Minutes  
Essex County Planning Commission  
Regular Meeting  
May 8, 2024  
7:00 P.M.

A regular meeting of the Essex County Planning Commission was held on May 8, 2024, at the Essex County School Board Office, Tappahannock, Virginia.

Present:
David Jones – Chairman
Angelo Stevens, Jr. – Vice Chairman
Trent Taliaferro
Scott Mundie
Stephen Walters
Wright Andrews

Absent:
Jean Segar

Also present:
Kelly McKnight – Building & Zoning Office Manager
Brian Barnes – Zoning Administrator
Lauren Colley – Zoning Official

CALL TO ORDER

David Jones, Chairman, called the regular meeting of the Planning Commission to order at 7:00 pm.

ROLL CALL

Chairman Jones asked Ms. McKnight to call the roll. A quorum was met.

MEETING AGENDA

Chairman Jones asked if any changes needed to be made to the agenda. Chairman Jones wanted to move the Solar project presentation before the old business. He also requested that if time allows that Brian gives some information about the EDA meeting that a few of the Planning Commission members went to.

APPROVAL OF MINUTES

Chairman Jones asked if there were any corrections or additions needed for the April 2, 2024, minutes? Commissioner Andrews made a motion to approve the minutes as presented. Commissioner Walters seconded the motion. AYES: 6 NAYES: 0 ABSENT: 1
PUBLIC COMMENTS

Joseph Bozman at 2575 Butylo came forward. He heard that the Planning Commission will make recommendations to the Board of Supervisors about the location of LaGrange Industrial Park. Mr. Bozman said to him that the first recommendation is that Mt. Clement be located on the ground by a professional that did not do the original plating of the Industrial Park.

PUBLIC HEARING

None

OLD BUSINESS

Discuss section two of the Essex County Comprehensive Plan

Mr. Barnes said that he sent the members the clean-up version of Section 2. Some of the graphs were missing data but that has been fixed now. Mr. Barnes said that if there is anything else you want in it let them know. Copy is below.
MEMORANDUM

Date: May 2, 2024

To: Essex County Planning Commission

From: Brian Barnes, Zoning Administrator

Meeting Date: May 8, 2024

Subject: Section Two, Comprehensive Plan

________________________________________________________

Item: Section Two of the Essex County Comprehensive Plan.

Detail: At last month's Planning Commission Meeting, Commissioners worked to update the Section Two document and directed staff to make a few minor edits prior to scheduling a public hearing for a possible June 4th meeting. Staff have made these edits and here provides that latest version. More proper citations have been added as well as new minor language that provides some discussion and analysis of the data provided in tables and graphs.

Action: Commissioners should review this document one more time and direct staff to either perform further edits or schedule and process for public hearing in June.
SECTION TWO POPULATION CHARACTERISTICS AND TRENDS

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

The 2010 Census showed the Essex Population to be 11,151, an increase of 1,162 people or 11.6% growth from the 2000 Census which reported the population at 9,989. The 2020 Census Population count stood at 10,399 people. Population is not rapidly growing in Essex County and the low to moderate trend in growth is expected to continue. Table 2-1, (from the 2015 approved Comprehensive Plan) showed moderate projections for Essex County over the next decade in comparison with the region and the Commonwealth. Table 2-1A, developed with data from the UVA Weldon Cooper Center, shows population estimates broken down by the regional localities with estimates going out to the year 2040. This data shows an expected low to moderate growth rate with a 9% expected population change between 2020 and 2040.

<table>
<thead>
<tr>
<th>Geography Name</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex County</td>
<td>9,989</td>
<td>11,151</td>
<td>11,884</td>
<td>12,477</td>
</tr>
<tr>
<td>Middle Peninsula</td>
<td>90,826</td>
<td>93,684</td>
<td>97,061</td>
<td>102,761</td>
</tr>
<tr>
<td>Virginia</td>
<td>NA</td>
<td>8,001,024</td>
<td>8,811,152</td>
<td>9,645,281</td>
</tr>
</tbody>
</table>

Table 2-1A

<table>
<thead>
<tr>
<th>Geography Name</th>
<th>Total Population</th>
<th>Percent Change Between 2020 and 2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex County</td>
<td>10,684</td>
<td>11,222</td>
</tr>
<tr>
<td>Gloucester County</td>
<td>37,198</td>
<td>38,456</td>
</tr>
<tr>
<td>King &amp; Queen County</td>
<td>7,405</td>
<td>7,725</td>
</tr>
<tr>
<td>King William County</td>
<td>16,516</td>
<td>18,457</td>
</tr>
<tr>
<td>Mathews County</td>
<td>8,509</td>
<td>8,138</td>
</tr>
<tr>
<td>Middlesex County</td>
<td>11,174</td>
<td>11,857</td>
</tr>
<tr>
<td>Regional Total</td>
<td>91,486</td>
<td>95,855</td>
</tr>
</tbody>
</table>

Table Graph 2-2 shows a breakdown of the current population of Essex County by age groups and gender. The table indicates that about 24% of the population is dependents. It also shows that 18% of the population is of retirement age. The median age of Essex County residents is 43. Map 2-3 illustrates the age distribution of Essex County residents over the geographical area of the county by Census Block Group. The single largest current age group is the female population aged 60 to 64 years of age. This is followed by the male population aged 45 to 49 years.
Age Pyramid for Essex County, VA

Note: Estimates include the Town of Tappahannock

85 years and over
80 to 84 years
75 to 79 years
70 to 74 years
65 to 69 years
60 to 64 years
55 to 59 years
50 to 54 years
45 to 49 years
40 to 44 years
35 to 39 years
30 to 34 years
25 to 29 years
20 to 24 years
15 to 19 years
10 to 14 years
5 to 9 years
Under 5 years

Population

Graph 2-2, U.S. Census, 2023
Median Age by Block Group in Essex County, VA


The data are based on a sample and are subject to sampling variability.

Jenks Natural Breaks classification method was used to group the data; it maximizes the between-group differences while minimizing the within-group differences.

Map 2-3

Table 2-2 Population Age Distribution

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Percentage</th>
<th>Age</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2-4 shows population growth in relation to housing units. Housing remains a critical issue and having access to adequate housing is important to all demographic groups. Even if the population remains stable, the numbers of housing units may need to increase in order to maintain a healthy housing supply.

Table 2-4: Population and Housing

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012-2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing (units)</td>
<td>5761</td>
<td>5770</td>
<td>5778-5812</td>
</tr>
<tr>
<td>Population</td>
<td>9,989</td>
<td>11,233</td>
<td>11,884-10,630</td>
</tr>
</tbody>
</table>

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

The elderly (over 65 years of age) comprise 17.23.5% percent of the County’s population and reflects the fact that people live longer, and families retire or pre-retire to the Essex County waterfront. There is a significant decrease in the number of children under 5 due to the aging population as well. The 20-24 age group is significantly low due to out-migration as a result of migration education and job opportunities. The 45-54 age group decreases significantly due to migration and aging population.
Table 2-4A provides a population trend projection over an approximately twenty-year period showing a breakdown by age group. This table begins with numbers from the 2010 census and the 2020 census with expected population numbers from the UVA Weldon Cooper Center Demographic Study to provide a 2030 expected population age matrix. These numbers assist in understanding how the makeup of the county changes when certain age groups decline while others increase and how this may affect the need for county services and infrastructure.

<table>
<thead>
<tr>
<th>Table 2-4A Population Projections by Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Under 5</td>
</tr>
<tr>
<td>5-19 years</td>
</tr>
<tr>
<td>20-24 years</td>
</tr>
<tr>
<td>25-44 years</td>
</tr>
<tr>
<td>45-54 years</td>
</tr>
<tr>
<td>55-64 years</td>
</tr>
<tr>
<td>65-74 years</td>
</tr>
<tr>
<td>75-84 years</td>
</tr>
<tr>
<td>85 and greater</td>
</tr>
</tbody>
</table>

US Census Bureau, American Fact Finder 2007-2011, Census 2020, UVA Weldon Cooper Center/2023

Figure 2-1 Table 2-5 shows the makeup of households in Essex County. The numbers indicate that 67% of households in Essex County are parents with dependents living at home. 46% are married couples with dependents at home while 33% of households have no dependents living at home. More than 27% of households have one member. Almost 21% of households have a single parent. 30% of households have children under 18. 30% of households with individuals 65 and over. The numbers indicate that with an estimated 4,258 households in the county, over 2,658 families call those households home for a rate of 62% family occupied households with an average family size of 3.13 individuals.
Table 2-5 Household structures occupied by dwelling type. This table breaks down the dwelling unit structures within Essex County. The United States national average homeownership rate according to the St. Louis Federal Reserve for quarter one 2024 is at 65.6%, a figure statistically similar to the rate for Essex County. The Virginia statewide average homeowner occupied rate is 67.4%.

<table>
<thead>
<tr>
<th>Label</th>
<th>Essex County, Virginia</th>
<th></th>
<th>Married-couple family household</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Estimate</td>
<td>Margin of Error</td>
<td>Estimate</td>
<td>Margin of Error</td>
</tr>
<tr>
<td>1-unit structures</td>
<td>71.0%</td>
<td>±4.6</td>
<td>75.4%</td>
<td>±6.0</td>
</tr>
<tr>
<td>2-or-more-unit structures</td>
<td>12.2%</td>
<td>±3.2</td>
<td>5.9%</td>
<td>±4.4</td>
</tr>
<tr>
<td>Mobile homes and all other</td>
<td>16.8%</td>
<td>±3.3</td>
<td>18.6%</td>
<td>±5.8</td>
</tr>
<tr>
<td>types of units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOUSING TENURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner-occupied housing units</td>
<td>65.4%</td>
<td>±5.4</td>
<td>71.0%</td>
<td>±7.4</td>
</tr>
<tr>
<td>Renter-occupied housing units</td>
<td>34.6%</td>
<td>±5.4</td>
<td>29.0%</td>
<td>±7.4</td>
</tr>
</tbody>
</table>

U.S. Census Bureau, 2023

Figure 2-1 Distribution of Households and Families

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total households</td>
<td>4,817</td>
<td>100.0</td>
</tr>
<tr>
<td>Family households (families)</td>
<td>3,028</td>
<td>67.0</td>
</tr>
<tr>
<td>With children under 18 years</td>
<td>1,130</td>
<td>25.0</td>
</tr>
<tr>
<td>Husband-wife family</td>
<td>2,091</td>
<td>46.3</td>
</tr>
<tr>
<td>With children under 18 years</td>
<td>641</td>
<td>14.3</td>
</tr>
<tr>
<td>Single-parent household</td>
<td>702</td>
<td>20.7</td>
</tr>
<tr>
<td>With children under 18 years</td>
<td>480</td>
<td>10.8</td>
</tr>
<tr>
<td>Nonfamily households</td>
<td>1,389</td>
<td>33.0</td>
</tr>
<tr>
<td>Householder living alone</td>
<td>1,235</td>
<td>27.3</td>
</tr>
<tr>
<td>65 years and over</td>
<td>168</td>
<td>3.7</td>
</tr>
<tr>
<td>65 years and over</td>
<td>126</td>
<td>2.7</td>
</tr>
<tr>
<td>Households with individuals under 18 years</td>
<td>1,370</td>
<td>30.3</td>
</tr>
<tr>
<td>Households with individuals 65 years and over</td>
<td>1,373</td>
<td>30.4</td>
</tr>
<tr>
<td>Average household size</td>
<td>2.43</td>
<td></td>
</tr>
</tbody>
</table>
Table 2-5 shows a breakdown of educational attainment among county citizens with the maximum educational attainment indicated by grade level, credential, or degree, while 91% of the 25-34 population has obtained a high school education or equivalent, only 12% have a college degree. This pattern is consistent throughout the age groups. This pattern shows that a low percentage of the population is college educated.

Table 2-5.6 Population Educational Attainment

<table>
<thead>
<tr>
<th>Age</th>
<th>18 to 24</th>
<th>25 to 34</th>
<th>35 to 44</th>
<th>45 to 64</th>
<th>65 &amp; over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,114</td>
<td>782</td>
<td>1,534</td>
<td>3,318</td>
<td>1,916</td>
</tr>
<tr>
<td>High school or equivalent (GED)</td>
<td>35.1</td>
<td>91.4</td>
<td>84.7</td>
<td>81.9</td>
<td>65.5</td>
</tr>
<tr>
<td>Some College or Associates</td>
<td>34.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>7.6</td>
<td>12.4</td>
<td>13.1</td>
<td>19.4</td>
<td>14.8</td>
</tr>
<tr>
<td>Label</td>
<td>Estimate</td>
<td>Margin of Error</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------</td>
<td>-----------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>7,710</td>
<td>±185</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No schooling completed</td>
<td>165</td>
<td>±81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursery school</td>
<td>6</td>
<td>±6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kindergarten</td>
<td>0</td>
<td>±11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st grade</td>
<td>0</td>
<td>±21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd grade</td>
<td>0</td>
<td>±21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd grade</td>
<td>2</td>
<td>±3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th grade</td>
<td>3</td>
<td>±6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th grade</td>
<td>0</td>
<td>±21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th grade</td>
<td>23</td>
<td>±24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th grade</td>
<td>58</td>
<td>±43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th grade</td>
<td>189</td>
<td>±85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th grade</td>
<td>125</td>
<td>±75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10th grade</td>
<td>332</td>
<td>±98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11th grade</td>
<td>300</td>
<td>±142</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12th grade, no diploma</td>
<td>138</td>
<td>±77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular high school diploma</td>
<td>2,508</td>
<td>±365</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED or alternative credential</td>
<td>293</td>
<td>±110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college, less than 1 year</td>
<td>747</td>
<td>±236</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college, 1 or more years, no degree</td>
<td>1,252</td>
<td>±221</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>388</td>
<td>±149</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>779</td>
<td>±177</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master’s degree</td>
<td>318</td>
<td>±112</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional school degree</td>
<td>42</td>
<td>±35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctorate degree</td>
<td>42</td>
<td>±34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Graph 2-7 is titled "Average Household Income in Essex County" and shows that the average household income is $44,581 with more than 26% of families living below the median income. Nonfamily household median income is only $23,940 with 47% of nonfamily households living below the median income for their category. Nonfamily households compose 33% of the household population. Estimated Percent of Households at Different Income Brackets. This graph displays the different income brackets and illustrates how many households fit within each bracket. Well over 50% of the households lie between $35,000 and $49,000 annual income.

Graph 2-8, titled "Median Income by Block Group," displays the regions of the county by census block group where income may be highest or lowest. This graph shows that the highest median incomes are grouped in the southern end of the county and the lowest median incomes are within the Town of Tappahannock.

Graph 2-9, Gender Ratio by Block Group, displays the gender makeup within the county and where those predominate by county region. Females slightly outnumber males in Essex County. The highest ratio of males reside in the southern end of the county.

**Figure 2-2: Household Income Distributions**

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Household</th>
<th>Families</th>
<th>Married-couple families</th>
<th>Nonfamily households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>4,420</td>
<td>2,855</td>
<td>2,057</td>
<td>1,480</td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>8.4%</td>
<td>4.3%</td>
<td>1.1%</td>
<td>9.3%</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>4.4%</td>
<td>1.4%</td>
<td>0.9%</td>
<td>9.8%</td>
</tr>
<tr>
<td>$15,000 to $24,999</td>
<td>12.1%</td>
<td>6.0%</td>
<td>5.9%</td>
<td>29.6%</td>
</tr>
<tr>
<td>$25,000 to $34,999</td>
<td>14.8%</td>
<td>11.1%</td>
<td>10.4%</td>
<td>21.3%</td>
</tr>
<tr>
<td>$35,000 to $49,999</td>
<td>16.1%</td>
<td>10.9%</td>
<td>18.5%</td>
<td>11.8%</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>18.5%</td>
<td>20.4%</td>
<td>22.7%</td>
<td>10.8%</td>
</tr>
<tr>
<td>$75,000 to $99,999</td>
<td>14.1%</td>
<td>17.5%</td>
<td>19.7%</td>
<td>5.7%</td>
</tr>
<tr>
<td>$100,000 to $149,999</td>
<td>8.2%</td>
<td>11.2%</td>
<td>14.8%</td>
<td>2.0%</td>
</tr>
<tr>
<td>$150,000 to $190,000</td>
<td>3.4%</td>
<td>4.6%</td>
<td>5.8%</td>
<td>1.3%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>0.3%</td>
<td>0.4%</td>
<td>0.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Median income (dollars)</td>
<td>44,581</td>
<td>52,892</td>
<td>63,856</td>
<td>25,049</td>
</tr>
<tr>
<td>Mean income (dollars)</td>
<td>54,697</td>
<td>63,773</td>
<td>N</td>
<td>33,241</td>
</tr>
</tbody>
</table>

Table 2-7
Graph 2-7

Estimated Percent of Households at Different Income Brackets
out of 4,258 ± 217 Total Households

U.S. Census Bureau, 2023
Graph 2-8

Median Income by Block Group in Essex County, VA

Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates
Table B19013: Median Household Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars)

The data are based on a sample and are subject to sampling variability.

Jenks Natural Breaks classification method was used to group the data; it maximizes the between-group differences while minimizing the within-group differences.

Prepared by the Essex County GIS Department
June 29, 2023
Gender Ratio by Block Group in Essex County, VA

Males per 100 Females
- 77.5 - 87.6
- 87.7 - 97.6
- 97.7 - 107.7
- 107.8 - 117.7
- 117.8 - 127.7
- Town of Tappahannock Rivers

Gender ratio is calculated by dividing the number of males by the number of females and multiplying by 100. Where the result is less than 100, there are more females; where the result is more than 100, there are more males. Results falling at 100 indicate equal numbers of males and females.

Prepared by the Essex County GIS Department
March 19, 2024

Source for the map:

Source for the graph:

Board of Supervisors Directive regarding LaGrange Industrial Park
Mr. Barnes passed out the wastewater and water agreement between the County of Essex and the Town of Tappahannock. The copy is below.

WASTEWATER AND WATER AGREEMENT
between
COUNTY OF ESSEX, VIRGINIA
and
TOWN OF TAPPAHANNOCK, VIRGINIA

THIS AGREEMENT (the "Agreement") is made this 24th day of October, 1997, by and between the COUNTY OF ESSEX, VIRGINIA, (the "County") and the TOWN OF TAPPAHANNOCK, VIRGINIA, (the "Town").

WHEREAS, the Town owns and operates a wastewater collection and treatment system consisting of gravity sewers, wastewater pumping stations, gravity and force mains, a wastewater treatment facility, and other structures and equipment and legal and property rights appurtenant thereto with a present processing capacity of 400,000 gallons per day (the "Wastewater Treatment System"); and

WHEREAS, the Town desires to expand the processing and treatment capacity of the Wastewater Treatment System by an additional 400,000 gallons per day (the "Expansion"); and

WHEREAS, the County desires that wastewater service be provided to certain areas within Essex County, Virginia outside of the corporate limits of the Town and the County is willing to pay the Town one-half of the costs of the Expansion under the terms of this Agreement provided that a portion of the Expansion is reserved to and purchased by the County and that a portion of the capacity of the Town's Water System (defined herein) is reserved to and purchased by the County all in accordance with the terms of this Agreement; and
WHEREAS, the Town owns and operates a water system consisting of water wells, water supplies, water distribution mains, water storage facilities, water pumping stations and other water handling structures and equipment and legal and property rights appurtenant thereto with an ability to produce 1,000,000 gallons of potable water per day (the "Water System");

WHEREAS, the Town agrees to reserve and sell to the County a portion of the capacity of the Wastewater Treatment System (as expanded by the Expansion) and a portion of the capacity of the Water System on the terms set forth in this Agreement;

NOW THEREFORE, in consideration of the promises and the mutual covenants and undertakings of the parties to this agreement, the sufficiency of which are hereby acknowledged, the parties mutually agree with each other as follows:

SECTION 1
THE WASTEWATER SYSTEM

1.1 At no cost, expense or liability to the County other than as set forth in Section 3.6 herein, the Town shall, in accordance with the terms of this Agreement, design, construct, operate, and maintain a project to expand the Wastewater Treatment System, which the Town represents as having a present processing and treatment capacity of 400,000 gallons per day, to have processing and treatment capacity of an additional 400,000 gallons of Wastewater per day (the "Expanded Capacity"), resulting in a total Wastewater Treatment System capacity of 800,000 gallons of Wastewater per day. Subject to the terms of this Agreement, the governing body of the Town agrees to appropriate the funds necessary to accomplish the Expansion. The County shall have no responsibility to produce, accomplish or construct the Expansion except as expressly set
forth herein. As used in this Agreement, the term "Wastewater" shall mean a combination of liquid and water-carried waste from residences, business buildings, institutions and industrial establishments.

1.2 Absent express written consent from the County, the Town shall complete the obligations in Section 1.1 within 3 years of the date of this Agreement. Time is of the essence for completion of the Town's obligations in Sections 1.1 and 1.2 of this Agreement.

1.3 At no cost, expense or liability to the County other than as set forth in Section 3.6 herein, one-half (1/2) of the Expanded Capacity (the "Allocated Capacity") shall be and is hereby reserved, granted, sold and allocated to the County for use by the County in any lawful manner in the unfettered discretion of the County, including but not limited to the disposal of sewage, sale, transfer or assignment. The County shall own and have full and unfettered control over the Allocated Capacity, free and clear of any claims, offsets, rights, demands or control of the Town or any other person or entity. The County may grant, assign, convey, sell, give or otherwise in any manner transfer the Allocated Capacity, in whole or in part, to any person or entity on such terms as the County, in its sole discretion, may choose, provided that such person or entity is a consumer of Allocated Capacity and does not further allocate such capacity to two or more other persons or entities.

1.4 The design of and the drawings, specifications and contract documents for (the "Design") infrastructure improvements to the Wastewater Treatment System to accomplish the Expanded Capacity (the "Wastewater Treatment System Improvements")
shall be prepared by a professional engineer hired by the Town at the Town's sole expense and the Expansion shall be in accordance with the Design and shall allow sewage treatment services to be provided within the County outside the corporate limits of the Town at locations desired by the County in accordance with the terms of this Agreement.

1.5 All sewer lines, pumps, meters and ancillary equipment and facilities constructed in the County outside the corporate limits of the Town to be connected to the Wastewater Treatment System (the "County Sewer Lines") shall be constructed by the County at the County's expense according to design standards which meet all regulatory agency requirements and be consistent with the Town's reasonable requirements for the Wastewater Treatment System. The County shall be entitled to connect the County Sewer Lines at any point to the Wastewater Treatment System (a "Wastewater Connection"), subject to the availability of Wastewater Treatment System sewer line and pump station capacity, and the County shall (at the County's expense) acquire all easements and rights of way necessary for any Wastewater Connection to be made or for any lines, pump station or other infrastructure to be acquired, established or constructed. If any improvements to or additional infrastructure are necessary to increase the sewer line or pump station capacity of all or a portion of the Water Treatment System in order for a Wastewater Connection to be made (the "Wastewater Connection Improvements"), the County may require such improvements to be made to allow such an increase in sewer line or pump station capacity in accordance with the provisions immediately following. If the Wastewater Connection Improvements are located outside of the
corporate limits of the Town at the time the Wastewater Connection Improvements are completed, all costs of the Wastewater Connection Improvements shall be paid by the County. If all or a portion of the Wastewater Connection Improvements are located within the corporate limits of the Town at the time the Wastewater Connection Improvements are completed and the Wastewater Connection Improvements will result in some benefit to the Town, all costs of the Wastewater Connection Improvements shall be shared equally between the County and Town. If all or a portion of the Wastewater Connection Improvements are located within the corporate limits of the Town at the time the Wastewater Connection Improvements are completed and the Wastewater Connection Improvements will not result in some benefit to the Town, all costs of the Wastewater Connection Improvements shall be paid by the County.

1.6 The County may establish and impose availability fees on any and all sewer connections to the Wastewater Treatment System outside the corporate limits of the Town (the "County Wastewater Availability Fees"). The Town shall charge and collect any County Wastewater Availability Fees from any user required to pay the same prior to making such connection and shall pay one hundred percent (100%) of such County Wastewater Availability Fees to the County. The County may condition the transfer of any portion of the Allocated Capacity to any user on receipt of the County Wastewater Availability Fees from that user. The Town shall not establish, impose or collect any availability fee on any sewer connection located outside the corporate limits of the Town, other than the Town's actions in charging and collecting the County Wastewater Availability Fees.
1.7 Notwithstanding any other provisions of this Agreement or any provisions of any other agreement or ordinance of the Town, the Town represents that the Town and any officer, agent or representative of the Town (i) shall approve any sewer connection to the Wastewater Treatment System outside the corporate limits of the Town as requested by the County if such connection would not reasonably be expected to result in the County exceeding its Allocated Capacity and would not violate any valid and applicable law, rule or regulation and (ii) shall not give approval for a sewer connection to the Wastewater Treatment System outside the corporate limits of the Town without the written consent of the County.

1.8 After completion of construction of the County Sewer Lines and regulatory approval for operation of the same, the County Sewer Lines and any easements and rights of way related thereto shall be conveyed by the County to the Town, shall be accepted by the Town and shall thereafter be part of the Wastewater Treatment System.

1.9 All costs, liabilities, fees and expenses associated with producing the Expanded Capacity, including but not limited to costs of construction, engineering services, legal services, testing, inspections and insurance (including builder's risk insurance) shall be borne exclusively by the Town, in accordance with the terms of this Agreement.

1.10 After completion of the Expansion, the Town shall accept and treat Wastewater introduced into the Wastewater Treatment System from users located in the County outside the corporate limits of the Town up to the full amount of the Allocated Capacity and shall operate, maintain, inspect, repair and improve, as required by law and
as necessary to provide reasonable sewage treatment service to areas of the County outside the corporate limits of the Town as contemplated by this Agreement, the Wastewater Treatment System, as expanded, and shall bear all such costs arising therefrom.

1.11 The Town may charge users of the Wastewater Treatment System located in the County equitable user fees and connection fees to the extent allowed by law, provided however that any such fees shall be not greater than as allowed by the ordinances of the Town, as such ordinances may be amended from time to time, and further provided that any such amendments shall not require users located in the County and outside of the corporate limits of the Town to (a) pay user fees greater than 50% higher than the user fees being charged to users within the Town or (2) pay connection fees greater than 50% higher than the connection fees being charged to users within the Town. Upon request of the County, the Town agrees to provide the County with all information, data or records in whatever form under the control of the Town in any way related or pertaining to the Wastewater System, including but not limited to financial information.

1.12 The County and the Town shall each have the right to enter into future agreements whereby the County may transfer to the Town or the Town may transfer to the County all or a portion of their respective shares of the Expanded Capacity. No transfer of any portion of capacity in the Wastewater Treatment System shall be transferred to a third party without the consent of both the Town and the County, provided, however, that the transfer by the County of any portion of the Allocated
Capacity to a third party, person or entity (as allowed by Section 1.3 hereof) shall not be prohibited.

1.13 To the extent allowed by law, the County shall on or before connection of the County Sewer Lines to the Wastewater Treatment system adopt an ordinance regulating the use of residential, commercial and industrial sewage in the County outside the corporate limits of the Town in a manner consistent with the ordinances and regulations presently regulating the use of residential, commercial and industrial sewage in the Town or as amended as required by applicable federal or state statutes, laws, rules or regulations.

1.14 The extent of the County’s utilization of the Allocated Capacity in any given month shall be measured by information contained in the Town’s bills for wastewater treatment to those customers utilizing the Allocated Capacity.

1.15 All discharges of Wastewater under this agreement are subject to the constraints of all applicable Federal and State laws, regulations and orders. The Town shall be solely responsible for implementing and enforcing and maintaining any Pretreatment Program required by law. As used in this Agreement, the term "Pretreatment Program" shall mean any program as from time to time amended and approved by the State Water Control Board and administered by the Town pursuant to federal and state law, including all ordinances, regulations, prohibitions, permits and standards adopted, issued or imposed by the Town to implement such Pretreatment Program.
1.16 The Town shall at all times be solely responsible for compliance with any laws, regulations, standards and policies applicable to the design, construction, operation and maintenance of the Wastewater Treatment System, whether before, during or after the Expansion occurs.

1.17 The County shall provide to the Town any information known by the County’s employees and reasonably requested by the Town for the Town to comply with the terms and conditions of the Virginia Pollution Discharge Elimination System permit applicable to the Wastewater Treatment System as the same shall now or hereafter be in force.

1.18 The Town shall operate, maintain and inspect the entire Wastewater Treatment System, including the sewer lines, equipment and facilities located anywhere in the County, including but not limited to the County Sewer Lines after they have been conveyed by the County to the Town. All Wastewater Treatment System operation, maintenance, inspection, repair and improvement costs shall be the Town’s sole responsibility.

SECTION 2
THE WATER SYSTEM

2.1 At no cost, expense or liability to the County other than as set forth in Section 3.7 below, the Town shall and hereby does reserve, grant, sell and allocate to the County the use of potable water from the Town’s existing Water System in an amount of up to 200,000 gallons per day (the "County’s Water Share") for use by the County in any lawful manner in the unfettered discretion of the County, including but not limited to sale, transfer or assignment. The County shall own and have full and unfettered control
over the County's Water Share, free and clear of any claims, offsets, rights, demands or control of the Town or any other person or entity. The County may grant, assign, convey, sell, give or otherwise in any manner transfer the County's Water Share, in whole or in part, to any person or entity on such terms as the County, in its sole discretion, may choose, provided that such person or entity is a consumer of the County's Water Share and does not further allocate such capacity to two or more other persons or entities.

2.2 The County may establish and impose availability fees on any and all water connections to the Water System outside the corporate limits of the Town (the "County Water Availability Fees"). The Town shall charge and collect any County Water Availability Fees from any user required to pay the same prior to making such connection and shall pay one hundred percent (100%) of such County Water Availability Fees to the County. The County may condition the transfer of any portion of the County's Water Share to any user on receipt of the County Water Availability Fees from that user. The Town shall not establish, impose or collect any availability fee on any water connection located outside the corporate limits of the Town, other than the Town's actions in charging and collecting the County Water Availability Fees.

2.3 Notwithstanding any other provisions of this Agreement or any provisions of any other agreement or ordinance of the Town, the Town represents that the Town and any officer, agent or representative of the Town (i) shall approve any water connection to the Water System outside the corporate limits of the Town as requested by the County if such connection would not reasonably be expected to result in the County exceeding the County's Water Share and would not violate any valid and applicable law,
rule or regulation and (ii) shall not give approval for a water connection to the Water System outside the corporate limits of the Town without the written consent of the County.

2.4 The Town shall operate, maintain and inspect the entire Water System, including the water lines, equipment and facilities located in both the Town and the County, including but not limited to the County Water Lines (as defined below) after they have been conveyed by the County to the Town. All Water System (including County Water Lines after the Town's acceptance thereof) operation, maintenance, inspection, repair and improvement costs shall be the Town's sole responsibility. The Town may charge County users of the Water System equitable user fees and connection fees to the extent allowed by law, provided however that any such fees shall be not greater than as allowed by the ordinances of the Town, as such ordinances may be amended from time to time, and further provided that any such amendments shall not require users located in the County and outside of the corporate limits of the Town to (a) pay user fees greater than 50% higher than the user fees being charged to users within the Town or (2) pay connection fees greater than 50% higher than the connection fees being charged to users within the Town. Upon request of the County, the Town agrees to provide the County with all information, data or records in whatever form under the control of the Town in any way related or pertaining to the Water System.

2.5 The design standards for water line extensions located in the County outside of the corporate limits of the Town and necessary for the County's Water Share to be utilized in the County outside of the corporate limits of the Town, including all
water lines, pumps, meters and ancillary equipment and facilities (the "County Water Lines"), shall meet all regulatory agency requirements and be consistent with the Town's reasonable requirements for the Water System.

2.6 County Water Lines shall be constructed by the County at the County's expense in locations approved by the Board of Supervisors of the County. The County shall be entitled to connect the County Water Lines at any point to the Water System (a "Water Connection"), subject to the availability of Water System line capacity, and the County shall (at the County's expense) acquire all easements and rights of way necessary for any Water Connection to be made or for any lines, pump station, water tank or other infrastructure to be acquired, established or constructed. If any improvements to or additional infrastructure are necessary to increase the capacity of all or a portion of the Water System in order for a Water Connection to be made (the "Water Connection Improvements"), the County may require such improvements to be made to allow such an increase in Water System line capacity in accordance with the provisions immediately following. If the Water Connection Improvements are located outside of the corporate limits of the Town at the time the Water Connection Improvements are completed, all costs of the Water Connection Improvements shall be paid by the County. If all or a portion of the Water Connection Improvements are located within the corporate limits of the Town at the time the Water Connection Improvements are completed and the Water Connection Improvements will result in some benefit to the Town, all costs of the Water Connection Improvements shall be shared equally between the County and the Town. If all or a portion of the Water Connection Improvements are located in the
Town at the time the Water Connection Improvements are completed and the Water connection will not result in some benefit to the Town, all costs of the Water Connection Improvements shall be paid by the County. The extent of the County's Water Share being utilized by the County in any given month shall be measured by the information contained in the Town's water bills to those customers utilizing the water constituting the County's Water Share.

2.7 After completion of construction of the County Water Lines and regulatory approval for operation of the same, the County Water Lines and any easements and rights of way related thereto shall be conveyed by the County to the Town, shall be accepted by the Town and shall thereafter be part of the Water System, and the Town shall provide water to Water System users located in the County outside of the corporate limits of the Town up to the full amount of the County's Water share and shall operate, maintain, inspect, repair and improve, as required by law and as necessary to provide reasonable water service to areas of the County outside the corporate limits of the Town as contemplated by this Agreement, the Water System, as expanded, and shall bear all such costs arising therefrom.

2.8 The Town shall at all times be solely responsible for compliance with any laws, regulations, standards and policies applicable to the design, construction, operation and maintenance of the Water System.

2.9 The County and the Town shall each have the right to enter into future agreements whereby the County may transfer to the Town or the Town may transfer to the County all or a portion of their respective allocations of water in the Water System.
No transfer of any portion of capacity in the Water System shall be transferred to a third party without the consent of both the Town and the County, provided however, that the transfer by the County of any portion of the County's Water Share to a third party, person or entity (as allowed by Section 2.1 hereof) shall not be prohibited.

2.10 To the extent allowed by law, the County shall on or before connection of the County Water Lines to the Water System adopt an ordinance regulating residential, commercial and industrial water use in the County outside the corporate limits of the Town in a manner consistent with the ordinances and regulations presently regulating the residential, commercial and industrial water use in the Town or as amended as required by applicable federal or state statutes, laws, rules or regulations.

SECTION 3
GENERAL TERMS AND CONDITIONS

3.1 The Town represents and warrants that it is authorized to provide all services described herein, including sewage conveyance and treatment services and water delivery services to the County, in accordance with the terms of this Agreement.

3.2 This Agreement shall continue in full force and effect from its date and shall continue thereafter upon the same terms and conditions until terminated or modified by the mutual agreement of the parties. The Town's obligations hereunder, and the County's ownership of both the Allocated Capacity and the County's Water Share shall survive and continue in full force and effect after the New Construction Bonds (defined below) are paid in full.

3.3 The Town shall cause an operation report of the Wastewater Treatment System and Water System (the "Operation Report") to be prepared for each calendar
year at the Town’s expense and distributed on or before every February 1 to the Town Council, the Board of Supervisors of the County and a Joint Wastewater and Water Committee, consisting of residents from both the Town and the County (the "Committee"). The Operation Report shall detail the amounts of use of the Wastewater Treatment System and Water System by users in the Town and users in the County outside of the corporate limits of the Town, describe the condition and required physical maintenance and repair of both such systems during the past fiscal year and describe the expected maintenance and repair of both such systems during the coming fiscal year.

3.4 Members of the Committee shall be appointed by the Town Council and the Board of Supervisors and shall meet at least annually after the Operation Report is distributed. The Committee shall review the Operation Report and such financial information regarding the Wastewater Treatment System and the Water System as the Committee deems relevant and shall make a report to the Town Council and Board of Supervisors of the County of their findings and conclusions about the past year’s wastewater and water operations, maintenance, inspections and long term needs. The Town shall appoint three members and the County shall appoint three members to the Committee, each to serve a term of four years.

3.5 The Town and the County shall each make best efforts to acquire grants from federal, state and other sources to fund all or any of the Town’s obligations to design, acquire, construct and improve the Wastewater Treatment System Improvements (the "Wastewater Treatment System Improvement Costs"). Any grant funds received as a result of these efforts shall be applied toward payment of the Wastewater Treatment
System Improvement Costs. Notwithstanding any other provision of this Agreement, neither the County nor the Town shall be prohibited from seeking grants, loans or other financial assistance for the acquisition, construction or equipping of any improvements other than Wastewater Treatment System Improvements including but not limited to the County Sewer Lines and the County Water Lines. The Town shall finance all Wastewater Treatment System Improvement Costs (except for the portion, if any, paid by grant monies) by issuing debt instruments in amounts sufficient to complete all Wastewater Treatment System Improvements (the "New Construction Bonds"). The Town shall be entitled to refinance or refund any existing bonds or obligations which the Town may have, and the New Construction Bonds may be included in the debt issue utilized to accomplish any such refinancing or refunding but the Town warrants and represents that whether or not the New Construction Bonds are included within such a refinancing or refunding issue no proceeds of the New Construction Bonds shall be utilized for the improvement, operation or maintenance of the Water System or for any use other than the Wastewater Treatment System Improvement Costs. The Town warrants and represents that whether or not the New Construction Bonds are included within a debt issue to accomplish refinancing or refunding, no past, present, or future cost, fees or expenses related to or arising from construction, improvements, repairs, maintenance or activity of any sort related to the Wastewater Treatment System or the Water System, other than the Wastewater Treatment System Improvements as defined herein, shall be paid from proceeds of the New Construction Bonds, and the Town shall implement strict bookkeeping and accounting procedures to accomplish this. The Town
shall provide the County with a detailed itemized statement describing the expenditure of all proceeds of New Construction Bonds, and upon request of the County shall provide the County with any and all information, data or records in whatever form under the control of the Town in any way related or pertaining to the New Construction Bonds. In no event shall the principal amount of the New Construction Bonds exceed $2,500,000.

3.6 No later than March 15 of each year beginning March 15, 1998, the Town Manager of the Town shall notify the County Administrator of the County of the amount of the principal of and interest coming due on the New Construction Bonds in the next ensuing fiscal year of the County (the "Annual Debt Service"). The County Administrator (or other officer charged with the responsibility of preparing the County's budget) shall include fifty percent (50%) of the Annual Debt Service in his budget submitted to the Board of Supervisors of the County (the "Board") for the following fiscal year. The County Administrator shall deliver to the Town Manager within ten (10) days after the adoption of the County's budget for each fiscal year, but not later than July 15 of each year, a certificate stating whether the Board has appropriated an amount equal to fifty percent (50%) of the Annual Debt Service to or on behalf of the Town for such purposes in the adopted County budget for such fiscal year. The County shall pay to or on behalf of the Town the amount of any such appropriation made pursuant to this Agreement. The Board hereby undertakes a non-binding obligation to appropriate to the Town such amounts as may be requested from time to time as described above, to the fullest degree and in such manner as is consistent with the Constitution and laws of the Commonwealth of Virginia. The Board, while recognizing that it is not empowered
construction, operation and maintenance thereof, the Wastewater Treatment System
Improvements or the construction, operation and maintenance thereof, the Water System
or the construction, operation and maintenance thereof, and all other activities
contemplated by this Agreement (together, "Claims and Liabilities"). As used in this
Agreement, the term "Environmental Liabilities" shall mean any and all obligations to
pay the amount of any judgment or settlement, the cost of complying with any
settlement, judgment or order for injunctive or other equitable relief, the cost of
compliance, cleanup, remediation, response or other corrective action in response to any
notice, demand or request from a governmental authority, the amount of any civil
penalty or criminal fine, and any court costs and reasonable amounts for attorney's fees,
fees for witnesses and experts, and costs of investigation and preparation for defense of
any claim or proceeding, regardless of whether such proceeding is threatened, pending or
completed, that has been or may be asserted arising out of or related to any
Environmental Law (as defined herein).

3.9 The Town shall pay all Claims and Liabilities and the County shall have no
responsibility for Claims and Liabilities, with the sole exception that the County shall be
responsible for any construction liabilities or costs associated with the County Sewer
Lines and County Water Lines before they are conveyed to the Town.

3.10 The Town shall be solely responsible for compliance with and shall comply
with any Environmental Law (as defined herein), and shall pay and bear all responsibility
for any Environmental Liabilities related thereto in any way arising from or related to
the Wastewater Treatment System or the construction, operation and maintenance
thereof, the Wastewater Treatment System Improvements or the construction, operation and maintenance thereof, the Water System or the construction, operation and maintenance thereof, and all other activities contemplated by this Agreement. As used in this Agreement, the term "Environmental Law" shall mean any federal, state or local law (including common or decisional law), statute, ordinance, rule or regulation relating to pollution or protection of human health or the environment (including without limitation ambient air, surface water, groundwater, wetlands, land surface or subsurface strata), including without limitation laws and regulations relating to emissions, discharges, releases or threatened releases of hazardous materials, including but not limited to the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, the federal Clean Water Act, as amended and the State Water Control Law, as amended.

3.11 The Town represents and warrants that there is no litigation at law or in equity, or any proceeding before any governmental agency involving the Town, or any consent decree, special order or similar proclamation, pending or threatened relating in any manner to either the Wastewater Treatment System or the Water System except for a Special Order issued by the State Water Control Board on November 4, 1994, voluntarily agreed to by the Town on September 8, 1994 relating to notices of violations issued August 2, 1994, June 9, 1994, December 8, 1993, October 6, 1993, September 8, 1993, August 5, 1993, July 8, 1993, June 8, 1993 and July 6, 1992 relating to the Town's plant polishing pond, for which the Town shall bear all costs and expenses arising therefrom as Environmental Liabilities in accordance with the terms of this Agreement.
3.12 Other than as expressly set forth in this Agreement, all maintenance, improvements and repairs to the Wastewater Treatment System, as expanded, and the Water System and any and all liabilities related thereto shall be the sole responsibility of the Town. The monetary liability of the County to the Town hereunder shall be limited to any amounts appropriated by the Board of Supervisors in accordance with Section 3.6 hereof.

3.13 Any disagreement, dispute or misunderstanding of any nature regarding terms and provisions of this Agreement including, but not limited to the use, operation, construction costs, financing or maintenance shall be resolved in a court of competent jurisdiction, but the parties may choose to engage in non-binding arbitration of any such dispute in the following manner:

3.13.1 The Town of Tappahannock and County of Essex shall each select an arbitrator within 30 days after receipt of written notice from either party for the purpose of arbitrating disagreement, dispute or misunderstanding specified in such notice. Written notice of the selecting of an arbitrator shall be promptly given by each of the parties to the originating party. The two arbitrators so selected shall thereupon select one additional arbitrator, which selection shall be accomplished within the next fifteen (15) days after the appointment of the last of the two original arbitrators.

3.13.2 The three arbitrators so selected shall then forthwith consider such disagreement, dispute or misunderstanding and shall render their majority decision, in writing, on the merits. The decision, when rendered, will be final only if agreed to by both the Town and the County. The decision shall be given within fifteen (15) days
following the date of appointment of the last arbitrator; provided however, that such 15-day period may be extended for a period or periods in the aggregate of not more than thirty (30) additional days, by majority vote of the arbitrators and/or mediators if they deem extension necessary or advisable.

3.13.3 With regard to the appointment of arbitrators by the parties hereto, it is understood and agreed that the appointment of qualified accountants and/or engineers is desirable, but not required.

3.13.4 Payments of the arbitrators shall be shared on an equal basis by both the Town and the County.

3.14 This Agreement shall not apply to those areas in the County presently being served prior to the date of this Agreement by the Town of Tappahannock under existing agreements or ordinances, which areas are shown on the map attached hereto as Exhibit "A."

3.15 Subject to the provisions of Section 3.6 herein, the breach of any promise, warranty or representation by either party to this Agreement shall constitute an Event of Default (an "Event of Default") by that party. Upon the occurrence of an Event of Default by one party, the other party may exercise any available legal or equitable remedy or remedies, including but not limited to a claim and suit for damages (which may include but are not limited to property damage, diminution of property value, investigatory costs, environmental cleanup and remediation costs, expert witness and consultants fees and reasonable attorneys fees) arising from the Event of Default, a claim and suit for specific performance, a claim and suit for writ of mandamus and/or
writ of prohibition, and a claim and suit for injunctive relief. The parties hereby stipulate and agree that this Agreement concerns interests in real property and the provision of public utilities for the general health, safety and welfare of citizens of the Town and citizens of the County, and that upon the occurrence of an Event of Default the non-defaulting party will have no adequate remedy at law concerning such Event of Default.

3.16 The representations, warranties, agreements, promises, liabilities, duties, obligations and available remedies of the parties under this Agreement shall take effect immediately and shall survive the assignment of any property, rights or obligations contemplated by this Agreement and the assumption of any liabilities contemplated by this Agreement and shall continue in force and effect for the longest period permitted by applicable law.

3.17 This Agreement shall be governed by the laws of the Commonwealth of Virginia (exclusive of its conflict of laws provisions). All pronouns used herein shall refer to every gender. Headings or titles in this Agreement are only for convenience and shall have no meaning nor effect upon the interpretation of the provisions of this Agreement. This Agreement is the entire agreement between the parties and may not be amended or modified, except by writing, signed by each party.

3.18 This Agreement shall be binding on each party and each party's successors, assigns and legal representatives in respect to all covenants and agreements herein.
3.19 All notices, demands and other communications under this Agreement shall be in writing and either personally served or given by certified mail, postage prepaid, return receipt requested, and if to the Town shall be addressed to:

Town Manager
Town of Tappahannock
P.O. Box 266
315 Duke Street
Tappahannock, VA 22560

with a copy to:

William L. Lewis, Esq.
Town Attorney
P.O. Box 366
Tappahannock, VA 22560

or to such other address as may be requested by the Town in writing, and if to the County shall be addressed to:

County Administrator
Essex County
P.O. Box 1079
Tappahannock, VA 22560

with a copy to:

Daniel M. Siegel, Esq.
Essex County Attorney
P.O. Box 1998
801 E. Main Street, #1400
Richmond, VA 23219

or to such other address as may be requested by the County in writing. Any notice given shall be deemed given when delivered, if personally served, or if delivered by mail, when received by the addressee.
3.20 If any clause, section or provision of this Agreement is held to be illegal, invalid or unenforceable by a court of competent jurisdiction, such illegality, invalidity or unenforceability shall not affect any of the remaining clauses, sections of provisions hereof, and this Agreement shall be construed and enforced as if the illegal, invalid or unenforceable clause, section or provision had not been contained in it.

3.21 The failure of the Town or the County to insist in any one or more cases upon the strict performance of any of the promises, representations or warranties of this Agreement shall not be construed as a waiver or relinquishment of any right as to future performance of the same or any other promises, representation or warranty hereof. No waiver by the Town or the County of any provision of this Agreement shall be deemed to have been made unless expressed in writing signed by the party making the waiver.

3.22 The parties hereto covenant and warrant to each other that all formalities and approvals necessary to validly enter into this agreement have been observed and obtained prior to the execution of this agreement.

IN WITNESS WHEREOF, the Town of Tappahannock, Virginia and the County of Essex, Virginia have caused this agreement to be executed by their duly authorized officers.
Mr. Barnes said you can’t have good industrial development without knowing how much wastewater you have.
Commissioner Stevens asked if this has come before the board?

Mr. Barnes said yes it has at one time. The board is aware of this.

Commissioner Taliaferro said he was still confused on what the Planning Commission is supposed to do. Are we suppose to clean up a 40-year-old mess?

**NEW BUSINESS**

Mr. Barnes explained what a 2232 review is. Attached is the memorandum from Mr. Barnes which explains what the 2232 is and the process.
MEMORANDUM

Date: May 2, 2024

To: Essex County Planning Commission

From: Brian Barnes, Zoning Administrator

Meeting Date: May 8, 2024

Subject: Mill Creek Community Solar, “2232 Review” for Substantial Conformance

Issue: Mill Creek Community Solar c/o Solar Provider Group, LLC. has formally requested a Planning Commission Review pursuant to the Essex County Zoning and Subdivision Ordinance Article VI, Division 7, section 36.404-Solar Energy, large scale, power purchase agreement and utility scale. This process is detailed in section 36.404(c quoted below:

(c) Applications and procedures. In addition to other requirements of the Essex County Zoning and Subdivision Ordinance and conditional use permit requirements, conditional use applications for solar facilities shall include the following information:

(1) Pre-application meeting. Schedule a pre-application meeting with Essex County to discuss the location, scale, and nature of the proposed use and what will be expected during that process.

(2) Comprehensive Plan review. A 2232 review by the County as required by the Code of Virginia, § 15.2-2232 for utility-scale solar facilities. This Code provision provides for a review by the Planning Commission of public utility facility proposals to determine whether the general or approximate location, character and extent are substantially in accord with the Comprehensive Plan or part thereof.

(3) Submit a complete conditional use permit application including:

A “2232 Review” is a review undertaken by the Planning Commission of a locality pursuant to the Code of Virginia code section §15.2-2232, thus giving this process the name “2232 Review” after the code section number used to define this process (see below).
§ 15.2-2232. Legal status of plan.

A. Whenever a local planning commission recommends a comprehensive plan or part thereof for the locality and such plan has been approved and adopted by the governing body, it shall control the general or approximate location, character and extent of each feature shown on the plan. Thereafter, unless a feature is already shown on the adopted master plan or part thereof or is deemed so under subsection D, no street or connection to an existing street, park or other public area, public building or public structure, public utility facility or public service corporation facility other than a railroad facility or an underground natural gas or underground electric distribution facility of a public utility as defined in subdivision (b) of § 56-265.1 within its certificated service territory, whether publicly or privately owned, shall be constructed, established or authorized, unless and until the general location or approximate location, character, and extent thereof has been submitted to and approved by the commission as being substantially in accord with the adopted comprehensive plan or part thereof. In connection with any such determination, the commission may, and at the direction of the governing body shall, hold a public hearing, after notice as required by § 15.2-2204.

The Essex County Ordinance language was organized and adopted to provide this review as a front runner to the Conditional Use Permit process. This review provides for the applicant/owner an initial answer on whether or not the proposed utility feature is substantially in accord with the Comprehensive Plan prior to the large expenditures associated with the development of a plan at the level required for a Conditional Use Permit request. This process also applies to other features within a locality such as public roads, parks, and other public areas.

This process may be conducted as a public hearing if so directed by the governing body, otherwise it is a public action taken during a public meeting subject to the open meeting requirements and all other applicable code and commission bylaws. The adopted county ordinance intends this step to not require a public hearing, however an action shall be taken within 60 days of submission. This process is not a final approval but a determination finding of and within the Comprehensive Plan language by the body charged with developing the Comprehensive Plan language.

Process: This request will be reviewed at a publicly advertised meeting of the Planning Commission and is on the list of agenda items to be acted upon. The applicant has assembled a presentation for this item and will be physically present to handle this task. Since this is a determination and not a public hearing, the Chairman is not required to gavel a public hearing open or closed.

Following this presentation, the Commission members should be prepared to ask questions or engage in discussion with the applicant and property owner present. Following this, the Commission shall review the presented utility feature’s location, character, and extent against the Essex County Comprehensive Plan language. Following deliberations, a motion shall be made for a vote of determination to either find the request substantially in accordance with the comprehensive plan or not substantially in accordance with the comprehensive plan.
The three main questions or areas of concern to be addressed are location, character and extent. These should also guide the questions, deliberations and comments. The following bullets are these three items with appropriate definitions to consider, answer, and test against the language and intent of the adopted Comprehensive Plan.

- **Location** – A particular place or position. The Comprehensive Plan defines locations by using maps and by defining places by name. Locations within the landscape are also defined by soil types, slopes, and other features for locations to be preserved or available for development.

- **Character** – Special physical characteristics of a structure or area that set it apart from its surroundings and contribute to its interest and/or individuality (from *The Latest Illustrated Book of Development Definitions*, Moskowitz and Lindbloom, 2004).

- **Extent** – The area covered by something. The size or scale of something.

An applicant who receives an undesirable determination may appeal the determination to the governing body within ten days. Within 60 days the Board of Supervisors shall vote to either uphold or overrule the commission determination.

*The owner or owners or their agents may appeal the decision of the commission to the governing body within 10 days after the decision of the commission. The appeal shall be by written petition to the governing body setting forth the reasons for the appeal. The appeal shall be heard and determined within 60 days from its filing. A majority vote of the governing body shall overrule the commission.*

An applicant who receives an undesirable determination may also move to amend the comprehensive plan through that process and attempt to have the desired utility feature approved by the Commission and the Board of Supervisors as a map feature. A successful amendment would still require an affirmative 2232 Review after plan amendment.

A 2232 Review that yields a favorable determination means that an applicant may then apply for a Conditional Use Permit for the proposed project. The Conditional Use Permit process requires at least one public hearing with the Planning Commission and at least one public hearing with the Board of Supervisors. For this process, advertisement and notice of all adjacent property owners is conducted for each hearing. Individuals who wish to speak for or against any such proposal or project may then be heard.

**Conclusion:** This determination will be the first 2232 Review conducted since the adoption of the new zoning ordinance. It is important to note that the current language of the Comprehensive Plan does not explicitly mention Utility Scale Solar as a use. It is imperative, therefore, that the Commission utilize the existing language to determine the best location, character and extent for a proper determination. This may be accomplished by identifying steps taken in the applicant's documentation to adhere to the existing guidance, where applicable.
Mr. Barnes stressed to the Planning Commission that this is a 60-day requirement and if you don’t act on it within 60 days then it is deemed approved. Then the applicant is able to apply for the Conditional Use permit comes back as a public hearing then goes to the Board of Supervisors. If you find tonight that it is not in compliance with the Comprehensive Plan, then they have 10 days in which to appeal. That goes to the Board of Supervisors directly and they may say that you are wrong.

Samuel Buckstein, Senior Project Manager from Solar Provider Group LLC did a presentation on Mill Creek Community Solar. The presentation is below.
What We Do Best: Community Solar in North America

- SPG builds renewable energy projects in states & provinces with Community Solar programs, offering residential, institutional, & commercial consumers carbon-free, renewable electricity
- Developments typically range between 1-5 MW, requiring 5-30 acres of land
- Development pipeline: 150+ projects totaling more than 1,000 MW
- Our projects increase economic security for landowners, energy diversification for consumers, & tax revenues for governments
- Recent successes: New York, Illinois, Maine, Minnesota, California, & Ontario
About Solar Provider Group

**Experienced**
12+ years of experience in commercial, community, & utility-scale solar installations

**Successful**
A proven track record: 100+ MW developed globally & 1,500+ MW in development

**Global Presence**
Active on 2 continents, with development teams in the US, Canada, the Netherlands & Germany

**One-Stop Solar Shop**
1 consistent point of contact through development, permitting, financing, engineering, construction, operations & maintenance

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What is Shared Solar?

- Shared solar is an arrangement that allows customers to benefit from solar energy without the hassle of installing solar panels
- Many customers are unable to directly install solar panels
- Customers receiving electricity from Dominion Energy may subscribe to a community solar farm
- A subscription grants customers virtual ownership of a portion of the electricity generated by the system
- Subscribers receive a monthly bill credit in proportion to their ownership of the system

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1. **SOLAR ENERGY**
2. **DELIVERED ELECTRICITY**
3. **SELLING CREDITS**
4. **SUBSCRIPTION PAYMENTS**
5. **Utility Company**
6. **Utility Customer**
7. **Shared Solar Facility** (Subscriber Organization)
8. **Shared Solar Facility** (Subscriber Organization)
9. **Shared Solar Facility** (Subscriber Organization)
10. **Shared Solar Facility** (Subscriber Organization)

- Shared solar facility delivers electricity to the distribution grid
- Utility delivers electricity generated from a mix of resources to the customer
- Shared solar subscribers receive monthly credits via their electric bill for a share of the solar energy generated
- Subscribers pay the subscriber organization for a portion of the net value of the shared credits
Wellington Community Solar - Ontario

Why Virginia? Why Essex County?

- Virginia established a renewable portfolio standard for investor-owned utilities like Dominion Energy
- The state also created a shared solar program administered by Dominion Energy with 200 MW of initial capacity
- When the initial 200 MW is built and subscribed, up to an additional 150 MW will be available
- Demand for power is rising and projected to continue growing
- The state has invited developers to help achieve the renewable portfolio goals and meet demand for power by building solar farms
- Virginia is relatively sunny
- Essex County has an established ordinance and clearly defined permitting process

Figure 2.1.2 - Current Company Annual Energy Position with Plan B Retirement Assumptions (2024 to 2040)

Figure 2.1.3 - Current Company REC Position under Virginia RPS Program with Plan B Retirement Assumptions (2023 to 2040)
Project Overview

- Located at 2543 Boston Rd, Dunsville, VA 22454
- Land owned by Eugene and Rachel Pantalone
- 3 MW capacity solar array (sufficient to power ~650 houses per year)
- Approximately 15 acres enclosed
- Proposed landscape screening to the north and west
- Natural screening in all other directions
- 200' setback from nearest residence (participating property)
- 150' setback from Boston Road

Siting Considerations

- Flat, open land with good solar exposure
- Avoidance of wetlands, waterbodies and resource protected areas
- No significant grading or clearing required
- Few neighbors
- Sufficient setbacks from residences, property boundaries and resource protected areas
- Direct access to Boston Road
- Proximity to Dominion Energy's Dunsville substation
- Available hosting capacity in the local distribution circuit
Project Impacts & Benefits

- Reduce electricity bills for subscribers, typically 10-15% per year
- Diversified income for landowners
- Support local employment opportunities throughout development, construction and operations
- Increased property taxes to Essex County
- Improve the resilience of the distribution grid and reduce dependence on energy imports
- Reduce carbon emissions from electricity generation
- Provide for a healthier and cleaner environment
- No direct emissions, soil or groundwater contamination
- Minimal noise and visual impact
- Opportunities for dual land use such as grazing and agrivoltaics, topsoil remains
- Easy to decommission, possible to return land to agricultural use

Proposed Visual Screening

- Natural landscape buffer as per Essex County Code of Ordinances Section 36.403
- Exact plant mix to be determined in consultation with Essex County
- Once mature, vegetative buffer will screen fencing, trackers and solar panels
- 8’ high fence enclosure
- Single axis trackers are approximately 10’ high
- Minimal signage for emergency contact information
Next Steps

- Solar ground lease agreement (COMPLETE)
- Application to Dominion Energy for interconnection (COMPLETE)
- Comprehensive plan review (COMPLETE)
- Wetland delineation, ESA phase I, hydrological and topographical survey
- Prepare stormwater management, erosion control and decommissioning plan
- Application for Construction General Permit as per the Virginia Stormwater Management Program
- USACE jurisdictional determination, FAA evaluation, DEQ notification, VA wildlife, archeological and DOT consultation
- Community engagement at public meeting
- Application for a Conditional Use Permit
- Planning commission decision
Commissioner Taliaferro had a few questions for Mr. Buckstein. The slide at the beginning of the presentation that showed the triangle retention pond at the end of the property so I am assuming that stormwater management will have to build the retention pond and will all the runoff in that site be channeled to that one location or will you have other points of discharge around the perimeter?

Mr. Buckstein said that location is from a larger site and the pond was there before they built the project so the exact method of controlling the stormwater management will come out of doing the same hydrology study.

Commissioner Taliaferro asked how far is this project from the banks of the Rappahannock River?

Mr. Buckstein said it is more than a mile.

Commissioner Taliaferro said that you have mentioned that the construction time is 6 to 8 months, and he has a concern that there is not enough local labor to do a project of this size. There are not enough people or resources. Commissioner Taliaferro also said when you get to the public meeting don’t flash a lot of promises that you can’t keep.

Mr. Buckstein said point taken.
Commissioner Taliaferro then said one of the previous problems that we had with the existing solar farm that there so much going on, so much happening all at the same time that our local building official did not have the capacity or training to oversee it.

Mr. Buckstein said that he was aware of the problems with the other project.

Chairman Jones asked what is the life span?

Mr. Buckstein said up to 40 years.

Commissioner Andrews asked if their company will be here for the entire process, or will you sell this off to another company?

Mr. Buckstein said either one of those.

Commissioner Andrews asked how their subscription works?

Mr. Buckstein said if the solar farm generates 10 megawatts in a month and if you own 10% of the solar farm then you will get 1 megawatt credited to your bill.

Commissioner Walters spoke (inaudible)

Chairman Jones said that the 2232 says that we were suppose to be finding out if it complies with the Comp Plan and our Comp Plan says nothing about solar. Commissioner Jones said that we are also in the middle of reviewing the Comp Plan. Chairman Jones is wrestling with how we vote on the solar project when the Comp Plan doesn’t say anything about Solar.

Commissioner Andrews asked Chairman Jones if there was anything in the Comp Plan that would prohibit this.

Chairman Jones said, “I don’t think so.”

Commissioner Taliaferro said with all his reservations at the end it has a great benefit.

Commissioner Taliaferro said that he moves that this substantially in compliance with the Comprehensive Plan. Commissioner Walters seconded the motion.

Ayes: 5 Nayes: 1 Absent: 1

Chairman Jones asked Mr. Barnes to give a little summary as to what happened at the EDA meeting on April 29, 2024. Commissioner Taliaferro, Chairman Jones, Commissioner Andrews, and Mr. Barnes met with the EDA. Mr. Barnes had a draft of the goals which are noted below. They discussed with them they are updating the Comprehensive Plan. The EDA mentioned that tourism is important. VCU may want a new campus and that may be coming before the Planning Commission.
MISSION:

The Essex County Economic Development Authority’s mission is to promote economic development throughout Essex County to ignite entrepreneurship, attract new businesses and support existing businesses that provide sustainable, well-paid jobs for residents of all backgrounds and that will spur economic growth by tapping the opportunities offered by the Rappahannock River, our agricultural industries, tourism, and the county’s strategic location between major economic centers.

VISION:

Our vision is to create and perpetuate an economic environment that enhances our citizens quality of life, creates an attractive business environment, preserves our rich history, protects our abundant natural resources, and makes Essex County a vibrant place where people want to visit, work, and live throughout their lives.

Essex County Economic Development Goals and Implementation Strategies

1. Foster an active, working relationship between Town and County
   a. Jointly undertake economic development projects
   b. Continue to support joint tourism marketing programs (e.g. Visit Tappahannock and Essex County website)
2. Expand and enhance tourism
   a. Develop and implement tourism strategic plan
      i. Planning sessions held 3/25 and 4/28; draft expected by 5/31, EDA consideration in June, to be presented to Board of Supervisors tentatively at July meeting
   b. Integrate into a Regional Tourism Plan (MPPC)
3. Create well-paying jobs in the County
   a. Recruit new and expand existing commercial and retail businesses
      i. Develop a financial incentive program
      ii. Utilize tax incentive financing
      iii. Apply for grants to underwrite loans for development
   b. Help to develop labor force skills
      i. Work with RCC on job training programs
      ii. Seek grants for workforce training
   c. Help to develop childcare options
4. Support and expand health care institutions, facilities, and research
   a. Work with VCU to develop new a medical campus surrounded by doctors’ office, medical providers, laboratories, testing center, mental health care
5. Establish and develop water access for recreation and commercial activities
   a. Create Waterfront Development District (marina, wharf, fishing pier, beach, changing facilities, food, entertainment venue, etc.)
b. Improve existing and add water access points on the Rappahannock River and
creeks;
   i. Integrate with Regional Kayak Destination effort by West Point and region
      (MPPC)
   ii. Work with MPPC to obtain dredging for creek at June Parker Marina
   iii. Explore use and development of MP.Chesapeake Bay Public Access
        Authority to use and develop their considerable holdings in the region
        (MPPC)
6. Attract retirees to move to Essex County
   a. Develop and support marketing efforts targeted to retirees
   b. Work with developers focused on building senior-living homes
   c. Explore development of upscale retirement home (MPPC)
7. Create entertainment, cultural and recreational opportunities for all ages
   a. Attract new movie theatre
   b. Support non-governmental organizations that offer
   c. Attract indoor and outdoor recreation operators
      i. E.g., "Compass" facility
   d. Bring YMCA or other large gymnasium to Essex County
8. Develop affordable housing opportunities for seniors, workforce, and remote workers
   a. Seek developers that focus on mixed-use planned development
   b. Solicit Habitat for Humanity to build affordable homes
   c. Work with County to ensure zoning accommodates housing development in
      appropriate areas
9. Support and promote agriculture, aquaculture and forestry operations
   a. Explore catfish processing facility
   b. Explore establishment of aquaculture research institution
   c. Explore new markets for timber and agricultural products
10. Encourage the County’s Readiness to Accommodate Business (see goal #3 of Alb.)
    a. Coordinate with County and Town Zoning Departments to have regulation that
       complements business and development
    b. Support efforts to improve water, sewer, and utilities infrastructure
       i. Supported by VDH, HRSD, EDA (MPPC)
11. Educate the community and enhance the visibility of economic development
   a. Mktg plan for Economic Development (MPPC)
Discuss Section three of the Essex County Comprehensive Plan

Mr. Barnes went over Section three of the Comprehensive Plan and asked the Planning Commission to read over that section. Mr. Barnes said that section three will take a couple of months to go over. This is the environment section. Mr. Barnes was asked by the Board to add a section about flood plain.

Commissioner Taliaferro asked if you built a house on stilts do you still have to have flood insurance?

Mr. Barnes said that it does have to have flood insurance if build on stilts.
MEMORANDUM

Date: May 2, 2024
To: Essex County Planning Commission
From: Brian Barnes, Zoning Administrator

Meeting Date: May 8, 2024

Subject: Section Three, Comprehensive Plan

Item: Section Three of the Essex County Comprehensive Plan.

Detail: This will be the first review of Section Three of the Essex County Comprehensive Plan. This section pertains to the environmental characteristics and resources of the county and has not been reviewed since 2015.

Action: Commissioners should review this document at the meeting and other times when personal time permits. Direct staff on particular items of importance to be updated or new directions that must or should be added. Achieved goals should be removed and new goals and objectives set for future land use planning and budgeting.
SECTION THREE

ENVIRONMENTAL CHARACTERISTICS AND NATURAL RESOURCES

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

Objectives:

* Protect and improve the water quality of the Chesapeake Bay and its tributaries through the implementation of federal state and local regulations, while at the same time encouraging economic growth.

* Protect and enhance the natural resources and environmental quality of the County through measures which safeguard the County’s natural resources and environmentally sensitive lands and waters.

* Minimize adverse impacts of gas or oil drilling and development activities on public health, safety, welfare, the character of the County’s communities, the environment and the Chesapeake Bay, thereby preserving the County’s agricultural and rural character.

* Protect important tidal and non-tidal wetland resources within the county. Protect the important natural function of floodplains within the County by limiting disturbance caused by development activity.

* Protect and conserve the agricultural and forestry resources within the County, maintaining Essex’s rural character, and supporting these important components of the County’s economy.

* Preserve County shorelines by protecting against shoreline erosion.

* Protect and conserve areas that are important to plant and wildlife habitats within the County.
* Coordinate environmental quality protection efforts with future opportunities to establish public parks, natural recreation areas, and open spaces. Improve environmental quality on a site-by-site basis through the establishment of performance standards for environmentally sensitive development.

Introduction

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

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

Description of Natural Features & Environmental Quality Issues

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

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

Groundwater

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

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

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

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

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

Surface Water Quality

Water serves as a major attraction to tourists, residents and potential residents of Essex County. The entire eastern coast of the County is the Rappahannock River and several major inlets also attract development and are enjoyed for water sports. Swimming, boating, fishing, shell fishing and other water-oriented activities are dependent upon the maintenance of high standards of water quality.
Surface water quality is affected by run-off from agricultural and paved areas, wildlife, sewage treatment discharge, leaching of septic tank effluent and shoreline activity during construction. It is important to consider the impacts which various land uses will have upon waterways and identify potential environmental problems and solutions.

Several areas are presently condemned for commercial shellfishing by the Virginia Department of Health Bureau of Shellfish Sanitation. Commercial shellfishing is prohibited in these areas due to the quality of the water as tested periodically. As of March 2013, the boundaries of the condemned area include all of the Upper Rappahannock River and its upstream tributaries and the Bowler’s Wharf, Mark Haven Beach area. However the areas are tested frequently for water quality levels and condemnation statuses are subject to change.

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

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

**Taylorsville Basin Shale Deposit**

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

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

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

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

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

Map 3-1

ESSEX COUNTY PROPERTIES WITH LEASES ALLOWING FOR OIL AND GAS EXPLORATION
Commercial and Recreational Fisheries

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

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

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

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

The surface waters of Essex County hold various fish species for commercial fisheries as well as sport species. A disruption in the ecosystem can cause far-reaching effects, threatening the livelihood and health of those dependent upon these resources. Groundwater travels slowly through the unconsolidated soils of the region, making its way to the surface springs and wetlands. Along the way, contaminants from the land can be swept along the groundwater and find their way into the open water systems. Based on these observations, two things are evident. First, there are direct relationships and pathways between the uplands, wetlands, and water bodies as well as the inhabitants of each. A second fact is that a number of small, seemingly insignificant environmental degradations add and multiply in overall impact and damage.
Since an entire watershed or creek can impact shellfish growing water quality due to non-point pollutants, the entire land area should be subject to reserve drainfield and five-year pump-out requirements for on-site sewage disposal systems. Aquaculture projects, including shellfish deputation facilities, should be considered "Water Dependent Facilities" for purposes of compliance with local land use ordinances. Waters presently approved for the harvest of shellfish should be protected from degradation due to pollution from point and non-point sources by including surrounding lands in Chesapeake Bay Preservation Areas.

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

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

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

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

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

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

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

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

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

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

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

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

Operation of boating facilities can induce activities which can also bring about impacts once facilities are constructed. Several factors indicate demand for additional boating facilities is low in Essex County at the present time. The location of the County is upstream from saltwater fishing opportunities and therefore access to these opportunities can be more readily provided from facilities located downstream outside the County. The population in the County does not significantly drive demand for waterfront boating facilities.
Potential for the location of additional marina facilities is also limited by the features or characteristics of the County shorefront. Tidal marshes front 84% of the County shorefront. Along many of these reaches boating facilities would require wetland disturbances to secure access and would likely have adverse impact on wetland habitat. Moreover, shallow water depths in near shore locations would require dredging to provide access for boating causing bottom disturbance to fish and other aquatic habitat.

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

Shoreline Condition

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

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

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

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

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

**Shoreline Erosion**

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

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

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

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

The 2001 *Shoreline Situation Report* indicated that only 4.3% of the total shoreline is bordered by accored structural protection from erosion in the form of bulkhead or rip-rap. Within the County there are a significant number of piers, boat houses, boat ramps and other accessory structures, most of which are located south of Tappahannock on the Rappahannock River shoreline.
MPPDC conducted a study to determine the efficacy of incentivizing the use of living shorelines in Virginia through the establishment of a revolving loan fund. The study gauged the extent to which access to low-interest loans might influence a homeowner’s decision as to whether to install a living shoreline as opposed to a more conventional erosion control system. MPPDC partnered with VIMS, CCRM to survey property owners who had recently installed shoreline erosion control measures. The Center for Coastal Resources Management, Virginia Institute of Marine Science gathered information on property owners’ interest primarily through a questionnaire, in low-interest loans for living shorelines projects.

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

Soils

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

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

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

More information on these various soil types of soil may be obtained through the [http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm](http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm) or by contacting the Virginia Department of Health.

Highly Erodible Soils

Highly erodible soils are those soils which have a high potential for erosion and sedimentation. Both of these factors act to increase precipitation runoff velocity which in turn serves to loosen
and remove certain soil particles. The extent to which soil particles are moved or the soils “erodibility factor” varies depending on soil texture, infiltration rate, permeability and other factors. Soils which are highly erodible in Essex County are identified on Map 3.2. Over half of the County land area is characterized by the presence of highly erodible soils. These soils are less frequently present along the County’s Rappahannock shorefront, but are often located near inland stream systems.

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

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

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

**Highly Permeable Soils**

Highly Permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrient and other chemicals and sewage wastes to infiltrate, undegraded, into nearby surface water and groundwater systems. Highly permeable soils are those which can be characterized as having permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches. Map 3.3 identifies the general location and extent of highly permeable soils in Essex County. These soils are present in widely scattered locations throughout the County.

Highly permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrients and other chemicals and sewage wastes to infiltrate, undegraded, into the nearby surface water and groundwater systems. Highly permeable soils are highly susceptible to pollutant leaching, and thus have a greater potential for groundwater pollution as well as pollution of surface waters. Soil permeability is particularly important in relation to design of soil drainage systems and septic tank absorption fields. Excessive seepage or infiltration from septic tank absorption fields can cause health problems through pollution of underground sources of domestic drinking water. Shallow groundwater resources or surface aquifers are also a source of water for streams in the County which flow into the Rappahannock River and the Chesapeake Bay.
County policies should discourage development in areas characterized with highly permeable soils by limiting permitted residential development densities. The County should periodically review the County Land Use Plan and Zoning structure to limit the density of development permitted on highly permeable soils in these areas, particularly when no waste treatment facility alternatives to conventional septic systems are practical.

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

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

Topography

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

Floodplains

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

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

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

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

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

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

The minimum requirements of the National Flood Insurance Program do not prohibit development within the 100-year floodplain. However, to adhere to the minimum federal requirement, the County requires development and new structures in the floodplain to meet certain flood protection measures, including elevating the first floor of structures a minimum of one foot above 100 year flood elevations and utilizing flood-proof construction techniques. Moreover, where alternative building sites on a parcel are available for construction outside the 100-year floodplain, construction outside of the floodplain is preferred.
Map 3-2

Highly Erodible Soils

Map 3-3

Highly Permeable Soils  Steep Slopes  Map 3-5 Flood

plains
Wetlands

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

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

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

Tidal Marshes

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

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

Nontidal Wetlands

Nontidal wetlands typically include freshwater swamps, bogs and low lying areas where water stands on or close enough to the surface to create oxygen poor conditions in the soil. Special types of plants called hydrophytes are adapted to these conditions and usually indicate the presence of wetlands. Other nontidal wetland indicators are waterlogged soils and drainage patterns that show physical evidence of flooding.
The U.S. Fish and Wildlife Service has mapped all County nontidal wetlands of three acres or more in size as part of the National Wetlands Inventory. Map 3-6 provides a general representation of the location of both Tidal and Nontidal Wetlands in the County.

**Forest Resources**

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

**Wildlife**

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

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

The Natural Heritage Program was established in 1986 in joint cooperation with the Nature Conservancy to identify elements of natural biological diversity which are of rare or special concern in Virginia. The program focuses on rare plants, animals, geological landmarks, natural ecological communities, and other natural features. The Natural Heritage Program also makes information on acquiring environmental easements available to property owners. The

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Department of Game and Inland Fisheries has a similar information base of wildlife for planning and management purposes.

Map 3-6 Wetlands

Map 3-7
Resource Protection Area Map
The Chesapeake Bay Preservation Act

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

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

Essex County Chesapeake Bay Preservation Program

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

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

MPPDC has published the Comprehensive Water Quality Management Plan for the Middle Peninsula which provides analysis, and policy review concerning water quality issues in the region. Specifically, the two elements of the Management Plan provide information relevant to Middle
Peninsula localities' on-site wastewater treatment, potable water supply, boating facilities, living resources, waterfront access, existing land use and water quality (including pollution sources), and a general description and economic analysis of the region.

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

Resource Protection Areas

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

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

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

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

Resource Management Areas

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

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

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

Development Suitability

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

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

A detailed, site-specific soils survey would provide the information necessary to match the
suitability with the uses proposed for the site. The topography and hydrology of the site should be
of a detail such that overland sheet flows of storm water can be predicted. Knowledge of the
vegetation and wildlife habitat is important for a site as well as for the surrounding areas. The
comprehensive analysis of all these features can lead to development sensitive to the natural
resources.
When development activities are proposed, options to mitigate impacts and utilize BMPs must be considered. It is envisioned that the level of detail of the suitability analysis will provide the owner with the information to balance the management options presented by the site.

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

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

Protection of Potable Water Supply

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

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

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

The Town of Tappahannock provides a large concentration of County residents which are dependent on municipal water supply facilities. Given the larger population currently served by these municipal water supply facilities and expected growth around the Town of Tappahannock, the potential effect of pollution sources on the County’s water supply should be investigated in cooperation with the Town. Such sources may include abandoned wells, former dump sites, and underground storage tanks and urban run-off as well as septic systems near the Town. The County and Town should request technical assistance from the Middle Peninsula Planning Commission to mutually define an appropriately sized well-head protection district for the Town.

Existing Pollution Sources

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

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

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

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

The performance criteria for land use and development established in the County Chesapeake Bay Preservation areas district was reviewed by the State prior to County adoption and is referenced as part of Essex County’s Comprehensive Plan. In addition to designation of County Chesapeake Bay Preservation Areas, the County has incorporated resource protection criteria into its subdivision regulations, and erosion and sediment control ordinance. The County Plan establishes a development review and approval process for building permit issuance for development within designated Chesapeake Bay Preservation Areas. The County established administrative and enforcement procedures as part of its overall Local Program for Chesapeake Bay Preservation.

Resource Protection Policies

Streams and Stream Buffers

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

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

Air Quality

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

Land uses that increase ozone emissions a relatively low in the county and the town. Automobiles would contribute more to ozone emissions than industrial uses in and around the
Map 3-5 identifies the general location of floodplains in Essex County. These areas are generally located along the Rappahannock shoreline or are located adjacent to County stream systems. More detailed maps of the County’s 100-year floodplain are available for inspection in the office of the County Administrator. Therefore in most cases, extending protection measures recommended for streams to provide a 100 foot buffer will provide substantial protection to co-located or adjacent floodplain resources which are often located within the buffer.

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

Groundwater Resources

Earlier sections of this plan indicate that groundwater supplies generally appear adequate to satisfy projected demand for water consumption in the foreseeable future in Essex County. Nevertheless, the County should make every effort to protect groundwater resources for future use. The chief sources of potential groundwater contamination in the County are from contamination by improperly functioning septic systems, long term agricultural use, and the isolated impacts of leaking underground storage tanks. The following Strategic Plan for managing water resources in Essex County has been developed:
town. As of 2012, the Richmond area was attainment for all applicable national air quality standards including ozone.

**Implementation**

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

- Requirements should specify minimum areas that must remain undisturbed and available for stormwater infiltration and site vegetation.

- Continue to promote Best Management Practice for storm water management and water runoff.

- The majority of future County development should be directed to designated Development Service Districts where public sewer services are in place or planned. The future use of on-site sewage treatment systems should be limited to those areas where public sewage systems are unavailable. Larger concentration of individual on-site sewage treatment facilities in rural and environmentally sensitive areas should be discouraged through density controls, particularly in areas with soil constraints for septic systems.

- Coordinate with state and federal agencies and non-profit conservancy organizations to protect environmentally sensitive lands through acquisition and/or protective easement programs.

- Explore best management practices for future high volume water users.

- Explore techniques to obtaining a Certified Rating System designation through the Federal Emergency Management Agency in an effort to assist Essex County residents with the expected increase in flood insurance premiums due to the Flood Insurance reform Act of 2012.

- Work with the Middle Peninsula Planning District Commission and Virginia Institute of Marine Science to identify resources for development of a comprehensive shoreline management plan. The plan should provide a coordinated strategy for managing the impacts of shore erosion and provide firm recommendations.

- Oil and gas development activities should be located in areas with the necessary transportation and utility infrastructure to support uses which are industrial in nature. Drilling operations should not be located in areas where they are likely to adversely impact the use and enjoyment of property rights of other property owners. In order to avoid conflict between the owner of property where a drilling site is proposed and other property owners or
the public, criteria prescribing the standards applicable to the siting of drilling operations
and production activities shall be developed and articulated in the land use ordinances of
Essex County.

- Regulations should be designed to mitigate the impacts of oil and gas exploration, drilling
  and development activities and all related accessory and ancillary uses on public health,
safety and welfare, and the environment and its natural resources to the extent permitted by
State and Federal Law. All applicable standards for noise, dust, odor, vibration, and other
County code requirements intended to mitigate off site impacts of uses of an industrial
nature shall also apply to oil and gas exploration, drilling and development uses.

- Advocate for the use of the most effective performance technologies and practices among oil
  and gas exploration, drilling and development operators. The County should require
  adherence to the most stringent guidelines and standards available for regulating all phases
  of gas and oil exploration, drilling and production for these types of industries, and seek
  commitments for voluntary restrictions that exceed minimum requirements.

- Preserve rural character and protect agricultural lands and sensitive ecological features by
directing that the location of oil and gas operations, drilling and development activities are
sited in areas appropriate for land uses of an industrial nature, and do not adversely impact
planned agricultural areas or areas of significant agricultural activity, such as lands in the
Agricultural Preservation District, which are zoned for agriculture under the County Land
Use program. Such operations will also be prohibited in environmentally sensitive areas,
tidal wetlands and marshes, and locations identified as Resource Protection Areas
(Preservation Areas Map) per the Chesapeake Bay Act and limited in Resource
Management Areas as determined by the County.

- Reserve pits, ponds and waste water containment facilities used to collect drilling fluids
resulting from oil and gas exploration or production shall be adequately buffered, lined,
sealed, fenced and enclosed or covered by netting, to ensure that there is no runoff of the
fluids and no access by, or exposure to, unauthorized persons, wildlife, birds, or livestock.
No reserve ponds, pits or waste containment facilities shall be located in an area where a
leak or overflow could be reasonably anticipated to flow into any stream, creek, river, other
water body, drainage ditch, floodplain, wetlands, marshes or other environmentally sensitive
areas.

- Encourage operators to share existing and proposed infrastructure and to co-locate facilities
required for oil and gas exploration, drilling and development and to use existing utilities
and transmission right of ways to minimize installation of new facilities and avoid additional
land disturbance to the greatest extent possible in order to avoid introduction of potentially
incompatible new land uses of an industrial nature into residential, rural and agricultural
areas, and to minimize the impacts of such development on landowners, neighboring property owners, the environment, farm activities and environmental resources.

- Require that applicants for oil and gas exploration, drilling and development activities provide information about the proposed quantity and source for any water required in the production, processing and exploration of hydrocarbon based resources and for all related oil and gas development activities. All such activities should adhere to local and regional water supply and protection plans and should not use public water supplies and should not make excessive use of groundwater resources. Require baseline testing and monitoring of surface, groundwater and well water quality within and adjacent to drilling and extraction sites prior to construction and during production.

- Require that applicants for oil and gas exploration, drilling and development activities directly engage with local communities, residents and other stakeholders at each phase of the development plan, starting prior to exploration, to provide sufficient notification of planned activities, including disclosure of chemicals, opportunity for comment on plans, operations, and performance, listen to concerns and respond appropriately and promptly.

- Oil and gas drilling, operations and development located in proximity to agricultural uses will be required to: i) avoid construction activity during growing seasons; ii) restore and reclaim all on and off-site agricultural lands impacted by any activity related to exploration, development, infrastructure installation, closure, and transportation to soil condition, pasture land, productivity, and/or drainage patterns that were in place prior to the initiation of oil and gas operations; iii) restore water resource systems disturbed by infrastructure to their former condition.

- To the extent permitted by State law, limit the impact of oil and gas exploration, drilling and development activities on residents and property owners of Essex County by regulating hours of use, related industrial traffic and access routes, so as to avoid hazardous use of County roadways and to minimize potential conflicts with school bus routes and schedules, school traffic and other local traffic patterns, and the exercise of other property rights. Access through residential streets will not be permitted.

- To the extent permitted by State law, require explicit commitments, including financial commitments such as posting of a bond when deemed appropriate, by applicants who wish to pursue oil and gas exploration, drilling and development activities in productive hydrocarbon formations such as the Taylorsville Basin, and their operators and contractors, to accept responsibility and liability for compensation and/or mitigation of directly and indirectly related costs, nuisances, damages and adverse impacts as a condition for issuance of permits dealing with oil and gas resource exploration, drilling and production. Such direct and indirect adverse impacts may be on-site or off-site and include, but not be limited to, damage to public and private roads, degradation of public or private water supplies or
Having no further discussion, a motion to adjourn was made and seconded. AYES: 6, NAYES: 0, ABSENT: 1

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David Jones, Chairman