Task 56
FY 1993

FINAL PRODUCT HRPDC
Southern Watershed Management Plan

SOUTHERN WATERSHED SPECIAL AREA MANAGEMENT PROGRAM

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA
U.S. DEPARTMENT OF COMMERCE

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

APRIL 1995

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SOUTHERN WATERSHED SPECIAL AREA

MANAGEMENT PROGRAM

FINAL REPORT

This report was produced, in part, through financial assistance from the Virginia Department of Environmental Quality pursuant to Virginia Coastal Resources Management Program Grant No. NA37OZ0360-01 from the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, under the Coastal Zone Management Act of 1972, as amended.

Preparation of this report was included in the HRPDC Work Program for FY 1993-94, approved by the Commission at its Executive Committee Meeting of March 17, 1993, and the HRPDC Work Program for FY 1994-95, approved by the Commission at its Executive Committee Meeting of March 16, 1994.

PREPARED BY

HAMPTON ROADS PLANNING DISTRICT COMMISSION

APRIL 1995

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SOUTHERN WATERSHED SPECIAL AREA MANAGEMENT PROGRAM
FINAL REPORT

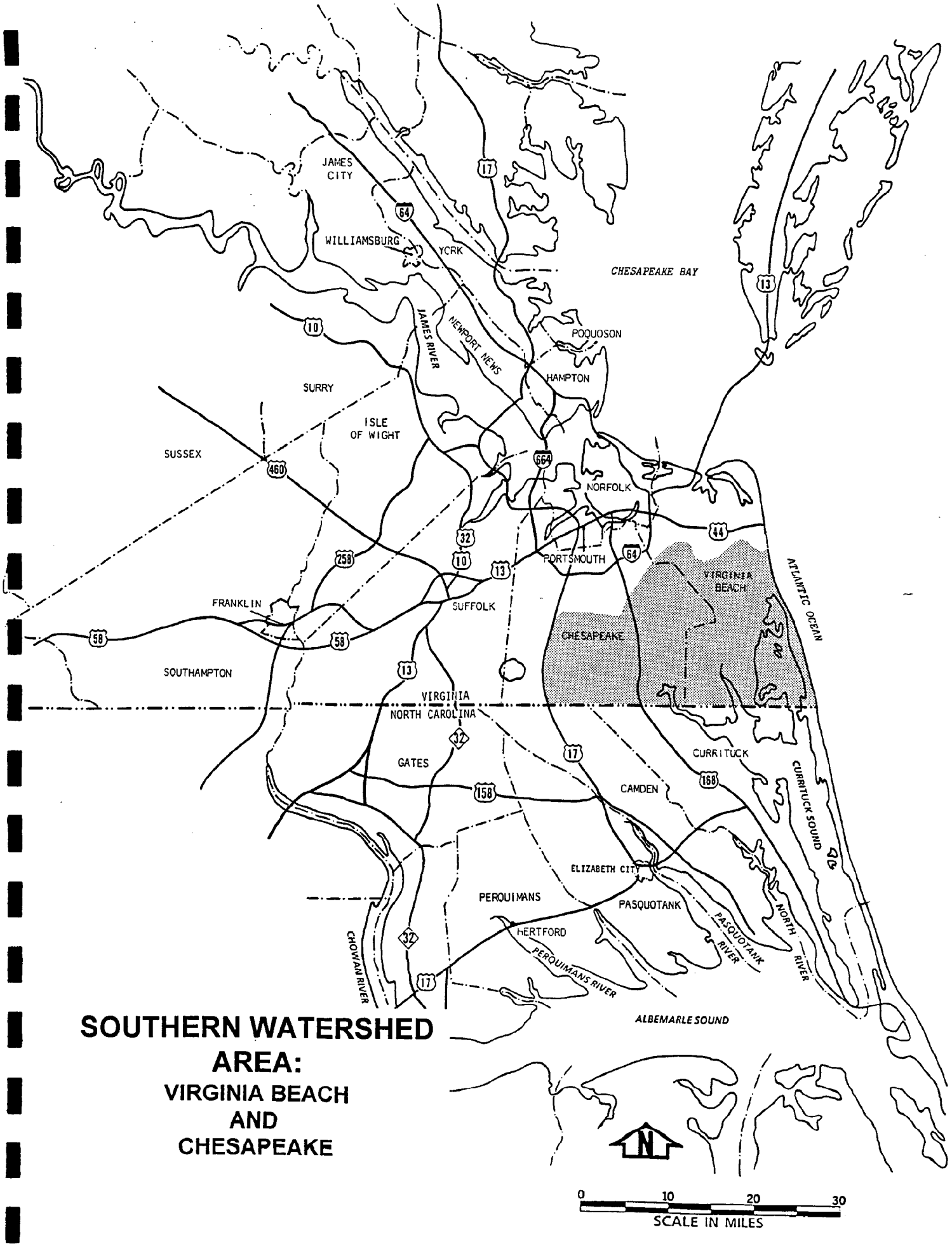
I. BACKGROUND AND JUSTIFICATION

The Southeastern Virginia Region is a physical bridge between the Chesapeake Bay and the Albemarle-Pamlico Estuarine Complex. Both estuaries are home to a large variety of unique environmental resources and both are subject to intense development pressures and, at the present time, to intense management scrutiny. However, the Southern Watershed, the bridge between the two, has received relatively little attention from outside the local area. This project to establish a "Southern Watershed Special Area Management Program" (SWAMP) offers the opportunity to focus coordinated attention on the watershed's unique resources.

The Southern Watershed, which encompasses Back Bay and the North Landing and Northwest Rivers, is a microcosm of its two larger estuarine neighbors. The Watershed covers approximately 325 square miles in two cities. Back Bay and the Northwest River are fairly shallow and influenced primarily by wind tides. Although deeper, the North Landing River is also dominated by wind tides. These subwatersheds are integrally related through common resources, hydrological connections and their common mouth - the Currituck Sound.

The Southern Watershed contains valuable wetlands, identified by the U.S. Fish and Wildlife Service (FWS) as "high priority." It has also been identified as a critical area in the North American Waterfowl Management Plan. Wildlife is abundant, although there have been significant declines in the populations of waterfowl, submerged aquatic vegetation and certain species of fish. Natural area inventories have identified extensive areas of critical habitat for rare and endangered plant and animal species. The Watershed contains some of the most diverse and extensive wetlands in Virginia. Natural area inventories, conducted by the Department of Conservation and Recreation Division of Natural Heritage (DCR-DNH), have identified exemplary wind tide marshes, forested swamps and pocosins. The area supports at least forty (40) rare species; in fact, the rare species concentrations of the Watershed are the highest of any locality east of the Blue Ridge. The North Landing River and its tributaries are designated as a Virginia Scenic River. All three water bodies and their tributaries are included in local Scenic Waterway Systems established by the Cities of Chesapeake and Virginia Beach.

The waters of the Watershed are used for water supply, recreation, navigation, habitat support, and irrigation. The Northwest River serves as the primary public water supply source for the City of Chesapeake. The North Landing River is an integral element of the Intracoastal Waterway and is heavily used by both recreational and commercial vessels. Back Bay functions primarily



SOUTHERN WATERSHED AREA:

VIRGINIA BEACH AND CHESAPEAKE

as habitat for a large number of important wildlife species. All serve as receiving waters for agricultural and urban stormwater runoff and as aesthetic resources. All components of the Watershed are classified by the state's Nonpoint Source (Section 319) Assessment as High Priority watersheds for nonpoint source pollution management.

Development pressures are increasing, especially in the northern portions of the Watershed. These pressures are placing increased stress on both the aquatic and terrestrial resources of the Watershed. In response to these pressures, the Cities of Chesapeake and Virginia Beach have adopted Comprehensive Plans to facilitate improved management of water quality, critical resources and development activities. Chesapeake has attempted to protect its water supply through controls on development in the Watershed. Both cities have identified the need for additional water quality and other resource information to support management decisions. This is especially true with respect to nutrient management and nonpoint source pollution controls. Both recognize the inextricable relationship between water quality and the resources of the Watershed.

Implicit in the recitation of resources present in the Watershed and the uses to which those resources - both land and water - are put, is the realization that the various uses may, and frequently do, conflict with each other. Recognized conflicts include land use versus water quality, land use versus water supply, recreational versus commercial versus habitat uses of the waters and lands and so forth. It is also recognized that the goals of the various resource managers may conflict with each other. In many cases, however, uses and goals are mutually supportive.

II. METHODOLOGY--THE SWAMP PROCESS

A. Background

To address these potentially conflicting uses and management initiatives as well as to identify mutually supportive goals, the need for improved coordination of planning and management efforts between the groups and agencies in the region became apparent. To achieve this end, the Hampton Roads Planning District Commission, the regional comprehensive planning organization, elected to serve as the coordinator of the Southern Watershed Area Management Program (SWAMP) and facilitator of the conflict resolution process to be developed through SWAMP.

Initially, active participants in the program were to include all of the primary governmental agencies that own and manage the resources in the Watershed including private sector participants such as land conservation and

public interest organizations, the agriculture and development communities and local civic organizations. Due to the potential impacts of this project on other activities underway in the region and the perception by staff of the two local governments that a strong commitment by the local governments was essential prior to the initiation of a broad consensus building effort, it was decided that the primary participants would be an advisory committee made up of staff from the local governments and one participant from the Virginia Dare Soil and Water Conservation District. For a list of project participants, see Appendix A. Representatives of the other agencies and groups would be brought in for participation later in the process after consensus had been reached by the local government advisory committee on goals and objectives for the Watershed.

The project by HRPDC to facilitate the institutional coordination to ensure that a comprehensive approach is developed for future management of the Southern Watersheds of Chesapeake and Virginia Beach was funded in part by the Virginia Coastal Resources Management Program. The Local Government Advisory Committee for SWAMP which consists of local government technical resource and management staff from the cities of Virginia Beach and Chesapeake and a representative from the Virginia Dare Soil and Water Conservation District began meeting in February, 1994.

B. Objectives

The objectives established for the Southern Watershed Area Management Program (SWAMP) included the following:

1. To ensure that resource management initiatives affecting the Southern Watershed of Chesapeake and Virginia Beach are coordinated and integrated.

2. To develop a consensus on Goals for Environmental Management in the Southern Watershed of Chesapeake and Virginia Beach.

3. To develop a consensus on critical Watershed problems and concerns in order to establish priorities for future technical studies.

4. To maintain momentum toward a coordinated management approach that was developed during development of a 1992 Proposal for a Southern Watershed Special Area Management Plan under Section 309 of the Coastal Zone Management Act and during development of the HRPDC study, Environmental Management Program for the Hampton Roads Virginia Portion of the A/P Watershed.

5. To develop, if appropriate, a Proposal for development of a Southern Watershed Special Area Management Plan, in accordance with the requirements of the Section 309 Coastal Zone Enhancements Program.

The Local Government Advisory Committee met over a period of approximately one year, more frequently and intensively between November, 1994 and March, 1995 (See Appendix B for Summaries of the meetings). HRPDC staff facilitated each meeting and the Committee developed an environmental management program for the Southern Watershed Area through a consensus-building process.

C. Issue Identification

The first step in the process of issue identification was the development and dissemination of a written survey to all members of the Local Government Advisory Committee. The survey was designed to obtain local government staff views on current projects in the Southern Watershed, data gaps and other impediments to developing a management plan, and critical watershed problems or concerns. See Appendix C for contents of survey.

Based on the survey responses, the Committee decided to develop priorities for responses to three main issues: critical watershed problems, impediments to a management plan, and research and data needs. A compilation of the responses to these questions can be found in Appendix D. To assist in developing watershed priorities, the Committee identified the multiple uses of the waterbodies and subwatersheds for the North Landing, Northwest and Back Bay. See Appendix E for a listing of these uses. To develop a better understanding of existing and proposed land uses for the Watershed, the land use maps of each city were merged (See Appendix F). By merging the land use maps of each locality, the Committee members were able to work on a plan using a vision of shared resources reflected in the new map.

III. SUMMARY OF MAJOR ISSUES

A. Mission

The first priority for the Committee was to develop a mission statement for the Southern Watershed Area Management Program. The following mission statement was developed through consensus of the Committee members:

Natural resources, sensitive lands, and water supplies of the Southern Watersheds of Virginia Beach and Chesapeake should be protected and enhanced.

The following Watershed priorities were identified by the Local Government Advisory Committee:

1. Develop common goals and a shared vision for the Southern Watershed Area.

2. Provide for multiple uses of waterways and watersheds.

3. Manage nonpoint sources of pollution.

4. Number of agencies and interests in Southern Watersheds illustrates the need for an on-going forum or clearinghouse for information.

5. Manage competing uses in watershed.

6. Identify and reduce data gaps to help further the mission statement.

B. Water Quality

Throughout the process, the Local Government Advisory Committee established water quality as the primary focus of research for the project. The Committee collected data and materials on existing water quality conditions and has attempted to gain an accurate characterization of current conditions in the Northwest River, Back Bay and the North Landing River. Water quality issues which dominated the discussions of the Committee included: 1) Existing water quality conditions of Back Bay, the Northwest and North Landing Rivers; 2) Priorities and limitations of current water quality monitoring programs; and 3) Effects of nonpoint source pollution on water quality of the Southern Watershed. The Committee identified the following two major problems with water quality data and research:

1. Lack of clearly defined water quality data to disseminate to planners, decision makers and the public; and

2. Lack of a vehicle through which to communicate this data.

To address these problems, the Committee conducted a preliminary analysis of current water quality monitoring programs for the following: 1) number of stations on waterbodies in Southern Watershed; 2) frequency and parameters of sampling; 3) monitoring protocols and 4) agencies responsible for collecting data. For a representative discussion of current and past monitoring programs in the Southern Watershed, particularly the ambient water quality monitoring program of the Department of Environmental Quality and studies specifically in Back Bay, see Appendix J.

Water quality research conducted by the Committee reveals that the most obvious water quality problems in the waterbodies of the Southern Watershed are due to nonpoint source pollution and natural conditions. For more detailed information on current water quality conditions in the Southern Watershed based on research of the Committee, see Appendix H and for a general informational guide on water quality in the Southern Watershed, see Appendix K.

The Committee has identified particular tasks to be accomplished for improving water quality monitoring in the Southern Watershed. See Appendix J for this information. To address the issue of communicating information to planners, decision makers and the public, the Committee has begun to develop an education program. Through this education program, brochures, fact sheets, workshops, etc. will provide the forum for transferring information to the public.

C. Goals and Objectives

After a thorough analysis and compilation of the goals and objectives for the Southern Watershed in the Comprehensive Plans of each of the localities, the Committee worked to develop common goals for the Southern Watershed Area. The following goals and objectives for the Watershed reflect the consensus of the Committee members:

Southern Watershed Area Management Program

Mission Statement:

Natural Resources, sensitive lands, and water supplies of the Southern Watersheds of Virginia Beach and Chesapeake should be protected and enhanced.

Goals and Objectives:

Goal A. Water Quality Should Be Protected and Enhanced for Water Supplies and Natural Resources Conservation.

Objectives:

1. Protection of water quality for water supply of the Northwest River Treatment Plant.

2. Achieve improved water quality, stormwater management control and flood control through application of local, state and federal programs and initiatives.

3. Study the potential for educational programs for water quality monitoring.

4. Educate citizens, the development community and public officials on the importance of water quality issues including water supply and stormwater.

Goal B. Preserve Open Lands to Help Protect and Enhance Water Quality.

Objectives:

1. Preserve critical edge habitat areas, marshes and swamps by application of preservation zoning, conservation easements and any other appropriate development incentives.

2. Educate citizens, the development community and public officials on the importance of open space, agricultural and forested lands and other natural resources.

Goal C. Ensure Compatibility of Recreational Activities and Commerce with Natural Resource Protection.

Objectives:

1. Acquire and develop adequate public and private park land and open space that compliments the existing park system.

2. Encourage appropriate management techniques (such as conservation and water wise landscaping, etc.) for public and private recreational facilities for water quality and habitat protection.

3. Coordinate activities and management of intracoastal waterways with natural resource and water quality protection.

4. Coordinate local activities with state and federal programs such as the North Landing Public Access Program and the North Landing River Conservation Program, etc.

Note: For the following goals and objectives, "Southern Watersheds" will be defined as the Southern Rural Area for Virginia Beach and the Rural Overlay District for Chesapeake. It does not include the entire Southern Watershed Area.

Goal D. The Character of the Southern Watershed Should Remain Rural While Providing for Rural Residential Development.

Objectives:

1. Infrastructure improvements within the Southern Watershed should represent those necessary to support a rural area, should be consistent with local planning policies, and should minimize the increase in impervious surface that prevents groundwater recharge and increases salt water intrusion.

2. Institute good land use management practices and monitoring of land use activities.

3. Demand created by development should not exceed supply provided by rural infrastructure; development should be consistent with local planning policies.

Goal E. Agricultural and Forestal Activities in the Southern Watershed Should Be Sustained and Encouraged.

Objectives:

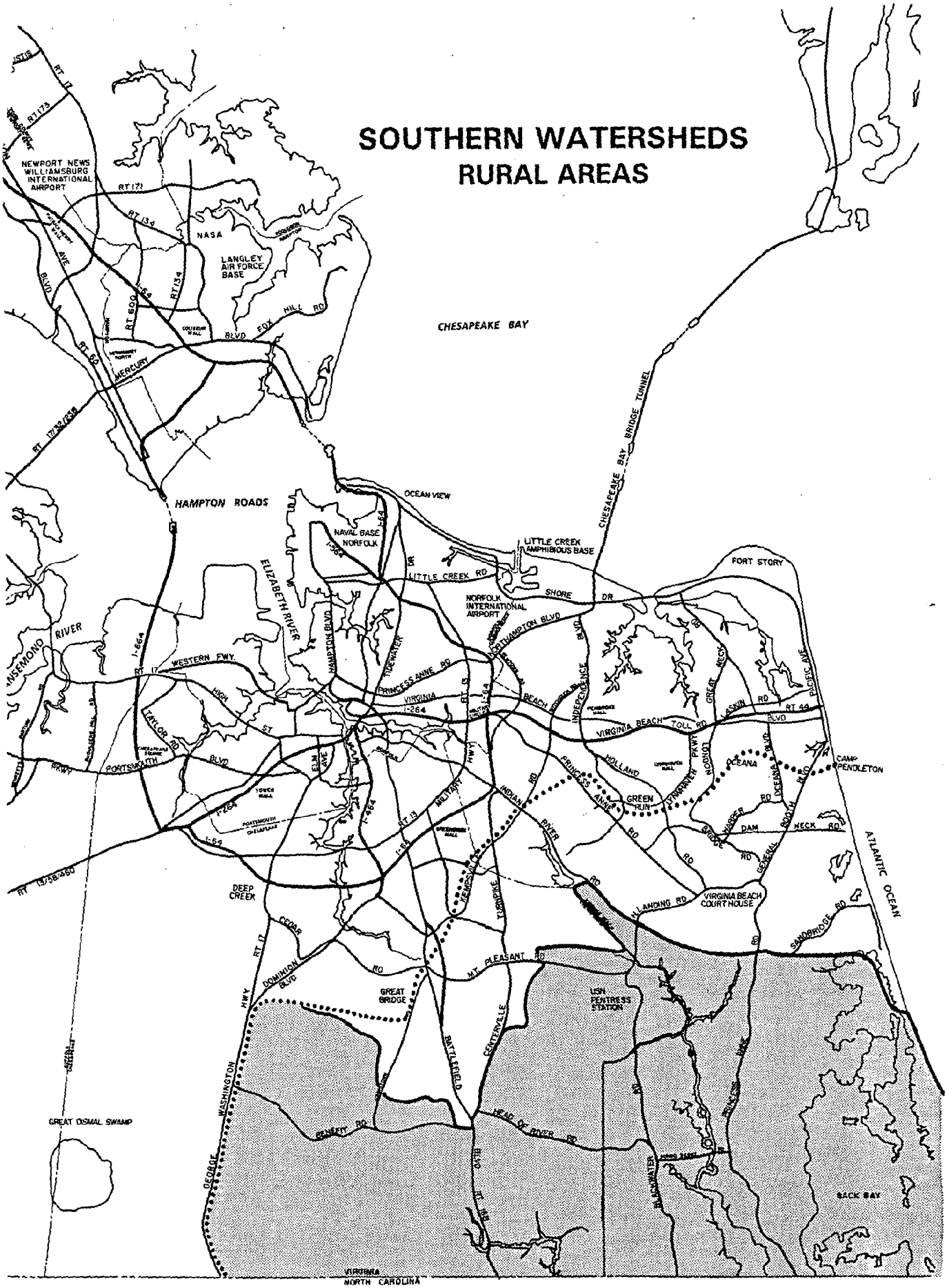
1. Promote and encourage the preservation of agricultural and forestal lands.

2. Promote agricultural activities and direct services to agriculture support services and infrastructure.

3. Support programs that provide practical research-based information and training regarding environmentally sound and cost-effective horticultural, agricultural and forestal practices.

D. Implementation Process

Based on the consensus agreement on critical Watershed problems and Goals and Objectives for management of the Watershed, the Committee members recommended that a coordinated management framework for implementing the goals and objectives be developed. This led to the development of a Draft Memorandum of Agreement (MOA) between the two local governments. The MOA (See Appendix I) specifies the responsibilities of the local governments and outlines the administrative framework for continuing this cooperative regional planning effort. The MOA is currently under administrative staff review by the two local governments. The MOA is expected to receive formal consideration in the local government approval process by May 1995.


SOUTHERN WATERSHEDS
RURAL AREAS
NEWPORT NEWS WILLIAMSBURG INTERNATIONAL AIRPORT
NASA
LANGLEY AIR FORCE BASE
CHESAPEAKE BAY
CHESAPEAKE BAY BRIDGE TUNNEL
HAMPTON ROADS
OCEAN VIEW
NAVAL BASE NORFOLK
LITTLE CREEK AMPHIBIOUS BASE
FORT STORY
NORFOLK INTERNATIONAL AIRPORT
ELIZABETH RIVER
NANSEMOND RIVER
VIRGINIA BEACH
CAMP PENDLETON
ATLANTIC OCEAN
GREEN RUN
VIRGINIA BEACH COURT HOUSE
DEEP CREEK
GREAT BRIDGE
LSN PENTRESS STATION
GREAT DISMAL SWAMP
BACK BAY
VIRGINIA
NORTH CAROLINA

IV. RESEARCH AND DATA NEEDS

The Local Government Advisory Committee identified and prioritized technical information needs to support an improved environmental management program for the Southern Watershed Area. Based on the preliminary identification of resource management issues in the survey responses as well as Watershed priorities developed through meeting discussions, the need for and focus of additional technical studies became apparent. The following research or data needs were identified by the Committee:

1. Explore opportunities for additional water quality monitoring.

2. Encourage compatibility of data.

3. Review of existing data sets to identify data gaps and inconsistencies.

4. Explore opportunity for a Natural Inventory, Soils Survey and update to floodplain maps for the City of Chesapeake.

Preliminary scopes of work have been prepared to correspond to identified technical needs to support a management program and priorities identified for the Watershed. The preliminary scopes of work developed to address technical needs identified by the Committee are as follows:

See Appendix J for detailed Scopes of Work.

1. Water Quality Issues: The Committee identified the need for more research and analysis of current water quality monitoring programs as well as the need to develop a program to address any gaps in those programs. Tasks include:

   - Establish a Water Quality Task Force.

   - Prepare synthesis of existing water quality information.

   - Design sampling program to address identified inadequacies in current programs.

   - Develop sampling protocol for stormwater monitoring.

   - Coordinate stormwater monitoring program with NPDES program in two cities and FWS in Back Bay.

   - Make recommendations for water-body specific water quality standards if appropriate.

- Develop Water Quality Models for three primary waterbodies in Southern Watershed.

- Provide reports on data synthesis and evaluation, etc.

2. Coordination/Interaction between State and Federal Agencies and Local Governments: Based on the identified need for more and better communication between agencies with activities in the Southern Watershed Area, the following tasks were developed:

   - Hold annual meetings between all state, federal and local agencies with projects or interests in Southern Watershed Area.

   - Design and disseminate survey to collect information on each agency's projects, available data and other resources.

   - HRPDC will serve as a clearinghouse for information on projects and data for Southern Watershed Area.

   - Produce and distribute fact sheets and information brochures on water quality and other natural resource information pertaining to the Southern Watershed.

3. Educational Program for Local Water Quality Monitoring:

   The Committee identified the need for enhanced water quality monitoring of the waterbodies of the Southern Watershed through an educational program for school children. The following tasks have been specified:

   - Design an administrative framework for an educational monitoring program.

   - Implement a pilot project in one school for each locality.

   - Expand educational programs to other schools as well as workshops, brochures and pamphlets to enhance the program.

   - Coordinate educational program with existing programs such as "Clean the Bay Days" and "National Coastal Cleanup" activities.

4. Technical Studies for the City of Chesapeake: The following technical studies were identified by the Committee:

   - Natural Area Inventory for the City of Chesapeake.

   - Update to the City of Chesapeake's soil survey and floodplain maps.

V. EDUCATION

An integral part of the SWAMP Project is the education of public officials and citizens on the issues, priorities, and importance of natural resources in the Southern Watershed Region. As a part of the education component, a fact sheet and brochure have been developed to provide information to the public on both the SWAMP process and project and on water quality conditions in the Southern Watersheds of Virginia Beach and Chesapeake. The first fact sheet and brochure developed are included in Appendix K.

Other educational projects to be undertaken in the future by the Committee if funding is available include the development of an educational water monitoring program through the school system; future workshops and literature on issues in the Southern Watershed; and reports to document the water quality data synthesis and evaluation. The efforts of the Committee to expand the educational program for SWAMP is critical to ensure that local officials and citizens recognize the need for management programs to protect both the natural resources of the Watershed and the public water supply of the Northwest River.

VI. CONCLUSION

The initial objectives for the Southern Watershed Area Management Program have been met by the Local Government Advisory Committee's efforts over the past year and half. A coordinated environmental management program for the Southern Watershed has been established. Goals and Objectives for managing the area have been developed through consensus of the Committee representing the two local governments. Priorities, issues and needs for future technical studies have been identified and an instrument for implementing this cooperative regional planning effort has been designed. Through the Draft Memorandum of Agreement between the two local governments, a momentum toward a coordinated and consistent management approach has been initiated.

The future of SWAMP lies in the continuation and expansion of the cooperation and initiative exhibited by the Local Government Advisory Committee for SWAMP. Early on in the process, the representatives of the two local governments on the Committee came to recognize the common interests and shared goals of the two cities for the Southern Watershed Area. After final development of consensus among the Local Government Committee members, the project was expanded to include state and federal agencies with interests or projects in the Southern Watersheds of Virginia Beach and Chesapeake.

The final meeting on March 23, 1995, was the beginning of a broader, cooperative initiative among local policy makers, and state and federal agency technical resource personnel. As testimony to the success of the initial SWAMP

project and to the need for a more coordinated and integrated mechanism between the organizations present, it was decided that annual meetings would be held for information exchange. Another conclusion of the meeting was the decision to begin a program to collect and exchange information on activities, programs or data resources in the Southern Watershed. HRPDC agreed to serve as a clearinghouse for this information and provide it to all participants.

It appears that the cooperative planning and environmental management process begun through the SWAMP project will continue and is likely to result in significant future success. The SWAMP project has created an environment of open communication and support between the staffs of the two local governments. It has increased not only communication between the two local governments but among departments within each local government and more broadly with state and federal agencies. This project can serve as a model for other cooperative regional planning efforts in the nation.

APPENDIX A

LOCAL GOVERNMENT ADVISORY COMMITTEE (LGAC)--SWAMP

LOCAL GOVERNMENT ADVISORY COMMITTEE
SOUTHERN WATERSHED SPECIAL AREA MANAGEMENT PROGRAM

Mr. Brent Nielson, Chesapeake Planning Dept.

Mr. Robert J. Scott, Virginia Beach Planning Dept.

Mr. John O'Connor, Chesapeake Public Works/Engineering Dept.

Mr. Ralph Smith, Virginia Beach Public Works Dept.

Mr. D. Ray Stout, Chesapeake Public Works/Engineering Dept.

Mr. John Herzke, Virginia Beach Public Works Dept.

Mr. Amar Dwarkanath, Chesapeake Public Utilities Dept.

Mr. Clarence O. Warnstaff, Virginia Beach Public Utilities Dept.

Mr. Louis E. Cullipher, Virginia Beach Dept. of Agriculture.

Mr. Clay Bernick, Virginia Beach Environmental Mangagement Center, Dept. of Planning.

Ms. Jaleh Pett, Chesapeake Planning Dept.

Ms. Barbara Howe, Virginia Beach Planning Dept.

Mr. Mark Johnson, Virginia Beach Public Works Dept.

Mr. Frank Sanders, Chesapeake Public Utilities Dept.

Mr. Bob Pilch, Chesapeake Dept. of Agriculture.

Mr. Bartley Tuthill, Virginia Beach Dept. of Agriculture

Mr. Tom Pauls, Virginia Beach Planning Dept.

Ms. Julie Bright, Department of Conservation and Recreation, Virginia Dare Soil and Conservation District

APPENDIX B

LGAC MEETING SUMMARIES--SWAMP

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

MEMORANDUM #94-57 **March 15, 1994**

TO: Persons Noted Below

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Meeting Notes - SWAMP Meeting - February 24, 1994

The Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" Project (SWAMP) met on February 24, 1994. This memorandum summarizes the discussion and the project direction agreed to at the meeting. It follows the Meeting Agenda.

For your information, HRPDC has discussed the project in detail with DEQ staff. As indicated at the meeting, a time extension to December 31, 1994 will be requested for this project. Also, based on discussions with DEQ, it will be necessary to amend the Scope of Work, including obtaining NOAA approval, for the change of project direction indicated below. HRPDC staff is proceeding to develop the necessary documentation.

PROJECT BACKGROUND AND OVERVIEW

HRPDC staff provided an overview and background to the project. It was indicated that the SWAMP Project is receiving grant support through the Virginia Coastal Resources Management Program. (The Scope of Work for the project was included with the Agenda for the meeting.) The study area for the project is the Southern Watersheds of Chesapeake and Virginia Beach to include Back Bay and the North Landing and Northwest Rivers. The purpose of the project is to facilitate a consensus among government and private entities on management goals, program needs and technical research needs for these watersheds. It was designed to build upon the work conducted by the HRPDC during the last several years with financial assistance from the Albemarle-Pamlico Estuarine Study. Also, it was to provide a transition between that work and a potential Section 309 Coastal Zone Enhancements Project, which had been proposed, but not funded, in 1992.

LINKAGES TO OTHER PROJECTS AND PROGRAMS

Other projects and activities affecting this Watershed, which are presently underway, were discussed. They include:

- EPA Habitat Demonstration Project which includes a Department of Conservation and Recreation Division of Natural Heritage demonstration project on Phragmites control and the Virginia Beach Workshop in November 1993. Participants include EPA, the two Cities, DEQ (VCRMP), DCR - DNH, Fish and Wildlife Service, SAVE, and HRPDC. This is a loose coalition and has no basic funding. It meets sporadically on the second Thursday of each month.

- Back Bay/North Landing/Northwest Focal Area Committee, which operates under the auspices of the Department of Game and Inland Fisheries and the Joint Venture Board. It includes representatives of DCR-DNH, SAVE, the Cities, Sierra Club, DGIF, FWS, State Parks, The Nature Conservancy, and HRPDC. It is coordinated through the Back Bay Restoration Foundation. Its focus is to increase wetlands preservation in the Watershed in a manner consistent with the North American Waterfowl Management Plan.

- North Landing River Public Access and Visual Resource Assessment Project. This is a VCRMP funded effort by DCR Divisions of Planning and Recreation Resources and Natural Heritage. It will produce a public access plan, which is to be completed in Spring 1994.

- Virginia Beach Southern Area Plan. This city project is presently being considered by the Planning Commission after referral from City Council.

- Virginia Beach "Work Group". This resulted from the November Workshop and includes elected and appointed City officials and private sector representatives - environmental and agriculture. Working quietly. it is attempting to develop a "Vision for the Watershed." It is looking at agricultural land banking and attempting to find funds to support that.

- SAVE has obtained funding from the World Wildlife Fund for educational activities concerning Purchase of Development Rights.

- USGS studies for both DCR-DNH and HRPDC. These studies are looking at the shallow ground water/surface water interface and the impact of borrow pits, respectively.

- DCR-DNH is seeking funds from EPA for an expanded Natural Heritage Inventory in Chesapeake.

- Other activities include future implementation activities associated with APES, Southeastern Expressway and land acquisition by The Nature Conservancy and others.

As indicated in the overview, one of the purposes of this project was to attempt to coordinate the various ongoing projects to ensure that they were not duplicative and that they were supportive of each other.

LOCAL GOVERNMENT INPUT ON PROCESS AND PARTICIPANTS

The Committee discussed options for this project, with respect to the appropriate role of the project focusing on local government needs. Specifically, what could this project accomplish that would facilitate enhanced local government efforts in the Watershed?

A variety of issues, being faced by the two localities, were discussed. They include:

- Septic tank regulation in the Watershed, especially in the watershed of the Chesapeake Water Supply on the Northwest River.

- Stormwater Criteria being developed by the state and federal agencies. How can/should they be incorporated into watershed management plans and ordinances? This was noted as critical because the criteria were not yet available.

- The most critical element of the Watershed, as least insofar as Chesapeake is concerned, is protection of the City's water supply.

- The policy commitment to watershed management was questioned in light of competing demands for activities in the Watershed.

- Downstream relations were a particularly thorny issue in light of the Lake Gaston situation.

- Management efforts could be sold on the basis of cost savings to the City(ies). Prior to that, however, it is necessary to define a current or future problem. Absent that, the need for new or enhanced management efforts is not apparent.

- If the HRPDC project were to institute an expanded consensus building effort at this juncture, it could conflict with and potentially have an adverse impact on other ongoing local government activities.

After further discussion, the following project activities were identified as of the highest priority. They need to be completed prior to further consensus building or educational efforts.

1. Define the problems in the watershed in specific terms. This problem definition should address both current and projected problems or potential problems.

   a. Using available data, HRPDC will examine current water quality conditions in the Watershed. This synthesis will address surface and ground water quantity and quality. (If available, the USGS activities in the watershed for both HRPDC and DCR-DNH will be used.)

   b. The localities will develop and provide development scenario information to HRPDC. This will encompass a range of alternatives including likely development, build-out and no additional development.

   c, HRPDC will analyze the impact of these alternatives from both environmental and socioeconomic perspectives.

2. HRPDC, in cooperation with local staff, will define, based on current local plans, ordinances, and management programs the current watershed goals and conflicts therein. This will be an expanded and in depth update of the analysis conducted earlier by HRPDC for the APES Program.

3. HRPDC, in cooperation with local staff, will evaluate, based on current local plans, ordinances, and management programs, the sufficiency of existing management programs to address problems identified in #1 above.

4. HRPDC, in cooperation with local staff, will determine education and information needs for local government policy officials to address management issues identified in the previous items. Appropriate materials will then be developed.

OTHER MATTERS OF CONCERN

The Committee agreed to meet on an as needed basis at this point, pending institution/completion of some of the work activities outlined above.

The Committee endorsed HRPDC submitting a continuation grant proposal to DEQ(VCRMP) so that this effort may continue through 1995. That proposal has been submitted, based on assumptions about the time extension and scope amendment, noted above.

It was agreed that Mr. Bob Pilch, Chesapeake Agriculture, and Ms. Julie Bright, Virginia Dare SWCD, would be added to the Committee.

JMC:fh

ADDRESSEES
Mr. Brent Neilson (CH)
Mr. Robert Scott (VB)
Mr. John O'Conner (CH)
Mr. Ralph Smith (VB)
Mr. Ray Stout (CH)*
Mr. John Herzke (VB)
Mr. Amar Dwarkanath (CH)*
Mr. Clarence Warnstaff (VB)
Mr. Louis Cullipher (VB)
Ms. Jaleh Pett (CH)*
Mr. Clay Bernick (VB)*
Ms. Barbara Howe (VB)*
Mr. Mark Johnson (VB)*
Mr. Frank Sanders (CH)*

*Attendees at 2/24/94 Meeting. Also in attendance, John Carlock and Todd Grissom, HRPDC

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

October 21, 1994

MEMORANDUM 94-239

TO: Southern Watershed Special Area Management Plan - SWAMP Committee

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: SWAMP Survey and Upcoming Meeting--November 8, 1994, at 1:30 p.m.

This is to call a meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" Project (SWAMP) on November 8, 1994, in the Hampton Roads Planning District Commission Board Room at the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia. Since the previous meeting on February 24, 1994, approval for a time extension and change in Scope of Work which was discussed at the meeting have been obtained. HRPDC staff has been collecting and analyzing existing water quality data for the area and will provide this at the meeting.

We are enclosing a survey which should be filled out and returned by November 2, 1994, to Martha Little or me. Your responses, as well as your review of the enclosed goals/objectives of the APES project as documented in the CCMP, will provide the starting point for our discussion. If you have any questions or concerns, please give us a call at 420-8300.

ML:kl

Enclosure

ADDRESSEES

Mr. Amar Dwarkanath (CH)
Mr. Brent Neilson (CH)
Mr. John O'Conner (CH)
Ms. Jaleh Pett (CH)
Mr. Bob Pilch (CH)
Mr. Frank Sanders (CH)
Mr. Ray Stout (CH)
Mr. Clay Bernick (VB)
Mr. Louis Cullipher (VB)
Mr. John Herzke (VB)
Ms. Barbara Howe (VB)
Mr. Mark Johnson (VB)
Mr. Robert Scott (VB)
Mr. Ralph Smith (VB)
Mr. Clarence Warnstaff (VB)
Ms. Julie Bright (Virginia Dare SWCD)

SWAMP
LOCAL GOVERNMENT SURVEY

The HRPDC local government advisory committee for the SWAMP project met in late February to discuss the "Southern Watershed Area Management Plan" and the needs of local governments related to this project. Since the previous meeting, the HRPDC has been collecting and analyzing existing water quality data available for the waterbodies within the Southern Watersheds of Chesapeake and Virginia Beach. A summary will be available at the next scheduled meeting to be held at 1:30 p.m. on November 8, 1994, at the Hampton Roads Planning District Commission Board Room.

Objectives for the project agreed to at the previous meeting include:

- To ensure that resource management initiatives affecting the Southern Watershed of Chesapeake and Virginia Beach are coordinated and integrated.

- To develop a local government consensus on Goals for Environmental Management in the Southern Watershed of Chesapeake and Virginia Beach.

- To develop a local government consensus on critical Watershed problems and concerns in order to establish priorities for future technical studies.

- To maintain momentum toward a coordinated management approach that was developed during development of the 1992 Proposal for a Southern Watershed Special Area Management Plan under Section 309 and during development of the HRPDC study, Environmental Management Program for the Hampton Roads Virginia Portion of the A/P Watershed.

- To develop, if appropriate, a Proposal for development of a Southern Watershed Special Area Management Plan, in accordance with the requirements of the Section 309 Coastal Zone Enhancements Program.

The following goals and objectives represent consensus opinions of the APES program, as documented in the Comprehensive Conservation Management Plan (CCMP). The CCMP, which is the culmination of six years of collaboration between representatives of nearly every group with an interest in the Albemarle-Pamlico region, is in the final stages of adoption. Please review these goals and management actions, keeping in mind that the intent of the SWAMP project is to reach a consensus on goals, objectives, and management plans for the Southern Watershed Areas within Virginia Beach and Chesapeake. They may serve as an appropriate starting point for our discussions.

After reviewing the APES program goals, please take the time to respond to the questions in the survey so that we may use the survey responses as the basis for our next discussion. Please return the survey to John Carlock or Martha Little of the Hampton Roads Planning District Commission by November 2, 1994.

ALBEMARLE-PAMLICO ESTUARINE STUDY
GOALS

1. **Restore, maintain or enhance water quality in the Albemarle-Pamlico region so that it is fit for fish, wildlife and recreation.**

   A. Implement a comprehensive basinwide approach to water quality management.

   B. Reduce sediments, nutrients, and toxicants from nonpoint sources.

   C. Reduce pollution from point sources, such as wastewater treatment facilities and industry.

   D. Reduce the risk of toxic contamination to aquatic life and human health.

   E. Evaluate indicators of environmental stress in the estuary and develop new techniques to better assess water quality degradation.

2. **Conserve and protect vital fish and wildlife habitats and maintain the natural heritage of the Albemarle-Pamlico region.**

   A. Promote regional planning to protect and restore vital habitats in the APES region.

   B. Promote the responsible stewardship, protection, and conservation of valuable natural areas in the APES region.

   C. Maintain, restore and enhance vital habitat functions to ensure the survival of wildlife and fisheries.

3. **Restore or maintain fisheries and provide for their long-term, sustainable use, both commercial and recreational.**

   A. Control over-fishing by developing and implementing fishery management plans for all important estuarine species.

   B. Promote the use of best fishing practices that reduce bycatch and impacts on fisheries habitats.

4. **Promote responsible stewardship of the natural resources of the Albemarle-Pamlico region.**

A. Promote local and regional planning that protects the environment and allows for economic growth.

B. Increase public understanding of environmental issues and citizen involvement in environmental policy making.

C. Ensure that students, particularly in grades K-5, are exposed to science and environmental education.

5. **Implement the Comprehensive Conservation and Management Plan in a way that protects environmental quality while using the most cost-effective and equitable strategies.**

A. Coordinate public agencies involved in resource management and environmental protection to implement the recommendations of the CCMP.

B. Assess the progress and success of implementing CCMP recommendations and the status of environmental quality in the Albemarle-Pamlico region.

SWAMP
LOCAL GOVERNMENT SURVEY

From the perspective of your agency or institution, please answer the following questions. Please give thorough answers, using extra pages if necessary.

1. What regulatory and/or research programs are you currently involved with in the Southern Watershed Area?

2. What are the greatest impediments to developing a management plan for the Southern Watershed Area? What is needed to overcome these impediments?

3. Describe additional data and research activities you think are necessary for the development of comprehensive and/or issue specific management programs. Why?

4. What gaps presently exist in the management and regulation of this area within your jurisdiction?

5. How should this consensus-building effort differ from other, past or present efforts?

6. Describe what you see as critical watershed problems and concerns?

7. What land use changes have occurred in the last five years which may have an impact on the SWA?

Return to:

Martha Little
Hampton Roads Planning District Commission
723 Woodlake Drive
Chesapeake, Virginia 23320

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

November 25, 1994

MEMORANDUM #94-275

TO: Southern Watershed Special Area Management Plan - SWAMP Committee

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Meeting--SWAMP--December 2, 1994

This is to call a meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" Project (SWAMP) on **December 2, 1994, at 9:30 a.m. in the Hampton Roads Planning District Commission Board Room at the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia.** This is an important meeting, so please make every effort to attend.

At the previous meeting on November 8, 1994, information on existing water quality data and its significance for SWAMP was discussed. Based on this discussion, a packet of information for your review is enclosed. Included in this packet is the following: an assessment of existing surface and non-point source water quality data sources, including an explanation of the high NPS agricultural priority status of SWAMP waterbodies; a copy of the map from the Virginia Water Quality Assessment for 1994 305 (b) Report showing monitoring stations for the Chowan River and Dismal Swamp Basin; a copy of the Summary and Recommendations from Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends; an excerpt from the preliminary report of the technical task force on BMP siting, Watershed Management Planning and Stormwater Water Quality Technical Criteria of the SJR 44 Subcommittee. This excerpt, which pertains to incorporating biological considerations into water quality and impact criteria, may be an appropriate element for discussion at the SWAMP committee meeting.

At the meeting on December 2, HRPDC staff will also provide a summary of survey responses that have been received to date and a synthesis of Southern Watershed Goals found in the two locality's Comprehensive Plans and other plans and ordinances that have been forwarded to HRPDC. Please be ready to begin prioritizing goals and objectives at the meeting. If you have any questions or concerns, please do not hesitate to call Martha Little or me.

ML/kl

Enclosures

ADDRESSES

Mr. Amar Dwarkanath (CH)
Mr. Brent Neilson (CH)
Mr. John O'Conner (CH)
Ms. Jaleh Pett (CH)
Mr. Bob Pilch (CH)
Mr. Frank Sanders (CH)
Mr. Ray Stout (CH)
Mr. Clay Bernick (VB)
Mr. Louis Cullipher (VB)
Mr. John Herzke (VB)
Ms. Barbara Howe (VB)
Mr. Mark Johnson (VB)
Mr. Robert Scott (VB)
Mr. Ralph Smith (VB)
Mr. Clarence Warnstaff (VB)
Ms. Julie Bright (Virginia Dare SWCD)

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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

MEMORANDUM #94-284 **December 7, 1994**

TO: Southern Watershed Special Area Management Plan--SWAMP Committee

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Meeting Notes-SWAMP Meeting-December 2, 1994

The Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" Project (SWAMP) met on December 2, 1994. This memorandum summarizes the discussion and the project direction agreed to at the meeting.

Attendance at the meeting included Martha Little and Jeryl Rose from the HRPDC staff, Clay Bernick, Barbara Howe and Louis Cullipher from the City of Virginia Beach, and Jaleh Pett and Frank Sanders from the City of Chesapeake. Staff would like Committee members, especially those who have been unable to attend the meetings to please review and comment on enclosed information.

WATER QUALITY

HRPDC staff began the meeting with an overview of the water quality reports and data which had been mailed to the Committee and solicited any comments from the group on this topic. The Committee discussed the priorities and limitations of existing water quality data and agreed that more information was needed to understand the present state of water quality in the waterbodies of the Southern Watersheds. It was suggested that correspondence with the parties responsible for developing water quality data in the Virginia Water Quality Assessment for 1992 and 1994 305 (b) Report to EPA and Congress, the Virginia Nonpoint Source Pollution Watershed Assessment Report and Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends be developed. The Committee suggested that a letter requesting clarification of the data development in these reports might be helpful. HRPDC staff is exploring the option of a meeting with the staff of DEQ, DCR and U.S. Fish and Wildlife Service staff involved in the preparation of these reports in order to exchange more information on water quality data interpretations.

There was general agreement among the Committee members that more information on water quality monitoring such as frequency of monitoring, monitoring protocols and who is responsible for the different types of monitoring be collected and summarized. The Committee members identified two major problems with water quality data and research: The first is a lack of clearly defined data to disseminate to planners, decision makers and the public; the second is a lack of a vehicle through which to communicate this data.

SURVEY RESPONSES--PRIORITIZATION OF PROBLEMS, IMPEDIMENTS, STUDY NEEDS

HRPDC staff presented a listing of the responses collected from the surveys on watershed priorities. Utilizing flip charts and other facilitation techniques, HRPDC staff worked with the Committee to develop priorities in response to three questions from the survey. Appendix A shows the survey questions and responses from the Committee and how the Committee chose to prioritize these responses at the meeting. The Committee then decided that in order to get a better understanding of the multiple uses of each waterbody, they would develop a list of existing uses both of the waterbody and watershed for the North Landing, Northwest and Back Bay areas. Appendix B shows the list of current uses generated by the Committee.

After a lengthy discussion on the best way to approach deciding future goals for the watershed that would not conflict with goals already developed through the Comprehensive Planning process for each locality, the Committee decided that a review and overlay of land use maps would be an essential element in the decision making process. It was clear from the discussion that the two localities had different approaches to land use planning within each watershed. In Virginia Beach, for example, there are three transition areas with proposed land uses differing by degrees of intensity in each, just within the North Landing watershed.

The consensus of the Committee was that prior to the next meeting, each locality would provide HRPDC with land use maps showing existing and proposed land use conditions within the watershed. The Committee also suggested that HRPDC staff attempt to obtain land use information from a GIS map developed for the Southeast Expressway project and synthesize the information at the next meeting. The Committee agreed that having the land use maps would give the group a clearer picture of existing and proposed land uses within the Watershed which would lead to an understanding of future needs for the area.

GOALS SYNTHESIS

HRPDC staff presented a synthesis of goals for the Southern Watershed compiled from the Comprehensive Plans for each locality. The Committee discussed the goals after a brief review and commented on the similarity between many of them. The Committee agreed to review the goals in detail and develop ideas for developing

common goals which would reflect the interests of both locality's Comprehensive Plans and provide for the future needs of the southern watershed from the perspective of the SWAMP Committee. This discussion will be continued at the next meeting. A result of this dialogue will also be the identification of the impediments to implementation of these goals.

FUTURE MEETINGS

It was decided that the Committee needed to meet again before the meeting with the other state and federal resource agencies takes place. The next meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Area Management Plan" project (SWAMP) has been scheduled for January 12, 1995.

ML:fh

Attachments

Southern Watershed - SWAMP Committee

Brent Nielson, CH
Robert J. Scott, VB
John O'Connor, CH
Ralph Smith, VB
D. Ray Stout. CH
John Herzke, VB
Amar Dwarkanath, CH
Clarence O. Warnstaff, VB
Louis E. Cullipher, VB
Clay Bernick, VB
Jaleh Pett, VB
Barbara Howe, VB
Mark Johnson, VB
Frank Sanders, CH
Bob Pilch, CH
Julie Bright, DCR

APPENDIX A

CRITICAL WATERSHED PROBLEMS

#6. Describe what you see as critical watershed problems and concerns?

The following is a list of all the responses to question #6 of the survey received by HRPDC:

- o Preservation of drinking water supply;
- o Chemical Spills;
- o Protection of environmentally sensitive resources;
- o Lack of interest from Chesapeake and Virginia Beach communities;
- o Improper Sewage Discharges;
- o Further use of BMP's for Development and Agriculture;
- o Impervious covering of watershed;
- o Urban NPS runoff impacts to habitat areas;
- o Inspection and enforcement of regulations;
- o Need land -use patterns that protect Natural Resources;
- o Maintenance of Drainage Systems;
- o Effectiveness of in-field management practices.

During discussions at the meeting on December 2, 1994, the following responses were added to the previous list.

- o Lack of public access
- o No consensus among diverse groups
- o Diverse expectations from various interest groups
- o Lack of Unified Focus
- o Multiple uses of waterways

CRITICAL WATERSHED PROBLEMS--PRIORITIES

The Committee decided that the three most important watershed problems were:

The #1 priority is the **need for land use management tools** which is essentially a combination of three previous responses--1) Impervious covering of watershed; 2) Urban/Suburban land conversion; 3) Need land-use patterns that protect natural resources.

The #2 priority is the need for **technical ways to handle/improve water quality** which in essence combines the following two previous responses: 1) Further use of BMP's for development and agriculture and 2) Maintenance of drainage systems.

The #3 priority is the **multiple uses of waterways/watersheds.** This response led to the decision of the Committee to list all existing uses of waterways and the watershed. This response also reflected the group's belief that a lack of unified focus in management and future goals is an impediment to developing a management plan.

IMPEDIMENTS TO MANAGEMENT PLAN

#2 What are the greatest impediments to developing a management plan for the Southern Watershed Area?

The following is a list of the responses to question #2 of the survey.

- o Need for more personnel and equipment
- o Lack of political guidance, leadership vision
- o Number of Agencies and interests
- o Conflicting objectives
- o Lack of Water Quality "Causal" information
- o Communications; coordination; duplication of effort--need on-going forum of government, citizens and interest groups
- o Lack of education and willingness to reach compromise
- o Multiple uses in watershed

The Committee chose the following three impediments as the top priorities for the SWA:

1. **Lack of unified focus or conflicting objectives**
2. **Number of Agencies and interests--need for on-going forum**
3. **Multiple uses in Watershed**

As the exercise continued it was evident to the Committee that the boundary between priorities of impediments and critical watershed problems became less clear. The Committee decided to discuss and prioritize the survey responses to research and data needs at the next meeting.

APPENDIX B

MULTIPLE USES

NORTHWEST WATERWAY:	WATERSHED:
Water Supply	Agriculture
Recreation	Forestry
Drainage	Recreation
Habitat	Military
Wastewater Assimilation	Residential Development
Flood Control	Limited Commercial Dev.
	Conservation/Open Space

BACK BAY WATERWAY:	WATERSHED:
Recreation	Habitat/Conservation
Habitat	Recreation/Tourism
Commercial Fishing	Agriculture
Flood Control	Urban Residential
Drainage	Rural Residential
Wastewater Assimilation	Commercial Development
	Military

MULTIPLE USES CONT'D

NORTH LANDING WATERWAY:

Recreation

Habitat

Drainage

Transportation

Flood Control

WATERSHED:

Military

Urban Residential

Agriculture

Forestry

Conservation/Open Space

NORTH LANDING WATERWAY :

Wastewater Assimilation

WATERHSED:

Recreation

Commercial Development

Borrow Pits

Industrial Development
Rural Residential

Bridge Crossings

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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

December 22, 1994

MEMORANDUM #94-298

TO: Southern Watershed Special Area Management Plan--SWAMP Committee

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Meeting Agenda--January 12, 1994

This is to call a meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" (SWAMP) on **January 12, 1994, at 9:30 a.m. at the Hampton Roads Planning District Commission Board Room at the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia.**

The Agenda for the meeting will be:

I. **WATER QUALITY DISCUSSION:** Staff from the Department of Environmental Quality, Department of Conservation and Recreation and U.S. Fish and Wildlife Service will give brief presentations on water quality data collection and documentation in the Virginia Water Quality Assessment Report, Virginia Nonpoint Source Pollution Watershed Assessment Report, and Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends. After the presentations there will be time allotted for a question and answer session and then a brief recess so that the Agency staff may leave before the regular meeting resumes.

II. **REVIEW AND DEVELOPMENT OF COMMON GOALS:** As we discussed at the previous meeting and in the most recent memorandum, the Committee members should be reviewing the list of goals developed from the Comprehensive Plans of each locality which was distributed at the meeting. The Committee members should be prepared to present ideas for common goals for the SWAMP Committee to accept. We will work on refining these at the meeting.

III. **REVIEW OF PRIORITIES:** At the previous meeting, three top priorities for "Critical Watershed Problems" and "Impediments to Development of a Management Plan" were selected from the survey responses of the

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PENINSULA OFFICE • HARBOUR CENTRE, 2 EATON STREET • SUITE 502 • HAMPTON, VIRGINIA 23669 • (804) 728-2067

Committee. We will review and finalize each of these for the final report and generate the top priorities for "Data and Research Needs" as well.

IV. **REVIEW OF LAND USE MAPS:** The Committee will review the existing land use maps for the Southern Watersheds prepared by the localities and GIS developed maps with natural resource data from the Department of Game and Inland Fisheries. This review will provide a forum for discussion of future needs of the southern watersheds and lead to identification of impediments to implementing the goals developed by the Committee.

V. **CONCLUSION:** We will discuss plans and schedule for the next meeting. This will include optional approaches to the packaging of this material for presentation to and consideration by local officials.

If you have any questions, need further information, or would like to discuss any of the above, please do not hesitate to call.

ML/kl

Distribution List:

Mr. Amar Dwarkanath (CH)
Mr. Brent Neilson (CH)
Mr. John O'Conner (CH)
Ms. Jaleh Pett (CH)
Mr. Bob Pilch (CH)
Mr. Frank Sanders (CH)
Mr. Ray Stout (CH)
Mr. Clay Bernick (VB)
Mr. Louis Cullipher (VB)
Mr. John Herzke (VB)
Ms. Barbara Howe (VB)
Mr. Mark Johnson (VB)
Mr. Robert Scott (VB)
Mr. Ralph Smith (VB)
Mr. Clarence Warnstaff (VB)
Ms. Julie Bright (Virginia Dare SWCD)

HAMPTON ROADS
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ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

January 19, 1995

MEMORANDUM #95-15

TO: Southern Watershed Special Area Management Plan--SWAMP Committee

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Next Meeting - SWAMP - January 31, 1995

* This is to call a meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" (SWAMP) on **January 31, 1995, at 1:00 p.m. in the Hampton Roads Planning District Commission Board Room at the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia.**

* This is to remind the SWAMP Committee members to develop **Objectives** for each of the Goals developed at the previous meeting. We will be ready to finalize these at the next meeting.

The following is a summary of the previous SWAMP meeting held on January 12, 1995:

The Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" project (SWAMP) met on January 12, 1995 at 9:30 a.m. Speakers at the meeting included Michelle Fults and Roger Everton from the Tidewater Regional Office, Department of Environmental Quality; Mark Bennett, Department of Conservation and Recreation; and Stephen Zylstra and John Gallegos from the U.S. Fish and Wildlife Service. Members of the Committee that attended the meeting included Jaleh Pett and Frank Sanders from the City of Chesapeake; Clay Bernick, Mark Johnson, Barbara Howe, and Bart Tuthill from the City of Virginia Beach; and Martha Little and Jeryl Rose from the HRPDC staff. Staff would like Committee members, especially those who have been unable to attend the meetings, to please review and comment on enclosed information.

I. WATER QUALITY:

The discussion on water quality began with a presentation by Roger Everton from DEQ. He gave an overview of DEQ's ambient water quality monitoring program. He described the monitoring which occurs in the waterbodies of SWAMP and the parameters and frequency of the testing. On the Northwest River there is one

monitoring station at the treatment plant which is tested on a monthly basis. The North Landing River has ten stations, three of which are tested monthly and seven which are tested on a quarterly basis. At Back Bay, DEQ has one staff monitoring station and eleven hybrid monitoring stations. With the stations monitored by Back Bay Wildlife Refuge and Department of Game and Inland Fisheries, there are a total of about twenty-two stations in Back Bay. He stated that citizen monitoring has increased and that Back Bay is part of that network.

Michelle Fults then discussed the STORET data system which compiles all the data and provides the information for the 305 (b) report. She explained both the internal and external uses of the STORET data and the recent changes in format of the 305 (b) report, including changes that will be made to the 1996 report. She indicated that the water quality management plans will be completed only for water quality limited segments of waterbodies.

Next, Steven Zylstra from the U.S. Fish and Wildlife Service (U.S. FWS) provided an overview of the report, Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends. He stated that this report gives a historical perspective on the changes in the Back Bay ecosystem by compiling existing data and research as well as historical literature regarding water quality in the Back Bay. He indicated that Back Bay is generally turning into more of a freshwater system. Water clarity has declined due to nutrient loading and turbidity from agriculture and urban stormwater runoff and septic systems. Submerged Aquatic Vegetation (SAV) declined in the 1970's and 1980's. This was due to increased development which caused greater turbidity. U.S. FWS thinks that there is a resurgence of SAV presently. There is a current sampling program being conducted to test stormwater runoff after rainfall events. The results of this sampling will be available next summer.

John Gallegos, a biologist from the Back Bay Refuge, discussed the Back Bay Report in more detail, emphasizing that historical data and literature from before U.S. FWS monitoring of the area was included. He explained the current sampling program and the possibility of incorporating this data into the DEQ STORET data. The Committee asked whether testing of atmospheric contributions to the runoff was also included in the sampling. Mr. Gallegos said that at present this was not being tested for.

Finally, Mark Bennett from the Department of Conservation and Recreation initiated his discussion with an explanation of the recent changes in the Virginia Nonpoint Source Assessment Report watershed system. The Hydrologic Unit, watershed boundaries and naming conventions have changed to make the data

consistent with the Department of Environmental Quality data. There will also be an effort to include more data from localities, information on BMP efforts and nonpoint source controls, more erosion and sediment control tracking and improved mining data.

There was a brief discussion among the Committee members and Agency staff about gaps in monitoring. It was suggested that what is needed is handouts and publications which explain data and their significance to the public. It was also noted that there are many opportunities to augment the base monitoring of DEQ and DCR with additional studies and combine the information. By working together and synthesizing the data, a more comprehensive picture of water quality information will be created.

At this point there was a brief recess before the general meeting resumed.

II. REVIEW AND DEVELOPMENT OF COMMON GOALS:

The Committee reviewed the list of goals for the Southern Watersheds which were derived from the Comprehensive Plans of each locality and developed new common, shared goals for the SWAMP Committee. The following mission statement and general goals were agreed to by the Committee:

Mission Statement:

Natural Resources and Sensitive Lands of the Southern Watersheds of Virginia Beach and Chesapeake should be protected and enhanced.

Goals:

1. **Water quality should be protected and enhanced.**

2. **Preserve open lands including agriculture and forested lands to help protect and enhance water quality.**

3. **Ensure compatibility of recreational activities with natural resource and water quality protection.**

For the following goals, "Southern Watersheds" will be defined as the Southern Rural Area for Virginia Beach and the Rural Overlay District for Chesapeake. It does not include the entire Southern Watershed area as defined by the SWAMP Committee.

4. **The Character of the Southern Watersheds should remain rural while providing for rural residential development.**

5. **Agricultural activities in the watershed should be sustained and encouraged.**

6. **Infrastructure improvements within the Southern Watershed should represent those necessary to support a rural area.**

The Committee is presently developing Objectives for each of the goals listed above. These will be presented and refined at the next meeting.

III. REVIEW OF PRIORITIES:

After a lengthy discussion, the Committee members decided to combine the two categories, "Critical Watershed Problems" and "Impediments to Development of a Management Plan" into the one category--"Critical Watershed Priorities." This made it easier to develop priorities which the Committee could agree upon.

The following priorities of the SWAMP Committee were agreed to by the Committee:

1. **Develop common goals and a shared vision of the Southern Watershed Area.**

2. **Provide for multiple uses of waterways and watersheds.**

3. **Manage nonpoint sources of pollution.**

4. **Establish a unified focus.**

5. **Number of agencies and interests in Southern Watersheds which illustrates the need for an on-going forum or clearinghouse for information.**

6. **Manage competing uses in watershed.**

7. **Reduce data gaps.**

The following **research and data needs** were identified by the Committee:

1. **Additional water quality monitoring.**

2. **Explore opportunities for more citizen monitoring.**

3. **Encourage compatibility of data.**

4. **Review existing data sets.**

5. **Explore opportunity for a Natural Area Inventory, Soils Survey, and updating of floodplain maps for the City of Chesapeake.**

IV. REVIEW OF LAND USE MAPS:

The Committee reviewed the Land Use Maps prepared by the HRPDC staff and noted the similarities in the appearance of the areas surrounding the North Landing River on both sides. The Committee decided that the land use map should include the entire watershed rather than just the area surrounding the North Landing River. HRPDC staff agreed to prepare a more comprehensive land use map for the next meeting.

V. CONCLUSION:

The Committee agreed that one possible outcome of the SWAMP project would be a Memorandum of Agreement between the two localities which would outline the shared goals for the Southern Watersheds and provide a forum for exchange of information and the initiation of on-going dialogue. Further discussion on the packaging of this material for local officials will continue at the next meeting. It was agreed that the meeting with the resource agencies will be held on February 9, 1995 at 12:00 noon. Lunch will be provided by HRPDC staff prior to the meeting.

ML/kl

Distribution List:

Southern Watershed Special Area Management Plan - SWAMP Committee

Mr. Amar Dwarkanath (CH)
Mr. Brent Neilson (CH)
Mr. John O'Conner (CH)
Ms. Jaleh Pett (CH)
Mr. Bob Pilch (CH)
Mr. Frank Sanders (CH)
Mr. Ray Stout (CH)
Mr. Clay Bernick (VB)
Mr. Louis Cullipher (VB)
Mr. John Herzke (VB)
Ms. Barbara Howe (VB)
Mr. Mark Johnson (VB)
Mr. Robert Scott (VB)
Mr. Ralph Smith (VB)
Mr. Clarence Warnstaff (VB)
Ms. Julie Bright (Virginia Dare SWCD)

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

DR. ALAN P. KRASNOFF, CHAIRMAN • BENJAMIN F. SEAWELL, JR., VICE CHAIRMAN • V. WAYNE ORTON, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

February 2, 1995

MEMORANDUM #95-28

TO: Southern Watershed Area Management Program--SWAMP

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Next Meeting--SWAMP--February 9, 1995

* This is to call a meeting of the Local Government Advisory Committee for the HRPDC "Southern Watershed Area Management Program" (SWAMP) on **February 9, 1995, at 1:00 p.m. in the Hampton Roads Planning District Commission Board Room at the Regional Building,** 723 Woodlake Drive, Chesapeake, Virginia.

* This is to remind all members of the Local Government Advisory Committee for the HRPDC, especially those that have been unable to attend the meetings, that this will be the final meeting before the Committee meets with the state and federal agencies on **March 9, 1995, at 9:30 a.m. at the HRPDC Board Room.**

* Enclosed is a summary of the previous meeting on January 31, 1995, a list of the Goals and Objectives developed by the SWAMP Committee and the draft Memorandum of Agreement which is currently being reviewed by the staff of the two localities.

Summary of SWAMP Meeting on January 31, 1995:

The Local Government Advisory Committee for the HRPDC SWAMP met on January 31, 1995, at 1:00 p.m. Attendance at the meeting included Martha Little, Scott Emry and Andrew Garman of the HRPDC staff; Bart Tuthill, Clay Bernick, Barbara Howe and Tom Pauls from the City of Virginia Beach; and Jaleh Pett and Frank Sanders from the City of Chesapeake.

OBJECTIVES:

The first half of the meeting was spent developing "Objectives" for each of the Goals previously developed by the Committee. The following is a list of the goals and objectives developed through consensus of the Committee members for the Southern

Watershed Area. Please read through the objectives and be prepared to discuss any desired changes at the next meeting or give me or Martha a call beforehand.

GOAL # 1: **WATER QUALITY SHOULD BE PROTECTED AND ENHANCED**

OBJECTIVES:

1. Protection of water quality for water supply of the Northwest River Treatment Plant.

2. Achieve improved water quality, stormwater management control and flood control through application of local, state and federal programs and initiatives.

3. Study the potential for educational programs for water quality monitoring.

GOAL # 2: **PRESERVE OPEN LANDS INCLUDING AGRICULTURAL AND FORESTED LANDS TO HELP PROTECT AND ENHANCE WATER QUALITY**

OBJECTIVES:

1. Preserve critical edge habitat areas (define), wetlands and hardwood swamps by application of preservation zoning, conservation easements and any other appropriate development incentives.

2. Educate citizens, the development community and public officials on the importance of open space, agricultural and forested lands and other natural resources through outreach programs.

GOAL # 3: **ENSURE COMPATIBILITY OF RECREATIONAL ACTIVITIES WITH NATURAL RESOURCE AND WATER QUALITY PROTECTION**

OBJECTIVES:

1. Acquire and develop adequate public and private park land and open space that compliments the existing park system.

2. Encourage appropriate management techniques (such as conservation landscaping, water wise landscaping, etc.) for public and private recreational facilities for water quality and habitat protection.

3. Coordinate local activities with state and federal programs such as the North Landing Public Access Program and the North Landing River Conservation Program, etc.

NOTE: For the following goals and objectives, "Southern Watersheds" will be defined as the Southern Rural Area for Virginia Beach and the Rural Overlay District for Chesapeake. It does not include the entire Southern Watershed Area.

GOAL #4: **THE CHARACTER OF THE SOUTHERN WATERSHED SHOULD REMAIN RURAL WHILE PROVIDING FOR RURAL RESIDENTIAL DEVELOPMENT**

1. Infrastructure improvements within the Southern Watershed should represent those necessary to support a rural area.

2. Control and monitoring of land use activities; the institution of good land management practices.

3. Demand created by development should not exceed supply provided by rural infrastructure; development should be consistent with local planning policies.

GOAL #5: **AGRICULTURAL AND FORESTAL ACTIVITIES IN THE SOUTHERN WATERSHED SHOULD BE SUSTAINED AND ENCOURAGED**

1. Promote agricultural activities and direct services to agriculture (such as improved access to local markets, changes in road or other design standards to facilitate equipment transportation, etc.).

2. Support programs that provide practical advice and training regarding environmentally sound and cost-effective horticultural, agricultural and forestal practices.

MEMORANDUM OF AGREEMENT:

The next portion of the meeting was spent discussing the draft Memorandum of Agreement (MOA). The Committee reviewed the draft as a group and agreed to take it back to their respective localities for further review and discussion. The Committee agreed on the importance of sharing the MOA draft with other local government staff members as well as administrators. Each Committee member agreed to brief their Department Heads and City Managers on the Goals, Objectives

and draft MOA developed thus far. Further discussion of the MOA draft will continue at the next meeting.

FUTURE MEETINGS:

The Committee tentatively scheduled the meeting with state and federal agencies to discuss the progress of the SWAMP project for **March 9, 1995,** at 9:30 a.m. at the Hampton Roads Planning District Commission Board Room at the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia. The Committee agreed that this meeting will be a good opportunity to discuss the possible initiation of regular information exchange on activities in the Southern Watershed Area between the local governments and the agencies.

ML/kl

Distribution List - Southern Watershed Area Management Program Committee:

Mr. Amar Dwarkanath (CH)
Mr. Brent Neilson (CH)
Mr. John O'Conner (CH)
Ms. Jaleh Pett (CH)
Mr. Bob Pilch (CH)
Mr. Frank Sanders (CH)
Mr. Ray Stout (CH)
Mr. Clay Bernick (VB)
Mr. Louis Cullipher (VB)
Mr. John Herzke (VB)
Ms. Barbara Howe (VB)
Mr. Mark Johnson (VB)
Mr. Robert Scott (VB)
Mr. Ralph Smith (VB)
Mr. Clarence Warnstaff (VB)
Ms. Julie Bright (Virginia Dare SWCD)

DRAFT

MEMORANDUM OF AGREEMENT--SWAMP

Whereas, Section 15.1-21 of the Code of Virginia enables local governments to enter into cooperative agreements to exercise those powers that each may be enabled to exercise; and

Whereas, a Virginia Coastal Resources Management Program grant was obtained by the Hampton Roads Planning District Commission to facilitate and coordinate a "Southern Watershed Area Management Program" with the two local governments, Virginia Beach and Chesapeake; and

Whereas, the "Southern Watershed Area" has been defined for the purposes of this program as the watersheds of the Back Bay, North Landing and Northwest water bodies (refer to map); and

Whereas, Section 15.1-446.1 requires every governing body to adopt a comprehensive plan for the territory under its jurisdiction by July 1, 1980; and

Whereas, the comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants; and

Whereas, the Local Government Advisory Committee for the Southern Watershed Area Management Program developed consensus on goals and objectives for the Southern Watershed Area Management Program based on and in harmony with the goals and objectives previously developed for the Comprehensive Plans of each localities;

NOW THEREFORE, the signatory parties enter into the following agreement:

This Memorandum of Agreement, entered into this ____ day of _____, 1995 between the two cities, Virginia Beach and Chesapeake as partners, establishes the Cooperative Regional Southern Area Watersheds Management Program. It outlines the roles and responsibilities of each entity in administering this program.

BASIC PREMISES

1. Section 15.1-431 of the Code, requires that when a proposed comprehensive plan or amendment thereto, a proposed change in zoning map classification, or an application for special exception or variance* involves any parcel of land located within one-half mile of a boundary of an adjoining county or municipality, then...written notice shall also be given by the local commission, or its representative, at least ten days before the hearing to the chief administrative officer, or his designee, of such adjoining county or municipality. This Agreement intends to develop a coordinated mechanism for fulfilling this requirement and going a step further to design a formal process for implementing the Southern Watershed Area Management Program.

2. The Cities of Virginia Beach and Chesapeake have developed a local government consensus on Watershed goals, objectives and priorities for the Southern Watershed Area from the goals, objectives and priorities adopted in the local Comprehensive Plans. This consensus, developed through the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Program" (SWAMP) is the basis for developing a broader, more comprehensive environmental and natural resource management program for the Southern Watershed Area.

3. The MISSION STATEMENT, GOALS and OBJECTIVES for Environmental Management in the Southern Watershed of Chesapeake and Virginia Beach developed through consensus by the Local Government Advisory Committee for SWAMP will be accepted as an integral part of the Cooperative Regional Southern Watersheds Area Management Program. Local Government decisions affecting the Southern Watershed of Chesapeake and Virginia Beach should be consistent with these GOALS and OBJECTIVES.

4. This agreement establishes the administrative framework which will be used by the two local governments to ensure that planning and management initiatives affecting the Southern Watershed of Chesapeake and Virginia Beach are coordinated and integrated.

5. This Agreement applies only to the cities of Virginia Beach and Chesapeake. Both local governments will be participants in and signatories to the Agreement.

6. This Agreement has a term of _____ years...

---

*Note: Senate Bill No. 766 proposes to change wording to... "*variance for a change in use, bulk, or height greater than fifty percent of the existing use or building, but not including renewals of previous approvals,...*"

LOCAL GOVERNMENT RESPONSIBILITIES

Under the terms of this Agreement, the signatory local governments are responsible for the following:

1. Each locality shall appoint a planning department staff person to be "Southern Watershed Coordinator" and to serve as the point of contact for issues relating to the Southern Watershed. Requests for information on the Southern Watershed Area will be addressed to this person.

2. A formal institutional staff-level process for cooperative environmental management of the Southern Watershed will be designed and implemented. A schedule of regular meetings for information exchange between the two local governments will be developed.

3. The MISSION STATEMENT, GOALS AND OBJECTIVES developed by the Local Government Advisory Committee for the HRPDC SWAMP will serve as the framework for decisions made by the two signatory local governments. The PRIORITIES developed by the SWAMP Committee will serve as the basis for developing an action plan for the Southern Watershed Area.

4. The two communities should continue informal discussions concerning broader coordination of development review affecting the shared resources in the Southern Watershed Area.

5. The signatory local governments should continuously develop educational materials on the sensitive lands, water quality issues and general significance of the natural resources of the Southern Watershed to provide to public officials and citizens.

6. Through the Cooperative Regional Southern Watershed Area Management Program, the signatory local governments should aspire to coordinate and integrate the multitude of activities and interests in the Southern Watershed Area, including endeavors of State and Federal Agencies within the area.

7. The signatory local governments should continue analysis of technical water quality studies, including exploring the opportunity for watershed-wide educational water quality monitoring programs.

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

DR. ALAN P. KRASNOFF, CHAIRMAN • BENJAMIN F. SEAWELL, JR., VICE CHAIRMAN • V. WAYNE ORTON, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

MEMORANDUM #95-40 **February 14, 1995**

TO: Southern Watershed Area Management Program--SWAMP

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Meeting Notes--SWAMP--February 9, 1995

* The Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Program" (SWAMP) met on February 9, 1995. This memorandum summarizes the discussion and matters of consensus reached at the meeting.

* HRPDC staff reminded the Committee of the importance of briefing the City Manager and other HRPDC Commissioners from the two cities on the project and the Committee's support for the final product. HRPDC staff anticipates the final report being presented to the Commission for acceptance at the April 1995 meeting. HRPDC staff is available to assist local staff in these briefings if Committee members think it useful.

* The Committee scheduled the meeting with state and federal agencies for March 23, 1995 at 10:00 a.m. in the Board Room of the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia.

GOALS AND OBJECTIVES:

The Committee started the meeting with a review of the mission statement, goals and objectives previously developed. The group agreed to finalize these at this meeting. Through a consensus, the following mission statement, goals and objectives were agreed to by the Committee. (The changes made at the meeting are in bold.)

MISSION STATEMENT:

Natural Resources, sensitive lands, **and water supplies** of the Southern Watersheds of Virginia Beach and Chesapeake should be protected and enhanced.

GOALS AND OBJECTIVES:

1. WATER QUALITY SHOULD BE PROTECTED AND ENHANCED.

Objectives:

1. Protection of water quality for water supply of the Northwest River Treatment Plant.

2. Achieve improved water quality, stormwater management control and flood control through application of local, state and federal programs and initiatives.

3. Study the potential for educational programs for water quality monitoring.

4. **Educate citizens, the development community and public officials on the importance of water quality issues including water supply and stormwater.**

2. PRESERVE OPEN LANDS TO HELP PROTECT AND ENHANCE WATER QUALITY.
(Deleted **including agricultural and forested lands).**

Objectives:

1. Preserve critical edge habitat areas, wetlands and hardwood swamps by application of preservation zoning, conservation easements and any other appropriate development incentives.

2. Educate citizens, the development community and public officials on the importance of open space, agricultural and forested lands and other natural resources. (Deleted **through outreach programs.)**

3. ENSURE COMPATIBILITY OF RECREATIONAL ACTIVITIES **AND COMMERCE** WITH NATURAL RESOURCE PROTECTION.

Objectives:

1. Acquire and develop adequate public and private park land and open space that compliments the existing park system.

2. Encourage appropriate management techniques (such as conservation and water wise landscaping, etc.) for public and private recreational facilities for water quality and habitat protection.

3. **Coordinate activities and management of inter-coastal waterways with natural resource and water quality protection.**

4. Coordinate local activities with state and federal programs such as the North Landing Public Access Program and the North Landing River Conservation Program, etc.

NOTE: **For the following goals and objectives, "Southern Watersheds" will be defined as the Southern Rural Area for Virginia Beach and the Rural Overlay District for Chesapeake. It does not include the entire Southern Watershed Area.**

4. THE CHARACTER OF THE SOUTHERN WATERSHED SHOULD REMAIN RURAL WHILE PROVIDING FOR RURAL RESIDENTIAL DEVELOPMENT.

Objectives:

1. Infrastructure improvements within the Southern Watershed should represent those necessary to support a rural area **and be consistent with local planning policies.**

2. Control and monitoring of land use activities; the institution of good land management practices.

3. Demand created by development should not exceed supply provided by rural infrastructure; development should be consistent with local planning policies.

5. AGRICULTURAL AND FORESTAL ACTIVITIES IN THE SOUTHERN WATERSHED SHOULD BE SUSTAINED AND ENCOURAGED.

Objectives:

1. Promote agricultural activities and direct services to agriculture (such as improved access to local markets, changes in road or other design standards to facilitate equipment transportation, etc.)

2. Support programs that provide practical advice and training regarding environmentally sound and cost-effective horticultural, agricultural and forestal practices.

PRIORITIES AND RESEARCH AND DATA NEEDS:

The Committee next reviewed the priorities and research and data needs which had been identified at an earlier meeting. The following final changes were made at the meeting.

PRIORITIES:

1. Develop common goals and a shared vision for the Southern Watershed Area.

2. Provide for multiple uses of waterways and watersheds.

3. Manage nonpoint sources of pollution.

4. Number of agencies and interests in Southern Watersheds illustrates the need for an on-going forum or clearinghouse for information.

5. Manage competing uses in watershed.

6. Identify and reduce data gaps to help further the mission statement.

RESEARCH AND DATA NEEDS:

1. Explore opportunities for additional water quality monitoring.

2. Encourage compatibility of data.

3. Review of existing data sets to identify data gaps and inconsistencies.

4. Explore opportunity for a Natural Inventory, Soils Survey and update to floodplain maps for the City of Chesapeake.

PRELIMINARY SCOPES OF WORK:

The Committee reviewed ideas for preliminary scopes of work which would address the research and data needs identified above. Staff agreed to expand on these ideas and present more detailed scopes of work for the next meeting. An outline for the final document to be produced for the SWAMP project was also discussed and agreed to. Staff will begin working on the final document and continue to keep the Committee informed on its progress.

MEMORANDUM OF AGREEMENT:

The Committee discussed the draft Memorandum of Agreement after reviewing it with their Department Heads and other staff members. Enclosed is a copy of the consensus driven draft Memorandum of Agreement with the changes in bold. The Committee agreed to review the draft MOA with the City Managers and other HRPDC Commissioners from the two cities in the coming weeks. HRPDC staff anticipates the final report to be presented to the Commission at the April 1995 meeting. HRPDC staff will be available to assist the local governments in these briefings if the Committee thinks it will be useful.

EDUCATION:

HRPDC staff briefed the Committee on possible topics for the fact sheets or brochures to be developed for public official and citizen education. These included: Southern Watershed Area Project--background, process, conclusions, etc.; Water quality conditions of the three water bodies; Importance of natural resources in watersheds; Federal, state and local initiatives in Southern Watershed Area. The Committee agreed to these topics as issues to be addressed in the educational effort.

LAND USE MAP:

HRPDC staff displayed the land use map currently under completion by staff. It was agreed that the Southern Watershed boundary will be added to the map. Staff explained that the entire Southern Watershed Area could not be included on the map, but the map illustrates the shared resources within the Southern Watershed Area. The Committee suggested that a notation be added to the land use map which explains that the map was derived from merging the land use maps of the two localities. HRPDC staff noted that the land use categories will also be explained on the map since they are an amalgamation of the land use categories used by the two localities.

NEXT MEETING--MEETING WITH STATE AND FEDERAL AGENCIES:

The Committee scheduled the meeting with state and federal agencies for March 23, 1995 at 10:00 a.m. at the Board Room of the Regional Building, 723 Woodlake Drive, Chesapeake, Virginia. The Committee agreed that this meeting would provide an opportunity for exchanging information with the agencies and possibly discussion of future on-going coordination efforts.

ML:fh

Southern Watershed - SWAMP Committee

Mr. Brent Nielson, CH
Mr. Robert J. Scott, VB
Mr. John O'Connor, CH
Mr. Ralph Smith, VB
Mr. D. Ray Stout, CH
Mr. John Herzke, VB
Mr. Amar Dwarkanath, CH
Mr. Clarence O. Warnstaff, VB
Mr. Louis E. Cullipher, VB
Mr. Clay Bernick, VB
Ms. Jaleh Pett, CH
Ms. Barbara Howe, VB
Mr. Mark Johnson, VB
Mr. Frank Sanders, CH
Ms. Julie Bright, DCR
Mr. Bob Pilch, CH

DRAFT

MEMORANDUM OF AGREEMENT--SWAMP

Whereas, Section 15.1-21 of the Code of Virginia enables local governments to enter into cooperative agreements to exercise those powers that each may be enabled to exercise; and

Whereas, a Virginia Coastal Resources Management Program grant was obtained by the Hampton Roads Planning District Commission to facilitate and coordinate a "Southern Watershed Area Management Program" with the two local governments, Virginia Beach and Chesapeake; and

Whereas, the "Southern Watershed Area" has been defined for the purposes of this program as the watersheds of the Back Bay, North Landing and Northwest water bodies (refer to map); and

Whereas, Section 15.1-446.1 requires every governing body to adopt a comprehensive plan for the territory under its jurisdiction by July 1, 1980; and

Whereas, the comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants; and

Whereas, the Local Government Advisory Committee for the Southern Watershed Area Management Program developed consensus on goals and objectives for the Southern Watershed Area Management Program based on and in harmony with the goals and objectives previously developed for the Comprehensive Plans of each localities;

NOW THEREFORE, the signatory parties enter into the following agreement:

This Memorandum of Agreement, entered into this ____ day of _____, 1995 between the two cities, Virginia Beach and Chesapeake as partners, establishes the Cooperative Regional Southern Area Watersheds Management Program. It outlines the roles and responsibilities of each entity in administering this program.

BASIC PREMISES

1. Section 15.1-431 of the Code, requires that when a proposed comprehensive plan or amendment thereto, a proposed change in zoning map classification, or an application for special exception or variance* involves any parcel of land located within one-half mile of a boundary of an adjoining county or municipality, then...written notice shall also be given by the local commission, or its representative, at least ten days before the hearing to the chief administrative officer, or his designee, of such adjoining county or municipality. This Agreement intends to develop a coordinated mechanism for fulfilling this requirement and going a step further to design a formal process for implementing the Southern Watershed Area Management Program.

2. The Cities of Virginia Beach and Chesapeake have developed a local government consensus on Watershed goals, objectives and priorities for the Southern Watershed Area from the goals, objectives and priorities adopted in the local Comprehensive Plans. This consensus, developed through the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Program" (SWAMP) is the basis for developing a broader, more comprehensive environmental and natural resource management program for the Southern Watershed Area.

3. The MISSION STATEMENT, GOALS and OBJECTIVES for Environmental Management in the Southern Watershed of Chesapeake and Virginia Beach developed through consensus by the Local Government Advisory Committee for SWAMP will be accepted as an integral part of the Cooperative Regional Southern Watersheds Area Management Program. Local Government decisions affecting the Southern Watershed of Chesapeake and Virginia Beach should be consistent with these GOALS and OBJECTIVES.

4. This agreement establishes the administrative framework which will be used by the two local governments to ensure that planning and management initiatives affecting the Southern Watershed of Chesapeake and Virginia Beach are coordinated and integrated.

5. This Agreement applies only to the cities of Virginia Beach and Chesapeake. Both local governments will be participants in and signatories to the Agreement.

6. This Agreement has a term of _____ years...

---

*Note: Senate Bill No. 766 proposes to change wording to... "variance *for a change in use, bulk, or height greater than fifty percent of the existing use or building, but not including renewals of previous approvals,...*"

LOCAL GOVERNMENT RESPONSIBILITIES

Under the terms of this Agreement, the signatory local governments are responsible for the following:

1. ~~Each locality~~ **The signatory local governments** shall appoint a ~~planning department~~ staff person to be "Southern Watershed Coordinator" and to serve as the point of contact for issues relating to the Southern Watershed. Requests for information on the Southern Watershed Area will be addressed to this person.

2. A formal institutional staff-level process for cooperative environmental management of the Southern Watershed will be designed and implemented. A schedule of regular meetings for information exchange between the two **signatory** local governments will be developed.

3. The MISSION STATEMENT, GOALS AND OBJECTIVES developed by the Local Government Advisory Committee for the HRPDC SWAMP will serve as the framework for decisions made by the two signatory local governments. The PRIORITIES developed by the SWAMP Committee will serve as the basis for developing an action plan for the Southern Watershed Area.

4. The two ~~communities~~ **signatory local governments** should continue informal discussions concerning broader coordination of development review affecting the shared resources in the Southern Watershed Area.

5. The signatory local governments should ~~continuously~~ develop educational materials on the sensitive lands, water quality issues and general significance of the natural resources of the Southern Watershed to provide to public officials and citizens.

6. Through the Cooperative Regional Southern Watershed Area Management Program, the signatory local governments should aspire to coordinate and integrate the multitude of activities and interests in the Southern Watershed Area, including endeavors of State and Federal Agencies within the area.

7. The signatory local governments should continue analysis of technical water quality studies, including exploring the opportunity for watershed-wide educational water quality monitoring programs.

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

DR. ALAN P. KRASNOFF, CHAIRMAN • BENJAMIN F. SEAWELL, JR., VICE CHAIRMAN • V. WAYNE ORTON, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

MEMORANDUM #95-71 **March 30, 1995**

TO: Persons Noted Below

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Special SWAMP Meeting, March 23, 1995--Meeting Notes

The Southern Watershed Special Area Management Plan Committee which is made up of members of the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Plan" (SWAMP) and staff from state and federal agencies that have projects in the Southern Watershed region met on March 23, 1995. This memorandum summarizes the discussion at the meeting.

An attendance list is attached.

The Committee agreed to hold annual meetings. HRPDC staff will notify agencies and organizations of dates and agendas for future meetings will be provided.

I. INTRODUCTION

HRPDC staff opened the meeting with introductions of everyone at the table and a brief overview of the purpose of the meeting. The history of the SWAMP program, how it evolved in concert with the APES program and how funding was obtained for the project through the Virginia Coastal Zone Management Program at the Department of Environmental Quality was explained. Other efforts that evolved out of the original Coastal Zone Management Program, Section 309 Coastal Zone Enhancements proposal and why the SWAMP project became a local government project were discussed. Staff explained that the Local Government Advisory Committee (LGAC) for SWAMP has been meeting for the past year and that this meeting was designed to provide an opportunity for LGAC to exchange information with other agencies and organizations involved in projects within the SWAMP area.

II. SWAMP STATUS

A. HRPDC Perspective:

Next, HRPDC staff discussed the SWAMP Process. How the project evolved from an initial survey, to identifying watershed priorities, goals and objectives in a consensus driven process was explained. It was emphasized how important it was for members of the LGAC to develop goals and objectives for the Southern Watershed which would be consistent with goals and objectives in the Comprehensive Plans of each locality.

In identifying research and data needs, the LGAC focused on existing water quality monitoring programs as an important issue. A special meeting of the LGAC, at which staff from DEQ, USFWS and DCR explained in detail current water quality monitoring programs in the Southern Watershed region, supplied a great deal of important information to the Committee. As part of the SWAMP project, educational brochures and fact sheets will be produced for public officials and citizens. One brochure will specifically focus on current water quality conditions in the area based on the research of LGAC.

An outgrowth of the process has been momentum toward the creation of a more formal coordinated management approach to the Southern Watersheds and the development of a draft Memorandum of Agreement between the two local governments. The Memorandum of Agreement is currently under administrative review by the two local governments. If approved, it will serve as the framework for implementation of a coordinated environmental management program for the shared Southern Watershed resources of the two local governments.

B. Local Government Perspective:

Each local government was given the opportunity to express their perspective, involvement and interest in the SWAMP process as well as to discuss other projects underway within the SWAMP area. Staff from the City of Chesapeake initiated the discussion, explaining that their primary focus in the project was water supply issues in the Northwest River and protection of rural areas in the rural overlay district of the Southern Watershed. Chesapeake expressed how pleased they were to discover how much the cities had in common and how similar the goals

were for the Southern Watersheds area outlined in each city's Comprehensive plans. Other activities in the Southern Watershed area which were discussed included: Effects of new regulations on the Northwest River plant; VPDES activities; Drilling of four new wells; Comprehensive plan update to be completed in the next year.

Staff from the City of Virginia Beach began by emphasizing the commonality of interest of the two local governments and agencies in the Southern Watershed area and by stressing the importance of working together to develop common resolutions. Staff indicated the desire to continue in the cooperation initiated in the SWAMP process. Other city activities underway in the Southern Watershed included: The Agricultural Reserve Program, a proposal by the city to purchase development rights on agricultural land to preserve the agricultural character of the southern rural area; Nature-based visitation task force initiative of the city to encourage use and citizen enjoyment of city's natural areas; Development of an amphitheater in the northern end of watershed; Expansion of Back Bay Wildlife Refuge; Update to the Comprehensive Plan to be completed next year; Development of data center; and adoption of a Southern Rural Area Zoning Ordinance and Rural Development Guidelines.

III. ROUNDTABLE DISCUSSION

Each agency was given the opportunity to discuss any activities or interests currently underway or proposed for the Southern Watershed area. The following is a synopsis of this discussion.

Fleet Combat Training Center, Dam Neck: Staff indicated that approximately half of the entire property of base is restricted by wetlands. They have been involved in 1:1 wetland mitigation projects and other similar projects with City. Staff emphasized that there is a perception that because of public scrutiny, they must be "on top" of all current environmental issues. They have a good working relationship with city of Virginia Beach and have coordinated with the city on erosion and sediment control issues.

NAS Oceana: Staff stated that there are approximately ten thousand acres of Oceana in Chesapeake and Virginia Beach. They work with City of Virginia Beach on many projects including habitat enhancement project, wetlands planting, agricultural leases, nutrient management, vegetative buffer development and other conservation practices. They have property in the North

Landing Ecological Reserve Area and are soliciting help on construction of vegetated wetlands for stormwater management.

Back Bay Wildlife Refuge, U.S. Fish and Wildlife Service: Staff indicated that they are in the process of acquiring more land to insulate the area in Bay for birds. They conduct water quality monitoring at intervals after rainfall events on a regular basis. Staff is involved in discussions on access to False Cape and concerned about the effects of ecotourism on migratory bird populations. They are establishing a more complete data base on bird population and are involved in projects of reforestation in the north and west areas of refuge. Currently, staff is negotiating with Virginia Beach on Sandbridge sewer extension and location of Ferrell Parkway; Discussed gradual resurgence of SAV in Refuge.

Corps of Engineers: Although regulatory in nature, the Corps is becoming more involved in watershed planning projects similar to the Southern Watershed Area Management Plan. Staff discussed HR925, Regulatory Takings Bill and the possible impacts to all regulatory agencies if passed. Also commented on the Memorandum of Agreement with the Natural Resource Conservation Service (former Soil Conservation Service) and the recent wetlands delineation cooperation between the two agencies.

DCR--Dept. of Natural Heritage: Staff distributed handouts (copies attached) on all activities currently underway or recently completed in the Southern Watershed area and discussed the locality liaison project. This project will begin soon and provide the opportunity for more information exchange between localities and Natural Heritage on DNH projects occurring in their jurisdictions.

United States Geological Survey: Staff discussed groundwater and borrow pit studies currently underway.

Virginia Marine Resources Commission: Staff discussed the wetland and dune permit process including the role of wetlands boards. Staff indicated that the Northwest River does not fall within jurisdiction of the Chesapeake City Wetlands Board, however Back Bay and the North Landing River do fall within the Jurisdiction of the Virginia Beach Wetlands Board. Staff also discussed the need for data on normal pool elevation in Back Bay.

Department of Forestry: Staff discussed the role of the Department in supporting and assisting private landowners in forest management. An issue which generated considerable discussion was the recent clearing along Sandbridge Road because of pinebark beetle infestations. Staff of U.S. Fish and

Wildlife Service expressed concern about the clearing so close to the refuge. Department of Forestry staff explained the system of staggered clearing and the reasons for the amount of clearing taking place.

Virginia Department of Health: Staff explained the organization of the Water Programs Division which included water supply, wastewater, shellfish sanitation, and water supply engineering departments. They discussed the update to wastewater regulations and recent efforts of VDH in watershed management in response to the Clinton administration initiatives.

Department of Environmental Quality--Tidewater Regional Office: Staff explained the organization of the agency and the Ambient Water Quality Monitoring Program. They discussed the Storet Data Base, its uses and products. Staff described the monitoring stations in the Waterbodies of the Southern Watershed Area, the parameters and frequency of sampling. Staff expressed the view that parameter coverage will most likely be increasing in the future with regards to the 305 (b) report. Other items discussed included consistency of watershed data between DEQ and DCR, Dept. of Forestry and Division of Natural Heritage.

Department of Environmental Quality--Virginia Coastal Program: Staff explained the origins and organization of the Coastal Program as well as what types of programs have been funded recently. Staff discussed the importance of the SWAMP project and other projects funded through the Coastal Program. Also indicated that the RFP for upcoming grant money will focus on the following priorities: 1) Tributary Strategies, including Reforestation and Habitat Restoration and 2) Chesapeake Bay Program Implementation. Staff encouraged new proposals related to the SWAMP project.

IV. CONCLUSIONS

The Committee discussed the importance of coordination and information exchange among the different agencies and local governments involved in the Southern Watershed Area. It was clear that much had been learned about the various programs and data collection of each agency at the meeting and that presently there are deficiencies in coordination among the participants. After much discussion, the Committee agreed that each agency should submit information to the HRPDC in survey response form on data available or projects currently underway in the region. The HRPDC will collect all of this information from the Agencies and local governments and distribute it to the Committee members.

The Committee also agreed to meet on an annual basis to exchange information in a more personal manner. The group agreed that the meeting provided a forum of exchange which could not be matched through survey information only. HRPDC staff agreed to notify Committee members of the next meeting.

MHL:fh

Attachment

SWAMP Committee - Local Government

Mr. Brent Nielson, CH
Mr. Robert J. Scott, VB
Mr. John O'Connor, CH
Mr. Ralph Smith, VB
Mr. D. Ray Stout, CH
Mr. John Herzke, VB
Mr. Amar Dwarkanath, CH
Mr. Clarence O. Warnstaff, VB
Mr. Louis E. Cullipher, VB
Mr. Clay Bernick, VB
Ms. Jaleh Pett, CH
Ms. Barbara Howe, VB
Mr. Mark Johnson, VB
Mr. Frank Sanders, CH
Ms. Julie Bright, DCR
Mr. Bob Pilch, CH
Mr. Jeff Waller, VB
Mr. Tom Pauls, VB
Mr. Bart Tuthill, VB

Agencies

Ms. Laura McKay, DEQ
Mr. R. Harold Jones, COE
Mr. John B. Gallegos, U.S. Fish & Wildlife
Ms. Lesa Berlinghoff, DCR
Mrr. Daniel B. Horne, Va. Dept. Health
Mr. James M.C. Bonavita, FCTCLANT
Mr. Fred X. Turck, Dept. of Forestry

Mr. Randy Owen, VMRC
Mr. Michael Focazio, USGS
Mr. Roger K. Everton, DEQ
Mr. Carl Garrision, Dept. of Forestry
Mr. Brian Hostetter, NAS Oceana
Ms. Michelle E. Fults, DEQ
Mr. Fred Hazelwood, DCR
Mr. Tom Smith, DCR National Heritage
Mr. Michael Flagg, DCR
Mr. Tony Watkinson, VMRC
Mr. Mitchell Norman, DGIF
Mr. Joe McCauley, FWS
Mr. Brian Anderson, DCR
Ms. Janit Potter, DCR
Ms. Cynthia Linkenhoker, DCR
Mr. Mike Lipford, TNC
Ms. Pam Couch, Naval Security Group

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

DR. ALAN P. KRASNOFF, CHAIRMAN • BENJAMIN F. SEAWELL, JR., VICE CHAIRMAN • V. WAYNE ORTON, TREASURER
ARTHUR L. COLLINS, EXECUTIVE DIRECTOR/SECRETARY

MEMORANDUM #95-90 **April 26, 1995**

TO: Persons Noted Below

BY: John M. Carlock, Director of Physical and Environmental Planning

RE: Southern Watershed Area Program Survey

At the special meeting of the Southern Watershed Area Management Plan (SWAMP) Committee and other agencies on March 23, 1995, it was agreed that a survey to collect information on projects, programs or data in the Southern Watershed Area would be designed and distributed to agencies. Staff of the Hampton Roads Planning District Commission has developed the enclosed survey. Please fill out the questionnaire and return it to the following address by May 17, 1995. Staff will organize the information collected and disseminate it to all participants. If you have any questions, feel free to give me or Martha Little a call at (804) 420-8300.

Martha Little
Hampton Roads Planning District Commission
The Regional Building
723 Woodlake Drive
Chesapeake, Va. 23320

ML:fh

Enclosure

SWAMP Committee - Local Government

Mr. Brent Nielson, CH
Mr. Robert J. Scott, VB
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Mr. D. Ray Stout, CH
Mr. John Herzke, VB
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Ms. Cynthia Linkenhoker, DCR
Mr. Mike Lipford, TNC
Ms. Pam Couch, Naval Security Group

SOUTHERN WATERSHED AREA MANAGEMENT PROGRAM

AGENCY PROGRAM OVERVIEW

SURVEY

Please respond to the following questions from the perspective of your agency, department or organization. Please give thorough answers, using extra pages if necessary.

Name and Title:

Department:

Agency, Organization:

1. What regulatory and/or research programs are you or your agency currently involved with in the Southern Watershed Area?

2. Please describe in detail each of the programs or projects mentioned above in item 1.

3. What regulatory and/or research programs have you or your agency been involved with in the recent past in the Southern Watershed Area? Give a brief description of activity.

4. Does your agency or organization propose to be involved in any regulatory and/or research programs in the Southern Watershed Area in the future? Please give a brief description of the project including proposed time frame.

5. What sources of information or data does your agency possess on water quality or other resources within the Southern Watershed Area? Which of these databases are maintained on an ongoing basis? What is the update schedule? Please describe the format within which this information is managed.

6. How might other agencies or organizations access the information pertaining to the Southern Watershed Area maintained by your agency or organization?

7. What agencies or organizations have you worked with on projects or programs in the Southern Watershed Area?

8. Are there any agencies or organizations with whom your agency would like to work more closely on projects in the Southern Watershed Area? If so, please name them.

9. What types of information would your agency like to acquire or have access to for projects in the Southern Watershed Area?

10. What suggestions would you make for improving data consistency, coordination of activities and information exchange between agencies?

Please return to:

Martha Little
Hampton Roads Planning District Commission
723 Woodlake Drive
Chesapeake, Virginia 23320
Telephone: 804 420-8300
Fax: 523-4881

APPENDIX C

SAMPLE LGAC SURVEY

SWAMP
LOCAL GOVERNMENT SURVEY

From the perspective of your agency or institution, please answer the following questions. Please give thorough answers, using extra pages if necessary.

1. What regulatory and/or research programs are you currently involved with in the Southern Watershed Area?

2. What are the greatest impediments to developing a management plan for the Southern Watershed Area? What is needed to overcome these impediments?

3. Describe additional data and research activities you think are necessary for the development of comprehensive and/or issue specific management programs. Why?

4. What gaps presently exist in the management and regulation of this area within your jurisdiction?

5. How should this consensus-building effort differ from other, past or present efforts?

6. Describe what you see as critical watershed problems and concerns?

7. What land use changes have occurred in the last five years which may have an impact on the SWA?

Return to:

Martha Little
Hampton Roads Planning District Commission
723 Woodlake Drive
Chesapeake, Virginia 23320

APPENDIX D

LGAC SURVEY RESPONSE SYNTHESIS

CRITICAL WATERSHED PROBLEMS

#6. Describe what you see as critical watershed problems and concerns?

The following is a list of all the responses to question #6 of the survey received by HRPDC:

- o Preservation of drinking water supply;
- o Chemical Spills;
- o Protection of environmentally sensitive resources;
- o Lack of interest from Chesapeake and Virginia Beach communities;
- o Improper Sewage Discharges;
- o Further use of BMP's for Development and Agriculture;
- o Impervious covering of watershed;
- o Urban NPS runoff impacts to habitat areas;
- o Inspection and enforcement of regulations;
- o Need land -use patterns that protect Natural Resources;
- o Maintenance of Drainage Systems;
- o Effectiveness of in-field management practices.

During discussions at the meeting on December 2, 1994, the following responses were added to the previous list.

- o Lack of public access
- o No consensus among diverse groups
- o Diverse expectations from various interest groups
- o Lack of Unified Focus
- o Multiple uses of waterways

CRITICAL WATERSHED PROBLEMS--PRIORITIES

The Committee decided that the three most important watershed problems were:

The #1 priority is the **need for land use management tools** which is essentially a combination of three previous responses--1) Impervious covering of watershed; 2) Urban/Suburban land conversion; 3) Need land-use patterns that protect natural resources.

The #2 priority is the need for **technical ways to handle/improve water quality** which in essence combines the following two previous responses: 1) Further use of BMP's for development and agriculture and 2) Maintenance of drainage systems.

The #3 priority is the **multiple uses of waterways/watersheds.** This response led to the decision of the Committee to list all existing uses of waterways and the watershed. This response also reflected the group's belief that a lack of unified focus in management and future goals is an impediment to developing a management plan.

IMPEDIMENTS TO MANAGEMENT PLAN

#2 What are the greatest impediments to developing a management plan for the Southern Watershed Area?

The following is a list of the responses to question #2 of the survey.

- o Need for more personnel and equipment
- o Lack of political guidance, leadership vision
- o Number of Agencies and interests
- o Conflicting objectives
- o Lack of Water Quality "Causal" information
- o Communications; coordination; duplication of effort--need on-going forum of government, citizens and interest groups
- o Lack of education and willingness to reach compromise
- o Multiple uses in watershed

The Committee chose the following three impediments as the top priorities for the SWA:

1. **Lack of unified focus or conflicting objectives**
2. **Number of Agencies and interests--need for on-going forum**
3. **Multiple uses in Watershed**

As the exercise continued it was evident to the Committee that the boundary between priorities of impediments and critical watershed problems became less clear. The Committee decided to discuss and prioritize the survey responses to research and data needs at the next meeting.

APPENDIX E

WATERBODY USES

MULTIPLE USES

NORTHWEST WATERWAY:

Water Supply

Recreation

Drainage

Habitat

Wastewater Assimilation

Flood Control

WATERSHED:

Agriculture

Forestry

Recreation

Military

Residential Development

Limited Commercial Dev.

Conservation/Open Space

BACK BAY WATERWAY:

Recreation

Habitat

Commercial Fishing

Flood Control

Drainage

Wastewater Assimilation

WATERSHED:

Habitat/Conservation

Recreation/Tourism

Agriculture

Urban Residential

Rural Residential

Commercial Development

Military

MULTIPLE USES CONT'D

NORTH LANDING WATERWAY:	WATERSHED:
Recreation	Military
Habitat	Urban Residential
Drainage	Agriculture
Transportation	Forestry
Flood Control	Conservation/Open Space
Wastewater Assimilation	Recreation
	Commercial Development
	Borrow Pits
	Industrial Development Rural Residential
	Bridge Crossings

APPENDIX F

SOUTHERN WATERSHED LAND USE MAP

SOUTHERN WATERSHED GENERALIZED LAND USE

- RURAL / AGRICULTURE
- COUNTRYSIDE: ONE UNIT PER ACRE - ONE UNIT PER TEN ACRES
- LOW DENSITY RESIDENTIAL: LESS THAN SEVEN DU'S PER ACRE
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL
- GOVERNMENT / INSTITUTIONAL
- INDUSTRY
- PARK / OPEN SPACE
- CONSERVATION
- WATER

N

0 1 2 3
MILES

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

SOURCE: LAND USE MAP CITY OF CHESAPEAKE, VIRGINIA AND THE COMPREHENSIVE PLAN MAP, 1990, VIRGINIA BEACH, VIRGINIA ADOPTED FEB. 23, 1988

APPENDIX G

WATER QUALITY MONITORING INFORMATION

DEQ TRO
PLANNING and PERMIT SUPPORT PROGRAMS

Water Quality Assessments

- 305(b) Report
- EIS Reviews
- Priority Waterbodies Catalog
- STORET Water Quality Data Support
- Water Body System

Water Quality Management Planning

- 303(e) Plans
  - Database Management
  - 303(d)/TMDL Development
  - VPDES Facility Inventory
- VPDES Permit Conformance Statements
- Water Quality Modeling

Virginia Revolving Loan Fund

- Construction Assistance

Water Supply Planning

- HRSD Reuse Committee
- Lake Gaston Project
- Technical Assistance to Communities
- Regional Raw Water Study Group
  (Newport News Water Supply Project)
- Virginia Water Use Data System
  (Reg 11 Reporting)

Special Projects

- 604(b) External and Internal Grant Projects
- Computer Technical Coordination
- CVC CFRO Committee
- Shellfish Project

Source: Department of Environmental Quality, Tidewater Regional Office, 1995.

AWQM STATIONS

NORTHWEST RIVER WATERSHED

STATION	FREQUENCY
Northwest River at Rt. 168 Bridge	M

NORTH LANDING RIVER WATERSHED

STATION	FREQUENCY
North Landing River at Rt. 165 Bridge	M
West Neck Creek at 627 Bridge	M
West Neck Creek at Rt. 603 Bridge	M
North Landing River at VA/NC Line	Q
North Landing River at Mill Dam Creek	Q
North Landing River at Blackwater Creek	Q
North Landing River at Rt. 190	Q
North Landing R. 2mi upstream Rt. 190	Q
North Landing River at Pocaty River	Q
North Landing River at West Neck Creek	Q

Source: Department of Environmental Quality, Tidewater Regional Office, 1995.

AWQM PARAMETERS

FIELD

Temperature, Dissolved Oxygen, Salinity, Conductivity, & pH

CONVENTIONAL

Biochemcial Oxygen Demand (BOD), Chloride, Sulfate, Conductivity, "Solids", Alkalinity, Turbidity, Chemcial Oxygen Demand (COD), Total Organic Carbon (TOC), & Hardness

NUTRIENTS

Total Kjeldahl Nitrogen (TKN), Total Phosphorus, Ortho Phosphorus, Ammonia, Nitrate, & Nitrate

FECAL COLIFORM

WATER COLUMN METALS

Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Thallium, Zinc, & Lithium

* Cholorphyll a,b,c and Phaeophyton are collected at some Back Bay stations

Source: Department of Environmental Quality, Tidewater Regional Office, 1995.

USES OF THE STORET DATA INFORMATION (INTERNALLY AND EXTERNALLY)

WATER QUALITY ASSESSMENT REPORT (305B)

DEVELOPMENT OF 303(d)/TMDL LISTINGS

WATER QUALITY MANAGEMENT PLANS

VIRGINIA WATER PROTECTION PERMIT DECISIONS

MODELING FOR USE IN DETERMINING PERMIT LIMITS

CONSULTANTS FOR VARIOUS STUDIES AND REPORTS

DIVISION OF SOIL AND WATER CONSERVATION
(use in the 319 Nonpoint Source Report)

GOVERNMENT AGENCIES INVOLVED WITH THE ENVIRONMENTAL FIELD

GRADUATE STUDENTS WORKING ON ENVIRONMENT STUDIES/REPORTS

CITIZENS CONCERNED ABOUT THE WQ OF THE WATERS NEAR THEIR HOMES

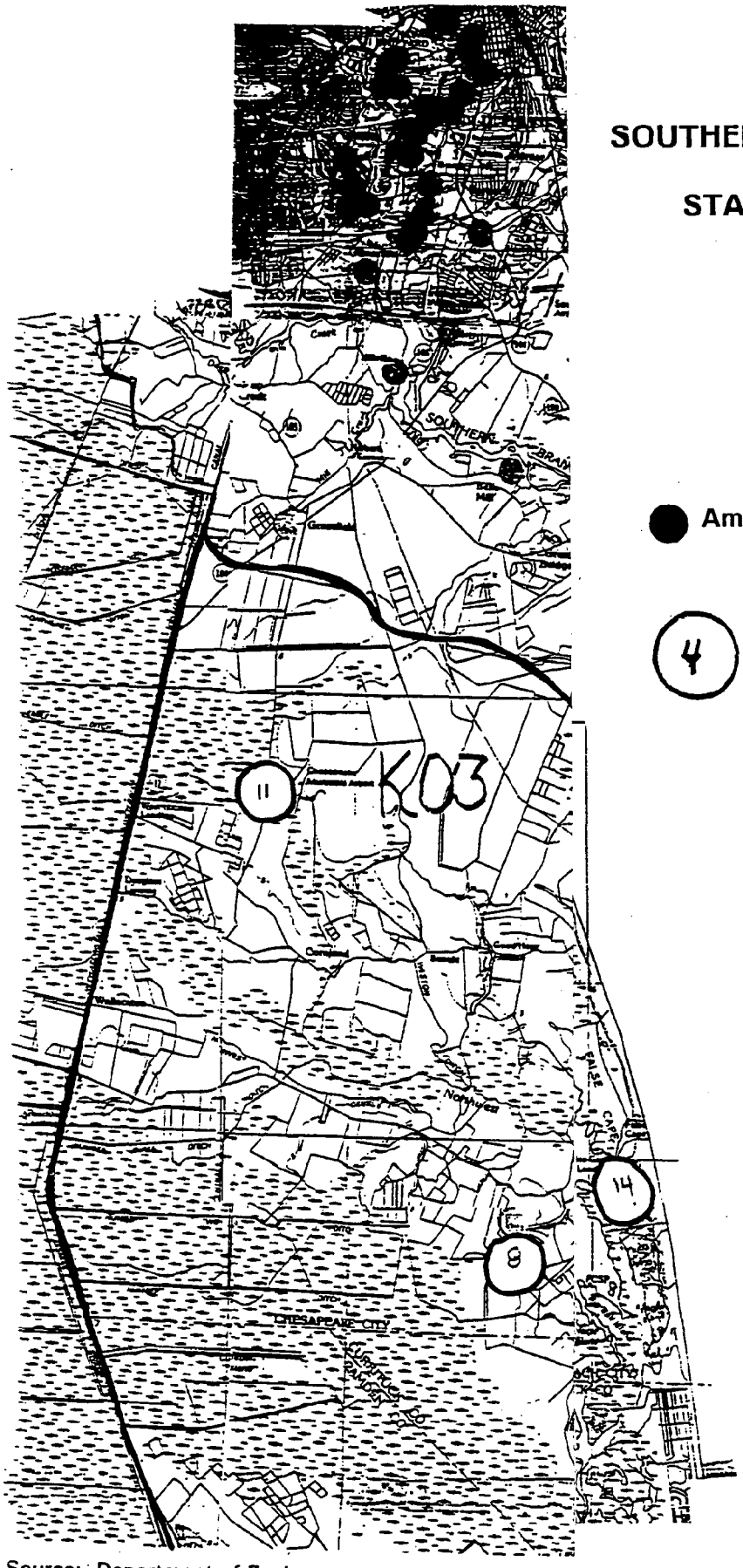
Source: Department of Environmental Quality, Tidewater Regional Office, 1995.

LISTING OF FACILITIES IN THE BACK BAY/NORTH LANDING RIVER AREA

DOT#	WBID #	VPDES #	FACILITY NAME	FACILITY TYPE	RECIEVING WATERS
1	K01	VA0005266	OCEANA NAVAL AIR STATION	IND/MINOR	NORTH LANDING R, WEST NECK CR
2	K03	VA0024562	HICKORY SCHOOLS WWTP	MUN/MINOR	CHESAPEAKE & ALBEMARLE C, UT
3	K02	VA0064289	HOPE HAVEN - UNION MISSION	MUN/MINOR	NORTH LANDING R, UT
4	K02	VA0037113	NORFOLK DREDGING CO.	MUN/MINOR	CHESAPEAKE & ALBEMARLE C
5	K02	VA0076635	BERGEY'S DAIRY FARM	IND/MINOR	CHESAPEAKE & ALBEMARLE C
6	K02	VA0082520	MT. PLEASANT MENNONITE CH	MUN/MINOR	OFF - LINE
7	K02	VA0087548	STANDARD TRANSPIPE VA. INC	IND/MINOR	NORTH LANDING R
8	K03	VA0024244	NAVAL SECURITY GROUP - NW	MUN/MINOR	NORTHWEST R, UT
9	K03	VA0057550	CHESAPEAKE WTP (discharge)	IND/MINOR	NORTHWEST R
10	K04	VA0060526	VDOC - ST. BRIDES CORRECT.	MUN/MINOR	NORTHWEST R, INDIAN CRK
11	K03	VA0068209	CHESAPEAKE MUN. AIRPORT	MUN/MINOR	NORTHWEST R, UT
12	K04	VA0071617	CHESAPEAKE WTP (sludge lag)	IND/MINOR	NORTHWEST R. INDIAN CRK, UT
13	K01	VA0062391	INDIAN COVE CAMPGROUND	MUN/MINOR	HELL POINT CRK
14	K01	VA0085430	FALSE CAPE STATE PARK (well water treatment sys)	IND/MINOR	BACK BAY

Source: Department of Environmental Quality, Tidewater Regional Office, 1995.

SOUTHERN WATERSHED MONITORING STATIONS AND DISCHARGES



● Ambient Quality Monitoring Stations

(4) Facility Discharge Locations

Source: Department of Environmental Quality, Tidewater

APPENDIX H

WATER QUALITY INFORMATION--SWAMP

TABLE 1. Water quality studies in Back Bay, Virginia and its tributaries.

DATE	ORGANIZATION	PARAMETERS	LOCATION
1925 - 1924	Game Preservation Association	salinity	Knotts Island (9 sample sites)
1946	VPISU	salinity	Back Bay NWR (9)
1949 - 1955	USACE	salinity	Knotts Island (1), North Bay (1)
1953 - 1956	Anonymous	salinity	Redhead Bay (1)
1958 - 1963	USFWS, NCWRC, VDGIF	salinity, pH, alkalinity, turbidity, light penetration, metals, nutrients	Back Bay, Currituck Sound (60 sample sites)
1965 - 1977	USFWS	salinity, turbidity	Back Bay (22 sample stations)
1972 - present	VWCB	pH, DO, conductivity, nutrients	Back Bay and creeks (17 sample sites)
1978 - present	VDGIF	salinity, turbidity	Back Bay (24 sample sites)
1977 - 1988	USGS	light attentuation, TSS, turbidity, chlorophyll-a	Back Bay, North Bay (7 sample sites)
1983	Roy Mann Associates	pH, nutrients, TSS, turbidity	Back Bay, North Bay, creeks (20 sample sites) Back Bay (6 sample sites)
1986 - 1989	VDGIF, Back Bay Restoration Foundation	TSS, nutrients	Back Bay (6 sample sites)
1991	USFWS	pH, DO, conductivity, sediment metals and pesticides	Back Bay and tributaries (7 sample sites)
1993 - 1994	USFWS	nutrients, sediments, turbidity	

VPISU Virginia Polytechnic Institute and State University
USFWS United States Fish and Wildlife Service
NCWRC North Carolina Wildlife Resource Commission
VWCB Virginia Water Control Board
VDGIF Virginia Department of Game and Inland Fisheries
USGS United States Geological Survey

Source: Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, September 1994.

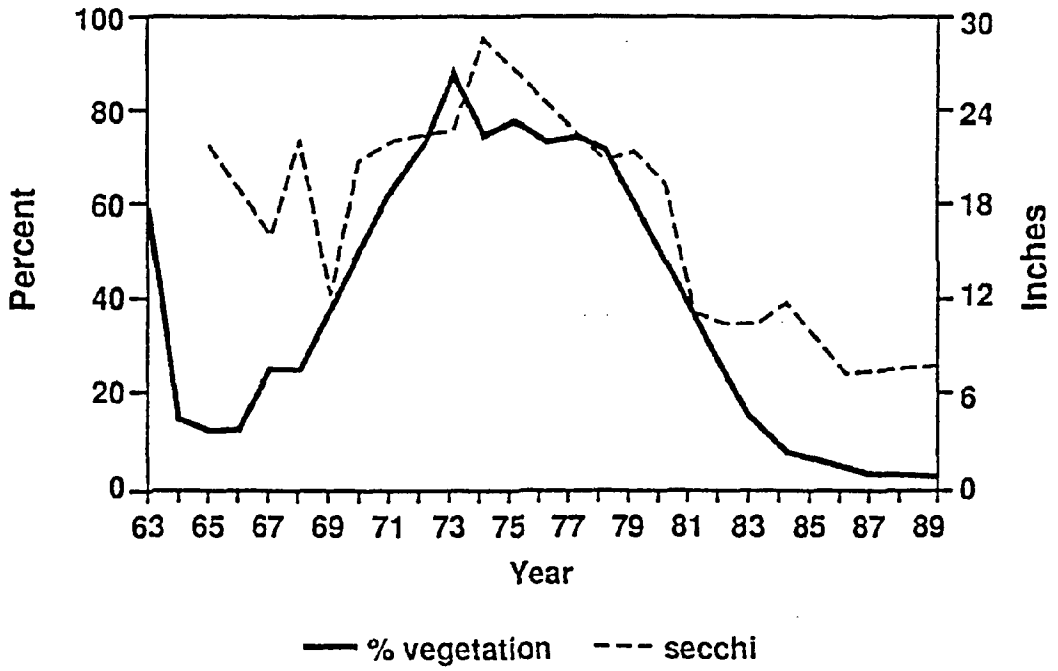


Figure 5. Comparison of mean Secchi disc visibility (inches) with abundance of submerged aquatic vegetation (% occurrence at sampling stations.)

Source: Norman and Southwick, VDGIF, 1990

Source: Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, September 1994.

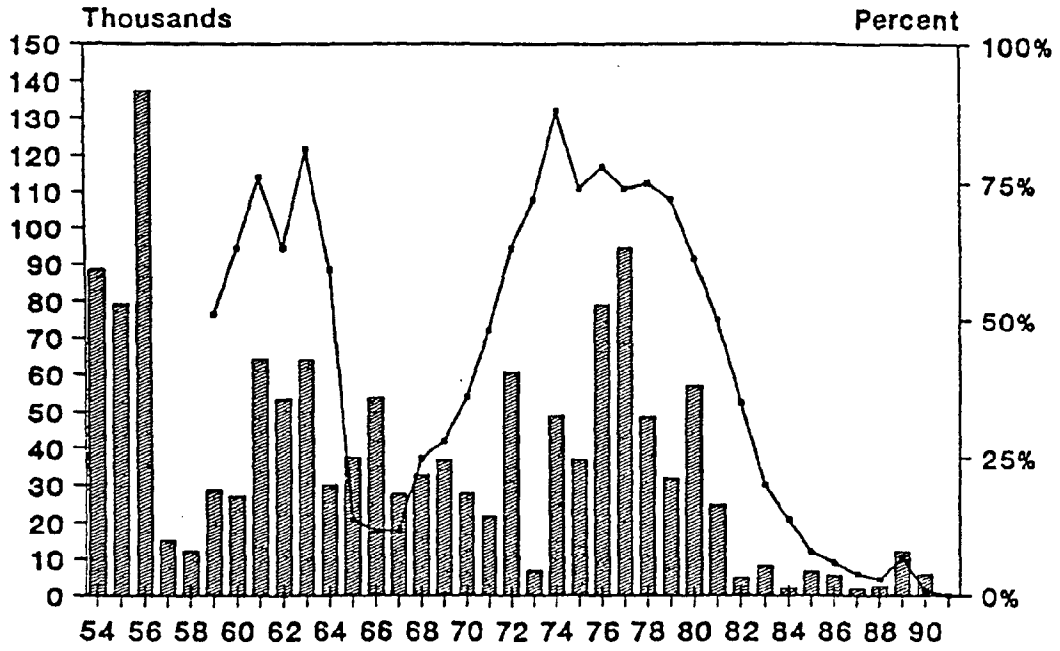


Figure 3. Total waterfowl and percent frequency of SAV in Back Bay, Virginia.

Source: Settle and Schwab, VDGIF, 1990

Source: Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, September 1994.

EXISTING WATER QUALITY DATA

Water Quality Data	Northwest River	North Landing River	Back Bay
CWA Swimmable Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Fish Consumption Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Aquatic Life Goal	100% Fully Supports	90% Fully Supports 10% Threatened (94 Data)	66% Fully Supports 34% Threatened
DO Standard Violations	Yes (From Natural Conditions)	Minor Violations	Yes (From Natural Conditions)
Elevated Nutrients	Yes (After Storms)	Yes (From NPS Such as Animal Waste and Fertilizers)	Yes (Agriculture and Residential Areas)
PH Standard Violations	Yes (92 Data)	ND	ND
Change in Salinity	Increase in Salinity Due to Water Supply System	ND	Decline in Salinity
Point Source Discharges	5 Minor	6 Minor	2 Minor
Overall Watershed Rating	Medium	High	High
Pollution Potential:			
Agricultural	High	High	High
Urban	Low	High	High
Forestry	Low	Low	Low
SAV Population	ND	ND	Decline

Sources: Virginia Water Quality Assessment for 1992 - 1994, 305 (b) Report for EPA and Congress; Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, U.S. Fish and Wildlife Service, September 1994; Albemarle-Pamlico Profiles, HRPDC, 1993.

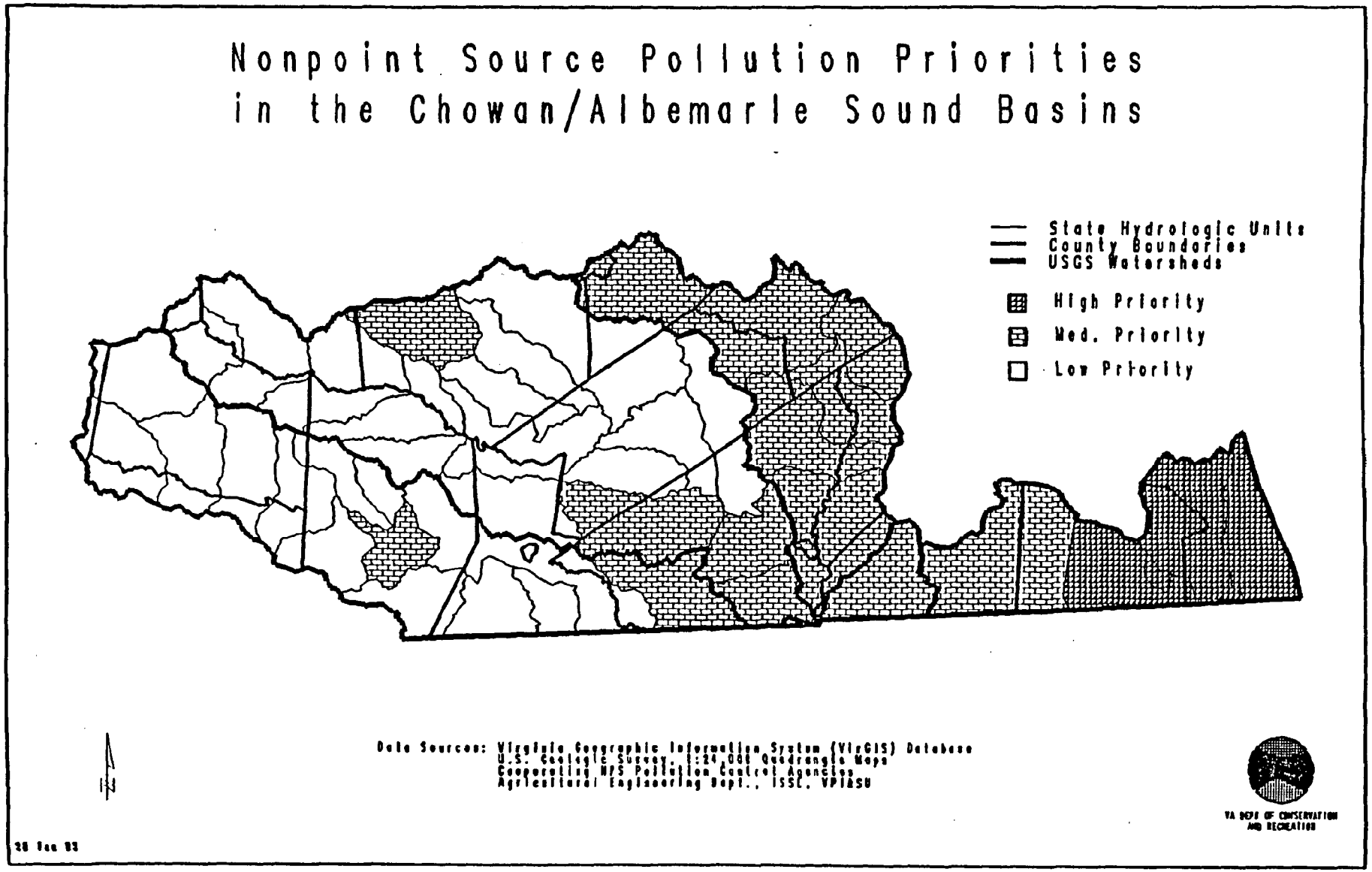
Key: ND = No Data

LAND USE

	Northwest Waterbody	North Landing River	Back Bay
Agricultural	25%	44%	33%
Developed Land	5%	18%	7%
Underdeveloped Land	70%	34%	36% 24% Protected
Open Water	ND	4%	ND

Source: Albemarle-Pamlico Profiles, HRPDC, 1993.

Key: ND = No Data



SOURCE: Department of Conservation and Recreation, Division of Soil and Water Conservation, 1993.

APPENDIX I

DRAFT MEMORANDUM OF AGREEMENT

VIRGINIA BEACH AND CHESAPEAKE

DRAFT

MEMORANDUM OF AGREEMENT--SWAMP

Whereas, Section 15.1-21 of the Code of Virginia enables local governments to enter into cooperative agreements to exercise those powers that each may be enabled to exercise; and

Whereas, a Virginia Coastal Resources Management Program grant was obtained by the Hampton Roads Planning District Commission to facilitate and coordinate a "Southern Watershed Area Management Program" with the two local governments, Virginia Beach and Chesapeake; and

Whereas, the "Southern Watershed Area" has been defined for the purposes of this program as the watersheds of the Back Bay, North Landing and Northwest water bodies (refer to map); and

Whereas, Section 15.1-446.1 requires every governing body to adopt a comprehensive plan for the territory under its jurisdiction by July 1, 1980; and

Whereas, the comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants; and

Whereas, the Local Government Advisory Committee for the Southern Watershed Area Management Program developed consensus on goals and objectives for the Southern Watershed Area Management Program based on and in harmony with the goals and objectives previously developed for the Comprehensive Plans of each localities;

NOW THEREFORE, the signatory parties enter into the following agreement:

This Memorandum of Agreement, entered into this ____ day of _____, 1995 between the two cities, Virginia Beach and Chesapeake as partners, establishes the Cooperative Regional Southern Area Watersheds Management Program. It outlines the roles and responsibilities of each entity in administering this program.

BASIC PREMISES

1. Section 15.1-431 of the Code, requires that when a proposed comprehensive plan or amendment thereto, a proposed change in zoning map classification, or an application for special exception or variance* involves any parcel of land located within one-half mile of a boundary of an adjoining county or municipality, then...written notice shall also be given by the local commission, or its representative, at least ten days before the hearing to the chief administrative officer, or his designee, of such adjoining county or municipality. This Agreement intends to develop a coordinated mechanism for fulfilling this requirement and going a step further to design a formal process for implementing the Southern Watershed Area Management Program.

2. The Cities of Virginia Beach and Chesapeake have developed a local government consensus on Watershed goals, objectives and priorities for the Southern Watershed Area from the goals, objectives and priorities adopted in the local Comprehensive Plans. This consensus, developed through the Local Government Advisory Committee for the HRPDC "Southern Watershed Special Area Management Program" (SWAMP) is the basis for developing a broader, more comprehensive environmental and natural resource management program for the Southern Watershed Area.

3. The MISSION STATEMENT, GOALS and OBJECTIVES for Environmental Management in the Southern Watershed of Chesapeake and Virginia Beach developed through consensus by the Local Government Advisory Committee for SWAMP will be accepted as an integral part of the Cooperative Regional Southern Watersheds Area Management Program. Local Government decisions affecting the Southern Watershed of Chesapeake and Virginia Beach should be consistent with these GOALS and OBJECTIVES.

4. The Memorandum of Agreement and associated local government responsibilities relating to Virginia Beach and Chesapeake's Southern Watershed Area Management Program serves as an instrument of cooperative regional planning. The policies and related responsibilities effected by this agreement shall not restrict either locality's legitimate function to study, plan and, if deemed to be in the public interest, adopt appropriate planned land use, zoning and other development related changes in the defined Southern Watersheds Area.

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*Note: Senate Bill No. 766 proposes to change wording to... "variance *for a change in use, bulk, or height greater than fifty percent of the existing use or building, but not including renewals of previous approvals,...*"

5. The policies and related responsibilities effected by this agreement shall not allow either locality to prevent or restrict the other locality from exercising, at its own discretion, what it determines to be the appropriate use of lands contained within its boundaries.

6. This agreement establishes the administrative framework which will be used by the two local governments to ensure that planning and management initiatives affecting the Southern Watershed of Chesapeake and Virginia Beach are coordinated and integrated.

7. This Agreement applies only to the cities of Virginia Beach and Chesapeake. Both local governments will be participants in and signatories to the Agreement.

8. This agreement shall remain in effect until either signatory local government shall elect to withdraw. The Agreement may be amended at anytime with both cities' consent.

LOCAL GOVERNMENT RESPONSIBILITIES

Under the terms of this Agreement, the signatory local governments are responsible for the following:

1. The signatory local governments shall appoint a staff person to be "Southern Watershed Coordinator" and to serve as the point of contact for issues relating to the Southern Watershed. Requests for information on the Southern Watershed Area will be addressed to this person.

2. A formal institutional staff-level process for cooperative environmental management of the Southern Watershed will be designed and implemented. A schedule of regular meetings for information exchange between the two signatory local governments will be developed.

3. The MISSION STATEMENT, GOALS AND OBJECTIVES developed by the Local Government Advisory Committee for the HRPDC SWAMP will serve as the framework for decisions made by the two signatory local governments. The PRIORITIES developed by the SWAMP Committee will serve as the basis for developing an action plan for the Southern Watershed Area.

4. The two signatory local governments should continue informal discussions concerning broader coordination of development review affecting the shared resources in the Southern Watershed Area.

5. The signatory local governments should develop educational materials on the sensitive lands, water quality issues and general significance of the natural resources of the Southern Watershed to provide to public officials and citizens.

6. Through the Cooperative Regional Southern Watershed Area Management Program, the signatory local governments should aspire to coordinate and integrate the multitude of activities and interests in the Southern Watershed Area, including endeavors of State and Federal Agencies within the area.

7. The signatory local governments should continue analysis of technical water quality studies, including exploring the opportunity for watershed-wide educational water quality monitoring programs.

APPENDIX J

FUTURE TASKS AND STUDIES

PRELIMINARY SCOPES OF WORK

SWAMP PRELIMINARY SCOPES OF WORK

WATER QUALITY ISSUES--BASIC PROJECT PARAMETERS:

Routine ambient water quality monitoring is conducted by several agencies. Additionally, the City of Chesapeake conducts water quality monitoring on a daily basis at its water supply intake on the Northwest River. Ambient sampling stations on Back Bay are located exclusively in the main stem of the Bay. Most ambient sampling on the North Landing and Northwest Rivers is also conducted in the main channels. This sampling program, while appropriate for characterization of water quality in the primary waterbodies, is inadequate to characterize the contributions of nutrients and stormwater associated with the tributaries, especially during storm events. This also compounds the difficulty of assessing the relative role of stormwater runoff in the quality of these sensitive waterbodies. An intensive stormwater runoff monitoring program, conducted in a coordinated fashion with the ongoing ambient monitoring program, will assist in determining the relative role of stormwater borne nutrients and sediments in the water quality problems of the Bay and Rivers. These include eutrophication and excessive turbidity. A more intensive monitoring program is also necessary to support any efforts at modelling water quality conditions and the impacts of potential new development and/or management approaches.

To undertake a comprehensive water quality monitoring and modelling program in the Southern Watershed, the following steps are necessary:

- A Water Quality Task Force, comprised of representatives of the DEQ (Water Division), FWS, VIMS, ODU, USGS, VDGIF, DCR-DNH & DSWC, HRPDC, HRSD and the two cities, will be convened. The mission of this Task Force will be to evaluate existing water quality data to determine its sufficiency for defining water quality conditions and to determine the sufficiency of that data for defining the sources of those problems.

- The Task Force will prepare a synthesis of existing water quality information, including ongoing monitoring, about the Watershed to document current Watershed water quality conditions and trends, based on available data. Using this synthesis as well as the raw data itself, the Task Force will conduct the aforementioned evaluation.

- Based on the evaluation, a detailed sampling program will be designed to address identified inadequacies in the existing system. It is expected that this program will include an intensification of the current monitoring program and increased monitoring of stormwater and the effectiveness of existing management practices. The intensified ambient monitoring program will be designed to support development of water quality model(s) of the watershed's

major waterbodies. The program will be designed to maximize the cost-effectiveness of individual agency monitoring efforts.

- A sampling protocol, addressing ambient conditions, stormwater inputs from urban and agricultural areas, and point sources will be designed. It will be consistent with the regional stormwater monitoring protocol.

- The stormwater monitoring program will be coordinated with the NPDES Stormwater Monitoring Programs being conducted by the two Cities and the FWS program in Back Bay. It will be used to define the relative stormwater/nonpoint source contributions of watershed land uses as well as the major tributaries to the principal waterbodies. It will also include evaluation of the effectiveness of currently implemented Best Management Practices.

- The monitoring program will document seasonal variations in loadings and through the modelling effort the seasonal variations in impacts.

- Data obtained during this study will ultimately be used in developing recommendations for water-body specific water quality standards if appropriate, designing implementation strategies for best management practices (BMPs) and facilitating state and local management program decisions and recommendations.

- Insofar as the stormwater program is concerned, the following factors will be addressed to ensure compatibility with the current FWS stormwater program for Back Bay.

  - Monitoring stations will be established at the mouths of the twelve main tributaries to the Bay and Rivers. Automatic samplers, activated during peak flow rates, (storm periods) will be used. This will permit identified gaps in the water quality data base to be filled. This should provide local government and state agencies with the data necessary to develop strategies for implementation of agricultural and urban BMPs as well as to develop protection and management plans for critical environmental resources.

  - Initial efforts will focus on identification of the tributaries which are the greatest contributors of stormwater-related nutrients and sediments. Follow-up studies will focus on these tributaries and sampling efforts will be intensified. Future sampling stations will be established throughout the tributaries to determine locations within their drainage areas which should be targeted for management efforts. In the final stage of the program, pilot BMP projects will be implemented. This will permit determination of the most effective BMPs for use in this watershed. Included within the

BMP pilot program will be the use and sampling of alternative vegetative buffers as BMPs.

- Samples will be taken for three storm events in each of the four seasons. Thus, a minimum of twelve storm events will be sampled for each tributary. Parameters to be measured will include:

  - Total Suspended Solids
  - Volatile Suspended Solids
  - Fixed Suspended Solids
  - Nitrogen and Phosphorus Series
  - Chlorophyll a
  - Total Organic Carbon
  - Representative pesticides and herbicides. Sampling will be tied to specific pesticide and herbicide use within the watershed.
  - Metals and Organics, based on the NPDES stormwater sampling program.

- BMP demonstration projects will be sampled to determine the effectiveness of selected BMPS, including vegetated buffers. Paired watersheds (with and without BMPS) or paired sites on a single BMP (above and below the practice) will be sampled. Both agricultural and urban BMPs will be sampled.

Water Quality Models will be developed for each of the three primary waterbodies in the Southern Watershed. Following calibration and verification according to standard scientific procedures, the models will be utilized to evaluate future development scenarios, and mixes of management practices.

- Reports will be prepared to document the water quality data synthesis and evaluation, water quality characterization, relative stormwater contributions, water quality models and model evaluations.

A project cost estimate has not been prepared. An estimate will be developed following the Task Force data evaluation and program development effort. The initial Task Force effort should have minimal cost, beyond report preparation and meeting expense, assuming the willingness of the agencies to participate in this effort through normal operations.

COORDINATION/INTERACTION BETWEEN STATE AND FEDERAL AGENCIES AND LOCAL GOVERNMENTS:

The Southern Watershed Special Area Management Plan Committee, which is made up of staff from State, Federal and Local agencies with projects in or technical information on the Southern Watershed Area and members of the Local Government Advisory Committee for SWAMP held a meeting on March 23, 1995. This meeting set the stage for information exchange between the agencies and the LGAC on current issues and projects in the Southern Watershed Area. As a result of this meeting the SWAMP Committee decided to hold annual meetings to further improve the coordination and interaction between the agencies and local governments. The HRPDC agreed to facilitate and handle the logistical arrangements for these meetings. For a list of state and federal agency activities in the Southern Watershed, See Appendix E.

Other tasks to improve the coordination between state, federal and local agencies include:

- HRPDC will design and disseminate a survey to all agencies with activities in the Southern Watershed Area to collect information on available data, current and proposed activities, and other resources available. HRPDC will serve as a clearinghouse for this information and will provide it to all members of the SWAMP Committee.

- Fact sheets and information brochures on water quality and other natural resource information pertaining to the Southern Watershed will be produced and disseminated to public officials, decision makers and the public in general.

- An analysis of the compatibility of water quality data and recommendations for synthesizing and clarifying water quality data sets will be made. Additional research needs will also be identified.

EDUCATIONAL PROGRAM FOR LOCAL WATER QUALITY MONITORING:

The Local Government Advisory Committee for SWAMP identified the need for improved water quality monitoring through an education program. This initiative will provide the opportunity for elementary, middle and secondary school students to learn about water quality and the methods of sampling water for a variety of contaminants. This project will also enhance the existing educational programs within the area by providing another focus. The following tasks will be accomplished:

- Design administrative framework for educational monitoring program. Investigate possible organizations to help develop program.

- Implement pilot project in one school in each city to educate students on water quality monitoring and initiate student monitoring in one waterbody segment in the Southern Watershed Area. Analyze pilot project for points of success and failure. Expand program to more schools.

- Design educational programs for elementary, middle and secondary schools. Prepare workshops, brochures and pamphlets to educate students in both locality's school systems.

- Coordinate education program for Southern Watersheds with existing "Clean the Bay Days" and "National Coastal Cleanup" activities.

TECHNICAL STUDIES FOR CITY OF CHESAPEAKE:

The Committee identified the need for specific technical studies for the City of Chesapeake. These included a Natural Area Inventory, and updates to the city's soil survey and floodplain maps. To address these needs, the following actions or initiatives have been taken:

- The Department of Conservation and Recreations Division of Natural Heritage requested funding for a Natural Area Inventory for the City of Chesapeake. The EPA grant was obtained and an "Inventory and Protection Plan for Southeast Virginia's Exemplary Wetlands, Critical Natural Areas and Endangered Species is being conducted. The study period for the project is 1994 to 1997.

- The U.S. Department of Agriculture, Natural Resource Conservation Service has worked with the City of Chesapeake to develop the following proposal for an updated soil survey for the city:

- The project to update the City of Chesapeake Soil Survey (Norfolk County Survey, 1959) would be completed over a three year period. The Project will be a cooperative effort between the following: City of Chesapeake, USDA-Soil Conservation Service, Virginia Polytechnic Institute and State University, and Division of Soil and Water Conservation. The final product will consist of a soils database in digital form and manuscript (GIS soils map layer on controlled orthophotoquad base, soils data base, technical descriptions). Virginia State University Center for Excellence plans to run a parallel, wetlands research project which will gather data that will become part of the soils database.

- The City of Chesapeake is working with the Corps of Engineers to update the floodplain maps for the city. This project is anticipated to be complete in the summer of 1995.

APPENDIX K

EDUCATIONAL BROCHURES

1) A Guide to the Southern Watershed Area Management Program

2) Water Quality Conditions: The Southern Watersheds of Virginia Beach and Chesapeake

Environmental Reviews

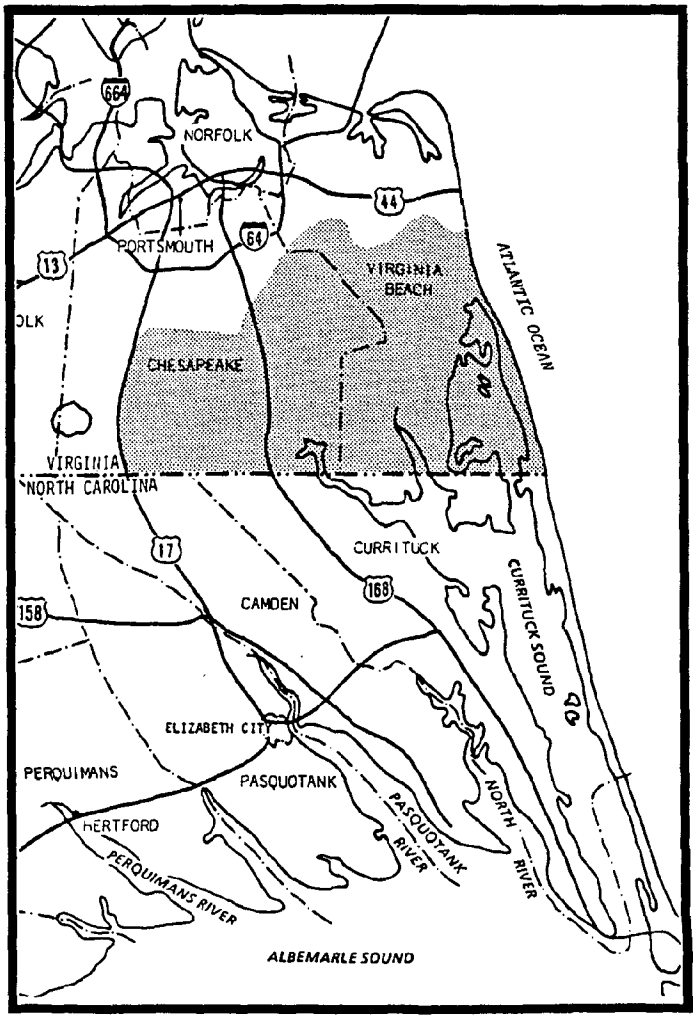
HAMPTON ROADS PLANNING DISTRICT COMMISSION

IS A QUARTERLY PUBLICATION OF THE HAMPTON ROADS PLANNING DISTRICT COMMISSION, AND IS FUNDED BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, THE VIRGINIA COUNCIL ON THE ENVIRONMENT, AND AREA LOCAL GOVERNMENTS.

A Guide to The Southern Watershed Area Management Program (SWAMP)

What is SWAMP?

The Southern Watershed Area Management Program is a joint project of the Cities of Virginia Beach and Chesapeake, coordinated by the Hampton Roads Planning District Commission and funded in part by the Virginia Coastal Resources Management Program. The Program's purpose is to develop a coordinated management plan for the Southern Watershed Area which encompasses the watersheds of Back Bay, Northwest River and the North Landing River.



The SWAMP process:

The Local Government Advisory Committee for SWAMP consists of local government technical resource personnel from the Cities of Virginia Beach and Chesapeake and a representative from the Virginia Dare Soil and Water Conservation District. The Local Government Advisory Committee met consistently

between February 1994 and March 1995. In an effort to reach consensus on the issues, the Committee worked as a team to identify critical watershed problems and priorities.

Goals and Objectives for management of the watershed area and a coordinated management approach for the future were developed. Recommendations for future technical studies, research and data needs were also identified in the process. Through an iterative consensus building approach with the advisory committee, HRPDC staff assisted in the process and served as a link between this project and the large variety of activities which are underway in the watershed by federal, state, local and private groups.

Existing technical studies were examined to try to determine the current conditions in the watersheds and identify technical information needs 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 goals and objectives and developed an integrated process for managing the area.

SWAMP Priorities:

The Local Government Advisory Committee identified the following management priorities for the Southern Watershed Area:

1. Develop Common goals and a shared vision for the Southern Watershed Area.

2. Provide for multiple uses of waterways and watersheds.

3. Manage nonpoint sources of pollution.

4. Number of agencies and interests in Southern Watershed Area illustrates need for an on-going forum or clearinghouse for information.

5. Manage competing uses in watershed.

6. Identify and reduce data gaps to help further the mission statement.

SWAMP Mission Statement, Goals and Objectives:

The Local Government Advisory Committee reached consensus on a mission statement, goals and objectives for the Southern Watershed Area. These goals and objectives are both representative of the Committee's opinions (as a composite of the two local governments) and consistent with the Comprehensive Plans of the two local governments.

MISSION STATEMENT

Natural Resources, sensitive lands, and water supplies of the Southern Watersheds of Virginia Beach and Chesapeake should be protected and enhanced.

GOAL # 1:

WATER QUALITY SHOULD BE PROTECTED AND ENHANCED FOR WATER SUPPLIES AND NATURAL RESOURCES CONSERVATION.

Objectives:

1. Protection of water quality for water supply of the Northwest River Treatment Plant.

2. Achieve improved water quality, stormwater management control and flood control through application of local, state and federal programs and initiatives.

3. Study the potential for educational programs for water quality monitoring.

4. Educate citizens, the development community and public officials on the importance of water quality issues including water supply and stormwater.

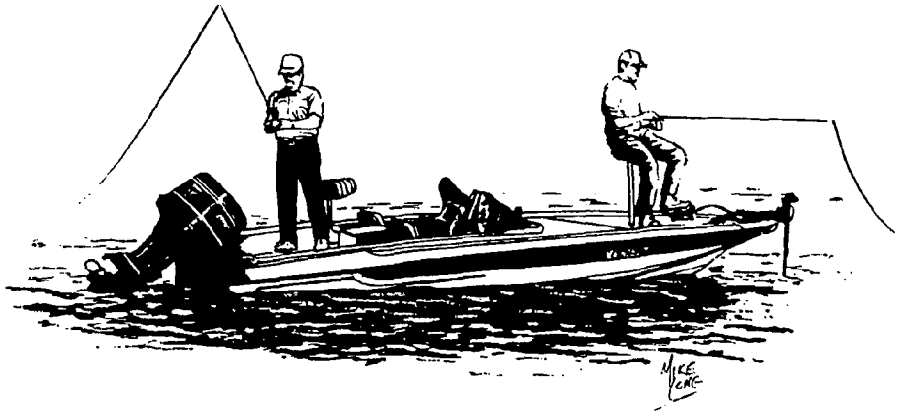
GOAL # 2:

PRESERVE OPEN LANDS TO HELP PROTECT AND ENHANCE WATER QUALITY:

Objectives:

1. Preserve critical edge habitat areas, marshes and swamps by application of preservation zoning, conservation easements and any other appropriate development incentives.

2. Educate citizens, the development community and public officials on the importance of open space, agricultural and forested lands and other natural resources.



GOAL #3:

ENSURE COMPATIBILITY OF RECREATIONAL ACTIVITIES AND COMMERCE WITH NATURAL RESOURCE PROTECTION

Objectives:

1. Acquire and develop adequate public and private park land and open space that compliments the existing park system.

2. Encourage appropriate management techniques (such as conservation and water wise landscaping, etc.) for public and private recreational facilities for water quality and habitat protection.

3. Coordinate activities and management of inter-coastal waterways with natural resource and water quality protection.

4. Coordinate local activities with state and federal programs such as the North Landing Public Access Program and the North Landing River Conservation Program, and so forth.

Note: For the following goals and objectives, "Southern Watersheds" will be defined as the Southern Rural Area for Virginia Beach and the Rural Overlay District for Chesapeake. It does not include the entire Southern Watershed Area.

GOAL # 4:

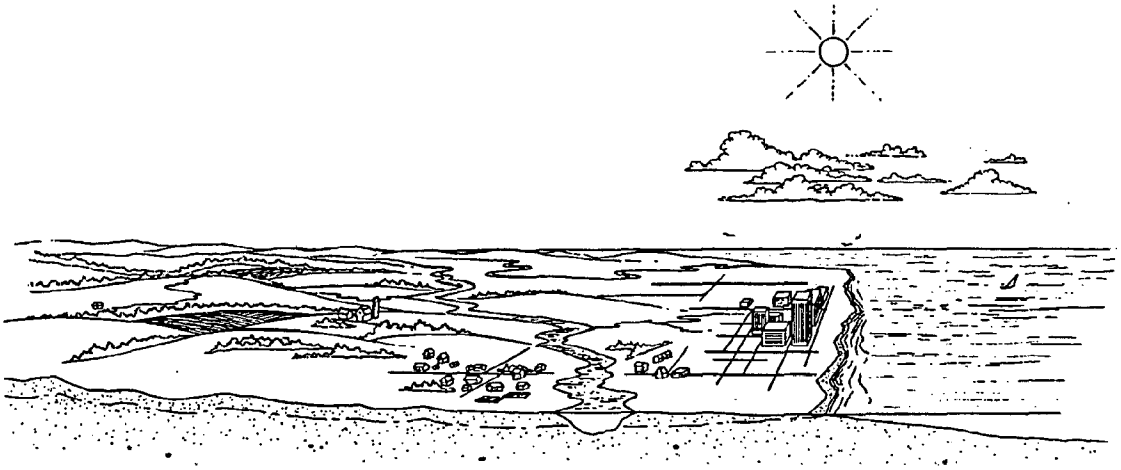
THE CHARACTER OF THE SOUTHERN WATERSHED SHOULD REMAIN RURAL WHILE PROVIDING FOR RURAL RESIDENTIAL DEVELOPMENT

Objectives:

1. Infrastructure improvements within the Southern Watershed should represent those necessary to support a rural area, should be consistent with local planning policies, and should minimize the increase in impervious surface that prevents groundwater recharge and increases salt water intrusion.

2. Institute good land use management practices and monitoring of land use activities.

3. Demand created by development should not exceed supply provided by rural infrastructure; development should be consistent with local planning policies.



GOAL # 5:

AGRICULTURAL AND FORESTAL ACTIVITIES IN THE SOUTHERN WATERSHED SHOULD BE SUSTAINED AND ENCOURAGED.

Objectives:

1. Promote and encourage the preservation of agricultural and forestal lands.

2. Promote agricultural activities and direct services to agriculture support services and infrastructure.

3. Support programs that provide practical research-based information and training regarding environmentally sound and cost-effective horticultural, agricultural and forestal practices.

Memorandum of Agreement:

The Local Government Advisory Committee developed a draft Memorandum of Agreement (MOA) which, if adopted would serve as the administrative framework for a coordinated management program in the Southern Watershed Area. The draft MOA outlines the responsibilities of the two signatory local governments in managing the Southern Watershed

Area and implementing the consensus goals and objectives. The MOA will help ensure that future management decisions in the Southern Watershed Area will be coordinated and consistent with adopted policies and goals. The draft MOA is currently under administrative review by the Cities of Virginia Beach and Chesapeake.

What is the next step?

Implementation of the management goals and objectives developed by the Committee is the critical next step. Through the development of an on-going process through which the two local governments can work together, coordinated and informed decisions will be made in the management of the Southern Watershed Area. The Committee identified the following research and data needs to support management decisions:

1. Explore opportunities for additional water quality monitoring.

2. Encourage compatibility of data.

3. Review existing data sets to identify data gaps and inconsistencies.

4. Explore opportunity for Natural Inventory, Soils Survey and update to floodplain maps for the City of Chesapeake.

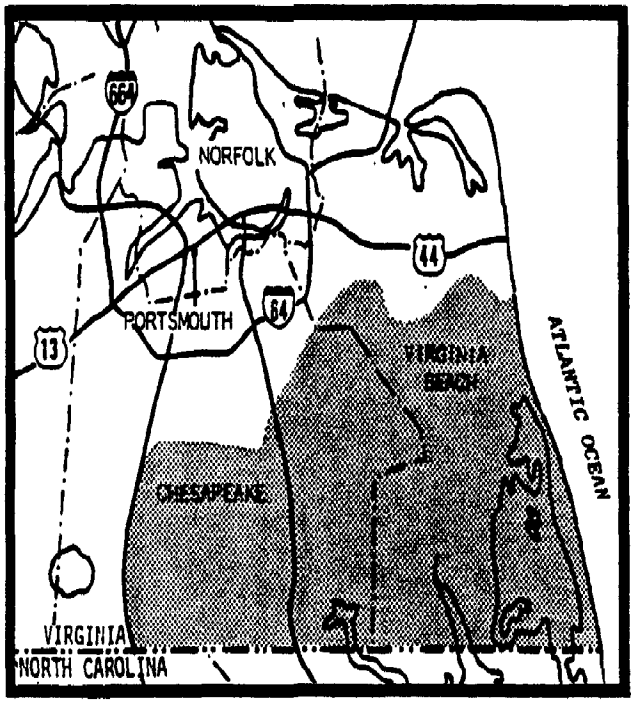
Preliminary scopes of work to achieve these technical needs have been developed and reviewed by the Committee. Educational efforts will play an important role in the continuation of the SWAMP project as well as the dedication by the two local governments to continue a concerted, cooperative process to jointly manage the Southern Watershed Area of Virginia Beach and Chesapeake.

WATER QUALITY CONDITIONS SOUTHERN WATERSHEDS OF VIRGINIA BEACH AND CHESAPEAKE

BACKGROUND:

The Southern Watersheds of Chesapeake and Virginia Beach include the waterbodies of the Northwest River, the North Landing River, and Back Bay, as well as the many tributaries that lead to those waterbodies. The Southern Watersheds are a valuable resource for the Cities of Chesapeake and Virginia Beach for a multitude of uses including water supply, recreation, commerce, aesthetics, irrigation, habitat support and others. The Southern Watershed contains valuable wetlands and wildlife habitat. Natural area inventories have identified extensive areas of critical habitat for rare and endangered plant and animal species, as well as some of the most diverse and extensive wetlands such as wind tide marshes, forested swamps and pocosins.

The Cities of Chesapeake and Virginia Beach have begun a concerted effort to identify water quality issues and address needs and problems within the Southern Watershed Area (SWA). The following information was collected by a Local Government Advisory Committee for the Southern Watershed Area to assist in the development of a cooperative environmental management plan for the region.



GENERAL FACTS ABOUT CURRENT WATER QUALITY CONDITIONS IN THE SOUTHERN WATERSHED AREA:

- Conditions have been altered in the Southern Watersheds through both natural phenomena and human activity.

- Point source related water quality problems are relatively few in the Southern Watersheds. Water quality impairment in the region is primarily attributable to nonpoint source pollution.

- Nonpoint source pollution is likely to increase as development increases.

EXISTING WATER QUALITY DATA

Water Quality Data	Northwest River	North Landing River	Back Bay
CWA Swimmable Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Fish Consumption Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Aquatic Life Goal	100% Fully Supports	90% Fully Supports 10% Threatened (94 Data)	66% Fully Supports 34% Threatened
DO Standard Violations	Yes (From Natural Conditions)	Minor Violations	Yes (From Natural Conditions)
Elevated Nutrients	Yes (After Storms)	Yes (From NPS Such as Animal Waste and Fertilizers)	Yes (Agriculture and Residential Areas)
PH Standard Violations	Yes (92 Data)	ND	ND
Change in Salinity	Increase in Salinity Due to Water Supply System	ND	Decline in Salinity
Point Source Discharges	5 Minor	6 Minor	2 Minor
Overall Watershed Rating	Medium	High	High
Pollution Potential:			
Agricultural	High	High	High
Urban	Low	High	High
Forestry	Low	Low	Low
SAV Population	ND	ND	Decline

Sources: Virginia Water Quality Assessment for 1992 - 1994, 305 (b) Report for EPA and Congress; Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, U.S. Fish and Wildlife Service, September 1994; Albemarle-Pamlico Profiles, HRPDC, 1993.

Key: ND = No Data

FACTS ABOUT THE NORTH LANDING WATERBODY:

• It flows from Great Bridge Locks in Chesapeake through southwestern Virginia Beach to the Currituck Sound.

• The waterbody is made up of the North Landing River, the Albemarle and Chesapeake Canal, West Neck Creek, London Bridge Creek, Pocaty River, Blackwater Creek and numerous other canals and ditches.

• The River is a vital part of the Intracoastal Waterway.

• It drains approximately 71,794 acres of land. The primary land use in the watershed is agriculture.

• Based on 1992 data, agricultural activities use 32,164 acres of land and 26,164 acres are undeveloped. Developed land occupies 12,997 acres of the watershed.

WHAT ARE THE THREATS TO THE NORTH LANDING RIVER?

• Water quality problems discovered through monitoring include high concentrations of fecal coliform, nutrients (phosphorous), and metals (manganese and iron).

• Most water quality problems stem from nonpoint sources such as animal waste and fertilizers from agricultural and recreational lands.

• Six minor point source discharges to the River and tributaries have contributed to minor violations of water quality standards for dissolved oxygen (DO) and lead.

• The Watershed was given an overall rating of "High" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

FACTS ABOUT THE NORTHWEST RIVER WATERBODY:

• It flows 13 miles in a southeasterly direction across the City of Chesapeake from near the Dismal Swamp and enters North Carolina at Tull's Bay. It flows another 2 miles before entering Currituck Sound.

• The Waterbody includes the mainstem and tributaries from its headwaters in Virginia to the Virginia/North Carolina border, including the Northwest River, Weston Ditch, Northwest Canal, Indian Creek, Smith Creek, and other small creeks and ditches.

• It serves as the primary source of drinking water for the City of Chesapeake.

• The watershed covers approximately 66,436 acres. The majority of land, nearly 46,356 is primarily undeveloped and is either wetlands or unmanaged forest lands according to 1992 data.

• Nineteen ninety-two data indicates that agricultural lands comprise another 16,527 acres and urban activities use only 3,554 acres of land.

WHAT ARE THE THREATS TO WATER QUALITY IN THE NORTHWEST RIVER?

• It behaves more like a lake than a river due to low current velocity and primarily wind tides. It has been classified as an estuarine body and experiences small tidal fluctuations.

• Due to its low flushing ability, concentrations of fecal coliform bacteria and nutrients tend to rise after storms. Storms flush nutrients from nearby swamps into the River. When this happens, dissolved oxygen (DO) decreases as biochemical oxygen demand (BOD) is satisfied.

• Other water quality problems monitored include routine violations of the water quality standard for pH. Chloride levels at the municipal water supply intake rise during drought conditions.

• There are five minor point source discharges to the River.

• Its watershed was given an overall rating of "Medium" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

FACTS ABOUT BACK BAY:

• Back Bay Waterbody encompasses an area from Black Gut at Sandbridge Beach to the state line below Buckle Island including Back Bay, Hell Point Creek, Nawney Creek, North Bay, Beggars Bridge Creek, Shipps Bay, Redhead Bay, Sand Bay, and several unnamed tributaries.

• Its watershed is comprised primarily of undisturbed land, protected land which includes 9,795 acres in two national wildlife refuges, a state park and two state waterfowl management areas.

• Agricultural land makes up nearly 13,811 acres of the watershed, while only 3,005 acres of land is developed for urban uses.

WHAT ARE THE THREATS TO BACK BAY?

• Noticeable changes in water quality of Back Bay in the last century and a half have led to a number of water quality studies to address the threats to Back Bay.

• Significant changes in fish populations, declines in submerged aquatic vegetation (SAV) and alterations in the resident and winter waterfowl populations, as well as flora and fauna, have been documented. However, there has been a recent noted resurgence of SAV in the Bay.

• Indications are that Back Bay is becoming more of a freshwater system. Water clarity has declined due to nutrient loading and turbidity from agricultural and urban stormwater runoff and septic systems.

• Studies show that elevated levels of nutrients are entering the Bay from its tributaries. Recommendations have been made to further identify the sources of nutrients in the tributaries and to begin implementing Best Management Practices to address these problems.

• There are two minor point source discharges to Back Bay.

• The Back Bay watershed was given an overall rating of "High" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

WHAT ARE THE SOURCES FOR WATER QUALITY INFORMATION ON THE SOUTHERN WATERSHED AREA?

• Water quality monitoring is done on a regular basis, either monthly or quarterly by the Virginia Department of Environmental Quality's (DEQ) Ambient Water Quality Monitoring Program. Data is collected in the STORET data system and published in DEQ's 305 (b) Water Quality Assessment Report biannually.

• The Virginia Department of Conservation and Recreation (DCR) produces the Virginia Nonpoint Source Pollution Watershed Assessment Report which characterizes the state's waters to target nonpoint source pollution protection activities.

• Other information can be found in the reports: Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, (U. S. Fish and Wildlife Service, 1994); Albemarle-Pamlico Profiles, (HRPDC, 1992); and Environmental Management Program for the Hampton Roads Virginia Portion of the Albemarle-Pamlico Estuarine Watershed, (HRPDC, 1993).

WHO CAN I CONTACT FOR MORE INFORMATION ON:

WATER QUALITY MONITORING?

City of Chesapeake:
Department of Public Utilities
Northwest River Water Treatment Plant Laboratory
3550 South Battlefield Boulevard
Chesapeake, VA 23320
Phone: (804) 421-2146

Region:
Department of Environmental Quality
Tidewater Regional Office
Planning and Permit Support Programs
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, VA 23462
Phone: 552-1142

Back Bay:
U.S. Fish and Wildlife Service
Back Bay National Wildlife Refuge
4005 Sandpiper Rd.
Virginia Beach, VA 23456
Phone: (804) 721-2412

LOCAL GOVERNMENT INITIATIVES IN THE SOUTHERN WATERSHEDS OF VIRGINIA BEACH AND CHESAPEAKE?

Chesapeake Planning Department
P.O. Box 15225
Chesapeake, VA 23328
Phone: (804) 547-6176

Hampton Roads Planning District Commission
The Regional Building
723 Woodlake Drive
Chesapeake, VA 23320
Phone: (804) 420-8300

Virginia Beach Planning Department
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This brochure was reprinted by the Department of Environmental Quality's Coastal Resource Management Program through Grant #NA37OZ0360-01 of the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, under the Coastal Zone Management Act of 1972, as amended.

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HAMPTON ROADS
PLANNING DISTRICT COMMISSION

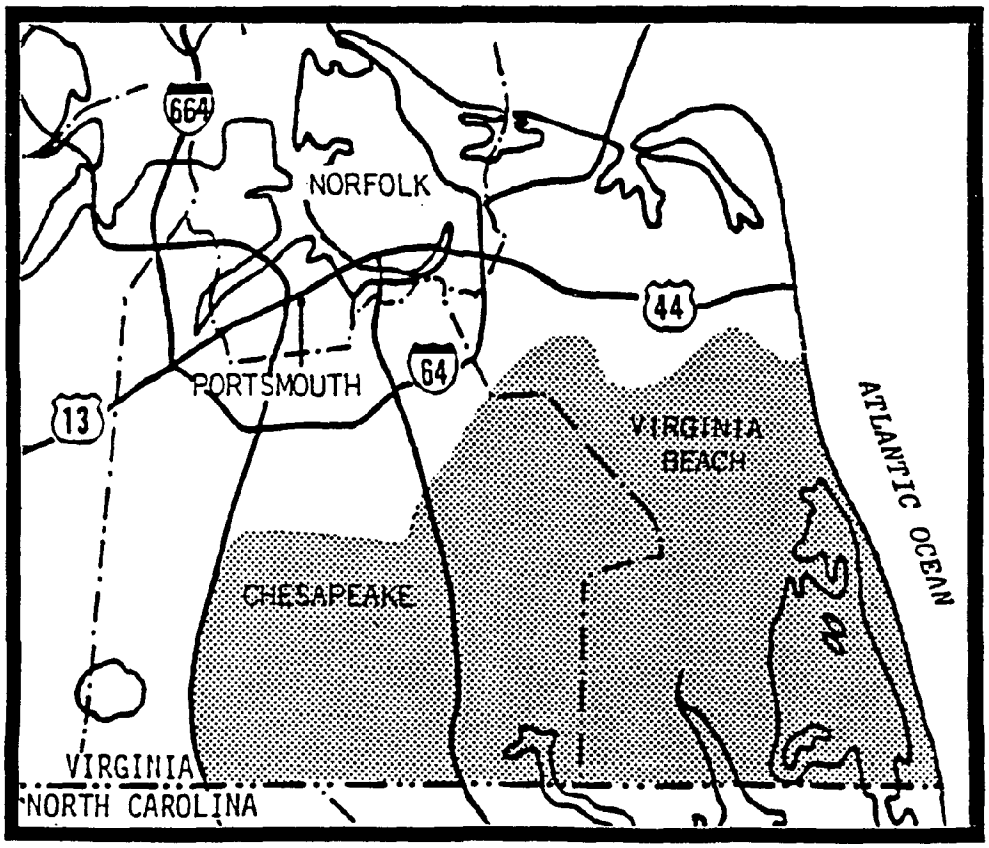
NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

WATER QUALITY CONDITIONS
SOUTHERN WATERSHEDS OF VIRGINIA BEACH AND CHESAPEAKE

BACKGROUND:

The Southern Watersheds of Chesapeake and Virginia Beach include the waterbodies of the Northwest River, the North Landing River, and Back Bay, as well as the many tributaries that lead to those waterbodies. The Southern Watersheds are a valuable resource for the Cities of Chesapeake and Virginia Beach for a multitude of uses including water supply, recreation, commerce, aesthetics, irrigation, habitat support and others. The Southern Watershed contains valuable wetlands and wildlife habitat. Natural area inventories have identified extensive areas of critical habitat for rare and endangered plant and animal species, as well as some of the most diverse and extensive wetlands such as wind tide marshes, forested swamps and pocosins.

The Cities of Chesapeake and Virginia Beach have begun a concerted effort to identify water quality issues and address needs and problems within the Southern Watershed Area (SWA). The following information was collected by a Local Government Advisory Committee for the Southern Watershed Area to assist in the development of a cooperative environmental management plan for the region.



GENERAL FACTS ABOUT CURRENT WATER QUALITY CONDITIONS IN THE SOUTHERN WATERSHED AREA:

- Conditions have been altered in the Southern Watersheds through both natural phenomena and human activity.

- Point source related water quality problems are relatively few in the Southern Watersheds. Water quality impairment in the region is primarily attributable to nonpoint source pollution.

- Nonpoint source pollution is likely to increase as development increases.

EXISTING WATER QUALITY DATA

Water Quality Data	Northwest River	North Landing River	Back Bay
CWA Swimmable Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Fish Consumption Goal	100% Fully Supports	100% Fully Supports	100% Fully Supports
Aquatic Life Goal	100% Fully Supports	90% Fully Supports 10% Threatened (94 Data)	66% Fully Supports 34% Threatened
DO Standard Violations	Yes (From Natural Conditions)	Minor Violations	Yes (From Natural Conditions)
Elevated Nutrients	Yes (After Storms)	Yes (From NPS Such as Animal Waste and Fertilizers)	Yes (Agriculture and Residential Areas)
PH Standard Violations	Yes (92 Data)	ND	ND
Change in Salinity	Increase in Salinity Due to Water Supply System	ND	Decline in Salinity
Point Source Discharges	5 Minor	6 Minor	2 Minor
Overall Watershed Rating	Medium	High	High
Pollution Potential:			
Agricultural	High	High	High
Urban	Low	High	High
Forestry	Low	Low	Low
SAV Population	ND	ND	Decline

Sources: Virginia Water Quality Assessment for 1992 - 1994, 305 (b) Report for EPA and Congress; Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, U.S. Fish and Wildlife Service, September 1994; Albemarle-Pamlico Profiles, HRPDC, 1993.

Key: ND = No Data

FACTS ABOUT THE NORTH LANDING WATERBODY:

• It flows from Great Bridge Locks in Chesapeake through southwestern Virginia Beach to the Currituck Sound.

• The waterbody is made up of the North Landing River, the Albemarle and Chesapeake Canal, West Neck Creek, London Bridge Creek, Pocaty River, Blackwater Creek and numerous other canals and ditches.

• The River is a vital part of the Intracoastal Waterway.

• It drains approximately 71,794 acres of land. The primary land use in the watershed is agriculture.

• Based on 1992 data, agricultural activities use 32,164 acres of land and 26,164 acres are undeveloped. Developed land occupies 12,997 acres of the watershed.

WHAT ARE THE THREATS TO THE NORTH LANDING RIVER?

• Water quality problems discovered through monitoring include high concentrations of fecal coliform, nutrients (phosphorous), and metals (manganese and iron).

• Most water quality problems stem from nonpoint sources such as animal waste and fertilizers from agricultural and recreational lands.

• Six minor point source discharges to the River and tributaries have contributed to minor violations of water quality standards for dissolved oxygen (DO) and lead.

• The Watershed was given an overall rating of "High" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

FACTS ABOUT THE NORTHWEST RIVER WATERBODY:

• It flows 13 miles in a southeasterly direction across the City of Chesapeake from near the Dismal Swamp and enters North Carolina at Tull's Bay. It flows another 2 miles before entering Currituck Sound.

• The Waterbody includes the mainstem and tributaries from its headwaters in Virginia to the Virginia/North Carolina border, including the Northwest River, Weston Ditch, Northwest Canal, Indian Creek, Smith Creek, and other small creeks and ditches.

• It serves as the primary source of drinking water for the City of Chesapeake.

• The watershed covers approximately 66,436 acres. The majority of land, nearly 46,356 is primarily undeveloped and is either wetlands or unmanaged forest lands according to 1992 data.

• Nineteen ninety-two data indicates that agricultural lands comprise another 16,527 acres and urban activities use only 3,554 acres of land.

WHAT ARE THE THREATS TO WATER QUALITY IN THE NORTHWEST RIVER?

• It behaves more like a lake than a river due to low current velocity and primarily wind tides. It has been classified as an estuarine body and experiences small tidal fluctuations.

• Due to its low flushing ability, concentrations of fecal coliform bacteria and nutrients tend to rise after storms. Storms flush nutrients from nearby swamps into the River. When this happens, dissolved oxygen (DO) decreases as biochemical oxygen demand (BOD) is satisfied.

• Other water quality problems monitored include routine violations of the water quality standard for pH. Chloride levels at the municipal water supply intake rise during drought conditions.

• There are five minor point source discharges to the River.

• Its watershed was given an overall rating of "Medium" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

FACTS ABOUT BACK BAY:

• Back Bay Waterbody encompasses an area from Black Gut at Sandbridge Beach to the state line below Buckle Island including Back Bay, Hell Point Creek, Nawney Creek, North Bay, Beggars Bridge Creek, Shipps Bay, Redhead Bay, Sand Bay, and several unnamed tributaries.

• Its watershed is comprised primarily of undisturbed land, protected land which includes 9,795 acres in two national wildlife refuges, a state park and two state waterfowl management areas.

• Agricultural land makes up nearly 13,811 acres of the watershed, while only 3,005 acres of land is developed for urban uses.

WHAT ARE THE THREATS TO BACK BAY?

• Noticeable changes in water quality of Back Bay in the last century and a half have led to a number of water quality studies to address the threats to Back Bay.

• Significant changes in fish populations, declines in submerged aquatic vegetation (SAV) and alterations in the resident and winter waterfowl populations, as well as flora and fauna, have been documented. However, there has been a recent noted resurgence of SAV in the Bay.

• Indications are that Back Bay is becoming more of a freshwater system. Water clarity has declined due to nutrient loading and turbidity from agricultural and urban stormwater runoff and septic systems.

• Studies show that elevated levels of nutrients are entering the Bay from its tributaries. Recommendations have been made to further identify the sources of nutrients in the tributaries and to begin implementing Best Management Practices to address these problems.

• There are two minor point source discharges to Back Bay.

• The Back Bay watershed was given an overall rating of "High" for pollution potential in the Virginia Nonpoint Source Pollution Watershed Assessment Report, March, 1993.

WHAT ARE THE SOURCES FOR WATER QUALITY INFORMATION ON THE SOUTHERN WATERSHED AREA?

• Water quality monitoring is done on a regular basis, either monthly or quarterly by the Virginia Department of Environmental Quality's (DEQ) Ambient Water Quality Monitoring Program. Data is collected in the STORET data system and published in DEQ's 305 (b) Water Quality Assessment Report biannually.

• The Virginia Department of Conservation and Recreation (DCR) produces the Virginia Nonpoint Source Pollution Watershed Assessment Report which characterizes the state's waters to target nonpoint source pollution protection activities.

• Other information can be found in the reports: Back Bay, Virginia: A Literature Review and Synthesis of Natural Resource Status and Trends, (U. S. Fish and Wildlife Service, 1994); Albemarle-Pamlico Profiles, (HRPDC, 1992); and Environmental Management Program for the Hampton Roads Virginia Portion of the Albemarle-Pamlico Estuarine Watershed, (HRPDC, 1993).

WHO CAN I CONTACT FOR MORE INFORMATION ON:

WATER QUALITY MONITORING?

City of Chesapeake:
Department of Public Utilities
Northwest River Water Treatment Plant Laboratory
3550 South Battlefield Boulevard
Chesapeake, VA 23320
Phone: (804) 421-2146

Region:
Department of Environmental Quality
Tidewater Regional Office
Planning and Permit Support Programs
287 Pembroke Office Park
Pembroke 2, Suite 310
Virginia Beach, VA 23462
Phone: 552-1142

Back Bay:
U.S. Fish and Wildlife Service
Back Bay National Wildlife Refuge
4005 Sandpiper Rd.
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