

# *King George County*



## *Comprehensive Plan*

*Adopted: October 1, 2019*

# ***King George County Comprehensive Plan***

**Adopted on October 1, 2019**

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## Executive Summary of the

### King George County Comprehensive Plan – 2019 Update

#### Introduction

The King George County (KGC) Comprehensive Plan was first adopted in 2006 and updated in 2013. This 2019 update process was started by the KGC Planning Commission in 2018 to maintain compliance with the Code of Virginia Section 15.2-2230.

The 2019 update is organized into seven chapters:

- I – Background
- II – Population and Economy
- III – Land Use, Cultural and Natural Resources
- IV – Transportation
- V – Utilities
- VI – Community Services and Facilities
- VII – Implementation

This format will allow Elected Officials, County Staff, and citizens the ability to review specific section quickly as needed.

#### Major Changes with this Update

1. This Comprehensive Plan Update modifies the original “Primary Settlement Areas”, as defined in the 2013 Update, based on input from Elected Officials, County Staff, and public surveys. The following Settlement Area changes are as follows:
  - Courthouse Settlement Area: This area has been divided into two different areas, separated by what is typically described as the “downtown” area of King George County. The area west of the “downtown” area is labeled as “Courthouse West” and comprises the Presidential Lakes residential subdivision, as well as residential, commercial and undeveloped areas on the north and south side of Route 3. The area east of the “downtown” area is labeled as “Route 3/Route 301”. This area is comprised of commercial and residential areas, as well as undeveloped area around the Route 3, Route 301 and Route 205 triangle.
  - Dahlgren Settlement Area: This area has been shifted to the west. The area immediately north of Naval Support Facilities Dahlgren (NSFDL) has been removed from the area. The settlement area has been expanded south of Route 301, east of Route 218 to Berry Wharf Road.

The intent of this policy is to accommodate population and employment growth in a compact pattern by directing the majority of new development to locate along the major roadways of Route 3 and Route 301, within the settlement areas.

2. Coordination with Naval Support Facilities Dahlgren (NSFDL), and addition of the following Land Use goal:

- Promote compatible land uses proximate to Naval Support Facilities Dahlgren through the establishment of a Military Overlay Zoning District.

3. Coordination with the Economic Development Authority and addition of the following goals:

- Incorporate the newly developed Economic Development Strategic Plan and its initiatives into the updated Comprehensive Plan.
- Encourage the development of special incentive zones and assessment districts to encourage industrial, commercial and recreational business growth.

### **Goals of this Plan**

From the large number of goals discussed in the Plan, the following eight summarize the basic thrust of this Plan update:

- Preserve the Rural Characteristics of King George County.
- Encourage land use patterns that sustain and enhance the health, safety, morals, order, convenience, prosperity and general welfare of the residents of King George County.
- Promote a healthy, diversified economy in the County.
- Encourage protection of critical environmental resources and maintain renewable natural resources for future generations.
- Encourage a balance of residential zoning classifications to meet the need of all county residents while concentrating and guiding growth in and around service districts as designated in this Plan.
- Seek to manage the through-traffic flow on principal roads in such a manner as to minimize the impact on local-traffic flow.
- Protect water supplies and assure an adequate quality and quantity of water.
- Encourage the construction and control of central sewage facilities in designated areas.

### **Rural Characteristics**

A pattern of land use and managed development that features open space, the natural landscape and vegetation being substantially predominant over the built environment; agrarian lifestyle, rural-based economies, and the opportunity to live and work in a rural area; visual landscapes more often found in rural area; wildlife habitats; and development managed to preserve open spaces by encouraging development in Primary Settlement Areas and discouraging development in rural areas to avoid urban sprawl.

Rural character includes such elements as:

- Tree lined streets
- Farmland
- Woodland
- Clean air and water
- Dark skies at night
- Undeveloped open space
- Natural stream banks
- Natural shorelines
- Outdoor recreation opportunities

## **Issues that affect this plan**

The major issue facing King George County, and most other counties in this area, is population growth. KGC's population is projected to grow from the 2017 estimated population of 26,337 to a population of 37,365 (Virginia Employment Commission (V.E.C.) Projection) by the year 2030. By law, no County can stop growth. However, it can plan for growth and guide its direction. KGC's primary tool for managing growth is this Comprehensive Plan. The basic policies in this Plan designed to influence the direction of growth in an attempt to manage it are:

- Define distinctly different "Planning Areas", called Settlement Areas, with the intent of focusing future development and minimizing sprawl.
- Encouraging public facilities development in the Settlement Areas and limit their development in non-Settlement Areas.

An interrelated issue facing the County is economic development. Attracting and retaining businesses is important in both generating jobs and providing the tax base to support public services. Several policy thrusts in the Plan address this challenge, but the following two are the most significant:

- Promote a healthy diversified economy in the County, including the establishment of specified areas for industrial development.
- Encourage and support the continued stability of the Naval Support Facility Dahlgren.

A fundamental issue to the citizens of KGC is the preservation of its rural areas, while at the same time recognizing the inevitability of population growth. All policies in the Plan reflect an understanding of this issue and are designed to manage growth in the best interest of all citizens of the County. Ultimately, land use decisions involve specific cases that weigh the rights of property owners against the collective impact of development. This plan creates a policy context within which those cases can be considered and decided in a way that fairly balances those competing interests.

## **Recommendations of this Plan**

Population and Economy:

- Encourage and support the continued stability of Naval activities at Dahlgren by considering existing and future missions of the Naval Support Facility Dahlgren in land use decisions, in that area. (Note that the term "Naval Support Facility Dahlgren" is considered to be inclusive of all existing and future base tenants.)
- Incorporate the newly developed Economic Development Strategic Plan and its initiatives into the updated Comprehensive Plan.
- Encourage the development of special incentive zones and assessment districts to encourage industrial, commercial and recreational business growth.

Land Use:

- Implement land use development regulations to protect critical environmental systems, including: setbacks and buffers from water bodies, clustering of rural residential development, use of best management practices, and concentrating most new development into settlement areas, away from most sensitive and pristine natural systems.

- Promote compatible land uses proximate to Naval Support Facilities Dahlgren through the establishment of a Military Influence Area (MIA).

Transportation:

- Manage development and new access points along the major road corridors in order to protect the safety and capacity of these critical roads, and to protect the visual quality.
- Encourage Inter-Modal Forms of Transportation including bus transit, pedestrian, sidewalks and bike trails.
- Plan for connector roads to route through traffic around heavily used local roads in the post-20-year time frame.

Utilities:

- Carefully limit the location and expansion of water and sewer utilities to reinforce the desired compact development pattern, in accordance with the defined “Utility Areas” depicted on Map 2, which relate closely to the Settlement Areas.

Community Facilities

- Carefully manage the location and expansion of community facilities such as schools and other key public facilities such as emergency services to reinforce the desired compact development pattern, while providing needed services to all citizens.

**NOTE:**

**The County should examine each development proposal for consistency with the Comprehensive Plan and the need of the County to provide additional residential and commercial opportunities for residents.**

## CHAPTER I. BACKGROUND OF THE COMPREHENSIVE PLAN

### **A. Purpose and Scope**

Planning in local government is a process of establishing community goals and of developing courses of action to achieve such goals. In order for the process and substance of planning to function, each community must develop certain tools as well as establish the administrative capability for using such tools. The major tools of planning established by Virginia law are as follows:

- (a) The Comprehensive Plan - a long-range plan for the physical development of the County. (Code of Virginia 15.2-2223)
- (b) The Subdivision Ordinance - County regulations prescribing standards for land development and concentrating primarily on residential subdivision development. (Code of Virginia 15.2-2240)
- (c) The Zoning Ordinance - a County regulation prescribing the purposes for which land may be used. (Code of Virginia 15.2-2286, 2287, 2288, and 2303)
- (d) The Capital Improvements Program - an administrative plan of shorter-range duration in which specific projects of the Comprehensive Plan are coordinated with the local budget. (Code of Virginia 15.2-2239)
- (e) The Official Map - an official document showing legally established public streets, waterways and public areas of the County (Code of Virginia 15.2-2233)

The following are key excerpts from the state statute concerning Comprehensive Plans:

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

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

“Such plan, with the accompanying maps, plats, charts, and descriptive matter, shall show the commission’s long-range recommendations for the general development of the territory covered by the plan, including the location of existing or proposed recycling centers. It may include, but need not be limited to:

1. Designation of areas for development and use;
2. Designation of a system of transportation;
3. Designation of a system of community service facilities;
4. Designation of historic areas;
5. Designation of areas for groundwater protection measures;
6. An official map, a capital improvements program, a subdivision ordinance, and a zoning ordinance and zoning district maps, mineral resource district maps and agricultural and forestal district maps; and

7. Designation of areas or measures to promote affordable housing."

A significant piece of land use and water quality legislation that affects community planning is the Chesapeake Bay Preservation Act. The Act was adopted by the Virginia General Assembly in 1988. It establishes a specific relationship between water quality protection and local land use authority. The purpose of the regulations is "...to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state water by minimizing the effects of human activity upon these waters and implementing the Act, which provides for the definition and protection of certain lands called Chesapeake Bay Preservation Areas, which if improperly used or developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries."

This document represents the 2019 Comprehensive Plan for King George County, and replaces the Plan that was adopted April 16, 2013.

## **B. Organization of This Plan**

This Comprehensive Plan Update is organized into the following chapters:

CHAPTER I. BACKGROUND OF THE COMPREHENSIVE PLAN  
CHAPTER II. POPULATION AND ECONOMY  
CHAPTER III. LAND USE, CULTURAL AND NATURAL RESOURCES  
CHAPTER IV. TRANSPORTATION  
CHAPTER V. UTILITIES  
CHAPTER VI. COMMUNITY SERVICES AND FACILITIES  
CHAPTER VII. IMPLEMENTATION OF THE COMPREHENSIVE PLAN  
APPENDIX. SUPPORTING DATA AND HISTORY

For each of these topics, this plan contains a set of goals and policies to guide long term and day-to-day decision-making by the County, as well as to provide guidance to citizens and businesses. *Goals* are long-term, ideal end-states. They represent the ultimate level of quality and performance that the community aspires to achieve. Goals represent targets to strive for but may not be fully achievable. *Policies or actions* are the general courses of action the community intends to follow in order to achieve those goals. Policies are thus more concrete and short-term than goals. They are achievable, and in some cases, measurable. Policies can be general in nature and timeframe, or they may refer to precise steps to take in accordance with a defined schedule.

## **C. Key Provisions of This Plan**

This Plan is based on many factors, as noted in the Executive Summary. Two key considerations are:

- In accordance with the data provided by Virginia Employment Commission, the County expects to grow from its 2017 estimated population of 26,337 people to 37,365 people by the year 2030.
- An estimated four to eight square miles of land will be available in the Primary Settlement Areas to accommodate projected growth needs of population and industry.

This Plan's purpose is to help the County achieve its major goals, which include:

- Preserve, encourage and sustain the Rural Character of King George County in the non-primary settlement areas.
- Promote a diverse, healthy and sustainable economy.
- Protect critical environmental resources and maintain natural resources for future generations.

This Plan proposes to achieve the goals through a variety of means, including:

- Accommodate population and employment growth in a compact pattern by directing the majority of new development to locate in the major existing settlement areas, especially the Courthouse West, Route 3/Route 301 and Dahlgren areas.
- Create a Military Influence Area (MIA) Zoning Overlay District, within the Dahlgren Settlement Area, that promotes compatible development in proximity to Naval Support Facility Dahlgren (NSFDL).
- Manage the location and expansion of water and sewer utilities and the location of community facilities such as schools, Parks and Recreation and Emergency Services in such a way as to provide needed services, while reinforcing the desired compact development pattern.
- Plan for additional traffic management options in the long term.
- Manage development and new access points along major road corridors in order to protect safety, capacity and visual quality of these critical roads.
- Implement land development regulations to protect critical environmental resources.

#### **D. Summary of Land Use Concepts and Concerns**

##### Concept for Future Land Use in the County:

1. Encourage the majority of residential and employment development to locate in and around the Courthouse West, Route 3/Route 301, and the Dahlgren Primary Settlement Areas, each with a mix of land uses and densities.
2. Consider residential development in areas with existing facilities and/or approved projects such as Oakland Park, Fairview Beach and the Hopyard tract.
3. Consider limited and carefully sited additional industrial development in appropriate areas that have established industrial uses such as the power plant and landfill.
4. Discourage scattered uncoordinated development in the remainder of the County in order to retain agricultural uses, forest uses, very low-density residential uses, and water resources.

##### Concerns over Dispersed Growth in King George

There are some concerns that the County has considered as it has developed this Comprehensive Plan and the size and shape of the Settlement Areas as defined herein. If the Settlement Areas that are designated for development cover too large or too dispersed an area, several potential problems could arise from the resulting sprawling pattern of residential uses. These include:

1. **Weakened Rural Characteristics.** Unless it occurs at very low densities, dispersed development tends to produce suburban rather than rural characteristics in terms of the appearance of development, the lifestyles of new residents, and the demand for public services.
2. **Utility Costs.** Pressure for dispersion of public utilities causes greater cost per unit.
3. **Road Costs.** Pressure for dispersion of public roads causes greater cost per unit.
4. **Traffic Impacts.** Increased numbers of entrances and driveways on existing roads create safety problems.
5. **Public Service Costs.** Dispersion of public service delivery (school bus trips, fire/rescue, law enforcement, etc.) generally causes greater costs to the public.
6. **Public Facility Costs.** Pressure for dispersion of public facilities (schools, etc.) generally causes greater costs to the public.
7. **Visual Impacts.** Greater dispersion affects more views from the public roadways, and from private yards.
8. **Impact on Managed Growth Goals.** Dispersed development conflicts with the basic philosophy of managed growth, which the County formally supports.

### Infrastructure

Public facilities and utilities should be designed and located to encourage and reinforce the preferred land use pattern described above. Infrastructure is the “skeleton” upon which the land use depends and should be designed to support the preferred land use pattern.

Sewer and Water. Expansions of sewer and water service areas should be limited, with a goal of focusing such expansions in areas that can best support further growth, including the Courthouse West, Route 3/Route 301, and the Dahlgren area. Other public facilities and services will follow that framework as well.

Sewer and water services need to be made available in respect to settlement areas. Areas outside of settlement areas including planned areas of growth should only be provided services by a thorough public utility infrastructure and capacity review. Public utility services shall be provided in consistency of the comp plan and the implementation goals and strategies.

Transportation. The road network should be designed to move through-traffic across the County with minimum disruption to local traffic. Development of new connectors is encouraged. New roads and new development should be designed to interconnect and be developed so as not to reduce but to improve the existing level of service of County roads.

Other public facilities and services. Other major facilities such as schools, recreation facilities, library, etc. should be focused in and around the population centers. Certain public uses such as natural areas must be located where the resource exists. Other facilities such as small neighborhood parks and emergency services facilities can locate as close as possible to the population they serve and may thus be located outside of the two major growth areas. Schools should be located to best serve the school age population. For example, elementary and middle schools should be located close to that school age population, while high schools should be located more in the geographic center of the County.

## Planning Areas (Map 1)

This Plan establishes several “Planning Areas” in order to provide the most effective framework for defining the priority areas for future growth and conservation. These are shown in the attached Planning Areas map and are listed below. Each of these Planning Areas is designated as either a Primary Settlement Area or a Rural Development Area. Policies to guide future development decisions have been developed for each Area. These policies include specific implementation strategies to accomplish the goals established by this Plan. Implementation of each policy will be through revisions to the County land use ordinances and/or as elements to the action plans described in Chapter VII, Implementation of the Comprehensive Plan.

The Primary Settlement Areas are areas where public water and/or sewer are provided by the King George County Service Authority. Within the Primary Settlement Areas, a mixed-use compact development, with public utilities and new community facilities will be encouraged. Through the type of development encouraged within the Primary Settlement Areas a strong sense of community focus for the County will be fostered. Of the Primary Settlement Areas, the Courthouse West, Route 3/Route 301 and Dahlgren Settlement Areas will be the priority locations for most types of new development.

The Rural Development Areas include the rest of the County and include most of the agricultural and environmentally sensitive areas as well as areas that are not appropriate for public utility service in the long term. Utilities in these areas and development will not be encouraged.

Primary Settlement Areas	Rural Development Areas
(1) Courthouse West	(9) Rappahannock River/
(2) Route 3/Route 301	South
(3) Dahlgren	(10) Potomac River / North
(4) Route 3 West	
(5) Fairview Beach	
(6) Hopyard	
(7) Cleydael	
(8) Oakland Park	

### 1. Courthouse West (Primary Settlement Area) (Map 3)

#### a. Definition of the Area

The Courthouse West Primary Settlement Area is displayed on Map 1 and includes land surrounding Route 3 from the west intersection of Route 677 and Route 3 to Parcel 24B-4-4. The Courthouse area is just west of the historic “heart” of King George County where the bulk of the County’s current public facilities, including the Courthouse, King George High School, King George Middle School and Administration buildings, the library, and the County Administration Complex are located. New development includes low/moderate income housing facilities, retail, medical offices (dental, dialysis, and urgent care center), expansion of church buildings, and a YMCA and County office buildings (animal shelter, sheriff’s office).

Background. This area contains 5.5 percent of the County's total population and contains approximately 539 housing units. The area contains several major residential subdivisions with lot sizes 1 acre and less including Presidential Lakes (Route 3), and Cleveland Manor (Route 3). Overall land use in this Area remains primarily rural with the exceptions of the subdivisions, and commercial development adjacent to Routes 3. The current development pattern follows a historic trend towards concentrating commercial development along the major roads and residential development in the outlying areas. Commercial development is located predominately along Route 3 (Map 3 Courthouse West Settlement Area). The continuation of commercial development is recommended in areas where it either currently exists or is properly zoned for commercial development. Residential development is recommended for the middle portion of the area (north of Route 3 and south of Route 206). Higher density residential development is encouraged to be concentrated in areas served by public water and sewer and lower density residential development is recommended for areas not served by public water and sewer.

Chesapeake Bay Preservation Act Potential Pollution Sources. Potential pollution sources in this area include the underground storage tanks and Presidential Village Wastewater Treatment Plant. The primary Resource Protection Area features within this Development Area are the two lakes within Presidential Lakes Subdivision. The physical constraints to development in the area include highly erodible and highly permeable soils. The topography is moderate and septic suitability is good with the exception of the southern portion of Presidential Lakes Subdivision.

- b. Key Policies/Implementation Strategies for Future Development and Preservation
  - 1. This is one of the primary locations for future residential development and community facilities in the County, including the location for potential rezoning to higher density residential and mixed-use zoning districts.
  - 2. The proposed residential density for this area ranges from 1 dwelling unit per 1 to 5 acres in those areas without public utilities. In areas with public utilities densities of up to 8 dwelling units per acre may be permitted. Commercial development is recommended to follow the prevailing development pattern along Route 3.
  - 3. A priority location for future public infrastructure, particularly expansions of water and wastewater service. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, utility system expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, or to generally improve service to county residents. The wastewater treatment plant should continue to be monitored and upgraded to ensure it operates within the required limits.
  - 4. Encourage local street extensions in conjunction with new residential development
  - 5. A priority location for commercial services to serve the expanded population of the County.

6. In the Courthouse Community Development Area development projects must employ nutrient reduction (best management) practices to comply with the requirements of the King George County Chesapeake Bay Preservation Area Overlay Zoning District.
7. In Courthouse where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
8. The wastewater treatment plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.
9. Redevelopment projects should be reviewed to ensure they meet either the 10 percent reduction in non-point source pollutant load or reduction of impervious cover by 20 percent per the Virginia Runoff Reduction Method. Candidate areas for reestablishment of vegetative buffers exist in Presidential Lakes. In the development and redevelopment of property adjacent to waterways every effort should be made to encourage reestablishment of the buffer area.

10. Village District Development Guidelines/Standards:

- a. Main Street Area: the following development standards should be utilized within the “Village District” identified as being the Main Street Area.
  1. Sidewalks should be provided on both sides of all public roads.
  2. Encourage a village streetscape setting.
  3. Maintain the two-lane traffic pattern within the village area and encourage development of by-pass alternatives.
  4. In order to maintain the streetscape, commercial buildings should be allowed to build even with the sidewalk.
  5. Whenever possible, sidewalks adjacent to curbs should be wider (width of 6 to 10 feet) than those typically provided.
  6. Credit should be given for on-street parking.
  7. Street furniture, landscaping for shade and other conveniences are desirable for the convenience of the public.
  8. In order to slow traffic and promote the main street area, the speed limit should be reduced to 15-25 mph.
  9. Residential uses should be permitted to be established above businesses.
  10. The creation of civic and open space uses, such as public parks, and library expansion should be promoted.
  11. Opportunities for different modes of transportation including pedestrian crosswalks, walking, biking, and public transit should be provided.
  12. A community open space should be developed within this Area.
- b. Commercial Core Standards: the following development standards should be utilized within the “Village District” identified as being the Commercial Core Area.
  1. To promote connectivity of the residential areas and commercial areas sidewalks along both sides of public roads should be provided.
  2. Landscaping should be provided along the frontages of all roads.

3. Commercial development should be setback from the road and should incorporate shared entrances and parking areas with lot layouts to create compact efficient development.
4. All new road should be interconnecting with existing roads and/or create/continue a Grid Pattern.
5. Parking lots located at the rear or side of buildings and shall be screened from the sidewalk by low walls, fences or hedges.
6. Adjacent Parking lots shall have vehicular entries connections via an alley or internally.
7. Opportunities for different modes of transportation including walking, biking, and public transit should be created.

c. Residential Core Standards:

1. Located adjacent to “Main Street and Commercial Core Areas” having a pedestrian Orientation defined primarily as being able to reach a destination within  $\frac{1}{4}$  mile.
2. Development is characterized as having “Neighborhood Friendly Roads” and “Paths”, including sidewalks at least 4 feet wide preferably with a planting strip between road and sidewalk. Does not require grid street pattern.
3. Zoning requirements should allow for reduced setback requirements and varying lot sizes.
4. Development should include interconnected roads; parks and open space; and a mixture of housing types and affordability.
5. Clear Boundaries should be maintained between Residential Core Areas and the Rural Areas.

## 2. Route 3/ Route 301 (Primary Settlement Area) (Map 4)

### a. Definition of the Area

The Route 3/ Route 301 Primary Settlement Area is displayed on Map 1 and includes the land surrounding Route 3 from Colbys Lane on the west end and Canterbury Loop on the east, Route 205 from Route 3 to Lakeview Drive on the east, and Route 301 from Route 667 on the north to Parcel 33-45B on the south.. The Purkins Corner Wastewater Treatment Plant is located behind the old landfill and was originally constructed in 1996 to serve the middle school, high school and elementary school. The Route 3/ Route 301 area is located around the intersection of the two primary roadways within the County. This area has already seen commercial development with the construction of the CVS Pharmacy, Sheets convenient store, and Tractor Supply at the intersection.

Background. This area contains 2 percent of the County’s total population and contains approximately 154 housing units. The area contains several commercial properties and minor residential subdivisions. Overall land use in this Area remains primarily rural with the exceptions of the subdivisions, and commercial development adjacent to Routes 3, 205 and 301. The current development pattern follows a historic trend towards concentrating commercial development along the major roads and residential development in the outlying areas. Commercial development is located predominately along Route 3 and in areas adjacent to Routes 205 and 301 (Map 4). The continuation of commercial development is recommended in areas where it either currently exists or is

properly zoned for commercial development. Residential development is recommended for the middle portion of the area. Higher density residential development is encouraged to be concentrated in areas served by public water and sewer and lower density residential development is recommended for areas not served by public water and sewer.

Chesapeake Bay Preservation Act Potential Pollution Sources. Potential pollution sources in this area include the underground storage tanks, and the Purkins Corner Wastewater treatment Plant. The primary Resource Protection Area features within this Settlement Area are Pine Hill Creek and tributaries to Upper Machodoc Creek. The physical constraints to development in the area include highly erodible and highly permeable soils. The topography is moderate and septic suitability is typically good.

- b. Key Policies/Implementation Strategies for Future Development and Preservation
  1. This is one of the primary locations for future residential development and community facilities in the County, including the location for potential rezoning to higher density residential and mixed-use zoning districts.
  2. The proposed residential density for this area ranges from 1 dwelling unit per 1 to 5 acres in those areas without public utilities. In areas with public utilities densities of up to 8 dwelling units per acre may be permitted. Commercial development is recommended to follow the prevailing development pattern along Route 3 and within the triangle created by Route 3, Route 205 and Route 301.
  3. A priority location for future public infrastructure, particularly expansions of water and wastewater service. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, utility system expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, or to generally improve service to county residents. The wastewater treatment plant should continue to be monitored and upgraded to ensure it operates within the required limits.
  4. Encourage local street extensions in conjunction with new residential development
  5. A priority location for commercial services to serve the expanded population of the County.
  6. In the Route 3/ Route 301 Settlement Area development projects must employ nutrient reduction (best management) practices to comply with the requirements of the King George County Chesapeake Bay Preservation Area Overlay Zoning District.
  7. In Route 3/ Route 301 where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
  8. The wastewater treatment plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.

9. Redevelopment projects should be reviewed to ensure they meet either the 10 percent reduction in non-point source pollutant load or reduction of impervious cover by 20 percent per the Virginia Runoff Reduction Method. In the development and redevelopment of property adjacent to waterways every effort shall reestablish the buffer area.

10. Village District Development Guidelines/Standards:

- a. Main Street Area: the following development standards should be utilized within the “Village District” identified as being the Main Street Area.
  1. Sidewalks should be provided on both sides of all public roads.
  2. Encourage a village streetscape setting.
  3. Maintain the two-lane traffic pattern within the village area and encourage development of by-pass alternatives.
  4. In order to maintain the streetscape, commercial buildings should be allowed to build even with the sidewalk.
  5. Whenever possible, sidewalks adjacent to curbs should be wider (width of 6 to 10 feet) than those typically provided.
  6. Credit should be given for on-street parking.
  7. Street furniture, landscaping for shade and other conveniences are desirable for the convenience of the public.
  8. In order to slow traffic and promote the main street area, the speed limit should be reduced to 15-25 mph.
  9. Residential uses should be permitted to be established above businesses.
  10. The creation of civic and open space uses, such as public parks, and library expansion should be promoted.
  11. Opportunities for different modes of transportation including pedestrian crosswalks, walking, biking, and public transit should be provided.
  12. A community open space should be developed within this Area.
- b. Commercial Core Standards: the following development standards should be utilized within the “Village District” identified as being the Commercial Core Area.
  1. To promote connectivity of the residential areas and commercial areas sidewalks along both sides of public roads should be provided.
  2. Landscaping should be provided along the frontages of all roads.
  3. Commercial development should be setback from the road and should incorporate shared entrances and parking areas with lot layouts to create compact efficient development.
  4. All new road should be interconnecting with existing roads and/or create/continue a Grid Pattern.
  5. Parking lots located at the rear or side of buildings and shall be screened from the sidewalk by low walls, fences or hedges.
  6. Adjacent Parking lots shall have vehicular entries connections via an alley or internally.
  7. Opportunities for different modes of transportation including walking, biking, and public transit should be created.
- c. Residential Core Standards:

1. Located adjacent to “Main Street and Commercial Core Areas” having a pedestrian Orientation defined primarily as being able to reach a destination within ¼ mile.
2. Development is characterized as having “Neighborhood Friendly Roads” and “Paths”, including sidewalks at least 4 feet wide preferably with a planting strip between road and sidewalk. Does not require grid street pattern.
3. Zoning requirements should allow for reduced setback requirements and varying lot sizes.
4. Development should include interconnected roads; parks and open space; and a mixture of housing types and affordability.
5. Clear Boundaries should be maintained between Residential Core Areas and the Rural Areas.

3. Dahlgren Area (Primary Settlement Area) (Map 5)

a. Definition of Area

The Dahlgren Primary Settlement Area is displayed on Map 1 and it includes the community of Dahlgren and the surrounding development area. Dahlgren is located on the peninsula formed by Machodoc Creek and the Potomac River. The Area extends southwest to include the commercial development east of the intersection of Route 218 and Route 301 and north to the south side of Chatham Village. The area also includes the Naval Support Facility Dahlgren (NSFDL), which exists along the Potomac River and extends to land south across Machodoc Creek. A Military Influence Area (MIA) will be developed in portions of the Dahlgren Settlement Area to promote compatible development proximate to Naval Support Facilities Dahlgren. The MIA will serve to protect the military mission from incompatible development and direct growth and services which will support Naval Support Facilities Dahlgren into appropriate areas within the Dahlgren Settlement Area. Commercial development is located primarily adjacent to the major roadways along Routes 206, 301 and 614. The land located off the major roads is predominately residential in use. Small pockets of agricultural land exist in the northern most portion of the Area along Route 624. Commercial retail and educational opportunities have been created along the northern portion of the Route 301 corridor with the establishment of a campus by the University of Mary Washington, the Walmart retail center with associated commercial pad development on the west side of Route 301 and new retail space housing several restaurants on the eastern side. The Dahlgren WWTP is located off of Route 206 Dahlgren Road. The WWTP is the Service Authority’s largest facility with a design flow of 0.97 MGD. The plant has been modified over the years to meet new nitrogen and phosphorus limits. The last treatment plant upgrade was a modification of the oxidation ditch treatment process. The wastewater treated at the facility is domestic waste that comes from both businesses and residents in the Dahlgren primary settlement area.

This Settlement Area is the most intensely developed area of the County. It contains 10% percent of the County population and approximately 927 housing units. The Dahlgren community contains a commercial core along Route 301 from Route 218 to Route 614. The remaining area in the community is primarily residential and outside the Dahlgren community residential area, the Area contains two residential subdivisions (Bayberry and

Walnut Hill). In addition to having the greatest concentration of population; the Area contains the largest office park in the County (Dahlgren Technology Center) the largest concentration of commercial development including a strip shopping center, several fast food and other restaurants along with the majority of the County's gas stations. The area also contains the County's largest employment center in the Naval Support Facilities Dahlgren. Naval Support Facilities Dahlgren and its tenants have created demand for office space through the use of off-site contractors. This Area is almost entirely served by both public water and wastewater. The County wastewater treatment plant has been upgraded to provide improved treatment and additional capacity. Lot sizes in this Area are some of the smallest in the County with the Dahlgren community and all of the major subdivisions in the Area are being developed on approximately 15,000 square foot lots.

Because the Dahlgren Area contains an existing urbanized area adjacent to the Naval Support Facilities Dahlgren and is identified as one of the two long term primary areas that have been previously selected as the focal point for development, the area is one of two locations recommended for the creation of a "Village District". The Village District is proposed to be created around the existing compact development corridor along Dahlgren Road (Route 206) and the adjacent neighborhood area. The goal of the District is to create a more efficient use of land and infrastructure and to promote a sense of community through compact development. Compact development is intended to be designed for the human scale. The human scale is defined as the relationship between dimensions of the human body and the proportion of the spaces which people use. It includes paying attention to walking distances, the height of buildings, the design of streetlights and signs, sidewalks, and other features. Compact development can also promote social interaction by including civic spaces such as parks and public buildings. Compact development means residential, commercial, and civic buildings are within close proximity of each other encouraging people to walk between various uses. A Future Land Use Map for this area identifies the areas and development standards to be utilized in the establishment of the Village District.

The Land Use Map for the Dahlgren District breaks down the area into three sub-planning areas: the Main Street, Commercial and Residential Cores. Boundaries for each of the areas are identified on the land use map. The purpose of the "Main Street Area" is to promote the traditional main street development with storefronts abutting sidewalks. The Main Street Area extends from the Naval Support Facilities Dahlgren to just west of the intersection of Routes 206 and 614. The Commercial Core Area is proposed to extend west of the "Main Street Area" along Route 206 west to Route 301. The purpose of the Commercial Core Area is to create a transition area from the "Main Street Area" to new commercial and residential development. The purpose of the "Residential Core" areas identified within the Village District is to further the Residential Land Use Policies of the Comprehensive Plan regarding the creation of compact efficient development served by public utilities. Higher residential density is encouraged within this area to offset residential lot demand within the rural areas of the County. The development standards for the Village District are incorporated below within the Key Policies/Implementation Strategies for Future Development and Preservation. The Dahlgren Village District is designed to mirror the existing development pattern and allow the creation of Zoning Requirements to promote the positive land use qualities of the area.

Development occurring prior to the adoption of County Chesapeake Bay Preservation Act Overlay Zoning District does not provide water quality treatment. Development and redevelopment opportunities exist for providing storm water management. Redevelopment opportunities on existing sites, due to the small lot sizes, will be primarily in the form of a 20% reduction in existing impervious cover. The primary Resource Protection Area features in this Development Area are Williams Creek and the Potomac River (Naval Support Facilities Dahlgren controls the entire Potomac River frontage in the Development Area). Candidates for buffer area re-establishment exist in the Dahlgren community along Williams Creek. Potential sources of pollution are underground storage tanks, and the wastewater treatment plants (PSA and Naval Support Facilities Dahlgren). Few physical constraints to development exist in this area. The topography is low lying with a high water table and is predominately without soils capable of supporting septic systems.

- b. Key Policies/Implementation Strategies for Future Development and Preservation.
  1. This is one of the primary locations for future residential development and community facilities in the County, including the possibility for potential rezoning to more dense residential and mixed-use zoning districts.
  2. The proposed residential density for this area ranges from 1 dwelling unit per 1 to 5 acres in those areas without public utilities. In areas with public utilities densities of up to 8 dwelling units per acre may be permitted.
  3. Commercial development is recommended to follow the existing prevailing development pattern along Routes 301, 206 east of Route 301 and that portion of 614 adjacent to Route 206.
  4. Commercial development is recommended to occur through the creation of commercial plaza development, such as Gateway Shopping Center, Food Lion shopping center, Grand View Plaza, and the Dahlgren Technology Center, rather than strip development along Route 301. Common entrances and shared storm water management facilities are recommended.
  5. Control access onto US 301 through the implementation of Article 11, Highway Corridor Overlay District, King George County Zoning Ordinance.
  6. Create a Military Influence Area (MIA) to promote compatible development proximate to Naval Support Facilities Dahlgren, preserving the military mission and appropriately locating services supporting the installation and community.
  7. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, or to generally improve service to county residents. Upgrade and maintenance of the water system and the wastewater treatment plant should be accomplished to improve water and quality and delivery of service.

8. Development plans should be designed and reviewed to minimize the amount of impervious area, maximize preservation of native vegetation, ensure maintenance of best management practices, comply with erosion and sediment regulations, coordinate with the Virginia Department of Health and manage non-point source pollution runoff loads for new and redevelopment projects.
9. In Dahlgren where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
10. The Dahlgren Wastewater Treatment Plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.
11. Redevelopment projects should be reviewed to ensure they meet either the 10 percent reduction in non-point source pollutant load or reduction of impervious cover by 20 percent per the Virginia Runoff Reduction Method. Candidate areas for reestablishment of vegetative buffers exist in the Dahlgren community. In the development and redevelopment of property adjacent to waterways every effort should be made, during permit review, to encourage reestablishment of the buffer area.

11. Village District Development Guidelines/Standards:

- a. Main Street Area: the following development standards should be utilized within the “Village District” identified as being the Main Street Area.
  1. Sidewalks should be provided on both sides of all public roads.
  2. Encourage a village streetscape setting.
  3. Maintain the two-lane traffic pattern within the village area and encourage development of by-pass alternatives.
  4. In order to maintain the streetscape, commercial buildings should be allowed to build even with the sidewalk.
  5. Whenever possible, sidewalks adjacent to curbs should be wider (width of 6 to 10 feet) than those typically provided.
  6. Credit should be given for on-street parking.
  7. Street furniture, landscaping for shade and other conveniences are desirable for the convenience of the public.
  8. In order to slow traffic and promote the main street area, the speed limit should be reduced to 15-25 mph.
  9. Residential uses should be permitted to be established above businesses.
  10. The creation of civic and open space uses, such as public parks, and library expansion should be promoted.
  11. Opportunities for different modes of transportation including pedestrian crosswalks, walking, biking, and public transit should be provided.
  12. A community open space should be developed within this Area.
- b. Commercial Core Standards: the following development standards should be utilized within the “Village District” identified as being the Commercial Core Area.

1. To promote connectivity of the residential areas and commercial areas sidewalks along both sides of public roads should be provided.
2. Landscaping should be provided along the frontages of all roads.
3. Commercial development should be setback from the road and should incorporate shared entrances and parking areas with lot layouts to create compact efficient development.
4. All new road should be interconnecting with existing roads and/or create/continue a Grid Pattern.
5. Parking lots located at the rear or side of buildings and shall be screened from the sidewalk by low walls, fences or hedges.
6. Adjacent Parking lots shall have vehicular entries connections via an alley or internally.
7. Opportunities for different modes of transportation including walking, biking, and public transit should be created.

c. Residential Core Standards:

1. Located adjacent to “Main Street and Commercial Core Areas” having a pedestrian Orientation defined primarily as being able to reach a destination within  $\frac{1}{4}$  mile.
2. Development is characterized as having “Neighborhood Friendly Roads” and “Paths”, including sidewalks at least 4 feet wide preferably with a planting strip between road and sidewalk. Does not require grid street pattern.
3. Zoning requirements should allow for reduced setback requirements and varying lot sizes.
4. Development should include interconnected roads; parks and open space; and a mixture of housing types and affordability.
5. Clear Boundaries should be maintained between Residential Core Areas and the Rural Areas.

4. Route 3/West (Primary Settlement Area) (Map 6)

a. Definition of Area

Route 3/West Area boundaries begin at Route 3 and 665 extends east along Route to 605, and then north along Route 605 to 665 and includes the King George County Landfill and the Mirant Birchwood Power Facility properties. The Area is created to serve as the industrial hub within the County. Industries within this Area include the Power Facility, the County Landfill, a 21 acre under glass greenhouse, and the County’s 123-acre Industrial Park. The Industrial Park tenants include rebar processor, asphalt plant, and flex space. This area is served by Route 3, is within 16 miles of Fredericksburg and 25 miles of I-95.

In 2003, King George County purchased 123-acres adjacent to the Railroad line, the Landfill and the Power Facility and established the King George Industrial Park. The property has been Zoned Industrial and accepted tenants. In developing the Park, the County was assisted by the Virginia Department of Economic Development and received a grant for the construction of the public road that serves the Park. The County also extended public water and sewer to the Park from the Oakland Park Water and

Wastewater Treatment Facilities. The County has committed 4 million dollars to bring natural gas to the park.

Through the development of the SEI Birchwood Power Facility, Piedmont Fertilizer Plant, the King George Landfill, and the King George County Industrial Park this area is the focal point of industrial development in the County. With its proximity to Route 3, a four lane divided highway, and Interstate 95, a major north/south roadway in the United States, the CSX Rail Road, the ability to provide public water/sewer and natural gas to serve development, the Route 3 West Satellite Area is poised to accept additional industrial development.

Resource Protection Areas remain vegetated with complete 100-foot buffer areas. Redevelopment should not be a primary concern in this Area because all of the development currently fully complies with the County's Chesapeake Bay Preservation Act Overlay Zoning District requirements. Each of the industries, identified above, in this Area is a potential source of pollution. The primary physical constraint to development in this area is highly erodible soils. The topography varies from flat along Route 3 to severe along the northern border of the area. Soils in the Area have slight to severe limitations to septic systems following the pattern consistent with the topography.

Site development within this area includes model Best Management Practices (BMP's) on the Power Facility site which are designed to control a 100-year storm event and on the King George County Landfill site which are designed to control 25-year storm.

- b. Key Policies/Implementation Strategies for Future Development and Preservation
  1. Encourage compatible light and heavy industrial development and limit further residential development. Industrial development should be limited to the triangle created by Route 3, Route 665 and Route 605. Industrial development should provide site design to enhance the rural view sheds along Route 3 and 605 with densities between 3 to 10 acres per lot in an Industrial Park setting. Residential densities in the outlying areas should be in the range of 1 dwelling unit per 2 to 10 acres with the lower densities in areas along Route 3 and the higher densities in the northern portion of the Area.
  2. Permit limited sewer or water systems to serve specific economic development projects that require such service. Any such systems should be strictly limited in terms of capacity and service area so that they serve only the specific non-residential development they are designed and approved to serve.
  3. In Route 3/West, redevelopment projects should employ nutrient reduction (best management) practices to comply with the requirements of the King George County Chesapeake Bay Preservation Area Overlay Zoning District.
  4. In Route 3/West, where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.

## 5. Fairview Beach (Primary Settlement Area) (Map 7)

### a. Definition of Area

This area is defined as a Primary Settlement Area and includes the community of Fairview Beach and land immediately adjacent. The development pattern is primarily limited to the existing subdivision of Fairview Beach, which was platted in the 1920's. It does not include new or additional development. This is the most intensely residentially developed Satellite Area in the County. However, the area is very small and contains only 4 percent of the County's population. This area is primarily built-out and due to the extremely small lot sizes contains the most difficult redevelopment issues in the County. Lot size in this Area averages about 5,000 to 8,000 square feet. The Area is almost completely served by both public water and wastewater treatment systems operated by the King George County Service Authority. The original Fairview Beach Wastewater Treatment Plant constructed in 1982 was replaced by a new facility in 2009. The new facility, located within the Potomac Landing Subdivision, has a treatment capacity of 200,000 gallons per day. The new facility complies with all discharge requirements and provides a marked improvement over the former facility.

Most of the dwelling units in Fairview Beach were constructed in the 1950's and are slowly being converted from summer cottages to full time residences. With this conversion comes the difficulty of applying the Chesapeake Bay Preservation Act Overlay Zoning District threshold of 16% to lots that contain 50 to 70 percent impervious cover. On November 4, 2015, King George County, the Fairview Beach Residents Association, Inc. (FBRA), and Fairview Beach, LLC (FBLLC) entered into an agreement to help fund the Fairview Beach Shoreline Restoration Project via the U.S. Army Corps of Engineers (USACE). Among other obligations, the FBRA and FBLLC agreed to provide the County a Union Bank Letter of Credit in the amount of \$50,000.00. These funds were retained to cover any costs that may have accrued to the County as a result of the USACE Project.

In 2018, the USACE Project was subsequently tabled in favor of an alternative offered via a \$300,000 grant from the Federal Emergency Management Agency (FEMA). The grant is purposed with funding Phase I (Engineering Design). Upon completion of Phase I, FEMA will entertain a plan to fund Phase II (Construction) of the project. Therefore, the FBRA and FBLLC desire to terminate their agreement with the County and be alleviated of their obligation to maintain the \$50,000 Letter of Credit. By the Board of Supervisors voting to approve the attached release agreement, the FBRA and FBLLC may request that Union Bank release the funds to the FBRA.

The topography within the community of Fairview Beach is gently sloping towards the Potomac River. The soils are generally not suitable for septic systems and the only other physical constraint to development is primarily the closeness to the Potomac River. Just to the south of the existing community the topography is severe, physical constraints to development include highly erodible and highly permeable soils.

### b. Key Policies/Implementation Strategies for Future Development and Preservation.

1. Encourage low to moderate density residential development on central utilities if contiguous to Fairview Beach facility; encourage very low densities on well and septic.

Densities within Fairview Beach range from 1 to 2 dwelling units per acre and densities on adjacent to Fairview Beach should range from 1 dwelling unit per each 2 to 10 acres.

2. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, or to generally improve service to county residents. Upgrade and maintenance of the water system and the wastewater treatment plant should be accomplished to improve water quality and the delivery of service.
3. Develop plans and strategies to limit access onto Route 218 (Caledon Road).
4. Encourage protection of the Potomac River shoreline through stabilization of the shoreline, continued monitoring and improvement of the wastewater treatment plan, and implementation of best management practices in new and redevelopment situations.
5. Development plans should be designed to minimize the amount of impervious areas, maximize preservation of native vegetation, ensure maintenance of best management practices, compliance with erosion and sediment regulations, coordinate with the Virginia Department of Health and manage non-point source pollution runoff loads for new and redevelopment projects.
6. In Fairview Beach where there will be new uses and redevelopment identify existing or potential sources of surface and ground water pollution and take action to prevent or control the effect of the sources. Continue to enforce all existing regulations to ensure the protection of all water resources and adopt additional protective measures as necessary.
7. In Fairview Beach where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
8. Redevelopment projects should be reviewed to ensure either a 10 percent reduction in non-point source pollutant load or reduction of impervious cover by 20 percent. In the development and redevelopment of property adjacent to waterways every effort should be made, during permit review, to encourage reestablishment of the buffer area.
9. Proper regulations through local, state (VA and Maryland) and federal requirements is required to ensure that all potential pollution sources are in compliance with appropriate regulations.
10. The wastewater treatment plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.

## 6. Hopyard (Primary Settlement Area) (Map 8)

### a. Definition of Area

The Hopyard Primary Settlement Area contains 1,031 acres of land of which 566.31 was rezoned by the Board of Supervisors in 1995 from Limited Agricultural (A-1) to a combination of Retail Commercial District Zoning (C-1) (17.56 acres) and Multi-Family Dwelling District Zoning (R-3) (548.75 acres). The Property was rezoned a second time, with Proffers, by the Board of Supervisors in 2003. The development includes a wastewater and water treatment facility operated by the King George County Service Authority. Approximately 450 dwelling units have been constructed.

In the 2003, a new boundary survey indicated that the property contains 992 acres. The property was rezoned, with proffers, to include the following: 31.1 acres Retail Commercial Zoning District (C-1) and 959.05 acres Multi-Family Dwelling Zoning District (R-3). The Proffer Statement provides, among other things, that no more than 898 dwelling units will ever be permitted, and the total open acreage would not be less than 602.65 acres and that no additional rezoning request shall be filed on the property.

The Preliminary Master Plan included as a part of the Proffer Statement provides land for the following public uses: a 9.5-acre natatorium site and cash towards its construction, a 6.5 acre site to the County adjacent to the natatorium site, a public boat landing with 30 parking spaces, a walking trail along Route 607, and public water and sewer facilities.

Hopyard development will be required to fully comply with all requirements for buffer preservation and storm water runoff. In addition, proffers exist that require that the development be served by public water and wastewater systems, and the reduction of the overall pollutant load to meet all Chesapeake Bay Preservation Act Overlay Zoning District Requirements.

Redevelopment will not be an issue in this development. The 100-foot Resource Protection Area vegetated buffer is fully established and will be maintained on this property. The topography is flat to rolling and the soils are generally limited to use for septic systems. The physical constraints to development include Resource Protection Area, and areas of highly permeable and highly erodible soils.

### b. Key Policies/Implementation Strategies for Future Development and Preservation.

1. The Area should be developed in strict conformance with all applicable state, federal and County regulations and with the strict enforcement of the proffer statement accepted with the rezoning.
2. Encourage a density of residential and commercial uses on public water and sewer that is generally consistent with those approved in the 2003 rezoning.
3. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems,

expanding service to areas with failing septic systems, or to generally improve service to county residents.

4. Encourage protection of the Rappahannock River shoreline through the implementation of the proffer statement, which requires that all Resource Protection Area features be protected and maintained, and that storm water management will meet the water quality requirements of the Chesapeake Bay Preservation Act Overlay Zoning District.
5. In Hopyard, where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
6. The wastewater treatment plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.

## 7. Cleydael (Primary Settlement Area) (Map 9)

### a. Definition of Area

The Cleydael Primary Settlement Area encompasses the land historically known as "Cleydael" and is taken from the name of the home built by Dr. John Stuart in 1859. Dr. Stuart is known for refusing treatment to John Wilkes Booth after the assassination of Abraham Lincoln. The house is located on Route 206 and is a historic property. The total Area contains over 900 acres of mixed-use zoning and is located between Routes 218, 301 and 206. This Primary Settlement Area is currently served by public water.

Approximately 600 acres lie adjacent to Route 206 and consists of three single-family residential subdivisions. The subdivisions, Peppermill Estates, Cleydael and Culpepper Commons contain a total of 206 residential single-family lots inner-connected by public roads. The remaining 300 acres is adjacent to Route 301 and is currently undeveloped. The property was zoned in 1991 to allow a mixture of industrial, commercial, and single-family residential. In 2004, public water lines were extended to the property and a privately-owned elevated water tank was constructed. The private elevated water tank is not connected to the Service Authority's publicly owned water system.

The portion of this Area that lies adjacent to Route 206 contains a conglomeration of interconnecting two-acre lot subdivisions including Peppermill, Culpeper Commons and Cleydael. In 1999, the County approved requested zoning changes that allowed for a higher overall development density of one dwelling per acre versus the previously approved 1 dwelling per two-acres. In 2004, the County approved the last subdivision plats for vacant land with this portion of the Area. The portion of this Area adjacent to Route 206 will rely on the Courthouse and Dahlgren areas for public facilities and shopping and other convenience commercial uses.

The portion of this Area adjacent to Route 301 contains 256-acres and was rezoned zoned in 1991 to create mixed use development. The 1991, zoning created 121-acres of One-family Dwelling District with a maximum Proffer density of one-dwelling per acre; 73-acres of Industrial Zoning; and 45-acres of Commercial Zoning. This change of Zoning reflects existing rezoning approvals rather than historic growth patterns or any special attributes for community services.

This Area contains 3 percent of the County population and approximately 290 dwelling units. The lot sizes in this area average 2 acres or greater in size and storm water management has not been required in the Area. The Chesapeake Bay Preservation Act Resource Protection Area Buffer in this Area is intact and therefore it will not be necessary to reestablish the buffer. As stated above, the Portion of the Area adjacent to Route 206 is served by public water provided by the King George County Service Authority and the portion of the property adjacent to Route 301 is proposed in the future to be served by both public water and sewer. The topography in the area is moderate to severe. The areas with severe topography have not been developed. The Area soils are generally suitable for septic systems. Physical constraints to development include Resource Protection Areas, highly erodible and permeable soils.

b. Key Policies/Implementation Strategies for Future Development and Preservation:

1. Encourage moderate density residential uses on central utilities. Densities should be between 1 dwelling unit per 2 to 10 acres on property adjacent to Route 206 and an average of 1 dwelling unit per acre on property served by public utilities (water/sewer) on property adjacent to Route 301. Commercial and Industrial uses should be limited to the property adjacent to Route 301.
2. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, or to generally improve service to county residents. Expansion or upgrade of the water system should consider fire flow demands.
3. Continue to manage the access to Route 206 from Cleydael through enforcement of the County Subdivision Ordinance. Allow managed access to Route 301 from Cleydael through enforcement of the County Subdivision Ordinance.
4. Encourage development in the area to be linked by an interconnected road network that provides for vehicular, pedestrian and bicycle traffic.
5. Maintain the distinct edges of this area and the clear separation from the Courthouse West and Dahlgren areas.
6. Development plans should be designed to minimize the amount of impervious areas, maximize preservation of native vegetation, ensure maintenance of best management practices, compliance with erosion and sediment regulations, coordinate with the Virginia Department Health and manage non-point source pollution runoff loads for new and redevelopment projects.

7. In Cleydael where there will be new uses and redevelopment identify existing or potential sources of surface and ground water pollution and take action to prevent or control the effect of the sources. Continue to enforce all existing regulations to ensure the protection of all water resources and adopt additional protective measures as necessary.
8. In Cleydael where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.

8. Oakland Park (Primary Settlement Area) (Map 10)

a. Definition of Area

The Oakland Park Primary Settlement Area includes the land known as Oakland Park Subdivision along Route 1025 (Passapatanzy Road) south of Route 218, and west of Route 603. This area is defined as a Primary Settlement Area because it is a self-contained subdivision with its own water and sewer facilities and commercially zoned property available to provide services to the community. Due to the fact that the commercial area is undeveloped, for the near term, residents will rely on the Courthouse area for shopping and other limited convenience commercial uses. Commercial zoning does exist along Route 600 and 218 and is reflective of rezoning approvals rather than historic growth patterns or any special attributes for community services. Oakland Park Primary Settlement Area is a 250-lot subdivision which is 100 percent design compliant with the County's Chesapeake Bay Preservation Act Overlay Zoning District. Two storm water management ponds currently serve this development. The buffer area in this development is intact. The development is served by a new public water and wastewater systems operated by the King George County Service Authority. The commercially zoned property is currently undeveloped and will be required to comply with the County's Chesapeake Bay Preservation Act Overlay Zoning District requirements.

The water system and wastewater treatment plant were expanded and now serves the Sealston Elementary School, located at the intersection of Route 3 and 603, and the King George County Industrial Park. Expansion of the treatment facility outside the Settlement Area will ultimately lead to additional demand for increased expansion of service from increased development pressure.

b. Key Policies/Implementation Strategies for Future Development and Preservation

1. Encourage continuation of the existing residential development on central utilities. Densities should range between 1 and 3 dwelling units per acre.
2. The service area of utilities should generally be limited to the Settlement Area Boundaries. However, expansion should be considered where the opportunity exists to upgrade the utility systems by interconnecting utility systems, expanding service to areas with failing septic systems, to serve the Sealston Elementary School and King George County Industrial Park and to generally improve service to county residents.

Continue to operate the utilities in conformance with local, state, and federal requirements.

3. Maintain the distinct edges of this area and the clear separation from the surrounding rural and agricultural development.
4. Development plans should be designed to minimize the amount of impervious areas, maximize preservation of native vegetation, ensure maintenance of best management practices, compliance with erosion and sediment regulations, coordinate with the Virginia Department of Health and manage non-point source pollution runoff loads for new and redevelopment projects.
5. In Oakland Park where there will be new uses and redevelopment identify existing or potential sources of surface and ground water pollution and take action to prevent or control the effect of the sources. Continue to enforce all existing regulations to ensure the protection of all water resources and adopt additional protective measures as necessary.
6. In Oakland Park where there are areas of highly erodible soils, take action to prevent or control the impact of development on those areas. Continue to enforce all existing regulations to ensure the protection of all erodible soils and adopt additional protective measures as necessary.
7. The wastewater treatment plant is a potential source of pollution. Every effort should be made to ensure that the plant is maintained in prime operational condition and the potential pollution threat minimized.

9. Rappahannock River/South (Rural Development Area) (Map 11)

a. Definition of Area

This Rural Development Area includes all of the land in King George County located south of Route 3 with the exception of a portion of the Courthouse West, Route 3/Route 301, and the Hopyard Primary Settlement Areas. The Area's key features are indicated on Map 13, Existing Land Cover and include the sand and gravel industry within the County, the former White Packing Facility (pork processing factory), the Rappahannock River shoreline, and most of the County's prime agricultural land. The Area is very rural in nature containing only 9 percent of the County's population and approximately 749 housing units. The current minimum lot area is 10 acres for most of this Rural Area. In fact, there is no major subdivision with lots less than 10 acres in size located in this Area. The primary development objective for this Area is to encourage the continued rural nature of this Area.

The topography in the northern portions of the area is moderate with much of the area containing highly erodible and permeable soils. The topography is predominately flat in the southern portion of the Area with few physical constraints to development. The buffer area along the Rappahannock River remains intact and will be preserved by the County's Chesapeake Bay Preservation Act Overlay Zoning District. Potential pollution sources in this Area include the wastewater treatment plant at the former White Packing

Plant, run off from sand and gravel operations, and run off from agricultural operations. Neither public water nor sewer serves the development in this Area. Redevelopment issues in this Area will be focus on reclamation of the prime agricultural land that has been previously mined.

- b. Key Policies/Implementation Strategies for Future Development and Preservation.
  1. Preclude higher density residential and commercial development. This area is inappropriate for rezoning to higher densities or non-residential districts. Residential densities should be in range of 1 dwelling unit per 10 or more acres, unless development techniques are employed which would result in large blocks of open space being permanently preserved.
  2. Carefully review further approvals, extensions or expansions of central sewer or water utility plants or lines, except where such actions result in large blocks of agricultural and forest lands being permanently preserved.
  3. Implement large lot and/or sliding scale zoning in the areas currently zoned agricultural to promote the preservation of the prime agricultural lands in this Area.
  4. Encourage new residential development occurs only at very low densities, and preferably with large blocks of agricultural and forestlands permanently preserved.
  5. Enhance public access to the Rappahannock; allow limited and carefully designed and accessed, small scale public boat ramps in limited locations along the river.
  6. Facilitate future upgrade of Rt. 607 connecting Rt. 3 west to south Rt. 301.
  7. Encourage protection of the Rappahannock River through local implementation of the Chesapeake Bay Preservation Area Overlay Zoning District and the Rappahannock River and Northern Neck Coastal Basins Tributary Strategy Plan.
  8. Encourage vegetative shoreline stabilization practices along the Rappahannock River including the restoration of the natural riparian buffer and the planting of marsh grasses. The Local Wetlands Board should encourage vegetative practices when reviewing applications for shoreline stabilization projects.
  9. Make improvements within the guidelines and recommendations provided by the Virginia Game and Inland Fisheries and the U.S. Fish and Wildlife Service to the Wilmont Wharf Boat Landing to improve public access to the Rappahannock River.
  10. Using the Virginia Marine Resource Commission guidelines, seek additional sites to provide public waterfront access west of the Route 301 Bridge.
  11. Encourage through zoning and subdivision requirements the continued creation of community access to the waterfront in subdivisions developed along the Rappahannock River.

12. Development plans should be designed to minimize the amount of impervious areas, maximize preservation of native vegetation, ensure maintenance of best management practices, compliance with erosion and sediment regulations, coordinate with the Virginia Department of Health and manage non-point source pollution runoff loads for new and redevelopment projects.
13. Promote redevelopment efforts by encouraging the reclamation of the previously mined land through enforcement of Special Exception Permits and regulations of the Department of Mines Minerals and Energy.

## 10. Potomac River/North (Rural Development Area) (Map 12)

### Definition of Area

This Rural Development Area includes all of the land in King George County located north of Route 3 with the exception of the Courthouse, Dahlgren, Cleydael, Fairview Beach, Route 3, and the Oakland Park Primary Settlement Areas. The Area's key features are indicated on Map 13, Existing Land Cover.

A key land use feature within this district are a number of subdivisions in which each lot is ten (10) acres or more size which are served exclusively by private roads. Most prominent among the 10 acre lot developments are the Huggar Tract (82 lots on 820 acres), located west of the intersection of Routes 206 and 218; the Meadows at Dahlgren (126 lots on 1,260 acres) located between the mouth of Chotank Creek and Route 218; Mt. Moira (39 lots located on 400 acres) located off of Route 619; Worman Estates (42 lots on 420 acres) located off of Route 218 east of the intersection of 694 and 218; Green Heights (44 lots on 445 acres) located on Route 609; George's Bluff (18 lots on 213 acres) located on Route 218, west of the intersection of Route 610 and 218. King George County amended its Subdivision Ordinance in 2002 to require that public roads be provided in subdivisions which contain more than five parcels.

The Area contains 53 percent of the County's population and approximately 4,793 housing units. While the Area contains the greatest percentage of the County total population, overall, the Area remains rural in character with a historical pattern of low-density residential development. While there are pockets of agricultural land within this district, especially along Route 605, Route 624 and east along Route 218, the majority of open space has been in forest land (Map 13, Existing Land Cover). Forestland dominates the open space due to the rugged topography contained within this Area.

Major portions of the buffer within this Area have been replaced with shoreline stabilization structures. Shoreline stabilization structures are most prevalent near Fairview Beach, Eagle Bay Subdivision, and Mathias Point. Waugh Point Marina and the moderate erosion rate experienced by the Potomac River are the primary potential sources of pollution. Interior portions in the western and eastern most portions of the Area contain additional agricultural lands that have been lost to the residential growth that has occurred within the 10-acre developments. Redevelopment issues in this District will be primarily the reestablishment of the buffer area along the Potomac River. The physical constraints to development include steep slopes, highly erodible and permeable soils. Special consideration during development is given towards erosion and sediment

control measures within this Area. The soils are generally suitable to on-site septic systems.

- b. Key Policies/Implementation Strategies for Future Development and Preservation.
  1. Encourage very low-density rural residential growth and discourage higher density residential and commercial development. Residential densities should be in range of 1 dwelling unit per 2 to 10 or more acres, unless clustering development techniques are employed with large blocks of open space being preserved.
  2. Encourage agricultural and forest preservation through the maintenance of land use taxation, and careful review of rezoning request.
  3. Implement and encourage large lot and/or sliding scale zoning in the areas currently zoned agricultural to promote the preservation of agricultural land.
  4. Encourage new residential development occurs only at very low densities, with large blocks of agricultural and forestlands permanently preserved in conjunction with the clustered development.
  5. Adopt in the County's land use ordinances "performance standards" for development on steep slopes.
  6. Enhance limited public access to the Potomac; allow limited, small scale, carefully designed and accessed public boat ramps along the river.
  7. Work through the Local Wetlands Board to encourage the protection of the Potomac River shoreline by carefully reviewing permit applications for shoreline stabilization. Permit only the minimum impacts to wetlands and other natural features for shoreline stabilization projects. Encourage to the extent possible vegetative practices along with any structural stabilization practices.
  8. Using Virginia Marine Resource Guidelines, seek one additional site to provide public waterfront access to the Potomac River.
  9. Encourage through zoning and subdivision requirements the continued creation of community access to the waterfront in subdivisions developed along the Potomac River.
  10. Encourage protection of the Potomac River through implementation of the Chesapeake Bay Preservation Area Overlay Zoning District and the Potomac River Tributary Strategies Plan.
  11. Development plans should be designed to minimize the amount of impervious areas, maximize preservation of native vegetation, ensure maintenance of best management practices, compliance with erosion and sediment regulations, coordinate with the Virginia Department Health and manage non-point source pollution runoff loads for new and redevelopment projects.

## **CHAPTER II.** **POPULATION AND ECONOMY**

### **A. Goals for Population and Economy within the County**

1. Promote a diverse, healthy and sustainable economy.
2. Preserve extant agricultural uses by policy and consider loss of agriculturally productive soils and farmland in development review.
3. Encourage and support the continued stability of Naval activities at Dahlgren by considering existing and future missions of the Naval Support Facility Dahlgren in land use decisions, in that area. (Note that the term “Naval Support Facility Dahlgren” is considered to be inclusive of all existing and future base tenants.)
4. Strategize to develop more commercial activities and options, to promote a more robust, diverse and sustainable local business base.
5. Target industrial growth that fits the long-term strategy of the County by pursuing Public Private Partnerships, developing and refining business incentive packages, and maintaining attractive business/property taxes.
6. Promote various forms of tourism (i.e. agri-tourism, historical tourism, etc.) to facilitate balanced economic growth and development by promoting the County’s quality of life and rich natural and historical assets.
7. Foster commercial growth by promoting a more business-friendly environment that is helpful and responsive and decreases the barriers to entry.
8. Encourage the development of special incentive zones and assessment districts to encourage industrial, commercial and recreational business growth within the Primary Settlement Areas.
9. Create a Military Influence Area (MIA) to promote compatible development proximate to Naval Support Facilities Dahlgren and encourage economic development of business supporting the installation and community.

### **B. Policies for Population and Economy within the County**

1. Overall Concepts and Objectives
  - a. Focus new development into the defined Primary Settlement Areas.
  - b. Limit new development in the defined Rural Development Areas.
2. Land Use Policies/Implementation Strategies
  - a. General Land Use Policies/Implementation Strategies
    1. Concentrate new development around Primary Settlement Areas as designated in this plan, with enough land allocated for development to accommodate the moderate rate of planned growth that the County expects to experience during the coming two decades. Discourage major development projects from locating outside of these areas.
    2. Support the use of financial incentives, including state and federal tax incentives, to direct and better manage growth, including use value taxation and conservation easements.

3. Utilize the physical constraints database at the onset of the development process in order to better advise property owner/developers of on-site limitations, and possible solutions to these limitations.

- b. Residential Land Use Policies/Implementation Strategies

1. Overall Residential Policies/Implementation Strategies:
      - a. Plan for the availability of adequate housing, infrastructure and recreational facilities.
      - b. Designate priority areas for residential development served by public utilities, located such that the County can provide the most cost-efficient services, in accord with the Planning Areas set forth in this Plan.
      - c. Establish a balance of residential classifications to meet the needs of all County residents while concentrating and guiding growth into those Settlement Areas that are priority areas for new development as designated in this Comprehensive Plan.
      - d. Review, revise and adopt new ordinances and regulations to accommodate a mixture of housing types.
    2. Housing Goals:
      - a. Provide for a full range of housing choices for all income groups, families of various sizes, seniors, and persons with special challenges.
      - b. Preserve the County's existing housing stock through housing rehabilitation resources to maintain the affordable housing that already exists in the community.
      - c. Facilitate the creation of a reasonable proportion of the County's housing as affordable units through additional homeownership opportunities for individuals and families earning between 60% and 80% of area median income and affordable apartments for individuals and families earning up to 60% of the area median income.
      - d. Strive for innovation and partnerships in the creation of model ordinances, policies, and programs in the area of providing expanding housing opportunities for low- and moderate-income persons.
      - e. Facilitate the affordable housing activities of other entities within the County, including construction of affordable housing units, rehabilitation of existing housing, homeownership training, and marketing of assistance programs.
      - f. Support the renewal of neighborhoods suffering from physical deterioration.
      - g. Promote a quality living environment and access to public amenities for all residents, present and future, of the County, regardless of income.
    3. Residential Policies/Implementation Strategies for Primary Settlement Areas.

- a. The objective of this plan is to concentrate future residential dwelling units in the designated.-Primary Settlement Areas.
- b. Encourage new residential development in areas of existing or planned public facilities, as designated in this Comprehensive Plan.
- c. Encourage new residential neighborhoods, particularly in the designated Primary Settlement Areas to be designed for safe and convenient pedestrian access within the neighborhood, and from the neighborhood to adjacent commercial areas and public facilities. Safe and convenient pedestrian access may be achieved through techniques such as:
  - interconnected streets forming blocks
  - landscaping between roadways and sidewalks
  - sidewalks and/or pathways along all streets
  - cross walks in appropriate locations
  - similar types of uses on each side of a road or street

#### 4. Residential Policies/Implementation Strategies of Rural Areas

- a. When rural land is to be developed with residential uses, ensure very low-density development that provides permanent agricultural conservation easements.

#### 5. Agriculture/Forestry Land Use Policies/Implementation Strategies

- a. Promote agriculture and forestry operations in the County.
- b. Promote the protection of agriculture land, forest land, open space and conservation areas of the County through public education provided by the Virginia Extension Agent, Tri-County Soil and Water Conservation District, maintenance of land use taxation and careful review of rezoning requests.
- c. Implement policies and programs aimed at the retention of compatible agricultural and forest activities, including use-value assessment, agricultural and forestal districts, conservation easements, etc.
- d. Encourage landowners, by providing information, to prepare forest management plans in conjunction with the Virginia Department of Forestry.

#### c. Commercial Land Use Policies/Implementation Strategies

- a. Encourage existing and new business expansion in the local area.
- b. Encourage an environment to attract business and employees for the public and private sectors.

- c. Designate areas for the creation and expansion of commercial centers based upon the County's service development plans; encourage new and expanded commercial uses to locate in the designated Settlement Areas.
- d. Plan for and encourage a balance of commercial and industrial development to sustain adequate economic growth.
- e. Encourage compatible home-based businesses in both rural and higher density residential areas.
- f. Encourage mixed-use projects with commercial and residential elements in the designated Settlement Areas.
- g. Encourage, support, and foster educational opportunities to include adult technical training, undergraduate and graduate courses and degree programs as well as cultural enhancement courses.

d. Industrial Land Use Policies/Implementation Strategies

- 1. Create a "business-friendly environment" to make King George County an attractive location for commerce and industry that is compatible with and supportive of the rural nature of the County through the use of incentives.
- 2. Encourage industrial development within the King George County Industrial Park.
- 3. Strategically locate industrial development areas so as not to detract from the rural nature of the County while encouraging a healthy and diversified economy.
- 4. Channel future heavy industrial growth toward designated industrial areas, including the King George County Industrial Park which is located near the King George County Landfill and the Birchwood Power Facility in the Route 3 West Primary Settlement Area.
- 5. Channel future light industrial growth toward designated high-tech areas in which future, light industrial growth will be encouraged in the Dahlgren Primary Settlement Area.
- 6. Encourage the development and expansion of compatible base industries and related support businesses that use and conserve the County's natural resources.

## CHAPTER III. LAND USE, CULTURAL AND NATURAL RESOURCES

### **A. Goals for Land Use, Cultural and Natural Resources within the County**

1. Develop and support land use patterns that sustain and enhance the quality of life for the residents of King George County.
2. Promote land use patterns that provide diverse housing for the residents of the County.
3. Provide diverse residential classifications to meet the needs of all County residents while concentrating growth in and around the Primary Settlement Areas.
4. Preserve, encourage and sustain the Rural Characteristics of King George County.
5. Support the preservation of historic sites and landmarks in King George County.
6. Continue emphasis on the Primary Settlement Area concept and the preservation of the rural characteristics in areas outside of the Primary Settlement Areas.
7. Protect critical environmental resources and maintain renewable natural resources for future generations.
8. Continue to enforce the County's Chesapeake Bay Preservation Act (CBPA) regulations so that the impact of development in King George County on water quality is minimized.
9. Promote economic development which will result in a net local tax benefit, create needed job opportunities and support the other goals of this plan.
10. Protect and improve the quality of air and surface waters of King George County to ensure these vital resources are cleaner for the next generation than they are today.
11. Actively enforce shoreline protection measures that are equal to the erosion potential at a particular site.
12. Encourage vegetative enhancement of Resource Protection Areas.
13. Continue to improve King George County's Geographic Information System, land use maps and layers.
14. Promote compatible land uses proximate to Naval Support Facilities Dahlgren through the establishment of a Military Influence Area (MIA) Zoning Overlay District.

### **B. Policies for Land Use, Cultural and Natural Resources within the County**

#### **Land Use Plan**

1. Overall Concepts and Objectives
  - a. Coordinate private development, transportation, utilities and public facilities planning and investments in a manner to achieve overall objectives of the Comprehensive Plan.
  - b. Focus new development into the defined Primary Settlement Areas.
  - c. Limit new development in the defined Rural Development Areas.
  - d. Concentrate development in clustered settlement patterns with pedestrian-friendly streets and coordinated access onto major roads.
  - e. Preserve sensitive environmental areas and resources, including Chesapeake Bay Preservation Areas, through concentrated development in designated areas and limited, clustered development in defined rural areas.

- f. Require development of outdoors-recreational space within approved subdivisions and other developments through implementation of amendments to the County's land use ordinances.
- g. Implement the Plan for coordinated development and expansion of public utilities in the designated Primary Settlement Areas; do not approve expansion of public utilities in the defined Rural Development Areas unless development within the Rural Development Areas is approved by the Board of Supervisors and the expansion of utilities is approved by the Service Authority Board of Directors. The ability to expand facilities would also be based on existing capacity or a utility plan covering the upgrade of capacity to cover any new development (i.e. drilling new wells, construction of storage tanks, etc.).
- h. Maintain the current designation of appropriate areas as Resource Protection Areas and the balance of the County as a Resource Management Area in recognition of the environmental sensitivity and in furtherance of the objectives of the Chesapeake Preservation Act.
- i. Continue to monitor the existing and potential sources of ground water pollution identified in this Plan and take action to prevent or control the effect of the sources. Continue to enforce all existing regulations to ensure the protection of all water resources and adopt additional protective measures as necessary.
- j. Identify existing or potential areas that are highly susceptible to soil erosion and take action to prevent or control erosion caused by land development or agricultural activities. Enforce all existing erosion and sediment control regulations to ensure protection of these soil resources and adopt additional protective measures as necessary.
- k. Recreational uses should be established throughout the County, including public parks, athletic fields, public river access, trails, or similar, for the common enjoyment of the residents.
- l. Promote lighting design which minimizes light pollution, enhances the environment, deters undesirable activities, increases safety, and minimizes glare, power consumption, cost, visual impacts (day and night), and unwanted truant light onto private property.
- m. Protect the dark sky of King George County as one of our many natural, scenic, scientific and cultural resources, for the benefit of residents, and visitors, now and in the future.

## 2. Land Use Policies/Implementation Strategies

### a. General Land Use Policies/Implementation Strategies

- 1. Concentrate new development within Primary Settlement Areas as designated in this plan. Discourage major development projects outside of these areas.
- 2. Identify, devise and implement strategies to preserve the County's rural characteristics.
- 3. Work with the George Washington Regional Commission (GWRC) and other regional bodies to ensure that their operational and management policies are consistent with and supportive of the goals and policies of the King George County Comprehensive Plan.

4. Require and enforce setbacks and buffering, including clustered development, to enhance and retain the rural setting while allowing reasonable development under zoning and subdivision ordinances.
5. Review and revise the County's zoning and subdivision ordinances as may be necessary to ensure that they serve to implement the Comprehensive Plan.
6. Require sufficient documentation in land use applications to determine water quality impacts of development and redevelopment as part of applications for zoning permits, subdivision, site plans, rezoning and conditional use permits.
7. Create zoning districts and develop methods to influence the pattern and characteristics of growth while encouraging open space conservation and pedestrian-friendly developments (e.g. planned unit developments, clustering, and neighborhoods and villages featuring mixed-uses).
8. Support land use and infrastructure decisions that are consistent with the growth management framework established by the Settlement Areas designated in this Plan.
9. Recognize that the public road system constitutes a public space serving multiple public purposes. These public purposes include vehicular travel, pedestrian travel, bicycle travel, and provides a visual experience for both residents and tourists. The County should work closely with VDOT and private developers to ensure that additions to the public road system facilitate all these key public purposes. Public transportation networks to circulate citizens to and from commercial and government hubs in the County should be pursued in an effort to mitigate traffic congestion and provide a higher quality of life.
10. Request Planning Commission input regarding the creation, or expansion of public facilities and/or public services that impact the execution of the County's Comprehensive Plan and Land Use policies.
11. In designated areas for growth and infill, where there will be new uses and redevelopment, the following general development guidelines should be utilized; 1) minimize amounts of land disturbed; 2) maximize preservation of native vegetation; 3) ensure maintenance of best management practices; 4) minimize impervious cover; 5) ensure compliance with erosion and sediment control regulations; 6) coordinate the Chesapeake Bay Preservation Act septic pump out and reserve disposal sites with the Virginia Department of Health and 7) reduce non-point source pollution runoff loads for new and redevelopment projects consistent with Chesapeake Preservation Act objects.
12. In designated areas for growth and infill where there will be new uses and redevelopment, identify existing or potential sources of surface and ground water pollution and take action to prevent or control the effect of the sources. Continue to enforce all existing regulations to ensure the protection of all water resources and adopt additional protective measures as necessary.
13. In areas adjacent to shorelines and in areas which otherwise contain significant amounts of highly erodible soils or are otherwise subject to significant amounts of highly erodible soils or

are otherwise subject to significant soil erosion, review all new land disturbances and development proposals to support the establishment of adequate permanent vegetative buffer areas and the protection from excessive land disturbance. Encourage the use of best management practices to minimize soil erosion by: promoting public awareness of the benefits of best management practices; assisting in the establishment of conservation plans for all farms and forestry operations; and requiring soil identification and erosion mitigation plans prior to approval of land disturbance or development activities.

14. Utilize the Development Impact Tool at the onset of the development process in order to better advise property owner/developers of on-site limitations, and possible solutions to these limitations.
15. New techniques in development should be encouraged and alternative methods of storm water treatment and other environmentally sound best management practices should be supported.
16. County staff should develop and present for adoption by the Planning Commission and Board of Supervisors, a Zoning Ordinance amendment to include a Military Influence Area (MIA) Zoning Overlay District. The MIA will define the zone of influence of Naval Support Facilities Dahlgren; within which growth management policies will help guide land use activities and uses in areas exposed to impacts generated by Naval Operations.

b. Residential Land Use Policies/Implementation Strategies

1. Overall Residential Policies/Implementation Strategies:
  - a. Plan for the availability of adequate housing, infrastructure and recreational facilities.
  - b. Designate priority areas for residential development served by public utilities, located such that the County can provide the most cost-efficient services, in accord with the Settlement Areas set forth in this Plan.
  - c. Establish a balance of residential classifications to meet the needs of all County residents while concentrating and guiding growth into those Settlement Areas that are priority areas for new development as designated in this Comprehensive Plan.
  - d. Review, revise and adopt new ordinances and regulations to accommodate a mixture of housing types.
  - e. Due to anticipated prevalence of residential development and infill, focus County water quality maintenance and improvement efforts in areas designated for residential growth and infill.
  - f. Enforce the required Chesapeake Bay Preservation Act Resource Protection Area buffers and setbacks are provided from shorelines and areas with significant amounts of highly erodible soils during the planning and construction of all residential development.
2. Housing Goals:

- a. Provide for a full range of housing choices for all income groups, families of various sizes, seniors, and persons with special challenges through a combination of Public Private Partnerships (PPP), mixed-use options, and retirement/age-in-place developments to meet the needs of the County's diverse population.
- b. Preserve the County's existing housing stock through housing rehabilitation resources to maintain the affordable housing that already exists in the community.
- c. Facilitate the creation of a reasonable proportion of the County's housing as affordable units through additional homeownership opportunities for individuals and families earning between 60% and 80% of area median income and affordable apartments for individuals and families earning up to 60% of the area median income.
- d. Strive for innovation and partnerships in the creation of model ordinances, policies, and programs in the area of providing expanding housing opportunities for low- and moderate-income persons.
- e. Facilitate the affordable housing activities of other entities within the County, including construction of affordable housing units, rehabilitation of existing housing, homeownership training, and marketing of assistance programs.
- f. Promote high density housing within walking and convenient commuting distance of employment, shopping, and other activities, or within a short walk of a bus or transit stop, through "mixed use" developments, residences created on the upper floors of nonresidential downtown buildings, and other creative strategies.
- g. Support the renewal of neighborhoods suffering from physical deterioration.
- h. Promote a quality living environment and access to public amenities for all residents, present and future, of the County, regardless of income.

3. Residential Policies/Implementation Strategies for Primary Settlement Areas.

- a. The objective of this plan is to concentrate future residential dwelling units in the designated Primary Settlement Areas.
- b. Encourage new residential development in areas of existing or planned public facilities, as designated in this Comprehensive Plan.
- c. Encourage new residential neighborhoods, particularly in the designated Primary Settlement Areas to be designed for safe and convenient pedestrian access within the neighborhood, and from the neighborhood to adjacent commercial areas and public facilities. Safe and convenient pedestrian access may be achieved through techniques such as:
  - interconnected streets forming blocks
  - trees between roadways and sidewalks
  - sidewalks and/or pathways along all streets

- cross walks in appropriate locations
- similar types of uses on each side of a road or street

d. Encourage effective transitions between land uses of different intensities, through the use of techniques such as landscaping, coordinated architectural design elements, buffered parking areas and the careful use of alleys and land use transitions at the rear edges of properties. All new development should consider establishing comfortable pedestrian linkages from one site to another. Encourage developers to pursue “green options” for new developments when feasible.

e. Residential development density in these areas will depend in part upon site-specific constraints with density incentives provided for contributions of public infrastructure, open space preservation, and pedestrian-friendly designs. Encourage implementation of General Land Use Policies, especially those directed at maintaining and improving water quality, though lessening and mitigation of adverse effects of storm water runoff.

4. Residential Policies/Implementation Strategies of Rural Areas

- a. When rural land is to be developed with residential uses, ensure very low-density development that provides permanent agricultural conservation easements.
- b. Require new residential developments provide for future interparcel road access to adjacent properties so that as parcels are developed over time, connections are made that protect the capacity of the existing public road network.
- c. Require new development to provide public roads acceptable into the VDOT system, except for very low-density rural residential uses that cause minimal impacts and protect the long-term rural characteristics of the area.
- d. Establish standards for new private roads serving multiple (e.g. 4-5) parcels in order to ensure the safe and efficient access for public vehicles.
- e. Require new residential development to provide sufficient setbacks and landscape screening to protect the visual characteristics from the public roads.
- f. Encourage new residential development to be sited so as to protect sensitive environmental features on site such as streams, wetlands, significant vegetation, steep slopes and views from the public road.

5. Agriculture/Forestry Land Use Policies/Implementation Strategies

- a. Promote agriculture and forestry operations in the County.
- b. Promote the protection of agriculture land, forest land, open space and conservation areas of the County through public education provided by the Virginia Extension Agent, Tri-County Soil and Water Conservation District, maintenance of land use taxation and careful review of rezoning requests.

- c. Implement policies and programs aimed at encouraging the retention of compatible agricultural and forest activities, including use-value assessment, agricultural and forestal districts, conservation easements, etc.
- d. Establish adequate policies and regulations for both residential and agricultural uses that will ensure the long term compatibility of these uses and keep land use conflicts to a minimum; including techniques such as adequate buffers and setbacks between farm facilities and residential uses, best management practices, accessory uses and units, nutrient management plans, etc.
- e. Encourage landowners, by providing information, to prepare forest management plans in conjunction with the Virginia Department of Forestry.
- f. Continue to implement the Chesapeake Bay Overlay Zoning District, King George County Zoning Ordinance requirement that all agricultural land implement farm plans that have been approved by the Tri-County/City Soil and Water Conservation District.

6. Commercial Land Use Policies/Implementation Strategies

- a. Encourage existing and new business expansion in the local area.
- b. Encourage a “business-friendly” environment to attract business and employees for the public and private sectors. Business-friendly environments can be defined as one where the economic eco-system and regulatory process is attractive to potential businesses seeking to expand or relocate to King George County.
- c. Designate areas for the creation and expansion of commercial centers based upon the County’s service development plans; encourage new and expanded commercial uses to locate in the designated Settlement Areas.
- d. Encourage new and expanded commercial centers be designed for convenient and pleasant pedestrian access and use and conform to all of the site design and access policies of this plan.
- e. Plan for and encourage a balance of commercial and industrial development to sustain adequate economic growth.
- f. Encourage compatible home-based businesses in both rural and higher density residential areas.
- g. Encourage new commercial development to provide landscape or topographic buffers and screening as may be needed to protect adjacent non-commercial uses from impacts such as light and glare, noise, odor and visual disruption. Site design including setbacks, lighting, and landscaping should be required to enhance the rural characteristics of the County.
- h. Encourage mixed-use projects with commercial and residential elements in the designated Settlement Areas.

- i. Support, and foster educational opportunities to include adult technical training, undergraduate and graduate courses and degree programs as well as cultural enhancement courses.
- j. Encourage implementation of General Land Use Policies, especially those directed at maintaining and improving water quality, through lessening and mitigation of adverse effects of storm water runoff.
- k. Ensure that adequate buffers and setbacks are provided from shorelines and areas with significant amounts of highly erodible soils during the planning and construction of all commercial development.

## 7. Industrial Land Use Policies/Implementation Strategies

- a. Create a “business-friendly environment” to make King George County an attractive location for commerce and industry that is compatible with and supportive of the rural nature of the County through the use of incentives.
- b. In coordination with the Economic Development Authority, encourage industrial development within the King George County Industrial Park.
- c. Strategically locate industrial development areas so as not to detract from the rural nature of the County while encouraging a healthy and diversified economy.
- d. Channel future heavy industrial growth toward designated industrial areas, including the King George County Industrial Park which is located near the King George County Landfill and the Birchwood Power Facility in the Route 3 West Primary Settlement Area.
- e. Channel future light industrial growth toward designated high-tech areas in which future, light industrial growth will be encouraged in the Dahlgren, Route 3/301, and Courthouse West Primary Settlement Areas.
- f. Encourage the development and expansion of compatible base industries and related support businesses that use and conserve the County’s natural resources.
- g. Ensure that all new industrial uses provide adequate protection of adjacent existing land uses through techniques such as setbacks, landscaping, screening, noise and lighting controls, access control, etc.
- h. Encourage implementation of General Land Use Policies, especially those directed at maintaining and improving water quality, through lessening and mitigation of adverse effects of storm water runoff.
- i. Ensure that adequate buffers and setbacks be provided from shorelines and areas with significant amounts of highly erodible soils during the planning and construction of all industrial development.

## **Natural and Historic Resources Plan**

### **1. Overall Concepts and Objectives**

King George is a beautiful rural County steeped in history. The natural beauty of King George County is characterized by woodland and open fields, beautifully rolling terrain, abundant areas of wildlife habitat, and magnificent waterfront views of both the Potomac and Rappahannock Rivers. The County contains many historically and architecturally significant landmarks and structures and many open sites where significant historical events occurred (See Volume II). The policies and objectives of this comprehensive plan promote preservation of these natural and historical resources as a crucial element of County policy. Future revisions of County ordinances should provide a combination of incentives and regulations to ensure that these objectives are achieved.

### **2. Natural Resources Policies/Implementation Strategies**

#### **a. Sensitive Areas**

- 1. Promote resident participation and regional cooperation in the preservation of all-natural resources, such as forests, farmland, wildlife, and air quality and wildlife habitat.**
- 2. Incorporate the specific policies/implementation strategies for protection of regional resources, such as identified in the Rappahannock and Potomac Rivers Rural Areas, and into other regional, federal and state conservation program initiatives.**
- 3. Actively discourage development in environmentally sensitive areas such as those that are predominantly characterized by steep slopes and highly erosive soils, flood plains, wetlands and critical habitat for ecologically or economically important plant and animal species.**
- 4. Incorporate and promote meaningful and effective provisions for buffering, impact mitigation and long-term reclamation by natural resource-based activities.**
- 5. Promote design of new development and infrastructure so as to be sensitive to the protection of existing drainage systems, critical wildlife habitats and other important existing natural features, through ~~such~~ techniques such as, but not limited to, compact, clustered development designs, minimal cut and fill for new roadways, and adequate on-site storm water management provisions.**
- 6. Promote the use of vegetative controls for shoreline stabilization projects where appropriate and continue to evaluate the use of structural controls based on eroding shoreline to ensure that the most appropriate shoreline management strategies will be used.**
- 7. Discourage the use of man-made structures that harden the shoreline and encourage alternative shoreline protection measures such as fringe marsh establishment in shoreline areas with less wave energy, light boat traffic, and small fetches such as along the Rappahannock River.**

8. Change King George County land use ordinances to require submission of shoreline management plans that would affect Resource Protection Area enhancements, improve water quality and mitigate the impact of development.
9. Promote public education about shoreline protection in order to encourage existing communities to consider multi-parcel shoreline protection strategies, appropriate coordinated and on-site shoreline protection measures.

b. Ground and Surface Water Resources Policies/Implementation Strategies

1. Cooperate with surrounding counties to develop strategies to protect aquifer recharge areas against water contaminating activities and reduction of recharge areas due to development, and to manage draw down of the aquifers. Management of the draw down of the aquifers is a critical issue for King George County.
2. Identify the best location for future sewage treatment facilities to serve designated growth areas while minimizing contamination of surface and ground water. Require that all DEQ approved wastewater treatment systems be owned and operated by a public entity such as the King George County Service Authority.
3. Promote through wellhead protection and other measures, protection of ground water quality.
4. Identify and pursue alternative water sources to ensure an adequate supply of potable water for future needs.
5. Reduce non-point pollution by upholding the Chesapeake Bay Preservation Act (CBPA) performance criteria through the enforcement of established best management practices (BMPs).
6. Sponsor zoning and subdivision ordinances that incorporate measures that protect water quality and are consistent with the goals and objectives of the Chesapeake Bay Preservation Act.
7. Encourage a low density and dispersed pattern of septic fields in the rural areas in order to reduce the chances of ground water contamination; when lots are clustered, encourage the examination of the use of alternative means of wastewater disposal.
8. Review national standards to determine additional conservation and educational measures which may be implemented through changes to King George County Land Use Ordinances.
9. Promote through the King George Service Authority and Virginia Department of Health the replacement of failing septic systems, pit privies, and antiquated sewer lines.
10. Encourage the restoration of and/or enhancement of the Chesapeake Bay Preservation Act Resource Protection Area buffer during development or redevelopment activities.

11. Encourage the replacement of leaking underground storage tanks and dilapidated shoreline structures during development or redevelopment.
12. Work in coordination with the local health department to inventory and map areas of failing septic systems, uncapped abandoned wells and other health related problems in the County. Develop a program to eliminate ~~these~~ potential sources of pollution such as failing septic systems, uncapped abandoned wells and other health related problems.

c. Historic Resources Policies/Implementation Strategies

1. Identify and designate historically significant sites and structures and support their protection when reviewing applications for change in land use decisions.
2. Encourage King George County citizens to promote awareness and encourage use of the County's history and historic sites and take advantage of museums, library and media resources.
3. Encourage individual property owners to be aware of the various options and techniques available to preserve properties, including historical and open space conservation easements, agricultural and forestal districts and restrictive covenants.
4. Promote adaptive re-use of historic structures.
5. Promote flexibility in roadway design so as to preserve the characteristics of historic sites as new development occurs. Modifications of curve radii, pavement width and other standards may be needed in order to preserve the historic visual characteristics of an area or site.

## **CHAPTER IV. TRANSPORTATION**

### **A. Goals for Transportation within the County**

1. Develop local and regional cooperation on transportation issues.
2. Actively monitor local and regional transportation improvement project priorities within the County to ensure that the goals and policies of the Comprehensive Plan are met.
3. Develop a transportation system to allow all citizens access to County facilities.
4. Encourage access management to protect through-traffic flow on principal roads.
5. Promote alternative routes for heavily traveled roads, such as Route 3 and Route 206.
6. Encourage development of intermodal forms of transportation including sidewalks, bus service, and bike routes.
7. Establish access-management policies for development adjacent to all major roadways. Or Encourage enforcement of VDOT access-management policies for development adjacent to all major roadways.
8. Coordinate future development and capital projects with the VDOT US 301/Route 207 Arterial Preservation Plan (2018) and other VDOT studies.

### **B. Policies for Transportation within the County**

#### **Transportation Plan**

##### **1. Overall Concepts and Objectives**

The County's major objectives for its long-term transportation system are:

- a. Coordinate effectively with neighboring jurisdictions and state and regional agencies in planning and achieving an efficient and cost-effective transportation system for the County.
- b. Identify and protect the general corridor rights-of-way for key future roadways so that those lands can be used for critical future transportation facilities.
- c. Create, improve, and maintain an interconnected system made up of a hierarchy of local, collector, arterial, and limited access roads.
- d. New subdivisions should provide for interconnecting roads to existing and future planned public roads.
- e. Identify those existing public roads that can be extended to connect with other existing and future public roads.
- f. Potential future roads and future connector roads have been identified on Map 30. Development of roads, within the areas identified on Map 30, should occur with any development proposals that either include or are adjacent to the proposed future roads identified on Map 30. Rights-of-way identified on the Map should be protected to ensure the future viability of the proposed roadways.

- g. Encourage new road designs that support pedestrian and bicycle travel.
- h. Provide bicycle lanes with the construction of new roads and with improvement projects to existing roads with average daily traffic counts between 2,000 to 9,000 vehicles. Roads meeting vehicle count criteria that are proposed bicycle lanes have been identified on Map 32. Future roads within the areas designated should include bike travel lanes. Bike routes, distance of each, potential start and stop point for each are included on the Map.
- i. Implement VDOT access-management standards along the major corridors, particularly Routes 3, 301, 206, 205, and 218. The access-management measures should focus on the ability of a roadway to safely move traffic, reduce the dependency on traffic lights, and maintain visually aesthetic transportation corridors.
- j. Require in Site Plan Development visual vegetative buffers along major transportation corridors to further promote the rural character of the County.
- k. Require improvements at major intersections to create safer and more efficient traffic flow.

## 2. Transportation Policies/Implementation Strategies

### a. Road Network in the Courthouse Area

- 1. Plan a coordinated, interconnected local road system within the Courthouse West and Route 3/Route 301 Settlement Areas, so that as further development occurs, it will be a traditional, pedestrian-oriented environment with a mix of employment and residential uses, all served conveniently by streets designed for both vehicular and pedestrian traffic.

## 3. Transportation Improvement Project Priorities

- a. Establish transportation improvement project priorities within the County that advance the goals and policies of the Comprehensive Plan. Coordinate established priorities with VDOT's Smart Scale and other Six-Year Improvement Plan projects.
- b. Use Virginia Department of Transportation resources to review Traffic Impact Analyses submitted with Site Plan, Subdivision Plat, Rezoning, Special Exception and other land use related requests.
- c. Review the scheduling and priorities for local improvement projects in light of County land use policies and improvement projects occurring in adjacent localities, which will affect development in King George County.
- d. Use the George Washington Regional Commission's regional model and impact assessment capabilities to promote the most effective improvement projects

## 4. Regional Transportation Plans

- a. Evaluate the impacts that major transportation improvements occurring outside the County will have on King George County and include these impacts in the development of County growth policies.
- b. Develop and submit to the appropriate local, state and federal officials, policy statements relating to outside improvement projects affecting the County.

## 5. New Development Policies

- a. Encourage property owners to maintain existing vegetative buffers along collector and arterial roads during the site planning and development process.
- b. Require right-of-way dedication and on-site roadway improvements in design and development of new land use related projects.

## 6. Access Management

- a. Implement VDOT access-management regulations for development adjacent to all major roadways, especially Routes 3, 301, 205, 206 and 218. The purpose of the regulations is to protect the long-term peak-period capacity use of roadways, enhancement of safety and to facilitate through-traffic flow on these principal roads.
- b. Maintain and improve the safety and capacity of the major road corridors in the County by working closely with landowners and developers to promote effective access-management policies, including recommendation of appropriate land uses along the major roadways.
- c. Limit entrances to public roads to protect the capacity and safety of the network.
- d. Encourage coordination with neighboring localities and VDOT to minimize traffic congestion.
- e. Encourage the consolidation and assemblage of existing small parcels along all major arterial and collector roadways in order to achieve coordinated development with fewer entrances and greater setbacks.
- f. Encourage adequate landscaping and setbacks to protect the view from the public road and to maintain safe access; balance this policy with the desire to promote comfortable pedestrian access within the Primary Settlement Area Boundaries.

## 7. Alternative Modes

- a. Encourage the development of pedestrian and multi-use trail system through the County, connecting major population centers, in concert with major road corridors, existing rights-of-way and stream valley corridors.
- b. Encourage all new development to provide safe, convenient and comfortable pedestrian and bicycle access, through sidewalks, pathways and through appropriate relationships of buildings to the public streets, recessed and buffered parking areas, and other measures.

- c. Encourage the provision of bus service and other mass transit options in the County as the demand warrants.

## CHAPTER V. UTILITIES

### A. Goals for Utilities within the County

1. Provide safe and healthy water and sewer service to County residents.
2. Develop adequate water and sewer infrastructure to advance all economic development initiatives.
3. Support the location and expansion of utilities in an economic and sustainable way. Ensure quality service is available at cost-effective rates. Make certain the location and expansion of utilities do not adversely impact personal property.
4. Develop policies regarding private utilities that might serve or pass through the County, e.g. high-speed internet service, cellular towers, cable TV, fiber optics, natural gas, etc.
5. Protect water supplies and develop an adequate quantity and quality of water.
6. Develop and implement methods to prevent ground water pollution in order to protect the supply of ground water in King George County and continue to explore alternate potable water sources to guarantee an adequate future supply exists for the continued growth of the County.
7. Pursue expansion of central water and sewage facilities in the designated Primary Settlement Areas.
8. Support the rehabilitation of housing units without indoor plumbing and eliminate the pit privies.
9. Implement a plan of action to replace antiquated utility infrastructure including water and sewer lines.
10. Seek regional solutions for development and expansion of protections of water resources.
11. Research and develop strategies to attract and support green energy such as solar and wind, while balancing preservation of environmental resources.

### B. Policies for Utilities within the County

#### Utilities Plan

##### 1. Background

The County entered the public water and sewer utility business through the creation of the King George Service Authority (KGSA), and the operation of water and sewer facilities constructed by the County and purchase of the private water supply and sewage treatment systems that existed within the County. The operation and maintenance of the public and private systems were merged under the leadership of the KGSA. The creation of the KGSA has allowed for a permanent entity to provide safe and efficient operation of the delivery of water and sewer to County residents. The KGSA directs the administration of the public water and sewer systems. The KGSA Board of Directors' are appointed by the King George County Board of Supervisors.

The location and extent of public water and sewer will be one of the prime determinants of the County's ability to achieve its goal of preserving the rural characteristics of King George County. By concentrating a majority of the County's new development within the Primary Settlement Areas the pressure for development on the remainder of the County's landscape can be lessened.

Thus the creation of the KGSA and assembly of these disparate utility systems under a centralized planning authority is a positive element in the County's comprehensive planning efforts insofar as it eliminates the need to deal with a variety of independent systems not necessarily responsive to County planning policies or to regulatory entities that ensure the safe operations of water and wastewater facilities.

A policy framework for providing utility services in the County is included in the Comprehensive Plan. This framework has special status in the Comprehensive Plan as a result of specific state legislation conferring control of utility locations and extent in the Comprehensive Plan (Title 15.2-2232).

## 2. Overall Utility Concepts and Objectives

- a. Protect the public health and safety through the provision of public water and wastewater treatment systems in designated areas where growth is appropriate and consistent with the goals and policies of this plan.
- b. Manage the location, pattern and density of land development through the provision of central public utilities that will support more intensive land development in designated locations near community facilities and existing settlements.
- c. Encourage compatible economic development of businesses and industries that require central water and wastewater services.
- d. Coordinate water and wastewater facilities as a unified system in designated, planned locations, rather than a piecemeal, uncoordinated collection of independent facilities in unplanned locations.

## 3. Utility Policies/Implementation Strategies

### Overall Utility Policies

- a. Utility systems and service areas are to be governed by one of the Utility Service Areas identified geographically on Map 2.
  1. Primary Settlement Areas.
  2. Rural Development Areas.
- b. Project expenditures for new facilities and major improvements should be included in a Service Authority Capital Improvement Program in order to insure coordination of utility and land use policies and actions.
  1. No utility systems shall be established solely to serve areas that are located in another state.

## 4. Utility Service Area Policies/Implementation Strategies

The following policies are intended to guide the County's decision-making concerning the location and extent of water and sewer utility systems:

### Primary Settlement Areas

These areas are intended as the primary planned locations for future residential and related economic development land use and therefore include both existing development and vacant lands which are currently zoned for a variety of development and rural categories.

Primary Settlement Areas approximate the geographic extent and boundaries of those Areas as described in the Future Land Use Plan. These geographic areas may be amended from time to time either as a result of detailed engineering studies or changes in County policy after consideration and conduct of hearings under the Title 15.2-2232 process. Public water and sewer treatment and distribution/collection facilities may be located within and throughout the defined Primary Settlement Areas. Policies with regard to timing of extensions of service shall be those of the KGSA in coordination with the Comprehensive Plan.

- a. The following Primary Settlement Areas have been established include the historical growth areas of the County and new areas served by public water and sewer. These Areas include the following:
  1. Courthouse West - The Courthouse area includes a variety of existing and planned sewer and water service facilities including those associated with Presidential Lakes Sections 1-13.
  2. Route 3/Route 301 – This area includes existing and planned water and sewer service facilities around the Route 3, Route 301 and Route 205 triangle.
  3. Dahlgren - The Dahlgren area includes an existing water and sewer system.
  4. Route 3 West - Route 3 West is a Primary Settlement Area established for the purpose of encouraging economic development activities in an area, which already contains several large industrial-related uses. The King George County Industrial Park, established in 2003, the Birchwood Power Facility, the King George County Landfill, and a 21-Acre under roof greenhouse are located with this Area. Water and Sewer has been extended from the Oakland Park Water and Wastewater Treatment Facilities to serve the Industrial Park.
  5. Hopyard - Hopyard is a Primary Settlement Area separate from and southwest of the Courthouse Primary Settlement Area. Hopyard is planned to contain 898 dwelling units and approximately 100,000 square feet of commercial/office buildings. The wastewater treatment facility, operated by the King George County Service Authority, has an operational capacity of 375,000 gpd and has an expandable capacity of up to 1 million gallons per day.
  6. Cleydael - Cleydael is a Primary Settlement Area separate from and in between the Primary Settlement areas of Courthouse and Dahlgren. This satellite area includes a planned and zoned residential project with an existing water utility system operated by the KGSA and development has been started. The utility service area is limited to existing

development, the approved zoning project areas and other areas within the mapped boundaries of the Utility Areas.

7. Fairview Beach - Fairview Beach is an established existing residential community with several commercial uses. It has both water and a sewer system operated by the KGSA. The service area includes the Fairview Beach community and the adjacent Potomac Landing Subdivision. Additional service to development is to be provided through either infill between existing developments, service to immediately adjacent lands, as opposed to expansion of the system outside of the general community-of-interest boundaries.
8. Oakland Park - This Primary Settlement Area is served by an existing public water and sewer system operated by the KGSA. These operational central water and sewer systems serve the Oakland Park subdivision area under existing VDH permits. Oakland Park is an established residential subdivision near the western boundary of the County with access from Caledon Rd (Route 218) and Fletcher's Chapel Road (Route 603). The utility service area is limited to the existing development and proximate approved zoning areas.

Presidential Lakes (Section 14) is not a “primary settlement area” but rather is a subdivision with a privately owned and operated Water and Wastewater Treatment Facility. These operational central water and sewer systems serve the Presidential Lakes Section 14 area under existing VDH permits. Section 14 of Presidential Lakes is an established residential area west of the Courthouse Primary Settlement area and north of the Hopyard satellite area with access from Igo Road. The water and sewer system are privately operated. Presidential Lakes, Section 14 is a part of a larger series of subdivisions that were platted in the 1970's. The other sections that make up Presidential Lakes Subdivision are not physically linked but do share a common Property Owners Association. Due to the unsuitability of the soils to support individual onsite sewage disposal systems, the lots within the subdivision were predominately unbuildable until the private wastewater treatment plant was constructed in the 1990's. Since completion of the private wastewater treatment facility, the subdivision has experienced a dramatic increase in development.

b. Water Facilities Policies/Implementation Strategies

1. Encourage construction and expansion of water treatment and distribution systems that are designed and built to meet or exceed both the State and KGSA standards and are owned and operated by the KGSA and are located in areas consistent with this Plan.
2. Make use of existing ground water studies (the Water Resources Planning Study) and seek funding for new studies (the proposed Rural Water Association Study) to determine the long-term suitability of the resource to serve the County's potable water supply requirements.
3. Determine future alternative sources of water and their availability, to include considering a water reservoir.
4. Request reservation of a portion of the Rappahannock River flow as a future water supply.

5. Establish a regional plan for protection of water sources and include the study of the vulnerability of available water resources to pollution and other harmful effects.
6. Coordinate the Chesapeake Preservation Act policies and other storm water management techniques.
7. Do not extend or establish water treatment or distribution systems without a formal determination by the Planning Commission and Board of Supervisors that such utility proposals are in conformance with the Comprehensive Plan, in conjunction with the procedures set forth in the Code of Virginia, Section 15.2-2232 (formerly 15.1-456)
8. Extension of public water and/or sewer outside of a Primary Settlement Area should only commence after a formal amendment to the Comprehensive Plan based upon an assessment of the need, location, and potential impacts of such extension. Cost of such extension should be borne by the beneficiaries of the extension.
9. Encourage a regional approach for the development, expansion, and protection of water resources.

c. Sewerage Facilities Policies/Implementation Strategies

1. Support construction and expansion of wastewater treatment and collection systems that are designed and built to meet or exceed both State and KGSA standards and are owned and operated by the KGSA and are located in areas consistent with this Plan.
2. Request reservation of a portion of the Rappahannock River flow as a future discharge point for wastewater effluent.
3. Do not extend or establish wastewater treatment systems without a formal determination by the Planning Commission and Board of Supervisors that such utility proposals are in conformance with the Comprehensive Plan, in conjunction with the procedures set forth in the Code of Virginia, Section 15.2-2232 (formerly 15.1-456)
4. Do not extend or plan extensions of wastewater service into areas not designated in this Comprehensive Plan for such service (Primary Settlement Areas) without making formal amendment to the Plan based upon an assessment of the need, location and potential impacts of such utilities.

#### Telecommunications Facilities Policies/Implementation Strategies

The following goals and action strategies are intended to supplement and complement the existing Telecommunications Facilities Policies/Implementation Strategies contained within the King George County Comprehensive Plan and are further intended to help to achieve the County's vision for an effective and harmonious telecommunications operation for users and providers alike.

Goal 1. Allow for the provision of a broad range of telecommunication services, while encouraging the shared use of structures to minimize the proliferation of tower sites to maintain and preserve the agricultural and residential character of the County.

## Action Strategy

1. Require applicants to present structural documentation that new towers (tower and foundation) are capable of supporting multiple antennas. (The number of antennae will be determined as a function of the tower height.) Facilities should be constructed to accommodate a minimum of three providers, where height restrictions permit.
2. Require sufficient ground space to be made available for locating equipment to correspond with the number of potential co-locators as determined above.
3. Advocate that all co-location alternatives are fully exhausted before considering an application for a new structure.
4. Encourage service providers to implement any reasonable available technology that may reduce the visibility of the antenna or the height of the tower.
5. Encourage the use of alternative support structures such as rooftops, utility poles, sign structures, etc. Antennas on structures should be designed to be compatible with the principal structure's architectural design, color and scale.
6. Maintain an inventory of existing structures available for co-location and make available to service providers.
7. Give preferential treatment to all proposals for co-location i.e., administrative review process or "by-right" status to all proposals for co-location.
8. Develop a plan to bring broadband telecommunication service to King George County.

Goal 2. Encourage the use of County lands when it can be demonstrated through both quantitative and qualitative analysis that no co-location alternatives are available.

## Objectives

1. Establish telecommunication facilities on public properties and public safety facilities when the following parameters can be met:
  - a. The use and character of public properties and adjacent properties is not adversely impacted;
  - b. The proposed telecommunication facilities are consistent with other elements of the Comprehensive Plan and the Zoning Ordinance; and
  - c. Appropriate approvals and agreements are reached with the public agencies, boards, or authorities.
2. Encourage new telecommunication facilities to be built through public/private partnerships when the telecommunications service needs of both parties can be met by one facility.
3. Develop lease agreements that will facilitate the leasing of County land to private service providers at fair market value.

4. Maintain an inventory of County lands that are available for new tower development. (Potential County-owned sites that could be used for new tower development are described in the Appendices.)

Goal 3. Comply with the spirit and intent of the Telecommunications Act of 1996 and the rules and regulation of the Federal Communications Commission so as to encourage competition between existing and new communication services and to promote a broad range of communication capabilities for County residents and businesses.

#### Objectives

1. Encourage managed development of wireless communications infrastructures through established policies and procedures that will ensure fair and equitable evaluations.
2. Develop a checklist to be submitted with applications to facilitate the application and ensure completeness of the application. (A sample checklist is presented in the Appendices.)
3. Provide a uniform and comprehensive set of standards for the development and installation of wireless communications towers, antennas and related facilities
4. Advocate that the development of wireless facilities is done in a manner that meets all requirements and standards of the Federal Aviation Administration, the Federal Communications Commission, and the Uniform Statewide Building Code.
5. Review all applications for new telecommunications facilities in a timely fashion so as not to unreasonably delay deployment of facilities.

Goal 4. Require telecommunication facilities to be designed in a way that preserves the aesthetic value of the County through the use of camouflage and concealment techniques.

#### Objectives

1. Limit tower height to a maximum of 80 feet or 10 feet above the tree line near residential, scenic, historic, or park areas.
2. Locate sites in wooded areas to provide maximum screening.
3. Use natural wood pole as support structure for 80-foot “micro-cell” site.
4. Flush-mount antennas to minimize visual obtrusiveness.
5. Conceal antennas in flagpoles, silos, church steeples, sign structures, etc.
6. Restrict height of towers to 199 feet so as to minimize the possibility that tower would have to be lighted by beacon or strobe.
7. Natural aggregate finishes, in earth tones, should be utilized for equipment shelters.

8. When natural vegetative screening material does not exist, appropriate vegetative material should be planted around the perimeter of the structure to screen the compound.

#### Gas and Electric Utility Policies/Implementation Strategies

1. Encourage the planned and coordinated provision of natural gas and electric power services to residents and businesses in the County, as demand warrants.
2. Encourage sensitive siting, design and construction of all structural elements of energy facilities.
3. Encourage underground utility services to businesses and residential customers.
4. For energy services such as natural gas that may not become available to every part of the County, priority areas are those within the designated Community Development and Satellite Areas as shown in this Plan.

## CHAPTER VI. COMMUNITY SERVICES AND FACILITIES

### A. Goals for Community Services and Facilities within the County

#### *Schools/Education*

1. Provide quality and safe educational opportunities for all residents of King George County and ensure the availability of adequate schools to meet the needs of residents.
2. Encourage the availability of high-speed internet service to stimulate educational opportunities.

#### *Parks and Recreation*

1. Provide, promote, improve and support a full range of recreational opportunities in King George County.
2. Support and encourage the development of outdoors-recreational space within approved subdivisions and other developments through implementation of amendments to the County's land use ordinances.
3. Provide and promote adequate recreational access to State waters, while protecting the natural environment.
4. Create public access opportunities of aquatic resources that can enhance economic development opportunities in King George County.

#### *Administration Facilities and Library*

1. Ensure Administration facilities support convenient public use and safety, while advocating for a pleasant and productive work environment.
2. Make the L.E. Smoot Memorial Library an integral part of the County's recreational and educational facilities, and it should act as a centralized information center for local County activities. Efforts should be made to provide the availability of adequate library facilities to meet the needs of County residents.

#### *Public Safety*

1. Provide needed first responders, police, fire and emergency medical services to all areas of the County.
2. Ensure the availability of adequate emergency services to meet the needs of all County residents.
3. Advocate for the availability of medical services to meet the needs of all County residents.

#### *Solid Waste*

1. Provide and develop long term, safe and economical disposal of the solid waste generated in King George County.
2. Ensure all solid waste is handled efficiently, at low cost, and in an environmentally responsible manner.

## **B. Policies for Community Services and Facilities within the County**

### **1. Background**

Perhaps the most important element of the Facilities Plan is the recommendation that community facility improvements and new facilities be concentrated in the designated Primary Settlement Areas. This is an important example of growth management to be set by the County Government and also a strong incentive for new residential and commercial development to locate where the facilities, services and “the action” is. Increasing population will continue to influence the needs and priorities for community facilities. The County has attempted to keep pace with a population increase from 13,527 in 1990 to 16,600 in 1997 - of over 3,000 or 23% in just seven years. From 1997 to the year 2020, the population is expected to increase by at least 10,000 - an increase of 60%.

The Community Facilities Plan element of the Future Plan provides recommendations under six major topics:

1. Public Safety
2. Library
3. Schools
4. Solid Waste
5. Parks, Recreation and Cultural Facilities
6. Public Offices

It is recommended that, in future years, each operating department create a detailed service plan with assistance of the Planning Department for population and economic information. It should be coordinated with the Planning Commission, which recommends the Capital Improvements Program. It should then be reviewed by the Board of Supervisors, which has the final say on the funding and financing methods for new facilities and improvements.

### **2. Overall Concepts and Objectives**

The major concept for providing public facilities and services to the County's residents and businesses is to provide adequate service levels to protect the public health and safety, and to do so in a manner that is cost-effective and reinforces the growth management and land use strategies of the Comprehensive Plan.

Major overall objectives for public facilities include:

- Concentrating new facilities in the designated areas, where most existing and future population and business activity is or will be located.
- Establishing and maintaining adequate and appropriate levels of service to provide a high quality of life for citizens and to attract and maintain a strong business environment.
- Seeking economies through a variety of means whenever appropriate and feasible, including public/private partnerships, volunteer involvement, and regional coordination and innovative procedures and technologies.

### 3. Plans and Policies/Implementation Strategies

#### Public Safety

The County's fire and rescue services needs are primarily met by a combination of paid employees and volunteer members that make up a unified Department. Major forces at work include more homes and businesses to protect, increased traffic and visitors, increasing difficulty in recruiting and retaining volunteer staff, increasing cost of equipment to meet modern needs and standards, increasing difficulty in raising voluntary contributions to support operations and need for an integrated County-wide plan for emergency facilities and services. The principal facility plan recommendation for emergency services is to create a unified County wide plan and organization for facilities and services:

#### Policies

1. As the need increases, establish fire and rescue stations in locations best suited to serve the additional population and to reduce extended response times.
2. Provide adequate fire and rescue services with around-the-clock personnel (24/7/365) to all residents and visitors within King George County at all three fire and rescue stations.
3. Commit resources to enhance facilities, equipment and training for fire and rescue services.
4. Recognize the importance of a reliable public safety radio communications system and to prepare for implementation of 700/800 MHz radio systems to ensure regional interoperability.
5. Ensure that Service Authority water systems adequately provide for firefighting needs.
6. Encourage continued improvement in cooperation among County public safety organizations.
7. Encourage continued improvement in cooperation of County organizations with Naval Support Activity South Potomac/Naval District Washington at Dahlgren and surrounding County fire and rescue organizations for automatic mutual aid support.
8. Encourage the incorporation of appropriate water distribution systems for fire protection in planned community developments.
9. Continue County staff preparedness for large-scale disaster/emergency operations, ensuring a well-trained cadre of workers ready to provide all phases of emergency management to the citizens of King George County.
10. Encourage a continuance of Fire Prevention activities through the process of public education, fire inspections, plan reviews, and code enforcement.

#### Law Enforcement

King George Sheriff's Office is committed to staying envisioned with future needs of law enforcement. As the county grows the need for additional personnel and equipment will be requested as justified.

1. Maximize resources by working with other law enforcement and public safety entities.
2. Continue to commit resources to enhance facilities, equipment and training for law enforcement personnel. Encourage continued cooperation among County public safety organizations.
3. Seek to minimize the cost of public safety infrastructure through the use of proffers from residential rezoning applications.
4. Support request for additional personnel and equipment as population increases.
5. Consider opportunities to establish satellite precincts co-located with fire and rescue stations in locations best suited to serve the additional population.

#### Library

The existing library, Lewis Egerton Smoot, in King George has achieved a current or normative standard of 7.2 volumes per capita, well above the standard of 4 per capita. Population growth will occasion the need for additional service outlets in accordance with State Library policy. Additional space needs have been accommodated with the 2013 completion of the Library addition and parking area.

Table VI-1  
Library Standards and Future Needs

Facility Type	Standard	Growth Need 2018-2030
Collection – Volumes	4 Per Capita	none
Space – Square Feet	.6 s.f. Per Capita	none

#### Policies

1. Encourage and support continuing technological improvements in Smoot Library to maximize the information resources available to King George County citizens of all ages.
2. Encourage development of means to make library resources accessible to various localities in the County.
3. Coordinate the L.E. Smoot Memorial Library and School Library catalogs and provide convenient access to the Smoot Library as a school resource.
4. Maintain reference copies of County information at Smoot library (e.g. minutes of Board of Supervisors and Planning Commission meetings, County Disaster Plan, recent County maps).

## Schools

Enrollment projections for the 2019-2020 school year is 4,350 students compared to 2011 enrollment of 4,228. An approximate distribution of 50% elementary and 25% each in high school and middle school would result in the following array:

Table IV- 2  
Existing and Projected School Enrollments

Level	2010 Fall Enrollment	2020 Enrollment	Change
Elementary School	2,247	2,175	-72
Middle School	666	1,088	+422
High School	1301	1,087	-214
<b>TOTALS</b>	<b>4,124</b>	<b>4,350</b>	<b>+226</b>

## Policies

1. Provide elementary and secondary education for all King George children, including support for home-schooled students as appropriate.
2. Continue to provide an atmosphere that retains and maintains highly qualified teachers and administrative personnel.
3. Continue to maintain all educational facilities.
4. Continue to promote the NJROTC program.
5. Encourage, support, and foster educational opportunities to include adult technical training, undergraduate and graduate courses and degree programs as well as cultural enhancement courses.
6. Utilize existing educational facilities and encourage a consortium of colleges and universities to provide undergraduate and graduate courses locally.
7. Foster the partnerships with the University of Mary Washington Dahlgren site and Rappahannock Community College.
8. Continue to form partnerships with the King George County business community and the Naval Support Facility Dahlgren.
9. Continue to encourage volunteers to support the educational needs of King George students and citizens.
10. Plan and manage public school recreational facilities, and to the extent appropriate, make available for public use through KG Parks and Recreation.

11. Encourage school-related proffers, including but not limited to cash, land, and/or facilities, from residential rezoning applications that are directly related to the need produced by the proposed development.
12. Review and consider facility planning and enhancement proposals advanced by the King George County School Board.
13. Support a variety of career and technical education opportunities for adults such as apprenticeships, internships, and continuing education.
14. Continue to encourage the use of technological resources for students and teachers.

## **Solid Waste**

### County Landfill and Recycling Facility

In August of 1993 King George County chose to convert from a publicly owned and operated landfill operation to a publicly owned and privately-operated facility. The King George County Landfill and Recycling Facility opened in November 1996. The 348.5-acre facility is located on over a 600-acre parcel abutting Route 665, Route 603, Route 605, and the CSX railroad spur in Sealston. The facility's design capacity is 44.9 million cubic yards of waste. The facility offers collection of white goods, waste oil and antifreeze and sponsors hazardous waste days to allow residents the opportunity to safely dispose of their waste. The transfer of all previously dumped materials from the old King George landfill to the new facility was completed in the fall of 2004. In December 2017 a vertical expansion of the landfill was approved, increasing the facility's design capacity by 22,212,000 tons.

Sealston Park was developed using funds provided through the County's contract which called for the annual transfer of funds for five years to develop a park facility on a site identified and owned by the County. Site planning began in 2011 to convert the old King George County Landfill site into a recreational facility; the project was completed in 2014. Construction began in 2011 to improve the transfer station located at the old King George County Landfill site; the project was completed in 2014.

### Policies

1. Develop long term and contingency plans for waste disposal.
2. Encourage economically viable recycling of all materials in the solid waste disposal activity.
3. Support and encourage roadside cleanup activities.
4. Provide recycling facilities at all transfer stations.
5. As population increases provide additional solid waste transfer stations.
6. Encourage low impact recycling industries in conjunction with the landfill operation.

7. Continue to provide hazardous waste collection day to give residents an opportunity to safely dispose of their waste.

## **Parks, Recreation and Cultural Facilities**

The County has three community/district park sites, Barnesfield Park, Cedell Brooks Jr. Park, and Sealston Park. Barnesfield Park is a 154-acre site located on James Madison Parkway (US 301) at the northeast end of the County. Cedell Brooks Jr. Park is a 33-acre site located off Ridge Road (State Route 205) in the center of the County. Sealston Park is a 45-acre site located on Fletchers Chapel Road on Route 603 at the western end of the County. All three parks function as community/district facilities and their combined acreages exceed the Virginia Outdoor Plan normative standard of 4 acres of parkland per 1,000 persons. In fact, the County currently has sufficient park land to meet the Virginia Outdoors Plan standard for community/district parks for the projected 2020-year population (30,126).

Other active recreation resources are the fields and facilities shared with the school system. These are valuable and well-located Community and Neighborhood Park resources and embody a tradition of multiple uses, which should be continued to husband resources of the community.

The most immediate and continuing long-term need for park facilities in King George is individual community accessibility to facilities. It is recommended that the County embark on a two-pronged approach to development of community facilities to meet current and future needs:

- Encourage all new developments to proffer and/or provide land and facilities for community parks related to the scale of the development. Such facilities can be as small as tot-lots and as large as 4-6 acres with a variety of facilities.
- 
- Implementation of amendment to the County's land use ordinances that establish outdoor recreational space within approved subdivisions and other developments.

Two recommendations are made in terms of natural areas and access:

- King George County is blessed with extraordinary frontages on the Rappahannock and Potomac rivers as well as several major creeks. There are two public access locations permitting small craft on the Rappahannock River and Caledon State Park allows access to the Potomac River for kayak and canoe. Therefore, it is recommended that the County seek to control or acquire select new places for recreation access to these resources. These access points should remain limited in size and number, with sensitive siting, access and design, due to the presence of valuable wildlife habitats.
- Actively pursue the creation of historic based sites to promote, protect, educate, and conserve the County's historic resources. Such sites could also host special events.

## Policies

1. Coordinate County supplied activities with commercial and volunteer endeavors (e.g. advertise availability of commercial marina, garden club, scouts, etc.).
2. Coordinate with the County's Park and Recreation Committee during annual review of the King George County Capital Improvement Plan to determine recreational needs assessment.
3. Provide expanded parks and recreation facilities to meet public needs, in accord with the needs assessment.
4. Support tourism by making selective recreational opportunities available to visitors.
5. Promote the appropriate and sustainable use of the natural resources of the County (e.g. public water access, water sports, equestrian, hunting, hiking, and biking).
6. Encourage County recreational needs are considered in all new County facilities, as applicable.
7. The County will seek ways to minimize the cost of new park and recreation infrastructure such as but not limited to encouraging proffers from residential rezoning applications.

## **Public Offices**

The County began constructing new office space with the Revercomb Administration Building. The Revercomb building was constructed for County Administration and completed in 1994. In 2005, the County obtained 69 acres near the intersection of Routes 3 and 205. Construction completed on the property includes the King George County Animal Shelter, the King George County Sheriff Office, and a King George Branch of the YMCA. Future projects may include a new Courthouse. Property, which included a building with bays, has been purchased on Route 301 for a School Vehicle Maintenance Building. The building renovation was completed in 2015.

## Policies

1. Locate major new public offices in the designated Primary Settlement Areas as set forth in this Plan. Locate any branch or satellite public offices in the designated Primary Settlement Areas as set forth in this Plan.
2. Encourage that the location, site plan and design of new public offices provide for safe, comfortable and convenient pedestrian access from adjacent and nearby residential and/or commercial properties.
3. Locate parking areas to the side or rear of new or expanded public offices so as to allow the creation and maintenance of a pedestrian-oriented streetscape and access.
4. Provide adequate and appropriate landscape buffers between County office facilities and any existing residential neighborhoods.

## **Intergovernmental Coordination**

King George County shall promote and encourage intergovernmental coordination and collaboration between the County; adjacent municipalities; the Counties within the George Washington Regional Commission (GWRC); regional, State, and federal governments, including Naval Support Facility Dahlgren (NSFD); providers of utility services; and private entities in order to anticipate and resolve present and future concerns and conflicts.

### **Policies**

1. King George County shall coordinate with NSFD on all land management plans affecting the Dahlgren Settlement Area.
2. King George County shall transmit to the NSFD commanding officer or designee information relating to proposed changes to comprehensive plans, plan amendments, map amendments, and proposed land development regulation which, if approved, would affect the intensity, density, or use of the land adjacent to or in close proximity to NSFD (within the Military Influence Area (MIA) Overlay. King George County shall provide the military installation an opportunity to review and comment on the proposed changes.
3. Within 30 days from the date of receipt from King George County of proposed changes, the NSFD commanding officer or designee may provide comments to King George County on the impact proposed changes may have on the mission of NSFD and its tenants. The commanding officer's comments, underlying studies, and reports shall not be binding on the County. The County shall take into consideration any comments provided by NSFD and shall also be sensitive to private property rights and not be unduly restrictive on those rights.
4. King George County shall notify NSFD of any development proposals submitted for review and action before the Planning Commission or Board of Zoning Appeals at the earliest date possible.
5. In the event of an emergency King George County will depend on support from the Virginia Department of Emergency Management (VDEM), the Federal Emergency Management Agency (FEMA), NSFD, and Fort AP Hill. We continue to build relationships with localities outside of our region in the event that we may need intergovernmental support in response to a catastrophic event.

## **CHAPTER VII.** **IMPLEMENTATION OF THE COMPREHENSIVE PLAN**

### **A. Action**

The next major task for the County will be for the Commission and Board to implement the adopted goals, policies/implementation strategies of the adopted Comprehensive Plan.

A key ingredient in the Implementation of the Plan will be the setting of a realistic schedule. Factors that contribute to the need for multi year scheduling include the introduction and acceptance of new ideas and the challenge of accomplishing or starting long range tasks while dealing with the everyday press of government and civic affairs.

The following are the major items that should be accomplished to implement the Plan.

- Develop detailed “Area Plans” for the implementation of the “Village District” concepts recommended for the Dahlgren, Courthouse West and Route 3/301 Primary Settlement Areas within the next five (5) years.
- Review and revise accordingly all County Land Use Regulations to implement the appropriate policies/implementation strategies identified within each of the Primary Settlement Areas and the General Land Use Plan: Zoning the next five (5) years.
- Annually reinforce integration of revenue projections, and debt structure within the King George County Capital Improvements Program (CIP).
- Development of a long-range water resources plan and including assessment of needs and alternatives and a review cycle (Planning Commission action) within the next 3 to 5 years.
- Annually address Growth Pattern to determine if Plan Policies are achieved.
- Prepare a handbook to provide shoreline erosion control guidelines to property owners in the next year. The handbook should be developed through the assistance of the Shoreline Programs Bureau, the GWRC, and the Local Wetlands Board.
- Annually address the 6-year Virginia Department of Transportation Secondary Road Plan.
- Incorporate the current Economic Development Strategic Plan and its initiatives into the updated Comprehensive Plan
- Develop, in coordination with the Tourism Advisory Committee, with consultation of the Northern Neck Tourism Committee, a plan to enhance tourism with King George County by 2025.
- Develop special incentive zones and assessment districts to encourage industrial, commercial and recreational business growth.

### **B. Regional Coordination**

Given King George County’s location in the Greater Fredericksburg area, and the complex infrastructure networks that link it to its neighbors, there will be a growing need for close coordination of planning policy with neighboring jurisdictions during the life of this plan. To that end, the County should consider not only continuing its current efforts to coordinate with its neighbors, but also to establish additional formal processes for expanding and deepening those efforts, which might include:

- Continuing to coordinate through the auspices of the George Washington Regional Commission (GWRC), Fredericksburg Regional Alliance, Government Military Affairs Council (GMAC), Virginia Department of Transportation (VDOT) and other agencies to coordinate planning policies regarding land use, utility service, road networks;
- Exploring additional opportunities for sharing services, resources and facilities with neighboring jurisdictions to meet growing service demands, including parks and recreation, utilities, public safety facilities;
- Exploring additional opportunities for coordinating and sharing economic development and promotion efforts with neighboring jurisdictions;
- Exploring additional opportunities for teaming with neighboring jurisdictions in seeking enabling legislation and in pursuing additional funding for regionally critical infrastructure improvements.
- Pursue a memorandum of understanding with the localities within the County's ground water recharge area. The memorandum of understanding should develop policies for protective ground water planning.

## **APPENDIX A**

### **SUPPORTING DATA AND HISTORY**

## APPENDIX A

### SUPPORTING DATA AND HISTORY

#### A. 2019 Comprehensive Plan – Review and Update of 2013 Comprehensive Plan

##### **Process**

- July 2018 - Planning Commission initiates Comprehensive Plan Update.
- August-December 2018 – Gather data/input from County and other agencies.
- January-February 2019 – Held Open House events for public input.
- Draft Plan prepared and reviewed by the Planning Commission.
- Planning Commission public hearing.
- Board of Supervisors public hearing.

#### B. Summary

##### **Population Growth**

- King George County experienced a population increase of 11.7% between the 2010 census (23,584) and 2017 estimate (26,337).
- The Virginia Employment Commission's projects the County population will be 30,126 by the year 2020 and 37,365 by the year 2030.

##### ***Population Characteristics***

- Median age in the County increased from 36.6 in 2010 to 37.0 in 2017.
- The school age population (approximated by age categories age 5 to 18) Increased from 5,143 in 2010 to 5,618 in 2017.
- The under 5 age group decreased from 1,828 in 2010 to 1,687 in 2017.
- Educational attainment is positive with 93% of the population age 25+ being high school graduates or better and only 7% of the population having less than a 12th grade/diploma education.

##### ***Housing***

- The number of households in the County increased by 5.8% percent between 2010 and 2016.
- The average number of persons per household increased from 2.65 persons per household to 2.86 persons per household.
- Of the total households, 73.2% of the households were owner occupied in 2016 and 26.8% were rental units.
- Single family structures continue to dominate the housing supply at 86%.
- The percentage of mobile homes/trailers decreased from 12% in 2010 to 8% in 2016.
- The number of houses lacking complete plumbing facilities decreased from 19% to 0.1% over the last 46 years.
- According to the 2010 census, 68.6% of the housing stock in the County has been constructed since 1980.

- The median value of housing units decreased from \$289,200 (unadjusted dollars) in 2010 to \$288,000 (unadjusted dollars) in 2016.
- Median contract rents increased slightly from \$999 per month in 2010 to \$1,079 per month in 2016.

### ***Economy***

- Family median income in King George increased by 40% between 2000 and 2010 and has remained fairly constant through 2016.
- The overall number of jobs declined to a low in 2012, during the recession, but have increased since, to a high in 2015.
- Employment projections indicate that employment is projected to grow to 13,124 in 2020.
- Commuting patterns as identified by the US Census Bureau show that King George has experienced a higher out-flow of commuters than in-flow since 2003. The number of people living and working in the County has remained constant.
- The overall amount of acreage in farmland has begun to stabilize since steady declines over the last 87 years. Farm acreage has consistently been between 40,000 to 30,000 acres since 1974. Between 2007 and 2012 the amount of farmland dropped to 24,304 acres.
- General Merchandise has replaced Food & Beverage stores as the largest segment of per capita sales. This could signify a reverse in the trend where past sales in certain sectors may have been “leaking” to neighboring jurisdictions. Due to additional or better retail opportunities in the County, local residents are spending more money within King George County. Historically, the County’s per capita retail trade figures have been significantly lower than the numbers for the region as a whole and the State.
- Tourism and travel play a limited role but increasingly significant role in the economy of King George County. Because of the expanded use of US 301 as a through highway, the County is able to “intercept” some of the traveling public as they go through the County to other locations.

### C. Population Demographics

Projected population information provides the foundation for determining future needs for various land uses, community facilities and transportation facilities. Population is expected to increase by approximately 13,817 persons by the year 2030 over the final census count of 2010.

Table C-1 presents population growth prepared for the County's' planning purposes together with official projections of population by the Virginia Employment Commission.

**Table C-1**  
**County Population and Housing Growth Projections: 2017, 2020, and 2030**

Statistical Descriptors	Year 2010	Year 2017	Year 2020	Year 2030
Population- Total	23,548	26,337	30,126	37,365
Population- Growth		2,789	6,578	13,817
Housing -Total	9,477	10,092	11,368	14,100
Housing – Growth		615	1,891	4,623

- *2017 data estimates provided by the US Census Bureau.*
- *Official total population projections are V.E.C. (Virginia Employment Commission) Preliminary dated 2-8-2012.*
- *Growth data is based on 2010 Census data.*

#### ***Population Estimates***

The Virginia Employment Commission compiles official population projections for each county in the State of Virginia. According to the VEC population projections, provided below, the population of the region would continue to increase over the next 20 years.

**Table C-2**  
**County and Regional Population Estimates and Projections: 2010 - 2030**

	Population Estimates and Projections			
Locality	2010	2,017	2020*	2030*
King George	23,548	26,337	30,126	37,365
Caroline	28,545	30,461	36,058	43,662
Spotsylvania	122,397	133,033	175,402	217,797
Stafford	128,961	146,649	176,710	218,772
Fredericksburg	24,268	28,360	25,116	28,518
Regional Total	327,719	366,857	443,412	546,114

*Source: 2010 Census, 2017 Census estimates, and the Virginia Employment Commission (\*).*

As presented in Map 1, King George has been subdivided into eight Primary Settlement Areas and two Rural Development Areas. Population estimates for 2002, 2011 and 2018 for each area are provided below in Table C-3.

**Table C-3**  
**King George Population Estimates by Planning Area: 2002, 2011 and 2018**

<b>Planning Area</b>	<b>2002 Estimate</b>	<b>2011 Estimate</b>	<b>2018 Estimate</b>
1. Courthouse	3,961	2,988	
Route 3/301			400*
Courthouse West			1401*
2. Dahlgren	2,907	2,705	2,528*
3. Route 3 West	50	85	55
4. Fairview Beach	930	568	1,006
5. Hopyard	373	20	1,048
6. Cleydael	771	465	757
7. Oakland Park	810	880	806
8. Rappahannock River / South	1,987	1,783	3,549
9. Potomac River / North	12,256	9,035	13,637
<b>Total</b>	<b>23,672</b>	<b>18,529</b>	<b>25,670</b>

*Source: K.G. Community Development Staff Estimates.*

*\*Decrease in Courthouse population attributed to removing portions of the Settlement Area.*

*\*Decrease in Dahlgren population attributed to changes in the Settlement Area.*

Table C-4 presents the factors which affect population change; i.e., natural increase (the number of live births compared to the number of deaths) and migration. These characteristics are shown for the periods 2000 to 2008 and 2009 to 2016.

During the 1990s, 26 percent of all growth in the region was due to migration. This rate grew to be 70 percent between 2000 and 2008. In King George County, approximately 76% of all growth was due to migration between 2000 and 2008. Both the County and Regional percentage of growth due to migration exceeded the State-wide percentage (40.8%) over the same period.

**Table C-4**  
**County and Regional Natural Increase and Migration Trends: 2000 - 2016**

2000 – 2008							
Locality	Births	Deaths	Natural Increase	Migration	Population Change 2000 – 08	% Change Due to:	
						Natural Increase	Migration
King George	2,698	1,192	1,506	4,861	6,367	24%	76%
Caroline	3,019	2,049	970	4,541	5,511	18%	82%
Spotsylvania	14,478	5,553	8,925	20,711	29,636	30%	70%
Stafford	14,268	4,451	9,817	19,473	29,290	34%	66%

Fredericksburg	3,439	1,861	1,578	1,961	3,539	45%	55%
Regional Total	37,902	15,041	22,861	51,482	74,343	30%	70%
Virginia	926,948	514,658	412,290	278,282	690,572	60%	40%
<b>2009 – 2016</b>							
Locality	Births	Deaths	Natural Increase	Migration	Population Change	% Change Due to:	
					2008 – 16	Natural Increase	Migration

King George 2,445 1,265 1,180 1,573 2,753 43% 57%

Caroline 3,118 2,002 1,116 800 1,916 58% 42%

Spotsylvania 12,476 6,359 6,117 4,519 10,636 58% 42%

Stafford 13,491 5,092 8,399 9,289 17,688 47% 53%

Fredericksburg 3,280 1,471 1,809 2,283 4,092 44% 56%

Regional Total 34,810 32,289 2,521 36,581 39,102 6% 94%

Virginia 823,338 524,871 298,467 170,529 468,996 64% 36%

*Source: Virginia Vital Statistics Annual Reports, 2000-2016 (VA Department of Health).*

### **Recent Trends**

Analysis of King George County's demographic trends is an important tool for use when projecting future resource needs such as police and fire protection, water and sewer facilities, parks, schools, the transportation network, and other public facilities.

The population of King George County experienced a 12 percent population increase between the 2010 census and 2017 estimates. Previous population increases experienced by the County placed the County in the category of being a high growth county by much of Virginia legislature; The County currently ranks 67<sup>th</sup> (out of 133) in the list of Virginia's total population ranks and remains a rural community.

**Table C-5**  
**County and Regional Population Trends: 1990 - 2017**

Locality	Population				Percent Change		
	1990	2000	2010	2017	90-00	00-10	10-17
King George	13,527	16,803	23,584	26,337	24%	29%	12%
Caroline	19,217	22,121	28,545	30,461	5%	23%	7%
Spotsylvania	57,403	90,395	122,397	133,033	36%	26%	9%
Stafford	61,236	92,446	128,961	146,649	51%	28%	14%
Fredericksburg	19,027	19,279	24,268	28,360	1%	21%	17%
Regional Total	170,410	241,044	327,755	366,857	41%	26%	12%
Virginia	6,187,358	7,078,515	8,001,024	8,470,020	14%	12%	6%

*Source: 1990-2010 U.S. Census.*

### **D. Population Characteristics**

- Median age in the County increased from 36.6 in 2010 to 37.0 in 2017.

- The school age population (approximated by age categories age 5 to 18) Increased from 2,646 in 2000 to 5,143 2010.
- The under 5 age group increased from 1,272 in 2000 to 1,828 in 2010 which should continue to contribute to the increase in the school age population.
- Educational attainment is positive with 92% of the population age 25+ being high school graduates or better and only 13% of the population having less than a 12th grade/diploma education.

**Table D-1**  
**County and Regional Median Age: 1990 - 2017**

Locality	Median Age				Percent Change		
	1990	2000	2010	2017	1990-00	2000-10	2010-17
King George	31.0	35.1	36.6	37.0	11.7%	4%	1.1%
Caroline	33.1	37.7	38.9	39.8	13.9%	3%	2.3%
Spotsylvania	30.9	34.3	36.4	37.3	11.9%	6%	2.5%
Stafford	29.9	33.1	34.6	35.0	9.7%	2%	1.2%
Fredericksburg	28.8	30.3	28.8	29.5	5.2%	-5%	2.4%
Virginia	32.6	35.7	35.7	37.8	9.5%	0%	5.9%

*Source: 1990-2017 U.S. Census.*

The median age of King George's residents has risen steadily since 1980. This trend mirrors similar trends in Virginia and the US. Between 1990 and 2017, the median age in the County increased from 31.0 years to 37.0 years. Only Caroline County's median age is older within the region.

**Table D-2**  
**Population Age Distribution, King George County: 1980 - 2017**

Age	Population					Percent of Population				
	1980	1990	2000	2010	2017	1980	1990	2000	2010	2017
under 5	832	1,143	1,272	1,828	1,687	7.9%	8.4%	7.6%	7.5%	6.4%
5-9	902	1,071	1,313	1,788	1,904	8.6%	7.9%	7.8%	7.4%	7.2%
10-18	1,883	1,749	1,333	3,355	3,714	17.9%	12.9%	7.9%	13.8%	14.1%
19-24	902	1,152	2,130	1,376	1,650	8.6%	8.5%	12.7%	5.7%	6.3%
25-34	1,733	2,574	2,317	3,106	3,326	16.4%	19.0%	13.8%	12.8%	12.6%
35-59	2,987	4,084	6,186	8,805	9,209	28.3%	30.2%	36.8%	36.2%	35.0%
60-64	429	492	642	1,309	1,490	4.1%	3.6%	3.8%	5.3%	5.7%
over 65	875	1,262	1,610	2,746	3,357	8.3%	9.3%	9.8%	11.3%	12.7%
Total	10,543	13,527	16,803	24,313	26,337					

*Source: 1980-2017 U.S. Census.*

Table D-3 presents the educational attainment level of King George residents that were 25 years or older in King George County in 2000 through 2017. These figures are important in making determinations about the quality of the area's work force.

**Table D-3**  
**Educational Attainment, King George County, 2000 to 2017**

Educational Level	2000	2010	2017
Total Persons (25 years+)	10,803	14,651	16,483
Less than 9th grade	730	497	285
Grade 9 to 12, No diploma	1,389	944	894
High School Graduate	3,496	4,441	4,445
Some College, No Degree	2,212	3,197	3,627
Associate Degree	425	1,110	1,552
Bachelor's Degree	1,680	2,954	3,518
Graduate or Professional Degree	871	1,508	2,162

*Source: 2000, 2010, 2017 U.S. Census.*

#### **E. Housing**

Projections of future housing growth are presented at the beginning of this part together with population projections.

The following materials describe housing characteristics and change from 1970 to 2017 including number of households and size, ownership status, housing types and condition, age and cost. These descriptions reveal the following:

- The number of households in the County increased by 5.8% percent between 2010 and 2017.
- The average number of persons per household increased from 2.65 persons per household to 2.86 persons per household.
- Of the total households, 73.2% of the households (6,349) were owner occupied in 2016 and 26.8 % (2,320) were rental units.
- Single family structures continue to dominate the housing supply at 82%.
- The percentage of mobile homes/trailers decreased from 12% in 2010 to 8% in 2016.
- The number of houses lacking complete plumbing facilities decreased from 0.3% to 0.1% since 2010.
- According to the 2016 census estimates, 78.6% of the housing stock in the County has been constructed since 1980.
- The median value of housing units decreased from to \$289,200 (unadjusted dollars) in 2010 to \$288,000 (unadjusted dollars) in 2017.
- Median contract rents increased from \$999 per month in 2010 to \$1079 per month in 2017.

As the median age of the population of the United States increases, household size has been decreasing. This trend is evident in King George and the State of Virginia as shown in Table E-1.

**Table E-1**  
**Household Trends: 1970-2017**

	Number of Households		Persons Per Household	
	King George	Virginia	King George	Virginia
1970	2,359	1,390,636	3.30	3.20
1980	3,513	1,863,073	2.98	2.77

1990	4,736	2,291,830	2.79	2.61
2000	6,091	2,699,173	2.70	2.54
2010	8,194	2,992,732	2.65	2.60
2016	8,669	3,445,357	2.86	2.66

*Source: 1970-2010 U.S. Census.*

The number of housing units in King George increased from 9,477 in 2010 to 10,092 in 2017, of which 73.2% are owner-occupied. The breakdown between the percentage of units owner occupied (70%) and renter occupied (30%) has remained relatively constant over the last 40 years.

**Table E-2**  
**Housing Tenure in King George: 1970 - 2010**

Year	Housing Units			Occupied Housing Units			
	Occupied			Owner-Occupied		Renter-Occupied	
	Total	#	%	#	%	#	%
1970	2,719	2,359	86.8%	1,640	69.5%	719	30.5%
1980	3,997	3,513	87.9%	2,604	74.1%	909	25.9%
1990	5,280	4,736	89.7%	3,298	69.6%	1,438	30.4%
2000	6,820	6,091	89.3%	4,376	71.8%	1,715	28.2%
2010	9,477	8,376	88.4%	6,568	78.4%	1,808	21.6%
2016	9,791	8,669	88.5%	6,349	73.2%	2,320	26.8%

*Source: 1970-2016 U.S. Census.*

Between 1990 and 2016, the percentage of single-family housing units versus other types of units increased from 73% to 86%. The number of Mobile Homes/Trailers decreased from 1072 units in 2010 to 785 units in 2016.

**Table E-3**  
**Housing Type: 1990-2016**

Housing Type	1990		2000		2010		2016	
	#	%	#	%	#	%	#	%
Single Family	3,859	73	5,296	78	7,167	77	8,423	86
2-4 Units Per Structure	254	5	289	4	485	6	234	2
5 or More Units Per Structure	176	3	351	5	436	5	349	4
Mobile Home/Trailers	991	19	884	13	1072	12	785	8
Total Housing Units	5,280		6,820		9,387		9,791	

*Source: 1990-2016 U.S. Census.*

The lack of complete plumbing facilities and the number of households with 1.01 or more persons per room are indicators of housing condition. In King George County, 6% of all housing units lacked complete plumbing facilities in 1980. By 2010, this figure has declined dramatically to 0.3%. The decline in the percentage of housing units without complete plumbing facilities in

King George County has continued to decline in 2016, with only 8 units lacking complete facilities.

In King George, the percentage of households with over 1.10 persons per room (an indicator of overcrowding) declined from a high of 8.9% in 1970 to 0.90% in 2016. In 2016, the percentage of households with over 1.10 persons per room dropped below the percentage in Virginia (1.90%).

**Table E-4**  
**Housing Condition Characteristics (By Percentage): 1980-2016**

<b>Housing Condition Characteristics</b>	<b>King George</b>					<b>Virginia</b>				
	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2016</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2016</b>
Lacking Complete Plumbing Facilities	5.9%	3.0%	0.7%	0.3%	0.1%	4.2%	1.8%	0.7%	0.6%	0.3%
1.01 persons or more per room	4.8%	3.5%	2.6%	1.5%	0.9%	3.4%	2.8%	2.9%	2.0%	1.9%

*Source: 1980-2016 U.S. Census.*

The year of construction (as of the 2016 Census information) detailed in Table E-5 outlines the time period in which housing construction occurred in King George as well as the region. The age and years of construction are reflective of the growth patterns affecting the region. While Spotsylvania and Stafford County experienced both explosive population and housing growth between 1980 and 2009; King George, Caroline and the City of Fredericksburg experienced more moderate growth. King George County experience housing growth between 2000 and 2009 at a higher rate than the region which is reflected by 54.6% of the residence in the County being constructed since 1990.

**Table E-5**  
**Year Structure Built (as of 2016 U.S. Census)**

<b>Year Structure Built</b>	<b>King George</b>	<b>Caroline</b>	<b>Fred. City</b>	<b>Spotsylvania</b>	<b>Stafford</b>	<b>Virginia</b>
2010 or later	3.90%	3.20%	8.00%	2.90%	5.10%	2.80%
2000 to 2009	31.40%	28.30%	16.30%	28.00%	27.30%	15.90%
1990 to 1999	18.80%	19.10%	9.10%	27.90%	27.50%	16.20%
1980 to 1989	14.50%	13.80%	8.40%	21.70%	18.20%	16.70%
1970 to 1979	13.20%	15.80%	21.90%	11.90%	12.00%	16.10%
1960 to 1969	5.10%	6.80%	9.40%	2.90%	4.30%	10.90%
1940 to 1959	8.00%	7.10%	11.00%	2.90%	4.10%	13.80%
1939 or earlier	5.10%	5.90%	15.90%	1.80%	1.50%	7.60%

*Source: 2016 U.S. Census.*

Contract rents increased over the last 30 years in King George from \$159 in 1980 to \$1,079.00 in 2016. The County contract rent is only slightly lower than Virginia.

While median contract rents have been historically lower in King George than in the State overall, the median value of owner-occupied housing has increased in King George to a point that it exceeded the State's median value in 1990 and has remained consistent with the State's median through 2016. In 1970, the median value of an owner-occupied home in King George was

\$15,800 as compared to \$17,200 throughout the State. By 2016, the median value of a King George County home was \$288,000.

**Table E-6**  
**Housing Cost: 1980-2016**

Year	King George	Virginia
<b>Median Contract Rent</b>		
1980	\$159	\$207
1990	\$386	\$411
2000	\$622	\$650
2010	\$999	\$1,019
2016	\$1,079	\$1,135
Change 1980-1990	142.8%	98.6%
Change 1990-2000	61.1%	58.2%
Change 2000-2010	60.8%	56.8%
Change 2010-2016	8.0%	11.4%
<b>Median Value, Owner Occupied Housing</b>		
1980	\$46,200	\$48,000
1990	\$119,500	\$91,000
2000	\$123,200	\$125,400
2010	\$289,200	\$249,100
2016	\$288,000	\$248,400
Change 1980-1990	158.7%	89.6%
Change 1990-2000	3.1%	37.8%
Change 2000-2010	134.7%	98.6%
Change 2010-2016	-0.4%	-0.3%

*Source: 1980-2016 U.S. Census.*

## F. Economy

### ***Employment Projections***

Projections of employment for regional transportation purposes have been prepared by GWRC. Projections indicate that employment is projected to almost double between 1990 and the year 2020. At place employment is projected to grow from 6,635 in 1990 to 13,124 in 2020.

### ***General Discussion***

The following material will present tables and discussion relating to King George County's economy. These characteristics provide an important indication of what is happening in the County and how these characteristics will affect the County in the future.

## ***Economic Characteristics***

Over the years, the economy of King George County has changed from a primarily agricultural economy to one that is driven by employment for the Federal Government. The major employer in the County is the Naval Support Facility Dahlgren (NSFDL). Various contractors with the Federal Government also comprise a large proportion of the employment base of King George County.

Historically unemployment rates in King George County have been some of the lowest in the region. However, since 2007 unemployment rates in the County have been slightly higher than the region and the State.

**Table F-1**  
**Comparative Unemployment Rates: 2007 - 2017 - King George, Region & State**

Locality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
King George	3.5	5.1	7.7	8.1	6.9	6.5	5.8	5.4	4.8	4.3	4.0
Region	2.9	4.4	5.8	6.0	6.0	6.2	5.9	5.5	4.7	4.2	3.8
Virginia	3.0	4.0	6.8	6.9	6.1	6.1	5.7	5.2	4.5	4.1	3.8

*Source: 2006-2011 Virginia Employment Commission, 2012-2016 US Census.*

Median household income in King George County ranks among the highest in the region, second only to Stafford County, and continued to increase since 2010.

**Table F-2**  
**Median Household Income: 1990 - 2016 - King George and Virginia**

Locality	1990	2000	2010	2016
King George	\$35,556	\$49,882	\$83,665	\$84,342
Caroline	\$28,934	\$39,845	\$57,293	\$57,294
Fredericksburg	\$26,614	\$34,585	\$42,345	\$53,960
Spotsylvania	\$41,342	\$57,525	\$72,217	\$79,742
Stafford	\$44,661	\$66,809	\$94,317	\$97,528
Virginia	\$33,328	\$46,667	\$60,674	\$66,149

*Source: US Census, 1990, 2000, 2010, 2016.*

## ***Employment***

The Virginia Employment Commission provides a record of employment within the County through data collected from those employers or who pay into the VEC Benefit system. The level of covered employment by industry classification between 2007 and 2015 is presented in Table F-3. These figures represent an indication of the number of jobs available within King George County. The actual number of jobs in the County may be somewhat higher because not all positions are “covered” by Virginia Employment Commission benefits. Because of legislation relating to required coverage for most employees, a high proportion of the jobs available will be included in these figures, and certain trends can be determined.

Between years of 2007 and 2015, employment peaked in 2009; dipped to a low in 2012 and has rebounded to above the 2009 peak. The “industry” offering the largest number of positions in the County is Professional & Technical Services. The largest increase in number of jobs has occurred in the field of Professional & Technical Services, which increased by 244 employees. The largest decrease was seen in the Information industry, with a drop of 101 employees.

**Table F-3**  
**Covered Employment in King George County**  
**(By 2-Digit SIC Industry for 2007-2015)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total all industries	5,644	5,354	6,134	5,967	5,481	4,974	5,463	5,667	6,169
Agric./Forest/Fisheries	178	40	37	31	56	59	61	55	88
Mining	66	56	46	49	41	35	32	41	37
Construction	257	280	294	296	293	272	299	256	323
Manufacturing	69	71	69	32	49	43	54	59	86
Trans. & Warehousing	137	99	85	89	84	84	65	84	105
Wholesale trade	120	98	75	79	86	102	70	75	224
Retail trade	471	460	407	340	347	322	444	485	557
Information	200	239	263	264	103	103	93	87	99
Finance and Insurance	127	146	177	164	179	160	195	188	213
Real Est./Rental/Leasing	70	68	42	50	37	47	52	77	50
Prof. & Tech. Services	1,866	1,903	2,418	2,352	1,919	1,895	1,879	1,985	2,110
Admin. & Waste Services	480	314	486	532	529	266	348	474	480
Educational Services	568	558	594	582	637	640	614	609	603
Health Care & Social Ass.	237	264	299	270	302	298	340	314	307
Arts, Entertainment & Rec.	18	20	28	23	34	29	36	21	13
Accommodation & Food Ser.	338	311	359	290	340	353	361	363	363
Other Services, Ex. Public Administration	136	105	145	203	134	204	205	189	220

Source: Virginia Employment Commission, *OnTheMap* application (<https://onthemap.ces.census.gov/>).

### ***Commuting Patterns***

Commuting patterns are an important indicator of local economic vitality. King George County has had a net out-flow of employees since 2003. This rate of out-flow was similar to all adjacent localities, except the City of Fredericksburg. The only area with a net in-flow is the City of Fredericksburg during this timeframe.

**Table F-4**  
**Commuting Patterns: King George County and the GWRC Region: 2003, 2009 & 2015**

		2003			2009			2015	
	In-Bound	Out-Bound	Stationary	In-Bound	Out-Bound	Stationary	In-Bound	Out-Bound	Stationary
King George County	3,365	5,213	1,929	4,220	6,255	1,914	4,198	7,583	1,971
Stafford County	16,138	32,222	10,834	16,663	35,706	10,182	23,858	40,514	11,699
Spotsylvania County	12,656	34,356	13,424	20,838	33,916	13,481	20,305	40,489	14,337
Westmoreland County	1,394	3,536	1,558	1,444	5,777	1,797	1,561	5,948	1,604
City of Fredericksburg	18,385	5,325	1,977	19,891	7,075	2,391	19,832	8,158	2,442
Caroline County	2,640	5,327	1,692	2,545	11,715	2,027	3,149	13,039	1,815
Essex County	2,931	1,764	1,124	2,721	4,257	1,355	2,584	3,997	1,020
Charles Co, MD	17,896	33,499	16,754	20,715	36,912	15,734	20,943	53,152	16,892

*Source: Census Bureau, OnTheMap application.*

### ***Agriculture & Fisheries and the Economy***

The following table shows the number of acres in farmland in King George County over a number of years. The overall trend, as in most localities, is a decline in the amount of acreage in farmland. In 1920, there were nearly 104,000 acres of farmland in the County. A nearly continual decline in farmland acreage over the succeeding 77 years resulted in a decline to 34,180 total acres classified as farmland in 2007, a loss of 67,264 acres.

**Table F-5**  
**Acreage in Farmland, 1920-2012**

Year	Acreage in Farmland
1920	103,987
1930	86,992
1940	84,129
1950	68,676
1960	53,990
1970	40,492
1974	42,423
1978	45,492
1982	41,952
1987	38,105
1992	37,777
1997	34,180
2002	31,888
2007	36,723
2012	24,304

*Source: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture.*

From 1978 to 2007, land in the County was taken out of farm usage at an average annual rate of just over 302 acres per year. Between 2007 and 2012, that rate increased to 2,484 acres per year.

It is not only important to look at the number of acres in farmland, but we also need to be aware of the number of farms and their value to be able to determine trends in the farm industry and its effect on the economy of the County. Table F-6 provide farm value information for 2012.

**Table F-6**  
**King George County Farms by Amount of Sales 2007**

Farm Value	2012
\$1 - 49,999	4
\$50,000 - 99,999	3
\$100,000 - 199,999	25
\$200,000 - 499,999	62
\$500,000 - 999,999	29
\$1,000,000 – 1,999,999	25
\$2,000,000 - 4,999,999	10
\$5,000,000 - \$9,999,999	2
\$10,000,000 or more	0

*Source: U.S. Department of Agriculture, National Agricultural Statistics Service.*

## **Retail Trade**

As the following table indicates, the Fredericksburg retail market area continues to be the leading retail area in the region. Historically, the County per capita figures have been significantly lower than the numbers for the region as a whole and the State.

**Table F-7**  
**Per Capita Retail Sales for King George and Region: 2002 - 2017**

Locality	2002	2007	2012	2017
King George	4,563	6,387	6,572	7,124
GWRC	9,576	21,390	10,945	11,195
Virginia	9,687	13,687	11,665	12,248

*Source: VA Department of Taxation, Taxable Sales Annual Report, Center for Public Service, Population Estimates.*

The following table (Table F-8) examines retail sales figures by the type of goods sold. Per capita retail sales in the Food and Eating & Drinking Places remained fairly constant in the County, while at the same time the General Merchandise sector increased significantly. This signifies a trend where past sales in certain sectors may have been “leaking” to neighboring jurisdictions. As a greater variety of goods is offered in the County the trend of “leaking” becomes reversed.

**Table F-8**  
**Per Capita Retail Sales by Type, King George and Virginia: 2007 - 2017**

Locality	Food & Beverage Stores	Food Services & Drinking Places	General Merchandise	Furniture/Furnishings Appliances	Automotive
King George					
2007	1,716	483	349	136	795
2008	1,694	515	336	90	829
2009	1,617	607	557	29	905
2010	1,479	609	658	12	949
2012	1,207	685	2,333	-	1,118
2017	1,521	676	2,395	-	1,033

*Source: VA Department of Taxation, Taxable Sales Annual Report, 2007-2017.*

## **Tourism**

Table F-9 presents tourism benefits for the years 1997– 2001. The economic impact of tourism is significant within the region but is not yet significant in King George. Adjacent counties generate about four times more economic benefits from tourism than King George. Spotsylvania, with its well developed and advertised historical role in the Civil War, leads the region in dollars and employment generated by tourism.

Within King George County are potential tourism destinations, Caledon State Park, Wayside Park, James Madison Birthplace. However, King George has not developed as a tourist destination and tourism and travel play only a limited role in the economy of King George compared to nearby localities. Use of Virginia's Potomac Gateway Welcome Center at the Potomac River Bridge should help the County to "capture" some annual regional tourist spending.

**Table F-9**  
**Tourism and the Economic Benefits: 2006-2016**

		Traveler Spending (Dollars)	Generated Payroll (Dollars)	Generated Employment (Jobs)	State Tax Receipt (Dollars)	Local Tax Receipts (Dollars)
King George	2006	16,091,429	3,538,454	207	797,106	493,196
County	2007	17,219,406	3,619,846	211	835,903	525,322
	2008	17,604,956	3,686,787	210	833,256	542,176
	2009	17,087,313	3,820,940	217	864,272	532,243
	2010	17,494,381	3,759,942	205	858,505	531,492
	2016	22,083,736	4,771,402	228	1,026,868	651,880
Caroline	2006	63,996,875	9,321,613	533	3,203,521	1,474,786
County	2007	70,229,618	9,780,755	557	3,442,316	1,611,163
	2008	77,457,403	10,746,230	599	3,705,274	1,793,827
	2009	69,010,128	10,636,175	608	3,527,798	1,616,446
	2010	76,306,675	10,834,558	609	3,784,608	1,743,302
	2016	96,410,639	13,247,280	662	4,248,164	2,140,090
Spotsylvania	2006	181,574,372	41,938,008	2,558	4,400,474	3,693,052
County	2007	198,788,497	43,898,030	2,699	4,716,601	4,024,411
	2008	201,120,894	44,238,725	2,631	4,657,170	4,110,235
	2009	199,337,128	45,698,256	2,667	4,932,720	4,120,295
	2010	216,012,573	47,455,347	2,694	5,186,147	4,354,928
	2016	285,067,685	63,681,675	3,137	6,889,609	5,584,018
Stafford	2006	88,929,301	18,395,099	1,131	3,860,427	2,769,874
County	2007	96,544,419	19,090,747	1,170	4,103,015	2,993,023
	2008	102,198,330	20,131,709	1,207	4,238,837	3,198,343
	2009	96,967,907	20,203,413	1,206	4,297,980	3,069,304
	2010	104,624,421	21,123,643	1,217	4,499,217	3,230,032
	2016	140,800,527	29,419,596	1,438	5,939,128	4,223,524
City of	2006	122,861,103	23,530,613	1,415	5,529,186	5,044,769
Fredericksburg	2007	127,693,588	23,379,046	1,402	5,625,960	5,218,720
	2008	132,658,341	24,195,430	1,420	5,704,126	5,473,030
	2009	130,341,635	25,144,431	1,469	5,989,232	5,438,850
	2010	141,811,860	26,207,293	1,477	6,322,197	5,771,628
	2016	186,614,680	34,987,021	1,684	8,171,129	7,379,526
Westmoreland	2006	52,282,162	12,506,203	789	2,458,618	1,598,937
County	2007	53,131,468	12,148,491	764	2,445,850	1,617,176
	2008	51,455,541	11,720,436	721	2,311,730	1,581,015
	2009	48,394,321	11,659,123	707	2,323,447	1,503,935
	2010	51,122,020	11,934,893	689	2,381,299	1,549,546
	2016	62,415,726	14,768,175	745	2,903,889	1,838,177

Source: Virginia Division of Tourism, January 3, 2019.

## G. Existing Land Use and Development Activity

### ***Review of Existing Subdivision and Development Patterns***

The patterns of past subdivision, development and land use activities are shown on the maps of Existing Land Cover (Map 13), and the Existing Land Use (Map 14). An examination of these maps reveals several key features of the development pattern in the County, including:

- Concentrations of development have tended to occur in a linear pattern along major roadways.
- Areas with the greatest historical concentrations of residential development include the Courthouse West area (Presidential Lakes subdivisions), Dahlgren, the western edge of the County in the Hopyard Farms and Oakland Park areas, the Route 206 corridor and portions of the Route 3 corridor.
- In addition to the concentrations of residential development, there are many scattered residential lots, as well as small to moderate sized rural residential subdivisions, most of which are north of Route 3. A few of these subdivisions have been approved for One-family Dwelling District (R-1) Zoning which allows a higher density of residential development than the Rural Agricultural (A-2) Zoning Districts. (R-1 allows lots of approximately three-quarters of an acre on well and septic, as compared to the A-2 districts, which requires a minimum 2 acre lots).
- Areas with the greatest concentrations of commercial development include the US 301/Route 206 and US 301/ Route 614 intersection area in Dahlgren, the Courthouse West and Route3/301 areas, various scattered sites along US 301 to the south of Dahlgren, and the industrial facility sites in the western part of the County. The zoning pattern reflects the existing development pattern, yet also reveals some threats to orderly growth, including the following:
  - a. Substantial amounts of commercial zoning exist along Route 3 and 301. Of special concern is the “strip” commercial zoning outside of the Courthouse area along US 301 north of Route 3.
  - b. The “Hopyard” tract was rezoned 1995 from A-1 to R-3 and represents a large-scale residential community separated from the established Courthouse Primary Settlement Area.
  - c. There also are many scattered sites of A-2 and R-1 subdivisions. If this pattern continues, it will increase the difficulty of achieving an orderly, compact, cost-effective growth pattern in the County.

### ***Analysis of Potential Future Land Demand***

The population forecasts shown above were used to calculate the potential future needs for land to absorb expected development during the next two decades. Assumptions are required in order to make such calculations, and these will change in the future as development events continue to occur. However, for the purposes of defining current planning policies, the following estimates of land needs are useful.

Two alternative scenarios were used for estimating future land demand:

- A “Trend” land use pattern of generally dispersed development, in which about half of new development locates within the settlement areas such as the Courthouse area and Dahlgren.
- A “Compact” land use pattern in which the County implements stronger growth management policies to achieve compact and efficient development patterns.

### ***Future Housing Growth in the County***

The official estimate for additional housing units in the year 2030 is 3,094 new units. In order to be conservative in estimating future demand, a 5% increment is added to this official estimate - only for purposes of estimating land demand. Thus, land for approximately 3,248 additional housing units will be needed by the year 2030.

#### ***Percentage of Future Housing Units to Locate in Primary Settlement Areas (on Public Utilities)***

*Trend Scenario.* The percentage of new units locating in Primary Settlement Areas assuming similar proportion to current trend, or approximately 50% = 1,624 units; and the percentage of new units locating in "rural" areas assuming similar proportion to current trend = 1,624 units.

*Compact Scenario.* The percentage of new units locating in Primary Settlement Areas assuming the County chooses to implement stronger planning policies could be as high as 90% = 2,923 units; and the percentage of new units locating in "rural" areas would be 10% or 325 units.

#### ***Number of Acres Needed to Accommodate these New Dwelling Units***

Assume that typical average lot sizes will average approximately one-half acre when utilities are available.

*Trend Scenario Allocation.* 1,624 units at a gross density of 0.5 units per acre would create a need for approximately 812 acres of additional land for future higher density residential units.

Note that although the key factor in land demand calculations is the amount of land needed for higher density development, the rural land demand could be estimated by assuming an average of five acres per new rural dwelling unit, producing a need for approximately 8,120 acres (1,624 x 5) for future "rural" residential units.

*Compact Scenario Allocation.* 2,923 units at a gross density of 0.5 units per acre would create a need for approximately 1,462 acres of additional land for future higher density residential development.

The rural land demand for the compact scenario could be estimated using similar assumptions as for the trend scenario, producing a need for approximately 1,625 acres (325 x 5) for future "rural" residential units.

#### ***Total Acres Needed to be Designated within the Primary Settlement Planning Areas***

Assume that three times as much land should be planned for residential uses than is actually needed, in order to allow the market to operate efficiently.

*For the "Trend" scenario allocation, the Primary Settlement Areas should be designed to include approximately 2,436 total acres of developable land designated for future residential development. (812 x 3 = 2,436)*

Add a factor for non-residential land needs of approximately 10% = 244 acres, for a total area of 2,680 acres, or 4.2 square miles.

*For the "Compact" Scenario allocation, the Primary Settlement Planning Areas should be designed to include approximately 8,769 total acres of developable land designated for future residential development. (1,462 x 3 = 4,386) Add 439 acres for non-residential land needs for a total area of 4,825 acres, or 7.5 square miles.*

Note that the Planning Areas contained in this plan contain approximately 10 square miles of land available for future development in the Primary Settlement Planning Areas, and thus there is sufficient land available for these demand estimates.

## **H. Natural Resources**

### ***Natural Resources Inventory***

King George County's many natural resources provide distinguishing characteristics to the county and bestow a high quality of life for the residents. The land, waters and species that form the county's natural environment are valuable in their own right and offer opportunities for preservation and conservation, preserving natural resources from loss, waste or harm. Through planning and design that involves stewardship of natural resources; the quality of life will be enhanced in the county for generations to come.

### ***Climate***

King George County is located within the Coastal Plain Physiographic Province. The County's climate can be referred to as "modified continental," displaying warm summers and relatively mild winters. The County lies in the path of warm moist air currents, which move from the south or southwest direction. Cold, dry air currents pass through the County from Canada in a south and eastward direction. However, prolonged periods of very cold or very warm weather are unusual. Table H-1 indicates that the highest average monthly temperatures have occurred in the month of July and the lowest average monthly temperatures occur in January. Maximum temperatures reach 90<sup>0</sup> F or higher on the average of 30 days per year. The average annual humidity is approximately 80%. Relative humidity is below 60% approximately one-third of the year and 80% or above one-third of the year. The first frost typically occurs in the month of October, thus allowing for a growing season that ranges from April to October. On the average, the growing season is 222 days and is long enough to allow a proper maturity of a large variety of crops. Thus, the climate creates a proper environment to enable King George County to maintain a viable agricultural community.

**Table H-1**  
**Average Monthly Temperatures (° F)**

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
29-	30-51	37-59	46-70	55-78	64-85	68-89	67-87	60-81	48-71	39-61	31-50
47											

*Source: U.S. Department of Commerce, NOAA. Meteorological Data of 2017, Richmond, VA.*

**Table H-2**  
**Average Monthly Precipitation (inches)**

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
3.30	2.87	3.66	3.14	3.71	3.85	4.96	4.83	3.72	3.14	2.94	3.20

*Source: U.S. Department of Commerce, NOAA. Meteorological Data of 2017, Richmond, VA.*

Precipitation is the principal source of the state's water supply. The average Annual precipitation in King George County is 43.32 inches. Distributed in the form of rain, snow and ice, precipitation is relatively well distributed throughout the year. As there are no particularly prolonged periods of very cold or very warm weather, neither are there distinct wet or dry periods. Warm waters of the Atlantic tend to moderate the climate and the Appalachian Mountains to the west provide a barrier that lessens the intensity of winter storms. King George County records approximately 12.5 inches of precipitation in the form of snow, primarily during the months of December through March. Summer rainfall mostly occurs in the form of thunderstorms. Table H-2 indicates that the County receives the most precipitation during the month of July, followed closely by the month of August. Occasionally, several dry years will occur. This can lead to a severe drought and loss of vegetative cover. Rarely, however, are all crops affected for an entire season.

### **Air Quality**

King George County is located in the EPA's Region V. The County is currently in an area that meets all federal National Ambient Air Quality Standards (NAAQS) for criteria pollutants, as defined by the 1990 Clean Air Act Amendments. As a result of meeting all the NAAQS, the County is considered attainment.

In accordance with the Commonwealth of Virginia State Air Pollution Control Board's (SAPCB) Regulations for the Control and Abatement of Air Pollution, all point source emitters that are not exempt under the regulations must obtain an air pollution control permit prior to construction, reconstruction, relocation or modification. A source of air emission which is considered major (major is defined as an emitter of criteria pollutants in excess of 250 tons per year) for criteria air pollutants must address all control technologies and model the potential impact of their air emissions on the ambient air quality as part of the source air quality permit application. For those sources that are less than 250 tons per year of criteria pollutants, a permit must also be obtained for the SAPCB, however the modeling criteria is not the same as for major sources, but the source must review Best Available Control Technology.

Currently mobile (automobile and truck) source emissions are not monitored in the County. These types of emissions are not considered in the modeling of a point source air pollution emitter.

All commercial activities which anticipate constructing, reconstructing, relocating or modifying facilities, processes or other activities which may discharge a pollutant to the atmosphere, should submit all discharge information to the SAPCB for consideration as to permitting requirements.

### ***Topography***

The Eastern edge of the Piedmont is known as the Fall Line, an imaginary line connecting the waterfalls on adjacent and parallel rivers and thus the limit of navigability of the rivers on the adjacent coastal plain (van der Leeden, 1996.) Washington DC, Richmond and Fredericksburg are located on the Fall Line. Eastward of the Fall Line to the Atlantic Ocean and Chesapeake Bay is the Coastal Plain, a relatively flat area 100 miles wide that is underlain by beds of sand, gravel, silt and clay. Elevations range from 200 feet above sea level in inland areas to near sea level along the shore (van der Leeden, 1996). King George County's topography depends on the geology and the waters that have shaped it. As has already been mentioned, the county lies within the Coastal Plain Physiographic Province. Two major rivers, the Potomac and Rappahannock, border the County on the north and on the south. (Steep slopes, Map 15)

Elevations in King George range from 0 feet to slightly over 200 feet above sea level. Much of the County is rugged and steeply sloping. Slopes range from 0-10 percent in the plains and on ridge tops. Slopes on the ridge sides range between 6% and 45%. A majority of the rugged topography lies north of State Route 3 and west of U.S. 301.

### ***Soils***

The most recent Soil Conservation Service survey (February 1974) identified eight soil associations within the County. They are general in nature and should only be used as a guide for planning and to manage watersheds, forests, large tracts of land, and wildlife. The associations are illustrated on Map 16 and are described in the soil survey as follows.

Sassafras-Aura-Caroline Association: Deep, well drained soils having sandy clay loam, heavy loam, or clay subsoils. These soils are typically found on the coastal Plain uplands. This association is located in one small area of King George along Fairview Beach. It makes up approximately 8% of the County's soil area. This area is undulating to rolling and slopes on the ridge tops range from 2 to 10% and the ridge sides between 10 and 35%. Most of this area has moderate to severe (properties that are both costly and difficult to overcome) limitations regarding the use of septic systems. In these areas, soil has one or more properties that might increase construction or maintenance costs or contribute to problems in operation.

Sassafras-Galestown-Kempsville Association: Deep, well drained to somewhat excessively dried soils having sandy clay loam or loamy fine sand subsoil. The soils are located on the Coastal Plain uplands. This soil association makes up approximately 30% of King George County. Slopes range between 0 to 6% on the top ridges and 15 to 45% on the sides of the ridges. The major soils of this association are moderately to rapidly permeable and impose slight (little or no important limitations for specified use) limitations for septic tank systems.

Bourne-Caroline Association: Deep, moderately well drained to well drained soils having a fragipan or having heavy clay loams and clay subsoil. These soils are found on the coastal plain

uplands. This soil occurs in a small area in the southwestern part of the County making up approximately 2% of the County's soils. This area is undulating to rolling accompanied by broad flat ridges with slopes of 0-6% on the top and 6-18% on the sides. The major soils of this association are characterized by moderately slow permeability to very slow permeability. Due to the nature of these soils there are severe limitations for septic systems.

Craven-Caroline Association: Deep, well drained to moderately well drained soils having heavy clay loam and clay subsoil. These soils are located on the coastal plain. This association occurs in the east central part of the County around Kings Mill Creek and Pine Hill Creek and extends to the Westmoreland County boundary line. It makes up about 5% of the County. The association is typified by level to gentle slopes with short, sharp slopes along the larger drainage ways and small streams. Slope ranges from 0-6% on the broad gentle slopes and 6-18% in the drainage way small stream areas. Although this association is well drained, permeability is slow to moderately slow imposing severe limitations for septic systems.

Tetotum-Bladen-Bertie Association: Deep, moderately well drained to poorly drained soils having clay loam, sandy loam, or clay subsoil. This association is found in broad low-lying areas along the Potomac River from east of Fairview Beach to Mathias Point and down to 205. This area is on north of Route 218. This association accounts for approximately 25% of the County. Permeability is moderate to slow. The Tetotum soils have moderate limitations for septic systems whereas the Bladen and Bertie soil characteristics impose severe limitations on septic systems.

Wickham-Altavista-Dogue Association: Deep, well drained to moderately well drained soils having sandy clay loam, clay loam, or clay subsoil. This association is typically found on stream terraces. In King George County this association occurs in the southern part of the County along the Rappahannock River. It makes up 25% of the County. A majority of the soils within this association are moderately permeable and impose moderate to slight limitations for septic systems.

Turbeville-Kempsville Association: Deep, well drained soils having sandy clay loam, heavy clay loam, or clay subsoil. This soil grouping is located on stream terraces and coastal plain uplands. The association makes up 15 percent of the County and is located in two areas. These areas are typically rolling but include ridges with slopes of 2-6% on the tops and 6-18% on the sides. These soils are moderately permeable and septic system limitations are slight to moderate.

Marr-Westphalia Association: Deep, well drained soils having sandy clay loam or very fine sandy loam subsoil. This soil is located in a small section in the western portion of King George County. It is typically rolling to hilly with narrow ridges with slopes of 2 to 10% on the top and 10 to 30% on the sides. This association makes up approximately 2% of King George County. The permeability is moderately rapid and is characterized by moderate to severe limitations for septic tank systems.

King George County has a very detailed soil survey published in 1974 by the United States Department of Agriculture (USDA) in cooperation with the Virginia Polytechnic Institute and State University (VPI & SU). This soil survey provides the County with an inventory of soil outlined on aerial photographs. Soils information contained in this document is essential for land use planning and policy-making.

## ***Surface Hydrology***

Surface water is considered to be any water body that is above the soil surface. It can be any natural lake, pond, impoundment, stream, river or wetland. The Potomac River is the County's northern boundary and, while it lies within the boundaries of the State of Maryland, it is a resource to King George County. The Rappahannock River bounds the County to the south and numerous creeks and streams transect the locality. These waters may provide a source of water, a disposal site for treated wastewater, an economic resource, recreation opportunities and natural habitat. In King George County, the surface waters serve predominantly as a source of recreation and enhance natural aesthetics.

The County drains to two major tidal tributaries of the Chesapeake Bay, the Rappahannock and Potomac Rivers. The watershed's dividing ridge runs from Westmoreland County along State Route 3 to a point west of the King George Courthouse; along Route 609 and 608 to Igo at Route 694. From Igo, the divide follows Route 694 to Route 218 at Passapatanzy to the King George/Stafford County line. This natural divide primarily follows an existing Virginia Power line, which transects the County from the northwest to the southeast. Map 20 illustrates the two watersheds and their sub-watershed boundaries.

The Potomac drainage area consists of three sub-watersheds: Potomac Creek (A29), Upper Machodoc Creek (A30) and Mattox/Popes/Rosier Creek. Within the Potomac drainage area, the terrain is typically rugged with steep slopes occurring along the Potomac shoreline and in areas bordering tributary streams such as Pepper Mill Creek, Upper Machodoc Creek and the smaller streams. The northeastern portion of the County differs from the majority of the Potomac drainage area with its relatively flat terrain. This section is bordered by Route 619 on the south, Route 218 on the west, and Route 624 on the north extending to Mathias Point. The Potomac River drainage area accounts for 62% of the County's land area, approximately 74,187 acres. The most intensely developed portion of the Potomac drainage area is the hydrologic unit A30 that contains the Dahlgren Area along with several subdivisions. Map 13, Existing Land Cover, shows the intensity of development within the Potomac drainage area.

The Rappahannock drainage area consists of two sub-watersheds: Mill/Goldenvale Creek (E21) and Occupacia/Peedee Creek (E22). The land area in the Rappahannock River drainage basin accounts for 38% of the County's land area, approximately 45,596 acres, and is characterized as gently rolling with low to moderate slopes. Areas approaching the Rappahannock River are typically flat. The majority of the County's primary agricultural lands are located in the Rappahannock drainage basin. The location of the prime agricultural land within the Rappahannock drainage area is shown on Map 13, Existing Land Cover. As the Map indicates the majority of prime farmland is located in the Rappahannock drainage area. The major development within this drainage area is the sand and gravel operations. Storm water management as required by the Department of Mines, Minerals and Energy protects water quality.

## ***Shoreline Erosion***

The shorelines of the Rappahannock and Potomac Rivers are experiencing shoreline erosion and/or accretion. Erosion is defined as the wearing away of the land surface by wind (sandblast),

running water, and other geological agents. Accretion is the increase of land, along the shores of a body of water that has been deposited on land by streams. Map 22 delineates the reaches, along the Potomac and Rappahannock Rivers, identified by the Virginia Institute of Marine Science (VIMS). Table H-3 presents a list of the reaches, a description of their location, the type of shoreline affected, acres attributed to erosion or accretion and the rate of erosion/accretion per year. According to the Shoreline Erosion in Tidewater Virginia document prepared by VIMS, the reaches of the Potomac River in King George County are experiencing greater erosion than identified reaches along the Rappahannock. Reach 1 along the Potomac River has an erosion rate of 2.2 feet per year. Reaches 2-4 have erosion rates of 1.3, 1.1 and 1.2 feet per year, respectively. In contrast, the reaches along the Rappahannock have seen negligible erosion. Only Reach 289 has seen any quantifiable erosion - 1.1 feet per year. It should be noted that while all other reaches along both the Potomac and Rappahannock Rivers have been experiencing erosion, albeit slight, Reach 294 - Corbins Neck Marsh has actually shown signs of accretion.

**Table H-3**  
**Erosion/Accretion Along King George County Reaches**

Reach #	Description	Shoreline Type	Erosion (Acres)	Accretion (Acres)	Rate (Ft/Yr.)
1	Potomac – Stuart Point	Beach	45.7		2.2
2	Potomac – Chotank Creek	Beach	20.0		1.3
3	Potomac – Unnamed Reach	Beach	14.3		1.1
4	Potomac – Mathias Point	Beach	56.5		1.2
289	Rappahannock – Gingoteague Creek	Marsh	12.1		1.1
290	Rappahannock - Popcastle Turn	Marsh			
293	Rappahannock - Lamb Creek	Beach			
294	Rappahannock - Corbins Neck	Marsh		79.3	0.0
295	Rappahannock - Farleyvale Reach	Marsh			
296	Rappahannock - Mill Reach	Marsh	1.4		0.0

*Source: Shoreline Erosion in Tidewater Virginia, Virginia Institute of Marine Science.*

### ***Geology***

King George County lies entirely in the Coastal Plain physiographic province of Virginia. Coastal Plain sediments dip toward the Atlantic Ocean from the Fall Line. The geology of King George County generally consists of unconsolidated sediments from the Tertiary Period (1-70 million years) upon a basement of Precambrian crystalline rocks and probably Triassic rocks. The upland surfaces are underlain by Tertiary marine sediments, which include loose or partly indurate sand, clay, marl, and diatomaceous earth. These deposits are underlain by consolidated bedrock. A thin layer of Pleistocene sands and gravels covers most of the county, and recent deposits occur as sand bars along major streams. Coastal Plain sediments generally produce a moderately hard to soft water from shallow aquifers and a very soft water from deep aquifers. Deep wells tend to produce high chloride water.

## ***Ground Water***

King George County is located within the Fall Zone of Virginia. This is a transitional zone between the Piedmont Physiographic Province to the west and the Coastal Plain Physiographic Province to the east. The Piedmont is underlain predominantly by igneous and metamorphic rocks of late Proterozoic to early Paleozoic geologic age. Residual soils, which are derived from the in-place weathering of the underlying bedrock, occur above bedrock in thickness ranging from 0 to 100 feet. The Coastal Plain is underlain by a seaward thickening wedge of eastward dipping unconsolidated to partially consolidated sediments of Cretaceous, Tertiary and Quaternary geologic age. These sediments typically consist of marine, estuarine, deltaic, and fluvial (stream) deposits.

Hydrogeological conditions in the Fall Zone are distinctly different from those in other portions of the Coastal Plain. Although 10 distinct aquifers have been identified within the Virginia Coastal Plain, not all of them occur within the Fall Zone. Sediment deposition throughout the Coastal Plain has been complex, resulting in numerous lateral variations in sediment composition. The positions of aquifer margins vary widely, and the distribution of the aquifers has a complex overlapping configuration. Some of the aquifers “pinch out” westward toward the Piedmont and the vertical sequence of aquifers in the Fall Zone differs from typical sequences farther east in the Coastal Plain. Aquifers within the Fall Zone are relatively thin and shallow as compared to Coastal Plain aquifers to the east.

### ***Aquifer System***

The Fall Zone in King George County is underlain by a layered sequence of water-bearing strata (aquifers) and confining units (typically clayey strata of low to very low permeability). The typical aquifer sequence consists of the following:

- Unconfined Aquifer (Water Table Aquifer) – stratified sequences of sand, gravel, silt and clay sediments. Groundwater is typically unconfined.
- Nanjemoy – Marlboro Confining Unit – fine-grained marine sediments including sand with varying amounts of silt and clay.
- Aquia Aquifer – medium to coarse-grained sediments of fluvial, deltaic to marine origin.
- Middle Potomac Confining Unit – clay and silt sediments with some sand and gravel.
- Middle Potomac Aquifer – medium to coarse-grained sand with varying amounts of gravel, silt and clay.
- Lower Potomac Confining Unit – zone of clay-rich beds.
- Lower Potomac Aquifer- fluvial to deltaic, medium to coarse grained sand with varying amounts of gravel, silt and clay.
- Bedrock

Unconfined Aquifer, Nanjemoy – Marlboro Confining Unit and Aquia Aquifer range from Quaternary to Tertiary geologic age. The underlying confining units and aquifers are older and of Cretaceous geologic age.

U.S. Geological Survey Water Resources Investigations Report 99 – 4093, “Hydrogeological Framework and Ground-Water Flow in the Fall Zone of Virginia” by E. Randolph McFarland

identifies 8 wells that were completed in King George County for the purpose of identifying area subsurface geology.

The shallowest depths to bedrock occur beneath the western edge of the County, where the depth to bedrock is approximately 500 feet. In this area aquifers are thinner and, in some instances, confining units are absent. Aquifers and confining units increase in thickness to the east and the depth to bedrock near the eastern edge of the County is approximately 1500 feet.

State Water Control Board Planning Bulletin 305 (1977), "Groundwater of the Middle Peninsula, Virginia" was reviewed for additional information. Caroline County, which bounds King George County to the south, is included in the bulletin. The primary aquifers identified in the bulletin are the Upper Artesian Aquifer (includes the Aquia Aquifer) and the Principal Artesian Aquifer (which includes the Middle and Lower Potomac Aquifers).

Groundwater in the Upper Artesian Aquifer is described as moderately hard-bicarbonate type and suitable for potable use. Chloride and total dissolved solids increase to the east, especially in the vicinity of the Chesapeake Bay and brackish water rivers. Groundwater in the Principal Artesian Aquifer contains soft sodium-bicarbonate type groundwater, which has very low hardness and moderate to high amounts of dissolved solids. Fluoride concentrations are higher in the eastern portions of the Coastal Plain than the shallower aquifers. Chloride and total dissolved solids increase to the east.

### ***Floodplain***

King George County is bordered by two rivers and transected by numerous streams. Floodplains lie adjacent to many of these waterways; however, flood hazard areas may or may not run the full length of a waterway. The County participates in the Federal Emergency Management Agency (FEMA) program and has Flood Insurance Rate Maps, which show the extent of the 100-year floodplains within the County. Map 22 illustrates the extent of floodplains in the County. According to information from FEMA, the following Special Flood Hazard Areas (SFHAs) have been designated for King George County. Zone "A" areas are subject to inundation by the 100-year flood. Because detailed hydraulic analyses have not been performed, no base flood elevations or depths are determined. Zone "AE" are SFHAs subject to inundation by the 100-year flood determined by detailed methods. Base flood elevations have been determined. SFHAs along coasts subject to inundation by the 100-year flood with the additional hazards associated with storm waves are designated Zone "VE". Finally, Zone "X2" is considered to outside the 500-year floodplain but are areas of moderate or minimal hazard from the principal source of flood. The 100-year floodplain is the level used for flood insurance management and is included in the County's Resource Management Area delineated under the Chesapeake Bay Preservation Area Program.

In the portion of the County that lies north of Route 3, floodplain areas exist along the Potomac River and many of its associated unnamed streams, Potomac Creek, Chotank Creek, Gambo Creek, Upper Machodoc Creek and its tributaries of Williams Creek, Deep Creek, Pepper Mill Creek, and Poplar Neck Creek, Black Marsh and its associated streams, Rosier Creek, Pine Hill Creek, Mattox Creek and Kings Mill Creek. Floodplain areas that exist south of Route 3 and in the far western portion of the County are Muddy Creek, Rappahannock River and associated unnamed streams, Corbins Neck, Birchwood Run, Lambs Creek, Popcastle Creek, Keys Run,

Dogue Run, Jones Top Creek, Cleve Marsh, Millbank Creek, Gingoteague Creek, Nanzatico Bay, Jetts Creek, Boom Swamp, and Briston Mine Run.

Construction in portions of the floodplain could obstruct stream flows during flooding and increase flood hazards, flow velocities, and heights. Building in floodplain areas increases the potential for hazards to people and their built and natural environment. Land uses and activities in the floodplain that may have the least negative impacts and reduce flood damage potentials are agriculture, recreation, loading and parking areas, and lawn and garden areas.

The County recognizes the FEMA maps as the official County floodplain designation maps. Development proposals should address floodplain management issues, designate the floodplain areas on the site plan maps, and minimize alteration of land use within these areas.

### ***Wetlands***

A wetland is defined by the U.S. EPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas". (EPA, 40 CFR 230.3 and CE, 33 CFR 328.3.)

Wetlands determinations are based on a manual and subsequent guidance distributed by the U.S. Army Corps of Engineers. The Corps Manual defines certain criteria that must be met for an area to be considered a jurisdictional wetland. These criteria include hydrophilic vegetation, hydric soils, and wetland hydrology. King George County's tidal wetlands have been mapped both by the Virginia Institute of Marine Science and published in the King George County Tidal Marsh Inventory and the U.S. Fish and Wildlife "National Wetland Inventory" (NWI) maps. These NWI maps also delineate the location of non-tidal wetlands. NWI maps are based on an analysis of aerial photographs. Some small or obscured wetlands may not be included in the maps. The delineations of the wetlands shown are not necessarily accurate. Thus, a site visit may result in an alteration to a wetland boundary on the maps.

Tidal wetlands are those wetlands that occur next to tidal waters and are generally marshes or salt ponds. Tidal wetlands are protected under Section 62.1-13.2 of the Code of Virginia. Tidal wetlands are also a component of the County's Resource Protection Area. King George County has 131 miles of tidal shoreline, accompanied by approximately 2,122 acres of vegetated tidal wetlands. A majority of the county's tidal wetlands occur along the Potomac River shoreline and its tributaries (especially in the eastern portion of the county) and along the Rappahannock River primarily in the bends of the river. Non-tidal wetlands comprise a portion of the wetlands in the County. Approximately 6% of the total land area of the County is in wetlands.

According to a November 2007 Sand Dune report by the Virginia Institute of Marine Science King George County has 5.8 miles of Beaches and 2.9 miles of Coastal Primary Dunes. Beaches and Sand Dunes are protected through the Coastal Primary Sand Dune Zoning Ordinance of King George County, Virginia as adopted by the King George County Board of Supervisors on June 16, 2009.

See Map 23 for the location of wetlands and sand dunes in King George County from the National Wetlands Inventory.

The following information provides a review of the laws currently protecting wetlands:

**Federal Protection.** Wetlands are protected by regulatory process under Sections 404 of the Clean Water Act of 1977 (33 U.S.C. 1251) that applies to dredge and fill operations in wetlands and Section 10 of the Rivers and Harbors Appropriations Act of 1899 (33 U.S.C. 403). There are also numerous federal non-regulatory wetland protection approaches including other sections of the Clean Water Act; Swampbuster Provision, Conservation Reserve, and Wetlands Reserve Programs of Farm Bills.

**State Protection.** State level protection of wetlands is provided by the Tidal Wetlands Act (Title 62.1, Chapter 1 of the Code of Virginia). It is here that the Commonwealth establishes ownership of subaqueous bottoms of most navigable waters in the state. The Virginia Marine Resources Commission (VMRC) is the state agency with regulatory authority over coastal resources affected by this legislation. All local governments in the Commonwealth have the opportunity to adopt prescribed zoning ordinances and establish a citizen Wetlands Board in order to regulate local tidal wetlands, beaches, and sand dunes. Virginia Legislature passed new legislative effective July 1, 2011, that places greater emphasis on protection of shoreline areas through creating living shorelines as opposed to allowing property owners to harden shorelines with bulkhead and riprap structures.

**Local Protection.** Local governments in Tidewater Virginia must establish a program to protect and enhance water quality, as legislated by the Chesapeake Bay Preservation Act (Chapter 25, Title 10.1 of the Code of Virginia). As part of this program, a locality is required to identify and protect environmentally sensitive lands. Depending on the degree of sensitivity, lands may be identified as Resource Protection Areas (RPA) or Resource Management Areas (RMA). Collectively, they are referred to as Chesapeake Bay Preservation Areas (CBPA's). By law, tidal wetlands and nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams must be designated as RPA's, the more environmentally susceptible component of the CBPA.

### ***Mining Activities***

King George County is underlain principally by sand, gravel, clay and marl strata. During 2017, sand and gravel was produced from four (4) sites by two mineral producers: Bardon, Inc., with pits south of VA Hwy 3 and south of Dogue; and Roland R. Burgess, east of Owens. Production for 2017 was 834,908 tons.

In the past, several test wells for oil and gas have been drilled in the county by J.S.C. Drilling Company and Texaco, Inc., however the holes have been plugged and abandoned. Sand and gravel have been produced at other sites for local use. Diatomaceous earth occurs in the county and prominent exposures may be seen in bluffs along the Rappahannock River. The material was produced intermittently near Wilmont Wharf from about 1901 until 1934 for use as an abrasive and in the manufacture of brick, boiler-coverings, and dynamite. A brick plant at Wilmont Wharf utilized mixtures of local clays and diatomaceous earth in the production of fire-proofing material, boiler brick, and face brick. Tests performed on a selected sample of diatomaceous

mudstone from that area indicate possible suitability for use as mineral filler, and clay near King George is potentially suitable as a raw material for face brick. Glauconitic and calcareous marls occur in the county and have been used for local agricultural purposes.

While mining activities have been profitable in the County, the excavation of sand and gravel presents an environmental issue. Once an operation has ceased, reclamation efforts to restore the site are required through the Department of Mines, Minerals, and Energy (DMME). The County is preempted by the Code of Virginia from adopting any requirements regarding either the operation of the mining site or the reclamation of mining sites. Reclamation is not required until the mining operation ceases and DMME considers a mining site active if even one bucket of material is removed from a site. The County can and does regulate the location where mining is permitted. Several sites in King George County have been closed and, in some instances, reclamation efforts have begun. One site has been restored and is now being farmed. Because of the valuable deposits that exist in the County, further expansion requests are likely. This must be balanced with reclamation efforts and an environmental sensitivity that will help preserve the rural character of King George County.

### ***King George County, Virginia, Natural Heritage Resources***

Natural heritage resources as defined by the Virginia Department of Conservation and Recreation - Division of Natural Heritage (DCR) are the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations such as caves and karst features. King George County is currently home to 10 distinct types of natural heritage resources with 60 total occurrences throughout the county. In addition, DCR has identified 41 conservation sites as areas necessary for the survival of heritage resources and has the Chotank Creek Natural Area Preserve within its boundaries.

DCR identifies and protects natural heritage resources statewide and maintains a comprehensive database of all documented occurrences of natural heritage resources in Virginia. DCR has developed conservation sites that contain known populations of natural heritage resources and include adjacent or surrounding habitat vital for their protection. Conservation sites do not represent protected lands. Conservation Sites are recommended for protection and stewardship because of the natural heritage resources and habitat they support but are not currently under any official protection designation. Conservation sites can be used to screen development projects for potential impacts to natural heritage resources, aid local and regional planning, identify targets for acquisitions and easements and guide priorities for restoration activities.

Each conservation site is given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, with 1 being most significant. An example of a conservation site in King George County is the Chotank Creek Conservation Site. A portion of the Chotank Creek Conservation Site is dedicated as a natural area preserve under a conservation easement. This 1,108-acre natural area preserve along the Potomac River is a part of the 1,431-acre Cedar Grove farm. The property adjoins the 2,579-acre Caledon State Park and Chotank Creek Natural Area Preserve, which lies to the west. The Chotank Conservation Site has a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resources associated with the Chotank Conservation Site are the bald eagle, coastal plain/piedmont bottomland forest, coastal plain depression wetland, tidal oligohaline marsh and

tidal shrub swamp. The Chotank Creek Conservation Site is privately owned and is not open to the public.

Development of natural areas and forested lands pose the primary potential threats to natural heritage resources within King George County. Alteration of the local hydrology by land disturbance and ditching can change or eliminate habitat for natural heritage resources. Fragmentation of forests and the introduction of invasive species, both flora and fauna, can have a direct effect on the survival of many native species.

### ***Wildlife***

Wildlife existence and location is influenced predominantly by acceptable habitat. The County's diversity of habitat, including rivers, streams (tidal and non-tidal), forests (deciduous and coniferous), open fields, and wetlands (tidal and non-tidal, vegetated and non-vegetated) provides excellent habitat for a wide variety of wildlife.

The County is bordered on two sides by tidal rivers of different salinity levels, which affects the composition of wetland habitat. The salinity levels will dictate which plant communities grow in the wetlands, resulting in two different types of wildlife habitat. Wetlands are important wildlife habitat for many species that depend on them as sources of food, water, nesting material and/or shelter.

Migratory water birds rely on wetlands for staging areas, resting, feeding, breeding, or nesting grounds. The rivers and wetlands provide a wealth of habitat for migratory, wintering and nesting waterfowl such as ducks and geese and other water birds such as egrets and herons. King George County is home to some of the highest concentrations of summering bald eagles in Virginia. Rivers act as migration corridors for many songbirds. Otters, beavers, raccoons and other mammals depend on rivers for their habitat. The County's waters provide habitat for many species of fish and shellfish.

There are several anadromous fish spawning areas located in King George County. Anadromous fish are those fish that spend most of their adult lives in salty coastal waters but return each year to spawn upstream in fresh water. This group includes fishes such as striped bass, river herring and shad. According to the Virginia Department of Game and Inland Fisheries, anadromous fish spawning areas in King George County include the Rappahannock River, Jetts Creek, the Potomac River, Upper Machodoc Creek, Deep Creek, Williams Creek and Rosier Creek.

Wintering dabblers, wintering divers, and wintering geese find food, shelter and habitat in the county, especially along the major waterways. Wintering dabblers include species of duck such as mallards, black duck, and teal that are surface feeders, or feed in shallow waters. Wintering divers include canvasback and muddy ducks that dive to feed.

Inland in King George County where there is mixed hardwood/pine forest, pine plantations and agricultural lands. The interspersions of these three different types of areas provide upland habitat for many birds and upland species such as deer, turkey, and raccoon. These diverse habitats are used by most of the wildlife that occur in the northern coastal plain of Virginia. Mature forest areas provide all of the components that support several species of wildlife. Large blocks of unbroken habitat are needed by many wildlife species. Multi-story forests with

groundcover, young seedlings and saplings, and mid-story trees, in addition to large canopy trees, are needed for wildlife habitat. Preservation and conservation of these areas is important in order to meet habitat needs.

King George County is home to federal and state endangered and threatened species. The bald eagle is a well-known inhabitant of the county. Bald eagle viewing is available to the public at Caledon State Park. The Commonwealth of Virginia extends protection to all plants and animals that have been classified endangered or threatened or are being considered for either classification. Also granted protection is all those plants and animals protected under the Federal Endangered Species Act (Public Law 93-205). The Federal program recognizes that protection of these species is essential for aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. Species protected under these laws are rare, threatened or endangered due to inadequate environmental protection including habitat destruction, or over killing. The Federal and State programs provide the means to preserve the habitats of species granted protection under both laws. To ensure the protection of known endangered species, sites are not widely publicized.

The Virginia Division of Natural Heritage lists several natural heritage resources in the County. Natural heritage resources are rare plant and animal species, rare and exemplary natural communities and significant geologic features. The Division keeps a database of these resources and provides location information for general planning purposes. Table H-4 displays those natural heritage resources attributed to King George County.

**Table H-4**  
**Natural Heritage Resources Indigenous to King George County**

Natural Resource	Common Name	Last Observed	Global Rank	FWS Species of Concern	State Rank	Federal Status	Conservation Site
Terrestrial Natural Community	Coastal Plain Depression Swamp (Willow Oak - Red Maple - Sweetgum Type)	2011-06-14	G3		S2		CHOTANK CREEK
Vascular Plant	Lake-shore Sedge	2001-07-01	G5		S1		CLEVE MARSH
Terrestrial Natural Community	Mesohaline Tidal Shrub Swamp (Riverine Type)	2003-05-28	G4		SU		CHOTANK CREEK
Terrestrial Natural Community	Non-Riverine Wet Hardwood Forest (Northern Coastal Plain Type)	2011-06-14	G2	SOC	S2		CHOTANK CREEK

Terrestrial Natural Community	Northern Coastal Plain / Piedmont Mesic Mixed Hardwood Forest	1990-06-07	G5		S5		CALEDON STATE PARK
Vascular Plant	River Bulrush	2001-07-01	G5		S2		CLEVE MARSH
Terrestrial Natural Community	Tidal Oligohaline Marsh (Saltmeadow Cordgrass - Olney Three-Square Low Interior Marsh Type)	2004-03-11	G3		S3?		CHOTANK CREEK

*\*(S1 - Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically, 5 or fewer populations or occurrences, or very few remaining individuals (<1000). S2 - Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. Typically, 6 to 20 populations or occurrences or few remaining individuals (1,000 to 3,000). S3 - Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically having 21 to 100 populations or occurrences (1,000 to 3,000 individuals). S4 - Apparently secure; Uncommon but not rare, and usually widespread in the state. Possible cause of long-term concern. Usually having >100 populations or occurrences and more than 10,000 individuals. S5 - Secure; Common, widespread and abundant in the state. Essentially ineradicable under present conditions, typically having considerably more than 100 populations or occurrences and more than 10,000 individuals. S#B - Breeding status of an animal within the state S#N - Non-breeding status of animal within the state. Usually applied to winter resident species. S#? - Inexact or uncertain numeric rank. SH - Possibly extirpated (Historical). Historically known from the state, but not verified for an extended period, usually > 15 years; this rank is used primarily when inventory has been attempted recently. S#S# - Range rank; A numeric range rank, (e.g. S2S3) is used to indicate the range of uncertainty about the exact status of the element. Ranges cannot skip more than one rank. SU - Unrankable; Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. SNR - Unranked; state rank not yet assessed.)*

Source: Department of Conservation and Recreation, Division of Natural Heritage; January 2019.

To continue the protection of species under the State and Federal Endangered Species Act, development proposals should include documentation from the U.S. Fish and Wildlife Service, the State Department of Game and Inland Fisheries, and the Virginia Natural Heritage Program, that any plant or animal protected under the Federal and State programs is or is not located at the proposed development site. If a species protected under either program is located at the proposed development site, the County should support Federal and/or State recommendations for protection programs. If a proposed development site is receiving Federal and/or State moneys, the County should require a survey documenting the presence or absence of species protected under the State and Federal program, location, proposed protection strategies should be included in the development proposal for review. Also, the County should encourage the protection of preferred habitats of any of the endangered, threatened or rare species that occur in King George County.

Protection of the county's wildlife resources, whether common or endangered, threatened or rare, is desirable for their intrinsic value, aesthetics, recreation, economic value, and ecological value. Natural area conservation is integral to maintaining wildlife habitat and wildlife populations. Effort should be made to reduce the potential for loss of forested riparian buffers and other migration corridors, wetlands, mature forests, and to reduce the degradation of habitat from pollution. The establishment and protection of riparian forest buffers will enhance the survival of wildlife since water areas are an essential component of their existence. These buffers also enhance the fish habitat and aid in protecting water quality for the health of wildlife. Forested riparian buffers serve many other functions that enhance our lives. Information on forested riparian buffers can be obtained from the Virginia Department of Forestry.

### ***Commercial Fish Landings***

King George maintains a modest industry for commercial fishing. Fish landings per year since 1993 are provided below. This activity in the County makes up less than 1 percent of the total fish landings Statewide, but the industry has remained steady. There were 36 commercially registered watermen in King George County in 1998 and 38 commercially registered watermen in 1999. Development projects that have the potential to affect water quality should be reviewed to ensure that they do not negatively impact this industry.

**Table H-5**  
**Commercial Fish Landings**

King George County			State of Virginia		
Year	Pounds	Value	Pounds	Value	% of State Landings
1993	795,543	\$350,236.00	98,869,517	\$76,788,799.00	0.8%
1994	516,331	\$228,243.00	83,978,363	\$71,120,599.00	0.6%
1995	527,708	\$287,772.00	80,752,847	\$73,781,789.00	0.7%
1996	907,473	\$437,183.00	83,073,690	\$69,396,284.00	1.0%
1997	1,008,988	\$673,034.00	Not Available	Not Available	
1998	718,907	\$384,604.00	Not Available	Not Available	
2005		\$258,000.00			

*Source: Virginia Resource Commission 2012.*

### ***Areas of Mature Forest Vegetation***

The majority of King George County consists of Coastal Plain uplands with ridges along the major streams and drainages. The in the northeastern and eastern parts of the County consists of broad, low-lying areas, while stream terraces exist along the Rappahannock River, per the General Soil Map of Soil Associations, Stafford and King George County soil survey. The majority of native woodland consists of forest types in the oak-hickory group, which is dominated by oaks and hickory, but commonly includes yellow poplar, red maple, sweetgum, beech, and various other hardwood species. On some sites, these associate species dominate. The majority of farm sites that are reverting to woodlands are reverting to Virginia pine, sweetgum, or eastern red cedar. Agricultural and forestlands are identified on Map 13, Land Cover.

Table H-6 provides the acreage of total forested land and acreage for the different types of stands. The data represents the dominant trees in a stand. Other species not included are a minor component within the groups.

**Table H-6**  
**Forested Land and Acreage**

Forest Group	Loblolly-Shortleaf Pine	Oak-Pine	Oak-Hickory	Oak-Gum-Cypress	All-Type Groups
1992 Acreage	5,890	2,596	61,421	223	70,130
2002 Acreage	5,930	5,930	33,656	--	48,690
2010 Acreage	1,423	8,477	64,612	--	75,906

*Source: Forest Statistics for Virginia, USDA Forest Service 1992, 2002, 2010.*

Typical oak species include white, black, northern red and southern red with some willow oak and scarlet oak. Understory species in the oak forest groups include a majority of American holly and some dogwood with sweet gum and maple in the wetter areas. Pine stands are usually too thick for understory species.

The location of the different forest groups are generally pine on broader, more gently sloped land, especially toward the center of the County. In the areas of wetter soils or depressions, the Oak-Gum-Cypress group will be predominant. The areas between these two locations will hold the Oak-Pine and Oak-Hickory stands.

Approximately 1000 acres per year of timber is harvested in King George County. Acres harvested include clear cutting (primarily of pine) and select harvesting (primarily of hardwoods). Hardwoods provide 75-80% of the timber harvested. The majority of hardwoods are sold to sawmills for lumber production, while pines are sold for lumber, pulp and paper. The remaining forested land in the County is preserved by landowners for wildlife habitat, existence value, aesthetics, water quality protection, soil conservation, and recreation such as hunting and walking.

Some of the benefits of trees and forests include environmental benefits, noise abatement, and economic, social and psychological benefits. The lowest bird diversity is in areas of mowed lawn and highest in areas of large trees, greatest tree diversity and brushy areas. The highest native bird populations are in areas of highest native plant populations. Trees increase property values; a 4% higher sale value results with five trees in the front yard: \$257 per pine, \$333 per hardwood, \$336 per large tree, and \$0 per small tree. Properties see a \$2,675 increase in sale price when they are adjacent to tree green space as compared to similar houses 200 feet away from green space. (Source: Quantitree program) Trees add scenic quality and provide benefits in visual screening, recreation, health, and human social interactions. Preserving diverse mature forested areas and trees will enhance the quality of life in the County.

### ***Natural Areas and Parks***

King George County is home to the Caledon State Park. Caledon's 2,579 acres are located between Route 218 and the Potomac River, with 3 miles of shoreline. The late Ann Hopewell Smoot donated the land to the State in 1974. Some of the natural area is protected for bald

eagle habitat, helping it to remain the summer home for one of the largest concentrations of bald eagles on the East Coast. The eagles are known to use at least twenty miles of Potomac River shoreline area (10 miles in either direction of Caledon along the Potomac). This reserve maintains a seasonal (from April through October) 1,000 foot no boating zone. Caledon provides large relatively undisturbed tracts of land that bald eagles need in order to flourish.

Caledon is known for its Eagle Tours throughout the summer, with park interpreters guiding visitors through the eagle areas and to the shore of the Potomac River for sightings. Caledon also provides its visitors with several hiking trails, picnic areas, environmental education facilities in the visitor center, and several interpretative programs such as bird watching, junior rangers, wee rangers, night hikes, conducted walks, bonfire programs, star gazing, and crafts. Continued protection of this area is important for wildlife habitat and as a public natural area for outdoor enjoyment and education.

Lands' End Wildlife Management Area (WMA), owned by the Virginia Department of Game and Inland Fisheries, is located along the Rappahannock River in the southeast portion of the County. No recreational activities are allowed on site and no public access is available to this site. The WMA is approximately 465 acres, which serves as a refuge for waterfowl, migratory songbirds and fish in addition to other wildlife. 230 acres are in forestlands and 235 acres are used as agricultural lands for wildlife food plantings. It is a wintering ground for Canada geese. Forested wetlands provide excellent habitat for many species of herons and other water birds. Currently, there is one bald eagle nest on site. Lands' End WMA provides premium habitat for many species of wildlife on the Rappahannock River.

Conserving tracts of undeveloped and undisturbed land is important for wildlife and for people. Wildlife needs habitat and natural areas are needed by people. It is important for people to know that natural areas exist and that they are being preserved. In addition, outdoor recreation can be rejuvenating and relaxing. Local parks are created for this purpose and to meet the needs of a community public facility.

Local parks include Barnesfield Park, The Wayside, Wilmont Park, Cedell Brooks Jr. Park, and Sealston Park. Barnesfield Park is located off US 301 at 3360 Barnesfield Road. The 165-acre park includes several facilities for public use: two pavilions, playground area, 4 ball fields, 6-goal basketball court area, benches, 10-station fitness trail and several other trails. The Wayside is located across the street from Barnesfield Park on 10 acres. Potomac River frontage is available at The Wayside for canoe launching, sunbathing on the sandy beach, fishing and crabbing. Picnicking areas are available at The Wayside and also at the nearby Welcome Center. Wilmont Park is a small waterfront park on the Rappahannock River. It is frequently used as a public boat landing. Fishing and picnicking are other pastimes enjoyed at Wilmont Park. Cedell Brooks Jr. Park is a 33-acre site located off Ridge Road (County Road 205) in the center of the County. Sealston Park is a 45-acre site located on Fletchers Chapel Road on Route 603 at the western end of the County.

Wildlife can be viewed from all of the parks in King George County. The majority of acreage at the parks is wooded and with a water source available, the parks provide habitat to some wildlife species. Additional wildlife can be encouraged to inhabit the local parks with appropriate plantings (for food source and shelter) or by encouraging the development of a multi-story diverse forest.

Recommendations of additional facilities for King George County have been made through the 2002 Virginia Outdoors Plan, a document developed by the Virginia Department of Conservation and Recreation. The Virginia Outdoors Plan not only provides recommendations for localities in what is needed, according to their surveys, but also provides valuable information on methods of implementation for their recommendations. Only the following recommendations from the VA 2002 Outdoor Plan are recommended for consideration by the County: additional facilities should be added at Barnesfield Park based on demand and the availability of funds, and the plan also identifies a need to enhance public water and beach access. In order to meet the demand for water-related recreation, the Plan suggests the acquisition of land to help meet this demand. The Plan specifically identifies a need for additional access to the Rappahannock River in King George County.

The U.S. Fish and Wildlife Service have identified several sites in King George County for protection in the Rappahannock River Valley National Wildlife Refuge. The Refuge was established with the donation of seven miles of waterfront land along Cat Point Creek in Richmond County to the U.S. Fish and Wildlife Service. This project is the Service's top priority for waterfowl habitat protection. Lands acquired for the refuge will be bought from willing sellers or protected from development by conservation easements. Areas of priority for inclusion in the County include Gingoteague creek, Cleve Marsh, Goat Island and Jones Top Creek and marsh. With increasing development pressure in the lower Rappahannock River valley, the need to protect lands and prevent habitat loss increases.

For any conserved natural area, a buffer between it and adjacent land uses is desirable. A transition zone that protects the function or intended use of the protected land is helpful to ensure that the use is protected. There are many tools for conserving open space in the County such as open space developments and conservation easements. The values of conserved natural areas, local parks, trails, greenways and wildlife refuges are many and benefit the County ecologically, economically and enhance the quality of life for the residents.

### **Public and Private Access to Waterfront Areas**

According to the Chesapeake Bay Area Public Access Plan King George County contains over twenty-five miles of shoreline on the Potomac River as well as several miles fronting on major tidal creeks. The southern boundary of the County contains twenty-four miles of shoreline on the Rappahannock River. There are five existing sites in the public domain including the Lands' End Wildlife Management Areas, which is managed for waterfowl habitat and is not generally open to the public. The Caledon State Park also provides only limited public access to the Potomac River because of the sensitive eagle habitat within it. The Naval Support Facilities Dahlgren occupies shoreline in the central part of the County and access here is limited due to its defense mission. Three private marinas open to the public provide 194 marine slips.

Public waterfront access areas should be evaluated using locally developed criteria. In the development of potential waterfront access sites, the County may wish to utilize guidelines contained in Chapter VI, Public and Private Access to Waterfront Areas, Local Assistance Manual, and Chesapeake Bay Local Assistance Department. The manual recommends the following for consideration in selecting waterfront access sites: 1) desirability of the site for public access; 2) physical characteristics of the site; 3) availability of access nearby; and 4) adjacent land uses. The

manual also recommends that a site contain the following characteristics when selecting a public waterfront access site; 1) a water depth of greater than 3 feet at mean low water; 2) a maximum wave height of less than 1 foot; 3) a current of less than 1 knot; 4) does not require dredging; 5) less than 50 feet to navigable water; absence of threatened or endangered species; 6) no impact to wetlands; 7) not presently used for recreation purposes; 8) absence of aquatic vegetation and shellfish; and 9) unimportant area for spawning or nursery for any commercially or recreationally valuable species.

Public access to Potomac River. As described in the table below, three private marinas and one public landing provide public access to Potomac River waterfront areas. An additional private marina provides waterfront access to Machodoc Creek, which flows directly into the Potomac River. Additional public access to Potomac is allowed for kayak and canoe use through Caledon State Park. However, due to the fact that the Natural Area is home to a number of nesting Bald Eagles, and access through the Natural Area is very limited. The County may also wish to explore discussions with the Naval Support Facility Dahlgren (NSFDL) regarding some public access to the waterfront through its facilities.

Public access to the Rappahannock River. Public access to the Rappahannock River in King George County is very limited. Only one public boat landing, Wilmont Landing, exists in King George County on the Rappahannock River. The County desires additional waterfront access sites to serve the Rappahannock River. The County is currently in the process of obtaining permits and funding to improve the boat landing at Wilmont Wharf. Wilmont Wharf is currently the public access boat landing on the Rappahannock River in the County. The Wharf area is located within a corridor of the River known as being a favorite forging and nesting area for the Bald Eagle. Therefore, both the Virginia Game and Inland Fisheries and the U.S. Fish and Wildlife have been included in early discussions regarding improvement to this landing. According to the Chesapeake Bay Area Public Access Plan, the Department of Game and Inland Fisheries has identified three areas along the Rappahannock River as being desirable for providing waterfront access, including the Port Royal area, and the western part of the County. As a voluntary condition of the Hopyard Farm rezoning (2003) approved by the King George County Board of Supervisors, the land developer voluntarily constructed a public boat ramp with 30 parking spaces on the Rappahannock River. The Boat Ramp has direct access to Route 607. In 2009, the County accepted the completed boat ramp and subsequently deeded the land to the Virginia Game & Inland Fisheries. The Hopyard Farm Boat Ramp is open to the public and is owned and maintained by the Virginia Game & Inland Fisheries.

Private waterfront access. As indicated above, the majority of the waterfront property in the County is privately owned. Even though it is not required, the majority of waterfront subdivisions in the County contain community access to the waterfront with small facilities such as pier and/or boat launch area. Continued utilization of community access could be encouraged through the use of zoning and subdivision controls. For example, some portion of the Resource Protection Area, as discussed under the CBPA section of this plan may be considered for common ownership to both protect the sensitive resources and enhance access with the construction of trails in conjunction with community access.

**Table H-7**  
**Public and Private Access to Waterfront**

Site Identification	Location	Existing Uses
Waugh Point Marina	Potomac Creek	Private Facility, Charge for Use, Boat Launch, 57 Marina Slips, Gas, Sales, Restrooms, Showers
Fairview Beach Yacht Club	Potomac River	Private Facility, Charge for Use, Boat Launch, 37 Marina Slips, Gas, Restrooms, Snack Bar
Martin Boat Launch	Potomac River	Boat Launch, Restrooms
Caledon State Park	Potomac River	Limited Access, Restrooms, Day Use Only
Wayside Park	Potomac River	Boat Launch (car top boats only), Picnicking, Biking
Naval Support Facility Dahlgren (NSFDL)	Potomac River	Limited to Navy Personnel Only
Machodoc Creek Marina	Upper Machodoc Creek	100 Marina Slips, Gas, Diesel, Sales, Repairs, Marine Store, Restrooms, Showers
Lands' End Wildlife Refuge	Rappahannock River	Not Open to the Public
Wilmont Wharf	Rappahannock River	Boat Launch, Limited Parking Area
Hopyard Farm	Rappahannock River	Boat Launch, Parking Area
Berry Plains Landing	Rappahannock River	Community dock, boat ramp

#### I. **Potential Sources of Pollution (Map 24)**

Pollution comes from a variety of sources and manifests itself through contamination of surface and groundwater, air quality, and the natural landscape. In areas where development, transportation, and commercial and industrial activities are occurring, pollution is inevitable. However, excessive levels of pollution present a significant health threat, especially regarding contaminated water sources. The following section details several of the County's existing pollution sources as well as some potential pollution sources which the County may encounter as it continues to grow and develop.

##### ***Mining***

Primary concerns for potential pollution from mining operations in King George County include storm water surface runoff that would carry sediments off-site, dust, noise, and storage of petroleum products including gas, oil and lubricants. Potential pollution from mining operations is managed through specific permitting requirements. Mining operations are required to obtain permits from the Department of Mines, Minerals, and Energy (DMME) and may be required to obtain additional permits from the Department of Environmental Quality (DEQ). A drainage control plan is required to be prepared for all mining operations and submitted to DMME. The plan must address how both ground and surface water runoff from the site will be controlled. In addition, a plan to control spills from petroleum products must be provided. Any site with a surface water discharge must also obtain a Virginia Pollution Elimination Discharge Permit

(VPDES) from the DEQ and operations with a gravel-crushing machine must obtain a permit from the Air Pollution Control. In addition, King George County requires that sand and gravel operations obtain Special Exception Permits to mine sand and gravel in the County. Currently, there are no known violations associated with mining sites in King George County.

### ***Septic Systems***

A majority of homes and businesses in King George County rely upon private septic systems for wastewater treatment. With less than 1 percent of the total number systems requesting repair, the County does not appear to be experiencing a significant number of septic system failures. Permits for on-site sewage disposal systems are required by State law to be obtained from the Virginia Department of Health (VDH). Per the requirements of the VA mandated Chesapeake Bay Preservation Area Overlay Zoning District each septic tank is required to be pumped out once every five years. The King George County Department of Community of Development enforces the state mandated pump out program through requirement of the County Zoning Ordinance.

The VDH tests the soils for drainfield suitability prior to issuing a permit. Soils information is essential for setting overall planning policy. Fortunately, King George County has a very detailed soil survey published in 1974 by the United States Department of Agriculture (USDA) in cooperation with the Virginia Polytechnic Institute and State University. This soil survey provides the County with an inventory of soil outlined on aerial photographs.

When issuing septic permits, the Virginia Department of Health sanitation will run a permeability test. The most desirable areas should have a permeability rate of moderate or moderately rapid. Areas of moderately slow permeability should be reviewed carefully, and caution should be taken when issuing septic permits and approving development projects dependent on septic systems on these soils.

Areas characterized by slow or rapid permeability should not rely on septic systems as an acceptable means of wastewater disposal. Septic systems are least desirable in these areas because of the human and environmental health risk involved in improper percolation of septic wastes. Development may be suitable in these areas after public wastewater treatment systems are available. See Table H-8 Rates of Permeability, for a description of the different permeability rates.

**Table H-8**  
**Rates of Permeability**

Rates of Permeability	
slow	0.06 - 0.2 in/hr
Moderately slow	0.20 - 0.6 in/hr
Moderate	0.60 - 2.0 in/hr
Moderately rapid	2.0 - 6.0 in/hr
rapid	6.0 - 20.0 in/hr

*(The above table was developed by the U.S. Soil Conservation Services based on the King George Soil Survey.)*

Please refer to Map 18 showing delineated areas with constraints for septic fields. The map includes general grouping of areas with severe, moderate and slight constraints. Constraints for

septic fields should be evaluated against a detailed soil map for planning of proposed development proposals. In areas having poor soil conditions, specific soil analyses should be done for any development site, which is not in a public sanitary sewage system area in order to insure proper wastewater disposal.

Localized groundwater contamination by fecal coliform can result from malfunctioning septic systems. These septic fields have the potential to create a significant threat to the groundwater quality of King George. According to records maintained by the King George County Health Department, there are existing septic fields which are malfunctioning. Most of those systems which are experiencing problems are those over 30 years of age. Newer drain fields experiencing failures are usually the result of hydraulic overload. The information from the Health Department indicates that, during the years of 1994-1997, less than 1 percent of the existing septic systems in the County have applied for repair applications. It is believed that only half of those repair applications are for complete failing drainfields. Overall, the County does not appear to be experiencing septic system failures that are significant.

### ***Illegal Dumping of Hazardous Wastes***

Of a particular concern for many localities is illegal dumping of waste. Often, an illegal dump site is not detected until contamination has occurred and the chances for an inexpensive and expeditious clean-up have elapsed. Because illegal dumping poses a potentially dangerous hazard to its residents, the County actively pursues the source of any illegal dumping. Illegal dumping of trash, litter, garbage, or refuse on public property or on private property without the written consent of the owner is considered to be a Class 1 misdemeanor under the County Code. In the event of more serious illegal dumping, other state and federal laws may be applicable.

### ***Above Ground Storage Tanks***

Due to its rural nature, King George County relies heavily on individual fuel oil tanks for heat. While one individual tank may not appear to pose a significant threat to the environment, the aggregate of tanks located in the county may pose a significant threat to the environment.

Individual above ground storage tanks are regulated by the federal government under 40CFR Part 112 of the Clean Water Act of 1972. This section of the Act requires owners of single tanks with a capacity of 660 gallons or multiple tanks with a combined capacity greater than 1,320 gallons to register their tanks and devise a "Spill Prevention Control and Countermeasure Plan." The State Water Control Board (SWCB) regulates and control above ground storage tanks. Regulations are in place, which requires tank owners to file an "Oil Discharge Contingency Plan" before a storage tanks may be registered. The purpose of such a plan is to identify a plan of action in the event of a catastrophic discharge of oil from the largest tank. Additionally, the plan must also identify what the potential impact of such a release will be on the environment, as well as mitigation measures in the event of such a spill.

The Clean Water Act does not apply to individual tanks with a capacity of less than 660 gallons or multiple tanks with a combined capacity of less than 1,320 gallons. Neither are they regulated by the SWCB. As most home fuel oil tanks are usually 200 to 660 gallons, residential and small business above ground storage tanks are not regulated. It is therefore incumbent on the individual tank owners to ensure that leaks and spills do not occur.

The SWCB has estimated that approximately 90 percent of spill and/or releases from individual tanks are a result of overfilling the tank or tipping it over. Overfilling can occur if the individual filling the tank is inattentive while performing the task. Overfilling may also occur if the tank capacity has been misidentified or is simply not known. In order to reduce the risk of an accidental spill, the owner of the tank or the fuel oil company should inspect the tank prior to filling to ensure that the tank is sound and does not display any signs of corrosion. Additionally, the owner of the tank should clearly demarcate the capacity of the tank and the location of the filling cap.

### ***Uncapped Abandoned Wells***

Uncapped abandoned wells are a potential source for groundwater contamination. These wells, particularly shallow/dug wells can become conduits to the groundwater supply if waste is disposed into these wells. Abandoned deep wells can provide access to the lower confined aquifer that is usually protected from vertical leakage. The Department of Health has not conducted a census to determine the number or location of uncapped abandoned wells.

### ***Underground Storage Tanks***

According to the Virginia Water Quality Assessment for 1992, underground storage tanks are the primary source of groundwater contamination in Virginia. They are particularly dangerous because they are installed below-ground and consequently are given little or no thought. Often, leaks are not detected until substantial contamination of the surrounding soils has already occurred. Additionally, tanks abandoned before more restrictive regulations were instituted often pose an unwanted and potentially expensive liability on the property owner or the locality.

Underground storage tanks are regulated by the Environmental Protection Agency under the authority of the federal Solid Waste Disposal Act of 1970, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976. Underground storage tanks are regulated if the tank system, including its piping, has at least 10 percent of its volume underground and contains a regulated substance. Several different types of underground tanks are excluded including, but not limited to, farm or residential tanks of 1,100 gallons or less storing motor fuel for noncommercial uses; tanks for storing heating oil for consumption on the premises where stored; and septic tanks.

The Virginia Water Control Board (VWCB) is responsible for enforcing underground tank regulations in the Commonwealth. Under these regulations, the VWCB must keep track of and inventory all underground storage facilities within the state. The state deals with all aspects of underground storage tanks including design, construction installation, compatibility standards, leak detection, record keeping, reporting, closure, corrective action, and financial responsibility. The VWCB is also responsible for ensuring that tanks installed prior to 1989 are upgraded to new tank standards before December 1998.

According to the Va Department of Environmental Quality records, there are a total of 91 registered underground storage tanks in the County.

## ***Nonpoint Source Pollution***

Nonpoint Source Pollution (NPS) pollution, unlike pollution from an industrial site or a sewage treatment plant, comes from many diffuse sources. Rainfall or snowmelt moving over and through the ground causes NPS pollution. As the runoff moves, it picks up and carries away natural and man-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water. When land is developed, asphalt, concrete and other impervious substances replace natural vegetation. As the amount of impervious surface increases pollutants, which normally would have penetrated the ground and filtered through the soil, are more likely to be carried directly to local waterways. Higher density land use, which includes residential development, generates higher levels of pollutant loadings of plant nutrients, heavy metals and oxygen-demanding substances than does agricultural lands. Increased runoff from developed land also increases stream flow during and immediately after periods of rain and snowfall. Sediments, pesticides, metals, oils and other toxic substance can promote fish kills and destroy submerged aquatic vegetation. Increased runoff from developed land also travels at greater speeds, as there is less pervious surface to infiltrate. The increased volume and velocity can ravage stream banks, causing erosion and sedimentation within the stream.

Nonpoint source pollution can be reduced by minimizing the development of impervious surfaces, preserving natural vegetation, utilizing open space and employing Best Management Practices. Applicable BMPs may include structural practices such as detention basins and sand filters or nonstructural practices such as filter strips and vegetated buffers. Farm plans and nutrient management plans identify agricultural BMPs that local farmers can implement in order to conserve topsoil and nutrients and detain them from reaching nearby streams and rivers.

## ***Point Source Permitted Discharges***

Point source discharges are discharges that can be traced to a single identifiable source. The Federal Water Pollution Control Act requires a uniform permit program nationwide that acts to regulate point source discharges. In Virginia, the Department of Environmental Quality runs a permitting program named the Virginia Pollutant Discharge Elimination System (VPDES) that carries out the requirements of the federal act. VPDES is a permit program that establishes, on an individual basis, limits on the quantity and/or concentration of pollutants allowed in the discharge.

When a VPDES permit is issued guidelines are established which discharged effluent is required to meet. The program is self-regulating in that the owner is required to monitor the quality of the effluent and report the results of testing to the state. Additionally, the Virginia Department of Health designates condemned shellfish areas around certain point source discharges to act as a buffer zone from the impact of the discharge. In King George there are currently 14 VPDES Permits of which only 11 have active point source discharges (4 King George Service Authority wastewater treatment plants, 1 County operated treatment plant, 2 Naval Support Facility Dahlgren (NSFDL) wastewater treatment plants, 2 industrial discharges and the power plant which returns fresh water to the Rappahannock). The location of the treatment plants is indicated on Map 24. The active VPDES permits are identified in Table H-9.

**Table H-9**  
**Active VPDES Permits**

VAPDES	Facility Name	Category	Design Flow	Receiving Stream	Location
VA0021067	Naval Support Facility Dahlgren (NSFDL)	Municipal	0.72 MGD	Upper Machodoc Creek	13720 Dahlgren Road
VA0026514	Dahlgren District WWTP	Municipal	0.97 MGD	Williams Creek	State Route 206, 0.5 miles southeast of U.S. Route 301
VA0070106	Purkins Corner WWTP	Municipal	0.12 MGD	Pine Hill Creek	Approximately ½ mile southeast of the intersection of State Route 3 and 205
VA0073636	Naval Support Facility Dahlgren (NSFDL)	Municipal	0.29 MGD	Gambo and Upper Machodoc Creek	17483 Dahlgren Road
VA0086720	Presidential Lakes Section 14	Municipal	0.07 MGD	Popcastle Creek	Off State Route 608, one mile west of the intersection of State Route 608 and 609
VA0086789	Oakland Park STP	Municipal	0.14 MGD	Muddy Creek, UT	Off Route 602, approximately 1 mile north of its intersection with Route 603
VA0087645	SEI Birchwood Power Facility	Industrial	1.14 MGD	Rappahan nock River	State Route 665, approximately ¾ miles northeast of Route 3
VA0092134	Fairview Beach Wastewater Treatment Plant	Municipal	0.20 MGD	Potomac River	6268 Riverview Drive
VA0090654	Greenhost Incorporated	Industrial	0.50 MGD		2259 Kings Highway
VA0089338	Hopyard Farm Wastewater Treatment Facility	Municipal	0.375 MGD		Rte 607, 1 mile south of Rte 3

*Source: Virginia Department of Environmental Quality, October 2018.*

#### **BMP Facilities**

A Best Management Practice (BMP) is a practice or combination of practices, either structural or non-structural, that are determined to be the most effective practicable means of controlling point and nonpoint source pollutant levels compatible with environmental quality goals. In order for a BMP to properly perform its design function, it is necessary that adequate maintenance be performed. Pollutant removal becomes decreasingly less efficient over time if the facility has not been properly maintained. Though a stormwater management BMP only performs its function

for a relatively brief amount of time, it must always be prepared to do so. Flood control and water quality benefits can be diminished, and even reversed, if a facility is not properly functioning.

Within King George County, there are several stormwater management BMP's, as a result of the County's adoption of a Chesapeake Bay Preservation Ordinance. These facilities are relatively new, none more than 5 years of age. It is unlikely that any of the BMPs are operating below design efficiencies, though it is essential that the County address BMP maintenance and inspection to ensure that they will continue to function properly. The County Zoning Ordinance currently requires that a maintenance agreement be recorded amongst the County land records for each BMP that is constructed. The maintenance stipulates the requirements for maintenance of each BMP and also requires that the BMP be inspected by the County and the owner on an annual basis.

### ***Impoundments***

Below is the list of those impoundments located in King George County that require a DCR *Operation and Maintenance Certificate* and provide the regulated status of each facility (*high*, *significant*, or *low* hazard dam).

**Table H-10**  
**Impoundments**

I NO	County	R_N	NAME DAM	Owner Name	CERT TYPE	CERT DATE	CERT EXP	Class Desc
09902	KING GEORGE COUNTY	R	Powhatan Plantation Dam	Achille Murat Guest	MR	5/24/2006	5/31/2012	Low
09903	KING GEORGE COUNTY	R	Lake Jefferson Dam	Presidential Lakes POA	MR	5/15/2008	5/31/2014	Low
09905	KING GEORGE COUNTY	R	Lake Madison Dam	Presidential Lakes POA	MR	9/16/2010	9/30/2016	Significant
09906	KING GEORGE COUNTY	R	Lake Monroe Dam	Presidential Lakes POA	MR	3/10/2011	3/31/2017	High
09907	KING GEORGE COUNTY	R	Madison Mill Dam	J. A. Billingsley	NC			Low
09908	KING GEORGE COUNTY	R	Darr Dam	Joyce L. Darr	MF	5/14/2010	5/31/2016	Low
09910	KING GEORGE COUNTY	R	Whitehall-Arabian Dam		NC			Low
09911	KING GEORGE COUNTY	R	Commanche Ridge Dam		NC			Not Rated

MR = Regular Certificate, MF = Farm Exempt, NC = Non-compliant

## **Environmental Growth Determinants**

King George County is the fifth smallest county in the Commonwealth. Its total land area is 178 square miles or 113,920 acres. Of this land, approximately 72,718 acres is forested, while 24,304 acres are in agricultural use. These two land uses account for approximately 92% of the County's land area. These uses make King George County a primarily open and rural County. As has already been discussed, the County is transected by numerous streams and is bordered by the Potomac and Rappahannock Rivers. These natural resources provide a habitat for a variety of wildlife and plant species, as well as recreational opportunities for the residents of the County. The abundance of wetlands and mature vegetative cover naturally filter pollutants generated by natural and man-made sources and should be preserved and protected. Improper management of environmentally sensitive areas can have significant impacts on both surface and ground water quality in and around the County. As the County plans for its future growth and development, it is necessary to explore any natural constraints to growth. Growth and development are essential to the County, but it need not be achieved with disregard for its natural resources. Properly managed growth, with an eye toward protection and preservation of environmentally sensitive areas, can be accomplished while continuing to promote the benefits of living in King George County. The following sections provide an overview of environmental determinants to growth facing the County.

### **J. Chesapeake Bay Preservation Act**

The Chesapeake Bay Preservation Act (Chapter 25, Title 10.0 of the Code of Virginia) establishes a program to protect and improve the quality of water of the Chesapeake Bay. The focus of the Act is to protect sensitive land areas that are adjacent to tributaries of the Bay, which if improperly developed can contribute to water quality degradation of the Bay and its tributaries. The Act provides local governments with the framework to identify sensitive features and enact regulations to protect them. The regulations were adopted in 1989 and amended in 1990 and are entitled "Chesapeake Bay Preservation Act Designation and Management Regulations" (Regulations). Under the Regulations, the County is required to promote the following:

- Protection of existing high-quality state waters and restoration of all other state waters to a condition or quality that will permit all reasonable public uses, and will support the propagation and growth of all aquatic life which might reasonably be expected to inhabit them;
- Safeguard the clean waters of the Commonwealth from pollution;
- Prevention of any increase in pollution;
- Reduction of existing pollution; and
- Promotion of water resource conservation in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

In accordance with the Regulations, Chesapeake Bay Preservation Areas were mapped for the County. Chesapeake Bay Preservation Areas include Resource Protection Areas and Resource Management Areas and were designated based on an inventory of natural resources. This inventory included several USGS quadrangles, National Wetlands Inventory Maps, Soil Survey for King George County, VirGIS Soils Maps, FEMA Maps for King George County, as well as other sources.

*Resource Protection Areas (RPAs):* RPAs are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform. RPA components include tidal wetlands, tidal shores, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams and a minimum 100-foot buffer landward of the other RPA components. Other lands necessary to protect water quality may also be included. After review, the County did not find it necessary to protect water quality to designate other lands as RPA features in its Zoning Overlay District. Water quality was protected, as discussed below, through the designation of a County RMA.

The RPAs within the County include tidal wetlands associated with the Rappahannock and Potomac Rivers, the Passapatanzy, Chotank, Machodoc, Upper Machodoc and Poplar Neck Creeks and the 100-foot buffer adjacent to the above-mentioned features and along the shoreline of the Rappahannock and Potomac Rivers, and the Passapatanzy, Chotank, Machodoc, Upper Machodoc, Poplar Neck, Pepper Mill, Popcastle, Mattox, Kings Mill, Jetts, and Pine Hill Creeks, as well as Keys, Dogue, and Guicatic Runs and Boom and Cow Swamps. Development in Resource Protection Areas is limited to water-dependent uses, such as marinas or piers, or the redevelopment of already developed areas.

*Resource Management Areas (RMAs):* RMAs are land types that, if improperly developed, have a potential to significantly degrade water quality or to damage the protective features of the RPA. RMAs are required to be contiguous to the entire inland boundary of the RPA. Land types that are to be considered for inclusion in the Resource Management Area includes the following: steep slopes, highly erodible and highly permeable soils, the 100-year floodplain and unconnected nontidal wetlands. After studying the resources identified above, King George County on April 1, 1999, opted under its Zoning Ordinance to designate a County wide RMA. The water elements of the Chesapeake Bay Preservation Area Regulations affect all development in the County.

Growth and development are not limited in the RMA as long as the proposal meets the requirements of the underlying zoning of the land. The development of land in the Resource Management Area must conform to the requirements outlined in the County's Chesapeake Bay Preservation Area Overlay Zoning Ordinance. No modifications to the Ordinance are recommended as a result of the analysis contained in this Plan.

As stated above, due to the amount of land area in the County that is characterized by one or more of the sensitive RMA land types, all remaining land within King George County that was not designated as an RPA, was designated as an RMA.

Chesapeake Bay Protection Areas have been delineated Areas according to criteria outlined by the Chesapeake Bay Local Assistance Board and are identified on Map 25. The Regulations also include criteria for local governments to use in granting, denying or modifying requests to

rezone, subdivide, or use and develop land in the Chesapeake Bay Preservation Areas. The criteria are implemented through the use of performance standards, various land use ordinances and the use of Best Management Practices.

*Redevelopment Issues.* Within the CBPA Resource Management Area are developed sites/properties that will undergo alteration (expansion, remodeling, reconstruction, rebuilding) over time. Redevelopment opportunities for each specific Planning Area are found within the description of each Area. These types of sites are candidates for being required to comply with the redevelopment requirements of the County's Chesapeake Bay Preservation Area Overlay Zoning District (CBPA). Redevelopment is defined by the CBPA Overlay Zoning District as "the process of developing land that is or has been previously developed". Developed sites that contain impervious areas greater than the CBPA threshold for impervious surfaces (16%), and those sites that will exceed the threshold after redevelopment activities, are required to comply with the redevelopment requirements of the CBPA Overlay Zoning District. Redevelopment sites are required to achieve a 10 percent reduction in the pollutant load. The Chesapeake Bay Local Assistance Department established the 16% threshold. Localities are allowed to develop their own threshold based on a survey of the local conditions. King George has opted to adopt the threshold of 16%. Strict development guidelines are imposed on these areas and King George has not designated any areas as being intensely developed. In King George County, this reduction in the pollutant load may be met by incorporation of either a structural best management practice or by restoring a minimum of 20 percent of the site from impervious to pervious areas. Requirements for property that must comply with redevelopment standards can be very difficult due to the retroactive nature of redevelopment requirements.

A survey of building permits issued for new development since of the adoption of the County's CBPA Ordinance has indicated that a majority of property in the County, especially single-family home development, is developed well below the threshold of 16 percent average impervious cover. The subdivision and commercial developments that have required best management practices are currently, as required by the maintenance agreements executed with the County, maintaining those structures. The Department of Facilities has not identified broken sewer lines as a source of pollution. As stated previously, shoreline protection measures constructed in the County have been found to be in working order. A review of aerial photography taken in 1991 has indicated that the low erosion and low development rate along the Rappahannock River has ensured that the vegetative buffer area has remained undisturbed. However, the Potomac River topography is primarily steep bluffs and while the buffer area is intact along much of the Potomac River, its moderate erosion rate has continued to create the need for sloping banks back and providing shoreline stabilization along the shoreline. Shoreline protection activities have reduced the natural vegetation within the buffer area but have provided protection to the shoreline. However, opportunities may exist to reestablish the buffer and where these opportunities do exist the buffer may be reestablished.

Existing pollution sources have been discussed in detail previously in the plan. Where redevelopment occurs and a pollution source is identified on site the source of pollution should be eliminated prior to the occurrence of the redevelopment activity. For example, failing septic systems or dwellings without plumbing are required by the Health Department to be repaired prior to issuance of a permit for new development, underground storage tanks should be removed/replaced prior to new development, failing shoreline stabilization measures should be repaired and any failing or antiquated sewer lines should be replaced.

The primary areas in which candidates for redevelopment exist in King George County are the Dahlgren Community Development Area and the Fairview Beach Satellite Area. These two development areas contain the majority of small lot development with high ratios of impervious surfaces. Redevelopment projects in the Dahlgren and Fairview Beach areas will be reviewed to ensure compliance with the County CBPA Ordinance. Development within the other Community Development and Satellite areas will be primarily new development and this new development will comply with the County's CBPA Ordinance. Policies are provided under each Planning Area to guide water quality improvement through redevelopment.

***Physical Constraints to Development.*** Constraints to development within the County include steep slopes, flood hazard areas, wetlands, highly erodible soils, highly permeable soils, and hydric soils. Most of the County contains constraining features and therefore, continued implementation of the County's CBPA Overlay Zoning District is essential to ensure that these constraints are properly managed.

***Steep Slopes (Map 15).*** As discussed previously, areas with slopes greater than 15 percent are considered to be steep, as determined by the County. The County has not adopted an ordinance prohibiting development on steep slopes. However, the County does enforce a local Erosion and Sedimentation Control Ordinance to prevent environmental impacts to steep slopes. Limiting development of steeply sloped areas should be discouraged, as development of these areas can lead to an increase in storm water runoff, erosion and a loss of soil stability.

***Flood Hazard Areas (Map 22).*** The floodplain is provided on Map 22. Regulation of development activities in flood plain areas is through Section 9, Floodplain Management Overlay District, and King George County Zoning Ordinance. The Ordinance prohibits inappropriate development within the floodplain. The Ordinance requires that new development be flood proofed and that new structures or alterations to existing structures not increase the flood level by more than one-half foot. No changes to the Ordinance are recommended as a result of the information contained in this Plan.

***Wetlands (Map 23).*** As stated previously, development of wetlands is regulated by a number of agencies. Wetland areas are identified on Map 23. In general, development should occur with no impact to wetlands. Degraded wetlands that have the potential to be restored should be restored prior to development.

***Sensitive Soils.*** The following is a description of the key elements of sensitive soils found in the County.

**Highly erodible soils.** Highly erodible soils are geographically displayed on Map 19. These soils have a high potential for eroding, due to a combination of low permeability, coupled with being located on either long and/or steep slopes. The map indicates that most of the County contains land with highly erodible soils. These soils are managed through the Resource Management Area requirements of the County's Chesapeake Bay Preservation Area Overly Zoning District and the County's Erosion and Sediment Control Ordinance.

**Highly permeable soils.** Highly permeable soils are geographically displayed on Map 17. These soils, due to their high rate of permeability, are susceptible to pollutant leaching and have an

increased potential for ground water contamination. Water quality issues in King George related to highly permeable soils primarily involve the placement of septic systems, as these soils may not hold the effluent long enough for proper treatment to occur. The Health Department through issuance of sewage disposal permits manages development of sewage disposal systems within these soil types.

Hydric and other sensitive soils. Other soil characteristics that can impact potential development, include; hydric soils, wetness, flooding, depth to water table, and shrink-swell potential. These attributes will affect the suitability of a site for development. Development does not generally occur in areas of the County that contain hydric soils or areas that experience flooding or have a high-water table due to either regulatory constraints or their unsuitability to support on-site sewage disposal systems. There have been isolated instances of soils with shrink-swell potential and engineered foundations have been required prior to development.

*Summary - Physical Constraints to Development.* The previous sections have detailed the natural resources, the existing and potential sources of pollution and the physical constraints for development in the County. In using this information to assist the County in determining where and when future development should occur, the County has developed the Planning Area Map (future land use map) and the complementary map of Utility Service Areas.

The physical constraints to development have been overlain on Map 26. The Map indicates that most of the land in the County contains some sensitive environmental feature and as such continued implementation of the County's CBPA Overlay Zoning District, Floodplain Management Overlay Zoning District, Wetlands Zoning Ordinance, and the Erosion and Sediment Control Ordinance is essential to properly manage development. In addition, the County should prepare a parcel database that identifies constraints to development. The database would be used in both individual and large-scale development plan review to identify and manage individual site constraints.

Present and future residents of the County will benefit not only from the inherent benefits of preserving environmentally sensitive lands and water quality, but also from the related benefits which include:

- Economic and employment benefits of having high quality natural resources and quality of life to attract and support business growth in the modern, technology-driven economy; and

The fiscal benefits of having available natural resources that allow for cost-effective provision of government services such as water supply, recreation and transportation.

## **K. Transportation**

According to the Virginia Department of Transportation (VDOT) in 2009, there were a total of 295.50 miles of State maintained roads within King George County. King George County does not maintain any roads. A number of private roads exist with the County and those private roads are privately maintained. VDOT classifies roads as either being Primary Roads or Secondary Roads. The Road Classification designations used to delineate the importance of the road within the State and Federal Highway Systems.

Primary Roads. King George County contains 75.50 miles of Primary Roads. The Primary roads in the County are US Route 301, Route 218, Route 206, and Route 205.

- Route 3. Route 3 is a four-lane divided highway from the western County Boundary to the intersection of Routes 3 and 301. From the intersection of Routes 3 and 301, Route 3 becomes a two-lane road to the eastern border of the County. The VDOT 2025 Long Range Transportation Plan calls for the eastern portion of Route 3 to become a four (4) lane divided highway.
- US Route 301. U.S. Route 301 is a four-lane divided highway that runs north south through the County. U.S. Route 301 is federal highway maintained by the Virginia Department of Transportation. Any improvement to U.S. Route 301 must be approved by both VDOT and Federal Highway Administration.
- Route 206. Route 206 is a relatively narrow two-lane road with limited roadside shoulders. Route 206, when heading east on Route 3 from Fredericksburg is the most direct route to the Naval Support Facility Dahlgren (NSFDL). Route 206 is approximately one mile shorter and more direct than other available routes to the Navy Base and Route 206 is a primary route for commuters. Continued improvement of Route 206 is important in order for the roadway to provide an acceptable level of service. The most recent Route 206 improvement is the replacement of the bridge that crosses Peppermill Creek. VDOT is currently in the process making improvement to the intersection of Route 206 and 218 (Owens). In addition, over the years VDOT has considered a number of options have been explored to reduce the volume of traffic on Route 206. Options explored have included:
  - Creating a new limited access connector road that would create a viable alternative transportation route. This option has not been supported by VDOT for various reasons including cost, difficult alignment, and the fact that the Route 206 alignment is well suited to carry through traffic.
  - Widen Route 206 to provide wider shoulders, better alignment at subdivision entrances.
  - The current 2025 Virginia Long Range Transportation Plan calls for Route 206 to become a divided four lane highway. King George County does not support the plan for Route 206 to become a divided four lane highway.

In order to facilitate additional traffic, new subdivisions located on Route 206 should be required to provide full-left, acceleration and right-hand turns.

- Route 218. Route 218 runs east/west from the Stafford/King George County Line to the King George/Westmoreland County Line and Route 218 is located in the northern section of the County. With the exception of one segment (between the section of combined Route 206/218 and Owens), the 2009 average daily traffic on Route 218 is between 2,400 to 3,100 vehicles per day. The segment of Route 218 east of Route 301 experiences the most average daily traffic (3,100 vehicles per day). Route 218 is recognized by the Virginia Department of Transportation as a Scenic By-Way.

Secondary Roads. King George County is served by 220.40 miles of Secondary Road. Secondary roads within King George County include both paved (hard) surfaced roads, and gravel roads (all-weather and light surfaced). In 2009, approximately 30 miles of the Secondary Road System within King George County are not hard surfaced. Routes 620, 625, portion of 647, 657 and 627 are the remaining non-hard surfaced roads within King George County.

Road Functional Classifications – VDOT classifies road by their function. A description of the functional classifications for the roads within King George County is provided below and is displayed on Map 27. The functional classification of a road is used by VDOT to determine to design standards such as entrance standards and pavement type and width that are applied to different roadways.

- Freeways/Interstates: are multi-lane highways with limited or controlled access at grade-separated interchanges. Typical traffic volumes are in excess of 40,000 vehicles per day. This classification would also apply to regionally significant roadways that will operate across jurisdictional boundaries. Desired right-of-way width is 250 feet with at least four 12-foot travel lanes, eight-foot interior paved shoulders and 12-foot exterior paved shoulders. The median would generally be between 42 and 60 feet in width. Maximum design speed of the road would be between 50 and 70 mph. Interstate 95 is an example of such a facility. No Freeways or Interstates exist within King George County.
- Major/Principal Arterials: are designed to carry high speed, high volume inter-county traffic. Traffic volumes are between 10,000 and 50,000 vehicles per day. Desired right-of-way width is 110 feet for urban areas and 200 feet for rural areas. The road would consist of four 12-foot travel lanes, 12-foot shoulders and a vegetative median of 16 to 60 feet. Urban road sections would have provisions for curb, gutter, sidewalk and storm sewer. Maximum design speed would be between 50 and 60mph. The Major/Principal Arterial within King George County is U.S. Route 301.
- Minor Arterials: are designed to carry moderate speed, high volume intra-county traffic. Traffic volumes are between 10,000 and 25,000 vehicles per day. Desired right-of-way width is 90 feet for urban areas and 140 feet for rural areas. The road would consist of four 12-foot travel lanes, 12-foot shoulders and a median of 16 to 42 feet. Urban road sections would have provisions for curb, gutter, sidewalk and storm sewer. Maximum design speed would be between 40 and 60 mph. The Minor Arterials within King George County are Routes 3, 205 and 206.
- Collectors: are designed to carry lower speed traffic between local and arterial streets. Major collector roads are designed to carry traffic volumes in excess of 10,000 vehicles per day. Major collectors have a desired right-of-way width of 90 feet. The road would consist of four 12-foot travel lanes, 12-foot shoulders and a median of 16 to 42 feet. Urban road sections would have provisions for curb, gutter, sidewalk and storm sewer. Other collector roads have a desired right-of-way width between 64 feet for urban areas and 120 feet for rural areas. The road width may vary from two to four 12-foot travel lanes. Rural collectors would have shoulder widths of eight to 11 feet. Urban road sections would have provisions for curb, gutter, sidewalk and storm sewer and would consist of at least three 12-foot travel lanes. There would be no median for these road sections. Maximum design speed would be between 30 and 50 mph. The Major Collector roads within King George County are Routes 218, 607, 609, 625, 631, 610 (south of Route 3) 625, and the minor Collector road is Route 694.
- Locals: are designed to provide access within residential and commercial areas to collector roads or in rural areas to connect collector roads. Desired right-of-way width varies between

50 and 100 feet. The road section would accommodate two 12-foot travel lanes. Rural roads would have eight-foot shoulders, while urban roads would accommodate on-street parking and have curb, gutter, sidewalk and storm sewer. Maximum design speed would be between 20 and 40 mph. Most subdivision streets and rural low traffic volume roads are examples of local roads.

Acceptance of New Roads into the State Highway System. Acceptance of new subdivision roads has increased the number of secondary roads within the County. Since the creation of the state highway system in 1942, no State-initiated road projects have added road length to the Virginia Highway System. The network of state roads within the County has only been altered by the acceptance of new subdivision streets. Existing County roads have experienced increased pressure from new development and several roadways are forecasted to decrease in their ability to move traffic within the County. New subdivisions have not adequately interconnected with existing roads or existing subdivisions, thereby allowing subdivisions to create isolated development islands with limited access points. In doing so the County has lost numerous opportunities to expand the County's existing road network. In order to avoid past mistakes, new subdivision roads should be more carefully reviewed to ensure that roads interconnect with existing roads; access for emergency vehicles should be considered in design and future planned roads; and that where appropriate adequate shoulders are provided for bike trails and other forms of inter-modal forms of transportation.

Snapshot of Average Daily Traffic Counts 1975-2009. Below is snapshot of the growth in average daily traffic along the key primary and secondary roads within the County. It should be noted that from time to time VDOT alters the location from which a traffic count is taken, information provided below matches the closest points from which traffic counts are taken to gain a composite traffic flow within the County. Map 28 shows the VDOT average daily traffic volumes for key routes.

- US 301, between Route 206/Route 218 and Maryland.

Year	Average Daily Traffic
• 1975	7,100
• 1995	12,000
• 2005	19,000
• 2009	19,000
• 2018	26,000

- US 301, between Caroline County and Route 3.

Year	Average Daily Traffic
• 1975	5,520
• 1995	12,000
• 2005	13,000
• 2009	12,000
• 2018	14,000

- However, the next segment of US Route 301 (along the segment between the intersections of Route 3 and Route 205) experiences average daily flows of 15,000 vehicles per day. Also, it should be noted that the lower traffic count is likely due to the change in the location from which the traffic count was taken.

- Route 3 between King George County/Stafford County Line to Route 605.

Year	Average Daily Traffic
• 1975	5,060
• 1995	19,000
• 2005	20,000
• 2009	19,000
• 2018	21,000

- Traffic volumes in 2009 are slightly reduced to 17,000 and 15,000 vehicles per day within the next two segments (Routes 605 and Routes 206) of the Route 3 corridor.

- Route 3 between US 301 and Westmoreland County.

Year	Average Daily Traffic
• 1975	5,700
• 1995	6,600
• 2005	5,200
• 2009	5,100

- This segment of Route 3 is a two-lane roadway and is targeted by the Virginia Department of Transportation to be improved to a four-lane divided highway. However, recent budgetary problems affecting the State of Virginia and VDOT have delayed funding for the construction of this improvement.

- Route 205 between Route 3 and US 301.

Year	Average Daily Traffic
• 1975	2,855
• 1995	5,700
• 2005	7,900
• 2009	7,900
• 2018	6,500

- The traffic counts along the segments of Route 3 between Route 301 and the King George/Westmoreland County line decrease to between 4,200 and 3,800 average vehicles per day (2009).

- Route 206, between Route 3 and Route 218.

Year	Average Daily Traffic
• 1975	2,360
• 1995	6,700
• 2005	10,166
• 2009	8,866
• 2018	10,000

- Route 206/218, between Route 218 and US 301.

Year	Average Daily Traffic
• 1975	2,700

• 1995	5,700
• 2005	11,000
• 2009	9,900
• 2018	13,000

Generally, the most heavily traveled roads within the County are those that primarily carry traffic through the County. Route 3 primarily experiences heavy traffic patterns to the King George County Landfill and to the County's employment center in Dahlgren. Route 206 experiences heavy traffic flow along its segments between Route 3 and US Route 301. US Route 301 experiences daily flows along all of its segments.

Forecast Potential Deficiencies. The projected Average Daily Traffic volumes for 2020, based upon the FAMPO model data, were compared with 1990 base year volumes to identify projected levels of service, using current/trend land use and employment forecasts and distributions. An examination of the model data reveals several key potential deficiencies in the road network, listed below.

These deficiencies are expressed in terms of Level of Service (LOS), ranging from A to F (failure).

- US 301, from Rt. 218 to the Potomac River is projected for LOS F;
- Route 206, east of Rt. 301 into Dahlgren is projected for LOS E;
- Route 218, from Rt. 610 to Rt. 206 and from Stafford County to Rt. 609, projected for LOS E;
- US 301, from Rt. 633 to Rt. 616, projected for LOS E;
- US 301, from Rt. 607 to Rt. 3, and from Rt. 205 to Rt. 633, projected for LOS D.

In general terms, an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Generally, "level of service" indicates the capacity per unit of demand for a public facility. A Level of Service "C" is the minimum Virginia Department of Transportation standard. However, the majority of roads in the County currently have a Level of Service greater than "C" and every effort should be made in transportation planning to maintain and improve existing Level of Service.

The six levels of service letter grades typically recognized by transportation planners and engineers are described as follows:

- Level of Service A: Free flow traffic with individual users virtually unaffected by the presence of others in the traffic stream;
- Level of Service B: Stable traffic flow with a high degree of freedom to select speed and operating conditions but with some influence from other users;
- Level of Service C: Restricted flow which remains stable but with significant interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level;
- Level of Service D: High-density flow in which speed and freedom to maneuver are severely restricted and comfort and convenience have declined even though flow remains stable;
- Level of Service E: Unstable flow at or near capacity levels with poor levels of comfort and convenience; and

- Level of Service F: Forced traffic flow in which the amount of traffic approaching a point exceeds the amount that can be served. LOS F is characterized by stop-and-go waves, poor travel times, low comfort and convenience and increased accident exposure.

Six Year Improvement Plan. The 2018 VDOT Six Year Improvement Plan is provided on Map 29.

## L. Utilities

The King George County Service Authority (KGCSA) prepares an annual update to their 5-year Capital Improvement Plan (CIP) to provide and guide the KGCSA in maintenance, upgrade and expansion of its water and wastewater systems based on population growth, facilities demand and sound land use policy. This Plan provides for the anticipated demands for continuation of services and for the projections for future facilities based on several growth and associated facilities demand scenarios. This plan provides staff with the tools necessary to utilize the water and sewer resources more effectively, protect environmental quality, and provide better service to citizens.

The KGCSA has made significant progress in improving and upgrading its public water and sanitary sewer systems. The following sections present a discussion of existing public water and sewer facilities in King George County that are owned and operated by the King George County Service Authority.

### Water System Summary

King George County has access to large quantities of water, but not all of it is potable. Because of its reliance on groundwater as the sole source of water supply, and increasing population, the County's groundwater resources are vulnerable to water pollution and groundwater depletion. Erosion, failing septic tanks, underground storage tanks, excessive pumping, and pesticide and fertilizer runoff are just some of the hazards to groundwater quality. Groundwater pollution or depletion would force the County to rely on other sources for water supply.

The King George County Service Authority (KGCSA) provides public water service to certain defined service areas of King George County. Individual private wells provide water service to those areas that do not receive water services from the KGCSA. Groundwater is the sole source of water for both public and private supply. The most critical concerns with respect to expanding water services are the assurance of a long-term reliable source of water supply, and the impacts of new groundwater withdrawals on existing wells. Although groundwater supply is currently adequate, the groundwater quality and quantity must continue to be monitored to ensure it meets the long-term water supply needs of the County. In order to ensure adequate water quantity and quality of public water supplies, KGCSA has prepared a Water Supply Plan that projects the County needs for a 20-year planning period. This document is currently under review of the Virginia Department of Environmental Quality. This document is available at the KGCSA website.

King George County is located within the Fall Zone of Virginia. Hydrogeologic conditions in the Fall Zone are noticeably different from those in other portions of the Coastal Plain. Although 10 distinct aquifers have been identified within the Virginia Coastal Plain, not all of them occur within the Fall Zone. Sediment deposition throughout the Coastal Plain has been complex,

resulting in numerous variations in sediment composition. Aquifers within the Fall Zone are relatively thin and shallow as compared to Coastal Plain aquifers to the east.

The majority of wells in King George County are located in either the shallow unconfined aquifer, the Aquia Aquifer, the Middle Potomac Aquifer or the Lower Potomac Aquifer. The unconfined aquifer is not desirable for public water supply due to low well yields. This shallow aquifer is also the most susceptible to contamination because of its proximity to the ground surface.

Dependable but low yielding wells can be developed in the Aquia Aquifer. Wells constructed in this aquifer are suitable for individual residences, but typically cannot support water supply demands for residential subdivisions.

The Middle Potomac Aquifer is a reliable source of groundwater, although iron and manganese may be elevated locally. Aquifer thickness and hydraulic conductivity of the aquifer can preclude development of high yielding wells or well fields. The greatest potential for higher yielding wells is expected in the eastern portion of the County where the aquifer thickness increases. In order to maximize potential yields, wells should fully penetrate the aquifer and multiple screened intervals utilized in order to develop all water-bearing strata.

The Lower Potomac Aquifer is likewise, a reliable source of groundwater. Elevated iron and manganese may be encountered locally, and fluoride concentrations are likely to increase in deep wells constructed in the eastern portion of the County. This aquifer has high yield potential. Well yields are expected to be the highest in the eastern portion of the County where the aquifer is thickest.

The County does not have a single source centralized public supply system that serves all of the KGCSA customers. The KGCSA currently operates 9 separate systems that serve approximately 4,162 customers. These systems serve the areas of Fairview Beach (interconnects with Potomac Landing), Dahlgren, Courthouse (includes Presidential Lakes, Purkins Corner, Cleydael, Peppermill, and Arnold's Corner), St. Paul/Owens (interconnected system), Oakland Park, Ninde Store, Circle, Canterbury, and Hopyard. The most recent system is the Hopyard Farms water system which will eventually serve the entire 898 customers of the Hopyard Subdivision.

The KGCSA is responsible for maintenance and repair of their existing facilities. For new developments, the developer is required to extend water service, and/or install new wells, treatment facilities and storage tanks as needed, and dedicate the systems to the KGCSA for operation and maintenance. These systems must be designed and constructed in accordance with the King George County Service Authority Regulations and the Water and Sewer Standards and Specifications.

The following tables summarize the capacity for each of the King George County Service Authority water systems.

**Table L-1: Summary of Water System Capacity (2018)**

System Name	Actual 2019 Demand (gpd)	Total Safe Yield (gpm)	Permitted System Capacity (gpd)	Remaining Available Capacity (gpd)
Water Systems				
Dahlgren	264,000	541	805,600	541,600
Canterbury	16,000	50	40,000	24,000
Circle	16,000	57	23,600	7,600
Fairview Beach	43,000	334	96,668	53,668
Ninde Store	5,000	42	12,000	7,000
Oakland Park	90,000	495	295,200	205,200
St. Paul/ Owens	20,000	85	26,000	6,000
Courthouse	281,000	628	478,400	197,400
Hopyard Farm	67,000	519	552,000	485,000

#### Courthouse Area Water System Summary

The Courthouse water system consists of five drilled wells, one (1) 150,000-gallon and one (1) 500,000-gallon elevated water storage tanks, a 20,000-gallon water storage tank, hypochlorination systems, and an iron and manganese filtration treatment system. The following is a description of each component of the Courthouse water system.

#### Arnolds Corner Component:

- Arnolds Corner Well #1 is a 620-foot deep well. The well has a maximum design yield of 136 gpm and is currently equipped with a pump capable of producing 68 gpm. A 5,000-gallon hydropneumatic storage tank is associated with the well.
- Arnolds Corner Well #1A is a 621-foot deep well. This well was taken out of service and replaced with a new 800-foot deep well including a pitless adapter, with a maximum design yield of 340 gpm. The new well is currently equipped with a pump capable of producing 200 gpm.

Both Arnolds Corner wells have sodium hypochlorite solution disinfection systems. A 20,000-gallon storage tank is associated with this system and serves as a chlorine contact tank. Additional storage is provided by a new 500,000-gallon elevated, welded steel tank, with a height of 140 feet. This tank is sometimes referred to as the "Food Lion Tank" due to its proximity to the Food Lion grocery store.

Purkins Corner Component:

The Purkins Corner Well is 782-feet deep and is fitted with a pitless adapter. The well has a maximum design yield of 148 gpm and is currently equipped with a pump capable of producing 120 gpm. The well and pitless adapter are located in front of the water treatment building, which is a prefabricated concrete structure. The well house is equipped with two filters. The well has sodium hypochlorite solution and a potassium permanganate chemical feed system. Additional storage is provided by a 150,000-gallon a multi-column, welded steel elevated tank, with a height of 132 feet, known as the Purkins Corner tank. The Purkins Corner tank is on the same hydraulic grade as the Food Lion tank.

Peppermill Estates Component:

The Peppermill Estates water system consists of two drilled wells, a 30,000-gallon atmospheric storage tank, three 5,000-gallon atmospheric storage tanks, a 5,000-gallon hydropneumatic storage tank, a 1,000-gallon hydropneumatic storage tank, and a hypo-chlorination system. The Peppermill Estates system is connected to the Courthouse system through a long, small diameter water main that extends along Rt. 206 from Peppermill Estates to the King George High School. Additional development along the Rt. 206 corridor is constrained due to the small size of the Rt. 206 water main.

- Peppermill Estates Well #1 is an 851-foot deep well. The well has a maximum design yield of 60 gpm and is currently equipped with a pump capable of providing 50 gpm. The well is located inside a cinderblock well house. A 1,000-gallon hydro-pneumatic storage tank is associated with this well. The well discharges into three 5,000-gallon storage tanks located at the well site.
- Peppermill Estates Well # 2 is a 957-foot deep well. The well is fitted with a pitless adapter, has a maximum design yield of 360 gpm, and is currently equipped with a pump capable of producing 190 gpm. The well and pitless adapter are located in front of the well house, which is a prefabricated, exposed aggregate building. The well discharges into a 30,000-gallon ground storage tank located at the well site. The water is then transferred to the 5,000-gallon hydropneumatic tank via two booster pumps, and water is then distributed to the system.

Water System Assessment. The infrastructure in the Courthouse water system is currently in acceptable condition; however, there is inadequate water service along Rt. 206 during the peak periods due to the long length of small diameter water main. There is no evidence of serious water quality problems. The main issues facing the Courthouse water system are:

- The need to increase the size of the water main along the Rt. 206 corridor

- The need to provide adequate fire flow along the Rt. 3 corridor (Perns to Purkins Extension) by increasing the size of the water main between the two elevated water storage tanks.
- The need to expand water supply and water storage, including identifying funding sources, based on growth in the service area.

Presidential Lakes Section 14 Water System:

Presidential Lakes Section 14 is an independently owned and operated system.

Presidential Lakes Sections 1-13 Water System Component:

The Presidential Lakes Sections 1-13 water system consists of two drilled wells, a 60,000-gallon storage tank, two 5,000-gallon hydropneumatic storage tanks, three booster pumps, a hypo-chlorination system, and an iron and manganese treatment system. Presidential Lakes Section 1-13 is interconnected with the Courthouse system.

- Presidential Lakes Well # 1 is an 881-foot deep well. The well has a maximum design yield of 150 gpm and is currently equipped with a pump capable of producing 150 gpm. The well sits inside a cinderblock well house. The 5,000-gallon hydropneumatic tank is associated with the well.
- Presidential Lakes Well # 2 is a 500-foot deep well. The well is fitted with a pitless adapter, has a maximum design yield of 83 gpm, and is equipped with a pump capable of producing 57.5 gpm. This well is currently used as a back-up well only.

Both wells discharge into one 5,000-gallon hydropneumatic tank. The water is then disinfected by hypo-chlorination and is discharged into the 60,000-gallon storage tank, which acts as the contact tank. Three booster pumps pump the water into the second 5,000-gallon hydropneumatic tank. The water is also treated by three filters.

Water System Assessment. The infrastructure in the Presidential Lakes water system is reportedly in acceptable condition. No immediate actions are recommended. The water system would benefit by having a stronger connection to the Courthouse system; this will occur when the “Perns to Purkins” extension is completed. This will allow the area to have improved fire protection and would allow for water and storage capacity to be shared.

Circle Water System:

The Circle water system consists of two drilled wells, a 5,000-gallon ground storage tank, a 3,000-gallon hydropneumatic storage tank, a 34-gallon diaphragm type pressure tank, a hypo-chlorination system, and two booster pumps.

- Circle Well #1 is located south of State Route 205 and West of State Route 301 near Edge Hill. The well is a 447-foot deep well with a maximum design yield of 45 gpm. The well is equipped with a pump capable of producing 25 gpm. The well is enclosed within a cinderblock well house and includes a 3,000-gallon hydropneumatic tank; a 5,000-gallon storage tank is adjacent to the well house. Two booster pumps are also located at the well house.

- Circle Well #2 is a 470-foot deep well interconnected to Well #1. The well has a maximum design yield of 12 gpm and is currently equipped with a pump capable of producing 12 gpm. The well is fitted with a pitless adapter.

Water System Assessment. The infrastructure in the Circle system is reported to be in acceptable condition. The main issue facing the Circle is limited capacity to serve new customers.

#### Dahlgren Area Water System Summary

The Dahlgren water system consists of six drilled wells, on-site water storage, a 500,000-gallon elevated storage tank at Monmouth, a 250,000-gallon ground storage tank at Owens, and hypochlorination and polyphosphate system.

- Monmouth Well # 1 is a 706-foot deep well. The well has a maximum design yield of 50 gpm and is currently equipped with a pump capable of producing 35 gpm. The well sits inside a wooden well house with a concrete floor.
- Monmouth Well # 2A is a 740-foot deep well. The well has a maximum design yield of 86 gpm and is currently equipped with a pump capable of producing 86 gpm. The well sits inside a wooden well house with a concrete floor. The well has a sodium hypochlorite solution disinfection system, and a polyphosphate system for corrosion inhibition.
- The Bayberry Well is a 676-foot deep well. The well has a maximum design yield of 150 gpm and is currently equipped with a pump capable of producing 94 gpm. The well sits inside a wooden well house with a concrete floor. Although not currently in use a 10,000-gallon and a 30,000-gallon storage tank protrude into the well house building.
- The Bumbry Well is a 660-foot deep well. The well has a maximum design yield of 70 gpm and is currently equipped with a pump capable of producing 70 gpm. The well sits inside a cinderblock well house. A 3,000-gallon hydro-pneumatic storage tank is associated with this well.
- The Payne Well is a 1,077-foot deep well. The well has a maximum design yield of 240 gpm and is equipped with a pump capable of producing 200 gpm. The well sits inside a precast concrete well house. The well pumps directly into the system.
- The Saft Well is a 620-foot deep well. The original well has failed and a new well has been constructed on the site, along with a new building and disinfection system. The new well has a capacity of between 150 and 200 gpm.
- Water Storage. Storage is provided by the 250,000-gallon ground Owens tank and the recently constructed 500,000-gallon elevated tank at Monmouth. The elevated tank is a pedestal spheroid steel tank with a height of 150 feet.

Water System Assessment. The Dahlgren Water System supply and storage are adequate to meet existing and future growth in the service area. There are several areas of concern with the facilities that need to be addressed in the future. They are as follows:

- Most of the well house buildings are in need of repair.
- Most of the hydropneumatic and small atmospheric tanks at the wells are in poor condition and need to be taken out of service or rehabilitated.

#### Fairview Beach Area Water System Summary

The Fairview Beach Area contains both the Fairview Beach water system components and the Potomac Landing water system components.

##### Fairview Beach Water System Component:

The Fairview Beach water system consists of two drilled wells, a 15,000-gallon ground storage tank, a 30,000-gallon ground storage tank, two 5,000-gallon hydropneumatic storage tanks, four booster pumps, a hypochlorination systems, and iron and manganese treatment systems.

- Fairview Beach Well # 2 is located on the West side of State Route 696 at Fairview Beach on the Potomac River. The well is 466-foot deep, has a maximum design yield of 165 gpm, and is currently equipped with a pump capable of producing 60 gpm. The well sits inside a cinderblock well house. The well discharges into a 15,000-gallon ground storage tank, which discharges into the 5,000-gallon hydropneumatic tank by way of two booster pumps, then into the system.
- Fairview Beach Well # 3 is located on the West side of State Route 696 at Fairview Beach on the Potomac River. The well is 507-foot deep well, has a maximum design yield of 150 gpm, and is currently equipped with a pump capable of producing 74 gpm. The well sits inside a cinderblock well house. The well discharges into a 30,000-gallon ground storage tank, then into the 5,000-gallon hydropneumatic tank by way of two booster pumps, and then into the system.
- Both wells have sodium hypochlorite solution disinfection and potassium permanganate feed systems.

Water System Assessment. The biggest problem facing the Fairview Beach water system is inadequate storage capacity. The system is prone to heavy peak demands during summer weekends. Additional storage is needed to improve system operation and would provide water for fire flows.

##### Potomac Landing Water System Component:

The Potomac Landing water system consists of a drilled well, a 20,000-gallon bulk storage tank, a 3,000-gallon hydropneumatic storage tank, two booster pumps, and iron and manganese treatment system.

- Potomac Landing Well # 1 is located east of Fairview Beach off of State Route 218. The well is 360-foot deep, has a maximum design yield of 95 gpm, and is currently equipped with a pump capable of producing 95 gpm. The well is fitted with a pitless adapter. The well discharges into a 20,000-gallon ground storage tank, then into the 3,000-gallon

hydropneumatic tank by way of two booster pumps, and then into the system. The well building is brick and block with a concrete floor and includes filters.

Water System Assessment. The Potomac Landing also has inadequate water storage for fire flows. This water system has only one source of water supply. The construction of a water main to connect the Potomac Landing and Fairview Beach water systems is a high priority.

#### Oakland Park Water System Summary.

The Oakland Park water system consists of three drilled wells, a 500,000-gallon elevated water storage tank, one 5,000-gallon hydropneumatic storage tank, four booster pumps, hypochlorination systems, and iron and manganese filtration treatment systems.

- Oakland Park Well # 2 is located North of State Route 3, off State Route 603 off Forrest Ridge Drive. The well is 471 feet deep, has a maximum design yield of 342 gpm, and is equipped with a pump capable of producing 250 gpm. The well discharges into the 500,000-gallon ground storage tank; the water is treated through two (2) greensand filters prior to discharge to the elevated tank.
- Oakland Park Well #1A is located north of State Route 3, off State Route 603 on Oakland Drive. The well is 609 feet deep, has a maximum design yield of 60 gpm, and is currently equipped with a pump capable of producing 30 gpm. The well discharges into the 500,000-gallon ground storage tank; the water is treated through two (2) greensand filters prior to discharge to the elevated tank.
- Sealston Well is located north of State Route 603, in front of the Sealston Elementary School. The well is 596 feet deep, has a maximum design yield of 95 gpm, and will be equipped with a pump capable of producing 95 gpm (the new facility will be operational in July 2006). The well discharges into a 12-inch diameter water main located along Rt. 603; the water is treated through two (2) greensand filters prior to discharge to the water main. The booster pumps, filters, chemical feed systems and controls will be located in a pre-fabricated structure. There will also be an emergency generator at the site.

Water System Assessment. The construction of the 500,000-gallon water storage tank and the construction of the water treatment facilities at Oakland Park and at the Sealston Elementary School will satisfy the water supply and water storage requirements of this area.

#### Rappahannock River/South Rural Area

The Rappahannock River/South Rural Policy Area contains three separate unconnected water systems, which are described below.

##### Ninde Store Water System Summary:

The Ninde Store water system consists of a single drilled well, a 6,000-gallon storage tank, and a 1,000-gallon hydropneumatic storage tank.

The Ninde's Store Well is located on State Route 205 near Ninde's Store. The well is 590' deep and has a capacity of 80 gpm. The well is equipped with a pitless adaptor and sits outside the small cinderblock well house. A 1,000-gallon hydropneumatic storage tank is associated with this well.

Water System Assessment. Ninde's Store is limited to 37 connections due to water supply and water storage limitations. The Ninde's Store well is in a location that is remote compared to the other municipal systems. There are no plans to expand this system.

St. Pauls/Owens Water System Summary:

The St. Pauls/Owens water system consists of two interconnected drilled wells, a 3,000-gallon and 5,000-gallon hydropneumatic storage tank, a 20,000-gallon storage tank, and a hypochlorination system.

The Owens Well is located on State Route 624, north of the junction of State Routes 206 and 624. It is an 898-foot deep well, has a maximum design yield of 60 gpm, and is equipped with a pump capable of producing 40 gpm. The well sits inside a small well house and includes a 5,000-gallon hydro-pneumatic storage tank. The well has a sodium hypochlorite solution disinfection system.

The St. Paul's Church Well is located south of State Route 206, approximately halfway between Owens Post Office and Berthaville. The original well that was constructed in 1976 was recently replaced with a new well equipped with a pitless adaptor; the new well has a capacity of 29 gpm. The well sits outside the small cinderblock well house. The well discharges into a 20,000-gallon storage tank, and then to a 3,000-gallon hydropneumatic storage tank by booster pumps, which then provides pressure and discharges to the system.

Water System Assessment. The Owens system is located near the 250,000-gallon Owens tank, which serves the Dahlgren service area. However, the elevation of the Owens tank is not sufficient to serve the Owens area. Consequently, the system is separated from Dahlgren.

Like Ninde's Store, the Owens system has inadequate water storage for expansion of the system. It is grandfathered at no more than 60 connections. The St. Paul's Church water system is limited by water supply and storage. There are no plans to expand this system.

Canterbury-Water System Summary. The Canterbury water system consists of two drilled wells, a 20,000-gallon bulk storage tank, and a 5,000-gallon hydropneumatic storage tank.

- Canterbury Well # 1 is located at the north end of Kent Road in the Canterbury Subdivision. It is a 457-foot deep well. The well is fitted with a pitless adapter, and it has a maximum design yield of 25 gpm and is currently equipped with a pump capable of producing 25 gpm.
- Canterbury Well #2 is located at the intersection of Ripon Court and Kent Road on the Southwest corner when facing north. It is a 600-foot deep well. The well has a maximum design yield of 25 gpm and is currently equipped with a pump capable of producing 25 gpm. The well sits inside a cinderblock well house and includes a 5,000-gallon hydropneumatic storage tank.

Both wells discharge into the 20,000-gallon bulk storage tank. The water is then transferred to the 5,000-gallon hydropneumatic tank via two booster pumps, and then distributed to the system.

#### Water System Assessment

- The infrastructure in the Canterbury water system is in acceptable condition.
- The primary issues are the lack of operational flexibility due to storage limitations and the inability to expand due to storage and water storage and supply limitations

#### Hopyard Farms Water System Summary:

The Hopyard Farms water system consists of three drilled wells and will include a main treatment/pumping facility located off of Route 607 (Port Conway Road) at approximately the middle of the development. The main treatment/pumping facility will include a building, iron and manganese removal treatment facilities, two atmospheric storage tanks, two domestic service pumps, one high service pump, a hydropneumatic storage tank and all associated piping and controls.

Well HOP-A was drilled to a depth of 491-feet and has a maximum design capacity of 230 gpm. The well is equipped with a pitless adapter and a well pump capable of producing 172.5 gpm. Well HOP-D was drilled to a depth of 791-feet and has a maximum design capacity of 220 gpm. Well HOP-D is equipped with a pitless adaptor and a well pump capable of producing 172.5 gpm. Well HOP-F was drilled to a depth of 450-feet and has a maximum design capacity of 260 gpm. Well HOP-F is equipped with a pitless adaptor and a well pump capable of producing 172.5 gpm. Each well pumps to the water storage tanks located at the main treatment/pumping facility.

The main treatment/pumping facility has six filters capable of treating approximately 86 gpm each, hypo-chlorination and permanganate chemical feed systems, a 5,000 gallon hydropneumatic water tank, two 150,000 gallon water storage tanks, two domestic water booster pumps each rated at 690 gpm, a high capacity water booster pump rated at 2,000 gpm, and an emergency generator.

#### Wastewater System Summary

The King George County Service Authority provides public sewage service to certain areas of King George County. Because soil limitations and a high-water table make septic systems impracticable in the defined growth areas of the County, public sanitary sewer systems are the preferred method of wastewater treatment. The King George County Service Authority's role in public sewerage is to collect wastewater from the source and transport it to one of its wastewater treatment plants (WWTP). The KGCSA is responsible for system improvements to its existing facilities. For new developments that connect to or construct public sewer systems, the developer is required to construct the wastewater facilities required to serve the development and dedicate the system to the KGCSA for operation and maintenance.

Other than the systems described below, all other wastewater treatment is provided by privately owned systems and individual septic tanks with drain fields. There are several reasons why publicly operated treatment works are preferable to privately owned septic systems. Septic

systems are not as efficient and are not as regulated as public wastewater facilities. Improperly maintained septic systems can potentially contaminate groundwater resources. According to the Virginia Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance, "even properly installed and maintained conventional septic systems remove less than 30% of the nitrogen from effluent. Depending on the physical, chemical and biological characteristics of the soil, a large portion of nitrogen from septic systems may reach ground and/or surface waters." The Chesapeake Bay Act does require that all septic tanks be pumped out every five years.

The locations of public wastewater treatment facilities in the County are at Dahlgren, Fairview Beach, Oakland Park, Hopyard Farms, and Purkins Corner. Two (2) of these plants, Purkins Corner and Oakland Park, are "package" treatment plants with capacities ranging from 120,000 gallons per day to 140,000 gallons per day. The other plants are more efficiently designed plants such as sequencing batch reactors and extended aeration oxidation ditch plants. These plants have capacities of 200,000 gpd (Fairview Beach), 375,000 gpd (Hopyard Farms), and 970,000 gpd (Dahlgren). The KGCSA should investigate the feasibility of constructing "regional" treatment plants and diverting the flows from the package plants to these larger facilities.

The following tables summarize the capacity for each of the King George County Service Authority WWTP's.

***Table L-2: Summary of Wastewater Treatment Plant Capacity (2018)***

System Name	Current Daily Demand (gpd)	Permitted System Capacity (gpd)	Remaining Available Capacity (gpd)
Dahlgren	288,000	970,000	682,000
Fairview Beach	55,000	200,000	145,000
Oakland Park	50,000	140,000	90,000
Purkins Corner	63,000	120,000	57,000
Hopyard Farm	43,000	375,000	332,000

## **WASTEWATER SYSTEM SUMMARY**

### Courthouse Area Wastewater System Summary

The Courthouse area wastewater system consists of the Purkins Corner WWTP. A description of the wastewater system is provided below.

- Purkins Corner Wastewater System Summary. The Purkins Corner area wastewater system consists of five pump stations, gravity collection systems and force mains. The wastewater system discharges into the Purkins Corner WWTP. The capacity of the Purkins Corner WWTP

has recently been upgraded to 120,000 gpd; the WWTP can be expanded in the future to 500,000 gpd. Additionally, the outfall discharge location is permitted for up to 500,000 gpd.

Many residents in the service area rely on private septic systems.

Wastewater System Assessment. The Courthouse wastewater system infrastructure is currently in acceptable condition; however, there is a need for system improvements and expansion as the area continues to develop. The major issues facing the Courthouse wastewater system are:

- The need for additional treatment capacity to satisfy future development demands. Much of the remaining capacity at the Purkins Corner WWTP will not be available for new developments.

#### Dahlgren Area Wastewater System Summary

The Dahlgren area wastewater system consists of 15 pump stations, one grinder pump station, gravity collection systems and force mains. The wastewater facilities discharge to the Dahlgren WWTP.

The Dahlgren WWTP is a secondary treatment plant with an oxidation ditch type biological reactor; the plant has been recently upgraded to provide additional treatment capacity. The plant is currently permitted for a discharge of 970,000 gpd.

Wastewater System Assessment. The upgrade and expansion to the WWTP and the recently completed effluent force main will solve the capacity, toxicity, ammonia and metals issues that have been problems in the past. The upgrade and expansion have been completed.

Overflows from the system continue to occasionally occur. Reduction of overflows is a critical issue and needs to be addressed. Rehabilitation of the pump stations, installation of inserts in the sanitary sewer manholes, and replacement of the key equipment should reduce the overflows.

Sludge Management. Sludge management is not really a compliance problem at the facility; however, it does represent a significant operational issue. The Dahlgren facility processes all the sludge from the other wastewater treatment plants in the County. A new sludge handling facility has been constructed as part of the wastewater treatment plant upgrade project; this new facility will meet the needs of the KGCSCA for the next several years. The KGCSCA has completed a Sludge Management Plan that recommends the construction of a second sludge handling facility in the future. The new facility will be located at the Hopyard Farms wastewater treatment plant.

System Improvements. The following improvements are currently underway:

- Perform updated analysis of gravity sewer, force mains, pumping stations, and inflow/infiltration problems so that a phased, cost effective approach can be followed to address immediate and future collection system improvements.

### Fairview Beach Wastewater System Summary

The Fairview Beach service area includes the Fairview Beach and Potomac Landing areas. The wastewater system consists of three pump stations, two grinder pumps, gravity collection systems and force mains. The wastewater system discharges into the Fairview Beach WWTP. A new WWTP was recently completed with a capacity of 200,000 gpd.

A number of residents in the service area rely on private septic systems.

Wastewater System Assessment. The new WWTP project should provide adequate capacity to meet the existing and future requirements of the service area.

System Improvements. The following improvements are being proposed to this system.

- Continuing inflow and infiltration program.

### Oakland Park Wastewater System Summary

The Oakland Park service area includes the Oakland Park subdivision, the King George Industrial Park and the Sealston Elementary School. The collection system consists of two pump stations, gravity collection mains and force mains. The wastewater collection system conveys the wastewater to a WWTP located in the Oakland Park subdivision.

A number of residents in the service area rely on private septic systems.

Wastewater System Assessment. Expansion of service to include the New King George County Elementary School, the King George Industrial Park and adjacent areas required that the WWTP be expanded to 140,000 gpd.

System Improvements. No additional improvements are currently proposed to this system. The WWTP can be expanded in the future to 500,000 gpd.

### Hopyard Farms Wastewater System Summary

The Hopyard Farms service area includes the residential and commercial areas of the development. The Hopyard Farms area collection system will consist of four pump stations, gravity collection mains and force mains. The wastewater collection system will convey the wastewater to the Hopyard Farm WWTP located within the Hopyard Farms development.

Wastewater System Assessment. The Hopyard Farms WWTP was recently completed and is currently in service. The WWTP currently has a design capacity of 375,000 gpd. The WWTP can be expanded in the future to a maximum capacity of 1,000,000 gpd. The outfall discharge pipe is sized for the future flow of 1,000,000 gpd.

System Improvements. No additional improvements are being proposed to this system.

## M. Community Facilities

The following material presents a brief description of the existing community services and facilities - other than water and sewer - that are provided in King George County. Recommendations for future facilities to meet anticipated needs are presented later in this Plan.

### Public Safety

This element of the Comprehensive Plan includes a discussion of fire, rescue and police services. Fire and rescue services in King George County are primarily provided with a combination of volunteer and paid county fire / rescue staff.

#### Fire, Rescue, & Emergency Services

The King George Department of Fire, Rescue & Emergency Services provides the primary fire protection, Emergency Medical Services (EMS), fire prevention, emergency preparedness / management, hazardous materials, vehicle extrication and water rescue services to the County. The department's mission is:

"We will answer the call of those in need remaining vigilant and committed to the preservation of life, the protection of property, and the conservation of the environment."

The department operates from a total of three stations. These stations are located in the Courthouse area (near the intersection of King's Highway, Rt.3, and Dahlgren Road, Rt. 206), the Fairview Beach area (near the intersection of Caledon Road, Rt. 218, and Fairview Drive, Rt. 696), and the Dahlgren area (near the intersection of James Madison Parkway, Rt. 301, and Dahlgren Road, Rt. 206).

Fire prevention is conducted throughout the County while performing state mandatory fire inspections on schools, licensed day cares, non-mandatory fire inspections, fire code enforcement, fire code complaints, unlawful burning, and most importantly public education. The department administers the "Get Alarmed Virginia" smoke detector and carbon monoxide detector program. The department works closely with Social Services to ensure that the program is targeting citizens with special needs. Fire prevention education is also performed in the schools and special community events in order to reduce the potential loss of life and property loss from fires.

Response times to various regions of the county are often variable because of distance and rural road conditions, however the department's goal is to respond to 90% of all emergencies within the county in eight (8) minutes or less and to have adequate staffing to meet the increasing demand for services, while assuming the workload generated by the loss of active volunteer fire and EMS personnel. The more populated and faster growing regions will need additional staffing to provide consistent service delivery as development occurs.

The Fire Department (from all three locations) is currently certified, equipped, and licensed by the Commonwealth of Virginia to respond on Emergency Medical Calls. The department is

licensed for Advanced Life Support (ALS), operates 6 ambulances, and operates an Ambulance Fee for Service program.

Mutual Aid (cooperative) agreements are established with the surrounding counties. An agreement exists with the Naval Support Facility Dahlgren (NSFDL) which has a fully paid fire department to provide assistance to the County. Caroline, Westmoreland, Stafford, and Charles Counties provide mutual aid services and are staffed with both volunteers and paid employees.

The department consists of volunteers, including a ladies auxiliary, county paid full-time, and part-time fire / rescue staff.

### **Emergency Preparedness**

In addition to responding to the day-to-day fire and rescue emergencies the Department of Fire, Rescue, and Emergency Services is also responsible for ensuring compliance with the Superfund Amendments and Reauthorization Act (SARA); to ensure compliance with state and federal mandates on hazardous materials and toxic waste identifications and cleanup; and to ensure coordination of disaster preparedness, response, mitigation and recovery actions within the county. The department also is tasked with coordination and implementation of the county's Emergency Operations Plan (EOP) in the event of a disaster and to ensure compliance with local, state, and federal laws. In addition, the department coordinates planning for sheltering, pet sheltering, hazardous materials, and radiological emergencies. The county is a partner locality for Disaster Mitigation Planning within the George Washington Regional Commission to ensure compliance with the Disaster Mitigation Act of 2000.

Additionally, the department is proactive in mass public notification and manages the county's City Watch (reverse 911) and the KG Alert notification systems. The department also coordinates the county's Local Emergency Planning Committee (LEPC) as required by federal law.

### **Law Enforcement**

King George County Sheriff's Office is an accredited agency serving King George County as the primary full-service law enforcement agency and is supported by the Virginia State Police. The State Police normally have one trooper on patrol during the day and evening hours. A total of five troopers serve the County. The Sheriff's Office provides 24-hour patrol with shifts of four or more deputies. The Sheriff's Office is staffed by the Sheriff, a Major, a Lieutenant, a First Sergeant, Sergeants, Corporals, Detectives, School Resource Officers and sworn law enforcement deputies. The Sheriff's Office is equipped with two K-9 teams, a bike patrol, a dive unit, a forensic unit and a tactical special response team. The Sheriff's Office is a State Accredited Agency.

The Sheriff's Office is made up of divisions as follows:

- Patrol division, providing first response to criminal complaints, traffic enforcement, 24-hour patrol, and school resource officers.
- Detective division, specializing in criminal investigations of all types.
- Communications division, providing the 911 center for dispatching fire and police.
- Records division, maintaining all records and reports.

- Court services division, providing court room security, security for the Judges, contacting members for the jury, and serving civil process.
- The Sheriff's Office provides several specialty units, such as; K-9 teams, a tactical response team, dive team, bike patrol, and a forensic unit.

## Schools

The King George County School System has three elementary schools, one middle school and one high school. A portion of the old King George Elementary School has been renovated and now houses eight Early Childhood Special Education classes, two Head Start classes and the Central Office personnel. Additionally, the bus maintenance garage is located at the old King George Elementary School site.

The School Board recently gave the Ralph Bunch School property to the County. This site is listed on the Federal Register of Historic Places and the County is currently in the process of exploring uses for the historic structure.

The elementary schools include grades K-6; the middle school, grades 7-8; and, the high school, grades 9-12. The table below compares current school enrollment to the "rated capacity" of each school building

***Table M-1***  
***King George County School Enrollment***

SCHOOL	FALL ENROLLMENT 2010	ESTIMATED BUILDING CAPACITY
King George High School	1,314	1,700
King George Middle School	667	900
King George Elementary School	873	900
Potomac Elementary School	609	900
Sealston Elementary School	765	900
 Total	4,228	4,796

In addition to the programs offered at King George High School, students may attend classes at the Spotsylvania Regional Vocational Training Center, and a Regional Alternative Education program in Fredericksburg.

King George has constructed a new high school and new two elementary schools in the last 12 years. King George Elementary School opened in 1999, Sealston Elementary School opened in 2006 and the new King George High School opened in 2008. In addition, once the new high school facility opened, the old high school facility was renovated and became King George Middle School. Currently, renovations are planned for Potomac Elementary School. Through the annual Capital Improvements Program, the County ensures that school facilities continue to meet the needs of the residents for the 21<sup>st</sup> Century.

## Parks, Recreation and Cultural Facilities

Recreation provides for both the physical fitness and the mental well-being of an area's citizens. Residents of King George County and visitors have available a wide variety of recreational and cultural facilities, from natural areas and open space to gymnasiums and libraries.

The current inventory of existing facilities should be updated annually. This function is part of the Capital Improvements Program process to determine the proper usage and distribution of facilities and sites.

### Parks and Recreation

The following is an inventory of the Parks and Recreation facilities in the County.

- Barnesfield Park is located on James Madison Parkway (U.S. 301). The park is 154 acres and features soccer, football and baseball/softball fields. A playground area, pavilions, trails, basketball courts, bird feeders, and fitness stations complete the facility. "Virginia's Potomac Gateway Welcome Center" is also located here and provides information and a rest area to visitors.
- Caledon State Park is a state owned and managed area of 2,579 acres. The facility contains picnic areas, nature trails and a small visitor's center. Caledon has virgin forest and is recognized for its Bald Eagle nesting grounds. Caledon is located on State Route 218 along the Potomac River.
- Dahlgren Wayside is a 10-acre waterfront area adjacent to Barnesfield Park and the Harry Nice Memorial Bridge. Picnic tables and grills are located on the premises.
- Hopyard Landing is a 4.73-acre park on the Rappahannock River. The park is owned and managed by the Virginia Department of Games of Inland Fisheries (VAGIF). The facility contains fourteen (14) parking spaces for boat trailers and twelve (12) parking spaces for vehicles. The park was constructed by Hazel Land, LLC as part of the rezoning proffer package accepted by the Board of Supervisors. The park was deeded to the County who then deeded the property to VAGIF.
- Wilmont Landing is located on the Rappahannock River, is a public boat landing in King George. Presently, very small craft can use this facility. The landing is located on Wilmont Road, off VA 3.
- Lands' End Wildlife Preserve is a 430-acre refuge for Canadian Geese and other fowl. 240 acres are used as agricultural lands. This property is not generally open to the public and no developed recreational facilities or activities exist on site.
- Sealston Park is located on Fletchers Chapel Road (Route 603) behind the Sealston Elementary School. The park is 45 acres and features a pavilion, concession stand, soccer, and baseball/softball fields.
- The Forest Stewardship Program allows owners of non-industrial private forests to create habitats for fish and wildlife as well as recreation for the community. One such facility is located on agricultural land owned by James and Joan Slater off State Route 218. Use of this area requires two weeks' notice and an application filled out at the Citizen Center.

Other recreational facilities in the County include the King George County Citizens' Center and those activities and facilities made available at the school sites in the County. The Citizens'

Center, which houses the Parks and Recreation administrative offices, provides a variety of facilities for social and recreational events. Numerous programs for youth and senior citizens are available. Some of the activities at the Center include Moms and Tots, Arts and Crafts Classes, and Performing Arts for all ages. There is also an amphitheater on the grounds of the Center. School sites provide tennis courts and a large portion of the ball field space in the County. The community can use all of the school gymnasiums after appropriate arrangements are made with the school administration. An existing agreement between the King George County School Board and the Board of Supervisors allows the public to use all school owned recreation facilities. The Parks and Recreation Department distribute seasonal brochures that outline a wide variety of programs available to County residents. Recent additions to their lineup include Park Adopt a Spot, Speaker's Bureau, Litter Control, and After School Programs. The Department also provides King George for Kids Fund and Fee Reduction and Sponsorship Programs to ensure their programs are available to all residents of the County regardless of financial ability.

The County Department of Parks and Recreation is responsible for planning, acquisition, development, and management of all city-owned parkland and outdoor recreation facilities. In an effort to meet this assigned responsibility, three park classifications – neighborhood, community, and district—have been developed based on the size and projected service radius of each park facility as follows:

***Table M-2***  
***Recommended Service Radius for Park Facilities***

Park Type	Acreage	Service Radius	Standard Acres per 1,000 Population
Neighborhood	5 to 19	1-1.5 miles	3
Community	20-49	3-7 miles	3
District	50 +	10-15 miles	4

**Neighborhood Park.** A neighborhood park is the smallest type of County Park and ranges in size from 5 acres to 19 acres. Since a neighborhood park is established to serve the outdoor recreation and park needs of a specific neighborhood within a primary service radius of 1 to 1.5 miles, the park is intended to be located within reasonable walking distance of the neighborhood. The recreation amenities provided in a neighborhood park are generally coordinated with the neighborhood representatives based on established neighborhood park design standards.

**Community Park.** A community park ranges in size from 20 to 49 acres and is designed to serve the outdoor recreation and park needs of two or more adjacent neighborhoods within a primary service radius of 3 to 7 miles. Because several neighborhoods are served by a community park, the recreation amenities provided in a community park are generally determined by consensus agreement of the neighborhood civic leagues based on established community park design standards.

**District Park.** A district park is the largest category of County Park and is 50 acres or greater. A district park represents a major commitment of local recreational resources and is usually centrally located within a primary service radius of 10 to 15 miles. Because multiple

neighborhoods are served by a district park, the recreation amenities provided in a district park are generally determined by established design standards of County wide district park facilities strategic management plan.

### ***Library***

The Lewis Egerton Smoot Memorial Library is located on U.S. Route 3 adjacent to the King George County Courthouse. It contains approximately 61,075 volumes, 2,135 DVD's. Titles not in the collection may be requested on interlibrary loan from other libraries, including some international sources. The Smoot Memorial Library also provides other cultural activities such as children's story hour, crafts, and various adult programs. The library has a Virginia Collection, computers with internet access. Meeting space is also available for use.

The library expansion plan includes 17,000 square feet along with renovation to the existing 10,000 square foot building. Construction of the library expansion was completed 2013.

Using Planning for Library Excellence: Standards and Guidelines for Virginia Public Libraries, compiled by Nelson Worley, The Library of Virginia, Library Development and Networking Division, the numbers that Smoot Library should strive for in pursuing excellence for the profile that we fit into. The numbers are:

Number of book volumes:

Smoot: 61,075

Strive for: 95,992

Number of Audio materials:

Smoot: 2,213

Strive for: 4,000

Number of Videos:

Smoot: 2,135

Strive for: 4,000

Square footage:

Smoot: 11,000

Strive for 17,000

### **King George County Museum and Research Center**

The King George County Museum provides a look into the past of King George. Located in the old jail at the eastern end of the courthouse complex, the museum displays artifacts ranging from prehistoric, Indian, colonial and Civil War up to the 20<sup>th</sup> Century. A small library includes information on local family histories of King George, Stafford, Spotsylvania, Caroline and Westmoreland Counties. Local families are encouraged to bring in their family histories and Bible records to be included in this collection.

## **Dahlgren Heritage Museum**

The Dahlgren Heritage Foundation is opening of a new museum in King George County that will be a center for community education, recreation, unique exhibits and stunning naval artifacts. The Museum will be located within the former Virginia Potomac Gateway Center on James Madison Parkway (U.S. 301) adjacent to the Harry W. Nice Memorial Bridge. The Dahlgren Heritage Foundation preserves and promotes the history, traditions, heritage, and culture of the U.S. Navy at Dahlgren, Virginia, and the surrounding community.

## **Solid Waste**

### ***County Landfill and Recycling Facility***

#### **County Landfill and Recycling Facility**

In August of 1993 King George County chose to convert from a publicly owned and operated landfill operation to a publicly owned and privately-operated facility. The King George County Landfill and Recycling Facility opened in November 1996. The 348.5-acre facility is located on over a 600-acre parcel abutting Route 665, Route 603, Route 605, and the CSX railroad spur in Sealston. The facility's design capacity is 45.5 million cubic yards of waste.

The County contract with Waste Management also calls for the annual transfer of funds for five years to develop a park facility on a site identified and owned by the County. In 2004, the County designated land adjacent to Sealston Elementary School as the location for the park and the park was constructed in 2008. All previously dumped materials from the old Purkins Corner King George landfill have been removed and disposed of in the new facility and the County has obtained approval from the Virginia Department of Waste Management to remove the designation as a "landfill" from the property. A park is currently being designed for the Purkins Corner Landfill site.

In 2010, Waste Management constructed a gas to energy facility at the King George County Landfill. The facility will convert methane gas generated as material within the landfill decays into energy. The energy generated by the facility will be sold as electricity to Virginia Dominion Power.

### ***Sealston Tire Pile***

From 1995 to 2000 more than five million tires previously dumped at the Sealston tire pile have been disposed of through a joint project of the County and the Virginia Department of Environmental Quality (DEQ). The project was completed at no cost to the County; with funding of approximately \$750,000 provided by DEQ through its Waste Tire Trust Fund. The first 400,000 tires were baled and used for a variety of uses including fill for a golf course. The remaining tires were shredded and utilized as daily cover at the landfill.

## **Public Offices**

### **Courthouse Complex**

The King George Courthouse Renovations project completed in August 1997, provides approximately 18,000 square feet of office space. The Courthouse Complex houses the Circuit Court, combined Courts, the Sheriff's Department, Commonwealth's Attorney and the Magistrate's Office.

### **King George County Government Center**

In 2005, the County began construction of a new office building complex which includes a YMCA, Animal Shelter, and Sheriff's Office on 69 acres the County acquired near the intersection of Routes 205 and 3. In 2010, the King George County Animal Shelter is the first building completed at the property. The second project, a new King George County Sheriff's office was completed in July of 2012. The next project slated for the government center property is a public private partnership with project FAITH. Under the partnership, the County has provided the project FAITH nonprofit group 5.5 acres of county land for a new center that would offer a variety of health and social services all under one roof.

### **Service Authority Building**

In 2009, the King George County purchase and 9207 Kings Highway for use as the headquarters Service Authority purchased property on Route 3 and relocated to the property.

### **Revercomb Administration Building**

The Revercomb Administration Building completed in 1994, provides approximately 21,000 square feet of office and meeting space. The Revercomb Administration Complex houses the offices of the County Administrator, Office of the Finance Director which includes the Service Authority Billing Department, Department of Community Development, Department of Facilities, Commissioner of Revenue, Office of the Treasurer, the Voting Registrar, and King George County School Board Office.

### **Rental Office Space**

Office space is rented to provide space for the Local Health Department, Department of Social Services, and Virginia Cooperative Extension Service.

## **N. Telecommunications Plan**

The King George Telecommunications component of the Comprehensive Plan is the County's public policy document for the wireless telecommunication industry. This section lays out the vision, goals, objectives and recommended actions (policies) to be incorporated into the consideration of sighting telecommunications facilities. This section seeks to strike a balance between industry needs and community concerns as they relate to economic development, land use, aesthetics, environmental and health impacts. The guidelines set forth shall apply to the sighting of antennas, telecommunication towers and equipment ancillary to their operation. Given the number of existing

and approved structures and their geographic distribution throughout the County, many opportunities exist for co-location that will adequately support future demand for tower space. Hence, sharing of tower space is a desirable goal.

Wireless Telecommunication Issue. The fast growth of the wireless industry is making the sighting of wireless antennas and towers an increasingly prominent issue across the United States. The single largest contributor to the proliferation of sites over the next few years is in the Personal Communication Service (PCS) providers. The smaller PCS cell architecture means the user and handset must be relatively close to the receiving antenna. This reduces the power needs of the handset (usually less than one watt), allowing it to be smaller and lighter, and the size of the antennas. The benefit of the smaller handset is clear; it is a less bulky item for the user to carry around.

The antenna issue is more of a mixed blessing. While antennas in PCS are certainly smaller and can be made less obtrusive, more antennas are required than in a cellular system. The predicted cell sizes for PCS and cellular networks taken from typical network models, is shown below in Table N-1. The table indicates that it may possible to space towers between 1.5 to 6 miles apart for PCS and 2.5 to 16 miles apart for cellular service. It must be noted that these figures represent industry averages and are subject to change depending upon several factors, including customer demand and site availability, as well as technological change and topographical limitations. Also, spacing between towers may diminish over time due to the development of new technologies.

**Table N-1: Predicated Cell Sizes for PCS and Cellular Service**

	Tower Height (feet)	PCS (1900 MHz) Range (miles)	Cellular (870 MHz) Range (miles)
Dense Urban	98	1.57	2.49
Urban	98	2.17	3.04
Suburban	98	2.98	4.16
Rural	164	6.40	16.65

*Source: Kuruppillai 1997.*

King George County Wireless Telecommunication Issue. A primary concern for King George in addressing telecommunication facilities is to ensure that the minimum numbers of towers are constructed to provide the maximum service to the Community. A primary method to reduce the number of towers that are constructed is to require that carriers co-locate on existing towers. To ensure adequate review of proposed telecommunication facility sites, the Board of Supervisors has implemented a Special Exception Permit procedure for new facilities. New proposed facilities must pass a propagation model study to ensure that co-location is not an option. Only in instances where co-location is not an option, should new facilities be approved.

Tower Conditions. There are currently four (4) towers available to serve the Route 3 between the Stafford County Line and Route 301. The Route 3 towers are approximately 3 miles apart and co-location is the most viable option for new service along Route 3. One (1) additional tower is located in Stafford County within the three (3) miles of the most western King George facility. There are six

(6) towers located along the U.S. Route 301 and co-location is the most viable option for new service along the U.S. Route 301 corridor. Six (6) towers exist along the Route 218 corridor and these towers are approximately 3 miles apart. Two (2) towers exist along the Route 3 corridor located between U.S. Route 301 and the Westmoreland County Line. One (1) tower exists near the Westmoreland County Line. One (1) tower exists on Route 205 approximately 4 miles east of Route 301. Propagation models should be carefully reviewed prior to approval of additional towers.

## O. Historic Resources

### Summary of County's History

King George County was named after King George I of England. The county was created by an Act of Assembly in 1720. During that time the boundaries included parts of the current Richmond, Westmoreland, Stafford, Prince William and Fauquier counties. The county did not obtain its present day boundaries until 1776. Today the county contains 178 square miles.

King George County has been home to many prominent Virginia families and is the birthplace of James Madison, the fourth president of the United States. James Madison was born near Port Conway on Belle Grove plantation on the 16<sup>th</sup> of March, 1751. Belle Grove was owned at this time by his grandfather, Francis Conway.

The County of King George served as the principal home of many prominent families and many remarkable individuals that helped settle this once vast wilderness. Settled along the Potomac River in the Chotank area were large landowners known as "Barons of the Potomac". These landowners operated great plantations that produced tobacco and various other crops. The Fitzhugh family of Bedford, along with the Stuarts of Cedar Grove and Mount Stuart, the Alexanders of Caledon, the Tayloes of Chatterton and Hooes of Barnesfield are only a few of these families who settled this area of King George. Many descendants of these original settlers still live in the county today.

One of the first groups to settle along the Rappahannock River was the Nanzatico or Nantaughtacund Indian tribe. This Indian village was the largest and most important Indian settlement on the Rappahannock from 1650 to 1702. Like the Potomac, the Rappahannock River front was home to many prominent plantation families. Some of the early families that settled this area were the Thorntons of Belle Grove, the Chichelays of Nanzatico, the Turners of Woodlawn and the Tayloes of Oaken Brow.

King George played various roles in the Civil War. The Potomac and Rappahannock Rivers were utilized by Union and Confederate gunboats. The Union army used many of the old homes and churches in the county as shelters, stables, headquarters and hospitals. Lambs Creek Church was used as shelter and a stable during the war. Rokeby, one of the large plantation houses was used as a headquarters by General A.E. Burnside during the Battle of Fredericksburg.

During the Civil War many homes and plantations were destroyed by the Union Army as well as records from the county clerk's office. William Brown served as Clerk of the County Court during this time. Before the Federals invaded the county, he selected the most important deed books that were in the Clerk's Office and took them back to his home, Waverly, where he hid them under the eaves in the attic. William Brown was afraid that if he tried to rescue all of the deed books the Federals would get suspicious, search his home and none of the books would be saved. The remaining deed books left in the

office were destroyed. One of the most valuable records, Will Book A-1 (1721-1752), contained the wills of George Washington's father, James Monroe's grandfather and James Madison's great grandmother. This book was carried off by an unknown Federal soldier. Over a century later the will book was located, restored and returned to King George County.

There were many skirmishes fought during the Civil War. One of note was fought at Mathias Point on June 27, 1861. It was here that Confederate soldiers successfully repelled an attack by a flotilla led by Thomas Freeborn.

There are many interesting stories and legends about King George County and its residents. One of the most famous of these tales involves John Wilkes Booth. Reportedly after the assassination of President Lincoln, Jon Wilkes Booth sought medical attention and food from Dr. Richard Stuart of Cleydael. Dr. Stuart, suspecting Booth's identity, refused to assist him and sent him and the other men who were with him on their way. Booth continued on to Port Royal, located across the Rappahannock River in Caroline County, where he died in the Garret barn.

Today King George County is beautiful rural county steeped in history. The maintenance of this historic heritage serves to benefit the quality of life by acquainting residents with King George's rich past.

The following list of historic structures and sites include a short description and material relating to the historic or architectural significance of the building or area.

#### ***Catalog of Historic Structures and Sites and Points of Interest within of King George County (Map 32)***

**Ashland** - circa 1800; rebuilt 1870; original owner: William and Anne Fitzhugh. Style: Early Republic. Ashland is a three-story brick structure finished in flemish bond with three large chimneys and a one-story porch with square columns. The interior of the house boasts a circular stair with balusters and a handrail constructed of walnut. The original house of the Ashland estate collapsed on the same day as the great Charleston South Carolina earthquake. # 1

**Aspen Grove** - Information not available for this entry. # 2

**Barnesfield** - circa 1715; original owner: Rice Hooe. Barnesfield was burned by Federals during the Civil War. It was situated on the bank of the Potomac River and was a noted estate.<sup>i</sup> Rice Hooe operated a ferry across the river at this site to Raiders in Maryland.<sup>ii</sup> The Barnesfield property is presently owned by King George County and is used as a complete recreational facility. # 3

**Bedford** - circa 1670; original owner: Colonel William Fitzhugh. The site of Bedford is all that remains of the ancestral seat of the Fitzhugh family. William Fitzhugh came to Virginia in 1670 and settled on the banks of the Potomac. He named his estate Bedford for his hometown in England.<sup>iii</sup> Colonel Fitzhugh served on the House of Burgesses, was a Lieutenant-Colonel of Militia of Stafford and became one of the largest land owners in Virginia.<sup>iv</sup> Bedford was rebuilt twice and was finally destroyed in the Civil War.<sup>v</sup> This structure was removed from the map.

**Belle Grove** - circa 1770; original owner: Francis Conway. Belle Grove, said to be the largest colonial house in King George County, stands on the site where James Madison, Fourth President of the United States was born on March 16, 1751.<sup>vi</sup> Belle Grove is an outstanding two-story frame mansion with two connecting wings and also two end wings. The house has both a land and a river front since it is situated

on the north bank of the Rappahannock River. The land front has a double porticoed porch with a two-story curving gallery. The river front boasts a large double porticoed porch with columns. The central portion of the house was built in 1770 and the end wings were added in 1839. The interior of Belle Grove has a central hallway with triple arches. The dining room contains walls covered with hand-painted wallpaper. On either side of the fireplace are carved archways leading into the entrance hall.<sup>vii</sup> Belle Grove is listed on both the Virginia Historic Landmarks Register and The National Register of Historic Places. # 4

**Berry Plain** - circa 1760; Original owner: Thomas Berry. Berry Plain is a two-story frame house with an English basement and a two-story wing. The exterior of the house features beaded clapboards, a one-story columned porch and a large collection of English boxwoods and trees. The interior of Berry Plain contains a large central hall, a staircase and rooms off of either side of the hall. The rooms contain their original fireplace mantles. The English basement of the house contains twenty-inch exterior walls and eighteen-inch interior walls. Located on the property are several outbuildings, including the quarters for the domestic slaves. Many Indian artifacts have been discovered on the property of Berry Plain. # 5

**Bleak Hill** - circa 1790; Original owner: Thornton. Style: Early Republic. This house is a two-story frame over brick dwelling situated on a bank above the Rappahannock River. It contains fine woodwork in the hall and an enclosed stair. Bleak Hill has a hallway twelve feet wide and thirty-one feet in length which runs across one end of the house from front to back.<sup>viii</sup> The dining room has the original mantle. The house also has an English basement and two large twin brick chimneys situated on one end of the structure. # 6

**Buena Vista** - circa 1866. This structure is a three-story farmhouse that contains a hip roof and a one-story porch that wraps around the house. # 7

**Caledon** - circa 1659; original owner: Captain John Alexander. The original house at Caledon was located on the Potomac River and is now no longer standing. The house was replaced by a two-story brick building built by a later generation of the Alexander family. The estate was given the name of Caledon for Caledonia, the ancient name for Scotland. It was Captain John Alexander, the original purchaser of the property, for whom the City of Alexandria was named.<sup>ix</sup> In 1984 Caledon became part of the Virginia Natural Areas System. It serves as a park where visitors can enjoy viewing the American bald eagle as well as many other forms of natural wildlife and botanical beauty. # 8.

**Canning** - circa 1846; original owner: William Taylor Smith. The Canning house was a square frame building with a west wing, cellar, four large brick chimneys and a columned porch that extended up to the roof. The first floor of the house contained two large rooms with a square hall and a stairway that extended three floors. The original Canning house was burned in 1889. The present structure there today was built partly over the original foundation. Canning served as the first seat of King George County Courthouse when the county was first established in 1720 from Stafford and Richmond counties.<sup>x</sup> # 9

**Cedar Grove** - circa 1840; original owner: Dr. Richard Stuart. Style: Greek Revival. Cedar Grove is a large two-story structure with a basement and two-story wings on either side. This riverside mansion contains a stairway that spirals from the hall to the attic. The steps of the stair are constructed out of white pine, the banisters out of curly maple and the handrail is out of black walnut.<sup>xi</sup> The interior of the house also features ceiling medallions, cornices, eleven and thirteen foot ceilings and marble fireplaces.

In the basement is the old kitchen which contains a huge fireplace and sixteen-inch black walnut sills.<sup>xii</sup> Other buildings on the property consist of a smokehouse and a milk house. Two graveyards are also on the property. One, near the entrance is surrounded by a brick wall and contains three table-top tombstones all apparently dated in the 1700's. The Stuart cemetery is located at the edge of the lawn, surrounded by an iron fence and contains about thirty tombstones. # 10

**Celtwood** - circa 1800's; original owner: unknown. Celtwood is a two-story frame dwelling that is one room wide. The house also contains a one-story porch with square columns and one interior chimney. The property boasts large American and English boxwoods. # 11

**Chatterton** - circa 1747; original owner: John Tayloe. Style: Georgian. The land of this estate was patented by Colonel Peter Ashton in 1650. Chatterton was named for an Ashton estate in England.<sup>xiii</sup> This fourteen room, two-story brick structure is one room deep and four rooms and a hall wide. 250,000 bricks were used in the construction of the house and were washed with a coating of lime and sand. The walls of Chatterton are twelve to fifteen inches thick. The stairway in the house is an exact duplicate as the one in Saint Paul's Church. A two-story frame tenant house is also located on the property. The tenant house was built approximately in 1830 and overlooks the river. Chatterton is also seated on the Potomac River. # 12

**Clarence** - circa 1800; original owner: Fitzhugh Family. Clarence is a two-story frame dwelling that sits high on a hill with its rear facing the Potomac River Valley. The tract of land that Clarence is located on may have been part of the original "Bedford" tract, also owned by the Fitzhugh family which was located nearby. # 13

**Cleveland** - circa 1880-90; original owner: Fitzhugh Family. Cleveland, formerly a Fitzhugh estate, became the ante-bellum seat of the Mason family. The house is a large two-story frame with many additions and a large front porch. It was erected on foundations of a former structure. Another smaller frame house is also located on the property and is believed to be older than Cleveland. Cleveland is now part of Presidential Lakes. # 14

**Cleve Manor** - circa 1754; original owner: Charles Carter. Style: Georgian. Cleve Manor was destroyed by fire in 1917 but remains as an important archaeological site. Cleve was the home of Charles Carter, son of King Carter. The original structure was built of brick and uniquely trimmed with white stone. The exterior walls were two- and one-half feet thick. Today the basement of Cleve remains intact and is partially covered by another house.<sup>xiv</sup> The basement shows the exact floor plan of the original mansion. Carters' Grove is an exact counterpart of Cleve with the exception of Cleve being smaller. The two have the exact same architecture and floor plans.<sup>xv</sup> Cleve Manor was a fine example of 18th century mansions with the richest use of stone trim on any brick colonial house in Virginia. # 15

**Cleydael** - circa 1859; original owner: Dr. Richard Stuart. This two-story frame structure was built as a summer residence for Dr. Stuart and was located eight miles from his primary residence, Cedar Grove. Dr. Stuart and his family spent their summers at Cleydael to avoid malaria that sometimes occurred along the river in the summer months. Cleydael retains nearly all of its' interior woodwork and has a wide verandah that runs the entire length of the house and wraps around it. The house has an unusual T-shaped floor plan that promoted greater ventilation. Located to the rear of the house was an office and waiting room where Dr. Stuart saw patients. On Sunday 23, 1865, John Wilkes Booth sought medical assistance from Dr. Stuart at Cleydael. Stuart, suspecting who Booth might be, refused him medical aid and sent him and the other men that were with him away, after having given them dinner.<sup>xvi</sup>

Cleydael is listed on both the Virginia Historic Landmarks Register and the National Register of Historic Places. # 16

**Comorn** - circa 1850; original owner: Bruce Family. Comorn is a two-story frame house, built on the center hall plan containing one room on each side of the hall. The center hall plan provided for greater ventilation during the warm summer months. Comorn contains fine brickwork. This is exemplified in the brick chimneys. # 17

**Dogue** - circa 1800's; original owner: Unknown. The house at Dogue is a two-story frame structure with a two-story pedimented porch with columns. Dogue is surrounded by very large, old trees. A cemetery is located in the side yard of the property. # 18

**Eagle's Nest** - circa 1825; original owner: William Fitzhugh Grymes. The present large two-story frame structure is the second house called Eagle's Nest built on this site. The first was constructed by William Fitzhugh and later burned. The existing structure has been extensively remodeled and added onto. The back stairway in the house is a copy of the one at Brandon.<sup>xvii</sup> The woodwork at Eagle's Nest is varied in each room. The interior design of the house is off-center. "The larger farmhouse, however, has a grace and charm that defy symmetry".<sup>xviii</sup> Eagle's Nest is listed on the Virginia Historic Landmarks Register and has been nominated to be placed on the National Register of Historic Places. # 19

**Emmanuel Episcopal Church** - circa 1859-60; original owner: Hanover Parish. Style - Gothic Revival. Emmanuel Church was built on Belle Grove plantation near Port Conway. It is an excellent example of simple Gothic Revival architecture. The church contains a two- and one-half story entrance tower covered by a pyramidal roof, supported by brackets. The church building is constructed of brick. Emmanuel Church is listed on both the Virginia Historic Landmarks Register and The National Register of Historic Places. # 20

**Friedland** - circa 1780; original owner: Alexander Seymour Hooe. This three-story structure has protruding gables both in front and back and is constructed of brick noggin with weatherboards. Friedland has most of its' original windows, doors, mantles, woodwork and wainscoting. The downstairs parlors contain fireplace mantles that reach to the ceiling. H-L (Holy Lord) hinges are present on the doors. A cemetery is also present on the property. # 21

**Friendly Cottage** - circa early 19th century; original owner: Fitzhugh Family. This one- and one-half story cape cod was originally located on the river but was moved to its present location before World War II. The cottage is of frame construction and has many additions. # 22

**High Hill (North Hill)** - circa early 1800's; original owner: Colonel Francis Thornton. High Hill is a two-story structure with a one-story columned front porch, and two chimneys on either end of the house. A restored frame meat house is also located on the property. # 23

**Hudson Street House** - circa late 18th century. The house located at Hudson Street is a two and one half-story frame structure with double brick chimneys on either side of the house. The house also contains a one-story porch with columns. Three out buildings are also located on the property. Map # 24

**Hylton** - circa 1890; original owner: Francis Dale. Builder: Fitzgerald Jones. For 135 years Hylton was the home of the Washington family. The original house is no longer standing. The present house at Hylton is believed to occupy the site of the old garden. This structure was removed from the map.

**Indian Town** - circa 1790-1800; original owner: Not known (believed to be Lord Fairfax), style: Early Republic. This one and one-half story frame structure exhibits unusual roof overhangs and gables with original roof shingles. All features are of 19th century design. Two original brick chimneys at the ends of the structure exist with the original plaster on the interior. The structure contains a kitchen and dining room in the basement, with two rooms on the first floor and two additional rooms on the half-floor above. These are reached by a narrow stairway. The house has recently been moved to Eagle's Nest in King George County. # 25

**Lambs Creek Church** - circa 1769-70; original owner: Brunswick Parish. Style - High Georgian. Lambs Creek church is a one- story flemish bond brick structure constructed in the shape of a simple rectangle. All fourteen windows have semi-circular arches and the doorways contain triangular pediments.<sup>xxv</sup> During the Civil War, Union soldiers broke into the church and used it as a shelter and a stable. They burned the box pews and the wine glass pulpit. Lambs Creek church possesses one of the three known "vinegar" bibles. There is a cemetery located in the side of the church yard. Lambs Creek is no longer in use except for one annual Sunday service held on the last Sunday in August. Lambs Creek Church is listed on both The Virginia Historic Landmarks Register and The National Register of Historic Places. # 26

**Liberty** - circa 1825; original owner: Colonel John Stuart. The oldest section of this house dates back to 1820. This structure is a two-story frame with clapboard over brick. Liberty has a two-story spiral staircase located in the main hall. # 27

**Litchfield** - circa 1802; original owner: Langhorne Dade. Litchfield, located high on the Potomac River, is a simple two -story clapboard frame house. The house once served as the rectory for St. Paul's church.<sup>xxvi</sup> The original floors in the house are constructed of hand-hewn random width pine. The windows are also handmade. Fireplaces are present in every room along with crown molding and chair railing. Pieces of Revolutionary era pipe have been found in the garden as well as Civil War belt buckles and bullets, baby dolls, porcelain hair curlers, marbles and pieces of silvered wine jugs. # 28

**Lothian** - Information not available for this entry. # 29

**Little Ferry** - Location: Route 218, south of route 613. A ferry once operated here from this site on or before 1763. The ferry was used to transport passengers and their horses across the Upper Machodoc Creek. George Washington crossed on the ferry several times paying various fares. Today a modern bridge is located at this site. # 30

**Marmion** - circa Approximately 1719; original owner: Philip Fitzhugh. Marmion, a two-story frame house, is listed on the Virginia Landmarks Register and The National Register of Historic Places. The exterior of the house yields a clipped gable roof and two interior end chimneys with exposed shafts.<sup>xxvii</sup> The stack of the south "early panel" chimney contains the only known example of glazed-header brickwork in Virginia.<sup>xxviii</sup> The outbuildings of the estate are grouped as a formal quadrangle around the main structure. These dependencies include a dairy, kitchen, office, and a smokehouse.<sup>xxix</sup> The interior of Marmion contains a central entrance hall with a beautiful staircase with carved posts and several paneled rooms. The paneling in the parlor has been described as superb. "The wall treatment at Marmion is the richest scheme found in Virginia woodwork."<sup>xxxi</sup> The painted paneling in the parlor is

decorated with urns, baroque scrolls, festoons, cornucopia and landscapes, all with a marbleized background.<sup>xxv</sup>. The parlor is the subject of an interesting story of the estate. "According to family tradition, in 1782 Philip Fitzhugh found upon the bank of the Potomac River a dying Hessian soldier. Filled with compassion; the master of Marmion had the ill man brought to the main house where he was cared for and recovered. Eager to prove his deep appreciation the soldier offered to decorate the parlor walls according to the fashion of the day in France. When his offer was accepted, he immediately went to work. All of the paints used were made from the plantation clay".<sup>xxvi</sup> The paneling of this room has been sold and can now be seen at the Metropolitan Museum of Art in New York. The paneled room is considered the finest piece of artwork in the American wing of the museum.<sup>xxvii</sup> In 1785 Marmion was sold to George Lewis, son of Fielding Lewis of Kenmore in Fredericksburg. The house was owned by Lewis descendants until 1977.<sup>xxviii</sup> # 31

**Millbank** - circa 1725 (rebuilt 1900); original owner: Samuel Skinner, style: Early Georgian. Millbank is a two-story frame structure with clapboard and brick veneer. The house also contains two wings and a one-story porch. The metal fireback in the original chimney dates to 1725. Several outbuildings exist on the property. The property passed from the Skinner family about 1876. It is said that the first slaves ever brought up the Rappahannock River were brought to "Millbank". The current house is the third that has been built on the site. The first, built in 1725, was burned in 1800. The second was burned on February 22, 1900. The third was built in the early 1900's and has six terraces, adding to the attraction of the property. # 32

**Montague Baptist Church** - circa 1850's. The church is a one-story frame structure. It is believed that the church was named for an early minister whose name was Montague. #33

**Mount Ida** - circa prior to 1860; original owner: Joel Berry. Mount Ida, located on a ridge overlooking the Rappahannock River, is a one- and one-half story colonial house. The house contains two large brick chimneys located on either side of the structure. The house also has a gabled roof with six dormers. The interior of Mount Ida contains a three-story stairway, cellar, six panel doors with locks and "HL" hinges and large fireplaces and mantles.<sup>xxix</sup> # 34

**Mount Stuart** - circa 1795; original owner: John Stuart. Style - Early Republican. Mount Stuart is a large two-story frame house with columned front and rear Greek Revival porticos. The house was built on the central hall plan with two rooms on either side of the hall. The front staircase is thought to have been designed by William Thornton, the architect of Woodlawn. # 35

**Morland** - circa 1929-1930; original owner: Morton Family. Morland is situated on land that was formerly part of Chatterton. The house appears to be older than its' actual age. Morland is a two-story brick structure with fireplaces, formal boxwood walkways and outbuildings. The house has a two-story pedimented front portico and has been described as "the loveliest pieces of development along any of the rivers in modern times". # 36

**Nanzatico** - circa 1770-80; original owner: Charles Carter. This estate was named for the Nanzatico Indians. Nanzatico was built as a twin house to Belle Grove before Belle Grove's alterations of 1839. It is believed that Richard and Yelverton Stern built both Belle Grove and Nanzatico. Nanzatico survives without almost any type of alterations. The house is a two-story frame with an engaged Ionic portico. The interior boasts a projecting wide entrance hall with an elliptical arch, supported by fluted pilasters.<sup>xxx</sup> The house also contains "remarkably lively Federal woodwork in the principal rooms".<sup>xxxi</sup>

Nanzatico is seated on a small bay at the head of the Rappahannock River. Nanzatico is listed on The Virginia Historic Landmarks Register and The National Register of Historic Places. # 37

**Nanzatico Indian Town Archaeological Site** - circa 1650-1702. Located in a field east of Nanzatico Plantation is the site of the village of the Nanzatico (Nantaughtacund) Indians. The village was the largest and most important Indian settlement on the Rappahannock River from 1650-1702.<sup>xxii</sup> Significant artifacts have been uncovered at this site. The Nanzatico Indian Town Archaeological Site is listed on The Virginia Historic Landmarks Register and The National Register of Historic Places. # 38

**Oaken Brow** - circa 1832; original owner and builder: Charles Tayloe. The original house burned in 1924 but was immediately rebuilt entirely over the original foundation with bricks from the original house. Oaken Brow was furnished with antiques saved from the fire.<sup>xxxi</sup> The house received its name from the large oak trees on the property. Oaken Brow is a beautiful large three-story structure that overlooks the Rappahannock River. # 39

**Office Hall** - circa 1725; original owner: Smith Family, style: Early Georgian. The original house here was known as the Tiffey house. It was a frame one and one half-story dwelling. The Tiffey house was torn down and replaced with another structure in 1916. The only remaining buildings of the original estate are the office-kitchen and the smokehouse. These buildings were first used as slave quarters and a smokehouse. The buildings are colonial in style and are in excellent condition. The building that served as slave quarters was once used as a schoolhouse. # 40

**Panorama** - circa 1830; original owner: Dr. F.C. Fitzhugh, Builder: Thomas Lomax, Style: Greek Revival. This structure is a two-story plus full basement house that exhibits excellent brickwork, cornices and folding shutters. Panorama was used as a summer residence. It was deserted around 1910 and has been used as a grain storage facility. # 41

**Parkers Store (Now Freeman's Store)** - circa 1884-1886. This two-story frame building contained Parkers General Store. The Post Office was also located here; established in 1898. Horses and wagons were sold, as well as suits and other general merchandise. The store and Post Office were called "Index". Mr. Parker was referred to as "Prince Merchant." On Saturday afternoons, the Magistrate and Sheriff would establish quarters in the store and held warrant trials. The store had unusually wide floorboards and a gallery on three sides inside the store. Tin ceilings also were present in the interior of the structure. # 42

**Port Conway** - Proposed July 7, 1803. In October 1783 at the request of Francis Conway III, twenty, one-half acre lots were laid out for the purpose of establishing a town. The town located across the river from The Town of Port Royal, was to be known as the Town of Port Conway. On July 7, 1803 the proposed plans and plots of the Town of Port Conway were produced by Catlett Conway at a monthly court held for King George County. The town plat consisted of twenty lots, a sixty-foot-wide main street and two, thirty-foot-wide cross streets. Some of the lots were purchased and there is record of some persons living in the town. The proposed Town of Port Conway did not thrive and was not established. # 43

**Potomac Baptist Church** - Organized 1875. Potomac Baptist Church is a two-story frame building with stained glass windows and a modern brick addition. There is a large cemetery on either side of the church building. # 44

**Powhatan Plantation** - circa 1825; original owner: Edward Thornton Tayloe, style: Greek Revival. Powhatan is a two-story brick structure balanced with one-story wings. The bricks used in the construction of the house were laid by the same mason as nearby Rokeby. The interior of the house is all new. Powhatan is located high on a ridge that overlooks the Rappahannock Valley. # 45

**Ralph Bunche High** – constructed in 1949. Ralph Bunche High School, named after black educator and Nobel Peace Prize winning diplomat, Ralph Bunche, was constructed after a prominent black law firm in Richmond, Virginia won a federal court case proving that the County's training school facilities (four clapboard buildings heated by wood stoves) were inferior to the County's white high school. The federal court ruling, which led to the construction of Ralph Bunche, was a stepping stone leading to U.S. Supreme Court's decision in 1954 to end legal segregation. The building served the County's black high school students from 1949 to 1968. The building served as an elementary school and later as school board office's after the County integrated its school system. #46

**Rokeby** - circa 1828; original owner: Wallace family, style: Greek Revival. This house is a large two-story brick structure constructed in flemish bond with frame wings on either side. The center section of the house was built in 1828 and the wings were constructed in 1912. In the Civil War during the siege of Fredericksburg, General A.E. Burnside used Rokeby as his headquarters. # 47

**Round Hill Church Site** - circa 1675-1698. Location: Route 218, west of route 619. This site is marked by one tabletop gravestone surrounded by a picket fence. The grave marks the burial place of Mrs. Rebekah Campbell and her son Alexander. Mrs. Campbell was the wife of Reverend Archibald Campbell, minister of Washington Parish. The date of her death is marked on the stone in Roman Numerals and reads March 21, 1754. The church that stood at this site was one of the few church structures actually cited to have been constructed of logs. # 48

**Saint Anthony's Roman Catholic Church** - Original owner: Roman Catholic Church. The present building is a one-story frame structure with stained glass windows and a modern addition. # 49

**Saint John's Church** - circa 1843; original owners: Trustees of St. John's Church, style: Gothic revival. St. John's is a small church that serves as the main Episcopal Church for King George. The church building is of frame construction and contains an interesting steeple. A Parish hall is also located next to the church. # 50

**Saint Paul's Church** - circa 1766; original owners: Saint Paul's Vestry, style: Late Georgian. The present structure is the third church built to serve St. Paul's parish. St. Paul's was finely constructed of brick and contains one of the few wine glass pulpits. It is one of the two remaining Virginia colonial churches with a true Greek Cross plan and two tiers of windows.<sup>xxxiv</sup> The exterior of the two-story building has both semi-circular and segmented arches above the windows, rubbed brick trim and a hipped roof at each of the four gables.<sup>xxxv</sup> In 1812-13 the church was in ruins and was taken over as a girl's school. It was at this time that the four wings were bricked up to make classrooms. One of the three classrooms remains although the other three wings have been restored to their original form. In 1831 paneled pews were installed and galleries were built on the south, east and west wings.<sup>xxxvi</sup> Located in the churchyard is the parish house, constructed in the Early Republican style. The parish house was once used as a rectory. A cemetery is also located in the churchyard. The Parish Register is kept at the Theological Seminary in Alexandria. The register dates from 1715 to the end of that century and contains all births, deaths and marriages of that period.<sup>xxxvii</sup> The church still has its communion service of 1720 and its Bible of 1762.<sup>xxxviii</sup> The Stuarts served as rectors of St. Paul's for more than three-quarters of a century.<sup>xxxix</sup>

St. Paul's is listed in the Virginia Historic Landmarks Register and The National Register Of Historic Places. # 51

**Shelbourne** - circa 1848; original owner: Judge John E. Mason, present use: Emmaus, a boarding school for girls. Sections of the house were burned during the Civil War and were rebuilt in 1865-66.<sup>xli</sup> Shelbourne is a two-story frame house with a steep gable, porticoed front entrance, wide verandah and central chimneys. The house was the residence for several years of Paul Kester, noted author and playwright. Here he wrote his most famous novel entitled His Own Country. Shelbourne contains many interesting features, among them are a black marble mantle in the living room and oak leaves and acorns carved all around the window and door facings.<sup>xli</sup> # 52

**Shiloh General Store** - circa 1847. This building served as a general store, post office and meeting hall. The main building is a two-story 40 foot by 50-foot structure with a porch that runs across the full width of the front of the building. This structure was removed from the map.

**Society Hill** - circa 1750; original owner: Colonel Francis Thornton. Society Hill was torn down before 1934. The bricks used in the original structure were taken away and used in repairing the walls around Mount Vernon. Located in the rear of the site is the elaborate tomb of Colonel Francis Thornton who presided there in 1750. This site could not be located and was removed from the map.

**Spring Hill** - circa 1820. Spring Hill is a large two-story frame house with chimneys and a wing, situated on the Rappahannock River. # 53

**Spy Hill (Round Hill)** - circa 1734; original owners: Anthony Bridges and John Rozier. The house here is a large two-story frame with clapboard structure. The interiors are almost completely original in the older section of the house. The porch paving is from the old Round Hill Church. The Spy Hill property was once owned by Lawrence Washington. It was also the home of Colonel Thomas Stuart Garnett of the Confederate Army. Colonel Garnett was in Stonewall Jackson's brigade at Chancellorsville when Jackson was wounded and later died. Col. Garnett was to be the new commander in Jackson's place. His commission was approved and signed but he was killed in action before it could be delivered. # 54

**Stoney Point** - circa unknown. Stoney Point, a large two-story frame house is situated on a high bank overlooking the Potomac River. The exterior of the house features a large two-story portico with verandahs on the second story of the structure. # 55

**Trinity Methodist Church** - circa 1874. This impressive small brick structure exhibits fine brick work, a significant steeple and stained-glass windows. A cemetery is located in the church yard. # 56

**Union Bethel Baptist Church** - circa 1915; original owner: Union Bethel Church. Union Bethel Church is a two-story frame structure with an interesting and unique front tower and semi-circular windows. The building bears two corner stones, one stone depicts the date the church was organized as May 29, 1881. The other stone lists the date September 15, 1915, the date the building was rebuilt. Across the road from Union Bethel Church is a one-story frame, one room schoolhouse. # 57

**Union Methodist Church** - circa 1850; original owner: Methodist Church, style: Greek Revival. The structure is a one-story brick building in common bond with engaged columns. The structure has a front window with sidelights, and louvered fanlight in pediment. # 58

**Walsingham** - circa prior to 1747; original owner: Col. Thomas Turner. Walsingham was a grant from the Crown of England bestowed to Colonel Thomas Turner. This colonial river front home was burned in 1892 and is no longer standing. This structure was removed from the map.

**Washington Mill** - Information not available for this site. # 59

**Waterloo** - Established 1653; original owner: John Washington. The original house of this estate is no longer standing. John Washington, the only son of Lawrence Washington (George Washington's grandfather) lived at Waterloo. The present house at Waterloo is a two-story frame structure built at a later date. # 60

**Waverly** - circa 1880's; original owner: The Brown Family. This is the site of a former two-story brick and stucco dwelling which was burned in 1970. The former dwelling replaced an even earlier structure that was destroyed by fire after the Civil War. Some records from the King George County Courthouse were kept here during the Civil War by William S. Brown, Clerk of the Court. It was later the home of the noted columnist Thomas Lomax Hunter. Waverly has a large collection of millstones that were used in the gardens around the house and more than 500 mature boxwoods. Also, on the property is an old barn, stables, and schoolhouse. #61

**White Hall** - circa 1790; original owner: The Wallace Family, style: Early Republic. White Hall is a two-story brick and frame house built on the central hall plan with one room on either side of the hall. The house is "set on a high knoll overlooking surrounding land with many steps leading up to it at front and rear." (W.B. Morton). It was thought that the house may have been a rectory for the nearby Lambs Creek Church. # 62

**White Plains** - circa 1725; original owner: Not known, style: Early Georgian. This two and one-half story structure of beaded weatherboard contains excellent interior woodwork and flemish bond in the foundation. The house has clipped gables like Marmion and is flanked by two brick chimneys. The house also has paneled shutters. Also constructed at White Plains are a smokehouse, an office with a clipped roof, and a gazebo. # 63

**Windsor** - circa 1853-54; original owner: William Henry Washington. The original house built by Henry Thacker Washington burned and was replaced with the present structure. The present house is a two-story frame structure with a one-story porch, interior chimney and an English basement. The interior of Windsor contains a large central hall, ten-foot ceilings, a walnut staircase with hand turned posts and random width pine floors. Windsor is seated on a long ridge that overlooks the Potomac River Valley. # 64

**Wood Grove** - circa 1835-40; original owner: Reverend Thomas Baker. This house is a two-story frame structure that features dormer windows and two wings that were added in the 1920's. Wood Grove was supposed to be used as an Episcopal seminary. # 65

**Woodlawn** - circa 1790 (Wing), 1830 (Main House); original owner: Richard H. Turner, style: Early Republic. Woodlawn is a beautiful and impressive two-story frame mansion with two flanking wings. The front exterior of the house boasts a two-story columned portico. The rear of the house has a smaller porch. Other architectural features of the structure are a hipped roof and two interior end chimneys. The small southeast end of the house was erected in 1790. It contains hand hewn beams and has a large winter kitchen in the basement. Outbuildings on the estate include a summer kitchen with

double fireplaces, smokehouse and slave quarters. Woodlawn is situated on the Rappahannock River and is part of an original land grant from the Royal Governor of Virginia, dated 1667.<sup>xlii</sup> # 66

**Woodstock** - circa 1800; original owner: Custis Grymes. The present house at Woodstock is a two-story frame structure with a one-story columned porch. It was built on the site of an earlier house (18251830) that was destroyed by Yankee gunboat action in the Civil War. An old meat house, accessory to the earlier dwelling survives in the yard. # 67

### **Points of Interest**

**Good Hope Baptist Church** – established in 1867 at a site just below Spy Hill known as Maringo relocated to its current location in June 1868 through deed of an acre of land by Colonel Thomas Baber. First church was a brush harbor with the first frame structure being built in 1872. An addition to the brick worship hall was constructed in 1993. #68

**Antioch Baptist Church** – established in July 1868 and remodeled June 19, 1971. Site of one of the first African-American Churches established within King George County. Church site was given to the original members by members of Hanover Church. #69

**Salem Baptist Church** – established in 1869 in a one room log cabin. The log cabin was replaced by a frame structure (circa 1871) which was then renovated in 1976. The 1976 renovation included additions and a brick exterior. #70

**Little Ark Baptist Church** – established in 1876. Site of one of the first African-American Churches established within King George County. The Church membership was originally part of the "Little Zion Baptist Church". #71

**Saint Stephens Baptist Church** – established in 1873. #72

A great amount of the information obtained in this catalog was taken from the Historical Files on King George County at the Virginia Department of Historic Resources.

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i

. Smoot, Betty Carter, Days In An Old Town, (Washington, D.C.: Judd & Detweiler, Inc., 1934), p.65-66.

ii Works Progress Administration of Virginia Historical Inventory, King George County. "Canning", Research made by Julia Marie Heflin, September 14, 1937, p. 54.

iii Smoot, p. 63.

iv Smoot, pp. 63-64.

v Smoot, p. 64.

vi Farrar, Emmie Ferguson & Hines, Old Virginia Houses The Northern Peninsulas, (New York: Hastings House, Publishers, 1972), p.106.

vii Farrar & Hines, pp. 107-108.

viii Farrar & Hines, p. 113.

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<sup>ix</sup> WPA, p. 47.

<sup>x</sup> Works Progress Administration of Virginia Historical Inventory, King George County. "Canning", Research made by Julia Marie Heflin, September 14, 1937.

<sup>xi</sup> Farrar & Hines, p. 110.

<sup>xii</sup> Farrar & Hines, p. 110.

<sup>xiii</sup> Eubank, H. Ragland, Historic Northern Neck of Virginia, p. 25.

<sup>xiv</sup> Waterman, Thomas Tileston, The Mansions Of Virginia 1706 - 1776, (Chapel Hill: University of N.C. Press, 1946), p. 178.

<sup>xv</sup> Waterman, p. 180.

<sup>xvi</sup> Steele, Karen D., Historical and Archaeological review for the Va. Landmarks Commission.

<sup>xvii</sup> Farrar and Hines, p. 124.

<sup>xviii</sup> Farrar and Hines, p. 124.

<sup>xix</sup> Farrar and Hines, p. 115.

<sup>xx</sup> Farrar and Hines, p. 110.

<sup>xxi</sup> The National Register of Historical Places 1972, (Washington, D.C.: U.S. Government Printing Office, 1972), p. 517.

<sup>xxii</sup> The Virginia Landmarks Register, (Charlottesville: University Press Of Virginia, 1987), p. 221.

<sup>xxiii</sup> Virginia Landmarks Register, p. 221.

<sup>xxiv</sup> Waterman, p. 81.

<sup>xxv</sup> Waterman, p. 81.

<sup>xxvi</sup> Sale, Edith Tunis, Interiors of Virginia Houses of Colonial Times, (Richmond, Virginia: William Byrd Press Inc., 1927), p. 200.

<sup>xxvii</sup> Smoot, p. 58.

<sup>xxviii</sup> Virginia Landmarks Register, p. 221.

<sup>xxix</sup> WPA, p. 188.

<sup>xxx</sup> Virginia Landmarks Register, p. 221.

<sup>xxxi</sup> Virginia Landmarks Register, p. 221.

<sup>xxxii</sup> Virginia Landmarks Register, p. 222.

<sup>xxxiii</sup> Farrar and Hines, p. 120.

<sup>xxxiv</sup> Virginia Landmarks Register, p. 222.

<sup>xxxv</sup> Farrar and Hines, p. 112.

<sup>xxxvi</sup> Farrar and Hines, p. 112.

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xxxvii Smoot, p. 67.

xxxviii Virginia Landmarks Register, p. 222.

xxxix Farrar and Hines, p. 111.

xl Farrar and Hines, p. 120.

xli Farrar and Hines, p. 121.

xlii Farrar and Hines, p. 118.

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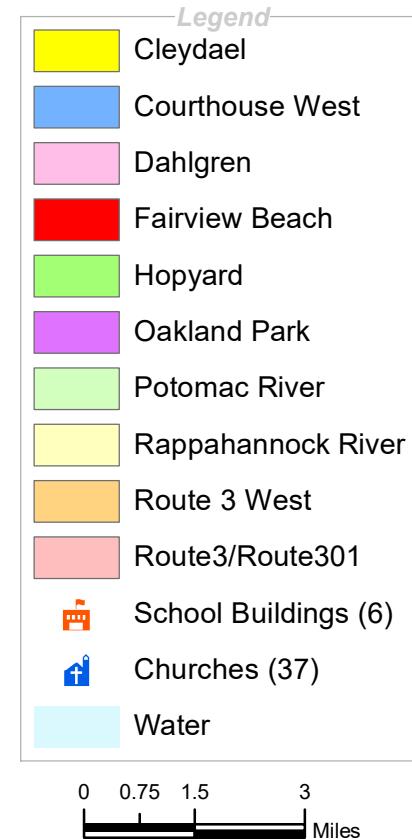
## **MAPS**

# MAP 1

## PLANNING AREAS

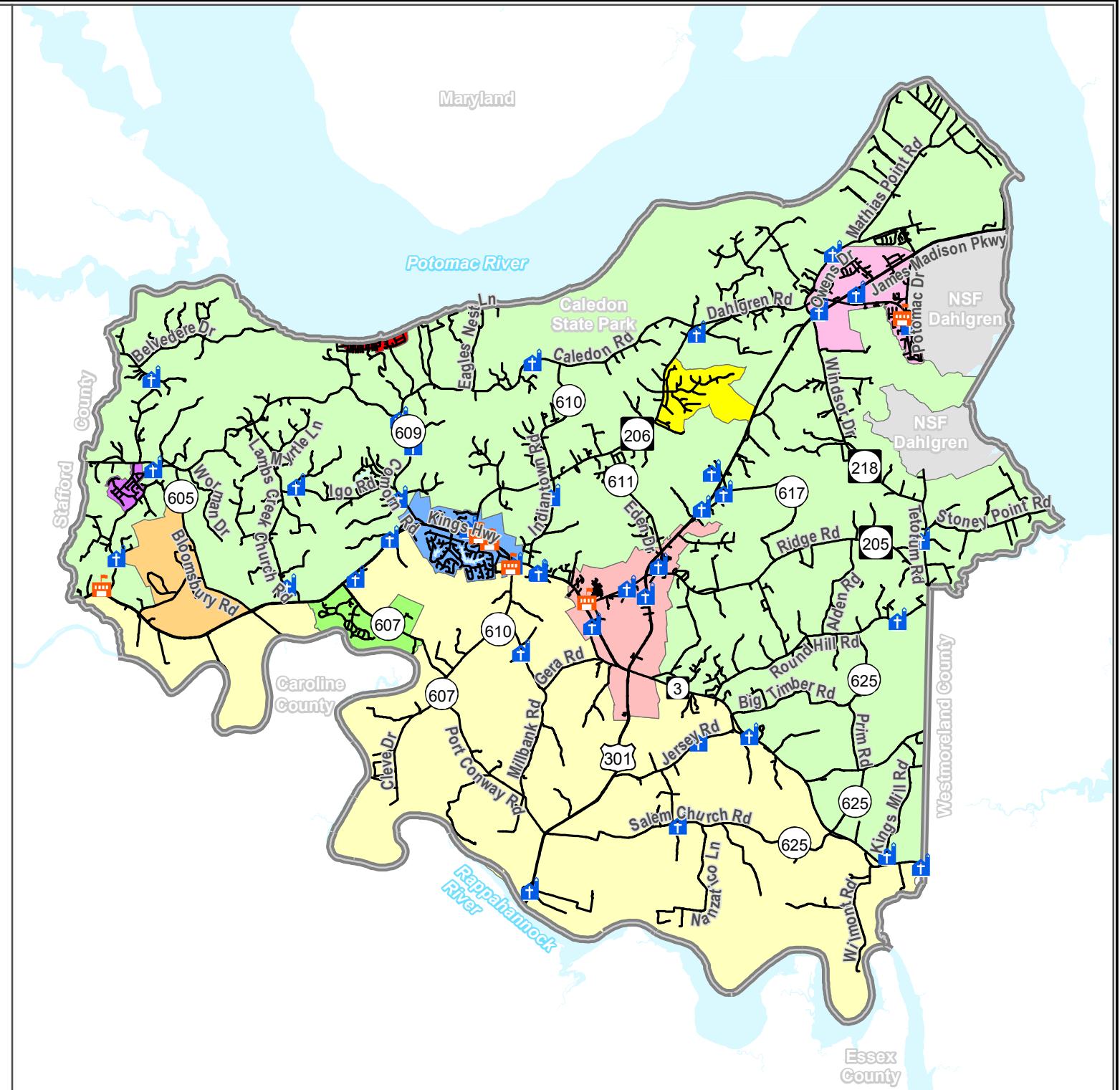
### 2019 COMPREHENSIVE PLAN

### KING GEORGE COUNTY



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Department of Community Development, K-12, 8/22/2019



## MAP 2 **CURRENT ZONING** **2019 COMPREHENSIVE PLAN** **KING GEORGE COUNTY**

### **Legend**

-  Settlement Areas
-  School Buildings (6)
-  Churches (37)
-  Water
-  Roads

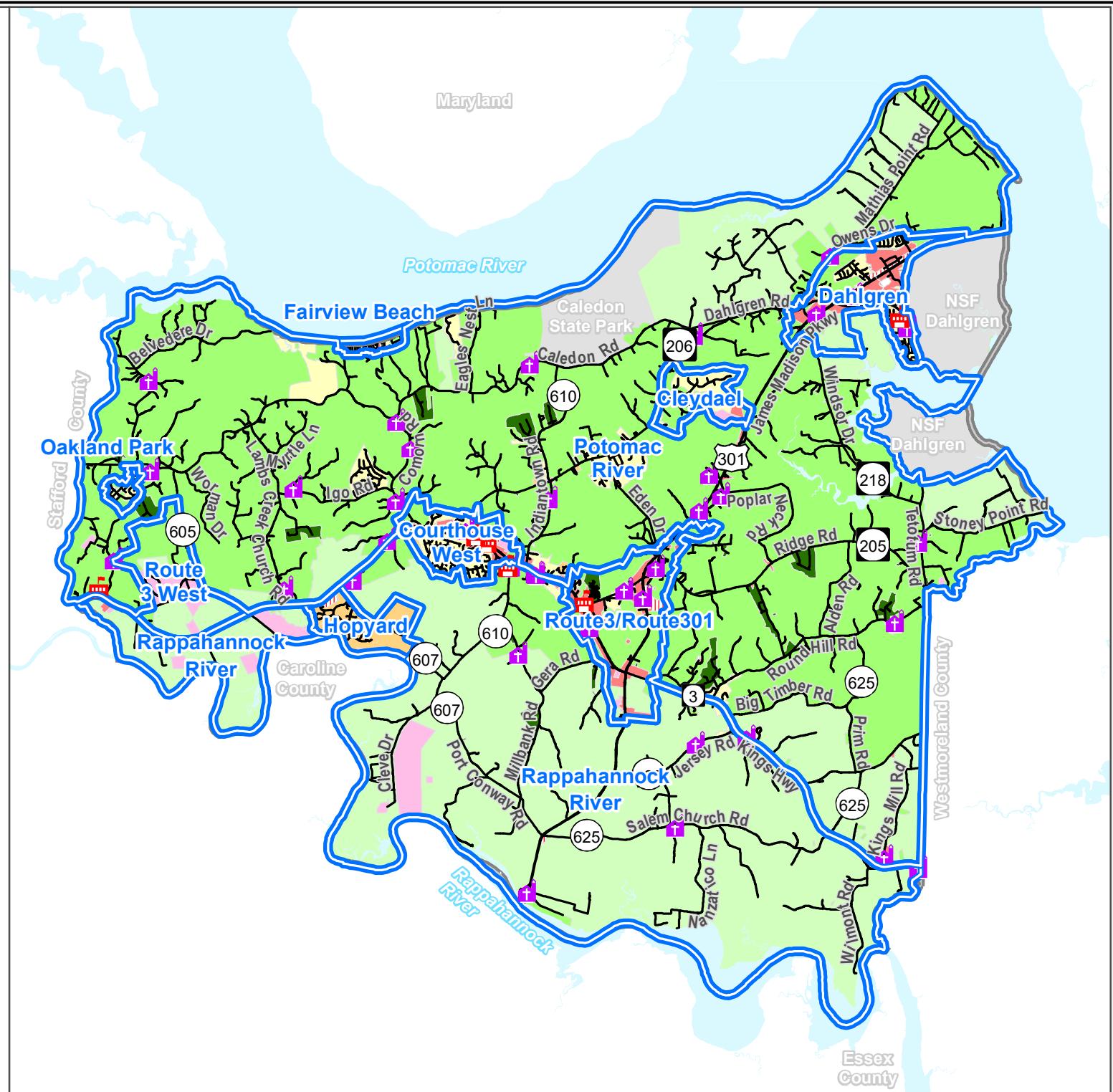
### Zoning Type

- A-1 Limited Agricultural
- A-2 Rural Agricultural
- A-3 General Agricultural
- C-1 Retail Commercial
- C-2 General Trade
- I Industrial
- R-1 One-family Dwelling
- R-2 General Dwelling
- R-3 Multi-family Dwelling

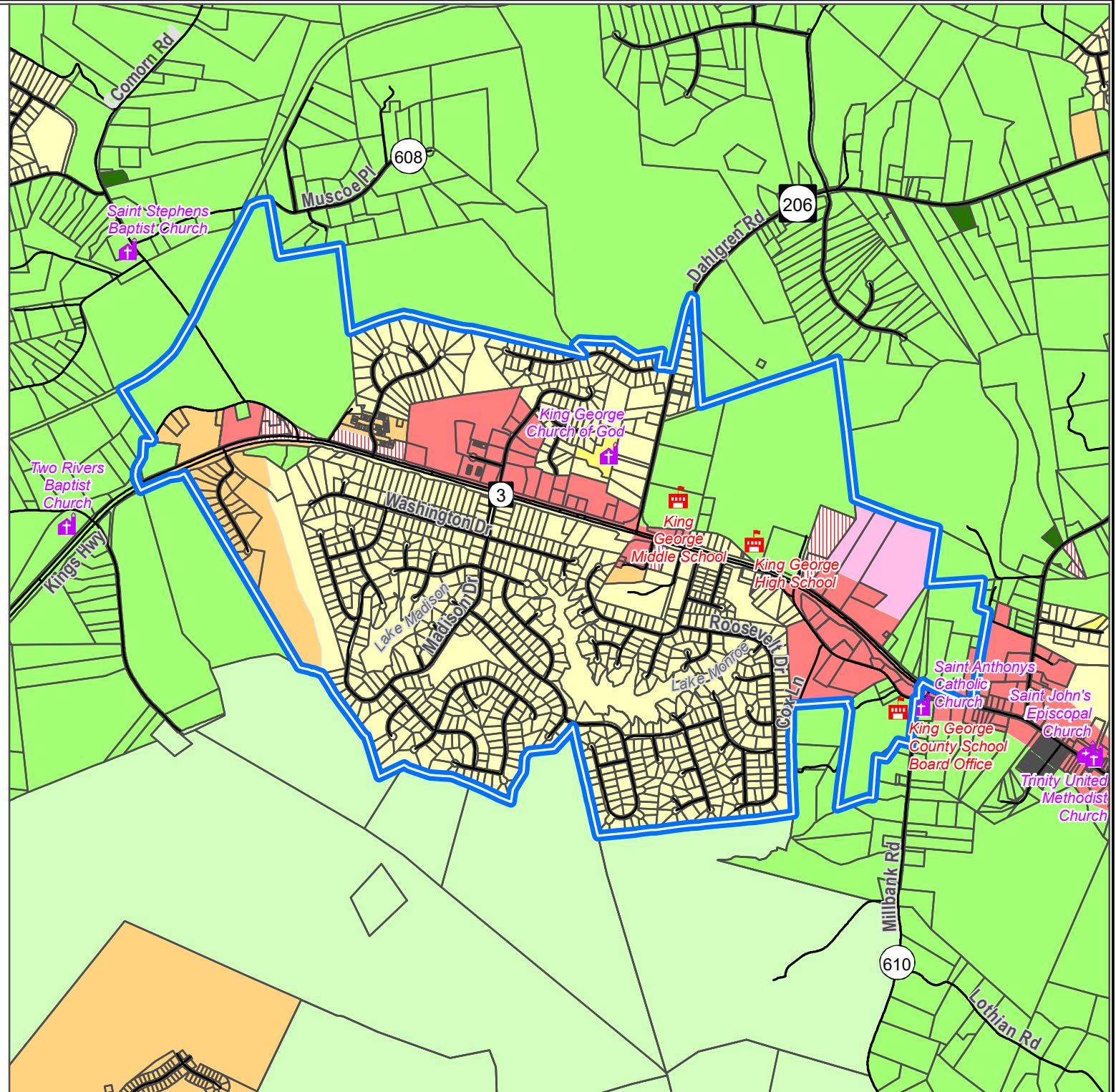
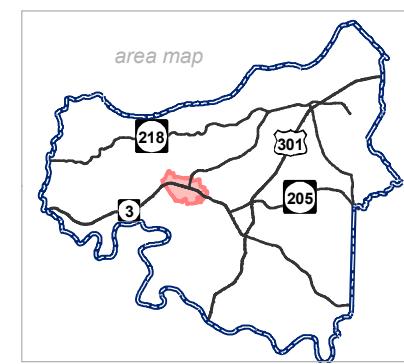
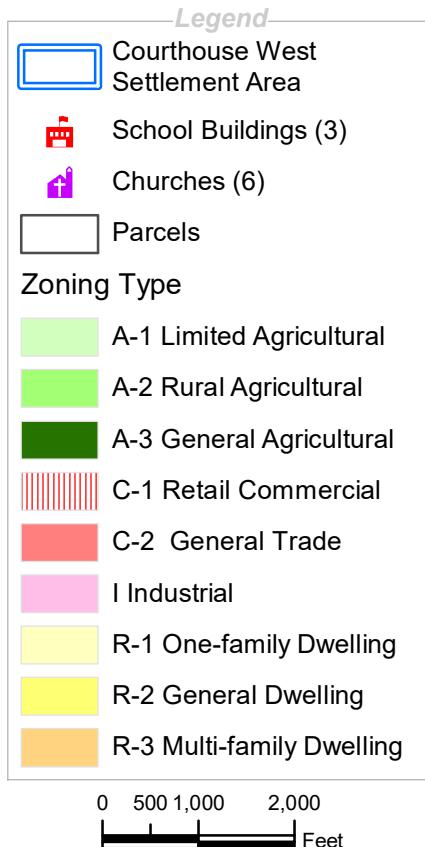


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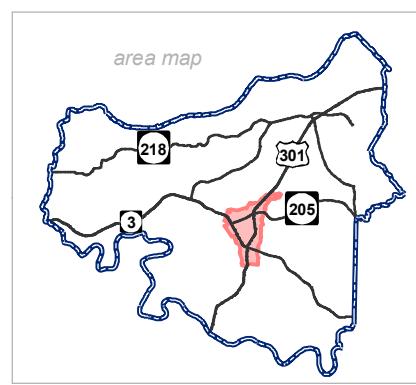
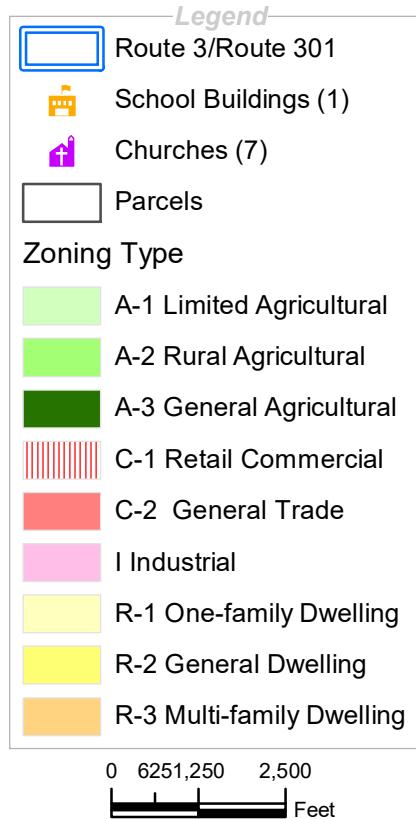
Department of Community Development KJC 7/10/2011



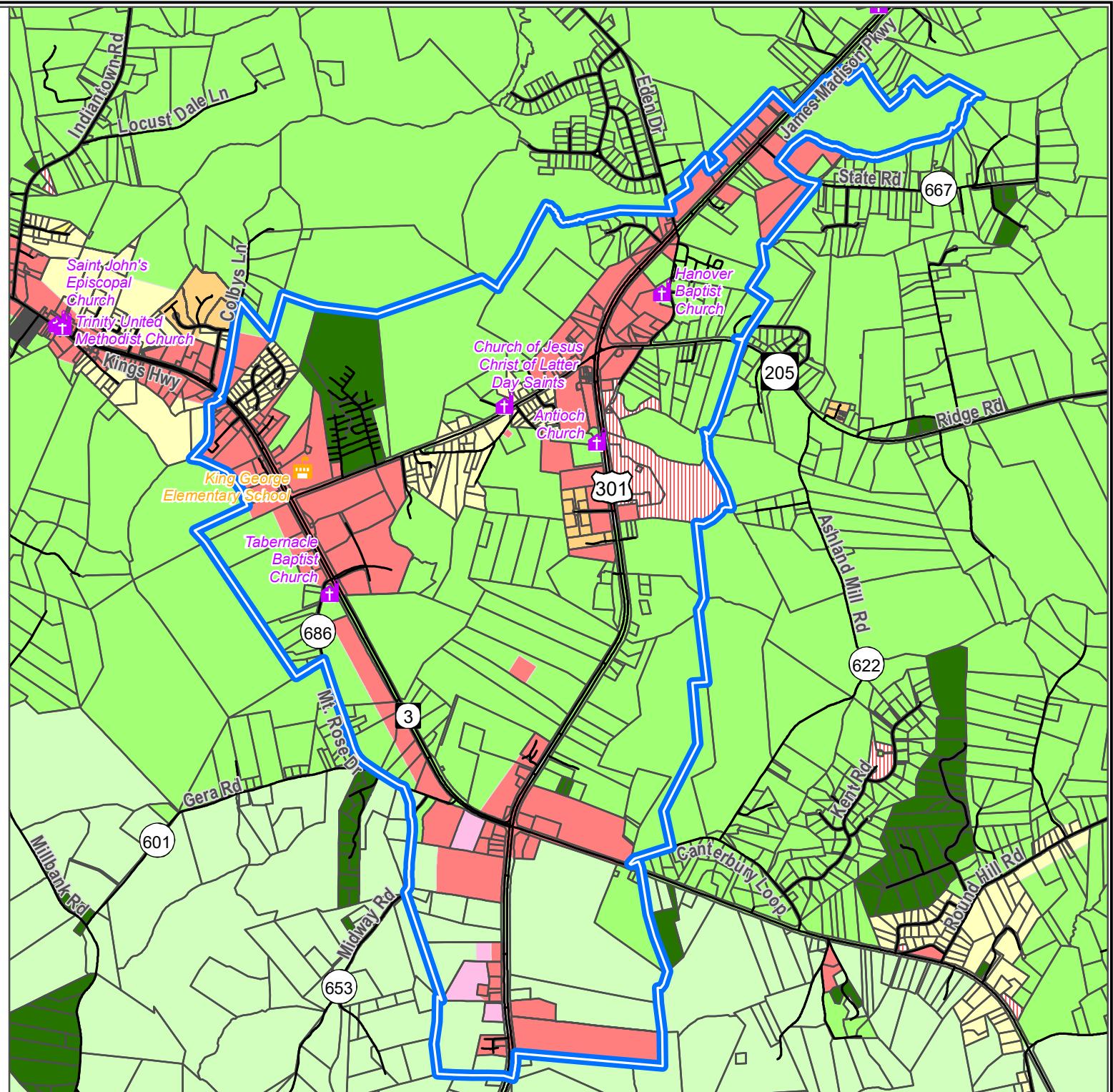
**MAP 3**  
**COURTHOUSE WEST**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



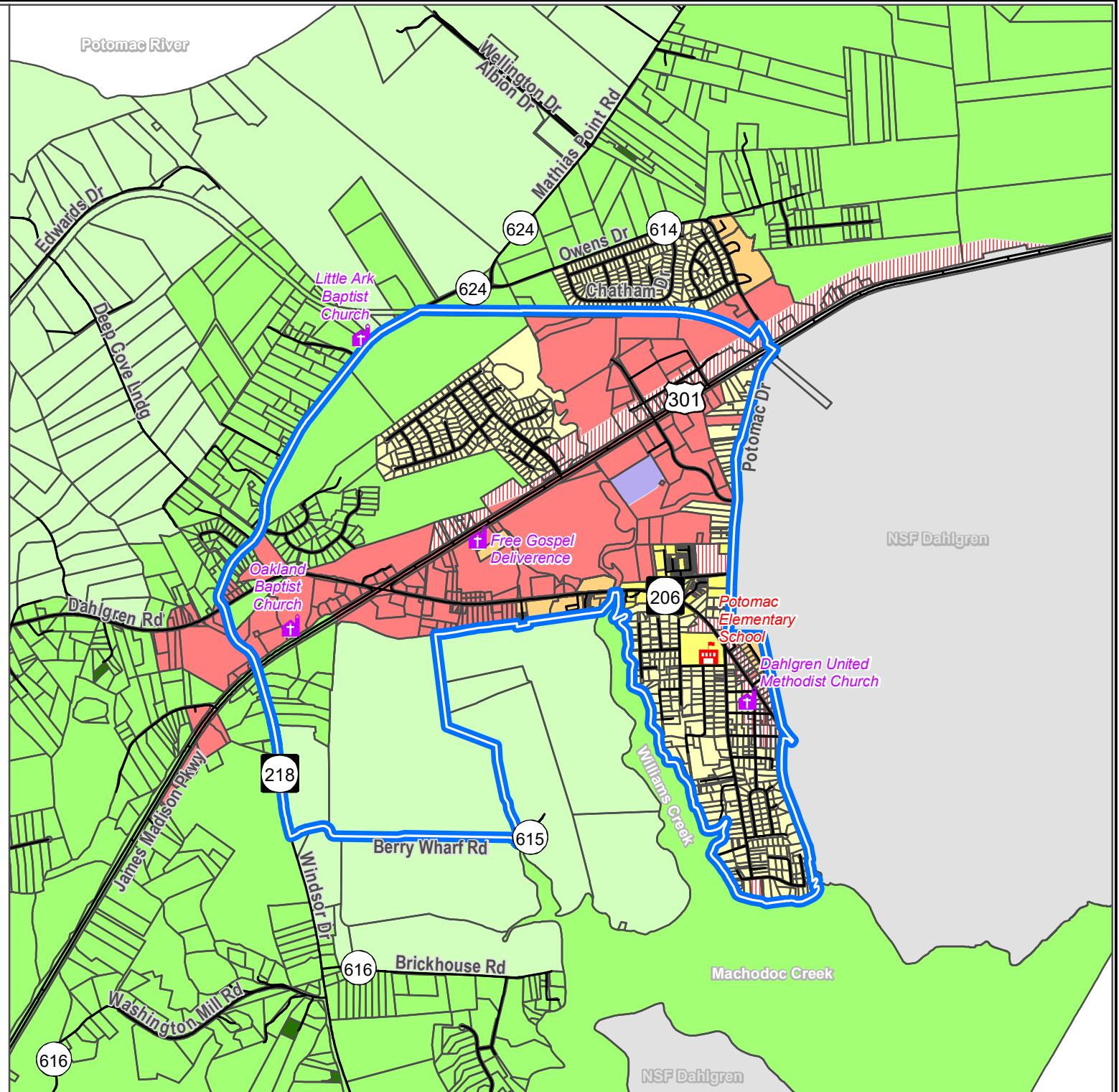
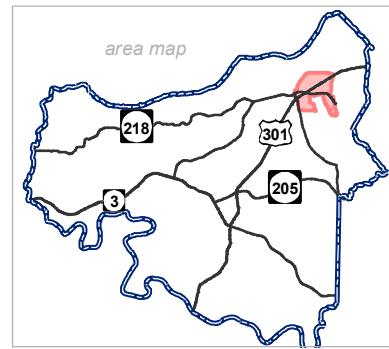
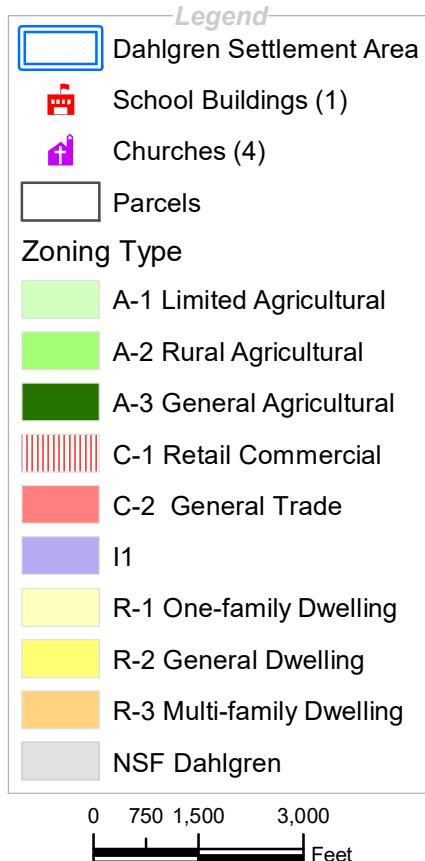
**MAP 4**  
**ROUTE 3/ROUTE 301**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



Department of Community Development, KJC, 7/10/2019

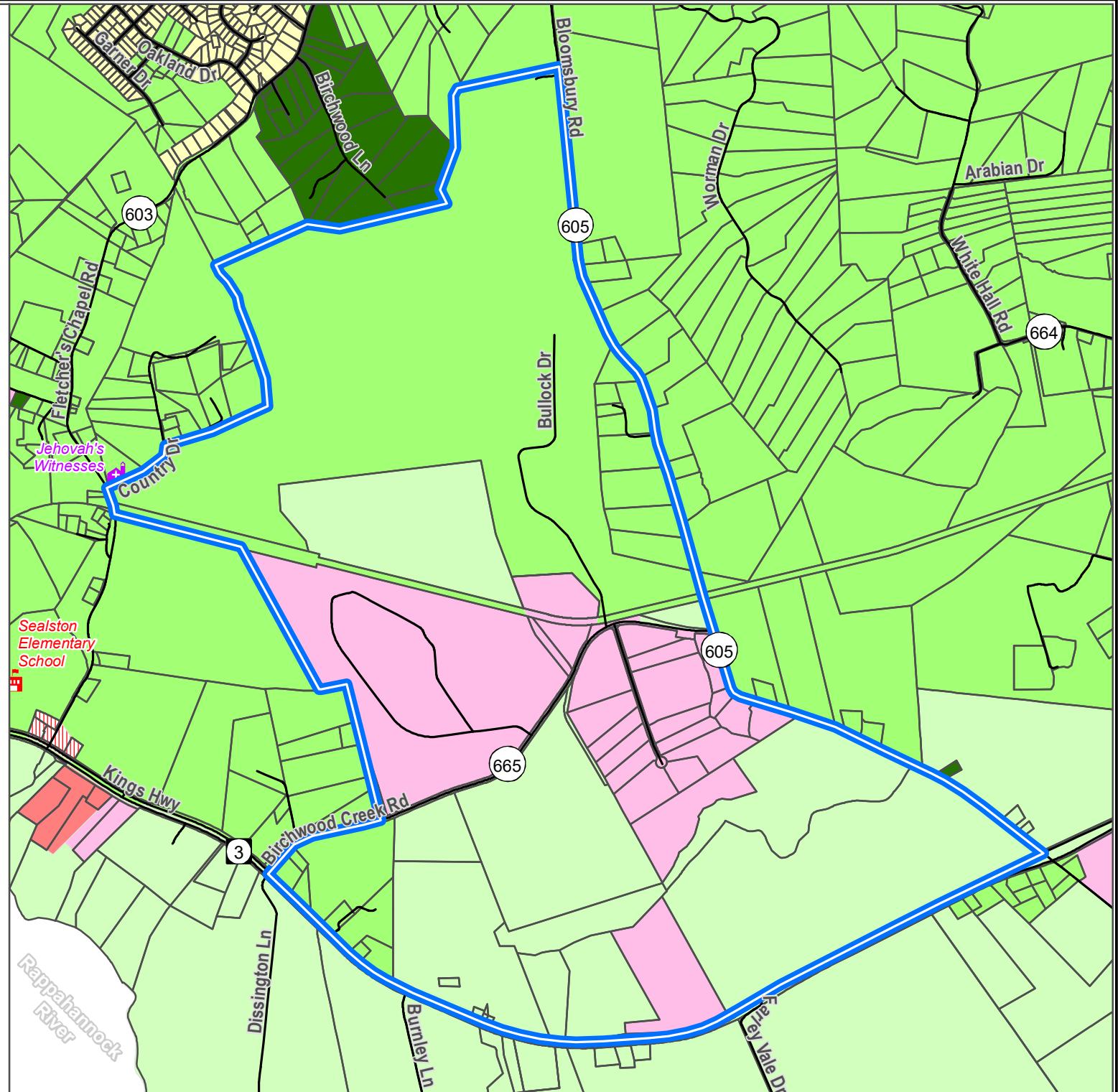
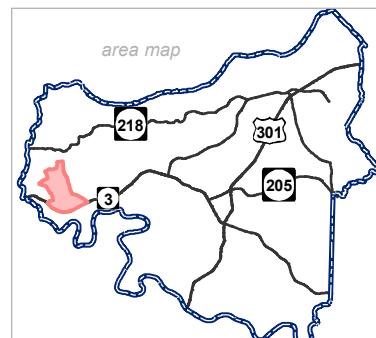
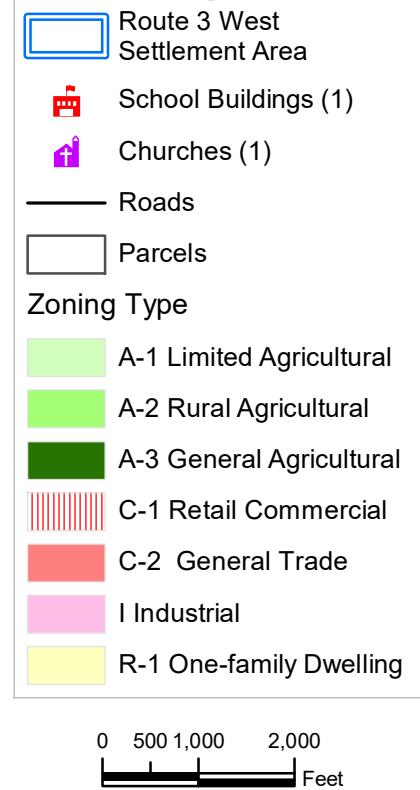


**MAP 5**  
**DAHLGREN**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

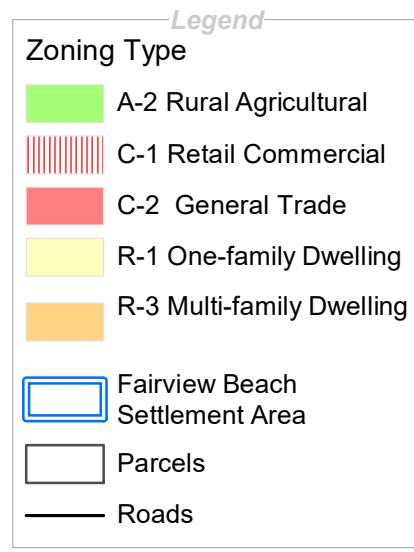


**MAP 6**  
**ROUTE 3 WEST**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

*Legend*

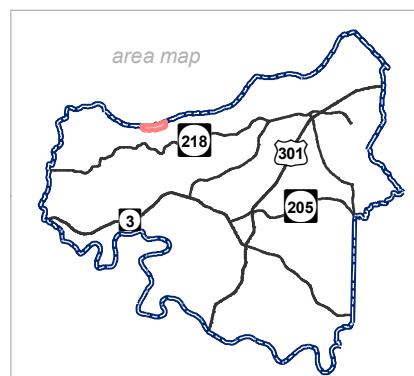


**MAP 7**  
**FAIRVIEW BEACH**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

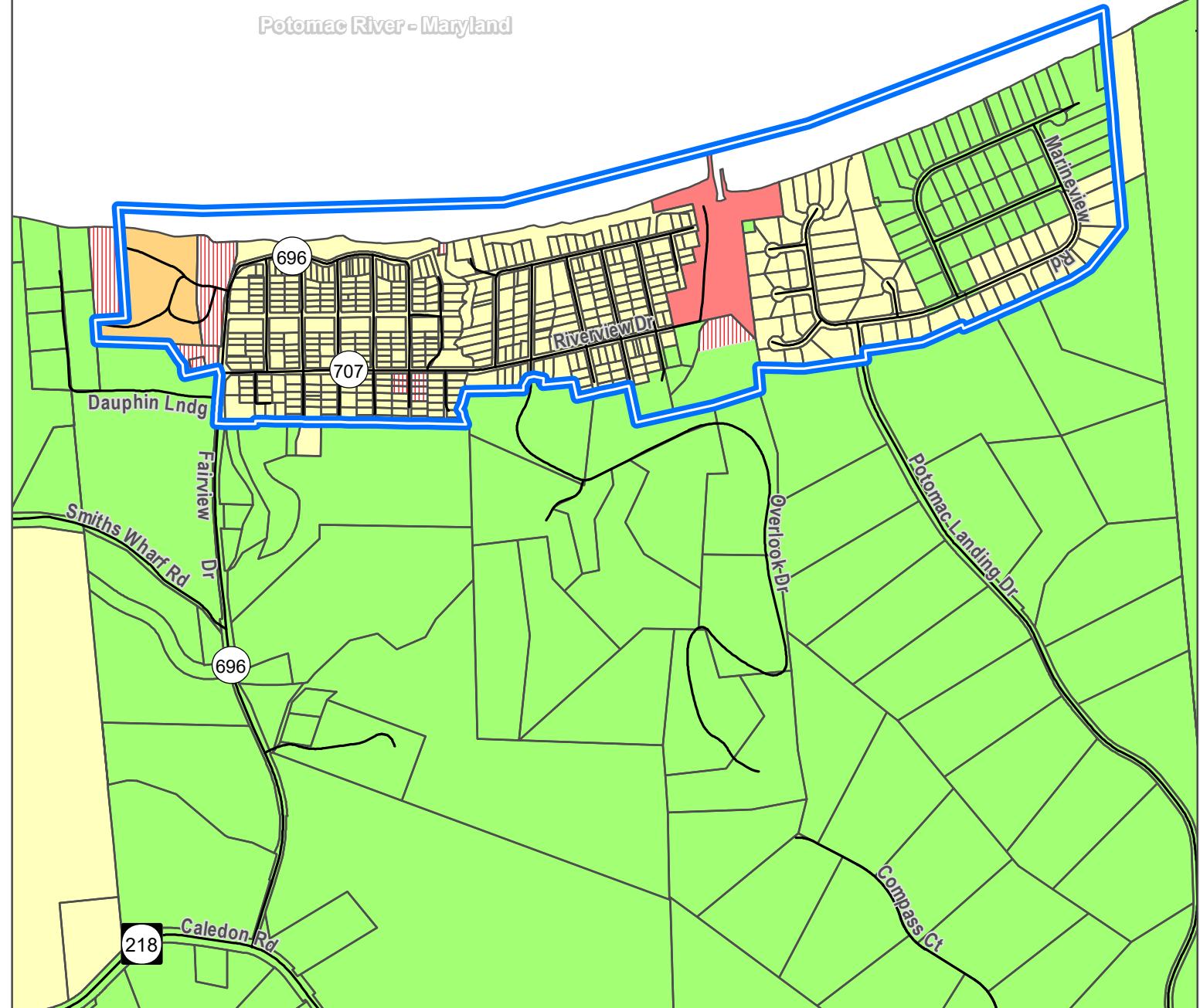


0 250 500 1,000  
 Feet

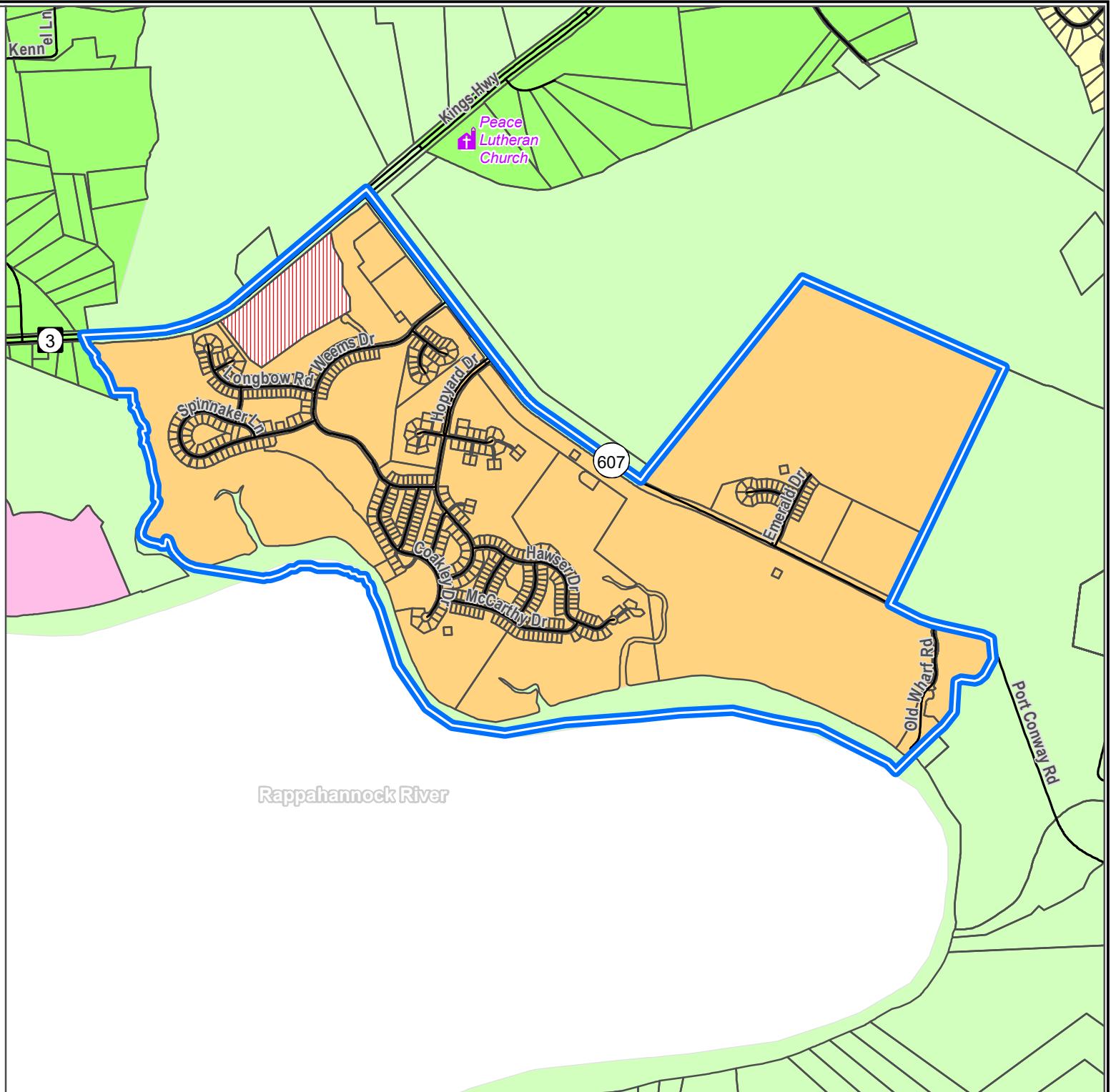
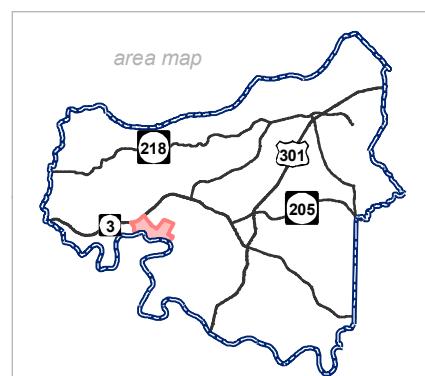
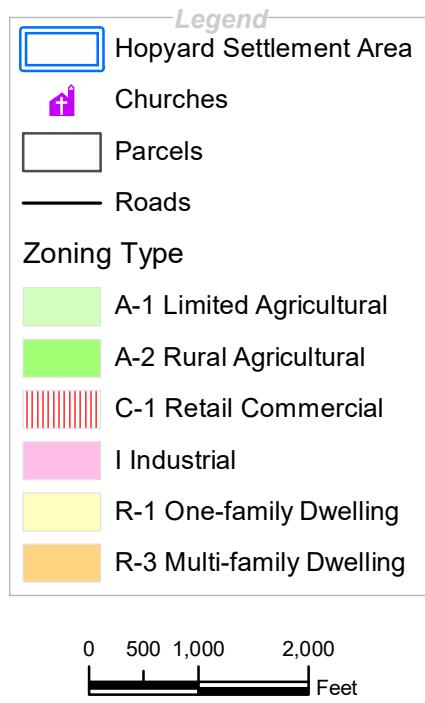
1 inch = 1,000 feet



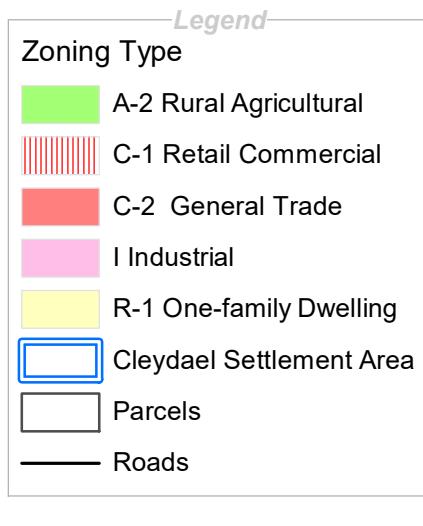
Department of Community Development, KJC, 4/2/2019



**MAP 8**  
**HOPYARD**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

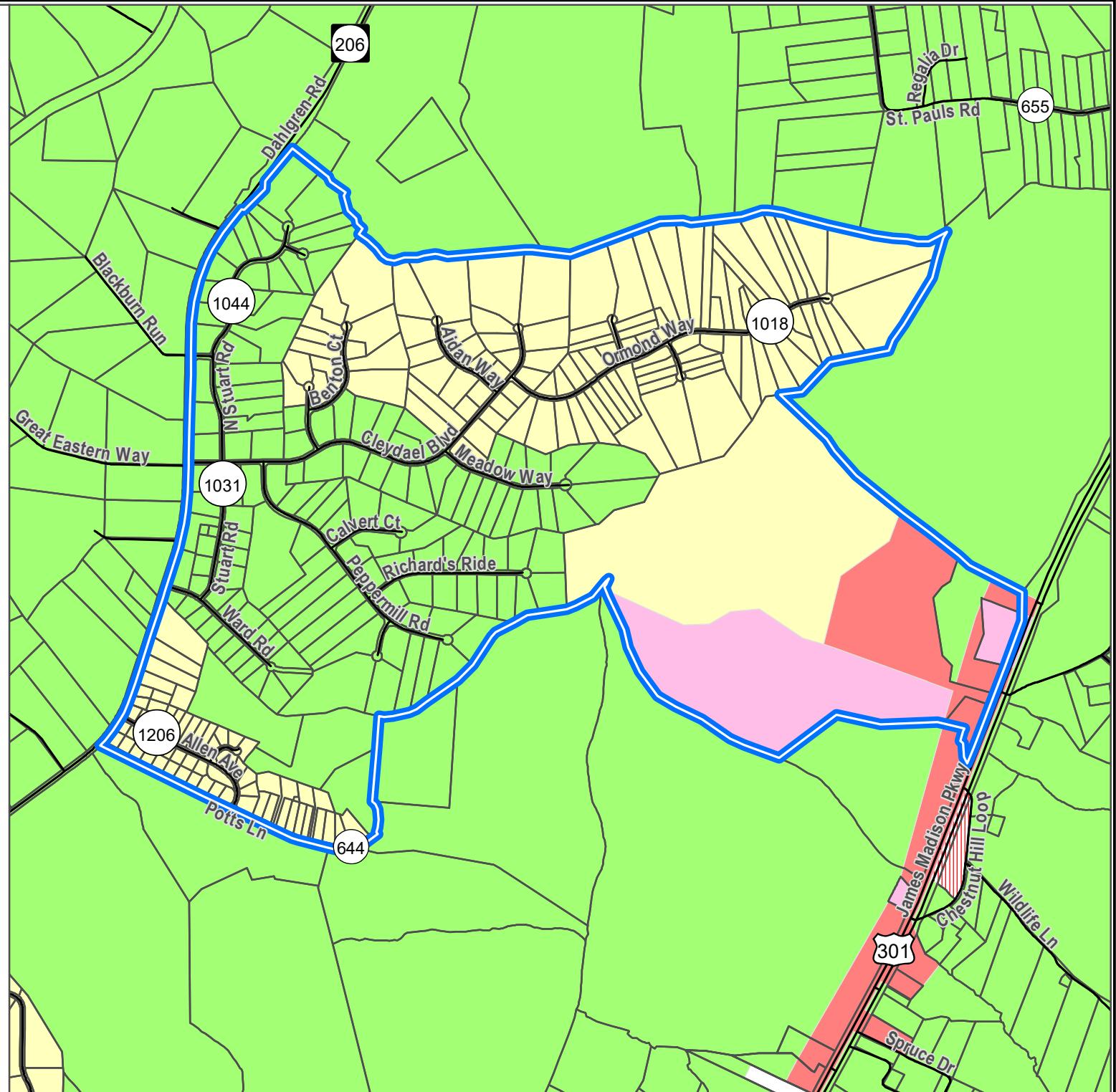
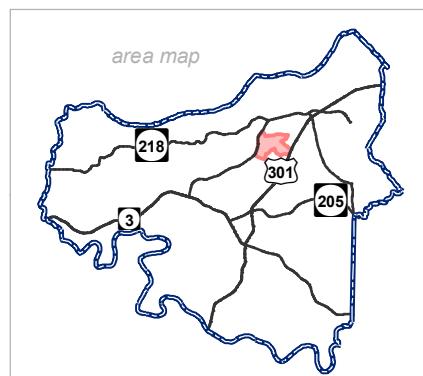


**MAP 9**  
**CLEYDAEL**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

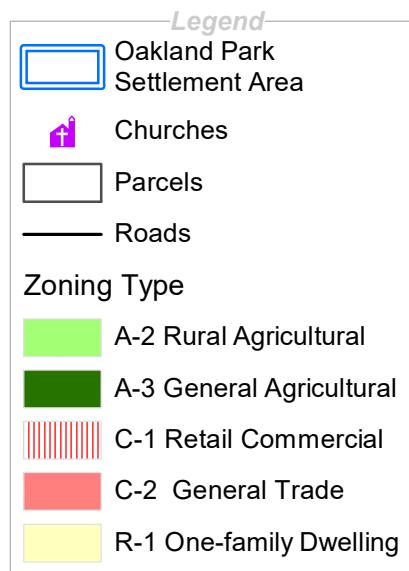


0 500 1,000 2,000  
 Feet

1 inch = 1,500 feet

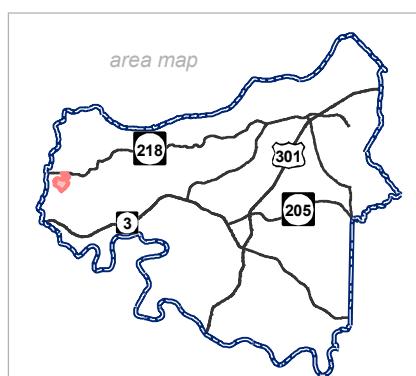


**MAP 10**  
**OAKLAND PARK**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

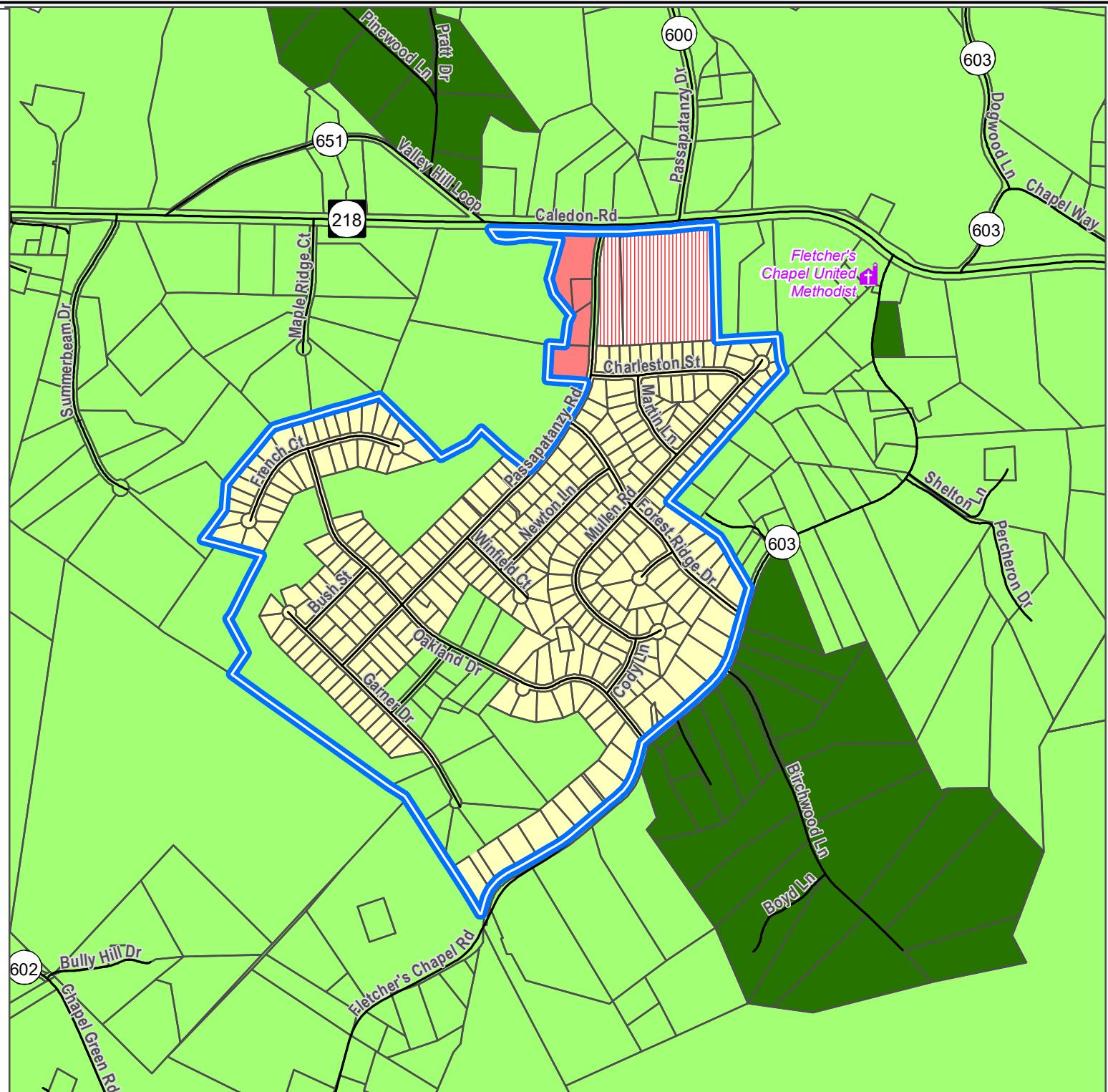


0 250 500 1,000  
 Feet

1 inch = 1,000 feet



Department of Community Development, KJC, 7/10/2019



**MAP 11**  
**RAPPAHANNOCK RIVER**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

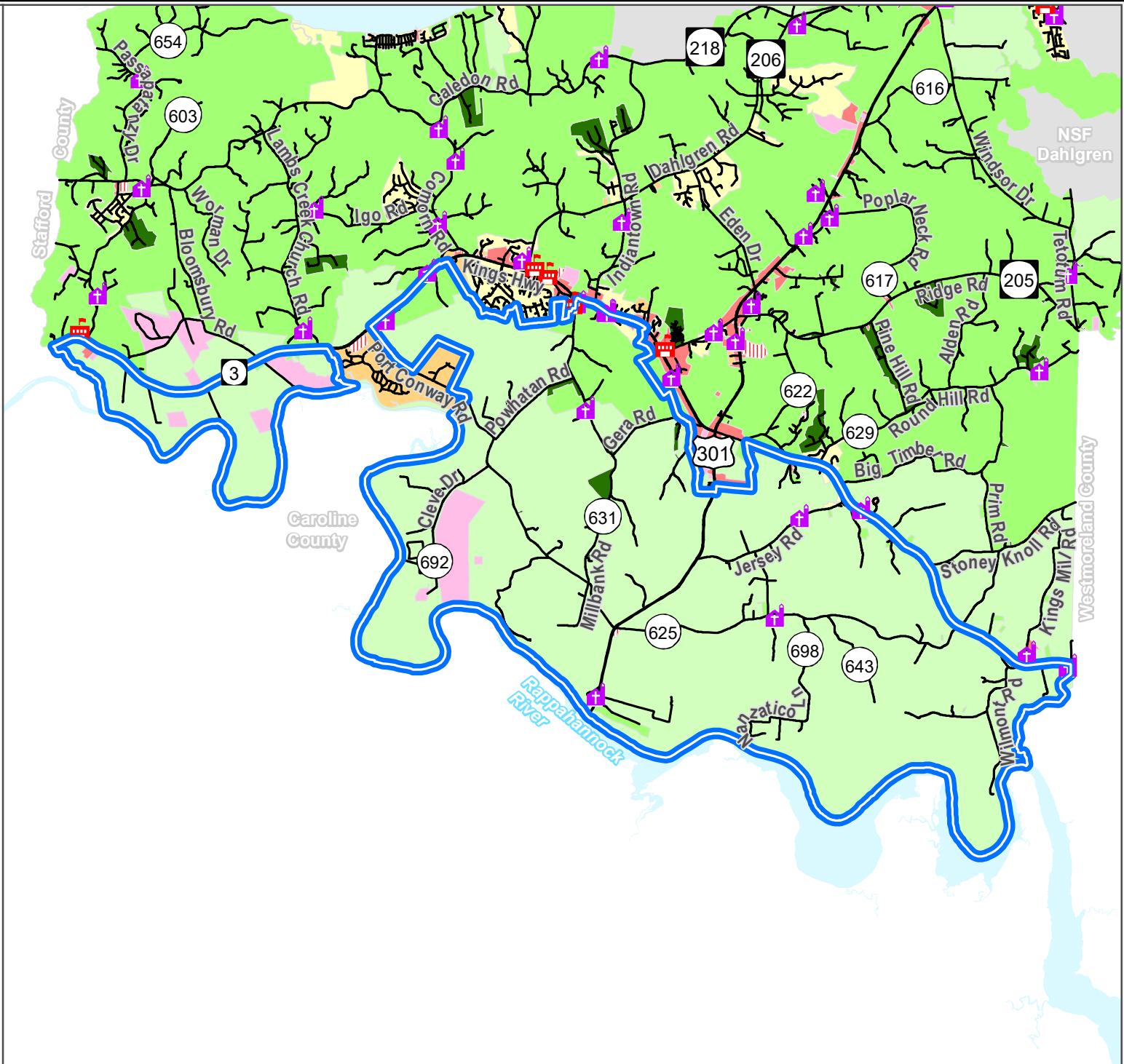
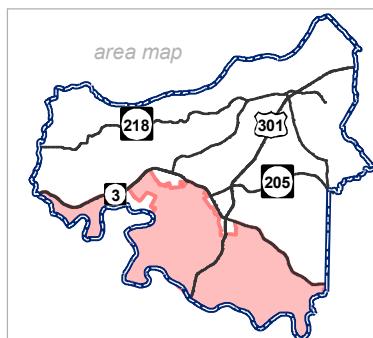
**Legend**

- Rappahannock River
- School Buildings (6)
- Churches (35)

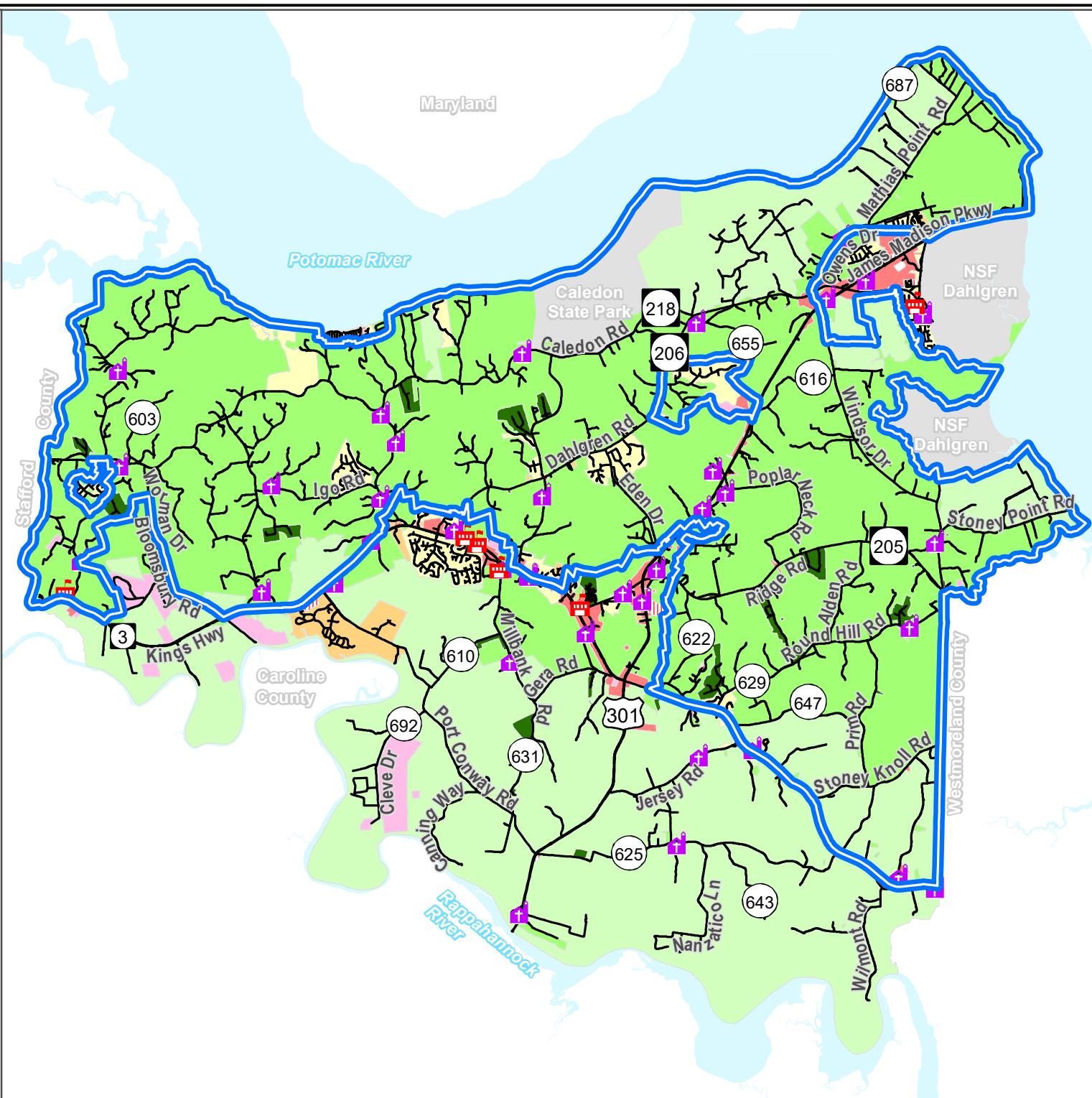
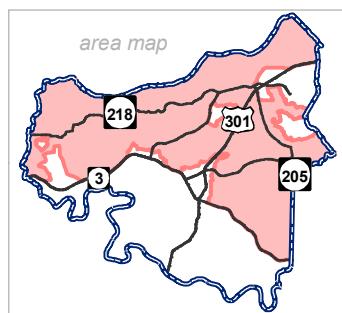
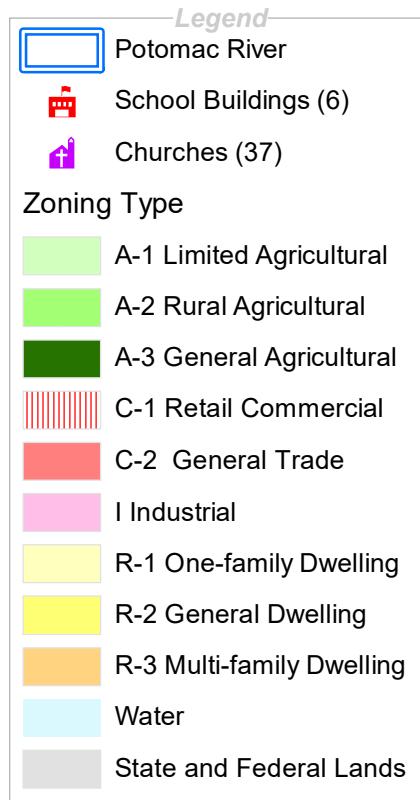
**Zoning Type**

- A-1 Limited Agricultural
- A-2 Rural Agricultural
- A-3 General Agricultural
- C-1 Retail Commercial
- C-2 General Trade
- I Industrial
- R-1 One-family Dwelling
- R-2 General Dwelling
- R-3 Multi-family Dwelling
- Water
- State and Federal Lands

0 0.5 1 2 Miles



**MAP 12**  
**POTOMAC RIVER**  
**SETTLEMENT AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



# MAP 13

## LAND COVER

### 2019 COMPREHENSIVE PLAN

#### KING GEORGE COUNTY

---

### Legend

-  School Buildings (6)
-  Churches (37)

### Land Cover Type

Legend for Land Cover Types:

- Hydro
- Impervious
- Barren
- Forest
- Tree
- Scrub/Shrub
- Harvested/Disturbed
- TurfGrass
- Pasture
- Cropland
- NWI/Other



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Department of Community Development, KJC, 7/10/2019



# MAP 14 LAND USE

## 2019 COMPREHENSIVE PLAN KING GEORGE COUNTY

Legend

-  School Buildings (6)
-  Churches (37)

## Land Use Type



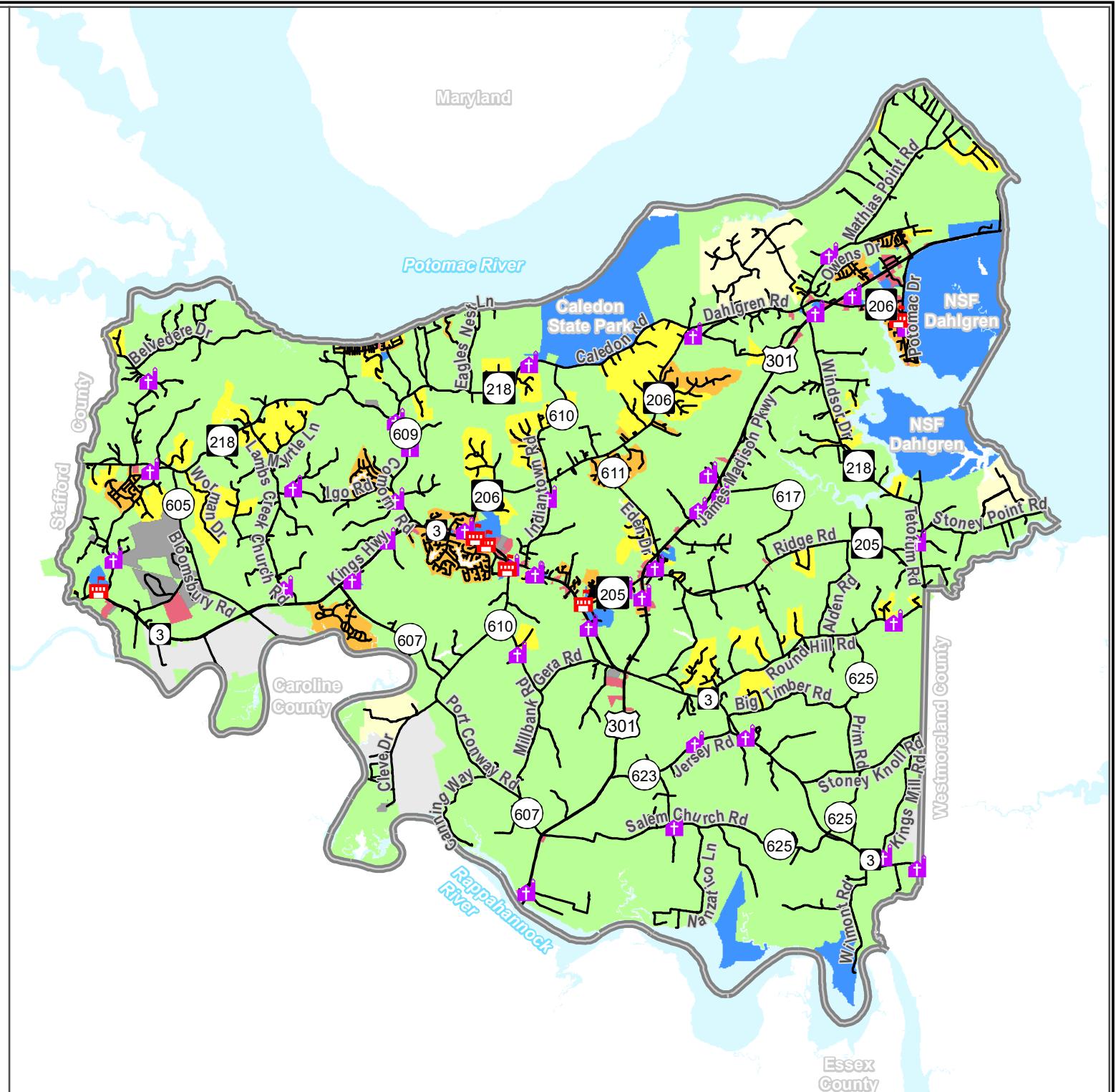
A legend listing eight land use categories, each associated with a colored square and a label:

- Agricultural/Forestal (light green)
- Low Density Residential (pale yellow)
- Medium Density Residential (yellow)
- High Density Residential (orange)
- Commercial (red)
- Public/Semi-Public/Institutional (blue)
- Industrial (grey)
- Sand and Gravel (light grey)



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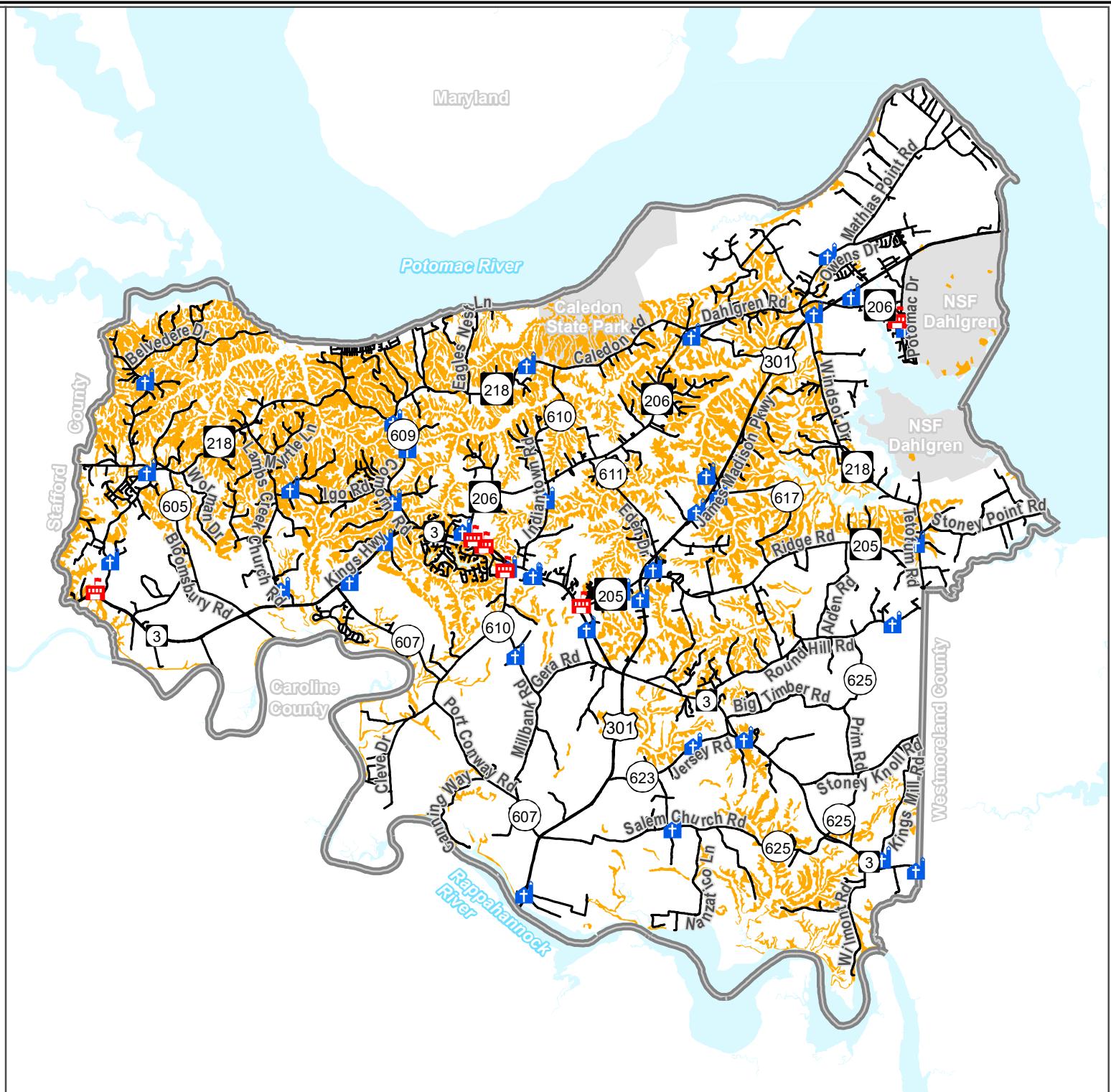
**MAP 15**  
**STEEP SLOPES**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

*Legend*

- Slopes of 15% or Greater
- State and Federal Lands
- School Buildings (6)
- Churches (37)
- Water
- Roads

0 0.75 1.5 3 Miles

1 in = 3 miles



**MAP 16**  
**SOIL ASSOCIATIONS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

**Legend**

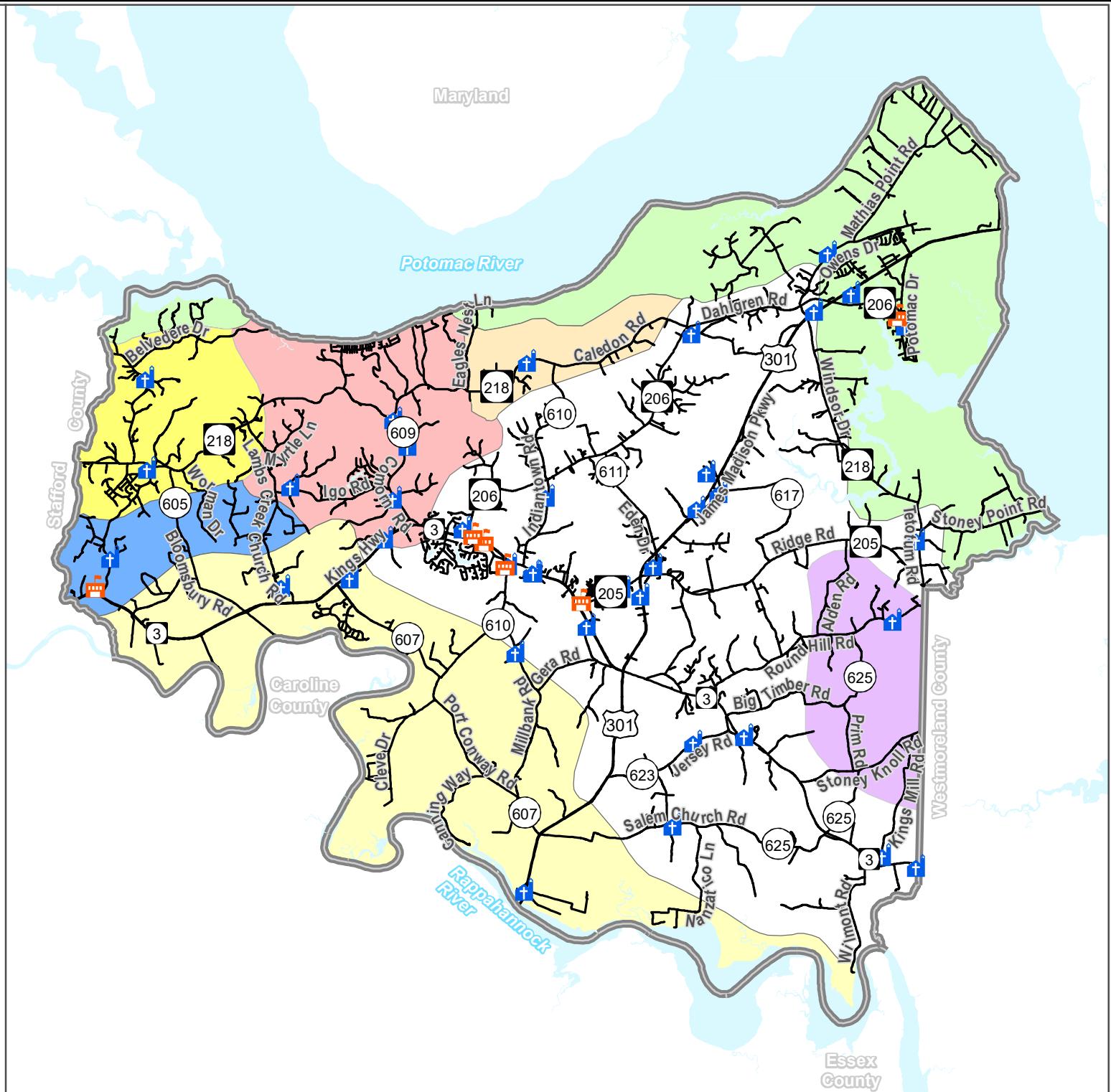
-  School Buildings (6)
-  Churches (37)
- Roads
- Water

**Soil Associations**

- Bourne-Caroline
- Craven-Caroline
- Marr-Westphalia
- Nason-Elioak-Manor
- Sassafras-Aura-Caroline
- Tetutum-Bladen-Bertie
- Wickham-Altavista-Dogue

0 0.75 1.5 3  
 Miles

1 in = 3 miles



# MAP 17

## HIGHLY PERMEABLE SOILS

### 2019 COMPREHENSIVE PLAN

#### KING GEORGE COUNTY

## —Legend—

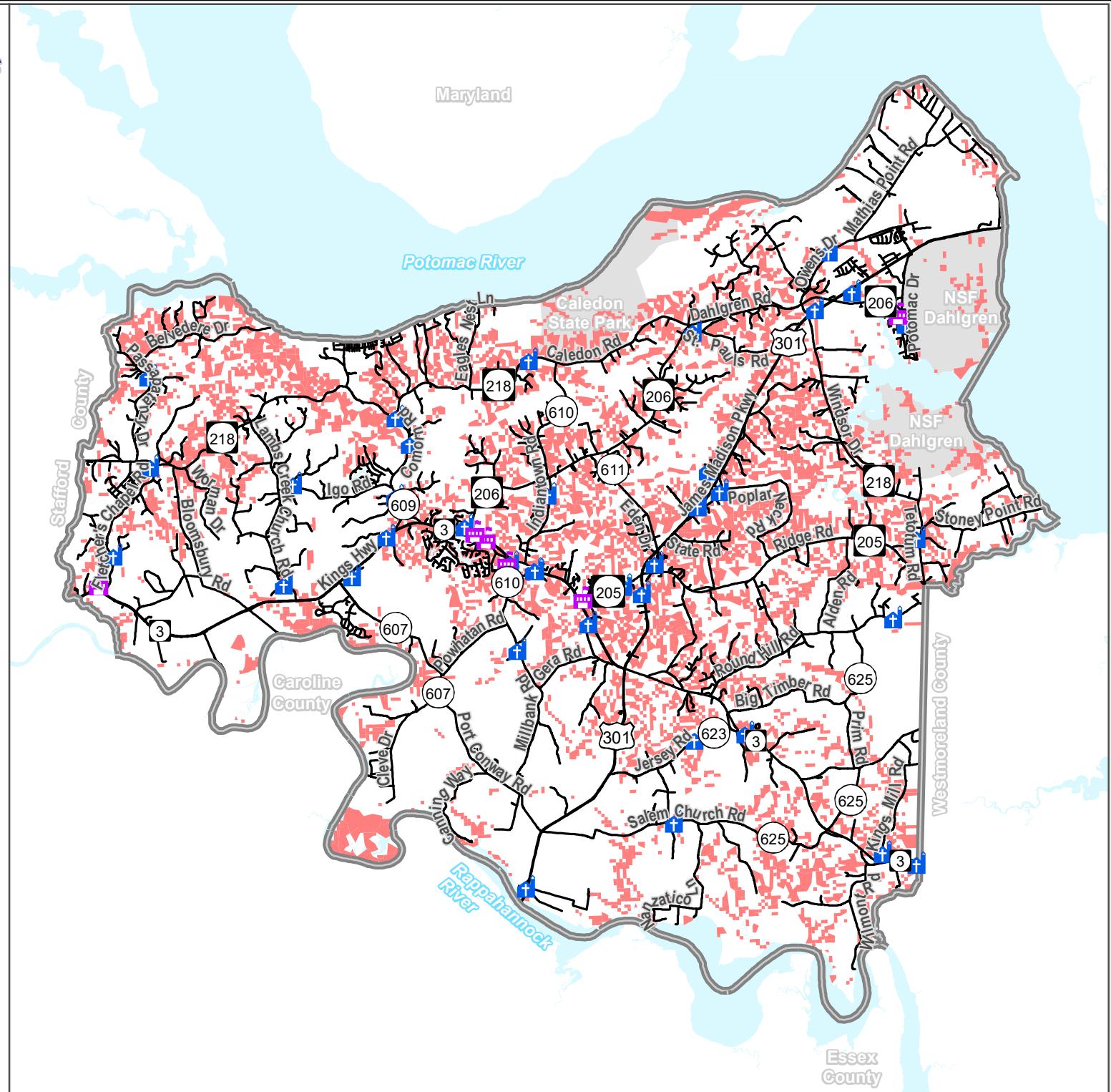
- Highly Permeable Soils
- School Buildings (6)
- Churches (37)
- State and Federal Lands
- Water
- Roads

A number line with tick marks at 0, 0.75, 1.5, and 3. A thick black line segment starts at 0 and ends at 1.5, labeled "Miles".

1 in = 3 miles



 BFG



**MAP 18**  
**SOIL CONSTRAINTS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

**Legend**

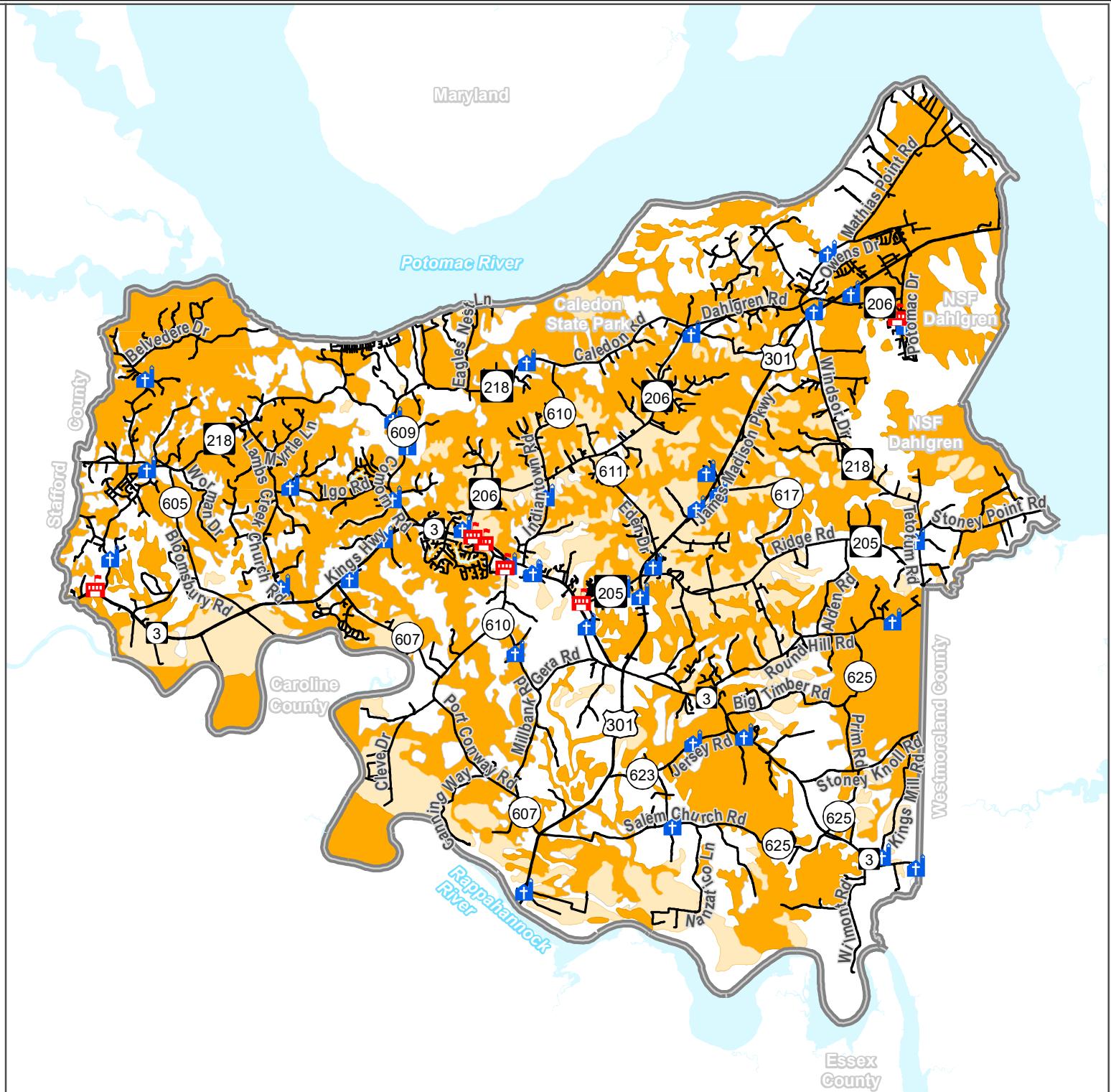
- School Buildings (6)
- Churches (37)
- Roads
- Water
- State and Federal Lands

**Soil Constraints**

- Predominately Severe
- Predominately Moderate
- Predominately Slight

0 0.75 1.5 3  
Miles

1 in = 3 miles



**MAP 19**  
**HIGHLY ERODIBLE SOILS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

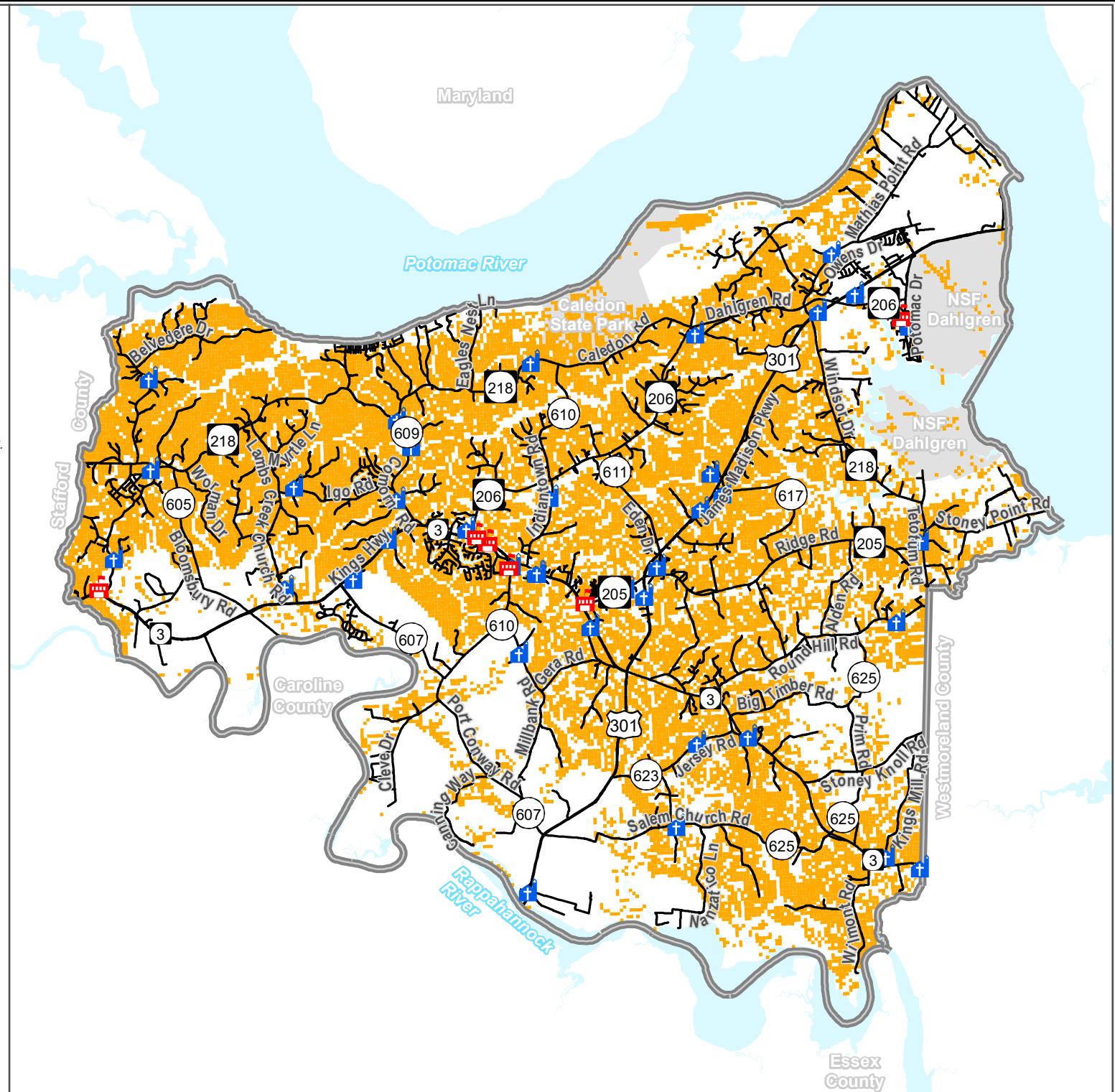
*Legend*

- █ Highly Erodible Soils - CBLAD \*
- █ School Buildings (6)
- █ Churches (37)
- █ State and Federal Lands
- █ Water
- Roads

\* Soils with an erodibility index of potentially high to highly erodible as designated by the Chesapeake Bay Local Assistance Department.

0 0.75 1.5 3 Miles

1 in = 3 miles



**MAP 20**  
**SUB WATERSHEDS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

*Legend*

 School Buildings (6)

 Churches (37)

 Water

 Roads

**Sub Watersheds**

Potomac River/Potomac Creek

Potomac River/Upper Machodoc Creek

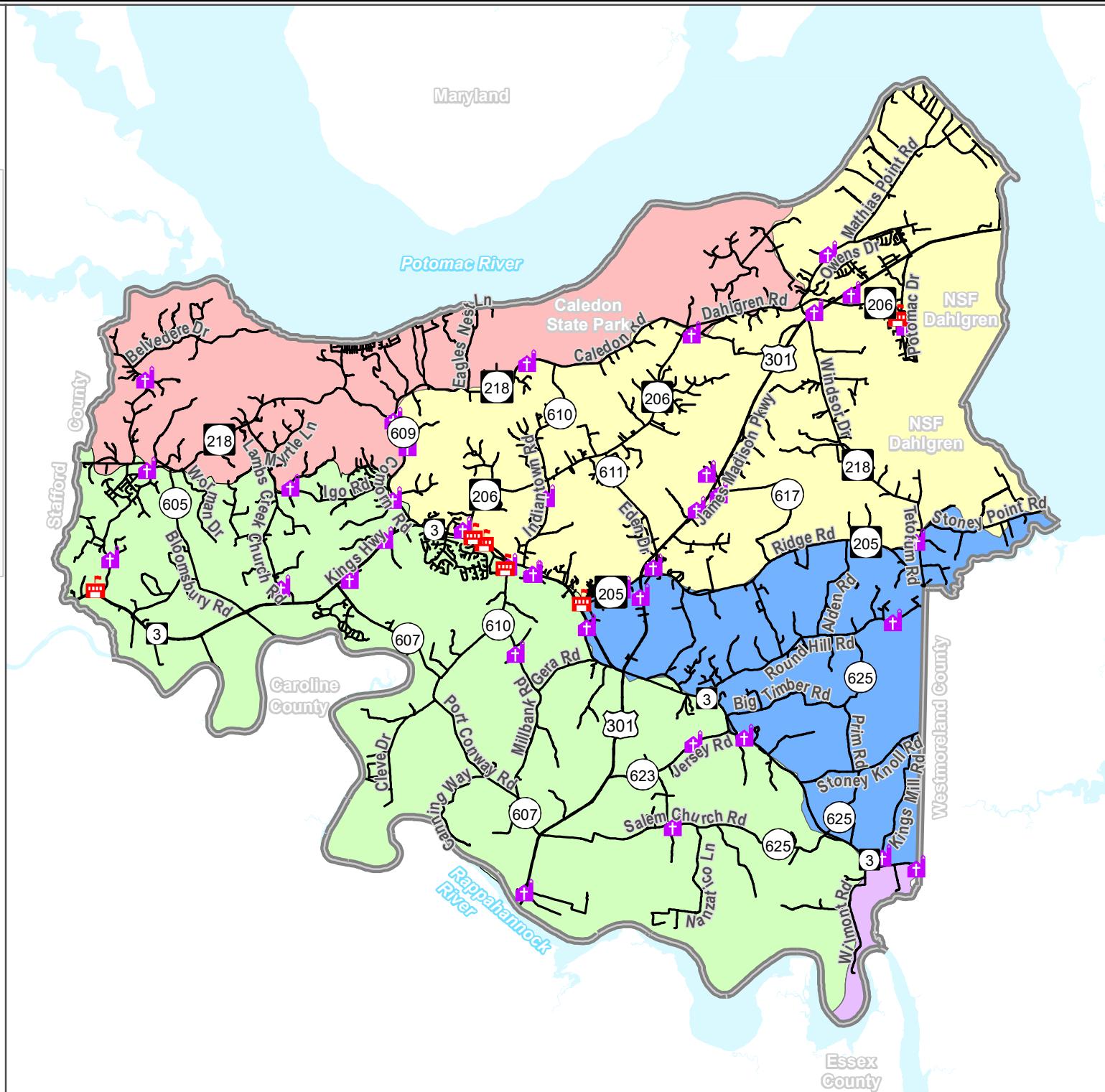
Potomac River/Mattox Creek/Popes Creek/Rosier Creek

Rappahannock River/Mill Creek/Goldenvale Creek

Rappahannock River/Occupacia Creek/Peedee Creek

0 0.75 1.5 3  
 Miles

1 in = 3 miles



# MAP 21

## SHORELINE EROSION

### 2019 COMPREHENSIVE PLAN

#### KING GEORGE COUNTY



Reach #	Description	Shoreline Type	Erosion (Acres)	Accretion (Acres)	Rate (Ft/Yr)
1	Potomac-Stuart Pt	Beach	45.7		2.2-moderate
2	Potomac-Chotank Crk	Beach	20		1.3-moderate
3	Potomac-Unnamed Reach	Beach	14.3		1.1-moderate
4	Potomac-Mathias Pt	Beach	56.5		1.2-moderate
289	Rappahannock-Gingoteague Crk	Marsh	12.1		1.1-moderate
290	Rappahannock-Popcastle Turn	Marsh	N/A		
293	Rappahannock-Lamb Crk	Marsh	N/A		
294	Rappahannock-Corbins Neck	Marsh	N/A	79.3	0.0-slight
295	Rappahannock-Farleyvale Reach	Marsh	N/A		
296	Rappahannock-Mill Reach	Marsh	1.4		0.0-slight

## School Buildings — Roads

## Churches

## Water

State and Federal Lands

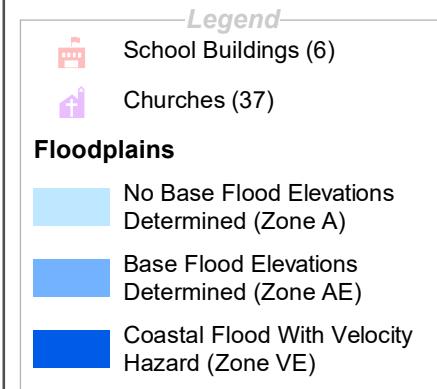
## Water



BFG



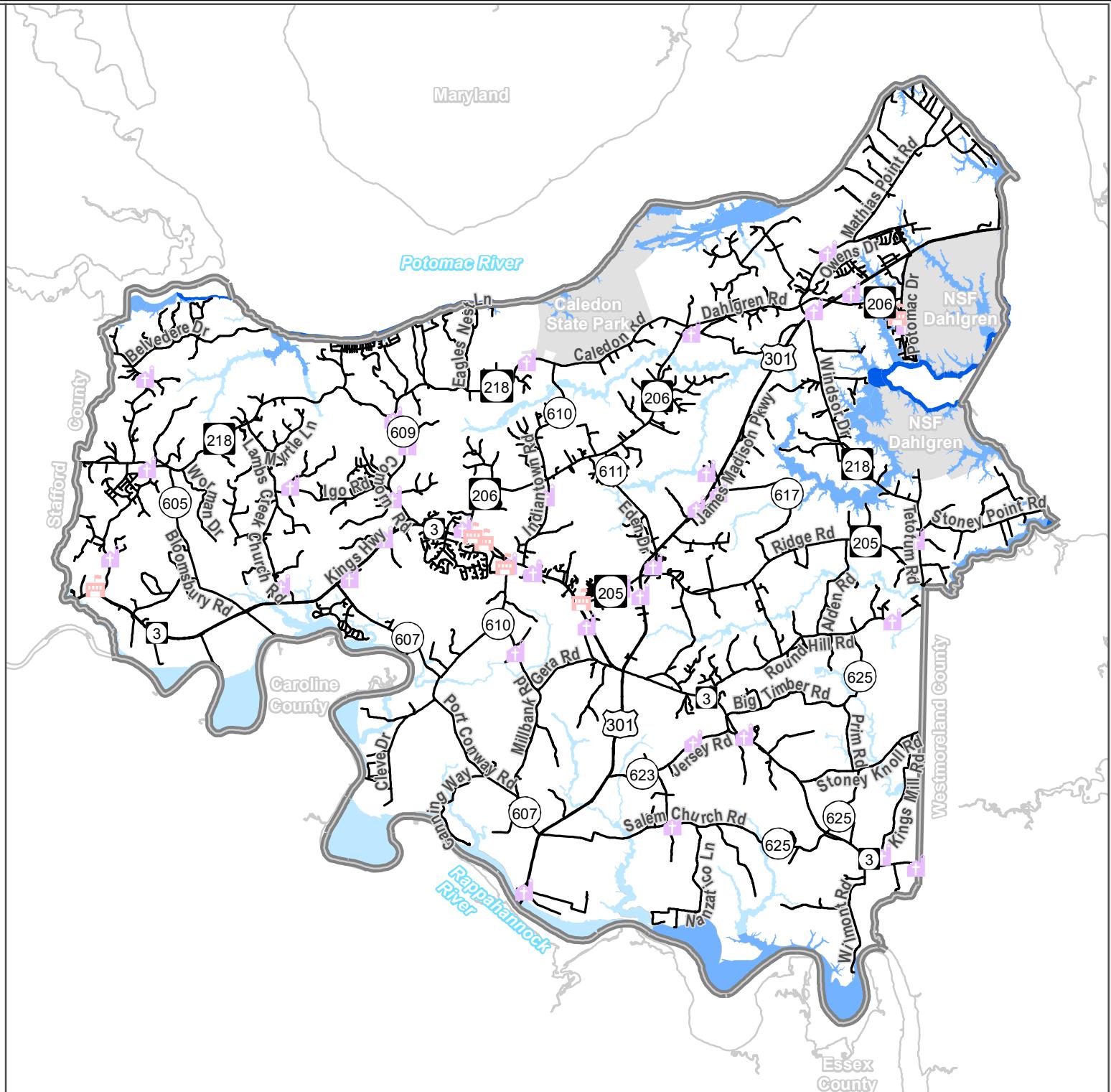
**MAP 22**  
**FLOODPLAINS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



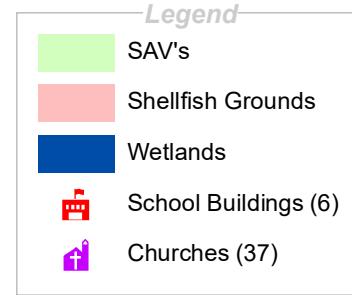
\* Zones A, AE, and VE Comprise the 100 Year Floodplain.

0 0.75 1.5 3 Miles

1 in = 3 miles



**MAP 23**  
**NATIONAL WETLANDS INVENTORY**  
**AND FISHERIES RESOURCES**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

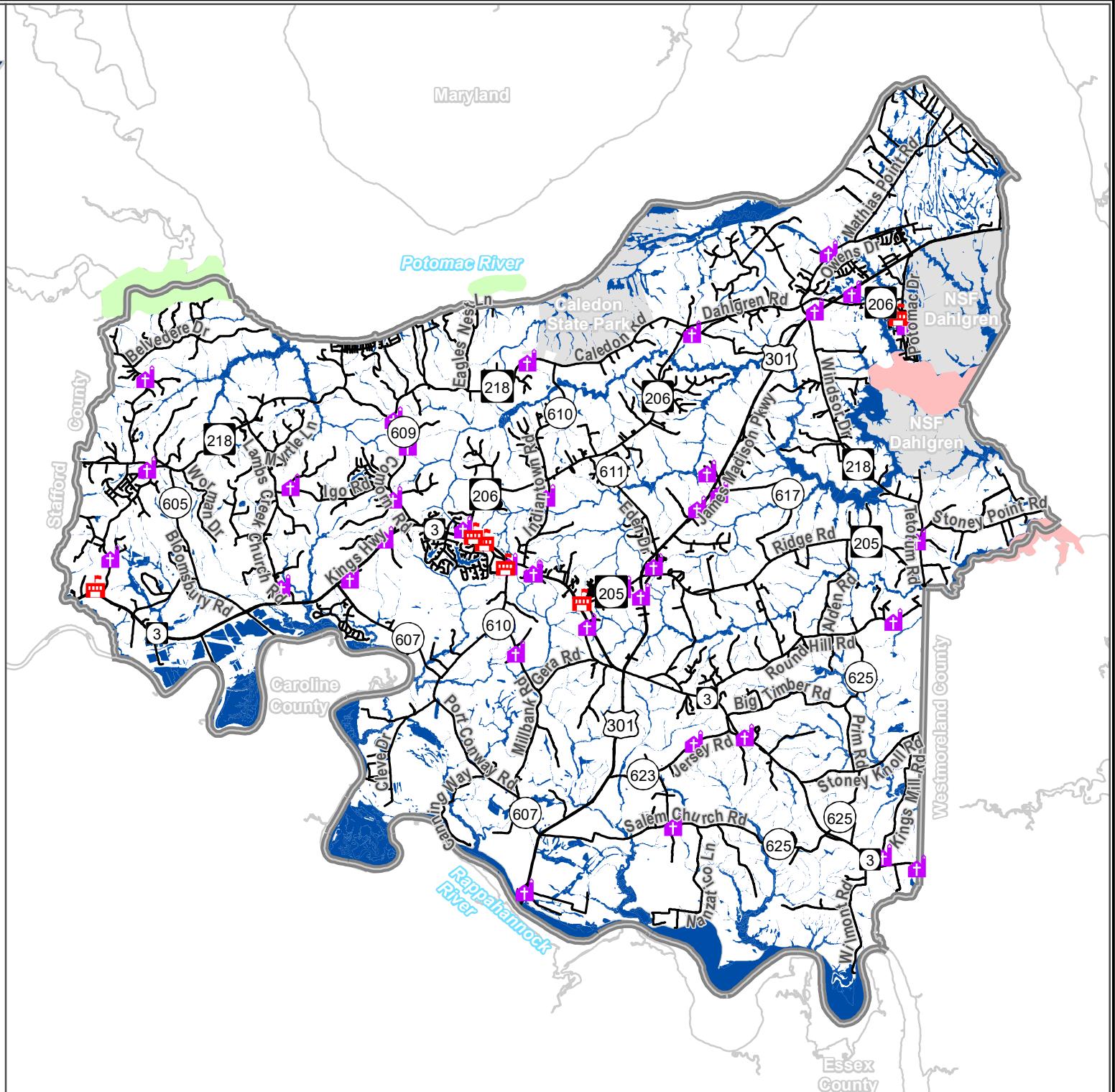


1 in = 3 miles



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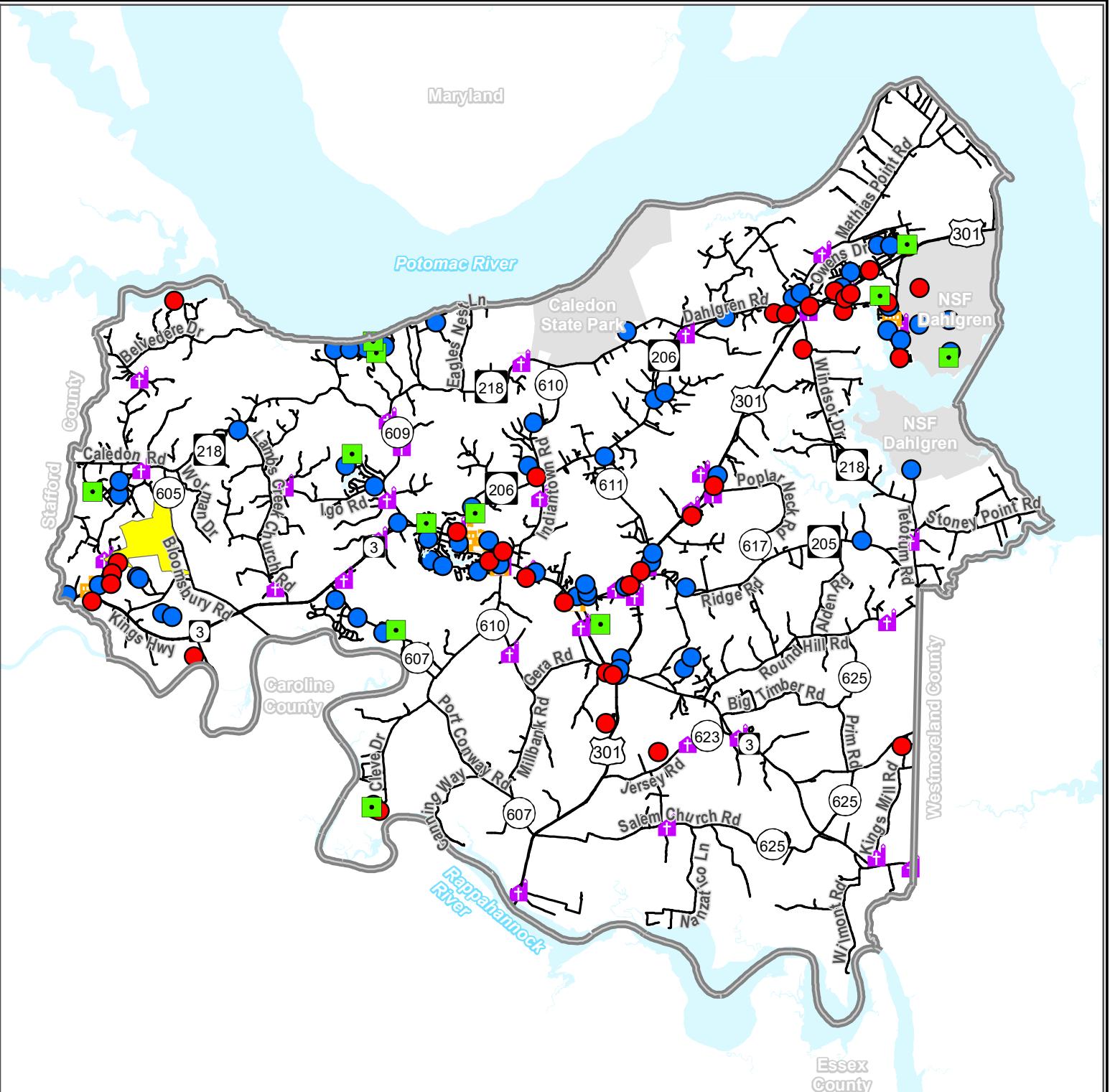
**MAP 24**  
**POTENTIAL POLLUTION SOURCES**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

*Legend*

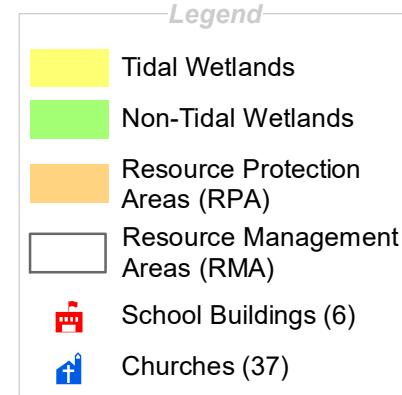
- School Buildings (6)
- Churches (37)
- Potential Pollution Sources
  - Waste Water Treatment Plants (12)
  - Storage Tanks (Commercial/Gas Stations) (35)
  - Service Authority Wells (68)
- County Landfill

0 0.75 1.5 3  
 Miles

1 in = 3 miles



**MAP 25**  
**CHESAPEAKE BAY**  
**PRESERVATION AREA**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



0 0.75 1.5 3 Miles

1 in = 3 miles



**BFG**



# MAP 26

## COMPOSITE

### PHYSICAL CONSTRAINTS

#### 2019 COMPREHENSIVE PLAN

#### KING GEORGE COUNTY

### Legend

 School Buildings (6)

## Churches (37)

## Composite Physical Constraints

## Resource Protection Areas

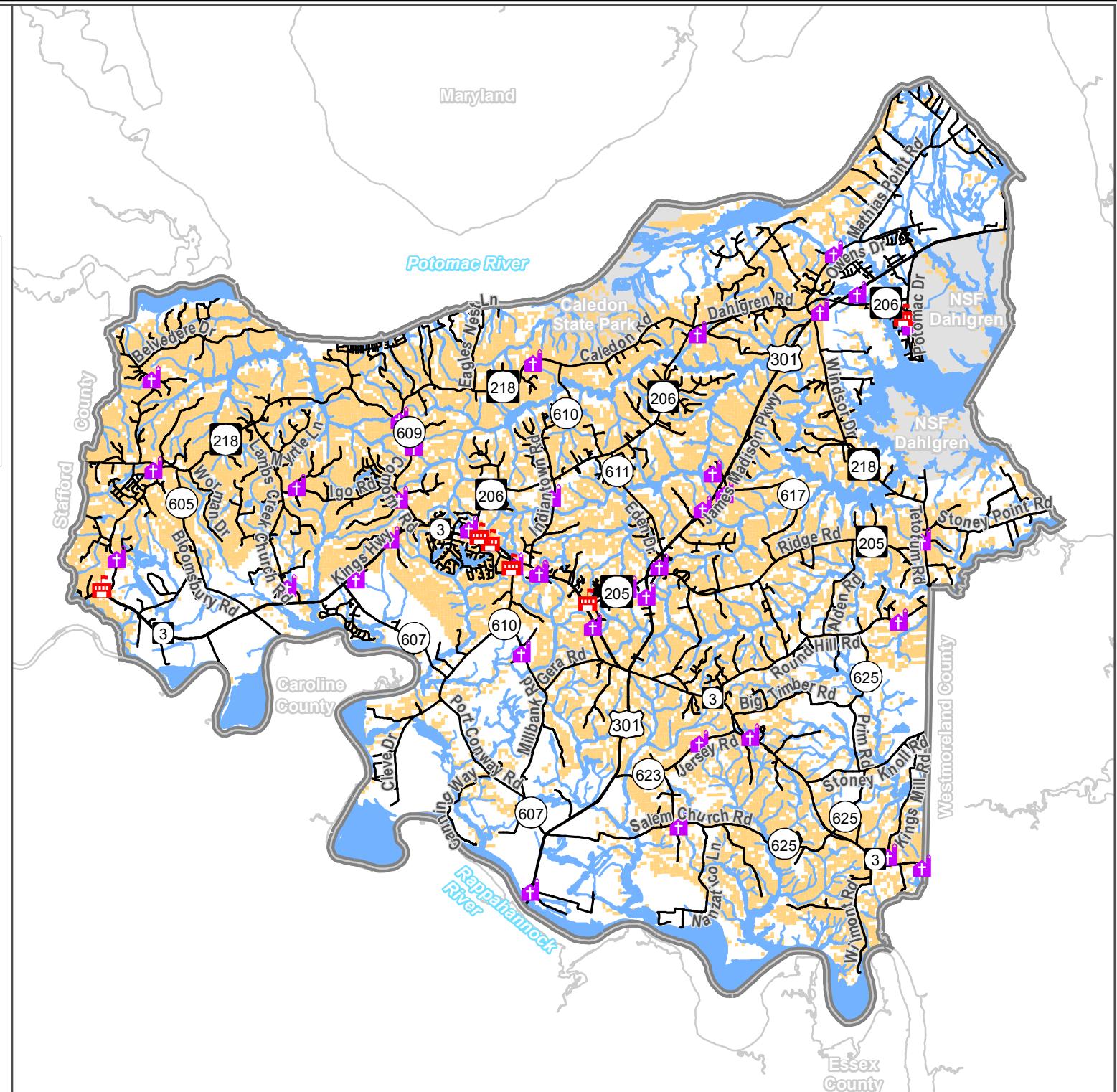
## Areas with Two or More Physical Constraints

1 in = 3 miles

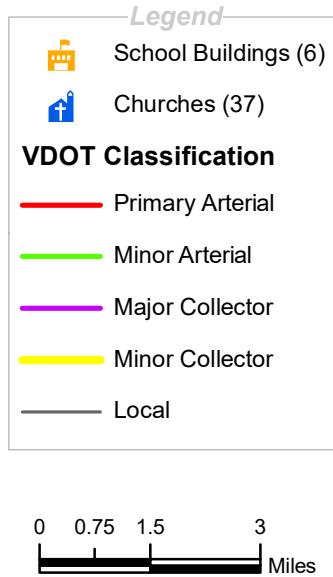


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**MAP 27**  
**VDOT CLASSIFICATIONS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

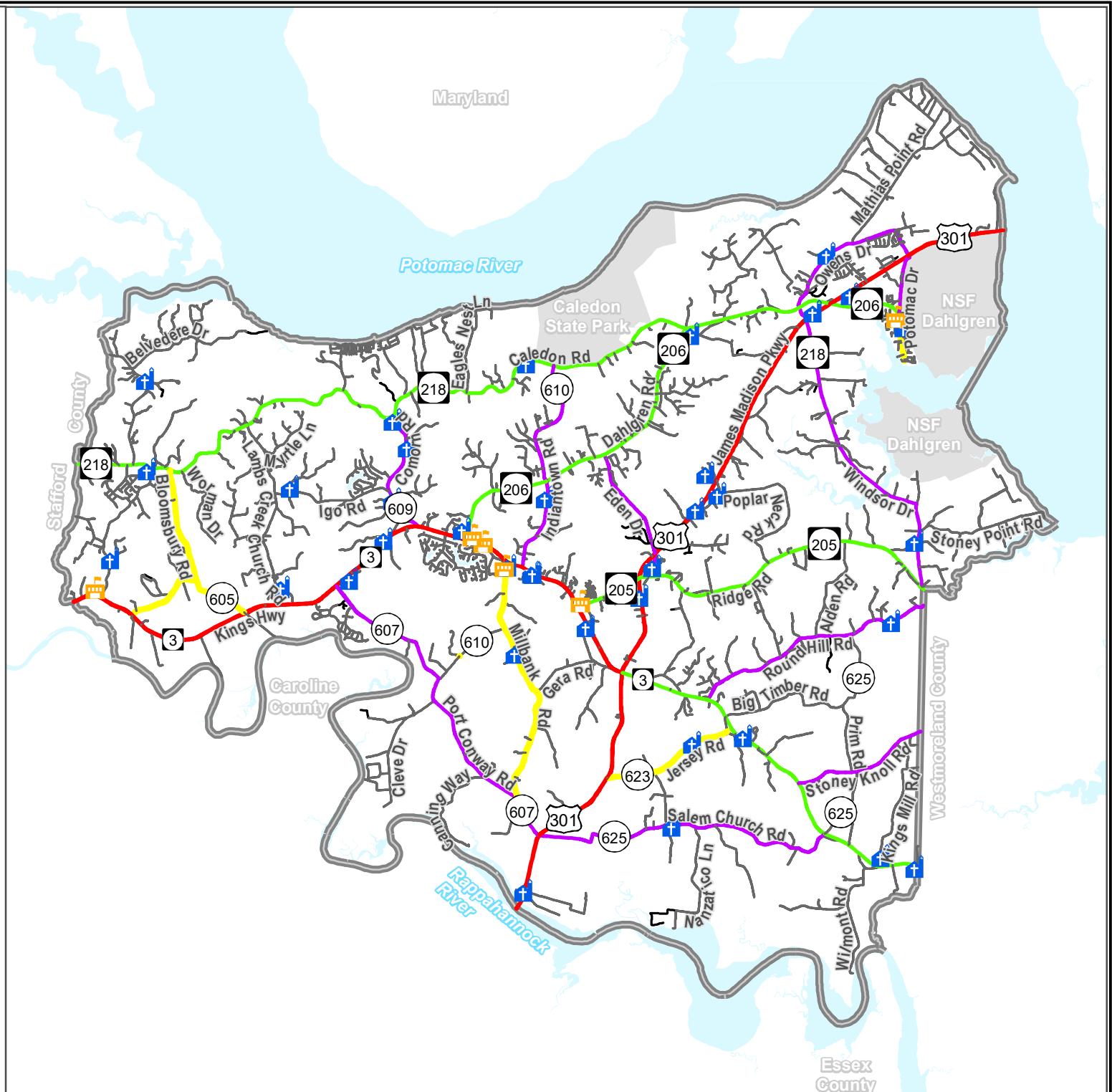


1 in = 3 miles



B F G

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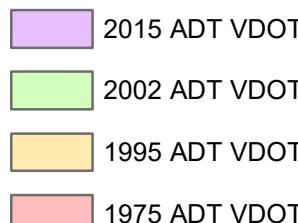


**MAP 28**  
**VDOT ADJUSTED DAILY**  
**TRAFFIC VOLUMES**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**

### —Legend—

-  School Buildings (6)
-  Churches (37)

## VDOT Average Daily Traffic (ADT) Volumes By Year



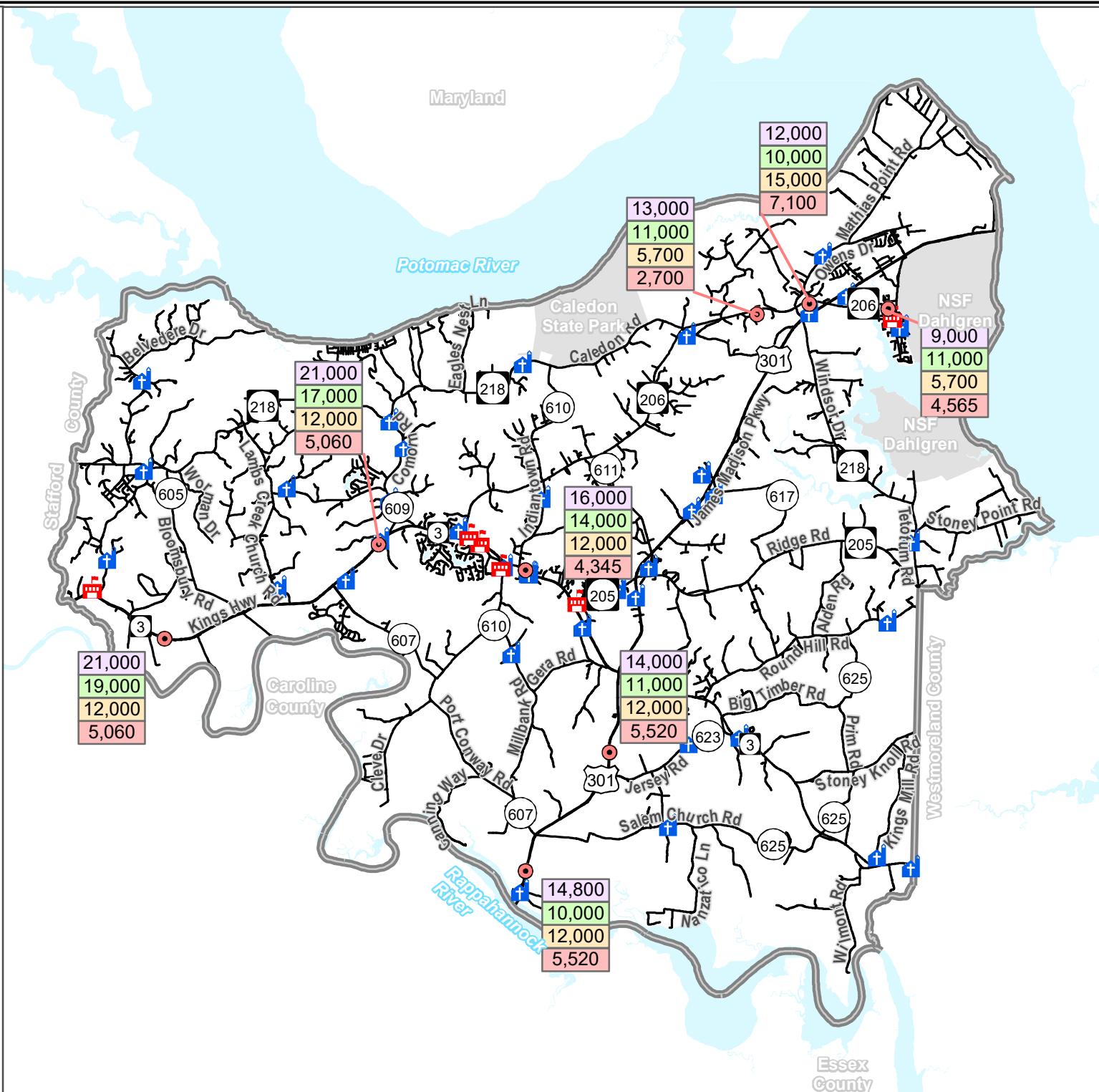
A number line from 0 to 3 with tick marks at 0, 0.75, 1.5, and 3. The segment from 0 to 1.5 is shaded black. The word "Mile" is written at the end of the line.

1 in = 3 miles



FG

Department of Community Development, KJC, 7/10/2019



# MAP 29

## VDOT SIX YEAR IMPROVEMENTS

### 2019 COMPREHENSIVE PLAN KING GEORGE COUNTY

## —Legend—

- VDOT Six Year Improvements
- School Buildings (6)
- Churches (37)

A number line with tick marks at 0, 0.75, 1.5, and 3. A thick black horizontal line starts at 0 and ends at 1.5, labeled "Miles" below the line.

1 in = 3 miles

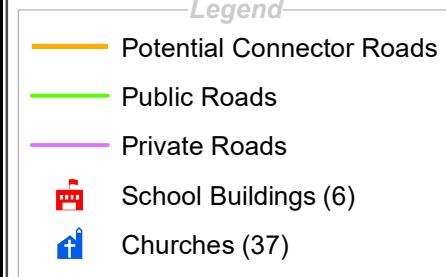


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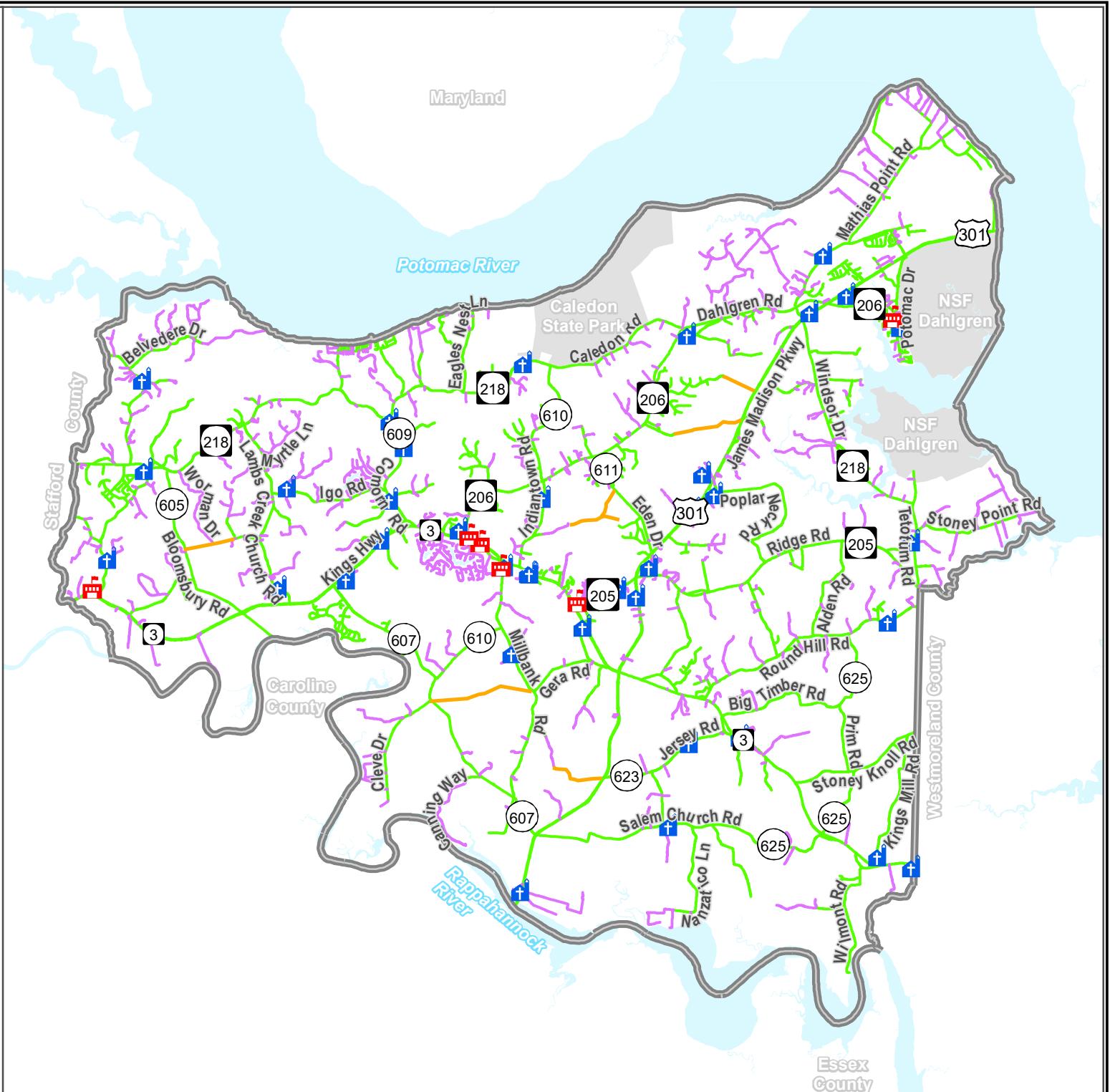


**MAP 30**  
**POTENTIAL FUTURE**  
**CONNECTOR ROADS**  
**2019 COMPREHENSIVE PLAN**  
**KING GEORGE COUNTY**



0 0.75 1.5 3 Miles

1 in = 3 miles



# MAP 31

## TRAILWAYS

### 2019 COMPREHENSIVE PLAN

#### KING GEORGE COUNTY

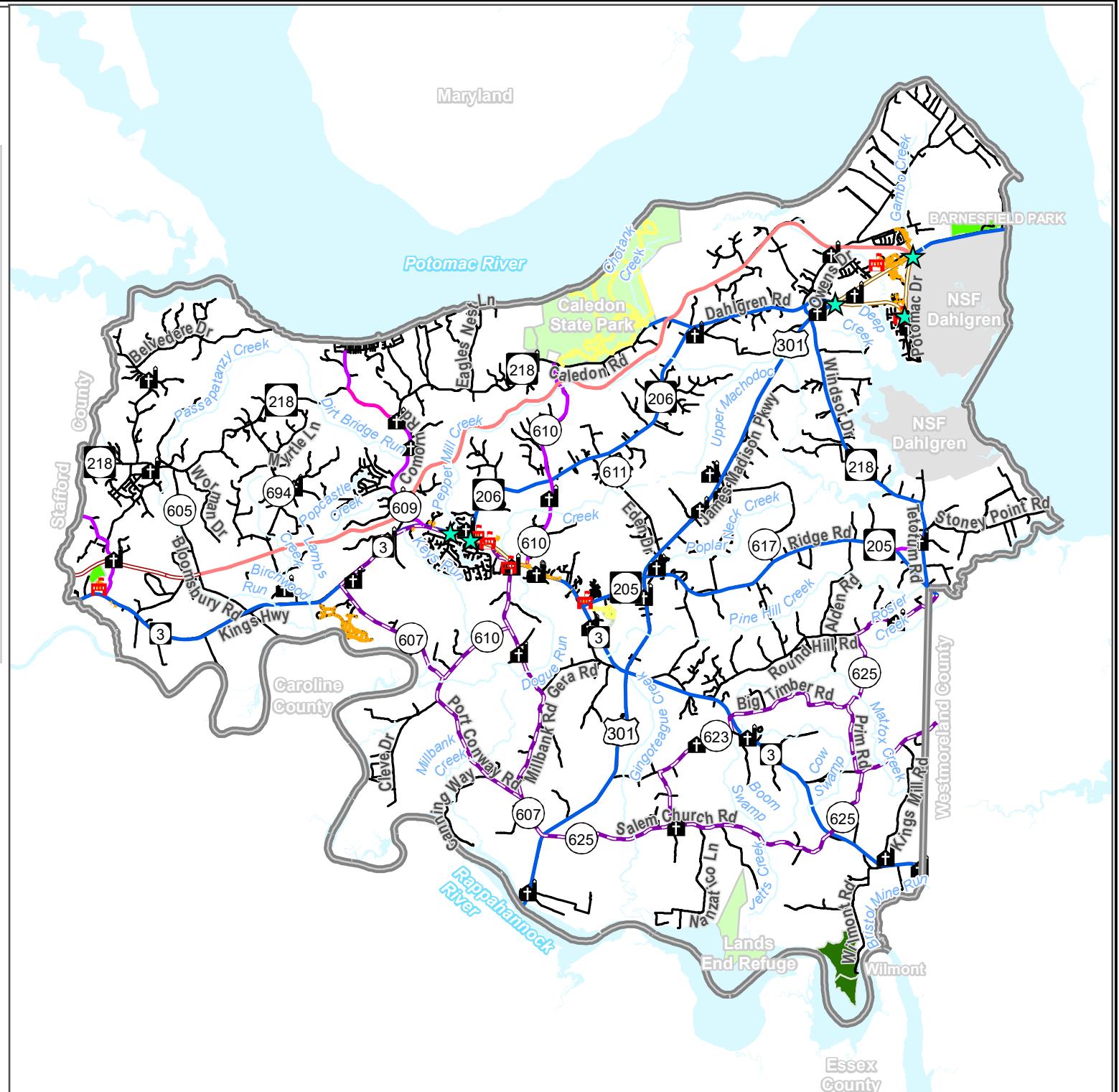
### —Legend—

- ★ King George Intersection Improvements
- 韨 Community Services
- ⛪ Churches
- Proposed Shared Use Path (Dahlgren Rail Spur)
- Dahlgren Railroad Heritage Trail (DRHT)
- Existing Sidewalks
- Proposed Sidewalks
- Nature Trails
- Roadway Reconstruction
- Shared Road Signage
- Shared Road Signage-Comp Plan Route
- Shoulder Improvements
- County Parks
- Wilmont, Federal Land
- State Lands



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# MAP 32

## HISTORIC SITES

### 2019 COMPREHENSIVE PLAN

### KING GEORGE COUNTY

## —Legend

-  Historic Sites (70)
-  School Buildings (6)
-  Churches (37)

1 in = 3 miles



B F G

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