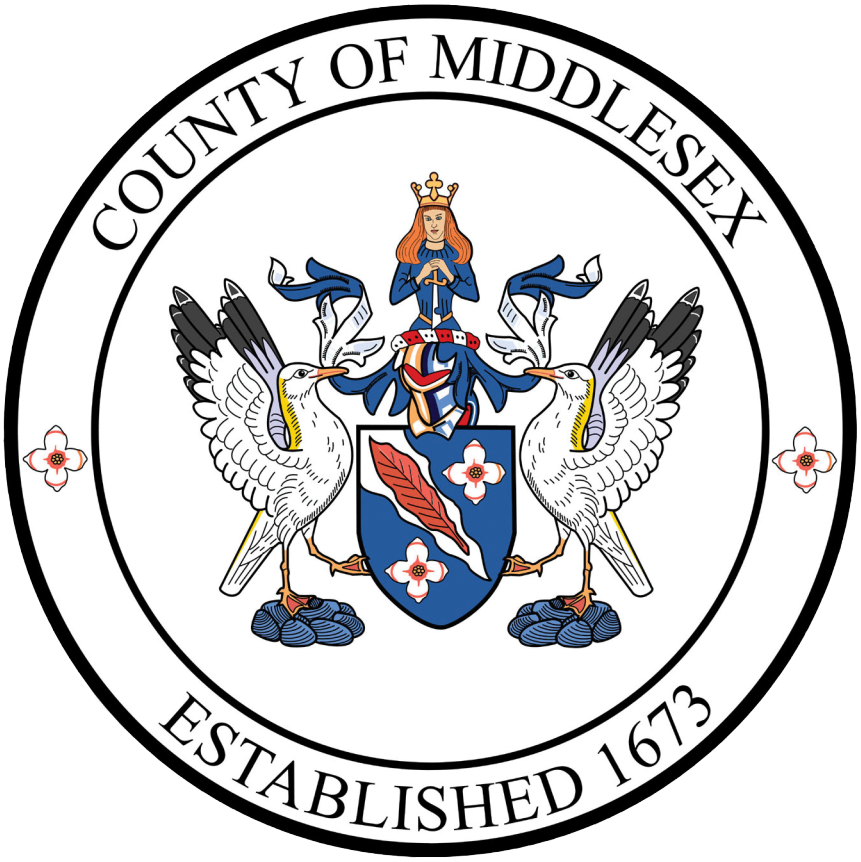
Middlesex County Comprehensive Plan



Adopted
December 1, 2009
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Prepared with the assistance of

TMH
Associates

2009 COMPREHENSIVE PLAN OF MIDDLESEX COUNTY VIRGINIA

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Listing of Maps (To be Completed)

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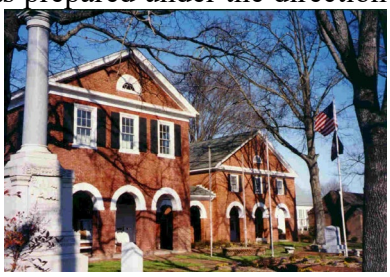
CHAPTER I INTRODUCTION

Introduction

This document is the Comprehensive Plan for Middlesex County, Virginia. It is an update to a Comprehensive Plan adopted by the County in 2001.[1] This 2009 update was prepared under the direction and guidance of the Middlesex County Planning Commission with the assistance of a citizen steering committee appointed by the Board of Supervisors to provide additional community perspectives on the planning process and the plan document. Work on the plan was initiated in December 2006 and was completed in Autumn 2009.



A comprehensive plan is a long range planning tool for a community. A good plan is based upon community visions of a desired future. It identifies local issues, evaluates local trends and conditions, and contains community goals, objectives and action steps that help guide decision making and public investment. Good plans also contain timeframes for implementing major plan actions. Time frames for implementation allow a community to evaluate its progress and serve as a measuring stick for success.

Community involvement was one of the guiding principles governing the preparation of this plan. To be effective and valid, a plan must be based upon the knowledge, values, and aspirations of a community's' citizens, including its elected and appointed leaders. Hundreds of Middlesex County citizens contributed to this plan's development. Citizens contributed their time, ideas, and personal visions for Middlesex's future. Six county-wide meetings, citizen steering committee worksessions, Planning Commission worksessions, and Commission and Board of Supervisor's public hearings were all used as strategies to maximize the citizen participation crucial to the development of this plan. County staff was instrumental in providing information about current County operations and contributing their knowledge in the development of this plan's goals, objectives, and action steps.

This plan is an official public document adopted by the Middlesex County Board of Supervisors on December 1, 2009. The plan can be used as a long-term guide for land use decisions related to growth and development within the County. The plan can also be used as a general guide that outlines public priorities and directs expenditures for public facilities and programs. In many respects the plan may be seen as a long-range work program for the County.

Authority

Authority for local government planning in Virginia is contained in Title 15 Section 15.2-2223 through 15.2-2232 of the Code of Virginia. This plan was prepared in accordance with these provisions. The 2009 Virginia General Assembly was in session as this document was being drafted. Any changes in comprehensive planning legislation adopted by the General Assembly are reflected in this document.

By State law, this plan shall be general in nature. It shall designate the approximate location, character, and extent of each feature shown and may indicate where existing lands or facilities are proposed to be extended, removed, relocated, vacated, narrowed, abandoned, or changed in use.

[1] As an update to the County's 2001 plan this document contains discussion and recommendations from the 2001 plan that the Planning Commission deemed to have continued applicability to Middlesex County.

A plan, with accompanying maps, charts, and descriptive matter, may include, but need not be limited to:

1. The designation of areas for various types of public and private development and use, such as different kinds of residential, business, industrial, agricultural, mineral resources, conservation, recreation, public service, flood plain and drainage, and other areas;

2. The designation of a system of transportation facilities such as streets, roads, highways, parkways, railways, bridges, viaducts, waterways, airports, ports, terminals, and other like facilities;

3. The designation of a system of community service facilities such as parks, forests, schools, playgrounds, libraries, public buildings and institutions, hospitals, community centers, waterworks, sewage disposal or waste disposal areas, and the like;

4. The designation of historical areas and areas for urban renewal or other treatment;

5. The designation of areas for the implementation of reasonable ground water protection measures;

6. An official map, a capital improvements program, a subdivision ordinance, a zoning ordinance and zoning district maps, mineral resource district maps and agricultural and forestal district maps, where applicable; and

7. The location of existing or proposed recycling centers

In addition to the above permissive elements, all plans are required to designate areas for the implementation of measures to promote the construction and maintenance of affordable housing, sufficient to meet the current and future needs of residents of all levels of income in the locality while considering the current and future needs of the planning district within which the locality is situated. This requirement is addressed in Chapters V and VI of this plan.

Planning Horizon

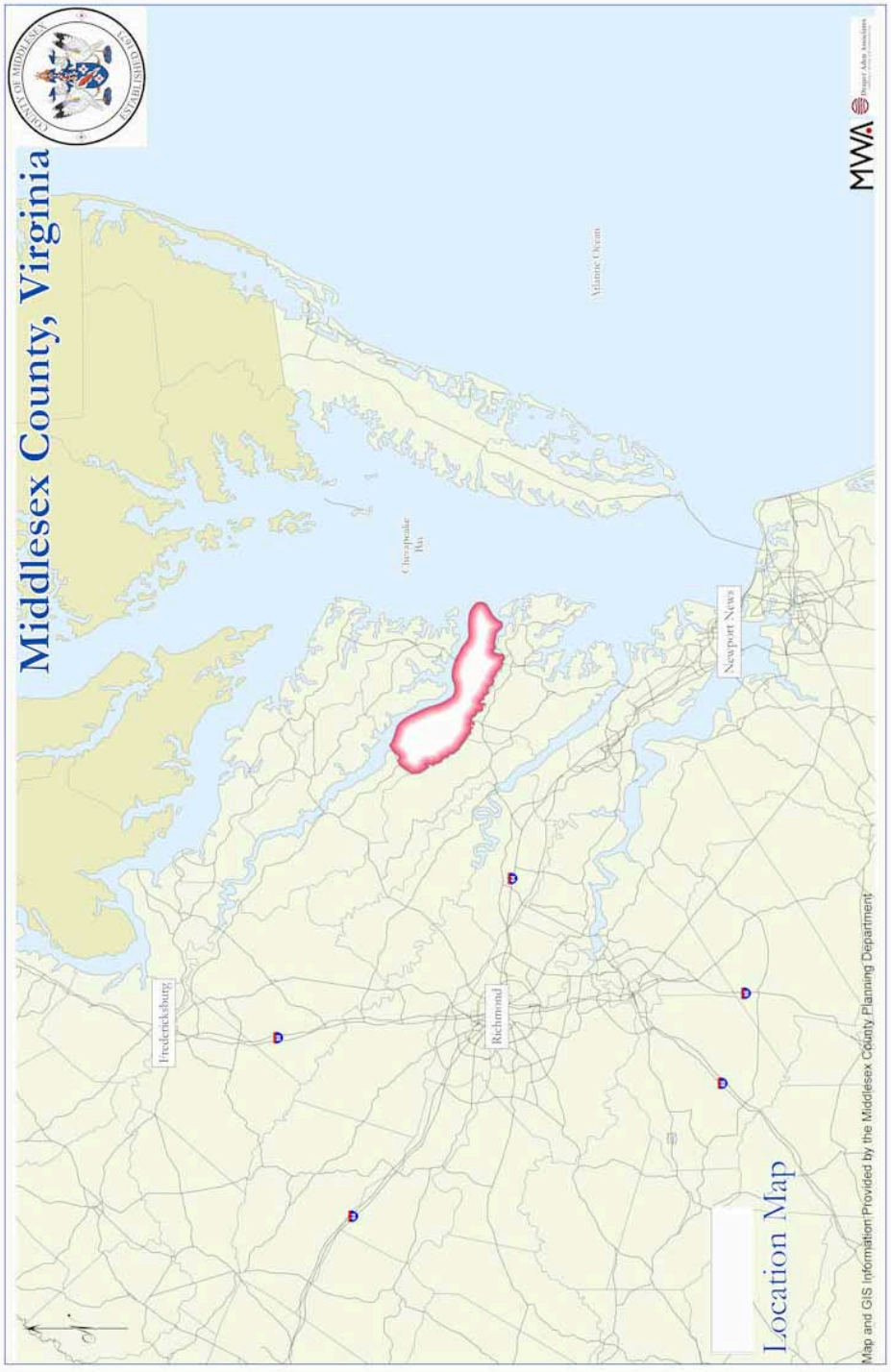
The year 2030 was chosen as the planning horizon for this document. By law, this comprehensive plan shall be reviewed by the Middlesex County Planning Commission at least once every five years. Each of these future plan reviews can serve as the basis to formally evaluate the County's progress and community success, and the continued appropriateness of the plan's goals, objectives, and strategies.

Middlesex County is located at the eastern end of Virginia's Middle Peninsula. The County is bounded by the Rappahannock River to the north, by the Chesapeake Bay to the east, by the Piankatank River and Dragon Run Swamp to the southwest, and by Essex County to the northwest. The County has a land area of 132 square miles (83,392 acres) and 135 linear miles of shoreline. Map I-1 shows the County's general location in the region.

Community History

When John Smith was stung by a stingray in 1608 off what is now known as Stingray Point, Middlesex County was inhabited by Indians. The Piankatank (or Payankatank, or Peanketan) Indians had a town on

Map I-1 Middlesex County Location Map



the Piankatank River downriver of Scoggins Creek. Smith estimated their population to be 40 men in 1612, which increased to 50 or 60 in his 1624 account. The Opiscopank (or Opiscatumek; anglicized to Piscataway) had a town on the Rappahannock River down river of Lagrange Creek. There were other Indian towns, notably Old and New Nimcock on the Rappahannock east of Urbanna Creek.

These tribes were a part of the Powhatan Confederation, an Alliance of Algonian speaking people of the Virginia coastal plain. By 1650, it is believed that no Indians remained in Middlesex County, although the Pamunkey Indians of King William County used the Dragon Run Swamp as a hideaway during Bacon's rebellion of 1676.

English settlement began in the 1640's; the first land patent of 1900 acres on the Piankatank River near Stamper Landing being granted to John Matrum (or Mattrom). Matrum may have been the first settler to bring cattle to Middlesex in order to graze.

Settlement was stunted by a treaty between the Colony and the Indians which acknowledged Middlesex as Indian domain. However, in 1648, all restrictions to settlement were removed and settlement began in earnest. By the end of the 1660's, approximately 90% of the County was claimed.

In 1649, Ralph Wormeley received a patent for over 3000 acres and founded Rosegill. Rosegill in the late 17th century extended uninterrupted from the Rappahannock to the Piankatank. Other patents along the two rivers resulted in a settlement pattern whereby homes were miles apart. However, the need for workers to grow and harvest tobacco required large estates to be broken up and sold to laborers and indentured servants upon securing their freedom. By the end of the 17th century, the average plantation in Middlesex was 406 acres in size.

Laborers in the 17th century were primarily poor white men, both free and indentured. Some indentured servants sent to Middlesex were individuals condemned to death in England who, when given the choice, came to the Colony. They were not well received in Middlesex and its leading citizens successfully petitioned the General Court to issue an order forbidding the importation of "any jail birds or such others who for notorious offenses have deserved to die in England".

In 1680, the first African slaves arrived in the Colony. Near the end of the 17th century, Ralph Wormeley received a land patent for 13,500 acres (outside Middlesex) in return for accommodating 249 laborers: 149 white and 100 black. From 1687 to 1699, the percentage of black versus the total population of Middlesex grew from 8% to 22%. By 1701, 85 laborers at Rosegill were black and only 8 were white.

Until 1651, the land, which was to become Middlesex County, was part of York County. In that year, Lancaster County was formed and included Middlesex. The inconveniences associated with crossing the Rappahannock River to conduct business at the Lancaster Courthouse led the citizens south of the Rappahannock (Southsiders) to petition the Colony to create a new and separate county. Sometime between September 1667 and February 1773, Middlesex County was established. The bounds of the County were identical to the limits of Christ Church Parish.

Law Court was first held at the home of Richard Robinson on Town Bridge Road between Saluda and Urbanna. In 1695, a house at Stormont was used for Court. In 1705, a new courthouse and jail were constructed at Stormont and used until 1748 when Court was moved to a new building in Urbanna.

Today that building is the home of the Middlesex County Woman's Club.

Urbanna, named after Queen Anne, was created by a "Tobacco Act". Port facilities and a tobacco warehouse were constructed at Colony expense to facilitate export and import activities. This 50 acre town soon grew to become a thriving center of commerce.

Travel to court was slow for the residents of the eastern sections of the County, which included the Village of Unionville (now known as Deltaville), due to slow ferry service across Urbanna Creek. Pressure grew to relocate the County seat to a more convenient central location. When the Urbanna Courthouse fell into a state of disrepair and became inadequate for efficient Court business, County residents, by a majority of one, voted to relocate the courthouse and in 1849, the General Assembly authorized the relocation. Land for a new Courthouse and a road to a landing on Urbanna Creek were provided by Mr. John Bristow. He and Mr. Thomas Fauntleroy divided parts of their property into building lots for the growth of what has become the Village of Saluda.

During the Civil War, Union gunboats patrolled the Rappahannock and Piankatank Rivers. Unionville was pillaged by federal troops. Urbanna for a period of time was used as a training camp for Confederate soldiers. Some Courthouse records were burned during the War but fortunately, Mr. W. Woodward, Clerk of the Court, stored the older non-current records in an unknown location in the Dragon Run Swamp, instead of following the usual practice of sending them to Richmond for safekeeping (where records were ultimately burned in 1865). As a result, Middlesex County has one of the most complete sets of Court records of any Virginia county.

Middlesex County has been and remains a rural community dependent upon the gifts of the earth: productive farmland and timberland, and tremendous access to the waters of the Chesapeake Bay.

Community Planning History

Middlesex County adopted its first comprehensive plan in the early 1980's. Prior to this current update, the last plan was revised and updated in 2001. The County's Department of Planning and Community Development currently has a staff of eight. The department is responsible for a full range of current and long range planning initiatives, including administration of the County's zoning and subdivision ordinances, and the County's erosion and sediment control ordinance. The department provides staff assistance to the County's Planning Commission and Board of Zoning Appeals and provides community planning policy advice to the County administration and Board of Supervisors.

Plan Format and Content

This plan is comprised of eight additional chapters. They are as follows:

Chapter II	Natural and Cultural Environment
Chapter III	Community Demographics
Chapter IV	Community Facilities and Services
Chapter V	Economic Development
Chapter VI	Transportation
Chapter VII	Land Use and Growth Management
Chapter VIII	Goals, Objectives and Action Steps
Chapter IX	Plan Implementation Matrix

Planning Process

This section summarizes the process used by Middlesex County to prepare and adopt this comprehensive plan. Although the following "steps" are numbered sequentially, each step was started at a time in the process to ensure effective involvement of citizens. The planning process also ensured that the Planning Commission had the information necessary to fulfill their mandated charge to prepare a plan for adoption by the Board of Supervisors.

Step One: Project Kick-Off

The planning process began in late November of 2006 with a project kick-off meeting attended by members of the Board of Supervisors, Planning Commission and project Steering Committee. County staff was also present as well as interested county citizens. Attendees at this meeting were provided an overview of comprehensive planning legislation in Virginia, and reviewed and discussed the process chosen by the County to update the 2001 Comprehensive Plan.

The Steering Committee met in early January of 2007 to identify community issues that should be addressed in the plan. Many issues were identified including growth control, the need for infrastructure, water quality, open space preservation, desired future land use patterns and the adequacy of community facilities. At this meeting the committee also discussed factors that would make the planning process – and plan, a success. Identified factors included a successful public participation component, and the preparation of a plan that was fair and balanced and focused on the County as a whole and not just small issues.[2]

Step Two: Community and Demographic Analysis

A demographic analysis was undertaken for the purpose of understanding the varied demographic characteristics of Middlesex County. As a part of this analysis, population, housing, and economic data were collected and analyzed so that historic trends and current conditions could be understood. Population projections were also reviewed.

In addition to the demographic analysis, a wide variety of community and public facility data contained in the 2001 plan was reviewed and updated where necessary. Included within this category was data in the areas of the natural environment, and historical and cultural resources.

Step Three: Community Participation; Plan Development, Review and Adoption

Several techniques were used to ensure that Middlesex County citizens were knowledgeable of the plan update initiative and had the opportunity to contribute ideas throughout the process. In addition to the Steering Committee, broader community involvement was obtained through a series of six community-wide meetings. The first three community meetings, held in March 2007, were held in three County locations. Each meeting began with participants having the opportunity to review and discuss Middlesex County demographic information.

[2] A complete summary of this meeting containing all identified issues and success factors is on file in the Middlesex County Department of Planning and Community Development.

Most of each meeting was devoted to small group discussions on a broad range of community issues. Participants were asked to offer their ideas on the County's strengths and weaknesses, opportunities the County should pursue, and perspectives on threats to the County's quality of life. Participants undertook a visioning exercise using maps to graphically share their ideas on the County's special places and County areas in need of improvement. Significant commonality of ideas and opinions emerged from the small group discussions. In addition, many of the comments expressed at these community meetings paralleled those expressed in the stakeholder interviews. The Planning Commission reviewed a summary of the three meetings in May of 2007 and considered the citizen comments in the development of this plan.

The Steering Committee and Planning Commission held a series of work sessions beginning in the Summer of 2008.. These work sessions were open to the public. The Planning Commission used the work sessions to discuss the format, content and direction of the new plan. At these work sessions plan issues were discussed and draft sections of the plan were reviewed.

In early 2009 a complete draft of the plan was made available to the public. A second round of three community meetings was held in February 2009 to give citizens the opportunity to review the draft plan. All citizen comments on the draft plan were reviewed by the Steering Committee and Planning Commission.

Ideas for the plan emerged from many sources, including, demographic analysis, citizen comments, Steering Committee perspectives, Planning Commission discussions, and Middlesex County staff perspectives.

The Steering Committee transmitted their recommendation on the plan to the Planning Commission in early April 2009. A Planning Commission public hearing on the plan was held in June 2009 and the Commission recommended approval of the plan to the Board of Supervisors in September 2009. The Board of Supervisors held a public hearing on November 18 2009 and thereafter adopted the plan on December 1, 2009

Basic Assumptions

Basic assumptions about the County's future have been made. These assumptions, listed below, are derived from analysis of the factual and historic data, and from discussions and decisions of the Planning Commission during the preparation of this plan, They are not specific in time frame. They are, however, for the purposes of the plan, considered to be realistic.

- Population growth will continue and our 2020 and 2030 population totals will be higher than those projected by Weldon Cooper. The potential for large development projects exist, given the County's proximity to Virginia's growth corridor, our attractiveness as a retirement location, our high quality of life, recent development proposals, and the abundance, availability, and relative affordability of developable land.

- The average age of our population will continue to increase affecting healthcare, housing options and the nature of the public services offered.

- The County's rural nature and its proximity to the Chesapeake Bay and its tributaries will continue to be the major force influencing residential, commercial and water-access-oriented development and population growth.

- Population growth will precede and increase the likelihood of commercial development, and thus the demand for commercial land.

- There will be decreased federal and state revenues available to support local government programs. Unfunded state and federal mandates will increase.

- Population growth will continue to place additional demands on government in order that it provides necessary services and facilities which will necessarily increase government's need for revenues. The needed additional revenues can only be raised by a revenue positive expansion of the tax base or by increasing tax rates.

- In certain areas, new or expanded public utilities will be necessary to address environmental issues, service existing demands, or facilitate desirable economic development.

- The ground transportation network in the County will remain virtually the same.

- The citizens will continue to place high priority on maintaining the rural nature of the territory while accommodating desirable new development. These seemingly opposing objectives will make it necessary for government officials to make some difficult decisions and perhaps impose limits on certain projects.

CHAPTER II NATURAL AND CULTURAL RESOURCES

Climate

Middlesex County is located in a temperate climate zone where neither winter nor summer temperatures are generally severe. The average daily high temperature (annually) is about 70 degrees and the average daily low temperature (annually) is about 47 degrees. Average annual rainfall is about 47 inches and average annual snowfall is about 9 inches. The county's temperate climate is well suited for a variety of agricultural and forestry activities, allows development activities to be underway year round, and has been a factor in the increased tourism and water-based recreation activities occurring in the county.

Air Quality

The county's geographic location is isolated from regional major point sources of air pollution. Although there are no air quality monitoring stations in the county, monitoring stations in adjacent counties have not recorded readings that violate Clean Air Act standards. In addition, the county's lack of traffic congestion and low-density population patterns do not at this time create conditions for unacceptable air quality. Air quality monitoring will become an increasingly important public responsibility as regional growth occurs.

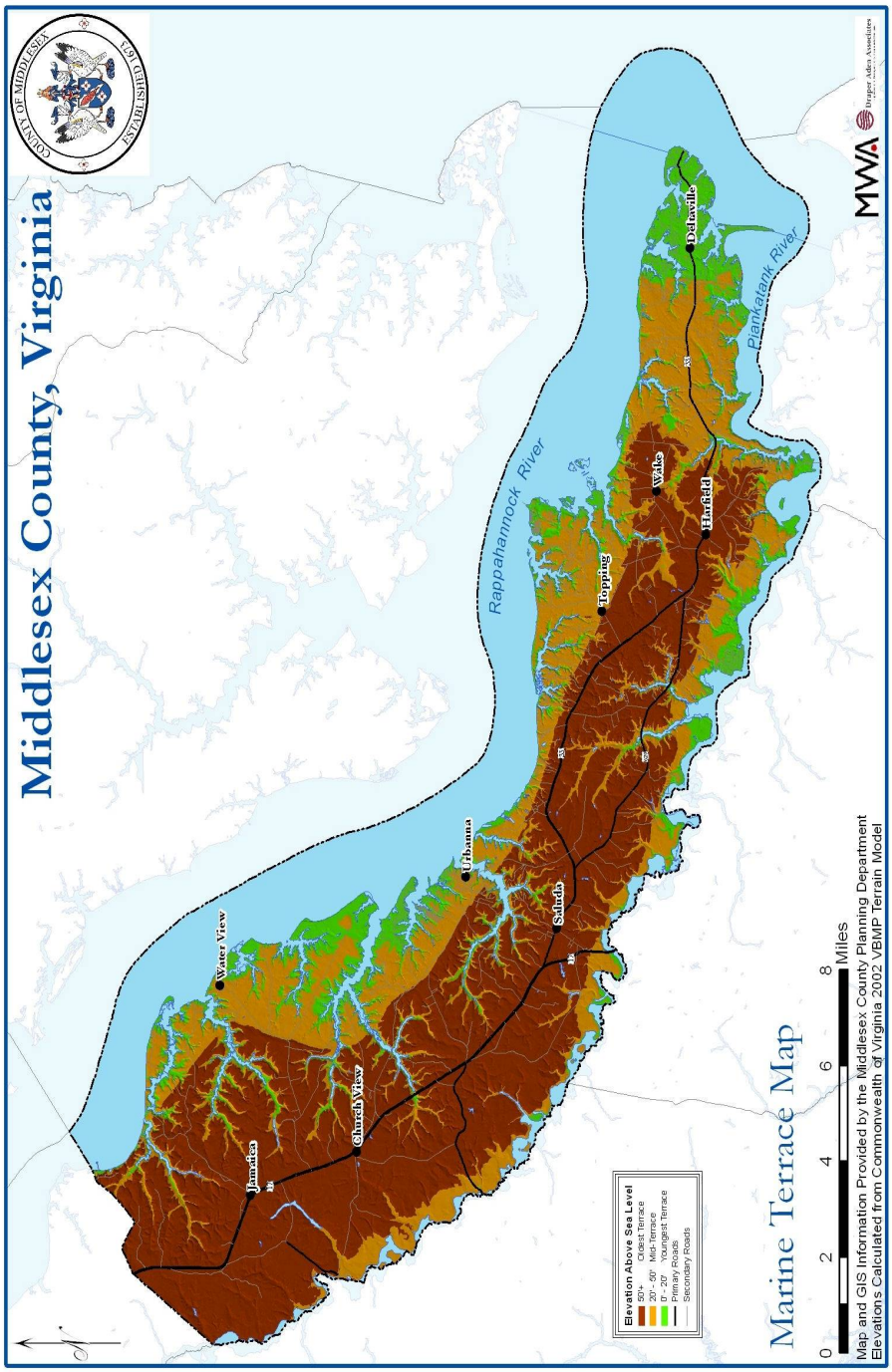
Physiographic Conditions

The elevation of land in Middlesex County ranges from sea level to 123 feet above sea level at the intersection of U.S. Route 17 and State Route 606. The county is characterized by three principal marine terraces each demarcating a former shoreline. The youngest terrace is primarily found east of Deltaville and is less than 20 feet above sea level. This area encompasses approximately 6 percent of the County. The second (oldest) terrace, with an elevation between 20 and 50 feet above sea level, is visible west of Stingray point in the vicinity of State Route 636 east of Deltaville. The land on this terrace is generally flat but is strongly sloping when transitioning into the next marine terrace and along creeks. This terrace encompasses approximately 26 percent of the County. Elevations above 50 feet are located upon the third and oldest marine terrace. Over 68 percent of the County is situated on the third marine terrace. Map II-1 shows the general location of these three terraces.

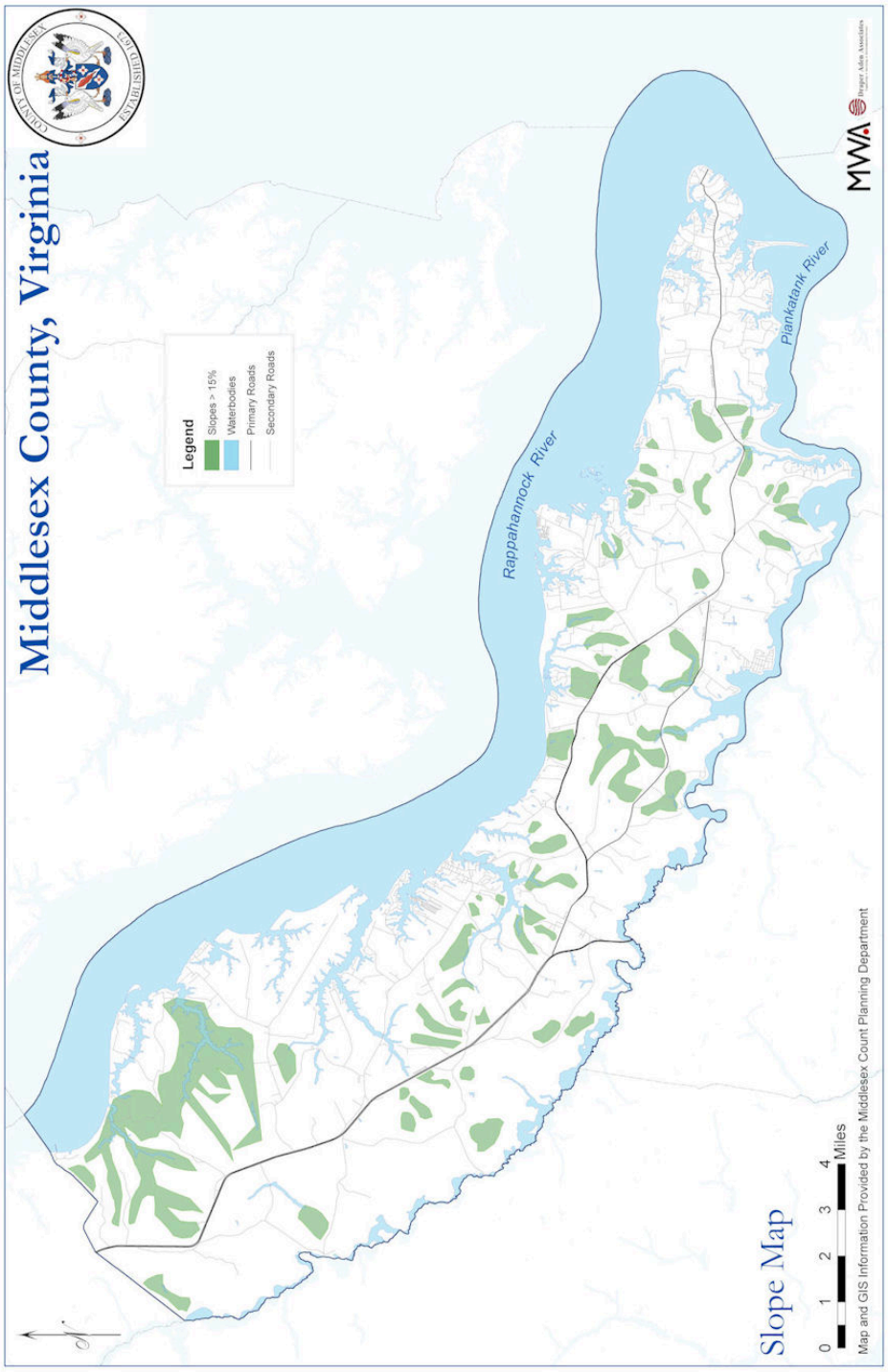
Slopes

Slope is a measure of the change in the vertical distance (height) over a horizontal distance (length) expressed as a percentage. For example, a slope of 15 percent is a rise (or drop) of 15 feet in 100 feet of horizontal length. Slopes of 15 percent or greater present constraints for many types of development. Steep slopes may be difficult to build upon because of the greater likelihood of erosion resulting from land disturbing activities, which contributes to sedimentation and pollution of streams. Slopes in excess of 15 percent present erosion problems for farming operations as well. As shown on Map II-2, approximately 15 percent of Middlesex County is characterized by slopes in excess of 15 percent.

Map II-1 Marine Terraces



Map II-2 Slopes



Geology
Middlesex County is located within the Atlantic Coastal Plain Province. Movements of the earth's crust created the uplifting of the crystalline-bedrock surface 280-430 million years ago forming the Piedmont area of Virginia and the Blue Ridge Mountain. Erosion of these areas combined with the deposition of materials associated with changes in the edge of the Atlantic Ocean, resulted in the formation of the aquifer bearing geologic formations between bedrock and the surface of the ground.

Bedrock below the land surface of Middlesex County varies in depth from 2,500 feet below sea level at Stingray Point , to 1,500 feet below sea level at Saluda to 1,200 feet below sea level at the Essex County line. There are no known geologic (earthquake) faults in the County. There is also no indication of significant limestone deposits which can result in sinkhole producing karst formations.

Minerals
Mineral production in Middlesex County is limited to sand and gravel. These minerals are available in layers located sporadically throughout the County. Sand, more prevalent than gravel, is located along much of the County's shoreline. In 2007, the Virginia Department of Mines, Minerals and Energy was monitoring twelve permitted sand and/or gravel operations in the county. These operations totaled approximately 84 permitted acres.

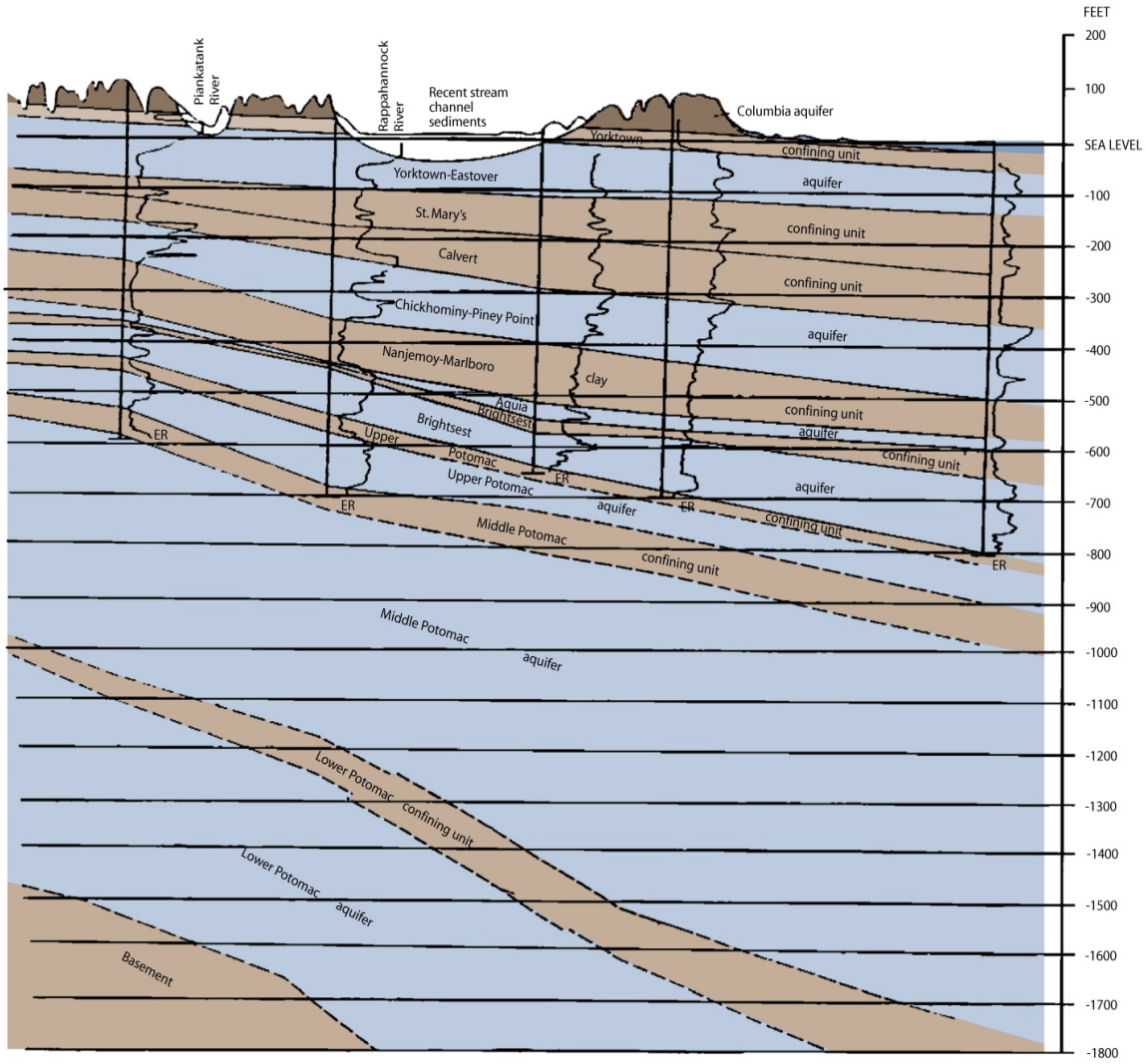
Groundwater
Groundwater is the source of all domestic and industrial water supplies in the County. As such, the quantity and quality of groundwater is of the utmost importance for the future well-being of Middlesex County. Groundwater occurs in the voids between rocks and soil particles beneath the surface of the ground. These underground areas in which groundwater exists are called aquifers. The Coastal Plain Physiographic Province, which underlies Middlesex County, stores more groundwater than any other geologic province in Virginia.

The risks to groundwater are many and great. Over pumping/withdrawal can deplete groundwater supplies causing hardships for existing users, and limiting future growth opportunities. The contamination of groundwater is also a major risk to the resource. Contamination can result from malfunctioning septic systems, leachate from old/closed sanitary landfills, non-point source pollution from agricultural areas and developed properties, or accidental or deliberate point source discharges and saltwater intrusion. *Leaking underground storage tanks are also a point source for groundwater contamination. The Virginia Department of Environmental Quality maintains a database of all known underground storage tank locations. This database is located at http://www.deq.state.va.us/tanks/fnf.html#petdbf*[3]

Figure II-1 (County Aquifers) depicts the groundwater-bearing aquifers beneath Middlesex County on a cross-section from the Piankatank River to the Rappahannock River. There are seven water-bearing aquifers underlying the County. A brief description of each follows:

[3] This information pertaining to underground storage tanks has been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department.

Figure II-1 County Aquifers



Columbia Aquifer

- source of potable water for shallow wells
- highest risk of contamination from land use activities (septic fields, herbicides, etc.)
- unconfined aquifer (water table serves as the upper surface of the aquifer)
- major source of recharge to the underlying confined aquifers

Yorktown-Eastover Aquifer

- relatively reliable source of potable water although local problems of high chlorides, hardness, and iron may affect usefulness in some areas
- virtually the only potable aquifer available to the eastern-most section of Middlesex County
- potential for domestic, institutional, and light municipal uses
- not present west of Remlik

Chickahominy-Piney Point Aquifer

- capable of providing good quantities of water suitable for most uses
- unsuitable for potable use in eastern Middlesex County because of high chloride content
- aquifer serving Saluda governmental uses

Aquia Aquifer

- aquifer too thin to provide useful yields

Brightseat Aquifer

- produces large quantities of high quality water (except eastern Middlesex County)
- aquifer provides water for the Town of Urbanna
- suitable for industrial and municipal uses

Upper Potomac Aquifer

- capable of producing abundant quantities of generally good quality water for most (except eastern Middlesex County)
- Christ Church School and the Town of Urbanna utilize this aquifer for potable water supplies

Lower and Middle Potomac Aquifers

- capable of producing abundant quantities of good quality water (except eastern Middlesex County)
- too costly to drill this deep for all but the most major users of groundwater

Studies to date indicate no evidence of aquifer contamination on a wide scale resulting from surface contaminants or nitrates.

Surface-related pollution in the form of malfunctioning septic fields, nitrates from excessive application of fertilizers and many contaminants such as motor oil will tend to have an impact on groundwater only near the source of the pollution. Groundwater flows very slowly. According to the United States Geological Society (USGS), water within aquifers below the land surface in Middlesex County have been underground for an average of 2000 years.

Toxic chemicals and carcinogens, however, present much greater problems if they pollute groundwater aquifers. Since groundwater moves so slowly, these toxins and carcinogens are not readily flushed out of the system as they might be if discharged into a river or stream.

Middlesex County currently has no program to protect its groundwater. The Code of Virginia does permit local jurisdictions to create groundwater protection area overlay districts in which land use regulations specifically designed to protect groundwater can be applied.

The Virginia Groundwater Act of 1973 enabled the State to designate areas of the state for state-managed groundwater protection. Any proposed large groundwater withdrawal must be permitted by the State Water Control Board in an area so designated.

Groundwater Availability[4]

Table II-1 (Estimated Groundwater Availability) provides data based upon known pumping information regarding the water bearing capacities of various groundwater zones shown in cross-section on Map II-3 (Groundwater Zones).

[4] This section on groundwater availability has been extracted verbatim, in its entirety (including all tables, figures and maps), from the County's 2001 comprehensive plan. It represents the original work of the Landmark Design Group. It has been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department.

Table Ii-1
Middlesex County, Virginia
Estimated Groundwater Availability

ZONE (SEE MAP III-3)	CHARACTERISTICS	EST. AVAILABILITY PER WELL	EST. GROUNDWATER AVAILABILITY IN ZONE
A	Yorktown Aquifer has a low yield. Potential lower aquifers are not suitable for potable uses (high chlorides)	0.2 MGD (Yorktown Aquifer)	2-5 MGD
B	Buffer zone between major pumping centers and higher chloride zone A. Only limited withdrawals with small cones of depression are considered safe chloride range (50-200 ppm)	0.2 MGD from deep aquifer considered safe as long as cones of depression do not overlap	2-5 MGD
C	High water level declines due to high pumpage	Limited due to risk of dewatering aquifers	19-22 MGD (based upon West Point withdrawals)
D	Moderate water level declines	0.2 MGD from deep aquifers	2-5 MGD
E	Slight to no water level declines. Groundwater resources relatively untapped	Variable, 0.2 MGD from deep aquifers	5-15 MGD
* Data predates closure of Barnhardt Farms		TOTAL AVAILABILITY	32-57 MGD

SOURCE: Groundwater of the Middle Peninsula, VA, State Water Control Board, 1977.

The continued withdrawal of large quantities of water has resulted in a steady decline of groundwater levels. Zone C and D have been affected in this regard. Zone D groundwater level declines have occurred as a result of significant groundwater pumpage by the St. Laurent paper mill at West Point. The paper mill withdraws over 20 million gallons of water per day from the ground.

As a result, the directional flow of groundwater, which naturally flows from southwest to northeast, has been reversed in Zone D where it now travels towards West Point.

Figure-II- 2 (Historic Water Levels) depicts the reduction in groundwater levels of the deepest and most water-laden aquifers (the Potomac and the Brightseat) beneath Middlesex County. In 1900, groundwater levels beneath Saluda were approximately 30 feet above sea level. By 1940 to 1959, groundwater levels had dropped about 25 feet to 5 feet above sea

Map II -3
Middlesex County, Virginia
Groundwater Zones

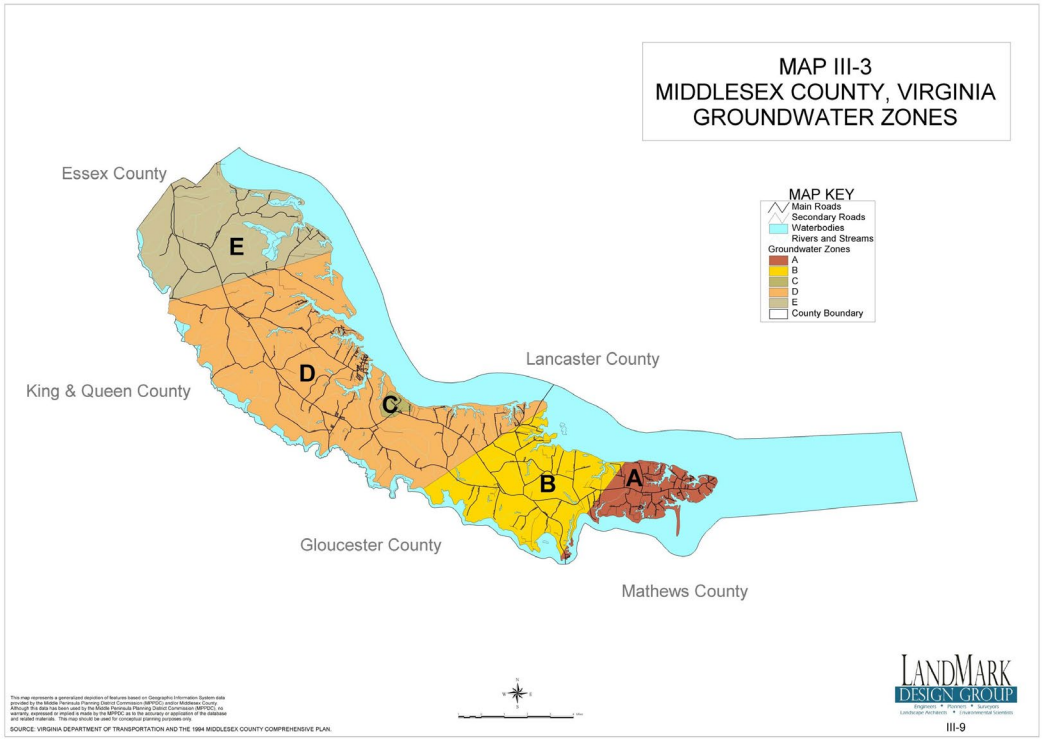
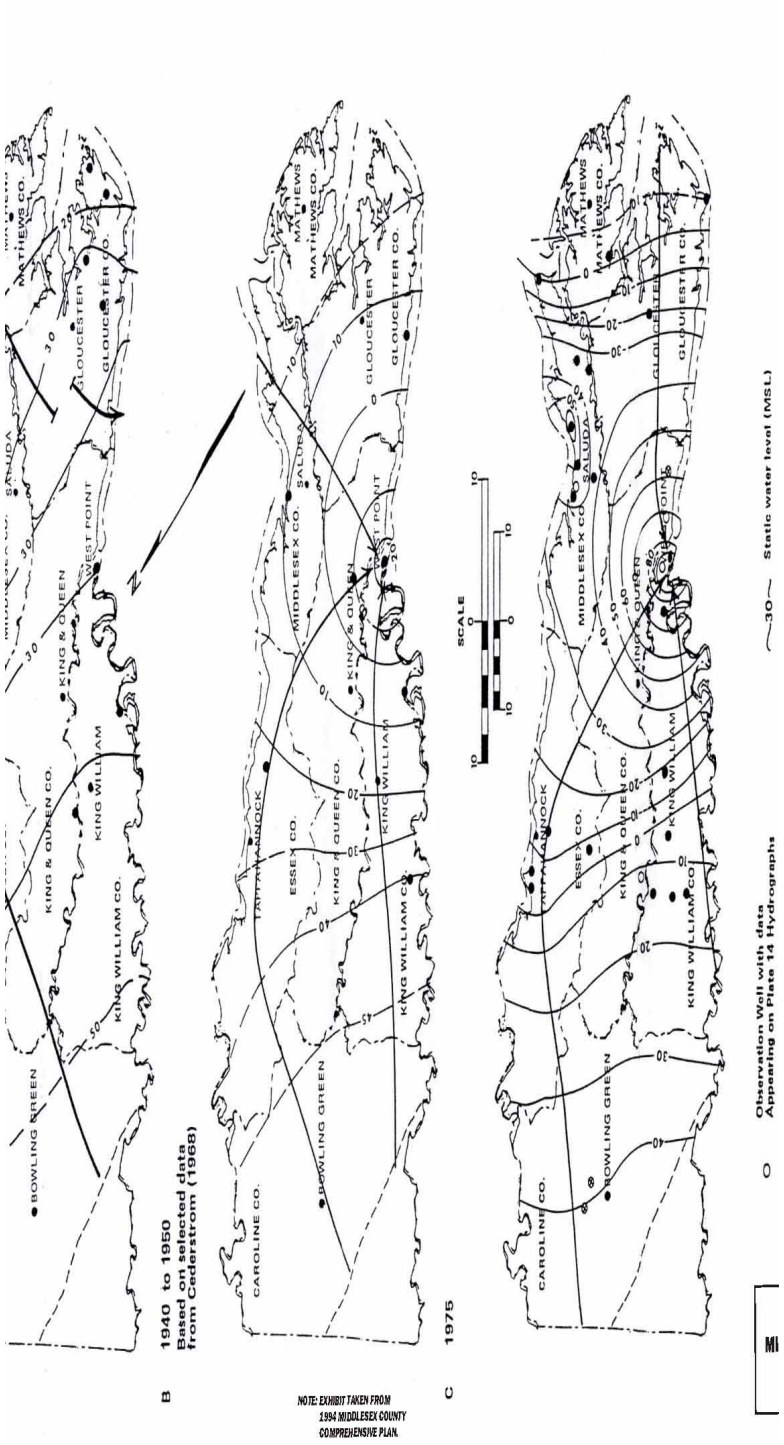


Figure II-2
Middlesex County, Virginia
Historic Water Levels



NOTE: EXHIBIT TAKEN FROM
1994 MIDDLESEX COUNTY
COMPREHENSIVE PLAN.

level. By 1975, groundwater levels at Saluda had fallen another 45 feet to 40 feet below sea level. Altogether, groundwater levels in the deepest aquifer in Zone D have fallen over 70 feet.

Decreases in other zones have also occurred but not to the extent that occurred in Zone D which is the zone closest to West Point. This drop in groundwater level is often referred to as the "Cone of Depression"; with the deepest part of the cone (where water levels have dropped 120 feet) entered on West Point. A second cone of depression has begun forming around Urbanna and is depicted as Zone C. This was a result of groundwater pumping by the Town of Urbanna in combination with pumping at Barnhardt Farms, which was still operating when the 1977 Siudyla study was published. No new studies as extensive as the Siudyla study have been prepared since Barnhardt Farms closed, but it is quite possible that there would be no Zone C if a new study were performed today.

Recent studies have indicated there is evidence of groundwater movement from one aquifer to another. When groundwater levels drop in the deepest aquifers, groundwater levels in aquifers closer to ground level may also experience downward movements. This movement may represent a mechanism for pollutants in one aquifer to migrate into another. Zone A is adversely impacted by saltwater intrusion. Freshwater bearing aquifers eventually flow into the ocean as the water flows eastward. With the withdrawal of substantial amounts of fresh (potable or drinkable) groundwater, it is believed that salty waters move westward filling the area displaced by freshwater removal. There is indirect evidence to suggest that overpumping causes saltwater to move inland at a rate of 30-40 feet per year.

In Zone A, all groundwater, except that within the Yorktown aquifer which is closest to ground level, is so salty that it would require expensive pretreatment before it could be considered potable.

The Yorktown aquifer is recharged primarily by rainwaters. Clearly, if surface-related pollution occurs, this water supply source could be compromised.

Studies to date indicate no evidence of aquifer contamination on a wide scale resulting from surface contaminants or nitrates. However, the Health Department suspects there are hundreds of identified malfunctioning septic systems in the County. A database indicating the location of these malfunctioning systems does not exist.

Surface-related pollution in the form of malfunctioning septic fields, nitrates from excessive application of fertilizers and many contaminants such as motor oil will tend to have an impact on groundwater only near the source of the pollution. Groundwater flows very slowly. According to the United States Geological Society (USGS), water within aquifers below the land surface in Middlesex County have been underground for an average of 2000 years.

Toxic chemicals and carcinogens, however, present much greater problems if they pollute groundwater aquifers. Since groundwater moves so slowly, these toxins and carcinogens are not readily flushed out of the system as they might be if discharged into a river or stream. High concentrations of a carcinogen such as dioxin, which can be found in some wood preservatives, would have a devastating effect on the Columbia or Yorktown aquifer if it were accidentally leaked onto the ground.

Zone B currently is stressed by both over pumping at West Point and the resultant saltwater intrusion moving westward from Zone A. Significant new withdrawals of groundwater within Zone B could accelerate the decline of the potable water supplies in this zone.

Zone E, though impacted by St. Laurent paper mill withdrawals, offers good to excellent potential for large quantities of potable water.

Middlesex County currently has no program to protect its groundwater. The Code of Virginia does permit local jurisdictions to create groundwater protection area overlay districts in which land use regulations specifically designed to protect groundwater can be applied.

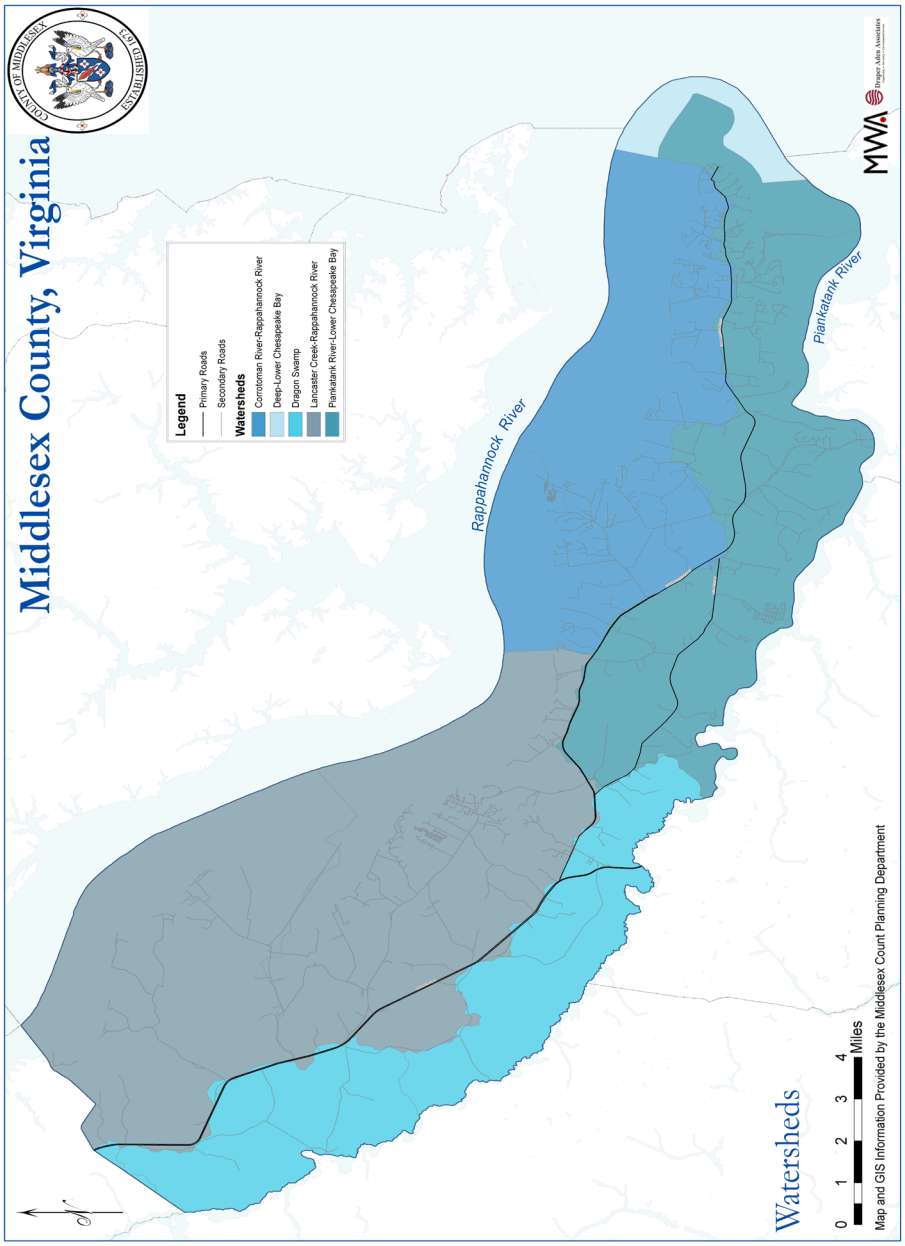
The Virginia Groundwater Act of 1973 enabled the State to designate areas of the state for state-managed groundwater protection. Any proposed large groundwater withdrawal must be permitted by the State Water Control Board in an area so designated. Although the Eastern Shore, southeastern Virginia, and the Peninsula are so designated, Middlesex County is not.

Surface Waters

Surface water flows in the county are divided into five major watersheds. These watersheds are depicted on Map II-4.

The many rivers, creeks, and swamps within and adjoining Middlesex County have and continue to influence the County's character and development. The Rappahannock River to the north and the Chesapeake Bay to the south are significant water bodies which historically have contributed to the county's economic base and recreational opportunities.

Map II-4
County Watersheds



There are no surface water impoundments or reservoirs supplying drinking water supplies within the County. Ponds of note are Hilliard Pond (State Route 602), Healys Pond (State Route 629), Conrad Pond (on Wilton Creek), Barracks Millpond (on Mill Creek), Town Bridge Pond (on Urbanna Creek) and Rosegill Lake.

Dragon Run Watershed

The Dragon Run is a special regional resource worthy of protection in Middlesex County. The Dragon Run and its surrounding landscape owe their extraordinary state of preservation to the landowners in the area that have pursued for generations the compatible land uses of farming and forestry on their land. Recent scientific study of the stream has also highlighted its critical ecological importance, including the purity of the water, the wealth of rare and unusual natural species it harbors, and the rural character of its watershed that has helped to keep it pristine. The rural way of life and traditional landscape in the Dragon Run area are valued by the residents of the area and are worthy of preservation.

The County has worked alongside the other counties in the Dragon Run Watershed with the Middle Peninsula Planning District Commission's Dragon Run Steering Committee to protect the natural resources and rural qualities of the area by participating in the Dragon Run Watershed Special Area Management Plan. In particular, one of the objectives of this cooperative effort was to "Achieve consistency across county boundaries among land use plans and regulations in order to maintain farming and forestry and to preserve natural heritage areas by protecting plants, animals, natural communities, and aquatic systems."

Within this Comprehensive Plan, the overall goal for the Dragon Run Watershed is for it to remain largely rural, with low intensity uses, and to protect its key natural areas and its water quality.

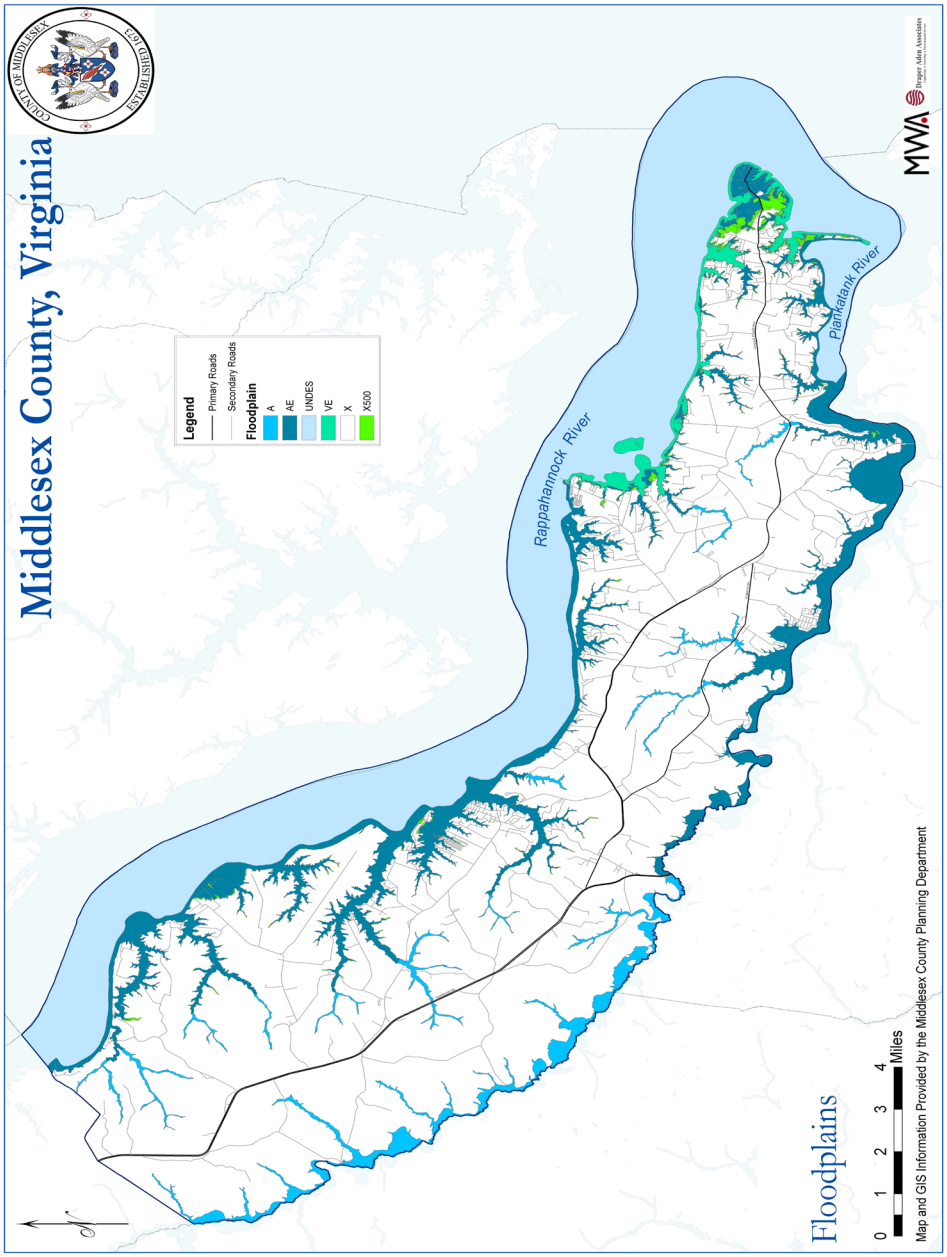
Floodplains

Map II- 5 generally depicts those areas of the county which are located within the 100-year floodplain. The 100 year floodplain is that area of land which could be inundated by a flood that has a statistically probability of occurring once in 100 years

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program and has issued flood insurance rate maps for Middlesex County. A set of these maps is on file in the Department of Planning. These maps provide a detailed mapping of the 100 year flood plain.

These maps also indicate those areas of Middlesex County, which as of November 16, 1990, are not eligible for federal flood insurance for new construction or substantial improved structures because these areas are designated as "coastal barriers.

Map II-5
County Floodplains



The FEMA flood insurance rate maps also designate areas referred to as V zones, which are areas within the 100 years flood plain that are subject to coastal flooding with velocity hazard (3 foot breaking wave action). These areas are exposed to the abnormally high tides and wave surges during hurricanes and northeasters. Northeasters are storms with winds out of the northeast which pile water up on west shores thereby causing erosion. The homes lining the shoreline at Stingray Point are within this zone.

A review of major storms in Middlesex County indicates that a hurricane which passed through Middlesex County in August 1933 generated tides at the mouth of the Rappahannock River that reached 6.6 feet and 7.0 feet at Urbanna. These are the highest tides recorded in Middlesex County. The northeaster of November 1985 pushed tides 5 feet above normal and battered piers, bulkheads, bathhouses and other waterfront structures in the County, particularly along the Rappahannock River. (A normal high tide at Stingray Point and Urbanna increases the level of the water 1.2 and 1.4 feet respectively.)

Middlesex County requires new residential constructions within a 100-year flood plain to have the lowest floor at or above the 100-year flood plain level. Nonresidential structures must be flood-proofed to that level.

Construction within the floodplain:

- Can be adversely impacted by flood events resulting in damage to property and possible loss of life
- Displaces floodwater storage and can therefore increase the flooding potentials further upstream or upland
- Can result in the loss of vegetated and non-vegetated wetlands
- *Can create erosion of soil in streams and rivers, which can choke out aquatic vegetation thereby diminishing the quality of aquatic habitats for finfish and shellfish which if inundated by floodwater will result in loose materials, parking lot oils, lawn chemicals, etc. becoming waterborne thereby diminishing water quality*

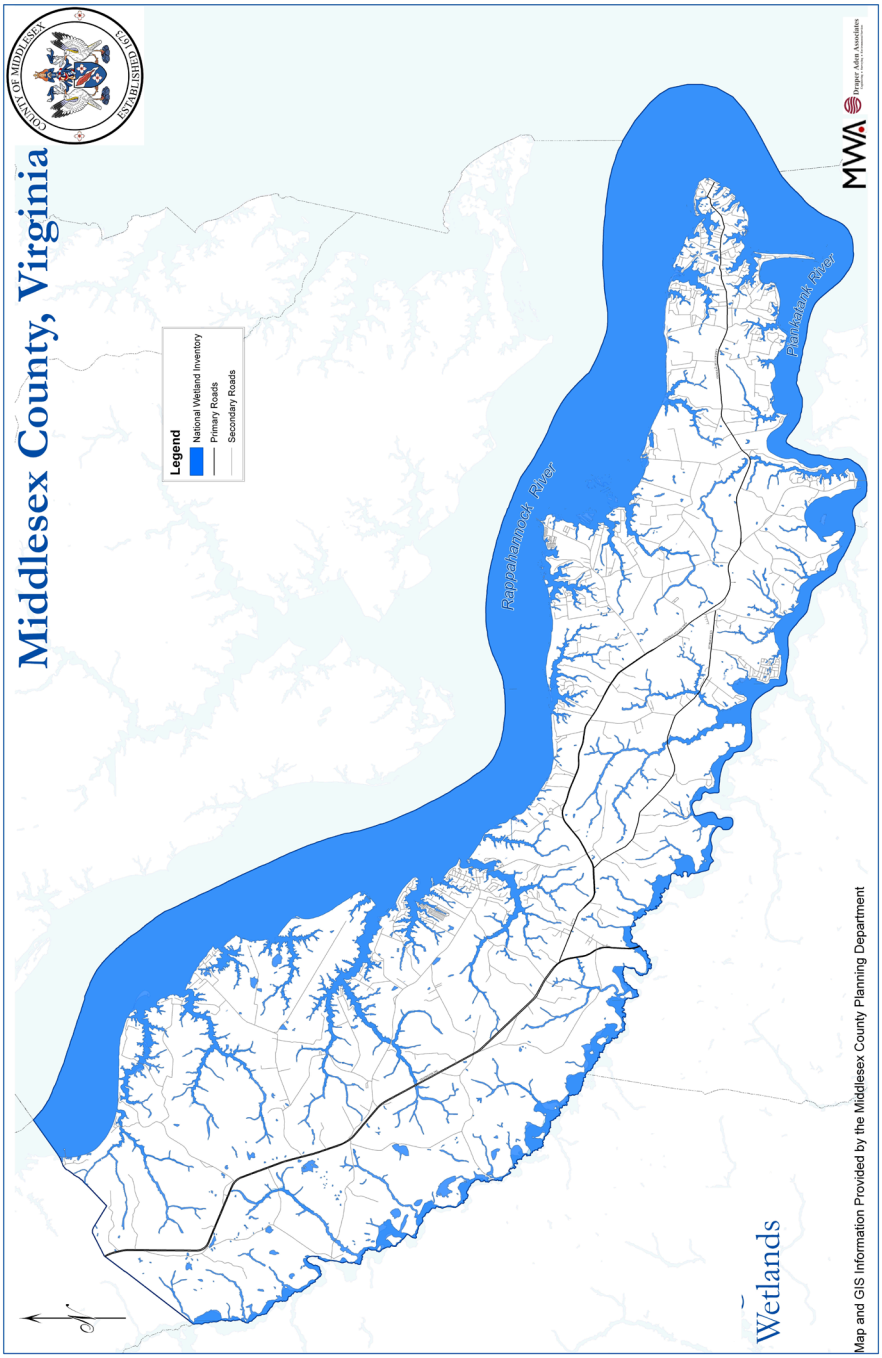
Wetlands[5]

Map II-6 depicts wetland locations within the county. Wetlands play many important roles as part of an ecological community. First, by producing plant material which decays in the aquatic system, wetlands form the basis of a major food web. Submerged aquatic vegetation (SAV) are rooted aquatic wetland plants. They are a food source for ducks and other waterfowl and for some fish. They also provide a protective habitat for molting crabs and young fish. Submerged aquatic vegetation has disappeared from significant portions of the Bay. The loss of SAV has been viewed as a major sign of failing health for the Bay. Two important sea grasses are widgeon grass and eelgrass. Decreases in canvasback and redhead duck population have been attributed to SAV declines.

[5] This section on wetlands has been extracted verbatim, in its entirety from the County's 2001 comprehensive plan. It represents the original work of the Landmark Design Group. It has been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department.

Second, wetlands provide habitat for various mammals and marsh birds and food sources for migrating waterfowl. Third, wetlands provide an erosion buffer between land and coastal waves. Fourth, wetlands act as a filter for upland sediment before it reaches waterways thereby protecting the waterways from siltation. They also act a a flood buffer by absorbing and releasing water from its peak substratum. Finally, wetlands serve as aquifer recharge

Map II-6
County Wetlands



areas.

The County's Wetlands Board ensures that water-dependent development proposals have minimal impact on wetlands, both vegetated and non-vegetated. According to the Middlesex County Tidal Marsh Inventory, there are approximately 1,675 acres of tidal wetlands in the County. Of this total, 1,240 acres are along the Rappahannock River and its tributaries. Major tidal wetland areas consisting primarily of big cordgrass exist along Mud, Parrotts and Lagrange Creeks. Four hundred and thirty-five (435) acres of tidal wetlands exist along the Piankatank River. Seventy-five percent (75%) of the 135 miles of tidal shoreline are low or moderately low shoreline so flooding potentials exist. Tidal marshes extend along two-thirds of the County's shoreline.

Shoreline Erosion[6]

The erosion and accretion of the shoreline is a part of nature which only becomes a problem when the activities of man unnaturally accelerate the process or when the process threatens man-made improvements.

The pattern of erosion is irregular and is controlled by four factors:

- *fetch (overwater distance across which the wind blows)*
- *wind velocity*
- *wind duration*
- *depth of the water*

Erosion also varies from year to year depending upon the nature and intensity of storms. Accelerated erosion occurs during hurricanes and northeasters.

In a survey of erosion events from 1850 to 1950, Middlesex County ranks 16th among Tidewater Counties in the loss of acres per mile of shoreline. During that period a net loss of 1,230 acres occurred with an average yearly shoreline retreat of 0.8 feet.

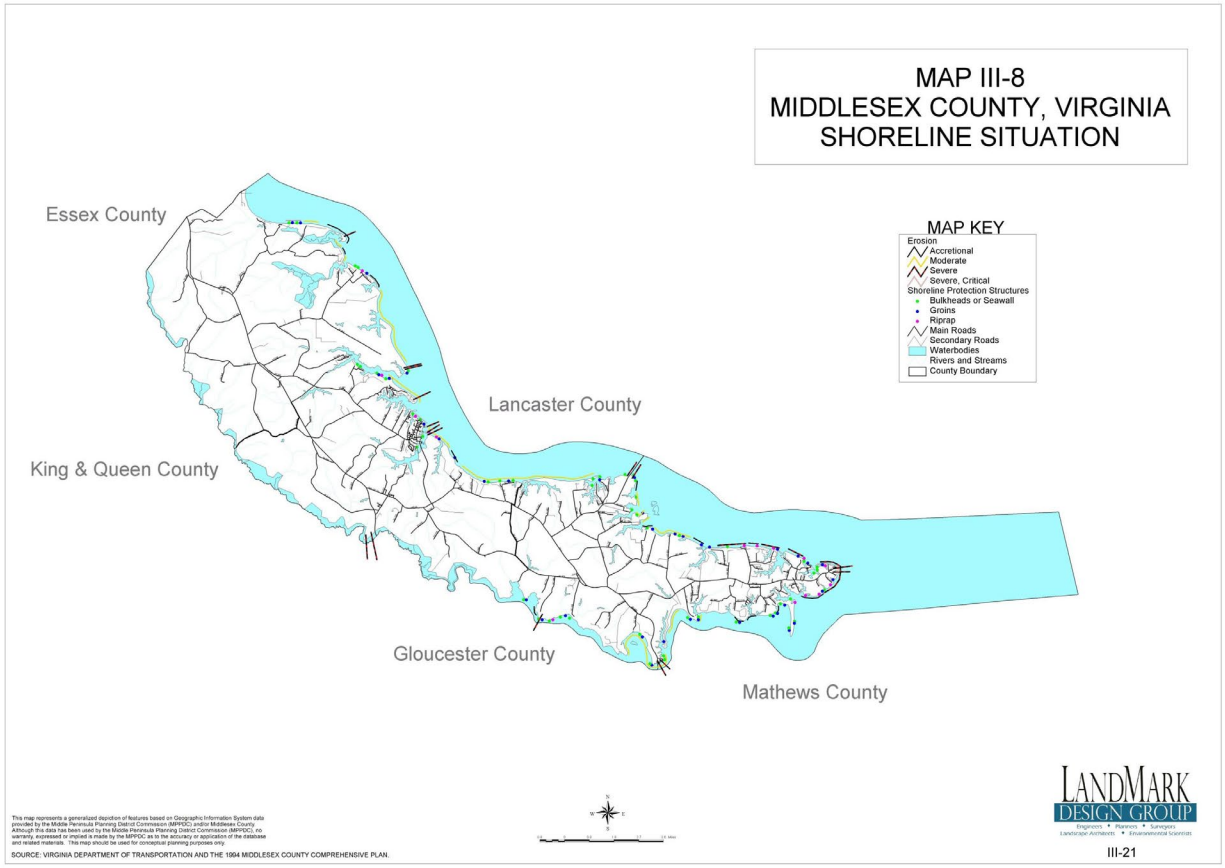
Some areas experiencing erosion problems have been "hardened" with bulkheads and groins as waterfront residential development has occurred. Although bulkheading stabilizes the fastland edge, beach areas existing prior to bulkheading tend to disappear, resulting in loss of animal habitat, reduced wave absorption and reduced filtration of land surface water runoff into waterways.

The highest erosion rates witnessed in the County occurred at Stingray Point where the rate of erosion was calculated to be 6.1 feet per year. Much of Stingray Point, which is exposed to long fetches and heavy wave action, has been hardened in recent years.

MAP II-7 (Shoreline Situation) generally depicts areas experiencing apparent erosion and accretion.

[6] This section on shoreline erosion has been extracted verbatim, in its entirety (including all maps), from the County's 2001 comprehensive plan. It represents the original work of the Landmark Design Group. It has been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department

Map II-7
Shoreline Situation



Shellfish Resources[7]

Harvesting oysters has been a significant vocation in the lives of Middlesex County residents since it was originally settled. The Annual Urbanna Oyster Festival draws tens of thousands of visitors each year to pay homage to the oyster. The Rappahannock River's high water quality and low toxic pollutant level relative to other sections of the Chesapeake Bay has enabled it to be an excellent spawning and nursery area for oysters. Oyster habitat areas extend upriver just beyond the county line with Essex where salinity levels drop below 5 ppt (parts per thousand).

Oyster fisheries have been in decline since 1900. However, sharp declines began in the 1960's when MSX (Minichinia nelsoni), a microscopic disease organism, began infecting oysters. Additionally, oysters are susceptible to Dermo (Dermocystidium marinum), a fungus which has long been present and kills oysters in salinity ranges typically found in the Urbanna area. At salinity levels above 15 ppt, oysters fall victim to oyster drills and other predators.

Oysters feed by filtering water through their gills. They consume plankton and other edible particles. Sediment and other non-edible particles are expelled. Oysters therefore play a role in maintaining water quality by reducing the amount of oxygen-dependent algae in the water and removing suspended sediments. It is estimated that at one time, there were so many oysters in the Bay that they could filter the entire water volume of the Bay in less than one week. Today, it is estimated that it would take 325 days to do that same task because oyster numbers have declined so sharply.

Increased sediment from land disturbing activities, nutrient buildup from runoff originating from agricultural areas, municipal and industrial discharges, malfunctioning septic systems, and insufficient resource management combined with MSX and Dermo have all played a role in the oyster's demise.

The Division of Shellfish Sanitation, a section of the Virginia Department of Health, ensures that shellfish taken from Virginia waters are safe for human consumption. They monitor water quality almost every month at hundreds of water quality sampling stations in the waters of Middlesex County. This is a requirement of the federal Food and Drug Administration's (FDA's) National Shellfish Sanitation Program.

If water quality samples from shellfish growing areas regularly exceed the FDA determined maximum safe level of 14 MPN/100 ml of water, the Division is required to restrict or prohibit shellfish harvesting. Map II-8 depicts those shellfish beds which are presently closed.

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[7] This section on shellfish resources and the following two sections on aquaculture and finfish resources have been extracted verbatim, in their entirety (including all figures and maps), from the County's 2001 comprehensive plan. It represents the original work of the Landmark Design Group. It has been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department

The Division, on a six year cycle, also does a shoreline sanitary survey of lands adjacent to shellfish beds. This on-site walking survey identifies all point and non-point pollution contributors of water pollution. Figure II-3 is a reduced copy of the shoreline sanitary survey map for Whiting and Meachim Creeks, which were surveyed on May 17, 2000 and typically represent other Middlesex County creeks traditionally suited for shellfishing. In these watersheds alone, there were 29 sources of potential water pollution identified. One source of pollution was an industrial site. The majority of pollution sources are residential or agricultural in nature.

Violations turned up by Shellfish Sanitation are reported to the appropriate Virginia Health Department sectors responsible for enforcement including the Middlesex County Health Department.

Map II-8
Condemned Shellfish Areas

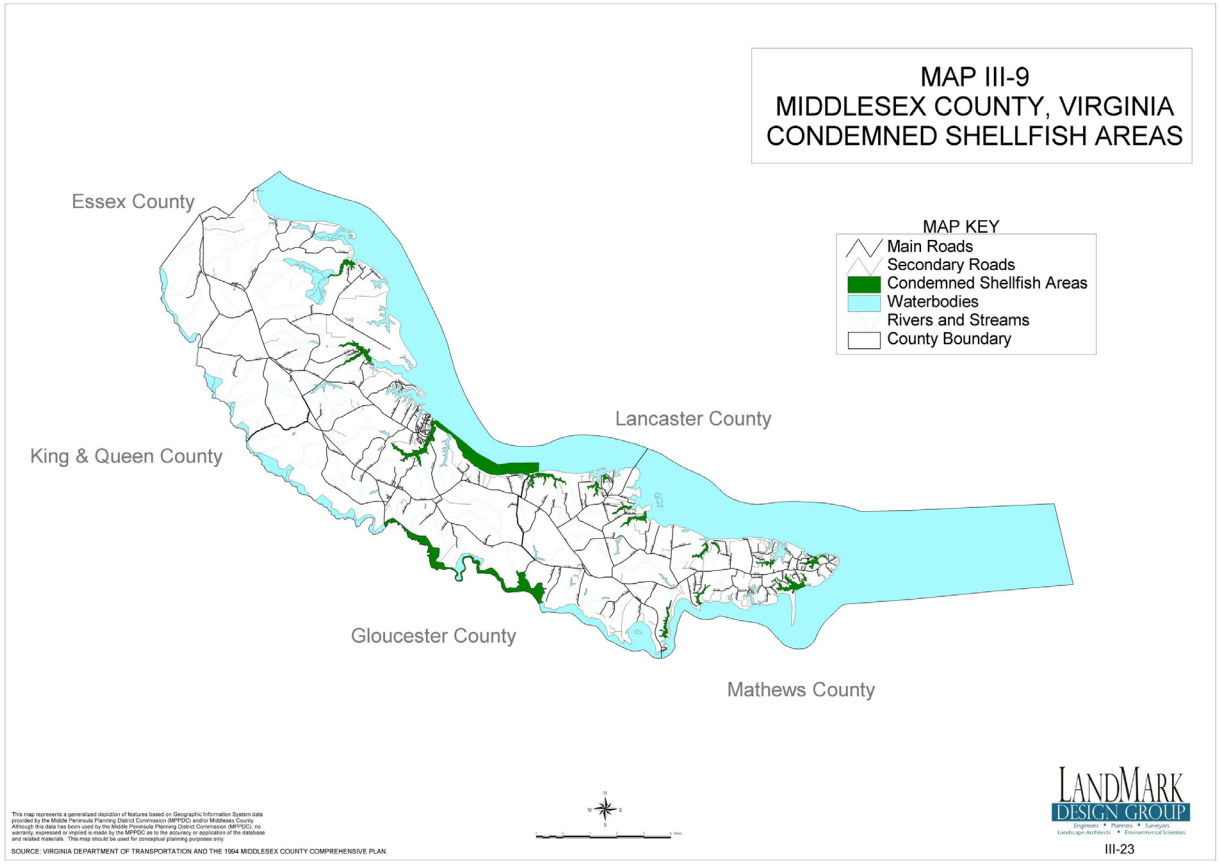
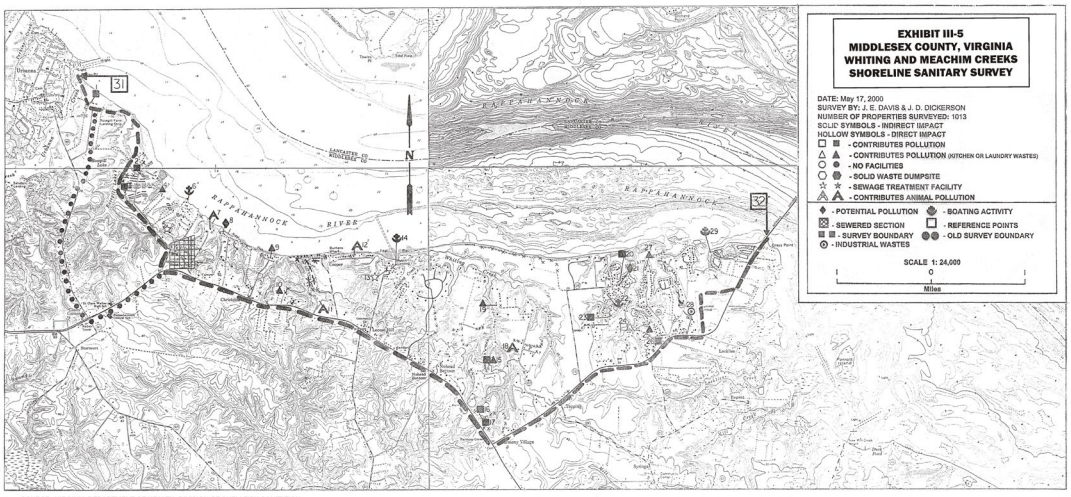


Figure II-3
Shoreline Sanitation Survey



SOURCE: VIRGINIA DEPARTMENT OF HEALTH, DIVISION OF SHELLFISH SANITATION.

III-24

Aquaculture
With the downturn in traditional finfish and shellfish harvest, watermen are beginning to involve themselves in land-based aquaculture endeavors. Watermen are beginning to raise catfish, trout, and freshwater bass in farm ponds; shedding soft crabs, growing tiger shrimp, and filtering winter crabs and oysters in aquaculture facilities, some of which are home-based.

Finfish Resources
Finfish resources have also suffered declines on the Rappahannock and in the Chesapeake Bay. Saltwater fish found along the Middlesex County shoreline include rockfish, croaker, bluefish, spot and weakfish. Fish found in the freshwaters of Dragon Run Swamp include carp, perch, sunfish, and largemouth bass.

In recent years, taking of rockfish has been prohibited due to declining fish stocks. However, current resource management techniques seem to be having a dramatic impact on rockfish populations, resulting in the opening of limited harvesting seasons for both recreational and commercial fishermen.

Soils
The soils of Middlesex County were formed from sediments that were deposited by an ancient river or ocean. The Soil Survey of Middlesex County, Virginia identifies 31 different soils within the County. These soil types are shown on Table II-2 (Acreage and Proportionate Extent of Soils).

Map II-9 (General Soil Map) depicts a general soil map for the County. This map shows broad areas of the County that have a distinctive pattern of soils, relief, and drainage. More detailed soil maps are located in the rear of the Soil Survey document, which is on file in the Department of Planning. The characteristics of the soils play a significant role in defining the ability of a site to support land development. Some soils, for example will not support a properly functioning septic tank absorption field. Other soils have the capacity to support the highest crop yields but are also excellent for building sites. Table II-3 summarize the degree and kind of soil limitation for community development associated with each of the soils present in the County.

Map II-9 County Soils

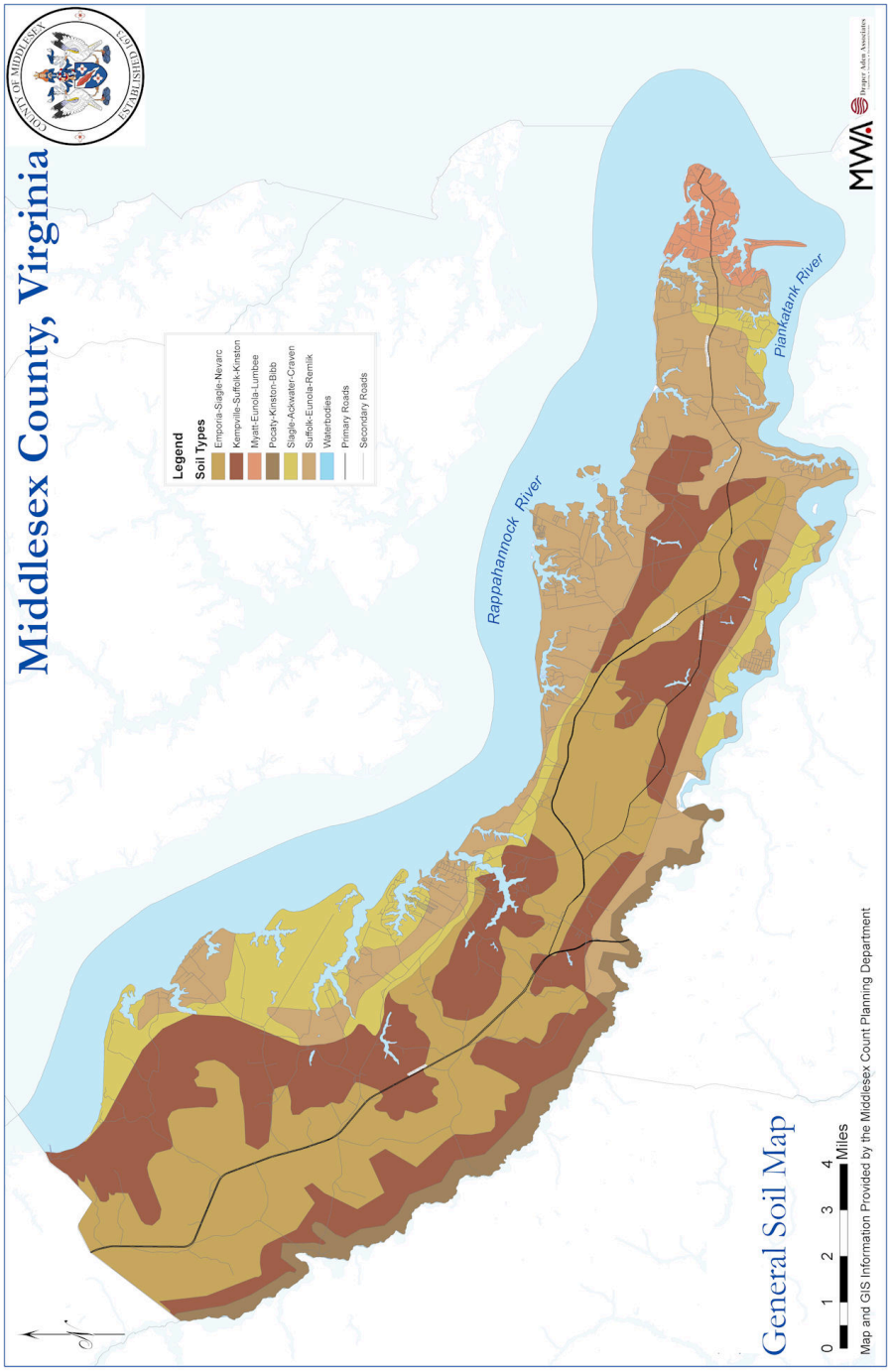


Table II-2
Middlesex County, Virginia
Acreage and Proportionate Extent of Soils

SOIL NAME	ACRES	PERCENT
Ackwater silt loam	1,330	1.6
Bama loam, 2 to 6 percent slope	1,090	1.3
Bethera and Daleville soils	1,690	2.0
Catpoint loamy sand	485	0.6
Craven silt loam, 0-2% slope	385	0.5
Craven silt loam, 2-6% slope	640	0.8
Emporia loam, 0-2% slope	1,015	1.2
Emporia loam, 2-6% slope	11,615	13.8
Emporia-Nevarc complex, 6-15% slope	4,870	5.8
Emporia-Nevarc complex, 15-45% slope	5,685	6.7
Eunola loam	2,870	3.4
Kempsville sandy loam, 0-2% slope	790	0.9
Kempsville sandy loam, 2-6% slope	8,835	10.5
Kenansville fine sand	580	0.7
Kinston-Bibb complex	5,770	6.8
Lumbee silt loam	365	0.4
Myatt loam	1,950	2.3
Nansemond loamy fine sand	425	0.5
Ochlockonee silt loam	840	1.0
Pactolus loamy fine sand	455	0.5
Pocaty muck	1,400	1.7
Rumford fine sandy loam, 0-2% slope	200	0.2
Rumford fine sandy loam, 2-6% slope	230	0.3
Slagle silt loam, 0-2% slope	4,240	5.0
Slagle silt loam, 2-6% slope	5,755	6.8
Suffolk fine sandy loam, 0-2% slope	4,555	5.4
Suffolk fine sandy loam, 2-6% slope	6,235	7.4
Suffolk-Remlick complex, 6-15% slope	2,390	2.8
Suffolk-Remlick complex, 15-45% slope	6,775	8.0
Udorthents and Psamments, gently sloping (areas of disturbed undefined soil)	490	0.6
Water	455	0.5
TOTAL	**84,400**	**100.0**

SOURCE: Middlesex County Soil Survey.

Table II-3[8]
DEGREE & KIND OF SOIL LIMITATION FOR COMMUNITY DEVELOPMENT

SOIL SERIES	*SEPTIC SYSTEMS*	*STREETS/ PARKING*	*CEMETARIES*	*GOLF FAIRWAYS*	*SMALL COM BLDGS*
Ackwater	*R (1) (2)*	*R (10) (11)*	*R (1)*	*M (1)*	*R (11)*
Bama	*S*	*S*	*S*	*S*	*M (4)*
Bethera & Daleville	*R (1) (2)*	*R (10) (1)*	*R (1)*	*R (1)*	*R (1)*
Catpoint	*R (3)*	*S*	*R (12)*	*R (8)*	*S*
Craven (0-2%)	*R (1) (2)*	*R (10)*	*R (1)*	*S*	*M (1) (11)*
Craven (2-6%)	*R (1) (2)*	*R (10)*	*R (1)*	*S*	*M (1) (11) (4)*
Emporia (0-2%)	*R (1) (2)*	*M (10)*	*M (1)*	*S*	*S*
Emporia (2-6%)	*R (1) (2)*	*M (10)*	*M (1)*	*S*	*M (4)*
Emporia-Newark (6-15%)	*R (1) (2)*	*M (4) (10)*	*R (1) (4) (12)*	*M (4) (1)*	*R (4)*
Emporia-Newark (15-45%)	*R (1) (2) (4)*	*R (10) (4)*	*R (10) (4)*	*R (4)*	*R (4)*
Eunola	*R (1)*	*M (1)*	*M (1)*	*M (1)*	*M (1)*
Kempsville (0-2%)	*M (2)*	*S*	*S*	*S*	*S*
Kempsville (2-6%)	*M (2)*	*S*	*S*	*S*	*R (5) (1)*
Kenansville	*M (1)*	*S*	*S*	*M (8)*	*R (5) (1)*
Kinston-Bibb	*R (1) (5)*	*R (1) (5) (10)*	*R (1) (5) (10)*	*R (1) (5)*	*R (5) (1)*
Lumbee	*R (1)*	*R (5) (1)*	*R (5) (1)*	*R (1)*	*R (5) (1)*
Myatt	*R (1) (2)*	*R (1)*	*R (1)*	*R (1)*	*R (1)*
Nansemond	*R (1)*	*M (1)*	*R (12) (1)*	*M (1) (8)*	*M (1)*
Ochlockonee	*R (1) (5)*	*R (5)*	*M (1)*	*R (5)*	*R (5)*
Pactolus	*R (1) (3)*	*M (1)*	*R (12) (1)*	*M (8)*	*M (1)*
Pocaty	*R (5) (6) (7)*	*R (10) (7) (5)*	*R (13) (7)*	*R (9) (7)*	*R (5) (7) (10)*
Rumford (0-2%)	*S*	*S*	*R (12)*	*S*	*S*
Rumford (2-6%)	*S*	*S*	*R (12)*	*S*	*M (4)*
Slagle (0-2%)	*R (1) (2)*	*M (10) (1)*	*R (1)*	*M (1)*	*M (1) (11)*
Slagle (2-6%)	*R (1) (2)*	*M (10) (1)*	*R (1)*	*M (1)*	*M (1) (11) (4)*
Suffolk (0-2%)	*S*	*S*	*R (12)*	*S*	*S*
Suffolk (2-6%)	*S*	*S*	*R (12)*	*S*	*M (4)*
Suffolk-Remlik (6-15%)	**M (1) (4)**	**M (4)**	**R (12)**	**M (4)**	**R (4)**

[8] Table II-3 and the four sections that follow on erodable, permeable, hydric, and prime agricultural soils have been extracted verbatim, in their entirety (including all tables, figures and maps), from the County's 2001 comprehensive plan. These sections represent the original work of the Landmark Design Group. They have been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department

Suffolk-Remlik (15-45%)	***R (4)***	***R (4)***	***R (12) (4)***	***M (4)***	***R (4)***

Limitations:

S (Slight): Little or no limitation or easily corrected by the use of normal equipment.

M (Moderate): Limitations which can normally be overcome by careful designs and management at somewhat greater costs.

R (Restrictive): Limitations which cannot normally be overcome without exceptional, complex, or costly measures

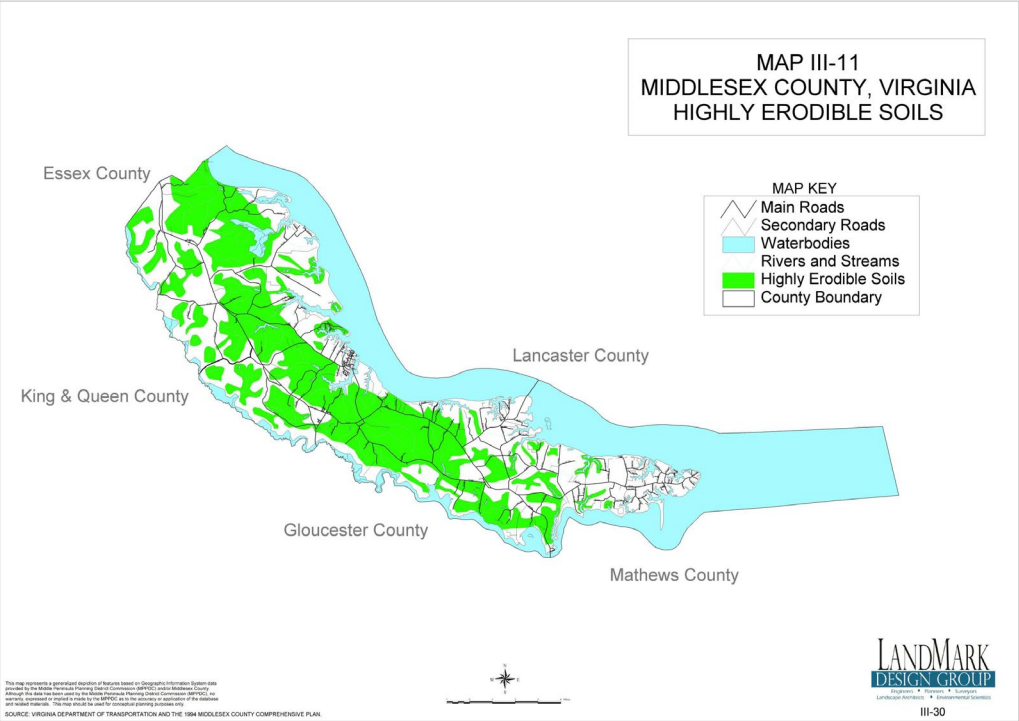
Key to Problems:

(1) Wetness
(2) Percs slowly
(3) Poor filter
(4) Slope
(5) Flooding
(6) Seepage
(7) Ponding
(8) Droughty
(9) Excess Salt or Sulfur
(10) Low strength
(11) Shrink-swell
(12) Cutbacks and caves
(13) Excess humus

Highly Erodible Soils

Soils that are characterized as highly erodible have a potential for erosion and sedimentation problems. Since erosion adversely affects water quality highly, erodible soils are identified and mapped in order to comply with the requirements of the Chesapeake Bay Preservation Act. Highly erodible soils that are contiguous to Resource Protection Areas are expected to be included within the Resource Management Area.

MAP II-10 generally depicts the highly erodible soils within Middlesex County as determined by the Middle Peninsula Planning District Commission. Approximately 60 percent of the County soils are highly erodible. The highest concentrations are west of Grafton.



Middlesex County has adopted and enforces an Erosion and Sediment Control Ordinance. Land developers must submit a plan depicting what measures they will employ to minimize erosion and contain sediment movement. Certain land disturbances are not permitted to commence until the County has approved such a plan.

The agricultural community incorporates best management practices within their farming operations to minimize the loss of soils from fields to streams. These practices are in accordance with conservation plans prepared with the assistance of the Tidewater Soil and Water Conservation District.

These terms are extracted from the Chesapeake Bay Preservation Act as implemented by Middlesex County.

Erodibility Index = a standard comparative measure of the susceptibility of a soil to erosion which considers the type and content of the soils, rainfall and runoff, and the combined effects of slope length and steepness.

Resource Protection Area (RPA) = lands nearest the shoreline which have the most significant potential for reducing negative land use impact on bay water quality, depending on how they are managed.

Resource Management Area (RMA) = lands adjacent to the RPA which, depending on how they are managed, may have a potential for impacting the ability of the RPA to perform its functions in reducing negative impacts on water quality.

Highly Permeable Soils

Soils that are characterized as highly permeable are extremely susceptible to pollutant leaching, and thus have a high potential for groundwater pollution. Since excessive soil permeability can increase the chance of groundwater contamination, (i.e. excessive infiltration or seepage from septic tank absorption fields), and since shallow groundwater resources are also a source of water for tributary systems of the Chesapeake Bay, local jurisdictions are required to map this soil feature in order to comply with the requirements of the Chesapeake Bay Preservation Act. Highly permeable soils located contiguous to a Resource Protection Area are typically to be included within the Resource Management Area.

MAP II-11 depicts the general location of highly permeable soils within Middlesex County as determined by the Middle Peninsula Planning District Commission. Approximately 60 percent of the County soil is considered highly permeable. The highest concentrations of highly permeable soil are in the eastern part of the County where shallow groundwater aquifers provide the only source of potable water.

Hydric Soils

Hydric soils are those that are sufficiently wet under undrained conditions to support the growth of hydrophytic vegetation (plant life growing in water or soil that is at least periodically deficient in oxygen as a result of excessive water content). The list of hydric soils found in Middlesex County Is depicted in Table II-4 Hydric soils encompass over 11,000 acres or 13 percent of the County.

MAP III-12
MIDDLESEX COUNTY, VIRGINIA
HIGHLY PERMEABLE SOILS

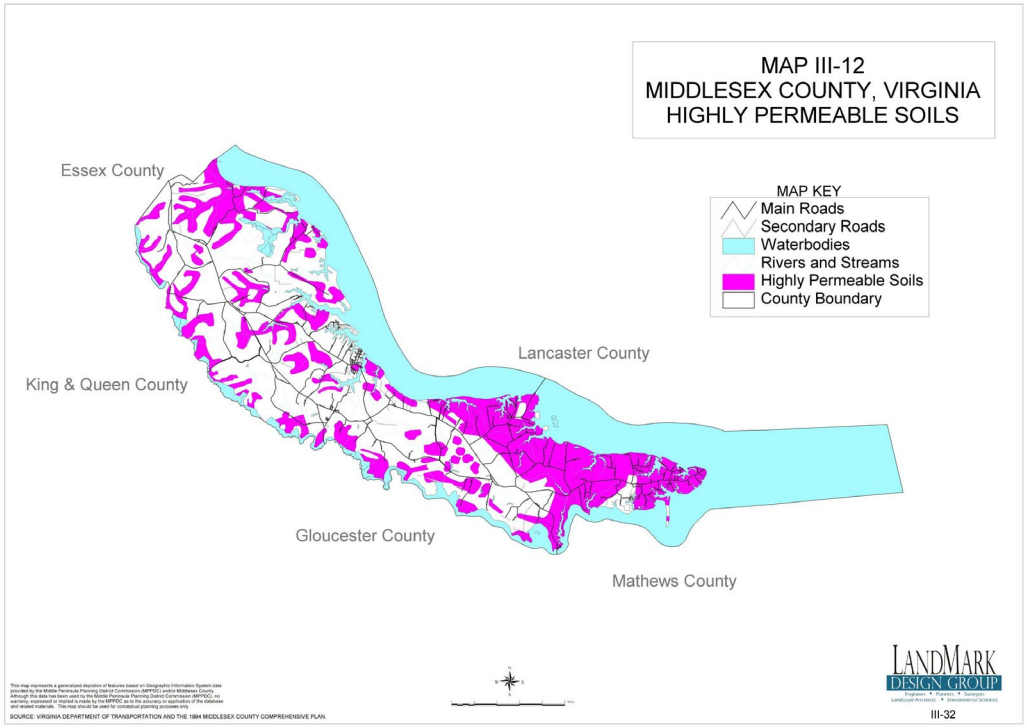


TABLE II-4
MIDDLESEX COUNTY, VIRGINIA
HYDRIC SOILS

SOILS	ACRES
Bethera and Daleville	1,680
Kinston-Bibb	5,770
Lumbee	365
Myatt	1,950
Pocaty	1,400
TOTAL	**11,615**

SOURCE: Hydric Soils of the State of Virginia, Soil Conservation Service, 1985.

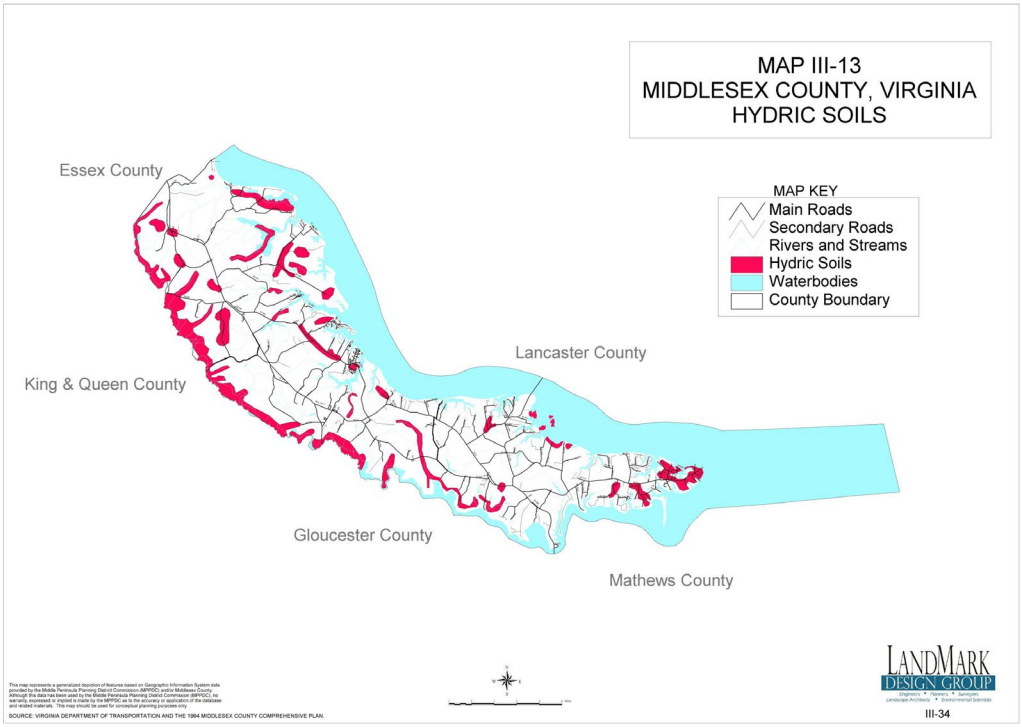
MAP II-12 depicts the location of hydric soils in the County. A large percentage of these soils are found in Dragon Run Swamp. Additionally, a high percentage of the area between Deltaville and Stingray Pint are hydric. Other hydric areas are scattered throughout the County and tend to be undeveloped drainage swales or depressed areas.

Hydric areas have seasonally high water tables or are inundated year round. For this reason, it is very difficult for these areas to support functional effective septic tank

absorption fields. There may be significant limitations on the use of the lands if these areas are determined to be non-tidal wetlands under the jurisdiction of the U.S. Army Corps of Engineers. Section 404 of the Federal Clean Water Act can be applied by the Corps to effectively prevent any new use or disturbance of these lands.

Before expenses are incurred either to purchase in anticipation of building or to build on lands which may be hydric, it would be advisable to first ensure that construction will be permitted by the Corps.

MAP II-12
MIDDLESEX COUNTY, VIRGINIA
HYDRIC SOILS



Prime Agricultural Soils

A listing of prime agricultural soils is shown on Table II – 5. Over 59 percent of the soils in Middlesex County are consider prime agricultural soils. This is a very high percentage for any Virginia community. Prime agricultural soils are generally depicted on Map II - 13.

MAP II-13
MIDDLESEX COUNTY, VIRGINIA
PRIME AGRICULTURAL SOILS

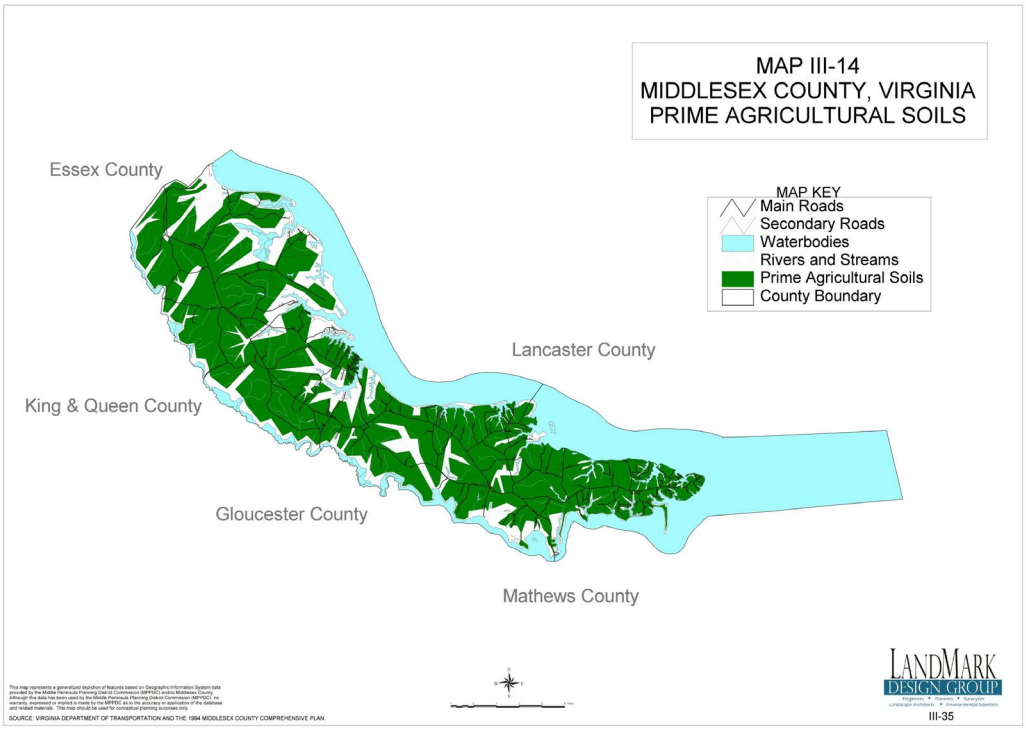


Table II-5
MIDDLESEX COUNTY, VIRGINIA
PRIME AGRICULTURAL SOILS

SOILS	SLOPE	TOTAL ACRES
Bama Loam	*2-6%*	*1,090*
Craven Silt Loam	*0-2%*	*385*
Craven Silt Loam	*2-6%*	*640*
Emporia Loam	*0-0%*	*1,015*
Emporia Loam	*2-6%*	*11,615*
Eunola Loam	*N/A*	*2,870*
Kempsville Sandy Loam	*0-2%*	*790*
Kempsville Sandy Loam	*2-6%*	*8,835*
Lumbee Silt Loam	*Where Drained*	*365*
Myatt Loam	*Where Drained*	*1,950*
Slagle Silt Loam	*0-2%*	*4,240*
Slagle Silt Loam	*2-6%*	*5,755*
Suffolk Fine Sandy Loam	*0-2%*	*4,555*
Suffolk Fine Sandy Loam	*2-6%*	*6,235*
TOTAL		***50,340***

SOURCE: Soil Survey of Middlesex County, 1985.

NOTE: Loam: Soil material that is 7-27% clay particles, 28-50% silt particles, and less than 52% sand particles.

Agriculture[9]

The 2002 and 2007 Census of Agricultural present a picture of agricultural activity in the county and short term trends. In 2007 there were 76 active farming operations in the county, a decrease of 25% since 2002. Similarly, total agricultural acreage decreased from 21,216 acres to 17,709 acres during this period - a 17% reduction, and harvested croplands decreased approximately 10% to 12,805 acres. Despite these declining trends in acreage, the total market value of all agricultural products sold during this five year period rose. Total market value of all agricultural products sold increased 17% to an average of approximately $82,000 per farm.

Forests

Apart from their obvious economic market value, forests also serve as erosion and sedimentation inhibitors, wildlife habitat, and recreation areas. Equally important is the

[9] This section on agriculture and the following section on forests have been extracted verbatim, in their entirety, from the County's 2001 comprehensive plan. These sections represent the original work of the Landmark Design Group. They have been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department

aesthetic value provided by forests and the role they play in contributing to the "rural character" that Middlesex residents and visitors find appealing, thus bolstering general land values throughout the County.

Tables II-6 and II-7 depict relevant information on timberland in Middlesex County. The most significant statistic indicates that Middlesex County enjoyed positive net annual growth of both growing stock and saw timber despite the loss of over 1,500 acres of forestland since 1985.

Table II-6
MIDDLESEX COUNTY, VIRGINIA
FOREST STATISTICS

		ACRES	PERCENT (%)
Ownership	State/County	35	0.07
	Forest Industry	4,774	9.57
	Farmer	12,019	24.10
	Individual	33,054	66.26
	TOTAL	49,882	100.00
Forest Type Group	Loblolly-Shortleaf	13,788	27.64
	Oak-Pine	18,030	36.15
	Oak-Hickory	18,029	36.14
	Oak-Gum-Cypress	35	0.07
Standard Size Class	Saw-Timber	25,665	51.45
	Pole-Timber	12,198	24.45
	Sapling-Seedling	12,019	24.10

SOURCE: Forest Statistics of Virginia, 1992, Tony G. Johnson, U.S. Department of Agriculture.

Table II-7
MIDDLESEX COUNTY, VIRGINIA
GROWING STOCK

	GROWING STOCK	SAWTIMBER
All species	3,561,000	11,731,000
Pine	1,876,000	5,778,000
Other Softwood	44,000	--
Soft Hardwood	762,000	2,481,000
Hard Hardwood	879,000	3,472,000

SOURCE: Forest Statistics of Virginia, 1992, Tony G. Johnson, U.S. Department of Agriculture.

DEFINITIONS:

Sawtimber: *Softwoods 9+ inches DBH/Hardwood 11+ inches DBH*

Pine: *Yellow pine species (i.e. Loblolly Pine)*

Other Softwood: *Cypress, Cedar, Hemlock, Spruce, Fir, Red Cedar*

Soft Hardwood: *Soft textured hardwood (i.e. Red and Silver Maples, Yellow-Poplar, Cottonwood, Basswood, Elm)*

Hard Hardwood*: Hard textured hardwoods (i.e. Sugar Maple, Beech, Ash, Honeylocust, Hickory, Walnut, all commercial Oaks).*

DBH*: Tree diameter at breast height (4.5 feet above the ground)*

Table II-8 depicts high quality timberland soils.

Table II-8
MIDDLESEX COUNTY, VIRGINIA
HIGH QUALITY TIMBERLAND SOILS

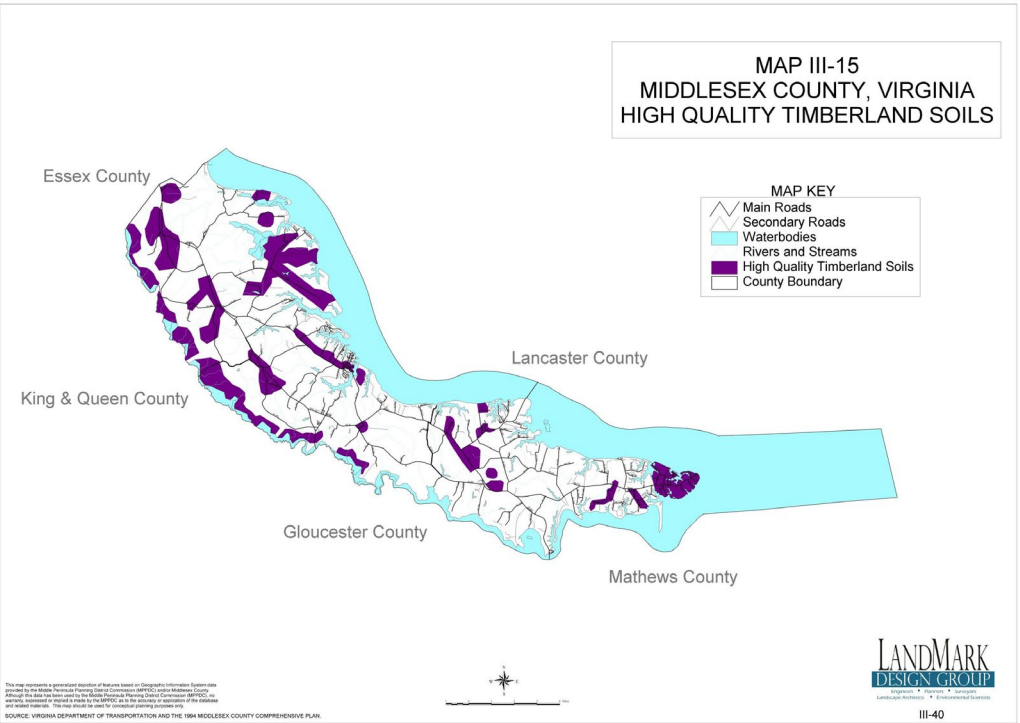
SOIL TYPE	*SITE INDEX*	*SOIL LIMITS*	*MANAGEMENT CONCERNS*			
			EROSION HAZARD	*EQUIPMENT LIMITS*	*SEEDLING MORTALITY*	*WIND-THROWN HAZARD*
Bama	*90*	*-*	*S*	*S*	*S*	*S*
Bethera & Dalesville	*92 95*	*W*	*S*	*R*	*R*	*S-M*
Eunola	*90*	*W*	*S*	*M*	*S*	*S*
Kinston-Bibb	*90*	*W*	*S*	*R*	*R*	*R*
Lumbee	*94*	*W*	*S*	*R*	*R*	*M*
Myatt	*88*	*W*	*S*	*R*	*R*	*M*
Nansemond	*88*	*W*	*S*	*M*	*S*	*M*
Ochlockonee	*100*	*W*	*S*	*M*	*S*	*S*
Slagle	*86*	*W*	*S*	*M*	*S*	*S*

SOURCE: Forest Statistics of Virginia, 1992, Tony G. Johnson, U.S. Department of Agriculture.

NOTES:
W – Excessive water in or on soil
S – Slight limitations
M – Moderate limitations
R – Severe limitations

Map II- 14 generally depicts those soils in the County which are the best for growth of loblolly pine. This includes any soil type which will support loblolly pine growth of 85 feet within a 50 year period. Over 29 percent of the County's soils will support this growth rate.

MAP II-14
MIDDLESEX COUNTY, VIRGINIA
HIGH QUALITY TIMBERLAND SOILS



Wildlife And Natural Heritage Resources[10]

The rural nature of the County, which combines watercourses, forests, and fields, provides ideal circumstances for quality wildlife habitats and biological diversity. The habitats of various kinds of wildlife are depicted on Table II-9 and on Map II-15, which are defined in the Virginia Natural Area Preserves Act of 1989 (Section 10.1-209 through 217, Code of Virginia) as the habitat of rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the Commonwealth.

Rare, Threatened And Endangered Species

Endangered species are defined by the U.S. Fish and Wildlife Service (USFWS) as any species that is in danger of extinction throughout all or a significant portion of its range. Threatened Species are defined as likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Rare species,

[10] This section on heritage resources and the following section on endangered species have been extracted verbatim, in their entirety, from the County's 2001 comprehensive plan. These sections represent the original work of the Landmark Design Group. They have been inserted into this plan at the direction of the staff of the Chesapeake Bay :Local Assistance Department

because of low numbers or the scarcity of habitat in which they live are in danger of extinction.

Table II-9
MIDDLESEX COUNTY, VIRGINIA
WILDLIFE HABITAT AREAS

SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Vertebrates					
Haliaeetus, leucocephalus	Bald Eagle	G4	S2B/S3N	LT	LT
Falco perigrinus	Peregrine Falcon	G4	S1B/S2N		LT
Invertebrates					
Cicindela dorsalis dorsalis	Northeastern Beach Tiger Beetle	G4T2	S2	LT	NS
Atlides halesus	Great Purple Hairstreak (butterfly)	G5	S2S3	NF	NS
Isoparce cupressi	Cypress sphinx (moth)	G4	S2S3	NF	NS
Epitheca spinosa	Robust baskettail (dragonfly)	G4	S2	NF	NS
Helocordulia selysii	Selys' sundragon (dragonfly)	G2	S2	NF	NS
Plants					
Cardamine pratensis	Cuckooflower	G5	S1	NF	NS
Chelone oblique	Red turtlehead	G4	S1	NF	NS
Hottonia inflate	Featherfoil	G4	S2S3	NF	NS

SOURCE: Department of Conservation & Recreation (DCR), Division of Natural Heritage.

The Virginia Department of Conservation and Recreation's (DCR) Division of Natural Heritage utilizes the following methodology to rank rare plant and animal species:

Global Rank
Global ranks are assigned by a consensus of the network of worldwide natural heritage programs, scientific experts, and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species or variety. The ranks are assigned after considering a suite of factors, including number of occurrences, number of individuals, and severity of threats.

G1 Extremely rare and critically imperiled.
G2 Very rare and imperiled.
G3 Either very rare and local throughout its range or found locally in a restricted range.
G4 Common and apparently secure globally.
G5 Very common and demonstrably secure globally.

State Rank

State ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Virginia. By comparing the global and state ranks, the status, rarity, and urgency of conservation needs can be ascertained.

S1 Extremely rare and critically imperiled.
S2 Very rare and imperiled.
S3 Rare to uncommon in Virginia.
S4 Common and apparently secure.
S5 Very common and demonstrably secure in Virginia.
S_S_ Rank is uncertain, but considered to be within the indicated range of ranks.
S_B/S_N Breeding and non-breeding status of an animal in Virginia, when different.
S_? Rank uncertain, may range between ranks.

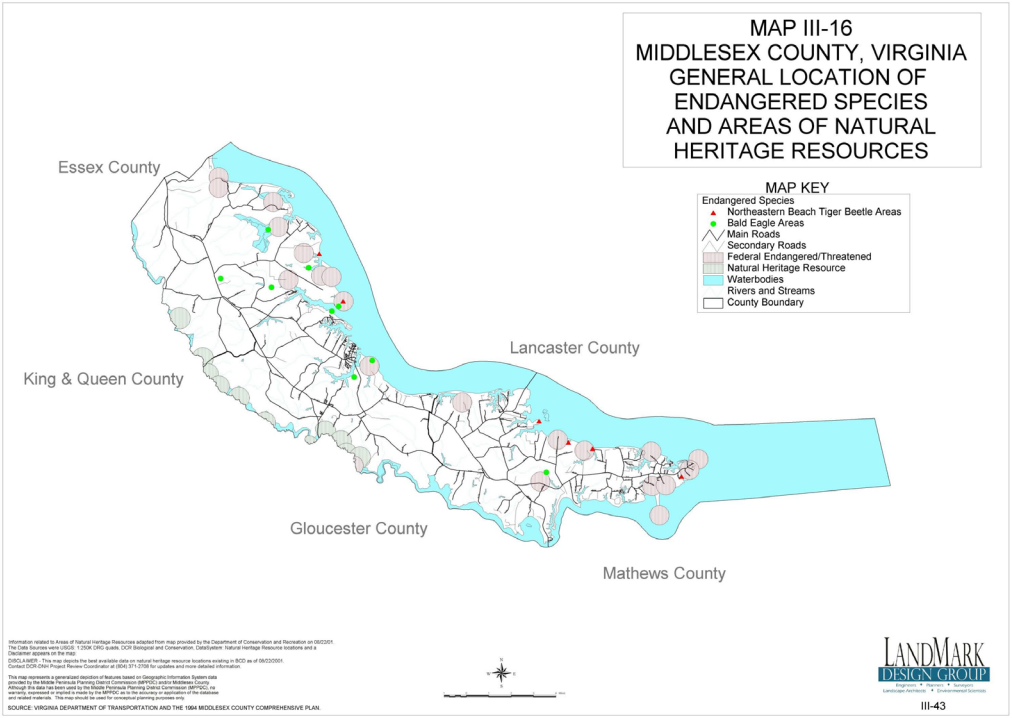
Federal and State Legal Status

Federal Status of a species is determined by the USFWS. This includes all species and varieties, which are listed as endangered or threatened by the U.S. Government and receive protection under the federal Endangered Species Act. State status indicates plant species which are listed as state endangered or threatened under the authority of the Virginia Department of Agriculture and Consumer Services or animal species listed as endangered or threatened under the authority of the Virginia Department of Game and Inland Fisheries.

LE Listed Endangered – threatened with extinction throughout all or a significant portion of its range.
LT Listed Threatened – likely to become endangered in the foreseeable future.

For more information on Natural Heritage Resources in Middlesex County please contact DCR for their Biological Conservation Database System (BCD).

MAP II-15
MIDDLESEX COUNTY, VIRGINIA
ENDANGERED SPECIES



Cultural Development

Middlesex County's development pattern has its roots in the agrarian environments of the 17th and 18th century. The prime agricultural soils of Middlesex were ideal for growing tobacco, a prized cash crop and source of good fortunes for early Virginian planters. This agrarian land development pattern resulted in settlements being some distance apart. Manor houses on the plantations were surrounded by dependency buildings housing a wide variety of functions necessary to support everyday life. Farm fields and other open spaces would extend as far as the eye could see in all directions.

The agrarian nature of the County's early history produced three patterns of settlements which are still very much in evidence today. It is, however, from the combination of these settlement patterns with the broad open agricultural and forested space separating them that comes the origin of the rural nature of the County. The first settlement pattern, consisting of towns or densely settled areas, only occurred as a result of a limited number of circumstances. Towns in agrarian areas of Colonial Virginia were the highest order of development density.

Urbanna, the most densely settled area within Middlesex, was created by an act of the General Assembly to serve as a port for the export of tobacco. A merchant class developed there since the port provided a point of concentrated activity. Homes for seafarers and merchants were then constructed. The location there of the first County Courthouse was also a precipitator of concentrated growth. Urbanna benefited from being the County seat of government. These two factors (port facility and courthouse site) elevated Urbanna to a sufficient development density and intensity that it eventually became a town.

The growth of Deltaville as a fishing, shipping, and ship building center occurred as a result of its proximity to the Chesapeake Bay. However, as ground transportation and land routes developed, Deltaville could not capitalize due to its remote location. By contrast, Saluda and Hartfield have developed as the result of being located on intersecting land transportation routes and Saluda has further benefited from its designation in the 19th century as the new County seat of government.

A second, less order of settlement pattern – the hamlet – developed around crossroads or boat landings such as occurred at Wake and Water View. People traveling to do commerce or to attend the sometimes distant churches created the need for transportation routes. The intersections in the transportation routes provided stimulus for hamlet development. Hamlets are much smaller than towns in both population and size; they may be slightly less dense in their development, and they tend to be primarily residential in nature.

The third settlement pattern consisted of randomly spaced farmsteads scattered widely throughout the County. Farmsteads generally consist of one or more farmhouses and a variety of outbuildings, barns, sheds, granaries, or other structures usually related to agricultural uses. Farmsteads were usually populated by families extended to include several generations and several dependent agricultural workers, and their families were usually associated with farm life prior to extensive mechanization. Farmsteads do not usually contain commercial activities except possibly those associated directly with agriculture.

Together, the town, hamlet, and farmsteads separated by miles and miles of fields and forests constituted the rural environment in Middlesex County until the twentieth century.

The twentieth century brought with it a faster paced lifestyle as a result of transportation and vehicular advancements. Paved roads for fast moving automobiles opened Middlesex County up to a new development pattern. People from outside the area could buy inexpensive land in the County, build a home (primary or secondary residence), and commute to and from nearby more developed areas such as Richmond, Newport News, and Hampton. Residential subdivisions were formed and strip commercial developments were approved in order to meet their demands for land and services.

The twentieth century also brought with it a broader selection of building materials and colors. The settlement pattern predating 1900 depended upon indigenous materials (local clay for brick, wood planks for siding). Man-made building materials, for example, permitted homes to be semi-permanent mobile homes. Storefronts and signs could display advertisements on internally illuminated plastic and metal panels. Glass and metal combined to permit distinct changes in styles and construction methods. The prevalence of the family automobile necessitated large parking areas which predominated most developments. These and many other modern building practices and standards stand in stark contrast to the traditional rural character that the people of the County seek to preserve.

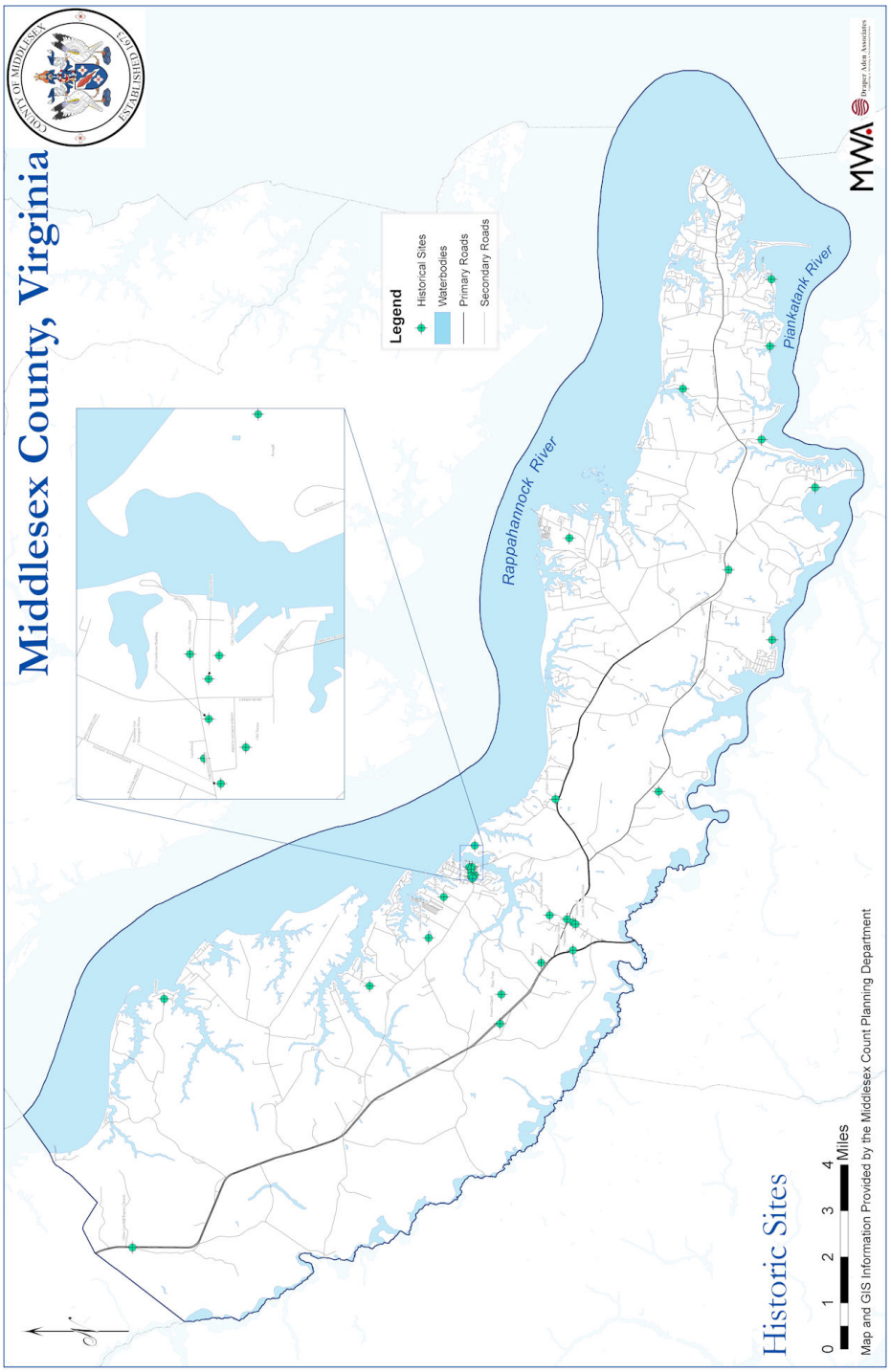
Historic Resources

Middlesex County has fourteen properties listed on the Virginia and National Historic Registers. Thirteen of the Register listings are individual sites/structures. Also included is the Urbanna Historic District. These fourteen Register properties are known by the following names:

Christ Church	Deer Chase
Hewick	Lansdowne
Lower Church	Middlesex County Courthouse
Old Middlesex County Courthouse	Old Tobacco Warehouse
Prospect	Rosegill
Sandwich	Urbanna Historic District
Wilton	Wormeley Cottage

The general location of each of these Register properties is shown on Map II – 7. A listing on the Virginia or National Registers does not guarantee the preservation of the resource. Private owners of listed properties can accrue certain tax benefits from the formal historic designation, however, owners still have great control over the character and/or preservation of the property. Listing of an historic resource does provide the

Map II-7 Historic Resources



County valuable information on the importance of the resource and allows the county to make informed decisions when actions are proposed that endanger the resource. These fourteen sites are not the only important historic properties in the county. Others certainly exist that due to their age, location and/or social and cultural history contribute to understanding Middlesex County's past.

CHAPTER III COMMUNITY DEMOGRAPHICS *(Amended 4/14/15)*

Key Points

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- County population growth has met or exceeded 10 percent per decade since 1970
- A high percentage of the county's housing is seasonal housing and is thus occupied for only a part of each year.
- Although the county has a high growth rate, (74.09 percent since 1970) the region is growing faster. Population growth in the MPPDC exceeded 90.77 percent since 1970.
- In 2010, 25 percent of the county's population was of retirement age. This percentage exceeded all other nearby counties except Lancaster (31.2 percent). According to the U.S. Census the average age increased from 46.8 years of age in 2000 to 49.8 years of age in 2010.
- The economic recession has had a negative effect on the previously strong housing market. Nevertheless, almost one-half of the county's dwelling units have been constructed since 1980.
- Official population projections continue to project a growing population until 2040. However, the projected rate of County growth is much slower than historic growth rates since 1970. Of the MPPDC localities, only King William County and Gloucester County are projected to grow at a faster rate than the county over the next 20 to 30 years.
- The total number and percentage of substandard dwelling units in the county decreased dramatically between 2000 and 2010.
- The ratio of county to Virginia per capita income has decreased since 2000. The ratio of county to United States per capita income has remained stable since 2000.

Introduction

This chapter provides an analysis of a select set of population, and housing data for Middlesex County, Virginia. Data for the Commonwealth of Virginia and the Middle Peninsulas Planning District (MPPDC) area are included (when applicable) for comparative purposes. The source of most data was the 2010 Census. Statistical data provides insight into a community's characteristics at distinct points in time. By comparing multiple points in time, trends emerge. However, the statistical data itself does not provide an explanation or causation for these trends. Data interpretation and knowledge of other non-statistical community characteristics are both necessary to gain insight and draw supportable conclusions from the "numbers".

Population

Understanding a community's population trends, past, present and future, is a very important element of community planning. Population is an indicator of a demand for community services and is strongly tied to a community's land development trends and transportation/traffic characteristics. Table III-1 presents decennial U. S. Census population figures for the County from 1900 through 2010. Estimated population as of July 1, 2012 is included as well. The County population outperformed the estimated population of 10,300 in 2010 according to the Weldon Cooper Center for Public Service in 1999 and the U.S. Bureau of the Census in 2000.

Table III - 1
MIDDLESEX COUNTY, VIRGINIA
POPULATION 1900-2012

YEAR	POP.	% CHG.	YEAR	POP.	% CHG.
1900	8,220	-	1960	6,319	-5.9
1910	8,852	7.7	1970	6,295	-0.4
1920	8,157	-7.9	1980	7,719	22.6
1930	7,273	-10.8	1990	8,653	12.1
1940	6,673	-8.2	2000	9,932	14.8
1950	6,715	0.6	2010	10,959	10.34
			2012 (est.)	11,009	

***SOURCE**: U.S. Census Bureau and Estimates of Population for Virginia & its Localities, Provisional 2012 Weldon Cooper Center for Public Service, Demographics & Workforce Section http://www.coopercenter.org/demographics/virginia-population-estimates*

From 1910 to 1970 the County experienced considerable population declines most decades resulting in a loss of approximately 29 percent of its population during this sixty-year period. This declining population trend reversed radically since 1970. Since 1970 the county's population has increased approximately 75% to an estimated population of 11,009 in 2012. For each complete decade reported during this period population growth exceeded 10 percent per decade. It should be noted that a significant portion of the county's housing stock is seasonal housing that is likely vacant when the decennial census is conducted on April 1st. As discussed in the housing section of this chapter, failure to count seasonal/summer residents in the census underestimates peak county population levels.

Table III – 2 compares county and MPPDC population changes from 1950 to ***2012***. Population in the MPPDC is growing at a faster rate than Middlesex County's population during this period. Whereas the county's population comprised approximately 15 percent of the MPPDC's total population in 1950, it accounted for only 11.9 percent of the MPPDC's population in 2000. In 2010, the percentage of population relative to the MPPDC increased slightly to 12 percent. MPPDC growth rates in each complete decade between 1950 and 1990 equaled or exceeded county growth rates. Middlesex County's population grew at a slightly higher rate than the MPPDC in the period from 1990 compared to 2000 (14.8% to 14.6%) and increased at a more substantial rate in the period from 2000 compared to 2010 (10% to 8.53%). Despite the recent reversals in the overall trend, County population has increased 64% and MPPDC population has increased 105% since 1950.

Table III-2
MIDDLESEX COUNTY, VIRGINIA
POPULATION CHANGES: 1950-2012
MIDDLESEX COUNTY AND THE MIDDLE PENINSULA
PLANNING DISTRICT COMMISSION (MPPDC)

YEAR	MIDDLESEX	% CHANGE	MMPDC	% CHANGE
1950	6,715		44,624	
1960	6,319	-5.9%	45,501	2.0%
1970	6,295	-0.4%	47,609	4.6%
1980	7,719	22.6%	59,987	26.0%
1990	8,653	12.1%	73,023	21.7%
2000	9,932	14.8%	83,684	14.6%
2010	10,959	10.34%	90,826	8.53%
2012 (Est.)	11,009	.46%	91,511	.75%

***SOURCE**: U.S. Census Bureau and Estimates of Population for Virginia & its Localities, Provisional 2012 Weldon Cooper Center for Public Service, Demographics & Workforce Section,*
http://www.coopercenter.org/demographics/virginia-population-estimates

Table III-3 highlights changes in regional retirement age population since 1970. For each of the five counties listed there has been a distinct upward trend in retirement age populations up to 2000. Census data from 2010 indicates a reversal of this trend in all of the five counties except Middlesex County. When compared to Virginia and these four other counties along the Rappahannock River, the county's year 2010 25.18 percent retirement age population as a percent of total population, is greater than Virginia and three of the four counties listed. In 2010, only Lancaster County (31.20 percent) has a higher percentage of retirement age population.

TABLE III-3
MIDDLESEX COUNTY, VIRGINIA
RETIREMENT AGE POPULATION
PERCENT OF TOTAL POPULATION: 1970-2010
COUNTIES ON THE RAPPAHANNOCK RIVER

COUNTY	1970	1980	1990	2000	2010
Middlesex	17.47%	19.96%	21.96%	22.45%	25.18%
Lancaster	16.15%	21.41%	25.86%	35.70%	31.20%
Richmond	12.43%	15.12%	19.32%	22.60%	18.18%
Westmoreland	12.68%	16.30%	18.98%	25.40%	20.89%
Essex	11.33%	15.60%	17.85%	22.10%	17.36%
VIRGINIA	**7.87%**	**9.45%**	**10.74%**	**15.10%**	**12.21%**

Source: *Economic Analysis, Chesapeake Bay Foundation, 1992; U.S. Bureau of Census, 2010. Final 2012 Weldon Cooper Center for Public Service, Demographics & Workforce Section*

Table III-4 and Table III-5 on the following page highlight population projections for Middlesex County, the MPPDC and individual jurisdictions within the MPPDC for the period 2010 to 2030. These projections were prepared by the Federal government and consider such factors as birth rates, mortality rates, and migration patterns. As recently as 2009, it was anticipated that, similar to historic population trends, the MPPDC and all of the MPPDC localities would continue to grow at a faster rate than Middlesex County over the next 20 plus years. As mentioned above, it was anticipated in 2009 that the County would outstrip projections for population growth available at that time. This has turned out to be true thus far. In light of 2010 Census data, the MPPDC is still projected to grow faster than Middlesex County; however Middlesex County is projected to grow faster than the counties of King and Queen, Essex, and Mathews.

TABLE III—4
MIDDLESEX COUNTY, VIRGINIA
POPULATION PROJECTIONS: 2020–2040
MIDDLESEX COUNTY AND THE MPPDC

YEAR	MIDDLESEX		MPPDC	
	Number	Cumulative Change (%)	Number	Cumulative Change (%)
2010	10,959		90,826	
2020	11,684	6.61%	97,061	6.87%
2030	12,300	12.24%	102,761	13.14%
2040	12,851	17.26%	108,028	18.94%

***Sources**: Weldon Cooper Center for Public Service, 2012,* http://www.coopercenter.org/demographics/virginia-population-projections*; U.S. Bureau of the Census, 2010.*

TABLE III—5
MIDDLESEX COUNTY, VIRGINIA
POPULATION PROJECTIONS: 2020–2040
MIDDLESEX COUNTY AND THE MIDDLE PENINSULA
PLANNING DISTRICT COMMISSION (MPPDC)

YEAR	KING AND QUEEN		MATTHEWS		MIDDLESEX	
	Number	Cumulative Change %	Number	Cumulative Change %	Number	Cumulative Change %
2010	6,945		8,978		10,959	
2020	7,219	3.95%	9,284	3.41%	11,684	6.61%
2030	7,466	7.50%	9,680	7.82%	12,300	12.24%
2040	7,690	10.73%	10,067	12.13%	12,851	17.26%

YEAR	ESSEX		KING WILLIAM		GLOUCESTER	
	Number	Cumulative Change %	Number	Cumulative Change %	Number	Cumulative Change %
2010	11,151		15,935		36,858	
2020	11,884	6.57%	17,308	8.62%	39,681	7.66%
2030	12,479	11.91%	18,316	16.82%	42,520	15.36%
2040	13,007	16.64%	19,191	20.43%	45,222	22.69%

***SOURCE**: Virginia Employment Commission: State Data Center, 2006; U.S. Bureau of the Census, 2010.*

Table III - 6 contains age distribution data for the county's population for the years 1990, 2000 and 2010. Generally, the data for these two years show a decrease in the percentage of county residents who are younger than 44 years old and an increase in the percentage of county residents who are 44 years and older. The greatest changes are seen in the 35 to 44 and 65 to 74 age cohorts. The percentage of county residents 35 to 44 decreased from 13.9 percent to ~~9~~ 10 percent between 2000 and 2010. Conversely, the 65 to 74 age cohort saw an increase from 12.5 percent to 14.7 percent during this same period.

TABLE III-6
MIDDLESEX COUNTY, VIRGINIA
AGE DISTRIBUTION OF POPULATION BY AGE COHORT 1990, 2000, 2010

	1990		**2000**		**2010**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Population	**8,653**	**100.0%**	**9,932**	**100.0%**	**10, 959**	**100.0%**
Sex and Age						
Male	4,166	48.1%	4,773	48.1%	5466	49.9%
Female	4,487	51.9%	5,159	51.9%	5493	50.1%
Under 5 years	493	5.7%	375	3.8%	436	4.0%
5 to 9 years	519	6.0%	525	5.3%	488	4.5%
10 to 14 years	502	5.8%	657	6.6%	477	4.4%
15 to 19 years	426	4.9%	527	5.3%	589	5.4%
20 to 24 years	388	4.5%	334	3.4%	474	4.3%
25 to 34 years	1,157	13.4%	890	9.0%	883	8.0%
35 to 44 years	1,096	12.7%	1,385	13.9%	1093	10.0%
45 to 54 years	1,029	11.9%	1,515	15.3%	1821	16.6%
55 to 59 years	526	6.1%	828	8.3%	943	8.6%
60 to 64 years	627	7.2%	666	6.7%	995	9.1%
65 to 74 years	1,087	12.6%	1,242	12.5%	1613	14.7%
75 to 84 years	617	7.1%	740	7.5%	838	7.6%
85 years & over	196	2.3%	248	2.5%	309	2.8%

***Source**: U.S. Bureau of Census, Census of Population, 2000 and 2010*

As further evidence of an aging county population, the average age of the citizenry increased from 46.8 years of age in 2000 to 49.8 years of age in 2010 according to the U.S. Census.

Housing

New housing starts are a good indicator of a community's economic health. Housing is constructed in response to demand – a demand created primarily by population growth. Table III -7 on the following page displays total number of housing units in the county by year built. A total of 8,408 housing units existed in the county at the end of 2012. This figure was derived from a combination of Weldon Cooper information for the County, Middlesex County Building Department records, and data presented as part of the 2009 Middlesex County Comprehensive Plan. Therefore, the numbers are not a match with the U.S. Census figure of 7,133 housing units in 2010. Nevertheless, the figures provide a good indicator of the relative ages of the County's housing stock by decade since 1940 and pre-1940.

Of the 8,408 housing units, over one-third of the county's total housing units were constructed pre-1970. From 1970 to 2000 there was a general upward trend in the number of housing units constructed each decade. This trend corresponds to increased rates of increase in the county's population (See Table III-1) as well as the aging of older housing stock. Close to half of the county's housing stock (49.52 percent) has been built since 1980 and is less than thirty five years old.

For the last complete decade (2000-2010) over 1300 new dwelling units were constructed representing nearly 16 percent of the county's total 2012 housing stock. This represents a decrease from the 1,501 housing units constructed between 1990 and 1999. This decrease is a result of the collapse in the real estate market beginning around 2007, which led to less than 80 housing starts per year between the years 2008-2010. These are the only years since 1990 in which constructed housing units were less than 112.

TABLE III-7
MIDDLESEX COUNTY, VIRGINIA
YEARS HOUSING UNITS BUILT: PRE 1940-2012

YEAR BUILT	NUMBER	% OF TOTAL
2010-2012	163	1.94%
2000 -2009	1,344	15.98%
1990-1999	1,501	17.85%
1980-1989	1,156	13.75%
1970-1979	1,335	15.88%
1960-1969	959	11.41%
1950-1959	648	7.71%
1940-1949	454	5.40%
Pre-1940	934	11.11%
Demolished Since 2008	(86)	-1.02%
TOTAL	**8,408**	**100.00%**

***Sources**: Weldon Cooper Center for Public Service, Annual Residential Building Permits, TMH Associates Data for the 2009 Middlesex County Comprehensive Plan, Middlesex County, VA Building Department records.*

Table III–8 presents 1990 through 2010 county data on the number and percentage of county dwelling units that were considered substandard by the census bureau. Substandard units lack complete plumbing, a complete kitchen, or a telephone. This data continues to indicate a trend of substantial decreases in the number and percentage of substandard dwelling units in the county. In 1990, 11.4 percent of the county's dwelling units were considered substandard. Between 1990 and 2000, the total number of substandard units in the county decreased over 70 percent from 626 units to 184 units, or 2.6 percent of the county's dwelling unit inventory. In 2010, the number of substandard units had decreased again to 89 units, all attributable to the lack of a telephone. This decrease could be attributed to demolitions, dwelling unit upgrades, and/or the construction of new units in the county. As cell phone coverage continues to improve, additional homes not necessarily substandard may abandon "land line" phones in favor of cell phones. As such, this variable may not be the indicator in the future that it has historically been in determining whether a house is substandard.

TABLE III-8
MIDDLESEX COUNTY, VIRGINIA
SUBSTANDARD HOUSING: 1990-2010

	1990 CENSUS		**2000 CENSUS**		**2010 CENSUS**	
	#	**% OF TOTAL**	**#**	**% OF TOTAL**	**#**	**% OF TOTAL**
Number lacking a Telephone	265	4.8%	119	1.9%	89	1.25%
Number lacking complete plumbing	195	3.6%	42	.67%	0	0%
Number lacking a complete kitchen	166	3.0%	23	.37%	0	0%

Source: *U.S. Bureau of Census, Census of Population, 2000 and 2010.*

Dwelling unit use data is presented in Tables III-9, III-10, and III-11. Table III-9 highlights the percentage of vacant and seasonal housing in the county in 1990, 2000, and 2010. In 1990, close to 29 percent of the county's housing stock was considered seasonal. In 2000, this figure was a comparable 25.6 percent. In 2010, the percentage was at 27.16, an increase of 1.6% in seasonal housing. Thus the seasonal housing percentages are remaining fairly consistent as a percentage of housing overall. By comparison, Table III-10 shows that in 2010, 11.71 percent of the dwelling units in Essex County, an increase of .67 percent from 2000 to 2010. In Lancaster County, 18.48 percent of the dwelling units were considered seasonal, an increase of 4.08 percent from 2000 to 2010. Middlesex County continues to have a high percentage of seasonal housing compared to these other counties.

Table III-9 presents the percentage of the county's housing stock that was classified by the census bureau as vacant. This data shows the percentage of vacant units rose slightly between 1990 and 2000, increasing from 6.9 percent in 1990 to 7.5 percent in 2000. Figures for 2010 indicate a sharp climb in vacant homes to 12.72 percent, accelerating a trend towards higher percentages in housing vacancy over the twenty year period from 1990 to 2010. As Table III-11 indicates, the higher figure for 2010 is attributable to significant increases in each category of housing vacancy, with the most notable increase numerically in the category of "Other Vacant" housing.

TABLE III-9
MIDDLESEX COUNTY, VIRGINIA
HOUSING UNIT USE: 1990, 2000, & 2010

	1990	% OF TOTAL	2000	% OF TOTAL	2010	% OF TOTAL
Occupied Housing Units	3,530	64.30%	4,253	66.90%	4708	66.00%
Vacant Housing Units	378	6.90%	483	7.50%	907	12.72%
Seasonal Housing Units	1,578	28.80%	1,626	25.60%	1937	27.16%
TOTAL	**5,486**	**100.00%**	**6,362**	**100.00%**	**7133**	**100.00%**

SOURCE: U.S. Bureau of Census, Census of Population, 1990, 2000, 2010.

TABLE III- 10
MIDDLESEX COUNTY, VIRGINIA
PERCENT SEASONAL HOUSING UNITS
OF TOTAL HOUSING UNITS: 1970-2010

COUNTY	1970	1980	1990	2000	2010
Middlesex	22.48%	29.11%	28.76%	25.56%	27.16%
Essex	10.02%	15.41%	14.14%	11.04%	11.71%
Lancaster	5.74%	11.67%	13.25%	14.51%	18.48%
Richmond	4.26%	7.38%	9.50%	7.97%	6.99%
VIRGINIA	**0.59%**	**1.10%**	**NA**	**1.88%**	**2.39%**

***Source**: Economic Analysis, Chesapeake Bay Foundation, 1992; U.S. Bureau of the Census, 2000, 2010.*

TABLE III- 11
MIDDLESEX COUNTY, VIRGINIA
BREAKDOWN OF VACANT HOUSING UNITS BY NUMBER AND PERCENTAGE OF TOTAL HOUSING UNITS: 2000 - *2010*

	2000	% OF TOTAL HOUSING	2010	% OF TOTAL HOUSING
Housing Units For Rent	42	.66%	65	.91%
Housing Units For Sale	90	1.41%	145	2.03%
Housing Units Rented or Sold	45	.71%	127	1.77%
Migrant Worker Housing	6	.09%	36	.50%
Other Vacant	300	4.72%	534	7.46%
TOTAL	**483**	**7.50%**	**907**	**12.72%**

***Source**: U.S. Bureau of the Census, 2000, 2010.*

Table III-12 on the following page reports housing values in the county in 2000 and 2010. In 2000, close to 40 percent of the housing stock in the county had a value of less than $100,000, and 60 percent had a value of less than $150,000. Only 6 percent of the county's housing stock had a value of greater than $300,000 in this year.

In 2010, only 10.52% of the housing stock in the county had a value of less than $100,000 and 23.02 percent had a value of less than $150,000. The percentage of the county's housing stock having a value of greater than $300,000 in 2010 grew to 42.73 percent.

This increase in housing values from 2000 could be attributable to demolitions, dwelling unit upgrades, and/or the construction of 1,095 new units in the county since 2000. Other factors could be the larger pool of homes considered for 2010 (3,489 in 2010 versus 2,619 in 2000), and increases in the value of homes outstripping value losses after the real estate market collapse around 2007.

TABLE III-12
MIDDLESEX COUNTY, VIRGINIA
OWNER-OCCUPIED HOUSING VALUES: 2000, 2010

VALUE RANGE	NUMBER 2000	% OF TOTAL HOUSING	NUMBER 2010	% OF TOTAL HOUSING
Less than $50,000	141	5.4%	120	3.44%
$50,000 to $99,999	892	34.1%	247	7.08%
$100,000 to $149,999	544	20.8%	436	12.50%
$150,000 to $199,999	474	18.1%	438	12.55%
$200,000 to $299,999	408	15.6%	757	21.70%
$300,000 to $399,999	135	5.2%	760	21.78%
$500,000 to $599,999	19	0.7%	566	16.22%
$1,000,000 or more	6	0.2%	165	4.73%
TOTALS	**2,619**	**100.0%**	**3,489**	**100.0%**

Source: *U.S. Bureau of Census, Census of Population, 2000, 2010.*

CHAPTER IV COMMUNITY FACILITIES AND SERVICES

Introduction

This chapter presents a brief overview of major Middlesex County community facilities and services. Several key community facility concepts are important. First, adequately funding community facilities is a key to providing effective services. Second, the location and timing of planned community facilities can have a major impact on land use patterns, and third, community facilities and services are the visible "face of government" – citizens equate the quality of government with the quality of the facilities they see and the services they use..

At the community meetings held as a part of the preparation of this plan, citizens often focused on issues relating to community facilities and services when describing the strengths and weaknesses of the county. Where applicable, these citizen perspectives are summarized in Chapter V of this plan

All capital facilities referenced in this chapter are shown on Map IV-3 located at the end of this chapter, or on individualized maps that highlight the location of specific facilities

Administrative Facilities

The county's main administrative facilities are located at the historic courthouse complex in Saluda. Most county departments are at this location with the exception of the School Board central offices and the Social Service department which are located in the Cooks Corner complex. Renovations to the old courthouse building and the Woodward Building within the complex have been programmed as a county CIP project beginning in FY 09. These improvements include addressing the space needs of the Electoral Board, creating an emergency operation center and addressing the accessibility deficiencies of both buildings.

Airports

The county owns and operates Hummel Airfield, a general aviation facility. The airport is located on State Route 3 near the Rappahannock River. This facility has a 2100 foot paved runway, fuel and tie-downs facilities. A current capital project at the airport is the construction of a ten unit T-Hanger for the protected storage of private aircraft. The county's current CIP allocates $385, 000 for this hanger and associated taxiways.

Passenger and other commercial aviation services are available to county residents at the Richmond International Airport in Richmond, Virginia or at the Williamsburg/Newport News Airport (Patrick Henry Field) in Newport News Virginia.

Animal Control

The county funds and operates a county animal control department, The department, staffed by two animal control officers, provides a full range of animal control services for County citizens. Dispatch for the department is handled by the Middlesex County

Sheriff Department. A new animal shelter was opened in 2006. This facility is located at the Cooks Corner property. It is owned and operated by the county and has a capacity to accommodate approximately 20+ animals.

Boat Landings/Water Access

Lack of public access points to the shorelines that define the shape and character of the County was a weakness identified by county citizens. Water access that does exist is in the form of boat landings in various parts of the County The Virginia Department of Game and Inland Fisheries manage four public boat ramps within the county. These facilities provide some specialized recreational access to the water resources that border the county. Two of these facilities are along the Rappahannock River; one in Saluda and one near the Mill Creek area of the county. The third facility is located along Parrotts Creek in the Water View area of the county, and the fourth facility is along the Piankatank River off of State Route 630 near Camp Piankatank. Each of the four facilities has a single concrete ramp. The Saluda facility also has a pier.

There are also four additional water access/public landings in the county. Their locations are as follows:

SR 621 – Locklies Creek
SR 634 – Whiting Creek
SR 636 – Broad Creek
SR 645 – Meachim Creek

Emergency Services

Four independent volunteer fire departments are located in the county. These facilities are located in Urbanna, Deltaville, Hartfield, and Waterview. Volunteer rescue squads are located in Urbanna, Hartfield and Deltaville. Attracting and retaining sufficient numbers of emergency service volunteers is a challenge for Middlesex County and many other rural and small communities that have historically relied on volunteers. Changing community demographics and workforce patterns have reduced the pool of individuals available to volunteer for these critical positions. Communities facing these challenges have extensive volunteer recruiting campaigns. When paid personnel do become a public safety necessity they are often integrated into the volunteer stations, providing assistance at critical/peak shifts or locations

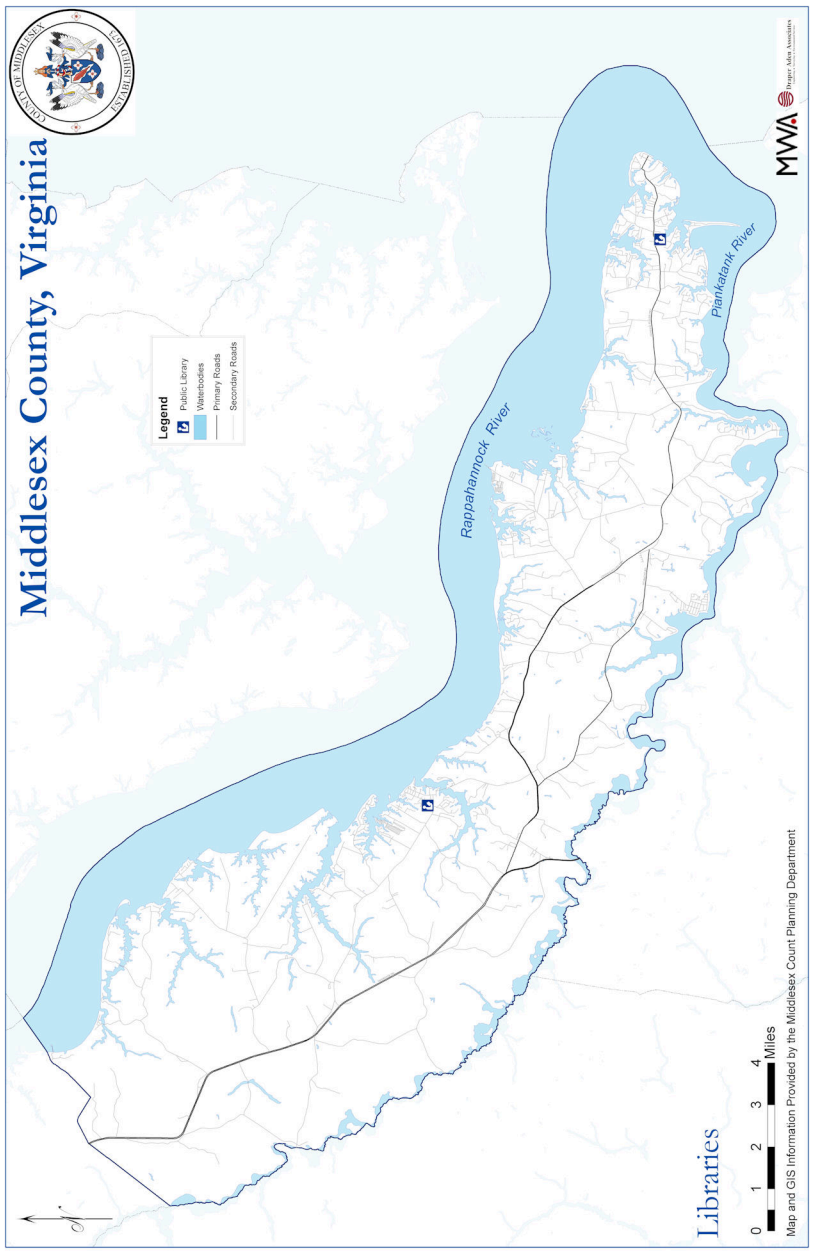
Library

The Middlesex County Library was formed in 1987 with the merger of two independent libraries located in Urbanna and Deltaville. (See Map IV- 1) It is one of eleven independent public libraries in Virginia. Together the branches at Urbanna and Deltaville house a collection of more than 36,000 items including rare books, an extensive collection on the history of Middlesex County, children's books, and audio and video tapes. Total circulation at both library branches currently exceeds 60,000 items per year, and there are, on average, over 40,000 annual patron visits at the two branches.

Museums

Three museums are located in the County, - the Middlesex County Museum in Saluda, the Old Tobacco Warehouse Museum in Urbanna, and the Deltaville Maritime Museum in Deltaville. (See Map IV- 3)

Map IV-1


Middlesex County, Virginia
Legend
Public Library
Waterbodies
Primary Roads
Secondary Roads
Rappahannock River
Piankatank River
Libraries
0 1 2 3 4
Miles
Map and GIS Information Provided by the Middlesex Count Planning Department
MWA

The Middlesex County Museum is located across from the Courthouse Square in Saluda. The museum was the first county museum in Virginia and opened in 1941 as a Federal Art Project by the Works Projects Administration (WPA). The museum contains interesting Indian relics found in the County as well as tools, household articles, books, clothing, and other items. In 1975, the County provided the Old Clerk's Office for a museum as part of the Bicentennial celebration. The Middlesex County Museum is now located on Business Rt. 17 within walking distance from the Courthouse Square.

The Old Tobacco Warehouse Museum in Urbanna is on the National and Virginia historic landmarks registries. It is owned by the town of Urbanna. The town renovated the warehouse into a museum and tourism information center in 2003 with an enhancement grant award through the Virginia Department of Transportation.

The Deltaville Maritime Museum is located at the Holly Point Nature Park on Jackson Creek Road in Deltaville. The museum is dedicated to preserving the boat building heritage of Middlesex County and the Chesapeake Bay region, along with the historical traditions and character of the supporting water related community, by means of ongoing projects, preservation of artifacts, and perpetuation of the legacy of the elders of the community for the coming generations.

Parks and Recreation

County parks and recreation facilities include the Locust Hill sport complex, the gymnasium at Cooks Corner complex, and the Holly Point Nature Park in Deltaville. County residents also benefit from facilities operated by the school board, and the town of Urbanna. Private facilities such as the YMCA offer recreation choices for county residents, and local recreation/sport clubs create league play opportunities.

Regional Jail

Middlesex County is a member of the Middle Peninsula Regional Jail Authority. Mathews, Essex, King William, and King and Queen Counties are the other members of the authority. The authority operates the Middle Peninsula Regional Security Center located in Saluda. (See Map IV - 3) This facility was designed to accommodate a continuum of inmate categories from work release to maximum security. This regional facility currently has approximately 120 beds and can be expanded to a capacity of approximately 240 beds.

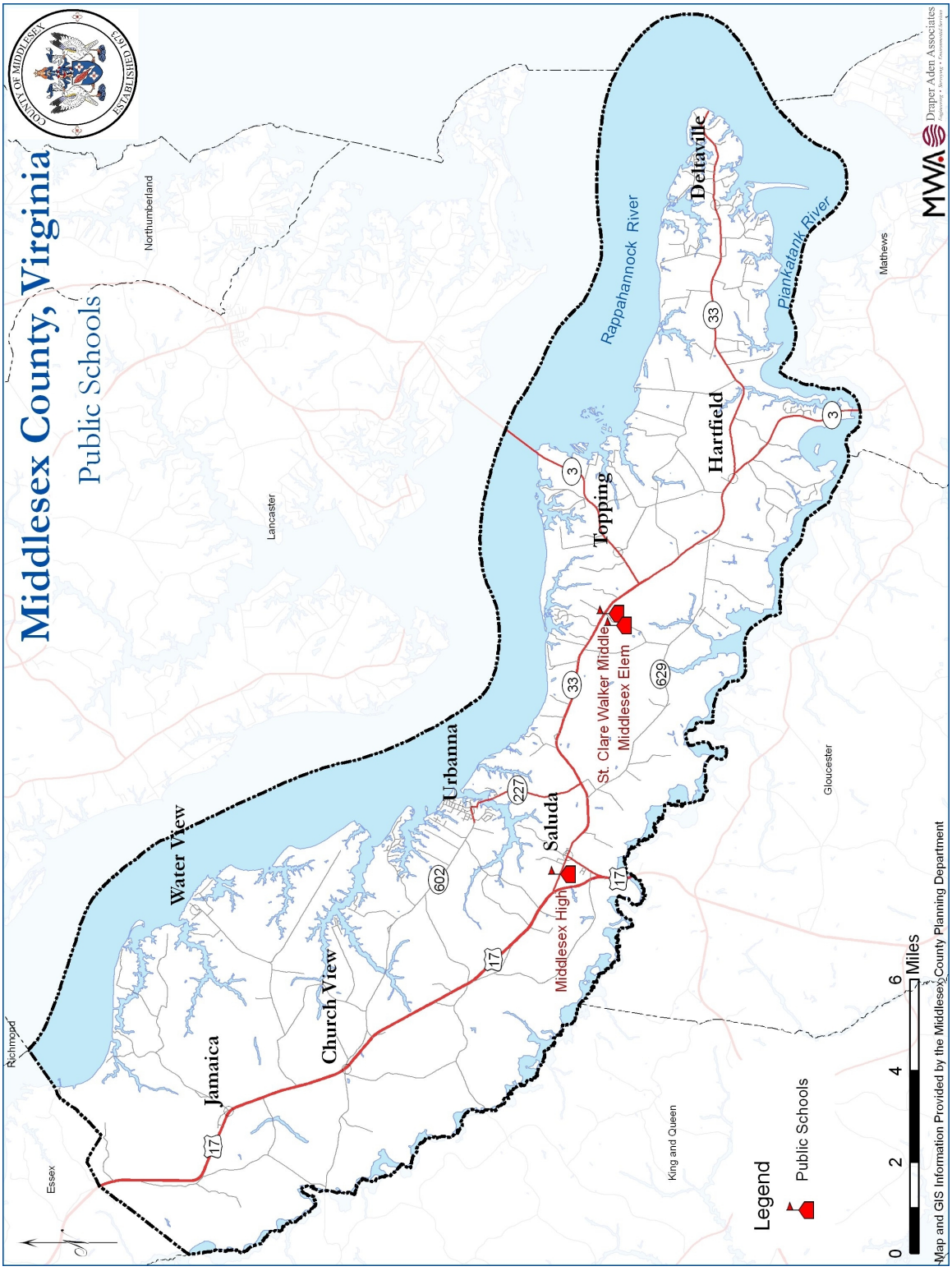
Schools

County citizens had praise for the quality of county schools and the quality of education their children receive. The Middlesex County School Board operates a three school system comprised of a high school, a middle school, and an elementary school. Student enrollment at the three schools was approximately 1285 students in the Fall of 2007.

There are approximately 120 teachers in the three schools. The newest school in the system is the Middlesex Elementary School (Pre K-5), which opened in September 2002. St. Clare Walker Middle School accommodates grades 6-8 and is 11 years old. Map IV-2 shows the location of the three schools and the school board's central office at the Cooks Corner Office Complex in Saluda.

Official Weldon Cooper projections project that average enrollment within the school system will decline to an average of 1211 students by FY2011.

Map IV-2


Middlesex County, Virginia
Public Schools
Northumberland
Lancaster
Richmond
Essex
King and Queen
Gloucester
Mathews
Rappahannock River
Piankatank River
Water View
Jamaica
Church View
Urbanna
Saluda
Topping
Hartfield
Deltaville
Middlesex High
St. Clare Walker Middle
Middlesex Elem
17
602
227
33
629
3
Legend
Public Schools
0
2
4
6
Miles
Map and GIS Information Provided by the Middlesex County Planning Department
MWA
Draper Aden Associates

The County's CIP lists a number of school related capital projects for FY 08 – FY12. These projects include athletic field development at the elementary and middle schools, and East Wing, classroom and gym renovations at the high school.

Middlesex County also participates in the Chesapeake Bay Governor's School for Marine and Environmental Sciences. The school has campuses in Warsaw, Glenns, and Bowling Green, Virginia, and serves, on a competitive basis, Middle Peninsula and Northern Neck students who excel in math and the sciences.

Sheriff

The Middlesex County Sheriff Department has major responsibilities in the areas of civil process, court security, law enforcement and crime prevention. These responsibilities are carried out with a staff of approximately 30 sworn officers and administrative staff to support the departments operations. The department offices are located in Saluda. (See Map IV-3)

The county's Capital Improvement Plan (CIP) has programmed funding to construct a 4,400 square foot addition to the department's facilities. This additional space is required to meet additional service demand levels, address security requirements, enhance magistrate facilities and to meet national accreditation requirements. A total project cost of 1.6 million dollars is anticipated over a three year period beginning in FY 09.

Solid Waste Disposal

Prior to October 1993 the County disposed of its solid waste in a 60 acre county-owned and operated sanitary landfill. Federally mandated regulations requiring that landfills comply with new and expensive requirements stipulating landfill design, operating, closure and monitoring have forced many communities, including Middlesex County, to close their landfills. The Middlesex County landfill was closed and secured in December of 1993.

Middlesex County thereafter joined Essex, Gloucester, James City, King William, Mathews, and York counties and the City of Williamsburg to form the Virginia Peninsula Public Service Authority (VPPSA) The VPPSA does not offer curbside residential pick-up to county residents. Rather, Middlesex County residents deposit their sorted refuse into dumpsters located in improved and manned community refuse collection sites, known as Convenience Centers located in several areas of the county. The deposited material is then trucked to a transfer station, compacted and loaded into larger hauling vehicles for disposal at a nearby regional landfill meeting federal standards.

Water and Wastewater Facilities

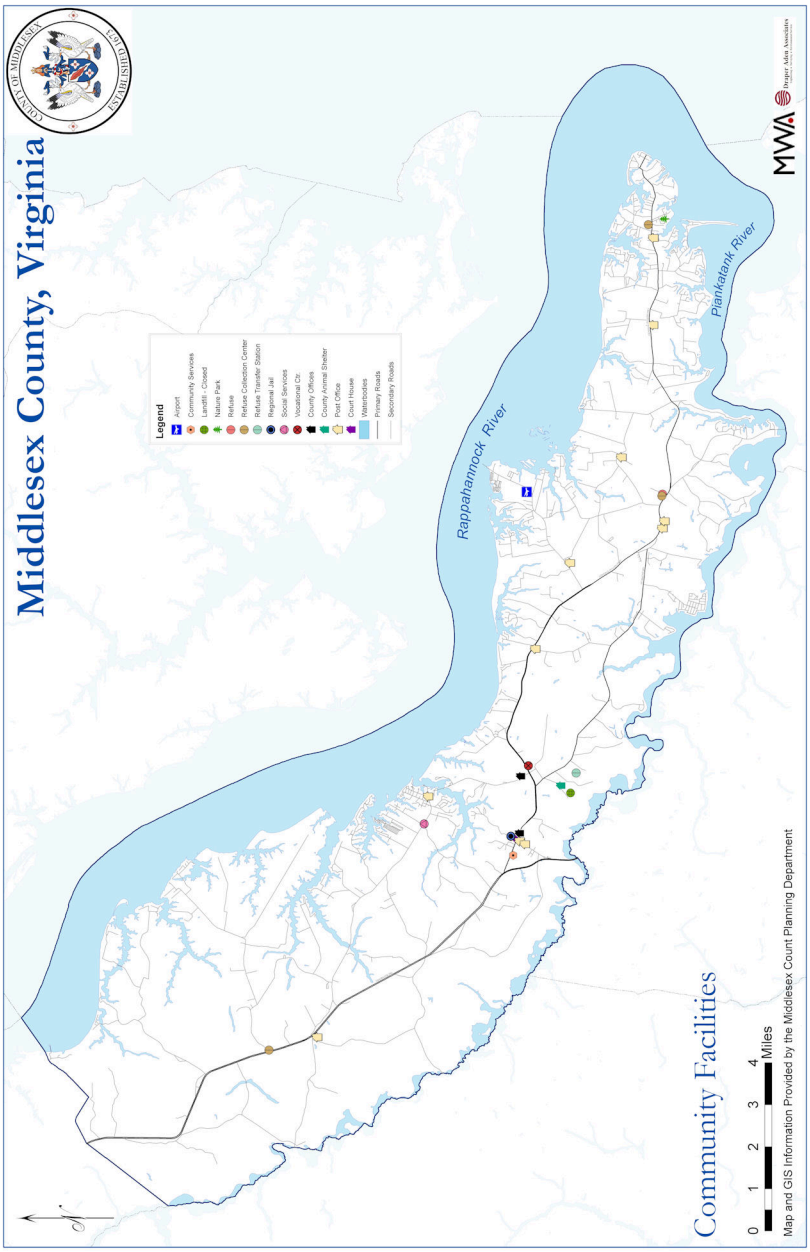
The Town of Urbanna operates a public centralized water system. Two public wells supply a 250,000 gallon water tower which provides the capacity and pressure to serve

town residents and some areas in the county outside the town's limits. The Hampton Roads Sanitation District manages Urbanna's wastewater treatment system. The sewage treatment plant discharges to Urbanna Creek. Any expansion of the Urbanna systems into the county should be consistent with the growth management objectives contained in this plan

Most property owners in the county do not have access to a centralized water supply or centralized wastewater facilities. Although there are several centralized privately owned water and sewer systems in the county,(e.g., Saluda's water system); most developed property in the county is served by private wells, and private septic-type systems regulated by the Virginia Department of Health. However, improved technology has resulted in the Health Department approving an increasing number of individual onsite treatment facilities and alternative septic systems. The approval and use of these systems allows the development of land that may have previously been undevelopable due to natural land characteristics.

Middlesex County does not currently own or operate any public water or wastewater systems. However the county is planning to construct a 40,000 gallon per day sewage treatment plant in Saluda. This facility will serve the new courthouse facility, meet immediate needs in the courthouse area and have capacity to serve the general Saluda area. The county CIP has identified a total of 4.4 million dollars for this project with initial funding beginning in FY 2009.

Map IV-3


Middlesex County, Virginia
Community Facilities
Rappahannock River
Piankatank River
Legend
Airport
Community Services
Landfill - Closed
Nature Park
Refuse
Refuse Collection Center
Refuse Transfer Station
Regional Jail
Social Services
Vocational Ctr
County Offices
County Animal Shelter
Post Office
Court House
Waterbodies
Primary Roads
Secondary Roads
0 1 2 3 4 Miles
Map and GIS Information Provided by the Middlesex Count Planning Department
MWA

CHAPTER V COMMUNITY ECONOMICS *(Amended 4/14/15)*

Key Points:

• Most employers in the county are small businesses. Over 93 percent of county businesses employ-19 or less employees.

• Transportation and warehousing jobs in the county pay the highest average weekly wage – accommodation and food service jobs the lowest

• Thirty-six percent of the county's labor force leaves the county each day for work

Introduction
Economic development activities that result in new investment create wealth in a community. A community's wealth can be in many different forms. For example, the income earned by Middlesex County residents, the employment opportunities available in the county, local business investment in capital, the value of real estate, and even taxes paid for essential and desired public services, can all be seen as forms of community wealth.

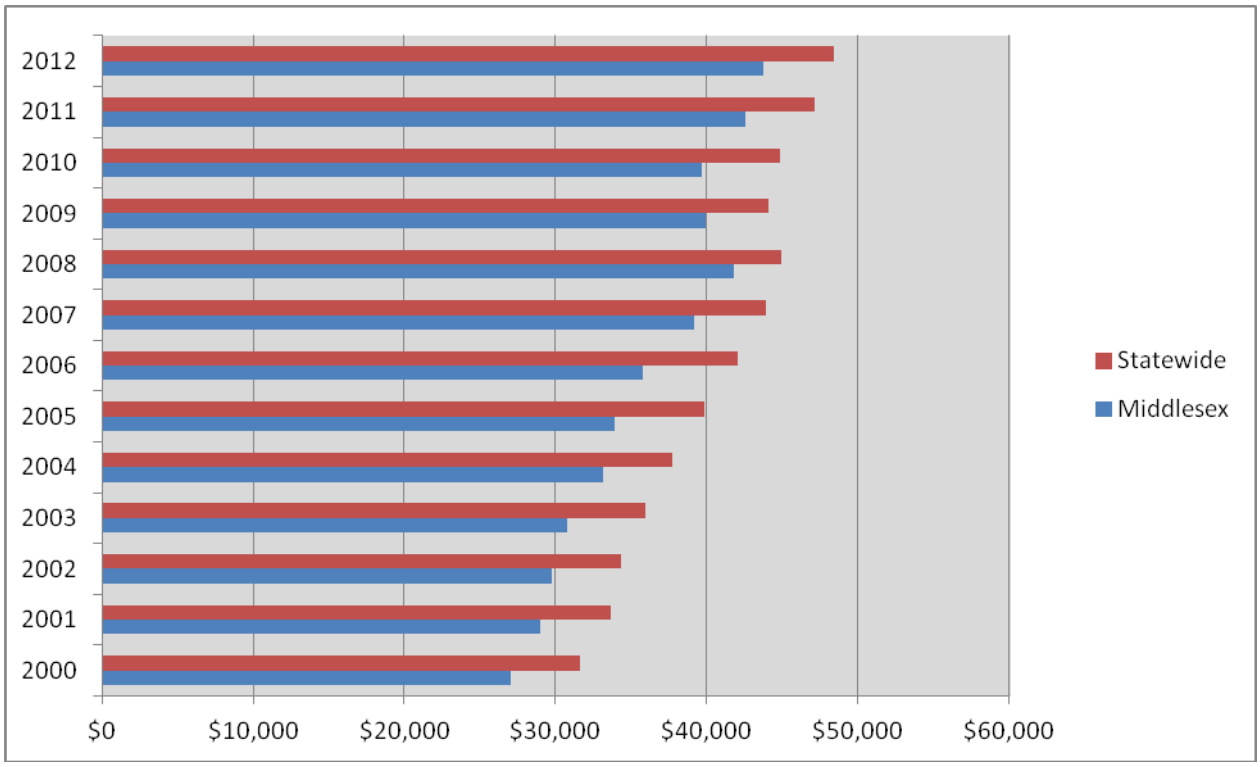
"Basic" economic growth – growth that results in new money being invested or spent in a community is the most beneficial form of economic activity. Industries that export their products or services promote basic economic growth. Tourism and certain services such as marine repair are local examples of basic economic activities for they result in new money being invested in a community

Middlesex County has a varied economic base that focuses on agriculture, tourism, and service commercial activities. A varied local economy is the best way to promote a stable, healthy economy and a high quality of life in the community.

Income and Employment

Figure V-1 presents a comparison of per capita income for Middlesex County and Virginia for the years 2000 through 2012. In each of the reported years Virginia per capita income exceeded county per capita income. This income gap remained stable during the period from 2000 to 2006 with county per capita income being approximately 84 to 85 percent of Virginia's in each of those seven years. Since 2006, county per capita income has fluctuated between 88 to 91 percent of Virginia's.

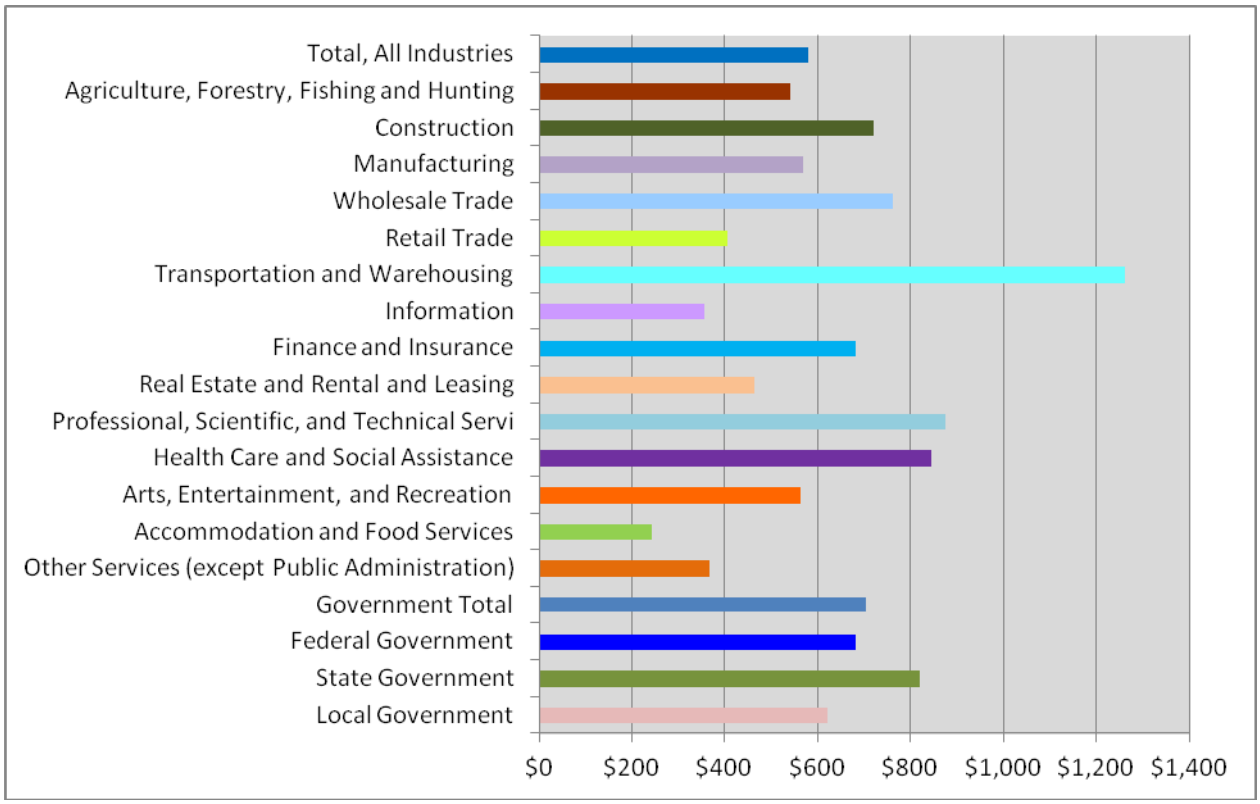
FIGURE V-1
MIDDLESEX COUNTY, VIRGINIA
PER CAPITA INCOME: 2000-2012



Source: *U.S. Department of Commerce, Bureau of Economic Analysis.*

Transportation and warehousing jobs paid the highest average weekly wage in the county in 2013. -As shown on Figure V-2, these wages were $1,259 per week. Wages paid by professional, scientific and technical service jobs were the next highest category and exceeded an average weekly wage of $850. Health care and social assistance were close behind with an average weekly wage of $842. The lowest wages were paid by the accommodation and food service sector, waste services industries (See: Other Services – except Public Administration), and retail trade businesses.

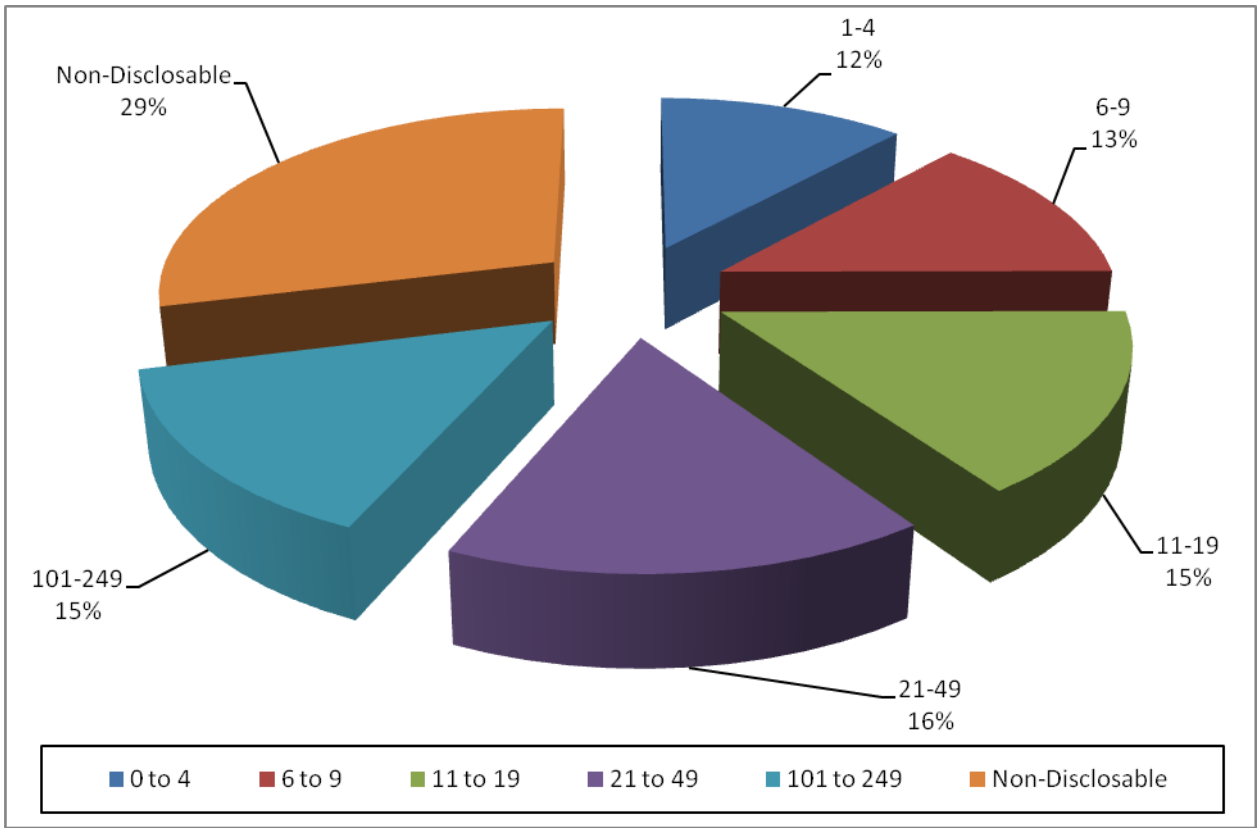
FIGURE V-2
MIDDLESEX COUNTY, VIRGINIA
AVERAGE WEEKLY WAGE BY INDUSTRY: 2013



***Source**: Virginia Employment Commission, Quarterly Census of Unemployment and Wages (QCEW), 2nd Quarter (April, May, June) 2013.*

Figure V-3 is a pie chart representing total employment by size of establishment. It shows that 12 percent of the county's total employment is at business establishments that employ between 1 to 4 persons. At least 40 percent of the county's total employment is at business establishments that employ no more than 19 persons. This figure is likely higher when the high percentage of non-disclosable information is taken into account. Fifteen percent of the county's total employment is at establishments that employ between 100 and 249 persons, the largest establishment size reported.

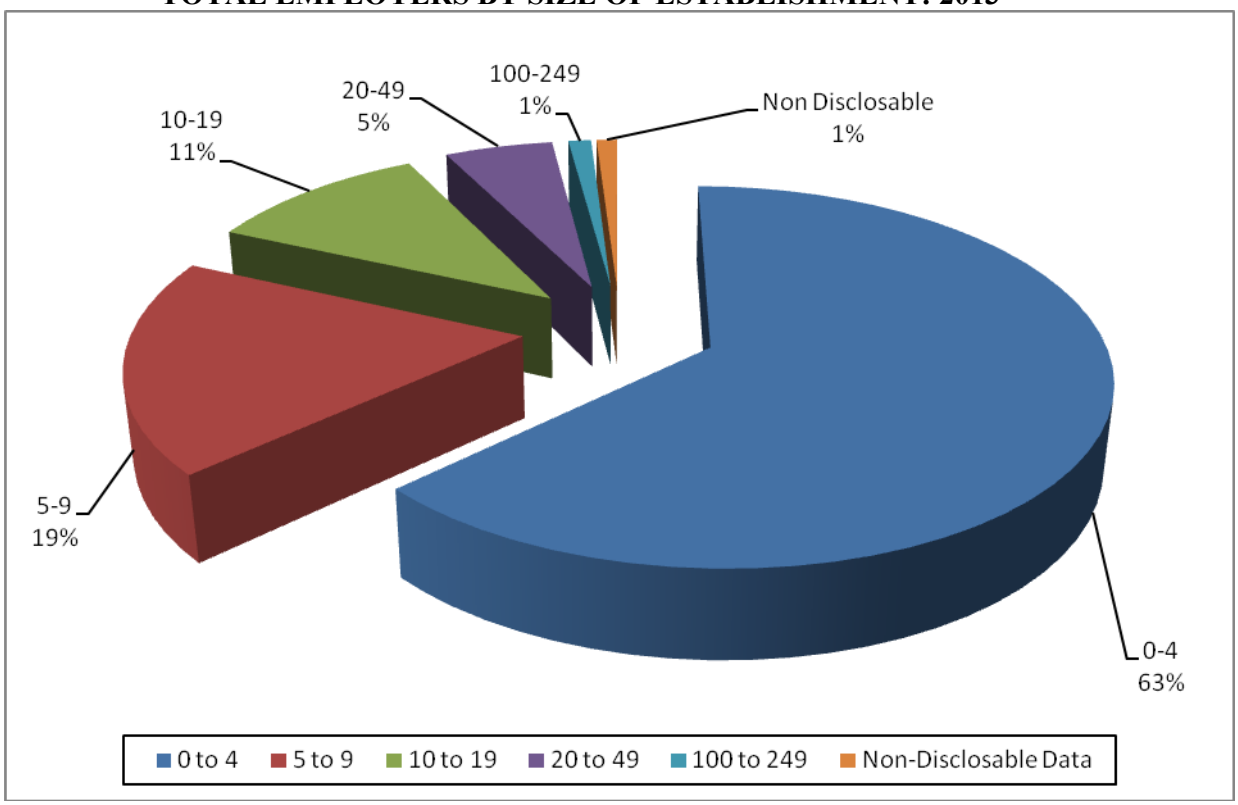
FIGURE V-3
MIDDLESEX COUNTY, VIRGINIA
TOTAL EMPLOYMENT BY SIZE OF ESTABLISHMENT: 2013



***Source**: Virginia Employment Commission, Quarterly Census of Unemployment and Wages (QCEW), 2nd Quarter (April, May, June) 2013.*

Figure V-4 reports total employers by size of establishment. A majority of county employers (63 percent) employ between 1-4 persons. Only 7 percent of county employers employ over 20 persons.

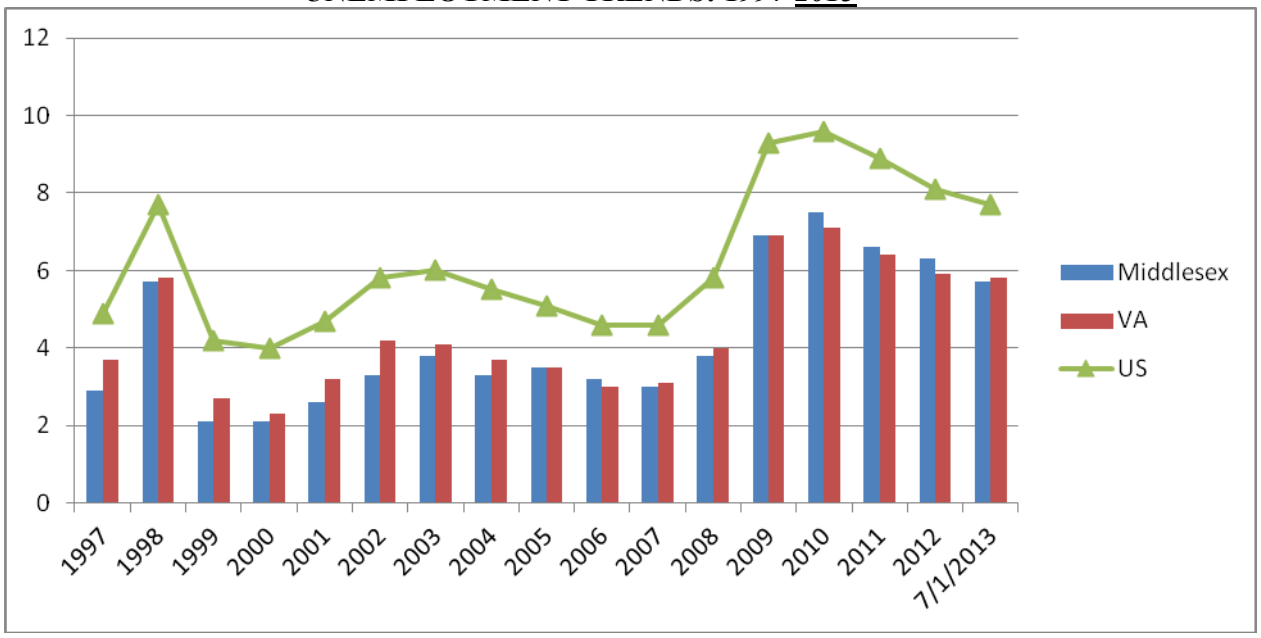
FIGURE V-4
MIDDLESEX COUNTY, VIRGINIA
TOTAL EMPLOYERS BY SIZE OF ESTABLISHMENT: 2013



***Source**: Virginia Employment Commission, Quarterly Census of Unemployment and Wages (QCEW), 2nd Quarter (April, May, June) 2013.*

Figure V-5 looks at trends in unemployment rates for the county, Virginia and the United States for a sixteen year period. During this period, the unemployment rates for each entity generally rose and fell in tandem. However, for each of the reported years up until 2009, the county's average annual unemployment rate was significantly less than that for Virginia or the United States. Since 2009, the county's annual unemployment rate has been equal to or slightly above the statewide figure by 0 to .4 percent. The county's unemployment has remained significantly below the United States as a whole.

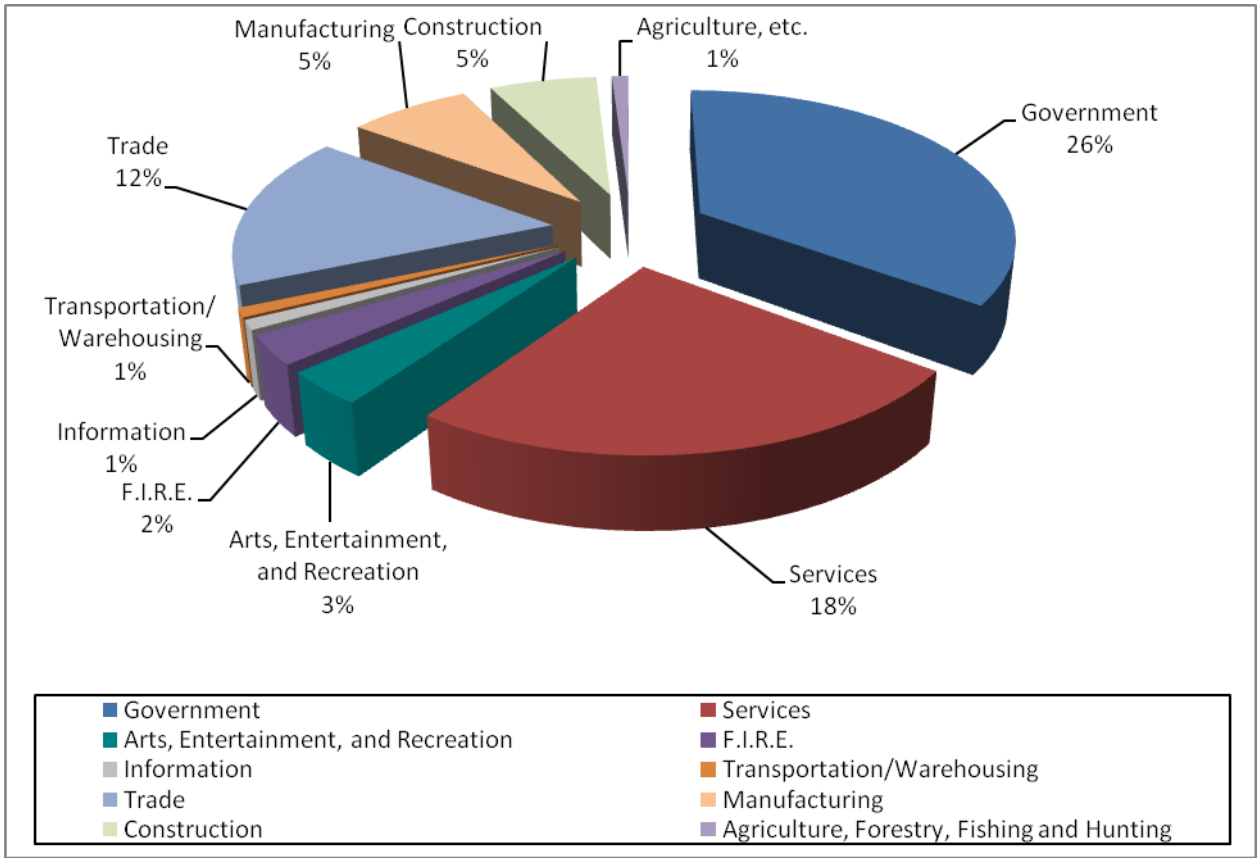
FIGURE V-5
MIDDLESEX COUNTY, VIRGINIA
UNEMPLOYMENT TRENDS: 1997-*2013*



***Source**: Bureau of Labor Statistics, Local Area Unemployment Statistics.*

Figure V-6 highlights county employment by industry sector. Government is the largest employment sector in the county, employing 26 percent of the labor force. The service industry is the next largest with 18 percent of the labor force followed by the trade sector (12 percent) and the manufacturing and construction sectors (each at 5 percent). Manufacturing employment was down from 7 percent to 5 percent of the county's labor force in 2013.

FIGURE V-6
MIDDLESEX COUNTY, VIRGINIA
EMPLOYMENT BY INDUSTRY: 2013



NOTE: *F.I.R.E. is an abbreviation for Finance, Insurance, Real Estate*
***Source**: Virginia Employment Commission, Quarterly Census of Unemployment and Wages (QCEW), 2nd Quarter (April, May, June) 2013.*

Agricultural workers comprise only 1% of the county's labor force. A comparison of the 2002, 2007, and 2012 Census of Agriculture reveals certain agricultural trends. Over a ten year period the number of farms in the county decreased 28% while the average size of a county farm increased 25% percent. The total value of Middlesex County agricultural products increased 116% between 2002 and 2012 to 11.26 million dollars. Most of this increase was realized during the period of 2007-2012 and the size of the increase elicits curiosity as to the reasons behind the large jump. The profitability of farming during a time of economic recession coupled with ample land for farming and a well-established farming economy may be responsible for the increase. It is noted that farms, though decreasing in numbers, are larger and encompass more total acres in the county that was the case in 2007. The amount of land in farming went up in 2012 versus 2007, although the total land in farming is still less than in 2002.

The increase may also be indicative of greater efficiencies and larger potential profits as individual farms become larger. The results of the next agricultural census in 2017 will be illuminating in establishing whether the 2012 results are a "blip" or truly representative of a trend in terms of profit and total land in farming.

TABLE V-7
MIDDLESEX COUNTY, VIRGINIA
AGRICULTURAL CENSUS DATA: 2002, 2007, AND 2012

	2002	2007	2012	% Change 2002-2007	% Change 2007-2012	% Change 2002-2012
Number of Farms	101	76	73	-25%	-4%	-28%
Average Size of Farms Acres)	210	233	263	11%	13%	25%
Land in Farms (Acres)	21,216	17,709	19,185	-17%	8%	-9%
Total Value of Agric. Products (Total Value)	$5,207,000	$6,238,000	$11,259,000	20%	80%	116%
Avg. Total Value per Farm	$51,556	$82,007	$154,236	59%	88%	119%

Source: *U.S. Census of Agriculture (2002, 2007, and 2012)*

Tourism, including recreational boating plays a dominant role in the county's economy. VIMS Marine Resource Report No. 2012-12, dated December of 2012, estimated that in 2011 recreational boating in the County had a positive economic impact of 53.9 million dollars, resulted in the employment of over 588 full time equivalent workers, and provided labor income impacts of 14.8 million dollars.

Directly, recreation boating in 2011 provided a positive economic impact of 36.3 million dollars, resulted in the employment of over 385 full time equivalent workers, and provided labor income impacts of 8.6 million dollars.

The Virginia Tourism Corporation estimates that tourism contributed 85.3 million dollars to the local economy in 2012 resulting in the employment of 1,082 full time equivalent employees. The Middlesex County Board of Supervisors, on June 2, 2014, adopted the

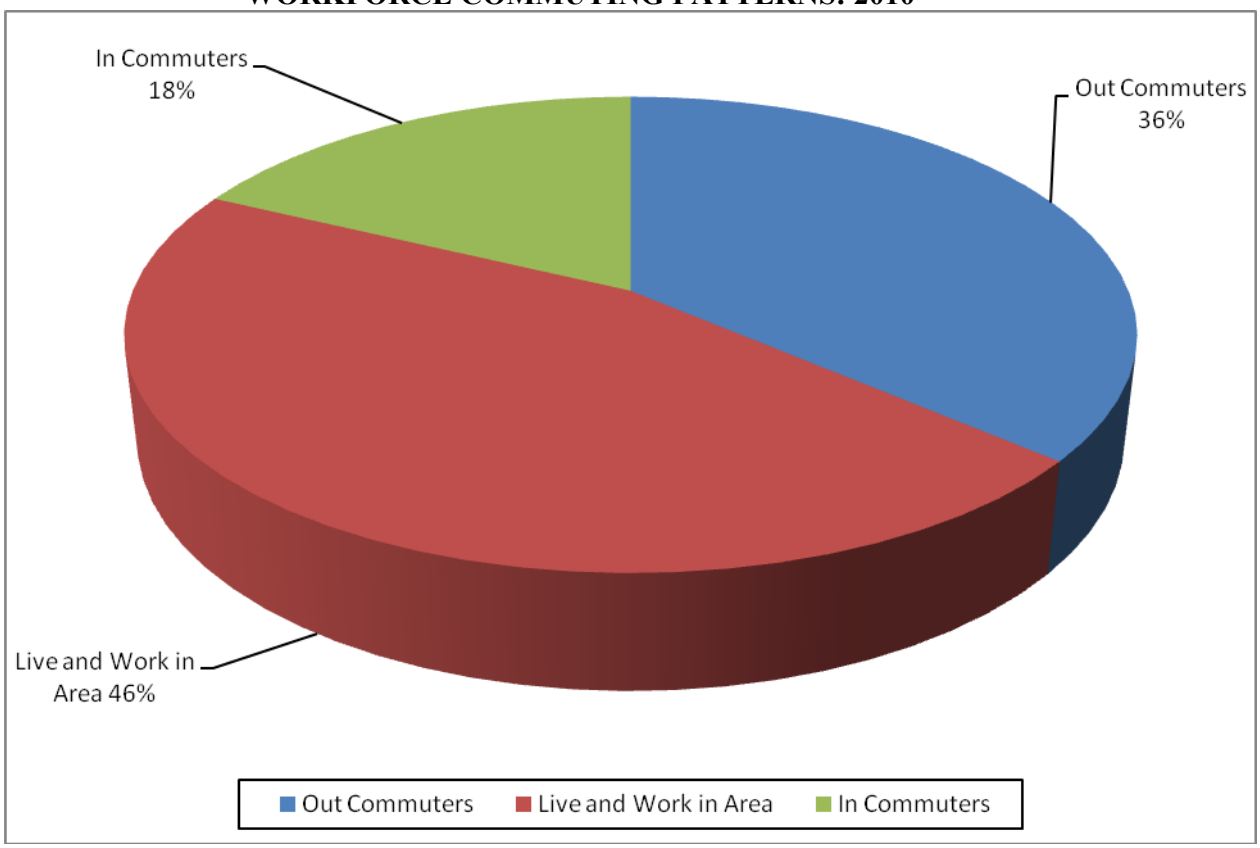
Middlesex County Tourism Plan (Tourism Plan) which contains figures representing the economic impact of tourism in the County, included those cited herein.

The Tourism Plan was created as a result of the current Middlesex Comprehensive Plan, Strategic Economic Development Plan, Regional Comprehensive Economic Development plan, regional discussions, conversations with Matt Walker, Middlesex County Administrator, the hiring of an Economic Development and Tourism Coordinator, and direction from the EDATAC committee, Matt Walker and Christen Ingram formally requested assistance from the Virginia Tourism Corporation to aid in developing the first Middlesex tourism strategic plan. (See Page 4 of the Tourism Plan)

The Tourism Plan laid out a list of goals, objectives, targets, and initiatives and tasks to be accomplished. Categories covered are enhancing product to increase tourism revenue in Middlesex County, providing basic infrastructure for expansion, implementing an aggressive tourism marketing and program by 2016, increasing visibility and awareness of Middlesex tourism assets by 30% over five years, and addressing the tax structure and initiatives for revenue generation. The entirety of the Middlesex County Tourism Plan is included as Appendix A of this Comprehensive Plan document.

Turning to commuting patterns, Figure V-8 presents year 2010 commuting pattern data for the county. In 2010, 46 percent of the county's labor force lived and worked in the county. Another 36 percent left the county each day for work. Eighteen percent of the county's labor force resided outside of the county and commuted into the county each day for employment in 2010.

FIGURE V-8
MIDDLESEX COUNTY, VIRGINIA
WORKFORCE COMMUTING PATTERNS: 2010



Source: *U.S. Bureau of the Census, Census of Population, 2010*

CHAPTER VI TRANSPORTATION

Key Points:

- Transportation and land use decisions are closely linked and are interdependent.

- The implementation of a County-wide access management program would demonstrate the County's commitment to managing the safety and capacity of its highway resources.

- Funding limitations generally limit local government's ability to control the rights-of-way in advance of when they will be required. Zoning and subdivision standards can be used to help ensure structures and private facilities are not located in areas that will be needed for rights-of-way.

- Traffic calming criteria should be included as part of the review process for all new subdivisions in the County. These criteria would be in conjunction with current and updated VDOT policy as to traffic calming techniques appropriate to the specific density of the proposed neighborhood and its relation to the surrounding roadway network.

Introduction

Middlesex County's transportation system is comprised of more than highways. Air transportation, waterways, bikeways and pedestrian opportunities are all elements of the County's transportation network. Together, these elements allow for the efficient movement of people and goods. It is essential that the County continually plan for the construction and enhancement of these transportation elements. Doing so allows the economic viability of the County to be retained and enhanced.

It is important to remember the strong reciprocal linkage between land use planning and transportation planning. A community's land use decisions will directly impact the adequacy of existing transportation networks. Conversely, transportation planning decisions have a great impact on community growth patterns, and the availability and adequacy of public facilities. The County's primary transportation system is and will continue to be a rural road network.

This chapter discusses the major elements of Middlesex County's transportation system with a focus on its public highway network.

The Transportation Planning Process

Transportation planning in Virginia is undertaken through a partnership of state, local, and federal, participants. This transportation planning process relies on VDOT to identify needs and recommend improvements, and for the locality to set priorities for these improvements. The Commonwealth and/or federal government provide the majority of funding for slated improvements. Local governments also have the responsibility of making wise land use and community facility decisions that respect the integrity of the existing transportation system and/or anticipate planned and funded improvements.

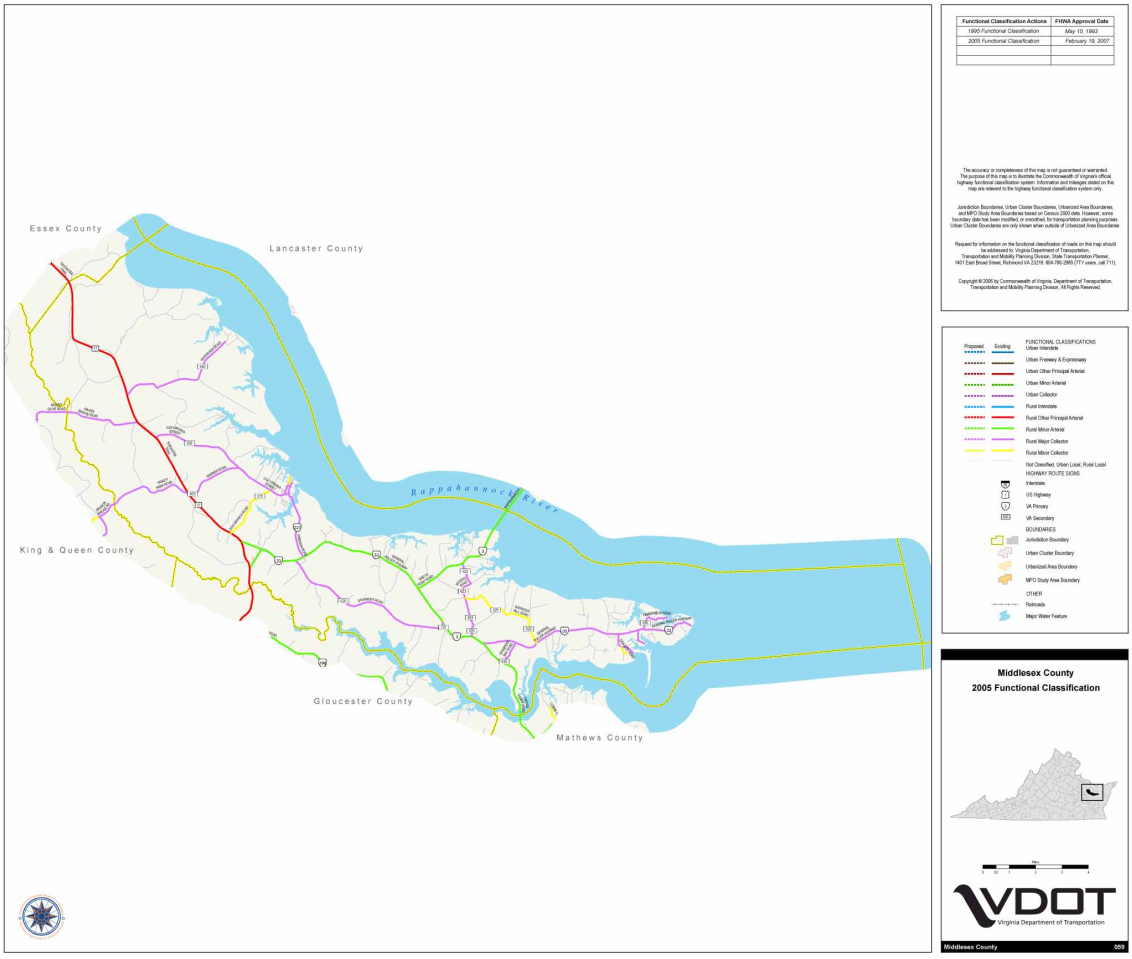
Existing Transportation Facilities

Middlesex County's transportation system allows for the efficient and safe movement of people and goods. The County contains several important primary roads, and a network of secondary roadways that provide adequate travel routes within the County. Primary Routes 17 and 33 are the main arterials within the county with Route 17 linking the County to the national system of interstate highways. Other important routes include State Routes 3, 602 and 629. Map VI-1, prepared by the Virginia Department of Transportation, shows the location of the main existing and any planned highways in the county, with information on their functional classification

The VDOT estimates that in 2005 the County had approximately 474 public highway lane-miles within its borders. This mileage is broken down as follows:

Primary Routes	Secondary Routes	Total Lane Miles
135	339	474

Map VI-1 Middlesex County Functional Classifications



Planned Transportation Facilities

Virginia's 2025 highway plan does not propose any new primary highways in the county, but does contain four recommendations for improvements to existing facilities. All four recommended projects are on Rt. 17, R t.3 or Rt. 33 and involve lane and/or median additions.

VDOT has prepared and distributed to localities estimates of lane mile construction costs for various highway geometric designs. These are listed below:

Cost Per Lane Mile (CPM)
Typical Rural Section
June 2006

Facility	Width of Pavement (Feet)	CPM ($)
Bikeway	5	240,000
1 Lane	12	330,000
2 Lanes	18	500,000
2 Lanes	20	830,000
2 Lanes	22	990,000
2 Lanes	24	1,400,000
3 Lanes	36	2,900,000
4 Lanes Divided	48	3,900,000
4 Lanes Divided	48 w/16' raised median	4,100,000
4 Lanes Divided	48 w/28' raised median	4,900,000
6 Lanes Divided	72	5,400,000
6 Lanes Divided	72 w/ depressed median	7,100,000
8 Lanes Divided	96	10,700,000

More refined cost estimates for near term road improvement projects are contained in the County's adopted 6-year Secondary System Road Improvement Plan. The current FY 20010-2015 plan allocates anticipated project funding to only two priority reconstruction projects projects. These projects are: Stampers Bay Road and Stormont Rd

Railroads
No passenger service is provided within the County, although AMTRAK stations are located within an hours drive in Newport News and Williamsburg

Mass Transit
No fixed rote fixed schedule mass transit service is based within the County.

Airport Service
Middlesex County resident and business travelers benefit from two nearby commercial airports. Richmond International, and Newport News/Williamsburg airports have full commercial services.

Bikeways and Pedestrian Opportunities
The county does not currently have an adopted bicycle or pedestrian plan, nor any formal program or initiatives to construct such facilities. Wherever possible, new developments should be arranged to emphasize pedestrian and bicycle traffic. This practice will increase the desirability of commercial centers, will reduce the tendency for strip development, will enhance tourism, and is in keeping with the County's desire to preserve its rural character. To further encourage bicycle traffic, selected roadways should be designated as bicycle routes and, as normal roadway maintenance and improvements are scheduled, these roadways should be widened and marked for bicycle use**.**

Transportation Policy Issues
The following transportation issues emerged during the discussions and analysis undertaken as part of the preparation of this plan.

Like many jurisdictions in Virginia, Middlesex County's need for road improvements is outpacing available funding for roads. Limitations of state transportation funding and competing priorities for local funds have resulted in the deferral of needed road improvements. A quick analysis of the County's Secondary Six-Year Plan shows that fully funding identified road needs will require fiscal resources from sources not yet identified.

The current fiscal environment for road funding necessitates that the County be proactive in transportation planning. The following policies are recommended:

County-Wide Access Management Program

The County's highways are an important public resource and represent a major public investment that should be preserved. They provide the means for residents' trips to work, to shop, to go to school, to travel. Highways are essential for commerce, trade and tourism. Yet as land develops along a road, the potential exists for highway corridors to become stripped with numerous, closely spaced entrances, traffic signals, and median openings - many of which do not have proper left/right turn lanes. These deficiencies lead to a high rate of accidents, congestion, and a reduction in the traffic carrying capacity of the road.

Access Management and Its Benefits

The goal of access management is to achieve a safe and efficient flow of traffic along a roadway while preserving reasonable access to abutting properties. By applying a set of traffic control methods, the quality of the County's network of roads can be maintained and improved. Techniques for managing access include:

- Standards for the location, spacing and design of driveway entrances;
- Median treatments;
- Providing exclusive right and left turn lanes;
- Connecting the parking lots and streets of neighboring land uses; and,
- Increasing the distance between traffic signals.

Localities that have implemented access management controls have reduced traffic related accidents, injuries, and fatalities; have enhanced the economic vitality of the area by providing a more efficient movement of people and goods; and reduced the need for expensive road widening improvements. For example, studies have demonstrated that a four lane highway with good access management can serve as many vehicles as a six lane highway. It is less expensive to control access than to build new highways.

Access management objectives can be achieved through land use strategies that discourage strip development and promote clustering of land uses into commercial/residential nodes near existing developed areas and at major highway intersections. The functional classification of the road network and the location of future land uses should be coordinated so they complement each other.

Corridor access management plans or overlay districts can be used to prevent future access problems and to provide solutions to existing issues on high priority corridors. A highway corridor is analyzed in terms of roadway design, traffic characteristics, existing and future land use, and existing access points. The study would recommend standards and policies for medians, signal location, entrance spacing, inter-parcel connections, turn lanes, and clustering of land development within the corridor. Certain measures may need to be implemented over time - for example, the addition of more parking to accommodate an expansion of a business can be used to consolidate entrances, install turn lanes, and link adjacent land uses.

A County program would seek to include access management standards in the zoning and subdivision ordinances: entrance, median crossover, and traffic signal spacing and design standards; requirements for joint access and inter-parcel connections; cluster zoning and minimum lot frontage; rules for reverse frontage lots in subdivisions. Enforcement of County standards and regulations can be achieved through site plan and subdivision plat review. Traffic impact studies can be required for larger developments during the rezoning process.

Coordination is important at every stage of access management: from the development of the programs and studies to the review of development proposals. Access management decisions will involve input from various County Departments (i.e. Planning, Fire and Emergency Services), the Planning District Commission, and the VDOT Residency and District staff. Successful coordination and collaboration between agencies is necessary to manage access effectively.

Identify and Protect Critical Transportation Corridors

As the population of Middlesex County continues to grow, transportation planning will become increasingly important. Of particular importance will be the identification and protection of the necessary rights-of-way for future new or expanded road corridors.

Identifying the need for new and expanded road corridors is a technical process based upon current traffic volumes and patterns, and projecting expected increases and road needs due to community growth and changes in land use patterns. Protecting the identified corridor is a more challenging endeavor. Funding limitations generally limit local government's ability to control the rights-of-way in advance of when they will be required. Zoning and subdivision standards can be used to help ensure structures and private facilities are not located in areas that will be needed for rights-of-way.

Middlesex County should identify and protect new road corridors and identify existing road corridors in need of expansion. This will require that the County establish minimum rights-of way standards for various road classifications in the County. These minimum standards shall be as follows:

Road Classification	Minimum R/W Width	Number of Lanes
Primary	120'	4+
Secondary		
Arterial	90'	2-4
Collector	70'	2
Local	50-60'	2
Industrial Access	90-120'	2-4

In addition, the County should adopt zoning and subdivision ordinance amendments to require the reservation of rights-of-way identified as necessary for future road improvements. Finally, if new future road corridors are identified in future planning documents, the County should adopt an amendment to this plan to formally designate each identified corridor.

Promote a Balanced Transportation System

As stated previously, Middlesex County's transportation system is comprised of more than just highways. Air transportation, rails facilities, waterways, bikeways and pedestrian facilities are all elements of the County's transportation network. Although its authority and resources are limited, the County should continue to promote a balanced transportation system. Specifically the County can:

- Encourage the use of transit and rail options for County citizens.
- Request that bike lanes, consistent with the adopted bikeway plan, be incorporated into VDOT road projects. The County's subdivision and zoning ordinances will be amended to require bike and pedestrian facilities.
- Encourage new development along the county's shorelines to provide public access to the waterways.
- Encourage and look for new ways to improve secondary roads including new funding sources.

Link Transportation and Land Use Decisions

Understanding the role that land use decisions play in transportation efficiencies (or inefficiencies) is critical if the County is to have a safe and adequate highway network. The County must evaluate all future land use decisions partially on the basis of how well the proposed land use preserves the integrity of the safety and capacity of the transportation system. Middlesex County can also be very proactive in ensuring transportation efficiencies. For example, the County can:

- Work with VDOT to adopt a regional thoroughfare plan that takes into consideration the land use and growth management recommendations contained in this plan.
- Adopt new zoning and subdivision ordinances that contain standards and requirements for access management, traffic calming, and rights–of way dedication.
- Require traffic impact studies for all new development expected to generate or attract over 250 vehicle trips per day.

- Evaluate all rezoning and special exception requests partially on the basis of the proposed land use impact on the County's transportation system.

- Plan and locate major capital facilities partially on the basis of how the facility will affect the direct and indirect demands on the County's transportation network.

Promote and Implement Traffic Calming Measures for New Subdivisions.
Traffic calming techniques are strategies to slow traffic in residential neighborhoods without restricting access. Originally developed to address speeding or "cut-through" problems in existing neighborhoods, the techniques are also applicable in the layout and design of new subdivisions and certain collector streets, subject to predetermined criteria. Typical criteria for residential streets include:

- Posted at 25 mph or less;
- The street provides direct access to abutting residences and serves only to provide mobility within the neighborhood; and,
- Traffic on the street is expected to be entering or exiting from the residences.

For collector streets the following characteristics are applicable:

- Posted at 25 mph or less;
- The street is a two-lane roadway;
- The street is not a primary access to commercial or industrial sites; and
- The street has a minimum of 12 dwellings fronting the street per 1,000 feet of roadway, including both sides.

Middlesex County should identify and address traffic concerns that may result from new development. The development review process should ensure that the developer places emphasis on, and addresses the need to, design street geometrics that make streets less desirable for speeding and cut-through traffic.

Traffic calming criteria should be included as part of the review process for all new subdivisions in the County. These criteria would be in conjunction with current and updated VDOT policy as to traffic calming techniques appropriate to the specific density of the proposed neighborhood and its relation to the surrounding roadway network.

Potential traffic concerns in new development should be addressed with roadway design geometry changes, especially with roadway width (narrowing) and road curvature. In lieu of, or in addition to, these geometric changes, traffic calming measures that generally

serve to narrow the travel way include pavement markings delineating parking, shoulder or bike lanes, traffic circles or roundabouts, chokers, crosswalk refuges and short medians.

CHAPTER VII LAND USE AND GROWTH MANAGEMENT ISSUES

Introduction

This chapter presents a discussion of Middlesex County land use, and growth management issues that emerged during the community planning process used to prepare this plan. Some (issues) emerged from a review of the County's demographic profile. Others were identified by Middlesex County citizens who participated in the planning process, including the Comprehensive Plan Steering Committee. Regardless of their source, the issues discussed in this chapter are relevant to the County's future character, growth and development. As such, they are the basis/justification for the recommendations contained in this chapter and for many of the goals, objectives, and action steps found in Chapter VIII of this plan

Communities are not static, nor are the issues they face. The issues discussed in the pages that follow are important to Middlesex County in the first decade of the 21st Century. When this plan is reviewed and updated five years from now many of the recommended action steps may well have been accomplished. Others will continue to be important, but lack the financial resources or human capital required for implementation. Finally, some issues will have become "non-issues" due to a change in local conditions or community values or priorities.

Community planning involves the making of informed choices based on technical analysis and community values. During this planning process, citizens shared their ideas on the community values that were important to them. These values included preserving the rural character of the county, developing aesthetically pleasing communities, creating jobs for county youth, retaining the county's close knit neighborhoods and promoting volunteerism as a strategy to meet community needs. Together, these values, and others help to define Middlesex County's quality of life.

Many of the identified community values have a common element – land. Land is a finite resource and there are, not surprisingly, competing demands on how land should be used. For example, should a 50 acre farm be preserved for its agricultural and open space value? Should it be developed as an attractive residential community or perhaps as an industrial area where high wage jobs can be created? Hopefully, this plan can assist the County in resolving future questions similar to these. The county continues to be mostly undeveloped and thus the citizens of Middlesex County, and their elected and appointed representatives, have great control over the county's land use future. Identifying and achieving a desired future for the county will require collaboration and consensus building among community stakeholders

It is not possible to conduct land use planning without considering the issue of individual landowner's rights versus the need to plan for the common good. The legalities of the

issue have been extensively debated with courts progressively moving toward positions which endorse the rights of communities to implement needed regulatory measures. The specifics of the legal question vary but a common measure of the fairness of land use regulations includes a balancing test to address whether the benefits to the public of valid regulatory objectives are greater than negative impacts on landowners' ability to make reasonable economic use of the land.

Of course, defining what is "reasonable" economic use and what is a "valid" regulatory objective are still open to interpretation, but restrictions on land use are increasingly being supported by courts willing to uphold state and local government authority in the growth management arena. A legitimate leadership and public policy role exists for local government to manage growth on behalf of its citizens.

The balancing test is the measure which most often comes into play during proposed regulatory hearings. For example, during the process of adopting the Chesapeake Bay Preservation Act, a decision was made that the public benefits associated with maintaining and enhancing Bay water quality are greater than the negative economic impact on landowners. Fishing, tourism, and wildlife all benefit and perhaps landowners themselves benefit from higher property values resulting from improved water quality. Landowners still had use of their affected property, but tens of thousands of them were affected by minor restrictions and some incurred additional expense to comply with the law.

In Middlesex County the balancing test must also be applied to the issue of whether to try to preserve agricultural/open space land or release it to unrestrained development. Agriculture is a land use activity which has supported Middlesex economically for generations. Furthermore, it may be even more important to recognize that agricultural lands are a major element of the open space which defines the rural nature of the County. This particularly visible component of the country scene contributes directly to the quality of life and satisfaction its residents enjoy. In addition to contributing to the quality of human life, the rural nature of the County provides a diversity of habitats for a wide variety of wildlife species. These factors also contribute positively to the value of developed property throughout the area.

Similarly, other land uses which are generally recognized as essential to public well-being may have an impact on the way some individuals use their land. Middlesex County is surrounded on three sides by water. Residents and visitors alike come here seeking access to the water through numerous public and private facilities which are interspersed among the residences along the shoreline. In doing so, these people contribute significantly to the economy of the area and provide many benefits related to that commerce; employment and tax revenues being the most obvious. Less obvious may be the shear activity and vitality that people seeking to enjoy recreation with families and friends bring to a community. Their very presence contributes to the quality of life and expands the opportunities for self-fulfillment available to permanent residents. Still, these activities may be seen by some as an intrusion on the serenity and privacy of their

properties. It is the responsibility of the population and their local government to seek the proper balance between these activities.

Numerous other land use activities must be properly balanced. Zoning itself is in one sense the restriction of land use in order to minimize conflicting and incompatible uses. Selecting sites for landfills, airports, industrial complexes, marinas, gas stations, golf courses, schools, and literally every type of activity necessitates identifying the larger common good and balancing it against individual prerogatives.

In preparing this Comprehensive Plan, the citizens of Middlesex County recognized the complexities associated with applying the balancing test when land use conflicts arise, and seek to provide meaningful guidance to their representatives who must make difficult decisions on their behalf. This guidance takes the form of several prioritized fundamental objectives stated below and repeated throughout this Plan.

First, highest priority must be placed on the preservation of the rural character of the County. As defined, the rural character includes natural and open spaces between concentrations of activities. Strip development along highways cannot be permitted. All development and improvements must respect and be compatible with this vital objective.

Second, this is primarily a residential and recreational County. The happiness and well-being of its citizens depend on the preservation of the high quality of those aspects of this place. It is the combination of the rural character of the landscape and high quality residential, recreational land uses which define and give Middlesex County its unique character. That combination must be preserved.

Third, the vitality of the County depends on a viable and expanding commercial community. For the present, that means utilizing and building upon the assets available within the territory. Primarily those assets include: the surrounding waters and natural areas as recreation and tourist attractions; ample property for residential and recreational development; the existing towns and villages as centers of commerce and social development; other destinations for vacationers and weekenders seeking recreation on the water or at nearby golf, tennis, and natural scenic attractions; a growing population of relatively affluent retirees to offset the seasonal nature of the economy; and the myriad of supply, support, medical, and service enterprises needed by an active community of visitors and residents.

Fourth, as the population expands and the County's infrastructure develops, suitable clean industry which seeks to be compatible with the community's needs will be welcomed. In the meantime, the County should begin preparing for that eventuality by defining the qualities suitable industry must possess, defining the characteristics suitable sites must contain, and establishing those incentives the County can offer to new industry. This preparation will enable Middlesex to respond quickly and positively when industrial opportunity arises.

Environmental Issues

Chesapeake Bay Preservation Act –Surface Water

In 1988 the Virginia General Assembly passed the Chesapeake Bay Preservation Act (Bay Act) as Virginia's commitment to improving the health of the Chesapeake Bay. The purpose of the Bay Act is to protect and preserve the water quality of the Chesapeake Bay and it's tributaries. The adoption of the Bay Act resulted in the creation of a land use management program based upon the premise that human activities, such as construction, farming and other land clearance and disturbance, have significant cumulative impacts on water quality of the Chesapeake Bay

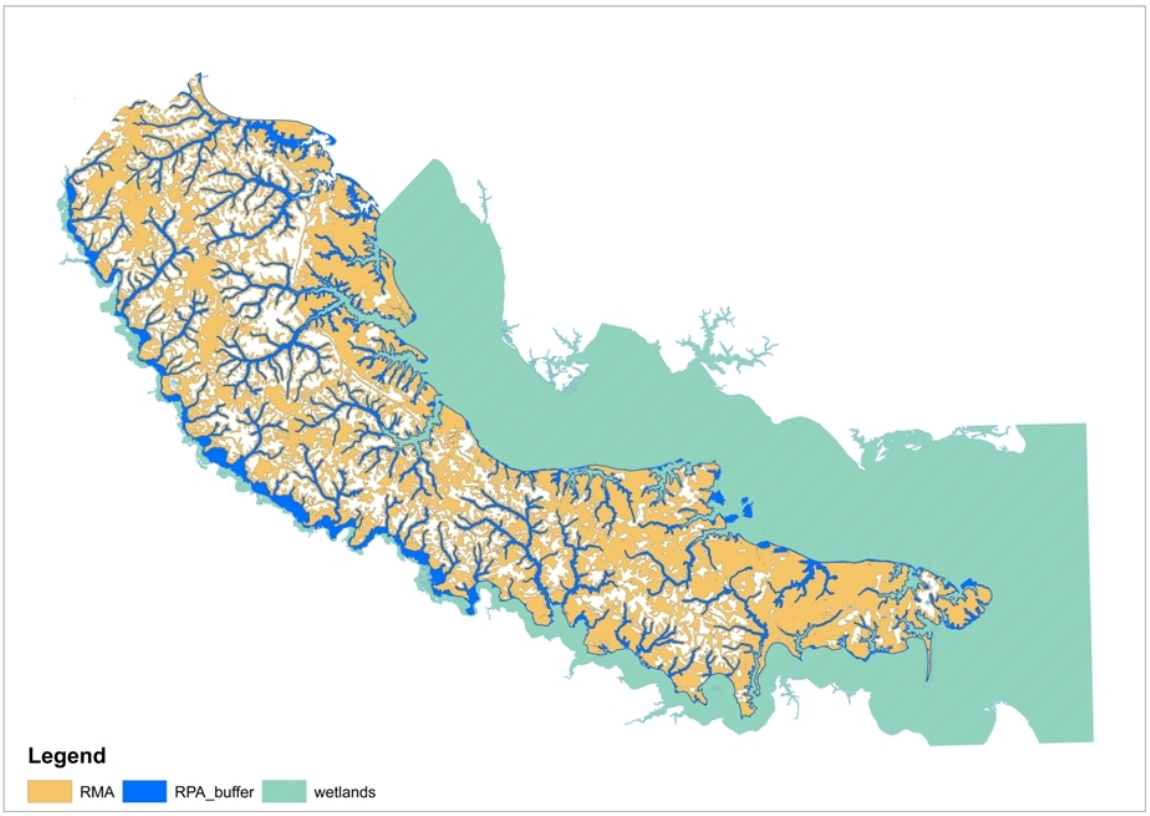
The Chesapeake Bay Local Assistance Department (CBLAD) was created to develop regulations thereby establishing the criteria for local governments to use in designating and managing Chesapeake Bay Preservation Areas in their jurisdictions. All local governments in Tidewater, Virginia, including Middlesex County, are responsible for implementing the Bay Act and therefore are required to designate Chesapeake Bay Preservation Areas and adopt a local program regulating the use and development of these areas in a manner consistent with the Bay Act.

It is a primary purpose of CBLAB to assist local governments in the development, implementation and enforcement of local Bay Act programs. Middlesex County developed and adopted a Chesapeake Bay Preservation (CBP) District as part of the Middlesex County Zoning Ordinance in 1992. The district is updated periodically and was last revised in December 2003. The CBP District identifies by definition and mapping, the Chesapeake Bay Preservation Areas in Middlesex County and additionally sets forth regulations governing the use and development of these areas. The regulations of the CBP District are administered and enforced by the Middlesex County Planning Department.

Certain land areas play a more important role in protecting water quality than others. The Bay Act attempts to identify and focus on those critical land areas, which if improperly developed, could result in substantial water quality degradation. These areas are called Chesapeake Bay Preservation Areas (CBPA's) and include two components. The two components are the Resource Protection Area (RPA) and the Resource Management Area (RMA). Approximately seventy-two percent (72%) of Middlesex County is classified as a CBPA. Map VII-1 provides a depiction of the general location and extent of these areas.

A Resource Protection Area (RPA) includes land area at or near the shoreline that contains sensitive natural features that play an important role in protecting water quality through the ecological and biological processes they perform. The CBP District

Map VII-1 Chesapeake Bay Act RPA and RMA Areas



regulations of the Middlesex County Zoning Ordinance designate land areas meeting the following criteria as RPA's:

- Tidal wetlands;
- Non-tidal wetlands connected by surface flow to tidal wetlands or perennial tributary streams;
- Tidal shores; and,
- A 100 foot wide buffer area located adjacent to and landward of perennial tributary streams and the other above RPA features.

The RPA features filter sediments and pollutants from runoff before they reach the Bay, thus improving water quality. These land areas, preserved in their natural state, work to prevent erosion, absorb water, prevent flooding, provide a protective buffering of the shore, reduce nutrients entering the water, and otherwise prevent sediments and pollutants from entering the water. The uses and development of RPA land, as well as land clearance and the removal of vegetation is extremely restricted and possible only under certain circumstance by special permitting. Few exceptions exist other than for development defined and determined to be water-dependant, redevelopment, or for lots recorded prior to the Bay Act which due to their size, shape or other unique features, cannot be developed within the requirements from which relief is necessary to afford the reasonable use of the property. Even in such cases, specific applications and approvals are required for development within the RPA.

The Resource Management Area (RMA) is land area that protects and buffers the sensitive features of the RPA. The RMA is located landward and contiguous to the RPA. The CBP District identifies RMA's as land containing any of the following features:

- The one hundred (100) year floodplain;
- Non-tidal wetlands not connected by surface flow and contiguous to tidal wetlands, tributary streams or other tidal waters;
- Highly erodable and highly permeable soils;
- Slopes in excess of fifteen percent (15%); and,
- Where none of the above features exist, the RMA shall be a one hundred fifty (150) foot linear distance from the landward side of the RPA.

These areas, if improperly developed, would result in erosion, flooding and other adverse impacts to the RPA, thereby preventing its proper functioning resulting in degraded water quality.

Land development and disturbance activities in Chesapeake Bay Act Preservation Areas must generally limit land disturbances to a minimum, maintain a 100 foot buffer from protected water and wetland features, strictly control erosion and sediment on the site, preserve natural vegetation to the greatest extent possible, minimize impervious coverage, and manage stormwater runoff generated by the development.

The Bay's water quality is a crucial component of Middlesex County's tourism and marine based economy. As such, the County should continue to fully enforce the provisions of the Act, as required by law, and investigate other ways to reduce non-point source pollutants from entering the Bay.

Groundwater Resources

As described in Chapter II, groundwater resources in the County are generally adequate to meet the existing and future water demands of the County, primarily supplying residential development with limited commercial and light industrial development. It is noted that of the several aquifers serving as potential potable water sources, that the Deltaville area and eastern most section of the County is served by only the Yorktown-Eastover Aquifer. While this aquifer produces a fairly reliable quantity of water, there are localized problems with water quality such as high levels of chlorides, iron and water hardness. The relatively shallow depth of this aquifer coupled with the presence of highly permeable soils make this aquifer susceptible to potential contamination.

Agricultural production remains a dominant land use and important component of the local economy in Middlesex County. The County will continue to work with the Tidewater Soil and Water Conservation District in reviewing and encouraging the use of the soil conservation and water quality plans and nutrient management plans among farmland owners in the County, especially where such activities occur in RMA and RPA designated areas.

The County should also encourage the Virginia Department of Environmental Quality to make financial assistance available to property owners seeking to identify problems with leaking underground storage tanks and remediation

Another potential source of water pollution is from illegal dumpsites and junkyards. The County has two ordinances that it aggressively enforces to prohibit and remediate these potential problems. The Middlesex County Solid Waste Ordinance prohibits the use of open dumps, and improper waste storage while the Middlesex County Automobile Graveyard Ordinance regulates junkyards and the improper storage of junk cars and other machinery. No large open sites are known to exist in the County at this time. Assistance

from DEQ has been requested and provided in previous incidents where illegal dumpsites were identified. The County will continue to enforce the clean up of illegal waste disposal with the assistance of DEQ and by initiating court action when warranted.

As stated above, the County is heavily dependent on groundwater as a source of potable water. Although generally plentiful, the shallow depth of some aquifers makes them susceptible to pollutants. Sources of potential groundwater contamination in the County come primarily from malfunctioning septic systems, abandoned well sites, use of agricultural chemicals, illegal dump sites and possible leaking underground storage tanks. The county should continue its efforts to identify the potential sources for groundwater pollutants and rectify problems when identified

Wetlands

Wetlands play a critical role in the ecological health of Middlesex County. Close to 1700 acres of tidal wetlands exist within the county, most being in proximity to the Rappahannock River , The County, through the regulatory authority of the Wetlands Board, and the review of development proposals must act diligently to protect and enhance these areas. As an example. future rezoning requests should be evaluated partially on the basis of the impact the proposed development will have on nearby wetlands and other environmentally sensitive areas

Dragon Run Watershed

The Dragon Run is a special regional resource worthy of protection in Middlesex County. The Dragon Run and its surrounding landscape owe their extraordinary state of preservation to the landowners in the area that have pursued for generations the compatible land uses of farming and forestry on their land. Recent scientific study of the stream has also highlighted its critical ecological importance, including the purity of the water, the wealth of rare and unusual natural species it harbors, and the rural character of its watershed that has helped to keep it pristine. The rural way of life and traditional landscape in the Dragon Run area are valued by the residents of the area and are worthy of preservation.

Within Middlesex County, the Dragon Run Watershed's Existing Land Use is mainly Rural Open Space with limited areas designated as Rural Communities, Residential Communities, Commercial, and Industrial. The Future Land Use for the Dragon Run Watershed will continue to remain primarily Rural Open Space, but also includes Hamlet/Farmstead-Like Developments, a Transitional Development Commercial Center, Light Industrial, and Scenic Tourist Corridor along State Route 33. The Future Land Use Map also identifies two Industrial Opportunity Areas and one Water & Sewer Study Area that include portions of the Dragon Run Watershed.

The County has worked alongside the other counties in the Dragon Run Watershed with the Middle Peninsula Planning District Commission's Dragon Run Steering Committee to protect the natural resources and rural qualities of the area by participating in the

Dragon Run Watershed Special Area Management Plan. In particular, one of the objectives of this cooperative effort was to "Achieve consistency across county boundaries among land use plans and regulations in order to maintain farming and forestry and to preserve natural heritage areas by protecting plants, animals, natural communities, and aquatic systems."

Within this Comprehensive Plan, the overall objective for the Dragon Run Watershed is for it to remain largely rural, with low intensity uses, and to protect its key natural areas and its water quality. Specifically, the goals for the Watershed are to:

- Maintain the health and quality of the Dragon Run stream system and associated natural areas.

- Achieve the objectives of the Dragon Run Watershed Special Area Management Plan and reinforce the existing shared values for protecting the Dragon Run.

- Support the compatible economic base of the Dragon Run area and its rural businesses such as farming and forestry that are compatible with protecting the natural health of the stream system.

- Support new rural economic development and businesses that are compatible with the traditional pattern of rural land uses in the Dragon Run area.

The following policies are intended to apply to the entire watershed of the Dragon Run. The intent of these policies is for the area to remain largely rural, with low intensity uses, and to protect its key natural areas and its water quality. The following policies will guide the development of the Dragon Run Watershed:

- The Dragon Run Watershed should maintain its rural character through integrating new development with the existing rural economy and settlement patterns.

- Low intensity land uses that are consistent with the conservation of the area's natural resources should be the dominant land uses in the Watershed and new development should be compatible with surrounding rural areas as well as incorporate development standards and management practices that ensure protection of the area's natural resources.
-
- The extension of central sewer and water is not considered consistent with preserving the area's rural character and land uses.

- The County should enact policies, economic development plans, and ordinances that support the cornerstone rural businesses in the Watershed, such as farming and forestry, and that encourage compatible new supportive businesses such as

value-added farming and timber products, local specialties, handicrafts, small-scale workshops, and craft industries, while ensuring that these businesses are practiced in ways that are compatible with protecting the health of the natural resources.

- The County should protect the key natural resources in the Watershed, including the ground and surface water quality, wetlands, and sensitive environmental features; native plant and animal species and their natural habitats; and the productive soils that support farming and forestry uses.

- The County should discourage the extensive use of the Watershed for public recreation and large-scale tourism and encourage small scale and controlled tourism and recreation uses that conserve natural areas, respect property rights, and limit opportunities for trespassing on private properties in the Watershed such as bed and breakfasts, private hunt clubs and preserves, and private tours.

- The County should implement programs and exhibits that interpret the natural and cultural heritage of the Dragon Run for both residents and visitors, without encouraging intense or incompatible recreational use of the Watershed's sensitive resources.

- The County should consider implementation strategies that preserve existing land uses and protect the natural resources in the Watershed such as conservation zoning and subdivision approaches, additional stream buffers and setbacks, the purchase of development rights, donation of private easements, landowner compacts, and land use taxation.

It should be noted that these policies are in concert with Middlesex County's priority on preserving its rural character, including its shoreline.

Agricultural Land and Open Space Preservation Issues

As Middlesex County continues to experience population and economic growth , there will be continued pressure on the County's open space, agricultural and forested areas to be developed for these uses.

The rapid population growth of the County, increases in agricultural and forestal land values, the aging of agricultural land owners, adopted development regulations and the high suitability of many agricultural and forestal lands for development can all be cited as some of the many factors that are contributing to the loss of the County's agricultural, forestal and open space resources. The existing land use map shows the general locations of rural development/subdivisions that have occurred throughout the County.

The challenge for Middlesex County is to accommodate future growth demands in a planned manner that provides for the conservation of these important agricultural and

open space resources. Future residential, commercial and industrial development should be encouraged to locate in areas of the County where adequate public services are available or planned. Development that does occur in the rural agricultural and forestal portions of the County should be designed to incorporate significant open spaces and minimize environmental impacts on the County's land, air and water resources.

When future development requests require Commission review and Board of Supervisors approval, the economic and quality of life benefits of open space and agricultural and forest land uses should be considered, as well as the adequacy of public facilities and services in the area. The environmental impacts of the development should also be considered. It is important to maintain a balance between development and preservation objectives throughout the County.

Any additional regulatory approaches to land conservation should be pursued in conjunction with an educational and programmatic approach. Such an approach would encourage property owners to limit development on such properties, and offer incentives for appropriate conservation and environmental design.

Time will demonstrate whether regulatory changes and development incentives are sufficient to influence the market for new housing in agricultural and forestal areas of the County. If regulatory changes and incentives do not influence these patterns of rural residential development, then more agricultural and forested acreage will be lost to subdivision. This is an inefficient land use pattern that places demands on public services and continues to degrade the County's agricultural and forestal land base.

The future land use map in this Chapter should be used as a general guide for future County development patterns. Implementation of the future land use map recommendations may require amendments to the County's development codes to provide both requirements and incentives for the conservation of land. Specifically, the County's subdivision ordinance and zoning ordinance should be evaluated and amended to provide stronger incentives for clustering and density bonuses to encourage development of property in a manner that conserves the agricultural and forestal resources.

Agricultural / Rural Preservation Tools

Zoning, subdivision standards, use value assessments and taxation, and public facility decisions are the tools most commonly used by counties to influence the timing and location of growth.

Other tools and programs are available to agricultural and rural property owners who wish to take steps to preserve their land holdings while hopefully obtaining a desired rate of return on their equity. These programs are voluntary and generally involve a partnership between the landowner and a governmental agency. A brief description of four such programs is presented below. The four are:

Agricultural and Forestal Districts

Agricultural and forestal districts are rural zones reserved for the production of agricultural and forestry products. At the request of a property owner, they are established by a local governing body according to state guidelines. In essence, a district constitutes a voluntary agreement between landowners and the government that no new, nonagricultural uses will take place in the district. An agricultural/forestal district provides much stronger protection for farmers and farmland than does traditional zoning. Districts are established for a set period of time, and can be renewed. During the life of a district, a land owner is prohibited from subdividing or developing the land for non agricultural or forest uses. Similarly, a local governing body is prohibited from rezoning land in a district to a non-agricultural classification, or from making capital or community facility decisions that endanger the landowner's ability to maintain the land for agriculture or forestry use.

Conservation Easements

A conservation easement is a legal agreement in which a landowner retains ownership of his/her property while conveying certain specified rights to the easement holder. Conservation easements are usually given to a non-profit, charitable land conservation organization or a public entity. Easements can be tailored to meet the owner's wishes regarding the future use of his/her land. They can be for a specific time period, or can be granted in perpetuity. Typically a conservation easement restricts development or uses that would destroy natural, scenic, or historic areas while at the same time allowing other traditional uses such as farming.

Depending upon the terms and timing of the easement, significant tax savings can accrue to the property owner granting the easement.

Purchase of Development Rights (PDR)

This program is essentially the same as a conservation easement (previously described), except that the easement value (i.e. the development rights) is purchased from the landowner, rather than the landowner donating the easement and taking advantage of the tax benefits. Each landowner needs to determine whether selling an easement or donating one and taking advantage of the tax benefits better fits his/her financial situation.

This option has been used extensively in Maryland, Pennsylvania, and other states. Virginia has prepared a model PDR program guide, and twenty-two Virginia jurisdictions have adopted local PDR programs. Some jurisdictions have dedicated funding sources associated with the program. These funding sources include collected roll back tax revenues, transient occupancy taxes, real estate transfer taxes and cellular telephone taxes.

Transfer of Development Rights

TDR, or transfer of development rights, is a concept in which some or all of the rights to develop a parcel of land in one district (the sending district) can be transferred to a parcel of land in a different district (the receiving district). TDR is a tool used to preserve open space, farmland, water resources and other resources in areas where a locality wishes to limit or curtail development.

In a classic TDR system one or more sending districts are identified as well as one or more receiving districts. "Development rights" are assigned to landowners in the sending district, typically on the basis of a certain number of permitted dwellings per acre. Owners of land in the sending district are not allowed to develop at the full level of their development rights, but instead may sell their development rights to owners of land in the receiving district, who may then use the newly acquired development rights to build at higher densities than normally allowed by existing zoning (without further legislative approval). TDR systems are intended to maintain designated land in open or non-developed uses and to compensate owners of the preserved land for the loss of their right to develop it

In 2006, the Virginia General Assembly authorized any Virginia locality to provide for transfer of development. The Virginia statute, as crafted, contains many of the characteristics associated with TDR provisions used elsewhere in the country. For example, when development rights are transferred from a sending parcel, a permanent conservation easement must be placed on the land. In addition, the decision to use TDR is voluntary. The Virginia statute does not mandate its use.

Housing Issues

Housing is a commodity that is supplied and consumed based upon market demand. As a commodity, the construction and price of housing is influenced partially by this supply and demand relationship, and also by non-market factors such as the cost of complying with government regulations. As the County's population has increased, so to has the supply of housing in the County. Over 900 new dwelling units have been constructed in the County since 2001. The vast majority of these new homes have been single family dwellings. Multi family units represent a small percentage of new dwellings during this period, as do manufactured homes. Manufactured homes have historically been an important housing option for certain segments of the County's population. The number of manufactured homes in the County continues to increase, yet these units represent a decreasing percentage of the County's total housing stock due to the large number of site-built homes being constructed.

Regional Housing Market

Most housing markets are regional in nature. Middlesex County participates in a regional Middle Peninsula/Hampton Roads housing market. Within this regional market, consumers of housing have various options with respect to housing styles, price ranges

and location. Yet, not all housing choices or price ranges are available in all jurisdictions. . The County's role in this market is primarily as a location for single family owner occupied housing and as a location for seasonal (second home) units. In 2000, over 25% of the county's total occupied housing stock was seasonal housing These seasonal units contribute to the tourism economy, and local real estate tax base. However, as seasonal units they don't generally require as many public services (e.g.,, education) as dwelling units occupied year round.

Housing Affordability

Although definitions vary slightly, it is generally accepted that housing is affordable to an individual or family if they do not need to spend more than 30 percent of gross monthly income on housing costs. Housing affordability is an issue in the County with population growth and the corresponding demand for residential property driving up land and housing costs. Although the housing market is a major factor in establishing the type of housing being built and the value of the housing, the County can take certain steps to help to ensure that there are housing choices for all income level households in the County.

Development codes should be evaluated to see if they place unnecessary and costly restrictions on new housing developments Although paid by the housing developer or builder of the new home, these "costs of development" are passed on to the buyer of the new home, increasing its cost and decreasing the homes affordability.

Similarly, the County's zoning and subdivision ordinances should be evaluated to ensure that they allow and designate sufficient areas in the County for a full range of housing types. Currently the County's zoning ordinance does not appear to permit townhouses or multifamily units outside of cluster zoning districts. These factors contribute to the low supply of affordable rental housing in the County. Affordable housing can also be encouraged by allowing and encouraging planned developments that incorporate a mixture of residential types integrated with commercial and civic components.

A community's older homes are often the most affordable based upon their smaller size, lack of modern features and depreciated value due to normal wear and tear or lack of required maintenance. Programs designed to help maintain these older homes can be an important component of a locality's efforts to promote affordability.

More aggressive approaches to promoting affordable housing are also available to localities. State and federal funding programs allow localities to partner with private development companies or local non-governmental organizations to develop land and construct housing. Public funds can be used to develop the necessary residential infrastructure. In exchange the developer agrees to build more affordable units, and/or limit the sales price of new units to a level that is affordable to lower income residents.

Land Use Issues

The County's existing land use pattern has been influenced by many factors. Prior to government intervention, land use patterns in the County were influenced solely by population growth, market demands and the environmental characteristics of land. Later, with the adoption of local regulatory and policy tools (subdivision and zoning ordinance; capital improvement program, comprehensive plan, etc.), the County began to play a much more active role in shaping land use patterns. Community decisions on public facility locations, also have influenced existing growth patterns.

Existing Land Use

Map VII-2 is an existing land use map of the County. A review of this map allows for an understanding of historical county development patterns. Seven land use categories are shown on this map as follows:

COMMERCIAL – Commercial entities and public offices located in Middlesex County. Areas shown as commercial may include residential uses but are primarily commercial.

INDUSTRIAL – Primarily areas devoted to production and warehousing

PUBLIC, SEMI-PUBLIC, CHURCHES AND INSTITUTIONS

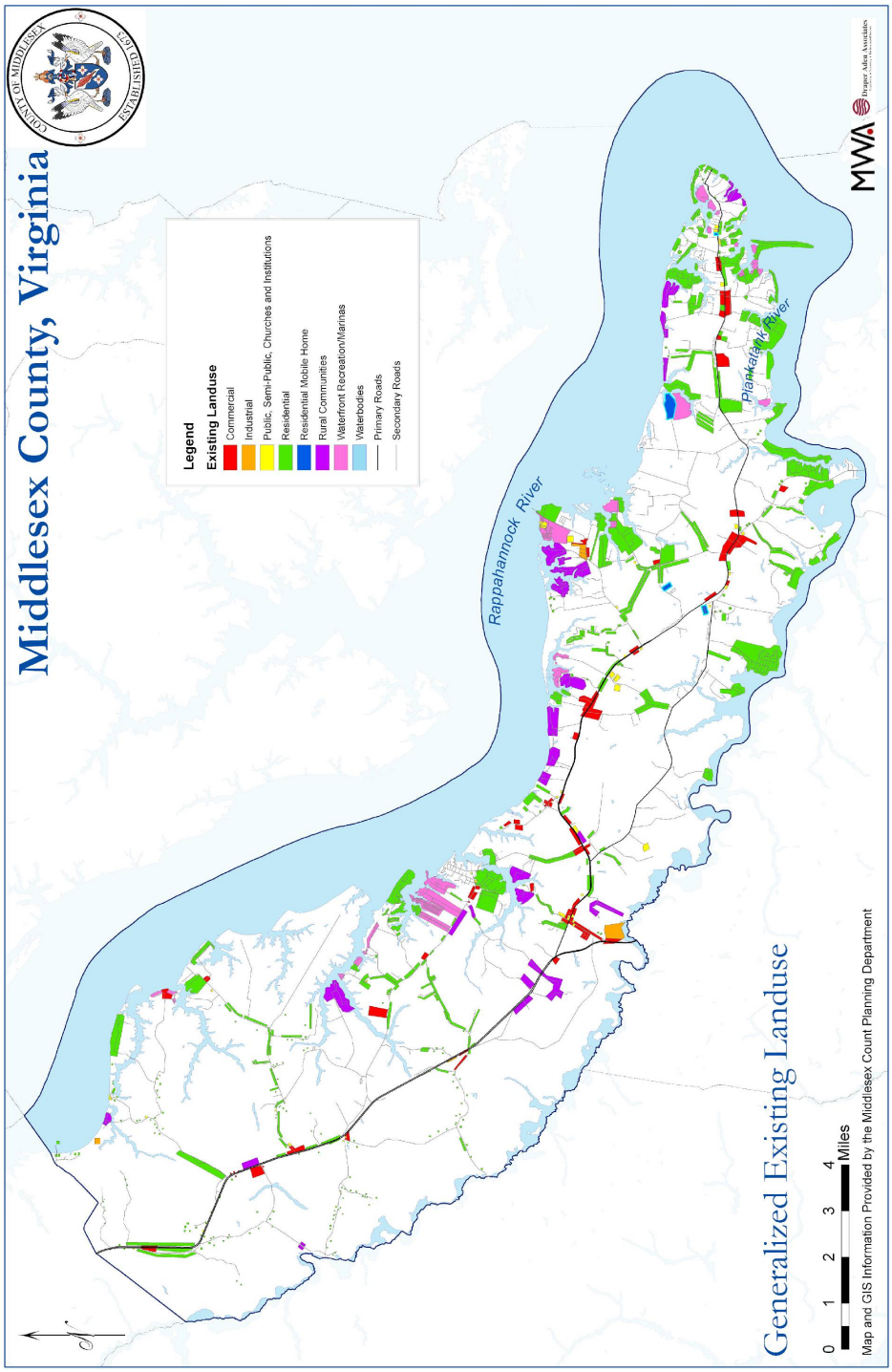
RESIDENTIAL MOBILE HOME Mobile home parks that are managed and operated by an owner or business organizations

RESIDENTIAL– Areas of residential development (mostly single family) that have developed near commercial centers having a large number of individual units and/or higher densities than Rural Communities.

RURAL COMMUNITIES – Enclaves of housing relatively low in number but having a significant density. These areas tend to exist either on the waterfront or away from commercial centers and major roadways.

WATERFRONT RECREATIONAL/MARINAS – Campgrounds, marinas, yacht clubs or other waterfront dependent entities and their accessory uses. These uses depend on their waterfront location and recreational nature as a major asset of their business.

Map VII-2
Existing Land Use



Population Growth Projections and Future Land Use *(Amended 4/14/15)*

Population growth is a key indicator of a future demand for land in a community. As presented in Chapter III of this plan, Weldon Cooper has projected that the population of Middlesex County will increase by 725 persons from 2010 to 2020 and by 616 persons from 2020 to 2030. Specific population projections are as follows:

Year	Population	Numeric Increase	Percentage Increase
2000	9,932 *	---	---
2010	10,959*	1,027	10.34
2020	11,684 **	725	6.62
2030	12,300**	616	5.27

* US Census 2000

** Weldon Cooper Population Projection

The Weldon Cooper estimate of a population of 10,300 versus the 2010 Census figure of 10,959 suggests that the county's official 2020 and 2030 population projections may also be low. This contention remains unchanged from the previous assertion in the 2010 Comprehensive Plan. This is supported by the building permit activity in the county, which documented the construction of over 1300 new dwelling units in the county between 2000 and 2010. For comparative and analysis purposes alternative population projections were prepared using Weldon Cooper projections as a base. These are presented below

Year	**Weldon Cooper Projections**	**WC +3%**	**WC+5%**	**WC+7%**	**WC+ 10%**
2020	11,684**	12,034	12,268	12,502	12,852
2030	12,300**	12,669	12915	13161	13530

This plan will assume that the County's 2030 population will be 12,915 persons, a 5% increase over the Weldon Coopers projections This translates into a population increase of approximately 1,956 persons from the county's population of 10,959 in 2010.

In 2000, the average household size in the county was 2.43 persons per household. Using this estimate the projected population increase of 1,956 persons would generate a demand for an additional 805 dwelling units in the county over the next 20 years – or an average

of approximately 40 units per year. This is a much lower rate of housing production than the county has experienced in the last few decades.

Population growth will dictate a demand for additional land particularly for residential and commercial development. The amount of residential land required will be based on the average lot sizes/densities allowed by the county. For example, if all of the 804 projected dwelling units were developed in an LDR Low Density Residential Zoning District, over 2010 acres of land would be required. Conversely, these 804 units in a Cluster Development District would require approximately 100.5 acres – approximately 5 percent of the LDR requirement. Obviously not all of the county's future dwelling units will be developed in a single zoning district. However this simple example shows the positive effect that higher densities can have on preserving undeveloped land.

Constraints to Future Development

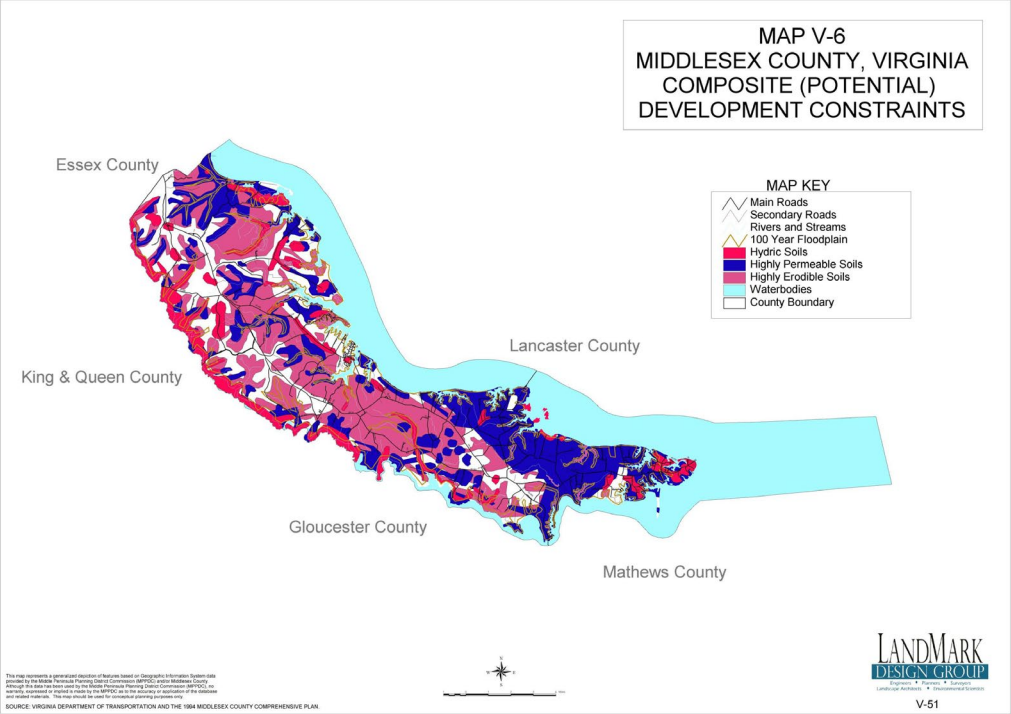
Not all land in the County is suitable for development. Environmental factors play a major role in delineating an area's suitability for development. Slope considerations, soil characteristics, the presence of floodplains and/or wetlands and air and water quality are just six of many environmental factors that should be considered when planning for the future growth and development of the County. Map VII-3 highlights the location of potential development constraints based upon environmental factors discussed in this plan, These factors, and others, were considered in developing the future land use map contained in this plan, and should be considered as the County adopts policy and code changes to implement this plan's recommendations. They should also be considered as the County evaluates rezoning requests and specific land development proposals.

In the development of the Future Land Use Map, many factors are considered and weighed in determining what types of development should be encouraged where in the County. These factors include, but are not limited to, existing development; transportation facilities; the location of public facilities and services; water and sewer; environmental concerns and constraints; and the development needs, goals and priorities (affordable housing, business development, open space preservation, etc.) as may be established by the citizens and Board of Supervisors of Middlesex County. When the Future Land Map is viewed in the context of only a single factor, it may appear not to properly reflect the development issues presented by such factor. The varying factors which must be considered may in fact conflict with one another at times. This complexity associated with the planning process, being the balancing test of competing or conflicting interest, is recognized and ultimately falls upon the Board of Supervisors to decide with input and assistance from the citizens they represent.

Consistency with the Bay Act is of great importance in determining the Future Land Use Map. Many of the environmental features that determine CBPA designation of land (highly erodible and permeable soils, excessive slope, floodplains, wetlands, etc.) are individually in and of themselves physical environmental concerns and constraints

Map VII – 3

Potential Development Constraints



deserving special consideration. Most notably, the Existing Land Use Map and Future Land Use Map do not appear at face value to recognize Bay Act requirements in the Deltaville Area. The identification of unsuitable soils, wetlands, floodplains and other environmental constraints in these areas do not make them preferred locations for new and continued development. However, a large number of individual lots and subdivisions are presently recorded in this area. Although the County cannot prohibit development of these parcels, the environmental constraint imposed primarily by poor soil suitability for the use of septic systems has in fact prevented development on many of these parcels. Those parcels that can be developed in many instances still require special permitting and approvals under CBP District regulations, thereby allowing the County to review such development and require Best Management Practices (BMP's) to be employed to mitigate potential negative impacts to water quality. The County is aware that the provision of a central sewage system in the Deltaville Area would be a two-edge sword. While a central sewage system would be advantageous in reducing pollution from failing individual septic systems, it would also open this area to additional new construction and redevelopment thereby creating the loss of additional undisturbed natural areas and the increase of other potential pollution and stormwater management problems from such development.

The Existing Land Use Map shows a number of residential communities and development along the shoreline of the Rappahannock River, Piankatank River and Chesapeake Bay. The majority of these residential communities and subdivisions were in existence prior to the Bay Act. The Future Land Use Map associated with the county's 2001 comprehensive plan did not specifically identify a preferred location for residential development. The future land use map in this 2008 plan has a higher degree of specificity as to where residential development activity is desired. This policy change should benefit the Planning Commission and Board as they evaluate future rezoning requests for increase residential densities.

The 2001 plan noted that there are no areas of the County considered unacceptable for residential development. While this is true, the County does have specific lot size and width requirements for any proposed waterfront lots. These lot requirements exceed typical Residential (R) District zoning requirements and are in addition to the development requirements of the CBP District. The County amended the Middlesex County Zoning Ordinance increasing the minimum lot size requirement in the Low Density Rural (LDR) District from 40,000 square feet to 2.5 acres. And last, the Middlesex County Subdivision Ordinance was also amended to require that all property proposed for Major Subdivisions (seven or more lots) must be classified as either Residential (R) District, Cluster Development (CD) District, or Village Community (VC) District.

All of these noted ordinance requirements and changes were intended to reduce residential development densities, to prevent residential sprawl and the loss of open space, and to direct new residential development in and adjacent to existing development areas. All of these purposes also benefit the furtherance of Bay Act goals and objectives.

The required rezoning of waterfront properties for major subdivision development has afforded the County the opportunity to consider Bay Act factors and potential water quality impacts (and potential proffering to both protect and improve water quality conditions, limit densities, limit shoreline facilities, etc.) as part of the decision making process on a site specific, case by case basis.

Future Land Use Map ***(Amended 4/14/15)***

The Future Land Use Map contained in this plan (Map VII-4) is a guide for the future development of Middlesex County. Both public and private sector decision-makers may use this map. The Planning Commission and Board of Supervisors can use the future land use map as one source of information when planning public facilities or evaluating land use requests. The map also serves as a guide for private investment, indicating the location and type of future desired development.

The future land use map highlights three sub-areas of the County; Deltaville, Saluda/Urbanna, and Topping/Hartfield. These three areas, located in the southern half of the county, are where much of the county's historic development has occurred. Sufficient vacant acreage exists in these three areas to accommodate the county's growth needs to 2030 and beyond.

The future land use map presents a generalized overview of desired land use locations within the county. Although GIS technology has allowed these maps to be parcel specific, decision makers should consider these maps to be a generalized recommendation of the location of desired future land uses. As a generalized map, a mixture of supporting land uses may be found in any designation. The specific location of future land uses will be determined by the zoning ordinance, and when required by the zoning ordinance, Commission and Board review and action on specific land use requests. Such review will consider the compatibility and benefits of the use, the policies and guidance provided in this plan and the land use impacts of a specific use on the surrounding neighborhood and larger community.

It should be kept in mind that, generally, when a rezoning is involved that is inconsistent with the existing comprehensive plan, it is advisable for owners to consider either first obtaining an amendment to the comprehensive plan or to pursue an amendment to the comprehensive plan concurrently with a desired rezoning.

While rezoning of property is addressed in detail, specific requirements for landowner initiated comprehensive plan amendments are currently not specified in the Middlesex County Zoning Ordinance.

This is due, in part, to the fact that, until 2014, no land use applications involved such amendments. However, in 2014, two rezoning applications were proposed that were in conflict with the Comprehensive Plan designation for the properties; both involving rezoning to General Business (GB). One proposal involved re-designation from a mixed-

use designation and the other from a residential designation. These conflicts were mentioned in Staff reports, in meetings with the Ordinance Committee (composed of Planning Commission members), and at the public hearings. The two rezoning proposals were approved with the realization that the Future Land Use Map would be updated as part of Comprehensive Plan updates approved by the Board of Supervisors on April 14, 2015.

Therefore, appropriate procedures for a citizen-initiated comprehensive plan amendment are to be specified in the County Zoning Ordinance. Requirements for such are recommended by the Ordinance Committee, together with procedures, checklists, and appropriate application fees, as may be adopted by the Board of Supervisors as part of the Fee Schedule, for the same.

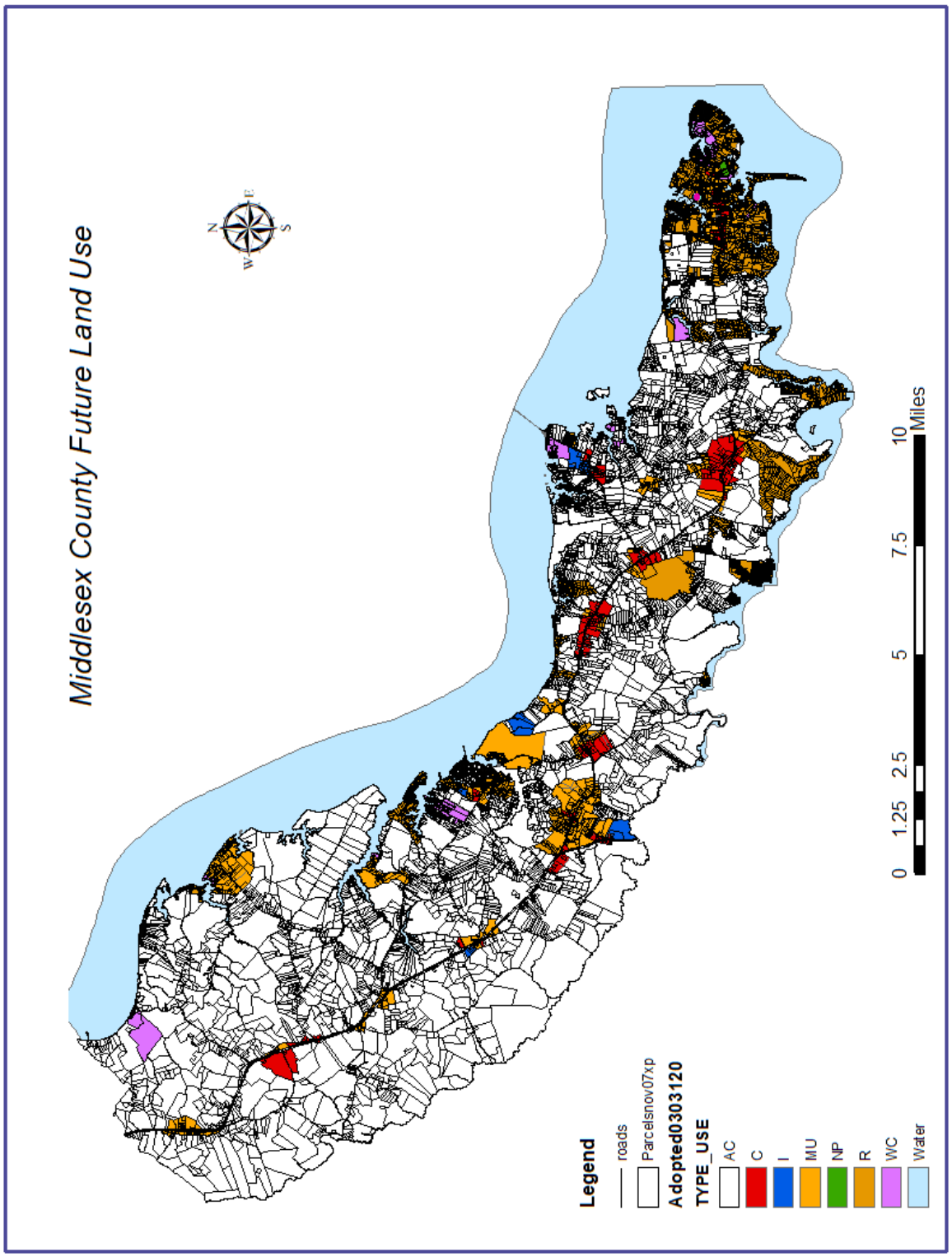
Moving on to land use categories, seven future land use categories are shown on the future land use map. They are:

Agricultural/Conservation

This category includes land in the rural portions of the County where agricultural and forestal uses are, and should be, the dominant land use. Large lot single family development now exists within some of these areas. Most of these areas are zoned low density residential (LDR). This zoning district allows a 2.5 acre minimum lot size. Major subdivisions (over six lots) are prohibited in LDR zoning districts. Future residential development of these properties is not encouraged. Although LDR zoning restricts major subdivision activity, the County should adopt and or promote additional methods of land conservation.

Agricultural/Conservation areas are the appropriate location for the application of the land conservation tools presented in this chapter. However, if the land conservation goals

Map VII-4
Future Land Use (Updated 03/03/2020)



contained in this plan are to be achieved, one or more conservation - oriented zoning districts need to be incorporated into the county's zoning ordinance and applied to properties that due to their size or location are most appropriate for conservation. These new zoning districts would have one or more of the following characteristics:

- Lower densities– densities equivalent to a minimum lot size of 10 acres or greater should be considered for agricultural conservation areas and densities equivalent to a minimum lot size of 20 acres or greater should be considered for forestal conservation areas

- A limitation on the number of new lots that can be created from a parent tract through the minor subdivision process during a specified period of time – a maximum of 1 – 3 lots should be considered per 1-3 year period.

- A requirement that all new major subdivisions within this area be rezoned for development as "residential clusters". Sometimes called "conservation subdivisions", this technique clusters allowable densities on one portion of the original parent tract, reducing development costs, and leaving large portions of the parent tract to continue functioning as a farms or forests. This technique of land development was originally popularized by Randall Arendt and his colleagues in "Rural by Design" and "Conservation Design for Subdivisions". The county should consider a new zoning district for this form of subdivision with Agricultural/Conservation Areas.

Since 2010, a new Agricultural (A) Zoning District has been created with the purpose of "preserving and protecting areas of Middlesex County that are predominantly in agricultural or forestal use, and to maintain the land base and support facilities necessary to support agricultural activity.' Minimum lot sizes in the District are 25 acres, with 2.5 acres allowed for a family division lot. ***(Amended 4/14/15)***

Commercial

This category designates areas where commercial development has occurred in the county and where future commercial development is encouraged. These commercial areas are located in or near the county's larger communities such as Saluda, Urbanna Deltaville and Jamaica.

All future commercial development should be in "nodes" Strip commercial development along the county's highway corridors is discouraged due to its impact on traffic safety and the county's visual resources.

Light Industrial

The category designates those areas where industrial activities exist and/or are planned.

Mixed Use Residential/Commercial

These areas generally correspond to areas now zoned Village Community (VC), or where VC zoning would be appropriate. This category includes areas where residential development, with a variety of housing styles densities, is encouraged. Planned unit developments, cluster developments, and neo-traditional developments are desired in these areas. Allowable future densities in these areas should be based upon the availability and adequacy of public services and facilities and the compatibility of the proposed land use with surrounding properties.

The category also designates those areas where small scale commercial uses are encouraged. Such uses provide goods and services designed to meet the needs of the surrounding residential community. Often located at "community crossroads", these smaller commercial areas should designed to be compatible with the rural landscape

The future land use map shows sufficient areas designated mixed use residential/commercial to accommodate housing and commercial demand based upon projected population growth.

High Density Residential

These areas are where small lot subdivisions have historically occurred and where future small lot residential development would be appropriate provided adequate facilities exist to accommodate the densities proposed

Nature Park

This category includes conservation land areas owned and operated by a federal, state or local government.

Waterfront Commercial[11]

This category designates areas along river and inlet shorelines where water dependent commercial uses are located or appropriate.

[11] The Virginia Marine Resource Commission has guidelines for the silting of marinas and other water dependent uses. These guidelines can be found at www.mrc.virginia.gov

CHAPTER VIII GOALS, OBJECTIVES AND ACTION STEPS

Introduction

This chapter of the Plan presents a series of goals, objectives and action steps designed to guide public (and private) decision making within Middlesex County. Guidance is offered in the areas of community facilities, housing, economic development transportation, the environment, and land use. These goals, objectives and action steps should be considered and used in conjunction with other policy directions contained in this plan.

The goals, objectives and action steps offered in this chapter are not laws. County ordinances (such as zoning and subdivision) and the building code are the legal mechanisms by which land development is controlled. Similarly, planned community services and facilities are a function of the Board of Supervisors' annual decisions pertaining to capital and operating expenditures.

However, decisions made in general accordance with a comprehensive plan hold great legal weight in Virginia. Making decisions that conform to a comprehensive plan demonstrates to the citizens of a community that elected and appointed officials have thought about the future of their community and are willing to plan for a future that is desired.

Finally, a comprehensive plan is not a static document. In addition to periodic five-year reviews, a plan may be formally amended at any time to address unanticipated community conditions, or new or emerging community objectives.

To facilitate the understanding of goals, objectives, and action steps, the terms as used in this document are defined as follows:

Goals: Long-range community aspirations for the significant positive gains that should be achieved by the County and serve to establish the future direction of the County.

Objectives: More specific than goals, these will delineate the definite direction pursued in order to achieve the County goals.

Action Steps: Specific actions or work items which direct the accomplishment of goals and objectives. As such, these represent the County's land use planning work plan to be spearheaded by the Planning Commission.

Community Facilities and Services *(Amended 4/14/15)*

Goals:

CF-G-1 To plan for, construct, and maintain needed community facilities is a manner that is cost effective, environmentally sound and consistent with the growth objectives contained in this plan.

Objectives:

CF-O-1 Plan for and fund the County's capital facility needs.

CF-O-2 Consistent with this plan, develop and maintain public water and wastewater systems as necessary, to meet the needs of a growing community

CF-O-3 Provide the facilities and services required to meet the recreational needs of County citizens.

CF-O-4 Provide the facilities and services required to meet the public health, safety, library and school needs of County citizens.

Action Steps

1. Continue to prepare and adopt an annual Capital Improvement Program with the full participation of members of the planning commission.
2. Investigate the economic and environmental suitability of installing a waste water treatment system or piping the waste water to another system for the Saluda Area. If suitable alternative if decided upon, continue the funding and implementation of a Saluda area waste water system.
3. As a designated growth area, explore the technical and political feasibility of further expanding the Urbanna water and wastewater systems to serve additional areas in the county, near Urbanna. Also, investigate the feasibility of pumping the wastewater to an appropriate treatment facility.
4. Investigate feasibility of piping wastewater from Deltaville to an appropriate treatment facility.. In conjunction with wastewater disposal, efforts to incorporate a piped water system should be investigated.
5. Prepare a parks and recreation master plan for the County.

6. Develop a shoreline access and management plan and explore and pursue all opportunities to provide additional public water access

7. Support the activities of a Parks and Recreation committee in the organization and implementation of a county-wide recreation program, including access to the water.

8. Provide the necessary facilities to support the Parks and Recreation Program and to increase public access to natural and recreational resources. Access should not be detrimental to that resource.

9. Expand the number of county parks and expand recreation facilities at public schools and County properties and make facilities available to the programs of the Parks and Recreation Department.

10. Consider the purchase of parkland and natural areas in accordance with the standards provided in this Plan.

11. Establish a program to persistently solicit support from the State authorities in the siting of a State Park within the County.

12 Establish a program for the evaluation of properties owned by the County which have potential as suitable sites for public use as access points to the waterways, natural areas and scenic and historic assets. Consideration should be given to the liquidation of such properties having no foreseeable potential use to the County.

13. Include funding in the Capital Improvement Funding Program for revitalization and maintenance of properties where such improvements are intended for public use

14. Investigate public-private partnerships to enhance the recreational opportunities within the county. For example, consider partnering with the YMCA to provide recreation programs for county residents.

15 Continue to support the system of volunteers who provide fire and EMS safety services. Consider the use of paid emergency service personnel if volunteer recruitment efforts fail to identify sufficient volunteers**.**

16. Continue to monitor school enrollment projections and evaluate new development/rezoning proposals partially on the basis of the proposed developments impact on school enrollments

Housing

Goals:

HO-G-1 To promote the creation of residential communities that meet the needs of all County citizens.

HO-G-2 To promote the availability of affordable, safe, and sanitary housing for all County residents

Objectives:

HO-O-1 Identify barriers that limit housing choice in the County.

HO-O-2 Explore and participate in housing programs and partnerships designed to assist low and moderate income families.

HO-O-3 Explore programs and initiatives designed to stabilize and maintain the County's substandard housing.

Action Steps

1. Evaluate the zoning ordinance to determine if it allows a full range of housing choice options in the County including multifamily, townhouses, condominiums, and affordable housing.
2. Promote and encourage neo-traditional developments that combine tradition with newer elements ***(Amended 4/14/15)***
3. Explore the use of Community Development Block Grant funds to finance infrastructure improvements in new residential developments that incorporate housing for low to moderate income residents.
4. Explore partnerships with non-governmental organizations (NGO's) to provide affordable housing opportunities in the County.
5. Continue and expand a housing quality assessment in selected areas of the county, including manufactured home parks. ***(Amended 4/14/15)***
6. Explore the use of Community Development Block Grant funds to finance initiatives designed to stabilize and maintain the County's older and substandard housing stock.

Economic Development

Goals:

ED-G-1 To enhance the economic base and employment opportunities in Middlesex County.

ED-G-2 To encourage tourism is recognized and promoted as an industry and encourage its continuing growth and development.

ED-G-3 To encourage an effective and sustainable commercial development pattern to achieve a balanced economy and tax base to the fullest extent practical.

ED-G-4 To encourage sufficient land areas are available for commercial development to serve existing and anticipated demand.

ED-G-5 To encourage the creation of an industrial base with sufficient diversity to provide employment opportunities to County residents.

ED-G-6 To encourage agriculture, aquaculture and forestry as a recognized and promoted industry and encourage their continued growth and development.

Objectives:

ED-O-1 Develop a strong and diversified tax base through well planned and properly located office, commercial retail and light industrial development.

ED-O-2 Develop and maintain the County's community facilities and transportation system.

ED-O-3 Promote the retention of all existing businesses, including agricultural, forestry, and aquaculture businesses.

Action Steps

1. Use the future land use map and the zoning map to identify and reserve land areas suitable for future economic activities.

2. Actively promote and market industrial development areas within the County.

3. Coordinate closely with the Economic Development Authority (EDA), County Departments and other local, regional, and statewide economic development organizations. ***(Amended 4/14/15)***

4. Use the CIP as a tool to plan for and finance adequate public facilities and services to meet the needs of an expanding economic base.

5. Coordinate closely with VDOT and other agencies that can assist with economic development opportunities associated with new or expanding businesses.

6. As resources become available, implement planned public utility projects and planned road improvements to accommodate future economic growth consistent with this plan.

7. When beneficial, seek industrial access funds to provide public road access to any proposed new or existing industrial areas.

8. Provide assistance to existing businesses and industries that wish to expand in the County.

9. Continue to support and facilitate work-force training opportunities that will assist new or expanding businesses.

10. Participate with local community college for technical training.

11. Coordinate closely with other local, regional, and statewide economic development organizations to retain and attract new agricultural, forestry, and aquaculture businesses to the county.

12. Identify potential barriers to sound economic development within County Ordinances. ***(Added by Amendment 4/14/15)***

Transportation

Goals:

TR-G-1 To develop and maintain a safe and efficient transportation system.

TR-G-2 To encourage a balanced efficient transportation system

TR-G-3 To plan for the County's future highway needs.

Objectives:

TR-O-1 To establish and maintain a minimum level of service of "C" or better for all secondary and primary highway intersections in the County[12].

TR-O-2 Consider the development of bike lanes or off-road bike paths within the County.

TR-O-3 Identify and protect new and existing highway corridors needed to serve the long term needs of the County.

TR-O-4 Support the construction and maintenance of bridges that provide vital access to the county and its neighborhoods.

Action Steps

1. On an annual basis work with the Virginia Department of Transportation to prepare a 6-year secondary road improvement plan based upon locally identified needs and available resources.

2. Work with the General Assembly to obtain increased state funding for transportation enhancements.

3. Develop and adopt a comprehensive access management program for the County.

4. Continue to consider road adequacy and safety as criteria to be considered when evaluating rezoning and special exception requests. Require applicants to provide formal traffic impact studies in accordance with state legislation.

[12] A level of service C refers to restricted flow that remains stable but with significant interactions with others in the traffic stream. For a driver, the general level of comfort and convenience declines noticeably at this level of service

5. Ensure that all established and future growth areas within the County are connected by arterial corridors.

6 Consistent with the recommendations contained in the land use chapter of this plan, promote an efficient land use pattern that promotes new residential areas within the designated growth areas.

7. Plan for and require through rezoning actions and subdivision approvals pedestrian and vehicular interconnectivity between existing and future neighborhoods and activity centers such as shopping areas, schools, libraries, and community centers.

8 Evaluate the need for traffic calming measures to be installed in existing residential areas, and establish in the subdivision ordinance traffic calming warrants and acceptable traffic calming measures for new subdivision streets.

9. As part of the County's annual CIP and budget process, consider the allocation of additional local funds for identified transportation system needs.

10. Encourage bike lanes and bike paths within new developments.

11. Request VDOT design and incorporate bikeways into new road projects as designated in any adopted regional and County bikeway plans.

12. Consider bike lanes and bike paths "public facilities" to be considered as part of any future proffer policy adopted by the County.

13. Prepare and adopt a current 25 year transportation plan that identifies highway needs based upon expected County and regional growth rates and patterns.

14. Adopt zoning and subdivision ordinance amendments necessary to protect future rights-of-way needed for new corridors or the improvement of existing corridors.

15. Utilize the County's official map authority to formally designate future road corridors.

16. Identify alternative funding sources, including the feasibility of cash proffers that might be used to acquire or improve planned road corridors.

17. Continue to participate in VDOT's Rural Transportation Planning Program that is coordinated thru the Middle Peninsula PDC

18. Utilize allocated funding and secure additional funding as needed to complete preliminary bike path plan for the Deltaville area.

19. Encourage the construction of parallel and/or interconnected road systems in Village Community and other designated growth areas of the county.

Environment

Goals:

EN-G-1 To encourage the protection and stability of the natural and man-made environment of Middlesex County by encouraging growth to occur in accordance with the Comprehensive Plan.

EN-G-2 To preserve existing shorelines to the maximum extent possible through the use of best management practices.

Objectives:

EN-O-1 Protect and enhance the County's surface and ground water resources.

EN-O-2 Protect and enhance the County's air quality.

EN-O-3 Protect the natural and rural character of the County by encouraging the retention of forests, agricultural lands, and open-space areas.

EN-O-4 Protect rivers, marshes, wetlands, and other bodies of water, e.g. the Dragon Run System, from pollution, disturbance, and destruction.

Action Steps

1. Amend the zoning and subdivision ordinances to provide incentives for the use of low impact development techniques.
2. Participate in the overall state program to protect the waters of the Chesapeake Bay through the administration and enforcement of applicable zoning, subdivision, and erosion and sediment control, floodplain, and wetlands land use development ordinance and the periodic review and amendment of said ordinances when required.
3. Evaluate all new development partially on the basis of its impact on air quality and water resources
4. Explore ordinance changes pertaining to appropriate standards for alternate energy systems
5. Promote mixed use developments as a strategy to promote live-work relationships.
6. Support the continued update of shoreline mapping and conditions for Middlesex County by the Middle Peninsula PDC.
7. Adopt ordinance provisions which will result in parking areas in commercial and industrial zoning districts being obscured year

round from the view of adjacent rights-of-way by means of buildings, earthen berms, landscaping, or any combinations thereof.

8. Continue to explore development and adoption of an ordinance pertaining to property and structure maintenance regulating structures deemed non-habitable and consequently a hazard to the safety of the community as well as an eyesore to our County be improved or razed. ***(Amended 4/14/15)***

9. Participate in the overall state program to protect the waters of the Chesapeake Bay through the administration and enforcement of applicable zoning, subdivision, and erosion and sediment control, floodplain, and wetlands land use development ordinance and the periodic review and amendment of said ordinances when required.

10. Encourage the Health Department to identify and inspect malfunctioning septic systems and to initiate appropriate action to repair such systems. Work with the Middle Peninsula Planning District Commission (MPPDC, as appropriate, in this process. ***(Amended 4/14/15)***

11. Work with the Soil and Water Conservation District in the review of soil conservation and water quality plans and nutrient management plans for agricultural operations.

12. Coordinate County permitting of development with applicable state and federal regulatory agencies and continue to make state and federal permitting a condition of local permit issuance.

13 Support local initiatives to clean up county creeks and tributaries and seek innovative ways to reduce non-point source pollution discharges.

14. Institute proceedings to condemn and remove dilapidated structures when safety issues are identified.

Land Use

Goals:

LU-G-1 To achieve a balanced land use system that provides sufficient and compatible land areas for all community land use needs, while protecting sensitive natural environments and important local historic and cultural resources.

LU-G-2 To encourage the preservation of areas and properties of historic and cultural significance in Middlesex County.

LU-G-3 To encourage the character, appearance, and image of Middlesex County is perpetuated in new development and redevelopment proposals.

Objectives:

LU-O-1 Promote a strong and diversified industrial and commercial base which does not create significant adverse impacts on residential areas, prime agricultural lands or public facilities.

LU-O-2 Discourage development patterns which are incompatible with the County's ability to provide adequate and cost effective public services and facilities.

LU-O-3 Enhance the rural and environmental character of the County through the preservation of agricultural and forestal lands, wetlands, flood hazard areas, and Chesapeake Bay Resource Protection Areas.

LU-O-4 Develop new zoning districts that preserve open space, promote the clustering of development, allow a range of housing and lot area choices, protect ground and surface water resources, protect wetlands and other sensitive environmental features, and reduce stormwater runoff.

LU-O-5 Adopt and maintain appropriate land use ordinances designed to guide and implement the provisions of this comprehensive plan.

Action Steps

1. Use the future land use map contained in this plan as a general guide for all future land use decisions.

2. Guide new commercial and industrial areas to locations as shown on the future land use map. ***(Amended 4/14/15)***

3. Consider zoning and subdivision ordinance amendments that would further limit subdivision activity in the Conservation and Resource Husbandry zoning districts.

4. Ensure new water line and wastewater line extensions are designed to serve designated growth areas.

5. Ensure that all planned capital facilities are evaluated on the basis of consistency with the growth objectives of this plan.

6. Amend the County's zoning and subdivision ordinances to provide density bonuses for developments that demonstrate conservation site design principles and/or incorporate low impact development techniques.

7. Consider requiring central water and sewer for all new major subdivisions within the county**.**

8. Consider amending the zoning and subdivision ordinances to adopt provisions for low impact development, conservation design subdivisions, and new urbanist developments.

9. ***Explore the adoption of*** a local agricultural and forestal district ordinance as a first step in establishing agricultural and forestal districts in the County. ***(Amended 4/14/15)***

10. Support efforts of local conservation organizations and the Virginia Outdoors Foundation to acquire and provide stewardship for locally obtained conservation easements.

11. Initiate a purchase of development rights program for the County, and identify a funding source for the program.

12. Amend the County zoning and subdivision ordinances to provide enhanced standards for landscaping, signage, noise, buffering, and lighting.

13. Develop a corridor design plan and standards. ***(Amended 4/14/15)***

14. Amend the zoning and subdivision ordinances to require applications to include identification of significant and sensitive historic, scenic, and natural resources as a part of any Plan of Development submittal.

15. Request a matching grant from the Virginia Department of Historic Resources to undertake an historic reconnaissance survey of Middlesex County. Using the survey results as a basis, support the creation of one or more historic overlay districts

16. Develop standards for animals in residential districts.

17. Develop cellular communications tower standards and incorporate same into the zoning ordinance.

18. Identify prime agricultural land and forestland and protect such areas from development through the zoning ordinance.

19. Develop new zoning districts and subdivision ordinance standards necessary to implement the growth management objectives contained in this plan.

20. Examine current allowable densities in the rural/agricultural areas of the county. Based upon this examination, consider the need to lower current allowable densities so that bonus/incentive zoning have more relevance and attractiveness.

CHAPTER IX
PLAN IMPLEMENTATION SCHEDULE

This chapter contains an action program for this Comprehensive Plan. It lists general time frames for the action steps presented in Chapter VIII. The planning commission prepared and adopted this action program subsequent to the adoption of the plan.

The schedule will be reviewed annually (January / March) to track progress on implementing these action items. The Planning Commission will oversee the process.

(1.) Review, Amend and Develop Zoning and Subdivision ordinances for focus, compatibility, competitiveness, and simplicity. * see attached ordinance review schedule	Short Term (ST) - 0 - 4 years	LU-O-4 LU-O-5 ….et al HO-O-1 ED-O-1 ED-O-3 EN-O-3 EN-O-4
(2) Review Capital Improvement Program and Proffer Methodology	Continuous (CT) annually	CF-O-1 CF-O-2 ….et al ED-O-2 TR-O-2
(3) Review further develop Economic Development Plan	Short Term (ST) - 0 - 4 years	ED-O-2 ED-O-3 ….et al
(4) Conduct Housing Study to evaluate housing existing stock, options, and access.	Medium Term (MT) - 5 - 8 years	HO-O-1 HO-O-2 ….et al
(5) Review Comprehensive plan	Continuous (CT) – annually	LU-O-5 ….et al

(6) Conduct Historical Resources/ preservation survey with the Department of Historic Resources	Medium Term (MT) - 5 -8 years	LU-O-2
(7) Recreation needs survey including public access to waterways.	Long Term (LT) - 9 + years	CF-O-3

KEY

Term	Time Frame
Continuous (CT)	Annually
Short Term (ST) -	0 - 4 years
Medium Term (MT)	5 - 8 years
Long Term (LT)	9+ years

*** Ordinance Review Schedule:**

1) Development of Agricultural / Forrestal District
2) Development of Rural Cluster District
3) Development of Rural Residential District / Overlay
4) Review and amendment (as needed) of Low Density Rural District
5) Review and amendment (as needed) of Subdivision Ordinance
6) Review and amendment (as needed) of Site Plan requirements (including performance criteria Lighting, Landscaping, Parking, Multifamily, Condo Dev. etc…)
7) Review and amendment (as needed) of Conservation, Resource Husbandry, Dragon Run Conservation Districts (perhaps combining them or folding them into Agricultural Forrestal District)
8) Review and amendment (as needed) of Supplemental District Regulations
9) Review and amendment (as needed) of Signs
10) Review and amendment (as needed) of Nonconformities
11) Review and amendment (as needed) of Waterfront Commercial
12) Review and amendment (as needed) of General Business
13) Review and amendment (as needed) of Village Community
14) Review and amendment (as needed) of Residential
15) Review and amendment (as needed) of Cluster Development District
16) Review and amendment (as needed) of Light Industrial
17) Review and amendment (as needed) of Manufactured Home District
18) Review and amendment (as needed) of Airport District
19) Review and amendment (as needed) of general provisions, administrative bodies and duties, procedures, permits and enforcement

APPENDIX A : COMMENTARY ON CHAPTER II FOOTNOTES

Middlesex County lies within the Chesapeake Bay watershed and thus it is subject to the legislative, regulatory and administrative requirements of the Chesapeake Bay Preservation Act.(the Act) The provisions of the Act are codified in Title 10.1 Chapter 21 of the Code of Virginia and apply to property owners and local governments.

The provisions of the Act are administered by the Virginia Department of Conservation and Recreation (DCR). A division within DCR , the Chesapeake Bay Local Assistance Division (CBLAD), works directly with local governments. One role of CBLAD is to evaluate a local government's, plans, ordinances and procedures to ensure compliance with Act requirements.

Extensive portions of Chapter II of this plan are presented in italicized text. This italicized text highlights information that was originally written and included in the County's 2001 plan. (See Chapter II footnotes.)

Table A-1 below, provides a summary (with page numbers) of the fifteen sections of the 2001 plan that are included in this document. They are repeated in this document at the direction of the CBLAD staff who advised County representatives that their inclusion within this plan was necessary to ensure Act compliance.

Table A-1