VII. ENVIRONMENTAL AND CULTURAL RESOURCES

Existing Conditions

Streams and Watersheds Overview

The Lake Shore Small Area is situated within three Anne Arundel County watersheds; the Bodkin Creek Watershed, the Patapsco River Watershed and the Magothy River Watershed (See Map 7). The Bodkin Creek Watershed is completely contained within the Small Area and comprises 39% of the planning area. Around 44% of the Small Area discharges to the Magothy River watershed. The Patapsco River makes up around 17% of the Small Area. Tributaries within these watersheds are typical of streams found within the Coastal Plain Physiographic Province of Maryland and tend to be short, first and second order streams. As discussed below, the County has monitored water quality in a handful of the subwatersheds that comprise this planning area. Currently, there are no County monitoring activities underway in the Small Area due to budgetary constraints.

The County's *General Development Plan* (Anne Arundel County 1997) recommended completion of watershed management master plans for the County's 12 major watersheds. The first of these plans to be completed was specific to the South River Watershed. This master plan identified areas currently subject to adverse impacts of stormwater runoff, and areas that would be subject to stormwater runoff impacts under future conditions if full build-out of current zoning were realized. Specific problems addressed included soil erosion and sedimentation, flooding, nutrient and heavy metal transport. Management alternatives to address current and potential future impacts were identified and proposed for implementation. A similar plan for the Severn River Watershed was initiated in February 2001. Prior to these watershed-planning studies in 1987, the draft Magothy River Comprehensive Watershed Management Master Plan was completed. Due to budget constraints, this plan was never finalized; however, a number of the plan recommendations were implemented. In the future, watershed management studies will be conducted for the Bodkin Creek, Patapsco River and the Magothy River watersheds.

As part of an effort to characterize the health of the State's streams, the Maryland Department of Natural Resource's Maryland Biological Stream Survey (MBSS) examines stream habitat, insect populations, and fish populations. By comparing measurements made in study streams to conditions measured in pristine reference streams, the overall level of stream health can be determined. In the Small Area, measurements were made in both the Magothy and Patapsco Rivers. Overall, stream habitat was judged as poor. Stream dwelling insect populations were mostly very poor or poor while fish populations were mostly very poor. (Millard et al. 2001). In general, for all major watersheds making up this Small Area, biological communities were depressed relative to stream habitat quality, which indicates that watershed water quality parameters are impacting biological communities.

Patapsco River Tributaries:

The only major tributary to the Patapsco River in this Small Area is Rock Creek. Approximately 5 miles of stream channel draining this Small Area are part of Rock Creek. Biological condition and water quality data have been collected for this subwatershed as discussed below.

Map 7. Existing Environmental Features – Page 47

Numerous water quality problems have been documented in the Rock Creek watershed. The County operated a water quality monitoring station in Rock Creek from late 1987 through 1992 (Curtis 1993). During the five years of sampling, high levels of suspended solids were observed coming from the watershed. In addition, large amounts of organic, oxygen-consuming materials (measured as biochemical oxygen demand and chemical oxygen demand) were also observed. Numerous fish kills and odor events were also reported during the 1980s and 1990s. This type of water quality impact is consistent with the observations of local residents documenting poor water quality conditions within the estuarine portion of the basin (see Dooley and Schepleng 1991). In response to these problems, the County installed an aerator to increase dissolved oxygen levels in the creek and also aggressively dredged highly enriched sediments in an effort to improve water quality conditions within this creek. Curtis (1993) reported some improvement following these measures, but no regular monitoring occurs at this time to determine if long-term trends indicate significant improvements in water quality.

Magothy River Tributaries:

There are several major tributaries of the Magothy River found in the southern portion of the Small Area, which comprise part of the northeastern third of the Magothy River Watershed. Cockney Creek, Grays Creek, Broad Creek, Cornfield Creek, and Blackhole Creek are the major tributaries found in the Small Area. Approximately 14 miles of stream channel are found in these basins. Combined, the drainage areas of these tributaries make up approximately 44 percent of the Small Area.

The Magothy River has active citizen watershed organizations. The Magothy River Association actively promotes responsible stewardship of their watershed and water resources. Specific activities include participating in water monitoring activities, planting and monitoring submerged aquatic vegetation (SAV) beds, re-establishing healthy oyster habitat, and coordinating education and outreach programs within their respective watersheds.

During the late 1980s to early 1990s, several studies were undertaken in some of the small streams and rivers located in the Small Area. In 1987, the draft Magothy River Comprehensive Watershed Management Master Plan was completed. Although this plan was never finalized, several of the recommendations were implemented (AADPW 1987).

Bodkin Creek Tributaries:

A total of 13 miles of stream channel drain the Bodkin Creek watershed. Unlike the other watersheds mentioned above, all of this area is contained within the Small Area. Major tributaries of Bodkin Creek include Back Creek, Wharf Creek, Main Creek, and Locust Cove. Approximately 39% of the Small Area is made up of this watershed.

Little information exists for this watershed. No biological sampling has been performed in this watershed. Limited water quality data, collected by the County's Volunteer Monitoring Program during the late 1980s, exist for this watershed. Temperature, pH, dissolved oxygen, salinity, and water clarity measurements were collected at seven sites in the tidal river. Water clarity was consistently impaired, ranging from less than one-half foot

to less than two feet, values too low to support a vigorous submerged aquatic vegetation community. Very infrequent impairment associated with low dissolved oxygen was observed, but nearly all values were well above 5 mg/L, the lower threshold necessary to support a healthy community of aquatic organisms.

Stormwater Management

Stormwater Management includes both water quality and water quantity control. Water quantity controls reduce the amount of downstream erosion and flood potential by minimizing the flow rate and amount of stormwater runoff from impervious areas. Water quality controls improve the quality of the watershed by reducing pollutant loadings. The Anne Arundel County Code states the following as the purpose of Stormwater Management:

1. Protect, maintain, promote and enhance the public health, safety and general welfare through the management of stormwater,
2. Protect public and private property from damage,
3. Reduce the adverse effects of development,
4. Reduce the effects of land use changes on stream channel erosion,
5. Preserve and enhance the environmental quality of streams and stream valleys,
6. Minimize adverse impacts on water quality and conserve plant, fish and wildlife habitat,
7. Reduce flooding,
8. Maintain after development, as nearly as possible, the pre-development runoff characteristics, and
9. Establish the minimum requirements and procedures to control the adverse impacts associated with increased stormwater runoff.

Anne Arundel County adopted *Stormwater Management Practices and Procedures Manual* in September 2001. This manual is a comprehensive tool for developers, consultants, and County Staff to use during the development process to provide appropriate stormwater management techniques to adequately address State and County stormwater management regulations.

Stream Buffers

As part of the Stormwater Management Practices and Procedures Manual, stream buffer requirements were formed for new development. Effective July 1, 2001, most new development that occurs on undeveloped land in the County must delineate minimum stream buffers on non-tidal streams and rivers. Stream buffers must be placed on both sides of all perennial and intermittent streams on a development site. These streams are classified by use and have buffer requirements based on their use and adjacent slope range. These minimum requirements can be expanded if floodplains, wetlands, or steep slopes extend beyond the minimum buffer line.

In the Lake Shore Small Area, all streams are classified as Class I or Class II streams. Class I or first order streams are headwater streams that often originate from springs and/or seeps and

do not have tributaries). Class III or second order streams are where two first order streams have joined together to form a larger stream. For additional details, the Anne Arundel County Office of Planning and Zoning should be consulted. For more information on Stream Use Classifications, visit www.mde.state.md.us.

Critical Area

In 1984, the Maryland General Assembly passed the Critical Area Law in response to the environmental decline of the Chesapeake Bay. This law created a special planning area encompassing all wetlands, land, and water areas within 1,000 feet beyond the landward boundaries of mean high tide or the edge of tidal wetlands as designated on the State Tidal Wetland maps. The Critical Area Commission was also created to formulate protective criteria for the use and development of this planning area and to oversee the programs developed by local jurisdictions. The State law required local jurisdictions to develop their own Critical Area Programs, based on the protective criteria formulated by the Commission. The Commission is also responsible for reviewing the local jurisdiction's Program, and interacting with the local jurisdiction, on a routine basis.

Subsequent to the promulgation of the State Law, Anne Arundel County developed a Critical Area Program and, as directed by the Commission's criteria, designated three categories of development within the Critical Area. The delineation of the development categories was based on the existing development and available public services as of December 1, 1985. The three categories are Intense Development Area (IDA), Limited Development Area (LDA), and Resource Conservation Area (RCA). Once an area is designated, it must be developed or redeveloped following criteria for that particular designation.

The Commission's criteria also required the County to designate Habitat Protection Areas (HPAs) within the Critical Area. These HPAs include historic waterfowl staging and concentration areas, colonial water bird nesting sites, threatened and endangered species and species in need of conservation, anadromous fish spawning areas, existing riparian buffers, forested areas used by forest interior dwelling birds, nontidal wetlands, Natural Heritage Areas, and other areas of local significance.

Parts of the Bodkin Creek, Patapsco and Magothy River watersheds, and their tidal tributaries are in the County's Critical Area and are subject to the provisions of the Critical Area Program. Within the Lake Shore Small Planning Area, all three of the development categories are represented. However, the RCA and LDA are the largest categories at 3,042 acres and 3,492 acres, respectively. These areas are shown on Map 7. A very small portion of the Critical Area is classified as IDA development area (56 acres). The development requirements for all three categories are described below:

IDA: These areas can be developed with high-density housing, commercial, or industrial uses, according to the underlying zoning. However, pollutant loading must be reduced by 10% over existing conditions and designated HPAs must be preserved. Additionally, a minimum of a 100-foot undisturbed buffer between the water and the developed land is required.

LDA: These areas can be developed with medium-density housing (a maximum of 4 units per acre), commercial, and small industrial uses according to the underlying zoning. Again, the minimum 100-foot buffer between the water and the developed land is required and HPAs must be preserved.

RCA: Development within the RCA is limited to one dwelling unit per 20 acres. Other permitted uses include agricultural and forest uses and resource utilization according to the underlying zoning designation. Again, the minimum 100-foot buffer between the water and the developed land is required and HPAs must be preserved.

Development in both the RCA and LDA designations also requires that impervious surfaces be limited to 15 to 25% of the site, and that the 100-foot buffer be maintained. Moreover, development of LDA or RCA lands that are not forested includes a requirement to establish 15% of the site in forest.

To enhance and stabilize the County's tidal shoreline, the County promotes the planting of native emergent shore grasses through the Emergent Grasses Program. This program provides native wetland plants to homeowners for revegetating tidal wetland and shoreline areas. County staff work with the homeowners, providing planting instruction and assistance.

Floodplains

Floodplains are the areas adjacent to a stream or river that are subject to flooding or inundation during storm events. The 100-year floodplain is the area adjacent to a stream or river that floods, on average, every 100 years. The 100-year floodplains of streams in the Small Area are delineated on the Environmental Features Map (Map 7). These floodplains have been identified through the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and through specific floodplain studies. Such studies include the 1987 Magothy River Comprehensive Watershed Management Master Plan, which delineated floodplains as part of the work effort.

Anne Arundel County first began protecting streams and floodplains in the early 1950s when platting of lots in the 50-year floodplain was prohibited. However, much of the legislation protecting floodplains was not adopted until the late 1960s and early 1970s. Therefore, early development review did not account for impacts from increased stormwater runoff from individual sites or the cumulative impacts of stormwater runoff in a drainage basin. This resulted in stream bank and streambed erosion in many of the County's streams.

Through implementation of the Floodplain Management Ordinance (Article 21 of the County Code) and provisions of Article 26 (Subdivision) of the County Code, requirements for development in or adjacent to the 100-year floodplain are set forth. Currently, developers are required to delineate the 100-year floodplain and the County prohibits lots from being platted in the floodplain. The floodplain is to be retained in or restored to its natural state and dedicated and deeded to the County as part of the development process. Although the floodplain may be deeded to the County, the developer reserves an easement to the community or homeowners association for the right to use the area in a manner not inconsistent with the maintenance and

preservation of the 100-year floodplain. A total of 54 acres of 100-year floodplain is found in the planning area.

Steep Slopes

Steep slopes are defined in the County Code as a slope characterized by an increase in runoff, erosion, and sediment hazards and that (1) have an incline greater than 15% and (2) in the Critical Area have an incline equal to or greater than 15%. Generally, steep slopes cannot be disturbed unless the disturbance will improve an existing erosion problem. Moreover, slopes with an incline greater than 25% must have a 25-foot buffer between the top of the slope and any land disturbing activity. Development may occur within the designated steep slope areas as per the provisions of Article 21, §2-302 of the County Code. These provisions include allowing development if at least 30% of the parcel to be developed has less than 15% grade and is contiguous to a County road that allows direct car access to the principal structure. Within the Lake Shore Small Planning Area, approximately 100 acres of steep slope area exists. These steep slopes are found throughout the planning area, with about 34 acres found in the Bodkin Creek Watershed and 66 acres found in the Magothy River Watershed.

Wetlands

Wetlands located in the Lake Shore Small Planning Area include both tidal and nontidal wetlands. A total of about 4.8% (~661 acres) of the planning area is comprised of wetlands. Most of these wetlands are within the Critical Area. Most (~69%) wetlands are forested, open water, or marsh types associated with tidal streams and rivers. The remainder (~31%) are open water or dominated by emergent herbaceous plants and are typically associated with coastal areas. This is likely to be an underestimate of the actual amount of wetlands found in this area as the tools used to determine wetland distribution can miss small, isolated systems. Additionally, soil types typically associated with wetlands occupy approximately 883 acres of the Small Area, indicating that wetlands have been drained first for agricultural purposes and also for development.

Wetlands have long been recognized as an important component in the health of the Chesapeake Bay. They provide numerous environmental benefits that include filtering sediment and nutrients from upland runoff, controlling flooding and shoreline erosion, providing nurseries for shellfish and finfish, absorbing nutrients from the water column, and providing valuable habitat for many aquatic and terrestrial species of plants and animals. Tidal wetlands are important to commercial and recreational fisheries because many of the Bay's commercial fin and shellfish spend some portion of their lives in this environment. The aesthetic value of tidal wetlands is demonstrated by the many residents who want to live on or near the water.

Nontidal wetlands are areas that are characterized by an ample water supply, saturated or hydric soils, and hydrophytic vegetation. These characteristics distinguish wetlands from upland areas and provide the framework for the regulatory definition of nontidal wetlands used by the State and the Federal governments. There are many types of nontidal wetlands, such as forested wetlands, scrub-shrub wetlands, and wet meadows to name a few. Nontidal wetlands provide many of the same environmental functions as tidal wetlands, including habitat for fish and wildlife, maintaining water quality and flood control, reducing nutrients from runoff, and enhancing groundwater recharge.

The County protects nontidal wetlands through the implementation and enforcement of the Chesapeake Bay Critical Area Program, the Sensitive Area Criteria in the County Grading Ordinance and cooperation from Maryland Department of the Environment and the U.S. Army Corps of Engineers. Should an applicant propose to disturb nontidal wetlands within the Critical Area he/she needs not only a building and grading permit, State and/or Federal Permit approval, but also a variance to the Habitat Protection Area criteria cited in Article 28 of the County Code (Zoning Ordinance).

Additionally, the County recently passed legislation protecting bogs, a special type of wetland found in the County (see Map 8). Under this law, development activities are restricted in various buffer zones around the bogs and in the bogs themselves. The environmental constraints in the Bog Bill are similar to those found in the Critical Area Law. Limits on the amount of impervious coverage allowed and forest mitigation requirements help to reduce adverse impacts to the bogs. Bogs make up 271 (~41%) acres of the Small Area's wetlands, the most of any other planning area.

Protected Lands

Permanently protected lands found within the boundaries of this planning area consist of County parkland and open space associated with seven schools found in the planning area. The park facilities include Fort Smallwood Park, Tar Cove Park, Tick Neck Park, Poplar Ridge Park, Downs Memorial Park, Bodkin Park, and Jacobsville Park. Many of these protected lands provide wildlife habitat for local fauna (e.g., ground nesting birds).

Threatened or Endangered Species Habitats and Nesting Sites

Anne Arundel County relies on information gathered by the Maryland DNR Natural Heritage Program to identify threatened and/or endangered species and habitats of concern. Consultation with the Natural Heritage Program indicates one bald eagle nesting site located within Marley Creek near Tanyard Cove. Additionally, within this Small Planning Area, there are several protected habitats of threatened and endangered species. These protected habitats include tracts located near North Shore Road and Eagle Hill Road, Woods Road and Beacrane Road, Forest Glen Road and Mountain Road, Alpine Beach Road and Bayside Beach Road, much of the coast between Gibson Island and Bodkin Point, and much of the coast on Rock Point.

Forest and Woodland Standards

Within the Small Planning Area, approximately 4,400 acres is forested. Most of the forested land scattered throughout central portion of the Small Area, with large to moderate patches also found in the eastern portion south of the mouth of Bodkin Creek and on Gibson Island. There are also scattered patches intermingled with residential development throughout the Small Area. Currently, most of this land is classified as vacant land and is zoned for residential usage. Less than 1% of vacant land found in this Small Area is currently zoned Open Space.

Acre for acre, forests are the most beneficial land use for protecting the Chesapeake Bay and its tributaries by improving water and air quality, providing wildlife habitat, enhancing the aesthetic quality of our communities and providing recreational opportunities. Riparian forests

Map 8 Bog Map – Page 54

along streams, rivers, and shorelines provide critical habitat for terrestrial wildlife species. They also influence the quality of adjoining water, acting as a living filter capturing rainfall, regulating stormwater flow, filtering nutrients and sediments, and stabilizing soils. Conserving forests through a variety of land use regulations, incentive programs, and sustainable use allows us to benefit from our forests today while still granting the option for future generations to use them tomorrow.

Development proposed in areas containing forest or woodland is required to meet conservation standards contained within the County Code. These standards have been adopted for the purpose of establishing criteria for the subdivision, grading, or clearing of forest and woodland areas. Anne Arundel County has determined that it is desirable that developers of land provide for the conservation and protection of forests, woodlands, and trees because of the significant beneficial effects of these natural resources. These benefits are realized through the quality of our air and water, plant and wildlife habitat, soil stabilization, and even maintenance of property values. These natural resources have historical value, provide recreational opportunities and visual attractiveness. It is the County's desire to encourage development that minimizes adverse effects on developing land. By requiring that forests, woodlands, and trees be incorporated into development proposals, the use of site planning and proper construction techniques will help protect these natural features.

To achieve its natural resource preservation goals and implement these conservation standards, the County has amended the grading, subdivision, and zoning ordinances with some specific performance criteria. The criteria establish forest and woodland conservation thresholds, and priorities for the retention of existing forest and woodland areas. They provide for maintenance and long-term agreements, and require mitigation of cleared forest and woodland. Mitigation is accomplished through reforestation, afforestation, and mitigation fees. The assessment and protection of existing forest and woodland on a proposed development site is achieved through required forest stand delineations and forest conservation plans. Enforcement for noncompliance with, or violation of, these standards is achieved with penalties, fines, fees, and mandatory replanting and replacement.

Anne Arundel County implements its forest and woodland standards through two regulatory programs that, combined, encompass the entire landmass of the County. For development occurring within 1000 feet of tidal waters or tidal wetlands, the County's Chesapeake Bay Critical Area Program applies. Development occurring elsewhere in the County is regulated by the County's Forest Conservation Act Program. While certain standards vary from program to program, the purpose and intent of conserving forest and woodland throughout the County remains the same.

Agricultural and Woodland Preservation Program

The Agricultural Land Preservation Program is the County's primary tool for preserving farmland and woodland. The objective of the program is to support the agricultural community by helping to keep the land base available for farming, and by minimizing the impact of development in agricultural areas. The County administers both the State and County programs. Prior to 1990, the primary means of preserving agricultural lands was through the State Agricultural Preservation Program. This program was active in the County when purchase of

development rights began in 1978. In response to concerns for preserving smaller acreages of agricultural lands, the County established its own Agricultural Land Preservation and Acquisition Program in 1990. This is a voluntary program in which a landowner may enlist into the program forming an Agricultural District, receive a property tax credit, and may later offer to sell a development rights easement across the established District to the County. The property owner continues to hold fee simple title and may sell the land if he/she chooses, but the easement, which restricts development, runs with the land in perpetuity. Since 1992, the County program has been the major funding source of easement purchases.

Requirements for participation in the Agricultural Land Preservation Program through formation of an agricultural district or offering of easements include:

1. A minimum acreage requirement of 50 contiguous acres used primarily for agricultural production;

2. USDA Soil Capability Class I, II, III, or Class IV (with C3 and D2 slopes) on at least 50% of the land and an approved Soil and Water Conservation Plan;

3. The proposed property must be located outside of Water and Sewer Categories 1 (existing or under construction), 2 (capital facilities), and 3 (planned service areas) as indicated by the Master Plan for Water Supply and Sewerage Systems; and

4. Current zoning of the proposed property must be Residential Agricultural (RA), Residential Low Density (RLD), Open Space (OS), or R-1 Residential.

Preservation of woodland properties is also included in the Agricultural Land Preservation program. Eligibility requirements for establishing woodland districts include the following:

1. Land to be included should contain at least 10 contiguous acres of woodlands per landowner;

2. A minimum of 25 acres, contiguous in nature and classified as a Woodland District, is required for consideration of an easement offering;

3. A Forest Management Plan, prepared for the woodland district applicants, must be reviewed and approved by the County Forest Conservation District Board and the County Forester;

4. The current zoning of the property must be Residential Agricultural (RA), Residential Low Density (RLD), or Open Space (OS); and

5. The proposed property must be located outside Water and Sewer Categories 1, 2, and 3 as indicated by the Master Plan for Water Supply and Sewerage Systems.

Cultural Resources

Historic Resources

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

1. Association with events that have made a significant contribution to the broad patterns of our history;

2. Association with the lives of persons significant to our past;

3. Distinctive characteristics of a type or period of architecture, method of construction or the work of a master architect; high architectural value or representative of a significant and distinguishable entity whose components may lack individual distinction; or

4. Potential to yield or have yielded information important in prehistory or history.

Historic resources in Anne Arundel County reflect the County's over 300-year history. The Maryland Inventory of Historic Properties in Anne Arundel County lists over 800 historic resources Countywide. These resources include a diversity of sites and/or properties such as dwellings, agricultural buildings, cemeteries, churches, commercial buildings, industrial and engineering structures, bridges, maritime resources, military structures, small villages and towns, and scenic and historic roads. Most of the County's historic resources are privately owned; fewer than a dozen are open to the public. Within the County, 35 historic properties totaling 636 acres are protected by historic preservation easements that are held either by the Maryland Historic Trust or the National Trust for Historic Preservation. In addition to the National Historic Preservation Act, historic and archeological resources are protected by Anne Arundel County Code.

There are several historic resources located in the Lake Shore Small Area, including Hancock's Resolution, which is on the National Historic Register. Some of these are discussed in more detail in the Community History section of this Plan. Table 18 lists historic resources that have been listed on the Maryland Inventory of Historic Properties due to their architectural or historical significance. The site locations are shown on Map 9.

Map 9. Historic Resources – Page 58

Table 18. Lake Shore Historic Resources		
Site Number	**Name**	**Location**
AA0129	Hancock's Resolution	Bayside Beach Road, Pasadena
AA0807	Henry Alfred Cook Farm	Bayside Beach Road, Bayside Beach
AA0897	Fort Smallwood	Fort Smallwood Road, Rockwood Beach
AA0898	Fort Smallwood Park	Fort Smallwood Road, Rockwood Beach
AA0923	Lake Shore School (site)	Mountain Road, Lake Shore
AA0936	Gibson Island	Gibson Island
AA0937	Jefferson M Cook House	Mountain Road
AA0938	Eagle Hill House	337 Edgewater Road, Lake Shore
AA0995	Rocky Beach Farm (site)	Downs Memorial Park, Pinehurst
AA1008	Wharf Creek House and Cemetery	Ventnor Road
AA1009	Long Point House	Long Point Road
AA1043	Magothy United Methodist Church	Mountain Road, Jacobsville
AA1095	Mountain Road Farm House	Mountain Road
AA2050	Magothy Methodist Church Hall	Mountain Road, Jacobsville
AA2051	Magothy Methodist Church Cemetery	Mountain Road, Jacobsville

Archaeological Resources

In addition to the documented historic structures, Anne Arundel County has more recorded archaeological sites than any other County in Maryland, with many more sites still to be discovered. These sites span the entire 13,000 years of human presence in the area and represent a unique non-renewable piece of cultural heritage. The assessment of archaeological potential for unknown sites is generally based on environmental characteristics such as topography, proximity to potable water and transportation routes and through review of historic maps and documents. Three nationally significant prehistoric resources located in the County include: the 13,000-year old Higgins site, the earliest undisturbed site in Maryland; the Garman site with the oldest fireplaces excavated in the State; and the Adena site that contains exotic and unexplained artifacts from the Ohio River Valley. The shoreline and tributaries of Rock Creek, Sillery Bay and the tributaries of the Magothy River have a high potential for prehistoric archaeological resources.

Significant historic archaeological sites include: the house sites of the County's first European settlement at Providence in 1649; the Steward Colonial Shipyard burned by the British in 1781; and the lost town of London on the South River. While the oldest of these sites are clustered along navigable waterways, later archaeological and historic sites can be found in more wide-ranging locales such as farmsteads or homes along old roads or railroads. In order to preserve and protect archaeological sites, exact locations of these resources are not released to the public though more than 50 preshistoric and historic archaeological sites have been identified within the boundaries of the Lake Shore Small Area. Along with Federal and State laws protecting archeological resources, the County Code also protects such sites during the review of residential and commercial subdivisions, critical area allocations and zoning change requests.

Scenic and Historic Roads

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

1. Procedures for designation and classification of scenic and historic roads;

2. Establishment of measures for protection of designated roads including development of abutting land and improvements to designated roads; and

3. Implementation of measures for preservation, protection and recognition based on the classification of the road.

Currently, a scenic and historic roads program is under development and the County has adopted an interim inventory of scenic and historic roads. The roads in the County have been classified as either Category 1: Preservation; Category 2: Protection; or Category 3: Recognition.

A portion of Mountain Road between Long Point Road and Gibson Island is designated as a scenic road and is classified in Category 2.

Assets/Issues/Goals/Recommendations

Assets/Issues

The Lake Shore Small Planning Area still contains a substantial amount of undeveloped land and a relatively low population base. It is clear from the first public forum and the members of the Small Area Plan committee that preservation and conservation of natural resources and the continuation of a rural lifestyle is most important.

The sentiment expressed by many residents is that they want to set the standard for environmental concern; preservation of resources and open space; reduced development in the future; and development of a model program for environmental education.

Goal: Evaluate the current zoning and identify properties where zoning should be changed to better protect the environment.

Recommendations:

1. Evaluate current zoning and identify properties where zoning should be changed to better protect the environment and reduce residential and commercial buildout.

2. Consider establishing a Transfer of Development Rights (TDR) Program.

3. The County should develop more creative ways to purchase conservation easements on farmland, woodlands, and for environmentally sensitive parcels that do not qualify under the County or State's current Agriculture Land Preservation Program.

4. Eliminate the restriction in the Agricultural Preservation Program (regarding setbacks from water and sewer districts) for agricultural land outside those districts.

5. Develop incentive programs (for landowners) that will help preserve shorelines in their natural condition.

6. Evaluate all remaining undeveloped waterfront property and develop recommendations for future public purchase to preserve valuable assets.

Goal: Environmental education will be a mandatory part of the school curriculum and will be a priority of the County government for County residents.

Recommendations:

1. The County shall take the lead in coordinating and developing environmental education programs for County residents. Programs that assist with promoting a better understanding of the Chesapeake Bay aquatic systems, air quality, wildlife, rare and endangered species, pollution sources, radium, and other issues shall be developed.

2. The County shouldl form an Environmental Commission for the Lake Shore and Pasadena/Marley Neck Small Areas. The commission would be charged with monitoring the overall environmental health and issues of the area and proposing solutions to the County Executive and County Council.

3. The County shall consider establishing an outdoor environmental education center in the Lake Shore area.

4. The County needs to better support private organizations that are dedicated to environmental efforts. The Magothy River Association and Bodkin Creek Coalition are examples. Funding and basic County staff support should be provided.

Goal: Preserve and protect the Bodkin, Patapsco and Magothy River Watersheds. Clean up and restore tributaries to their natural state and maintain healthy conditions through proactive watershed management and eliminating sources of pollutants. Improve stormwater management to reduce and, where possible, eliminate the negative impacts of stormwater runoff.

Recommendations

1. Complete the Patapsco and Magothy Rivers watershed management plans. Broaden the use of existing technologies, such as the Watershed Management Tool (WMT), to evaluate how changes in land use, zoning and best management practices, and other watershed conditions affect the watersheds, sub-watersheds and tributaries.

2. Implement a watershed approach to stormwater management, land use planning, development, permitting and capital improvement program planning and execution to ensure that potential cumulative impacts of land use changes are fully addressed prior to implementation of those land use changes.

3. Examine buffer conditions along stream channels and develop programs for improvement if necessary. Implement where possible, a minimum 100-foot riparian buffer to all tributary streams to minimize impacts of stormwater runoff.

4. Ensure all engineering design for stormwater management facilities is site appropriate and strictly adheres to the Maryland Stormwater Design Manual or the County's Stormwater Design Manual, whichever is more stringent.

5. Account for and minimize impacts to the 100-year floodplain with respect to stormwater runoff increases and the need for stormwater management design to accommodate increases in runoff resulting from comprehensive and site-specific rezoning.

6. Accelerate the County's ongoing effort to comprehensively identify, analyze and, where needed, retrofit stormwater management problem areas. Aggressively pursue incentive-based approaches (e.g. State grant funds) to achieve retrofitting of areas in need of improved stormwater management. Include appropriate funding for capital improvements to be completed within a ten-year period.

7. Establish a comprehensive stormwater infrastructure preventative maintenance and management program that reduces environmental degradation and extends infrastructure useful life.

8. Ensure that all governmental sponsored land use projects adhere to the highest environmental regulations and standards with regard to site design and stormwater management facilities, thus setting the environmental standard to be followed.

9. Ensure that all new development meets water discharge standards for quantity and quality, and is developed in such a way as to ensure maximum utilization of land, preservation of sensitive areas, and to the extent possible the attributes of green development and smart growth.

10. Implement a Countywide policy to protect all nontidal/non-Critical area rivers, streams and wetland areas.

11. Encourage, to the maximum extent possible, the use of innovative approaches to stormwater management and low-impact development site design in the land development process.

12. Foster community education on stormwater issues through cooperation with local citizen groups, public and private schools, park and recreation programs and the use of the Internet.

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

14. The County should monitor water quality to determine the extent of pollution and assess whether improvements are occurring.

15. Identify land based pollution sources and develop programs to reduce their impact on Chesapeake Bay tributaries. Fertilizers, failing septic systems and sedimentation are the main concerns.

16. The disposal of dredge spoils through open-water dumping or by building artificial islands where none previously existed in unacceptable. In particular, the County should prevent the Maryland Port Administration from constructing an artificial disposal island between Rock Point and Bodkin Point, a site known as Site 170.

17. Consider using Bodkin Creek as a demonstration watershed for water quality monitoring.

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