Powhatan Creek Watershed Management Plan

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FINAL

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James City County, Virginia

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Executive Summary

This watershed management plan provides a summary of the findings from the Powhatan Creek baseline report, the three special studies and the stakeholder process conducted by the Center for Watershed Protection, the James River Association and James City County. A specific watershed management plan and accompanying maps have been drafted for the 12 subwatersheds based on the eight tools of watershed protection. The subwatershed maps serve as a blueprint for the protection and restoration of Powhatan Creek and may be used as planning maps during the implementation of the watershed management plan and as an important tool during the development review process.

The 22 square mile Powhatan Creek watershed is truly a state and national treasure with its historic past and present biodiversity. The mouth of the creek discharges to the James River near Jamestown Island, the site of the first permanent settlement in North America and a major tourist destination. The scenic Powhatan Creek is also notable for its exceptional biodiversity and bottomland wetlands. It was recently ranked as having the greatest significance for biodiversity and natural areas in the lower Peninsula of Virginia (Clark, 1993). Rare, threatened or endangered plants such as the small whorled pogonia, Virginia least trillium, and false hopsedge are found here. Bald eagle habitat and an important heron nesting colony are located within Powhatan Creek's expansive floodplain wetlands.

Rapid development seen in the last two decades poses a threat to water quality and natural habitats in Powhatan Creek. Impervious cover is an indicator of the extent and pattern of growth in the watershed, and this growth pattern over the years is very revealing. In 1970, watershed impervious cover was estimated to be 3%, but grew to 8% in 1998, 9.8% in 2000, and is projected to reach a maximum of 15.5% in the future. Prior research has shown that stream and wetland quality begins to decline when the amount of impervious cover in a watershed exceeds 10%. Based on our latest estimates, Powhatan Creek appears to be very close to crossing this key threshold.

The principal effects of impervious cover in Powhatan Creek include:

- Changes in hydrology of streams, wetlands and floodplains
- Increased pollutant loads delivered in urban stormwater (bacteria, sediment, nutrients)
- Channel erosion in headwater streams
- Water level fluctuations that degrade wetlands and rare, threatened, or endangered plant species habitat
- Favors the establishment of invasive plant species
- Fragmentation of contiguous forests
- Increased flooding

Based on a widely used stream classification model, eight subwatersheds were classified as sensitive and only four subwatersheds were classified as impacted in 1998. Recent growth in the watershed

has been rapid, and as of 2000, six subwatersheds are classified as sensitive, and six are now classified as impacted. Based on future growth in the watershed, it is likely that all subwatersheds will shift to the impacted category under the current zoning in the coming decades.

Watershed residents and other stakeholders play a vital role in the creation of a watershed management plan. It is important to involve the citizens, businesses, and other interested parties in the development of a watershed plan, since they will have to live with the decisions which are made. Stakeholders also bring to the table the issues which are important to them. Their participation gives them a stake in the outcome and helps to ensure plan implementation. Two public meetings were held with watershed stakeholders; the first covered the baseline assessment and fieldwork which was performed by the Center, the second engaged participants in the process of setting goals for the subwatersheds as well as the watershed as a whole. The eight overall watershed protection and restoration goals identified by the stakeholders are:

1. Prevent further degradation of water quality in Powhatan Creek and maintain the outstanding quality of tidal and nontidal mainstem wetlands. Extend Resource Protection Areas (RPA) to protect all perennial streams and connected wetlands.
2. Maintain biological and habitat diversity and promote habitat connectivity by protecting wildlife and riparian corridors between watersheds, subwatersheds, and the tidal and non-tidal portions of Powhatan Creek.
3. Develop an "affordable and effective" watershed management plan that can be implemented by James City County.
4. Establish a transparent and stream-lined permitting process, and provide cost effective and incentive based regulations or guidelines for "green" development.
5. Improve the existing mechanisms for completing stormwater maintenance and retrofitting, and develop a mechanism for adequate long-term funding.
6. Link the unique history and culture of Jamestown and Colonial Williamsburg with Powhatan Creek watershed protection. Implement the majority of the watershed plan by the 2007 Jamestown Celebration.
7. Promote watershed awareness and active stewardship among residents, community associations, businesses, and seasonal visitors through educational programs, recreational opportunities, and participatory watershed activities.
8. Restore the physical integrity of degraded headwater streams where possible and protect the high quality streams from the negative morphological effects associated with increased urbanization.