

## VII. ENVIRONMENTAL RESOURCES

The Four Corners Master Plan area lies largely on high ground between the Sligo Creek and Northwest Branch stream valley corridors. Park ownership protects the major streams and immediate streamside habitat. Much of the habitat on parkland, however, is affected by active recreation and the stormwater runoff from surrounding development. Opportunities for environmental improvements are limited in the built-up area of Four Corners.

The Four Corners Master Plan area is in the watersheds of two major tributaries of the Anacostia River: Sligo Creek and the Northwest Branch. (See Figure 23.) A number of smaller tributary streams travel through neighborhoods before entering the stream valley parks. Some of these streams, in older areas, are not well buffered from surrounding development or have been enclosed in storm drains. Extensive efforts to restore both Sligo Creek and Northwest Branch are ongoing. Environmental concerns within Four Corners include continued protection of woodlands, restoration of stream systems and aquatic habitat, promotion of local citizen action to protect and improve natural resources, and mitigation of soil erosion and roadway noise. General information on environmental issues can be found in a separate report, *Environmental Resources: Eastern Montgomery County Master Plan Areas*.

### Approach to Environmental Resources 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 compatible with the water resources. 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.

Some areas of Four Corners 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 which 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 (such as the Northwest Branch mainstem) to more effectively respond 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 enhancement projects in coordination with M-NCPPC and involved 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.

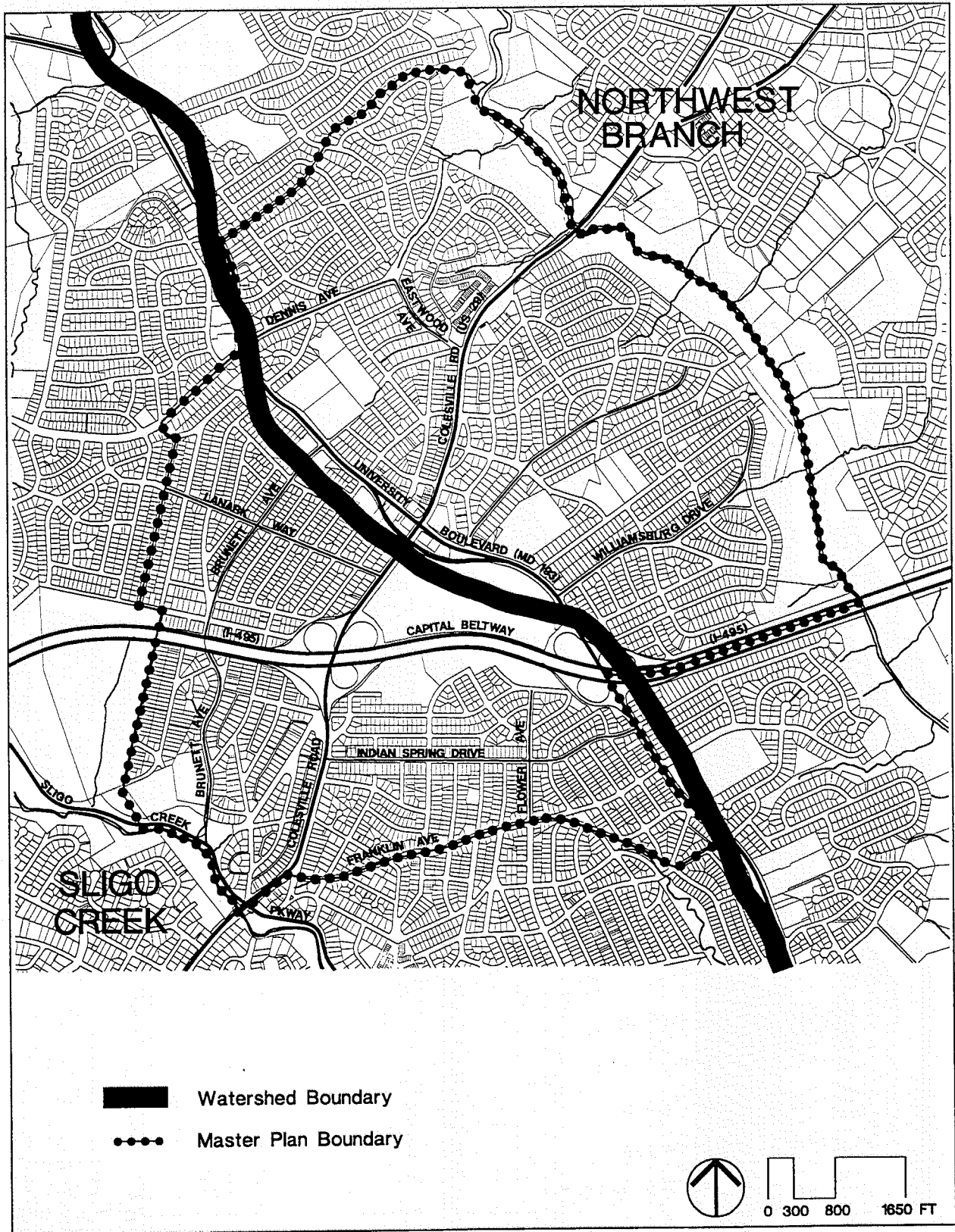
The County-wide Stream Protection Strategy (CSPS) is currently under development to assess stream quality throughout all the County watersheds in order to develop management categories and tools, and set priorities for watershed preservation, protection, and restoration. The CSPS will define watershed management categories based on the existing stream resource conditions, existing and planned land uses in the watersheds, and the type 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.

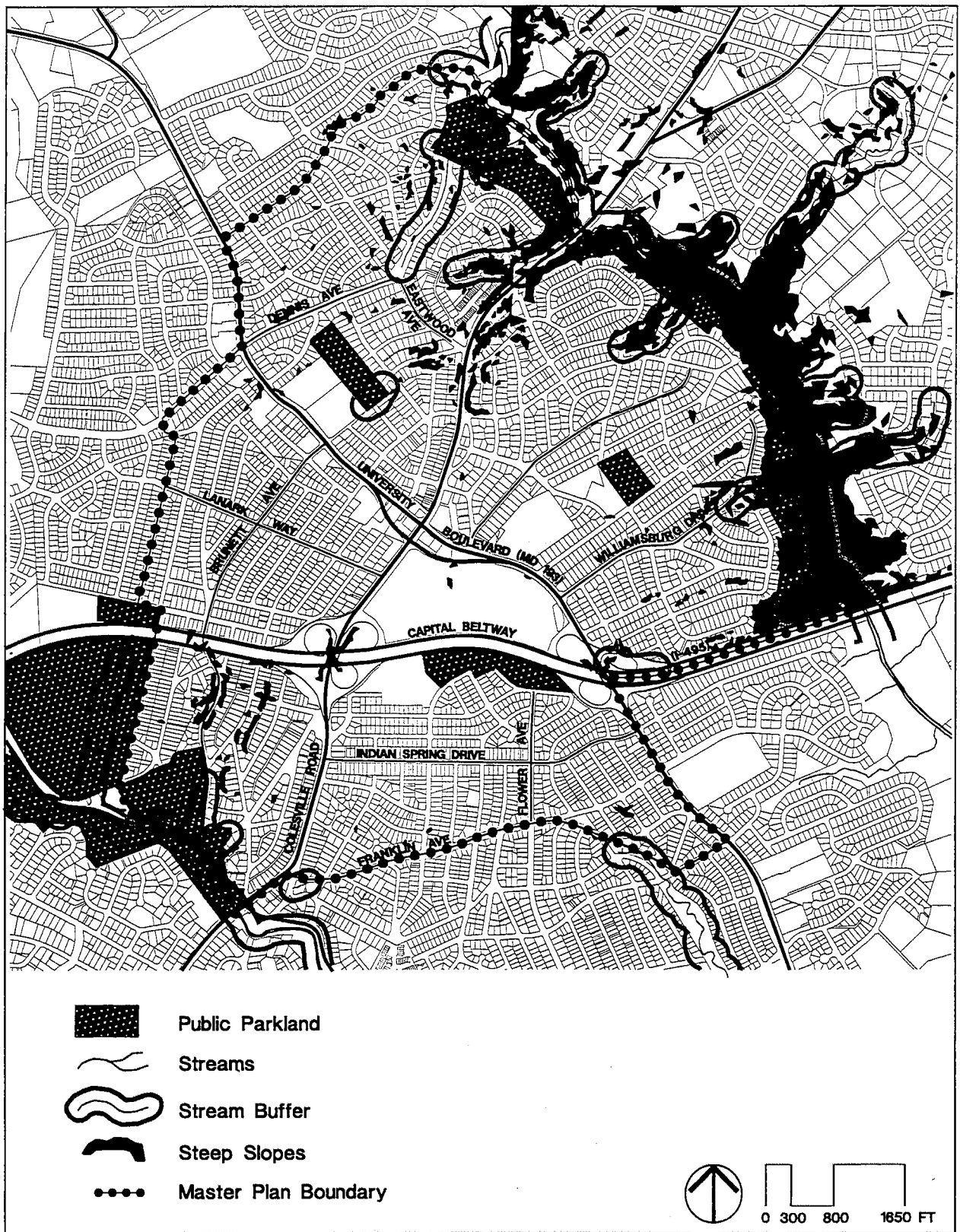
The Department of Environmental Protection (DEP) and the M-NCPPC are cooperating to draft the initial CSPS and will continue to refine the report and the priority rankings as new stream quality data becomes available. This strategy is closely tied to the County's biological monitoring program and will be updated on a regular basis to incorporate new monitoring program results. The initial CSPS categorization of subwatersheds and related management tools should be completed by January 1997. 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 Four Corners area, but final management recommendations will be made after January 1997.

### ***Environmental Goal***

***Protect and enhance natural resources for the enjoyment of residents and sustain a stable and healthy biological environment for native plant and animal populations.***

The Maryland Planning Act of 1992 supports protection of sensitive environmental areas and stewardship of the lands of the Chesapeake Bay. M-NCPPC and the County's Department of Environmental Protection have worked with State agencies since the 1970s to establish and update provisions for a holistic approach to environmental protection. The Maryland Planning Act identifies stream buffers, 100-year floodplains, endangered species habitats, and steep slopes as sensitive areas in Vision #2. These areas are protected from disturbance by new development under the M-NCPPC *Guidelines for Environment Management of Development*. (See Figure 24.) These requirements are addressed at the subdivision stage for private property or at the mandatory referral stage for public land. 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, floodplains, and wetlands. Restoration and retrofit projects attempt to preserve and expand environmentally sensitive areas wherever possible.

## **Water Resources**

All of the areas's stream systems have been affected to varying degrees by human activities. Negative effects include stream bank erosion, reduced base flows, stream valley disturbance (sometimes from tree clearing for installation of sewer lines and storm drains), sedimentation from construction activities, unsightly litter, and poor water quality with an associated reduced diversity in aquatic species in favor of pollutant-tolerant species. Some of this damage is being reversed through restoration efforts undertaken by the County, M-NCPPC, the State, the United States Army Corps of Engineers, and the Metropolitan Washington Council of Governments (MWCOCG). These efforts have been very successful. New retrofit projects, proposed maintenance, and renewal of some measures will require continued public funding and efforts of citizens and non-profit groups.

### **Northwest Branch**

The Northwest Branch, with a watershed of 53.2 square miles, is the largest tributary to the Anacostia River. It is influenced by both the less developed headwaters areas in Cloverly and Sandy Spring/Ashton and the more intense residential and commercial development in White Oak, Kemp Mill, and Aspen Hill. The gorge and torrent section of the Northwest Branch downstream of Colesville Road provides special scenic and habitat features. Northwest Branch is a Use IV, or recreational trout, watershed, according to the state classification system. This designation indicates that the stream is stocked each summer with adult trout for catch-and-release fishing, and therefore the water quality protection criteria are slightly less stringent than for a natural trout stream. The headwaters north of the Master Plan area are an important resource for the entire Northwest Branch mainstem because they contribute a steady baseflow with high water quality. Research sources describe Northwest Branch's water quality at US 29 as 'fair'.

Within the Master Plan area, the Northwest Branch has no stormwater controls in the drainage area above Colesville Road. This results in significant stream bank erosion wherever the storm drain system enters the stream. A stream stabilization project is proposed in the Northwest Branch at the end of Lockridge Drive that will reduce stream bank erosion and create aquatic habitat, but will not reduce stormwater discharge or pollutants. On the Blair High School property, stormwater management for both quantity and quality will be provided on site. The following recommendations reflect the ongoing efforts associated with the Anacostia Watershed Restoration Program and the status of this part of Northwest Branch as an Environmental Restoration Area.

#### *Objective*

- Protect remaining natural stream channels from urban pressures including thermal effects and erosion/sedimentation. Support efforts to maintain the water quality in the Northwest Branch to sustain an adult trout habitat.

### *Recommendation*

- Participate in efforts of the Department of Environmental Protection (DEP), State and Federal governments, and M-NCPPC to protect the Northwest Branch from the impacts of stormwater runoff.

### **Sligo Creek**

Sligo Creek is a tributary of Northwest Branch, which has a drainage area of 8,512 acres. According to the state classification system, it is a Use I watershed, or one suitable for water contact recreation and protection of aquatic life. Sligo Creek's overall water quality has been rated as poor to fair-good which reflects the intense urbanization of the watershed. To date, over \$2 million has been invested by State and local government agencies to improve the water quality and aquatic habitat of the Sligo Creek stream system. The regional Anacostia watershed restoration effort has included the creation of vernal pools and a large multi-basin stormwater management facility on Wheaton Branch of Sligo Creek just upstream of the Master Plan area, and in-stream stabilization and habitat creation within the Sligo Creek watershed. These efforts have resulted in a dramatic increase in fish species, from 3 species in 1988 to 16 species in 1994. In addition, many aquatic insects (invertebrate species) have been established in newly created vernal pools and wetlands, and now constitute a thriving, self-sustaining community.

### *Objective*

- Protect remaining natural stream channels from urban pressures including thermal effects and erosion/sedimentation. Support efforts to maintain the water quality and restore Sligo Creek aquatic habitat.

### *Recommendation*

- Participate in efforts of the Department of Environmental Protection (DEP), State and federal governments, and M-NCPPC to restore Sligo Creek.

### **Air Quality**

The Clean Air Act Amendments of 1990 require regional consideration of air quality. The Washington Metropolitan Statistical Area, which includes Montgomery County, does not meet the federal standards for ozone and is considered a non-attainment area. Ozone is formed in the atmosphere when exhaust emissions and sunlight react under certain conditions.

This Plan recognizes the intent of the Clean Air Act Amendments of 1990 and the need to protect the residents of Four Corners from degraded air quality. In an attempt to conform to the federal ozone standard, the Metropolitan Washington Air Quality Committee recommends the reduction of mobile source emissions from single occupancy vehicles. This will be the most applicable remediation measure in Four Corners. For highly developed areas, providing alternatives to automobile use is a master plan's most valuable contribution toward regional air quality improvement efforts.

### *Objective*

- Reduce ozone and other forms of air pollution within the Master Plan area.

### *Recommendations*

- Expand pedestrian and bicycle circulation networks to encourage the use of alternative forms of transportation, including improved access to and from transit stops, community retail, schools, parks, and other community facilities.
- Support land use patterns that facilitate the use of transit.

## **Forest and Tree Protection**

Because the Four Corners Master Plan area is highly developed, large areas of forested land are limited mainly to stream valleys and to a few remaining undeveloped areas. Trees in stream valley parks are protected. However, in many areas buffers are encroached upon by adjacent homeowners with extensions of their fencing, and dumping of yard trim material, trash, and debris. The Park Commission of the M-NCPPC established a policy in 1991 that prohibits mowing, planting, or structural encroachments on parkland without a permit. The County should continue to educate property owners and homeowners associations on the importance of maintaining the integrity of the stream valley buffers.

DPWT maintains street trees along County roads including pruning, spraying, removal, and replacement. Additional efforts are needed to protect and enhance the urban forest in Four Corners. Consideration should be given to creating street tree planting plans for existing roadways such as University Boulevard, Colesville Road, Sligo Creek Parkway, and other residential streets to augment the existing urban forest and provide shaded accessways to parks and other neighborhood destinations. Existing parking lots should be redesigned and deciduous trees planted to provide shade to paved areas, reducing the urban heat island effect and the thermal impact of water runoff from such areas on the streams.

### *Objective*

- Protect and enhance tree stands in neighborhoods and stream valleys.

### *Recommendations*

- Support projects to plant shade trees along roadways and residential streets and in parking lots.
- Support forest protection and restoration efforts on parkland.

- Target priority areas such as stream buffers in meadow or grass cover for forest planting or enhancement by Montgomery County Parks. On private land, planting or natural regeneration is coordinated through the forest conservation regulations administered by M-NCPPC or through volunteer programs.

## Noise

The major source of noise in the Four Corners Master Plan area is roadway traffic. Roadway noise levels vary with traffic volume and speed, types of vehicles on the roadway, and the type of roadway. Where existing residential uses line the roadways, few noise mitigation options exist. With property owners' cooperation, a fence or wall-type noise barrier could be constructed on private property along the roadway rights-of-way. However, acoustical treatment of an existing structure is often the most feasible option for affected homes and reduces interior noise levels by increasing the noise-reducing characteristics of the exterior facade, particularly windows and doors.

New residential development or redevelopment adjacent to a major roadway should consider noise-compatible site design as the first priority for noise abatement. These measures include placement of parking lots, open spaces, garages, recreation areas, and other non-habitable uses in the noise affected area between the noise source and the residential unit. Site design that orients the front of single-family attached dwellings towards and parallel to the roadway provides a barrier to noise at the deck or patio level behind the unit.

Physical barriers, such as landscaped berms and noise walls, can also be effective noise abatement measures, but often have aesthetic impacts; therefore, are less preferred treatments. Priorities and abatement measures are discussed in detail in the *Staff Guidelines for the Consideration of Transportation Noise Impacts in Land Use Planning and Development*, M-NCPPC (June 1983).

### *Objective*

- Minimize noise impacts on new development by proposing noise-compatible land uses. Identify and prioritize existing noise impact areas for potential abatement.

### *Recommendations*

- Require noise-compatible land uses for new development within the noise impact areas along major roads (Colesville Road, University Boulevard, and the Capital Beltway).
- This Plan recommends that the State Highway Administration construct a noise wall along the south side of the Capital Beltway between University Boulevard and Colesville Road in the Indian Spring neighborhood. This noise wall will provide relief from Beltway noise for residents, park users, day care facilities, and the YMCA.



## Water and Sewer Service

Community water and sewer service is provided throughout the Master Plan area. Major trunk lines serving Four Corners and the surrounding region are located in the Northwest Branch and Sligo Creek stream valleys. The Washington Suburban Sanitary Commission (WSSC) has determined that the Northwest Branch trunk sewer between Randolph Road and Colesville Road is expected to have capacity constraints in the future.

WSSC's *Rock Creek Wastewater Facility Plan* (CIP S-49.12) is currently underway and will investigate alternatives for eliminating future capacity limitations in the wastewater conveyance system for the Rock Creek basin. One of the plan's possible alternatives is to pump flows from the Rock Creek sewer basin into Northwest Branch's sewer lines. This would significantly increase the number of Northwest Branch lines that will have future wastewater capacity constraints, as well as possibly accelerate the need for projects to address these constraints. The actual nature, extent and timing of any projects in these basins will be determined via the County's *Comprehensive Water Supply and Sewerage Systems Plan* and WSSC's CIP. WSSC has determined that there is a need for additional water storage in the Colesville pressure zone and is currently considering a site in the West Farm Technology Park.

### *Objective*

- Minimize impacts of sewer construction in the Northwest Branch.

### *Recommendation*

- Avoid or minimize impacts of sewer projects required to address wastewater capacity constraints in the Northwest Branch trunk sewer.

