

VII. ENVIRONMENTAL RESOURCES

The environmental setting in Cloverly is composed of the natural features (such as streams, stream valleys, forest cover, and other habitats) and the air and noise environments. The environmental setting affects and is affected by the land uses in Cloverly. Greater detail on watershed resources and water quality may be found in the 1996 technical report, *Environmental Resources: Eastern Montgomery County Master Plan Areas*.

The 1981 Plan considered the natural resources of Cloverly an integral part of the stream ecosystems of the area and evaluated the ability of these resources to protect and enhance the stream systems. This Plan also supports and recommends natural resource protection and enhancement, generally by watershed. (Cloverly's watersheds are shown in Figure 28, page 80.)

Watershed protection is a fundamental planning principle of this Plan as it was in the 1981 Plan. Recommendations on air quality, and noise follow watershed-based recommendations.

Many natural resources in Cloverly are associated with streams, forests and wetlands. Cloverly contains large portions of the headwaters for two major stream systems in the Anacostia Basin: the Northwest Branch and the Paint Branch. Cloverly also contains many small tributaries of the Patuxent River that feed into one of two major drinking water reservoirs in the County. Most of the forested areas in Cloverly are in the stream valley park system and, to a much smaller extent, along the streams traversing private property. The subwatersheds of the Patuxent River have the highest proportion of land in forest cover; forest stands in Paint Branch and Northwest Branch within Cloverly are more fragmented. The condition of these forests vary widely, depending on the stand location and maturity. These forest stands provide habitat for terrestrial plants and animals, and are important contributors to the protection and recharge of baseflow for streams, wetlands, seeps, and springs in the area.

Wetlands in Cloverly are freshwater wetlands with varying types of vegetation. Most wetlands occur in narrow bands along streams or are associated with springs, seeps, farm ponds, and stormwater management ponds. The frequency, size, distribution, and diversity of wetlands is greater in less developed areas of watersheds than in more developed areas.

Protection of the health of watersheds in Cloverly was the basis for the reduction in zoning densities in the 1981 Plan. For the most part, that effort has been successful in the Northwest Branch and the Patuxent River watersheds. This Plan retains protective land use and zoning categories, and provides additional guidance. The Paint Branch, however, supports a more sensitive resource than found in the other watersheds of Cloverly. Even with the limited increase in development in the watershed since the adoption of the 1981 Plan, the Paint Branch is currently under stress and requires even greater protection.

In 1981, much of Cloverly was undeveloped, or used as farmland. There was substantial vacant acreage in the upper Paint Branch, upper Northwest Branch, and Patuxent watersheds. Key environmental issues at that time were: controlling flooding, soil erosion, and degradation of water quality due to stormwater runoff. The 1981 Plan implemented the County-wide environmental policy of watershed protection using two strategies:

- Reducing development potential in the watersheds to preserve water quality, and
- Recommending use of Best Management Practices (BMPs), such as: clustering, maintaining vegetation, phased land clearing, application of stringent stormwater management, and sediment and erosion controls.

Since 1981, more data has become available on the effects of urbanization and suburbanization on the natural environment and particularly on key resources, such as the Chesapeake Bay and the Patuxent and Anacostia Rivers. The County and the State have developed a more systematic approach to environmental protection. Forest protection, habitat protection, and wetland protection, along with new tools and legislation for managing natural resources, have broadened local and State environmental goals and policies.

This Plan builds on the knowledge gained and data collected since 1981, including the effectiveness of BMPs and land use controls as mechanisms to limit resource degradation, and implements the County-wide policy of expanded protection of natural resources. By protecting the environment in Cloverly the Plan supports fundamental concepts of protecting watersheds and community character. Cloverly's watersheds support a variety of ecosystems that benefit from the recommended watershed protection measures. The suburban and rural characters of Cloverly's communities benefit from the visibility of and access to forests, meadows, and streams.

APPROACH TO ENVIRONMENTAL RESOURCE PROTECTION

A master plan attempts to balance appropriate land use intensities with water resource quality goals. In most cases, master plans achieve a satisfactory balance, so that standard federal, state and County-wide environmental requirements make proposed development consistent with water resource protection goals. However, where intense land use patterns exist or are desired to accomplish other planning goals, additional mitigation efforts may be needed to enhance existing water quality or maintain sensitive water resources.

In eastern Montgomery County, a system of management categories that recognize the sensitivity of stream resources and the intensity of existing or planned land uses was developed to focus the master plan on those areas where land use decisions are critical to environmental protection. This system (as described in the 1996 technical report *Environmental Resources: Eastern Montgomery County Master Plans Areas*) is now seen as a prototype for a similar system that is being refined and documented for County-wide application.

A County-wide Stream Protection Strategy (CSPS) is currently under development to assess stream quality throughout all the county watersheds in order to develop management categories and tools, and set priorities for watershed preservation, protection, and restoration. The CSPS will define watershed management categories based on the existing stream resource conditions, existing and planned land uses in the watersheds, and the types of management tools available to protect or restore each watershed. The management categories as presently envisioned roughly coincide with those defined in the eastern Montgomery County master plans. The CSPS will provide a consistent process for identifying stream preservation, protection, and restoration needs county-wide.

The Montgomery County Department of Environmental Protection (DEP) and the M-NCPPC are cooperating to draft the initial CSPS and will continue to refine the report and the priority rankings as new stream quality data becomes available. This strategy is closely tied to the county's biological monitoring program and will be updated on a regular basis to incorporate new monitoring results. A staff draft of the CSPS categorization of subwatersheds and related management tools has been released. Recommendations, if any, for new management tools such as the designation of Special Protection Areas, should await completion of the initial CSPS. This master plan will discuss the characteristics of each subwatershed within the planning area, but final management recommendations will be made after the CSPS is complete.

Until such recommendations are made, the prototypical categories (as described below) will be used for this and other plans in eastern Montgomery County. The categories include Environmental Restoration Areas, Regular Protection Areas, Special Protection Areas and Environmental Preservation Areas.

In general, current environmental regulations (as updated from time to time) are designed to protect most environmental resources from the avoidable impacts of new development. Regular Protection Areas are those where master-planned densities are compatible with maintenance of acceptable water resources, given implementation of standard environmental requirements.

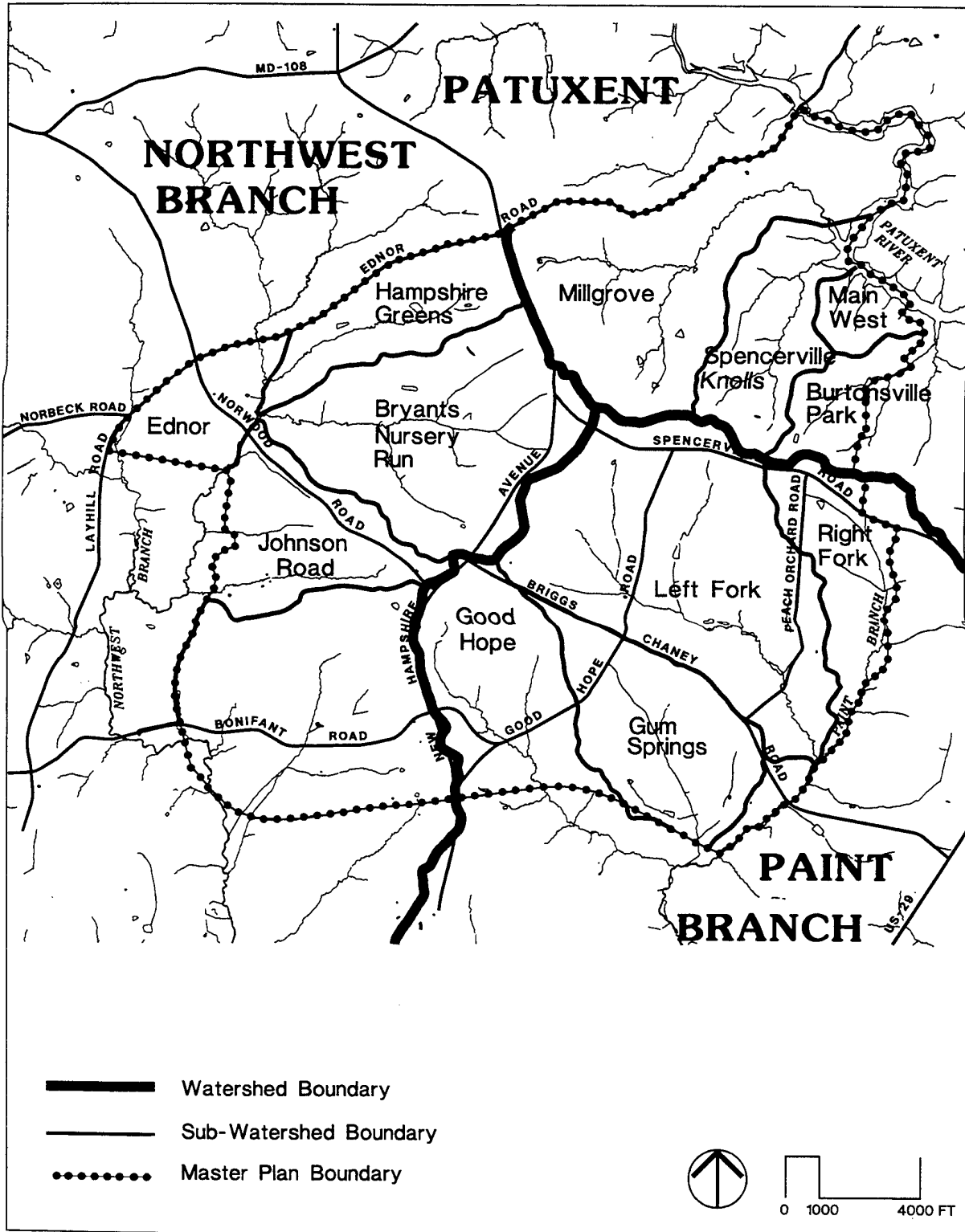
Some areas of the County are protected by virtue of the fact that no intensive development is planned. Rural areas, such as Agricultural Reserve and the Patuxent watershed, that contain high quality and sensitive resources derive some protection from low-intensity land uses and zoning. These areas are considered, in this Master Plan, Environmental Preservation Areas. This designation does not entail additional regulation and is intended solely to denote areas with low- and very-low density and sensitive stream resources. These areas have limited public infrastructure, and no significant new infrastructure is proposed to support development here. The Natural Resource Conservation Service and the Chesapeake Bay Restoration Program work with agricultural interests in an ongoing cooperative effort to reduce the impacts of agricultural practices on water quality and habitat.

Parts of this master plan area have suffered from intense development prior to the establishment of environmental regulations and planning. Stream conditions in these areas show adverse environmental effects from existing development that cannot be significantly improved by changes in land use for remaining open land. Streams in older neighborhoods tend to have significant erosion and sedimentation and impaired water quality. Fish and macroinvertebrates generally are limited to hardier species that can survive under stressful conditions. Subwatersheds with these characteristics are designated as Environmental Restoration Areas to reflect the focus on rehabilitation of water quality and aquatic habitat conditions. Although some stream segments or tributaries may experience fewer problems or have higher water quality, watershed management is done at the subwatershed scale to respond more effectively to the overall characteristics of the system. Public projects that improve stream conditions in key locations are needed to help restore the watershed's ecology.

The Environmental Restoration Areas do not entail special legislation or additional regulations beyond standard environmental protection measures for new development. Restoration efforts are undertaken through the County's Capital Improvements Program (CIP). The master plan may identify specific environmental problem areas and support the efforts of implementing agencies to address these problems. The County's Department of Environmental Protection (DEP) is responsible for stormwater management retrofit or stream enhancement projects in coordination with M-NCPPC and appropriate state or federal agencies. DEP also seeks to inform and involve the community early in the process of site selection and design. Residents are invited to participate in determining environmental priorities and in planning, implementing, and maintaining the improvements.

However, there are also sensitive or especially high quality resources that require special protection to reduce the potential for damage to these resources. These may be designated as Special Protection Areas (SPAs) through the master planning process or by other actions of the County Council. SPAs are defined as geographic areas where existing water resources and associated features are of high quality or are unusually sensitive and where planned development would threaten the resources. The designation of SPAs may be considered as an addition to the standard protection afforded by existing environmental requirements for the entire county.

The Special Protection Area designation requires protection of high stream quality through stringent controls on new development, including such measures as expanded buffers, additional reforestation/afforestation considerations, extraordinary BMPs and monitoring requirements. These requirements can be found in the Planning Board's *Guidelines for Environmental Management of Development* and in County's regulations, *Water Quality Review For Development in Designated Special Protection Areas*.



ENVIRONMENTAL GOAL:

Conserve and protect natural resources to provide a healthy and beautiful environment for present and future generations. Manage the impacts of human activity on our natural resources in a balanced manner to sustain human, plant, and animal life.

The Maryland Planning Act of 1992 identifies stream buffers; 100-year floodplains; habitats of rare, threatened, and endangered species; and steep slopes as sensitive areas. All new development must comply with current state and county environmental requirements, including stormwater management, sediment control provisions, forest conservation standards, and development restrictions on stream valley buffers (including steep slopes), 100-year floodplains, and wetlands. Sensitive areas, as defined by State law, are protected from disturbance by new development under the Planning Board's *Guidelines for Environmental Management of Development*. These requirements are addressed at the subdivision stage for each individual property.

STREAM SYSTEMS (INCLUDING AQUATIC HABITAT) AND WATER QUALITY

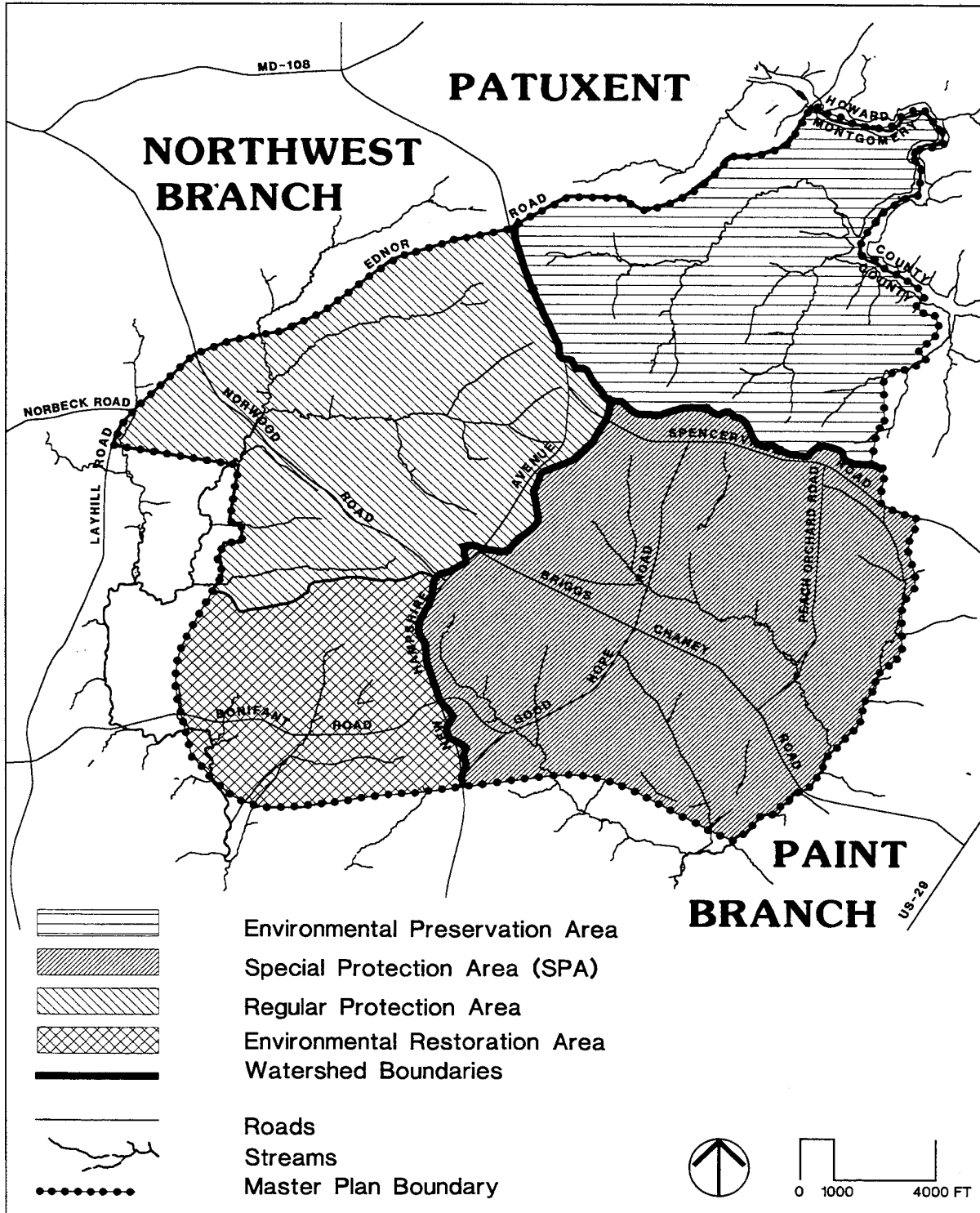
OBJECTIVE: Maintain the quality of each stream system through low-density residential land use patterns and provide appropriate best management practices to mitigate adverse impacts from new development.

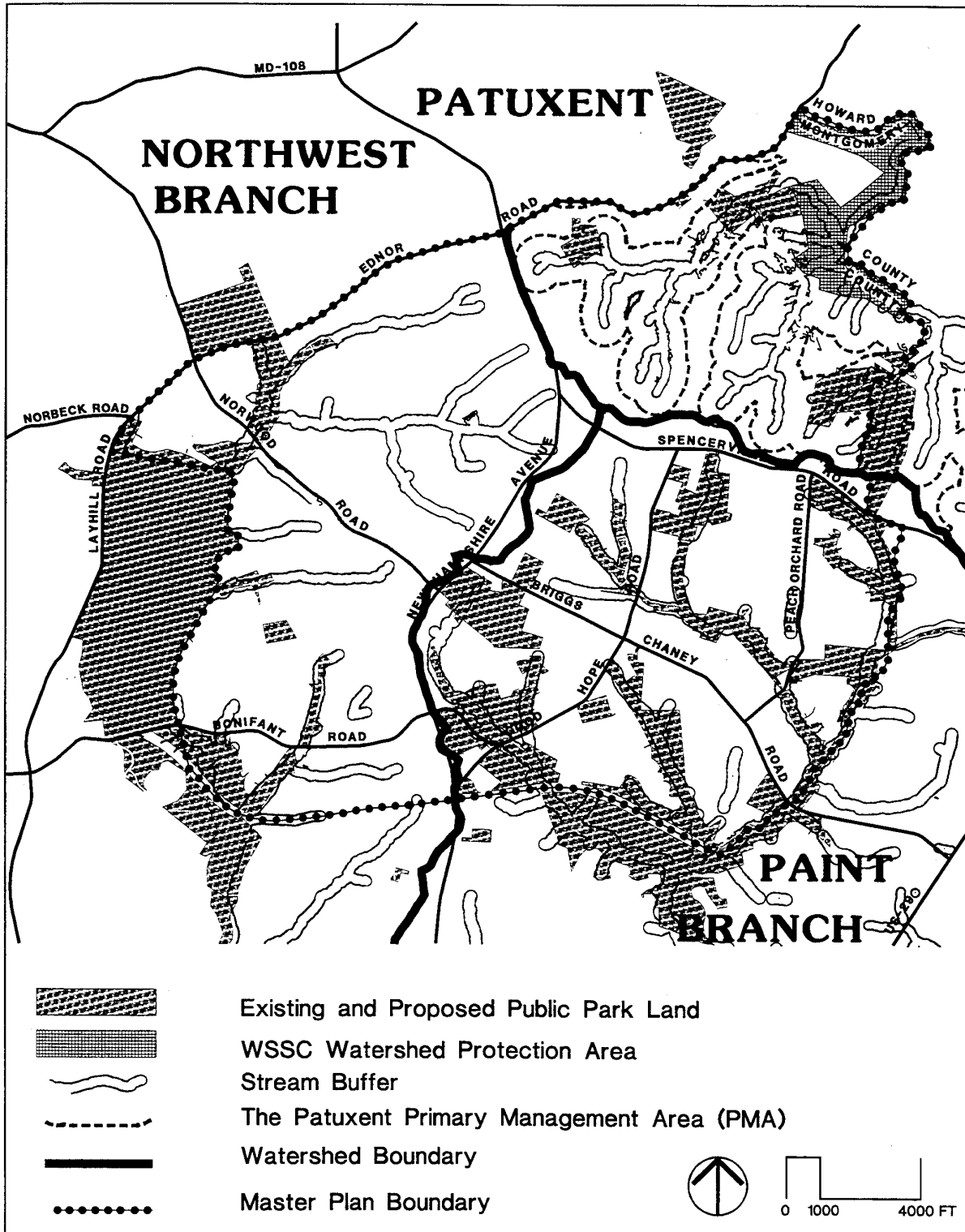
AREAWIDE RECOMMENDATIONS:

- Reconfirm the fundamental planning principle of watershed protection found in the 1981 Plan by encouraging continuation of the predominantly low-imperviousness land uses in the various watersheds of Cloverly with special attention to protecting water quality when multiple watersheds are affected by a single development.
- Protect and enhance the function and value of stream buffers by placing stormwater management and sediment and erosion control measures outside the stream buffer areas whenever feasible.
- Maintain and protect the existing stream buffer forest and enhance existing riparian forest by replanting any unforested buffer.
- Support efforts to provide more stringent County inspection programs for development sites and stringent inspection and maintenance programs for stormwater management facilities.
- Support efforts to identify and implement stormwater management and stream restoration projects in a timely manner to improve water quality and aquatic habitat in streams that are exhibiting stressed conditions.
- Encourage clustering of development to protect environmentally sensitive areas. Provide forested stream buffers and open space that protect natural resources. Support waivers of minimum tract size requirements for cluster development which minimize environmental impacts.
- Support efforts to implement best management practices as part of agricultural uses and activities.

SPECIAL PROTECTION, ENVIRONMENTAL PRESERVATION & RESTORATION AREAS

FIGURE 29





WATER RESOURCES

Northwest Branch Watershed

The Northwest Branch, is a tributary of the Anacostia River. The upper headwater streams of the Northwest Branch in Cloverly and Sandy Spring/Ashton are generally high quality. The Northwest Branch sustains diverse, environmentally sensitive aquatic communities, including aquatic macroinvertebrates. The M-NCPPC Environmental Planning Division found healthy, diverse aquatic macroinvertebrate communities in the very limited monitoring that was conducted in the summer of 1993 and 1996. The Northwest Branch in Montgomery County, a Use IV stream system, supports an adult brown trout fishery. The trout population is sustained mainly by the Maryland Department of Natural Resources stocking of the stream system, although there are some trout surviving from year to year.

The headwater streams in Northwest Branch tend to be siltier and carry a higher sediment load than the headwater streams in Paint Branch, which prevent them from supporting a self-sustaining trout population. This condition is due to a combination of factors, including erodible soils and geology. The Northwest Branch watershed contains more erodible soils than the Paint Branch watershed. In addition, the agricultural uses in the Northwest Branch watershed cover a larger area than in upper Paint Branch and this use typically results in significant sediment loads to streams. Even without the ability to support trout spawning, the Northwest Branch is a high quality stream requiring a high level of protection. This protection is provided, in large part, by the density of land use approved in the 1981 Plan, stream valley parkland, and through existing regulations and guidelines.

In Cloverly, the Northwest Branch headwaters subwatersheds are sufficiently protected by the land use zoning densities proposed in the 1981 Plan, and thus are considered Regular Protection Areas which rely on implementation of standard environmental protection requirements. No significant changes are planned for this subwatershed that would jeopardize its water quality. The lower part of Northwest Branch and some of its tributaries within Cloverly, however, are currently under stress because existing development predates stormwater management controls or because the facilities are outdated. This area is shown as an Environmental Restoration Area where some problems can be addressed through the Anacostia Watershed Restoration effort.

The current master plan analysis on imperviousness levels indicate that 1990 levels for the Northwest Branch headwater subwatersheds ranged from 5.3 to 8.0 percent. (See Appendix I.) In the lower part of the Northwest Branch mainstem, which extends into the White Oak Master Plan Area, 1990 imperviousness is 16 percent, with buildout expected to result in 17.3 percent imperviousness. The 1981 Plan zoning of RE-2 and RE-2C, with a very small area of RE-1 on the east side of New Hampshire Avenue, would result in subwatershed imperviousness ranges from 9.2 to 15.0 percent at build-out. This range is within the generally acceptable limits for protection of coldwater streams in Maryland. New development in the upper Northwest Branch should minimize imperviousness and stormwater management waivers should be avoided to the greatest extent possible.

OBJECTIVE: Protect the Northwest Branch mainstem by assuring that new development in the subwatershed does not create significant negative impacts on the mainstem.

RECOMMENDATIONS:

- Protect headwater streams in the Northwest Branch by assuring that ultimate subwatershed imperviousness remains within the 10 to 15 percent range that the generally acceptable limit for protection of coldwater stream systems in Maryland and by discouraging individual developments with high site-imperviousness.

- Support County programs to implement a process to manage and protect the Northwest Branch and its headwaters, that includes the following components:
 - Prioritize subwatersheds based on health, quality of resources, and anticipated threats to these resources from increases in impervious cover.
 - Assess changes in subwatershed imperviousness and relate those changes to the stream system's conditions on a continuing and regular basis.
 - Define subwatershed imperviousness thresholds above which additional protection measures may be needed to protect the resource.
 - Identify and implement appropriate protection measures when such imperviousness thresholds are reached for each applicable subwatershed.

Most of the above components are being developed as part of the County-wide Stream Protection Strategy (CSPS) to protect and manage all of the County's subwatersheds, including those in Northwest Branch. Implementation of protection measures recommended through the CSPS for specific subwatersheds may require programs or actions outside the CSPS process.

- Maintain the low-imperviousness land use pattern and encourage continuation of low-density residential land uses in the Hampshire Greens, Bryant's Nursery Run, Ednor Road, and Johnson Road subwatersheds.
- Use best available technology for stormwater, sediment, and erosion control measures for the remaining developable properties.
- Avoid stormwater management waivers to the greatest extent possible.
- Support the consideration by DEP of shared stormwater facilities when possible and beneficial to the environment.

OBJECTIVE: Reduce current stresses and problem areas in the stream system and correct problems that have resulted in degraded conditions in various parts of Northwest Branch.

RECOMMENDATION:

- Support efforts by DEP to examine and implement stormwater restoration projects throughout the watershed. One area of concern is a Northwest Branch tributary that runs through the Stonegate subdivision that frequently floods private property.

OBJECTIVE: Avoid or mitigate impacts on the Northwest Branch from commercial uses.

RECOMMENDATIONS:

- Direct treated stormwater runoff from new or reconfigured commercial uses in the Cloverly commercial area into the Northwest Branch. Use on-site stormwater management quantity and quality controls unless arrangements can be made to expand the SHA stormwater management facilities being constructed to serve New Hampshire Avenue. Treat stormwater diverted into the Northwest Branch to Use III discharge standards.

- Configure any expansion of commercial use in the Cape May Road area so that stormwater runoff from these uses can be directed to the Northwest Branch watershed. Use on-site stormwater management quantity and quality controls to minimize impacts to Northwest Branch. Treat stormwater diverted into the Northwest Branch to Use III discharge standards.

Paint Branch Watershed

The Paint Branch watershed, in the Cloverly, White Oak, and Fairland Master Plan Areas is the only stream system in the County that has a proven, long-term record of sustaining naturally-reproducing trout. Cloverly covers all or part of the major headwaters subwatersheds that provide the very high quality water and in-stream habitat that support the fishery. The quality of all the streams in the Paint Branch are affected by actions in Cloverly. The streams in the upper parts of the watershed (north of Fairland Road) are generally of high quality, as represented by the healthy and diverse aquatic insect and fish communities found in these streams. In recognition of this, the Montgomery County Council designated the upper Paint Branch a Special Protection Area on July 11, 1995.

The Paint Branch headwaters are examined in detail in *The Upper Paint Branch Watershed Planning Study* and are shown in Figure 28, page 80. This study documents the current conditions of the stream system and projects future conditions through analysis of current and potential impacts of development. The findings of the study clearly indicate the decline of water quality and habitat conditions since the early 1980s, and the expectation that if 1981 Plan development were to be built out, the high-quality stream conditions associated with the trout spawning and nursery habitat of the Good Hope and Gum Springs tributaries would be lost. The Right Fork and Left Fork tributaries, which provide stability and resilience in the system, must also be protected. The study recommends significant additions to parkland in the Good Hope and Gum Springs subwatersheds and acquisition in the Left Fork and Right Fork subwatersheds to protect the viability of key natural resources that contribute to high stream quality. These two tributaries contribute cold water baseflow, food sources, and adult trout habitat, as well as limited trout spawning and nursery areas. The mainstem above Fairland Road and up to the confluence of the Right and Left Forks, also serve as auxiliary spawning areas and adult trout habitat which supplement the Good Hope and Gum Springs.

OBJECTIVE: Protect and improve water quality and aquatic habitat and maintain overall imperviousness at or near 1990 levels. Provide the highest level of protection for the most fragile and sensitive natural resources and features to preserve the high quality conditions in the upper Paint Branch watershed.

RECOMMENDATIONS:

- Acquire an additional 247 acres of parkland in the Good Hope and Gum Springs tributaries as recommended in the approved and adopted limited amendment to the 1981 Plan. (See Figure 24, page 67.)
- Acquire an additional 121 acres of parkland in the Right and Left Fork tributaries to protect sensitive stream valley and upland resources that contribute to the health of the watershed. (See Figure 24, page 67.)
- Protect environmentally sensitive features that are not part of a recommended park acquisition area. These features (including springs, seeps, and wetlands) should be protected through the creation of conservation easements on private property.

- Implement and strictly enforce the requirements and guidelines of the Special Protection Area Law and the 1981 Performance Criteria for any land developed in the upper Paint Branch watershed including a 10 percent imperviousness limit for individual properties and additional setbacks from streams, wetlands, springs, and seeps to reduce the impacts of development on the watershed.
- Reduce existing imperviousness where possible.
- Create an environmental overlay zone for the upper Paint Branch watershed that generally follows the SPA boundaries. The overlay zone should have the following components:
 - Maximum site imperviousness of 10 percent for all new development.
 - Prohibit or place conditions on permitted and specific special exception uses that create unacceptable adverse impacts on the resources of the Paint Branch.

OBJECTIVE: Ensure and document the long-term implementation and effectiveness of the various watershed protection measures and programs that are adopted and implemented within Paint Branch.

RECOMMENDATIONS:

- Support DEP efforts to develop an SPA conservation plan for managing the upper Paint Branch watershed in a timely manner.
- Support County efforts to develop a system to track increases in subwatershed imperviousness over time in the upper Paint Branch and the relationship of increased imperviousness to water quality.

OBJECTIVE: Reduce current stresses to the stream system and correct existing problems that have resulted in declining or degraded conditions in various parts of Paint Branch.

RECOMMENDATIONS:

- Identify the Paint Branch watershed as a high priority area for the County to examine and implement in a timely manner stormwater management and stream restoration projects. Some projects already have been examined by DEP; some are programmed for implementation. Some areas of concern within Cloverly include:
 - Uncontrolled stormwater runoff from existing development in the Left Branch of Good Hope tributary (north of Good Hope Road).
 - Water quality at the DPW&T maintenance facility on Cape May Road.
 - Improvement of habitat conditions in the lower section of the Right Fork tributary.
 - Existing wet ponds and associated thermal impacts at and above the Maydale Nature Center.

Patuxent Watershed

The natural resources of the Patuxent River watershed include the high-quality streams and wetlands, associated steep-sloped valleys, and the large forested areas that are partly on private land and partly protected through WSSC land ownership. In addition, the T. Howard Duckett (or Rocky Gorge) Reservoir, a major drinking water supply source for the Washington metropolitan area, lies within the Cloverly portion of the Patuxent River. Imperviousness ranged between 3.1 and 6.8 percent (see Appendix I) in 1990 in various subwatersheds of the Patuxent River in Cloverly.

In addition to the current master plan analysis, the Patuxent River watershed in Montgomery County, which includes the portion lying within Eastern Montgomery County, was the subject of the *Patuxent Watershed Management Study, Technical Report* and the *Functional Master Plan for the Patuxent River Watershed*. The technical study and the master plan concluded that the overall water quality of the upper Patuxent River system and the two water supply reservoirs is relatively good for the intended uses, including drinking water supply and recreation. The reservoirs are stressed by excessive nutrients, especially phosphorus loadings. WSSC monitoring data suggest very low dissolved oxygen levels regularly occur in the bottom layers of the reservoir's waters. These water quality problems originate from agricultural activities and suburban development. The implementation of current zoning patterns in the Patuxent watershed in Montgomery County would have both positive and negative effects on the stream system and the reservoir. While nutrient loading would be reduced, development would increase sediment loads.

The functional master plan sets forth recommendations to protect and improve the water quality of the watershed and reservoir through improved urban stormwater and sediment erosion control programs, incentives for implementing agricultural BMPs, application of the Planning Board's environmental guidelines (including the Primary Management Area Concept), and continuous assessment of the effectiveness of the various implementation efforts. The functional plan does not recommend any land use or zoning changes to that part of the 1981 Plan that pertains to the Patuxent watershed. Significant efforts by the County, M-NCPPC, WSSC and the U.S. Army Corps of Engineers are being developed to address the effects of existing land uses.

The Patuxent subwatersheds in Cloverly are considered Environmental Preservation Areas where very low-density development, i.e, development without substantial structural stormwater management, is expected to protect this sensitive resource area in combination with efforts to address existing sources of nutrients and sediments.

The ultimate imperviousness levels are projected to range from 4.4 to 8.5 percent in the Patuxent River watershed in Cloverly. This finding, coupled with implementation of the recommendations from the *Functional Master Plan for the Patuxent River Watershed* (e.g., application of the Primary Management Area concept, voluntary implementation of BMPs for agricultural activities), support for the efforts of the intergovernmental Patuxent Reservoir Protection Group as well as guidelines should provide adequate water quality protection for the tributaries and mainstem of the Patuxent River in Eastern Montgomery County.

OBJECTIVE: Protect the public drinking water supply and preserve the high quality aquatic communities by maintaining the low-impervious land uses of the watershed and the policies that support the maintenance of rural land patterns.

RECOMMENDATIONS:

- Maintain the low-density land use pattern in the watershed consistent with the application of the Primary Management Area as recommended in the 1993 *Functional Master Plan for the Patuxent River Watershed*.

- Discourage new uses that result in more than 10 percent imperviousness on properties in the primary management area as recommended in the *Montgomery County Planning Board's Environmental Guidelines*.
- Support aggressive efforts to reduce the impacts of existing development and agricultural uses on the reservoir and associated streams through reforestation, retrofit, agricultural Best Management Practices (BMP's) and public education programs.
- Do not extend sewer service to RC zoned properties except to relieve public health problems or to address other specific *Comprehensive Water Supply and Sewerage Systems Plan* policies. Sewer service can be considered for properties zoned RE-1.
- Sewer service, where provided, should be extended from existing mains within the Northwest Branch and Paint Branch watersheds. New capital-size sewerage facilities, including pumping stations, should be avoided in the Patuxent watershed, except where necessary to relieve public health problems.
- Locate stormwater management facilities outside of regulatory stream buffers, consistent with the primary management area requirements in the environmental guidelines.

AIR QUALITY

The quality of air affects both human health and the health of native plant and animal communities. Air pollution and the improvement of air quality are primarily dealt with at a scale that involves the entire Washington metropolitan area. Federally mandated pollution control equipment and efforts to reduce region-wide pollution levels should reduce future air quality problems. The master plan process supports these region-wide efforts by improving access to community facilities and transit so that the number of auto trips can be reduced.

OBJECTIVE: Improve air quality by encouraging pedestrian, bicycle and transit access in existing and new development to help meet the intent of the Federal Clean Air Act.

RECOMMENDATIONS:

- Expand the system of bikeways and walkways to improve access to and from bus stops, community retail centers, schools, and employment areas.
- Design and locate public spaces to minimize human exposure to localized pollution, such as major intersections.

NOISE

Excessive noise is an environmental health problem. Noise from roadway traffic is the single most pervasive noise source in Cloverly. Transportation noise impacts usually occur on residential sites that are adjacent to heavily traveled roadways, such as arterial and major highways.

OBJECTIVE: Minimize noise impacts on existing and new development, to help provide a noise environment that is compatible with existing and proposed land uses.

RECOMMENDATIONS:

- Incorporate abatement measures where possible for existing and projected noise impact areas as part of future road widening projects.
- Continue to require noise-compatible site design for new residential development within noise impact areas along roads.

WATER AND SEWERAGE SERVICE

Community water and sewerage service in Cloverly is limited as a result of previous master plans and the *Comprehensive Water Supply and Sewerage Systems Plan* policies. The limited availability of water and sewerage service has been used in previous plans to control the density and timing of development in Cloverly. The recommendations in this Plan directly support the efforts to maintain rural character and watershed protection and they reflect changes in policies since the 1981 Plan. As a result some properties may be unable to develop to the maximum permitted in a given zone.

All of the Paint Branch watershed and all of the Northwest Branch watershed, with the exception of RE-2 zoned properties, were recommended by previous plans for water and sewerage service. The 1981 Plan specifically recommended against the provision of water and sewerage service in the Rural Cluster zone to protect the water quality of the Rocky Gorge Reservoir. The Cloverly Master Plan reconfirms the policies of the 1964 *General Plan*, the 1968 *Fairland-Beltsville Plan*, the 1980 *Functional Master Plan for the Preservation of Agriculture and Rural Open Space*, the 1981 *Eastern Montgomery County Master Plan*, and the 1993 *Functional Master Plan for the Patuxent River Watershed* in recommending that no new sewerage service or extensions occur in the Patuxent watershed. The only exception is for RE-1 zoned properties where sewer service can be provided from existing mains within the Northwest Branch or Paint Branch watersheds. In addition, community water service without sewer service within the Patuxent watershed can be considered on a case-by-case basis consistent with current policies in the *Comprehensive Water Supply and Sewerage Systems Plan*.

The Washington Suburban Sanitary Commission (WSSC) will construct an elevated water storage facility in the southwest quadrant of New Hampshire Avenue and Norbeck Road Extended on a portion of the Hampshire Greens property. The existing standpipe on Spencerville Road will be removed after the new facility is completed.

The RE-2 zoned area bordered by Norwood Road, Northwest Branch, Hampshire Greens, and New Hampshire Avenue is not recommended for sewer service. This recommendation is designed to maintain the rural character that results from low-density residential development that in turn relies on septic suitability of soils to determine the location and number of houses. This Plan recognizes that development on individual properties in the RC and RE-2 zones may be limited due to the lack of public sewerage service. The timing

of necessary extensions of public water and sewer service should be determined by development activity and the need to correct existing health problems. Development in Cloverly in conformance with this Plan is relatively small and would not be the determining factor in the need for relief sewers downstream of Cloverly.

OBJECTIVE: Provide appropriate public sewer and water facilities with minimal impact on natural resources to reinforce land use management policies.

RECOMMENDATIONS:

- Extend community water and sewerage service in an environmentally sensitive manner. When feasible, water and sewer lines should be located outside stream buffers, especially wooded stream buffers. Where extensions or major improvements would be too damaging, alternatives such as pump-over systems and force mains should be considered, along with their fiscal impact.
- Provide community water service to all areas in Cloverly with the following limitations:
 - Extend water service in the RC zone on a case-by-case basis to residential properties that meet the recommendations of this Plan and use the cluster option of development or to properties with insufficient acreage to use the cluster option. The *Comprehensive Water Supply and Sewerage Systems Plan* was amended in April, 1995 to include specific language regarding the provision of water to cluster subdivisions in the Rural Cluster (RC) zone. The Water and Sewer Plan states that “the decision to extend or restrict water service should focus on conformance with master plan land-use and development recommendations, rather than on generalized water service areas.”

This Plan recognizes that development on individual properties in the RC Zone may be limited due to the lack of water service. This limitation on development supports efforts to maintain the low-density character of these areas.
 - Extend water service to RE-2 zoned land on a case-by-case basis following the guidance of the *Comprehensive Water Supply and Sewerage Systems Plan*. Water service will improve fire protection and provide residents with the opportunity for individual hook-ups.
- Provide community sewerage service with the following limitations:
 - Provide sewerage service throughout Cloverly except in the RC and RE-2 zones to maintain a low-density, rural character. The extension of sewer service to residential, institutional, and special exception uses in the RC and RE-2 area (except to relieve public health problems or to address other specific *Comprehensive Water Supply and Sewerage Systems Plan* policies) is not consistent with this Plan because of potential impacts on the low-density character of both areas and conflict with the long standing recommendation not to provide sewer service in the Patuxent watershed in order to control water quality in the reservoir. The presence of public water service does not justify the extension of sewer service in the RE-2 and RC zones. An exception is a part of the Gum Springs neighborhood zoned RE-2. This area is included in the existing community sewer envelope. Sewer service was extended throughout the area prior to adoption of the 1981 Plan.

- Sewer service, where provided within the RE-1 zoned areas of the Patuxent watershed, should be extended from existing mains within the Northwest Branch and Paint Branch watersheds. New capital-size sewerage facilities, including pumping stations, should be avoided in the Patuxent watershed, except where necessary to relieve public health problems. There are small areas north of Spencerville Road that are in the Patuxent watershed but were zoned RE-1 as a result of the 1981 Plan.
- Water and Sewer Plan policies generally do not provide for the extension of community sewer service to areas zoned RE-1, except as recommended by local area master plans. This Plan recommends such an exception, conditionally confirming the recommended sewer service area proposed in the 1981 Plan. Community sewer service is readily available to much of the RE-1 zoned areas in Cloverly due to:
 - Service extended to adjacent, more densely-zoned areas, including service to PD-2 zoned properties (this floating zone option for the RE-1 Zone was removed by the 1990 Trip Reduction Amendment);
 - Service extended to RE-1 cluster development which requires public sewer service in order to implement the cluster option;
 - Service extended to areas zoned R-200 and rezoned to RE-1 as a result of the land use and zoning recommendations included in the 1981 Plan.
- This Plan recommends RE-1 zoning for much of the headwaters of Paint Branch which is designated as a Special Protection Area. The County Council has previously concurred with the provision of service to the RE-1 areas in Cloverly provided the main extensions were logical, economical, and environmentally acceptable. This Plan further recommends that the approval of community sewer service to properties zoned RE-1 in the upper Paint Branch SPA should be coordinated with the approval of subdivision plans which address the environmental concerns associated with development in these headwaters areas, and which further must demonstrate an environmental benefit resulting from development supported by community sewer service, rather than that supported by septic systems.
- The provision of community sewer service to areas zoned RE-2C is usually required to implement the cluster development option. Many of the RE-2C zoned areas of Cloverly—particularly along Norwood and Briggs Chaney Roads—include a mix of large parcels suitable for cluster development and smaller properties with minimal potential for subdivision and/or cluster development. Sewer service extensions provided to serve cluster development, or to serve adjacent higher-density development, are often in close proximity to these smaller properties. Where the provision of community sewer service is found to be logical, economical, and environmentally acceptable, the County Council has concurred with the provision of sewer service to these properties. This Plan endorses this policy, again confirming the recommended sewer service area proposed in the 1981 Plan.