

CHAPTER THREE: AGRICULTURAL LAND PRESERVATION AND OTHER LAND PRESERVATION PROGRAMS

The 2005-2006 Baltimore County LPPRP included an extensive section on agricultural land preservation, as was required for the first time within the plan guidelines. The new LPPRP guidelines do not require comprehensive information of this nature. Following is updated information pertaining to the County's agricultural land preservation efforts and achievements and goals.

The following excerpt from Baltimore County Master Plan 2020 provides a brief synopsis of Baltimore County's agricultural land preservation program:

The protection of land for agriculture has been a key component of rural growth management in the County for over 40 years. Significant public funds have been invested in the permanent protection of cropland, pasture and woodland to maintain and foster a viable agricultural industry. This forward-looking effort by the County has become more important with the national attention on issues such as energy conservation, sustainability, and national security. Promotion of local farms can improve the quality and security of the local food supply and play a role in solving other environmental problems.

The 1989 Master Plan first designated "Agricultural Preservation Area" boundaries (now called Agricultural Priority Preservation Areas, or APPA's). These areas have been reconfirmed in subsequent plans. APPA's are based on their capability for agricultural production and the existence of agricultural operations and preserved lands.

From 1980 through 2009, more than 55,200 acres have been preserved, including 21,675 acres under the Maryland Agricultural Land Preservation Foundation Program, 4,351 acres under the Baltimore County program, 25,250 acres under the Maryland Environmental Trust, private land trusts, and Rural Legacy programs, and 3,929 acres in R.C.4 cluster conservancy areas. This cumulative preservation achievement represents about 24% of the total land area outside the URDL. Based on a 2006 study by The Conservation Fund, an additional 50,300 undeveloped, unprotected acres met agricultural program criteria. The protection of an additional 30,800 acres will be needed to meet the County's ultimate preservation goal, and the County must seek adequate funding, explore innovative purchase techniques, refine programs, and increase the acreage of donated easements. Based on preservation of 2,100 acres and loss or conversion of 870 acres per year, it is projected that the 80,000-acre goal will be met by the year 2022.

Pages 110-127 of the 2005 Baltimore County LPPRP summarized the County's agricultural land preservation goals, implementation program, and program development strategy. The LPPRP also pointed to the County's Agricultural Land Preservation Certification Report, which provides more extensive information on the County's agricultural land preservation program and continues to be the primary resource for such materials.

ACHIEVEMENT OF AGRICULTURAL LAND PRESERVATION GOALS

State Goals

The State of Maryland has established a goal of preserving 1,030,000 acres of productive agricultural land statewide by 2022. This principal goal is supported by the following additional statewide goals:

- Permanently preserve agricultural land capable of supporting a diversity of agricultural production.
- Protect natural, forestry, and historic resources and the rural character of the landscape associated with Maryland's farmland.
- To the greatest degree possible, concentrate preserved land in large, relatively contiguous blocks to effectively support long-term protection of resources and resource-based industries.
- Limit the intrusion of development and its impacts on rural resources and resource-based industries.
- Ensure good return on public investment by concentrating State agricultural land preservation funds in areas where the investment is reasonably well supported by both local investment and land use management programs.
- Work with local governments to:
 - Establish preservation areas, goals, and strategies through local comprehensive planning processes that address and complement State goals;
 - In each area designated for preservation, develop a shared understanding of goals and the strategy to achieve them among rural landowners, the public at large, and State and local government officials;
 - Protect the equity interests of rural landowners in preservation areas by ensuring sufficient public commitment and investment in preservation through easement acquisition and incentive programs;
 - Use local land use management authority effectively to protect public investment in preservation by managing development in rural preservation areas; and
 - Establish effective measures to support profitable agriculture, including assistance in production, marketing, and the practice of stewardship, so that farming remains a desirable way of life for both the farmer and the public.

County Goals

The 2005 County LPPRP emphasized the primary goal, set within the Baltimore County 2010 Master Plan, of protecting 80,000 acres of agricultural lands. The LPPRP also identified six additional "major strategies" from the County's Agricultural Land Preservation Certification Report, as follows:

- Preserve sufficient land to protect agricultural resources for future generations,
- Incorporate stewardship into all aspects of the land preservation programs,
- Use land management tools to ensure temporary protection of lands not under permanent protection,
- Foster the agricultural industry,
- Foster regional cooperation to foster agriculture.

- Perform a study to analyze the 80,000 goal and identify strategies to reach the goal.

STATE GOALS PROGRESS

- The State of Maryland has established a goal of preserving 1,030,000 acres of productive agricultural land statewide by 2022.

County Progress: According to “Agriculture in Maryland Summary for 2009, MDA” (most recent data available) the total acreage of farms in State of Maryland is 2,050,000. The same report indicates that Baltimore County has just less than 80,000 acres of land in farms. The County’s own assessment of the amount of County agricultural land that includes small accessory agricultural activities is closer to 100,000 acres. Assuming the State goal is to be met proportionally by each County, each county would be required to preserve 50% of its agricultural land by 2022. Under this formula, Baltimore County having preserved nearly 60,000 acres has already exceeded the overall State Goal.

- Permanently preserve agricultural land capable of supporting a diversity of agricultural production.

County Progress: The preserved land is nearly equally divided between cropland, pastureland and forest land. The preservation easements also include a range of size of protected land in farms from as small as 14 acres to in excess of 300 acres. All farms preserved through the State and County Agricultural programs also meet or exceed the minimum productive soil requirements of the Maryland Agricultural Land Preservation Foundation program. Also as indicated below the County has preserved large blocks of farmland. All these features should support the continuation of the diversity of agriculture found in the County.

- Protect natural, forestry, and historic resources and the rural character of the landscape associated with Maryland’s farmland.

County Progress: As part of the selection factors for ranking easement applications for agricultural preservation programs, the County includes points for historic features, scenic attributes and natural resources. Rural Legacy and Maryland Environmental Trust easement programs place an even greater emphasis on these features.

- To the greatest degree possible, concentrate preserved land in large, relatively contiguous blocks to effectively support long-term protection of resources and resource-based industries.

County Progress: Baltimore County is a leader in this regard. The largest preservation block is 14,964 acres in the Upperco/Western Run portion of the County. Most of this area is within the Piney Run Rural Legacy Area. Other preserved clusters include: White Hall with 7,000 contiguous acres; Manor Area with 2,719 contiguous acres; Caves Valley with 1,738 acres; Long Green Valley with 1,654 acres; and 1,500 acres in the Coastal Rural Legacy Area. These areas include the major agricultural industry in the county, surround the

County's watershed forest area, and lastly protect woodlands adjacent to the Chesapeake Bay.

- Limit the intrusion of development and its impact on rural resources and resource-based industries.

County Progress: From 1980 to 2007 the average annual occupancy permits issued for inside the Agricultural Preservation Protection Areas (APPA) was 128. This compares to an average of 2,832 permits countywide or 4.5% of all permits are for within the APPA (Baltimore County Office of Planning, 2010). The APPA is approximately 141,000 or 36% of the County. During the past five years there has been a conversion of a 100 plus acre farm to a recreational use and one conversion of an approximately 200 acre farm to a College retreat center.

- Ensure good return on public investment by concentrating State agricultural land preservation funds in areas where the investment is reasonably well supported by both local investment and land use management programs.

County Progress: Over 95% of all easements are within the APPA and a similar proportion of State purchased agricultural easements are within the APPA.

- Establish preservation areas, goals and strategies through local comprehensive planning processes that address and complement State goals.

County Progress: Areas, goals and strategies for agricultural land preservation have been established in the County's Master Plan and in periodic Certification Reports.

- In each area designated for preservation, develop a shared understanding of goals and the strategy to achieve them among rural landowners, the public at large, and State and local government officials.

County Progress: Education opportunities through farm meeting, community meetings and other programs such as open houses are conducted. In July 2011 an educational meeting was held to introduce new local governmental officials to easement programs.

- Protect the equity interests of rural landowners in preservation areas by ensuring sufficient public commitment and investment in preservation through easement acquisition and incentive programs.

County Progress: County, State and Federal funds are used for the preservation of land in Baltimore County. In addition, landowners can also make a donation of development rights and qualify for a charitable deduction from their Federal Income taxes. The State has provided significant funding of preservation in Baltimore County through MALPF and the Rural Legacy Program. In recent years the County has been funding the majority of the preservation funds spent on lands within the County.

- Use local land use management authority effectively to protect public investment in preservation by managing development in rural preservation areas.

County Progress: Baltimore County has one of the strictest zoning ordinances. The County zoning permits only 1 house per 50 acres.

- Establish effective measures to support profitable agriculture, including assistance in production, marketing, and the practice of stewardship, so that farming remains a desirable way of life for both the farmer and the public.

County Progress: County has constructed and supports its \$10 million dollar Baltimore County Center for Maryland Agriculture. The Center provides for the support of agriculture through the provision of centralized services, demonstration areas, mentoring program for new farmers, educational events and much more.

COUNTY GOALS PROGRESS

Strategy 1 - Preserve sufficient land to protect agricultural resources for future generations

Progress:

Acreage Reported in 2005 LPRP (FY03)	Acreage Preserved in 2010 LPRP (FY11)	Accomplishment
41,979	59,753	17,774 ac/8 years- 2,221.75/year

Commentary: The County has continued to progress towards its goal of preserving at least 80,000 acres. The rate of preservation fell below the goal stated in 2005 LPRP of 3,000 acres a year. This was primarily due to the significant drop off of State funding for Rural Legacy and MALPF. The rate of preservation of County easements increased over this period.

Strategy 2 - Incorporate stewardship into all aspects of the land preservation programs

Progress: The County and MALPF increased their stewardship activities over this period. MALPF hired an employee to oversee inspections statewide and assisted Baltimore County with its inspections. Similarly Baltimore County dedicated the efforts of a full time staff person during part of this period to stewardship of easements. The County worked with the Baltimore County Soil Conservation District to assure that farms had and implemented Best Management Plans as required by their easements.

Strategy 3 - Use land management tools to ensure temporary protection of lands not under permanent protection

Progress:

Single Family Occupancy Permits within APPA 2008 to 2011	Single Family Occupancy Permits Outside APPA 2008 to 2011	Percentage of Single Family Permits Outside APPA 2008 to 2011
141	698	6%

Commentary: The APPA is approximately 141,480 acres within the 2/3 of the County that is outside the PFAs (URDL). If this area was to receive its “fair” share of single family dwelling as determined strictly by percentage of the County it would have had 38% of Occupancy Permits. The 6% while reflecting continued development clearly shows that the County’s land management tools are directing single family dwellings out of the APPAs.

Strategy 4: Foster the agricultural industry

Progress: The County completed construction of the Baltimore County Center for Maryland Agriculture (Agricultural Center) which serves to provide at one location the institutions providing services to agriculture and to foster agriculture through a citizen board. The County’s Economic Development Commission continued its commitment to the Agricultural economy through maintaining a full time position to assist agriculture and the provision of loans/grants to farms.

Strategy 5. Foster regional cooperation to foster agriculture

Progress: Efforts continued to work with land preservation administrators in Carroll and Harford County to preserve properties that were adjacent to those counties.

Strategy 6. Perform a study to analyze the 80,000 goal and identify strategies to reach the goal

Progress: Study was complete and project reports are available detailing the results of the study. The principal finding, however, was that the investigators concluded there was more than enough qualifying farmland available for the County to meet its goal of 80,000 acres. The main result of the study was the development of a optimization tool that has since been used effectively to purchase better quality acres of easement land at less price.

AGRICULTURAL LAND PRESERVATION IN MASTER PLAN 2020

The Baltimore County Master Plan 2020 provides updated information on the County’s agricultural land preservation efforts and vision for the future. The pertinent sections of the Master Plan include pages 91-94, 142-144, 158-159, and 165-169. Following are excerpts of the policies and actions identified within those sections of the plan:

Policy: Manage land development to limit conflicts with the agricultural industry to safeguard lands preserved through easements.

Actions:

- (1) Continue to enforce local policies, ordinances, regulations and procedures that stabilize the agricultural and forest land base.
- (2) Review and, if necessary, revise zoning and development standards to promote conditions suitable for production, processing and sale of agricultural products.

- (3) Include prime and productive soil standards and a maximum lot size to ensure that large parcels are not split to create large residential lots.
- (4) Evaluate increasing the minimum acreage for subdivisions in the RC 2 zone to reduce environmental impacts and development pressure on agricultural resources.
- (5) Evaluate regulations to eliminate resubdivision of lots created between 1975 and 1979 in the RC 2 zone.
- (6) Require that placement of State agricultural or conservation easements shall not result in an increase in density over that permitted without the easements.
- (7) Monitor development within the APPA's to ensure that residential and non-agricultural uses protect the resources and do not overwhelm the operation of agricultural businesses.
- (8) In general, zoning changes made in the agricultural priority preservation areas should protect the County's agricultural industry.
- (9) Consider adding criteria to the Baltimore County Zoning Regulations (BCZR) to require the evaluation of proposed development impacts on agricultural uses located on prime and productive soils.
- (10) Assure that development will have limited impact on active agricultural operations by reviewing, and, if necessary, revising setback requirements.
- (11) Review uses permitted by right and special exception in the RC 2 zone to determine whether any uses that are inconsistent with the purpose of the zone should be removed and consider additional performance standards, which will mitigate the impact of the proposed uses on the adjacent farm or easement property.
- (12) Enact "Right to Farm" legislation and institute a nuisance mediation board for farm operations.
- (13) Consider whether certain institutional uses now permitted in the RC 2, RC 7 and RC8 zones should be eliminated. Establish performance standards for institutions that are found to not have significant negative impacts if limited by the standards.

Policy: Foster a sustainable agricultural industry.

Actions:

- (1) Continue to offer loans and economic support for sustainable agricultural operations.
- (2) Consult the Rural Baltimore County Agricultural Profitability Study and Action Plan" (2009), and implement appropriate actions such as mentoring programs for new farmers and agricultural tourism activities on farms.
- (3) Review County Zoning and Development regulations to provide for farm production and processing.
- (4) Support the Baltimore County Center for Maryland Agriculture, which will promote a sustainable agricultural industry by providing educational and recreational opportunities for the public, and encouraging "agro-tourism". The Center will also serve as an "incubator" for new ideas to help sustain agriculture in many aspects, including protective measures such as "best management practices".
- (5) Facilitate discussions with the agricultural community and surrounding neighbors regarding the new agricultural economies (i.e. sell what you grow, farm markets) and potential impacts on quality of life.
- (6) Permit ancillary activities that allow farmers to sell products grown on the farm directly to customers, and promote certain farms as a destination stop for tourists and visitors.

- (7) Ensure that County regulations provide flexibility in agricultural operations and enable them to adapt to changing economic conditions.
- (8) Work with the Maryland Department of Agriculture (MDA), the University of Maryland Extension (UME), and the County Department of Economic Development to assist farm businesses in marketing to new local, national, and international consumers.
- (9) Support Farm Bureau educational activities such as the “Agriculture in the Classroom” program at Hereford Middle and High Schools, and a new mobile agricultural classroom.
- (10) Support the Farm Bureau program that identifies agricultural products produced in the County, which assists in the marketing of locally produced goods.
- (11) Establish a program to assist young farmers in accessing capital to purchase farmland.
- (12) Continue to foster and monitor the relationship between large-scale producers and landowners that lease land.
- (13) Actively seek to solicit new agricultural operations.
- (14) Encourage sustainable farming practices.

Policy: Limit suburban development in rural areas.

Actions:

- (1) Conduct detailed land use studies to determine: 1) buildable areas, 2) agricultural areas, and 3) environmentally sensitive areas.
- (2) Recommend that the County Council consider rezoning requests for additional office, business or industrial zoning in rural residential areas, in conjunction with the recommendations of any approved plan for the area.
- (3) Adopt County standards appropriate for rural residential areas that include open space, architecture, site layout, lighting, bicycles, and pedestrians.
- (4) Adapt cluster principles to maintain adjacent forests and open space, which help retain rural character.
- (5) Provide effective buffers between development projects to maintain rural character.
- (6) Preserve and connect open spaces through cluster development and open space acquisition.

Policy: Work with landowners and service agencies to implement Best Management Practices for agriculture.

Actions:

- (1) Require landowners who participate in land preservation programs to implement soil conservation and water quality plans.
- (2) By 2011, investigate developing a BMP implementation monitoring system with the Baltimore County Soil Conservation District.
- (3) Continue to provide support to the farm agencies including UME.
- (4) Provide information on research for new technologies to assist landowners with the implementation of BMPs.
- (5) Investigate setting minimum water quality standards for plans written for farms in County land preservation programs, in conjunction with cost-share programs to offset the expenses incurred by landowners.
- (6) Investigate innovative strategies, approaches, and incentives to encourage landowners to protect resources and overcome disincentives.

Policy: Permanently preserve at least 80,000 acres of agricultural and natural resource lands through Conservation Easements and other similar legal instruments.

Actions:

- (1) Continue to seek and encourage the donation and sale of easements through the various land preservation programs.
- (2) Conduct landowner outreach and public education to increase awareness of these conservation programs and garner interest in land protection.
- (3) Identify and preserve parcels large enough to support normal agricultural and forestry activities.
- (4) Fairly compensate farmers for loss of development rights.
- (5) Monitor the Agricultural Priority Preservation Areas to ensure that at least 80% of the remaining undeveloped land is either under easement or temporarily protected by restrictive zoning (such as RC 2).
- (6) Work with state and local partners to monitor and steward existing conservation easements to ensure compliance with agreements to protect the County's investments in agricultural land preservation.
- (7) Continue to seek adequate funding to acquire easements on at least 2500 acres per year.
- (8) As part of any update to this section of the Master Plan the County will:
 - Determine progress towards meeting the goals of the MALPF;
 - Evaluate any shortcomings in the County's ability to achieve the goals of MALPF;
 - Determine and implement actions to correct identified shortcomings.

Policy: Manage growth within the designated Rural Legacy Areas and seek permanent preservation of undeveloped properties through easement programs.

Actions:

- (1) Work with local land trusts to monitor goals and accomplishments of Rural Legacy Areas.
- (2) Work with local land trusts to integrate comprehensive resource protection elements in Rural Legacy areas, including forest buffers, Chesapeake Bay shorelines, forest habitat, endangered species, and planning measures that reduce sprawl.
- (3) Continue financial partnership with the State for preserving properties within Rural Legacy areas.
- (4) Encourage donation of conservation easements to supplement purchased easements.

CHAPTER FOUR: NATURAL RESOURCE CONSERVATION

As was the case with the Agricultural Land Preservation chapter, the 2005-2006 LPPRP was the first version of the LPPRP to require substantial content specifically dedicated to natural resource conservation, over and above traditional content that outlined the roles and relationships associated with recreation, parks and natural resource conservation. The present version of the LPPRP is not required to include that same level of detail, and so the following is an excerpt from the prior LPPRP, followed by an assessment of progress made in various areas of natural resource conservation. The primary natural resource conservation content from Baltimore County Master Plan 2020 is presented thereafter.

--- START OF EXCERPT ---

Baltimore County utilizes a wide range of laws, regulations, and programs to conserve, enhance, and perpetuate its valuable natural resources.

The overall goal of the County is to provide “a safe, prosperous, and diverse urban and rural community promoting education and responsibility, spanning generations, and evoking pride in those who live and work here”. (Master Plan 2010, Vision Statement)

NATURAL RESOURCE CONSERVATION GOALS

The County’s *Master Plan 2010* establishes the following major environmental goals for Baltimore County:

- Protect the County’s remaining natural resources and promote the conservation of biological diversity,
- Restore lost or degraded ecosystem functions, particularly those related to watersheds and reservoirs,
- Foster environmental stewardship among county residents, and within the region.

These policies are implemented through programs that the Department of Environmental Protection and Resource Management (DEPRM) manages. These are discussed in depth in this chapter.

The County’s policies meet or exceed the State goals for natural resource land conservation as provided in the guidelines for this document. The state goals are listed below and will be addressed throughout this chapter.

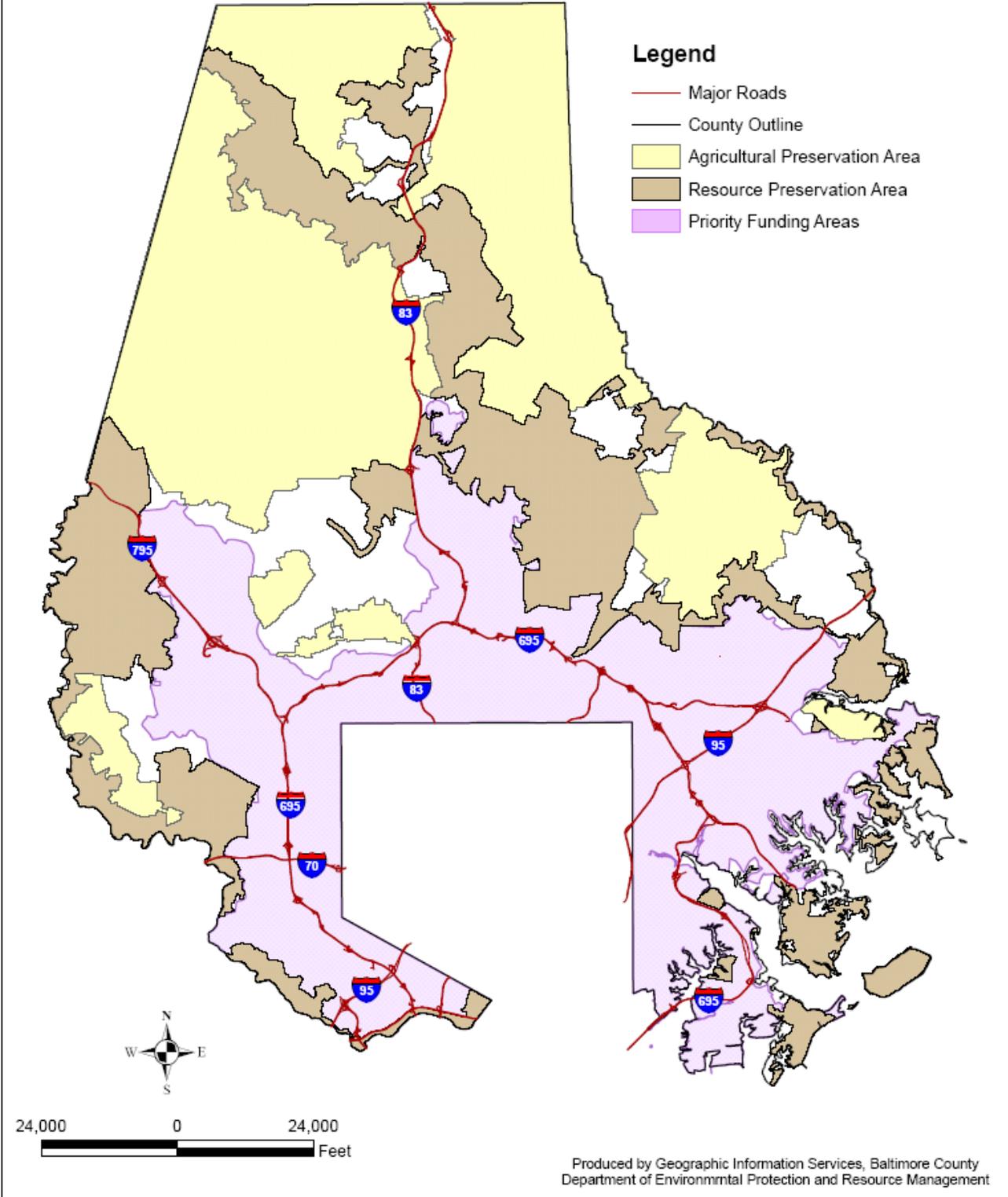
- Identify, protect, and restore lands and waterways that support important natural resources and ecological functions,
- Focus conservation and restoration activities on priority areas within the statewide green infrastructure,

- Assess the combined ability of State and local programs to:
 - Expand and connect forest, farmlands, and other natural lands as a network of contiguous green infrastructure,
 - Protect critical terrestrial and aquatic habitats, biological communities, and populations,
 - Manage watersheds in ways that protect, conserve, and restore stream corridors, riparian buffers, wetlands, floodplains, and aquatic recharge areas and their associated hydrologic and water quality functions,
 - Support a productive forestland base and forest resource industry, emphasizing economic viability of privately owned forestland,
- Establish measurable objectives for natural resource conservation and integrated State/Local strategy to achieve them through State and local implementation programs,
- Preserve the cultural and public value of natural resource lands,
- Encourage private and public economic activities, such as eco-tourism and natural resource-based outdoor recreation, to support long-term conservation objectives.

Comprehensive Planning Context and Map

For complete discussion of County’s plan for the protection and restoration of natural resources, refer to the Baltimore County Master Plan 2010. The Master Plan provides a map of the “Priority Funding Areas” and indicates how this designation is consistent with the existing County growth management strategies. The Master Plan also indicates the different preservation areas in the County. These include agricultural land preservation, rural legacy, scenic, historic, and cultural protection areas. The Master Plan establishes in great depth the extensive natural resource protection strategies of the County.

PRIORITY FUNDING AREAS



The County has extensive maps and inventories on the dedicated conservation areas and natural resources of the County. These are further explained in this section, and are likewise available through the County's geographic information system.

CURRENT IMPLEMENTATION PROGRAM

Baltimore County's Approach to Creating/Maintaining Green Infrastructure

The County has a comprehensive program to protect its green infrastructure. The program includes a greenprint element, greenway elements, and the recreational acquisition element. The recreational element is covered in the recreation portion of this plan.

The County has utilized the State's Greenprint Program to protect properties identified through the Green Print Mapping Process (See Maryland Atlas of Greenways, Water Trails, and Green infrastructure). The principal mechanisms for the implementation of the State Green Print Plan are either fee simple acquisition, purchase of easements, and forest banks on the properties that contain the identified resources. The Maryland Department of Natural Resources has provided the majority of the funding for the protection of these resources either through outright acquisition, Program Open Space, through easements and acquisitions, or through the Rural Legacy Program. The State has also provided funds to the Maryland Agricultural Land Preservation Foundation (MALPF) for the purchase of agricultural easements on farms that have resources identified as part of the Green Infrastructure. In addition, the County has provided significant funds for the Rural Legacy Programs. The easement acquisition programs are described more fully in chapter five of this Plan.

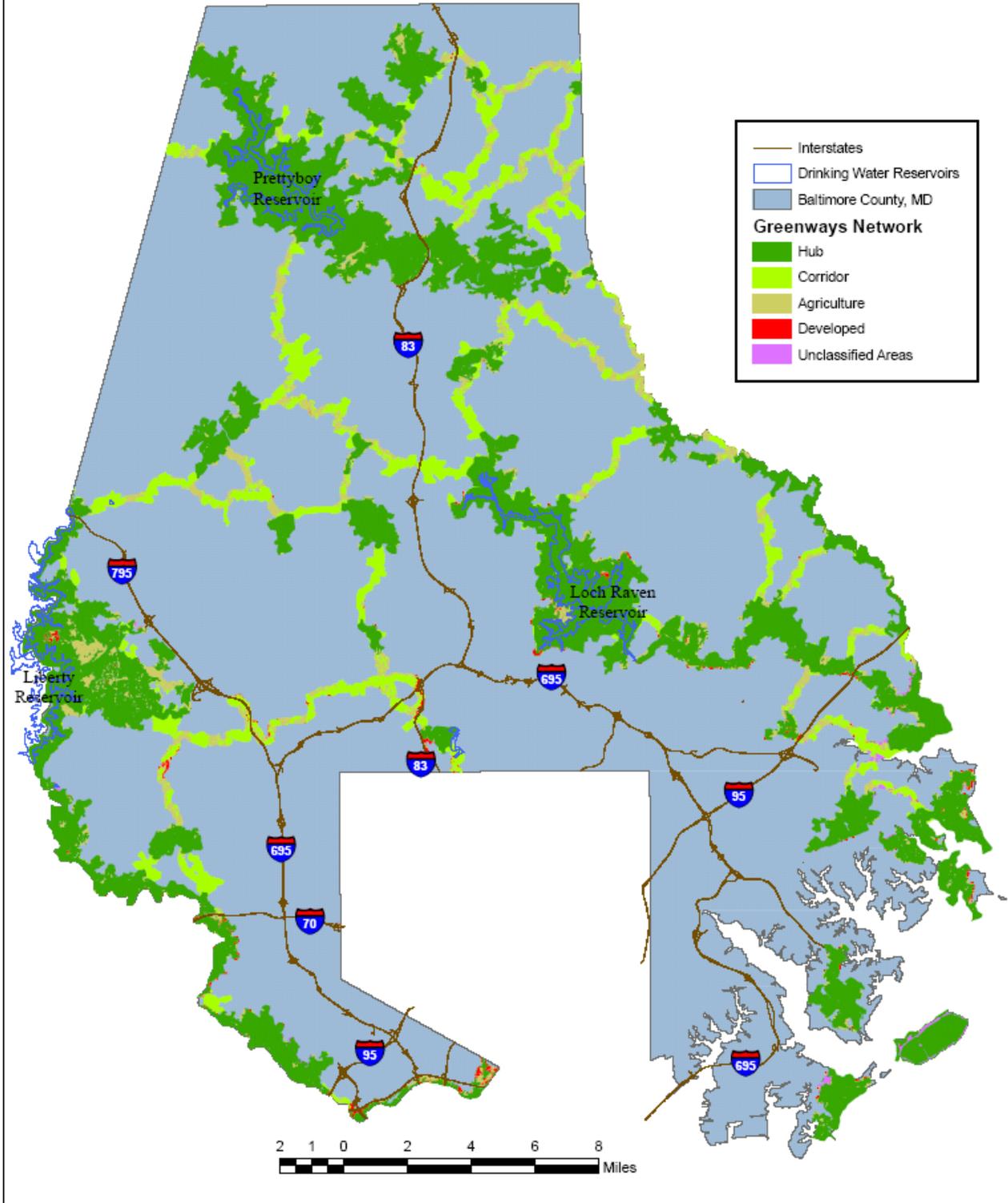
The principal mechanism for the protection of the County Master Plan designated greenways are through regulatory efforts by both the Department of Recreation and Parks and the Department of Environmental Protection and Resource Management. The Department of Environmental Protection and Resource Management seeks to protect the environmental easements through its Forest Buffer and State Forest Conservation Programs that require easements on streams and Forest Conservation Program as part of receiving approval for development plans.

The Department of Recreation and Parks seeks to create the recreational greenways through requirements for easements and reservations during the development plan process. The County's updated Local Open Space Manual includes an expanded section with further greenway related requirements for a development. The requirements include a mandatory dedication of the limits of a greenway on any property regardless of zoning and that easy access be provided for any of the greenways located on the property.

Green infrastructure's Role in the County Implementation Plan

The County's goals stated in the Master Plan 2010 are to protect the County's remaining natural resources, promote the conservation of biological diversity, restore lost or degraded ecosystem functions, and to foster economic stewardship among county residents and within the region. Green infrastructure will promote the completion of these goals by providing significant amounts of preserved land through the County's Greenways. The County's environmental greenways will ensure the protection of any natural resources the region has to offer and will retain any biodiversity by acting as wildlife corridors. Recreational greenways will aid in fostering environmental stewardship among the public by allowing them to use the open land for recreational purposes.

Greenways: Baltimore County's Green Infrastructure



Status/Description of County's Forest and Forest Resource Industry Structure

Protect, Restore, and Manage Forest Resources: There are roughly 132,500 acres of forest cover in Baltimore County, representing approximately one-third of the County's total land cover. Of this forest cover acreage, about 25% is under public ownership. The largest forest blocks are located in the three City-owned drinking water reservoir reservations, the Gunpowder Falls and Patapsco State Parks, Soldiers Delight Natural Environment Area, Robert E. Lee, Oregon Ridge, Dundee Saltpeter Parks, and Back River Neck. The remaining forest acreage is privately owned, with an average forest patch size of 14.6 acres. This is significant from an ecosystem function standpoint because larger forest patches are more resistant to environmental and human-made stresses than smaller forest fragments.

An early historical pattern of clearing forests for agriculture and development, coupled with massive cutting for fuel wood and timber, made significant changes in both the amount of forest cover (from 95% to as low as 15% in the region by 1870) and the health and vigor of the remaining forest patches. Although forest regeneration has increased the overall cover to the present 35% in the county, forest health and the sustainability of ecosystem functions is threatened by a pattern of parcelization of wooded properties and the subsequent fragmentation of the remaining forest patches by new developments and roads.

Forests provide a range of free ecological services and socio-economic benefits. In forested watersheds, trees play a major role in moisture and nutrient recycling, while the entire forest ecosystem controls flooding and soil erosion. These functions, which protect both aquatic and terrestrial habitats for forest-dependent plants and animals from degradation, also maintain water quality and stream stability, as well as the social benefits of peaceful open spaces in which to walk and observe wildlife, and the range of forest products available for the needs of the human community. Forest openings and gaps from early forest fragmentation patterns made conditions favorable for the proliferation of deer and the incursion of exotic, invasive plant species into forest patches. As fragmentation has continued, pressures from now burgeoning deer, exotic plants, and other nuisance animal populations threaten the valuable ecological and social services of the remaining forest patches.

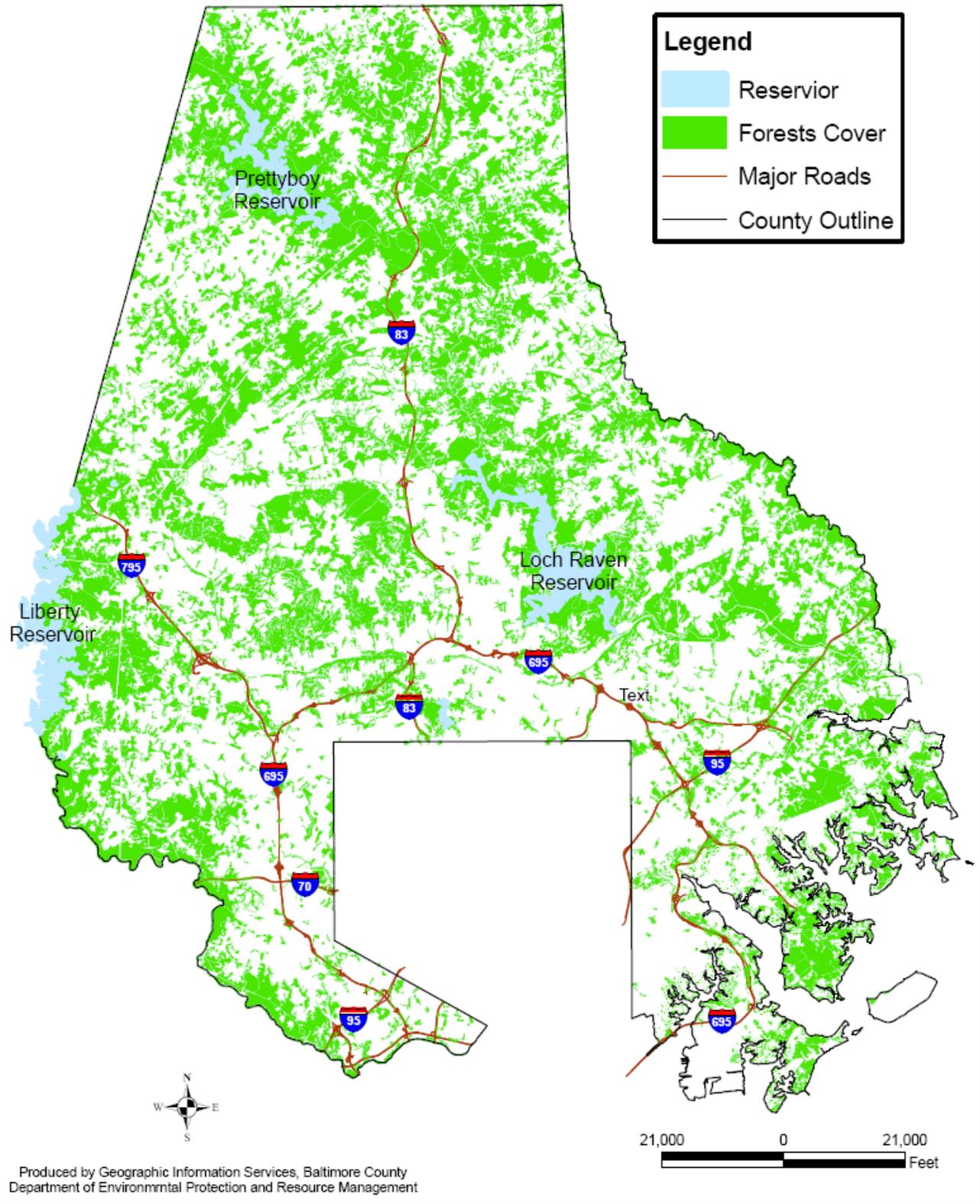
DEPRM recognizes the need to broadly assess the current health and condition of the County's forest patches, to assess the types and degree of stresses on the forests, the necessity of preparing management plans to alleviate pressure from degrading elements, and restore to the greatest extent possible the ecological functions that will allow sustainable forest functions in the future. To that end, DEPRM has entered into co-operative associations and agreements with state and federal agencies and environmental groups.

Summary of Programs:

1. Continue to implement the local Forest Conservation Act as required by the Maryland Forest Conservation Act of 1991, and evaluate its effectiveness,
2. Continue commitment to the "Linking Communities to the Montreal Process Criteria and Indicators" project on forest sustainability issues,

3. Continue the Community Reforestation Program that provides for the reforestation of riparian forest buffers and of other priority forest corridors and gaps through forest banks, development process, land acquisitions, and easements,
4. Continue to provide support for the County Forest Conservancy District Board's programs for education of citizens about forest resource issues,
5. Develop and ensure inclusion of reforestation policies in community plans and community conservation efforts,
6. Continue to promote the Tree-Mendous Maryland Program for community reforestation, including assisting communities with tree orders and delivery'
7. Continue the Rural Residential Stewardship program,
8. Initiate the Growing Home campaign to foster expanded plantings on private and residential properties.

FOREST COVER



Using funds deriving from the fees-in-lieu of mitigation component of the State-managed Forest Conservation Act of 1991, DEPRM is currently managing 95 acres of reforestation projects, which staff has installed in sensitive areas including stream banks and steep slopes on County and State open spaces. DEPRM purchases tree seedlings directly from the State-operated John Ayton Nursery. In a cooperative effort with DEPRM, the Department of Recreation and Parks has provided a one-acre site for a nursery facility, where seedlings are grown out for a range of reforestation projects.

Protecting Plant and Animal Habitats (Biological Diversity)

Many of the issues related to protecting plant and animal habitats have been discussed as important components of stream and forest preservation. Traditionally, another important habitat issue is the protection of rare, threatened, or endangered plant and animal species. DEPRM takes a broad view in habitat protection, including not only the safeguarding of rare or significant species, but also ecological processes and functions that sustain habitats for upland, forest, riparian, wetland and aquatic plants and animals. This broader concept includes all ecosystem processes in the conservation of biological diversity.

DEPRM has worked with the Maryland Department of Natural Resources to verify the presence of the limited number of threatened or endangered species and their habitats that exist in the County. Many of the habitats for these sensitive species are protected through public ownership of wild lands and other environmental management areas such as Soldiers Delight, and through the public drinking water reservoir reservations and large state-owned lands along the Patapsco River and Gunpowder Falls systems. Any threats to sensitive plant or animal species elsewhere from land development are addressed through regulatory protection of the stream systems and priority forest retention areas.

Program actions:

1. Continue to ensure that significant habitats are identified on development plans and continue to seek cooperation in protecting them through modification of site designs.
2. Seek to increase plant and animal habitat in conjunction with capital improvement projects for shore erosion control, stream restoration, wetland creation, and reforestation.
3. Work in cooperation with governmental and non-profit agencies to assess, protect, restore, and create habitats.

Protecting, Restoring, and Managing Watersheds

Managing Baltimore County's Watersheds: A watershed is an area of land from which water drains to a stream, lake, or other water body. Watersheds are a useful framework for resource management because individual resource elements such as streams and forests are linked through ecosystem processes that operate to maintain the stability of the system. Baltimore County contains 14 major watersheds, which are identified on the basis of local stream systems and drinking water reservoirs. Seven are part of the Gunpowder River basin and six comprise the Patapsco River basin.

Land use activities within watersheds impact the water quality of the streams associated with the watershed and the water bodies downstream. For example, the clearing of forests increases the amount of runoff from storm water to streams, causing an increase in the sediments, nutrients, and toxins carried to the streams, and erosion of stream channels. Changes in sediment and nutrient levels can degrade the habitat quality of the stream for both plants and animals. Land preservation programs that place environmentally sensitive land in permanent easements assist in the protection of watersheds and their interrelated systems.

The County's watershed program consists of characterizing and prioritizing watersheds, preparing management plans, and evaluating resource systems and functions at varying scales; from a Countywide level to individual properties. Assessments of pollutant loads, stream stability, and forest community structure provide the framework for the preparation of implementation plans for capital projects, maintenance, education, and cooperative citizen actions.

The County's Department of Environmental Protection and Resource Management (DEPRM) is the agency with primarily responsibility for the management of Baltimore County's programs for the natural environment. DEPRM has developed an integrated watershed management program that addresses federal pollution control mandates, State of Maryland initiatives for restoration of the Chesapeake Bay, and local priorities and needs. The County's watershed approach also integrates the following functional components:

- National Pollutant Discharge Elimination System (NPDES) – Municipal Separate Storm Sewer System Permit is issued to the County for five years by the Maryland Department of the Environment pursuant to Section 402(p) of the federal Clean Water Act, for non-point pollution control of storm water runoff. The latest permit was issued June 15, 2005.
- Tributary Strategies Partnership Agreements of 1993 and 1994 - agreement with the State of Maryland and neighboring counties for nutrient reduction and nutrient loading caps in the Upper Western Shore (Gunpowder River) and Patapsco/Back River tributaries.
- Reservoir Watershed Management Agreement Reaffirmed in 2005 by Baltimore County, City, and adjacent Counties, Reaffirmation of 1984, and annual Action Strategies for reduction of sediment and phosphorus in the metropolitan drinking water reservoirs and other water quality protection actions.
- Maryland Economic Growth, Resource Protection, and Planning Act of 1992 (the "Planning Act") requirements for sensitive area protection and incorporation of the Bay Program's seven "Visions" into County Master Plans.
- Coastal Non-Point Pollution Control Program management measures required by the Maryland Department of Natural Resources pursuant to Section 6217 of the federal Coastal Zone Management Act, for control of urban, agricultural, forestry, and marine sources of pollution.
- Watershed-based Total Maximum Daily Load (TMDL) pollutant limits under development by the State of Maryland, pursuant to Section 303(d) of the federal Clean Water Act, for the elimination of impaired waters.

- The Baltimore Watershed Agreement of 2002 - A Memorandum of Understanding (MOU) between Baltimore County and the Mayor and City Council of Baltimore, for watershed management and the cooperative inter-agency management of environmental resources. The agreement initiated quarterly meetings with local watershed associations and an annual State of Our Watershed Conference. The function of the agreement and working with the local watershed associations is to promote coordinated restoration efforts of our shared watersheds.
- Monitoring- Ambient water quality dry weather flow monitoring is conducted at more than 100 sites throughout the County, alternating years with the Gunpowder River Basin monitored in even years and Patapsco/Back River Basin monitored in odd years. Biological monitoring using random site selection is conducted at 100 sites annually for benthic macro invertebrates using the same basin cycle as for dry weather monitoring. Stream stability studies are conducted throughout the County as needed. Scotts Level Branch and Powder Mill Run are monitored as paired watersheds for chemistry, biology and stream stability.
- Watershed Planning: DEPRM also manages the preparation of watershed management plans for the County's major watersheds. These plans include the characterization of existing watershed conditions, establishment of restoration objectives, identification of restoration options, and evaluation of implementation feasibility. Specific characterization studies include pollutant loading analyses for existing and future land uses based on the Storm Water Management Model (SWMM) and stream stability analyses based on Rosgen stream classification methods. Plans completed or scheduled in the current program include Bird River (1995), Loch Raven Reservoir, Jones Falls, and Back River (1997), Patapsco River (1999), Lower Gunpowder Falls (1999), Middle River (2001), Baltimore Harbor (2001), Little Gunpowder Falls (2002), and Gwynns Falls (2004). DEPRM manages contracts with environmental consulting firms for each plan, with a cost of up to \$326,000. Restoration projects recommended in the plans are prioritized for design and construction through the Capital Improvement Program (CIP). To date, watershed management plans have been prepared for all 10 watersheds (Bird River, Jones Falls, Loch Raven Reservoir, Back River, Lower Gunpowder, and Patapsco River, Gwynns Falls, Little Gunpowder Falls, Baltimore Harbor, and Middle River) at a total cost in excess of \$2 million.
- State Water Quality Advisory Committee (SWQAC): Provides guidance to the Secretary of the Department of the Environment for water quality programs.

Status/Description of Other Regulatory/Management Strategies

Protection of Forest Buffers: One of the County's most important regulatory programs is the comprehensive stream buffer regulation. Baltimore County's stream buffer requirements date back to the Water Quality Policy of 1986, which required 50-foot stream buffers. More protective buffers were recommended by the County's Water Quality Steering Committee in 1988. In June 1989, an Executive Order was issued that began a pilot for the revised buffer code that was adopted by the County Council in 1991. The County's regulations have been cited by the State of Maryland and the Chesapeake Bay Program as a model for local stream protection. Features of the stream buffer regulations include that they (1) apply to all land development

projects; (2) apply to all perennial and intermittent streams (field determined stream limits); (3) have variable widths, including minimum 75' for non-trout waters and 100' for trout streams, or 25' beyond greater extent of 100-year floodplains, non-tidal wetlands, or steep/erodible slopes within 150' of the stream; (4) are surveyed and recorded on Record Plats; and (5) require restrictive covenants designed to prevent disturbance of vegetation.

Protecting The Reservoirs: The regional reservoir system, including the Prettyboy, Liberty, and Loch Raven Reservoirs, provides a large and dependable drinking water supply for the 1.8 million people in the Baltimore metropolitan region. A new multi-jurisdictional watershed agreement was signed in 2005. Although Baltimore City owns and maintains the reservoirs and drinking water system, Baltimore County has a special responsibility for the protection of the reservoir watersheds, two-thirds of which are located in Baltimore County.

Baltimore City manages 17,200 acres of land surrounding the reservoirs, but this land comprises only 6% of the total reservoir watershed. Protection of drinking water quality is the primary purpose of these publicly-owned reservations; however, limited active recreational use is also accommodated, including fishing, boating, golf, a shooting range, and hiking/biking. Public concern about impacts of recreational use on water quality have resulted in the formation of public and citizen advisory groups and revised regulations governing recreational use. Careful management of the entire watershed area for the three reservoirs is important for maintaining the water quality of the reservoirs.

The continuing water quality monitoring program conducted by the City of Baltimore since 1985 indicates that the reservoirs continue to be impacted by nutrient over-enrichment. In particular, phosphorus from sewage treatment plants, agriculture, and urban development is contributing to the excessive growth of nuisance algae. The County participates in the Reservoir Technical Group of the Baltimore Metropolitan Council to provide technical oversight and tracking for the implementation of water quality programs to control phosphorus and sediment loading to the reservoirs. These activities are part of an adopted Action Strategy developed in conjunction with the 1984 Reservoir Watershed Management Agreement. Substantial progress has been made to protect the regional reservoirs, as documented in the 1998 Action Report. The Agreement also contains several zoning policies to maintain agricultural and conservation zoning and to not increase urban development zoning in the reservoir watersheds. Baltimore County has continued to honor its commitments to the Agreement, especially during the quadrennial Comprehensive Zoning Map Process, wherein zoning changes can be proposed by citizens.

Program Actions:

1. Continue to participate with other area jurisdictions in the cooperative regional Reservoir Watershed Management Program, including participation in the Reservoir Technical Group for coordination of program implementation under the adopted Action Strategies and preparation of progress reports.
2. Continue commitments to restrict development in the reservoir watersheds.
3. Continue to implement non-point pollution control, stream restoration projects, and sewerage improvements.

4. Continue to prioritize implementation of projects to establish riparian forest buffers along stream systems in the reservoir watersheds in cooperation with private organizations and other public agencies.
5. Continue to participate in the Comprehensive Gunpowder River Watershed Study and work to address watershed management issues arising from the study.
6. In cooperation with citizen organizations, continue to implement the ambient biological stream-monitoring program in order to provide information about the impacts of land use activities on reservoir stream quality, and to assist in the evaluation and implementation of management programs.

Implementing Agricultural Best Management Practices: Although agricultural use of the land is clearly better for the environment than paving it for development, farmers must be good environmental stewards. It is critical that farmers implement best management practices (BMP's) on all the lands they farm, whether owned or leased. Through the use of these (BMP's) they can reduce soil erosion and protect the water quality of the County's streams and groundwater. The County will continue to assist the agricultural industry through the Baltimore County Soil Conservation District in implementing soil conservation, water quality, and nutrient management plans that protect the soil and water resources of the County. All farms in the County that meet certain acreage and animal unit thresholds must have a Nutrient Management Plan. Participants in land preservation programs that have agricultural land must have a conservation plan that includes BMP's.

Chesapeake and Atlantic Coastal Bays Program: Land development proposals are reviewed for compliance with the Chesapeake and Atlantic Coastal Bays Program. Baltimore County's program was enacted in 1988, following the passage of the Maryland Chesapeake Bay Critical Area Act in 1984 and the publishing of the regulations in 1986. This program encompasses all of the land within 1,000 feet of tidal waters and all of the southeastern peninsulas. Redevelopment of properties within these areas is limited in the amount of impervious surface on the site, the amount of trees and forest on the property, and the controls on storm water runoff. Tidal and nontidal wetlands are required to have naturally vegetated buffers, which filter the sediments and nutrients in runoff. A Buffer Management Program adopted by the County allows the continuation of maintenance activities and limited home improvements within the first 100 feet of shoreline, known as the Critical Area Buffer. This has relieved homeowners of the burden of obtaining variances from the Critical Area criteria for many small additions.

Storm Drain Inlet Cleaning: DEPRM, with assistance from the Department of Public Works, conducts storm drain inlet cleaning across the urbanized areas of the County. This is accomplished with the use of three large-capacity vacuum trucks that have been in service since 1992. DEPRM determines the amount of metals and petroleum hydrocarbons removed through this maintenance. Because road surfaces typically contain the highest concentrations of water pollutants, the program contributes significantly to water quality, which is important to aesthetic and recreation uses of streams.

Storm Water Management Facilities: There are more than 2,880 stormwater facilities in Baltimore County, including 1,088 publicly-owned facilities. DEPRM established a four-person operations crew in 1997, and increased the crew to six staff in 2005, to accelerate the

maintenance of the publicly owned facilities. The maintenance crew helps to ensure that the facilities are functioning as designed.

Illicit Connections: DEPRM conducts annual screening-level monitoring of 200 storm drain outfalls for illicit connections, or dry weather discharge from storm drains. A geo-referenced database of inspections is maintained by watershed. DEPRM conducts investigations to identify sources of illicit discharges and coordinates County's enforcement/correction actions.

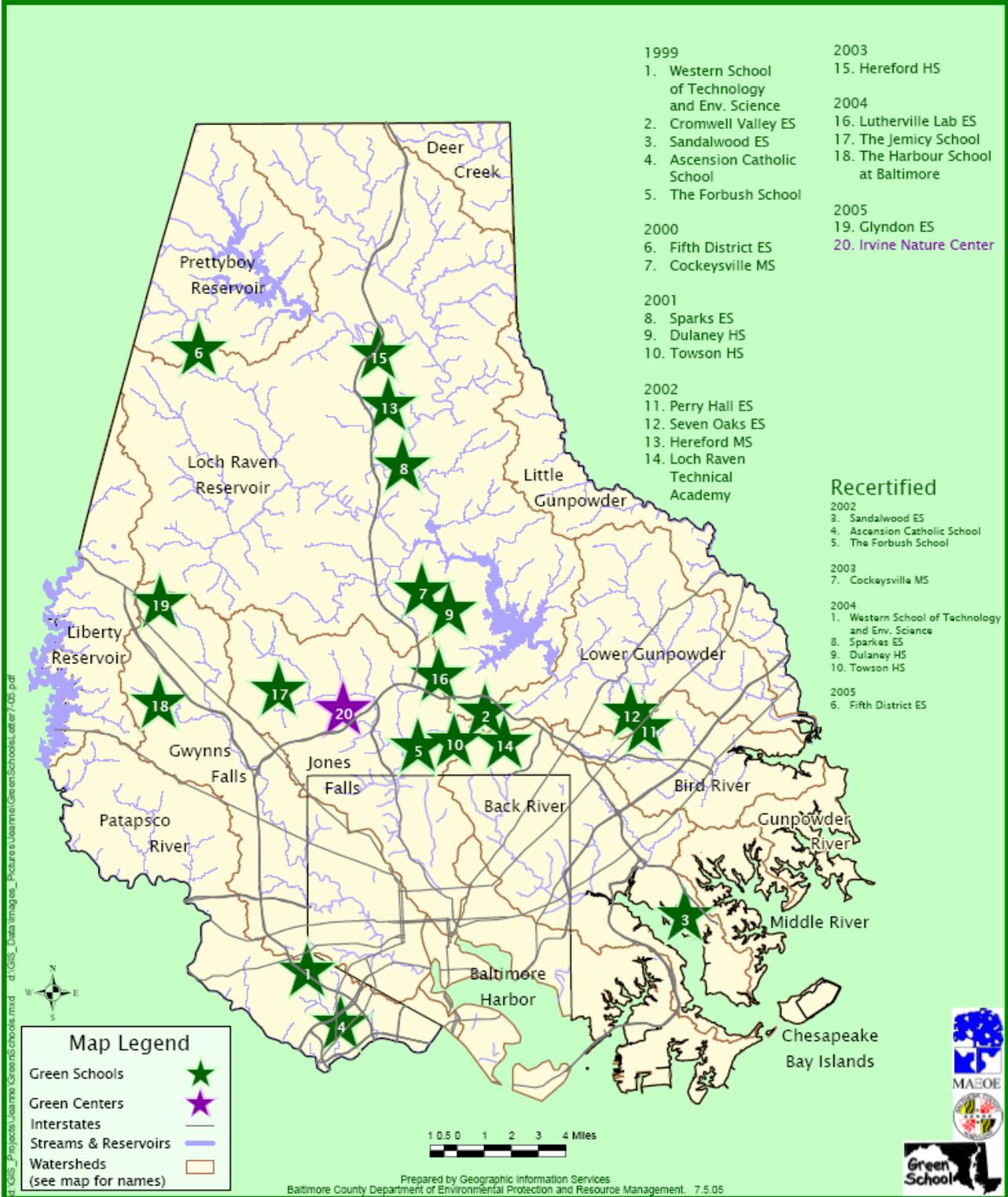
V.B.2.i. Status/Description of Education and Citizen Participation Program

DEPRM has developed several education programs for water pollution control and has worked with non-profit organizations, schools, and watershed associations to foster environmental stewardship and involve citizens in restoration activities.

“Let's Be Partners/Getting Greener Schools.”: As part of its NPDES Municipal Storm Water Permit, DEPRM launched an environmental education program in 1995, titled *“Let's Be Partners ...Water Pollution: What We Can Do To Reduce and Prevent It.”* A program called *“Getting Greener Schools”* has since been added to reach out to local public and private schools through the *Maryland Green School Award Program*. Baltimore County leads Maryland having 16 schools operating as Maryland Green Schools. The program includes community presentations on conservation, best management practices (BMPS), pollution prevention, interactive program stewardship for public and private schools, and displays for community festivals, all of which promote individual and community pollution prevention actions. This program was recognized by the National Association of Counties (NACo) in 1997 and is incorporated into the Chesapeake Bay Program's Local Government Advisory Committee (LGAC) *Pollution Prevention Toolkit* for local jurisdictions. DEPRM coordinates planning for this statewide program through participation on the Board of Directors of the Maryland Association for Environmental and Outdoor Education (MAEOE).

“Tree-Mendous Maryland”: DEPRM actively promotes this State-sponsored program for planting trees on community open spaces by offering technical support and coordinating the free delivery of purchased trees to participating communities in Baltimore County. Since program inception in 1990, DEPRM has delivered over 11,000 trees to 440 planting projects.

Baltimore County's Green Schools and Green Centers 1999 to 2005



Forestry Board: The County's Forestry Board, assisted through an annual operating grant from DEPRM, provides assistance to communities for reforestation projects, including the establishment of "Greening Committees." The Board also provides for teacher training and works with schools on projects through its *Schoolyard Reforestation and Habitat Program*. A brief summary of Forestry Board activities includes the following:

- Promotion of and support for community "greening," and for the State-sponsored *Tree-Mendous Maryland Program*.
- Maintaining a website that provides a range of information on tree and forest topics.
- Administering the *Schoolyard Reforestation Wildlife Habitat Program*.
- Conducting environmental education training workshops for teachers.
- Providing *Camp Hickory* scholarship opportunities for high school students interested in natural resource management careers.
- Conducting tree farm tours highlighting good forest management practices for timber harvesting, sediment and erosion control for water quality maintenance, wildlife habitat enhancements, and reforestation.
- Providing environmental exhibits at community festivals and events.

Further information on education and citizen participation programs is available within the County's *National Pollutant Discharge Elimination System (NPDES) 2005 Annual Report*.

Maryland Water Monitoring Council: Serves as a statewide collaborative body for public agencies and private sector organizations to help achieve effective collection, interpretation, and dissemination of environmental data related to issues, policies, and resource management involving physical, chemical, and biological water monitoring.

Informational Outreach: The Department has developed a set of brochures for education of the public about environmental and natural resource protection. One of the most recent brochures is "*From my Backyard to Our Bay*." It provides helpful advice for landowners on actions that they can take to foster better protection of water quality and natural resources

Restoration of the Chesapeake Bay, Tidal Wetlands, and Rivers

Baltimore County contains approximately 182 miles of Chesapeake Bay shoreline. The bay and its tidal tributaries (the Patapsco, Back, Middle, and Gunpowder Rivers) are a unique natural resource. The intertidal zone, where land and water meet, is essential for providing protection and food for waterfowl and aquatic life. Its health is fundamental to restoring the Chesapeake Bay, yet this area is threatened as a result of natural erosion and human activities.

There are numerous recreational and business opportunities related to the Bay, such as boating, sail boarding, swimming, water skiing, fishing, crabbing, and bird-watching. Healthy swimming beaches and aquatic populations are essential to Bay-related recreational and economic activities. Tidal waters which support a healthy submerged aquatic vegetation (SAV) community will most likely support the citizens' recreational and economic needs. The amount, type, and location of the SAV community are one indicator of the overall health of the tidal waters. These plants provide oxygen to the water and nesting sites for aquatic life.

Baltimore County continues to implement the Waterway Improvement Program, an initiative to enhance the resource quality of the shoreline communities. One component is a dredging program for the maintenance of existing boat channels in creeks and boat access “spurs” from these channels to individual waterfront properties. The dredging permits require that the County implement controls to help prevent future runoff of sediment and nutrients to the dredged channels. Baltimore County collects submerged aquatic vegetation (SAV) data for all creeks that have been or are proposed to be dredged. Submerged aquatic vegetation is considered a key indicator of the general health of a waterway. SAV growth has rebounded in many of the County’s waterways and the County has been documenting and mapping these trends since 1989. This data provides the necessary information to satisfy State and Federal permit requirements and to better understand SAV growth and the limiting factors.

DEPRM's Waterway Improvement Program also includes shore erosion control projects, which have stabilized thousands of feet of steep, eroding shoreline with vegetated beaches and structural protection such as off-shore, gapped breakwaters where needed to control erosive wave energy. With the use of natural vegetation for stabilization, the County is introducing citizens to alternative shoreline protection approaches. These techniques are self-maintaining and therefore provide a much longer-term solution. Shore erosion control projects have been completed for many of the County’s waterfront parks, and an updated project needs inventory has been completed to prioritize additional areas.

Most of the County’s Chesapeake Bay shoreline is privately owned. Some of the County’s oldest communities are located along the shore. Historical patterns of development have resulted in slicing the shoreline into multiple lots. This limits bay access to the individual lot owners and impacts each stretch of shoreline with piers, bulkheads, and other manmade structures. The desire for access to the Bay is continuing and has increased development pressures along the shoreline. Water-access communities and subdivisions are highly desired by homebuyers. Baltimore County encourages the use of group piers as an alternative to private piers. A single point of access to the water can serve multiple households, thereby minimizing disruption of the shoreline. Actions that need to be taken include:

1. Continue to implement the dredging component of the Waterway Improvement Program while protecting submerged aquatic vegetation.
2. Continue efforts to protect shorelines from erosion and improve the water quality and habitat value of tidal wetlands; use nonstructural measures, if appropriate, for shoreline stabilization, and enhance tidal wetlands by increasing the amount of native species.
3. Monitor and control upland sources of sediment and other water pollutants carried to waterways as storm water runoff.
4. Review permits for construction of shoreline structures and only allow structural measures where a nonstructural alternative does not exist.
5. Explore beneficial uses of dredge spoil disposal including shoreline stabilization projects and tidal marsh creation.
6. Improve implementation procedures of the Chesapeake and Atlantic Coastal Bays Program while maintaining the high level of water quality and habitat standards.

Clean Shores Program Capital Program and Operations Section: In May of 2002, the Baltimore County Department of Environmental Protection and Resource Management implemented the “Clean Shores” Program. The program goal is to improve the water quality, aesthetics, and navigational safety of the tidal waterways of Baltimore County.

The County’s waterfront includes several large tributaries to the Chesapeake Bay, including the Patapsco River, Back River, Middle River, Gunpowder River, and Bird River. The County has a well-established program to manage and protect its watersheds, streams, land, and ecological resources. As county resource conservation programs and regulatory controls have begun to take effect to control runoff and siltation of tidal waterways, dredging and restoration of recreational boating access has become a priority.

Recreational boating contributes over \$200 million a year to the County’s economy. The County recognizes the importance of boating and is committed to providing a safe and clean environment. The County’s waterfront includes 26 County waterfront parks and 2 State waterfront parks.

Controlling the sources of debris in the County’s waterways includes community education, enforcement of dumping, maintenance programs, and the installation of debris collection devices. In an attempt to inform the public about the fact that storm drains lead directly to streams and ultimately to the Chesapeake Bay, many storm drains have been painted with the message, “Chesapeake Bay Drainage – DON’T DUMP.”

Baltimore County’s Department of Environmental Protection and Resource Management staff will survey the tidal creeks and rivers of the County and remove hazards to navigation and waterway debris from the shorelines and shallow waters from May to October. The program is funded by a Waterway Improvement Fund Grant from the Maryland Department of Natural Resources. The crew, consisting of a boat operator and 2 technicians will be using the County’s 20’ landing craft, to scoop trash from the shoreline and from the bottom of the County’s waterways.

In addition, County crews utilize 2 all-terrain amphibious vehicles (Argos) to provide access along the shoreline and mud flat areas. The ATV’s are equipped with a track tire system for better traction in muddy conditions. The ATV’s are also equipped with a power winch with a load capability of 2500lbs. Many of the creeks in the County are not accessible from the shoreline due to private ownership. In addition, the substrate in many of the creeks is too soft on which to physically walk.

The Clean Shores Program will have a significant long-term impact on water quality, habitat value, and economic and aesthetic value of the county’s waterways. It will also improve the navigational safety of the waterways for the thousands of County boaters.

Waterway Improvement Program: Since 1987, DEPRM has implemented a “Waterway Improvement Program” for the design and construction of watershed restoration projects including stormwater conversions and retrofits, stream restoration, shore erosion control, waterway dredging, and reforestation. DEPRM’s restoration program is based in large part on

emulating natural ecosystem functions. The program is supported through the Capital Improvement Program and is structured by watershed accounts. Further information is available within the County's *National Pollutant Discharge Elimination System (NPDES) 2005 Annual Report*.

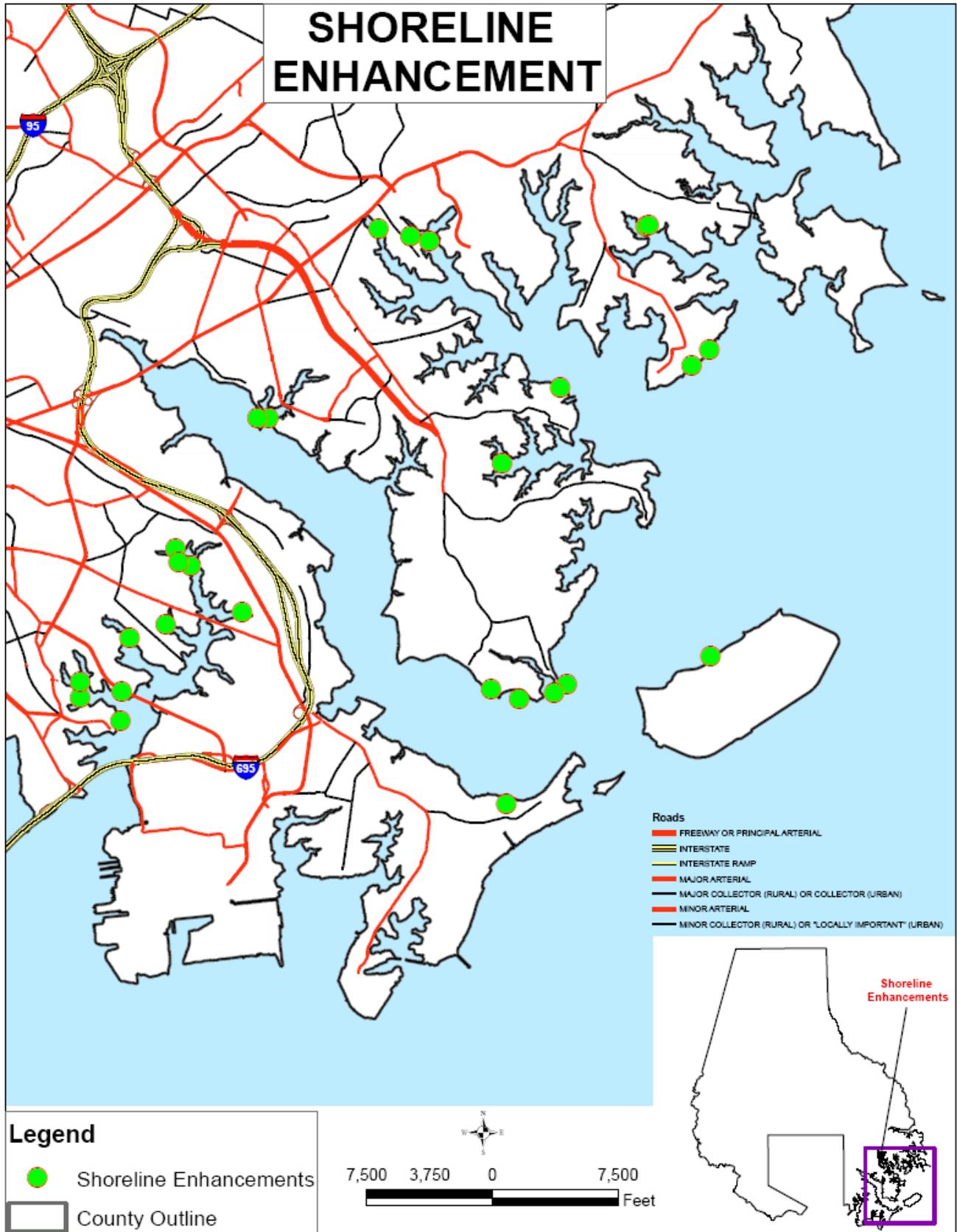
Derelict Boat Removal Program: Using an annual State grant, DEPRM administers a program for the removal of abandoned and derelict boats from non-commercial locations. The boats are retrieved by the County Marine Police or a private contractor, and disposed of in cooperation with the Department of Public Works. Since program inception in 1989, more than 300 derelict boats have been removed from County waterways. The County receives a grant from Maryland Department of Natural Resources for debris and derelict boat removal.

In addition, in support of DEPRM's dredging program, sediment cores have been collected and analyzed in the areas of the proposed dredging. Mapped locations of submerged aquatic vegetation (SAVs) for project areas are also compiled.

Shoreline Feasibility Study Status: A \$300,000 comprehensive shoreline feasibility study for the tidal areas of Baltimore County between Bear Creek and the Gunpowder River was completed in 1998. The study identified beach replenishment and enhancement sites, erosion control needs, and potential sites for island, wetland and shallow water habitat creation. The study included detailed concepts for enhancement projects and evaluated project feasibility. In addition, sediments from numerous tidal waterways were analyzed and a survey of submerged aquatic vegetation was conducted. Projects continue to be implemented. Baltimore County also actively works to coordinate DEPRM's resource management programs with other County agencies, state and federal programs, and other local jurisdictions in the Baltimore region. These coordination efforts also serve to facilitate the involvement of citizens and private sector organizations. Major coordination efforts include:

Coastal and Watershed Resources Advisory Committee (CWRAC): Provides guidance to the Secretary of the Maryland Department of Natural Resources (DNR) for the coastal zone management program and related activities.

Tributary Strategy Implementation Teams: Promotes the public awareness of actions needed for implementation of the 40% nutrient reduction goal for Maryland's commitment to the inter-state Chesapeake Bay Program. The County is within two designated tributary areas, the Baltimore Patapsco/Back River and Upper Wetland Shore.



Restoring Streams And Non-Tidal Wetlands: Baltimore County contains more than 2,100 miles of non-tidal streams and rivers, including more than 1,000 miles of streams that drain to the three drinking water reservoirs. Overall, the County has many miles of good quality streams and rivers. Some, such as the Gunpowder Falls, are recognized as among the highest quality recreational fishery resources in the eastern United States. A stream system consists of a stream and its associated floodplain, wetlands, and springs. Wetland and riparian vegetation play an essential role in the natural functioning of a stream system, including maintaining base flow, controlling water temperature, controlling pollution, and providing habitat. Other recreational uses of stream and wetland systems include nature activities such as camping, hiking, bird watching, collecting, and photography.

Stream quality involves both the flowing water in stream channels and the plant and animal habitat. Flowing water quality is affected by pollutants from urban runoff (non-point sources, particularly from impervious surfaces) and by pollutants discharged directly to streams (point sources). Non-point source types of pollution are varied and include nutrients, sediments, metals, pesticides, oil and grease, salts, and other particulate and dissolved matter. Point-source pollution, such as from wastewater treatment plants, industries, and other sources with a direct, piped discharge, are regulated by the state. Stream-side non-tidal wetlands are important to the maintenance of stream flow, to the removal of pollutants, and to the quality of riparian habitat.

In recent years, increased attention has been directed to the impact of stormwater management on stream systems. Developed initially to protect downstream areas from flooding as a result of upstream runoff, stormwater management can also erode stream channels when the stored runoff volume is discharged at a sustained level. Responses to this problem include: (1) planned revisions to the state's storm water management regulations to manage the discharge of more frequent storm events and provide better protection to stream channels; (2) re-incorporation of the natural flood function into stream restoration projects where access to floodplains for the river are possible and where no downstream areas are susceptible to flooding damage; and (3) "low impact development" approaches wherein development is designed so as to increase the travel time and infiltration of runoff and to reduce the amount of impervious surfaces.

Many County streams have been degraded by channelization, encroachment of development on floodplains, draining and filling of riparian wetlands, removal of riparian vegetation, and development or clearing of steep slopes and erodible soils adjacent to streams. Over the past 15 years, DEPRM's staff has developed expertise in the restoration of destabilized stream channels. Reconstruction of channels employing the concepts of natural channel stability involves using natural materials such as boulders and vegetation in conjunction with reshaping of the stream channels. When properly constructed, these streams are a cost-effective and attractive means to restore physical stability, function, and habitat. The County has completed 35 projects to date and has a defined program for additional projects.

Status/Description of County Groundwater Protection Strategy

Managing Groundwater: In Baltimore County, favorable geological conditions and plentiful precipitation combine to provide a valuable supply of quality groundwater that is used for agricultural, residential, commercial, and industrial uses. About 10% of the County's population

relies on groundwater as the primary source of drinking water. Approximately 30,000 wells are used to withdraw water for this use. In addition, there are currently 16 community well supplies in the County that each serves 25 or more users. The agricultural community also relies heavily on groundwater for domestic, livestock, and irrigation purposes. Industrial and commercial uses depend on groundwater to a more limited extent.

Demand for groundwater by well users occurs mainly in the northern half of the County in areas beyond the service area of the metropolitan water supply system. In order to protect the public health, it is essential to protect groundwater resources from contamination by petroleum products, septic systems, fertilizers, pesticides, road salts, and industrial wastes. Under state regulations, the County is responsible for review of all well permits for residential, commercial and institutional construction. Standards exist to assure that all proposed drinking water wells provide a sufficient quantity of water and are below thresholds for bacterial and nitrate contamination. Proposed on-site sewage disposal systems are regulated to assure that wastes will be adequately remediated in the soil and that they are located at appropriate distances from wells. The current standards for drinking water wells and on-site sewage disposal systems are considered to be effective in protecting public health and groundwater resources. Failing septic systems occur primarily in areas that were developed prior to the establishment of these standards. In such cases, the County conducts sanitary surveys; if community health threats are documented in areas that are accessible to the metropolitan district, extension of public water and/or sewerage is provided on a long-term financing basis. In areas that cannot access the water and sewer service area, problems with private water and sewage disposal in small communities are hard to correct. Many rural areas, including the rural commercial centers of Hereford, Kingsville and Jacksonville, have limitations such as marginal soil conditions, small property sizes, area requirements for stormwater management, and zoning issues that impede improvements of sanitary facilities. In order to address these issues comprehensively, a mechanism such as a rural sanitary district can be established. Other groundwater contamination problems involve specific point sources of contamination, such as petroleum spills from gas stations. Federal regulations have resulted in a program whereby all service stations have replaced older tanks with new tanks that have enhanced protection and containment.

Over the past four years, the County has participated with the Maryland and U.S. Geological Surveys in the first comprehensive study of Piedmont groundwater quality in Baltimore County. The study detected pesticides at 70% of the tested sites, with 75% of the sites containing two or more pesticides. Fortunately, all pesticides were at very low levels and were not considered to preclude any health concerns. Chloride levels in drinking water wells were found to be elevated above background levels in many wells, but were below the secondary maximum contaminant level. Road salt appears to be the primary source of elevated chloride in wells, as evidenced by higher chloride levels in wells located closer to paved roads. Most of the trace elements with known adverse health effects (arsenic, antimony, cadmium, and cyanide) were not detected. Elevated nitrate levels were attributed mostly to agricultural sources such as fertilizers and manure. Elevated levels of naturally occurring radionuclides (primarily radium) above drinking water standards have been detected in approximately 10% of the wells tested in the Baltimore and Setters Gneiss formations. Baltimore County requires that new wells being put into domestic use in these areas be tested for radionuclide.

Program Actions:

1. Evaluate the concept of a rural sanitary district, with appropriate legal authority, financing, and design standards, to provide a mechanism for addressing rural water supply and sewage disposal problems.
2. Continue review of development proposals to assure the proper siting of drinking water wells and the location of on-site sewage disposal systems in accordance with the *Code of Maryland Regulations*.
3. Continue implementation of the 1993 Ground Water Management and Protection Strategy.

EVALUATION OF IMPLEMENTATION PROGRAM

Evaluation of the Green Infrastructure Program

The County's Green Infrastructure program strengths are the comprehensive nature of the planning and implementation strategy. For greenways the Office of Planning provided the planning guidance and the Department of Recreation and Parks and Department of Environmental Protection and Resource Management provide the coordinated implementation. For the acquisition and easement projects the Department of Environmental Protection and Resource Management and the Department of Recreation and Parks coordinate their efforts with Maryland Department of Natural Resources Open Space. One area of weakness that is currently being addressed is to refine the planning documents and regulations to better differentiate the procedures for the protection of environmental greenways versus recreational greenways.

With respect to the acquisition of easements through the Rural Legacy Program and through the Maryland Agricultural Land Preservation Foundation from 1998 to 2002, the State provided significant financial assistance and planning assistance for the implementation of the Green Infrastructure Program. The County provided significant matching funds to the Rural Legacy Program and assistance to the Maryland Agricultural Land Preservation Foundation Program. Four Land Trusts in the County provided hundreds of hours of volunteer time meeting with landowners, recruiting participants and meeting as boards to manage the program. The net result of all these programs was to create significant preservation momentum for the protection of critical natural resources in the County.

After 2002, the State resources for the protection of Green Print resources through the Rural Legacy Program and Maryland Agricultural Land Preservation Foundation Program diminished significantly. The County has maintained its support of these programs, but with dwindling State resources, the momentum has slowed and components of the green infrastructure remain at risk.

To better evaluate the status of the greenways, the Department of Environmental Protection and Resource Management is currently creating a single database to determine the number of easements and locations. From that database the next step will be to map the extent to which the

greenways and forest corridors have been protected. This map can then be integrated with land preservation mapped information to develop a data/map base.

Evaluation of Forest Resources

The County prepares annual reports to the County Council that evaluates the implementation of the Forest Conservation Regulations. Results of the most recently available report for 2003 indicated that in that year for the development projects that involved 666 acres of forest, 65% of the forest was retained and protected in Forest Conservation Easements. In cases where forest was not retained, 41.7 acres of afforestation were required and 21.4 acres of mitigation banking were required. On five developments, fees-in-lieu were required totaling \$232,697.00.

This information and a more extensive examination of the County's Forest Resources were examined and evaluated through the Forest Sustainability Project (See the Forest Sustainability Report).

Evaluation of Watershed Management Strategy

Baltimore County shall continue the systematic assessment of water quality within all of its urban watersheds. As part of this process, Baltimore County shall prioritize restoration projects within watersheds where opportunities for significant water quality improvement exist and prior stormwater management efforts have been insufficient to meet goals established by the County. Projects shall be based on detailed water quality analyses and designed to control stormwater discharges to the maximum extent practicable. The overall goal of the activities listed below is to maximize water quality in selected areas where restoration projects are definable and the effects of which are measurable. The details of this program are contained in the *NPDES-Municipal Stormwater Discharge Permit, 2005 Annual Report; Section 4*

The City of Baltimore and Baltimore County have concentrated cooperative efforts to protect and restore their shared watersheds. This regional approach is an important step forward. Baltimore County has performed the following:

1. Completed the development of watershed management plans for the Gwynns Falls, Baltimore Harbor, Middle River, and the Little Gunpowder River. Additionally, these plans shall be used in conjunction with watershed management plans completed for the Bird River, Back River, Loch Raven, Jones Falls, Patapsco River, and Lower Gunpowder River to prioritize sub-watersheds for restoration projects.
2. Within 12 months, Baltimore County shall develop a pollution reduction-tracking database for recording acres of impervious area addressed by watershed restoration projects. The tracking database shall be updated annually, reflect completed restoration efforts and effectiveness monitoring, and be submitted to MDE with the County's annual reports.
3. Within 18 months, Baltimore County shall select subwatersheds to be restored, which are equal to or greater than 10% of the County's urban impervious cover. As part of this process, Baltimore County shall complete and submit for MDE:

- a. Document those current water quality conditions that will be addressed by each project;
- b. Propose stream restoration goals and corresponding stormwater management projects;
- c. Establish a monitoring plan and surrogate parameters for assessing restoration efforts; and
- d. Provide an estimated cost and a detailed implementation schedule for all restoration projects.

After completing the above assessment and restoration project selection, Baltimore County shall select an additional 10% of its impervious cover for restoration projects by the end of this permit term.

Evaluation of Other Regulatory/ Management Strategies

Protection of Forest Buffers: The County has hired additional staff to dedicate two people to the inspection, management and monitoring of Forest Buffers. The staff is presently organizing the existing data into a database in order to better protect the protected resources. While it is clear that this program is highly successful in keeping development out of the most critical areas adjacent to waterways, better tracking and monitoring of these buffers will provide data to better evaluate the program.

Protecting the Reservoirs: The U.S. Environmental Protection Agency presented the 2005 Source Water Protection award to Baltimore County. The award was for consistently demonstrating commitment to leadership and innovation in drinking water protection. The county's aggressive land preservation programs, restrictive zoning, educational outreach, and water quality monitoring and enforcement programs were all elements in receiving this distinction.

Implementing Agricultural Best Management Practices: The Baltimore County Soil Conservation District in cooperation with Baltimore County is evaluating the effectiveness of its programs in providing conservation planning to the landowners in the County. This effort is ongoing. Preliminary results have indicated a significant backlog in the development and updating of conservation plans, trend for more non-commodity farm operations (small equine operations) with special needs, and reduction in State support for staff positions.

With respect to the evaluation of the implementation of nutrient management plans, private consultants and farm operators primarily develop the plans. This effort is supported by one field person and training assistance from the University of Maryland Cooperative Extension, Baltimore County. Deadlines have been set for either having a plan or having a letter of intent.

Chesapeake and Atlantic Bays Program: The County prepares quarterly reports to the Chesapeake Bay Critical Commission on the evaluation of the Critical Area regulations. These reports are available at DEPRM.

Storm Drain Inlet Cleaning: See NPDES- Municipal Stormwater Discharge Permit, 2005 Annual Report.

Storm Water Management Facilities: See NPDES- Municipal Stormwater Discharge Permit, 2005 Annual Report.

Illicit Connections: See NPDES- Municipal Stormwater Discharge Permit, 2005 Annual Report.

Evaluation of Education and Citizen Participation Program

Baltimore County has fully developed and implemented its extensive and highly successful education programs for reducing the use of pesticides, herbicides and fertilizers, controlling of stormwater pollutants, and disposing of toxic wastes (*See NPDES-Municipal Stormwater Discharge Permit, 2005 Annual Report; Section 6*). Its initiatives and programs are multi-faceted and developed for flexibility so that the message may be easily adapted to a variety of educational settings involving school children, homeowners, community groups, watershed coalitions, faith communities, and businesses in geographic settings around the county and region. A number of important new components and materials have been developed or enhanced in order to better reach certain target audiences. Through the *Jones Falls Institutional Stewardship Initiative*, the *MD Green Schools/Green Centers* initiatives, and the *Security Boulevard/Woodlawn HS initiative*, new emphasis has been placed on institutional landscape design, maintenance, and conservation landscaping concepts such as the benefits of native plants, integrated pest management (IPM), and removal of impervious surfaces. Pet waste, grass clippings, improper application of fertilizer, and other sources of nutrients in urban and suburban neighborhoods have been highlighted.

The County's Green Renaissance and Growing Home initiatives are planned for implementation in 2005. In its broadbased school initiatives, DEPRM has shifted emphasis from hosting individual classroom events to teacher training, outreach to supervisors and facility staff, and working with community coalition groups to foster new partnerships and provide a wider range of services. Partnerships with other county offices and agencies increase effectiveness, avoid duplication of services, and maintain communication. Supporting materials developed by the department and by outside organizations were distributed at educational events, in DEPRM's lobby, through the mail, and increasingly via the county web site. Surveys, questionnaires, feedback, and informal review have been used as assessment tools.

Volunteer citizen participation in pollution prevention was promoted in all components of the program. Through *BayScaping* and *Green School* awards, citizens, organizations, and schools were recognized for committing to actions that will improve water quality. Recommendations for program modification and expansion are being reviewed and the update is ongoing. In 2004, components of the *Let's Be Partners* program were used as a statewide model for program development. Recommendations resulting from the current program assessment will guide future program implementation. Continued expansion of the partnerships involving businesses and schools in the Security Boulevard corridor of the Gwynns Falls and the Jones Falls, Back River and Baltimore Harbor watersheds is planned for 2005. New school populations on the east and west sides of the county will be targeted for increased education and outreach. Targeted outreach to private independent schools will be conducted at presentations at the annual AIMS conference in November 2005.

Evaluation of Restoration of Chesapeake Bay

In 1987 DEPRM initiated the capital program for the assessment and identification of water quality problems and implementation of design and construction of watershed restoration projects, including preparation of watershed management plans, stormwater conversions and retrofits, stream and wetland restoration, shore erosion control, and waterway dredging. From 1988 to 2005, over 42 million dollars has been dedicated to this program in watershed management planning.

Restoration is especially important in communities built prior to environmental regulatory programs. The program goals are to protect, restore, and improve the water resources of the County. The program structure is based on the County's fourteen major watersheds in order to provide a comprehensive framework of protection and restoration of the County's natural resources.

Projects are prioritized in part based on opportunities identified in watershed management plans. Project funding is supported primarily by County General Obligation and Bonds and supplemented by State funds from the Maryland Department of the Environment and Natural Resources through the Storm Water Pollution Control, Small Creeks and Estuaries, and Waterway improvement cost-share programs.

The County's regulatory and preservation program provides for a comprehensive evaluation of the Chesapeake Bay. The programs include the monitoring of the Chesapeake and Atlantic Coastal Bays Protection Program, the County's monitoring of submerged aquatic vegetation (SAV), monitoring of water quality of the coastal beaches and recreational areas and the evaluation of the success of the Coastal Rural Legacy Program.

Evaluation of Stormwater Protection Strategies

Baltimore County operates a comprehensive stormwater management program. DEPRM has always taken a firm stand on requiring water quality treatment even when quantity management was not required. With the implementation of the new stormwater regulations DEPRM continues to require all projects to explore and implement methods for water quality treatment. DEPRM now has the option to accept a fee-in-lieu payment documentation has been developed. It is more fully described and evaluated in the NPDES Municipal Stormwater Discharge Permit, the 2005 Annual Report.

The creation of DEPRM's Capital Programs and Operations Section has greatly increased the success of the stormwater management program. This group has compiled an extensive database of inspections made to the County's publicly owned stormwater facilities. These inspections, and the resulting actions, are improving the overall pollutant reduction efficiency of all public stormwater facilities. All inspections for as built and one-year approvals are completed only by the Stormwater Engineering Section.

Summary of Needed Improvements in the Natural Resource Conservation Program

A. Summary of Needed Improvements to the Green Infrastructure

- Improve the differentiation between the procedures for the protection of environmental greenways versus recreational greenways.
- Review the State Green Infrastructure Plan and identify any deficiencies in the ability of programs and program funding to provide the level of protection sought.
- Determine a system of evaluation for the progress of the program. Consider use of techniques used for evaluating the success of the Agricultural Preservation Program.
- Integration of the data from different programs that protect green infrastructure.
- Review and determine the amount of additional funding needs for the program.

B. Summary of Needed Improvements for Forest Resources

Baltimore County's *Forest Sustainability Strategy* states alternatives, improvements, and new strategies for the future:

- Forest Retention and Restoration:
 - Develop and use appropriate indicators of forest cover loss for ecological and economic sustainability.
 - Select high priority, unprotected private forest lands and evaluate acquisition and/or development easement purchase options, including the use of MD Environmental Trust, Rural Legacy, Program Open Space, and Coastal and Estuarine Land Conservation programs. Concentrate on opportunities to meet mutually shared objectives among State land conservation programs and Baltimore County conservation priorities.
 - Work with the MD DNR to establish the eligibility of Baltimore County under the federal Forest Legacy program.
 - Work with Baltimore City, MD DNR, MD Department of the Environment, private landowners, and watershed associations to increase forest retention as a tool for drinking water source protection.
 - Work with federal and state agencies and utility companies to explore forest retention options associated with carbon market initiatives.
 - Work with the County Office of Planning to evaluate, and modify if appropriate, zoning regulations and guidelines to reduce forest loss.
- Forest Fragmentation:
 - Develop simple, low-cost easement mechanisms for private properties to allow County FCA mitigation funds to be spent on establishing forest corridor connections between high priority forest patches.
 - Require forest sustainability management plans for any private properties (conservation easements) on which public funds are received for forest restoration or multiple use management.
 - Continue DEPRM's Rural Residential Stewardship Initiative program, to assist private citizens in the reforestation of sensitive areas on improved rural residential lots.
 - Work with the Maryland DNR and the County's Forestry Board to incorporate educational materials on the long-term values and benefits of utilizing forest

management techniques for suppressing invasions of exotic species and deer damage for conserving biological diversity into Forest Management Plans.

- Plan another Montreal Process forum focusing on forest fragmentation, its extent across Baltimore County's forests, and the County's commitment, with the MOU signatories, to addressing the problem of fragmentation of forested lands.

C. Summary of Needed Improvements for Watershed Management

- Include the yearly reduction by operational programs such as the storm drain cleaning program and the street sweeping program.
- Pollutant reduction attributable to certain types of restoration (stream channel restoration and buffer planting) must continue to be monitored and assessed.

D. Summary of Needed Improvements to Other Regulatory/Management Programs

Protection of Forest Buffers: In the next years we will need to enhance the tracking and monitoring of these buffers in order to gain a better understanding of the correlation between the amount of forest protected and the quality of the tributaries in the surrounding areas.

Protecting the Reservoirs: We need to maintain the level of protection; this means that we need to stay on target with all of the programs such as the land preservation programs, water quality monitoring, and enforcement programs that contribute to the protection of our reservoirs.

Implementing Agricultural Best Management Practices: Improvements needed for the best management practices are:

- Increase the efforts in developing and updating conservation plans to ensure the effectiveness of the program,
- Modify the program so that it can fulfill the needs of all agricultural land owners,
- Increase the support in the program so that it can be used to aid with the protection of the County's agricultural resources.

E. Summary of Needed Improvements to Education and Citizen Participation Programs

- Increased use of the County's cable channel and website for program promotion such as posting the department's calendar of events, updated *Green School* program information/application, and other information and opportunities should be planned.
- Join with local and regional partners to build on successful initiatives such as the *Security Boulevard/Woodlawn HS* project to target local school populations should be continued even if the efforts do not result in *Green School* applications.

F. Summary of Needed Improvements for Restoration Programs

No improvements identified.

G. Summary of Needed Improvements for Stormwater Management

Improvements are being considered as part of the on-going Builders for the Bay project.

PROGRAM DEVELOPMENT STRATEGY

Program Development Strategy for Green Infrastructure

The County Departments will continue to meet to better coordinate the protection of the recreational and environmental greenways. The County will continue to participate in State programs such as Rural Legacy and Agricultural Land Preservation that provide protection of key links in the Green Infrastructure.

A recent review of the implementation progress under the State's Forest Conservation Act was conducted by the Maryland Department of Natural Resources. This evaluation indicated that Baltimore County was able to retain in permanent easements 68% of the total forest area of development projects subject to review, and that only 25% of the total forests on site were cleared. This implementation record exceeds the state average and is especially high considering that Baltimore County has a significant amount of forest cover in the defined development area.

Information on the County's existing policies, priorities and strategies for managing, protecting and restoring natural resources is available within *Master Plan 2010* and assorted reports available through Baltimore County DEPRM. Following are "issues" and "actions" for resource conservation and agricultural land preservation. These issues and actions appear in *Master Plan 2010*, though a number have been revised or updated.

Program Development Strategy for Forest Resources

Baltimore County has just signed an agreement on November 8, 2005 with the USDA Forest Service, Maryland DNR, and American Forest, a Non-profit organization, which has set the following strategies for the future protection of forest resources:

1. Implement the County's forest sustainability program, including identification and conduct of priority research; collection and analysis of forest assessment and monitoring data; development of implementation programs; identification of potential sources of funding; and documentation and sharing of the County project with other local governments, organizations, and regional and national policymakers as appropriate to demonstrate local approaches to forest sustainability.
2. Prepare a "forest sustainability report" every two years outlining progress and establishing priorities for future actions, in its efforts to incorporate indicators as appropriate to document progress, and to continue to share the lessons learned through regional and national venues including but not limited to the Roundtable on Sustainable Forests.

3. Work with the other parties on communication, education, and implementation activities with landowners and other citizens about forest sustainability and develop partnerships with the City of Baltimore and adjacent counties, citizen-based watershed organizations, community associations and civic organizations, schools and universities, and others.

The agreement also included the Montreal Process, a crucial component of Baltimore County's *Forest Sustainability Plan*. The Montreal Process was developed in June of 1994 to create a criteria and indicators for the conservation and sustainable management of temperate and boreal forest. The Montreal Process evaluates Baltimore County's forest retention strategies under certain criteria, which we plan to improve:

- Forest Cover Lost
- Forest Fragmentation
- Effects of Forest Loss on Water Quality and Quantity and Stream Function
- Conservation of Biological Diversity
- Exotic, Invasive Plant and Animal Species (EIPAS) Invasion
- Maintaining and Increasing Forest Area in Key Sensitive Areas (Riparian Buffers, Recharged Areas, Reservoirs)
- Deer Browsing Threats to Forest Regeneration
- Valuing Forest Ecosystem Services
- Economic Value of Ecosystem Services of Baltimore County Forestland
- Increasing the Contribution of Forests to the Reduction of Greenhouse Gases through Carbon Sequestration Market Mechanisms.
- Landowner Attitudes Toward Forest Management
- Public Education about Forest Sciences
- Cost and Legal Barriers to Sustainable Forest Management
- Strengthening Markets for Local Forest Products Utilization
- Timber Management for Sustainable Forest
- Forest Management Plans for Publicly Owed Forest

Program Development Strategy for Watershed Management

Preparation of watershed management plans is currently conducted by environmental consultants managed by the Department of Environmental Protection and Resource Management (DEPRM). The watershed management plans will be enhanced through the creation of Action Plans that will set restoration goals, identify steps to achieve those goals, provide an implementation schedule and a monitoring plan. The action plans will be prepared with the input from stakeholders within the planning area and identify opportunities for citizen based watershed restoration. The action plans will include the identification of potential stormwater management conversion sites, capital budget as well as citizen based stream restoration opportunities, operational program implementation and an implementation schedule. In 2004, DEPRM hired a consultant to assist in engaging stakeholders in development of the Capital Improvement Program's (CIP) restoration projects.

Although the major focus of the implementation of the watershed management plans centers on capital projects, this component cannot alone satisfy water quality improvement. In Baltimore

County water quality improvement is a multi-faceted effort involving other components such as sediment control, storm drain inlet cleaning, street sweeping, recycling, solid & hazardous waste management, illicit connection reduction, citizen education, sanitary sewer system infiltration/exfiltration reduction and others.

The County's capital budget includes the current budget year and the subsequent 5 years. The capital budget is on a two-year cycle tied to bond referenda. Additional funding for these projects is provided by the Maryland Department of the Environment (MDE) through the Small Creeks and Estuaries and the Stormwater Pollution Control Cost-share Programs, and by the EPA Chesapeake Bay/Habitat Restoration Program.

Program Development Strategy for Other Regulatory/Management Programs

In addition to the individual strategies discussed under program description and evaluation of the different regulatory programs, the County initiated a Builders for the Bay project in 2005. This project brings together, builders, citizens, and county employees to develop a strategy for eliminating obstacles in the development process to better protecting the environment. The project includes the review of storm water management, design of streets and roads, protection of open space, limits on impervious surfaces.

Program Development Strategy for Education and Citizen Participation

DEPRM will identify ways to increase its support of local watershed organizations and recognized *MD Green Schools*. New opportunities to increase awareness, cooperate with school administration at all levels, and affect policy will be pursued. Additional tracking and evaluative strategies will be identified and employed. As stated in the Bay agreement, Chesapeake 2000, the Chesapeake Bay is dependent upon the actions of every citizen in the watershed, both today and in the future. We recognize the cumulative benefit derived from community-based watershed programs is essential for continued progress toward a healthier Chesapeake Bay. Paralleling the tenets of the Bay agreement, Baltimore County continues to:

- Make a significant commitment to education, outreach, and stewardship.
- Provide the information and assistance that citizens need to act at home, at school, at work, and in their local watersheds.
- Use new communication technologies, such as the worldwide web and cable television, provide information for citizens, businesses, and schools.
- Promote and facilitate meaningful outdoor interactive and investigative environmental experiences for young people.
- Provide programmatic models for the state and region.
- Work in partnerships to provide valuable assistance to public and private schools.
- Work towards "government by example," that is, the implementation of conservation design strategies and sustainable landscaping techniques on publicly owned and managed properties to serve as models for the community.

Program Development Strategy for Restoration Programs

In the fiscal years 1988-2005, allotments have totaled to \$42 million, including \$17 million in State cost-share funds. The County is proposing a budget of \$31 million for fiscal years 2005-2010.

Program Development Strategy for Stormwater Programs

The County recognizes its obligation to inspect both public and private stormwater facilities on a three-year basis. This Department has been actively pursuing mechanisms to augment staff to address this important responsibility. The County has approved for our upcoming fiscal year 2006 budget the Department's request for this increase. The Stormwater Engineering Section has gained an additional two engineering associates III and one engineer III. An existing engineering associate IV will supervise the two new engineering associates in the three-year inspection of private ponds.

--- END OF EXCERPT ---

COUNTY NATURAL RESOURCE CONSERVATION GOALS PROGRESS

Following are updates on the progress that has been achieved in the various areas of natural resource conservation. In some instances the goals have been revised to better reflect current policies and practices.

Protecting Plant and Animal Habitats

GOAL: Cooperate with nonprofits and agencies to assess, protect, restore, and create habitats.

PROGRESS: Since adoption of its Policy and Guidelines for Community Tree Planting Projects in fall, 2012, the Sustainability & Forest Management section of EPS worked with citizen organizations to review and approve dozens of proposals for planting trees on County-owned land. The Guidelines help assure that projects are well designed and maintained to assure long-term survival and to provide meaningful ecosystem and community benefits.

GOAL: Identify significant habitats on development plans and protect through modification of site designs.

PROGRESS: This is an ongoing task. The Environmental Impact Review Section continues to evaluate development plans and require modifications, where necessary, to protect significant plant and wildlife habitats.

GOAL: Increase plant and animal habitat in conjunction with capital improvement projects.

PROGRESS: This effort is ongoing.

GOAL: Cooperate with nonprofits and agencies to assess, protect, restore, and create habitats.

PROGRESS: The County has worked with citizen organizations to review and approve dozens of proposals for planting trees on County-owned land to create meaningful ecosystem and community benefits.

Managing Baltimore County's Watersheds

GOAL: Participate in the cooperative regional Reservoir Watershed Management Program that coordinates implementation of the adopted Action Strategies and preparation of progress reports.

PROGRESS: The Dept. of Environmental Protection & Sustainability continued to participate in the regional reservoir protection program. A new Reservoir Watershed Protection Agreement and Action Strategy were approved in 2005 to update water quality issues of concern and to outline actions needed to implement new water quality commitments.

GOAL: Continue commitments to restrict development in the reservoir watersheds.

PROGRESS: Through cooperative review of zoning reclassification petitions for the 2008 and 2012 Comprehensive Zoning Map Process (CZMP), the regional Reservoir Technical Group made recommendations to maintain protective agricultural and conservation zoning to protect water quality in the reservoir watersheds.

GOAL: Continue to implement non-point pollution control, restoration projects, and sewerage improvements.

PROGRESS: The County continues to implement urban non-point controls and restoration projects as reported in the NPDES - MS4 Annual Report. See:

<http://www.baltimorecountymd.gov/Agencies/environment/npdes/>

Agricultural non-point source controls are reported through the State Department of Agriculture. See http://mda.maryland.gov/resource_conservation/Pages/wip.aspx?countystate=Baltimore.

Baltimore County continues to comply with the sanitary sewer Consent Decree. See:

<http://www.baltimorecountymd.gov/Agencies/publicworks/engineering/>

GOAL: Continue to participate in the Comprehensive Gunpowder River Watershed Study and continue to address watershed management issues.

PROGRESS: The Gunpowder River Watershed Study was completed in 2000. The County continues to participate in the Baltimore Metropolitan Council - Reservoir Technical Group (RTG). Currently the County is working with the RTG to develop and implement a comprehensive reservoir watershed monitoring plan. Watershed management issues are addressed through a Small Watershed Action Plan (SWAP) planning process. See: <http://www.baltimorecountymd.gov/Agencies/environment/watersheds/swap.html>

GOAL: Cooperate with citizen organizations to continue to implement an ambient biological stream-monitoring program.

PROGRESS: The citizen based ambient biological stream-monitoring program was suspended in 2000. It has been replaced with a Stream Watch Program that is implemented by local watershed associations supported by grant funding from the County.

GOAL: Develop a pollution reduction-tracking system.

PROGRESS: The County has developed pollution reduction-tracking processes for each of the

pollution reduction types. These are detailed in the annual NPDES - MS4 report in Section 9. The report is on-line at: <http://www.baltimorecountymd.gov/Agencies/environment/npdes/>

GOAL: Develop a database for recording acres of impervious area.

PROGRESS: Acres of impervious area are available through the County GIS. The data layers are updated on a regular schedule.

GOAL: Select subwatersheds to be restored.

PROGRESS: The SWAP planning process prioritizes subwatersheds for restoration in each planning area. See:

<http://www.baltimorecountymd.gov/Agencies/environment/watersheds/swap.html>

GOAL: Monitor and control upland sources of sediment and other water pollutants carried to waterways as storm water runoff.

PROGRESS: Baltimore County maintains a monitoring program to meet compliance with NPDES - MS4 Permit requirements. In addition, stormwater controls are tracking, along with various restoration practices. For Monitoring see Section 10, for SWM practices see Section 3 and for restoration Section Section 9 of the NPDES - MS4 Annual Report -

<http://www.baltimorecountymd.gov/Agencies/environment/npdes/>

Assist the County Forestry Board

GOALS:

- Promotion of and support for community greening.
- Maintaining a website that provides a range of information on tree and forest topics.
- Administer Schoolyard Reforestation Wildlife Habitat Program.
- Conducting environmental education training workshops for teachers.
- Providing Camp Hickory scholarship opportunities for high school students interested in natural resource management careers.
- Conducting tree farm tours highlighting good forest management practices for timber harvesting, sediment and erosion control, wildlife habitat enhancements, and reforestation.

Due to budget constraints several years ago, Baltimore County has discontinued its annual cash support for the Forestry Board. Following changes by the State to commit that DNR provide matching funding to local Forestry Boards, Baltimore County has offered to provide trees and planting supplies to our local Board as match for State funds and as direct support for reforestation projects. The Board has focused on other priorities in recent years and has not conducted several of the activities listed in the 2005 LPPRP. In addition, the Board has elected to work more independently and no longer maintains a working relationship with the County.

Waterway Improvement and Stream Restoration

GOAL: Continue to use watershed based approach to restore degraded stream systems to improve morphology, ecological function, water quality and aquatic habitat.

PROGRESS: 22 stream restoration projects have been completed to date.

GOAL: Continue efforts to protect shorelines from erosion, improve the water quality and improve habitat value of tidal wetlands.

PROGRESS: 4 shoreline stabilization and enhancement projects have been completed to date.

GOAL: Implement Best Management Practices (BMP) in the County's Watersheds to meet local and Chesapeake Bay TMDLs.

PROGRESS: 10 BMPs have been formulated to date.

GOAL: Initiate condition surveys to monitor the County's navigation channels and apply for dredging grants accordingly.

PROGRESS: 17 waterways have been dredged to date.

GOAL: Continue to monitor submerged aquatic vegetation.

PROGRESS: 30 waterways are surveyed biannually.

GOAL: Implement stormwater management pond conversions, retrofits and repairs to meet local and Chesapeake Bay TMDLs.

PROGRESS: 10 stormwater management ponds have been converted to date.

GOAL: Continue marsh monitoring/maintenance and examine potential tidal marsh restoration/creation projects.

PROGRESS: 3 tidal marshes are monitored and maintained.

GOAL: Explore beneficial uses of dredge spoil disposal including shoreline stabilization projects and tidal marsh creation.

PROGRESS: This effort is ongoing.

GOAL: Improve implementation procedures of the Chesapeake and Atlantic Coastal Bays Program while maintaining the high level of water quality and habitat standards.

PROGRESS: This effort is ongoing.

GOAL: Survey the tidal creeks and rivers of the County and remove hazards to navigation and waterway debris from the shorelines and shallow waters from May to October.

PROGRESS: This effort is ongoing, with removal of hazards and debris when reported or following surveys of the waterways.

GOAL: Remove Derelict Boats.

PROGRESS: Approximately 25 boats removed over this time period.

Managing Groundwater

GOAL: Evaluate the concept of a rural sanitary district.

PROGRESS: The County is no longer pursuing this strategy.

GOAL: Continue review of development proposals to assure the proper siting of drinking water wells and the location of on-site sewage disposal systems.

PROGRESS: Ongoing as part of the County's development review process.

GOAL: Continue implementation of the 1993 Ground Water Management and Protection Strategy.

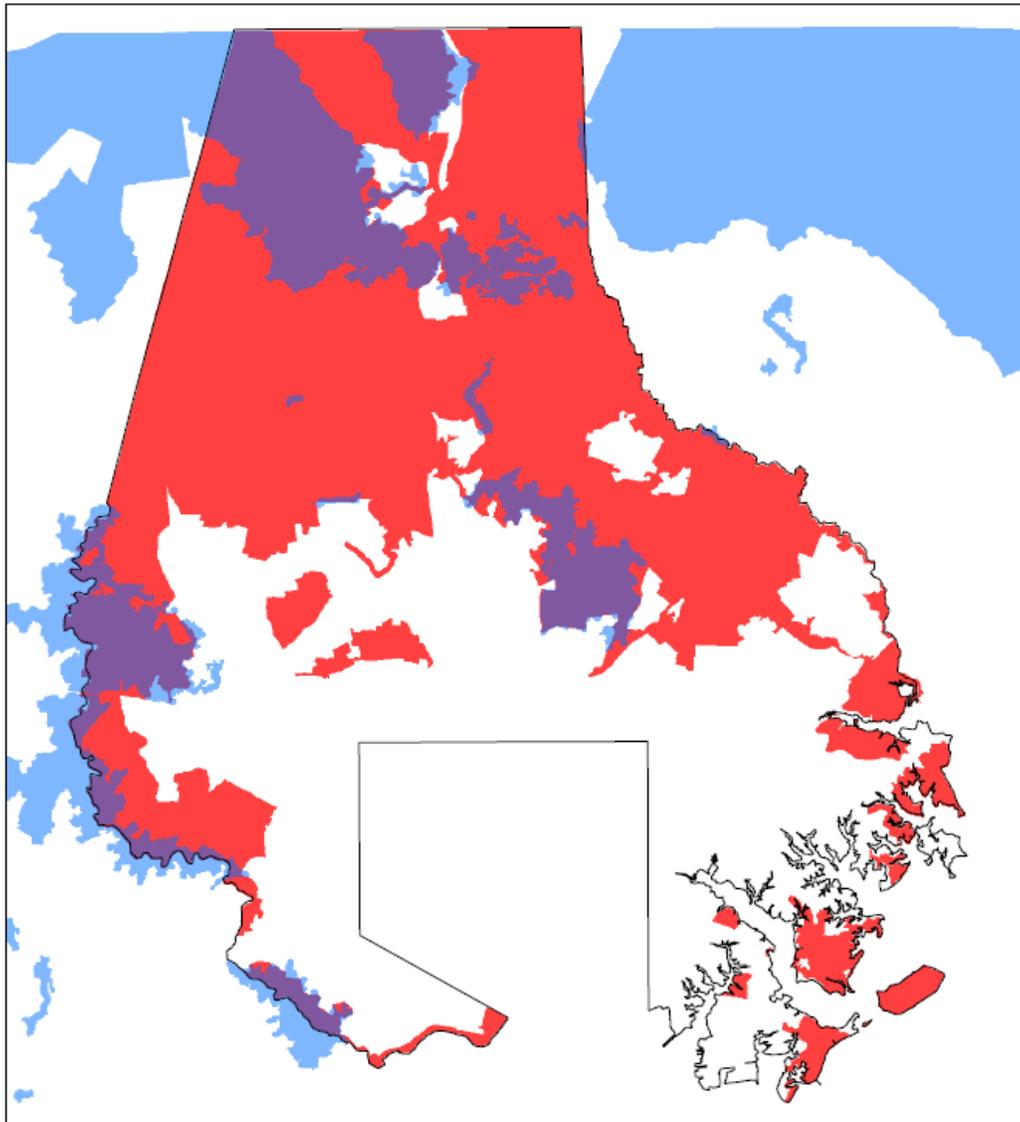
PROGRESS: This effort is ongoing.

GOAL: Administering the BRF grant program to upgrade septic system to BATs and connecting existing houses on septic to sewer when feasible.

PROGRESS: The County has upgraded/connected 50 systems since 2010. Prior to that the State upgraded/connected 150 systems.

PRIORITY PRESERVATION AND CONSERVATION AREAS

Baltimore County has identified a vastly larger geographic area for targeted/priority natural resource preservation and conservation. The map below displays the relationship between Baltimore County’s combined agricultural preservation priority areas (APPAs) and resource preservation areas (RPAs), and the State of Maryland’s designated “GreenPrint” targeted ecological areas (TEAs).



Baltimore County Conservation Areas Compared to Maryland Greenprint TEAs

- Master Plan 2020 Land Management Areas
- APPAs & RPAs
- Maryland Greenprint
- Targeted Ecological Areas (TEAs)
- Overlay Comparison
- TEAs protected by APPAs or RPAs
- Baltimore County

The largest areas of overlap (purple shading), which indicates areas which are preservation/conservation priorities to both the County and State, are predominantly in and around the reservoirs and certain state parks. A substantial part of northernmost Baltimore County, which includes lands in and around Prettyboy Reservoir and Gunpowder Falls State Park, as well as prime agricultural lands, is likewise a mutual priority.

Baltimore County has identified extensive priority preservation/conservation areas that are not designated as GreenPrint TEAs. These areas, which are shaded red on the map, include substantial resource conservation (RC) zoned lands outside of the URDL, in the designated rural section of the County. Noteworthy are a number of areas along the coastal portions of the County, including the North Point, Back River Neck, Carroll Island, and other peninsulas. Large portions of these coastal areas have been targeted by the County for preservation and land conservation, including through the Rural Legacy Program. Numerous large county and state parks are situated within those coastal areas, including North Point State Park, portions of Gunpowder Falls State Park, Hart-Miller Island State Park, Marshy Point Park, Rocky Point Park, and Fort Howard Park. While restrictive, low-density zoning is the key mechanism for land conservation in these areas, the County also employs land preservation and conservation through fee-simple and easement acquisition.

The very limited number and extent of GreenPrint TEAs not overlaid by County APPAs and RPAs are shaded light blue on the map. Some such areas are merely a result of mapping scale, as the State's GreenPrint mapping uses larger geographic "blocks" to code land areas. Thus, an area along a stream may inadvertently include areas that are already developed. In some cases the County has not specifically mapped land areas as conservation priorities because they are sufficiently protected under another mechanism that will ensure that they do not get developed. An example of this would be greenways and forest buffers associated with streams. Under the County's development regulations such areas may not be developed, and so the County has not called such lands out within its preservation/conservation priority mapping.

In summary, the County's extensive land conservation approach, which includes zoning, regulatory mechanisms, and targeted land and easement acquisition, goes above and beyond what has been targeted by the State for Baltimore County through the GreenPrint program. This approach has made the County a recognized state and national leader in land conservation.

NATURAL RESOURCE CONSERVATION IN MASTER PLAN 2020

The Baltimore County Master Plan 2020 provides updated information on the County's natural resource conservation efforts and vision for the future. The pertinent sections of the Master Plan include pages 145-164 and 169-176. Following are excerpts of the policies and actions identified within those sections of the plan:

Policy: Continue to adapt to, and mitigate impacts of climate change on the environment.

Actions:

- (1) Implement the recommendations of the County's Sustainability Network for County operations, energy conservation, protection of natural resources, and communities in order to reduce emissions of greenhouse gases and energy consumption.
- (2) Develop appropriate indicators for sustainability actions and commitments in order to summarize sustainability conditions and trends and to provide a basis for evaluation of progress.

Policy: Incorporate environmental justice considerations when developing Small Watershed Action Plans to address water quality protection and restoration.

Actions:

- (1) Review environmental justice indicators developed nationwide and develop a set of indicators for the watershed management planning process.
- (2) Include the environmental justice indicators in the Small Watershed Action Plans for prioritizing water quality improvement projects.

Policy: Promote redevelopment and revitalization inside the URDL to reduce pollutant loads and protect natural resources.

Actions:

- (1) Assure that the countywide redevelopment strategy accommodates population growth, provides maximum pollutant reduction, protects high quality waters, promotes economic vitality, and maintains a high quality of life for Baltimore County residents.
- (2) Include environmental policies and goals in community plans for the preservation and enhancement of functional open spaces such as greenways and wildlife habitat; the reduction of water, air, and toxic pollution and solid wastes; and the promotion of neighborhood environmental stewardship.
- (3) Facilitate the redevelopment of underutilized industrial properties.
- (4) Direct redevelopment efforts along the waterfront into historically disturbed, uncontrolled buffer areas in order to maximize water quality protection.

Policy: Assure protection of Tier II waters and those with known trout resources.

Actions:

- (1) Investigate the development of overlay zones for Tier II waters and those with known trout resources and evaluate the need for additional protection through development regulations.
- (2) Examine the feasibility of an offset program to achieve a no net increase in pollutant loads from new development.

- (3) Continue to protect water quality, streams, wetlands, floodplains, and forests from impacts of new development and redevelopment.
- (4) Implement projects to restore wetlands, reestablish forests, plant stream and shoreline buffers, and stabilize stream channels in impacted watersheds.
- (5) Continue to implement the 2006 Baltimore Watershed Agreement with the City of Baltimore for improved and coordinated efforts for public health, trash, stormwater management, community greening, and redevelopment.

Policy: Continue to protect, enhance, and restore degraded waterways to meet water quality standards and permit requirements.

Actions:

- (1) Continue to enforce development regulations for the protection of water quality, streams, wetlands, and floodplains.
- (2) Continue to prepare and implement Small Watershed Action Plans (SWAPs) and participate in studies to identify needs and opportunities for stream restoration, wetland creation and restoration, and stormwater management.
- (3) Continue to design and construct stream restoration projects using an adaptive natural channel design (NCD) approach.
- (4) Incorporate stream protection policies in community plans.
- (5) Continue to implement biological, chemical, and geomorphological stream monitoring programs in order to measure the long-term trends in stream quality.
- (3) Continue to design and construct stream restoration projects using an adaptive natural channel design (NCD) approach.
- (4) Incorporate stream protection policies in community plans.
- (5) Continue to implement biological, chemical, and geomorphological stream monitoring programs in order to measure the long-term trends in stream quality.
- (6) Identify opportunities for the creation of wetlands as mitigation for County capital projects and other land development impacts.
- (7) Continue environmental education programs for schools, businesses, and homeowners for the reduction of water pollution and toxic and solid wastes.
- (8) Continue to implement environmental inspection and maintenance programs such as storm drain inlet cleaning and maintenance of stormwater management facilities.
- (9) Continue to identify and convert appropriate publicly owned stormwater management facilities to provide for increased water quality function.
- (10) Continue to retrofit older communities to provide for stormwater treatment for improved water quality to the receiving waters.
- (11) Continue to support watershed associations and citizens in stream cleanups, stream and watershed surveys, and other restoration projects.
- (12) Identify impediments to, and opportunities for tree plantings along streams on private properties, and work to plant more trees on private lands.

Policy: Protect and improve water quality through the application of stormwater control measures for new development and redevelopment projects.

Actions:

- (1) Continue to implement state-of-the-art stormwater management techniques, including

ESD as feasible, for new and redevelopment projects.

(2) Provide flexibility for redevelopment to implement innovative solutions to stormwater management.

(3) Ensure the sustainability of stormwater practices including long-term function and maintenance.

Policy: Inspect and enforce compliance with the Baltimore County Code, permits, plans and State specifications as related to erosion and sediment control and grading.

Actions:

(1) Continue to inspect and enforce erosion and sediment control implementation on all active projects for compliance with approved plans.

(2) Continue to investigate complaints pertaining to erosion, sediment control, grading, and surface drainage problems associated with new construction.

(3) Continue to provide responsible personnel training and certification of individuals that oversee installation and maintenance of project controls.

(4) Continue to work in cooperation with the Baltimore County Soil Conservation District to require minimum standards for Soil Conservation and Water Quality Management Plans for conservation easements.

Policy: Continue to manage and protect ground water supplies, particularly in areas where citizens, businesses, industry and agriculture rely solely on wells.

Actions:

(1) Review development proposals and permits to assure the proper siting, design, and construction of drinking water wells and OSDS in accordance with the *Code of Maryland Regulations* and *Code of Baltimore County Regulations*.

(2) Continue to implement the 1993 *Ground Water Management and Protection Strategy*.

(3) Continue to inspect all residential underground storage tank removals to ensure that any detected contamination is investigated and remediated, as necessary.

(4) Continue to collect and maintain the location and construction information for new and existing wells and OSDS.

(5) Continue to educate homeowners concerning the proper management and care of individual well and septic systems, potential contamination from underground storage tanks, and potential radionuclides in aquifers.

(6) Continue to inspect all non-conventional OSDS periodically to ensure proper functioning.

(7) Assess the need to incorporate the use of “well reserve areas” for newly developed lots utilizing individual water supplies.

(8) Evaluate the need to establish well setback restrictions from roads to protect against road salt contamination.

Policy: Continue cooperative efforts to protect the quantity and quality of source water in the County’s three reservoir watersheds.

Actions:

(1) Continue to participate in the regional Reservoir Watershed Management Program, including implementation of commitments in the 2005 Action Strategy.

(2) Continue policy commitments to retain protective Resource Conservation zoning and to restrict creation of new development zoning in the reservoir watersheds.

(3) Continue to implement non-point source pollution control practices for development

and agricultural operations, stream restoration projects, and infrastructure maintenance in the reservoir watersheds.

(4) Continue to establish riparian forest buffers and expand other forest cover in the reservoir watersheds in cooperation with private landowners, other agencies, and watershed organizations.

(5) Continue to implement water quality monitoring programs in order to determine conditions and trends for reservoir quality and to assist in the implementation and evaluation of management programs.

(6) Explore options to meet the need for road de-icing for public safety while reducing impacts on reservoir water quality.

(7) Continue to prepare and implement Small Watershed Action Plans to address TMDLs for phosphorus, sediment, and bacteria.

Policy: Continue to implement water quality improvement measures in and along the waterfront, and continue to enforce water quality, forest, and habitat protection components of the State-mandated Critical Area law.

Actions:

(1) Continue to implement the dredging component of the Waterway Improvement Program by maintaining channels and aids to navigation, while monitoring and protecting submerged aquatic vegetation.

(2) Continue efforts to protect shorelines from erosion and improve the water quality and habitat value of tidal wetlands. Use living shoreline measures, where physically feasible, for shoreline stabilization, and enhance tidal wetlands.

(3) Continue to implement the Clean Shore Program to improve the water quality, aesthetics, and navigational safety of the tidal waterways and increase community participation in waterway clean-ups.

(4) Explore beneficial uses of dredge material disposal including shoreline stabilization projects and tidal marsh creation.

(5) Maintain land use and development standards essential for the protection of the Chesapeake Bay's biological integrity.

(6) Create effective opportunities for recreation, tourism, and rural legacy.

(7) Design and plan projects to promote public access to the water and encourage public access to the water on private waterfront development projects, where appropriate.

(8) Consider steering redevelopment efforts along the waterfront into historically disturbed buffer areas in order to maximize water quality protection and improvement.

(9) Consider steering growth allocations involving conversions to Intensely Developed Areas into priority funding areas.

(10) Educate and provide technical assistance for waterfront property owners about the benefits of living shorelines and promote appropriate behaviors to improve water quality.

(11) Evaluate existing private septic systems in the Critical Area for upgrades and connection to the public sewerage system.

(12) Encourage the implementation of clean marina best management practices.

(13) Continue to provide easement programs that provide financial benefits and flexibility of use to farmland owners to permanently preserve their farms and forests.

Policy: Continue to assure the sustainable management of public and private forest resources to provide ecosystem services and meet human needs.

Actions:

- (1) Continue to protect forest resources pursuant to the Forest Conservation Act and Chesapeake Bay Critical Area regulations, and continue to protect “forest buffers” as required by the County’s Regulations for the Protection of Water Quality, Streams, Wetlands, and Floodplains.
- (2) Continue to implement the County’s Forest Sustainability Program and promote sustainable forest management among agencies, forest landowners, and environmental organizations, guided by sound science and assessment of forest health.
- (3) Implement actions and commitments for forest management in the Baltimore Watershed Agreement, the Reservoir Watershed Management Agreement Action Strategy, and the County’s Sustainability program.
- (4) Adopt and implement a No Net Loss of Forest policy.
- (5) Continue to prepare Forest Health Assessments and implement Forest Management Plans for large County-owned forested properties.
- (6) Continue to increase forest cover and maintain forest health using mitigation fees from the Forest Conservation Act and the Chesapeake Bay Critical Area Act.
- (7) Continue to support the program of the County Forest Conservancy District Board.
- (8) Include reforestation elements in community plans and community conservation projects.
- (9) Continue to promote and support programs for community reforestation, including the Tree-Mendous Maryland Program, the County’s Growing Home Campaign, Rural Residential Reforestation projects, and Big Trees program.
- (10) Continue the protection of forestland in the Coastal Rural Legacy Area through easements or in-fee acquisition.
- (11) Address forest pests, diseases, and other biotic stressors and continue cooperative projects for suppression of Gypsy moths and control of exotic invasive species.
- (12) Promote and implement efforts for sustainable waste wood and woody biomass utilization.
- (13) Continue collaboration with the USDA Forest Service, the Maryland Department of Natural Resources – Forest Service and other agencies and organizations for the collection and use of forest assessment data and research and the implementation of sustainable forest management practices.
- (14) Continue to implement and improve deer management measures to better protect forest resources. Evaluate and address the impact that deer browsing has on priority forest determinations.

Policy: Implement biological diversity protection measures for the County’s diverse habitats and their dependent wildlife and the ecological processes that ensure healthy, productive, and sustainable ecosystems. Restore lost or degraded ecosystem functions, and foster environmental stewardship.

Actions:

- (1) Develop a Biological Diversity Conservation Plan that includes measures to assess and protect the natural habitats of the County’s listed rare, threatened and endangered species and sustainable acreages of forest, wetland, riparian and early successional field habitats to maintain or improve biological diversity for current and future generations.

- (2) Apply biological diversity conservation and improvement measures to the development plan review process, capital improvement projects, and forest restoration efforts.
- (3) Work in cooperation with government agencies, non-profit organizations, and citizen groups to assess, protect, restore, and create a range of habitats.
- (4) Maintain the extent of the URDL and Resource Conservation zoning to reduce the vulnerability of sensitive areas to conversion for development.
- (5) Continue to implement multiple land preservation programs.
- (6) Evaluate the vulnerability of high-value resource lands to conversion and recommend additional protection where appropriate.
- (7) Utilize the Baltimore County Center for Maryland Agriculture to provide educational opportunities for good land stewardship.
- (8) Support and promote the efforts of the Maryland Environmental Trust and local land trusts to protect sensitive lands.

Policy: Recognize that mineral resources are an important and valuable element of the local economy. Develop appropriate land use policies to protect ongoing operations and prevent loss of these resources to other land uses.

Actions:

- (1) Restrict land development in undeveloped areas containing deposits of commercially valuable mineral resources.
- (2) Encourage a dialogue with the mineral resource industry to raise awareness of mineral resource-land use conflicts, and develop options for their resolution.
- (3) Permit mineral extraction activities in suitable areas pending environmental and community impact assessments.
- (4) Design and improve road networks to handle the truck traffic from mining activities in areas presently or likely to be used for extraction of mineral resources.
- (5) Assure that post-mining reclamation plans are compatible with surrounding land uses and comply with State Surface Mining Regulations.