6. FLOOD PROTECTION

Protecting lives and private and public property is the basis for regulations that limit or prohibit development activities in floodplains. The 100-year ultimate floodplain is based on the area that would be flooded by a storm that has the statistical probability of occurring once every 100 years. Since it is only a statistical probability, it is possible that a 100-year storm could occur more than once in a 100-year period and even more than once in the same year. Periodically, a storm such as hurricane Agnes in 1972 reminds us of how much development has occurred in areas subject to flooding. During Agnes, parts of the metropolitan area experienced a 100-year or greater flood. Local conditions in a 100-year flood can be worse than expected if a floodway becomes blocked by debris. It should be noted that the floodplain calculation is based on run-off from estimates of fully developed land use recommended in the land use plan rather than existing conditions. The magnitude of a 100-year flood is such that it requires avoiding development in vulnerable areas and the provision of large-scale retention facilities such as Lake Frank and Lake Needwood. By comparison, stormwater management facilities typically are designed to handle a 2-year storm.

*** Various sections of the Montgomery County Code restrict the construction of homes, other structures, and the disturbance (grading, clearing) of 100-year ultimate floodplains.** Prior to 1974, the 50-year floodplain was the standard. Construction activities in 100-year floodplains also require a state waterway construction permit when disturbance of a floodplain is unavoidable. This is designed to limit the obstruction of floodways which could result in increased flooding. A County program to reduce the potential damage to private homes has purchased approximately two dozen homes located in floodplains.

*** Construction of residences and many other structures is not permitted within an area that may be flooded in the case of a dam break.** The area that is regulated is referred to as a "danger reach."

7. STORMWATER MANAGEMENT AND SEDIMENT CONTROL

Stormwater management (SWM) refers to a variety of active and passive techniques provided at the time of development or later in previously or developed areas to reduce the amount of water, sediment, and pollutants entering the stream system. These measures are designed to reduce the peak flow of streams to limit erosion and flooding and to complement normal flood protection.

*** Discharges into waters and wetlands require permits from the U.S. Army Corps of Engineers, the Maryland Department of the Environment (MDE), and the Maryland Department of Natural Resources (DNR).** Permits are issued based on compliance with the Federal Water Pollution Control Act (Clean Water Act) and state statutes.

*** The Montgomery County Department of Environmental Protection regulates stormwater management, erosion, and sediment control.** With the exception of low density agricultural and residential zones (RDT, Rural, RE-2, and, in some cases, RC), development is required to treat and store stormwater run-off. This provides flood protection, minimizes streambank erosion, removes pollutants, minimizes sedimentation of waterways, and, in some cases, recharges the groundwater supply.

*** State and County regulations identify infiltration as the preferred stormwater management (SWM) technique, where it is feasible.** Infiltration allows stormwater run-off to be detained in an area so that it can percolate into the soil to recharge while filtering pollutants entering the groundwater supply. Infiltration helps to minimize peak stream flows and related erosion while maintaining an adequate base flow by recharging the groundwater supply. SWM techniques, in order of preference, are: infiltration,

flow attenuation by use of open vegetated areas and swales, retention (wet ponds) and detention (dry ponds) or combinations of these. Poor drainage characteristics in some parts of the County limit the use of standard infiltration techniques. An applicant must prove that the preferred techniques are not feasible in order to receive approval for the less preferred methods.

8. FLORA AND FAUNA

Habitat for native flora and fauna is lost when vacant land and forest cover are converted to other land uses. The deterioration of available habitat and the decline in diversity of native plant and animal communities also are caused by forest fragmentation, the invasion of non-native, more aggressive species, and the application of herbicides and pesticides.

*** Montgomery County is home to a number of plant and animal species listed as endangered by the Federal Government, as well as several species being considered for listing.** The Maryland Natural Heritage Program listed 267 plants and 76 animals in the state as rare, endangered, or threatened in 1987. Of the 267 plant species listed, over 100 species are believed to be found in Montgomery County. The County is thought to have the highest concentration of endangered and rare plant species on the northeast coast, due largely to the diverse habitat in the Potomac River floodplain and the Great Falls Natural Heritage Area. Natural Heritage Areas, designated by the State of Maryland, are composed of plant or animal communities that are considered to be among the best statewide examples of their type, with at least one species that is endangered, threatened, or in need of conservation.

In addition to those two places, Montgomery County has a large variety of habitats that house rare and endangered species: rock outcroppings, steep rocky slopes, bogs and other wet areas, fertile stream valleys, meadows, and fields. Chain Bridge flats, on the Potomac River, is the only known site of the Mossy-Cup Oak in the County. A very rare Maryland species, the Crested Dwarf Iris, grows in Gaithersburg.

Four species of birds that have been found in the County are among the species in the greatest danger of disappearing from the state's or nation's wild breeding stock. They are the Bald Eagle, Short-eared Owl, Loggerhead Shrike, and Bachman's Sparrow.

9. TREES

Trees produce the oxygen we breathe, absorb stormwater, moderate our climate, and provide a home for plants and animals. They also are viewed as an amenity that helps create a sense of community. However, they often are cleared so that a property might be used more profitably. In growing recognition of their aesthetic and environmental worth, the County has begun to take steps to preserve and replenish its woodlands.

*** Montgomery County has the least amount of forest cover among counties comprising the Washington, D.C., MSA.** The County has undergone two periods of deforestation. Agricultural clearing in the early 20th century reduced tree cover to 22 percent of the total land area. After a period of tree regeneration lasting until the mid-1960s, during which the tree cover increased to 32 percent, the County was further urbanized, which reduced the amount of forested land to between 16 and 22 percent, depending on whether estimates of urban tree cover are included. Between 1965 and 1985, the County lost commercially valuable timber at a rate that was the highest among the Washington region's major jurisdictions. Declining tree cover and the fragmentation of the remaining forest areas into smaller tracts has been blamed for the decline of certain animal species which depend on the existence of "deep woods."

*** There has been a concerted effort to plant trees.** About 250,000 trees have been planted along the County's streets with public funding, while an additional 200,000 to 300,000 have been planted by private individuals or groups, within