

A Partnership to Protect the Southern Watershed

To protect natural resources, sensitive lands and water supplies, the cities of Chesapeake and Virginia Beach, in partnership with the Hampton Roads Planning District Commission and the Virginia Coastal Zone Management Program, developed the Southern Watershed Area Management Program (SWAMP).

The SWAMP Mission

To protect and enhance the natural resources, sensitive lands and water supplies of the Southern Watersheds of Chesapeake and Virginia Beach.

SWAMP's purpose is the development and implementation of collaborative watershed management for the Southern Watershed Area. This area encompasses the watersheds of Back Bay, Northwest River and the North Landing River. The intent is to balance protection of the Southern Watershed's critical environmental resources with economic development opportunities.



SWAMP has resulted in a number of programs that will help to protect resources and guide development in the Southern Watershed Area in the coming years. These programs are already influencing the character of the watershed through cooperative public agreements and innovative private development, and will serve as models for similar efforts in other areas within the Hampton Roads Planning District.

Several important lessons have been learned over the course of this multi-year project. Key among them are the value of partnerships and long-term, consistent funding in cooperative local watershed planning. The policies developed under a Special Area Management Program like SWAMP, while tailored to a specific geographic region, contribute to the tool kit available to local and regional planners working throughout Virginia's Coastal Zone. The Southern Watershed Area Management Program will continue to offer valuable information and planning policy options for the Southern Watershed Area for years to come.

What is a Watershed?

A watershed is an area of land that drains to a particular body of water. We all live in watershed areas and almost everything we do—from transportation to land use and lawn care to recreation—affects water quality and other natural resources in our watershed areas.

How It All Began

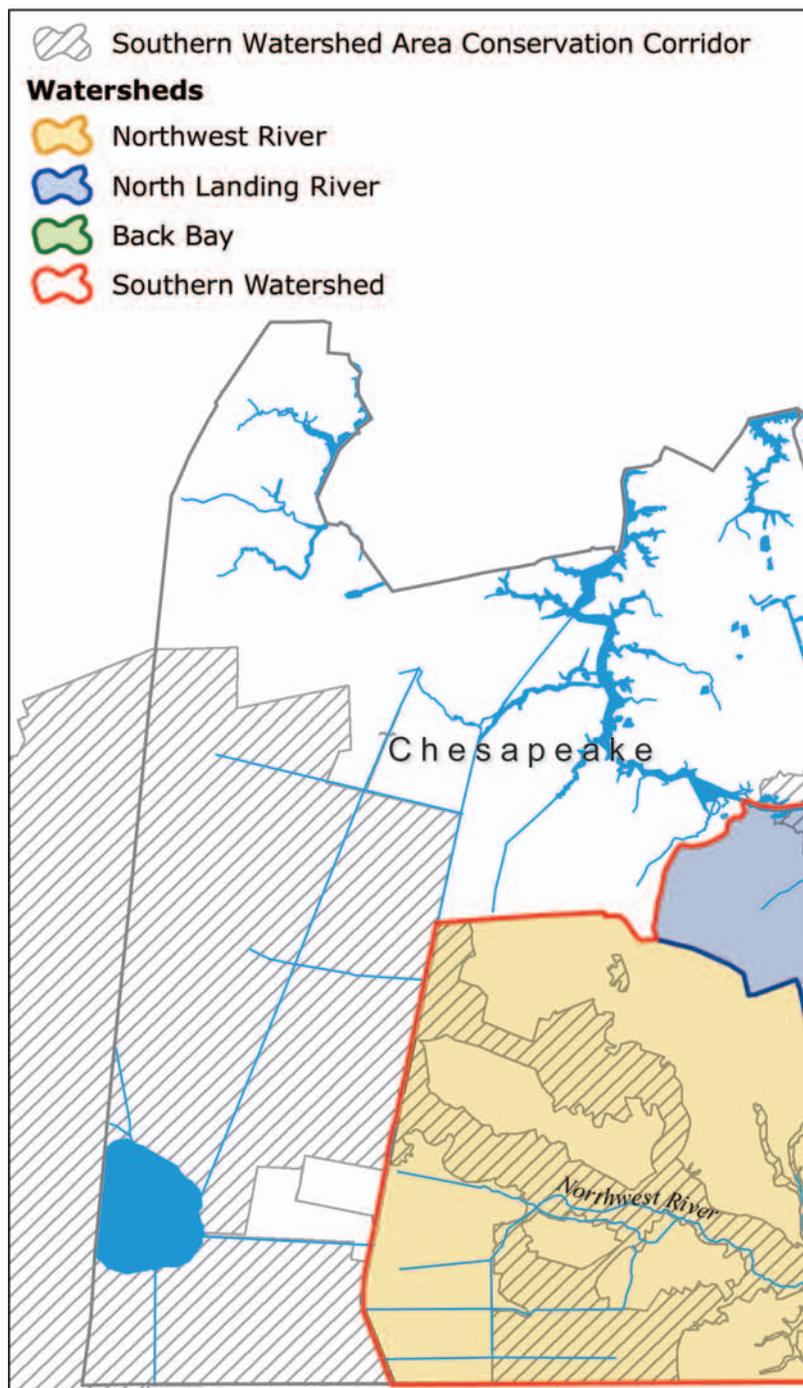
Prior to the formal establishment of the Southern Watershed Area Management Program, a number of cooperative initiatives were underway. The Hampton Roads Planning District Commission and the cities of Chesapeake and Virginia Beach worked together for several years through the Albemarle-Pamlico Estuarine Study and several local programs. In 1992, they were joined by the Virginia Coastal Zone Management Program (CZM) in exploring the development of a Special Area Management Plan. The Southern Watershed Area Management Plan was considered a high priority in Virginia's 1992 Coastal Needs Assessment and Strategy, and first received funding under Section 306 beginning in Fiscal Year 1992.

Formally, the first phase of SWAMP began with a focus on developing a framework for the cities of Chesapeake and Virginia Beach to work together. The Virginia CZM provided funding under Section 306 of the federal Coastal Zone Management Act to support these formative steps. In 1994, the Local Government Advisory Committee (LGAC) was created, consisting of local government technical resource personnel from Chesapeake and Virginia Beach and a representative from the Virginia Dare Soil and Water Conservation District.

The LGAC developed a Memorandum of Agreement (MOA) for a coordinated watershed management program. The signing of the MOA by Chesapeake and Virginia Beach, following City Council approvals in 1995, initiated and formally confirmed their joint commitment to protection of the Southern Watershed. The Committee identified critical watershed priorities, goals and objectives, a coordinated approach, and recommendations for future technical studies, research, and data needs for management of the watershed area.

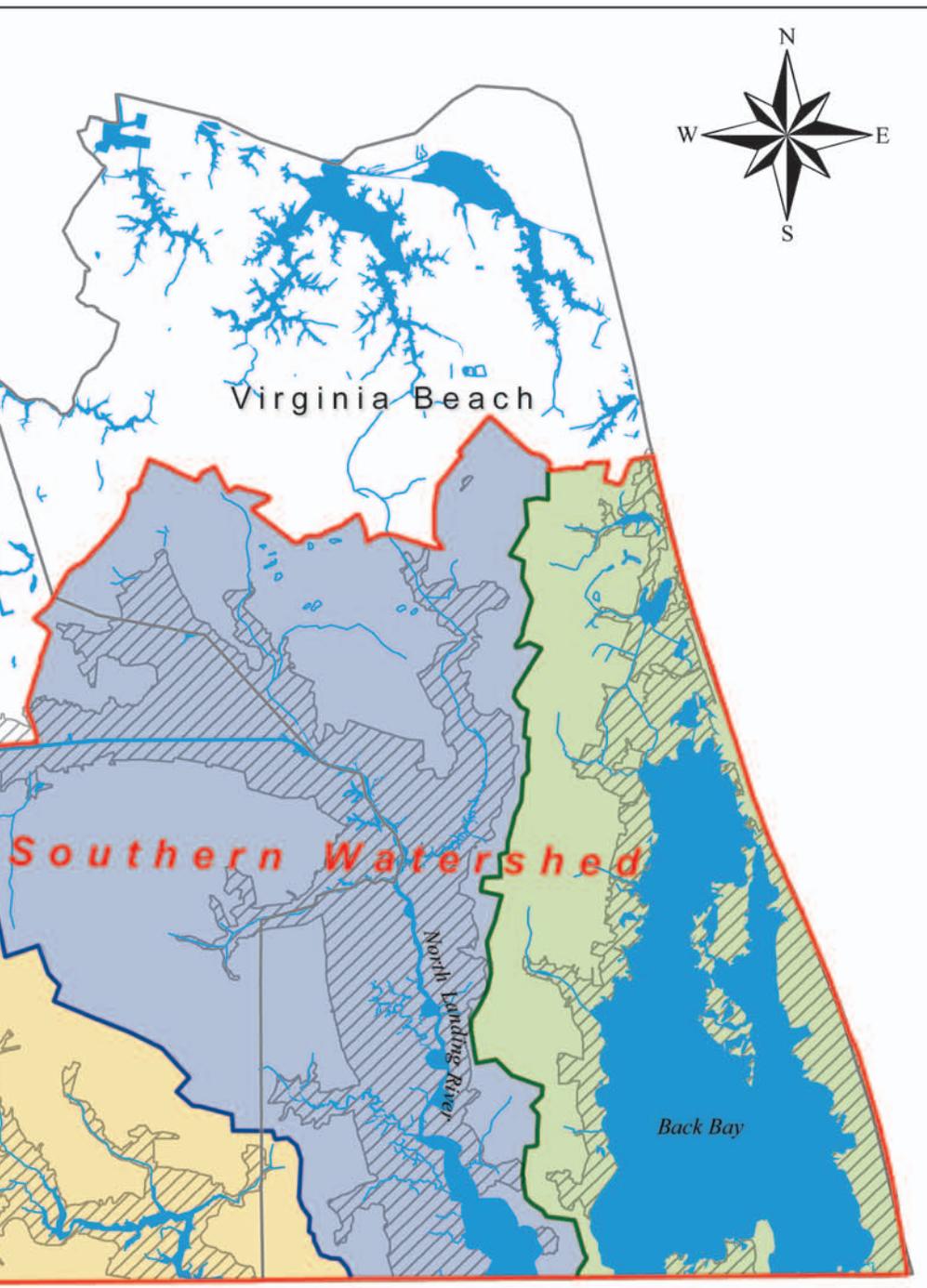
The Committee examined existing technical studies to determine the current conditions in the watershed area and to identify technical information needed to support improved local government management of watershed lands and resources. By working together to analyze current conditions and management techniques, the two local governments identified problems and solutions, reached consensus on priorities, goals and objectives, and developed an integrated process for managing the area.

After final consensus among the Local Government Advisory Committee members, the project grew to include state and federal agencies with interests or projects in the Southern Watershed through briefings and coordination meetings. The Hampton Roads Planning District Commission (HRPDC) staff facilitated the process, conducted technical studies, and serves as a link between the project and the large variety of activities which are underway in the watershed by federal, state, local and private groups.



The **Southern Watershed** covers approximately 325 square miles in Chesapeake and Virginia Beach and contains three sub-watersheds:

Back Bay
North Landing River
Northwest River



SWAMP Priorities

- Develop common goals and a shared vision for the Southern Watershed Area.
- Provide for multiple uses of waterways and watersheds.
- Manage nonpoint sources of pollution.
- Establish an ongoing forum or clearinghouse for information to answer the needs of the numerous agencies and interests in the Southern Watershed area.
- Manage competing uses in the watershed.
- Identify and reduce data gaps to help further the mission statement.

SWAMP Goals

These goals were approved by the City Councils of Chesapeake and Virginia Beach as part of the Memorandum of Agreement and meet the Special Area Management Plan objectives under the Coastal Zone Management Act.

- 1 Water quality should be protected and enhanced for water supplies and natural resources conservation.
- 2 Preserve open lands to help protect and enhance water quality.
- 3 Ensure compatibility of recreational activities and commerce with natural resource protection.
- 4 Retain the rural character of the Southern Watershed while providing for rural residential development.
- 5 Sustain and encourage agricultural and forestal activities in the Southern Watershed.

Back Bay Subwatershed

Size: 67,000 acres

Land Use: Northern end increasingly urban; southern area primarily undisturbed — farming, two national Wildlife Refuges, a State Park, two State Waterfowl Management Areas, and some rural residential

North Landing River Subwatershed

Size: 75,000 acres

Land Use: Northern end increasingly urban; southern area farming, sport hunting, some rural residential

Northwest River Subwatershed

Size: 66,436 acres

Land Use: Farming, forest, some rural residential

Project Phases

What have we done?

SWAMP has now progressed through several stages and produced a number of products to assist with stewardship of the Southern Watershed. The initial phase of the project established a set of common goals derived from the Chesapeake and Virginia Beach Comprehensive Plans and led to the development of a Memorandum of Agreement between the Cities and the HRPDC to facilitate achievement of the goals. The next major milestone involved designation of the project as a Special Area Management Program (SAMP) by the Virginia Coastal Zone Management Program. The significant financial resources made available by the SAMP designation were used primarily to hire a series of consultants to develop technical reports on water quality status and trends in the Southern Watershed, agricultural preservation, protection of rural character and natural resource protection.

As part of SWAMP, a comprehensive Geographic Information System for the Southern Watershed Area was developed. This information was applied in the pursuit of memoranda of agreement and policy changes outlined at the initiation of the SAMP process. All of the technical reports and the GIS data were made available to staff and consultants as they worked on Comprehensive Plans for both Chesapeake and Virginia Beach.

Phase 8, the most recent phase of the project, involved completion of several program changes and continued work to integrate the research accomplished under the project into the local planning process. Highlights of Phase 8 include open space preservation measures, development of educational materials, development of the first Conservation Subdivision in the Southern Watershed Area, and the inclusion of SWAMP materials in the Chesapeake and Virginia Beach Comprehensive Plans.



The Water Quality Task Force includes representatives from:

Department of Environmental Quality

U.S. Fish and Wildlife Service

U.S. Geological Survey

Department of
Game and Inland Fisheries

Department of Conservation and Recreation,
Division of Natural Heritage

Back Bay Restoration Foundation

Department of Conservation and Recreation,
Division of Soil and Water Conservation

Hampton Roads Sanitation District

Cities of Chesapeake and Virginia Beach

Watershed Facts

The Southern Watershed contains some of the most diverse and extensive wetlands in Virginia. There are over 40 rare or endangered species in the area, the highest concentration in any locality east of the Blue Ridge Mountains.

Urbanization has reduced the wetlands of Southeast Virginia from covering 600 square miles to only 20 square miles.

The Northwest River is the primary public water supply source for the City of Chesapeake.

The North Landing River is home to the largest Blue Heron Rookery in Virginia, a nesting area for over 300 herons.

Back Bay serves as a winter home for mallards, black ducks, pintails, Canada geese and snow geese. It is also a rest stop for birds migrating along the Atlantic Flyway.

The Southern Watershed Area contains some of the last stands of Atlantic White Cedar, once prized for use as ship masts because of their straight, tall growth.

In 1996, Nature Conservancy scientists discovered a virgin forest in the watershed, never before recorded in botanical annals, containing cypress and black gum trees that may be as old as 800 years.

Products: Memoranda of Agreement

Multiple Benefits Conservation Plan Memorandum of Agreement moves to implementation

The Multiple Benefits Conservation Program (MBCP) Memorandum of Agreement was completed and signed by the Cities of Chesapeake and Virginia Beach, the HRPDC, the Virginia Departments of Conservation and Recreation, Environmental Quality, Game and Inland Fisheries, and Transportation, the Virginia Marine Resources Commission, the United States Army Corps of Engineers, Fish and Wildlife Service, Natural Resources Conservation Service and The Nature Conservancy in June of 2002. The focus then turned to implementation.

The MBCP Technical Advisory Committee (TAC) met five times during the period from October 2002 to October 2003 to discuss its role in the wetlands mitigation process, collection of mitigation site information, development of a set of guidelines for permit applicants, and development of a user's guide on the MOA. The TAC will continue to meet to discuss the mitigation package proposed for the Southeastern Parkway project.

Following extensive discussion of its role in the wetlands mitigation process, the TAC reached consensus that it would focus on overarching policy issues rather than commenting on specific development proposals. Subsequently, a set of guidelines for permit applicants in the Southern Watershed Area was developed to explain the Memorandum of Agreement, the supporting technical documents, and the role of the TAC. The guidelines explain the use of the conservation corridors in the selection of a

multiple benefits mitigation site. In addition, a User's Guide that provides information on the use of a watershed-based approach to wetlands mitigation was developed.

One goal of the MBCP MOA is collection of baseline information on the location of existing mitigation sites in the Southern Watershed Area. The U.S. Army Corps of Engineers currently maintains a database documenting these sites.

North Landing River Memorandum of Agreement promotes public awareness

The Water Use Conflict MOA for the North Landing River was signed on April 30, 2001 in a ceremony at Munden Point Park in Virginia Beach. Representatives from the Cities of Chesapeake and Virginia Beach, the HRPDC, the Virginia Departments of Conservation and Recreation, Environmental Quality, and Game and Inland Fisheries, the United States Army Corps of Engineers, United States Coast Guard, and the Fish and Wildlife Service participated in the development of the MOA and signed the agreement.

The North Landing MOA is intended to promote safe boating through an increase in public awareness of existing and potential waterway use conflicts and to protect rare and unique ecosystems from damage by on-water uses through public education. The MOA establishes a set of recommended use areas on the river for Low Impact Recreation, General Recreation and High Speed Recreation. Signatory agencies, which include a broad range of state and federal agencies, agreed to incorporate the Water Use Plan map and associated text in boater safety classes and other educational programs.

Virginia's Coastal Program at the Department of Environmental Quality

The Virginia Coastal Zone Management Program is a network of state agencies and coastal local governments that strives to coordinate efforts to protect and enhance coastal resources.

In 1992, the Virginia CZM completed a comprehensive assessment of coastal management needs and ranked management of the Southern Watershed's resources as a high priority. The Virginia CZM worked closely with Chesapeake, Virginia Beach and the HRPDC to develop policy goals for SWAMP and secure funding from NOAA.

The Southern Watershed Management Program receives its funding from a grant program under Section 309 of the reauthorized federal Coastal Zone Management Act known as the Coastal Zone Protection Act of 1996. This funding is available to coastal states, such as Virginia, that have federally approved coastal zone management programs and are willing to develop enforceable policies to protect coastal resources.

SWAMP Program Funding

Funding began in 1993 with matching funds from the Hampton Roads Planning District Commission and the Virginia Coastal Zone Management Program (CZM) under Section 306 of the Federal Coastal Zone Management Act. In 1996, the Coastal Zone Protection Act provided additional funding to the Virginia CZM under Section 309. Virginia CZM has provided nearly \$2 million for SWAMP and SWAMP-related projects since the program began.

The Cities of Chesapeake and Virginia Beach and the HRPDC made substantial in-kind contributions.



Products: Comprehensive Plans SWAMP Materials Included in Chesapeake and Virginia Beach Comprehensive Plans

Chesapeake

The development of the Chesapeake 2026 Comprehensive Plan included a set of three possible future development scenarios: a dispersed pattern, a compact pattern and a nodal pattern. These were used as examples in collecting citizen opinions on future growth patterns. The dispersed pattern is a continuation of the development patterns currently found in Chesapeake. The compact and nodal

development scenarios include concepts contained in the Rural Area Preservation Program (RAPP) and the comprehensive plan and zoning analysis performed for Chesapeake under SWAMP. The compact pattern features significant redevelopment of urbanized areas and preservation of rural areas by allowing only limited low-density development in the Southern Watershed Area. The nodal option accommodates new development in nodes arrayed along existing transportation corridors. The nodal option features elements of the Villages and Hamlets, Cross Roads Communities and Planned Communities of Place concepts introduced in the RAPP.

Based on citizen input, the Chesapeake City Council adopted a hybrid map that features elements of each of the three development scenarios. This preferred development pattern was used as a part of the 2026 Comprehensive Plan that was adopted by City Council in March 2005.

Virginia Beach

The Virginia Beach 2003 Comprehensive Plan was adopted in December of 2003. The Natural Resources and Environmental Quality chapter contains multiple references to SWAMP. Specifically, policy E-2-5 states that the city will "Meet the goals set forth by the Southern Watershed Area Management Program." Individual items listed under this policy include rewriting the P-1 Preservation District section of the City Zoning Ordinance to advance the goal of natural resource protection, implement the Multiple Benefits Conservation Plan and implement the North Landing River Water Use Conflict Memorandum of Agreement. In addition, the Plan includes all of the SWAMP technical reports by reference.



Products:

The Preserve

The Preserve on the Elizabeth

One means of achieving the goals of SWAMP was the creation of an example of Conservation Subdivision design in the Southern Watershed Area. To that end, nationally recognized conservation planner Randall Arendt was hired as a consultant for SWAMP. His task was to review the Chesapeake and Virginia Beach comprehensive plans, zoning, and subdivision ordinances, and to create a set of recommendations on revisions designed to support conservation design. He was also asked to develop site plans for subdivisions in Chesapeake and Virginia Beach as examples of conservation design.

The site plan work in Chesapeake evolved into a project that is now under construction. The project, known as the "Preserve on the Elizabeth", features compact, clustered development and preservation measures for significant site features that include wetlands, trees, and hedgerows. This project will serve as an example for other developers in the Southern Watershed Area to follow.





In 1728, as colonial Virginian William Byrd was surveying the Virginia-North Carolina boundary, he described the beautiful, swaying marsh grasses that stretched from the Great Dismal Swamp to the Atlantic Ocean as a “green sea.” To increase the public’s awareness of the unique cultural and natural resources of the Southern Watershed Area, SWAMP began and funded the Green Sea Festival in 1997. This event was held annually through 2002, and was a celebration of the beauty and natural resources of the Southern Watershed. The festival provided opportunities for families to learn more about watershed issues and sustainable economic development.

The festival, free and open to the public, included both educational displays and entertainment. Exhibitors, such as the Back Bay National Wildlife Refuge, the Virginia Aquarium & Marine Science Center, and The Nature Conservancy, provided a variety of interesting information on the world of the Southern Watershed.

The 1997 Festival won an award from the Chesapeake Environmental Improvement Council and the Chesapeake Clipper’s annual Arts and Entertainment Culture Award.

Products: Educational Materials/Kiosks

Phase 8 of SWAMP focused on the development of educational materials, including a brochure and a sign that are posted at launch sites in the Southern Watershed. The brochure contains a water use map and text explaining the water use categories and general boater guidelines. The sign contains the map and a condensed version of the explanatory text. The brochures are available both at kiosks located at launch sites and through boater safety courses. Kiosk locations include Little Island Park, Lotus Gardens, Back Bay Refuge Headquarters, Horn Point, Mill Landing Road, and Back Bay Landing Road on Back Bay and Munden Point Park, and Great Bridge Lock Park (2 kiosks) on the North Landing River.

A written survey was developed to collect information on the type of boaters on the river, the type of watercraft that they use, and their observations about the boating experience on the North Landing River. An initial distribution of the survey generated only a limited number of responses. The survey was re-administered in the spring of 2004 prior to posting of the signs and distribution of the brochures and to assess awareness of environmental topics among users of the North Landing River. A follow-up survey was conducted in September 2005.



Conservation Corridors

Conservation corridors provide connectivity for wildlife (and people) between primary natural habitats that otherwise become isolated by land development patterns. Designating conservation corridors in advance of a fast-developing urban landscape is a proactive approach for retaining natural resources. The Virginia Department of Conservation and Recreation's Division of



Natural Heritage prepared a Conservation Plan as a component of the Southern Watershed Area Management Program. This plan includes the development of conservation corridors to help preserve the natural heritage of the area.

The corridor system is designed to link critical habitats and provide support for Natural Heritage resources in the Southern Watershed Area. A committee of experts was assembled to review and comment on the initial corridor hierarchy developed by DCR. Based on this review process, a range of five corridor options was developed and one was selected by consensus for inclusion in the MBCP MOA.

A grant from the Virginia Coastal Zone Management Program is supporting plans for extending the corridor system throughout Hampton Roads. In addition, the potential for connecting conservation corridors in southeastern Virginia and northeastern North Carolina is being discussed with officials from both states.

Chesapeake Open Space And Agriculture Preservation Program

The City of Chesapeake adopted an ordinance creating an open space and agricultural lands preservation program in February 2003. The SWAMP program played a key role in this work both through staff support to the Open Space and Agriculture Preservation Task Force and through provision of technical studies that have informed the process. During the initial phases of the project, HRPDC staff collected information on several Purchase of Development Rights programs in Virginia and Maryland. This information was used by the Task Force in creating a set of recommendations for the creation of a PDR program. The City is currently seeking funding from the Virginia Land Conservation Fund Grant Program to implement the program.

In addition, the Open Space and Agriculture Preservation Task Force utilized SWAMP studies to create a draft map of potential preservation lands. The potential preservation areas are based on lands identified as prime farmland in "Strategic Plan for Agriculture," those lands falling within the medium density conservation corridor in "Conservation Plan for the Southern Watershed Area," and those lands falling in the City's Chesapeake Bay Preservation Area Overlay District.

Back Bay Conservation Lands Acquisition

The City of Virginia Beach, working in conjunction with the Virginia Department of Game and Inland Fisheries, submitted a grant application in 2003 for funding under the North American Wetlands Conservation Act (NAWCA) for \$1,000,000 to purchase, protect and restore wetlands and wildlife habitat on the Beasley Tract in Virginia Beach adjoining Back Bay. The property consists of 254 acres with 2 miles of shoreline on Back Bay. The property was historically utilized for agriculture. However, the Conservation Plan developed through the SWAMP program identified the tract as one of the properties that should be protected as part of the Conservation Corridor System, which was also utilized as the long-range objective in the Multiple Benefits Conservation Plan MOA.

The Beasley Tract consists of lands that are prior converted wetlands. It was identified by the City's Department of Agriculture as low priority for eligibility under the Agricultural Reserve Program. The owners of the tract, the heirs of the Beasley family, desired to sell the property for conservation and preferred that it not be developed. The property is identified in the City's Comprehensive Plan for conservation use. Furthermore, the City's Outdoors Plan Update 2001 also identified this area for



open space / conservation / passive recreational use. The Natural Area Inventory of the City of Virginia Beach, funded under previous Virginia Coastal Zone Management Program grants, identified the area as a priority natural heritage area, based on the uniqueness of natural habitat, ecosystem diversity, and plant and animal diversity in the area.

The Department of Game and Inland Fisheries currently manages approximately 1,550 acres of land in three separate tracts comprising the Princess Anne Wildlife Management Area on Back Bay. This new tract will become part of this management area.

The City's contribution to the grant was in the form of an in-kind, non-cash match. Specifically, the City contributed \$4 million of the total purchase price of its \$13 million acquisition of Stumpy Lake as its commitment to wetlands conservation in the City as a partner to the grant. This was further signified through the eventual placement of a conservation easement over approximately 460 acres of wetlands on the Stumpy Lake property. The City is

the holder of the conservation easement and dictates the restrictions that apply to the easement, such as passive recreational trails, water access and public water supply.

Grant partners, in addition to the City, included the Department of Game and Inland Fisheries, Ducks Unlimited and American Forests. These three groups contributed cash and technical assistance equivalent to a match amount of approximately \$400,000. \$200,000 was contributed through Ducks Unlimited and \$100,000 each from the Department of Game and Inland Fisheries and American Forests.

By participating as a partner in the grant application, the City was able to leverage a portion of its Stumpy Lake purchase to secure protection as open space of 250 acres of prime conservation lands adjoining 2 miles of Back Bay shoreline. Protection of this area also precludes potential rural residential development of the currently farmed portions of the Beasley Tract, which would have been eligible for development under new Health Department regulations for alternative septic technologies. The project is an example of how the work products generated under the SWAMP program have been utilized to further implementation of the SWAMP findings and recommendations in the City of Virginia Beach.

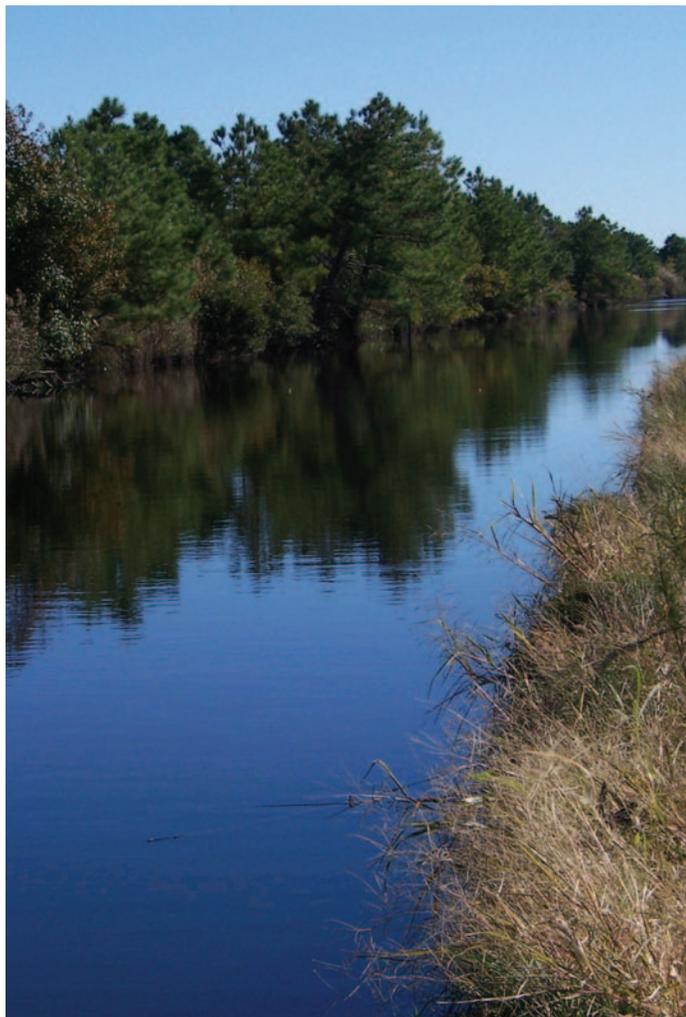


Beyond SWAMP

The work associated with SWAMP is now being used for a variety of applications of benefit to both citizens and government. In conjunction with the Joint Land Use Study (JLUS) focusing on protecting Naval Air Station Oceana, SWAMP data has been used to identify potential buffer zones that provide multiple benefits as recreational amenities. As a consequence of the Southern Watershed Area being located largely within the JLUS area, it was recommended that potential conservation opportunities be researched within the Conservation Corridor system to learn whether the goals of the JLUS could also be served.

In addition, the Conservation Corridor system is being used in the evaluation of possible wetlands mitigation sites for the Southeastern Parkway and Greenbelt (SEPG). The SEPG is a proposed limited-access highway that will connect southern Chesapeake and Virginia Beach. The Conservation Corridor system and associated information will continue to be used in the evaluation of future development plans in the Southern Watershed Area.

Finally, Hampton Roads will also continue to work with North Carolina on opportunities for application and expansion of SWAMP initiatives.



SWAMP Publications

Arendt, Randall. "Conservation Subdivision Designs for Sites in Chesapeake and Virginia Beach." 2001.

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**HAMPTON ROADS
PLANNING DISTRICT COMMISSION**

MAIN OFFICE

The Regional Building
723 Woodlake Drive
Chesapeake, VA 23320
757-420-8300
757-523-4881 FAX

www.hrpdc.org

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Agency Roundtable Participants

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Back Bay Restoration Foundation
Chesapeake Planning Department
Chesapeake Public Utilities Department
Chesapeake Public Works Department
Department of Conservation & Recreation
Department of Environmental Quality
Great Dismal Swamp National Wildlife Refuge
Hampton Roads Planning District Commission
Institute for Environmental Negotiation
Langley and McDonald
ODU Entrepreneurial Center
Sierra Club
Southeastern Association for Virginia's Environment
The Nature Conservancy
Tidewater Builders Association
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
Virginia Beach Agriculture Department
Virginia Beach Planning Department
Virginia Beach Public Works Department
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ENVIRONMENTAL PLANNING SPECIAL REPORT

The HRPDC is a voluntary association of sixteen local governments. The purpose of the HRPDC is to provide a forum for local governments to address issues of regional importance and to encourage regional cooperation and coordination.

Arthur L. Collins

Executive Director/Secretary

John M. Carlock

Deputy Executive Director, Physical Planning

Eric J. Walberg

Principal Physical & Environmental Planner

Claire Jones

Physical & Environmental Planner

Michael R. Long

Graphic Technician/Artist

Brian Miller

Graphic Technician

Hearing Impaired may contact the HRPDC through the
Virginia Relay Center: 1-800-828-1120



Virginia Coastal Zone
MANAGEMENT PROGRAM



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For more information, contact:

Eric Walberg at (757)420-8300 or ewalberg@hrpdc.org
Shep Moon at (804) 698-4527 or shep.moon@deq.virginia.gov