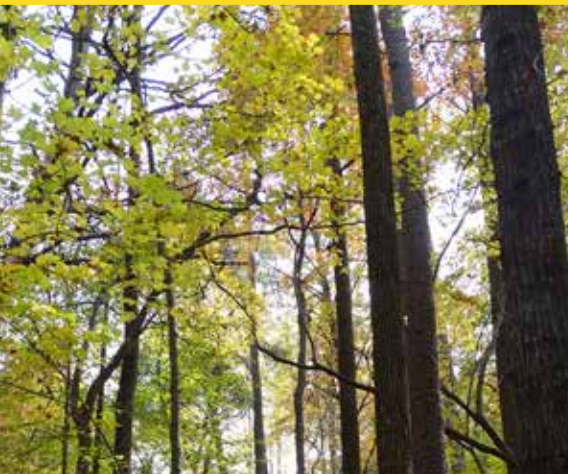


Strategies for Conserving **James City County's Natural and Cultural Assets**



October 2022

Prepared for James City County by GIC Inc.



JAMES CITY COUNTY
Natural & Cultural
Assets Plan





Thanks to the Natural and Cultural Assets Mapping Committee, elected and appointed officials, County staff and the citizens of James City County who all contributed to bringing this Plan to fruition to protect and restore the County’s natural and cultural assets for generations to come.

This report was prepared for James City County by the consultants
at the nonprofit company GIC Inc.
All images, graphics and maps produced by GIC Inc. unless otherwise credited.

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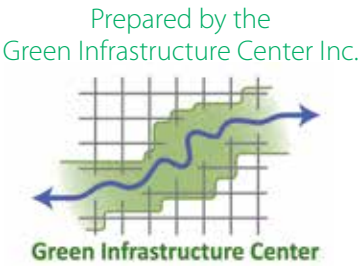


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1. Executive Summary



JAMES CITY COUNTY Natural & Cultural Assets Plan

This Plan showcases the natural and cultural assets of James City County, Virginia, and establishes strategies to conserve or restore them. It is the result of community priorities established during the recent update of the County's Comprehensive Plan. Prioritizing the protection of natural lands and open spaces was the most highly ranked and supported objective across all three rounds of community engagement during the County's public input process called "Engage 2045." In addition to implementing an action in the 2045 Comprehensive Plan, this Plan also fulfills an operational initiative in the 2035 Strategic Plan.



Forests of the County are natural assets that provide cooling, air cleansing, water recharge and wildlife habitat.

Natural Assets are the landscape elements that provide healthy surroundings, recreational opportunities, clean water, and food for people and wildlife. These natural assets include forests, waterways, wetlands, agricultural soils, and other natural resources. Cultural Assets are the landscape elements that people value, such as parks, boat landings, trails, historic or archaeological sites, or scenic roads with outstanding vistas. Natural assets support cultural assets by providing scenic backdrops to historic sites, buffering them from storms, or providing settings in which to enjoy them, such as the trails through Freedom Park that allow users to access recreated cabins of a free Black community, one of the County's premier historic sites.



Recreated cabins of a freed black community in Freedom Park

This project created a model showing the County's highest valued intact landscapes. These intact areas are called habitat cores, which are connected by corridors and patches of land that act as steppingstones. When landscapes are connected, wildlife can move across them, ensuring their ability to obtain food, find shelter, and maintain a diverse gene pool for healthy populations. Pollinators – which help sustain our food supplies and flowers – also need habitat to carry out their critical functions.



This great blue heron appreciates the forest along the James River.

These connections not only benefit wildlife; people also need a connected landscape to allow for recreation, adventure, and alternate routes, such as using trails to walk to school. Connected landscapes help maintain the character of James City County by weaving together its natural and cultural assets, providing a scenic backdrop and a buffer against disturbance, pollution, or environmental degradation.



James City County's intact habitats also provide residents with abundant outdoor recreation.

The work to model and map the County began in August 2021 and was led by a team from the Green Infrastructure Center (GIC Inc.), a Virginia-based nonprofit that also coordinated the community engagement process with County staff. A Board of Supervisors-appointed advisory committee provided data, map review and insights throughout the process and hosted public meetings and surveys to elicit additional ideas and support. The advisory committee also reviewed and edited the Plan's strategies, which support conservation, promotion, and restoration of the County's natural and cultural assets.

Assets were mapped using satellite imagery, existing datasets and community knowledge. Knowing the location and extent of these assets will allow the County to take them into account when making decisions about growth and land development, sustaining the County's agriculture, planning for outdoor recreation and community health, and promoting tourism and economic development. Consultants mapped the County's intact habitats, outdoor public recreation, agricultural soils, water, and heritage and cultural resources. Full-page maps are depicted later in this report and are shown at smaller scales on the next page.

A risk assessment was also conducted to highlight areas that may be at risk from such natural impacts as storms and fires, or from such human impacts as roads, housing developments, or large utility projects. The risk map can be used to inform decisions about where actions may be needed, or extra care should be taken when planning for future growth in those areas.

FAST FACTS about James City County's Natural and Cultural Assets

County total area:92,160 acres, (144mi²)

Water and wetland area: 12,800 acres, (20 mi²)

Habitat cores area:44,088 acres, (68.75 mi²)

Area of cores that contain known cultural resources:4,710 acres, (27.3 mi²)

Area of cores with the highest value ranking (top 5th):..... 25,336 acres, (39.5 mi²)

Area of cores that contain a Surface Water Protection Zone:3,619 acres, (5.65 mi²)

Area of wetlands: 10,987 acres*, (17.2 mi²)

Area of prime agricultural soils on open lands (highest crop value) soils*:6,427 acres, (10 mi²)

Miles of streams:550

Miles of streams that flow within a habitat core:397

Number of historic and cultural points identified: 140

Number of cores that contain or support a cultural or recreational resource (resource is within 0.1 mile of core):59 of 60

Number of cores with federally- or state-listed species: All 60

*Data that come from the National Wetlands Inventory can underestimate wetland extent, especially wooded wetlands, which may not be easily seen from satellites.

Natural and Cultural Assets Maps

A series of maps were created to depict the County's natural and cultural assets. These maps are shown larger on pages following. Data for the maps comes from national, state and County sources as well as information from citizens such as significant historical sites or favorite places to catch a scenic view or to take a nature walk.

Online and in person surveys allowed citizens to map their special places and community surveys and workshops provided a chance to suggest strategies to conserve or expand these resources. The County-appointed Natural and Cultural Asset Mapping Committee also provided insights, review and strategies to develop the final maps and Plan.

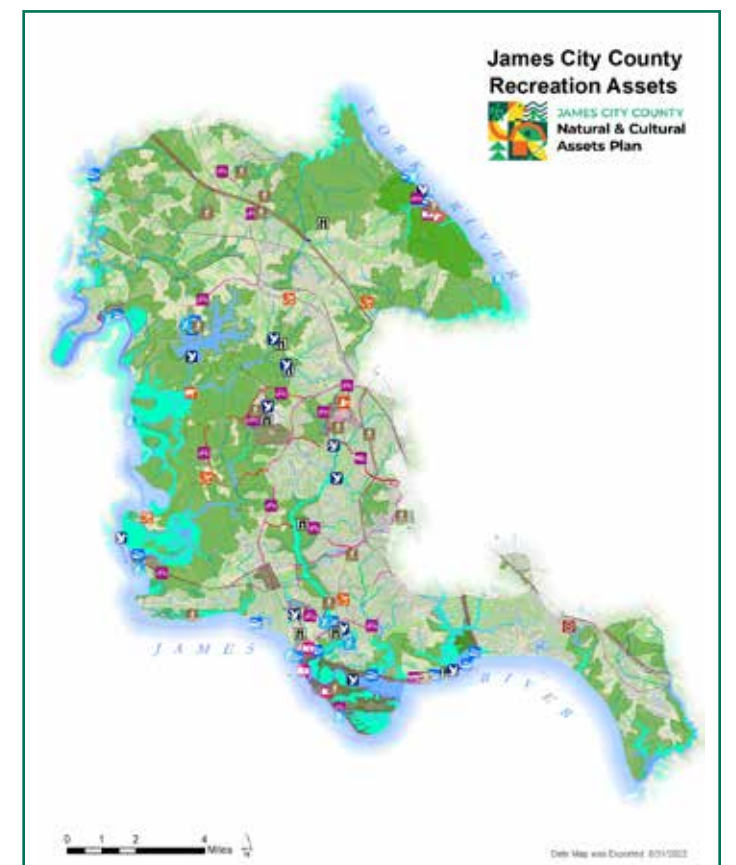
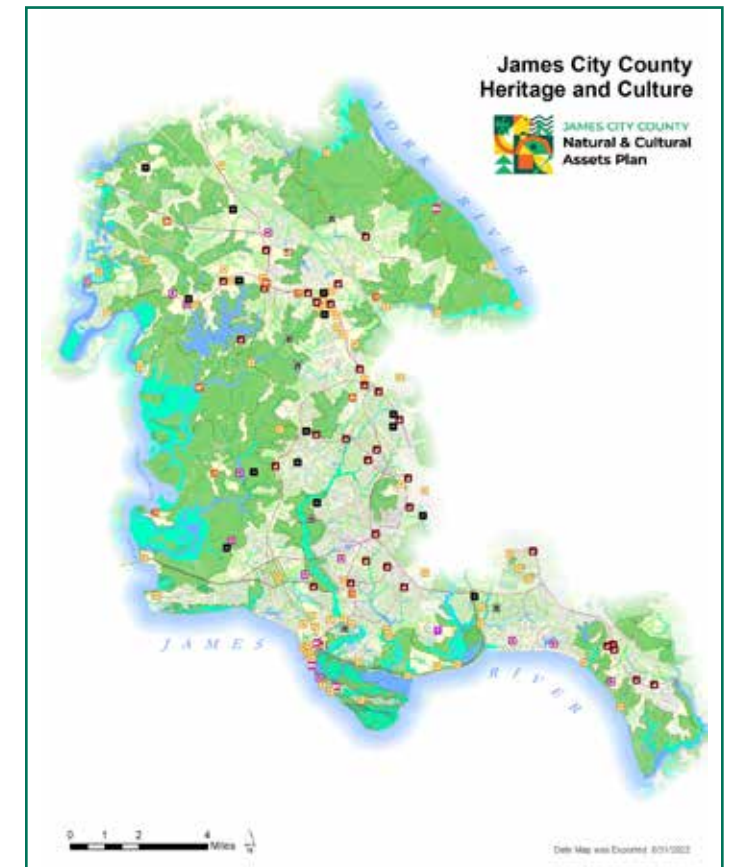




Photo Credit: Jamestown Rediscovery Foundation

The 1907 Memorial Church sits atop foundations of the 17th-century churches that once stood on this site in Jamestown. The area continues to yield rich artifacts of early colonial and pre-colonial inhabitants.

Goals

There are four overarching goals to support conserving the County's natural and cultural assets, along with implementation objectives and recommended implementation steps described later in this Plan:

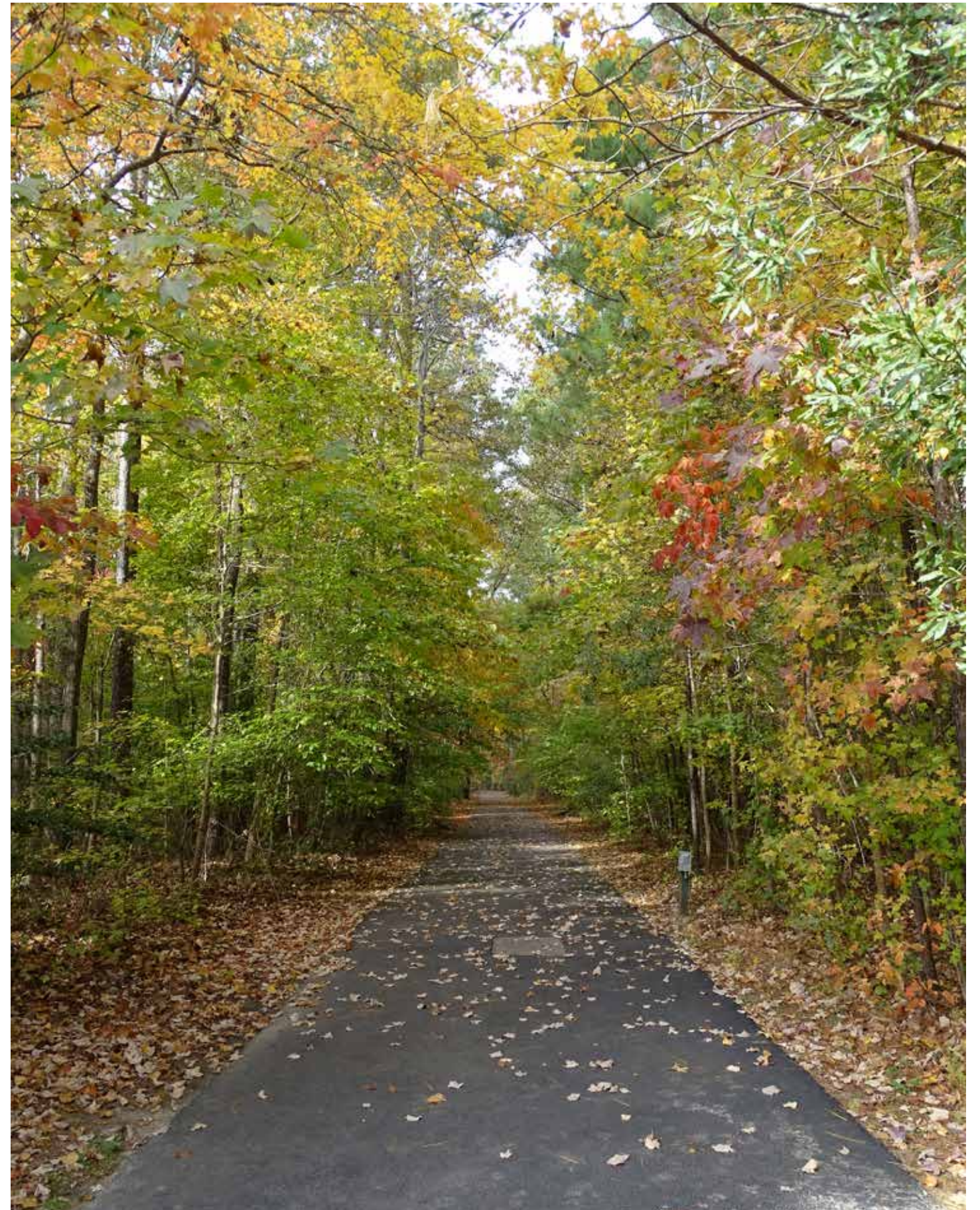
Goal 1: Conserve and protect the highest valued natural habitat cores and connecting corridors to support wildlife, trails and greenways, scenic vistas, and cultural and recreational values.

Goal 2: Conserve and protect high-value agricultural soils and historic farms to support the agricultural economy and continue the County's agrarian heritage.

Goal 3: Facilitate voluntary planting projects to extend the width of vegetated buffers, to serve as wildlife corridors along the County's waterways and to protect water quality.

Goal 4: Promote biodiverse landscapes to improve habitats within the built environment.

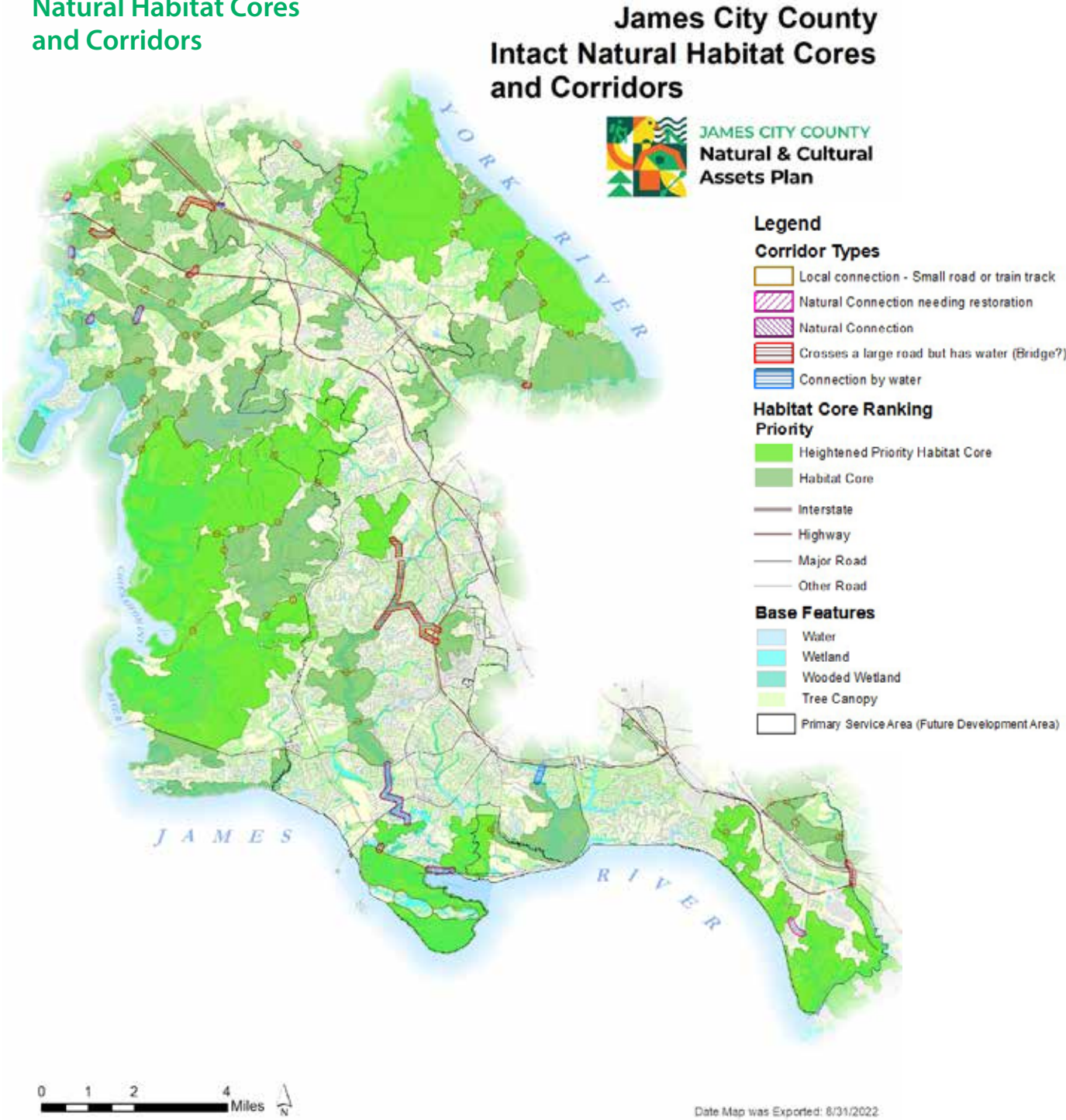
The maps and data from this Plan can be used to support both the County's everyday planning and long-range goals, as well as numerous objectives within the new Comprehensive Plan. Landowners and residents can use the maps and strategies to inform plans for yards, farms, neighborhood open spaces, and economic opportunities, such as developing new agritourism sites.



Maps

The primary maps created from the data can be seen in larger format on the County's website at: <https://jamescitycountyva.gov/3856/Natural-Cultural-Assets-Plan>

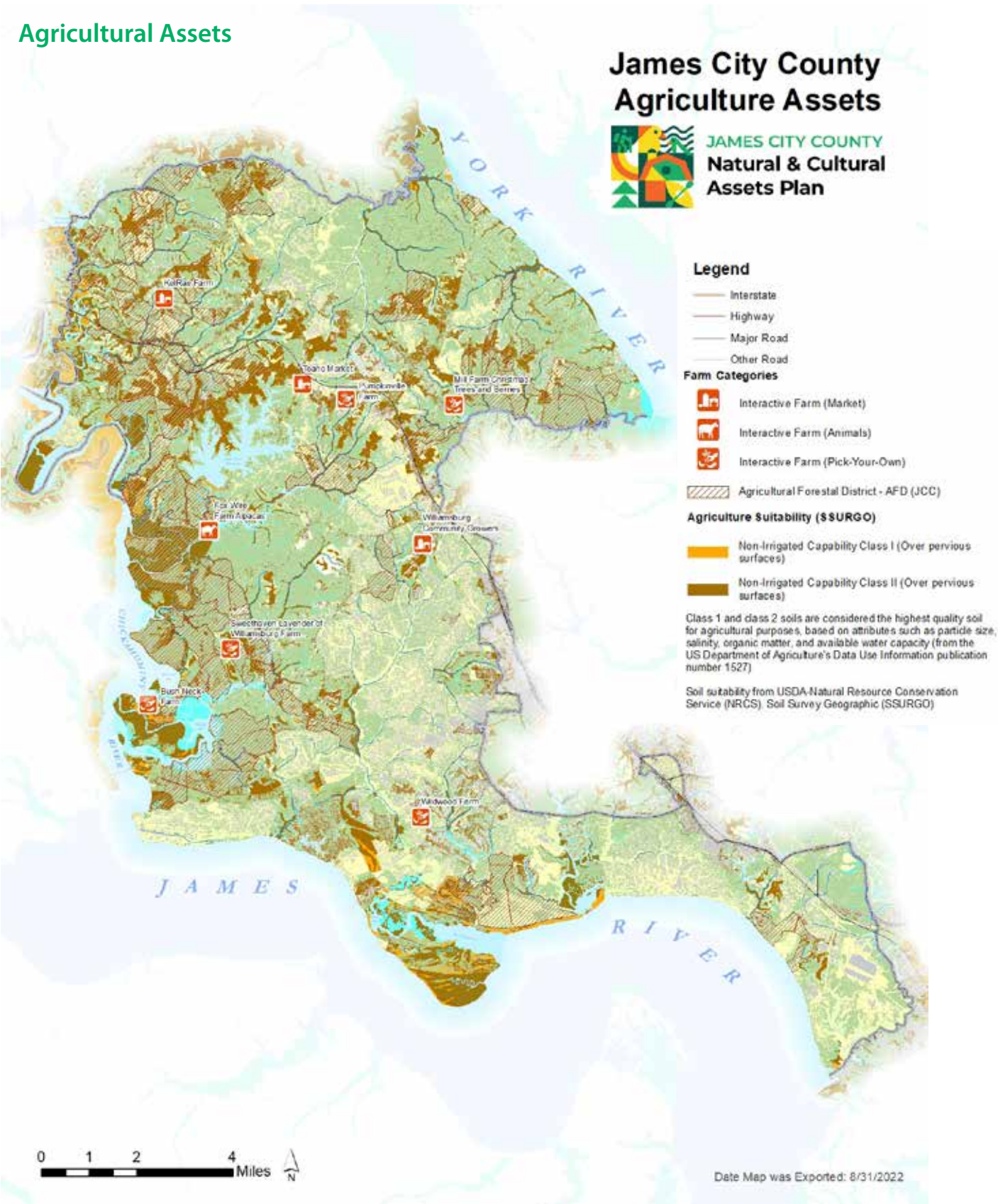
Natural Habitat Cores and Corridors



Habitat cores are intact natural landscapes that are large enough to support interior forest or marsh dwelling species. This map depicts the County's large blocks of intact habitats and shows them connected by corridors to form a network. The more connected the landscape, the more resilient it is and the more pathways there are for people, pollinators, and plants. Those habitats that also support cultural assets can be seen on the Heritage and Culture map.



Agricultural Assets



High-quality agricultural soils (classes 1 and 2) are best for crop growing and are shown in light brown. They appear along with larger, known farms and agritourism opportunities, such as pick-your-own farms. Agriculture is an important aspect of James City County's history and heritage.

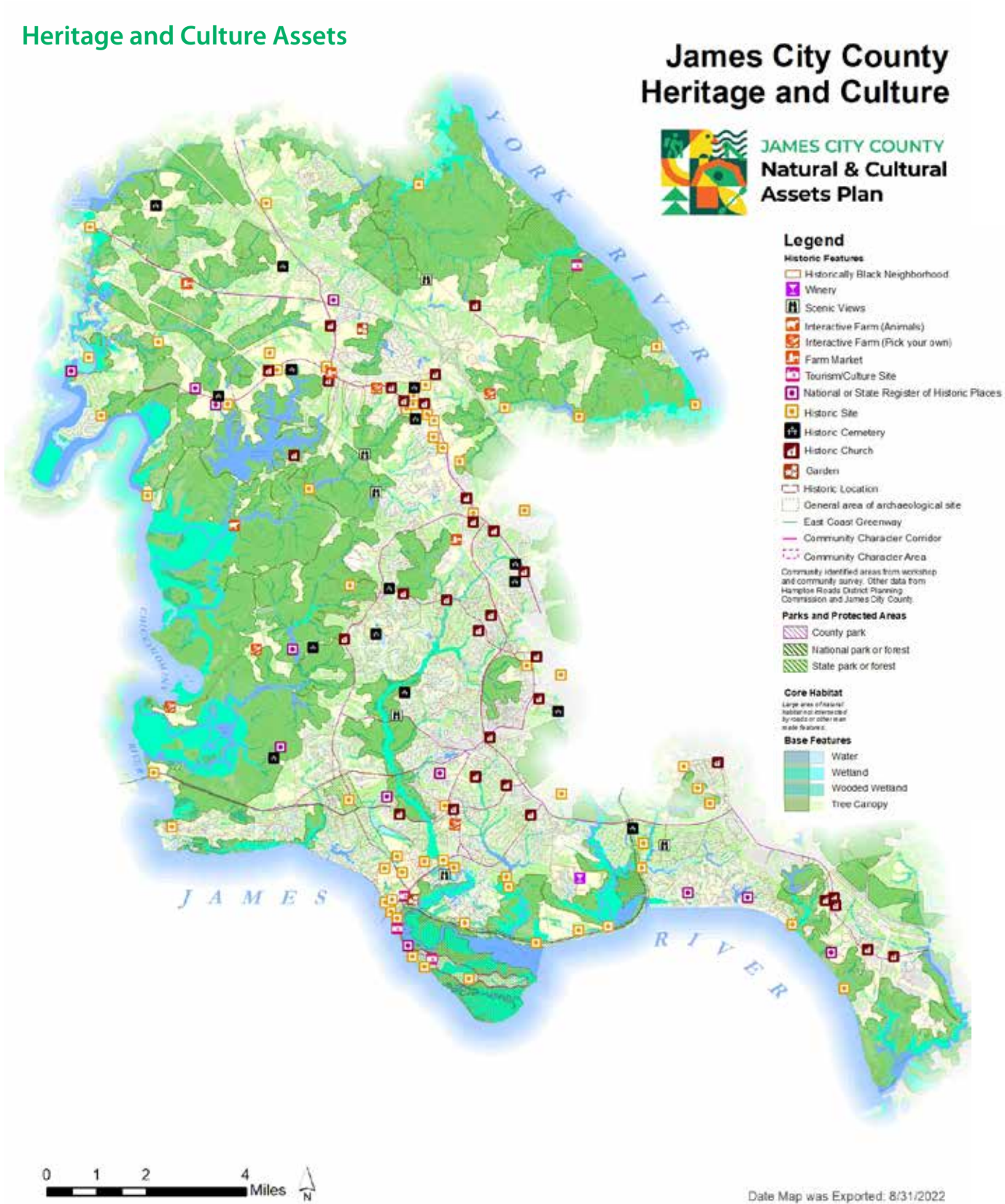


Forestry Assets



This map depicts the County's Agricultural Forestal Districts where landowners have voluntarily enrolled their lands in agricultural uses as well as forests that are large enough to sustain repeated forestry activities. This does not mean that forestry should be practiced on these sites, only that it could. Forestry helps to sustain the rural economy, and temporarily cleared areas where young forests are re-growing following a harvest can also support other species such as quail.

Heritage and Culture Assets



Heritage and cultural resources include Community Character Areas and Community Character Corridors from the 2045 Comprehensive Plan; national, state, and local historic register sites; archaeological sites (approximate locations); community-identified heritage sites; and other community interest areas. Natural landscapes provide the context, backdrops, and buffers for these sites and contribute to their settings and beauty.

Outdoor Recreation Assets



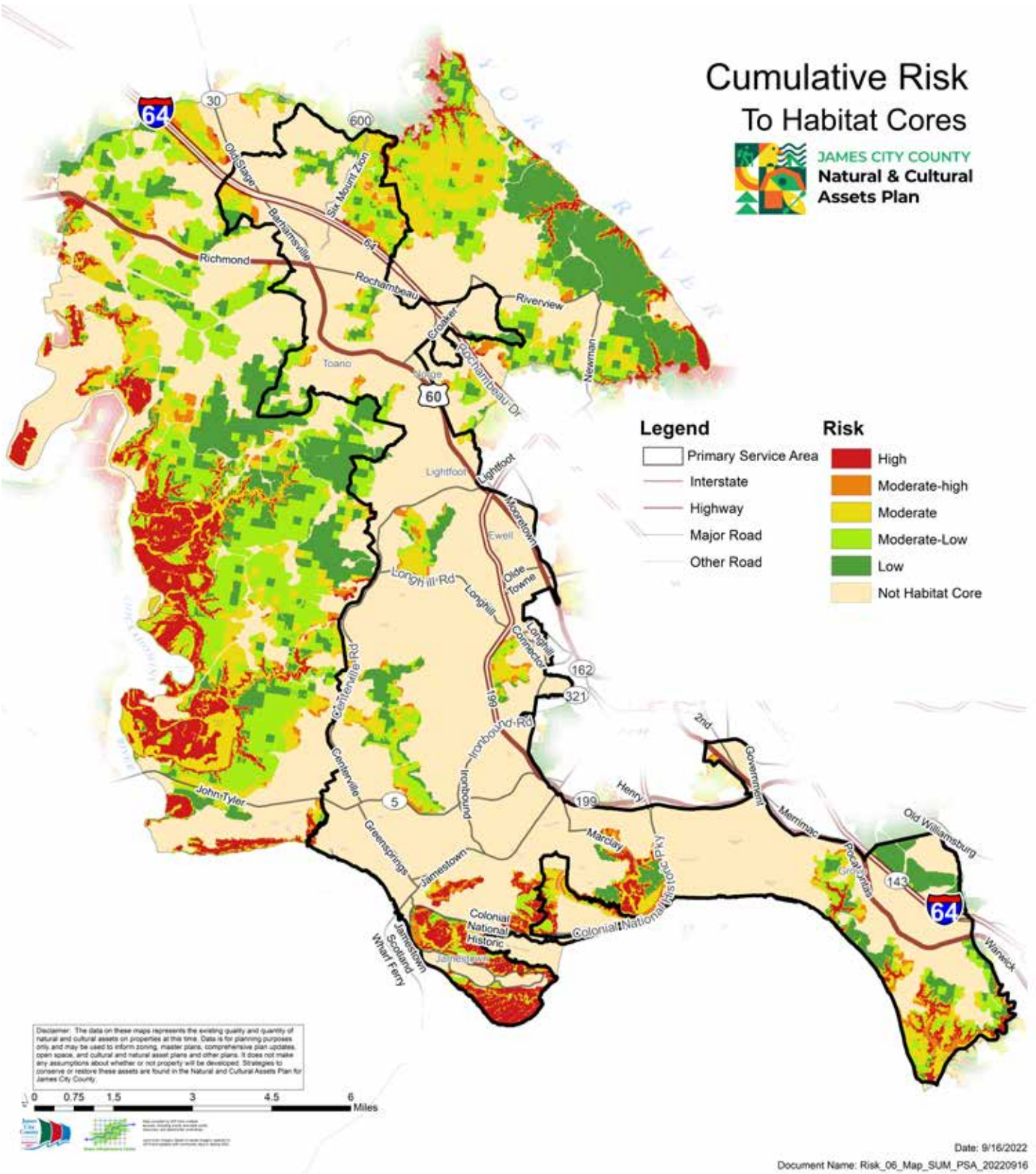
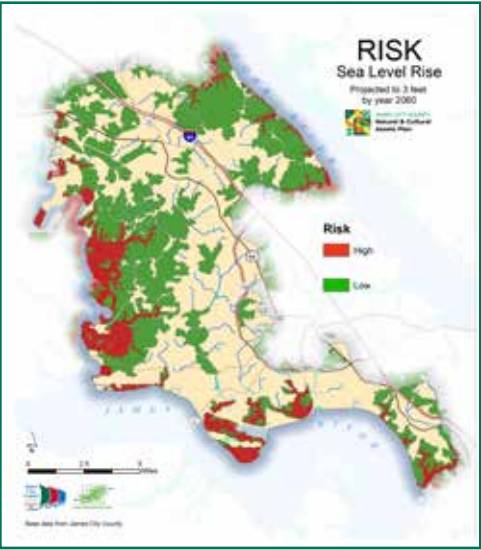
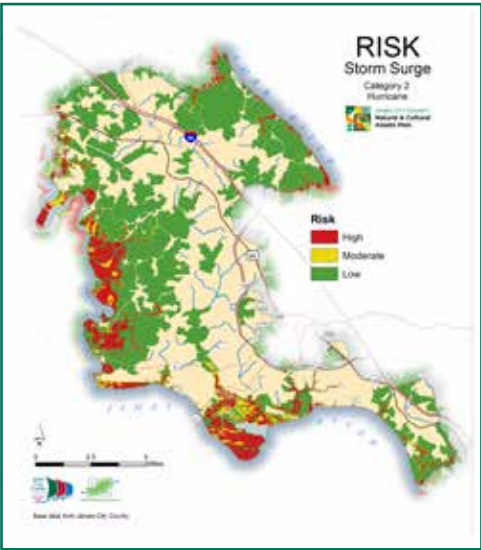
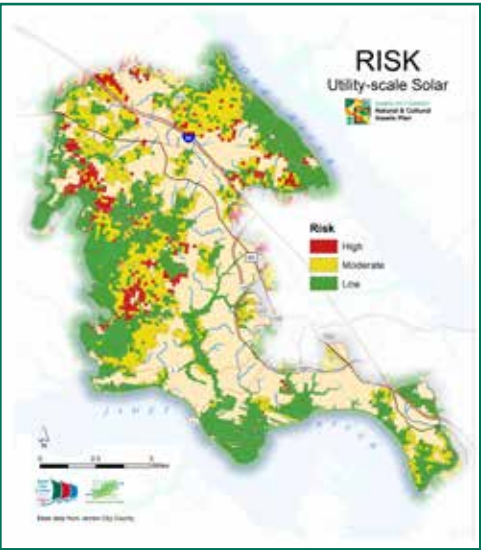
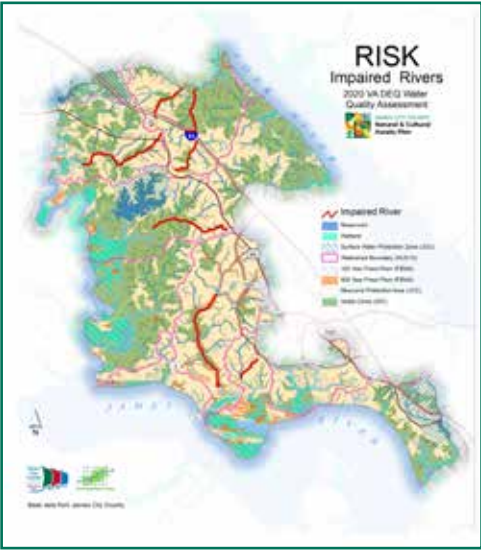
Many recreational activities depend on a healthy landscape for their enjoyment, such as hiking, birding, boating, fishing, hunting, and other nature-based sports. A healthy landscape provides both access and scenic settings for enjoying the outdoors. Large intact habitats provide refuge, shelter, and food for the many species that residents and tourists appreciate when enjoying the outdoors.

Water Assets



James City County is bounded on most sides by water which includes extensive wetlands and marshes. There are also areas subject to flooding and the most common (1% chance of happening) are shown in cross hatching and the 200-year floods (0.5% chance of happening) shown in orange. Surface water source zones protect drinking water, and resource protection areas protect nearby surface waters. The many forests and wetlands in the County help cleanse runoff to protect surface water quality and groundwater recharge.

Risk Maps



The risk map shows the habitat cores that may be impacted by future land uses, storms, or other changes. See page 22 to learn more about this analysis. Note that these are all “potential” impacts. Some risks, such as rising water levels may be permanent while storm surges are temporary but can damage landscapes after repeated inundation. Other risks can be addressed through enacting policy changes. Implementation of this Plan and use of the data can mitigate or remove some of these risks.



2. Why Plan for Natural and Cultural Assets?

This Plan for conserving and restoring natural and cultural assets of James City County fulfills an operational initiative from the 2035 Strategic Plan and is the result of community priorities established during the recent update of the County's Comprehensive Plan, Our County, Our Shared Future – James City County 2045 Comprehensive Plan. Prioritizing the protection of natural lands and open spaces was the most highly ranked and supported objective across all three rounds of community engagement during Engage 2045, the public participation process to inform the Plan.

The maps and strategies created in this Plan support many of the goals, strategies, and actions (GSAs) of the 2045 Comprehensive Plan. Appendix A lists all of the supported GSAs, such as mapping the County's natural and cultural assets; protecting waterways, forested lands, and environmentally sensitive areas; ensuring trees are protected during development; promoting eco- and agri-tourism; and many more. See the complete list of the Comprehensive Plan's supported GSAs in Appendix A.

The County's Comprehensive Plan, Our County, Our Shared Future – James City County 2045 Comprehensive Plan, adopted October 26, 2021, lists the following goal, strategy, and action in support of this Plan:

ENV Goal – Continue to improve the high level of environmental quality in James City County and protect rural and sensitive lands and waterways that support the resiliency of our natural systems for the benefit of current and future generations.

Strategy ENV 3 – Protect and conserve environmentally sensitive areas, and work to maintain or promote the ecosystem services provided by all natural areas.

Action ENV 3.1 – Maintain and promote biological and habitat diversity, ecosystem services, and habitat connectivity by protecting wildlife and riparian corridors between watersheds, sub-watersheds, catchments, and tidal and nontidal wetlands, and by developing and implementing a green infrastructure plan.

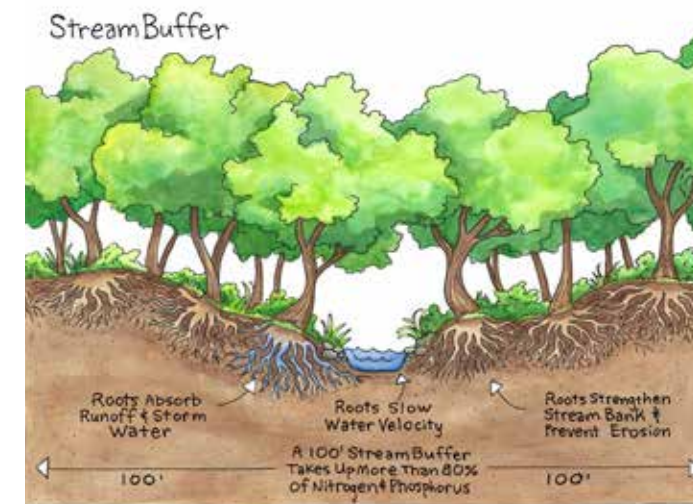


There are many reasons to map and conserve natural and cultural assets:

- Preserving biodiversity and wildlife habitat.
- Conserving working lands such as farms and forests, which contribute to the economy.
- Protecting and preserving water quality and supply.
- Providing cost-effective stormwater management and hazard mitigation.
- Improving public health, quality of life and recreation networks.

Citizens of James City County have long supported natural and cultural assets as part of the County's community character. According to the recently adopted Comprehensive Plan, "James City County's community character is often described as 'historic,' 'rural,' and 'small town.' Key components include the natural topography; large, wooded areas of tall deciduous forests; open vistas across ravines, wetlands, and water bodies; relatively low traffic volumes; scenic roads; and small scale, low-intensity development." Our County, Our Shared Future – James City County 2045 Comprehensive Plan, (October 26, 2021.)

This community character supports public health since well-treed landscapes inspire people to walk farther and longer (Tilt, Unfried and Roca 2007). Even within the County's housing developments, greener landscapes are important for community health, since residents in well-treed neighborhoods suffer less respiratory illnesses, such as asthma, than communities without trees (Rao et al, 2014). Access to nearby natural areas also supports agriculture since pollination services for crop plants increase with decreasing distances to natural and semi-natural habitats (Ricketts et al, 2008; Krishnan et al, 2020). Sitting alongside major tributaries to the Chesapeake Bay with the York, Chickahominy and James Rivers, James City County plays an important role in the health of those local rivers and the Chesapeake Bay. Providing or conserving well-vegetated landscaped buffers of 100 feet wide along County rivers



filters out more than 80 percent of the nitrogen, phosphorus, and sediment runoff. These pollutants can smother fish and shellfish beds, reduce water clarity, and lower the levels of oxygen needed for fish. Well forested landscapes also help with drinking water supply and quality. James City County's forests act like sponges, soaking up rainwater, cleaning it and slowly releasing it to the aquifer to supply groundwater aquifers and prevent land subsidence.



The natural landscape not only supports clean water and healthy fish and wildlife. The quality and scenic vistas of the landscape also tie directly to economic benefits. Visitors to James City County appreciate access to healthy and beautiful landscapes, many of whom can be classified as "heritage tourists" – people who enjoy access to historic sites and outdoor-based, lived history, such as those offered at Jamestown and Freedom Park. Heritage tourists spend about 2.5 times more than all other types of tourists and place a premium on access to attractive landscapes and scenery enjoyed as part of their travels (Hargrove 2002). And as natural resources are protected or curated to appeal to heritage tourism, there are additional value chain benefits as noted by George Mason University's 2020 study of the economic benefits that could be leveraged as the water quality of the Lower Chickahominy River is protected. For example, improved water access and better water quality lead to more demand for fishing or boating which can generate more country inns, guided trips, shopping for supplies and the like (Clower 2020).



Markets with farm produce such as this stand in Toano are an attraction for heritage tourists

Having access to such activities as "pick your own" farms, or such recreational opportunities as fishing or birding keep tourists in the County for longer periods and results in more overall spending during longer visits. More importantly, promoting the same values that tourists appreciate supports a higher quality lifestyle for current and future residents. Protecting or enhancing these benefits, however, requires an effort to understand these landscapes and the sites that support them. We call these beneficial environmental features natural assets because they provide value to people, just like any other assets. They were assessed, understood and catalogued, to allow the County to make better informed decisions about how to manage these assets for maximal benefits while avoiding unintended harms. This can be achieved by growing and developing in ways that reduce impacts and maximize benefits. Decisions such as where to locate a new road, or whether to restore a natural shoreline, can greatly impact the health of the natural landscape and the species that depend on it. This also protects the County's community character.





3. Planning for Natural and Cultural Assets

Natural Assets are the environmental elements that provide healthy surroundings, recreational opportunities, clean water and food for people, as well as for fish and wildlife. These natural assets include forests, waterways, wetlands, bays, agricultural soils, and other natural resources. Cultural Assets are the landscape elements or uses that people value, such as parks, boat landings, trails, historic or archaeological sites, or scenic vistas and roads that add to the beauty of the area. These assets include many of the Community Character Areas and Community Character Corridors identified in the Comprehensive Plan. See pages 145-153 of the 2045 Comprehensive Plan for details on Community Character Areas and Community Character Corridors.



Jamestown Fort seen from above.

Natural assets support cultural assets by providing scenic backdrops to historic sites, buffering from storms, or settings in which to enjoy them, such as the trails through Freedom Park that allow users to access recreated cabins of an early Free Black Settlement, one of the County's premier historic sites, while enjoying the natural surroundings that support them.

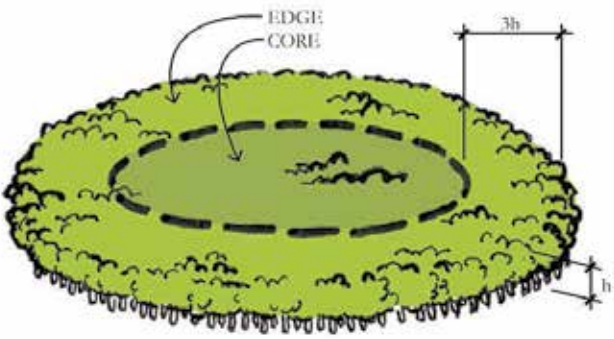
What is Community Character?

The County's Comprehensive Plan states, "James City County's community character is often described as 'historic,' 'rural,' and 'small town.' key components include the natural topography; large, wooded areas of tall deciduous forests; open vistas across ravines, wetlands, and water bodies; relatively low traffic volumes; scenic roads; and small scale, low-intensity development."

— Our County, Our Shared Future – James City County 2045 Comprehensive Plan, (October 26, 2021.)



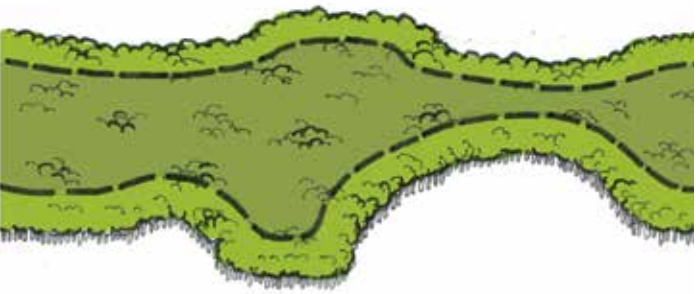
Scenes such as this horse farm make up James City County's community character.



Habitat cores provide the minimum acreage for interior forest species. Cores can also be marshes. 100 acres is the minimum size.

Habitat cores are intact areas of the landscape that provide adequate habitat to support native species.

Wildlife, including pollinators, as well as the seeds of plants, move between these cores along corridors, which can either be continuous, such as a riparian corridor along a river or stream, or in patches that together form a series of steppingstones between larger cores. When these corridors are along streams and rivers, they are referred to as riparian buffers. These corridors support biodiversity because they allow species to intermingle and repopulate areas following such disturbances as hurricanes.



Habitat cores need to be linked by corridors to facilitate species movement

In a rural landscape, there are usually many large cores of intact habitat, with both corridors and patches of undisturbed forest and woodland that animals can utilize to move between those cores. However, in towns and suburbs there are fewer large tracts of undisturbed habitat, which means that species have to rely upon smaller areas, such as parks and streams, to move around. But even in towns and suburbs, corridors can be provided along streams and pathways for smaller animals, such as birds and pollinators, and can also be maintained through lines of interconnecting back yards.



In towns and suburbs interconnecting back yards can provide corridors for birds and pollinators.



This barred owl in a James City County Park depends on a healthy forest to survive.

Habitats for local bird species

Many birds such as the Prothonotary Warblers, the only eastern warbler to nest in tree cavities, prefer lowland forests near standing water for nesting sites. The decline of this habitat is the most critical threat to the species' breeding success, contributing to the bird's decline over much of its historic breeding range. When habitat is protected for these forest species, other smaller species, such as spotted newts or minks, which have less habitat area needs, will also be supported.



There are several warbler nesting box sites monitored in James City County along local rivers and wetlands.

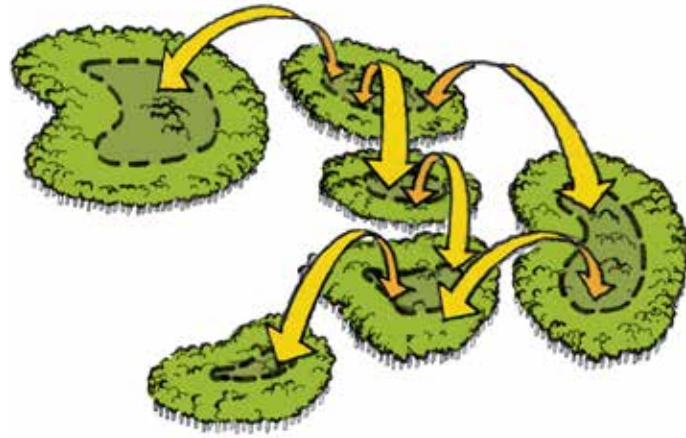
Natural vs Cultural Assets

Natural assets include:

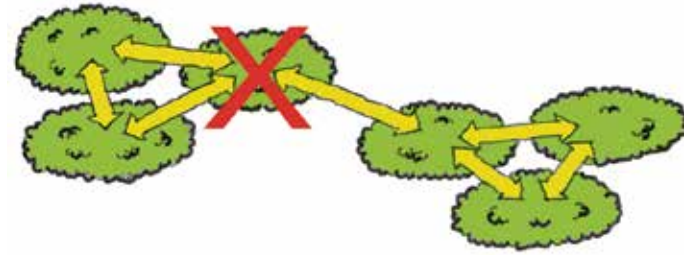
- Intact, large, forested areas
- Wetlands and marshes
- Rivers and streams
- Agricultural soils

Cultural assets include:

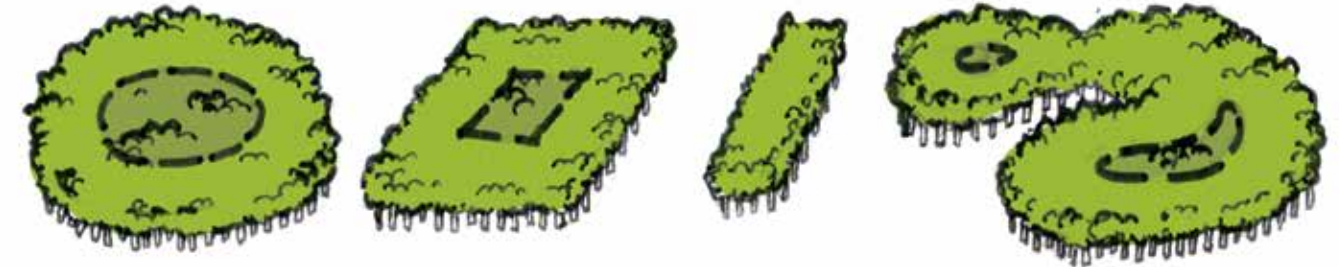
- Historic sites dependent on the surrounding landscape
- Archaeological sites
- Community Character Areas and Corridors
- Cemeteries and churches
- Pick-your-own farms
- Scenic vistas



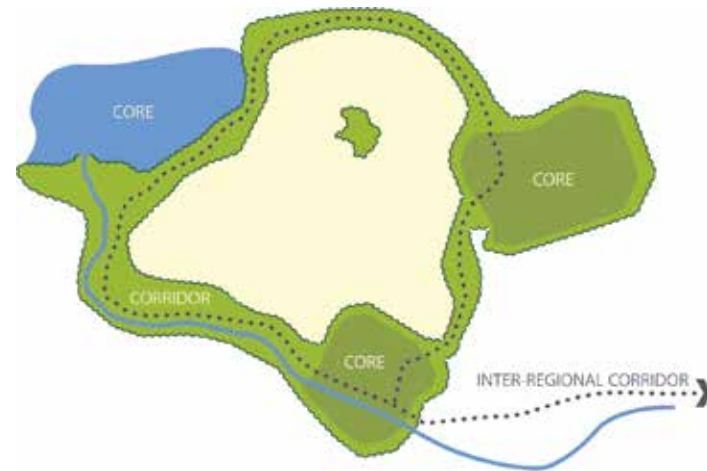
When corridors are missing, wildlife can sometimes use patches to move across the landscape.



If the habitat patches are lost, movement is disturbed, and damaged areas may not repopulate.



The shape of the core determines if it has sheltered interior spaces for wildlife. If it is too skinny, it may be all 'edge,' and thus suffer from outside impacts that mitigate against interior forest species.



Habitat cores should be connected to allow wildlife movement and support biodiversity.

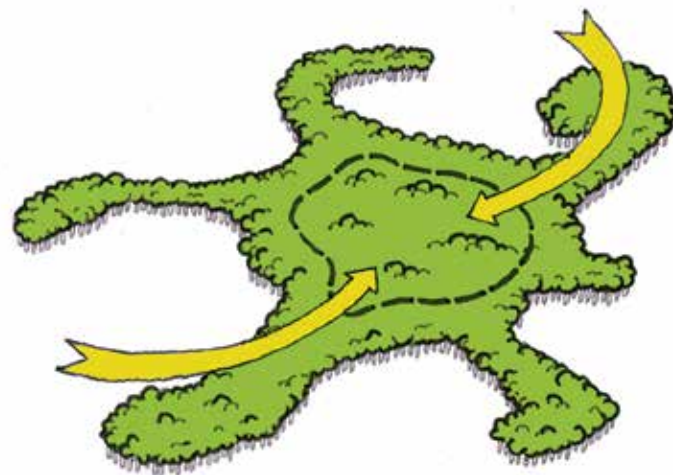
Taken together, this network of intact forest, wetlands and riparian habitats can be considered as our "natural asset network." It also supports our human health (air quality, water quality, recreation, food) and our economy through forestry, hunting, and tourism. A connected landscape also has benefits for those who depend on connectivity to enjoy their sport such as hunting or horseback riding. Similarly, a connected landscape allows species to more easily repopulate areas which allows hunters to continue to find ample game animals and, if permitted, the ability to access larger areas when enjoying their sport.

The rounder the core, the better it is for protecting interior species, since it has less edge relative to its interior. A long skinny core has a lot of edge, but only a short depth-to-interior ratio – it is less protected and more at risk from disturbances from invasive species. Measured from the outside edge, the deeper the core, the greater is the depth-to-interior measurement. A "deeper" core means more protection for species that depend on interior forest habitat.

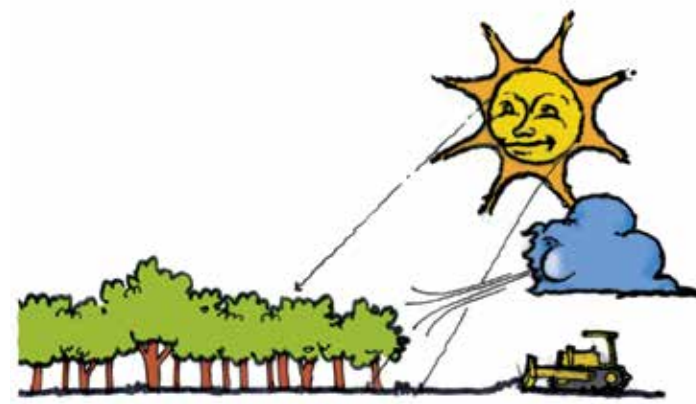
Having more protected pathways for movement allows species to be more resilient, as there are more options for genetic diversity and foraging for food. The more these options are available, the more resilient a species will be. If one area is disturbed or damaged, such as from a hurricane, it can migrate to a new area to find food and shelter.

Riparian areas are also considered as key components of the natural assets network because they provide pathways for such species as frogs, salamanders, turtles, fish, and wading and diving birds. Forests along streams filter land runoff, such as nitrogen and phosphorus,

which are plant nutrients that can harm streams since they lead to algal blooms and a decline in oxygen. Forests also trap sediments that can cloud the water, smother spawning areas, and block light to aquatic plants. Other contaminants adhere to these soil particles, so keeping excess sediment from a stream is always wise. A 100-foot forested buffer has been shown to remove 97% of sediment, 80% nitrogen and 77% phosphorus pollution from runoff, thereby protecting rivers and bays from overland flows of stormwater. Even in developed areas, street and open-space trees can significantly reduce stormwater runoff, while also filtering pollutants from the air.



Multiple pathways are needed to allow animals, such as birds and mammals, to move into and out of core habitats.



When there are more edges, there is more opportunity for disturbance and impacts.



Mapping and Planning for James City County's Natural and Cultural Assets

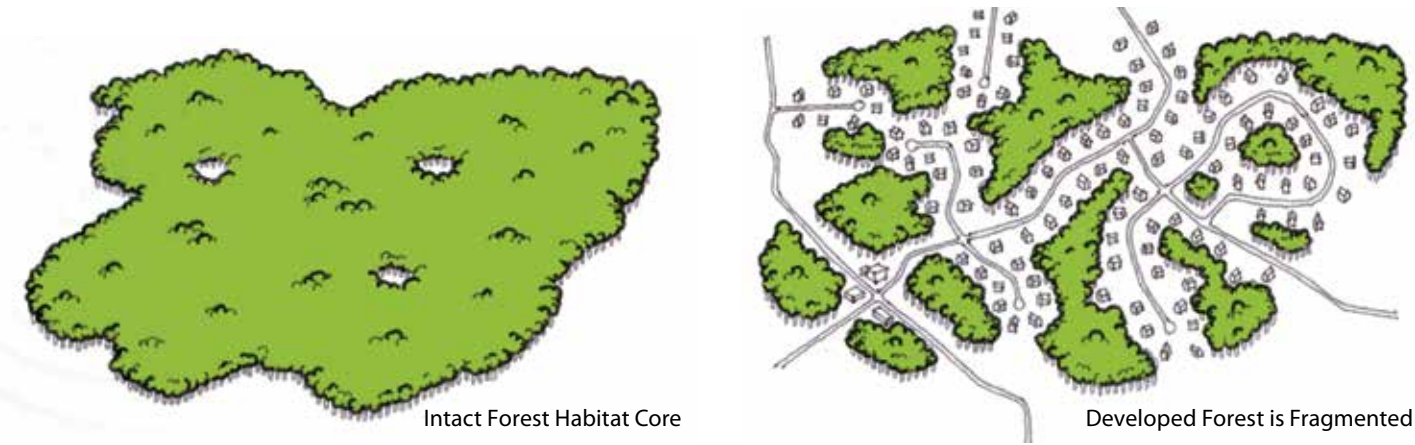
The James City County Natural and Cultural asset plan was developed using a six-step process recommended by project consultants. This entailed a process to:

- 1) **Set Your Goals** – What does your community/organization value? The Comp Plan helped with this.
- 2) **Review Data** – What do we know or need to know, to map identified values? This project made new models!
- 3) **Map Your Community's Ecological and Cultural Assets** – Create maps of assets based on the goals established in Step One and data from Step Two.
- 4) **Risk Assessment** – Determine which assets are most at risk and what could be lost if no action is taken.
- 5) **Rank Your Assets and Determine Opportunities** – Based on those assets and risks identified, decide which ones should be restored or improved.
- 6) **Implement Opportunities** – Include natural asset maps in both daily and long-range planning (park planning, comprehensive plans, zoning, tourism and economic development, seeking easements, etc.)

Mapping the County's natural assets required collecting, analyzing, and cataloging data in several ways. A variety of data sources were used, and these data were then analyzed to determine the health of the natural landscape. Methods were based upon well-established modeling developed by Virginia's Department of Conservation and Recreation (DCR), Division of Natural Heritage.

Since 2007, DCR has modeled intact habitat areas of the landscape known as habitat cores. Since 2009, the consultants at GIC Inc. have worked closely with DCR in developing methods to model and update the state's data. In order to use the most recent source data, the consultants imported the most updated national land cover imagery flown in 2018 from the U.S. Geological Survey called the National Land Cover Dataset, or NLCD <https://www.usgs.gov/centers/eros/science/national-land-cover-database>. These data are several years newer than data used by the state of Virginia and the data on the state's portal known as Conserve Virginia (October 2022).

The consultants then updated that data using 2021 imagery, along with data from County planners to remove newer developments that had changed the land use (e.g., from forested land to subdivisions) to more accurately reflect current land usage. It is important to understand that land usage changes daily as timber is harvested, new homes are built, or storms fell trees and disrupt marshes. The data represented in this report are therefore a snapshot in time. However, James City County now has access to all current and updateable data within its GIS system and can input the latest



Large areas that had been developed since the data were collected, were updated to remove habitat cores that were no longer intact habitats.

information as needed. A new model should be run in 5-10 years to examine prevailing conditions and compare them to the present data, in order to determine how land use and the County's assets have changed over time.

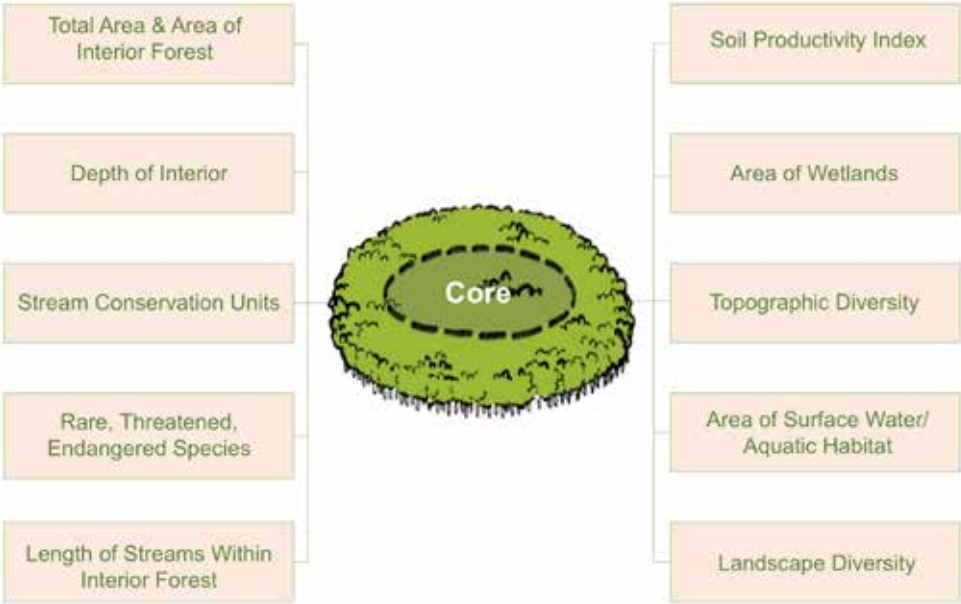
The next step was to determine the highest value landscape by identifying those cores of intact habitat large enough to support a diverse abundance of native species. They represent the natural land cover in James City County that includes forests, forested wetlands, and marshes. Habitat cores are a minimum of 100 acres in size with an additional buffer of land around that that is about 300 feet wide to protect interior species from disturbance. Larger cores support more species, generally, and thus offer greater benefits.

Once the natural land cover for an area is mapped – whether forest, forested wetland, or marsh – it is ranked to determine its value. A habitat core that has more streams, or is larger, could be ranked as having greater “ecological integrity” than a much smaller upland core. Values are further weighted according to the importance of the value – some values are more important than others. For example, the size of the intact landscape is the most important factor in ranking the cores. This is relatively easy to understand since the more land available, the more food sources, nesting sites, and shelter there is for rare species. Also, a larger core will have more habitat niches, such as stands of a particular tree or snags for woodpeckers. In this regard, elevation changes may also determine the prevalence of certain species.



How we evaluate the quality of habitat cores = Core Metrics

A variety of weighted factors are used to rank a core. While size is the most important indicator for species abundance, a smaller core could be ranked higher than a larger core if the smaller core supports multiple rare species.



Sites also can be considered culturally important because they hold sentimental or emotional value. A scenic view can be considered a cultural value because it overlooks a marsh or forest or such evocative elements as barns and horses that are reminiscent of what James City County residents equate with a feeling of home, or with how they believe the community should appear. During the Comprehensive Planning process, the County developed a map of places identified as holding significant “community character,” and those places – areas and corridors – are also included on the Heritage map. See Section 3 for a definition of community character. See the County’s 2045 Comprehensive Plan for a definition of Community Character Areas.



These sites, such as farms and scenic vistas, are significant to the community because they represent people’s perception of how James City County should look. These are the essential elements of “place making.”

For the Culture and Recreation maps, the consultants used existing data from the County, such as parks, boat ramps, and archaeological sites, as well as data from the public, from which they created a final list of more than 900 recreational and cultural sites. These include sites from the community that may not be listed in a government register of historic places. For example, a rural church in a scenic setting could be 200 years old, but if it was not nominated for the National or State Register of Historic Places then it would not yet be



Freedom Park is a popular County historic park with sites dating back to the 1600s.

“listed”; however, in reality, it is still of great historic value to the local community. Adding in the community-sourced data provides a richer and more accurate understanding of the important recreational and cultural values of the landscape. Note that there are likely many more sites in the County’s rural area that could be included in future maps. There are likely undiscovered historic sites that could later be recommended for inclusion on the cultural map.



Jamestown continues to yield new archaeological clues to the nation’s founding. This structure protects the remnants of the glass furnaces at Jamestown.

As this project was a landscape planning effort, not every individual property of historic value is included. Rather, the plan looked specifically at which properties were part of an historic landscape – a situation in which the landscape provides an important setting for an historic structure. Setting – landscape – is crucially important to the interpretation of many historic sites, such as a plantation or battlefield, and thus to realizing its full historic and scenic value. See the textbox on the Governor’s Land Archaeological District (GLAD) on page 38, to learn more about why this is so important. Thus, to truly protect the historic significance of County sites, we should also work to conserve their environmental settings, which likely will include consideration of the viewsheds – the areas of land visible to and from these sites. For more on how sites were added, see the community engagement section of this report.

Once all the important habitat cores and corridors were mapped and the Recreational and Culture map layers created, an additional level of analysis was conducted to determine which habitat cores supported significant cultural or recreational values. Those cores are shown on the map on page 6 in a brighter shade of green as “heightened priority cores” because they provide ecological, recreational, and cultural value to the County. This does not mean, however, that cores that lack public recreational uses or where archeological sites remain unknown have less value. Every habitat core in the County supports at least one federally- or state-listed species of plant or animal, and 43 of the County’s 60 cores shelter a rare species as well. These intact landscapes also perform an important job of supporting healthy streams and marshes, preventing erosion, filtering surface runoff and recharging groundwater.





4. Understanding and Mitigating Future Risks

Mapping the extent, integrity, and importance of habitats and historic and recreational sites is only a first step towards planning to conserve important assets into the future. There is the potential for impact to these resources into the future from natural sources (e.g., storms) to man-made impacts, such as development or road building. However, there are many things that can be done to alleviate or change potential future impacts to the landscape. Following is an overview of potential risks.

The strategy section of this document details the actions and methods the County plans to employ to both enhance and expand the health of natural and cultural assets, as well as the ways that impacts can be reduced or avoided. Impacts, or risks, were modeled to the year 2060, almost 40 years into the future.

A key driver for impacts to the environment or to culturally important sites is growth. The 2045 Comprehensive Plan, like all such plans in Virginia, seeks to balance the competing demands for growth with the desire to protect environmental assets, historic resources, and community character. The Comprehensive Plan establishes the County's intent to conserve the rural area as much as possible, while driving new growth to the County's Primary Service Area (PSA) where public utilities and services are available or planned. It sets forth the following overarching goal: "Achieve a pattern of land use and development that reinforces and improves the quality of life for citizens by encouraging infill, redevelopment, and adaptive re-use within the PSA; limiting development on rural and natural lands outside the PSA."

The County sets forth specific visions for protecting the environment, preserving community character, and enhancing the quality of life. To read these visions see: <https://jamestowncountyva.gov/DocumentCenter/View/32505>. Also see the many Comprehensive Plan GSAs that this Plan supports in Appendix A.

Balancing the many competing needs and reducing risks will take concerted action by County officials, stakeholder groups, neighborhoods, and residents working together to forge creative solutions. This Plan provides a beginning set of strategies to help realize the Comprehensive Plan's goals. Several risks were analyzed individually and then combined to create a cumulative risk map.

The following risks were analyzed: impaired waters, rising water levels, storm surge, utility scale solar development, and development. See the maps for where those risks were modeled, along with the cumulative risk map. Risks were evaluated to the year 2060. Some risks may turn out to be less than projected, while others

may be more severe. Risk assessment is a tool to highlight areas where some actions may be needed sooner to change the potential risk. For example, the risk of large utility-scale solar installations that could remove hundreds of acres of forest or highly valued agricultural soils could change if the County were to adopt policies for where large solar projects are or are not appropriate.

Impaired Waters

Virginia Department of Environmental Quality (DEQ) 303-d listed water bodies (2020 data) were used to depict waterways, lake or bays that do not meet state water quality standards. Some areas are impaired because of habitat loss, others may be impaired because of land runoff, while some suffer from sources of impairment that originate far upstream. If those streams are impaired by land uses or runoff, forested land cover can reduce or prevent impacts. For more on these impairment sources, see: <https://jamestowncountyva.gov/DocumentCenter/View/32505>.

Rising Water Levels

Inundation from rising water levels has the potential to permanently alter the landscape. The current assessment used an intermediate-high curve for water level rise by the year 2060. The source for these water levels is the National Oceanic and Atmospheric Administration (NOAA) and is the same data and inundation levels used by the Hampton Roads Planning District Commission (HRPDC) for this region. The data were developed by NOAA in 2017 (the most recent year available as of the publication of this report). This is aligned with HRPDC's recommendations for localities to use when planning for rising water levels.



Jamestown Park staff have already armored shorelines to prevent further damage to resources, but these strategies are only effective in the short term.

The James City County Comprehensive Plan notes that:

"James City County participates in regional planning efforts related to sea level rise through HRPDC. On October 18, 2018, the HRPDC Board adopted the Sea Level Rise Planning Policy and Approach, which posits the following relative sea level rise scenarios for planning and engineering decisions (Env. Chapter, E-36):

- 1.5 feet above current mean higher high water (MHHW) for near-term (2018-2050).
- 3 feet above current mean higher high water (MHHW) for mid-term (2050-2080).
- 4.5 feet above current mean higher high water (MHHW) for long-term (2080-2100)"

—Env. Chapter, pg. 132.

It is also true that the region suffers from land subsidence. This is due to a variety of factors, such as excessive water withdrawals and land paving and building that starve aquifers of water, causing them to shrink, as well as development patterns that alter water-carried sediment loads to downstream areas. This means that, for the Hampton Roads area, water levels are rising faster because the land is also sinking in some places, causing a more severe scenario than for other places along the Atlantic Coast. For more, see <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2020GL090013>.

The land around Historic Jamestowne and the Colonial National Historical Park is especially vulnerable since this area is fairly low-lying. If sea-level rise occurs as predicted, the entire island of Jamestown may disappear within the next 100 years. Park staff already have to close some roads during king tide events. The park's natural resources division is studying the hydrology of the island and has just (2021) completed a four-year groundwater study with the

U.S. Geological Survey. They have studied the sea-level rise effects on the freshwater lens, (the water table that floats above the denser saltwater), which extends into the Bay, and have so far learned that at the island's headland at Black Point, fresh groundwater has already become acidic from mixing with saltwater.

Although staff have tried to address erosion by establishing living shorelines, they continue to erode. Archeological sites, such as Glass House ruins, which are at four feet above sea level, are continually threatened by storm surges and rising seas. Sandbags are the only line of defense currently available to prevent water coming into the ruins and damaging its artifacts. Park managers hope to relocate/recreate some artifacts and sites, but funds for vegetation or habitat restoration are rarely included in project budgets. While breakers and armored shorelines have been installed to weaken wave action along the headlands, they are temporary tactics supported by mitigation funds from the Dominion Energy transmission lines constructed across the island's viewshed. Marsh restoration, living shorelines and the eradication of phragmites continue to be primary goals for the island. See this Plan's strategy concerning continued collaboration with stakeholders to protect and plan for the island's future.

Storm Surge

Storm surge is most extreme during hurricanes, nor'easters, and other high-wind events, but can also occur during neap tides, when the moon's gravitational pull causes higher water levels. The level of inundation from storms varies depending on the wind, tidal factors, and how much moisture the storm carries.

For this analysis, consultants modeled a Category Level 2 storm. This is far from the most impactful type of storm, but one that occurs more often than higher impact Category 4 storms. Modeling a Category 2 storm showed the inundation ranged from 0 to 17 feet high, due to land elevation differences.



Storm surges can cause water to travel farther inland



Repeated inundation from storm surge can create a ghost forest as trees become weakened and die.

While individual storm surges have impacts that are temporary in nature, repeated storms can weaken coastal forests and destroy trees, if damage is severe or frequent enough. Furthermore, the impact of salt-filled air over lengthy periods of time can damage trees inland of repeated storm events. This can make trees more susceptible to such pests as pine beetles, for which a healthy tree might withstand an attack, but to which a storm-weakened tree might succumb.

While areas damaged by storm surge or wind can be replanted, in some cases damaged trees may need to be removed before a successful replanting effort can begin. Since coastal forests provide a buffer against wind damages and hold bank soils in place, thereby preventing coastal erosion, areas where erosion is already severe from past storms may need both wider buffers and active replanting efforts. This Plan recommends riparian planting projects as one solution (see the Strategies section of this report).

Utility-scale Solar Development

Solar development for utility uses (not individual buildings) has the potential to impact large areas. The U.S. Department of Energy's (DOE) Energy Zones Mapping Tool is a Solar Site Suitability Model showing areas where solar is most viable, based on access to the power infrastructure, such as substations and high voltage transmission lines. For more, see: <https://ezmt.anl.gov/>

The DOE did not consider existing land uses, such as whether there are farms, forests, or wetlands present. However, where sites are located, as well as where open space is located on a site, affect the level of impact from solar development. Solar sites can be designed to include corridors for wildlife to move through or along one edge of the site. The County will need to consider adopting policies for solar siting and design. (See the Plan Strategies on page 36.)

Many site development applications for solar companies include clearcutting forests to make room for the installation of panels, with

some sites proposing the clearance of hundreds or thousands of acres of forest. According to the Piedmont Environmental Council, 58% of utility-scale solar projects are occurring on forested lands, while nearly 25% occur on crop land in Virginia. Although solar energy development is critical to reducing U.S. dependence on fossil fuels, forests provide important carbon sequestration and storage functions necessary to mitigate the Earth's existing atmospheric carbon dioxide levels. When trees are removed or burned, carbon stored in the forest can be released back to the atmosphere. Removing trees that store carbon to install solar panels to save on carbon emissions is counterproductive. Similarly, soils also store a lot of carbon, and therefore, high-quality farm soils should not be removed to grade land for solar sites. In recognition of these potential impacts to natural resources, the County's Comprehensive Plan calls for the County to add provisions in ordinances or development approval conditions to minimize clearing of forested land for alternative energy production.



This coastal Virginia site is in the process of being cleared to make way for solar panels. The surrounding forest is being removed to take advantage of this site's proximity to transmission lines.

Other impact concerns for utility-scale solar development include the panels themselves and the lack of regulation of surface runoff. While the ground beneath the panels is pervious and often vegetated with low-growing grasses or shrubs, concentrated sheet flow from panels can cause significant water quality and erosion concerns, especially when compared to the previous forest cover. This Plan includes a strategy to complete standards for mitigating stormwater from solar panels, as recently mandated by the Virginia Department of Environmental Quality (DEQ).

Development

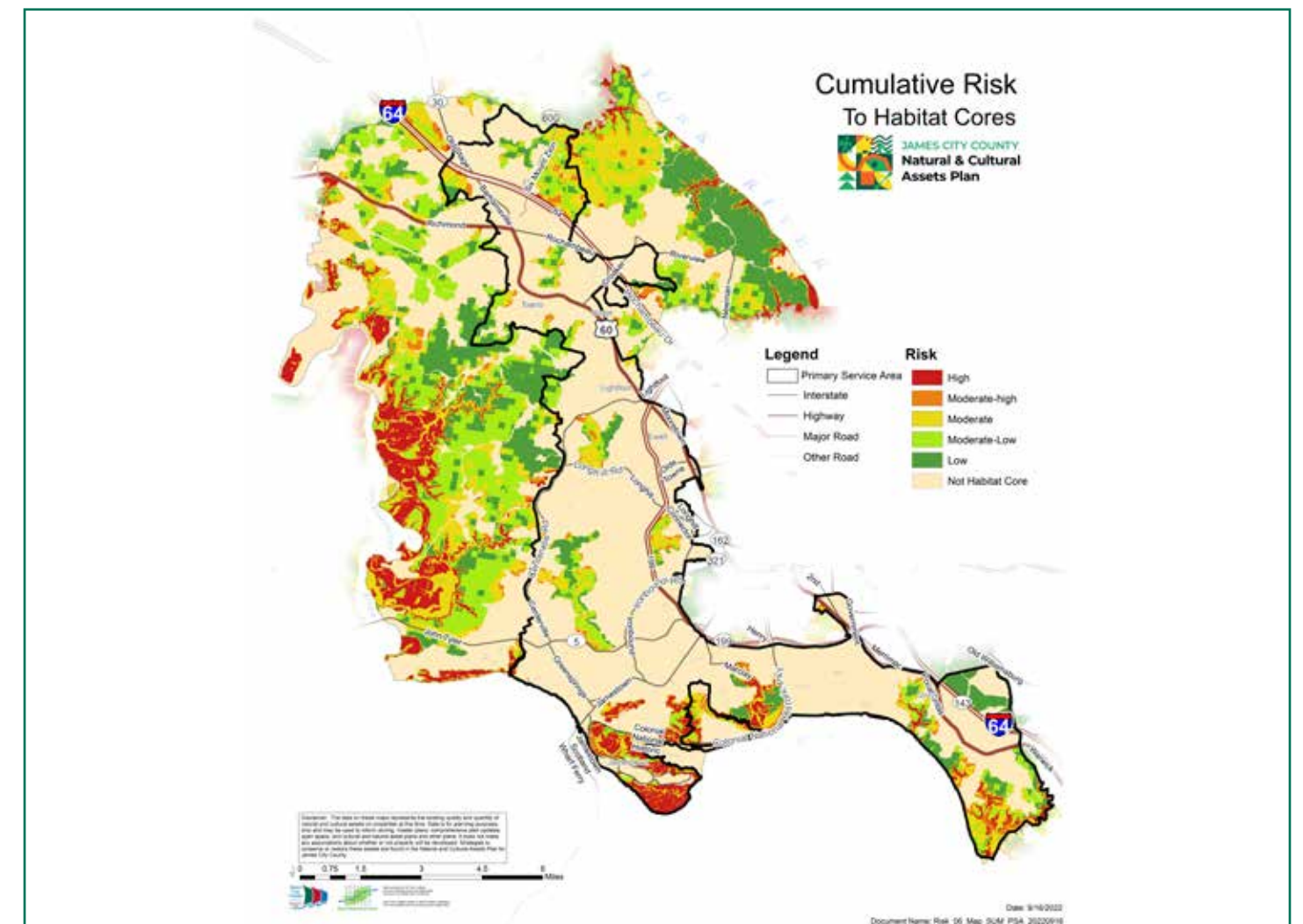
Development has the potential to permanently alter the landscape. Potential development – future growth – was modeled using several factors.

1. The SLEUTH Urban Growth Model (to 2060): This model is a computer simulation model that utilizes historical land use and land cover (LULC), slope, roads, and terrain information to calibrate and simulate future LULC and urban growth. In short,

SLEUTH functions as a regression model, using the past patterns to predict future development.

2. Parcel sizes (less than 2 acres are at greater risk): Smaller parcels are more likely to be developed, so parcel size was also used to indicate risk.
3. Current zoning – what is allowed to be built: This was also a factor included since the SLEUTH model does not include local zoning.
4. Distance to major roads: This was also applied as a factor since new or recently expanded roads usually lead to greater development pressure, with the exception of limited access parkways. However, access to parkways can also prove to be an attraction for new developments.
5. Protected lands: These were removed from risk maps since areas under conservation easements, local parks or other protected open space cannot be developed.

Combining all of these factors resulted in the cumulative risk map for development.



It's important to note that the Primary Service Area, serves as a de facto growth boundary by limiting services (water, sewer etc.) to areas within the zone. Limiting services, as well as differential zoning for rural areas versus those within the growth boundary, further limits development potential.

There are additional ways to limit such impacts using tools such as conservation communities or clustering. Thus, if a core is within an area zoned for development, the core may still be able to remain intact or only partially impacted while the development proceeds. Designs for subdivision layouts could include areas within the habitat core as part of neighborhood open space, for example, and then geared to passive recreation uses such as nature trails or birding. Parcel size also affects the ability of rural lands to support agricultural uses. While forested parcels of 20 or more acres can support small, but viable forestry activities and provide at least some connectivity across the landscape, if a parcel is too small or isolated, it may not be easy to contract with timber harvesters unless the site has large, high-quality trees. Meanwhile, those parcels of 10 acres or less, unviable for forestry, are the most vulnerable to further subdivision or development. As more land is developed, ensuring that pockets of woodland remain within new developments and that new trees are

planted are critical to mitigating stormwater and urban heat. While infilling of new housing within existing urban areas is a key strategy to avoid more development of rural lands, those infill designs should ensure that trees and habitat corridors through developments are included in their landscape designs.

Risks and challenges for the future were also highlighted by County residents. Community members expressed concerns for a number of impacts from development to invasive species. These risks were shared with the County, the Natural and Cultural Assets Mapping Committee (NaCAMP), and the public through the online survey in June and July and the June open house. Risk mapping is a tool to show where strategies may be needed sooner or where extra focus is necessary. For example, the County Parks and Recreation Department may need to reprioritize capital improvement projects or spend additional funds to address infrastructure maintenance in areas subject to repeated inundation, or where new planting projects are needed upslope to account for coastal trees lost to erosion. All of the risk factors were used to inform the types of strategies proposed within this Plan. As new or unforeseen challenges arise in the future, new or additional strategies may also be needed. See the strategies for this Plan on page 39.



As water levels rise and some areas subside, marsh moves inland.



5. Community Engagement

As noted earlier, the significant public input gathered as part of the Engage 2045 public input process served as an important launching point for this effort. Additionally, the community was engaged throughout the process of creating this Plan. In fall 2021, the Board of Supervisors appointed a Natural and Cultural Assets Mapping Committee (NaCAMP) representing each district and a variety of stakeholder groups, to review and edit this Plan's maps and develop strategies to conserve or restore important assets. Community engagement included two online surveys, one in February and one in June 2022. In addition, physical survey stations were posted in two high foot-traffic locations as a companion to the February survey, and an in-person workshop was held in June 2022. Publicity efforts included direct mailings, two County podcasts, paid and free ads, and a web page which offered regular updates.

During the survey in February, citizens had the opportunity to nominate sites to be included on the cultural map, such as a scenic spot, or on the recreation map, such as a popular birding or boating spot. The Natural and Cultural Assets Mapping Committee reviewed all these ideas and added their own knowledge, in order to create the final maps. It is important to note that, as new sites continue to be discovered through archaeology or new areas become important for future parks or other County needs, the County can update the maps and their priorities.

The in-person community meeting held in June included an opportunity to vote on the proposed strategies. These strategies were also informed by the community survey in February and various ideas proposed by the NaCAMP. The County also created an internal Technical Advisory Committee, comprised of staff who ensured that the latest data were utilized, provided historic background on County policies, and suggested ways that new



Natural and Cultural Assets Mapping Committee member Alain Outlaw listens to ideas from a community member at the open house.

strategies could help implement County goals, such as those in the 2045 Comprehensive Plan.

The project was shared through presentations to the Board of Supervisors and the Planning Commission. County staff also conducted presentations to community groups and to other County appointed boards and committees. The consultants also reviewed the updated Comprehensive Plan, as well as input from the Engage 2045 process, and other relevant plans, such as the 2002 Greenway Master Plan and the 2014 Strategy for Rural Economic Development.

Members of the Natural and Cultural Assets Mapping Committee

- Bruce Abbott
- Jay Everson
- Matthew Woolsey
- Mary Bressler
- Alain Outlaw
- Adrienne Frank
- Ryann Greifenberger

Committee members discuss edits to the maps at a committee meeting.





Community members learn about the proposed Plan



Citizens had a chance to vote online or in person for their preferred strategies.



Community members indicated their support for strategies.

What Was Learned From the Public

During the first online and physical survey (booths were set up at the James City County Recreation Center and the James City County Library during the third week of February, 2022), community members had the opportunity to suggest new sites for the assets maps (many of these were added to the Recreation and Culture maps), while such policy ideas as support for planting native species or converting some unused County open spaces into forest or meadow habitats were added to the strategies.

In the second phase of input, County residents had the chance to participate on-line through a survey or in person through the Community Open House held at the James City County Recreation Center on June 29, 2022. About 70 people were counted attending the community meeting, and 36 people completed the on-line survey, along with a few additional emails sent directly to staff. There was broad support for the project from those who participated in the survey, both online and in-person. All strategies received 90% or better support for implementation, and most were supported 100%. See Appendix B for additional comments from the public meeting and survey.

Citizens were very interested in becoming more engaged in the Plan's implementation, with individuals offering their properties to host agri-tourism workshops or to plant trees along streams on their properties. As a result, this Plan's strategies call for public engagement opportunities for improving habitats – from backyards to large landscapes – as well as new information and links to be added to County websites to help interested landowners or neighborhood associations learn how to plant trees or shrubs, make their properties pollinator friendly, or manage open spaces. Residents also indicated an interest in protecting scenic views and healthy landscapes and wanted to learn how future developments



County project manager Tammy Rosario explains the Plan's process.

could be designed to be less impactful and provide more options for walkability, birding, or wildlife habitats, or contribute to community character through thoughtful layouts and designs. See ideas for these design options on page 46 of this report.

Committee members reviewed and discussed the ideas from the community surveys and the open house (both flip chart notes and comment cards). Several objectives and recommended actions were changed or added based on community input. For example, many comments referenced the importance of promoting native plants and a new objective was added to reflect that. Other community members also wanted to be involved in implementing strategies for agritourism or planting restoration sites and these interests have been noted for partner opportunities.



Residents provide input on maps and strategies.

Citizens offered many comments in support of the Plan:

“I support and applaud this effort to protect our natural areas, using data and techniques, which minimize disruption of these irreplaceable resources.”

“Homeowners can be the change for nature by expanding their habitat corridors.”

“Increase funding opportunities to grow farms and agritourism in the County.”

“Continue to add buffers and corridors to link developments and provide habitat for animals. Continue to provide buffers between roads and developments. Provide more trails and bike lanes.”





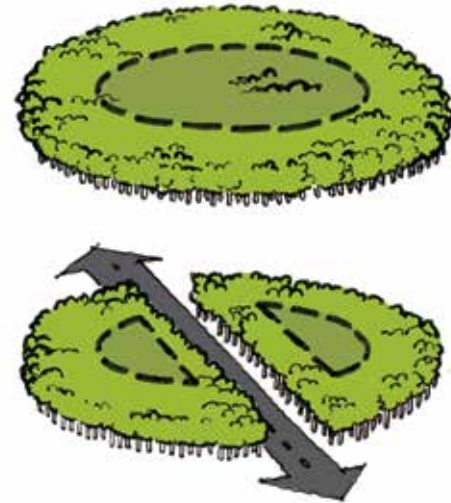
6. Policy and Practice Applications

There are different ways to use this Plan's data, both for individual landowners and County policy makers. Ideas for how the data can be used are shown below. Residents who are interested in knowing if their property contains a habitat core or an important connecting corridor can contact the County to learn more. Full size maps are available on the County's website at: <https://jamescitycountyva.gov/3856/Natural-Cultural-Assets-Plan>

Using the Maps and Data to Inform Planning

Specific strategies to conserve the landscape or to restore lost connections will be developed as part of everyday planning and through implementation of the strategies found in Section 7 of this Plan on page 36. The habitat cores and corridors maps will be included within County GIS layers. The maps for recreation resources can be used for tourism plans and further developed to access through an app or other online tools. The Culture maps can inform heritage tourism plans, as well as be used to help developers understand the rich human footprint of resources whose vistas, artifacts, and access points should be preserved. See the text box on page 39 showing Governor's Land Archaeological District (GLAD) for an example of why the County's historic resources are vitally important.

The importance of interior habitat for species survival is why roads through these areas should be avoided if possible. In the image above right, a core is bisected by a road. The road creates more disturbance and more edge habitat, such that the remaining undisturbed areas are too small to support interior species, leading to their eventual loss.



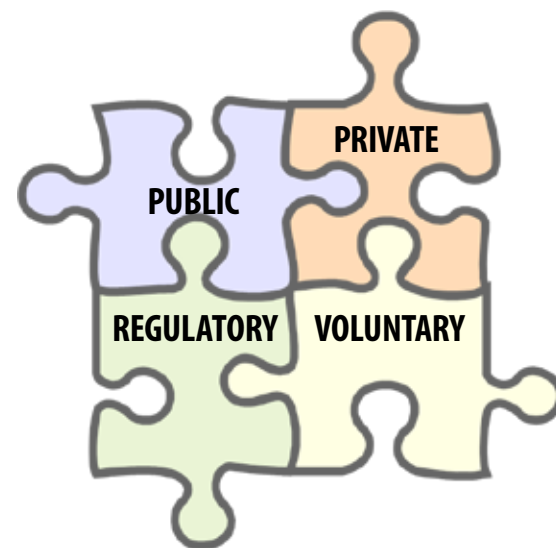
When forested cores are bisected by roads and other disturbances, they create more edge and result in reduced space for interior forest species.

Transportation plans

As the County develops new road plans or redesigns or expands roadways, this Plan can showcase areas where extra care may be needed to avoid impacts to sensitive ecological or cultural resources. The Virginia Department of Transportation (VDOT) also has to find sites to mitigate impacts from road construction throughout the region. The County may identify stream restoration or landscape restoration projects that VDOT can install to obtain their needed mitigation credits. Maps from this Plan can inform where new corridors can be revitalized or restored.

There are many applications for this Plan's maps to inform everyday planning decisions.

- Transportation plans: roads/trails
- Comprehensive Plans and zoning
- Easements
- Park and open space planning
- Identify lands for PDR programs
- Heritage tourism and viewsheds
- Agricultural and Forestal Districts
- Land management



In the graphic on the left, although each development conserved some greenspace, the habitat corridor is disrupted and broken into pieces that are too small to support a diversity of species. In the graphic on the right, a different plan allows for a connected corridor. One parcel at left could now be a conservation easement or public park, the middle parcel built at moderate density and the far right parcel at higher density – overall density is achieved to accommodate growth while also allowing for habitat connectivity. To achieve this requires advance planning and outreach with the development community and can be considered as part of a master plan.

Comprehensive Plans and Zoning

Active lifestyles are increasingly preferred by homebuyers. This is particularly the case with those nearing or at retirement age who are choosing active lifestyles over "retirement homes." Providing them with residential developments where they can take a nature walk or visit a park without having to get in their car is a strong motivation for where they choose to buy. Regular physical activity in green spaces also provides people with mental health benefits as they age. Numerous studies have shown extensive links between exercise and positive mood states, decreased likelihood of depression, lower incidence of stress and improved cognition throughout the entire life span (Wolf and Housley, 2016)

The County can display and publicize the natural and cultural asset maps to the development community and to landowners thinking of developing their properties. When siting open spaces on a proposed subdivision, applicants will be encouraged to choose these natural areas or culturally significant areas for open spaces. See the illustrations in Section 8 for depictions of how development plans can be re-imagined to provide more open space while also conserving natural assets.

Park Planning

As the County continues to grow, it can use the Natural and Cultural Assets Plan to inform park master plans or sites for new parks. This Plan's conservation strategies are also supported by the 2018 Virginia's Outdoors Plan which is developed by Virginia's Department of Conservation and Recreation (DCR), every five years with extensive community engagement. The most recent plan makes the following recommendations for the Hampton Roads Area: "...strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands." The asset maps can be used to bolster applications for grant applications that require a strategic plan to demonstrate the need for funding.



Land Management, Easements or Open Space Planning:

The 2018 Virginia Outdoors Plan further notes, "Attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis. The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve." As with park planning, open space planning efforts can use the Natural and Cultural Assets Plan maps and strategies to clarify actions and priorities and to support grant applications for outside funding.



Lastly, active lifestyles are increasingly preferred by homebuyers. This is particularly the case with those nearing or at retirement age who are choosing active lifestyles over "retirement homes." Providing them with residential developments where they can take a nature walk or visit a park without having to get in their car is a strong motivation for where they choose to buy. Regular physical activity in green spaces also provides people with mental health benefits as they age. Numerous studies have shown extensive links between exercise and positive mood states, decreased likelihood of depression, lower incidence of stress and improved cognition throughout a person's entire life span (Wolf and Housley, 2016).



With this Plan, the County has shown leadership in the region and in the state and is now well positioned with updated maps and data to make better informed decisions about both growth and conservation. Having local maps for James City County's natural and cultural assets allow the County to be strategic in meeting state conservation goals as well as local goals. Maps can be used by the County, land trusts or community members to develop land management plans.

Making the Economic Case for Conservation

When encouraging applicants to conserve forests or other wildlands within, or close to, development sites, the following points should be shared:

■ There are many economic reasons to incorporate forests within developments. Healthy forested landscapes and well-treed home sites attract home buyers who are willing to pay more for a home. To put it simply, nature sells. Developments that include green space or natural areas in their plans sell homes faster and for higher profits than those that take the more traditional approach of building over an entire area without providing for community green space (Benedict and McMahon, 2006).



■ In fact, buyers prefer greener developments with opportunities for outdoor recreation. A study by the National Association of Realtors (NAR) found that 57% of voters surveyed were more likely to purchase a home near green space and 50% were more willing to pay 10% more for a home located near a park or other protected area. In a related study, nature paths were found to be the most desired amenity. The existence of a park within 1,500 feet of a home increased its sale price between \$1,400 and \$3,747 (in 2022 dollars) (The Economic Benefits of Recreation, Open Space, Recreation Facilities and Walkable Community Design 2010).

■ Another study found that large natural forest areas have a greater positive impact on nearby property prices than small urban parks or developed parks, such as playgrounds, skate parks, and even golf courses. Homes located within 1,500 feet of natural forest areas enjoy statistically significant property premiums, on average \$22,542, compared to \$2,684 for urban parks, \$12,507 for specialty parks, and \$19,564 for golf courses (in 2022 dollars). Actions to conserve forested areas can pay the County back through better real estate property tax revenues.

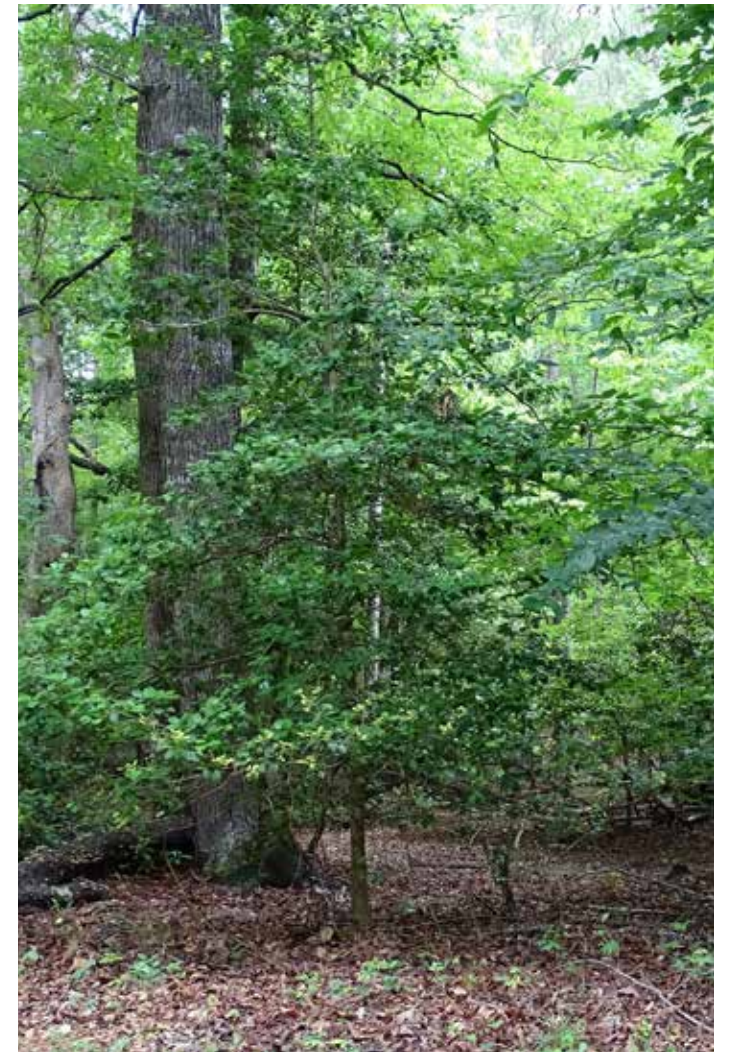


■ Similar studies in Howard County, Maryland; Washington County, Oregon; Austin, Texas; Minneapolis-St. Paul, Minnesota; and other areas used data from residential sales, the census and GIS to examine marginal values of different types of parks. They too found that the type of open space affects the property values. (The Economic Benefits of Recreation, Open Space, Recreation Facilities and Walkable Community Design 2010.)

■ There are economic benefits for homeowners who preserve green space. Evaluations have shown the benefits of trees to developments overall, when comparing market prices for treed lots versus untreed lots (Wolf 2007).

Home values are higher by the following percentages for certain types of treed landscapes:

- 18% more for building lots with substantial mature tree cover.
- 22% more for tree-covered undeveloped acreage.
- 19-35% more for lots bordering suburban wooded preserves.
- 37% more for open land that is two-thirds wooded.



Thus, trees and forested land clearly add value to a development. Wolf also notes that although one study found that development costs were 5.5% greater for lots where trees were conserved, builders have reported that they were able to recover the extra costs of preserving trees in a higher sales price for those houses and in faster rates of sales for homes on wooded lots (Wolf 2007).



Governor's Land — A Stewardship Legacy Then and Now

Excerpted from a longer 2010 article by Alain Outlaw, NaCAMP Committee Member, for the Williamsburg Land Conservancy (now the Historic Virginia Land Conservancy).

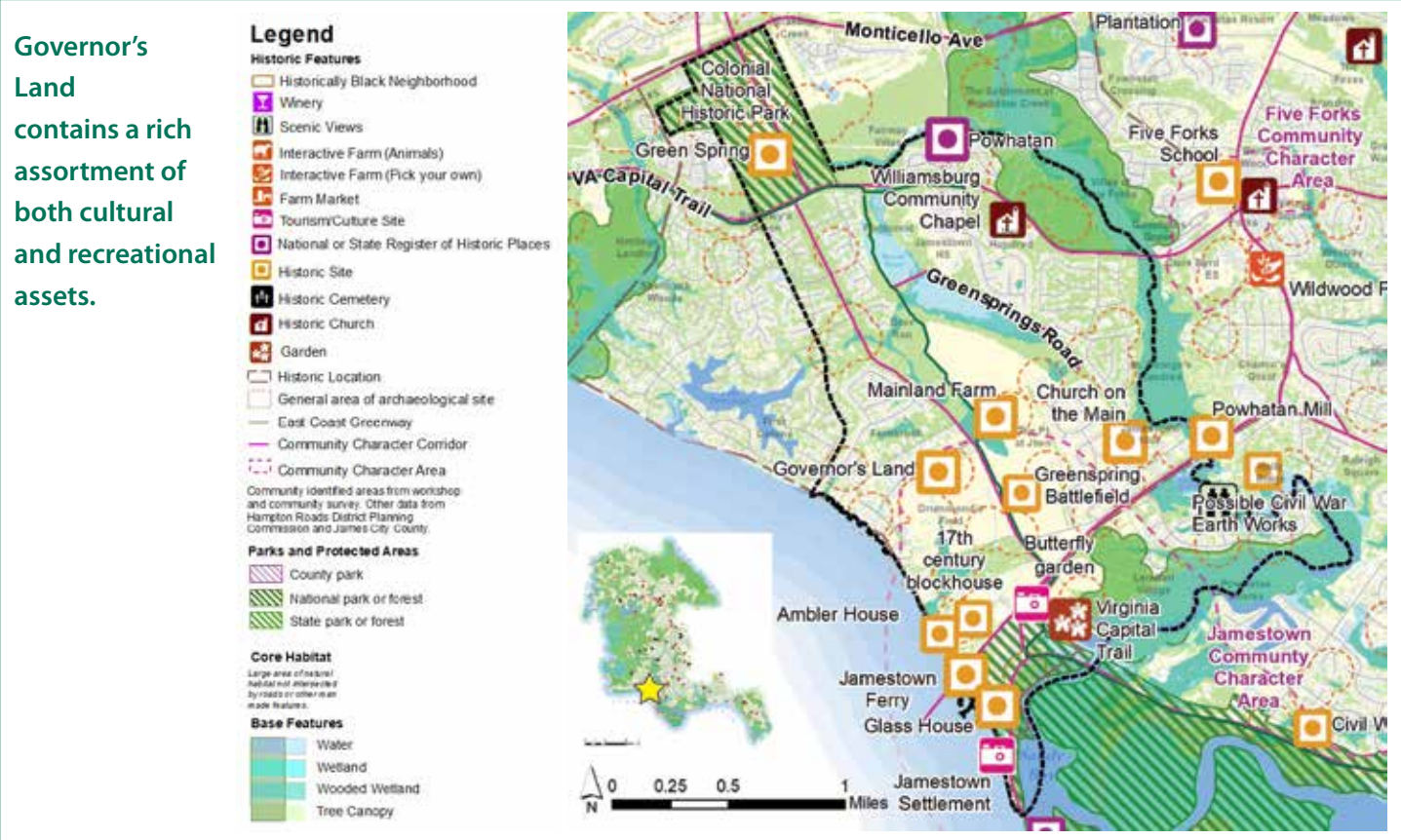
Located on the mainland immediately north of Jamestown Island, Governor's Land consists of 2,068 acres situated within an environmentally diverse setting. Originally placed on the Virginia Landmarks Register and the National Register of Historic Places in 1973 as an "Archaeological District," it contains traces of the surface and subsurface of the "Greate Road" taken by George Percy in 1607, as well as the newly discovered footprint of the blockhouse, constructed on the mainland by Sir Thomas Dale in 1611 to protect his cattle from local Indians. The remains of Argall Town, established by Captain Samuel Argall in 1617, have been identified. It became part of the 3,000-acre Governor's Land where it employed tenants to work the land, retaining half the profit of their labor, with the rest going to the Governor and the Virginia Company.

By 1648, William Drummond, first Governor of North Carolina, had established a plantation here, and by the 18th century the Ambler family included the plantation as part of its vast landholdings, which also included properties on Jamestown Island and in Yorktown. The site also saw action during the Revolutionary War, when Lord Cornwallis' army camped on the land as it unsuccessfully laid a trap for the Marquis de Lafayette and his army. Evidence has also been found of the 1781-1782 winter camp of the French Royal Deux-Ponts

regiment, with cooking pits yielding buttons and dietary remains. A grave of an unknown soldier was also discovered.

The Church on the Main site was built by settlers who moved from Jamestown Island about 1750, but by 1857 all traces of this landmark had disappeared. Later stewards of the land, such as Jesse Dimmick, discovered the ruins of the 1608 glasshouse in 1931, later excavated in 1948 by National Park Service. Today, stewardship continues through the Williamsburg Land Conservancy and Williamsburg Boy Scout Troop 103, which dresses up the church site and Greensprings Trail while earning their merit badges in nature and history.

James City County has acquired Mainland Farm, Jamestown Campground, and Jamestown Yacht Basin for public use, and the James City County Historical Commission has sponsored Historic Highway Markers and other signage, constructed the Tomb of the Unknown Revolutionary War Patriot Soldier, and marked other key sites, including the grave of Elizabeth Bland at Church on the Main, the 1611 Blockhouse and its associated enclosure, and the 1852 Ambler house complex. More can still be done to protect this landscape and to interpret this rich historical site for visitors. See Goal 1, Objective n. in this Plan's strategies.



7. Implementation Plan for James City County's Natural and Cultural Assets

These implementation strategies provide the methods to conserve or restore the natural and cultural assets of James City County, Virginia. Some strategies can be implemented short-term (0-2 years), mid-term (3-5 years) or long-term (6-10 years), while others may be ongoing. The timeframes are indicated by ST, MT, LT, and Ongoing. These strategies will be undertaken by James City County, unless noted otherwise.

GOAL 1. Conserve and protect the highest valued natural habitat cores and connecting corridors to support wildlife, trails and greenways, scenic vistas, and cultural and recreational values.

Rationale: Landscapes that are large and intact can support a multitude of native species. These larger habitats are known as habitat cores and they not only protect native species and biodiversity, but also recharge groundwater and support healthy surface waters used for water supply, mitigate storm hazards by buffering inland communities, and soak up excess stormwater, thereby providing cost-effective stormwater management.

Connecting natural corridors supports these habitat cores. The better connected these large blocks of habitat are, the more resilient they are to such impacts as invasive species encroachment, storms, and other disturbances. If one area is disturbed, connecting corridors allow species to move from a healthy landscape to repopulate the disturbed area over time. If they are suitably located and available for public access, these connecting corridors can also provide opportunities for new trails and greenways,



OBJECTIVES: A. Update the Greenway Plan to include key corridors identified in this Plan. (MT)

- Recommendations:**
1. Use the maps of cores and corridors to inform new potential greenway locations and update the County's Greenway Plan.
 2. Research grant sources to fund greenway development and maintenance.

B. Conduct an education campaign for landowners, homeowners, and neighborhood associations. (ST)

- Recommendations:**
1. Create a webpage with links to local conservation project ideas, including planting of native plants, creating pollinator gardens, and for seeking assistance from the Colonial SWCD (Soil and Water Conservation District), the Natural Resources Conservation Service (NRCS), the US Department of Agriculture's Farm Service Agency (FSA), and the Plant Hampton Roads Natives websites.
 2. Highlight existing demonstration gardens (e.g., Williamsburg Botanical Garden in Freedom Park) and consider planting additional demonstration gardens at County offices or parks.
 3. Promote community membership and participation in the local chapter of the Virginia Native Plant Society.

C. Provide and publish design guidance for developers about how to conserve high-value cores and corridors within and between developments. (ST)

- Recommendations:**
1. Provide new design guidance on the County's Community Development webpage, along with guiding principles for minimizing habitat disturbance. See page 49 of this report for examples. New development proposals can be examined for how well they support these design principles.
 2. Examine County codes to determine whether exceptions in site layouts can be offered, to allow for minimization of habitat disturbance. Examples include narrowing sidewalks, allowing natural areas to count for required open spaces (as long as some uses are allowed, such as trails or wildlife viewing), providing incentives to leave more acreage in natural open space, and other tools.



D. Add conservation cores and corridors as additional criteria for the County's Purchase of Development Rights (PDR) Program. (ST)

Recommendation:

1. Adopt a new standard and associated points for sites considered for the County's PDR program. Example: add ____# points to the scoring for sites that include 30% or more of an existing habitat core and 30% for sites that support a key connecting corridor. Add ____# additional points for properties that support 50% or greater of natural and cultural assets. The number of points needs to be determined.

E Use the natural and cultural assets maps and their value and risk rankings to inform the County's Greenspace Program, park acquisitions or other plans. (ST)

Recommendation:

1. Use the maps to a) inform opportunities for the County's Greenspace Program and parks; b) evaluate proposals as to whether they include highest values cores and corridors; c) prioritize linkages that connect parks.

F. Use the Assets Risk Map to identify areas where public park infrastructure will be flooded and may need expansion. (MT-LT)

Recommendation:

1. Create plans for each County park that may be impacted by future flooding. Plans may entail moving infrastructure, applying for funds to restore living shorelines in encroachment areas, or, in some cases, finding new access areas to make up for lost shoreline access.

G. Work with the Jamestown Rediscovery Foundation, Preservation Virginia, and the National Park Service at Jamestown to protect the 1607 fort, town, and prehistoric archeological sites on Jamestown Island. (ST)

Recommendations:

1. Continue dialogue with the above organizations to determine their plans for protecting both archaeological assets and refuge areas for displaced wildlife on or near Jamestown Island.
2. Determine which, if any, strategies require the support of James City County and develop recommended next steps. Note that since this area is a major tourist attraction and holds irreplaceable historical resources, it is in all parties' best interests to identify strategies to adapt to ongoing environmental changes.

H. Review the County's land management/master plans for opportunities to improve habitat health and diversity, and for water quality benefits that can be derived through improved site and landscape designs. (ST)

Recommendation:

1. Consult with the Virginia Department of Forestry's County forester, local conservation groups, and other experts regarding onsite conditions and best practices to manage and promote natural resource health on County properties.

I. Develop zoning tools and guidance for siting large-scale solar sites to avoid or minimize disturbance of habitats or cultural resources. (ST)

Recommendations:

1. Create a staff working group to investigate how to amend County ordinances to address large-scale solar sites.
2. Evaluate existing related guidance and processes for permitting large, utility-scale solar sites and amend ordinances or include special use permit conditions that protect or enhance natural or cultural resources on such sites.
3. Draft new ordinance/siting policies for review and adoption by the Planning Commission and the Board of Supervisors.

J. Encourage landowners to keep their land in forest cover. (MT)

Recommendation:

1. Evaluate the suite of Virginia's legal land conservation tools, such as the purchase of development rights (PDRs), tax credits for forest conservation near important resources, technical assistance, planned forestry rotations, replanting, and timbering, where appropriate, to facilitate continued, long-term forest cover.

K. Encourage land preservation groups to seek voluntary conservation easements for properties that have natural and cultural assets. (ST)

Recommendation:

1. Meet with local land preservation groups to educate them about high-value landscapes (cores and corridors) and data to use when enlisting landowners in establishing conservation easements.

L. Work with developers to conserve substantial amounts of high-quality habitat cores or conservation corridors. (ST-ongoing)

Recommendations:

1. Evaluate potential incentives, such as expedited permitting and other tools, to help the development community conserve high-value habitats when creating subdivision plans.
2. Develop a fact sheet of benefits for conservation design and preservation of open spaces. (See the Conservation Development guidance from County consultants.)
3. Provide a "Design Options" workshop and offer professional credits (CE, AICP, LAR credits) to involve local engineers and designers in discussion about preferred layouts and conservation design.

M. Use asset maps to inform the County's Long-Range Transportation Plans for road siting and design. (ST-ongoing)

Recommendations:

1. Work with the Virginia Department of Transportation (VDOT) to Use the habitat cores and corridors maps when updating six-year road plans and siting future roads. Evaluate whether any already planned roads (not yet fully sited or designed) might be modified to reduce their impact on high-value cores and corridors.
2. Share habitat corridor restoration opportunities with VDOT to use in mitigating road construction impacts to waterways and wetlands by restoring habitat in James City County.
3. Work with VDOT to pursue safety improvements to reduce vehicular conflicts with wildlife.
4. Work with VDOT to reduce speed limits in areas with historic and cultural assets.



N. Continue the stewardship of the irreplaceable prehistoric and historic sites, landscapes, and standing historic structures in the Governor's Land Archaeological District (GLAD), bordered by Jamestown Island, Route 5, Powhatan Creek, and the James River. (ST-ongoing)

Recommendations:

1. Continue to work closely with the Historic Virginia Land Conservancy (HVLC), the American Battlefield Trust (ABT), and other entities to preserve archaeological sites, landscapes, and historic structures in the GLAD, the "Gateway" to James City County's past and to the Jamestown vicinity museums.
2. Consider options for James City County to maintain its long-standing stewardship of the GLAD by pursuing historic preservation of land (by easements, purchase of development rights (PDR), or fee simple purchases) recorded as important: for spiritual and subsistence reasons to local Native Americans; as representative of the agricultural labors and artisanship of African Americans; and, as a record of significant historical events since 1607, such as the 1781 Battle of Green Spring.

O. Support the conservation and protection priorities of the Lower Chickahominy Watershed through membership in the Lower Chickahominy Watershed Collaborative. (ST-ongoing)

Recommendations:

1. Communicate and coordinate with other members of the collaborative regarding land conservation, land protection and economic opportunity issues important to James City County.
2. Actively participate in the steering committee and work groups to improve physical recreational infrastructure; support sustainable economic development; enhance river advocacy, education, and marketing; promote land conservation and landowner education; ensure protection of sites and traditions that are sacred and historic to the tribes; and increase ecological restoration and stewardship in the watershed.

GOAL 2.
Conserve and protect high-value agricultural soils and historic farms to support the agricultural economy and continue the County’s agrarian heritage.

Rationale: Agricultural soils support local food production and the local agrarian economy. As the County continues to grow, protection of high-value soils that are location specific is more important than ever. Many iconic views and historic places in the County are supported by the farms and fields spread across this historic landscape. Farms also provide habitat for such birds as quail and owls, as well as amphibians, small mammals, and such beneficial insects as butterflies and bees. These landscapes need additional support to continue to thrive as pressures from growth encroach on their borders. Helping farmers find other ways to subsidize their incomes through heritage tourism (e.g., pick-your own or pet-your-own farms) can help them weather economic downturns or the loss of acreage and markets. Farms also provide avenues for species to move across the landscape and provide linkages between high-value habitat cores. The County can play a role in helping farmers realize more economic value from their lands and minimize associated land costs such as taxes, through programs such as Purchase of Development Rights or Use Value Taxation.

In September 2014, the County adopted a Strategy for Rural Economic Development that called for new ways to support smaller farms and to help farmers realize more value from their farms. This study should be consulted and implemented, as resources allow. Since 2014, “farm to table” has expanded even more as a desired marketing tool for restaurant and hotels, and there may be more and newer small farms that need help developing farm plans and marketing their goods and services.

Another challenge is the aging of farmers (both a state and national problem) and the lack of investment for retirement, such that farms have no “next generation” to take over the family farm. The average age of a Virginia farmer is 58 years old (Virginia Department of Agriculture and Consumer Services). Programs such as Farm Link help connect new farmers who lack land and resources with soon-to-retire farmers who want to pass their land and equipment to those who want to get into farming but lack adequate capital to get started. The more the County can support its farms, the more it will continue to have a healthy landscape and a diverse economy.

OBJECTIVES:
A. Include high-value agriculture soils maps in County Geographic Information System (GIS) layers and property information and recommend minimal disturbance of those soils during development (especially for utility solar sites). (ST-ongoing)

- Recommendations:**
1. Include standards to avoid disturbance of high-value soils, as well as standards for stormwater management to avoid erosion as part of solar utility siting guidance/requirements.
 2. Work with developers to conserve areas with high-value agricultural soils.

B. Facilitate continued agriculture by promoting the Farm Link program, which helps help young farmers and retiring farmers connect and make plans to keep the lands in agricultural use. For more, see: <https://virginiafarmlink.org/>. (MT)

- Recommendations:**
1. Work with the Colonial SWCD, the Extension Service, NRCS, and FSA to support an education campaign including workshops about Farm Link and other helpful resources.
 2. Attend such events as the Farm Bureau Annual meeting to discuss and promote Farm Link and steps to enlist more farmers.

C. Promote expansion of existing agricultural and forestal districts (AFDs) to those farms with the highest value agricultural soils that are currently outside of the district. (MT)

- Recommendations:**
1. Create an outreach campaign targeted to landowners who meet this criterion and promote their inclusion in the district.
 2. Evaluate the degree to which high-quality agricultural soils are protected within districts.



D. Create a tourism route (map and application) to direct visitors and residents to current heritage and agritourism sites and promote this through the Virginia Tourism website <https://www.virginia.org/places-to-visit/regions/hampton-roads/williamsburg/> and on the County’s website <https://explorejccva.com/2928/AgritourismFarming>. (MT)

- Recommendations:**
1. Post the existing recreation and culture maps on the County’s website, so people can navigate to these locations.
 2. Explore options to better promote these sites (beyond only visiting Jamestowne and the national battlefields). Create a local brochure (see examples from Lancaster County, Virginia).
 3. Explore and promote grants available from the state at <https://www.vatc.org/grants/> and obtain funding for an app with a digital navigation map with site descriptions.

E. Create educational opportunities and host a workshop on agritourism to bring more farms into the tourism network, thereby providing additional revenue to sustain existing farms. (ST-ongoing)

- Recommendations:**
1. Work with the local farm bureau, Colonial SWCD, the Extension Service, NRCS, and FSA and interested residents to design and implement a curriculum for how to start, or enhance, an

agritourism business. Provide the steps for zoning (if any), crowd management, sales, advertising, and revenue types (e.g., pick your own, farm stands, day-on-the-farm festivals, etc.) Note that several County residents have expressed interest helping to plan and host the event.

2. Form an on-going committee to continue to support and promote agritourism.
3. Consider applying for a grant to support this education and training work. <https://www.vdacs.virginia.gov/agriculture-afd-planning-grants.shtml>

F. Prior to future Agricultural and Forestal District (AFD) renewals, explore lengthening the AFD terms with property owners, to promote the long-term stewardship of highly valued landscapes. (MT)

- Recommendations:**
1. Form a staff working group to evaluate the pros and cons of changing the AFD term length and share information on the pros and cons with property owners and the County’s AFD committee before the next renewal period.
 2. Survey property owners regarding their interest in longer terms and present the results to the AFD committee and Board of Supervisors for consideration.

GOAL 3.

Facilitate voluntary planting projects to extend the width of vegetated buffers to serve as wildlife corridors and to protect the water quality of County waterways.

Rationale: Stream buffers can remove 97% of sediment, 80% nitrogen, and 77% phosphorus pollution from runoff, thereby protecting rivers and bays. The wider the buffer, the more pollutants are removed. Vegetated stream buffers facilitate the abundance of local species by serving as key corridors for wildlife movement. These vegetated shoreline areas also buffer shoreline properties from storms, and from wind and wave impacts (also known as “fetch”). Vegetated buffers stabilize river and coastal banks, preventing excessive erosion, which can cause sediment pollution and clog waterways, making them difficult to navigate. Better water quality also supports other uses, such as fishing, aquaculture, boating, and swimming.

The Commonwealth of Virginia needs to plant tens of millions of new trees along streams to meet its goal to protect the Chesapeake Bay – and James City County can be a key partner in this effort. There are also many programs available to pay landowners to leave riparian areas forested, such as those provided by the Virginia Department of Forestry (VDOF), which can provide financial compensation to landowners who forgo harvesting trees along rivers, streams, and bays. The USDA also provides funding to fence cattle away from streams and restore streamside forests through its Conservation Reserve Enhancement Program (CREP).



- OBJECTIVES:
- A. Educate landowners, homeowners, and neighborhood associations on the importance of healthy vegetated buffers for both water quality and wildlife. (ST-ongoing)
- Recommendations:**
1. Provide a fact sheet or link from the County’s website to educational materials about healthy streams and coastal buffers.
 2. Publicize the County’s Clean County Commission’s Good Neighbor grant program to landowners who may want to plant buffers or restore habitats.
 3. Host a local workshop with VDOF for landowners and neighborhood associations interested in having buffers on their properties. Identify landowners with property along habitat corridors that could benefit from additional forested buffers.
 4. Promote the Virginia for Clean Water grant’s program that funds buffers and apply for tree planting funds from VDOF. For more, see: <https://dof.virginia.gov/urban-community-forestry/urban-forestry-community-assistance/virginia-trees-for-clean-water-grant-program/>.
 5. Partner with the James River Association’s James River Buffer program to conduct additional outreach to riparian landowners. For more, see: <https://www.jamesriverbuffers.org/> They are currently working in the upper and middle James River watershed, and they could expand their efforts to serve the lower James River watershed.



LaFontaine Condominiums project added perennials to the entryway, removing litter and debris from the pond area, and adding a seating area made from recycled materials near the pond, which has become a home for ducks.

Photo courtesy of James City County Good Neighbor Grant program



- B. Partner with VDOF to plant stream buffers along streams and prioritize those that serve as connections between highly valued landscapes. (ST-ongoing)
- Recommendation:**
1. Meet with staff from the VDOF to determine outreach strategies to help landowners conducting forestry to Use the state’s buffer funding program. Identify those properties that serve as main habitat corridors or habitat cores.
- C. Seek an increase in the County’s Community Rating System (CRS) points to allow for additional discounted flood insurance premiums for landowners. (MT)
- Recommendation:**
1. Use this Plan to seek an increase in the County’s CRS rating. Each of the habitat cores in James City County contains at least one

- federally listed endangered species. Protecting habitat cores meets FEMA’s requirement to protect species (in addition other benefits such as storm buffering, and protection of rivers and streams) and actions related to conservation and recovery of threatened and endangered species earn CRS credits under ten separate activities. For guidance on FEMA’s CRS flood risk rating program, see: <https://wetlandswatch.org/community-rating-system>
- D. Prevent stormwater impacts from utility-scale solar projects by adopting stormwater standards as required by the Virginia Department of Environmental Quality. (ST)
- Recommendation:**
1. This effort is currently underway and should be soon completed.

GOAL 4.
Promote biodiverse landscapes to improve habitats within the built environment.

Rationale: Naturally healthy landscapes in the coastal plain are also biologically diverse and support a multitude of native species. However, when developments are built, they usually remove the first 1-2 feet of topsoil during the grading process, resulting in poor quality and less supportive soils, while replacing lost forested areas with only a few different types of trees. To support native insects, such as pollinators that promote healthy landscapes and food, as well as local native birds, and to ensure that neighborhoods and developed areas are well-shaded, pleasant and healthful for residents, the County should upgrade its requirements for tree planting. Well-treed neighborhoods hold their financial value, while lower tree diversity can result in problems such as tree loss when a single species is hit by a pest or disease. In urban areas where there are only one or two species of trees, if one of those species is attacked by a pest, such as the emerald ash borer that targets elm trees, or crepe myrtle bark scale that can kill crepe myrtle trees, then an entire development may be left with few or no trees.

Tree roots also need adequate soil volume to provide structural support and nutrients. Trees planted in cramped, shallow areas may soon die – which is the reason the average age of an urban tree is just 9 years. This may result in denuded, treeless urban heat islands and significantly hotter neighborhoods in the future. This is why tree planting standards specifying adequate planting areas are also important. Trees provide other benefits too, such as stormwater uptake and reduced standing water and flooding. They also support home values and clean the air of pollutants. Therefore, having well-treed neighborhoods is important for community well-being.



OBJECTIVES:
A. Update the County’s existing code for street trees in new developments to specify biodiverse street tree plantings of at least five different species of street/yard trees, to be varied at the block level and provide tree care education to residents. (ST)

- Recommendations:**
- 1. Amend the existing County code to add a tree diversity requirement.
 - 2. Develop a brochure for residents about the importance of healthy trees and how to care for newly planted trees.
 - 3. Add new best management practices (BMPs) and standards for tree and shrub planting to ensure better tree survival in development sites.
 - 4. Research soil volume requirements and develop new codes and illustrations for how to plant trees.
 - 5. Consider requiring that planting specifications are included on site plans to ensure that trees are planted properly.
 - 6. Promote the current option of bonding landscaping to developers to ensure they realize that they can defer planting to times that are more optimal for tree survival (e.g., dormant seasons).

B. Review the recommended tree and shrubs list to ensure it includes suitable species by locations (streets, yards, parking lots). (ST)

- Recommendations:**
- 1. Work with the VDOF’s Urban and Community Forestry Program or hire an arborist to develop a tree list suitable for the coastal plain and code the trees by location suitability.
 - 2. Engage TreesVA and other local experts to review the list to ensure that it contains species that can be easily obtained from local or regional nurseries.
 - 3. Publish the new list on the County’s website and conduct outreach to local landscape designers, engineering firms and developers to make them aware of the preferred species and how to use the list in developing tree specifications for site plans.

C. Promote the use of native plants in planting projects. (ST-ongoing)

- Recommendations:**
- 1. When updating the County’s landscape ordinance, provide additional guidance on the benefits of using native and non-invasive species for landscape buffers and other landscaped areas.
 - 2. Consider new designs for un-used open spaces that could be managed as meadow or other habitats using native plants, and thereby reduce the costs of maintenance, such as mowing (note that even natural habitats such as meadows need to be managed to maintain their specific land cover).
 - 3. Promote biodiverse plantings in layers to provide visual interest and support multiple species; thus, instead of having only one vegetation type, encourage the use of multiple types such as groundcover, wildflowers, shrubs, and trees.





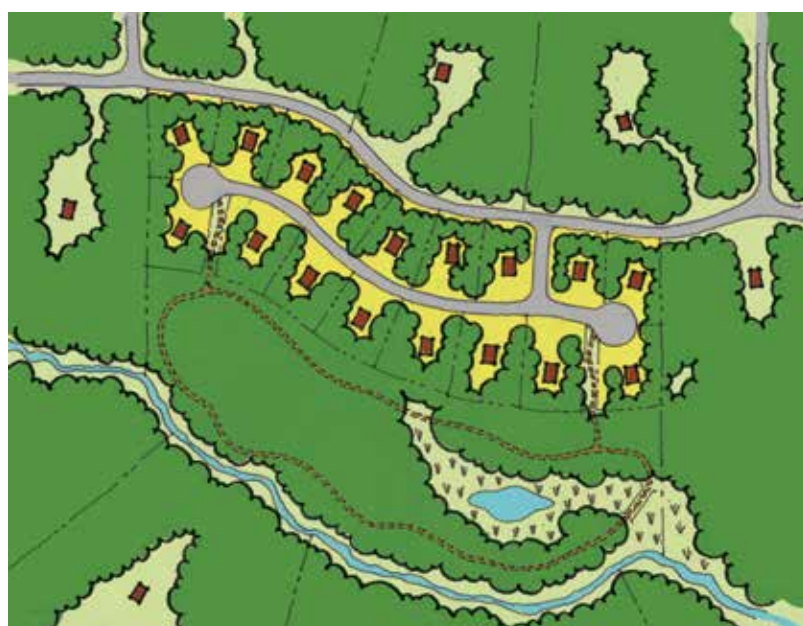
8. Design Guidance

There are many alternatives for site layouts that can conserve cultural, scenic or natural assets through a site. There are also ways to enhance opportunities for recreation within communities. Following are several sketches of options to consider.

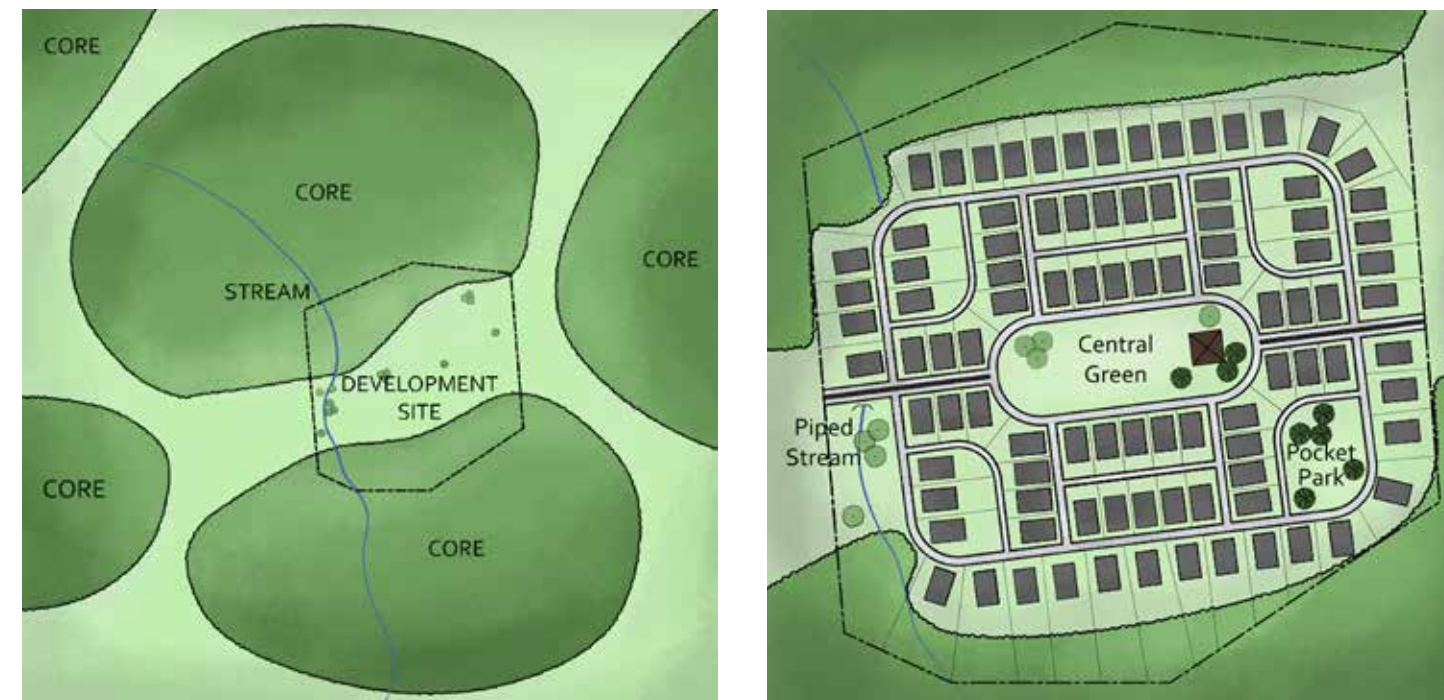
Scenario 1:



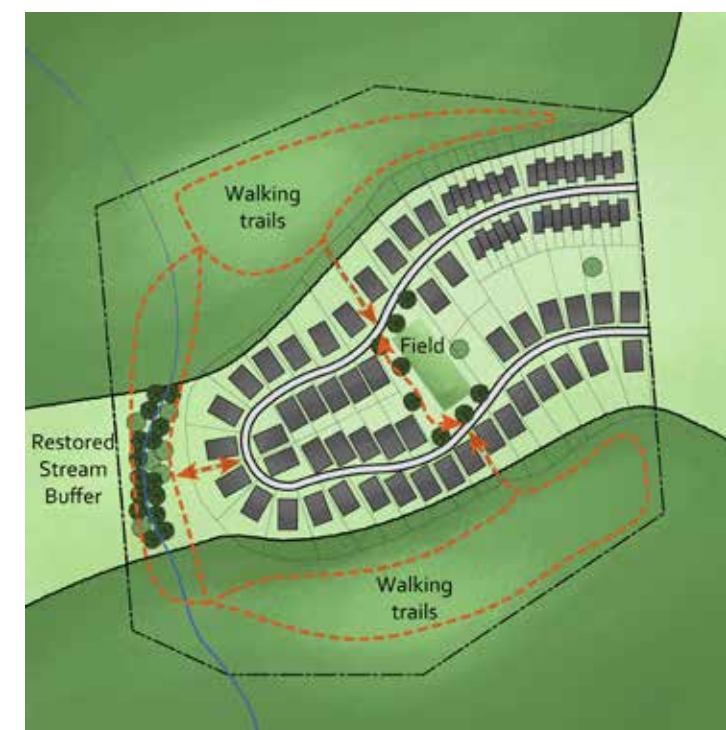
In the top left image, a site with wetlands and forests is to be developed. In the top right image, the site is developed with a green space in the middle while the wetland is impacted to make room for houses. But what if the site were developed with smaller lots? The image below shows an alternate scenario that provides recreational trails within the development, realizing the same number of units without impacting the site's natural assets. While open space may not be taxed, the values of the homes bordering a park help to make up for loss of tax revenues as do the cost savings of the County not having to provide parkland to serve the new community.



Scenario 2:



In the *top left image*, a site to be developed intersects two habitat cores. In the *top right image*, the site is developed with a green space in the middle while the stream is piped (with permission from the U.S. Army Corps) and the cores are impacted to make room for houses. But what if the site were developed with smaller lots? The *image below* shows an alternate scenario that provides recreational trails within the development, realizing the same number of units without impacting the site's natural assets. There is access to trails and a restored stream buffer.





9. Funding

While some elements of this Plan can be implemented by James City County, other initiatives, such as planting vegetation along rivers to buffer water quality or to provide corridors, will likely need additional funding. Furthermore, it's important to note that implementation is not without cost, even when outside grants are unnecessary. County staff time will be required to follow through on the strategies, and County staff will still need to plan for these activities as part of their annual work plans. Some work may be undertaken through the use of outside consultants paid for by County funds or by grants, or a combination of both. Many residents have also indicated a desire to contribute and there are many opportunities for Eagle Scout or other volunteer projects to restore a wildflower meadow, plant trees, or create an interpretive sign to voluntary workshops to engage residents in habitat restoration. Should the County embark on more activities to engage volunteers in this Plan, this will also require extra staff time.

Funding Sources

Below are resources that the County or partner organizations may wish to pursue to help accomplish the recommendations within this Plan:

Alliance for the Chesapeake Bay and Chesapeake Forest Fund Tree Planting Program - funds private landowners to plant trees on open land

Arbor Day Foundation, Tree City USA Designation Benefits: Access to Grants and Funding Opportunities

Audubon Society Conservation Grants: Annual Grants to Fund Efforts for Bird Habitat Conservation

Virginia Department of Forestry:
<https://dof.virginia.gov/financial-assistance-programs/>

- Mountains to Bay Buffer Program with the Chesapeake Bay Foundation
- Virginia Trees for Clean Water Grant Program
- Urban and Community Forestry Grant Program
- Riparian Buffer Tax Credit Program
- <https://dof.virginia.gov/wildland-prescribed-fire/wildfire-preparation/financial-assistance-programs-for-wildfire-preparation-and-suppression/firewise-virginia-community-hazard-mitigation-grant/>



Virginia Department of Conservation and Recreation:
<https://www.dcr.virginia.gov/grants-funding>

- Planning and Recreation Resources Grants and Funding: <https://www.dcr.virginia.gov/recreational-planning/grants>
- Virginia Land Conservation Foundation: Virginia Land Conservation Foundation aids in buying properties from individuals by matching up to 50% of total project costs, so that the land can be designated for conservation-based efforts.
- Agricultural cost-share and tax credit programs

Virginia Department of Agriculture and Consumer Services
■ Agriculture and Forestry Industries Development (AFID) Fund: <https://www.vdacs.virginia.gov/agriculture-afid-facility-grants.shtml>

Natural Resources Conservation Service (NRCS)
■ Conservation Stewardship Program: Conservation Easement Grant Program with the Natural Resources Conservation Service (NRCS) <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=stelprdb1252394>

National Fish and Wildlife Foundation Grants:
<https://www.nfwf.org/programs>

- Acres for America: leading public-private land conservation partnership <https://www.nfwf.org/programs/acres-america>
- Bring Back the Native Fish – protects sensitive native fish species across US: <https://www.nfwf.org/programs/bring-back-native-fish#:~:text=Bring%20Back%20the%20Native%20Fish%20invests%20in%20conservation%20activities%20that,adjacent%20to%20federal%20agency%20lands.>
- Chesapeake Bay Stewardship Fund – helps local communities clean up and restore polluted waterways: <https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund>
- Conservation Partners Program – provides funding to support technical assistance to private landowners to maximize benefits of Farm Bill programs: <https://www.nfwf.org/programs/conservation-partners-program>
- Five Star Urban Waters Restoration Grant Program – seeks to address water quality issues in priority watersheds: <https://www.nfwf.org/programs/five-star-and-urban-waters-restoration-grant-program>
- Longleaf Landscape Stewardship Fund – supports longleaf pine restoration projects: <https://www.nfwf.org/programs/forestland-stewards/longleaf-landscape-stewardship-fund>
- National Coastal Resilience Fund – restores natural infrastructure to protect coastal communities that enhance habitats for fish and wildlife: <https://www.nfwf.org/programs/national-coastal-resilience-fund>
- Resilient Communities Fund – investments in green infrastructure to prepare communities for future environmental challenges: <https://www.nfwf.org/programs/resilient-communities-program>

National Park Service:

- The Land and Water Conservation Fund State and Local Assistance Program: <https://www.dcr.virginia.gov/recreational-planning/lwcf>
- Rivers, Trails, and Conservation Assistance Program (technical planning support): <https://www.nps.gov/orgs/rtca/index.htm>

US Department of Agriculture:

- USDA Conservation Innovation Grants Virginia: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/va/programs/financial/cig/>
- USDA Conservation Programs: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/index>

U.S. Fish and Wildlife Service:

- Partners for Fish and Wildlife – 75-90% cost share to landowners for habitat improvements: <https://www.fws.gov/partners/>

Virginia Soil and Water Conservation Districts:
Virginia Conservation Assistance Program: <https://vaswcd.org/vcap>

Virginia Department of Environmental Quality:

- Living Shoreline Loan Program – Local governments are eligible for loans to construct living shorelines, including the costs of design and planning: <https://www.deq.virginia.gov/home/showpublisheddocument/4666/637475303970100000>

Virginia Tourism Corporation:
<https://www.vatc.org/grants/>

James City County's Clean County Commission Stewardship Grants:
<https://jamescitycountyva.gov/3509/Good-Neighbor-Grant>





10. Appendixes

Appendix A: Related 2045 Comprehensive Plan Goals, Strategies, and Actions

Following are goals, strategies, and actions from the County's 2045 Comprehensive Plan that can be supported specifically by this Plan. Note that there are other strategies, such as the County's watershed plans, that this Plan also supports.

Our County, Our Shared Future - James City County 2045 Comprehensive Plan (adopted October 26, 2021)

ENVIRONMENT GOAL - Continue to improve the high level of environmental quality in James City County and protect rural and sensitive lands and waterways that support the resiliency of our natural systems for the benefit of current and future generations.

ENV 1 - Protect and improve the quality of water in County watersheds, wetlands, and waterways including water bodies that discharge into the Chesapeake Bay.

ENV 1.5 - Implement comprehensive coastal resource management guidance, consistent with the policy that living shorelines are the preferred alternative for stabilizing eroding shorelines prior to consideration of structural stabilization methods.

ENV 1.5.6 - Promote the preservation of open space in areas adjacent to marsh lands to allow for inland retreat of vegetation and additional water containment areas as sea level rises.

ENV 1.5.7 - Evaluate and consider opportunities for grants, cost sharing partnerships between public entities and private property owners, and other funding sources for construction of living shorelines.

ENV 1.16 - Develop funding and implementation mechanisms for the watershed protection and restoration goals and priorities from watershed management plans adopted by the Board of Supervisors. (WMPs contain recommendations for parcels to conserve.)

ENV 1.17 - Continue to develop watershed management plans for the remaining County watersheds, and to update existing watershed management plans that identify environmentally sensitive areas and specific protection, restoration, and retrofit recommendations. Include in those studies an evaluation of the impact of the change in precipitation events in the watershed.

ENV 1.19 - Continue to follow the progress of the Lower Chickahominy Watershed Study and incorporate final recommendations into local policies and Ordinances.

ENV 1.22 - Conduct an analysis of the impacts of sea-level rise, tidal flooding, and non-tidal flooding in the areas around Chickahominy Haven, Powhatan Shores, and other impacted areas based on the work of Virginia Institute of Marine Science, the Commonwealth Center for Recurrent Flooding Resiliency at Old Dominion University, and other relevant agencies.

ENV 2 - Continue to promote public knowledge of and involvement in County environmental programs and initiatives.

ENV 2.1 - Continue to educate the public about voluntary techniques to preserve and protect environmentally sensitive lands; wildlife habitats; water quality; and watersheds, agricultural, forestal, and other open space lands through County programs, including but not limited to, the Clean Water Heritage program.

ENV 3 - Protect and conserve environmentally sensitive areas, and work to maintain or promote the ecosystem services provided by all natural areas.

ENV 3.1 - Maintain and promote biological and habitat diversity, ecosystem services, and habitat connectivity by protecting wildlife and riparian corridors between watersheds, sub-watersheds, catchments, and tidal and nontidal wetlands, and by developing and implementing a green infrastructure plan.

ENV 3.2 - Develop specific recommendations for voluntary and regulatory means to protect resources identified in studies, such as the Regional Natural Areas Inventory, and watershed management plans for County watersheds.

ENV 3.3 - Continue to update mandatory tree protection standards and examine tree canopy protection standards.

ENV 3.4 - Continue to develop and enforce zoning regulations and other County Ordinances that preserve to the maximum extent practicable rare, threatened, and endangered species; wetlands; flood plains; shorelines; wildlife habitats; natural areas; perennial streams; groundwater resources; and other environmentally sensitive areas.

ENV 3.5 - Continue to gather and gain technical knowledge on data that is available to help the County identify and map its natural and cultural assets, and, where appropriate, use such data as an information tool to help guide decisions during the creation of regulations and policies to provide guidance to property owners and development proposal applicants on lands best suited for development, and to inform open space preservation efforts.

ENV 3.6 - Ensure that site development projects, including those initiated by the County, are consistent with the protection of environmentally sensitive areas so that development projects do not exacerbate flooding in flood prone areas.

ENV 3.7 - Seek to maintain and protect forested land and recognize the benefits it provides by sequestering carbon dioxide.

ENV 3.7.1 - Investigate changes to the Zoning Ordinance including renaming the A-1, General Agricultural District and re-examining lot sizes and clustering provisions to acknowledge and encourage preservation of forested land.

ENV 3.7.2 - Assemble a local flood resilience plan to address the County's flood resilience needs using existing plans where available and supplementing with additional documentation where necessary. Incorporate resiliency plan items from other chapters including Transportation, Land Use, and others.

ENV 4.9 Proactively work with private, local, regional, state and federal organizations to implement innovative solutions to improve air quality, including through the protection and enhancement of natural resources such as forest ecosystems

ENV 4.6 - Investigate ways to amend the County Ordinances to address alternative energy production, and to amend ordinances or include special use permit conditions that protect and enhance natural resources on alternative energy production sites.

ENV 4.6.1. In Ordinances or as development approval conditions, include provisions to minimize clearing of forested land.

ENV 4.6.2. In Ordinances or as development approval conditions, implement best practice documents on the inclusion of native pollinator plants.

ENV 4.10 - Use resources from the HRPDC or other applicable organizations to periodically monitor sea level rise at the local and/or regional level.

ENV 4.11 - Evaluate adjustments to watersheds, floodplains, and resource protection areas with changes to the VRMC mean high water line.

ENV 4.11.1 - Use predicted shoreline protection needs to inform shoreline protection strategies and to re-examine relevant County master plans.

ENV 4.11.2 - Notify landowners of likelihood of shoreline impacts based on shoreline protection needs.

ENV 4.12 - Continuing James City County's partnership with VIMS and the HRPDC to more fully identify specific issues with respect to riverine flooding, storm surge, sea level rise, and other conditions affecting coastal flooding in James City County.

COMMUNITY CHARACTER GOAL - The County will be a good steward of the land by preserving and enhancing the scenic, cultural, rural, farm, forestal, natural, architectural, and historic qualities that are essential to the County's distinctive character, economic vitality, and the overall health and quality of life of its residents.

CC 1 - Preserve and enhance entrance corridors and roads that promote the rural, natural, or historic character of the County.

CC 4 - Integrate community character considerations in open space planning and programs.

CC 4.1 - Continue to gather and gain technical knowledge on data that is available to help the County identify and map its archaeological, historic, and cultural assets, and, where appropriate, use such data as an information tool to help guide decisions during the creation of regulations and policies, to provide guidance to property owners and development proposal applicants on lands best suited for development, and to inform open space preservation efforts.

CC 4.2 - Devote resources to and operate programs to preserve or enhance components of the County that significantly contribute to community character, including historic properties and cultural heritage landscapes, scenic properties and viewsheds, agricultural and forestal lands, and entrance corridors, community character corridors, community character areas, and other special places. Integrate these considerations with others found in the Parks and Recreation, Environment and Land Use chapters. In addition, collaborate with other entities, the private sector, and landowners in these efforts.

CC 5 - Preserve existing vegetation as possible and appropriate during development.

CC 5.1 - Use County Ordinances and/or policies as enabled by the Code of Virginia to require a more detailed phased clearing plan that minimizes the removal of existing trees and ensures tree preservation requirements are implemented during the site plan review and pre-construction phase of development. Consider developing requirements for County staff to inspect projects pre-and-post construction specifically to ensure compliance with the tree protection requirement of the Zoning Ordinance.

CC 5.2 - Promote the Optional Specimen Tree Designation to enable more developers to preserve specimen trees that are not within required tree save areas.

CC 5.3 - Continue to enforce existing methods/requirements the County uses during planning, pre-construction, construction, and post-construction phases to make sure tree preservation measures are properly performed, resulting in healthier trees, buffers, and proper maintenance.

CC 6 - Identify and protect archaeological and historic sites.

CC 6.1 - Require that archaeological studies for development proposals are conducted and require their recommendations to be implemented.

CC 6.2 - Update the document Preserving Our Hidden Heritage, an assessment of the archaeological resources in James City County. Review the document prior to each Comprehensive Plan revision and perform a complete revision every 10 years to include new site surveys.

CC 6.3 - Pursue the preservation of historic and archaeological sites of the County by:

CC 6.3.1 - Enlisting the assistance of the County's Historical Commission in updating the County's inventory of historic places.

CC 6.3.2 - Promoting voluntary techniques for preservation of these properties.



ECONOMIC DEVELOPMENT GOAL - Build a more sustainable local economy that upholds James City County's commitment to community character and environmental protection; results in a diversity of businesses, community investment, and professions that attract higher paying jobs; supports the growth of the County's historic, agri-tourism and eco-tourism sectors; contributes positively to the community's quality of life; and better balances the local tax base.

ED 2 - Continue to explore opportunities to diversify James City County's economy in order to strengthen the economic base and long-term resilience. (Relates to recommendations in the Strategy for Rural Economic Development)

ED 2.1 - Promote tourism, including eco-tourism and agri-tourism and associated industries as a year-round asset.

ED 6.3 - Promote existing ecotourism and agri-tourism venues and support the establishment of new ones, where appropriate.

PARKS AND RECREATION GOAL: Provide a range of recreational facilities and activities desired by the community that are affordable, accessible, and adequate in number, size, type, and geographic dispersion to accommodate the needs of all County residents and that promote personal growth, social development and healthy lifestyles.

PR 1 - Ensure that the number and type of facilities and programs meets citizen needs for recreation and open space.

PR 1.1 - Implement the specific strategies and tactics approved in the current James City County Parks & Recreation Master Plan. (This plan includes a needs analysis for different types of facilities, including parkland)

PR 1.2 - Prioritize potential property acquisition for parks in underserved areas of the County, as identified in the needs analysis in the current Parks and Recreation Master Plan or the outdoor recreation category of the ConserveVirginia model.

PR 2 - Continue to develop an integrated network of linear parks, trails, bikeways, sidewalks, and greenways with connections to a regional greenway system that allow foot or bike access to destinations and that preserve the diverse natural, cultural, scenic, and environmental resources of the community that contribute to recreation activities.

PR 2.1 - Continue to coordinate with the Virginia Department of Transportation (VDOT), the Historic Triangle Bicycle Advisory Committee, and local running, hiking and bicycling clubs to develop a bikeway network consistent with the adopted Regional Bikeways Map.

PR 2.2 - Update the Greenway Master Plan and develop a new strategic Action Plan based on the current needs, conditions, objectives and funding resources in order to continue to improve bike and pedestrian connectivity in the community.

PR 2.2.1 - Continue to seek funding in the Capital Improvements Program (CIP) for the acquisition and use of open space areas and greenways to preserve the scenic, natural, and historic character of the area and to promote public access to these sites.

PR 2.2.2 - Collaborate with adjacent localities, developers, and other interested organizations to align and integrate plans so as to increase bike/pedestrian connectivity.

PR 2.3 - Continue to collaborate regionally to improve connectivity of open space, including but not limited to working with Hampton Roads Planning District Commission (HRPDC) and County staff to develop a local level green infrastructure map, which identifies critical natural, cultural and recreational networks, and develop a plan for implementation.

PR 2.4 - Work with the National Park Service to realize the recreational and cultural potential of national park sites within James City County.

PR 3 - Research and pursue available funding sources for parks and recreation programs and facilities programs that create offsetting expenditures and creating positive cash flows, including through private sector partnerships, the establishment of a park foundation, the use of citizen volunteers, grants and revenue producing facilities.

PR 3.1 - Coordinate outdoor recreation, greenway, Purchase of Development Rights, greenspace, community character and environmental protection programs in order to maximize utility of shared resources and funding.

PR 3.2 - Submit grant applications to secure funds for new parks and recreation programs, services, facilities, and related transportation services.

PR 4 - Continue to provide access to major water bodies for expansion of water recreation opportunities.

PR 4.1 - Seek additional waterfront access on the James, York, and Chickahominy Rivers to improve and expand water access and blueway trail development, especially in areas currently lacking water access, such as the lower James River.

PR 4.3 - Collaborate with the National Park Service to continue to provide trail information at designated Chesapeake Bay Gateways and for the Captain John Smith Water Trail.

PR 4.4 - Provide more public access to waterways for recreation and as part of a collaborative ecotourism/agritourism strategy.

PR 5 - Maintain up-to-date regulations and policies for new development that address neighborhood park facilities, sidewalks, bikeways, and trails as outlined in the Parks and Recreation, Greenway, and Pedestrian Accommodations master plans and that protect open space and natural resources.

PR 5.1 - Continue to encourage new development proposals to identify on-site natural resources and design the development layout in a manner that places the natural resources within protected open space parcels.

PR 5.2 - Encourage new developments to dedicate right-of-way and to construct sidewalks, bikeways, and greenway trails for transportation and recreation purposes, and to construct such facilities concurrent with road improvements and other public projects in accordance with the Pedestrian Accommodation Master Plan, the Regional Bikeways Map, and the Greenway Master Plan.

PR 5.3 - Encourage new developments requiring legislative review to provide public recreation facilities consistent with standards in the Parks and Recreation Master Plan. New developments should have neighborhood parks with trails, bikeways, playgrounds, practice fields, sports courts, and open spaces.

PR 5.4 - Amend Zoning Ordinance regulations to facilitate development of recreational facilities, including but not limited to neighborhood parks, playgrounds, sport courts, fields, and trails within by-right residential developments in accordance with design standards as enabled by the Code of Virginia.

PR 9 - Sponsor educational opportunities that emphasize the connections between parks and recreation and economic development, as well as environmental, conservation, and historical preservation.

PR 9.1 - Enhance existing facilities and marketing efforts to fully promote an ecotourism program that promotes passive recreational opportunities within natural open spaces and special environmental and historical areas and identify and designate public lands in support of this purpose.

PR 9.2 - Continue to promote interpretive signage and programs that provide educational opportunities in cultural and natural resources.

TRANSPORTATION GOAL - Provide citizens, businesses, and visitors of James City County with an efficient, safe, attractive, and resilient multimodal transportation system that encourages use of nonautomotive forms of transportation and reinforces or is consistent with the goals and land use patterns of the Comprehensive Plan. Strategies and Actions

T 2.2 - Continue to participate in the efforts of James City County, the City of Williamsburg, York County, and the Historic Triangle Bicycle Advisory Committee to coordinate and implement a regional bicycle network, including further joint planning and development of regional funding proposals.

T 3.7 - Develop greenways in a manner that supports their use as one element of an integrated transportation system.

LAND USE GOAL - Achieve a pattern of land use and development that reinforces and improves the quality of life for citizens by encouraging infill, redevelopment, and adaptive re-use within the PSA; limiting development on rural and natural lands outside the PSA; and achieving the other eight goals of this Comprehensive Plan. Strategies and Actions

LU 1 - Promote the use of land in a manner harmonious with other land uses and the environment. Bikeways Map, the Greenway Master Plan and other adopted plans for guidance.

LU 1.3 - Use policy and ordinance tools to ensure the provision of open space as part of development proposals, as applicable. In particular, maintain or increase incentives for cluster development in exchange for additional open space that provides significant benefits to the community.

LU 1.6 - Explore emerging technologies in the renewable energy industry, with the intention of protecting the County’s unique rural character, preserving natural resources, and mitigating impacts to neighboring properties.

LU 2.1 - Plan for and encourage the provision of strategically located greenways, sidewalks, and bikeways to connect neighborhoods with retail and employment centers, parks, schools, and other public facilities and to effectively connect buildings and activities within individual sites, using the Pedestrian Accommodations Master Plan, the Historic Triangle Regional

LU 6 - Enhance and preserve the agricultural and forestal economy and retain the character of Rural Lands and the predominantly wooded, natural, and small-town character of the County.

LU 6.1 - Promote the economic viability of traditional and innovative farming and forestry as industries.

LU 6.1.1 - Support both the use value assessment and Agricultural and Forestal District (AFD) programs to the maximum degree allowed by the Code of Virginia. Explore extending the terms of the County’s Districts.

LU 6.1.2 - Seek public and private funding for existing programs, investigate new programs, and support private or non-profit (such as land trust) actions that promote continued agricultural or forestal use of property.

- a. Encourage dedication of conservation easements to allow property owners to take advantage of State and Federal tax provisions. Develop a program that would provide information to property owners on the benefits of easement donation, including helping owners consider future possible plans for their property to verify they can be pursued under deed language.
- b. Seek a dedicated funding stream for open space preservation programs. Develop information for property owners on the benefits of participating in open space preservation programs.
- c. Stay informed of State legislation related to Transfer of Development Rights (TDR) and on the status of TDR programs in Virginia peer localities.

LU 6.1.3 - Continue to update the Zoning Ordinance list of permitted and specially permitted uses in the A-1 zoning district. Investigate adding a development standards policy for those uses that might benefit from a rural location. Continue to look at non-residential uses and development standards that may be appropriate, such as agri-business, eco-tourism, or green energy uses, and uses related to projects that are identified by the Strategy for Rural Economic Development.

LU 6.1.4 - As resources allow, support implementation of the recommendations in the Strategy for Rural Economic Development to maintain and create viable economic options for rural landowners.

LU 6.1.5 - Consider funding a staff position for a rural or agricultural development officer to support and help acquire funding for rural protection programs and to undertake other similar activities.

LU 6.1.6 - Protect farming and forestry uses from conflicting activities by encouraging buffers and open space design and by raising awareness among new rural land purchasers about existing farming and forestry uses in the County.

LU 6.1.7 - Craft regulations and policies in a manner that recognizes the value of, and promotes the conservation of, prime farmland soils and environmentally sensitive areas, and consider impacts to the County’s farm and forestal assets in land use decisions.

LU 6.1.8 - Examine the actionable framework from the Lower Chickahominy study and consider incorporating the items recommended by that study that are a best fit with the overall economic development strategies and conservation goals for the County's rural lands.

LU 6.2.1 - Revise the R-8 and A-1 Zoning Districts to set lot sizes to be consistent with the stated Rural Lands designation description and development standards. As part of this amendment, consider easing the subdivision requirements, such as eliminating the central well requirement or permitting the waiver of the central well requirement and/or allowing private streets in limited circumstances, as part of an overall balanced strategy.

LU 6.2.2 - Revise the rural cluster provisions in the A-1 zoning district to be more consistent with the Rural Lands designation description and development standards. As part of this amendment, consider easing the subdivision requirements such as eliminating the central well requirement or permitting the waiver of the central well requirement, allowing private streets in limited circumstances, making it a streamlined by-right use at certain scales, allowing off-site septic or community drainfields, etc.

LU 6.2.3 - Consider implementing a subdivision phasing program, where the number of blocks that could be created from a parent parcel within a given time period is limited.

LU 6.2.4 - Consider adding strong buffer and expanded setback regulations to the A-1 and R-8 Districts, particularly if the permitted densities are not lowered in these districts.

LU 6.3 - To help retain the character of Rural Lands, develop additional zoning and subdivision tools (e.g., scenic easement dedication requirements, increased minimum lot sizes, increased setbacks, and/or overlay districts) to protect and preserve scenic roadways such as Forge Road. Consider 400-foot setbacks along Community Character Corridors outside the PSA.

LU 7 - Develop tools for targeted open space preservation inside the PSA that work in concert with the tools used in the Rural Lands, while acknowledging that the PSA is the County’s designated growth area.



LU 7.1 - Align eligibility criteria for applications for open space preservation with state and federal eligibility criteria for funding and other County efforts such as green infrastructure and greenway master planning, watershed preservation, and recreational planning, and prioritize properties at greatest threat of development. Monitor development trends and zoning regulations to periodically assess the threat of development and prioritization for properties inside the PSA versus those in Rural Lands.

LU 7.2 - Incorporate rural and open space preservation best practices within the new character design guidelines. Develop additional guidelines as necessary for specific resource protections including historic, environmental, or scenic resources.

LU 7.3 - Refine the buffer and setback standards specifically for visual character protection, addressing viewshed protection and maintenance of community character.

Appendix B: Summary of Community Input

Natural and Cultural Assets Plan Community Open House Events’ Public Comments Obtained June 22-July 10, 2022

Strategy Flip Chart Notes from the Community Open House James City County Recreation Center, June 29, 2022

These notes are verbatim and have not been edited in any way.

- Keep solar farms off lands with good agricultural soils.
- Connect the high schools with the farmers education programs.
- Restore buffers in 100-year floodplains for CRS Credits.
- Advise HOAs in JCC to get rid of invasive tree species !!!
- Landscapes should be sustainable, we don’t need more turf grass!
- Use native plants in riparian and open space restoration.
- Partner with SWCD and cost share programs and relationships with landowners.
- Show this/educate Peninsula Homebuilders Association.
- James River access (any) for residents of the Grove.
- JCC/Commonwealth of VA partnership to turn Eastern State surplus land into parks and natural green space.
- Don’t approve rezoning applications for rural and forested land.
- Add) Bicycle shoulders along scenic routes.
- Colonial Parkway kayak access points at rest areas. Partner with the feds.
- Add) Small boat ramp access at Ware Creek – Stonehouse development area.
- Use complete streets to support habitat corridors and make connections for the assets by all modes of transportation.
- Join the conservation movement that starts with your yard <homegrownnationalpark.org> Homeowners can be the change for nature by expanding their habitat corridors.

Concern Comments (at risk and asset map station)

- Concerned about potential groundwater pollution from some military sites.
- News road (Ford’s Colony) 800 Dev. Res. (citizen wrote note, unclear).
- News road needs bike safety (problems there now).
- Eastern State Hospital Redevelopment concerns: too intense development, not enough green space, too much commercial (already have commercial in New Town).

Comment Cards from the Community Open House James City County Recreation Center, June 29, 2022

These notes are verbatim and have not been edited in any way.

- Stormwater/rainwater capture systems for solar panel farms (Goal 1, I think!)
- Connect the Clean County Commission (Peg) with the Agritourism workshop lady/ See other comment card with email.
- Check out Jolly’s Mill Pond owners regarding their on-going efforts to support agritourism in James City County.
- Goal #1, Support/Liaison/Committee for small non-row crop farmers. Assist with navigating zoning, events, agritourism potential.
- Set up a monitoring program to check sub-surface water quality, especially as it impacts aquifers used to gauge the increased water consumption attributed to larger developed areas that may be constructed.
- Lots of good ideas but can we slow down development and put emphasis on conserving what’s here?
- Thank you for the information! As a family and private landowner of a historic property, we are always looking for information on ways to protect our historic home! I know other local landowners who are always interested in conservation efforts!

James City County Community Open House Online Survey — June 22-July 10, 2022

These notes are verbatim and have not been edited in any way.

Question: Add any comments about the process:

- I appreciate the efforts. In my Grove community the proposed site for a future park is now the home of owls, hawks, beaver, rabbits and my favorite...the bluebird. Thank you for taking measures to preserve and protect these areas. Question, why is Ron Springs being rezoned and isn't that area considered an historical site, Old Log Cabin Beach? Question, what efforts are being made to clean up the BASF site... isn't that considered an historical site? Last but not least, storm water and flooding is a big issue in my community.
- Have taken the survey but was unaware of the public meeting. Also, thanks for doing this! Our county is developing rapidly and creating a resource list and hopefully complimentary ordinances will help protect what little uniqueness remains.
- Do everything we can to protect endangered ecosystems.... especially in communities with HOAs not in tune with conservation.
- Presentation at Rec Center was excellent.



- A bit too late for most of the County, but appreciate the "effort" to preserve what can be preserved.
- So, there is a Friends of the Library group of volunteers. Has JCC considered forming a Friends of the Natural and Cultural Assets group of volunteers?
- Commendable effort!
- I support and applaud this effort to protect our natural areas , using data and techniques which minimize disruption of these irreplaceable resources.
- Recommend speed limit reductions on VDOT roads located near recreational areas and historical sites.
- The BASF land needs to be decontaminated. Don’t force the impoverished people of Grove to sell their land for your “corridor”. Eminent domain is a tool of tyrants. Don’t even ask them. Let them keep their property without any flack.
- Let’s focus on the 620 acres of BASF poisoned land for sale in the Grove. I bet this plan will focus on areas that already have an abundance of riches.

Question: What additional strategies would you like the county to adopt to help conserve or restore its natural and cultural assets?

- Community gardens, wildlife sanctuaries or biodiverse landscapes to replace long standing abandoned buildings. Compensate owners of these properties.
- TDR and PDR programs and incentives would be huge. An archaeological ordinance banning any non SOI qualified dig from County property and mandating a phase one survey on all new developments. Restricting the use of non-native planting in need developments, while actively working to incentivize conservation will help create a more environmentally and fiscally sustainable County.

- Limit development and make better use of existing facilities.
- Get serious about advocating recycling and institute a plastic bag ban and a ban on single use plastics. Nothing diminishes our cultural and natural assets like trash. Serious environmental measures would also send a signal to residents and businesses that our natural world matters here. The supervisors who oppose wind and solar power for culture war reasons also need to actually understand what they're doing rather than takes cues from the extremists in Richmond.
- Revise all landscaping requirements in the county code to strongly favor NATIVE plants and prohibit all planting of invasive species. Non-native plants may look nice but numerous studies have shown that most non-native plants have little or no ecological value to native insects and other species. Many states and localities require native plantings in new development. It is not hard to do.
- Continue to add buffers and corridors to link developments and provide habitat for animals. continue to provide buffers between roads and developments. Provide more trails and bike lanes.
- Enforce wetlands violation laws/regulations.
- Increase funding opportunities to grow farms and agritourism in the county.
- Consider the amount of tourists using the assets and maybe limit number of people at a time. Maybe charge fees for visitors.
- Assessment of ditch depth to help with increasing rain runoff. Particularly in urban areas and developments.
- So many great ideas -- I support all of them. None to add at this time.
- Work with WJCC school officials to integrate information about local environmental issues and conservation. Include family & community involvement with school projects thus increasing awareness and involvement.
- Increased road traffic on Jamestown Rd. Has had a negative impact on deer, turtle and frog population.
- Provide tangible incentives for removal of invasive species.
- Little Town was a community between carters Grove in Kings Mill. That’s probably in that area where Kings Mill built down into Grove... Probably where the golf course is. It should be recognized and remembered. Carter describe should not have been allowed to be sold to private owners. It should be a national park. Martin’s Hundred should be represented. There should be a museum here that displays the community's history.
- Focus most on community’s that are underserved.
- Examine forest carbon sequestration as an alternative source of income (\$106 per acre per year) for AFD owners that would result in a 30 year conservation easement.

Question: Are there additional partners or non-government groups that the county could partner with to achieve any of the objectives? If yes, please specify for which objective (e.g., Goal 1, obj. b) and how this partner or group(s) could help.

- The American Battlefield Trust, Williamsburg Battlefield Association, and the James River Association.
- Nature Conservancy to secure and protect lands.
- Maybe Ducks Unlimited for Goal 3
- Volunteers for tree planting

Question: Is there anything else you would like to share about these strategies with us?

- Compostingcouncil.org See the many benefits of composting and how it would work well with these strategies.
- Let’s put some teeth behind the resource survey so it’s impactful. Lastly, please add the Spencer’s Ordinary battlefield to your list. The ordinary site is undeveloped and would be a boost to cultural tourism.
- Continue to hold community outreach meetings. Many are concerned.
- I found the maps and recommendations very informative and reasonable. I do not understand based on the existing plan and your updating recommendations how the recent refining and approval of plans for land along Old Stage and Barnes Rds. occurred. It seems to go against the Natural and Historic Habitat preservation goals.
- Okay the area is beautiful partly due to the diversity and quantity of trees and the waterways. The current parks should be supported and improved. Bike lanes between parks and areas should be included.
- I attended the 6/29 presentation and was encouraged to learn about these efforts to preserve what's left. I was disappointed at the end when a developer/supervisor highjacked the meeting to push his views, which clearly were money-oriented and did not prioritize wildlife and native vegetation.
- I would advocate for species of plant life that are native to the area. And not invasive, such as pear trees.
- Why can't JCC require developers the items listed instead of offering an incentive for developers to include green areas, etc.? JCC can work with HOA's to have them work with homeowners within their neighborhoods to conserve and improve the environment. HOAs may welcome the dialogue and guidance and create social groups within their individual HOAs to work on projects. JCC has exploded in housing the past 2 decades and a lot of the strategies that were listed under the goals weren't in place. However, there are still a lot of things that those newer neighborhoods can do regarding improving the environment.



- I am grateful for the efforts you have discussed in your presentation, which give recognition to the intrinsic value of intact natural habitat. These treasures cannot be replaced and provide mental and physical health benefits to all residents and visitors to James City County .
- The new maps are amazing and will undoubtedly lead to an increase in tourist foot traffic and bike traffic. However, the Increase in pedestrian traffic is consistently in conflict with higher speeds on VDOT roads. This is especially true on the intersection of Jamestown Rd. and the Capital Trail cross walk. The higher road speeds and lack of pedestrian safety lighting is in direct conflict with the intended results of this strategic plan.
- Where/whenever possible rein in development!
- People don’t just want to see Conservation happening, but I wanna see our Community strengthen and then built up better.
- Move away from industrial, rezone long empty industrial properties to less polluting businesses.
- Sea level rise will severely impact high-value habitats for some AFDs in the Gordon and Yarmouth Watershed. Alternative conservation easements with the VOF should be explored like POWHATAN ASSOCIATES parcel 3440100004 and WRIGHTS ISLAND GAME ASSN 2030100001 would mitigate the loss of the AFD status in the long term.

Appendix C: References Cited

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