1,300,000 grant from the U.S. Department of Commerce was used to expand and upgrade the town of Tappahannock Waste water treatment plant giving the County 200,000 gallons per day capacity and to extend water and sewer lines into the County to serve present and future industrial and commercial uses

Storm Water Management

In an effort to protect water sources from contaminant and manage erosion and sediment runoff into the water supply, Essex County is participating in the Virginia Storm Water Management Program. The County's storm water management program, administered through the county Building Department, will require a review process for future development that seeks to manage erosion and sediment control from the development site. The program also involves site inspection and ongoing maintenance of water control mechanisms. The County will provide storm water management oversight for proposed developments in the Town of Tappahannock.

Water Supply Planning

In 2010, Essex County and Town of Tappahannock adopted a water supply plan that identifies current and future water demands and the localities' approach to meeting future demands.

The Town of Tappahannock currently provides the only public water system in Essex County. Water supplies appear suitable to support individual domestic wells in rural portions of the County given the low rate of household growth projected for these areas.

Public water supply system will be required, however, to support higher densities and non-residential. The Town system can provide a foundation to build on and expand service into other districts.

Parks & Recreation

The County operates a Department of Parks and Recreation utilizing the swimming pool, gym and two lighted ball fields for organized sports and recreation activities. Their programs include volleyball, flag football, basketball, after-school primary level activities, weekend youth activities, parades and open gym activities.

Marsh Street Pool and Park, located in the Tappahannock, is a public park with pool amenities and are operated by Essex County Parks & Recreation. The facility is less than 2 acres and provides County residents with a swimming pool and other activities. Activities organized on site through the County include: Fun Day, splash parties, swimming lessons, water aerobics, Special Olympics, and special events. The County also organizes volleyball, little league basketball, aerobics, soccer, kite flying, and tennis. Rappahannock Recreational Association, a private, nonprofit agency also provides similar recreational services to Essex County residents. In spite of the success of these programs, existing facilities appear to be limited when judged against state standards for parkland.

Outdoor recreational activities, such as hunting, fishing and boating, are a part of everyday life for most Essex County residents. Its proximity to Rappahannock River along with the vast open space provides residents and tourist alike with a unique closeness to nature that can only be

experienced in a rural environment. The immense amount of waterfront has built enthusiasm from Essex County residents and tourists for water sports and activities. A small park in Tappahannock provides picnic facilities located on north Route 17 maintained by the Town of Tappahannock.

The Virginia Department of Conservation Recreation (VDCR) established local recreation and park site standards call for at least 10 acres of recreation land per 1,000 persons in a community for all park needs at the neighborhood, community and district park scale. It is also recommended that of the total acreage, at least one quarter of the area is developed as active open space. Utilizing these standards, the County should have available some 130 acres of open space for residents use over the 10 year planning period, of which approximately 33 acres should be active recreational open space

Table 6-3 VDCR Park area Standards by Service Radius

Class	Acres/1000	Rural (Service Area)	Minimum Size (acres)
Neighborhood Park	3	1-1/2 miles	5
Community Park	3	3-7 miles	20
District Park	4	10-15 miles	50

Only 32 acres of the County landfill site is actively used for solid waste disposal leaving substantial land area (650 acres +) available for Park use. Its central location and size suggest its use might be suitable for a district or regional park providing for both passive (nature trails, bicycle or trail or picnic facilities) and active (ball fields, tennis courts) facility improvements.

There is also a 16 acres site adjacent to the middle/intermediate school available for development and use for recreation. VDCR encourages local governments to provide access to outdoor resources as well as education residents on using outdoor resources in a way that preserves the natural environment. DCR also provides education and grant funding opportunities to localities in providing outdoor recreational activities. The County should consider a park facility at this location.

U S Fish and Wildlife-Rappahannock River Valley was established in 1986 for protection and conservation of Wildlife Resources. Rappahannock River Valley manages a refuge in Essex that is equipped with trails and other outdoor amenities for viewing of local wildlife habitat.

In an effort to provide recreational opportunities that are easily accessible to all residents, the County encourages the development of active open space in all communities. The recreational sites should range from playgrounds to large scale community parks depending on the area the park is created to serve and would be consistent with the recommended guidelines of Virginia Department of Conservation and Recreation’s 2007 Outdoor Recreations Plan.

Boating Facilities

Essex County has determined that boating facilities should be located only where: there is sufficient water depth, without frequent dredging; there are not public or private shell fishing grounds which would be impacted; there is adequate tidal flushing; there are suitable soils for sanitary facilities or connection to a municipal sewer system; there is limited harm to fish and wildlife habitat; and there are compatible existing land and water uses nearby.

Existing marinas and boat repair facilities should adopt operational procedures consistent with BMPs. For proposed boating facilities, BMPs should be required as a condition of development.

There are boat slips available at June Parker Marina in Tappahannock and Garrett's Marina at Bowler's Wharf for private use. There are several public landings located along the Rappahannock for launching boats. Table 6-4 list the public landings currently operated and maintained operated by the State.

Table 6-4 Public Boat Ramps in Essex County

Property	Ownership	Infrastructure on Site
Dock Street	Virginia Dept. of Transportation	Landing
Piscataway Creek	Dept. Fish and Wildlife	Landing
Wares Wharf	County	No Infrastructure
Mount Landing	National Fish and Wildlife	Dock
Hoskins Creek	County	
Prince Street Road Ending	VDOT transfer to Town of Tappahannock	Pier
Browns Tract	Middle Peninsula Public Access Authority	Pier

Essex County is an active member and works closely with the MPPAA. The MPAA oversees public recreational property throughout the Middle Peninsula. The County should study the needs for waterfront public access in conjunction with state, federal, regional, and private agencies. The Middle Peninsula Planning District Commission should be encouraged to assist local efforts in planning and providing water access infrastructure and park facilities which will benefit use of the natural environment thereby protecting water quality.

Library

The Essex Public Library, located on Route 17 north of Tappahannock and operated by the County, is an 8000 square foot facility that was completed in July 2001. Construction was funded entirely by grants and donations.

The library contains 18,000 volumes and is funded primarily by the County. Some additional funding comes from the Town of Tappahannock, the state, federal grant-in-aid monies and private donations.

Essex County Museum

Founded in 1966, the Essex County museum is operated by the Historical Society. The museum provides historical information on Essex County, the Town of Tappahannock and their residents. The museum operates as a 501(c)(3) organization and funding is provided through membership dues and donations.

Government Services and Facilities

In addition to the services already mentioned, the Essex County Government includes a building inspection program with a full-time building official-zoning administrator and an administrative staff. All offices are currently located in or adjacent to the County Courthouse. The addition of local programs and services is not expected at this time and total space is presently adequate to allow administration.

In 2001, a new 8000 square foot library was completed. The former library location currently houses Virginia Tech Extension Services.

The County's Justice system is located in an 11,400 square foot building designed to house the District Courts and Sheriff's Office. The County Administrator's Office is 1650 square feet and is located in former Sheriff's Office. The Commonwealth's Attorney's Office has relocated into the old County Administrator's Office from its rental space off the County/Town Square. In addition, the County has 2000 square feet of unused space formerly occupied by the District Courts. The County encourages the use of the vacant space by another government service agency.

Historic and Cultural Resources

Preservation of historic and cultural resources through land use and zoning regulations is an area currently under future planning consideration by Essex County government and partnering agencies. Although there are many homes and sites of historic significance, for purpose of this Comprehensive Plan, only those registered with the Virginia Historic Landmarks Commission are recognized. These historic sites are located on Map 14-1. They include: Brooks Bank located east of Loretto; Vauters Church and Elmwood at Iraville; Glencairn near Chance; Glebe House of St. Anne's Parish located east of Champlain; Blandfield, east of Caret; and Woodlawn on Route 360 between Paul's Crossroads and Millers Tavern.

Implementation

Include plans for expansion of facilities and infrastructure into the county, specifically to the Airport Complex, as well as ongoing maintenance of services and facilities. Identify revenue generators and funding sources for carrying out the CIP. Coordinate efforts with the Town of Tappahannock to meet the Sewer and Water facility development and improvement needs of the Town and surrounding County areas

Explore funding resources and revenue generating options, such as user fees for public facilities and grants offered through state and federal agencies to the Economic Development Authority and other agencies that will assist in implementing broadband initiatives. Update current Plans, codes and maps to show desired development in areas where existing facilities are located and maximum use can be achieved. Amend codes and ordinances to discourage use of those areas that create an unfair hardship on public infrastructure without providing for proper expansion or improvements

Encourage and provide ongoing education and training of all public safety personnel. Funding for resources necessary to protect and serve Essex County residents should be prioritized accordingly in the County budget. Consult and cooperate with the Department of Emergency Management in providing current training, workshops and other available resources to assist with maintaining and advancing the county's public safety.

Provide broadband options, ideally a competitive broadband environment that will support local businesses connectivity needs as well as Essex County residents. Provide and improve opportunities that support teleworking, education for K-12 and continuing education for adults, and quality healthcare including telehealth support

Create policies and/or amend zoning polices to be more broadband zoning friendly. The county should form partnerships with existing community organizations to provide digital literacy training options for broadband adoption and utilization

Encourage and foster an environment of public participation and community outreach that will allow residents and other stakeholders to be active in the public facilities planning process. An evaluation is needed to determine if available facilities and programs are meeting the communities' interests.

Encourage and invest in providing higher education and job skill training that allows resident to find opportunities in Essex County. Form partnerships and explore opportunities that will allow for access to funding promoting job skills training, placement and retention. Work closely with the Middle Peninsula Planning District Commission on implementation of the recommendations from the Comprehensive Economic Development Strategies Plan to provide services and infrastructure necessary for economic growth and development.

Encourage developers to utilize alternate density zoning. Encourage development of Parks and Recreation multiuse facilities as a part of development requests which provide a range of activities to County residents.

Work closely with the Middle Peninsula Public Access Authority and other agencies to explore opportunities to provide greater public access to the river and creeks.

Work closely with other agencies to explore service sharing opportunities to reduce cost and increase efficiency. Ensuring that the provisions of community services and facilities are phased with the demand or County needs is important to management of future County financial resources. Although the majority of the public facilities and services enjoyed by Essex County citizens are centrally located within the Town of Tappahannock, and in many cases shared with Town citizens, their future depend upon adequate planning by the County and are therefore vital to the Essex County Comprehensive Plan

Establish and enforce policies and regulations that require contributions by the development community to offset or fund cost of increased service demands that come as result to their new development. These policies should include funds for public infrastructure and facilities as well as dedication of open space in residential developments for active recreational use and other applicable proffers

Explore options that will allow the County to regulate development of historic sites in an effort to preserve the historic and cultural integrity of the support should be given to efforts by the individual owners to preserve and enhance these sites as they are to the benefit of the County as a whole

Encourage recycling and reuse of effuse to maximize and make more efficient use of public service facilities

SECTION SEVEN THE ECONOMY

Goal:

Create a balanced sustainable community through moderate economic growth within the County's existing growth management plan.

Objectives:

- * Strengthen local business/industry retention efforts by assisting businesses and industries to expand within Essex County.
- * Attract new and relocating businesses and industries to Essex County to support and its economic base and provide high quality jobs for residents.
- * Preserve the tradition of agricultural, forestry, fishing and shellfish industries as important components of County rural character and the local economy. Promote additional tourism/travel industry or Eco-tourism related development which complements the rural, scenic, and historic qualities of the County.
- * Continue encouraging efficient and attractive commercial development to strengthen the County's economic base, and provide both jobs and services for County residents.
- * Provide an ample supply of appropriately zoned land areas suitable for future industrial and commercial growth.
- * Work closely with and continue to support the Town of Tappahannock in attracting quality commercial and industrial businesses that will help strengthen the local economic base.
- * Assign priority to the adequate provision of infrastructure to areas designated for future industrial and commercial development (i.e. roads, water, and sewer systems).

Introduction

Town of Tappahannock's commercial core is the backbone of Essex County's economy. The general trade area is delineated as served by retail establishments centered at Tappahannock. Although the County has designated several areas throughout the county for smaller neighborhood commercial uses, commercial and service uses are centralized in the Town. This allows the County to promote industries such as agriculture and recreation and tourism which contribute greatly to its economy while helping to preserve its rural character and natural

resources. Public water and sewer services do not extend throughout the county which helps to manage the types of development and uses of land in the County.

This chapter of the Comprehensive Plan focuses on the economic indicators of community growth and direction of resulting change in Essex County and the Town of Tappahannock, and ways in which these directions both influence and may be influenced by public policy. The chapter also highlights some of the challenges with Essex County’s economy and demographic issues that help to fuel these challenges.

Essex County’s Economy

Revenue

An important feature of the local economy is its proximity to about 3.5 million people living in the "urban corridors" of Fredericksburg, Richmond and the Hampton Roads. The Town of Tappahannock is a natural regional center because of its strategic location at the junction of Routes 17 and 360. Its Rappahannock bridge location centers the Town to serve substantial areas of the Northern Neck and Middle Peninsula regions. The greater trade area served by the town includes all or part of eight counties. A substantial percentage of the local tax revenue is generated from travelers passing through or visiting the town.

In 2012, the County’s population of 11,151 residents represents less than 10% of the eight county and regional populations. The 1 percent local sales tax revenue increased significantly from 2004 to 2007, however, declined steeply from 2006 to 2010 with a gradual increase from 2011 to 2013. The fluctuations depicted in Table 7-1 are a result of various socioeconomic events occurring over the ten year period.

Table 7-1 Local Option Sales Tax

Year	Essex County Revenue
2004	\$1,543,924
2005	\$1,700,716
2006	\$2,088,394
2007	\$2,054,070
2008	\$1,912,636
2009	\$1,732,222
2010	\$1,713,418
2011	\$1,731,516
2012	\$1,785,918
2013	\$1,842,607

The information above is tabulated from the revenue collected sales tax. Sales taxes are paid by consumers on all purchases made. Another mechanism which taxes the business owner doing business in a locality is the business license. The business license is established at the local level

and is collected exclusively by the locality. This revenue generally goes into the general fund or is used to fund specific improvements. The revenue from business license could offset the cost of improvement necessary for growing and attracting businesses to the County. Essex County currently does not have a business license requirement in place, therefore business in Essex County do not pay such tax. This loss of revenue could be substantial in terms of the proposed economic growth and how other businesses view the Town. It is proven that while infrastructure and other characteristics make locating to Essex County impossible, the use of an Essex County address to avoid licensing in other localities causes a discrepancy in the actual economic make up of the County. Essex County could require a business license for businesses located in the county limits and use it as a tool for attracting economic growth.

Employment

Essex County's centralized location provides advantages in various ways. In addition to contributing to the Town's regional commercial hub designation, it also provides residents with access to employment in major employment areas. Over 70 percent of Essex County residents commute to areas outside of the County for work. Majority of out commuters travel as far as Richmond, Northern Virginia and Hampton Roads for employment. Although a significant number of County residents travel to points outside Essex County for employment, the percentage of commuters is much lower than those of neighboring counties.

Changes in the socioeconomic make up of the County have caused employment rates to fluctuate over the past several years. Table 7-2 illustrates the change in the employment rate compared to that of the state.

Table 7-2 Essex County's Unemployment Rates

Year	Essex	Virginia
2008	5.2%	4%
2009	8.9%	7%
2010	9.1%	7.1%
2011	8.2%	6.4%
2012	7.3%	5.9%
2013	6.8%	5.5%
2014	6.7%	5.2%

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages 3rd Quarter 2013.

The unemployment rate increased almost 4 percent from 2008 to 2010; however, it has been on a gradual decline since 2011. Notice that the County's unemployment rate is consistently at least 1 percent higher than that of the state.

As mentioned earlier, the retail industry makes up the majority of Essex County's economic base. More than 35 percent of the county's employment industry is retail, not including the food service industry such as McDonald's, Applebee's, etc. More importantly, the retail employees are among the lowest wage earners compared with employees in other industries.

Healthcare is the second major industry in the County due to the presence of Riverside Regional Medical Center in Tappahannock. The healthcare industry employs more than 600 employees

and experienced the highest net gain in employees. Wages in the healthcare industry are among the highest in the town and county averaging over \$871 weekly. Table 7-3 provides a list of the various industries comprising the County's economic base.

Table 7-3 Essex County's Top Employment Industries

Retail	795
Healthcare and Social Assistance	612
Government	525
Manufacturing	523
Accommodation and Food Service	422
Finance and Insurance	176
Wholesale Trade	151
Administrative Support & Waste Management	80
Construction	79
Real Estate	77
Agriculture, Forestry, Fishing and Hunting	64
Professional, Scientific and Technical Services	63

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages 3rd Quarter 2013.

With more than 70 percent of the labor force commuting to higher wage markets, the economic profile of the county is distorted. The median income and salaries of the county are driven by those who are commuting outside Essex County for employment, giving the illusion of a high wage labor market in the county. The median household income and the real estate market are driven by wages earned outside of the county leaving those who live and work locally at a disadvantage. Table 7-4 provides the average weekly wage for industries in Essex County. This information is essential to understanding the strengths and weaknesses in the local economy and where attention in the future should focus.

Table 7-4 Average Weekly Salary by Industry

Retail	\$453
Health Care and Social Assistance	\$871
Manufacturing	\$493
Government	\$659 (local) \$898 (federal)
Accommodations and Food Service	\$275
Finance and Insurance	\$969
Agriculture and Forestry	\$732
Wholesale Trade	\$876
Construction	\$556
Professional and Technical Services	\$657
Transportation	\$344

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, 3rd Quarter 2013.

Local employment has shown a steady increase in comparison to the population and this trend is expected to continue. Continued retail and services job growth should be expected given these characteristics. The County efforts, however, may be required to establish and maintain a balanced job base. Continued efforts to attract industry to support the objective of maintaining diversity in the job base will likely be required and the construction of water and sewer and line extension into the County will help with their goal.

Agriculture and Forestry

The Census of Agriculture 2012 indicates that 37 percent of Essex County is made up of farm land with approximately 98 farms with an average size of 579 acres. This number is slightly lower than the 2007 Census which shows 102 farms with an average 523 acres. The market value of products sold from these crops, including livestock, totaled over \$22,770,000 in 2012 and close to \$10,000,000 in 2007. Total income from farming averaged \$49,836 in 2007. According to a study by the Weldon Cooper Center, Essex's County agricultural industry direct economic impact to the Virginia's economy in 2011 was over \$23.4 million and total impact was \$30.9 million. The forestry industry contributed \$44.8 million in direct and \$58.3 million in total impacts the same year. The study also indicates that more than 470 jobs in Essex County are agriculture related and over 370 are forestry related.

The tables above indicate that Agricultural, Forestry, Fishing and Farming industry wages are significantly higher than the average weekly wage; however the industry employs the least number of workers. According to the Virginia Economic Commission, the industry is also projected to decline slightly by year 2020.

It is conducive to the county's present and future economic endeavors to take measures to maintain and where possible, expand agricultural and forestry use of land in the County. The use is one of the few ways of achieving the County's two most important goals of growing and diversifying its economy while preserving and protecting its natural environment. **Two programs administered by Virginia Department of Conservation and Recreation are orchestrated to help conserve farmland in Essex County and throughout the Commonwealth.**

To qualify, farmland must: be privately owned; have a pending offer from a state, tribe or local farmland protection program; and contain significant amounts of prime farmland, historic or archaeological resources, or land that furthers a systematic state or local farmland protection program consistent with FRPP.

Maritime Economy

Essex County's naturally built environment works well with promoting recreation and tourism as one of the more dominant industries in the County while protecting and preserving its natural resources.

The travel industry provides employment and tax benefits with substantial dollars spent by travelers circulating through the local economy. Tourism plays a small role in the County economy; however, its role can be maximized through enhancement of recreational facilities.

From the historical and cultural aspects of Tappahannock to the Rappahannock River waterfront and natural environment and wildlife refuge, Essex County has many assets to assist with the promotion of tourism. The County should focus on building on these assets to make them more attractive to the thousands of travelers that intersect the communities in route to urban areas. Essex County has the potential to be a weekend destination location with enhancements such as bike and walking trails, strategically located recreational facilities, more public access to water and emphasis to community's culture and history centered on Downtown Tappahannock. In addition, the establishment of the local Farmer's Market in downtown Tappahannock has provided an opportunity for local farmers and merchants to sell products made and grown in the County. This includes produce from farms and catches by watermen and aquaculture businesses. Enhancements are necessary to establishing a tourism and recreation as a more solid economic base and helping to diversify a vulnerable economy.

The National Oceanic and Atmospheric Administration (NOAA) collects and analyzes data on the maritime industry economy on the local, state and federal level. This information is used to help understand the importance of maritime industry to the economy and where opportunities to strengthen the industry may lie. This is especially important in the Middle Peninsula region being a coastal region and in Essex County which has the highest number of jobs in the maritime industry in the Middle Peninsula region. In 2011, NOAA's research showed that Maritime-related businesses provided 12% of the total jobs in Essex County, all in recreation and tourism industries. This represents a 10 percent increase in maritime jobs since 2005. Nationwide, Maritime jobs represent double the number of jobs supported by agriculture, the primary industry in Essex County. This indicates a window of opportunity for Essex County to strengthen its maritime economy by boosting recreation and tourism activities as well as promoting aquaculture and working waterfront businesses.

Figure 7-1 provides a look at the distribution the maritime economy for Essex County.

Maritime Jobs Snapshot Essex County, Virginia

Maritime Jobs = A Healthy Economy

In 2011, Maritime related businesses provided 12% of the total jobs in Essex County. This represents a 10% increase in Maritime jobs since 2005. Nationwide, Maritime jobs represent double the number of jobs supported by agriculture.

Essex County Maritime jobs account for



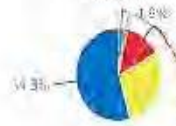
Maritime Jobs by Sector

Comparing Essex County's Maritime sectors to the state and nation shows how local concerns may or may not align with state and national priorities.

Essex County



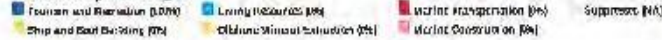
Virginia



Nation



Essex County Percentages



Job Trends

When making coastal management decisions, it is important to understand how the six sectors have changed over time.

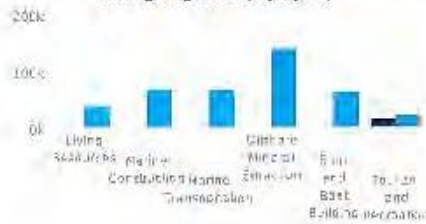
Essex County Percent Changes



County and National Wages

Higher local wages can be attractive to employees but a deterrent to new or expanding businesses. Managers should consider cost of living rates when making this comparison.

Average Wage Per Employee (2011)



Impact of Part-time Workers

Average minimum wages can be smaller due to the high percentage of part-time workers, but total annual wages are often among the highest because of the large number of people employed.

Snapshot (BIA source)—Economic & Annual Ocean Watch
Date Printed: April, 2012

Figure 7-1

Influential Factors on the Economic Growth

Economic growth in a community is dependent on a number of factors. Many of those factors are a direct correlation to market demands. Local government can help to influence market demand by providing those resources that are attractive and necessary to facilitate the needs of industries. Local policies can increase demand for location in their area by creating incentives and providing assistance to businesses looking to grow and expand. Local governments can also appear attractive by making available the necessary infrastructure needed for businesses to grow and thrive. The regional location of the county and town, abundance of natural resources along with the relatively low real estate tax provides the attractiveness that many industries look for. However, the lack of essential infrastructure and a skilled labor force makes the county less marketable and competing with other localities more difficult.

Infrastructure

Public water and sewer infrastructure extends to the outer edges of the Town in some areas. Cost, among other factors, makes expansion of these services farther into the county unreasonable. The County's Land Use Map does not provide a designate of any county lands for major development that would require the infrastructure. Majority of the existing commercial and industrial developments are supported by private systems and do not generate enough tax revenue to make expansion of services plausible. If the goal is to attract industrial development for higher wage industries, both land designated for the use and infrastructure is necessary.

Transportation services and facilities are essential to economic growth and development. Providing adequate roads as well as alternative modes of transportation is a primary resource in attracting a marketable labor force and high wage industries. Studies have shown that relocation trends and practices have changed between the time period of Generations X and Y. Generation Y also known as the millennial generation, is that age group born between 1980s and the early 2000s. While the labor force prior to Generation Y determined where they lived based on where they found employment, trends show that the current generation which identifies more with the technological age, determine where they want to live based on amenities, relocate to the area, then pursue employment. Public transportation and infrastructure is a major factor in this group's decision making process when determining where to live. The objectives of localities looking to strengthen its labor force by attracting educated and or skilled workers should include provisions such as alternative modes of transportation when considering economic development practices. Pedestrian and bicycle facilities as well as broadband services will be essential to attracting laborers from this era.

The Essex County Airport provides transportation infrastructure complex has substantial property available to accommodate commercial and industrial development; however, public infrastructure is unavailable on site. The airport is a vital resource in attracting small to medium scale industries to the area.

Education

To be competitive and attract interest from higher wage paying industries such as information technology, construction and wholesale trade, Essex County has to be equipped with a skilled and educated labor market. Essex County's present labor force could prove to be a disincentive in attracting industries which demand workers with a higher education and/or skill level. Table 7-5 illustrates that less than 22 percent of Essex County adults have a degree and only 15 percent have a Bachelor's degree or higher.

Table 7-5 Essex County Residents Educational Attainment by Age

Age	18-24	25-34	35-44	45-64	65+	Total
8th Grade or Less	33	19	15	154	392	613
Some High School	223	50	220	445	267	1205
High School Grad/GED	391	360	718	1191	602	3262
Some College	325	208	274	692	264	1763
Associates Degree	57	55	106	193	102	513
Bachelor's Degree	48	83	166	466	189	952
Graduate Degree	37	12	35	177	94	355

Vocational/technical training is offered through the Northern Neck Vocational Training Center and is available to Essex County High School residents. Essex County residents have the benefit of being in close proximity to numerous institutions of higher education. Many of these colleges and universities offer certification and training programs necessary for advancement in industries such as healthcare, business and technology, communications and professional and technical fields.

Rappahannock Community College offers courses in areas such as civil engineering, drafting, computer science, and mechanical engineering. The Middle Peninsula Comprehensive Economic Development Strategy identifies the need for a technical training facility at the Rappahannock Community College. The proposed building would provide state of the art training and preparation of students for the current demands of the labor market.

Broadband Services

Broadband services are available to Town of Tappahannock businesses and residents, however majority of the customers have digital subscriber loop (DSL) service which transmits through phone lines. Essex County and the Town of Tappahannock are active participants on the Middle Peninsula Broadband Authority and are currently looking for options to provide broadband facilities throughout the Middle Peninsula. Broadband is considered a better option because it

can help to diversify the local economy by allowing for various types of businesses that rely heavily on internet services that cannot be supported by DSL. Broadband facilities would make the Essex County more competitive in attracting jobs in industries such as customer care call centers and information technology.

Broadband would also allow for more home based startup businesses and internet based businesses. Home based businesses also provide an alternative base, strengthening the County's economy without impacting the County's natural environment with development.

Broadband would also provide more opportunities for higher education. Tappahannock's current skilled labor force is lacking the essential components to attract various industries. As illustrated earlier, majority of the labor force possess educations below a two year degree. Broadband would provide an alternative for those residents who find it difficult or are unable to commute to academic institutions.

Implementation

- Create and implement policies establishing the requirement of a business license for businesses operating in Essex County. The business license is a mechanism for collecting revenue associated with the economic growth associated with the proposed provisions of the Comprehensive Plan.
- Develop a Tourism and Recreation Plan that will outline Essex County's strategy in promoting the County and its assets as a tourist community. The Plan should include the use of outdoor recreation enhancements such as Trails, Bike and Pedestrian activities as well as walking tours of the historic and cultural landmarks. The Plan should also exploit of the County's waterfront access and seek to enhance water recreation opportunities.
- Explore resources such as partnerships, funding and mechanisms to promote and increase the maritime economy in the county.
- Provide trails, bicycle and pedestrian infrastructure as well as waterfront access and amenities to promote tourism and economic development in the county. Coordinate with the Town of Tappahannock and other agencies to create and implement a county tourism plan.
- Coordinate with the Town and state agencies to explore the option of creating enterprise zone incentives in an effort to attract higher wage job industries to the County. The County should continue to pursue the enterprise zone designation at the state level to maximize incentives available to potential businesses and developers.
- Designate potential small pockets of land for light commercial uses along various intersections to provide for and encourage a more balanced community.

- Continue to be active in the Middle Peninsula Broadband Authority's efforts to bring broadband facilities to the region. Promoting broadband will allow for broader economic and education opportunities while sustaining the natural environment.
- Coordinate with Rappahannock Community College, Essex County High School, Economic Development Authority, local businesses and other agencies to explore incentives to provide job training and certification to Essex County residents
- Develop and maintain partnerships with stakeholders with an interest in agricultural and forest land conservation to promote and implement the County's conservation plan. Explore and encourage the use of resource options available through federal and state agencies such as those available through the Department of Conservation and Recreation that will assist in implementing farmland and forest conservation tools and techniques.
- Partner with the Middle Peninsula Planning District Commission to push forward implementation of recommendation of the Comprehensive Economic Development Strategies agencies such as the Economic Development Authority by supporting and coordinating with these agencies on economic development goals and projects in the County

SPECIAL RECOGNITION

This Comprehensive Plan was updated through months of work and dedication of local citizens, business leaders and government staff forming the Essex Tappahannock Comprehensive Plan Steering Committee. Contributors to the Comprehensive Plan update include:

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