

ENVIRONMENTAL RESOURCES

GOAL: To maintain the quality and integrity of the outstanding natural systems within the Damascus planning area, to enhance that quality in areas such as the Patuxent River Watershed and to mitigate impacts of future development.

INTRODUCTION

Damascus is located at the source of four major watersheds. This location exerts a strong influence on planning for the protection of environmental resources. It includes a major part of the Patuxent drinking water reservoir headwaters in the Patuxent watershed. The existing forest and wetland resources in the Master Plan area are of generally high quality. While many of these resources have been protected through low-density land uses or acquisition of parkland, there are significant environmental resources that lack adequate protection from potential development - particularly in the Little Bennett and Patuxent River watersheds.

This chapter summarizes the conditions of environmental resources in Damascus and makes general recommendations regarding their protection and restoration. It fulfills the requirement of The Maryland Planning Act of 1992 that all local plans protect environmentally sensitive areas. More detailed information on the existing conditions and environmental policy current as of 2003 is available in a separate publication, *Damascus and Vicinity Environmental Resources Inventory* (July 2003). Recommendations regarding specific properties are contained in the Land Use or Implementation Chapters.

FOREST RESOURCES

Forests, fields and wetlands are the major components of green infrastructure. This green infrastructure provides wildlife habitat for nesting, feeding and migration. Animals need free movement to and from feeding and nesting areas, as well as routes for flight from threats. Plant species also require a variety of habitats and areas for seeds to seek new ground as conditions change. Isolated populations can be easily damaged or eliminated. As future development occurs, it is important to protect not only the distinct areas, but also important connections between these areas.

Maryland has delineated areas showing the "green infrastructure" of open space in Montgomery County as part of a statewide effort. These areas include "hubs" or large clusters of environmental resources as well as existing and potential "links" or corridors that provide connectivity between these hubs. Staff has used this map along with more detailed, updated local information as part of the Damascus Master Plan. In Damascus, the majority of these areas are already within existing or planned public ownership or within private open space. The remaining green corridor connections are considered greenways and are eligible for state funding for protection and public access, where appropriate. Areas proposed for parkland protection are shown within the Parks section of the Community Facilities Chapter.

Approximately one third of the Damascus planning area is forested, with about a quarter of that protected within public ownership. Steep slopes, springs, seeps and wide floodplains have made many

areas difficult to use for agriculture or development. Many former farm fields are gradually succeeding into predominantly deciduous tree woodlands. A forest resources inventory identified priority forest stands and areas for forest enhancement and reforestation. The existing forests were analyzed to determine their distribution and amount, and to classify them by forest type. More detailed forest information, and conservation and reforestation maps are included in the Forest Appendix.

Recommendations for the protection and enhancement of forest resources include:

- Protect existing forest corridors along all stream valleys and prioritize unforested stream valleys for location of reforestation planting projects.
- Protect highest priority forest stands through acquisition, dedication or conservation easements.
- Protect forest resources associated with environmentally sensitive areas such as, wetlands, floodplains, stream buffers, and steep slopes.
- Encourage development patterns and techniques that minimize forest fragmentation and preserve interior forest habitat areas.
- Provide forest planting that will connect or enlarge existing forest stands, where possible.
- Promote the use of forest banking as an incentive to property owners to preserve existing forest and plant new forest.



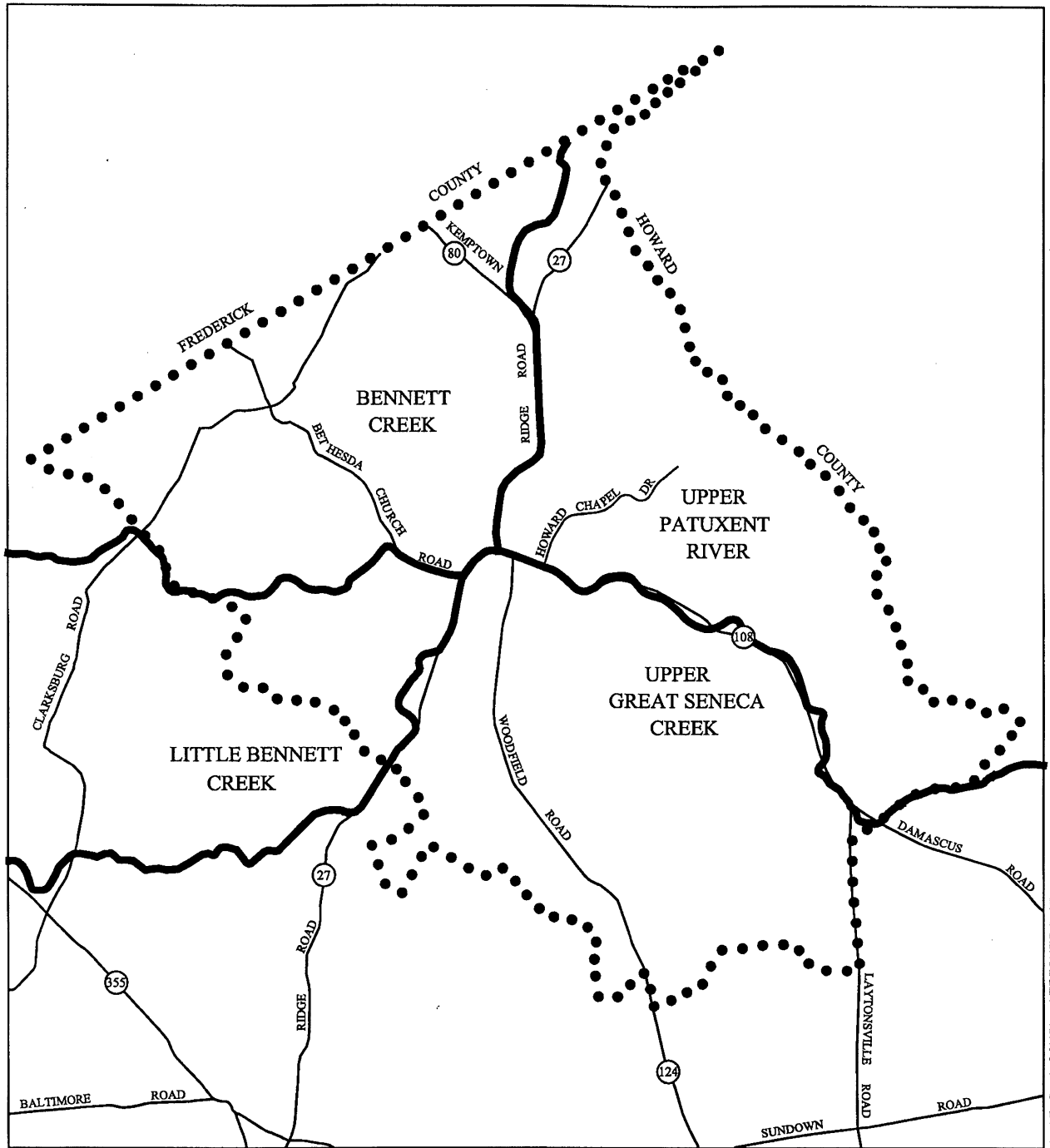
The recommendations for forest resources in this section as well as in the Land Use section will generally result in forty-five percent (45 percent) forest in the planning area with half of that protected in public ownership or by private conservation easements.

Headwaters, Wetlands, and Vernal Pools

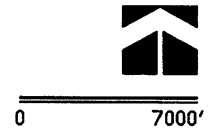
The majority of wetlands in Damascus are located in the headwaters and floodplains of the watersheds that converge in Damascus. Upper Patuxent and Little Bennett are Use III waters (suitable to support self-sustaining trout populations), while Bennett Creek and Upper Great Seneca are Use I (suitable for fishing and swimming). Most of the wetlands in Damascus qualify as wetlands of significant plant and wildlife value by virtue of their position adjacent to Use III waters. These resources are discussed in more depth in the Appendix. Recommendations for protecting headwater streams and wetland resources include:

- Maintain and protect existing hydrology by avoiding activities that will alter groundwater flow, springs and seeps, wetlands and streams thus sustaining the natural conditions to meet the State water quality standards.

Damascus Watersheds

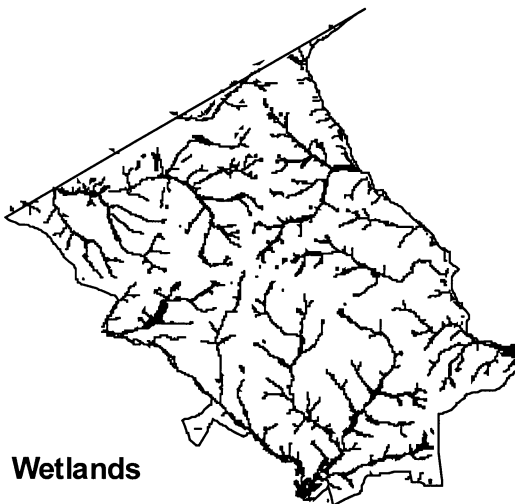


- Master Plan Area Boundary
- Watershed Boundary



Maintain existing stream buffers and associated habitats while increasing buffer widths for wetlands, springs and seeps.

- Avoid “channelizing” or enclosing streams and headwaters in culverts which can result in altered hydrology, cutting wetlands water sources, modified stream sinuosity, flood attenuation, and decreased macroinvertebrates and fish populations.
- Encourage clustered development and minimize impervious surfaces to protect environmentally sensitive areas. If applicable, development sites should provide forested stream buffers and open space to protect natural resources.
- Reduce the amount of nutrients and sediments from entering the headwaters through the construction of stormwater management and sediment and erosion control measures outside the stream buffer areas. Stormwater management measures that emphasize disconnected runoff and infiltration are especially recommended.
- Support efforts to implement best management practices to reduce nutrient loads and protect sensitive areas as part of agricultural uses and activities.
- Incorporate site design features in new development to preserve the size and functions of existing priority wetlands.



Wetlands

Streams

Stream quality is very good throughout the Damascus planning area. County and statewide efforts to improve water quality in tributaries have influenced the general approach to water resource protection in the planning area. These efforts include the 1983 Chesapeake Bay Agreement and subsequent agreements, the policies of the Patuxent River Commission, the 1992 State Planning Act, and the 1997 Smart Growth Act that gives financial incentives to local governments to promote concentrated growth and avoid sprawl.

Montgomery County has undertaken a number of measures to protect water quality including the 1998 Countywide Stream Protection Strategy (CSPS), and its recent update (2003), further discussed in the Wetlands Appendix.

This plan also supports the Maryland Water Quality Management Act strategies for restoration and agricultural watershed management. Practices recommended in this plan include support for County efforts in stream restoration and retrofit projects; measures to increase forested buffers and wetland habitat and function; application of existing stormwater, sediment control, wetlands and forest conservation regulations; and targeting of priorities for Best Management Practice cost-sharing, and forested buffer establishment.

General Water Quality Recommendations:

- Encourage new developments using environmentally sensitive development techniques that integrate BMPs to maximize stormwater treatment and infiltration, such as:
 - Minimization of impervious surfaces

- Disconnected runoff, sheet flow to buffers, grass channels
- Bioretention.
- Encourage the expanded use of Agricultural BMPs through County and State programs, the reduction of nutrient loads, and the protection and reforestations of stream valleys.
- Encourage County pollution prevention measures in conjunction with these techniques, to further enhance their effectiveness.
- Endorse the efforts of the Montgomery County Department of Environmental Protection and the Department of Permitting Services to restore streambanks and to control storm water from existing development.
- Support efforts to identify and implement stream restoration projects to improve water quality and aquatic habitat in streams exhibiting deteriorating conditions.

Specific Stream Recommendations

- **Upper Great Seneca Creek Watershed** - The water quality in the Upper Great Seneca Creek watershed in the Damascus planning area is very good (CSPS 1998, 2003). It is designated a Watershed Protection Area with the normal levels of regulatory protection being sufficient to protect water quality. Normal levels of protection (stream buffers, forest conservation, and storm water management) in the regulatory process will maintain the good water quality and low impervious levels anticipated under the proposed zoning.



- **Magruder Branch** - The one exception to the generally high water quality in Upper Great Seneca Creek is the upper reaches of Magruder Branch. Magruder Branch flows into Great Seneca Creek at the southern edge of the planning area. The denser development pattern in and around the Town Center has resulted in poor stream conditions in this headwater stream. This subwatershed is located between Woodfield and Ridge Roads south of MD 108. Impacts from the surrounding industrial and commercial facilities as well as a moderately-high density residential areas have caused the CSPS to designate this a Watershed Restoration Area. There are five “rip-rapped” outfalls, all showing signs of degradation and erosion. Magruder Branch runoff carries heavy loads of silt, gravel and trash from the industrial facilities along with sediment from eroding bank swales. Silt and sediment is deposited at the base of the slopes where it blankets the forest floor smothering the young trees and native plants.

The forest in this stream valley is young although there are a few older trees with an average age of 70-90 years. Many trees within the valley have buttressed roots either from former wetlands that have been filled or as an adaptation to siltation. A high water table, springs and seeps, and runoff from adjacent developments supply the wetlands with water. The wetlands within the Magruder Stream Valley have the lowest functional value of all wetlands assessed in the Damascus Master Plan area. Functional values are used to estimate the potential for wetlands to perform five different wetland functions that benefit society and the natural ecosystem.

The new Damascus cross street behind Main Street (discussed in the Transportation Chapter) should include a storm drain system collecting runoff from the Town Center. This will allow runoff from the road as well as north of the road to be directed to a new stormwater management facility.

- **Upper Patuxent River Watershed** - The Upper Patuxent River Watershed and the northernmost headwaters of this river make up about 35 percent of the Damascus planning area. It includes a portion of the eastern Town Center area as well as land in the Neighborhood Transition Area and more rural areas north and east of the Town Center. Much of the area near the mainstem and border with Howard County is in public ownership for the purpose of water quality protection. The Patuxent River drains to the drinking water reservoirs that are part of the Washington Suburban Sanitary Commission's drinking water system.

The Patuxent River and Hawlings River watersheds are the focus of a multi-jurisdictional effort to protect the area draining to the reservoir watersheds. Montgomery County has adopted the Patuxent River Watershed Functional Master Plan that delineates a Primary Management Area (PMA) limiting use within ¼ mile from the mainstem and 1/8 mile from all tributaries. In low-density zones, this area is restricted to 10 percent imperviousness. In order to protect the resources that contribute to the health of the drinking water supply, the following actions are recommended:

- Protect forested areas and wetlands through the development process and conservation programs.
 - Encourage agricultural conservation measures and best management practices.
 - Work with the Maryland Department of Natural Resources to develop an agreement to assure that farming leases in the Patuxent State Park do not contribute substantially to the sediment and nutrient loads to the reservoir.
- **"Town Spring" Tributary** - This headwater tributary to the Patuxent River with its associated wetlands is located in and adjacent to the Town Center, east of Woodfield Road Extended (A-12). As the source for much of this County's drinking water, the goal for this watershed is low-density development to allow maximum protection of water quality. The Town Spring Tributary subwatershed has been adversely affected by development in the Town Center including the Damascus Centre shopping center, the Damascus Library and Senior Center, Phase I of Woodfield Road Extended, the new Post Office, and surrounding residential development.

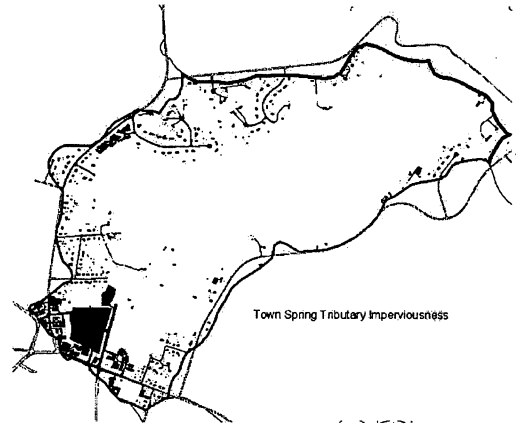
Although most of the subwatershed is open land with many natural areas, the development at headwaters, although typical for the business core of a town, has raised the overall impervious level of the subwatershed to near 10 percent, although impervious rates of 30-50 percent would not be unusual in urban settings. The projected buildout under the zoning in the 1982 Master Plan would have resulted in an impervious level of approximately 14.5 percent.

The land use and zoning proposed for the Town Center in this Plan will reduce impervious levels slightly and cluster it in this central area, allowing for more efficient treatment and downstream improvement as the stream flows through less dense areas. This is partially because current development standards for landscaping and stormwater management will control imperviousness on properties in this watershed as they develop.

This Plan also proposes to reduce development potential in portions of this watershed beyond the Town Center, as discussed in the Land Use Chapter. These changes will:

- Reduce the development potential of over 100 acres in this subwatershed, from two-acre density to five-acre density.
- Allow small lot cluster development, which creates less impervious surface, on the Burdette property.

With these changes, the overall impervious level for the Town Spring Tributary subwatershed is projected to be approximately 13.5 percent. This includes development and redevelopment within the Town Center, as well as the completion of Woodfield Road Extended and residential buildout throughout the subwatershed. In addition, other Patuxent subwatersheds in the Master Plan area, including those immediately downstream of this one, are projected to stay under 10 percent, further offsetting the Town Center imperviousness. Additional recommendations to further protect this stream system include:



- Include low-impact development elements in the redevelopment of the Damascus Centre site such as parking lot infiltration islands, green roof, and upgraded stormwater management.
- Create forest banks within the Upper Patuxent River tributary watersheds, especially on streams and wetlands with unforested buffers.

- **Scott's Branch Tributary** - The Maryland Department of the Environment has issued a proposed water quality regulation that would designate Scott Branch, a tributary to the Patuxent River within the Town Spring watershed as a stream of high water quality that should not be allowed to undergo significant decline (Tier II list). Designated stream segments should be protected to maintain or improve water quality. This could be accomplished through reforestation and the creation and expansion of stream buffers. As a Tier II listed stream, the following policies are recommended for this subwatershed:
 - Maintain low density/agricultural zoning
 - Preserve all existing forest if residential development takes place
 - Reforest areas identified in the Forest Technical Appendix
 - Encourage forest mitigation banking and other forest incentive programs
- **Bennett Creek Watershed** - This watershed is largely agricultural in nature, with very low-density development. It has been designated by the CSPA as an Agricultural Management Area. Recommendations include best management practices for agriculture and the restoration of currently unforested stream buffers. This watershed has received special attention in this Master Plan because of the large high quality contiguous forested area in the headwaters. Recommendations for this forest are also discussed in the Legacy Open Space Section.
- **Little Bennett Creek Watershed** - This is a sensitive Use III watershed with very high water quality. CSPA designates it as a Watershed Preservation Area to be protected with park dedication and acquisition. Large sections of the lower part of this watershed have already been acquired to form Little Bennett Regional Park. The current area of acquisition should be extended to the sensitive areas of the Kingstead Farm as well as further upstream. The following policies are recommended:

- Restore stream buffers through the development process
- Maximize forest retention in and adjacent to environmental buffer areas through acquisition and conservation easements as part of the development process
- Acquire sensitive areas adjacent to current parkland and park acquisition areas

Designated stream segments should be protected to maintain or improve water quality. This could be accomplished through reforestation and the creation and expansion of stream buffers.

AIR QUALITY AND NOISE

Air quality is a regional issue and the limited development proposed in this Master Plan should reinforce the ability of the town to be more self sufficient, and less likely to create more commuter traffic than the previous Damascus Master Plan.

Noise is not a significant issue in this rural community. Adherence with County noise regulations and sensitive site planning in redeveloped portions of the Town Center should avoid most noise problems.