

Cumulative and Secondary Impacts Strategy: *Leveraging Economic Benefits of the Natural Resources of the Lower Chickahominy River*

I. Issue Area(s)

The proposed strategy or implementation activities will support the following high-priority enhancement areas (*check all that apply*):

- | | |
|--|--|
| <input type="checkbox"/> Aquaculture | <input checked="" type="checkbox"/> Cumulative and Secondary Impacts |
| <input type="checkbox"/> Energy & Government Facility Siting | <input type="checkbox"/> Wetlands |
| <input type="checkbox"/> Coastal Hazards | <input type="checkbox"/> Marine Debris |
| <input type="checkbox"/> Ocean/Great Lakes Resources | <input type="checkbox"/> Public Access |
| <input type="checkbox"/> Special Area Management Planning | |

II. Strategy Description

A. The proposed strategy will lead to, or implement, the following types of program changes (*check all that apply*):

- A change to coastal zone boundaries;
- New or revised authorities, including statutes, regulations, enforceable policies, administrative decisions, executive orders, and memoranda of agreement/understanding;
- New or revised local coastal programs and implementing ordinances;
- New or revised coastal land acquisition, management, and restoration programs;
- New or revised special area management plans (SAMP) or plans for areas of particular concern (APC) including enforceable policies and other necessary implementation mechanisms or criteria and procedures for designating and managing APCs; and,
- New or revised guidelines, procedures, and policy documents which are formally adopted by a state or territory and provide specific interpretations of enforceable CZM program policies to applicants, local government, and other agencies that will result in meaningful improvements in coastal resource management.

B. Strategy Goal:

Through this strategy stakeholders at the local, state and federal level – including government and non-government organizations – will work together to align priorities in land use and land protection for maximum socio-economic and ecological benefit and create a shared vision for economic growth and conservation in the lower Chickahominy watershed and possibly additional locations. The overall strategy objective is to develop and adopt policies, procedures and new partnerships to address the cumulative and secondary impacts of coastal growth and development, including the collective effect of various individual uses or activities on coastal resources such as coastal wetlands and fisheries.

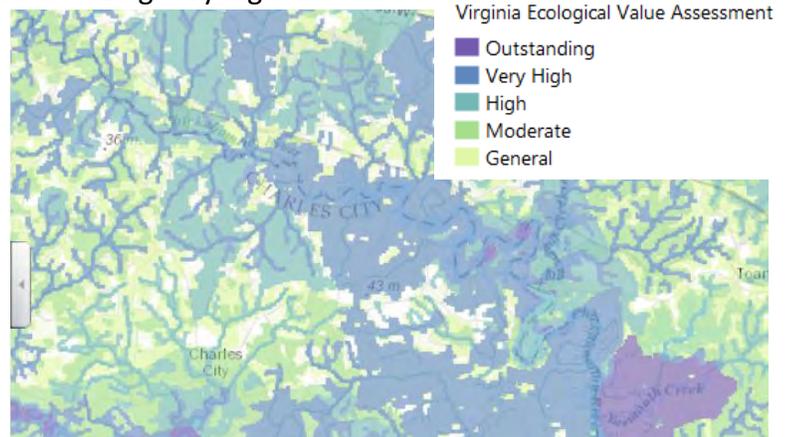
C. Describe the proposed strategy and how the strategy will lead to and/or implement the program changes selected above:

While the strategy will begin with a broad approach, assessing the economic values of protected lands in targeted regions coastal zone wide, it will continue with a specific focus on the lower Chickahominy watershed as a pilot area for future initiatives. Much of the lower Chickahominy has been identified as having very high to

outstanding ecological significance by the [Coastal Virginia Ecological Value Assessment \(VEVA\)](#), a GIS dataset that ranks land and water areas based on modeled ecological and conservation value.

Maintaining ecological integrity of the lower Chickahominy watershed, while appreciating and encouraging economic development opportunities will be priorities of the pilot. Comprehensive plans and other policies in localities within the watershed will be reviewed to identify

opportunities for aligning state and local priorities. A memorandum of understanding will be developed to express a shared vision and outline consistent approaches toward watershed protection and leveraging of identified economic benefits. This could lead to development of a management plan and possibly draft legislation to enable local governments in the watershed to establish a public access authority. This will be written and offered for sponsorship and introduction to the General Assembly.



(Data Source: Coastal Virginia Ecological Assessment, Virginia CZM Program, 2011)

III. Needs and Gaps Addressed

This strategy addresses the need for improved coordination among state natural resource agencies and local governments in land use planning and conservation of coastal assets. Trends in expansion of impervious cover (C-CAP data for VA and RRPDC data for Richmond region) and wetland loss ([VIMS](#)) in Virginia’s coastal zone due to land conversion coupled with the influence of sea-level rise demonstrate a need for strong coordination in local land use planning. Place-based focus in the Lower Chickahominy addresses a need for coordinated planning in an area identified for its outstanding ecological significance ([Coastal VEVA](#)) that is situated between two high-growth metropolitan areas. Actions outlined in the strategy will bring watershed stakeholders together building key partnerships among local, state and federal government agencies and NGOs in the region that are not presently in place.

Scientific/ecological field studies are needed in the lower Chickahominy watershed to fill spatial and temporal data gaps. The three counties of the Lower Chickahominy watershed (10-digit HUC – 0208020606) are recognized for harboring some of the most biologically

diverse and ecologically significant areas in the Coastal Zone of Virginia. The Coastal VEVA classifies much of these counties, and especially the Lower Chickahominy corridor itself as very high to outstanding ecological significance.

The Chickahominy watershed earned these highest ranks in the Coastal VEVA based on comprehensive analysis of terrestrial, freshwater aquatic and estuarine biodiversity and habitat value there. This analysis was conducted by VIMS, DGIF, DCR-Natural Heritage, and the VCU-Center for Environmental studies, and driven by decades of field inventory data collected and maintained by these partners. The strength and utility of the Coastal VEVA, as well as other land use and conservation prioritizations (e.g. local conservation plans), hinges on the quality of information used to build these tools. More comprehensive, current and spatially accurate input data (i.e. locations and health of species populations and natural communities, habitat quality), ultimately enables more informed and impactful decisions to be made from the Coastal VEVA and other tools like it.

The landscape of Virginia's Coastal Zone is continually changing due to land conversion and climate change stressors such as sea level rise and storm events (i.e. storm surge and flooding in coastal areas). Naturally, species populations and their habitats respond to this change, as does the distribution of functioning ecological systems and the benefits derived from them for coastal communities. Understanding the current patterns in ecological systems and their benefits begins with an understanding of the distribution and health of species populations, their habitats and natural communities. And, to assure that land use and economic development decisions are adaptive and sustainable from a natural resources perspective, those decisions must start with a strong foundation of current scientific data collected in the field.

Data for this region are rich and informative, but there are also significant temporal and spatial data gaps. Temporal gaps are represented in the last observation dates of rare species populations and natural community locations in the study area. Currently there are 123 natural heritage resources (habitat of rare, threatened, or endangered plant and animal species, rare or state significant natural communities or geologic sites) identified throughout Charles City, James City and New Kent counties. Of these 123 natural heritage resources, 67 are, or will soon be considered "historic" because they have not been visited or verified, in at least 25 years. Once Natural Heritage data enter this "historic" status, they are no longer used to develop other conservation prioritization tools and assessments (e.g. Coastal VEVA). Thus, with this temporal data gap, about 54 percent of natural heritage data in the study area will not be used to inform future conservation and land use decisions until it is updated.

Key spatial data gaps might also be filled with targeted ecological assessment fieldwork. Many of the conserved areas in the study area may not have been thoroughly surveyed for biodiversity and habitat values. Tools like the Virginia Natural Landscape Assessment

(VaNLA) and the Coastal VEVA could be used to target “high priority” portions of conserved lands that warrant field inventories. Or, it may be apparent (i.e. from aerial photography or cursory field observation) that changes in vegetation composition and/or habitat structure warrant more focused field inventory since an area was last visited. Spatial data gaps also occur on privately owned lands. Nearly all natural heritage resources documented in the lower Chickahominy watershed occur on currently conserved lands. However, only 8.1, 12 and 4.5 percent of all lands in Charles City, James City and New Kent counties respectively are currently conserved. While rare species and habitat inventory on private lands is inherently more complex, perhaps certain areas could be identified where inventory is feasible. Biologists at DCR-Natural Heritage and DGIF could seek permission and target field inventory on some private lands, with the agreement of landowners. In fact, predictive species distribution models under development now at DCR could help to concentrate these efforts on areas with the highest predicted likelihood of suitable habitat for certain rare, threatened and endangered species.

In addition to ecological assessments through field inventory, the logical follow-on work of updating the Coastal VEVA in Lower Chickahominy watershed study area, and throughout the Coastal Zone is needed to conduct coordinated planning. Using the same partner team that originally developed the Coastal VEVA, this update could efficiently utilize consistent methods, but with updated input datasets (e.g. VaNLA, INSTAR data from VCU, estuarine priority areas data from VIMS). This would update the Coastal VEVA prioritization tool, while also providing a means of assessing change in ecological value of areas in the coastal zone since its original release.

Economic studies to support coordinated planning and educate elected officials are needed for Virginia’s coastal zone. While an economic study, (Southwick Associates, 2012) has been done for the Delmarva region (MD and VA) a more specific (VA only or specific VA regions) and detailed analysis is needed.

Further, through the Chesapeake Bay Watershed Agreement a management strategy goal of protecting two million new acres by 2025 has been established. Our CSI strategy complements this goal by aiming to develop and strengthen policies that will protect land to achieve conservation goals, support economic growth and provide open space for recreation.

Finally, the strategy will introduce policy concepts to enable establishment of a public access authority, which the region currently lacks. Success with public access authorities in other regions ([MPCBPAA](#)) in the VA coastal zone demonstrates a need for this kind of authority in the lower Chickahominy region that will provide an avenue for ownership of land for the sole purpose of providing public access to coastal waters. This kind of land ownership facilitates water access for residents and tourists alike. The most recent [Virginia](#)

[Outdoors Demand Survey](#) reveals that 60 percent of respondents find “public access to state waters” as “most needed in Virginia.”

IV. **Benefits to Coastal Management**

Coordinated land use planning will ensure successful long term economic growth by maintaining the natural resource base that supports it. This strategy aims for improved coordination among local, state, and federal stakeholders to develop a shared vision for growth and conservation. A coordinated approach will help reduce land use conflicts and align goals to balance demand between development needs and natural resource conservation. Both growth and conservation will be addressed through a variety of tools, such as a public access authority, whereby natural resources can meet demand for eco and nature tourism while also ensuring low impact uses of natural areas.

V. **Likelihood of Success**

There is a high likelihood of success with this strategy since we are working directly with major local government stakeholders in the pilot area of the lower Chickahominy; New Kent, James City and Charles City Counties, as well as others (Middle Peninsula PDC which has direct experience with establishment and functioning of a regional public access authority). Local government stakeholders can help direct the strategy work plan to focus on creating new policy that will be well received and successful in their community. Stakeholders from state natural resource agencies and national, as well as, local land trusts will also be involved in this collaborative effort among local, state and federal partners.

VI. **Strategy Work Plan**

Strategy Goal: Align state and local land use and land protection priorities in the lower Chickahominy region utilizing economic and ecological analyses, development of a watershed management plan and draft legislation to enable establishment of a public access authority for the lower Chickahominy.

Total Years: 5

Total Budget: \$672,400

Year(s): 1-2

Description of activities: Establish a steering committee of stakeholders and technical experts to develop a shared vision for coordinated planning in the lower Chickahominy and possibly other areas in the coastal zone. Conduct ecological assessments and update data tools to aid analysis that could identify potential conflicts with current planning and zoning policies. Conduct economic analyses of protected lands in the lower Chickahominy and perhaps other specified target areas of Virginia’s Coastal Zone. Economic analyses would summarize findings into educational tools (e.g. fact sheet(s), web pages) for outreach. A model for one or more economic analyses will come from one that is to be conducted on Virginia’s Eastern Shore. It could include (but not be limited to) the following key elements:

- Documenting the physical and mental health benefits of open space (Regional Health and Communities) – savings in health costs
- Surface and groundwater water quality benefits to aquaculture and commercial fishing
- Benefits to water supply/groundwater recharge
- Costs of conserved lands vs. benefits
- Costs to whom? Counties? Or General?
- Economic value of hunting
- Economic value of recreational fishing/commercial
- Economic value of wildlife watching
- Tourism impacts
- Mitigation of storm impacts/SLR
- Value of conservation resource management – institutions who are here managing lands, doing research, etc.
- Direct impact to local tax base
- Long-term implications to tax base/county budgets... what is the tipping point, where is the continuum? Consideration of long-term conservation goals?
- Value of conservation lands (i.e. easements)? Placing or selling easements?
- Tax rates on conservation lands? Is it really taking land away from the tax base?
- Economic value of ag/farmland
- Biodiversity, habitat
- Ecosystem services
- Value of conserved lands as far as reducing need for and cost of infrastructure services (fire, rescue)
- Recreational value of lands
- Impact on insurance rates – do conservation lands reduce rates, claims, etc.?
- Historical and cultural benefits
- Property value
- Environmental education
- Light pollution
- Quality of life

Water

- Surface and groundwater quality benefits to aquaculture and commercial fishing
- Ecosystem services
- Water supply/groundwater recharge

Focus: Economic benefits and costs of services (if developed, other than tax base) of conservation lands.

Cost/benefit analysis

- Natural resources
- Recreation
- Health
- Employment
- Cultural/historical
- Liability/insurance
- Economic Growth
- Sustainable Development/Infrastructure Protection
- Resiliency

Major Milestone(s): Quantify benefits of protected lands in select Virginia coastal regions to help demonstrate the value of coordinated land use and land conservation. Address local government concerns that conservation and land protection erodes the local tax base.

Budget: \$232,000

Year(s): 3-4

Description of activities: Review and analysis of local plans and policies in lower Chickahominy localities to identify opportunities for new or revised policies or procedures that will leverage the benefits of natural resources. Begin development (with stakeholders) of a plan to optimize land uses while protecting very high and outstanding ecological resources. Develop potential enabling legislation to promote multiple benefits, such as the authority to establish public access authorities. Identify additional regions to which the lower Chickahominy pilot could be applied.

Major Milestone(s): Establish coordination for land use/land protection among state agencies and Lower Chickahominy watershed localities. Enable local governments in the Lower Chickahominy (and others, if possible) to create a Public Access Authority for the region.

Budget: \$278,500

Year(s): 5

Description of activities: Finalize management plan(s)

Major Milestone(s): Finalize and consider adoption of land management and conservation policies that encourage cooperation among localities in the lower Chickahominy watershed and complement state and federal conservation priorities. Serves as a model for planning in additional coastal regions.

Budget: \$161,500

VII. Fiscal and Technical Needs

A. Fiscal Needs: NA

B. Technical Needs: NA

VIII. Projects of Special Merit (Optional)

IX. 5-Year Budget Summary for Cumulative and Secondary Impacts Strategies

Strategy Title	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total Funding
Leveraging Economic Benefits of Land Conservation	125,000	107,200	117,200	161,500	161,500	672,400
Working waterfronts <i>(Note: See 2nd part of the CSI strategy in separate template below)</i>	50,000	47,500	47,500			145,000
Total Funding	175,000	154,700	164,700	161,500	161,500	817,400