

## **VIII. PROTECTION OF SENSITIVE AREAS AND OTHER RESOURCES IN AND NEAR NEW MARKET**

This chapter addresses state requirements regarding Sensitive Areas, Mineral Resources, and Water Resources. The Town and its Planning Area does not include any areas of State concern.

### **SENSITIVE AREAS**

The term "Sensitive Areas" refers to: streams, wetlands, and their buffers; 100-year flood plains; habitats of threatened and endangered species; steep slopes; agricultural and forest lands intended for resource protection or conservation; and other areas in need of special protection, as determined in the Plan. The State requires that Sensitive Areas that could be impacted by development planned within the proposed municipal growth area be addressed. This Municipal Growth Element requirement overlaps the broader element of the Plan found in LU3-102(a)(1)(vi), requiring that the Plan include "a Sensitive Area element that contains goals, objectives, principles, policies, and standards designed to protect sensitive areas from the adverse effects of development." The Sensitive Areas element of the Plan is subject to review by the Department of the Environment and the Department of Natural Resources. Although the statute requires "consideration of...protection of sensitive areas...that could be impacted by development planned within the proposed municipal growth element," there is no requirement that the Plan include a catalog of particular sensitive areas. Instead, the Land Use Code contemplates that the Plan give consideration to the protection of sensitive areas encountered in development. This Plan addresses such protection by identifying protection techniques.

#### **A. Overview**

Frederick County provides a good overview of Sensitive Areas in the County in its 2010 Comprehensive Plan. The following material is adapted from that Plan.

##### **1. Streams and Their Buffers**

Streams are grouped into a hierarchal system first order, second order, third order, etc. from the smallest headwater stream to the Monocacy and Potomac Rivers in Frederick County. Streams and their buffers perform a wide variety of functions and have numerous environmental benefits. The buffer or riparian area of a stream is part of the stream ecosystem whose boundaries often depends on conditions of slope, soil, ground cover, and hydrology. The buffer encompasses parts of the stream ecosystem that are often dry, yet are integral to the stream's health. Stream buffers include:

- Floodplains where most stream wetlands are located and where energy dissipation, natural filtration and floodwater storage occur.
- Stream banks and adjoining steep slopes that help to prevent erosion from clogging the streambed and provide plant and animal habitat.
- Streamside forests, which provide habitat, stabilize banks, provide shading, control temperatures, filter pollutants and produce leaf-litter, which supports a variety of aquatic organisms.

##### **2. Stream Use Designations**

The Clean Water Act requires states to develop water quality standards to protect and improve surface waters. These standards are based on a particular water body use, function, goal or "designated use," such as supporting trout populations or protecting public water supplies. Criteria to support these designated uses include specific limits on amounts of dissolved oxygen, bacteria, temperatures, tonics, and turbidity (clarity) in the particular stream. The State of Maryland has defined designated uses of surface waters.

### **3. 100-Year Floodplain**

The 100-year floodplain is the portion of the landscape adjacent to streams and rivers that is subject to inundation by a flood event having a 1% chance of occurring in any year. Floodplains are generally comprised of rich alluvial soils formed by many years of deposition of soil, gravel, sand, rock, leaves, twigs, animal, and other plant materials caused by the continual ebb and flow of water in and out of the stream or river channel.

Floodplains are a natural part of the aquatic environment and contain diverse ecosystems. A key function of floodplains is to hold excess water and allow a slow release into groundwater and back to the waterway. Streams and rivers carry higher suspended sediment during flood events; the floodplain acts as a "sink," trapping and settling these particles. The soil microbial community is active in floodplains, processing and cycling nutrients. Unique plants that can tolerate episodic high water are present in floodplains along with a variety of animal species that contribute to high biodiversity.

New Market lies in the Piedmont physiographic province. The Piedmont is gently rolling land of moderate relief. The land is well drained by small creeks and swales and runs. There is only a small area of a 100-year floodplain located within the current Town Boundary. Annual floodplains (defined by soil type) are located to the east of New Market along MD-75 and to the southwest. Annual floodplains are also located north of Town, running north and east of New Market farms.

### **4. Habitat of Endangered and Threatened Species**

Frederick County's diverse landscape supports high biodiversity, the variety of plant species, animal species and all other organisms found in a particular environment. The protection of habitats that are critical to maintaining biodiversity contributes to the protection of rare threatened and endangered plant and animal species.

The Maryland Department of Natural Resources - Natural Heritage Program - has identified 26 animal species and 74 plant species in Frederick County in their current inventory of Rare, Threatened, and Endangered Species. Of these, nine (9) animal species and thirty-five (35) plant species have been determined to be endangered Statewide. Two (2) of these endangered species, the Yellow Lance (a freshwater mussel), *Elliptio lanceolata* and Torrey's Mountain-Mint, *Pycnanthemum torrei*, are cited as globally rare. Seven (7) plant species are identified by the State as extirpated. The species "was once a viable component of the flora or fauna of the State of Maryland, but for which no naturally occurring populations are known to exist in the State." The Maryland Department of Natural Resources' Fisheries Division also maintains an official list of game and commercial fish species that are designated as threatened or endangered in Maryland.

These rare species serve as bellwethers for the health of the ecosystem that we rely on and share with them. Many of these species serve us directly. They may have medicinal applications or utility for research and education, or cultural significance. The challenge in Frederick County and all of



Maryland is how to balance population growth and land development with our responsibility to protect Frederick County's array of unique habitats and species.

The primary state law that governs endangered species is the Nongame and Endangered Species Conservation Act (NESCA), which contains the official State Threatened and Endangered Species list.

The NESCA reads:

- It is the policy of the State to conserve species of wildlife for human enjoyment, for scientific purposes, and to insure their perpetuation as viable components of their ecosystems.
- Species of wildlife and plants normally occurring within the State which may be found to be threatened or endangered within the State should be accorded the protection necessary to maintain and enhance their numbers.

The Natural Heritage Program (NHP) is the lead state agency responsible for the identification, ranking, protection and management of nongame, rare and endangered species and their habitats in Maryland. Data collected by NHP provide the scientific foundation for the Threatened and Endangered Species lists mandated by the Act. NHP researchers conduct inventory and monitoring activities on nongame wildlife, rare species populations and natural communities, documenting trends in population and habitat health and viability. Information gathered through this research guides land management decisions and regulations designed to protect and conserve the State's biological diversity.

No exact locations are provided for any of the listed rare, threatened and endangered species (as a means of protecting the listed species), although GIS data depicting generalized habitat/species locations is provided by the Maryland Department of Natural Resources for land use planning and development review purposes.

## **5. Steep Slopes**

Steep slopes are defined as having an incline of 25% or greater. Protecting the natural terrain and vegetative features present on steep slopes prevents flooding, stream siltation, and the alteration of natural drainage patterns. Preserving steep slopes protects the natural environment, manmade structures, and the safety of all citizens. Steep slope protection also provides aesthetically attractive open space/view sheds and maintains local biodiversity found on many of these slopes. Preservation of steep slopes adjacent to watercourses is especially important because of the impact to water quality and in-stream aquatic habitat from soil erosion and sedimentation when slopes are graded, cleared or disturbed. Historically, many of these steeply sloped areas have not been disturbed, as they are very difficult to farm, graze, log or develop.

Frederick County's distinct landform regions, called Physiographic Provinces, can be used to describe the County's overall topography. The Blue Ridge Physiographic Province includes Catoctin Mountain at the eastern boundary and South Mountain at the western boundary. These mountain ranges contain the largest concentration of steep and moderate slopes in the County.

The Piedmont Plateau Province includes all lands in Frederick County east of the Catoctin Mountain range and is typified by rolling terrain and low ridges. Steep and moderate slopes exist along many streams in the Piedmont in Frederick County. Steep slopes are evident along Bush Creek, Lingnore Creek and its tributaries south of MD-26. Numerous steep ridges and bluffs are also present adjacent to the Monocacy River as well as Catoctin Creek. In addition to the mountain ranges, Frederick County has a Monadnock (a mountain or rocky mass that has resisted

erosion and stands isolated in a plain): Sugarloaf Mountain. It rises 800 feet above the Piedmont Plateau Province to an elevation of 1,282 feet.

## **6. Forest Lands**

Approximately 35% (151,000 acres) of Frederick County, as of 2000, is covered by forestland. The forests provide countless benefits including: air quality, water quality, scenic beauty, wood products, wildlife habitat, recreation, flood control, and erosion control. According to the Maryland Department of Natural Resources Forest Service, the predominant forest cover type in Frederick County is the Oak-Hickory complex (oaks, hickories, red maple, beech, tulip poplar, white ash) occupying about 71% of the forestland base. Other forest cover types found in the County include the Northern Floodplain (14%): elm, black walnut, ash, sycamore, willow; Northern Hardwood (5%): sugar maple, beech, hemlock, basswoods, white ash, red oak and others such as pine plantations and early succession forests (10%).

Presently, the major forested areas of the County lie in the mountain areas, including Catoclin Mountain, South Mountain, and Sugarloaf Mountain and its immediate vicinity. The forest cover in the eastern county area, however, is much more fragmented, interspersed with large agricultural fields or residential development. Some forestland is also present in the Monocacy River and Potomac River riparian areas. Approximately 18% of the forestland in the County is publicly owned; the remainder is privately held with the potential for some commercial timbering and harvesting. New Market lies in the Piedmont physiographic province. The Piedmont is gently rolling land of moderate relief. The land is well drained by small creeks and swales and runs.

Map 19, on the following page, shows the existing forested areas in the Town. Most of these forest stands are located along streams or other steeply sloped areas, which had not proven useful for crop production or pasture in the past. Map 19 also provides an inventory of the forest stands within Town that are protected, or are in the process of being protected by forest conservation plans and easements as of 2015.

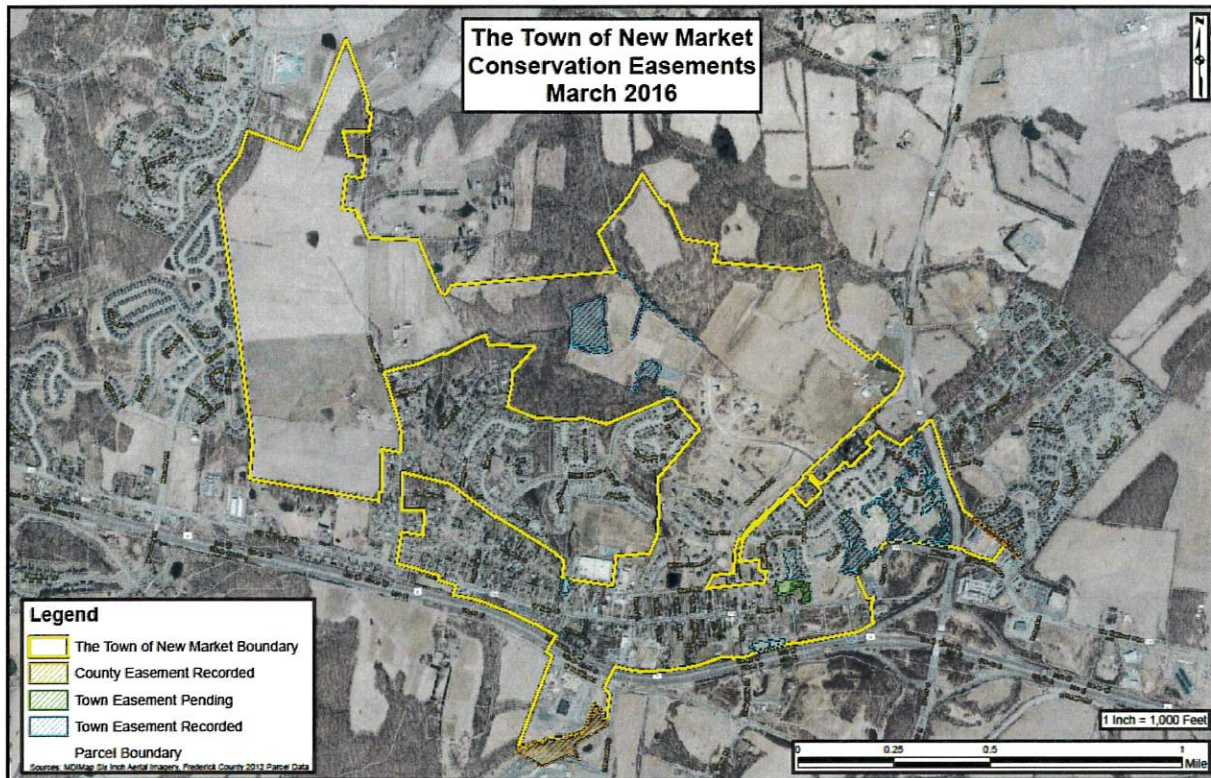
## **7. Wetlands**

Wetlands are a unique type of ecosystem and are also referred to as marshes, swamps and bogs. They are generally identified based on the degree of flooding, the existence of unique plant communities, and by special soil characteristics. Wetlands may be permanently flooded by shallow water, permanently saturated by groundwater, or periodically inundated for periods during the wet season.

Frederick County has inland wetlands, as opposed to coastal or tidal wetlands. Inland wetlands are most common within floodplains along rivers and streams (riparian wetlands), in isolated depressions surrounded by dry land, along the margins of lakes and ponds, and in other low-lying areas where the groundwater depth is shallow. Based on data from the Maryland DNR, Frederick County is estimated to have approximately 9,300 acres of wetlands.

A number of small wetlands are located within the Town. One is east of Ninth Alley and south of Main Street. Others are located in the Calumet property. Other wetlands are located to the north, east, and south of Town.





**Map 21: Forest Conservation Easements**

Source: Town of New Market

The benefits of wetlands are described below:

- Plant and Animal Habitat - Many species of birds, mammals, reptiles, and amphibians rely on wetlands for breeding, food supply, cover, wintering and stopover during migration. They create numerous microenvironments for wildlife. Wetlands also provide unique habitat for many rare and endangered plants and animals.
- Water Quality - Wetlands play a less conspicuous but essential role in maintaining high environmental quality, especially in aquatic habitats. They do this in a number of ways, including purifying natural waters by removing nutrients, chemical and organic pollutants, and sediments, and by producing food that supports aquatic life.
- Flood Control - The more tangible benefits of wetlands include flood and stormwater protection, erosion control, and water supply and groundwater recharge, harvest of natural products, livestock grazing and recreation.

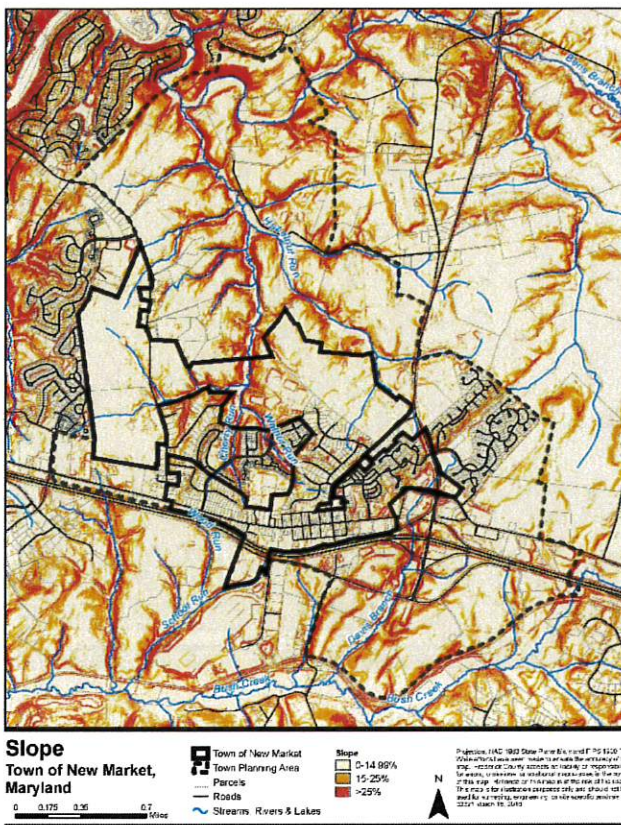
## **B. Protection Measures**

Maps 22, 23, and 24 provided by the County, identify existing Sensitive Areas within the Town, and in surrounding areas. They show steep slopes, forest cover, floodplains, wetlands and streams, etc.

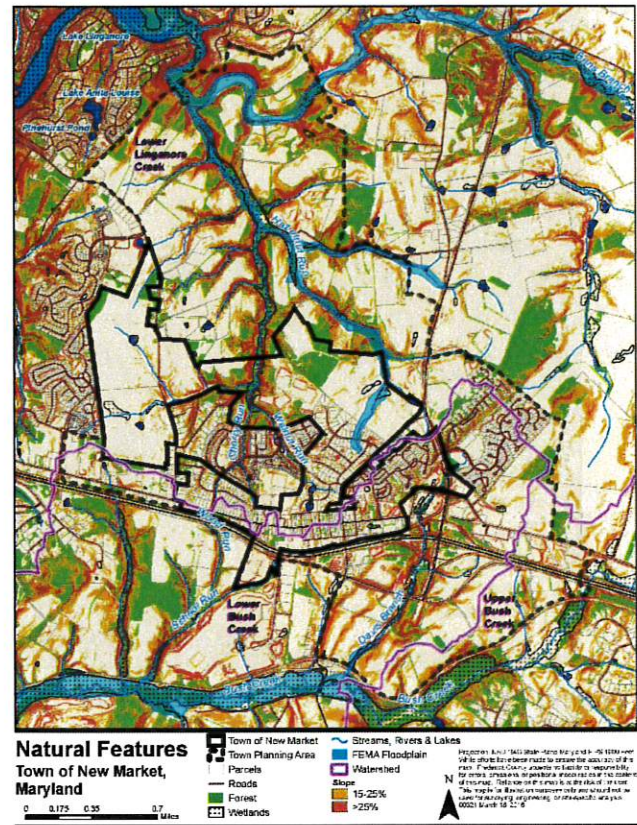
The Town protects sensitive areas from disturbance in the course of the development application process, through a variety of existing regulatory controls, which are implemented in the site plan subdivision plat review. Whether a particular sensitive area may be impacted, and what mitigation techniques are to be applied, are fact-specific inquiries which will depend upon the location and characteristics of the specific development proposed, and may properly be considered on a case-by-case basis. Protection of sensitive areas from proposed development is



responsive to the development proposed. The Planning Commission of the Town has extensive authority in implementing the general policies and objectives of the Plan through appropriate application of existing regulatory mechanisms.



**Map 22: Slopes**  
Source: Frederick County



**Map 23: Natural Features**  
Source: Frederick County

**1. The Town shall protect its Historic District from the detrimental effects of development.**

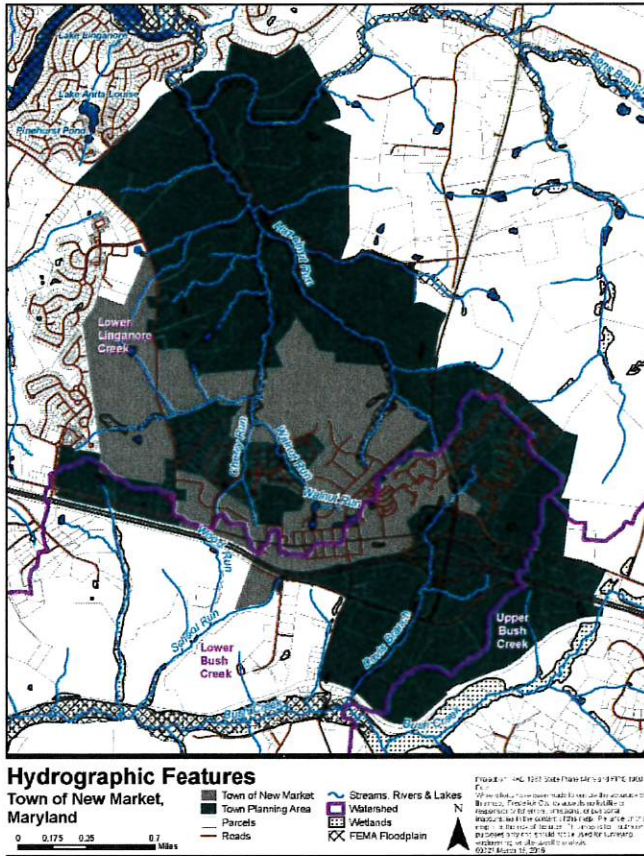
The Historic District of New Market is the base upon which the Town's economy and quality of life reside. It is the most "Sensitive Area" of New Market. This Plan began with a description of its growth and character. It is hoped that this emphasis on the Historical District as the historic, economic, and cultural base of the Town will impress upon Town officials, County officials, State officials, and representatives of the development community the importance of future development enhancing, rather than diminishing, the District's character and importance.

**2. The Town shall protect its natural water supply, and encourage stewardship of the Chesapeake Bay and its tributary lands.**

The Town shall take every step to ensure the quality of its groundwater and surface water sources and implement wellhead protection measures when possible. The Town will also institute policies and programs to protect and enhance recreational linkages and natural stream areas.



3. The Town will update its forestation regulations in coordination with DNR and consistent with state regulations.
4. The Town will continue zoning practices which protect and enhance the environment.



**Map 24: Hydrographic Features**  
Source: Frederick County

These practices shall:

- Encourage sound management and protection of groundwater and surface water resources and their quality.
- Promote diligent, efficient use of water resources and discourage wasteful practices.
- Preserve or enhance aesthetic qualities of natural drainage courses in their natural or improved state compatible with flood control measures, economic, environmental, and ecological factors.
- Direct development activity away from stream and stream buffers, wetlands and their buffers and from 100-year historic and annual floodplain areas to minimize health and safety hazards, property loss, and environmental disruption, and to foster stream enhancement, improved water quality, and recreational opportunities.
- Prevent construction of large contiguous paved areas unless adequate measures are ensured to reduce runoff.
- Encourage disposal of storm and domestic runoff on the development site, rather than directing it to drainage courses.

- Discourage urban uses and limiting development in designated aquifer recharge areas.
- Require areas chosen for expansion to apply a groundwater use plan as part of their site plan application.
- Ensure that environmental impacts receive equal consideration along with economic and engineering factors as a part of the review process. Included in this should be an evaluation of transportation and air quality effects of major employment generating projects in determining these impacts.

5. The Town will maintain standards for development on or near wetlands and floodplains, so as to protect these critical resources.

No development should be allowed within a 100-year flood plain, historic or annual, and there shall be a 25-foot building setback in areas adjacent to these floodplains

The Town will update the Town's current forest ordinances with input from DNR. This is currently underway. A review of zoning and land development ordinances will be conducted during this planning cycle. Consideration shall be given to modifying the zoning ordinance to attach special



conditions for properties located in an area outside the 100-year floodplain but still subject to flooding to reduce the risks of property damage or injury. These conditions could include underground storm drainage systems capable of handling run-off from a 100-year storm, limits on the amount of pavement and other impermeable surfaces, and drainage fees to help pay for downstream improvements needed as a result of development

The Town currently utilizes the services of the County for review and approval of applications for stormwater management plans based on current State and County regulations. This approach is not currently anticipated to change in this planning cycle.

**6. The Town will consider the following additional land use designations to thoroughly address open space issues.**

While the current plan does not include it, the Town will consider creation of a new land use category - Open Space Reserve, which will serve to protect land with potential recreational value. Its location and extent will depend on the presence of scenic, aesthetic, wildlife or other resources, which require special protection and may have potential recreational value. It is intended to remain agricultural. Recreational uses must be compatible with adjoining agricultural uses.

The Town shall develop a package of incentives and encourage the following uses of open space in its Growth Area: additional active parkland, development of designated parkland, increased historic preservation, additional natural open space, preservation of trees and other vegetation, and preservation of natural drainage and aquifer recharge areas.

These designations can usefully apply to lands (sensitive areas, conservation easements, and open space) within and surrounding the perimeter of the Growth Area that are meant to retain rural character and remain undeveloped. These areas form a rural greenbelt around New Market and can function as a growth boundary. By directing regional growth into the Town and designated locations within the Growth Area, it is proposed that these conservation areas constitute permanent buffers in the landscape.

Property owners in land conservation areas can be compensated in a number of ways. They are encouraged to participate in a transfer of development rights, which would allow them to sell and move development rights from their property for use in areas designated for growth. Property owners in designated growth areas may be required to use development rights transferred from within the Growth Area to achieve the densities necessary for successful development. Property owners could also enter into contractual arrangements or Development Rights and Responsibilities Agreements, which would cluster development on a single property but share development returns among several owners. Other arrangements for concentrating development are possible and New Market looks to the creativity of its citizens and neighbors to bring this objective to fruition.

Owners in land conservation areas will also be urged to participate in any of the various land conservation programs available such as the Maryland Agricultural Land Preservation Foundation (MALPF) Farm Easement Purchase Program and the Conservation Easement programs offered by the Maryland Environmental Trust (MET) and the Maryland Historic Trust (MHT). The MALPF allows rural property owners to derive equity from their lands without actually developing them in return for placing easements on the property which prohibit or limit its future development. The MET and MHT conservation easement programs provide tax credits and estate planning benefits to property owners who voluntarily place their lands under easements prohibiting or limiting future development.



## **MINERAL RESOURCES**

The Land Use Article contemplates that each Comprehensive Plan contain a mineral resources element. The Town has no commercial quality mineral resources, which could at some point in the future be extracted or which should be reserved for future use. The Town is of such size and character that reservation of land for mineral extraction is not appropriate in any event.

Unlike areas to the west of Town, the New Market Area is not built on limestone. The entire New Market Area is underlain by crystalline rocks of the Piedmont Physiographic Province. The different rock types of the area include: the Urbana Formation, Sam's Creek Metabasalt, Wakefield Marble, the Marburg Schist, the Ijamsville Formation, and the Libertytown Metarhyolite. These rocks have been folded and faulted during mountain building episodes in geological history to form a highly complex geologic subsurface. The bedrock units make up a fractured rock, water table type aquifer.

The major soil types in the New Market Region are Manor and Linganore soils. These soils are generally shallow, well to excessively drained, with fair to moderate agricultural capability. While areas of prime agricultural soils are limited in the New Market Region, the Soil Conservation Service has identified some farmland within the region, which is of statewide importance. This farmland generally consists of Capability Units II and III soils and therefore would qualify for participation in the State's voluntary preservation program.

## **GROUND WATER RESOURCES**

As noted in previous chapters New Market largely utilizes drinking water provided by the county and all new development will be served by the County. The Town also utilizes County services to review and approve stormwater management plans in the Town. While water service has been extended into most of the older sections of Town, there are still some properties that utilize well water as their water supply.

The climate of New Market is temperate and moderately humid. The mean annual temperature falls between 52°F and 55°F. The summer weather is generally 120 days in length and temperatures are usually moderate, but extremes as high as 109°F are not unknown. Although winter extremes have been as severe as -21°F, the average winters are usually fairly mild.

In the New Market Area, precipitation averages approximately 40" per year. Of this, 28" are generally evaporated or transpired by vegetation. Approximately 6" are direct surface runoff into streams. This leaves approximately 6" of actual groundwater recharge during an average year. This recharge may be significantly lower during dry or drought years. (Source: R.E. Wright Associates, Hydrogeological Study of the Monrovia, New Market, and Ijamsville Area, Frederick County, MD, October 1989.) Precipitation is distributed evenly throughout the year from 3" in February to 4" in July and August. The average annual snowfall is approximately 25."

Local rock formations exert a major influence on the quantity, quality, and availability of ground water. The Sams Creek Metabasalt rock formation, on which the Town resides, produces wells with an average yield of 11 gallons per minute. Adjacent to the Town's eastern boundary is a band of Wakefield Marble. Further study is required to determine average yield from this rock formation. Groundwater levels fluctuate in response to withdrawal from wells. In the New Market Area, the effect of pumping from domestic wells is not widespread; such effects normally are confined to a few tens of feet from each well. In the New Market Area, the water table is generally a subdued replica of ground surface topography; as such, groundwater movement often follows surface water drainage patterns. As a result, the groundwater recharged to the area is generally equivalent to the amount of precipitation which infiltrates to the area.





There are two (2) bodies of surface water that are intimately related to the Town of New Market. The Davis Branch of Bush Creek towards the south of Town is a very small creek no more than 3 to 4 feet at its widest. Until recently this creek served as a carrier and purifier for the effluent discharged by the now closed New Market Sewerage Treatment Plant, located on the eastern edge of Town. It drains into Bush Creek, a tributary of the Monocacy River. The creek serves as an exporter of groundwater by removing water from the Town's aquifer. Linganore Creek is located 1.5 miles north of New Market. It is statistically important to the Town as its stream flow rates through its watershed area reflect the amount of groundwater available in the Town's aquifer. The Town's aquifer is contiguous with the Linganore Creek Watershed.