

IX. Natural Resources

The South County Small Planning Area contains a rich diversity of natural resources. Extensive woodlands, farmland, sensitive areas in the form of tidal and non-tidal wetlands, steep slopes, floodplains, wildlife and Chesapeake Bay Critical Areas are all prominent components that need to be considered when planning for the future. Especially important is the fact that six of the twelve major watersheds in the County are contained wholly or partially within South County, all of which are tributaries to the Chesapeake Bay (they are South River, Rhode River, West River, Herring Bay, Upper Patuxent and the Middle Patuxent River).

Within this chapter are specific goals and recommendations designed to protect the Patuxent River and the Chesapeake Bay. Also included are more specific topics that pertain to protection of the ground water resources, sand and gravel extraction, sewage management, and storm water runoff and forest conservation practices.

The environment of South County and land use are very closely linked, and the protection afforded the land through appropriate land use could have a dramatic impact on improvements to the quality of water resources reduced pollutant loads reaching the Chesapeake Bay. Therefore the goals and recommendations that are included in this chapter are viewed as extremely important to the safety and wellbeing of the Chesapeake Bay ecosystem.

A. The Patuxent River

The Patuxent River is the largest intrastate river in Maryland, flowing through seven counties (Montgomery, Howard, Anne Arundel, Prince George's, Calvert, Charles and St. Mary's) for a total distance of 110 miles. In 1980, the General Assembly enacted the Patuxent River Watershed Act, which created the Patuxent River Commission in 1981 as part of the Department of State Planning. Each county has a representative on the Commission in addition to a representative from the Maryland Office of Planning, and the Departments of Natural Resources and Health and Mental Hygiene.

In 1984, the Patuxent River Policy Plan, a land management strategy to protect the Patuxent River and its watershed, was created. Twenty goals were agreed upon which provided a vision to restore and maintain water quality, habitat, and groundwater and surface water supplies. The Policy Plan also included ten recommendations to control non-point source pollution.

The plan was updated in 1997, and all seven county governments in the Patuxent Watershed and the General Assembly have approved the resultant "Patuxent River Policy Plan".

The Patuxent River Policy Plan recommendations include:

- ◆ Establish a primary management area to protect environmentally sensitive areas;
- ◆ Implement best management practices and vegetative buffers to control storm water impacts;
- ◆ Identify and address major non-point source pollution sites;
- ◆ Retrofit existing development;
- ◆ Accommodate future development;
- ◆ Increase recreation and open space;

- ◆ Protect forest cover;
- ◆ Preserve agricultural land;
- ◆ Management sand and gravel extraction; and
- ◆ Adopt an annual action program.

The Patuxent River Greenway is partially complete and will eventually include connected land in portions of seven Maryland counties. The greenway will connect a variety of environmentally sensitive areas including: Patuxent River State park, Oxbow Nature Area, and Jug Bay Wetlands Sanctuary, which is part of the National Estuarine Research Reserve system. The Patuxent Regional Greenway promotes passive recreational and educational opportunities.

The South County, Odenton, Crofton, and Jessup/Maryland City Small Area Plans fully support the Patuxent River Commission and the Patuxent River Policy Plan, and that the implementation of the plan be a high County priority. In addition, it is recommended that the County establish a Patuxent River Greenway, which would follow the basic principals as provided below.

The Patuxent River Greenway

A greenway is a continuous system of open spaces such as parks and privately owned natural areas, which are connected in some way. In the case of the Patuxent River Greenway, this connection is the Patuxent River itself. A greenway serves several purposes such as: preservation of historically or culturally significant areas, protection of wildlife habitat, public recreation and education, or simply conservation of an exemplary natural area. The primary purpose of the Patuxent River Greenway is protection of the river and its natural resources, including wildlife, wildlife habitat, wetlands, and water quality. Although certain areas of the river are open to the public, the majority of the area is under the stewardship of private landowners. Therefore, the greenway will serve the purpose of recreation and education in public areas and recognition of and assistance to landowners in privately owned areas.

The Patuxent River Greenway will:

- a) Recognize landowners for their past stewardship of the natural environment along the Patuxent River;
- b) Offer management information and services landowners might need to continue or improve their effective management of this unique and valuable resource;
- c) Build a community of landowners and other community members interested in the continued protection of the Patuxent River's natural resources;
- d) Protect and improve wildlife habitat by maintaining the natural state of the river corridor;
- e) Determine the sources of pollution impacting the river and ways to reduce this impact.

- f) Monitor the health of the river at public access areas and on private property if requested.
- g) Educate the community about water quality and the importance of wetlands and riparian buffers.

Recommendations:

1. The County shall endorse the general concept of a Patuxent River Greenway and should establish through legislative action an overlay zone or zoning district, which would be designed in such a manner as to accomplish the objectives of the Greenway and implement the recommendations of the Patuxent River Policy Plan. A draft of the Greenway Overlay is located in Appendix 6.
2. The County should establish a Patuxent River Greenway Committee that would be responsible for developing a comprehensive program building on the base recommendations of the Patuxent River Policy Plan and tailoring a program to the specific needs of Anne Arundel County. The Greenway Committee would be comprised of appropriate county and state staff, local landowners, community leaders, industry representatives, environmental organizations and elected officials.
3. Protect the Patuxent River for use by present and future generations through the completion of the Patuxent River Greenway.
4. The County, working with nonprofit partners, should seek to permanently protect properties along the Greenway corridor to preserve them from future development or inappropriate use. This should include pursuing the donation and purchase of conservation easements, and where appropriate land in fee, and providing landowner incentives for using best management practices, providing public access, providing land for forest and wetland mitigation, and other related practices. These incentives should take the form of property tax abatements, grants, liability insurance (for lands open to public use -- as is done by the State for certain forestry educational activities), cleanup and maintenance assistance in areas open to the public.
5. Wetlands and other sensitive habitats such as critical area boundaries should be delineated and buffers identified and established.
6. Educate the community on the importance of greenways as areas of open space, wildlife corridors, and transportation connectors.
7. Develop "water trails" for canoeing and kayaking where appropriate.

B. The Chesapeake Bay

A substantial portion of the shore of the Chesapeake Bay is included in the South County planning area. The Bay is important to the community and quality of life in South County. Many South County residents depend on the Chesapeake Bay for their livelihood. Most important, the land use decisions in South County will directly impact the Chesapeake Bay and its tributaries. While formulating the vision for South County the impacts of land use were considered. The plan fully supports the Chesapeake Bay Agreement initiatives.

Chesapeake Bay Recommendations:

1. Redesign and rebuild the bridge on Route 423 through the Fair Haven flats to provide for adequate tidal flow to prevent the silting-in of the tidal marsh and stagnation of the pond.
2. Support the implementation of the "tributary strategies" to provide vegetated buffers along the bay and its tributaries.

C. Steams and Buffers

Major impacts on streams within South County appear to be nitrogen enrichment, bank instability, and lack of functional riparian buffers based on the results of 1997 sampling. By protecting streamside riparian areas and flood plains, streams are allowed to flood which reduces the energy build up associated with storm flows. The vegetation along the stream banks helps to physically hold together the banks themselves and also serves to slow floodwaters. In addition, riparian areas serve as buffer zones by controlling nutrient and sediment runoff that will ultimately affect the water quality of the Chesapeake Bay.

Recommendations:

1. Maintain a minimum 100-foot natural vegetated buffer extending from the limit of the 100-year floodplain.
2. Replant buffer areas currently cleared of natural vegetation, through the joint efforts of landowners, public agencies and private organizations.
3. Encourage farmers to enter into the Conservation Reserve Easement Program (CREP) through the US Department of Agriculture to offset the cost of the reduction in cultivated land.

D. Sand and Gravel Mining

Certain areas along the environmentally sensitive Patuxent River have been, and currently are, being actively used for the extraction of aggregates (sand and gravel). While the Maryland Department of Natural Resources considers the aggregates valuable, and promotes their extractions, it has significant consequences to the surrounding communities. Many residents consider mining of aggregates objectionable due to the truck traffic, noise, dust etc. which diminishes the quality of life for residents in the surrounding areas.

Recommendations:

1. Designate those parcels held by mining companies, and those deemed sufficiently valuable for current or future extraction activity as part of the proposed Patuxent River Greenway Overlay District.
2. As the mining process concludes, the parcels shall be remediated in an environmentally friendly manner encouraging wetland and forest mitigation and prohibiting rubble landfills unless all the following are met:
 - a. A minimum of 1,000 (one thousand) foot setback from all streams (perennial and intermittent), floodplains and wetlands (tidal and non-tidal)
 - b. State of the art technologies are incorporated for environmental monitoring and protection including liners, leachate monitoring systems and caps.
 - c. Ensure that all current regulations regarding appropriate management are strictly enforced.
 - d. The County should consider revising mining standards to reduce negative impacts on the surrounding area and residents. These regulations should address: the location of future mining sites, the affect mining has on the wildlife as well as the residents of the area, controlling truck traffic, and requiring natural restoration as the standard for restoring a mining site upon depletion.

E. Waste Water Management (Septic System Management)

South County will continue to rely on private septic systems for managing effluent. Even when properly located and designed, septic systems will fail if they are not properly maintained over time. In addition, more innovative designs may achieve greater levels of pollution reduction than more traditional ones. One of the primary threats to the County's water quality is the discharge of untreated sewage and other contaminants into creeks and rivers. Failing septic systems also allow wastewater to seep into groundwater.

Recommendations:

1. Maintain and enhance County efforts to educate homeowners, homeowners' associations, and civic associations about the importance of routine septic maintenance.
2. Continue efforts to identify and eliminate any failed systems or illegally bypassed (gray and/or black water) systems.
3. Encourage the use of innovative on-site system designs that are especially protective of water quality.
4. Discourage any future "Package Plants." Package plants are inefficient and are only useful as an interim solution.
5. Offer a low cost inspection program to induce owners to determine whether their system is safe and in compliance.

F. Ground Water Supply & Quality

Water quality of the Aquia aquifer in southern Anne Arundel County is generally good; however, at some locations, elevated concentrations of iron, hydrogen sulfide, and calcium result in poor water quality. These concentrations do not pose health risks but are aesthetically undesirable-collectively causing iron stains on clothing and plumbing fixtures, "rotten-egg" smell, reduced ability to form soap lather, and formation of white scale on the heating of water. Residential water-treatment systems are widely used to correct these water quality problems at varying levels of effectiveness and cost.

Water demand for domestic supply in southern Anne Arundel County is pumped almost entirely from individual wells screened in the Aquia aquifer. The Aquia aquifer is the most desirable source of ground water in the area, given its relatively shallow depth and generally acceptable water quality. The Magothy Aquifer, which is deeper than the Aquia, is capable of supplying large quantities of water to wells, and is an easily obtained source of ground water in southern Anne Arundel County. The Magothy Aquifer has the presence of elevated iron concentrations that make it less appealing for individual, residential use. Currently, the Magothy aquifer is used primarily for irrigation and some public supply.

Increased demand on the Aquia aquifer in southern Anne Arundel County and in areas further south has caused water levels to decline. The current rate of water-level decline is approximately 1-2 feet per year in the confined part of the aquifer. The declining water levels have resulted in moderate reductions in the amount of available drawdown. Increased production of the Aquia aquifer caused by the growing population will result in additional drawdown.

Recommendations:

1. A periodic county water quality and quantity monitoring program should be implemented to assure water quality and quantity. Establish a ground water quality-monitoring program to routinely test for presence of both organic and inorganic toxic substances.
2. Evaluate and improve the current surface water-monitoring program to ensure that it is adequate to detect substances that may be leaching from rubble fills.
3. Recommend protection of the recharge areas for the Aquia and Magothy aquifers from further development that will increase the impervious surface area and prevent excess drawdown.
4. Recommend support of the proposed DNR/AA County water quantity and quality research program to monitor and evaluate the Aquia and Magothy aquifers.
5. Conduct a regional water study and report the findings to local jurisdictions for follow up action.

G. Nutrient Management Plans

As the number of animal/livestock owners increase in South County, i.e., households with horses, goats, etc., manure build up also increases which is as harmful as failing septic systems and also allows nutrient runoff into our streams. Nutrient Management Plans currently require property owners of three or more acres to comply, however, property owners of less than 3 acres are not required to submit a Nutrient Management Plan.

Recommendations:

1. Establish Nutrient Management Plan compliance for all livestock (as currently defined in the County code) units regardless of acreage.
2. Implement a county enforcement program for Nutrient Management Plans.

H. Storm Water Management

Recommendation:

Improve stormwater management to reduce and, where possible, eliminate the negative environmental impacts of stormwater runoff. Alternatives for paying for implementation to comply with pending state and federal regulations should be investigated and implemented where practical.

Recommendations:

- A. Implement a watershed approach to stormwater management, land use planning, development, permitting, and capital improvement program planning and execution to ensure that potential cumulative impacts of land use changes are fully addressed prior to implementation of those land use changes.
- B. Adopt and implement stormwater management regulations into County laws, regulations, standards and guidelines resulting in County regulations and requirements that are at least as stringent, if not more stringent, than State regulations and requirements.
- C. Ensure all engineering design for stormwater management facilities is site appropriate and strictly adheres to the Maryland Stormwater Design Manual or County Stormwater Design Manual, whichever is more stringent.
- D. Encourage the use of innovative approaches to stormwater management and low impact site design in the land development process (e.g., “Better Site Design: A Handbook for Changing Development Rules in Your Community”, 1998, prepared by the Center for Watershed Protection, Ellicott City, MD).
- E. Continue and, if possible, accelerate the County’s ongoing effort to comprehensively identify, analyze and, where needed, retrofit stormwater management problem areas.
- F. Account for and minimize impacts to the 100-year floodplain with respect to stormwater runoff increases and the need for stormwater management design to accommodate increases in runoff resulting from comprehensive and site-specific rezoning.
- G. Establish a comprehensive stormwater infrastructure preventative maintenance and management program that reduces environmental degradation and extends infrastructure useful life.
- H. Aggressively pursue incentive-based approaches (e.g., state grant funds) to achieve retrofitting of areas in need of improved stormwater management.
- I. Ensure that all governmental sponsored land use projects adhere to the highest environmental regulations and standards with regard to site design and stormwater management facilities, thus setting the environmental standard to be followed.
- J. Implement, where possible, a minimum 50-150 foot riparian buffer to all tributary streams in the County to minimize impacts of stormwater runoff on these sensitive tidal and non-tidal aquatic systems.
- K. Foster community education about stormwater issues through cooperation with local citizen groups, public and private schools, park and recreation programs, and use of the Internet.

- L. Develop and implement, on a continuing basis, a program to stencil storm drains to enhance community awareness that these storm drains direct runoff to tributaries of the Chesapeake Bay.

I. Forest Conservation

Acre for acre, forests are the most beneficial land use for protecting the Chesapeake Bay and its tributaries by improving water and air quality, providing wildlife habitat, enhancing the aesthetic quality of our communities and providing recreational opportunities. Riparian forests along streams, rivers, and shorelines provide critical habitat for half of the terrestrial wildlife species. They also influence the quality of adjoining water, acting as a living filter capturing rainfall, regulating stormwater and stream flow, filtering nutrients and sediments, and stabilizing soils. Conserving forests through a variety of land use regulations, incentive programs, and sustainable use allows us to benefit from our forests today while still granting the option for future generations to use them tomorrow.

Recommendations:

1. Encourage protection of continuous forest stands through design controls, donation of conservation easement, purchase of development rights and acquisition of critical property.
2. Require reforestation of stream buffers

J. Historic Resources

A historic site or property is a site, building, structure, district, or object that is significant in American history, architecture, archaeology, and culture and is generally 50 years old or older. An historic property usually possesses integrity of location, design, setting, materials, workmanship, feeling, and association. It may be of value to the nation as a whole, or important to the State of Maryland, Anne Arundel County, or simply the community in which it is located. A historic property must possess at least one of the following criteria:

1. Association with events that have made a significant contribution to the broad patterns of our history;
2. Association with the lives of persons significant in our past;
3. Distinctive characteristics of a type or period of architecture, method of construction, or the work of a master architect; high artistic value; or representative of a significant and distinguishable entity whose components may lack individual distinction; or
4. Potential to yield or have yielded information important in prehistory or history.

Historic resources in Anne Arundel County reflect the County's over 300-year history. The Maryland Inventory of Historic Properties in Anne Arundel County lists over 800

historic resources Countywide. These resources include a diversity of sites and/or properties such as dwellings, agricultural buildings, cemeteries, churches, commercial buildings, industrial and engineering structures, bridges, maritime resources, military structures, small villages and towns, and scenic and historic roads. Most of the County's historic resources are privately owned; fewer than a dozen are open to the public. Within the County, 35 historic properties totaling 636 acres are protected by historic preservation easements that are held either by the Maryland Historical Trust or the National Trust for Historic Preservation. In addition to the National Historic Preservation Act and the Maryland Historic Preservation Act, historic and archaeological resources are protected by Anne Arundel County Code under Article 20, Section 2-102(8A)110.1.1; Article 26, Title 3-109; and Article 28, Section 10-125(B).

Archaeological Resources

In addition to the documented historic resources, Anne Arundel County has more recorded archaeological sites than any other county in Maryland, with many more sites still to be discovered. These sites span the entire 13,000 years of human presence in the area and represent a unique and non-renewable piece of cultural heritage. The assessment of archaeological potential for unknown sites is generally based on topographic and environmental settings. Three nationally significant prehistoric resources, located in the County, include the 13,000 year old Higgins site, the earliest undisturbed site in Maryland; the Garman Site with the oldest fireplaces excavated in the State; and the Adena Site which contains exotic and unexplained artifacts from the Ohio River Valley. The highest potential for prehistoric sites is along the Bay shoreline and its tributaries or the Patuxent River and its tributaries.

Along with Federal and State laws protecting archaeological resources, the County also protects such sites during its review of residential and commercial subdivisions, critical area allocations, zoning change requests, etc. As with historic buildings and sites, the principal County mechanism for protecting archaeological sites is found in Article 26, Title 3-109 of the Anne Arundel County subdivision regulations.

In 1997, the County Council passed Resolution No. 45-97 which requested the County Executive to establish a program to protect, preserve, and recognize the County's scenic and historic roads by restricting changes to their alignment, appearance, and character. The program would have the following components:

1. Procedures for designation and classification of scenic and historic roads.
2. Establishment of measures for protection of designated roads including development of abutting land and improvements to designated roads.
3. Implementation of measures for (a) preservation, (b) protection, and (c) recognition based on the classification of the road.

Issue: Historic and archaeological resources are threatened and are being destroyed by development, vandalism and neglect.

Recommendations:

- a. Strengthen existing County Codes and regulations to protect historic and archaeological resources, including scenic and historic roads.
- b. Protect the historic character of South County by identifying and recording historic structures.
- c. Add historic sites and structures to the Maryland Archeological Site Survey and the National Register of Historic Places.
- d. Establish incentive programs, including tax deductions or credits, grant and loan funds and technical assistance for property owners that protect and preserve significant historic resources.
- e. Promote and utilize opportunities in the Maryland Heritage Preservation and Tourism Program, including tax incentives and other funding sources for preservation, renovation and revitalization. This program includes the identification, protection and promotion of significant historical and cultural resources that contribute to the development of tourist relation functions.
- f. Establish protect measures for Scenic and Historic Roads.