Natural and Historic Resources

Existing Conditions

The Annapolis Neck Small Area contains many significant environmental features. Due to its peninsular form, the Neck has extensive tidal shoreline along the South River, Severn River and the Chesapeake Bay. The area also contains numerous streams, floodplains, tidal and non-tidal wetlands, and other sensitive areas. Some of these features are shown on Map 8. The sensitive areas shown on this map include upland natural areas, steep slopes, floodplains, wetlands, natural heritage areas, habitat protection areas, and colonial nesting sites. These features are described in the following sections.

Chesapeake Bay 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 1000 feet of the landward boundaries of the 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 area and to oversee the programs developed by local jurisdictions, which were required by the State law to develop their own Critical Area Programs based on the Commission's criteria.

Anne Arundel County's Critical Area program was developed in 1988 to manage land use in these sensitive coastal areas. Pursuant to the State's criteria, the County designated three development categories 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 listed below.

- Intense Development Areas (IDAs): areas of 20 or more contiguous acres where development predominates and where there is relatively little natural habitat. IDAs can be developed with high density housing, commercial or industrial uses, according to the underlying zoning designation.

- Limited Development Areas (LDAs): areas developed at low or moderate intensity. Additional development must not change the prevailing established land use, and must improve water quality and conserve areas of natural habitat. LDAs can be developed with medium density housing at a maximum of 4 units per acre, commercial and small industrial uses according to the underlying zoning designation.

- Resource Conservation Areas (RCAs): areas characterized by nature-dominated environments such as forests, wetlands, or agriculture. New residential development is limited to a density of one dwelling unit per 20 acres.

Map 7

Map 8

Within the Critical Area, there is a 100-foot wide minimum protected buffer from tidal waters, streams and tidal wetlands. Development in both the RCA and LDA designations also requires that impervious surfaces be limited to 15 to 25% of the site. Clearing of forested lands is limited and there are specific requirements for reforestation. Moreover, development of LDA or RCA lands that are not forested includes a requirement to establish 15% of the site in forest.

The State's criteria also required the County to designate Habitat Protection Areas (HPAs) within the Critical Area. These 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.

The Critical Area within the Annapolis Neck Planning Area follows the shoreline of the Severn and South Rivers along the entire perimeter of the planning area. Map 7 depicts the Critical Area designations in the Annapolis Neck area. All three categories of Critical Area are found here, but the majority of this acreage is categorized as LDA. The largest areas of RCA-categorized land are along Broad Creek, Church Creek, Crab Creek, Aberdeen Creek, Harness Creek, and Luce/Howard Creek.

Streams and Watersheds

The Annapolis Neck Small Area lies within both the Severn River and South River watersheds. Several area streams feed into both of these rivers, as shown on Map 8. Saltworks Creek, Luce/Howard Creek, Weems Creek, College Creek, Spa Creek, and Back Creek drain into the Severn River. Along the south side of the peninsula, Broad Creek, Gingerville Creek, Church Creek, Crab Creek, Aberdeen Creek, and Harness Creek all flow into the South River. At the eastern end of the peninsula, Blackwalnut Creek and Fishing Creek feed directly into the Chesapeake Bay.

Water quality conditions in Maryland are determined based upon an evaluation of physical elements, chemical data and biological information compared to defined criteria or acceptable performance standards to protect human health and aquatic life. The focus of this assessment is on the State's progress toward meeting the federal Clean Water Act objectives to (1) eliminate the discharge of pollutants into the nation's waters and (2) to achieve water quality levels that are suitable for fishing and swimming. [See *2000 Maryland Section 305(b) Water Quality Report*.]

There are three components to the State's water quality standard:

- a defined or designated use of the waters to set the attainable standard,

- numeric or descriptive criteria to protect the designated use, and
- an anti-degradation policy.

Designated Use

It is important to note that Maryland classifies all of its surface waters based upon designated uses that may or may not be served now, but should be attainable. The Use I and Use II designation is equivalent to the national goal "which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water."

The estuarine portions of both the Severn and South Rivers are classified by the Maryland Department of the Environment (MDE) as Use I streams. Use I waters are defined as being suitable for water contact sports; fishing and propagation of fish [excluding trout], other aquatic life and wildlife; and agricultural and industrial water supply. All tributaries to the South River below Porter Point at Broad Creek, and all tributaries to the Severn River below the mouth of Forked Creek (in Severn) are classified as Use II streams. Use II waters are suitable for shellfish harvesting, and include waters where shellfish are propagated, stored or gathered for marketing purposes and where there are actual or potential areas for the harvesting of oysters, softshell clams, hardshell clams, and brackish water clams.

While portions of the Severn and South Rivers are classified as Use II streams, neither river currently meets the required water quality criteria for shellfish harvesting. Wastewater treatment plant outfalls together with nonpoint source runoff, boating activity, and poor flushing has resulted in prohibiting shellfish harvesting for 6.45 square miles of the Severn River. Nonpoint source runoff, boating activity, and poor flushing also has resulted in prohibiting shellfish harvesting for 3.08 square miles of the South River. An additional 2.25 square miles of the South River is "conditionally approved" for shellfish harvesting. This classification permits areas with elevated bacterial levels due to nonpoint source runoff to remain open for harvesting during dry periods. However, surface waters are suitable for swimming and fishing.

Water Quality Criteria

Specific water quality criteria described for pollutants such as temperature, pH, turbidity, sediments, nutrients, toxic substances, and pathogens are outlined so that discharges will not impair uses or harm aquatic life.

Current patterns of urbanization have caused significant impacts to the Severn and South River watersheds. The health of streams is largely influenced by the amount of impervious land cover upstream. When watershed imperviousness exceeds 25 percent, only hardy pollution-tolerant reptiles and amphibians can thrive. Above 15% watershed imperviousness, stream health is never rated good.

The Severn River was identified as one of the State's Scenic Rivers; this classification is designed to preserve and protect the river's natural values. However both the Severn and South Rivers are listed as *impaired waters* based on nutrients, fecal coliform, and suspended sediment from nonpoint sources. This means that water quality conditions do not support one or more of the designated uses based on toxic contaminants and decreased dissolved oxygen. The ratings range from fully supporting, to threatened, to partially supporting, to not supporting or impaired waters.

In addition, stream segments tested within both the Severn and South River watersheds have been found to contain poor benthic communities. This means that these stream segments do not provide suitable habitat for protection and propagation of desirable fish, shellfish, or other aquatic organisms [*2000 Maryland Section 305(b) Water Quality Report*].

The Chesapeake Bay was identified in the State's 1994 303(d) list as needing TMDL's (Total Maximum Daily Load) for nutrients. TMDL's in the Bay and the major tidal tributaries are being temporarily deferred through the Chesapeake Bay Executive Council and the U.S.EPA as new water quality models are developed. All segments of the Severn and South Rivers are identified as needing TMDL's for pollutants that include nutrients, suspended sediments and bacteria.

Anti-degradation

The third component to the State's water quality standards is Maryland's anti-degradation policy, defined in COMAR. It was adopted to ensure that water quality conditions support designated uses. Where water quality standards are not being met, water quality conditions are required to be improved. Where existing water quality conditions exceed the standards, degradation to the standard is permitted only if the State deems it necessary to accommodate important economic or social development in the watershed and the change does not diminish the uses made of these waters.

In addition, the Chesapeake 2000 Agreement updating the 1987 and 1992 agreements, defines the priority goals and commitments for the Bay effort to:

1. reduce the rate at which farmland and forest is being converted to development,
2. bring back Bay grasses,
3. restore wetlands,
4. set harvest limits for crabs,
5. increase oysters tenfold,
6. set targets for reducing sediments washing into the Bay and its tributaries, and
7. rehabilitate brownfields.

The classification of the South and Severn Rivers as impaired waters is also reflected in the results of the *Baseline Biological Assessment of Streams Draining the Parole (MD) Town*

Center dated July 20, 1998 (AA-PACE Report No. 98-02). An abstract from that report states the following:

> The Parole Town Center area is heavily urbanized and located near Annapolis, Maryland. Streams draining it flow into the South and Severn Rivers. They receive stormwater discharges from zones of high imperviousness, and thus have severe habitat degradation from the accelerated erosion. Such streams typically have only minimal capacity for supporting aquatic life. In this project, six streams were assessed using benthic macroinvertebrate samples from 13 locations (Broad Creek, Church Creek, Gingerville Creek, Saltworks Creek, Weems Creek, and Cowhide Branch). Field sampling methods used were an adaptation of U.S. EPA's Rapid Bioassessment Protocols (RBPs) that have been modified to be appropriate for coastal plain streams, providing multi-habitat sampling. Assessment of physical habitat quality and biological condition indicate severe habitat limitation in most streams, likely resulting from increased erosiveness of stormflows and watershed imperviousness.

These findings also reflect the predictive results of an earlier 1981 watershed study of Church Creek done by the Office of Planning and Zoning in conjunction with the Environmental Center of the Anne Arundel Community College. The purpose of the earlier study was to determine the impact of development and its resulting increase in impervious surface on water quality in Church Creek. Prior to 1960, much of the upper watershed of Church Creek was converted from forested and agricultural land to commercial and residential uses. Development accelerated after 1960 with development plans for the Parole Town Center providing for additional expansion. The following results for Church Creek were included in the 1985 Annapolis Neck Sector Plan (pp.10-11).

> "The study estimates pollutant and nutrient loading from land use in the watershed and its potential impact on water quality using a micro-computer program. Pollutants that accumulate in the study area come largely from shopping center parking lots, roads, and from farming practices. Types of pollutants identified were heavy metals and nutrients such as nitrogen and phosphorus. The heavy metals are potentially dangerous because they may enter the food chain of fish and the nutrients can deplete oxygen levels in the creek, cloud the water, and lead to fish kills.
>
> The study itself was completed in 1983. The study indicates that as of 1981 the estimated pollution entering the creek was greater by a factor of 10 than estimated levels if the watershed had remained undeveloped. Moreover, the study concludes that if the area were developed in accord with a hypothetical maximum derived from the 1978 General Development Plan, pollution loadings in the creek would double the present estimates."

Thus, the severe habitat degradation indicated in the 1998 Baseline Biological Assessment and the 2000 Maryland Section 305(b) Waste Water Quality Report reflect the adverse impacts of increased imperviousness on the streams draining into the South and Severn River as initially identified in the 1981 Watershed Study of Church Creek.

One method of stream and shoreline protection that should be encouraged is the provision of vegetated buffers. Vegetated buffers along streams and wetlands are one of the most effective measures of protecting water quality and riparian habitat. Buffers are also important in controlling nutrient and sediment runoff, maintaining stream temperatures, and providing aquatic and wildlife habitat. Opportunities to expand vegetated buffers should be pursued.

Since water quality problems observed in the Chesapeake Bay result from the cumulative impacts of pollutants from point and diffuse sources far upstream and throughout the watershed, a watershed approach through the State's Tributary Strategies Teams has been established to address water quality problems by planning appropriate nutrient control strategies for Maryland's ten tributary basins to the Chesapeake Bay.

The Maryland Department of Natural Resources (DNR) is the lead agency for the Tributary Strategies Program. Both the Severn River and South River watersheds are sub-watersheds of the Lower Western Shore Tributary Basin. The Lower Western Shore Tributary Team members represent constituency groups located throughout the watershed.

Presently, watershed management master plans are being prepared for the County's 12 major watersheds. The first of these plans 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 was realized. Specific problems addressed included soil erosion and sedimentation, flooding, and nutrient and heavy metal transport. Management alternatives to address current and potential impacts were then identified and proposed for implementation. Many of these recommendations are being addressed via the County's Capital Program. A similar plan for the Severn River watershed was initiated in February 2001.

Two of these capital projects currently underway are the Wilelinor Estates stream valley improvement project, which will provide improvements in the headwaters to Church Creek, and a wetlands restoration and fish passage project in Cowhide Branch at Weems Creek. Both projects are being managed by the Department of Public Works.

Wetlands and Floodplains

Wetlands

The majority of wetlands in the Annapolis Neck planning area are tidal and non-tidal

riparian wetlands, according to mapping from the U.S. Fish and Wildlife Service National Wetland Inventory (NWI) maps. Major tidal wetlands in the Parole and Riva areas include those at the headwaters of Broad, Gingerville, and Church Creeks. Tidal wetlands within the Forest Drive area are relatively small areas located at the heads of creeks and coves. Larger wetlands are concentrated along the South River around the mouth of Harness Creek. In the areas near the Bay, tidal wetlands are particularly abundant in the headwaters of Black Walnut, Oyster and Fishing Creeks, and are present along more than half the shoreline of Cherry Tree Cove. The NWI maps are a general guide to the presence of wetlands but are not definitive, and wetland delineations have to be performed on an individual site basis to definitively establish their presence and extent.

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.

The County protects tidal wetlands through implementation and enforcement of the Chesapeake Bay Critical Area Program. Through the County permit process, any proposed impacts to tidal wetlands are assessed by the permit reviewer to determine compliance with Critical Area requirements.

Nontidal wetlands are areas that are characterized by an ample water supply, saturated or hydric soils, and hydrophobic vegetation. These characteristics distinguish wetlands from upland areas and provide the framework for the regulatory definition of non-tidal wetlands used by the State and the Federal government. 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 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. An applicant proposing to disturb nontidal wetlands within the Critical Area needs to obtain not only a building and grading permit and 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). The State and county require a minimum 25-foot buffer to all non-tidal wetlands.

Floodplains

Floodplains are the areas adjacent to a stream or river that are subject to flooding or inundation during storm events. Floodplains are designated by the Federal Emergency Management Agency (FEMA) as non-tidal, tidal, and coastal high hazard, and are frequently defined in terms of the likelihood of flooding in a given year. For example, the 100-year floodplain is the area adjacent to a stream or river that floods, on average, every 100 years. The major streams draining to the Severn and South Rivers and the 100-year non-tidal floodplains of these streams are delineated on Map 8. These floodplains have been identified through the FEMA Flood Insurance Rate Maps (FIRM) and through specific floodplain studies. The non-tidal floodplains on the FEMA maps are based generally on the existing land use as of 1983. The county requires that new developments recalculate the floodplain based on current development plus future development based on zoning.

Most floodplain on the Annapolis Neck is tidal floodplain (not shown on Map 8). This includes areas that are susceptible to flooding by high tides, hurricanes, storms, and steady on-shore winds.

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.

Development is generally prohibited in the non-tidal floodplain. 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 that floodplain. The floodplain is the 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.

In tidal floodplain areas, development is permitted provided buildings and structures are designed to minimize flood damage. The key criterion is for the lowest floor to be elevated at least one foot above the base flood elevation.

Steep Slopes

Steep slopes are defined in the County Code as slopes characterized by increased runoff, erosion, and sediment hazards and that (1) have an incline greater than 15% and (2) in the Critical Area have an incline of 15% or greater. 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. A variance is required in order to develop on steep slopes within the Critical Area. Outside of the Critical Area, development may occur within steep slope areas as per the provisions of Article 21 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. In the Annapolis Neck area, steep slopes are found along the stream valleys and floodplains along creeks such as Church Creek, Gingerville Creek, Broad Creek, Saltworks Creek, and Weems Creek. To a lesser extent, steep slopes are found near the shores of Lake Ogleton and Harness Creek. These features are required to be protected during development activities. They are illustrated on Map 8.

Forest Conservation

Much of the forest cover on the Annapolis Neck peninsula is fragmented in small patches, although some large contiguous areas exist such as in Quiet Waters Park, Broad Creek Park, Bay Ridge, the Masque Farm, and on the Severn Grove peninsula. Existing regulations limit clearing and cutting of trees both inside and outside the Critical Area. However, forest loss and fragmentation does occur as a result of development, especially outside the 100-foot Critical Area Buffer. The County administers a Forest Conservation Program in accordance with the requirements of the State Forest Conservation Act. Under this program, development proposals submitted to the County for approval must include a Forest Stand Delineation and a Forest Conservation Plan which identifies and classifies wooded areas on the site, establishes limits of disturbance and areas of forest retention and determines reforestation requirements. The Forest Conservation Ordinance specifies conservation and afforestation thresholds according to the type and density of land use. Development plans that propose clearing of existing forested areas must retain this minimum threshold of forest cover. Any forested area removed below the conservation threshold for the site must be replaced on a "two acre replanted to each acre removed" ratio elsewhere on the site, or as a less desirable alternative, on an offsite location. If a developer can demonstrate that reforestation on or offsite cannot be reasonably accomplished, a fee in lieu may be paid to the County's Forest Conservation Fund, to be used by the County in reforesting sites as they become available. Moreover, development on land that is not forested is required to afforest at least 15% of the site. Within the Critical Area, forest clearing is replaced on a minimum of one acre reforestation for one acre clearing. Depending on lot size and amount of clearing, reforestation requirements may reach as high as three acres reforested for one acre of clearing. Sites that have less than 15% of the area in forest cover are required to afforest up to a minimum of 15% of the lot or parcel area.

Although both the Critical Area Law and Forest Conservation Act provide for

replacement of lost forest land due to development, retention of existing forest and afforestation in areas without forest cover should be encouraged in addition to reforestation. The retention and enhancement of forested areas is important because of the significant air quality, water quality, energy conservation, and wildlife habitat benefits they provide. Trees also provide a message we can feel, simply by being among them. Trees give us a sense of security, of permanence, of strength and of solitude. Schoolyard habitat projects, which create outdoor learning sites that use the wildlife habitat areas as sites for integrated environmental education lessons, can be used as an enhancement to the school curriculum.

Upland Natural Areas

In 1976, the State's Department of Natural Resources, together with the County's Office of Planning and Zoning, identified and surveyed approximately 14,500 acres designated as Upland Natural Areas in the County. These are areas where the natural processes predominate and man's interference has been insignificant. They contain one or more of the following features: floodplains, wetlands, steep slopes, forest vegetation, and unique species of plants and animals. The 1985 *Annapolis Neck Sector Plan* identified four Upland Natural Areas comprising over 550 acres of land in the study area and three state champion trees. Development that occurs without careful and imaginative site planning and design can contribute to the loss of these important environmental features. The following is a brief description of each site as provided in the 1985 *Annapolis Neck Sector Plan* (pp.8-9).

8. Thomas Point Park is a 22-acre peninsula at the convergence of the South River and the Chesapeake Bay. It is zoned as open space and maintained by the County Department of Recreation and Parks. The site features a 22-acre stand of young hardwoods with several very large Tulip Poplars and Southern Red Oaks. Extensive bulkheading is being done on the south shore and tidal marshes surround the rest of the site. This natural area is a valuable resting place for birds during migration, especially in the fall.

9. Quiet Waters Park includes a 357-acre tract of undeveloped deciduous forest along the east bank of Harness Creek. The part of the site immediately adjacent to the creek is a narrow strip of woods dominated by Chestnut Oak. Stands of Tulip Poplars can be found in areas east of the creek. Other understory trees include Chestnut Oak, Virginia Pine, and Dogwood. Another interesting aspect of the site is its diverse herbaceous cover which includes Honeysuckle, tree species of Lycopodiums, May Apple, Partridge Berry, False Solomon's Seal, Indian Cucumber Root, Indian Pipes, Lady's Slipper, Rattlesnake Plantain, and many species of fern.

10. Church Creek is located just south of Parole and east of MD 2. Its headwaters include a 153-acre site characterized by a steep and rolling upland forest, and a wooded swamp along the creek. This area is included in the Annapolis Neck Segment of the Greenways Master Plan. The upland section is a forest of Chestnut

Oak, Hickories, Dogwood and other oaks. The wooded swamp is composed of Red Maple, poison Sumac and Alder in the understory. The herbaceous layer is made up of Jewelweed, Skunk Cabbage, Jack-in-the-Pulpit, Royal Fern, Cinnamon Fern and others.

11. Gingerville Creek includes a 103-acre forest bordering the creek on very steep slopes and a shrub swamp. A small tidal marsh is located at the headwaters of the creek. The topography and vegetation provide a year-round wildlife habitat. The shrub swamp is dense with Red Maple, Poison Sumac, Sweetgum, Alder, and Winterberry Holly. The upland forest consists of White Oak, Chestnut Oak and Tulip Poplar, with a dense shrub layer of Mountain Laurel, Hickories, Huckleberries and Blueberries.

12. Thomas Point Virginia Pine - State Champion is located on private property in the bayfront area. The tree has a diameter of 28.5 inches and is in good condition.

13. A Crepe Myrtle - State Champion is located on private property in the bayfront area and is in good condition.

14. A Pignut Hickory - State Champion is located in a residential community of Riva Road on private property. The tree has a diameter of 49.5 inches, a circumference of 13 feet, and is in good condition.

Despite identification of these seven important natural features, significant losses occurred to the 153-acre upland forest around the headwaters of Church Creek in developing MD 665 and to the 103-acre upland forest around the headwaters of Gingerville Creek in developing Ginger Cove and Riva Trace. The existence of the identified State Champion Trees can no longer be verified.

Map 8 provides a general illustration of the significant environmental features of the study area, such as steep slopes, wetlands, floodplains and upland natural areas. These remaining features must be given special consideration during the development process. These features form an environmental network that can add structure as well as aesthetic quality to community development. Additional Upland Natural Areas of significance lie along Saltworks Creek, Luce Creek, and Weems Creek.

Protected Lands

The County owns over 500 acres of permanently protected parkland on the Annapolis Neck. These properties include Quiet Waters Park, Thomas Point Park, Broad Creek Park, Bestgate Park, and Peninsula Park. Additional acreage is preserved in dedicated floodplain areas, as previously discussed. Much of this area has been zoned as Open Space by the County. The intention of Open Space zoning districts is to preserve open areas for recreational use, to protect environmentally sensitive areas, and to protect persons and property from the hazards of

flooding. Lands included in Open Space zoning districts are the natural water drainage systems including wetlands and floodplains, public and private lands used for passive or active recreation, and lands designated as structural open space in the *General Development Plan*. Altogether, there are approximately 800 acres of land zoned as Open Space in the Annapolis Neck Small Planning Area.

Other significant environmental features on the Annapolis Neck include the Bay Ridge Woods, a large vacant wooded area of the old Bay Ridge subdivision. This area is also classified under the Critical Area ordinance as a Resource Conservation Area, limiting its future development potential. The Annapolis Neck Land Use Plan shows this area as a Natural Feature. Other large tracts of privately-held undeveloped land that are considered to be important environmental features include the Masque Farm/Crystal Spring Farm site on Spa Road, the Severn Grove Woods (owned by Belle Grove Corporation) at the mouth of Saltworks Creek, a vacant wooded tract in the Annapolis Roads area, and Priest Point on the Severn River. Also, Table 10, Items 20-32 lists additional sites of significant community importance which are desirable to preserve in their current use.

Historic and Archaeological 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 in 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 Historical Trust or the National Trust for Historic Preservation.

Annapolis Neck has an abundance of historic sites including a few listed on the National Register of Historic Places and National Historic Landmarks. Table 5 and Map 9 list the historic buildings and sites and scenic and historic roads on the Annapolis Neck. Some of the many significant historic sites include the Meyer Residence near South Haven Road, Howard's Inheritance near Bestgate Road, Old Bloomfield on Cape St. John Road, the Weems Creek Bridge carrying Ridgely Avenue over Weems Creek, Toad Hall on Arundel on the Bay Road and the communities of Bay Ridge and Annapolis Roads. Scenic and Historic Roads include Ferry Point Road and Harness Creek Road. The County offers protection to these historic sites through Federal and State regulations, as well as County legislation.

Table 5. Annapolis Neck Historic Resources

Site Number	Name	Street Location
AA0001*	Yacht Helianthus	Location unknown
AA0006	Brewer Hill Cemetary	West Street
AA0011	The Barge House	Bay Shore Drive
AA0012*	Wiley H. Bates High School	Smithville Street
AA0101	Meyer Residence	Off South Haven Road
AA0136	Howard's Inheritance	Near Bestgate Road
AA0137**	Colonial Annapolis Historic	
AA0143	Old Bloomfield	South of Cape St. John Road
AA0161	Brampton	North of Cape St. John Road
AA0164	Alexander Randall House	Solomons Island Road
AA0168	Lydia's Rest	Harness Creek Road
AA0169	Primrose Hill	Hilltop Road
AA0721; 0812-	Highland Beach	Douglas Avenue, Bay Avenue

Site Number	Name	Street Location
0818; 0820-0831; 0833-0842		and vicinity
AA0736	Fowler's United Methodist Church (site of earlier church)	Bestgate Road
AA0762	South River Bridge	MD 2
AA0764	U.S. Naval Academy (old Severn River) Bridge (site)	MD 450
AA0765	Weems Creek Bridge (site)	Ridgely Avenue
AA0771	Mt. Olive AME Church	Hicks Avenue
AA0772	Mt. Zion United Methodist Church	Second Street
AA0804	John Wesley M.E. Church	Forest Hills & Bay Ridge Ave.
AA0809	Bay Ridge Railroad Bed	Old Bay Ridge Road
AA0810	House	Arundel on the Bay
AA0811	House	Arundel on the Bay
AA0895	Three-Mile Oak (site)	MD 178 & MD 450
AA0928	Severn River B&A Railroad Bridge (site)	
AA0932	Annapolis Water Company	MD 450
AA0942	Key School	Hillsmere Drive
AA0943	Toad Hall	Arundel on the Bay Road
AA0944	Huguely House	Thomas Point Road
AA0946	Homeport Farm	Solomons Island Road
AA0949	Annapolis Roads	Carrollton Road
AA0950	Bay Ridge	Farragut Road & vicinity
AA0992	Harnesses	Harness Creek View Drive

Site Number	Name	Street Location
AA1050	C.E. Smith House	Dubois Road
AA1059	Weems Creek/Garden Farms School (Ridgely Avenue School)	Ridgely Avenue
AA2069	Masque Farm	Spa Road

*National Register of Historic Places
**National Historic Landmark

Archaeological Resources

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

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.

Along with Federal and State laws protecting archaeological resources, the County Code also protects such sites during the review of residential and commercial subdivisions, critical area growth allocations, and zoning change requests.

Map 9

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

a. Implementation of measures for (a) preservation, (b) protection, and (c) recognition based on the classification of the road.

Within or just outside of the Annapolis Neck Small Planning Area, there are four roads with a Scenic and Historic Road designation. They are Defense Highway (MD 450), Generals Highway (MD 178), Ferry Point Road, and Harness Creek Road. While the importance of protecting the scenic and historic aspect of these roads is clear, their protection must be balanced with the need for safe roads and for appropriate development.

Annapolis, London Town, and South County Heritage Area

In 1996, the Maryland General Assembly established legislation for the creation of a Maryland Heritage Preservation and Tourism Area Program. Designed to assist communities in Maryland through economic development and enhancement of heritage tourism, it also provides mechanisms for the protection, preservation and promotion of historic, cultural, and natural resources. This legislation is intended to help Maryland compete in the heritage tourism industry, an industry in which the neighboring states of Virginia and Pennsylvania have enjoyed great economic success.

In the summer of 2001, the Maryland Heritage Area Authority certified the Annapolis, London Town and South County Heritage Area as the third such area in the State. The heritage area encompasses the area of the county south of Sandy Point Park to the Calvert County line and from Solomons Island Road on the west to the Chesapeake Bay on the east, including Annapolis and London Town, two of the County's most popular tourist destinations. The Heritage Area Program holds the potential for enhancing and strengthening the tourist experience and for improving the quality of life for the residents and businesses in the County that benefit from tourism. As a Certified Heritage Area, the County will receive financial incentives and assistance in developing the area as an important heritage tourist destination.

Issues Related to Natural Resources

As expressed at the first small area public forum for the Annapolis Neck, residents view the natural features of the Annapolis Neck as an essential element of the quality of life in this area and an important reason why people live here and others want to do so. They want these resources managed in a responsible manner that preserves and enhances, if possible, what remains of these assets. They want balance, particularly in response to outside pressures for change that would diminish or destroy or contribute to the loss of such resources. The input from the public expresses a desire for increased green space, forested areas, open space, and wildlife habitat.

The quality of life and a large part of the vibrant and healthy economy of the Neck depend on the health, quality and viability of the water supply and adjacent waters of the Chesapeake. The Chesapeake itself is a source of food, recreation, and income. Residents also want to live in harmony with, and not to the exclusion of, wildlife. There is a need for a holistic or systems approach for preserving and enhancing the environment. A watershed approach to planning would contribute to the overall goals of the Neck and would help to reduce and reverse degradation of the Neck's waterways. Educating citizens, particularly young people, is important to making them aware of environmental issues and perspectives and how their actions impact the environment. Public/community education should be increased regarding the effect of over-fertilization of lawns with little or no shoreline buffer, lack of shading along shorelines, direct discharge of untreated stormwater runoff, and septic systems and pool drainage from existing development. Incentives should be considered to induce existing property owners to improve their properties to be more ecologically sensitive.

Finally, residents of the Neck want to see increased cooperation between the City and the County governments, particularly with regard to environmental issues and land use, and an increased and ongoing participation of citizens in the planning and decision-making process.

Goals and Recommendations

Numerous goals, policies, and actions stated in the *1997 General Development Plan* (GDP), the *Parole Growth Management Plan (Draft)*, and the *Annapolis Comprehensive Plan* (ACP) are related to the environment. These need to be implemented and coordinated with respect to the Annapolis Neck. The environmental goals, strategies and recommendations expressed herein are intended to supplement, enhance, and refine those aspects of the plans as they pertain to the Annapolis Neck.

The Annapolis Neck is a community already impacted by existing development. There are fixed and diminishing natural resources and assets, the presence, reduction, or loss of which affects the general quality of life in the Neck. Natural features, resources and amenities add both economic and aesthetic value. Zoning and its associated regulations and land use management

must shift from a site specific focus to an area-wide and systems focus, and must be part of the tools used to protect, preserve and enhance our living environment now and for future generations.

Accordingly, the goals and strategies set forth in this report are not to be read as site specific. They must be read together and not in isolation, as the vision cannot be reached nor even approached if the strategies and management, or subsequent implementation undertaken by land use practices and decisions, are not made with a view of the whole and with the overall goal of allowing us to live in harmony with our natural environment and its other living inhabitants, plant and animal, for mutual benefit.

I. Environmental Resources

Goals

1. Maintain an up-to-date inventory of natural resources and assets.

2. Minimize the loss of environmental resources, such as wetlands, forest cover, and habitat areas, to the extent possible through protection, preservation, and enhancement.

3. Preserve the natural and diversified character of the Annapolis Neck.

4. Return surface and ground waters to good health and higher productivity.

Recommendations

1. Prepare an inventory and regularly monitor environmental resources and assets such as wetlands, floodplains, water quality conditions, forest cover, threatened and endangered species, habitat areas, and other environmentally-sensitive areas on the Annapolis Neck.

2. The natural resources and amenities of the Annapolis Neck Peninsula should be regarded as a system of renewable and non-renewable resources not to be exhausted or critically reduced, but to be managed and, when appropriate, preserved such that decisions regarding land use and other activities pertaining thereto are made with the goal of maintaining a “sustainable yield.”

3. Establish and enforce a baseline policy of “no net loss” of natural resources in the Annapolis Neck and develop incentives for achieving a “net gain” of tidal and nontidal wetlands.

4. Identify environmental resources in need of protection or restoration.

5. Identify and inventory natural resources on the Annapolis Neck to serve as a baseline for

the implementation of land use decisions and policies on the peninsula including preservation, restoration, mitigation banking, and acquisition.

6. Develop or acquire tools, such as the Severn River Watershed Management Tool, that can be used to assess the impacts of various land use decisions on environmental resources. Land use decisions that are shown to have a negative impact on environmental resources should not be adopted unless a significant benefit to public health and/or safety can be demonstrated.

7. Develop a Countywide, comprehensive set of environmental guidelines to be applied via the development review process, through which protection of such assets as stream buffers, steep slopes, and specimen trees can be enhanced.

8. Develop and adopt a Countywide master plan for forest conservation.

9. Provide incentives and/or compensation to make innovative development and preservation alternatives economically attractive or meaningful.

10. Increase and/or create penalties for violation of environmental regulations.

11. Require local public agencies to adhere to the same environmental regulations as the general public and encourage State and federal agencies to do the same.

12. Improve opportunities for mitigation and relocation of natural assets on the Annapolis Neck.

    1. Create incentives to encourage property owners to consider restoring or converting abandoned properties, such as parking lots or decrepit buildings, into mitigation sites.

    2. A clearinghouse or method for linking property owners and interested parties, such as contractors and developers, with mitigation opportunities on the Annapolis Neck should be established. This would allow improved coordination with land trusts and similar groups to restore or preserve parcels.

    3. Review and improve the fee-in-lieu requirements of the Forest Conservation Law to create more incentives to retain existing forested areas and to add disincentives for paying a fee-in-lieu as an alternative to forest retention or reforestation.

13. Direct development away from areas where natural resources and assets need protection, such as streams and their buffers, tidal and nontidal wetlands, steep slopes, 100-year

floodplains, and disappearing habitats for local flora and fauna, particularly endangered and threatened species.

14. Aggressively promote and use existing programs to prevent environmental degradation and promote restoration and balance via private/public partnerships and the purchase of property, easements, or development rights whenever possible. Foster, incubate, and pursue new and imaginative ideas and programs for these purposes. Seek additional funding and establish renewable funding like endowments to achieve the goals of these programs.

15. Determine whether there is a need for a transition zone adjacent to the Critical Area in order to ensure that the purpose of the Critical Area is being achieved.

16. Devise a mechanism for maintaining a comprehensive record of waivers and variances granted on a county-wide basis, so that the cumulative impacts as opposed to site-specific impacts of an individual request for a waiver or variance may be assessed during review.

17. Maintain or establish the restriction of development on slopes greater than 15 percent.

18. Identify any defiencies in any environmental regulations in the County Code that are compromising the overall intent of protecting environmental resources, and determine whether there are revisions that can be made to the Code that will correct the problem.

19. Require the use of new technologies to improve the environment, such as new types of road surfaces to reduce runoff, as they become available.

II. Restoration and Enhancement

Goals

1. Establish a Natural Area Network to protect and preserve important natural areas on the Neck and to facilitate wildlife migration and movement.

2. Identify lost or compromised shorelines, waterways, streams and other assets and target them for restoration.

Recommendations

1. Develop a Natural Area Network by preserving areas of important natural resources and linking them to create a network which will provide for safe and adequate wildlife movement throughout the Neck. Explore the concept presented in Appendix B, a report titled “Establishing a Natural Area Network on the Annapolis Neck” by the ANSAP Environmental Subcommittee with assistance from Earl Bradley (January 2003). See

Map 10.

2. Identify natural areas which should be preserved, such as meadows, forests, wetlands, or areas bordering other valued natural features. These may include community open space areas, parkland or other public lands, and private parcels of land. A preliminary list of such areas to be considered for feasible actions is contained in Appendix B.

3. Address and establish a solution to the problem of impeded wildlife migration, especially across highways and major arteries.

4. Undertake reforestation efforts wherever possible along streams and other areas to link existing forested and other natural areas.

5. Restore degraded wetlands and seek opportunities to create new wetlands.

6. Acquire and create new parkland, including wildlife and bird sanctuaries.

    1. Create more small neighborhood parks.

    2. Establish an "Adopt a Park" program to help with maintenance and landscaping.

    3. Create new recreation and open space in the Newtowne area.

    4. Explore the potential for permitting reforestation and other environmental fees to be used to purchase land for parks or open space.

7. Work with existing, and assist in creating new, conservation and land trusts for the Annapolis Neck to permanently protect and preserve undeveloped land where appropriate and to restore degraded natural areas.

    1. Research options and offer proposals for immediate and long-term conservation actions.

    2. Identify existing land trusts and conservation groups.

    a. Identify and prioritize parcels to be acquired, preserved, or restored and promote joint public and private efforts to do so.

Map 10

3. Create greater incentives for participation in or utilization of the trusts to encourage the donation of both land and money.

4. Investigate funding and acquisition alternatives, such as purchase of development rights, the use of reforestation (tree bill) funds, bonds, taxes, fees, revolving loans, and in kind exchanges such as transferable development rights (TDRs), for use in preservation and restoration.

5. Pursue additional tax incentives that may be available for owners to put conservation, agricultural, or scenic easements on their properties, both developed and undeveloped.

6. Consider land dedication or conservation easements on open spaces or other areas that warrant permanent preservation.

7. Review existing permitted uses in the Open Space zoning district to determine if any changes are needed to ensure that environmental and conservation goals are achieved.

8. Develop a riparian buffer requirement for the nontidal portions of tributaries of the South and Severn Rivers similar to that required in the Chesapeake Bay Critical Area.

9. Identify and prioritize stream restoration projects for inclusion in development projects and the capital budget.

10. Promote and maintain a high level of County and City participation in State and Federal environmental programs, including Tributary Teams and the Wetlands Conservation Program.

11. Inventory shoreline areas for replanting of submerged aquatic vegetation (SAVs) and establish a program to restore these areas. Encourage property owners to help to improve estuarine habitat. One method which private property owners might use is that of suspending trays of oyster spat and bay grasses in the water from docks and piers.

III. Watershed Protection and Stormwater Management

Goals

1. Protect and enhance the quality of area rivers, streams, and groundwater.

2. Improve stormwater management to reduce and, where possible, eliminate the negative environmental impacts of stormwater runoff.

3. Minimize impervious surfaces in new development and redevelopment projects as outlined in new Stormwater Management regulations adopted in 2002.

4. Continue to preserve and improve water quality in the Chesapeake and its tributaries by requiring incorporation of state-of-the-art technology at waste water treatment facilities to reduce pollutant loads resulting from effluents.

5. Reduce groundwater pollutants.

Recommendations

1. Integrate applicable results of the Severn River and South River Watershed Management studies into the Annapolis Neck Small Area Plan.

2. Preserve and restore shorelines as natural water filtration systems to keep the Bay clean. Maintain and improve manmade filtration systems. Use natural biological methods of stabilizing shorelines against erosion where possible and replace existing bulkheads where possible with more compatible and environmentally sensitive and contributing methods.

3. Replace the use of rock salt on the roadways with Calcium Magnesium Acetate (CMA), which costs more than rock salt, but saves money and the environment in the long run as it does not corrode vehicles and bridges, does not destroy roadside vegetation, and does not produce sodium which pollutes the groundwater and wells.

4. Reduce runoff and silting of waterways.

    1. Aggressively promote, provide incentives to, and ultimately require the use of innovative stormwater management techniques, including rain gardens and rain barrels.

    2. Improve the stormwater management system inspection method to serve its intended purpose of preventing compromise of adjacent and downstream watershed properties and waterways and by requiring responsible parties/property owners/grading permit holders to restore damaged or compromised waterways and to post bonds therefore.

5. Encourage separate on-site management of gray water.

6. Complete the mandated Watershed Studies to assess the nature, condition, health, and risk to the health of the waters of each watershed in the Neck, and where necessary, establish and strictly enforce additional standards for water quality in cooperation with

existing agencies.

1. Set bond levels to guarantee compliance with water quality standards. Define clear and certain consequences and strict penalties if the standards are not met.

2. Increase the frequency of site inspections and watershed assessments and take timely enforcement action to ensure water quality standards are met.

7. Reduce dependency upon impervious surfaces.

    1. Identify and encourage the removal of all abandoned and unused impervious surfaces which have not been used for a specified period.

    2. Provide incentives to use pervious materials and stormwater infiltration systems, including rain gardens, for parking lots, driveways, etc.

    3. Increase greenspace and landscape requirements for parking areas and create incentives to encourage multi-level parking facilities.

    4. Minimize the width of collector and local streets where feasible without compromising bicycle and pedestrian use.

    5. Identify methods needed to protect a watershed when impervious surfaces from existing or permitted improvements exceed 10 to 15%.

8. Revise development regulations to require use and incorporation of innovative design and development techniques and methods to minimize impervious surfaces.

    1. Encourage clustering of homes and buildings to retain open space.

    2. Review and revise, where appropriate, building height restrictions to enable building up instead of out to reduce the footprint of buildings on the land.

    3. Determine the approximate percentage of impervious surfaces within each watershed on the Annapolis Neck.

9. Continue to use state of the art sewage treatment technology to assure the progress of reducing nutrient and pollutant loadings in the region's waterways and the Chesapeake Bay. Continue to coordinate these efforts with other jurisdictions along the Bay.
10. Consult with State and Federal agencies responsible for groundwater monitoring, and obtain information from the U.S. Geological Survey and the Maryland Geological Survey

to determine the need for a watershed analysis regarding the extent of saltwater intrusion and other forms of groundwater pollution or degradation.

11. Protect sources of groundwater replenishment in coordination with other jurisdictions. Identify groundwater recharge zones for the Aquia, Patuxent, and Magothy aquifers, and strive to protect these areas by working with the State and local jurisdictions to limit impervious surfaces and to encourage the use of infiltration type stormwater management techniques.

12. 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.

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

14. 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.

15. Continue and, if possible, accelerate the County's ongoing effort to comprehensively identify, analyze and, where needed, retrofit stormwater management problem areas.

16. Account for and minimize impacts to the 100-year floodplain with respect to stormwater runoff increases from new development. Where comprehensive or site-specific rezoning is expected to result in increases in runoff, the need for additional stormwater management, or retrofits to existing facilities, should be determined and accommodated.

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

18. Aggressively pursue incentive-based approaches (e.g., state grant funds) to achieve retrofitting of areas in need of improved stormwater management. Offer tax incentives to businesses and homeowners for retrofitting their property with modern stormwater management.

19. Ensure that all government-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.

20. Implement, where possible, a minimum 100-foot riparian buffer to all perennial and intermittent tributary streams in the County to minimize impacts of stormwater runoff sheet flow to these systems.

21. 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.

IV. Forests

Goals

1. Preserve mature trees and forests for their value in preserving water and air quality, wildlife habitats, and as important aesthetic assets.

2. Avoid further deforestation of the Annapolis Neck.

Recommendations

1. Aggressively pursue the preservation of old growth or mature trees and forests and the restoration of native trees and landscapes.

2. Establish a program for property owners to plant additional native species trees in non-forested areas on the Annapolis Neck. Develop a County program to provide property owners with technical assistance regarding tree planting and maintenance.

3. Publicize and encourage the use of conservation easements.

4. Create local tax incentives or similar benefits for property owners who are willing to set aside undeveloped forested areas protected under a permanent conservation easement.

5. Create stronger disincentives for removing trees and forests.

6. Amend the reforestation program to allow mitigation funds to be applied toward the purchase of undeveloped parcels for preservation.

V. Air, Noise, and Recycling

Goals

1. Improve air quality and reduce toxic air and particulate pollutants.

2. Revise applicable County regulations pertaining to residential areas to include noise reduction standards that are linked to decibel standards for specific uses.

Recommendations

1. Develop programs which encourage the reduction of gasoline and diesel powered vehicle use and which promote the use of natural gas, electric, solar or other less polluting vehicles, and which encourage alternative transportation (mass transit, walking, bicycling, etc.)

2. Pursue conversion of County vehicles to natural gas, electric power or other alternative fuels, encourage the State and City of Annapolis to do the same, and create incentives for businesses to do the same.

3. Establish a policy to reduce the idling of buses.

4. Emphasize public education programs to encourage reduced air pollution by promoting the use of propane gas grills and fireplaces, encouraging refueling of vehicles after sundown, and discouraging idling of vehicles for prolonged periods (more than five minutes).

5. Establish a County program to publicize the air quality ratings.

6. Ban the use of certain air polluting equipment, such as mowers, trimmers, and other small gas engine appliances on bad air quality days.

7. Promote incentives for planting gardens and native shrubs and trees to reduce gas powered lawn maintenance.

8. Encourage more recycling by restaurants and businesses.

9. Provide more frequent hazardous waste collection and add additional drop-off locations.

10. Encourage the use of recycled materials in homes and businesses through additional opportunities, such as park benches made of recycled materials.

11. Enact and forward a proposal to the State to enact a “bottle” law.

VI. Education

Goals

1. Educate the public regarding the benefits of natural resources and methods of environmental protection.

2. Enhance the school curriculum to educate youth about the area's environmental assets and ways that they can protect and enhance the environment.

Recommendations

3. Promote local stewardship of the land and water by educating the public about resource conservation, restoration, and similar programs, and the resulting environmental benefits.

4. Promote the use of the Bay Scapes Program of the Chesapeake Bay Program, the County's Critical Area Partnership Program, and the County's Master Gardener Program to reduce fertilizer, pesticide, and herbicide use and promote the conversion of fertilized lawns, particularly along waterways, to native vegetation in a more natural landscape.

5. Promote existing and develop additional environmental education projects as part of the public school curriculum.

    1. Promote projects such as an "Adopt a Creek" program, neighborhood ecology projects, school composting, and recycling.

    2. Promote an anti-litter campaign not only for beautification purposes, but to reduce the dangers to wildlife from non-biodegradable items littered on the land and in the waterways.

    3. Promote an oyster gardening program.

4. Foster community education about stormwater issues through cooperation with local citizen groups, public and private schools, park and recreation programs, and use of the internet.

5. Establish a program to educate the public, developers, and businesses about the benefits of maintaining mature trees and forests to clean the air, cool the surrounding areas (especially along streambeds), prevent erosion, enhance water quality, act as wind breaks, and provide wildlife habitat (including the vertical biome of the forest canopy).

VII. Historic Resources

Goal: Encourage preservation of archaeological and historic sites.

Recommendations

1. Strengthen existing County codes and regulations to protect historic and archaeological resources, including scenic and historic roads.

2. Protect historic sites and structures by adding them to the Maryland Inventory of Historic Properties and the National Register of Historic Places.

3. Protect archaeological sites by adding them to the Maryland Archaeological Site Survey and the National Register of Historic Places.

4. Establish incentive programs, including tax deductions or credits, grant and loan funds, and technical assistance for property owners that protect and preserve significant historic and archaeological resources.

5. Promote and utilize opportunities in the Maryland Heritage Preservation and Tourism Program, including tax incentives and other funding sources, for preservation, renovation, and revitalization. This program includes the identification, protection, and promotion of significant historic and cultural resources that contribute to the development of tourist related functions.

Goal: Establish and implement a Countywide Scenic and Historic Roads Program.

Recommendations

1. Implement the Countywide program recommended by the Scenic and Historic Roads Commission and by the County Council.

2. Incorporate the regulatory tools necessary to fully implement the Scenic and Historic Roads Program, as set forth in Resolution No. 45-97, into the zoning laws, the subdivision laws, the transportation master plan, the road design manual, the landscape manual, the forest conservation ordinance, and other land use laws.