

## Chapter V - Natural Resource Conservation

### ***Goals for Natural Resource Land Conservation***

#### **State Goals**

The state's goals for conservation of natural resource lands are to work with local governments and the private sector to accomplish the following:

- Identify, protect, and restore lands and waterways in Maryland that support important natural resources and ecological functions, through combined use of the following techniques:
  - Public land acquisition and stewardship;
    - Preservation and stewardship on private lands through easements and assistance; and
    - Local land use management plans and procedures that conserve natural resources and environmentally sensitive areas and minimize impacts to resource lands when development occurs.
- Focus conservation and restoration activities on priority areas within the statewide green infrastructure
- Develop a more comprehensive inventory of natural resource lands and environmentally sensitive areas to assist state and local implementation programs. This will be accomplished by synthesizing local inventories with DNR's inventory of green infrastructure in each county.
- 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.
  - Support a productive forestland base and forest resource industry, emphasizing economic viability of privately owned forestland.
- Establish measurable objectives for natural resource conservation and an integrated state/local strategy to achieve them through state and local implementation programs

- Preserve the cultural and economic 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.

## County Goals

As part of the state’s requirement that local jurisdictions address the Eight Visions of the 1992 Planning Act, Article 66B, Section 3.05, states that 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. These resources include the following:

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

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 Master Plan but fully supports it, 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
- 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 the future. These goals and objectives were guided by the Eight Visions set forth in the Planning Act adopted by the State of Maryland. 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.”

## ***Current Implementation Program for Natural Resource Land Conservation***

### **Background**

The implementation program, as defined for purposes of the plan, is comprised of all of the programs and mechanisms currently operating in the county to achieve local and/or state natural resource land conservation goals.

The State Land Preservation, Parks and Recreation Plan and the state’s assessment of Green Infrastructure provide important parts of the framework for natural resource land

conservation in Maryland. State level implementation programs include the following (additional information on these programs is available from the Maryland Departments of Natural Resources and Agriculture):

- State Land Acquisition Funding: Stateside POS, Rural Legacy, Heritage Conservation Fund, GreenPrint, and TEA21/POS Easements for Civil War sites with assistance from Civil War Preservation Trust
- National Park Service American Battlefield Protection Program
- Land and Water Conservation Fund (National Park Service/POS)
- North American Wetlands Conservation Council (NAWCA) (U.S. Fish and Wildlife Service)
- Forest Legacy Program
- Maryland Environmental Trust: Conservation Easement Program and Local Land Trust Assistance Program
- Watershed Restoration Action Strategies (DNR)
- Maryland Agricultural Cost Share Program (MACS-MDA)
- Forest Land Enhancement Program (FLEP)
- Conservation Reserve Enhancement Program (CREP)
- Environmental Quality Incentives Program (EQIP)
- Forest Conservation and Management Program (FCMP)
- Forest Stewardship Plans
- Woodland Incentive Program (WIP)
- Chesapeake Bay Critical Area Program

## **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.

In April 2004, the Board of County Commissioners adopted substantial changes to the regulations that affect how natural resources are protected during land development. The new and revised regulations will help the County implement some of its goals and objectives related to natural resource protection. New ordinances were created to address storm sewer discharges and water resource management; major revisions were made to the ordinances regulating floodplain management and landscape enhancement of development; and updates were made to the forest conservation, grading, erosion and sediment control, and stormwater management ordinances. Also adopted were a new Water Resource Management Manual and a new Landscape Manual.

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.

The Development and Subdivision of Land chapter was revised as well, and replaces the Environmental Element review with an Environmental Site Delineation (ESD). The ESD requirement is codified and is to be performed as the first step in any development proposal. This new requirement is a significant advancement 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 minimize 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 revised environmental resource chapters of 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. Proper management of stormwater runoff will minimize damage to public and private property, reduce the effects of development on land, control stream channel erosion, reduce local flooding and

maintain after development, as nearly as possible, the pre-development runoff characteristics. This chapter is adopted pursuant to the Environment Article, Title 4, Subtitle 2, of the Annotated Code of Maryland, and shall apply to all development occurring within the unincorporated areas of Carroll County. The application of this chapter shall be the minimum stormwater management requirements and shall not be deemed a limitation or repeal of any other powers granted by state statute.

### *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 being to minimize sediment transport through runoff that may degrade the integrity and health of Carroll County's stream system. Minimum standards for management practices will be applied through the issuance of grading permits for land disturbance that may involve clearing, grubbing, grading, filling and the movement of soil to alter the topography and for forest harvest activities. Such standards will become conditions of those permits and will be enforced. In addition, actions that may not require grading permits will also be the subject of enforcement if such actions result in erosion and/or sediment transport that may impact adjacent properties or have the potential to result in impact to streams.

### *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. Trees are essential to the protection of many environmental resources and their characteristics. This chapter protects 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.

### *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. Floodplains are an important asset to the community. They perform vital natural functions such as temporary storage of floodwaters, moderation of peak flood flows, maintenance of water quality, prevention of erosion, provision of habitat for diverse natural wildlife populations, and improved aesthetics. These functions are best served if all floodplains are kept in their natural state. The natural characteristics of floodplains and their associated wetlands and water bodies should be preserved and enhanced. This chapter provides a unified, comprehensive approach to floodplain management, which addresses the following: natural floodplain functions, the federal and state programs concerned with floodplain management, and correction of existing deficiencies in the program.

### *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, standards for review of development activities, management standards and design criteria for land use activities that occur subsequent to that review, and enforcement procedures for violations of standards adopted herein that contribute to or become a source of pollution. Management of both surface and groundwater resources will minimize potential damage to community water supplies by helping to assure the maintenance of minimum flows and storage capacity and by minimizing the potential for contamination of those sources. The application of this chapter and the provisions expressed are the minimum standards to maintain county water resources and are in addition to requirements of the zoning district, and shall not be deemed a limitation or repeal of any other powers granted by State statute.

### *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. Prohibiting development in the floodplain prevents flood waters from impacting areas not otherwise impacted. It also protects streams and wetlands from the effects of locating development within the floodplain. This chapter also prohibits activities which would affect the flow characteristics of the stream or increase flood heights. It also prohibits new sewerage systems from being located in the floodplain. This requirement helps to prevent the contamination of water in streams, reservoirs, and other water supplies during flooding. All applicants are required to secure all necessary permits from federal and state agencies. As a result of this requirement, potential activity is therefore also subject to protection under regulations of these agencies as well.

## *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 adopted on November 8, 2004. This manual provides several measures of protection to environmental resources. Proper landscaping helps to control stormwater runoff, which can impact local stream quality. Vegetation helps to stabilize soils to keep them from eroding and washing away. Vegetation also help to reduce the overall ambient temperature of an area, which in turn helps cool paved surfaces which may heat stormwater runoff.

### **Comprehensive Planning Context and Map**

Each of the county's comprehensive plans and the County Master Plan devote a chapter or portion of the plan to the natural resources planning context, issues, goals and/or recommendations. The comprehensive plans in particular address natural resource issues related to area-specific geographies and resources that affect land use, the economy, public health, and natural ecosystems in that portion of the county (see Appendix I). Additionally, the County and each of the towns have adopted the Environmental Resources Element of the Carroll County Master Plan, a 1997 document that was designed to meet the Eight Visions of the Planning Act.

As part of the Environmental Resources Element, a series of environmental resource maps was produced using data from the Maryland Department of Natural Resources and the County. These maps included digitized information showing streams, stream buffers, steep slope soils, threatened and endangered species habitat (now called Sensitive Species Project Review Areas), wetlands, floodplains, wellheads, carbonate rock areas, and Use III waters. Because the base used was an orthophotograph base, forested areas were discernible on the base and were not mapped separately. All of these data layers now are available for use on the county's ArcGIS9 computer mapping system, which also contains a layer of true-color orthophotographs produced in March 2000 and a draft parcel layer produced as part of the county's E-911 mapping project. Since they relate to the most significant resources around which the County's resource planning is done, these maps and data layers have proven more than adequate in identifying these resources for planning and protection purposes.

A series of maps that appear in the back of this plan illustrate the general planning context for natural resource conservation in the county. In particular, the following maps are relevant:

- Wetlands & Streams
- Forested Areas & Steep Slope Soils
- Existing Use of Land

- Carbonate Rock Areas
- Water Resource Management Areas
- Sensitive Species Project Review Areas
- Planning Context
- County Master Plan
- Agricultural Land Preservation, Rural Legacy, and Land Trust Easements

## **Data Sharing**

County GIS data related to natural resources is being provided to the state in shapefile format projected in Maryland State Plane 83 feet, along with the corresponding metadata.

## **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 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 at back of plan), 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 2003, a Watershed Restoration Action Strategy (WRAS) was completed for three subwatersheds of Liberty Reservoir. The WRAS includes:

- An assessment of all natural resources
- A set of natural resource management objectives that are prioritized and quantitative
- Monitoring components to measure results
- Public participation in the planning and implementation phases

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 subwatersheds of Liberty Reservoir, a critical drinking water supply source for Baltimore City, and Baltimore and Carroll counties. 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. The County's Bureau of Resource Management is the lead agency and coordinates yearly meetings of the group as well as tracks progress. 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.

Reports are issued 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. The reports use biological and physical habitat monitoring 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 (among other things).

The Gillis Falls and Union Mills reservoir tributaries were most recently studied in 2001 and scores given based on the Benthic Macroinvertebrate Index of Biotic Integrity (IBI) and Physical Habitat Index. Of the twelve stations in the Gillis Falls watershed, the average IBI score was 3.8, falling within the upper end of the Fair range of scores. The eleven stations in the Union Mills watershed had an average IBI score of 3.2, in the low

end of the Fair range of scores. The average Habitat score for the Gillis Falls watershed was 72.75 (just within the Good range), and that of Union Mills watershed was 59.2 (in the Fair range). Compared to the average IBI score for watersheds countywide, which was 2.8, these two watersheds rated better than average.

The most recent assessment of stream conditions in the Piney Run Reservoir watershed was conducted in November 2003. Of the ten monitoring stations within this watershed, the average IBI score was 3.71. This exceeds the countywide average of 2.8 and is comparable to the scores of other monitored watersheds (Gillis Falls at 3.8, Union Mills at 3.4 and Liberty Reservoir at 3.6). Physical habitat measurements varied from station to station, with a low rating of 37% of the maximum score to 93% of the maximum score.

The three-phase development of a management plan is being proposed for Piney Run Reservoir watershed. The first two phases will focus on data collection and modeling of the reservoir and its watershed to establish a baseline description of conditions in the watershed. Projected outcomes will be to “characterize the watershed, analyze the model results, identify nutrient loading areas, and provide strategies for addressing physical, ecological, and social opportunities within the watershed.” The end result will be a comprehensive watershed management plan that will identify target areas and recommend changes to policies, regulations, and procedures to improve the health of the watershed.

### **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. The County’s farmland preservation strategy has been to give all property owners an equal opportunity to compete for easement funds. While this ensures that no one is excluded from participating, it has had the effect of creating blocks of preserved farmland in the northern portion of the county and only scattered farmland preservation elsewhere. This is the result of varying land prices around the county and differing levels of confidence in the future of agriculture depending upon the proximity of subdivision activity. Two Rural Legacy areas (the Little Pipe Creek Watershed and Upper Patapsco Watershed areas) are enhancing the County’s ability to prioritize easement acquisitions that will help to fill in gaps in blocks of preserved farmland.

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. In fact, today Carroll County is one of the few counties in the state that is adding forest cover rather than losing it. Because so much of the original forest cover already has been cleared for agriculture and most of the county’s developing land is farmland, the county is gaining forest cover through the development process as a result of the forest conservation ordinance. In fact, a recent report by the Maryland Department of Natural Resources on the Forest Conservation Program noted that Carroll County is third in the state in terms of acres of forest planted, is one of the leaders in forest retention with 82% of on-site forest retained, and had 6.9 times as much forest planted as was cleared. Thus 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, Erosion, and Sediment Control chapter requires a soil erosion and sediment control plan and a grading permit for all forest harvest operations. Carroll County is one of the few counties in the state that require this, both ensuring 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. Major revisions to the County Code occurred in spring 2004 that put new regulations into effect for floodplain management, landscape enhancement, and water resource management, and revised regulations governing forest conservation, grading and sediment control, and storm water management. These regulations primarily are tied to the land development 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 minimize potential environmental degradation. The resulting open space must be offered to the County and conveyed to it 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. The District provides administration, planning and design for BMPs, and in FY04 had the largest number of completed BMPs in the state (177).

As a result of the 1998 Water Quality Improvement Act passed by the Maryland General Assembly, nearly every farm in the state will be required to have a nutrient management plan in place to control the effects of nitrogen and phosphorus on water quality. With over 157,000 acres in the county devoted to agricultural uses, 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.

According to the 2002 Census of Agriculture, Carroll County had 68 farms enrolled in the Conservation Reserve Enhancement Program, up from 36 in 1997. This amounted to 3,677 participating acres.

## **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. To this end, a number of publications have 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 Department 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 Department 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 Recreation, Parks and Facilities" produced by the county Department of Recreation and Parks – a color brochure describing the

county's Department of Recreation and Parks bureaus and the activities and facilities they administer, and showing the location of county-owned parks and the activities they feature

- "Bear Branch Nature Center at Hashawha Environmental Center" produced by the county Department of Recreation and Parks – a brochure describing the features and activities at the nature center
- "Where to Hike & Ride in Carroll County, Maryland" produced by the county Department 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

Additionally, the county's Office of Tourism webpage provides information on "Outdoor Activities." Under this topic, information is provided for carnivals, where to fish, farmer's markets, parks, pick your own produce, and equestrian activities. The information is fairly basic for each category though.

## ***Evaluation of the Natural Resource Land Conservation Program***

### **Strengths and Weaknesses of the Implementation Program**

The tools that Carroll County uses to implement natural resource conservation programs are ever evolving. The comprehensive planning process continues to integrate aspects of natural resource conservation planning into each comprehensive plan and the County Master Plan. With the revamping of existing environmental ordinances and the creation of new ones in 2004, the County made significant strides toward improving the process governing implementation of environmental protection measures. However, there remains a significant gap between the long-range planning process and the implementation of the environmental ordinances. Comprehensive Planning staff have the expertise to integrate general natural resource planning principles and concepts into the county's long-range plans, but not the time or particular qualifications necessary to complete specific natural resource plans. Resource Management staffing is adequate to keep up with the regulatory aspect of natural resource protection, but is in need of further support for enforcement and planning. Additionally, each of the towns has a different set of environmental protection ordinances, making it even more difficult to implement long-range natural resource protection goals and environmental regulations. The County is in the process of trying to standardize the regulations within the towns.

Despite these shortcomings, the county planning and resource protection staff are fortunate to have excellent mapping resources to aid them in their land use planning and review of development-related activities. The ability for any planner or resource protection staff member to access a variety of resource data layers and use them to assess potential issues and impacts is invaluable and helps to make up for the shortfall in resource planning staff.

Although the combination of state and local goals for natural resource conservation are specific and measurable enough to serve as the basis for effective implementation, often staffing and funding are unable to meet the demands for implementation. The increasing array of environmental and natural resource requirements and programs creates a continuous readjustment of priorities at the local level. In addition, many natural resource goals can only be achieved over an extensive time-frame; therefore, changes to those goals can trigger significant setbacks.

As mentioned above, the County recently has made significant improvements in its ability to protect natural resources through the environmental protection ordinances that are triggered by the development review process. It is expected that as the county develops, these good conservation measures will yield better resource protection and more forested areas because so much of the county already has been cleared for agriculture. However, most resource protection is still achieved only at the site-specific level as properties go through the development process. While, this is the easiest and most appropriate way to address resource protection in the present tense, it does not address the damage caused by past development that occurred prior to environmental regulations. Also, with the County's land preservation goals in mind, it is not acceptable to leave resource preservation to the development process alone. Thus, the two greatest challenges facing the county in its goal to protect its natural features are to proactively promote environmental resource protection on a larger, system-wide scale and to figure out how to restore or mitigate the environmental damage inflicted by past development.

To a certain degree, some of this work already is being accomplished by programs and organizations such as the Soil Conservation District. The District is focused on using conservation practices to enhance the agricultural economy. This valuable public/private partnership is a model for how an organization can promote environmental measures through tailored messages, such as the economics of resource protection. The Carroll County branch of the Maryland Extension Service is another good example of an organization that uses education and technical assistance to promote sensible practices, such as nutrient management and pest control, that both protect the environment and save landowners and homeowners money in the long run.

The programs and regulations mentioned above raise awareness of ecological concerns with people in their own backyards. Eco-tourism and the promotion of outdoor activities could lead to a greater appreciation by county residents and visitors alike of the wonderful natural features here. However, this industry is not well-developed here and, consequently, there is not a lot of effort focused on developing it. Although the county is constrained somewhat by a lack of state or national parks, which typically form the core of many eco-tourism efforts, there is still a great deal of opportunity for developing such an initiative.

### **Summary of Needed Improvements in the Implementation Program**

The county's natural resource protection strategy is a multi-faceted approach that involves planning and regulation, public sector initiatives and private landowner

volunteers. Its strengths lie in the commitment of the elected officials to revise plans and regulations, to provide the staff and the tools to develop and implement them, and to evaluate the next steps that might be taken to provide even greater protection measures. In addition to the newly revised environmental ordinances, a good example of this commitment is the reconstitution of the countywide Environmental Advisory Council, which was reformed after a brief hiatus, to provide a sounding board for the public on environmental issues and to assist the Board of County Commissioners in implementing their environmental agenda.

The potential for this board and other organizations to engage the public in issues related to environmental protection is important. As noted earlier, county staff lack the time and resources to build a solid public support base for environmental protection measures or to educate the citizenry about the need for their involvement. Volunteer organizations and public/private partnerships are the best way to undertake these initiatives without incurring substantial cost to the county, and all available resources should be directed towards building and supporting these partnerships. At the same time, these groups will not be able to undertake the long-range, “big picture” environmental planning for the county that currently is lacking. In lieu of staff devoted specifically to this topic, comprehensive planning staff and natural resources protection staff will continue to coordinate to the greatest degree possible. But additional staff that would focus solely on the broader picture would yield a much more cohesive and successful approach to countywide natural resource planning. Staff such as this might also develop an approach to building an eco-tourism industry in the county, building off of the parks and natural resource areas here as both a revenue generator and a way to raise awareness of the rich natural heritage in the county.

A more difficult task will be to address the issue of restoration and mitigation of past environmental degradation. Participation in the state’s stormwater retrofit program, which provides up to 75% of the costs of implementing stormwater retrofit projects, has benefited a number of waterways in the county. A good example of one such project is the Longwell Run stormwater retrofit project, which aimed to repair the damage to the stream caused by large areas of impervious surfaces developed prior to stormwater management controls. The primary objectives of the project were to stabilize and prevent further degradation of streambanks, improve riparian habitat, and increase forestation throughout the watershed, with the ultimate goal of contributing to the improvement of water quality in the Chesapeake Bay. Undertaking similar projects throughout the county, either in partnership with the state or through volunteer initiatives, is one way in which mitigation of past development can be achieved and a contribution made towards improving regional and statewide water quality.

### ***Program Development Strategy for Natural Resource Conservation***

1. Carroll County is doing a number of things 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 Cost Share Program, USDA Environmental Quality Incentives Program, 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.

