VII. THE PATUXENT RIVER WATERSHED PRIMARY MANAGEMENT AREA (PMA)

A. Background and Purpose

The Patuxent River Policy Plan, adopted in 1984 by the Maryland General Assembly and the seven Patuxent watershed counties, was prepared by the Maryland Office of State Planning in order to give policy direction to local and State agencies in carrying out their programs and making regulatory decisions in the Patuxent River watershed. Seven Maryland counties have land area within the watershed: Montgomery, Howard, Prince George's, Anne Arundel, Calvert, Charles, and St. Mary's.

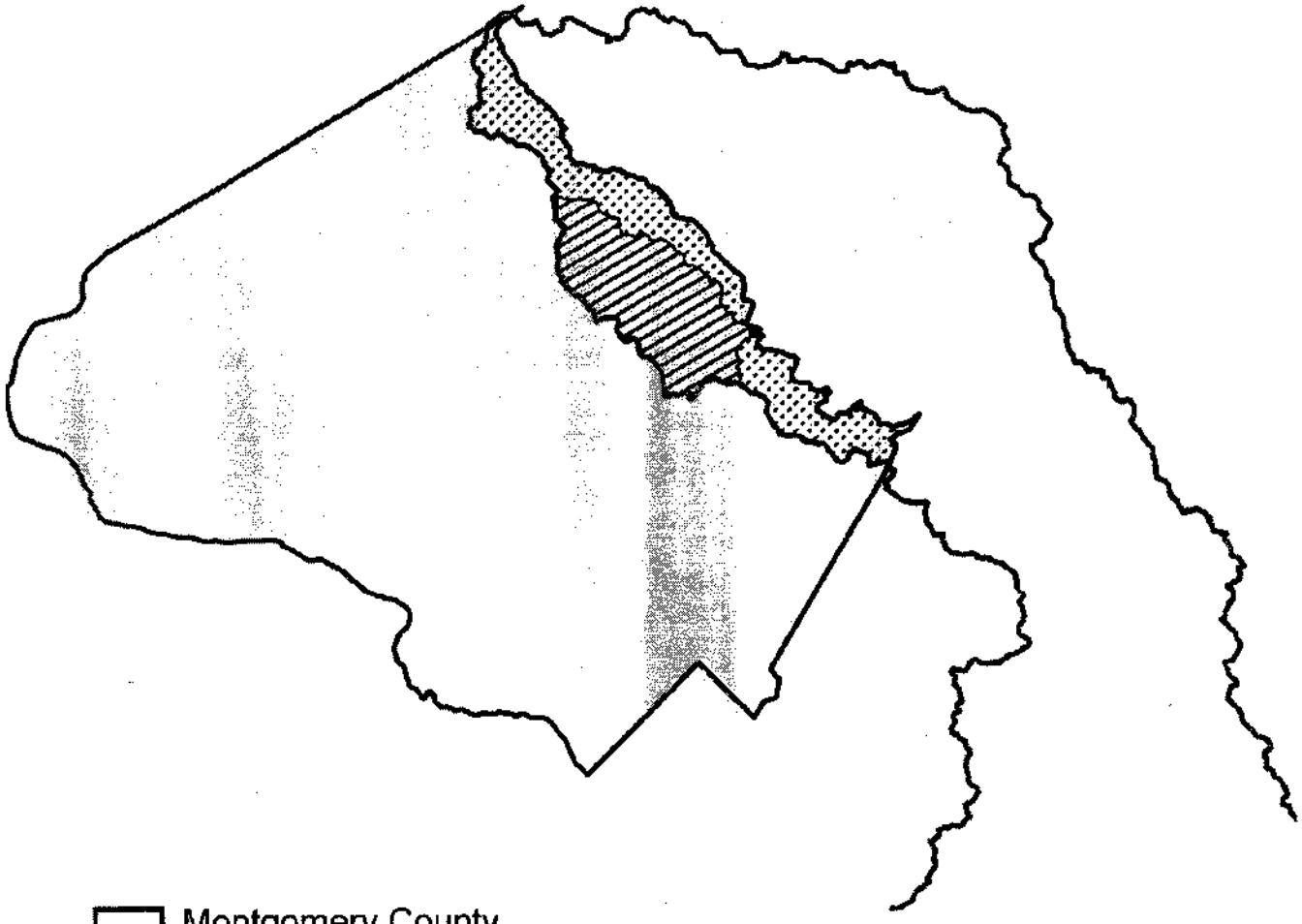
The following pages describe the Patuxent River watershed in Montgomery County and the Primary Management Area (PMA) guidelines used by the Montgomery County Department of Park and Planning to protect the watershed. These PMA guidelines were developed in accordance with the recommendation in the Patuxent River Policy Plan that local governments enact a Primary Management Area. The guidelines address the decline in the Patuxent River's water quality and the need, from an environmental perspective, to protect this resource. In addition, these PMA guidelines respond to the economic necessity of protecting the primary water supply reservoirs and recreational resources provided by the Patuxent River. The purpose of the Montgomery County Patuxent River PMA guidelines is to provide urgently needed land management strategies to help control nonpoint source runoff and preserve, restore, and protect the Patuxent, its drinking water supply reservoirs and the Chesapeake Bay. The guidelines have been approved by the Montgomery County Planning Board for use in the review of development proposals in the Patuxent River watershed.

B. Introduction: The Patuxent River

The Patuxent River watershed, covering 910 square miles, lies entirely in the State of Maryland. This "scenic river", as designated by the State of Maryland, gently meanders through seven counties before draining into the largest and most bountiful estuary in the United States, the Chesapeake Bay. Approximately 61 square miles (39,065 acres) of Montgomery County drain into the headwaters of the Patuxent. In addition to being a tremendous recreational and economic resource, the river serves as a primary drinking water supply, containing both the Triadelphia and Rocky Gorge reservoirs. Both reservoirs are owned and operated by the Washington Suburban Sanitary Commission.

The Patuxent River, the reservoirs and the Chesapeake Bay are being heavily impacted by increasing pollution levels associated with land development and from the ongoing pollution associated with agricultural activities. Pollution impacting the Patuxent River and the Bay originates from both point and nonpoint sources. Point sources primarily include the piped discharge from sewage treatment plants and industry. The 1983 State *208 Water Quality Management Plan for the Patuxent Basin* (208 Plan) contains the strategy for controlling point sources of pollution. Point source pollution is addressed by the appropriate State and County agencies and therefore will not be addressed by these guidelines. The State 208 plan, which was developed pursuant to Section 208 of the Federal Clean Water Act, also addresses the impacts from nonpoint sources of pollution, which are the major source of the total sediment and nutrient pollutant load to the Patuxent River system.

Figure 9. Upper Patuxent River Basin and Hawlings River Subbasin



Nonpoint source pollution is directly related to the land-use practices within the watershed and originates from urban, suburban, and agricultural lands. Effective land management strategies are needed to control the increase of disturbed ground and impervious surfaces within watersheds, from which surface runoff generates, transporting harmful nutrients, sediments, and pollutants to the river and its tributaries and causing adverse temperature changes. The 208 Plan for the Patuxent basin reported a serious decline in the river's water quality. Problems include increases in nutrient loading (particularly nitrogen and phosphorus) that result in harmful algal blooms and consequent harmful reductions in dissolved oxygen. The excessive algae coupled with increased sedimentation has also seriously increased the turbidity of the water. This increased turbidity prevents life-sustaining sunlight from reaching submerged aquatic vegetation and results in reduced habitat and food sources for both waterfowl and juvenile fish, in addition to the reduction of vital dissolved oxygen. In 1981, the WSSC issued a report stating that "the reservoirs are aging at faster than acceptable rates due to high nutrient inputs."

C. The Patuxent River Policy Plan

The Patuxent River Commission and the Maryland Office of State Planning developed the *Patuxent River Policy Plan* (State Policy Plan) in cooperation with all seven Patuxent watershed counties. This Policy Plan was approved by these counties, including Montgomery County, and the General Assembly in 1984. The seven watershed counties and the General Assembly have agreed to accord special management and planning consideration to the lands bordering the streams in the Patuxent watershed. By approving the State Policy Plan, Montgomery County, along with other participating counties, has agreed with the recommendation to develop and implement the primary management area approach to watershed protection.

Based on the recommendations of the State Policy Plan, a conceptual primary management area (PMA) has been proposed for the streams within the Patuxent watershed in Montgomery County. Using the State Policy Plan as a guide, the Montgomery County Department of Park and Planning is proposing a set of criteria and guidelines to be applied to local development reviews. These guidelines could be amended by a joint watershed management policy planning effort between Howard County, Montgomery County, Prince George's County, WSSC, and the M-NCPPC.

The State Policy Plan criteria for designating a PMA are not regulatory standards. Rather, they provide general guidance for developing locally enforceable criteria suited to local conditions. The State Policy Plan contains ten major recommendations to direct land use planning and management toward watershed protection. For a complete list of the Policy Plan's ten recommendations, see Appendix D. Montgomery County's *PMA Guidelines for the Patuxent River Watershed* specifically address four of the ten recommendations put forth in the Policy Plan. These include State Policy Plan recommendations:

- Establishing a Primary Management Area (PMA)
- Providing Best Management Practices (BMPs)
- Preserving Agricultural Land
- Protecting Forest Cover

Montgomery County is in support of all ten of the State Policy Plan's recommendations although at this time these guidelines address only four. It should be noted that not all the Policy Plan's ten

recommendations fall within M-NCPPC jurisdiction. The *Patuxent River Watershed Functional Master Plan* contains a more comprehensive statement that addresses other aspects of the State Policy Plan that fall under M-NCPPC jurisdiction.

D. The Montgomery County Primary Management Area

1. Establishing a Primary Management Area (PMA) for the Patuxent River watershed in Montgomery County

The Primary Management Area (PMA) in Montgomery County is a water quality protection and restoration area where land use activities are managed to protect and enhance water quality in the rivers and streams. The PMA is composed of strips of land that run along the entire length of all streams within the watershed. The recommended land uses and related activities within the PMA are managed through a series of specially designed programs directed to promote water quality in the streams.

The purpose of the Patuxent watershed PMA is to identify and manage land from which nonpoint source pollution is most likely to be transported to the river, to the two water supply reservoirs and ultimately to the Chesapeake Bay.

Montgomery County's PMA for the Patuxent is consistent with the PMA widths recommended in the State's Patuxent River Policy Plan, which are 1/4 mile (1320 feet) for the Patuxent mainstem and 1/8 mile (660 feet) for all tributaries. In addition, Montgomery County is also recommending a 1/4-mile management strip (PMA) for the mainstem of the Hawlings River. The Hawlings River watershed, a subbasin in the Patuxent watershed, lies entirely in Montgomery County (Figure 8). Greenhorne and O'Mara's *Technical Report for the Patuxent River Watershed* (February 1990) has identified the Hawlings River as a major contributor of nonpoint source pollutants to both the upper Patuxent River and to the Rocky Gorge Reservoir.

The area that will constitute the PMA as described above consists of approximately 17,488 acres, or approximately 45 percent of the Patuxent watershed.

a) Applicability

Montgomery County PMA guidelines will be recommended when the criteria in Table 4 (below) apply to a given property. Any properties that meet the criteria will then be required to delineate a Primary Management Area that will consist of a stream buffer and a transition area (Figure 9).

A property will be subject to PMA requirements ONLY when it is submitted to M-NCPPC for subdivision and/or site plan review. Agricultural land located within the Primary Management Area that is NOT submitted for review will not be subject to the recommended PMA - guidelines. Land that remains in agricultural use, as part of a plan for subdivision, however, will be subject to the recommended PMA stream buffer and transition area requirements made herein (Section D.3. Preserving Agricultural Land).

Table 4. Criteria for Determining Primary Management Area Applicability
1. The property contains or borders a stream that is tributary to the Patuxent and/or Hawlings River watersheds, OR the property is within a 1/4 mile of the mainstem or 1/8 mile of a tributary of the Patuxent and/or Hawlings River, and
2. The property has been submitted to M-NCPPC for subdivision and/or site plan review.*
* Requests for lots for children of the property owner in rural zones that fall under the exempt provisions of the Montgomery County Zoning Ordinance, *do not* subject a farm to PMA requirements, provided the farm is operated in compliance with the soil and water quality conservation plan as determined by the Montgomery Soil Conservation District (MSCD)

b) Delineating the Stream Buffer within the PMA

Within the designated PMA, be it 1/4 mile or 1/8 mile, it will be necessary to delineate a stream buffer on the land area directly adjacent to the watercourse. The State's Policy Plan recommends a 100-foot buffer of forest or natural vegetation on each side of the river and its tributaries. Montgomery County is recommending a stream buffer width consistent with its stream buffer guidelines, as identified in Table 1 (page 8). The stream buffer may be expanded to include any environmentally sensitive land features as described in Table 5. It is further recommended that a minimum of 50 feet of this buffer be forested. Afforestation will be necessary in stream buffer areas that do not meet this 50-foot forested minimum. The stream buffer area, based on the recommended widths in Table 1, will consist of approximately 1,257 to 2,515 acres, constituting approximately 7 to 14 percent of the PMA, or approximately 3 to 6 percent of the watershed.

The stream buffer area must be left undisturbed and in its natural state. Land disturbing activities such as clearing and grading will not be permitted in the stream buffer area. Activities that would be encouraged in the stream buffer area include afforestation and, possibly, the implementation of Best Management Practices (BMPs). The control of noxious weed species in the stream buffer area, such as thistles (Asteraceae or compositae), johnsongrass, shattercane and wildcane, and multiflora rose, will be permitted when deemed necessary and when done in a manner that minimizes disturbance to other vegetation. Any disturbance of the stream buffer will require M-NCPPC staff review.

The majority of the area along the Patuxent mainstem and a significant portion of the area adjacent to the Hawlings River mainstem that would be delineated as stream buffer are already included in existing and proposed parkland or WSSC property.

For a complete discussion of stream buffer requirements on agricultural land, refer to section D.3. Preserving Agricultural Land.

Table 5. Recommended Environmentally Sensitive Land Features to be included in the PMA Stream Buffer Area
1) The one-hundred year ultimate floodplain.
2) All wetlands (and associated buffers) adjacent to the stream or to the one-hundred year floodplain.
3) Slopes of twenty-five percent or greater abutting or adjoining the stream, the 100-year ultimate floodplain, or stream-side wetlands.
4) Specific areas of critical habitat for rare or sensitive wildlife and/or vegetation, as defined in COMAR, Title 08.03.08.

c) The Transition Area within the PMA

The land area remaining in the PMA that does not fall into the designated stream buffer will be managed as a transition area. Zoning densities of one unit per two acres or less will be recommended for the transition area. Possible zones include RE-2, RE-2C, Rural, RC, and RDT. New development will be accommodated in ways that minimize impacts on water quality and maximize the protection of existing environmental features. Overall imperviousness within the transition area of each new project development site[4] should not exceed 10 percent. If a higher imperviousness is desirable in the transition area to maintain community character, achieve compatibility, and/or accomplish master plan goals, imperviousness may be averaged over the entire development, not to exceed 10 percent on the entire site.[5] The planning challenge within the transition area will be to resist the tendency toward fragmented suburban sprawl by consciously siting development to optimize existing infrastructure and soil infiltration capacities while minimizing impacts to environmentally sensitive land features. Agricultural activities *will be* permitted in the transition area (see section D.3. Preserving Agricultural Land).

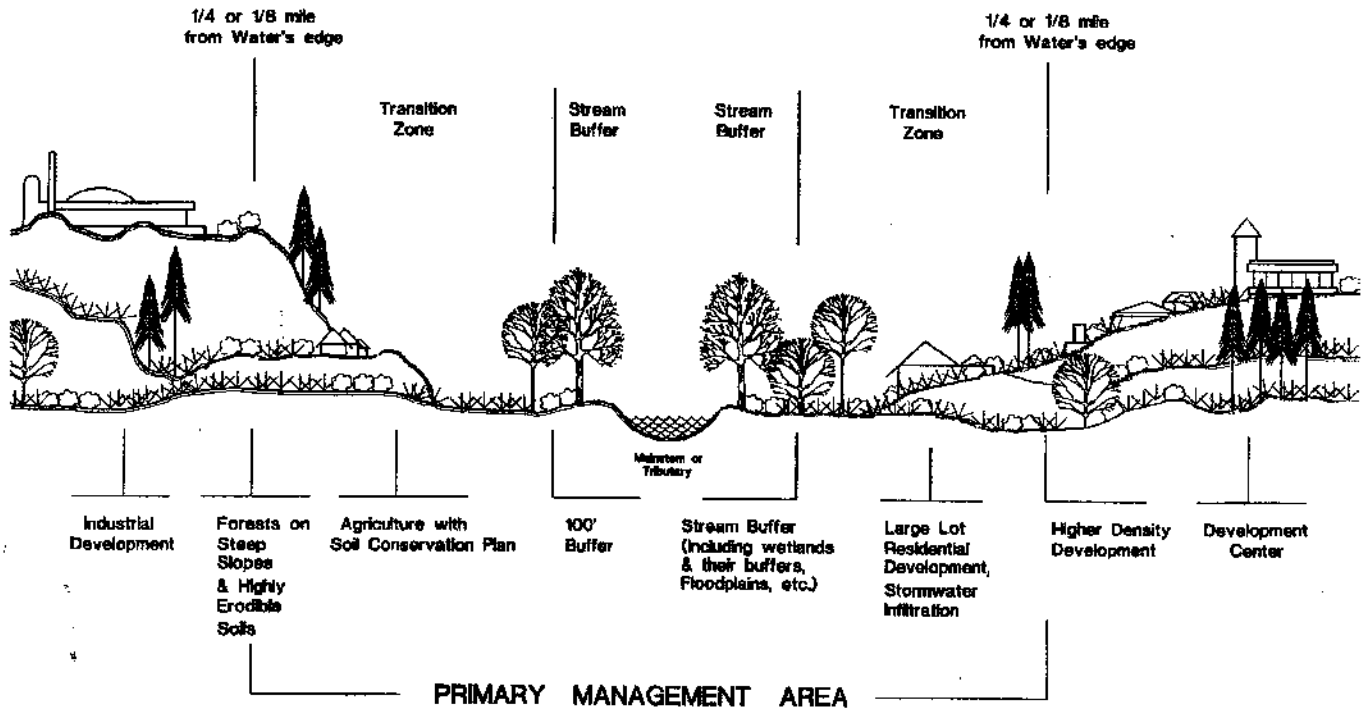
d) Existing Areas in Nonconformance with the PMA Guidelines

Properties for which the PMA guidelines are applicable (Table 4) but that have existing zoning densities greater than RE-2 will be subject to "nonconformance requirements". Nonconformance requirements consist of stormwater management and best management practices applied to the property that will minimize the impacts of higher density zones,

[4]This imperviousness guideline is now applied to new projects that are reviewed by the Planning Board, such as preliminary plans of subdivision, site plans, zoning cases, special exception cases, and mandatory referrals. The guideline would not apply to projects that require only building permit review.

[5]If the property lies within two or more watersheds, only that portion of that property within the Patuxent River watershed (as defined by natural or existing drainage divides) is subject to this imperviousness guideline.

Figure 10. Illustration of the Patuxent River Primary Management Area(PMA)



Conceptual Drawing of this Primary Management Area as Defined in the Patuxent River Policy Plan

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particularly higher levels of imperviousness, on water quality. These requirements will also apply to RE-2C, RC, and RDT zones where use of cluster development results in densities greater than one unit per two acres. Table 6 describes some, but certainly not all, possible BMPs.

2. Providing Best Management Practices (BMPs)

The provision of BMPs in the Primary Management Area is required for all areas where zoning densities are higher than RE-2, as previously discussed. The use of BMPs will also be encouraged in lower density areas during the development review process to facilitate clustering of development and the maximization of soil infiltration capacities. Soil and water conservation plans utilizing BMPs are strongly encouraged on agricultural lands in the PMA, with the incentive of a reduction in the recommended stream buffer width on portions of properties submitted for subdivision and/or site plan review that will be used for agricultural purposes.

Table 6. Possible Best Management Practices (BMPs)
1. Locating and possibly clustering development to maximize suitable developable land areas and to minimize negative impacts to water quality and other environmental considerations such as tree stands and wetlands.
2. Widening the stream buffer area to ensure increased infiltration of pollutants, nutrients, and sediments over the extended run.
3. Afforestation of more than the required 50-foot minimum of forest cover within the stream buffer.
4. Utilizing more innovative and effective stormwater management. Maximize infiltration and design ponds to effectively mitigate for both temperature and nutrient/sediment removal. Design for the ten-year storm rather than the required two-year storm.
NOTE: Applicants may design and implement, upon staff and Planning Board approval, their own innovative BMP(s). The goal with this option is to foster and encourage a genuine effort between the County and developers to devise and implement effective, innovative, and environmentally sensitive land management practices.

3. Preserving Agricultural Land

The preservation of prime and viable agricultural land is a goal of the Patuxent watershed primary management area as it is throughout upper Montgomery County. It is hoped that the designation of the Patuxent PMA will help achieve the delicate balance between development and agriculture while ensuring water quality.

As discussed earlier, these guidelines only apply to properties that are proposed for development (Table 4). Existing agricultural land will not be subject to these guidelines unless it is included in a development proposal application submitted to M-NCPPC.

In order to encourage the retention of agricultural uses on at least a portion of properties proposed for development, the stream buffer will be reduced from the buffer strip widths listed in Table 1, to 100 feet for land that remains in agriculture and has adopted a soil and water conservation plan approved by the Montgomery Soil Conservation District. However, depending on the site, the stream buffer may be extended to include environmentally sensitive land features (Table 5). It is also recommended that a minimum of 50 feet of the 100-foot stream buffer be forested. Agricultural activities utilizing BMPs are encouraged in the transition area of the PMA and the reduction of the stream buffer from that recommended in Table 1 to 100 feet is done in recognition that the maximization of available land is a necessity for a viable farm. The Planning Board may grant a variance to the PMA 100-foot stream buffer requirement on agricultural portions of plans when the applicant can demonstrate to the satisfaction of staff and the Planning Board that water quality would not be degraded by agricultural activities.

It must also be recognized that the intent of the Primary Management Area is to protect and restore water quality conditions in the Patuxent watershed. To this end, the infiltration and nutrient storage capabilities of forested buffer strips are considerable, as are the beneficial effects such a buffer strip would have on water temperatures and habitat. In order to preserve water quality and avoid the increased regulation that may occur if water quality continues to decline, the Montgomery Soil Conservation District is entreated and encouraged not only to comply with the forested buffer strip recommendations made herein, which are based on studies conducted by and endorsed by the Cooperative Extension Service and the U.S. Fish and Wildlife Service, but also to re-examine the buffer strip requirements currently recommended by the USDA Natural Resources Conservation Service (NRCS) (4 times the percent slope up to 99 feet), in order to provide more environmentally sensitive practices, particularly in special management areas such as the Patuxent River watershed.

The 100-foot recommended minimum buffer width is based upon literature reviews conducted by both the Department of Natural Resources and Office of State Planning. To be effective, buffer areas should be disturbed as little as possible; however, disturbance of the stream buffer for the purpose of controlling noxious weeds, such as thistles (Asteraceae or compositae), johnsongrass, shattercane and wildcane, and multiflora rose, will be permitted when deemed necessary and when done in such a manner that the disturbance of other vegetation is minimized.

4. Protecting Forest Cover/Re-establishing Forest Cover

Consistent with the Montgomery County Forest Conservation Program and the State ReLeaf Program, the PMA will be targeted as a potential and logical location for preserving and/or re-establishing forest cover. The widespread benefits of forest cover on water quality include infiltration, sediment and nutrient storage and recycling, minimization of temperature impacts, reduction of wind speeds, providing an energy input into stream ecosystems, and providing potential wildlife habitat.

The opportunity for reforesting a significant portion of publicly owned land in the Patuxent watershed PMA is great and should be maximized. Reforestation/afforestation will be strongly encouraged in the stream buffer area and in already developed and/or disturbed areas within the PMA. Preservation will always be recommended in the stream buffer areas, as well as in the transition area when and where there are large, beneficial, and/or unique tree stands.

The implementation of Montgomery County's Forest Conservation Law and the need to

designate potential tree receiving areas may provide the opportunity for developers to contribute to the reforestation/afforestation of buffers within agricultural areas as an off-site planting alternative. In addition, farmers may pursue incentive programs such as the State Conservation Reserve Program, the Maryland Agricultural Cost-Share Program, and the Green Shores Program in order to comply with the 50 foot forested buffer strip recommendation.

E. Septic Field Requirements within the PMA

County Executive Regulation 28-93AM prohibits the location of sewage disposal systems within 300 feet measured horizontally from the normal high water level of a water supply reservoir or within 200 feet measured horizontally of the banks of a stream that feeds therein. The PMA policy plan recommends a minimum 300 foot septic setback for the Patuxent and Hawlings mainstems and a minimum 200 foot setback for all other watershed tributaries. Septic fields will not be permitted in the stream buffer. Any variance to the provision of septic fields within the transition area will be determined on a case-by-case basis.

A detailed technical study by the WSSC and/or the County Health Department on the health hazards associated with potential septic failures is strongly endorsed along with these PMA guidelines. The technical study should also provide recommendations pertaining to design, siting and minimum buffers required for septic fields.