

ENVIRONMENT

Intent

The intent of the Environment Plan is to ensure that in developing the County, the natural beauty is preserved, water quality is protected, property values and quality of life are enhanced, and ecological diversity is preserved. With sound protection measures, such as those presented herein, Prince William County's citizens, business community, and visitors enjoy a healthy environment co-existing with a vibrant economy. In this regard, this Plan is to be used to address environmental issues, evaluate development proposals in their earliest stages, and develop ordinances.

Prince William County is one of a few jurisdictions on the Atlantic Seaboard that extend from sea level to mountain crest. The natural environment of the County is diverse. Streams, creeks, marshes, forests, meadows, and shores provide habitat for plants and animals, as well as contribute to the economic well being and aesthetics of the County.

One way to preserve the County's natural environment is to see that applicants for development approval address environmental issues at the earliest planning phase. This Plan assists in this early planning process by defining those areas of a site that are environmentally sensitive and need to be preserved for the purpose of protecting water quality, maintaining the County's natural beauty, enhancing property values and quality of life, and preserving ecological diversity. On its rezoning application, the County asks for an environmental constraints analysis to determine areas of a site that are suitable for development and those areas that are not. The constraints analysis determines the presence and extent of certain environmental features described in this Plan and is then used as a tool to outline in a rezoning or special use permit application the preservation or conservation areas that will be provided with those applications.

The standards and guidelines presented in this Plan are intended to supplement those reflected in the Chesapeake Bay Act and Chesapeake Bay Regulations. Prior to development of land, the property owner shall consult the Chesapeake Bay Preservation Overlay District Map, which identifies components of the Chesapeake Bay Act. These components include Resource Protection Areas, Resource Management Areas, and Intensely Developed Areas. A description of these components, and specific regulations regarding the Chesapeake Bay Act, are found in the County's Zoning Ordinance and Design and Construction Standards Manual.

Information contained in this Plan, and other environmental information available through the County, are provided as a public service by the operators/management of the Prince William County Internet Home Page, County cable television stations, radio stations, print media, and the Virginia Cooperative Extension Service.

The components of the Environment Plan include text and fold-out maps as follows:

- Intent, Goal, Policies, and Action Strategies.
- Map 1: Highly Erodible Soils (fold-out map).
- Map 2: Highly Permeable Soils (fold-out map).
- Map 3: Chesapeake Bay Resource Protection Areas (RPAs) (fold-out map).

GOAL: Preserve, protect, and enhance the significant environmental resources and features of the County, including air quality, topography, soils, ground and surface water, biotic communities (stream corridors, forests, and wetlands), sensitive plant and animal species, and natural viewsheds.

GENERAL ENVIRONMENTAL POLICIES AND ACTION STRATEGIES

EN-POLICY 1: Consider environmental concerns at all levels of land use-related decision-making.

ACTION STRATEGIES:

1. Develop a methodology to account for the depreciation of renewable (such as forest, groundwater) and nonrenewable (such as unique habitat) resources when evaluating the economic health of the County.
2. Update the Zoning Ordinance to require rezoning and special use permit applicants to submit an environmental constraints analysis. This analysis shall provide the following kinds of information with the applications where such environmental conditions exist:
 - A description or generalized mapping of natural site conditions with an emphasis on significant environmental features that could be affected by the proposed development and will be retained upon completion of the project. The mapped information shall address the following:
 - ◆ Chesapeake Bay Resource Protection Areas.
 - ◆ Areas of 15 percent slope and greater.
 - ◆ Impervious and proposed pervious surfaces.
 - ◆ Existing natural ground surface features and drainage patterns.
 - ◆ Areas that will remain in a natural or undisturbed state upon completion of a project (including woodland conservation areas).
 - ◆ Animal or plant species, including critical habitat, that have been listed as Federal or State threatened or endangered species, or species of special concern, by the US Fish and Wildlife Service or the Virginia Department of Conservation and Recreation.
 - ◆ 100-year floodplain boundary.

- ◆ Areas of highly erodible and highly permeable soils.
 - A description of appropriate avoidance and/or mitigation efforts, including preservation or conservation areas that will be provided as part of the proposed development, as described in EN-Policy 4.
 - A study of steeply-sloped and sensitive soil areas.
3. The Planning Office will update the General Development Plan submission requirements contained in the Zoning Ordinance, based on this Environment Plan and other relevant laws and regulations. The Planning Office will use these guidelines as a checklist for systematically reviewing rezoning and special use permit applications in terms of the data provided on natural resources and make these guidelines available to the public and applicants.
 4. All County offices involved in land use will coordinate with local, federal, state, and regional environmental organizations to facilitate the exchange of data and implementation of environmental protection measures.
 5. Ensure that the County is cognizant of the environmental issues and impacts of development projects of adjacent jurisdictions that might affect the health, safety, and welfare of the citizens of Prince William County.
 6. Encourage developers to incorporate into site planning various environmentally sensitive approaches to stormwater management, including low-impact development techniques, for example, as outlined in the Center for Watershed Protection manuals, and preservation and restoration of natural land forms, as discussed in this Plan and the Community Design Plan.
 7. Ensure that open space is maintained in the County and that a minimum of 39 percent of the total land area in the County will be retained as open space by buildout of the Comprehensive Plan, through appropriate amendments to the Zoning Ordinance to increase open space requirements.
 8. Amend the open space requirements in the Zoning Ordinance to ensure preservation/provision of open space within all developments.

EN-POLICY 2: Increase the environmental awareness of County residents.

ACTION STRATEGIES:

1. Develop educational programs on important environmental issues for the business, agriculture, and residential communities. Provide developers with information on County conservation requirements.

2. The County Library System Director shall establish an Environmental Resources Library in the County Library System.
3. The Board of County Supervisors should seek grant funding from the federal and state governments to print educational materials regarding environmental resources and conservation measures.
4. Continue to enhance the County's recycling program, with a goal to achieve and maintain recycling of a minimum of 40 percent of the total waste stream.
5. Maintain current information brochures for public distribution that explain the importance of protecting and managing the County's soils. In addition, the Soil and Water Conservation District, Department of Public Works, and the Cooperative Extension Service should work together to develop a single environmental education publication that meets the needs of all three groups.
6. Prepare or acquire information brochures explaining proper maintenance of private sewer/septic systems and the importance of such maintenance to the owner and to the environment. Make this information available to users of these systems.
7. Develop public service announcements that provide information about timing, selection, and application of appropriate chemical applications for yards and agriculture which also emphasize that inappropriate applications can damage the environment.
8. Prepare or acquire information brochures and public service announcements that explain the importance of water conservation and water quality protection.
9. Prepare and distribute information on household hazardous waste.
10. Enhance the litter control program.

CLIMATE AND AIR QUALITY POLICIES AND ACTION STRATEGIES

EN-POLICY 3: Improve air quality within Prince William County.

ACTION STRATEGIES:

1. Establish procedures to monitor air quality in the County.
2. Encourage the Department of Environmental Quality (DEQ) to establish additional air quality monitoring stations in the County.
3. Seek input from the DEQ on rezoning or special use permit applications that include facilities that are likely to produce gaseous emissions or potentially harmful

airborne particulates, in cooperation with the Air Quality Committee at the Metropolitan Washington Council of Governments (MWCOG).

4. Where applicable, review and consider air quality impacts for public and private industries and utilities in conjunction with the rezoning and/or special use permit application process.
5. Encourage and pursue the development of inter-jurisdictional agreements and contingency plans to deal with stationary and mobile sources of pollution to protect residents, and especially sensitive residents (such as the young, the elderly, and sensitive populations).
6. Determine if adequate controls are in place to prevent metals, Polychlorinated Biphenyls (PCBs), and other carcinogenic materials from entering the trash stream of public and private incinerators. Thereafter, continue to monitor this issue and ensure adequate controls are in place to maintain the safety of the environment.
7. Encourage the reduction of out-gassing pollutants from point sources.
8. Conduct air quality/transportation studies along major transportation corridors and at congested intersections, in order to better define the impacts and trends of vehicle-generated pollution.
9. Reduce pollution impacts from vehicles, by designating compact urban growth areas and by encouraging the development of mixed use projects as described in the Long-Range Land Use Plan.
10. Encourage the Virginia Department of Transportation (VDOT) and developers to preserve vegetative buffers along arterial roadways as a means of filtering and absorbing pollutants.
11. Reduce pollution from vehicles by encouraging the use of advanced technology and alternative modes of transport—including public transit, van/carpooling, bicycles, light rail, and pedestrian paths. Encourage the use of alternative fuels (such as natural gas and/or electric power) for public transit and school buses.
12. Encourage utility companies to share easements where technically feasible.

TOPOGRAPHY AND SOILS POLICIES AND ACTION STRATEGIES

EN-POLICY 4: Protect and manage the County's soils and natural vegetation.

ACTION STRATEGIES:

1. Require rezoning and special use permit applicants to identify areas of highly erodible, highly permeable, and marine clay soils. Provide a narrative description of proposed methods to avoid and/or mitigate development on these sensitive soil areas. Refer to the Permeable Soils map (Map 1) and Highly Erodible Soils map (Map 2) for a complete listing of the soil types. The map data source is the U.S. Department of Agriculture Soil Survey of Prince William County, dated August 1989. These maps are expressly incorporated by reference into this chapter. Exact details of mitigation measures will be developed during site plan review. Details of avoidance and/or mitigation will be provided with an application for a rezoning, special use permit, or public facility review.
2. Preservation/conservation of certain natural land forms is important to the County in achieving water quality targets, good community design objectives, and ecological diversity. Accordingly, discourage development adjacent to a perennial stream in the following areas:
 - Wooded slopes of 25 percent and greater with highly erodible soils, permeable soils or marine clay soils.
 - Wooded slopes of 25 percent and greater having a continuous area of 10,000 square feet.
 - Wooded slopes of 15 percent and greater with highly erodible soils, permeable soils, or marine clay soils.
 - Wooded 100-year floodplain.
 - Non-wooded slopes of 25 percent and greater with highly erodible soils, permeable soils, or marine clay soils.
 - Non-wooded slopes of 25 percent and greater having a continuous area of 10,000 square feet.
 - Non-wooded slopes of 15 percent and greater with highly erodible soils, permeable soils or marine clay soils.
 - Non-wooded 100-year floodplain.
3. Seek commitments prior to the time of rezoning and special use permit approval that many of the landforms identified in AS-2 above will be set aside as a preservation/conservation area.
4. Use native plants that are adapted to local soil and weather conditions when re-vegetating disturbed areas.

5. Where toxic waste soil contamination is suspected, request that a rezoning and/or special use permit applicant submit the results of soil testing as part of the application.
6. Prohibit development at toxic waste sites to the extent provided by law.
7. Monitor the effectiveness of the Prince William County Erosion and Sediment Control Ordinance and upgrade as appropriate.
8. Request erosion control plans for all federal and state projects in Prince William County.
9. Minimize clearing of vegetation and disturbance of soils.
10. Continue to identify the locations of critically eroding shorelines and stream banks. Development of such areas shall require the appropriate stabilization as identified in the County's Design and Construction Standards Manual (DCSM).

SURFACE AND GROUNDWATER POLICIES AND ACTION STRATEGIES

EN-POLICY 5: Maintain or enhance the integrity of surface bodies of water (lakes, ponds, rivers, and streams) and watersheds.

ACTION STRATEGIES:

1. Encourage the use of no-net-gain standards to prevent nutrient loading and sedimentation runoff to adjacent waters that result from development-related practices. Seek similar standards for agricultural practices.
2. Encourage water quality improvement during the redevelopment of properties located within Intensely Developed Areas, and other areas targeted for redevelopment, through consideration of improperly maintained Best Management Practices, replacement of inefficient sanitary sewer lines or failing septic systems, use of low-impact development techniques—for example as outlined in the Center for Watershed Protection manuals—and re-vegetation along streams.
3. Establish a program to monitor the effectiveness of the implementation of Chesapeake Bay Regulations.
4. Locate away from the County's water bodies those nonresidential activities that use, store, or manufacture significant quantities of toxic substances.
5. Study and recommend measures to improve contingency planning by parties who use, handle, or store hazardous substances in sufficient quantities so as to

constitute a threat to surface and groundwater quality. The measures should address identification of trigger amounts of materials and procedures for prevention of leaks or spills and for containment of leaks, spills, and water runoff from fire fighting.

6. To the extent permissible under law, require industries and utilities to monitor for chemical leaks.
7. Develop—in coordination with the Community Design Plan—general design evaluation guidelines, criteria, and techniques that promote the preservation of natural landscapes—especially those that tend to be drought resistant—and apply them in the evaluation of rezoning and/or special use permit applications.
8. In conjunction with the Soil and Water Conservation District and the Agricultural Extension Service, encourage the County's farmers to employ best management practices, such as crop rotation, conservation tillage, strip cropping, nutrient management, fencing and buffer areas along streams to keep out livestock, use of livestock water devices away from stream, and grazing rotation plans.
9. Continue and promote an "Adopt-a-Stream" program.
10. Encourage leaving a natural buffer of existing woodland or forestation area of a least 50 feet along each side of all waterways that are not otherwise protected under the Chesapeake Bay regulations or similar legislation.
11. Encourage cluster development in areas of the County that have steep slopes and highly erodible soils.
12. Where appropriate, require rezoning and special use permit applicants to describe in general detail the natural character of significant creeks, rivers, lakes, and ponds (as characterized on United States Geological Survey Maps) located on the property, as well as the 100-year floodplain and any Chesapeake Bay Resource Protection Area (RPA) (Map 3). Require applicants for such rezonings and/or special use permits to explain how the significant surface water bodies and related shorelines to be retained upon completion of the project will be protected during construction.
13. Continue to implement a watershed management program, as set forth by the County's Public Works Department, to provide regional stormwater management and flood control facilities, where such facilities are feasible and permitted by federal and state agencies.
14. Require adherence to the following guidelines for determination of density or intensity of development:

RESIDENTIAL

Preclude the development of habitable structures within 100-year floodplains. The allowable dwelling unit density for a property shall be calculated based on the area outside the floodplain and the Chesapeake Bay RPAs. The allowable dwelling unit density areas of the property encumbered by 100-year floodplain and Chesapeake Bay RPAs shall be based upon the maximum density permitted by the existing zoning of the property at the time of adoption of the 1998 Comprehensive Plan. Other relevant Comprehensive Plan components—such as the capacity of the transportation network, environmental constraints, and zoning requirements—must be addressed, as well, in determining the appropriate number of dwelling units on a property.

NON-RESIDENTIAL

On non-residential-zoned property encumbered with areas of 100-year floodplain and Chesapeake Bay RPAs, the allowable intensity is determined based on the floor area ratio (FAR) specified by the existing or proposed zoning district and the total site area. Development within the 100-year floodplain and Chesapeake Bay RPAs is to be precluded. The intensity of development is to be evaluated on the basis of other relevant environmental resource action strategies, the compatibility of the proposed uses with surrounding existing uses and other applicable portions of the Plan.

15. Develop and distribute public service information to reduce nutrient loading in stormwater runoff from yards and farms.
16. Use the Virginia Marine Resources Commission (VMRC) Criteria for Siting of Marinas or Community Boat Moorings in evaluating future waterfront access sites to the County.

EN-POLICY 6: Limit the amount and extent of impervious surfaces.

ACTION STRATEGIES:

1. Encourage the minimization of the amount of impervious surfaces of development and utilize acceptable retrofit techniques in redevelopment in order to minimize stormwater runoff through the use of appropriate low-impact development techniques, for example as outlined in the Center for Watershed Protection manuals.
2. Encourage the use of semi-pervious or pervious surfaces and other low-impact development techniques, for example as outlined in the Center for Watershed Protection manuals.

3. Require, as part of an application for a rezoning and/or special use permit, the general location of impervious surfaces to be identified and that a statement be included indicating what the maximum amount of impervious surfaces will be upon completion of the development.
4. Continue an enforcement/monitoring program to ensure that, during and after development, peak stormwater flows do not exceed pre-development peak flows, in terms of quantity, quality, and volume.
5. At the time of an application for a rezoning or special use permit, seek commitments to use low-impact design to mitigate the impact of parking areas, for example as outlined in the Center for Watershed Protection Manuals, and encourage structured parking.

EN-POLICY 7: Promote the preservation and use of natural ground surface features which facilitate the effective management of stormwater runoff.

ACTION STRATEGIES:

1. Seek and implement stormwater management—including low-impact development standards—that require all development projects to establish systems—preferably natural—for filtering the “first flush” of urban runoff (delivery of disproportionately large amounts of pollutants that occurs during the early stages of a storm) near its source.
2. Require the installation of sediment trapping devices close to the source(s) of soil erosion.
3. Maintain or establish areas of natural vegetation downstream of disturbed soils to help filter sediments and other pollutants.
4. On rezoning applications that include generalized development plans or on special use permit applications, request the applicant to show the natural ground surface features and drainage patterns that will be preserved for purpose of managing stormwater run off.
5. Incorporate options for low-impact development techniques appropriate for application in Prince William County, for example, in the DCSM.

EN-POLICY 8: Ensure the protection of the County's groundwater and aquifers.**ACTION STRATEGIES:**

1. Coordinate with the Health Department and State Water Control Board to identify Critical Groundwater Areas (CGAs).
2. Develop procedures to protect or improve, if necessary, the water quality of CGAs.
3. Evaluate groundwater conditions for potential pollution, using available data from the Virginia Department of Environmental Quality (for leaking underground storage tanks) and the Prince William County Health Department (for failing septic systems) when reviewing rezoning and/or special use permit applications.
4. Promote the use of secondary containment storage tanks for petroleum products and other hazardous materials.
5. Review and upgrade, as appropriate, the Best Management Practice and soil and erosion maintenance enforcement program for all types of development.
6. Conduct a study to predict the pollution content of proposed stormwater management ponds.
7. Continue to monitor the pollution content of the sediment in existing stormwater management ponds.
8. Develop an ordinance that requires new wells be tested for toxic and radiological substances at the same time that they are being tested for bacterial contaminants.
9. Develop guidelines for the preservation of saprolite (soft, earth, clay-rich, thoroughly decomposed rock formed in place by chemical weathering of igneous or metamorphic rock) in areas where land use includes agriculture and where septic systems are used.
10. Support a 100-percent reserve requirement for all drainfields, or equivalent mechanisms for achieving the same goal—regardless of percolation rate—for all developments in the County that are not developed with public sewer.
11. Ensure that any construction in a flood hazard district (as identified by the Federal Emergency Management Act) is consistent with both the Flood Hazard Overlay District and Chesapeake Bay Preservation Area Overlay District requirements, as identified in the Zoning Ordinance and the DCSM. Expansion of any nonconforming use or structure in a flood hazard district shall be permitted only as set forth in the Zoning Ordinance and the DCSM.

12. Promote the use of lined catchment basins or water quality inlets for stormwater runoff and/or small spills or leakages on sites where petroleum products or hazardous wastes are handled.
13. Encourage the use of appropriate vegetation in the stormwater system that will remove nutrients from the storm flow.

EN-POLICY 9: Set sewer force mains and petroleum and hazardous material lines away from the waters' edge.

ACTION STRATEGY:

1. Encourage that—except where a crossing is needed—sewer force mains and petroleum and hazardous substances lines be located outside stream channels and other water bodies.

EN-POLICY 10: Ensure the high quality of public drinking water sources, such as Lake Manassas and the Occoquan Reservoir.

In addition to the policies and action strategies listed for surface and groundwater protection, the following action strategies will serve to implement this policy:

ACTION STRATEGIES:

1. Encourage the minimum density/intensity of development, as reflected by the appropriate land use classification shown on the Long-Range Land Use Plan Map around the shore of the reservoirs.
2. Conduct a study to determine appropriate land use densities (dwelling units/acre) near the Occoquan Reservoir—the County's primary public water supply—and evaluate the option of creating an overlay district for the area.
3. Where not otherwise required as part of the Chesapeake Bay Preservation Act for designated RPAs, require a minimum 100-foot setback from shorelines of public water sources for development-related ground disturbance activities.
4. Require the use of Best Management Practices for agricultural activities undertaken within the Lake Manassas and Occoquan Reservoir watersheds.
5. Continue to support the Occoquan Monitoring Laboratory, the Northern Virginia Regional Commission's technical studies, and the multi-jurisdictional Occoquan watershed program. Obtain annual reports for presentation to the Board of County Supervisors.

6. Promote open space uses and—where practical—acquire land along the Occoquan Reservoir for special use parks that are designed to promote an appreciation of the natural environment and facilitate passive recreation (such as fishing, hiking, and nonmotorized boating).
7. In cooperation with Fairfax County, continue restricting by ordinance the use of internal combustion engines on the Occoquan Reservoir.
8. Request that the Occoquan Laboratory identify types of point/non-point pollution sources upstream from the reservoirs and to suggest ways that the non-point source pollution can be eliminated or controlled.

EN-POLICY 11: Preserve natural vegetation—especially existing and mature trees—and provide for the replacement of trees.

ACTION STRATEGIES:

1. Maintain and update the County's buffer areas, landscaping, and tree cover requirements contained in the Zoning Ordinance and DCSM. Promote tree preservation instead of tree replacement.
2. Adopt a Tree Preservation Ordinance, as allowed by state law.
3. Continue to support and implement the Agricultural and Forestal District program to preserve farmland and woodland areas in the County.
4. Continue the progress toward establishing a Countywide greenway and path system through the voluntary donation of land and easements from interested property owners, as a means of environmental protection.
5. Coordinate with the Virginia Department of Forestry to implement an urban forestry program.
6. Conduct a professional study to identify the County's mature hardwood forests (such as oak/hickory) and the location of those forests deserving special protection.
7. Consider acquisition of select sites for public parks/forests and/or encourage the dedication of such sites by private property owners.
8. Maintain the County's informal registry of Historic and Champion Trees. Use this registry at the time of rezoning and special use permit application to determine the presence of such trees on the property.
9. Study the practicality of adopting various reforestation strategies.

EN-POLICY 12: Identify, manage, and protect all ecological communities and wildlife—especially critical habitats—as well as endangered and threatened species, and species of special concern, as identified in official Federal and State lists.

ACTION STRATEGIES:

1. Establish an identification and monitoring system for the County's animal or plant species, including critical habitats, that have been listed as Federal or State threatened or endangered species, or species of special concern, by the U.S. Fish and Wildlife Service or the Virginia Department of Conservation and Recreation.
2. Develop and implement protection guidelines for endangered and threatened populations of plants and wildlife that occur in the County. These guidelines apply to County and privately-owned lands.
3. Where records maintained by State or Federal agencies or other credible resource indicate is appropriate, require that applicants for a rezoning and/or a special use permit provide an inventory of endangered species, threatened species, and species of special concern.
4. To protect the biological diversity, processes, and functions of natural habitats, identify a network of preservation corridors or large woodland areas to be incorporated into an overall habitat protection network.
5. Investigate the benefits of establishing a private conservancy fund for the purpose of purchasing privately held lands for preservation purposes and seeking perpetual conservation easements to preserve open space.
6. Identify areas suitable for wetlands restoration and develop procedures whereby a developer/landowner can contribute to such wetlands when no alternative to wetland preservation exists on-site.

NATURAL VIEWSHEDS POLICIES AND ACTION STRATEGIES

EN-POLICY 13: Identify significant natural viewsheds in Prince William County.

ACTION STRATEGIES:

1. Seek funding from federal, state, local, and private organizations in order to secure professional services needed to conduct a Countywide or area-specific viewshed inventory or study.
2. Develop an incentive system for preservation of viewsheds.
3. Determine whether it is desirable to establish viewshed overlay districts in the County.