

Chapter IV

Natural Resource Conservation

Goals for Natural Resource Conservation

State Goals

Achieving the State's goals for the conservation of natural resource lands depends on cooperation and coordination among federal, state, and local governments; citizens; conservation organizations; and the private sector. The State component for achieving these goals consists of numerous programs. These programs range from easement purchase/easement donation programs to assistance with conservation and restoration plans and projects. The federal government is an important partner in many of these efforts.

A fundamental part of preserving natural resources statewide and locally is to know where they and the key habitats that sustain them are located. As technology evolves, the Maryland Department of Natural Resources (DNR) has continued to refine its methods of locating, inventorying, and mapping natural resources.

The environmental resources, called "sensitive areas" in Article 66B of the Annotated Code of Maryland, that are required to be protected under the Planning Act are streams, stream buffers, steep slopes, 100-year floodplains, habitats of threatened and endangered species, wetlands and their buffers, and agricultural and forest lands intended for resource protection or conservation and other areas in need of special protection.

The State's goals for natural resource conservation are:

1. Identify, protect, and restore lands and waterways in Maryland that support important aquatic and terrestrial natural resources and ecological functions, through combined use of the following techniques:
 - Public land acquisition and stewardship;
 - Private land conservation easements and stewardship practices through purchased or donated easement programs;
 - Local land use management plans and procedures that conserve natural resources and environmentally sensitive areas and minimize impacts to resource lands when development occurs;
 - Support and incentives for resource-based economies that increase retention of forests, wetlands, or agricultural lands;
 - Avoidance of impacts on natural resources by publicly funded infrastructure development projects; and
 - Appropriate mitigation response, commensurate with the value of the affected resource.

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2. Focus conservation and restoration activities on priority areas, according to a strategic framework such as GreenPrint (which is not to be confused with the former easement program also called GreenPrint).
3. Conserve and restore species of concern and important habitat types that fall outside the green infrastructure: rock outcrops, karst systems, caves, shale barren communities, grasslands, shoreline beach and dune systems, mud flats, non-forested islands, etc.
4. Develop a more comprehensive inventory of natural resource lands and environmentally sensitive areas to assist State and local implementation programs.
5. Assess the combined ability of State and local programs to:
 - Expand and connect forests, 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 forest buffers, wetlands, floodplains, and aquifer recharge areas and their associated hydrologic and water quality functions;
 - Adopt coordinated land and watershed management strategies that recognize the critical links between growth management and aquatic biodiversity and fisheries production; and
 - Support a productive forestland base and forest resource industry, emphasizing the economic viability of privately owned forestland.
6. Establish measurable objectives for natural resource conservation and an integrated State/local strategy to achieve them through State and local implementation programs.

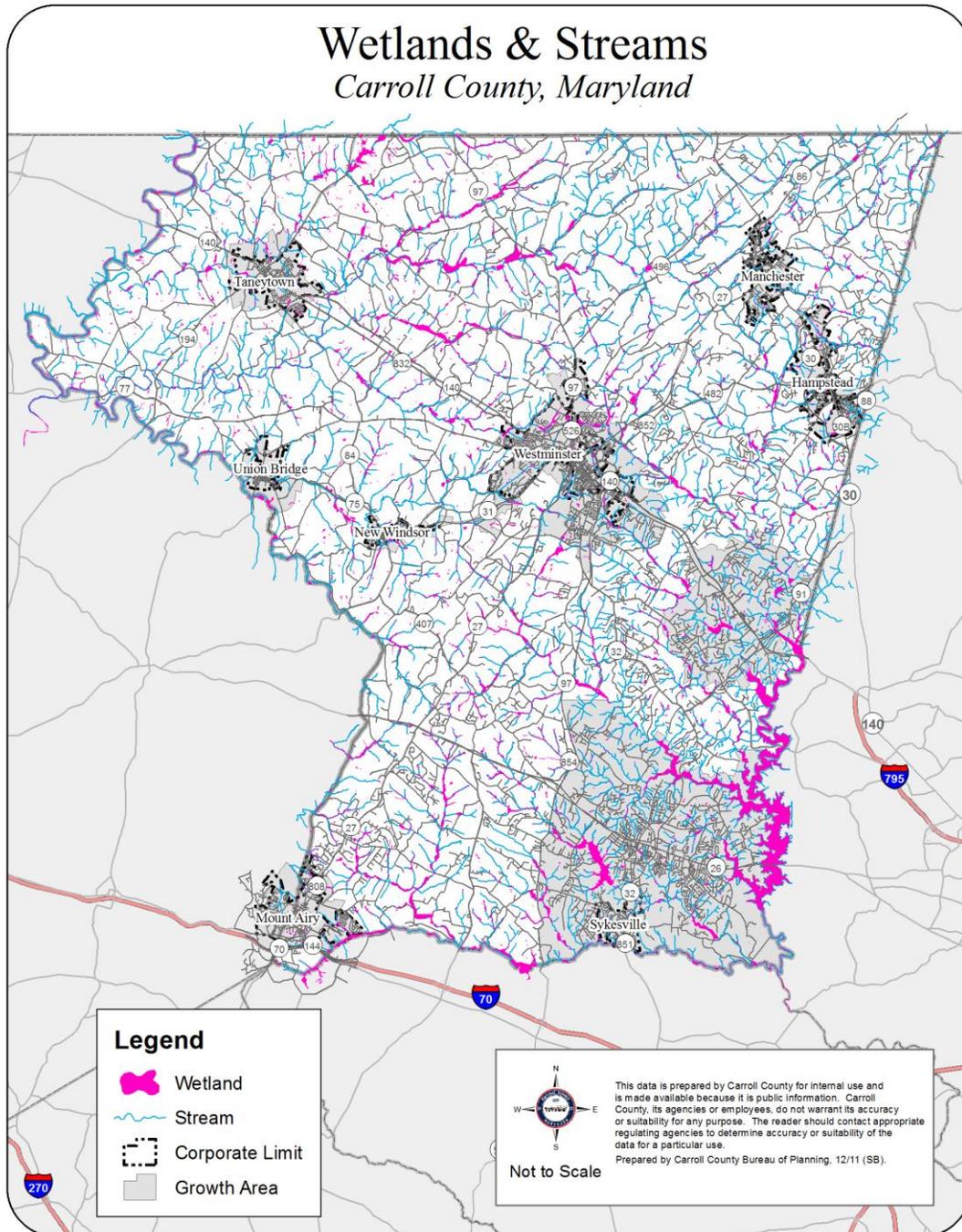
County Goals

As part of the state's requirement that are contained in Article 66B, Section 3.05, local jurisdictions must develop and adopt a "sensitive areas" element in the Comprehensive Plan. On January 16, 1997, Carroll County and the incorporated municipalities adopted the Environmental Resources Element (ERE) of the Master Plan. The ERE and implementing measures provide a uniform definition and protection for identified environmental resources throughout the county (see Maps 8-11). These resources include the following:

- 1) streams
- 2) stream buffers (100 feet from each bank)
- 3) steep slopes (greater than 25%)
- 4) 100-year floodplains
- 5) habitats of threatened and endangered species
- 6) wetlands
- 7) wellhead buffers (100 feet)
- 8) carbonate rock areas
- 9) reservoir watersheds
- 10) use III waters

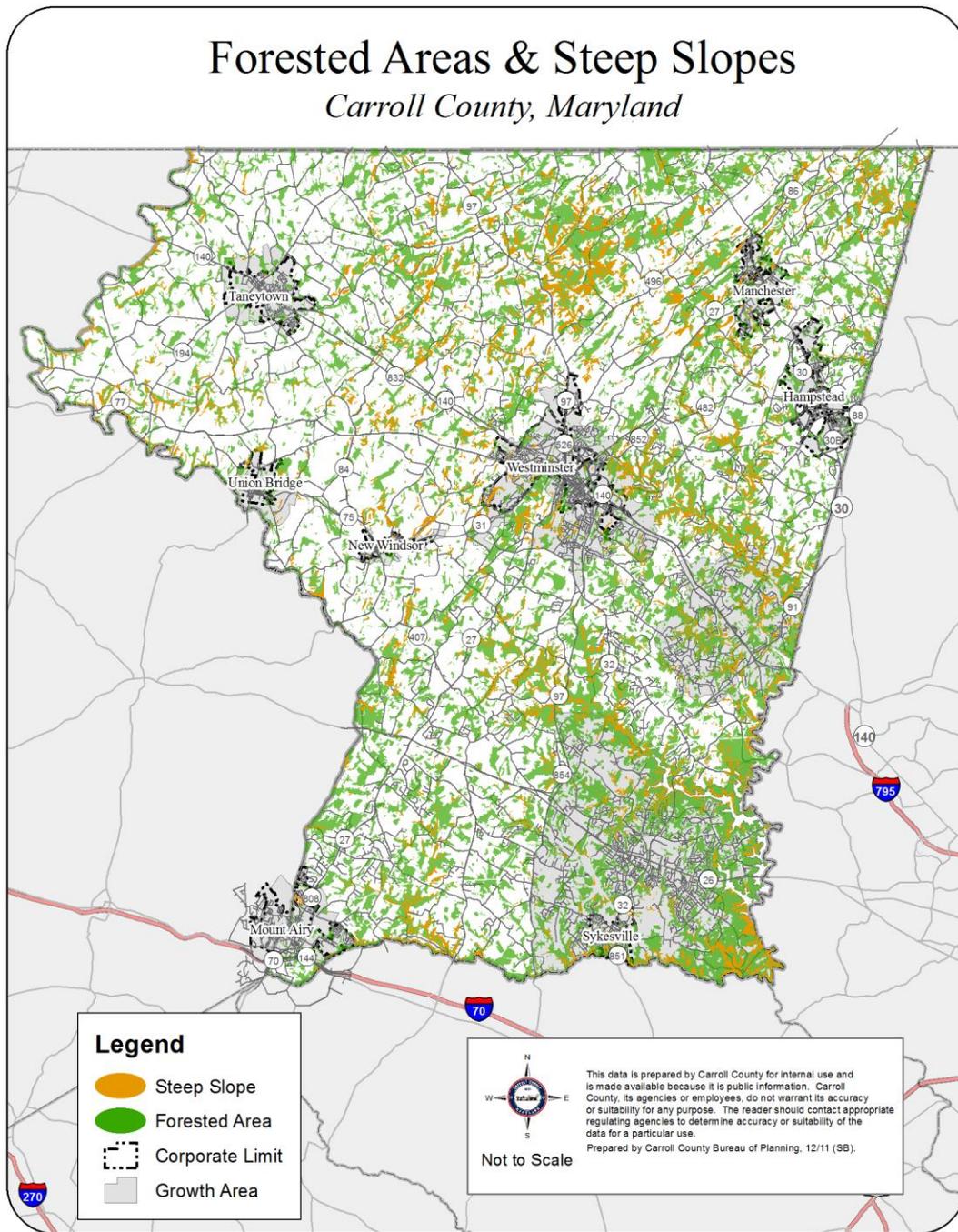
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Map 8



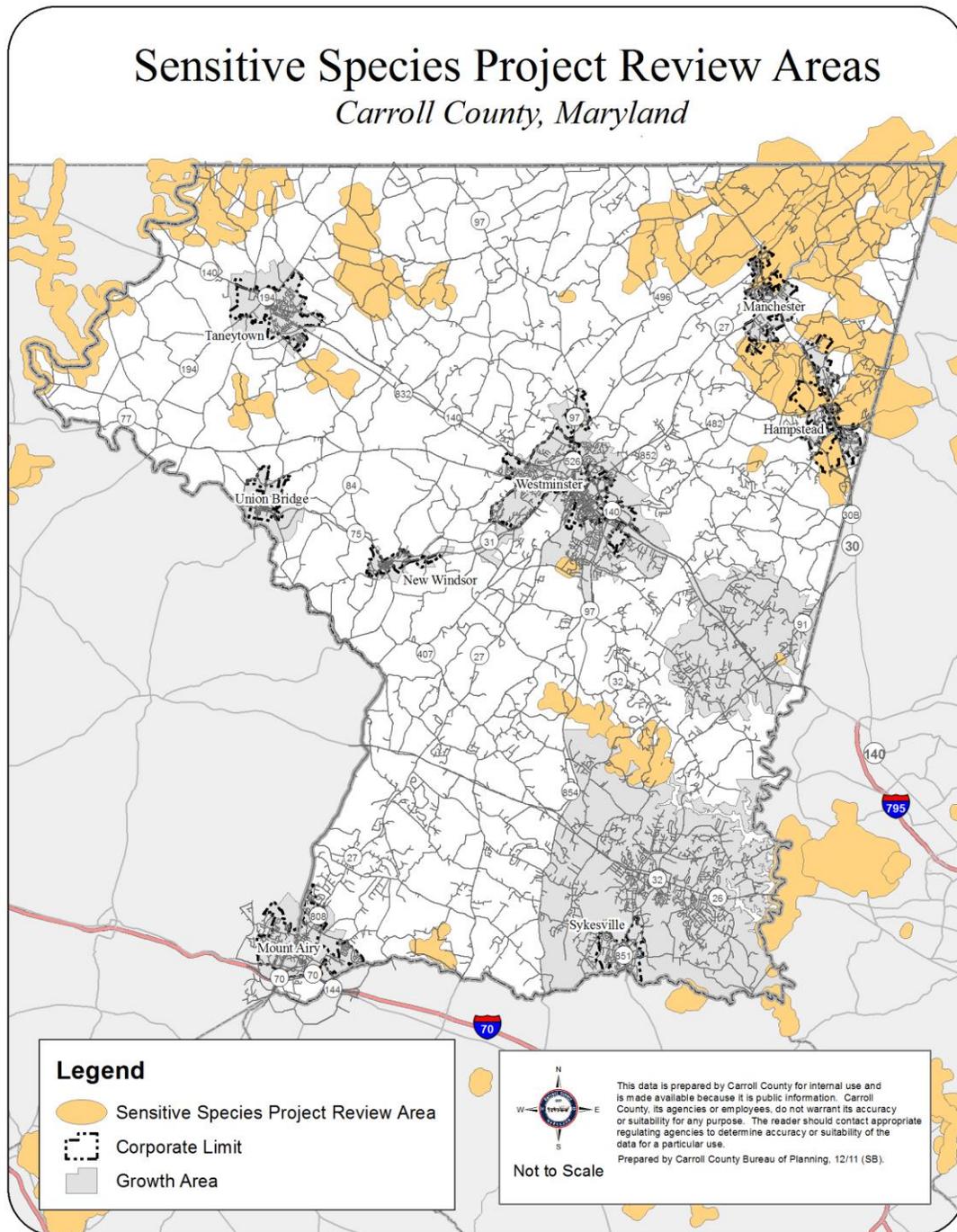
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Map 9



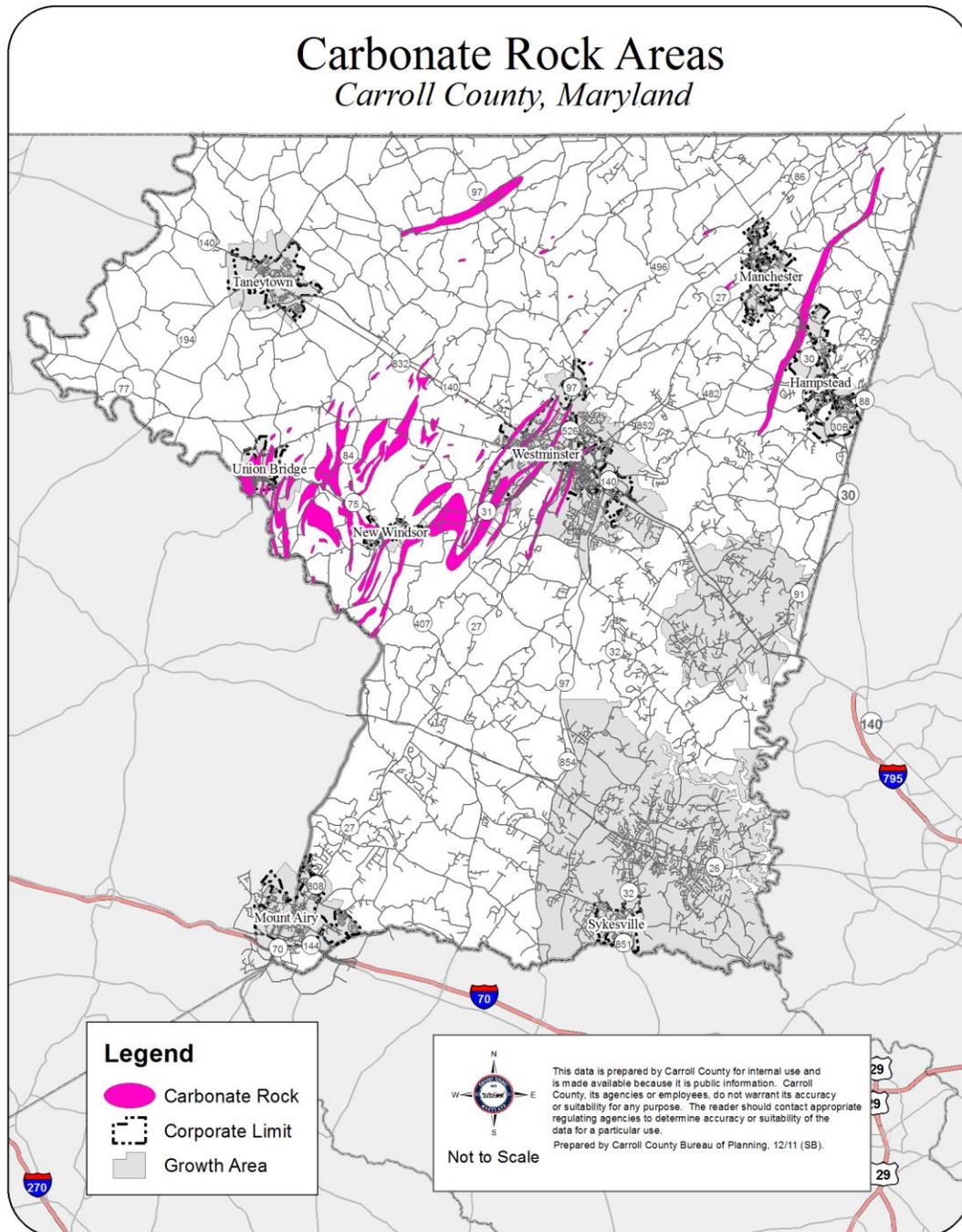
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Map 10



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Map II



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The Carroll County Master Plan and the Environmental Resources Element of the Master Plan are the two documents that establish the County's goals and objectives related to natural resource protection.

The Carroll County Master Plan contains one environmental goal that is accompanied by several policies and recommendations.

Goal: Protect, maintain, and restore, where practical, the environmental resources and natural ecosystems in the county by promoting land use practices that are in balance with, and minimize the adverse effects on, the natural environment.

Policies:

- The state-wide policy of reducing nutrient loads to the Chesapeake Bay by 40 percent will be supported
- The state law of no net loss of wetlands will be supported
- The reforestation of stream buffers will be supported
- County-owned property will comply with environmental regulations

Recommendations:

- Cluster development to protect environmental resources.
- Limit the impact of new development on recharge rates of community supply wells.
- Encourage the creation/retention of wildlife corridors, stream buffer restoration, and protection of unique ecosystems in the county on properties subject to development review.
- Plant trees in stream buffers, where feasible, when reforestation/afforestation is required to protect riparian habitat and enhance water quality.
- Develop incentives that preserve or help to create forested riparian buffers to further protect water quality and riparian habitats.
- Evaluate current design-related regulations and guidelines to minimize paving and impervious surfaces and to reduce runoff and improve infiltration.
- Evaluate the potential for using design standards and incentives to promote creativity in development design while meeting environmental goals.
- Evaluate impacts to sensitive watersheds and recharge areas for community water supplies when determining new development patterns.
- Develop guidelines to locate public facilities in a way that minimizes impacts to natural resources.
- Adopt a water resource protection ordinance.

The Environmental Resources Element, which preceded the 2000 Master Plan and was incorporated into it subsequently, contains three goals with specific objectives:

Goal: Protect and maintain the environmental resources in the county and municipalities.

Objectives:

- maintain and enhance water quality in streams, groundwater, wetlands, and reservoirs
- maintain and enhance water quality in groundwater aquifers and reservoirs

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- preserve where possible and improve wildlife corridors, identified habitats of threatened and endangered species, and contiguous forested areas
- inventory and map, on computer, the environmental resource areas

Goal: Reduce the adverse effects development on environmental resources.

Objectives:

- adopt and implement creative, flexible, and streamlined development regulations that are sensitive to the natural environment
- integrate best management practices and appropriate mitigation measures where sensitive environmental areas cannot be avoided during the land planning and development process
- protect streams and their buffers, minimize flood hazards, provide open space, and provide protection for other environmental resource areas through creative site design
- adopt and implement innovative environmental resource design guidelines
- assure quality and quantity of community groundwater supplies through wellhead protection measures

Goal: Coordinate efforts between the County and municipalities to protect environmental resources.

Objectives:

- implement a coordinated natural resource protection strategy
- standardize protective measures between the jurisdictions to ensure uniform protection
- develop a uniform regulatory and streamlined review process

In addition to the County Master Plan and Environmental Resources Element, the county's comprehensive plans and many of the towns' comprehensive or master plans contain goals related to natural resource protection. Appendix I contains a list of the relevant comprehensive plan goals and objectives.

The goals and objectives included in these plans were drafted in order to protect Carroll County's natural resources for the present and future. Depending on when a given plan was updated or amended, these goals and objectives were guided by either the State's Eight Visions as set forth in the 1992 Planning Act, or the Twelve Visions as set forth in the 2009 Smart, Green, and Growing Legislation.

The goals adopted by Carroll County work in conjunction with state goals to protect natural resources. Like the State's goals, the goals of the County Master Plan and Environmental Resources Element stress the importance of forest retention and reforestation, particularly with attention to linking and connecting habitats and ecosystems, and the protection and enhancement of water resources and water quality in general. Because the County implements its goals and policies chiefly through the site development process, its implementation objectives and recommendations tend to stress those types of mechanisms that achieve the goals through the regulation of the development process. To the extent that the county has resource-based tourism opportunities, it promotes them and, therefore, is consistent with the State's goal to encourage activities such as these "to support long-term conservation objectives."

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Legislation passed by the 2006 Maryland General Assembly resulted in several significant changes to land use regulations controlled by Article 66B of the Annotated Code of the State of Maryland. New watershed-based planning requirements are among the more significant changes. A Water Resources Element (WRE) was required to be developed and adopted by all local governments on or before October 1, 2009.

This WRE must identify drinking water and other water resources needed for existing and future growth. It also must identify suitable receiving waters (where stormwater and treated wastewater can be discharged) and land areas for stormwater management and wastewater treatment. The WRE must address pollutant reductions, where needed, from both existing development and future growth. This legislation comes at a time when water quality and quantity planning is of utmost importance.

Through a collaborative effort between Carroll County and its municipalities, a joint WRE plan document was developed, using the Water Resources Coordination Council (WRCC) as the forum for collaboration. This same document was then adopted by all of the participating jurisdictions. The jurisdictions that participated in adoption of the joint WRE plan document are Carroll County, Hampstead, Manchester, Mount Airy, New Windsor, Sykesville, Union Bridge, and Westminster.

Current Implementation Program for Natural Resource Land Conservation

State Implementation Program for Conservation of Natural Resource Lands

There are many land conservation programs operating throughout the State that work to protect natural resources, farmland and recreational open space. Each program has a unique conservation objective. Four of Maryland's most active State operated land conservation programs are described below. The only program that directly targets "Targeted Ecological Areas" is Program Open Space - Stateside.

Program Open Space – Stateside:

Established in 1969 under the Department of Natural Resources (DNR), Program Open Space (POS) symbolizes Maryland's long-term commitment to conserving natural resources while providing exceptional outdoor recreation opportunities. POS Stateside funds are used for the acquisition of parklands; forests; wildlife habitats; and natural, scenic, and cultural resources for public use. To improve the strategic use of these limited funds, DNR developed a new POS targeting land conservation system which focuses on protecting Targeted Ecological Areas, the state's most ecologically valuable lands.

Maryland Agricultural Land Preservation Foundation:

Since its inception in 1977, the primary purpose of the Maryland Agricultural Land Preservation Foundation (MALPF) is to preserve sufficient agricultural land to maintain a viable local base of food and fiber production for present and future citizens of Maryland. This program is administered by the Maryland Department of Agriculture and by county agricultural preservation programs. There are

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agricultural lands in some Targeted Ecological Areas. Broad landscape protection of these ecologically valuable lands can be achieved by stitching together the most appropriate programs for land resources.

Maryland Environmental Trust:

The Maryland Environmental Trust (MET) is a statewide land trust operated by the Maryland DNR and governed by a Board of Trustees. Created in 1967, the program's goal is to preserve open land such as farmland, forest land, and significant natural resources. The program's primary tool is conservation easements donated by private landowners who want to preserve their land. Because this program operates on donations, it is not targeted, but can play a significant role in protecting land from development.

Rural Legacy Program:

Lands that produce food and provide scenic open space, wildlife habitat, and clean water increasingly are at risk from development. The intent of the Rural Legacy Program (RLP) is to protect large, contiguous tracts of Maryland's most precious cultural and natural resources lands, with a special emphasis on productive forestry and agricultural landscapes. Conservation targets are designated as "Rural Legacy Lands". In certain Rural Legacy Lands, this program can complement the targeting objectives of POS Stateside.

A variety of other programs that protect land from development operate at smaller or more localized scales and are funded by many different sources. A quick overview of these additional conservation tools follows. As with the major State-funded land conservation programs, these tools should also be applied in a targeted manner to achieve an "implementation quilt" of conserved landscapes and environmentally sensitive places.

- **Transfer or Purchase of Development Rights (TDR/PDR)**
These programs are operated by local governments in Maryland and allow landowners in designated lands to sell their development rights to various buyers. These programs have been used effectively to achieve rural land conservation. Carroll County currently has a limited TDR program used specifically within the Mineral Resource Overlay (MRO) zone.
- **Local Parks and County Lands**
Program Open Space (POS) also has funds that it distributes to local governments (Program Open Space Local-side) for conserving recreational open space. These funds, in addition to other county and municipal conservation efforts, provide financial and technical assistance to local subdivisions for the planning, acquisition, and/or development of recreation land or open space areas.
- **Federal (non-military) Lands**
Various Federal agencies own and manage land in Maryland. Examples include the Patuxent Research Refuge, owned by the US Fish and Wildlife Service and the Assateague Island National Seashore owned by US National Park Service. No federal lands exist within Carroll County.

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- **Maryland GreenPrint Program**
This State funded program is no longer active; it operated from 2001 until 2006. The funds were targeted for the protection of Green Infrastructure.
- **Maryland Historical Trust (MHT)**
MHT preserves historically significant properties and is operated through the Maryland Department of Planning's Division of Historical and Cultural Programs. Several properties in Carroll County have MHT preservation easements on them.
- **Conservation Reserve Enhancement Program (CREP)**
CREP, which receives funding from the US Department of Agriculture, protects water quality by removing marginal agricultural land from production and replacing it with best management practices including riparian buffers, stabilization of highly erodible soils and restoration of wetlands. The lands are then conserved through a permanent conservation easement. Numerous farms in Carroll County have made use of this program.
- **Land Conservancy Programs**
Numerous national and local land trusts operate within Maryland and conserve ecologically and agriculturally significant lands. The Carroll County Land Trust is the most active local land trust in the County.
- **Forest Legacy Program (FLP)**
FLP targets ecologically and economically important forest lands for permanent conservation easements. Funding is provided through the U.S. Forest Service.
- **Forest Conservation Act**
Maryland law requires that all development projects must conserve a certain proportion of forest land in a permanent easement. In some cases, additional forest must be planted and added to the permanent easement.
- **Resource Conservation Zoning Tools**
Land use authority is under the control of local government. Through zoning controls, some counties have maintained their rural landscapes by establishing rural conservation zoning thresholds that limit development to 1 housing unit per 20 acres or even less.

County Implementation Program for Conservation of Natural Resource Lands

While the County Master Plan establishes the goals and objectives for protecting natural resources within the county, there are several tools used by the County to achieve those goals and objectives. One of the most powerful tools a county has at its disposal is its land use management authority. Carroll County's zoning ordinance and subdivision regulations are used to conserve natural resource lands and protect environmentally sensitive land from the impacts of subdivision, development, and other human activities or land uses.

The County Zoning Ordinance contains a number of zoning districts, including a Conservation zone that is specifically designed to protect natural resources. The Conservation zone's stated purpose is "to prescribe a zoning category for those areas where, because of natural geographic factors and existing land uses, it is considered feasible and desirable to conserve open spaces, water supply sources, woodland areas, wildlife, and other natural resources." The Conservation district may include areas containing steep slopes, stream valleys, and water supply sources. The Conservation district helps to protect natural resources by limiting the types of uses permitted on the property to low impact land uses. In addition to the limits on types of use, this district also limits residential density to 1 lot per 3 acres, with the requirement that no building may occur within the environmentally sensitive areas located on the property.

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Several of the county's municipalities have included districts in their zoning ordinances that serve to protect natural resources within the county, as well. These towns and their respective zoning districts are:

Hampstead

Resource Protection Overlay Zone: The purpose of this overlay zone is to provide for the protection and conservation of endangered and threatened animal species and wildlife and fisheries habitat by preventing development that would disrupt significant species and/or habitat and ensuring that the design of nearby development is done in such a manner as not to degrade significant species and/or habitat. The principal concern addressed by this zone is the identified habitat area for the state and federally listed bog turtle. The goal of the zone is to protect, maintain, restore, and improve the hydrological and ecological conditions of the wetlands in which the bog turtle lives. The hydrology of the bog turtle's habitat is sustained by groundwater and surface water flows. Requirements of this zone are designed to regulate future land use within the wetlands' watershed to prevent negative hydrologic impacts to the habitat and to identify and preserve migratory corridors for the species.

Groundwater Conservation (G-C) District: The purpose of this district is to provide the opportunity for environmentally sensitive commercial and/or industrial development while preserving significant environmental features, encouraging environmentally sensitive and sustainable "green" design and construction methods, minimizing impervious surface, maximizing groundwater recharge, and protecting the aquifer. The district is intended to allow a mix of low- to moderate-intensity industrial and commercial uses while maintaining high performance standards that protect the environment, balance water use with groundwater recharge and minimize any deleterious effect on adjoining uses, including residential areas. The further intent is to promote the use of emerging sustainable technologies in the design and construction of buildings, roads, and parking areas.

New Windsor

Conservation/Public Use (CPU) District: The purpose of this district is to provide protection from preemptive uses of land meant for public and civic use or preservation of environmental resources and designated open space. Land classified in this district is typically either publicly owned, intended to be publicly owned according to the comprehensive plan, or not suitable for other types of development.

Taneytown

Open Space Zone: The purpose of this zone is to provide for areas where open space is preserved. All development or improvements within the district is directed toward the goal of providing parks, recreation areas, forests, and other natural areas.

The Carroll County Code includes numerous chapters that address environmental resource protection during land development. These regulations help the County implement some of its goals and objectives related to natural resource protection. Although Carroll County does not tout the conservation of natural resource lands under the umbrella and terminology of a green infrastructure, the combination of regulatory and policy initiatives put forth strong measures that contribute to the formation of a green infrastructure.

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In addition to the County's environmental chapters in the code, Chapter 103 (Development and Subdivision of Land) contains requirements for an Environmental Site Delineation (ESD). The ESD requirement is codified and is to be performed as the first step in any development proposal. This requirement is a significant component in achieving the County's natural resources goals, since its aim is to determine, at the very beginning of a project, if a site has environmental features that are considered sensitive, the potential for any regulated activity, and what the potential is for onsite or offsite impacts. The information collected and verified in the ESD process must be incorporated into the development design process. This means that site design elements shall avoid or reduce impacts to sensitive resources on the site and shall be configured to result in low impact. The implementation of low impact development practices is intended to provide a maximum protection level for sensitive resources in a cost effective and minimally intrusive manner. The ordinance also allows developers to cluster residential lots located within the Conservation district. The land derived by clustering lots in this district is provided and maintained as open space or recreational areas, of which the County has the first option on assuming ownership.

A summary of the environmental resource chapters contained in the County Code appears below.

Stormwater Management, Chapter 191 of the Carroll County Code

The purpose of this chapter is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased stormwater runoff. In 2007, the Maryland Stormwater Management Act was passed to require stricter standards to reduce pollution runoff to receiving water bodies from impervious surfaces such as pavement, roofs, and structures. In 2010, Chapter 191 was repealed in its entirety and replaced with new Chapter 191 pursuant to the 2007 Act. Changes included uniform definitions, a three-part review and approval process, and increased maximum penalties (as allowed by state law).

Grading, Erosion and Sediment Control, Chapter 121 of the Carroll County Code

The purpose of this chapter is to establish minimum standards for the control of soil loss through erosion, with the intent to reduce sediment transport through runoff that may degrade the integrity and health of Carroll County's stream system. Chapter 121 was amended in 2011. Changes included requiring that agricultural land management practices have a total resource management system plan or a grading permit and that all easements be recorded before a grading permit can be issued. The amendment established a Grading, Erosion and Sediment Control Fund ("the Fund") to be administered by the Department of the Comptroller. All penalties, fines, fees, and interest paid pursuant to this chapter are to be deposited in the Fund, and all money deposited in the Fund must be used for implementation of this chapter.

Forest Conservation, Chapter 115 of the Carroll County Code

The purpose of this chapter is to conserve existing forest land, reforest those areas which must be lost to development, and create new forests to increase the minimal forest cover found in Carroll County. This chapter helps protect wetlands, 100-year floodplains, streams and their buffers, steep slopes, and critical habitats by prohibiting the disturbance of trees, shrubs, and plants in these areas. This chapter was amended in 2007, 2010, and 2011.

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Floodplain Management, Chapter 114 of the Carroll County Code

The purpose of this chapter is to protect human life and health; minimize property damage; encourage appropriate construction practices to minimize future damage; and to protect water supply, sanitary sewage disposal, and natural drainage. Chapter 114 was amended in 2005, 2007, and 2011. Changes included requiring that FEMA floodplain and floodway maps be added to the floodplain delineations, which must be shown on development plans; floodplains located within remainders and remaining portions are exempt, provided no construction is proposed within the floodplain.

Water Resource Management, Chapter 218 of the Carroll County Code

The purpose of this chapter is to protect and maintain the ground and surface water resources of Carroll County by establishing minimum requirements for the protection of groundwater and surface water resources that contribute to existing or future community water supplies. This chapter was amended in 2007 and 2011. Changes included exempting remainders and remaining portions from water resource review; stormwater management review is no longer required for water resource review, as well.

Environmental Management of Storm Sewer Systems, Chapter 105 of the Carroll County Code

The purpose of this chapter is to provide for the health, safety, and general welfare of the residents of Carroll County, the Chesapeake Bay region, and the state through the regulation of non-stormwater discharges to the storm drainage system. This chapter establishes methods for controlling the introduction of illicit discharges or pollutants into the County's separate storm sewer system (CS4) in order to comply with requirements of the NPDES permit process.

Construction Codes, Chapter 97 of the Carroll County Code

This chapter establishes several measures of protection to environmental resources, especially floodplains. This chapter requires that FEMA floodplain maps be used to keep development outside of the floodplain. This chapter was amended in 2007, 2010, and 2011. Changes included updating to current versions of national and international construction codes.

Landscape Enhancement of Development, Chapter 134 of the Carroll County Code

The purpose of this chapter is to enhance all new residential, commercial, industrial, and institutional development in Carroll County through the establishment and ongoing maintenance of prescribed landscaping. This chapter requires that a Landscape Manual be adopted to achieve this goal. The Carroll County Landscape Manual was initially adopted in 2004. Chapter 134 and the Landscape Manual were amended in 2011. Changes included eliminating the requirement to provide street-frontage trees.

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Comprehensive Planning Context

The county and seven of its municipalities adopted the joint comprehensive WRE for their respective comprehensive plans. The eighth municipality, the City of Taneytown, developed and adopted its own WRE as an element to its municipal comprehensive plan. These WRE's were adopted in 2010.

As a result of the preparation, adoption, and initial implementation of the WRE, new environmental data are now available. Several new procedures and projects have been initiated across the county in preparation for, or as an outgrowth of, the WRE, including:

- The County and private-sector stakeholders convened a “Builders for the Bay” roundtable to review local codes, development procedures, and other measures to incorporate the best environmental management practices into practical and achievable revisions to codes, procedures, functional plans, and policy. The effort was engaged as part of the preparations for the Water Resource Element component of local comprehensive plans. This consensus agreement was adopted in February 2009. The agreement consists of a sixty-seven item action plan divided into four development activity categories: “Residential Streets & Parking Lots”; “Lot Development”; “Natural Resource Management” and “Stormwater Management Recommendations.” Forty-eight of the action items were completed by May 2011. Of the remaining items, four will require incorporation into the county’s comprehensive plan for implementation. The remainder will require further study and/or development before their implementation can be considered. The consensus document is available via: <http://ccggovernment.carr.org/ccg/compplan/WRE/docs/builders-for-the-bay.pdf>.
- Capacity Management Plans (CMP) for the public water and wastewater systems operated throughout the county are reviewed and updated annually.
- The improved data resulting from the development of the WRE were incorporated into the 2011 Carroll County Water & Sewer Master Plan. To ensure the plan’s consistency with the WRE, a revised format and new plan components were incorporated into the 2011 plan.
- With contractual technical assistance, updated water studies, water balance assessments by 8-digit watershed, wastewater limitations studies, and assessments of alternative solutions for water and wastewater issues were prepared.
- The network of observation wells located across the county has increased by to 103 wells which are monitored for water quantity and quality. The network will continue to expand as water supply resources are explored for potential development or as environmental conditions require.
- Several new data layers have been developed within the Geographic Information System (GIS) database and several existing database resources have been improved.
 - Additions to the database include an impervious land-cover layer and layers that track easements for water resource protection, floodplains, and forest areas. A layer mapping 2-foot contours for the entire county was completed in early 2007. Development of a storm-drain layer began in early 2011; this project will likely remain active into 2013. Once established, on-going database maintenance tracks changes concurrent with development or easement acquisition.
 - Improvements to existing database resources include:
 - ◆ creation and verification of an accurate parcel layer
 - ◆ address-point verification with photographic identification

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- ◆ improved stream and stream-buffer delineations
 - ◆ enhanced detail for easement status within the agricultural preservation database
- Collectively, these added data layers and database improvements enhance research/analysis accuracy as well as enable improved environmental review and compliance activities. Planning projects benefitting from these efforts include the adopted 2010 WRE, the 2011 Water and Sewer Master Plan, and the 2011 Buildable Land Inventory (BLI).
- Revised digital Flood Insurance Rate Maps (D-FIRMS) were developed by the Federal Emergency Management Administration (FEMA) using new county-provided data. The D-FIRMS were released for provisional review in June 2010 and revisions were released in October 2011.
 - The Town of Hampstead reduced the size of its municipal growth area to reflect a better balance of currently available water supplies. The County completed an infiltration and inflow study for the public wastewater system and performed initial repairs uncovered by the report.
 - The Town of Mount Airy upgraded its wastewater treatment plant to an enhanced nutrient removal (ENR) system.
 - Since 2007, 23 prioritized stormwater management facilities have been repaired, renovated, or retrofitted in and around the Liberty Reservoir and South Branch Patapsco watersheds to ensure compliance with the Reservoir Watershed Agreement, as well as state and federal regulations. These facilities were identified in a 2003 Watershed Restoration Action Strategy (WRAS) for Liberty Reservoir
 - Initial work is underway on the Piney Run Watershed Management Plan to prevent further damage to reservoir water quality. A characterization study and technical report have been completed. The final step will be developing recommendations to both prevent further pollution of the reservoir and correct existing contamination. This effort will be coordinated with the upcoming Watershed Implementation Plan (WIP) to satisfy Chesapeake Bay TMDL requirements.
 - In 2008, the Carroll County Bureau of Resource Management created the Watershed Action Team - Environmental Restoration (WATER) Program focused on public information, education and outreach efforts to support property owners in connecting with grants and other resources for watershed restoration. Two Freedom-area reforestation projects have been completed.
 - Through funding from the American Reinvestment and Recovery Act, the State Highway Administration will be completing reforestation projects along MD 26 and MD 97 to replant cleared fields near the upper reaches of Morgan Run and to improve infiltration of roadway runoff. Work will be completed during the 2011-12 growing season.

With its work on the WRE completed, the WRCC is now focused on developing the Phase II Watershed Implementation Plans (WIPs) for the county and its municipalities.

The Clean Water Act (CWA) requires, among other things, an anti-degradation policy that maintains high quality waters so they are not allowed to degrade to meeting only the minimum standards. Maryland's Antidegradation Policy follows the national model required by the US EPA. The Maryland Department of the Environment (MDE) has designated several stream segments as Tier II (High Quality) Waters and their respective Tier II Watersheds in the county (last updated 3-20-10). The designation of Tier II waters affects the ability to obtain permits for regulated activities within those watersheds, such as discharge permits. Applications for proposed amendments to the county water and sewer plan, as well as for discharge permits, for discharge to Tier II waters that will result in a new or increased permitted annual discharge of pollutants and a potential impact to water quality are

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required to evaluate alternatives to eliminate or reduce discharges or impacts. If impacts are unavoidable, the applicant (or local jurisdiction) must provide a social and economic justification to MDE for permitting limited water quality degradation.

The CWA requires that the states and District of Columbia establish a list of waterways that are impaired by pollutants and do not meet water quality standards. For impaired waterways, a “Total Maximum Daily Load” (TMDL) must be developed. A TMDL identifies the maximum amount of a pollutant the waterway can receive and still meet water quality standards.

Most of the Chesapeake Bay and its tidal waters are listed as impaired because of excess nitrogen, phosphorus, and sediments. Most of Maryland, including all of Carroll County, is located within the Chesapeake Bay watershed. In 2007, the Bay watershed jurisdictions (Delaware, District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia) and the US EPA agreed that EPA would establish the multi-state TMDL. On December 29, 2010, the EPA established the Chesapeake Bay TMDL, or Bay TMDL, for nutrient and sediment pollutants following a collaborative effort with the watershed jurisdictions. The Bay TMDL divides pollution limits by jurisdiction and major river basin, thereby allocating pollution caps by sub-area.

As EPA was developing the Bay TMDL, it charged the Bay watershed jurisdictions to produce watershed implementation plans (WIPs), which allocate the allowable pollutant load among different sources and identifies strategies within the jurisdiction for reducing nutrients and sediments that harm the Chesapeake Bay. These “Phase I” WIPs were submitted to EPA in 2010. On December 29, 2010, the EPA accepted the Maryland Phase I WIP.

Beginning in 2011, Maryland began the process to develop the Phase II WIP, which will refine the Phase I plan to include more details for where and how nutrient and sediment loads will be reduced to clean up the Bay and will further divide and allocate the responsibility for reducing loads among smaller geographic areas and types of sources. The Maryland Phase II WIP will also identify specific actions that can be implemented to achieve the necessary reductions through 2017 and 2020. The Maryland Department of the Environment (MDE) further divided the allocation of pollutant loading caps in the state into sub-allocations to each of 58 “segment-sheds” and to each pollutant source sector in those sub-areas.

The state is working with county-based teams to develop the Maryland Phase II WIP. For Carroll County, the WRCC has been tasked with developing the Phase II WIP for Carroll County’s portion of the Maryland WIP. The Phase II WIP will include two-year milestones to allow the state to measure results and hold local jurisdictions accountable for meeting the Bay’s restoration goals. Maryland will submit preliminary two-year milestones and a draft Statewide Phase II WIP to EPA in late 2011. Following comments from EPA, the state will revise the draft Phase II WIP and submit the final plan to EPA in early-mid 2012.

Designated Conservation Areas, Inventories, and Maps of Resources

The County has completed several inventories and assessments of natural resources in recent years. In 1997, the County adopted an Environmental Resources Element of the Master Plan in compliance with the 1992 Planning Act. This document identified and mapped sensitive environmental areas, including streams and stream buffers, 100-year floodplains, endangered species habitat, and steep slopes, all of which were required by the state to be included. Additionally, wetlands, wellhead buffers, carbonate rock areas, reservoir watersheds, and Use III waters were identified and mapped due to their

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relevance to environmental planning in the county. The document then summarized the protection measures afforded these resources in the county and each of the municipalities, summarized the development review process, described significant issues and recommended actions related to the protection of the resources, and suggested implementation actions to help the County and towns undertake the recommended actions. Each of the towns in the county also adopted the document.

The County also has prepared a Water Resource Management Areas map (see Map 12), which is to be used in conjunction with Chapter 218 of the Carroll County Code of Public Local Laws and Ordinances (County Code), entitled “Water Resource Management,” and the Water Resource Management Manual. This map identifies the five watershed management areas and six public drinking water source features. These are:

Watershed Management Areas

- Carbonate Rock Area
- Wellhead Protection Area
- Aquifer Protection Area
- Surface Watershed Area
 - o Multiple Management Area
 - o Surface Water Management Zone
- Stream Buffer (Variable Width)

Public Drinking Water Source Features

- Municipal Well
- Potential Well Site
- Existing Surface Water Intake
- Proposed Surface Water Intake
- Existing Reservoir Pool
- Proposed Reservoir Pool

In 2008, a Watershed Restoration Action Strategy (WRAS) was completed for the Prettyboy Reservoir watershed. The WRAS includes:

- Vision Statement and Goals
- Restoration Strategies
- Sub-watershed Strategies

The information and strategies laid out in this plan will help the County to implement specific water quality and natural resource protection actions for some of the sub-watersheds of Prettyboy Reservoir. A product of the WRAS process was the formation of the Watershed Implementation Group (WIG). This group is comprised of representatives from various agencies and jurisdictions responsible for implementing the WRAS recommendations. Emphasis is on tracking and reducing nutrient loads, implementing best management practices for agriculture, implementing storm water management retrofits, increasing stream buffer plantings, and enhancing database management and citizen involvement.

Monitoring occurs on an annual or biennial basis for tributaries of the proposed Gillis Falls and Union Mills reservoirs, as well as Piney Run reservoir. In addition, detailed monitoring for a watershed adjacent to Westminster is reported annually in compliance with the County’s National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Discharge Permit.

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Biological and physical habitat monitoring is conducted to measure the health of streams in a given watershed. Biological monitoring assesses the health of the aquatic insect community as an indicator of the overall stream health. Physical habitat monitoring assesses the quality of the streamside habitat based on factors such as sedimentation, channel alteration, bank stability, and vegetation.

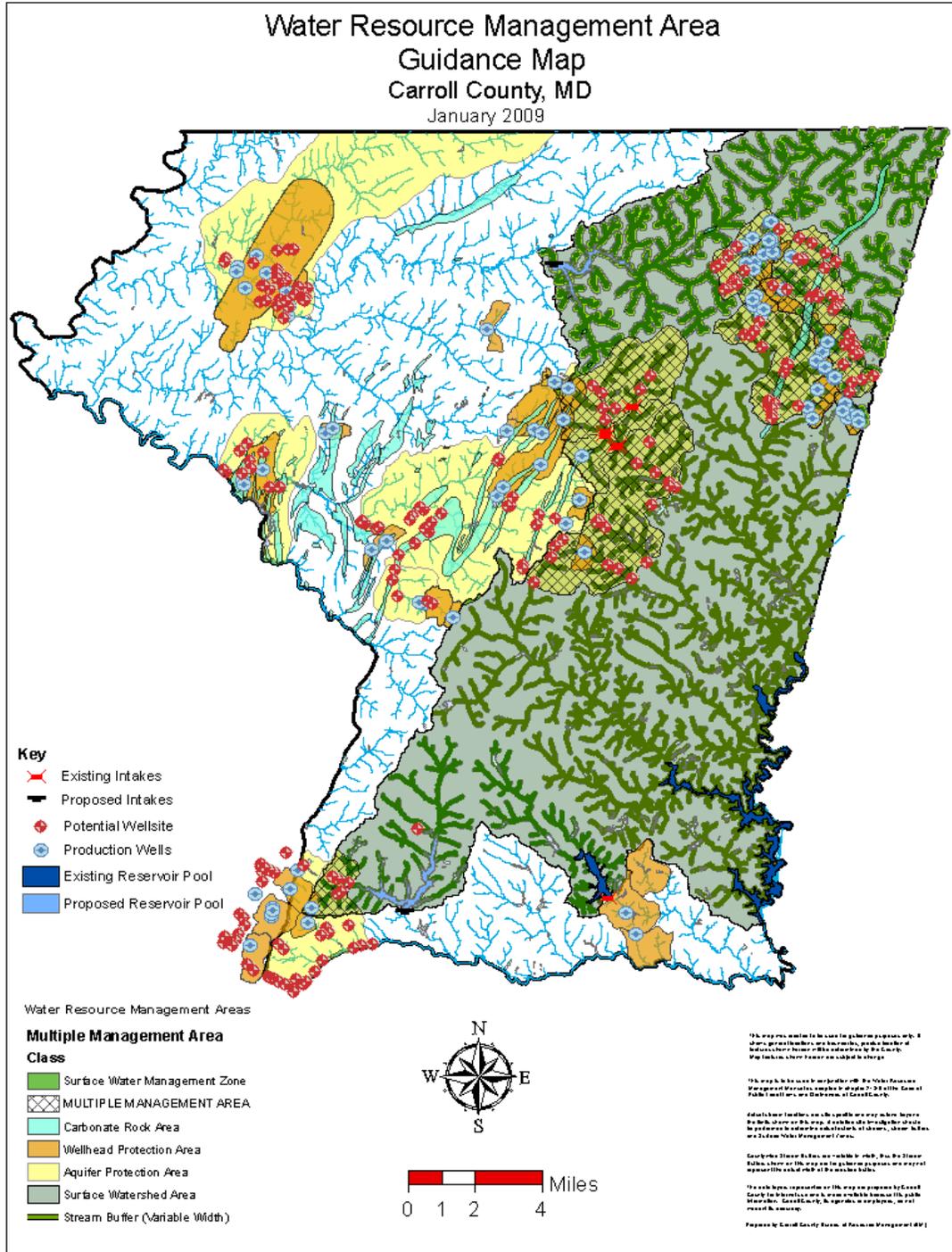
The Union Mills and Gillis Falls reservoir tributaries were most recently studied in 2010 and 2011, respectively. Scores were given based on the Benthic Macro-invertebrate Index of Biotic Integrity (IBI) and Physical Habitat Index. Of the four stations sampled in the Gillis Falls watershed, the average IBI score was 3.3, which is considered to be “Fair.” The eight stations in the Union Mills watershed had an average IBI score of 3.7, also considered “Fair.” The evaluation of habitat conditions for both Gillis Falls and Union Mills watersheds resulted in a “sub-optimal” rating.

The most recent assessment of stream conditions in the Piney Run Reservoir watershed was conducted 2010. Of the seven monitoring stations within this watershed, the average IBI score was 3.43. This is comparable to the scores of other monitored watersheds (Gillis Falls at 3.3 and Union Mills at 3.7). The physical habitat assessment resulted in a “sub-optimal” rating.

The Piney Run Reservoir Watershed Characterization was completed in 2011, along with the Piney Run Reservoir Watershed Management Plan. Currently, a strategic implementation plan that identifies project sites for stream plantings and stormwater management is underway.

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Map 12



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Easement Acquisition, Funding, Planning, and Land Use Management Authority

Carroll County has established policies that aim to maintain and/or establish connected farmland and forestland, particularly along riparian corridors. In the past, the County's farmland preservation strategy has been to give all property owners an equal opportunity to compete for easement funds. Establishment and expansion of the two Rural Legacy areas (the Little Pipe Creek Watershed and Upper Patapsco Watershed areas) and designation of the Agricultural Land Priority Preservation Area are enhancing the County's ability to prioritize easement acquisitions that will help to fill in gaps in blocks of preserved farmland within these areas.

The county has been farmed extensively for many generations. For the most part, land that had soils and terrain that could be cultivated have been put to that use. As a result, forested areas generally occur along stream corridors or existing and planned reservoir sites, in steep terrain, or in areas with soils that are not suitable for crops. In order to retain the remaining forestland and reforest previously cleared areas, the County's forest conservation regulations (Chapter 115 of the County Code) provide for forest stand delineation, forest conservation, afforestation and reforestation through the land development process. The provisions of the chapter aim to retain and protect vegetation "located in specifically identified sensitive locations," including:

- wetlands, one-hundred-year floodplains, streams and their buffers, steep slopes, and critical habitats
- forests which connect large undeveloped or heavily vegetated tracts of land lying within or adjacent to the site
- trees, shrubs, or plants identified on the list of rare, threatened, and endangered species of the United States Fish and Wildlife Service or the State of Maryland Department of Natural Resources, and
- trees that are part of a historic site, are associated with a historic structure; or have been designated by the state or the County as a national, state, county, or municipal champion tree.

In these ways, the County is attempting to preserve and create blocks of connected forestland. The County's strategy for protecting forest resources is to utilize its regulatory powers to protect and enhance forest resources through the development process, and to couple this with private conservation measures being taken in conjunction with land preservation and the implementation of resource conservation plans that protect existing forest stands and riparian buffers.

At the same time, to the extent that forestland exists in large enough areas to support a forest resource industry, the county's zoning ordinance and regulations allow and support the harvesting of timber on private property. Section 121-10 of the County Code's Grading and Sediment Control chapter requires a soil erosion and sediment control plan and a grading permit for all forest harvest operations. These two requirements ensure that an opportunity exists for a viable timber industry while reducing the potential effects it might have on surrounding environmental resources. This upholds the state's objective to support a productive forest land base and forest resource industry.

While Carroll County has a variety of tools in its arsenal to protect resources in a comprehensive manner, it has not used environmental resources as the locus around which planning takes place. The environmental regulations contained in the County Code primarily are tied to the land development

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process. However, they are not related to or distinguished by watershed or other natural system boundaries. Currently, the only planning-related initiatives that are watershed-based are the county's two Rural Legacy areas, both of which encompass specific watersheds.

Other Regulatory or Management Programs

In addition to the environmental regulations contained in the County Code, Carroll County utilizes a number of other regulatory and management programs to enhance natural resource protection on developing properties and the land surrounding them. The zoning and subdivision provisions that relate to the Agricultural and Conservation zoning districts provide for and encourage the minimization of land devoted to residential purposes and the maximization of land devoted to productive farmland and natural features. Chapter 103 "Development and Subdivision of Land" in the County Code contains rural design standards for Agricultural and Conservation districts. This section requires new building lots in these districts to be:

- located in low priority woodlands or on pasture land rather than productive cropland
- located to avoid prevailing winds from blowing odors toward homesites from existing or future barnyards, silos and other similar farm buildings or related uses
- designed at a minimum lot size of one acre and clustered to achieve the maximum possible amount of land remaining in cropland in the Agricultural District
- designed at a minimum lot size as required by Chapter 223 in the Conservation District, unless clustered in accordance with this chapter. This minimum lot size shall apply to the remainder and all proposed lots
- designed, whenever possible, to avoid the construction of new streets or additional entrances onto a public street

In the Agricultural zone, lots are to be as close to one acre in size as possible and sited away from productive farmland. In the Conservation zone, clustering is allowed so that lot sizes can be reduced from a minimum of 3 acres down to one acre. Lots are to be configured so as to limit potential environmental degradation as much as possible. The resulting open space must be offered to the County and conveyed in fee simple if accepted, or owned in common by the residents or a land trust. Additionally, the County has a Mineral Resources Overlay district in its zoning ordinance aimed at:

- prohibiting development in mineral resource recovery areas
- clustering development away from areas with identified mineral resources
- establishing a ½ mile notification area around existing or potential mineral resource recovery operations.

In Carroll County, the primary mineral of concern is Wakefield marble.

A major partner of the County's in promoting natural resource protection objectives is the Carroll Soil Conservation District (the District). The District works with landowners, especially farmers, to combat the effects of agricultural runoff and erosion on water quality. The District's priorities include developing Soil Conservation and Water Quality Plans, providing assistance to landowners to implement best management practices, and reviewing erosion and sediment control plans as part of the development review process. It also operates a conservation equipment rental program for farmers, conducts a tree seedling sale, and coordinates the Envirothon Program for high school students. The District also administers the Maryland Agricultural Cost Share (MACS) program for Carroll County. This state-funded program provides cost-share money for implementation of best management practices (BMP). The District provides administration, planning and design for BMPs..

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Nearly every farm in the state is required to have a nutrient management plan in place to control the effects of nitrogen and phosphorus on water quality. The County relies heavily on the Maryland Cooperative Extension Service to provide technical assistance in writing the plans and implementing other aspects of the Water Quality Improvement Act and other environmental programs.

Protection of water quality in the Baltimore region's major water supply reservoir system, which is comprised of Prettyboy, Liberty, and Loch Raven Reservoirs, requires an effective mechanism for cooperation among the local jurisdictions located within the reservoirs' watersheds and relevant agencies. The Reservoir Watershed Management Agreement was executed by these jurisdictions and relevant agencies to manage the reservoirs' water quality. Carroll County is a signatory to the Agreement. The Agreement established the Baltimore Reservoir Watershed Management Program and is accompanied by an "Action Strategy" that contains specific program commitments by the signatories. The Reservoir Agreement and Action Strategy were updated and expanded in 2005. Among other provisions, the Agreement contains policies to not increase urban development zoning in the reservoir watersheds. 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.

The Monocacy Scenic River Citizens' Advisory Board represents Carroll and Frederick counties with members appointed by the Carroll County Commissioners and Frederick County Commissioners. The Board consults on a variety of activities within the Monocacy River watershed in its role as an advocate for the river and its varied natural resources. More specifically, the Board provides advice and recommendations to both county governments on land-use plan proposals, land development proposals, legislative initiatives, and resource management issues that impact the Monocacy River corridor and its watershed.

The River Board was created in 1978 in response to the Monocacy River's designation as a State Scenic River in 1974. In 1982, the National Park Service determined that the Monocacy River is among the five percent of rivers nationwide that qualifies for designation as a National Scenic River. The Board's objectives, as outlined by the Monocacy Scenic River Management Plan, include:

- Improve water quality
- Help maintain and restore the ecological health and productivity of the River
- Encourage land-use compatibility and attention to environmentally sensitive areas to maximize conservation and use of riparian resources
- Identify and facilitate appropriate uses and alternative protective measures of significant scenic and ecological areas, historic and archaeological sites, and other valued resources
- Provide resource information about the Monocacy watershed for local, state and federal governments, elected officials and the citizens of Carroll and Frederick counties
- Develop multi-jurisdictional cooperation and coordination for the management and protection of the River corridor
- Increase public awareness about important river resource values through public relations and environmental education

Eco-tourism and Resource-based Recreation

The County does not have an established strategy for encouraging eco-tourism or resource-based recreation. However, it does recognize that the natural resources and open spaces of the county play an essential role in attracting people to visit and take part in the recreational offerings available. As

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new facilities such as walking trails and expanded water trails are developed and brought online, the Office of Recreation and Parks will work more closely with the Office of Tourism to develop strategies to effectively market these recreational opportunities and promote eco-tourism in Carroll County. To this end, a number of publications have already been created to spotlight the ways in which people can experience the county's rural atmosphere, parks, forest lands, and trout streams. These include:

- “Guide to the Trails in Carroll County, Maryland” produced by the county Office of Recreation and Parks – a color brochure with park and trail descriptions and color aerial photographs showing the location of trails
- “Biking Carroll County, Maryland” produced by students at the UMBC Department of Geography and Environmental Systems with the assistance of the Carroll County Office of Recreation and Parks and Office of Tourism – a color pamphlet showing the location of bicycle routes throughout the county, with detailed maps for each route, route descriptions, and route profiles
- “Carroll County, Maryland Parks” produced by the county Office of Recreation and Parks – a color brochure describing the county's Office of Recreation and Parks bureaus and the activities and facilities they administer, and showing the location of county-owned parks and their amenities
- “Trails of Hashawha” produced by the county Office of Recreation and Parks – includes trail maps/descriptions and general information about the Hashawha and Bear Branch facility
- “Welcome to Piney Run Park Trail Guide” produced by the county Office of Recreation and Parks – includes trail maps/descriptions and general information about Piney Run Park and Nature Center
- “Where to Hike & Ride in Carroll County, Maryland” produced by the county Office of Recreation and Parks – a brochure showing the location of hiking and equestrian trails throughout the county, along with a description of where to park, the days they are open, and ways in which maps of the trails at each park can be obtained
- A brochure promoting canoe and kayak opportunities is under development and will include information about Carroll County's Big Pipe Creek Water Trail, Piney Run Park, and Liberty Reservoir

Additionally, the county's Office of Tourism webpage provides information on carnivals, where to fish, farmers' markets, parks, pick-your-own produce, equestrian activities, and various other upcoming events.

Maryland GreenPrint and Carroll County's Priority Areas for Preservation

GreenPrint is Maryland's online mapping tool to show how the state's land conservation programs are meeting its goals (i.e., strategic targets) and to show how these programs can work together to meet shared goals for rural landscape conservation. It also maps out a pathway for all partners in land conservation to support and collaborate with the state to achieve healthy, productive, and valuable rural landscapes for today's citizens and future generations. Conservation partners include the public, landowners, local government, state and federal agencies, land trusts, and other natural resource interest groups.

Program Open Space-Stateside has designated ecologically valuable lands, or Targeted Ecological Areas (TEA's), as its strategic conservation targets. TEA's are lands and watersheds of high ecological value that have been identified as conservation priorities by the Maryland Department of Natural Resources (DNR) for natural resource protection. These areas represent the most ecologically

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valuable areas in the state. These lands include forests, wetlands, streams, and farmland that protect the water quality of the Chesapeake and Coastal Bays, keep our air clean, provide valuable habitat, and ensure ecological health and quality of life. These lands also provide many of the passive outdoor recreational opportunities, such as hiking, fishing, hunting, and wildlife watching, that people enjoy.

Maryland GreenPrint serves to focus land acquisition of targeted areas through Program Open Space-Stateside and Rural Legacy grants. Launched in 2008, the GreenPrint map was recently updated in 2011.

In updating the TEA's, the state created an ecological baseline composed of several ecological databases which had been updated since 2008. These component layers are:

- **Green infrastructure:** Large contiguous blocks (hubs) of significant forests and wetlands and their connecting corridors. This hub and corridor network of habitat allows plant and animal migration; reduces forest fragmentation if protected; and provides important ecosystem services such as biodiversity, air and water cleaning, nutrient storage, and protection of areas against storm and flood damage.
- **Rare Species and Wildlife Habitat:** Areas that support Rare, Threatened, and Endangered Species; rare plant and animal communities; species of Greatest Conservation Need; and wildlife concentrations.
- **Aquatic-Life Hotspots:** Watersheds supporting freshwater stream ecosystems where conservation is needed to protect and restore areas of high aquatic biodiversity, Tier II regulated streams, and brook trout streams.
- **Water Quality Protection:** Sensitive lands such as forests, wetlands, and steep slopes where preservation is important for water quality.
- **Coastal Ecosystems:** Blue Infrastructure shoreline and watershed protection priority areas. These areas are important for sustaining coastal and tidal ecosystems and land areas important for sustaining spawning and nursery areas for important commercial and recreation fisheries.
- **Climate Change Adaptation:** Areas that are important for sustaining wetlands ecosystems that are changing and moving landward in response to sea-level rise.

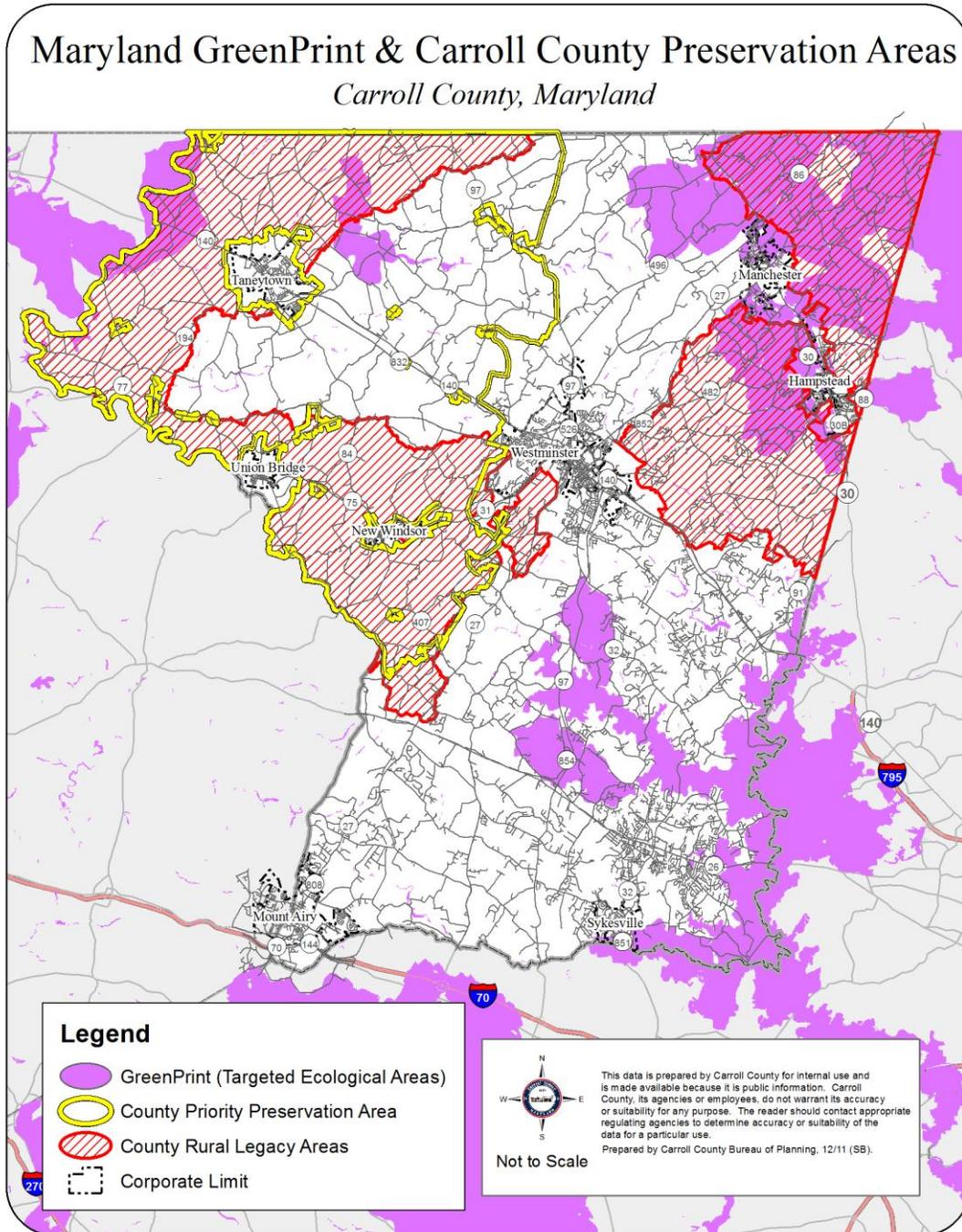
From the ecological baseline, the highest ranked areas for each component were merged to create the Targeted Ecological Areas. For Carroll County, two of the components, Coastal Ecosystems and Climate Change Adaptation, do not apply.

The purpose of TEA's is to define areas that present opportunities for multiple land conservation efforts to work together by leveraging Stateside OPS resources. Land trusts, conservancy organizations, and government programs can use the GreenPrint TEA mapping to identify and foster cooperative conservation projects that meet Stateside POS ecological criteria.

The Rural Legacy Program directs state funds into a focused and dedicated land preservation program specifically designed to limit the adverse impacts of sprawl on agricultural land and natural resources. The Program reallocates state funds to purchase conservation easements for large contiguous tracts of agricultural, forest, and natural areas subject to development pressure. Counties and private land trusts are encouraged to designate Rural Legacy Areas and to apply for funds to conserve land.

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Map 13



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Carroll County has two Rural Legacy Areas:

Upper Patapsco Watershed Rural Legacy Area: The area extends north to the County/State line and east to the Baltimore County line and encompasses the Upper Patapsco Watershed (which comprises a portion of the Liberty Reservoir Watershed), the Prettyboy Reservoir Watershed, the Loch Raven Reservoir Watershed, and a portion of the Liberty Reservoir Watershed located generally east of Westminster and MD 140. The area excludes the municipalities (Westminster, Hampstead, and Manchester) and their planned growth area located within these watersheds.

Little Pipe Creek Watershed Rural Legacy Area: The area extends west to the Monocacy River and north to the County/State line, and encompasses the Little Pipe Creek Watershed (which comprises a portion of the Double Pipe Creek Watershed), the Upper Monocacy River Watershed, and the northwest “corner” of the Double Pipe Creek Watershed. The area excludes the municipalities (Westminster, New Windsor, Union Bridge, and Taneytown) and their planned growth area located within these watersheds.

The County’s Rural Legacy Areas were established in regions of the County that contain important attributes. These features include: areas of concentrated land preservation properties and highly productive farmland; major streams and stream valleys that flow into the drainage areas of major regional drinking water supply resources; expanses of forested land; rare species habitat; and areas critical for groundwater aquifer protection. Combined, these Rural Legacy Areas contain significant agricultural, forestry, and natural resources. They provide a mechanism to focus protection of prime agricultural land as well as protection of natural resources that are important to the Monocacy River and all three of the region’s water supply reservoirs (i.e., Prettyboy, Loch Raven, and Liberty Reservoirs).

While the County’s Rural Legacy Areas do not correspond to the state’s delineated GreenPrint areas, they do encompass portions of the defined Targeted Ecological Areas, as well as areas associated with sensitive species, stronghold watersheds, and green infrastructure corridors.

The County’s Agricultural Land Priority Preservation Area (PPA) covers the northwest quadrant of the County. It encompasses nearly all of the Little Pipe Creek Rural Legacy Area and the additional area generally located between Westminster, Taneytown, and Union Bridge. The PPA also encompasses the state’s targeted ecological areas that are located generally north of MD 26, west of MD 27 (south of Westminster), and west of MD 97 (north of Westminster). By focusing land preservation efforts to this area, the PPA contributes to natural resource conservation within its entire defined area.

Progress in Implementing the Strategy for Natural Resource Conservation

The 2005 Carroll County Land Preservation, Park, and Recreation Plan contained the following strategies for natural resource conservation. Since the 2005 plan, all of these strategies have been and are continuing to be implemented through various efforts and initiatives. It is important to note that these strategies are, for the most part, ongoing in nature, as opposed to involving a finite completion date. As such, they become incorporated into the normal operating practices and missions of the

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responsible bureaus, departments, or agencies. Accordingly, this leads staff to maintain efforts to implement goals and strategies as well as continually seek new implementing opportunities.

1. Carroll County is taking a number of steps to achieve State and county resource conservation goals. Its primary methods of achieving these goals are and will remain the County Master Plan, community comprehensive plans, capital funding of land preservation and other natural resource-related projects, and development regulations. Each of these are reviewed on a regular basis (some more frequently than others), and adjustments made accordingly based upon county priorities.
2. At the same time, a number of improvements can be made to make achievement of the goals more feasible more quickly. State funding for the Maryland Agricultural Land Preservation and Rural Legacy programs can be increased to bolster the number of acres in any given year that have the potential to be preserved. Because resource conservation plans are requirements of these programs, the more landowners who participate, the more conservation measures are implemented.
3. Along the same lines, continued state and federal funding for the Maryland Agricultural Water Quality Cost Share Program (MACS), USDA Environmental Quality Incentives Program (EQIP), and other environmental enhancement programs used by farmers in the county will ensure that effective resource conservation measures continue to be within the financial reach of the agricultural community.
4. County staff and other resources could be directed towards working with landowners, business owners, environmental groups, outdoor sportsmen, and tourism professionals to develop a cohesive, marketable eco-tourism and eco-education program for the county.

The county continues to rely on master and comprehensive plans to concentrate growth within designated growth areas. Since 2005, the Water Resources Element has been adopted and added to the county's and towns' plans. The county has adopted an Agricultural Land Priority Preservation Area and expanded its two rural legacy areas. The county and towns are working cooperatively to develop a Phase II Watershed Implementation Plan for Carroll County to identify actions to help improve water quality of the Chesapeake Bay. The county's Bureau of Resource Management has a dedicated staff position tasked with addressing the National Pollutant Discharge Elimination System (NPDES) permit and managing coordination/ implementation efforts between the County and all of the municipalities. In addition to regular compliance and monitoring practices, this joint effort has significantly expanded public education and community outreach in partnership with several other environmental resource protection initiatives. Staff regularly attends community events, fairs, and festivals with an information booth and materials. The county and several of its municipalities have amended their respective codes to improve natural resource protection.

Unfortunately, state funding levels for the Maryland Agricultural Land Preservation and Rural Legacy programs have been declining since 2005. MALPF funding is now on a biennial cycle, but continues to be based on agricultural transfer tax revenues and state-level general obligation bonds. Both funding sources have been declining over the last several years. Rural Legacy funds are administered through the Maryland Department of Natural Resources. DNR's allocation of funding to the Rural Legacy program has also been falling in recent years. Given the current economic downturn in the state and nation, it is impossible to know if and when funding for these programs could return to previous levels. The County's continued and significant funding commitment to these programs previously

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mentioned has enabled steady progress towards the goal of 100,000 preserved acres of agricultural lands despite fluctuations in available state funding.

Over the last several years, state funding for the MACS Program in the county has been steady. While funding has risen slightly, the increase has essentially covered the increase in project costs. The federally funded EQIP has provided funds to the state that have remained generally level over recent years. This competitive program involves a ranking process of projects within the state. Carroll County has been very successful with this program; money received has increased significantly since 2005 and has remained at a high level in the last couple of years. Another federally funded program, the Conservation Reserve Enhancement Program (CREP), has fully funded all requests submitted by the county. The funding level has been relatively steady since 2005, and Congress has continued to fully fund requested projects.

The county has accomplished several initiatives to enhance eco-tourism and eco-education in the county:

- To increase the success of nature center programs, the county has incorporated the listings of activities offered at both Piney Run and Bear Branch into the Recreation and Parks' quarterly program guides. These guides are distributed via e-mail to public schools and libraries and by direct mail to citizens, and are posted on the Office of Recreation and Parks' website. The combination of these options increases the exposure of these recreational opportunities to the public. In addition, the county has instituted online registration and payment options that have become popular and have helped increase participation in these activities.
- The county has constructed a greenhouse and wetlands classroom at Hashawha that are used by both Carroll County Public Schools Outdoor School and nature center programs.
- The county has formed a partnership with LL Bean, Inc. to offer kayak programs at Piney Run Park. These classes are advertised nationally on LL Bean's website and help draw visitors to Piney Run Park.

Two new projects are planned to start in the near future:

- Develop a new brochure that highlights canoe/kayak opportunities in Carroll County, including the existing water trail at Big Pipe Creek and boating at Piney Run Park and Liberty Reservoir.
- Coordinate the development of bus trips with the Carroll County Office of Tourism that will be marketed to people living outside Carroll County and outside Maryland. These trips will encourage out-of-state visitors to come to Carroll County to experience outdoor recreational activities such as mountain biking, boating, etc., as well as visit historical sites such as the Carroll County Farm Museum and Union Mills Homestead.

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