

Environmental Plan

Significant environmental constraints to development in the Shady Grove Study Area consist of wetlands, stream valleys, and floodplain areas. Constraints generated by man's activities—in particular, traffic-related noise—potentially affect more extensive areas.

Stream Valley Protection

Plan Objective:

To protect and enhance the multiple functions of stream valleys throughout the Study Area by designating them conservation areas.

Discussion:

Stream valleys, when examined as a whole, can fulfill many functions beyond their most obvious function as a conduit for floodwater. They can also function as:

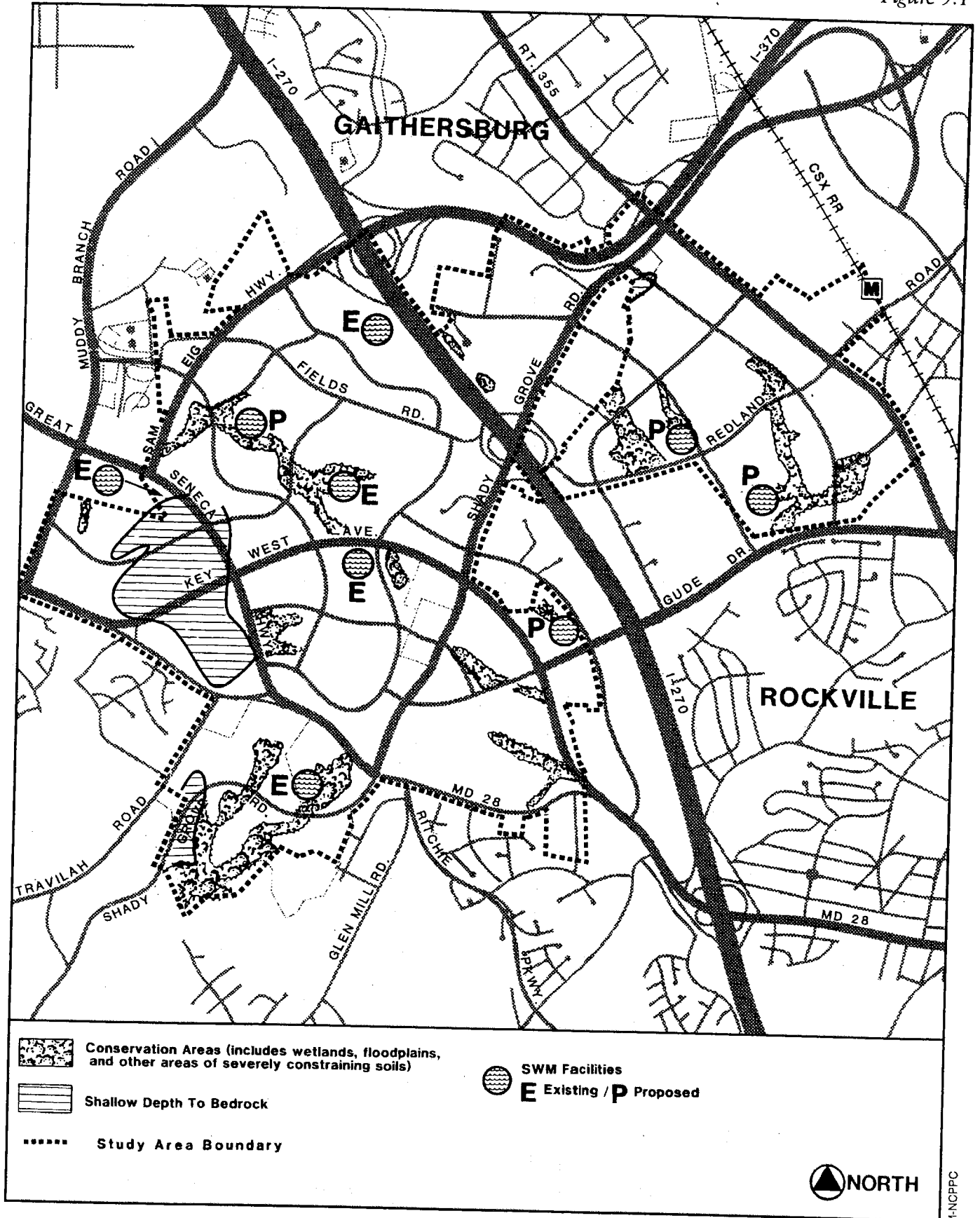
- safe havens for protection and propagation for wildlife, such as deer;
- potential locations for regional stormwater management facilities that control and treat runoff and provide scenic amenities;
- areas for passive recreation and enjoyment; natural filters for runoff pollutants, improving water quality and reducing quantity, particularly in wetland areas; and
- visual breaks between different types and intensities of land uses.

Plan Recommendations:

This Plan designates conservation areas along stream valleys (see Figure 9.1, page 124) to enhance these functions. Within these conservation areas, development will be reviewed for compliance with

Environmentally Sensitive Areas

Figure 9.1



the following regulatory controls and guidelines:

- The M-NCPPC stream valley protection guidelines, which seek to reduce much of the negative influence of development in a natural, non-invasive manner. An important benefit in this approach is that it has other positive spinoff effects on the environment. One of the most important of these is protection and enhancement of wildlife habitats.
- State and Federal Wetland Protection Statutes.
- Zoning Ordinance and Subdivision Regulations (these regulations prevent development in the 100-year ultimate floodplain).

This Plan recommends that, as individual properties are proposed for development, a reforestation plan be prepared by the applicant in consultation with the Maryland State Forest, Park, and Wildlife Service in all conservation areas currently devoid of significant mature vegetation to re-establish a natural stream valley area.

To protect and enhance the living resource habitat and improve water quality are the primary goals of the Planning Department's guidelines for the protection of slopes and stream valleys. The focus on water quality objectives should be supplemented by a living resource habitat protection and rehabilitation objective. While stream buffer protection works well in areas where natural, undisturbed stream valleys still exist, much of the Shady Grove Study Area has been, and continues to be, farmed with tilling in close proximity to streams. At a minimum, reforestation should occur within the entire stream valley buffer, as determined by M-NCPPC guidelines.

This recommendation will be enforced through the development process, but is also recommended for current implementation on farms as an appropriate soil conservation practice. This recommendation will improve water quality, extend the useful life of regional stormwater management facilities, and restore habitat areas, thus enhancing opportunities for diverse wildlife and fishery populations.

Erosion, Stormwater Management, and Flood Control

Plan Objective:

To maintain a living, stable, and biologically diverse stream system in the Shady Grove Study Area.

Plan Recommendations:

To facilitate the provision of adequate safeguards against possible increased flooding, erosion damage, and water quality degradation due to development, the Montgomery County Department of Environmental Protection produced two studies. They are the Shady Branch Preliminary Stormwater Management Plan and a study of the Watts Branch Watershed in 1976, covering much of the Shady Grove Study Area. These studies provide the technical documentation and justification for development of possible regional stormwater management facilities for these developing basins. The

location of possible regional facilities can be seen on the Environmentally Sensitive Areas map. (See Figure 9.1, page 124.)

Residential development is occurring in the Shady Branch watershed in the vicinity of the proposed regional facility at Site 3. Stormwater management controls for all development, including public projects such as roads, should be provided within the subwatershed, either by a regional facility or by on-site stormwater management.

Soil Limitations

Plan Objective:

To assure safe and stable development that recognizes and addresses building constraints due to soil conditions.

Discussion:

Soil type is an important determinant of the capability of land to accommodate various land uses. Even if a particular use is marginally acceptable, the costs of safe construction may be a significant factor.

The predominant soils in the Shady Grove Study Area are Glenelg silt and Manor silt loams; these soils are well drained and very permeable. These soil types are well suited for most development and are capable of accommodating water quality infiltration practices.

Pockets of more severely constraining soil types occur throughout, principally within the floodplain areas of the streams. These soil types are the Calvert, Chrome and Conowingo, Worsham, and Wehadkee silt loams. According to the soil limitations class of the Montgomery County Soil Interpretations Guide, these soil limitations require avoidance through planning and design or very special construction measures.

Two large areas of severely constraining soils exist outside the stream valley. Chrome and Conowingo silt loams are located in the western section of the Study Area, southwest of Great Seneca Highway and north of MD 28. This area presently has tree cover with shallow root systems. These soils have a shallow depth to bedrock and generally require costly rock removal for any excavations.

Plan Recommendation:

At the time of preliminary plan review, detailed studies by a soils engineer will be required to assess, through field investigation, the limitation of severely constraining soils with recommendations for mitigation or avoidance.

Noise Impacts

Plan Objective:

To avoid significant traffic-generated noise impacts on residential development.

Discussion:

While natural constraints are generally confined to the stream valleys, constraints generated by man's activities are more extensive. Noise emanating from the numerous roadways crisscrossing the Shady Grove Study Area, for instance, is high enough to create significant impacts on adjacent residential properties if not mitigated. These excessive noise levels can be annoying and can have adverse effects on human activity, human well being, and a village experience. Excessive noise can disrupt sleep, interfere with vocal communication, and induce psychological stress. It follows that each land use category has a limit which should not be exceeded if that land use is to maintain its proper function. Residential land uses are most sensitive due to the nature of their activities, such as sleep and communication, and the presumption that windows will be opened, particularly in the spring and fall seasons of the year.

The roadway noise levels within the Shady Grove Study Area vary with traffic volume, speed, type of roadway, and the type of vehicles which utilize the roadway. I-270, Key West Avenue, Great Seneca Highway, Shady Grove Road, Fields Road, MD 28, and proposed arterial roadways are or will be the major sources of potential noise generation in the Study Area.

The extent of potential noise impacts in the Shady Grove Study Area are shown in Figure 9.2, page 128.

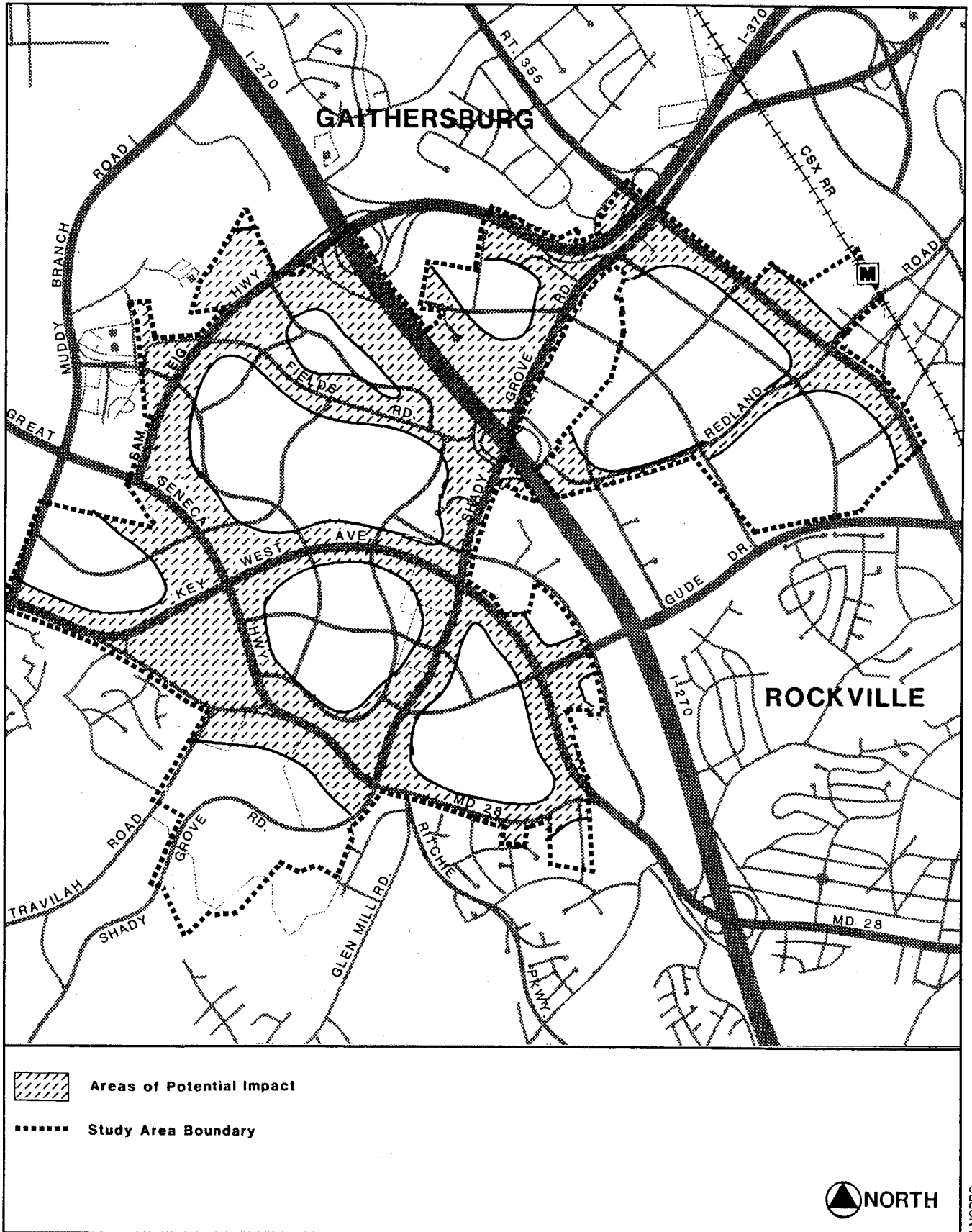
Plan Recommendations:

In keeping with the intent of noise-compatible land use planning, prevention or mitigation of noise impacts should be a major consideration throughout the land use planning and development approval processes. Consequently, to achieve the noise levels recommended in M-NCPPC's noise guidelines, the following noise reduction techniques (in priority order) shall be considered at time of subdivision:

- Whenever consistent with other land use objectives, encourage development of noise-compatible land uses (commercial, office, industrial, recreational, and open space).
- Develop high noise areas with site-specific, noise-compatible land uses, such as parking lots, garages, storage sheds, recreation areas, open space, stormwater management facilities, or any other use that allows noise-sensitive residential dwellings to be placed away or buffered from highways.
- Construct landscaped berms which mimic natural landforms or orient residential structures so that the facade acts as a barrier and buffers private outdoor areas (patios or courtyards) from roadway traffic.
- Construct aesthetic physical barriers for noise mitigation.

Projected Roadway Noise Contours

Figure 9.2



- If measures designed to produce a suitable exterior noise environment are infeasible or insufficient, interior levels of 45 dBA Ldn should be maintained through acoustical treatment of the building shell.

Noise mitigation measures must be consistent and supportive of other land use and design objectives of this Plan, including pedestrian access to mass transit and neighborhood design concepts that maximize transit serviceability.

Further discussion of noise level criteria and mitigation options may be found in Guidelines for the Consideration of Transportation Noise Impacts in Land Use Planning and Development (M-NCPPC, 1983).

In areas where existing development is adjacent to new or widened roadways, MCDOT's noise standard and noise mitigation implementation guidelines shall be used to determine the need and nature of noise mitigation measures.

Water Supply and Sewerage

Plan Objective:

To develop and maintain water supply and sewerage systems with adequate capacity to meet demand.

Discussion:

Water supply and sewerage systems are available and generally adequate to serve the projected needs of the Shady Grove Study Area. The Washington Suburban Sanitary Commission (WSSC) is responsible for operating and maintaining the water supply and sewerage system for Montgomery County.

The Shady Grove Study Area, like most of Gaithersburg, lies within the Montgomery County "high pressure zone" for water service. The need for additional water supply and storage in this area has been identified by WSSC.

Since the Montgomery County High Zone serves an area which is experiencing rapid development (a trend which is expected to continue into the next century), WSSC has proposed a project—W-90.01, Montgomery County High Zone Supply Facility Plan—in the 1990-95 Capital Improvements Program. The objective of this Facility Plan is to develop a plan of supply for the Montgomery County High Zone and all dependent zones for the projected maximum day water consumption through the year 2020. Additional remedial measures are under study by the County and WSSC. This Plan supports the timely completion of the study.

Plan Recommendations:

The Montgomery County Comprehensive Water Supply and Sewerage Systems Plan is the County's program for providing community water and sewerage service.

This Plan recommends that the entire Study Area be eligible for sewer and water service within the next six years.

The Plan's staging recommendations will affect the timing of development. The Ten Year Comprehensive Water Supply and Sewerage Systems Plan generally requires that category changes reflect the recommendations of the appropriate Master Plan. This linkage between the Master Plan and the Water Supply and Sewerage Systems Plan should ensure that category changes will be consistent with Master Plan staging policies.