

# Federal Environment

*element*

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# Introduction

## Federal Environment

*It is the goal of the federal government to:*

Conduct its activities and manage its property in a manner that promotes the National Capital Region as a leader in environmental stewardship and preserves, protects, and enhances the quality of the region's natural resources, providing a setting that benefits the local community, provides a model for the country, and is worthy of the nation's capital.

The National Capital Region's natural resources have influenced its development throughout its history, from its agricultural beginnings and early port cities to the siting of the capital city at the confluence of two rivers. The region's dramatic topography, extensive forests, and varied waterways give the national capital a unique environmental setting that has been respected and protected for many generations. Today, even as these environmental resources continue to be highly valued, the National Capital Region has become one of the nation's largest metropolitan areas, with ongoing growth in population, jobs, and visitors. This growth is placing a strain on the region's environmental qualities.

The federal government takes a strong interest in protecting the region's environment, and has a significant influence on it, for a variety of reasons:

- The federal government owns a large portion of the region's land, as well as much of its water area, including many key environmental resources. The federal government is also the region's single largest employer, tenant and building owner. So the government's environmental stewardship, and its policies concerning government facilities and workforce, have a significant impact on the region's overall environmental quality.
- The federal government is a permanent presence in the region, and therefore can maintain a long-term perspective on the region's environmental quality.
- The nation and world look to the National Capital Region as a symbol and model for effective governance. Environmental policy in this region therefore has a significant impact far beyond the immediate environment of the region.

- The region is interconnected to environmental resources beyond its borders. Environmental policies within the region therefore affect populations and ecosystems beyond those of the region itself.
- The region is home to the government agencies that set policies for the nation, and therefore often plays a role in testing innovative policies and demonstrating the benefits of sound environmental stewardship.

The National Capital Region needs to accommodate a wide variety of operations and symbolic functions of the federal government. These federal activities are part of a complex regional economy and the human needs of millions of residents and visitors. As in any metropolitan area, the desire is to accommodate these human activities with minimal disruption to environmental resources. This is often best achieved by concentrating human activity, resulting in a relatively small amount of environmental impact compared to the more widespread impacts of dispersing these activities over a wider portion of the region or nation. Sound planning therefore recognizes the value of intense development as a necessary part of the protection and enhancement of natural resources. Some policies may therefore be more relevant to rural or less developed areas than to areas that are urbanized or well served by transit.

The Federal Environment Element identifies the Commission's planning policies related to the maintenance, protection, and enhancement of the region's environment. The Element provides an overall framework from which the Commission and others can evaluate the environmental implications of federal projects, and facilitate coordinated management of environmental resources among agencies. The Element also serves to convey the

## Legislative and Regulatory Framework

The federal government has been at the forefront of creating innovative solutions to environmental problems. Over the years, and due mainly to increased public scrutiny and well-publicized environmental justice issues, programs to improve the quality of the environment have been developed not only at the federal level, but at state and local levels as well. Several Presidential Executive Orders and local initiatives encourage federal and local governments to assume a leadership role in improving the environment.

A number of environmental laws define the federal government's formal responsibility for protecting and conserving environmental resources. These laws are primarily administered by the U.S. Environmental Protection Agency (EPA), which develops and enforces regulations that implement environmental laws. EPA is also responsible for researching and setting national standards for a variety of environmental programs.

Federal agencies must comply with environmental laws, which cut across nearly all federal programs, in carrying out their activities. The primary environmental law applied to all federal activities is the National Environmental Policy Act of 1969 (NEPA), which requires federal agencies to evaluate the effect of their actions on the quality of the human environment. Federal agencies must document these impacts as part of their decision-making process, and must provide this documentation to the Commission for its review of agency proposals. NEPA's requirements are further defined by the Council on Environmental Quality's (CEQ) regulations for implementing the procedural provisions of NEPA. Meeting NEPA and CEQ requirements will help the Commission and submitting agencies assess and properly address environmental impacts early in the master planning and project planning processes. Additional laws cover specific environmental topics such as clean air, water, and waste materials.

The strong federal presence in the National Capital Region and the proximity of many federal facilities to significant natural resources (e.g., parks, open spaces, and waterways) make it imperative that special efforts be made by federal facilities to follow the spirit, as well as the letter, of the policies embodied in NEPA and other laws.



Commission's environmental policies to other federal agencies, to local governments and coordinating bodies such as the Metropolitan Washington Council of Governments (MWCOCG), and to citizens and advocacy groups. In cooperation with state and local governments, federal agencies should apply the policies of this Element in managing the region's environmental resources. Related guidance is also provided in other elements such as Parks and Open Space; Transportation; and Federal Workplace. The following sections outline the major features of the region's environment and state the Commission's policies.

**THE NATIONAL CAPITAL PLANNING ACT OF 1952 RECOGNIZES THE COMMISSION'S INTEREST IN THE REGION'S ENVIRONMENT BY GIVING THE COMMISSION THE RESPONSIBILITY "TO PRESERVE THE IMPORTANT... NATURAL FEATURES OF THE NATIONAL CAPITAL."**

# Policies



## General Policies

Federal agencies should:

1. Consult regularly with representatives of adjacent communities and local governments to identify environmental issues and consider measures to avoid or mitigate adverse impacts.
2. Consult with the Commission early in the process of developing project proposals, particularly in the site selection stage, in order to assure adequate opportunity for identification and consideration of environmental issues.

## Air Quality

### *Context*

Air quality has steadily become a major environmental concern for the region. Although this area has historically never had a significant amount of "smokestack industry," the growing usage of automobiles has made air quality one of the region's leading environmental issues. In addition to detrimental effects on human health, air pollution degrades visibility that is especially critical to the region's historic viewsheds. Air pollution, and accompanying "acid rain," also cause the deterioration of sensitive materials in many historic federal buildings, memorials, and other structures.

Due to the significant federal presence in the region, the federal government's activities and policies can have a major impact on air quality. Federal government employees set an exemplary standard of high usage of public transit, providing a model for other employers.

## Light Pollution

The use of lighting should be carefully designed and controlled to best derive its benefits while minimizing these negative impacts. Lighting is often desirable to enhance safety and security, but this benefit can sometimes be obtained with motion-sensitive lighting fixtures, or with lower lighting levels that avoid sharp contrasts and glare. Lighting also provides aesthetic benefits, such as by highlighting the major symbols of our government for nighttime viewing. Buildings can also be designed to make better use of natural daylight, and energy-saving light fixtures can further reduce power requirements. With careful design, lighting can contribute greatly to human comfort, particularly to the operation and enjoyment of the national capital, while keeping negative impacts to a minimum.

Nonetheless, the federal government should increase its efforts to promote transit usage through operational policies and the location and design of its facilities. (This covered is also addressed in the Federal Workplace and Transportation Elements.)

Some federal activities contribute to stationary-source air pollution: emissions from heating and air conditioning systems; power generation facilities; and waste incinerators. Federal agencies should strive to minimize power usage, promote alternative fuel sources, and use environmentally friendly building design and mechanical systems (often referred to as "green" building technology). Incineration of waste should be avoided, particularly when there is potential for the release of toxic chemicals.

In accordance with the Clean Air Act of 1990, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six "criteria pollutants": carbon monoxide, lead, nitrogen oxide, ozone, particulate matter, and sulfur dioxide. EPA has designated the Washington metropolitan area as a "severe non-attainment area" for one pollutant: ozone, for the one hour standard effective March 25, 2003. The area maintains a "moderate non-attainment" standard for the eight-hour standard. Areas where a criteria pollutant level exceeds the National Ambient Air Quality Standards are designated as being in non-attainment. High ozone levels are primarily caused by "mobile source emissions"—exhaust from cars, trucks, and buses. To meet EPA criteria, the region must reduce vehicular use and encourage alternative-fuel vehicles.

Ozone levels are subject to fluctuation based on weather conditions. Solar energy drives the chemical reaction that produces ozone; air currents disperse the ozone away from the urbanized areas where it is most intensely generated. As a result, the highest ozone levels tend to be on hot days with stagnant air. These

weather conditions can often be predicted, leading to the designation of "Ozone Action Days," when special measures can be taken to temporarily reduce the emissions that contribute to ozone. Examples include postponement of optional motorized activities such as lawnmowing or road paving; reduced-rate or free transit to reduce automobile usage; and allowing employees to work from home. These measures can help address the episodic nature of this type of air pollution.

Indoor air quality is also a concern at federal facilities. Federal agencies should carefully choose building materials, and design appropriate ventilation systems, to ensure a healthy working environment.

The federal government should continue to demonstrate its leadership in addressing the region's air quality concerns through the national standards established by EPA, as well as through the local practices of federal agencies and their employees.

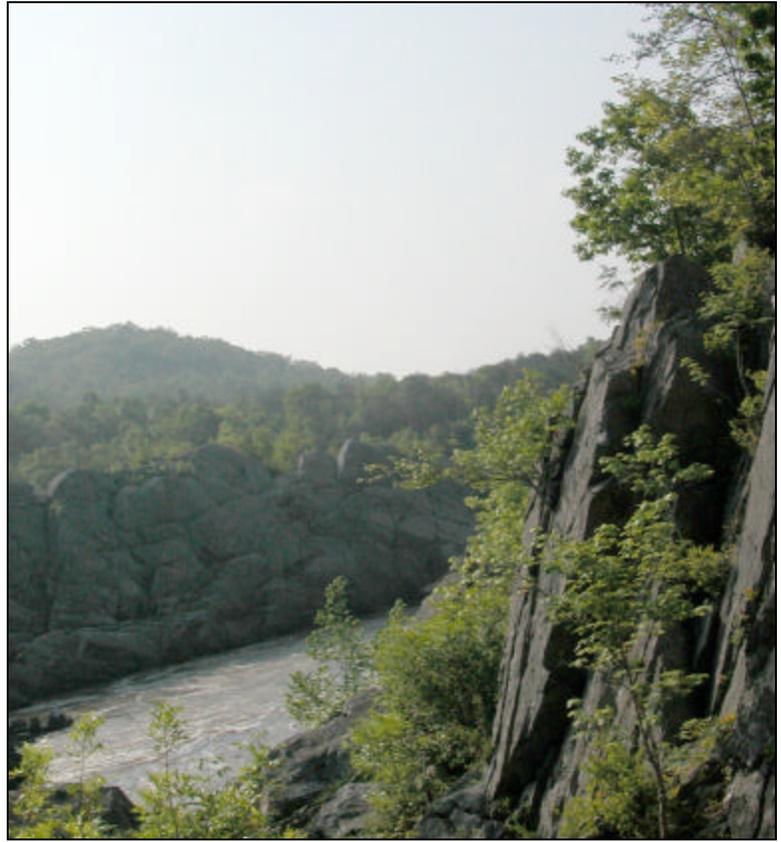
**AIR QUALITY STANDARDS ARE DEVELOPED BY GOVERNMENT AGENCIES (SUCH AS THE ENVIRONMENTAL PROTECTION AGENCY) AS WELL AS NON-GOVERNMENTAL GROUPS (SUCH AS THE U.S. GREEN BUILDING COUNCIL'S "LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN" (LEED) STANDARDS)**

## Air Quality

### *Policies*

Federal actions in the region should conform to the following policies:

3. Mobile sources of air pollutants should be reduced by:
  - Encouraging federal, state, and local governments as well as private employers to support improvements to and utilization of public transportation systems.
  - Further decreasing federal employee usage of single-occupant vehicles through operational policies, such as Transportation Demand Management techniques, and the location and design of workplace facilities.
  - Encouraging further usage of alternative "clean" fuels (e.g., hybrid, fuel cell, compressed natural gas, and "clean" diesel fuels).
  - Encouraging the usage of aircraft that meet or exceed emission standards set by the U.S. Environmental Protection Agency.
4. Stationary sources of air pollutants should be reduced by:
  - Minimizing power generation requirements, such as by utilizing best available "green" building systems and technologies.
  - Utilizing non-polluting sources of energy (e.g., solar energy).
  - Encouraging the development and use of alternative energy sources to reduce the reliance on fossil fuels.
  - Carefully controlling the incineration of waste materials, particularly those that may contain toxic substances.
5. Indoor air quality should be promoted by using environmentally friendly ("green") building materials, construction methods, and building designs.
6. In response to Ozone Action Days, federal agencies should take measures to temporarily reduce the generation of emissions that contribute to ozone formation.



SINCE THE 1970S, FEDERAL WATER REGULATIONS HAVE BEEN GUIDED BY THE CLEAN WATER ACT; FURTHER GUIDANCE IS PROVIDED BY THE ENVIRONMENTAL PROTECTION AGENCY ALONG WITH STATE AND LOCAL GOVERNMENT AGENCIES.

## Water Resources Water Quality

### *Context*

The region's rivers, streams, and groundwater are critical natural features and wildlife habitats, and are important for human usage and enjoyment. Sources contributing to water pollution are varied. In the Washington area, major point source pollution is discharged from the region's sewage treatment plants and combined sewer overflows; non-point source pollution is produced principally from stormwater and agricultural runoff. Industrial discharges, characteristic among most large metropolitan areas, are less of a concern for the region.

Urbanization has contributed to changing the hydrology of the region. Existing older stormwater management systems—primarily within the District of Columbia—are not always adequate to handle runoff caused by extensive impervious surfaces. The ongoing creation of new impervious surfaces—primarily in the outlying parts of the region—is creating problems of excessive runoff. Chemicals used for remaining agricultural areas can also harm the quality of the

region's water. As these various pollutants collect in the water system, the natural direction of water flow concentrates these problems in the District of Columbia and areas further downstream.

By the late 20th Century, the Potomac and Anacostia Rivers had suffered serious deterioration in water quality. Fishing in many areas was banned and human contact with the water was discouraged. In response, public and government concern has been growing about water quality and the environmental impact of the region's continued growth. Several major efforts are underway to address these issues, including the Chesapeake Bay 2000 Program (see text box on p. 148) and the Anacostia Waterfront Initiative (see text box in Parks and Open Space Element on p. 115). Some solutions will involve more careful and coordinated regulation of future land development and densities, to minimize impervious surface, control runoff, and ensure appropriate buffer areas along rivers, streams, and other sensitive areas. Other solutions will require costly modernization of sewer and stormwater

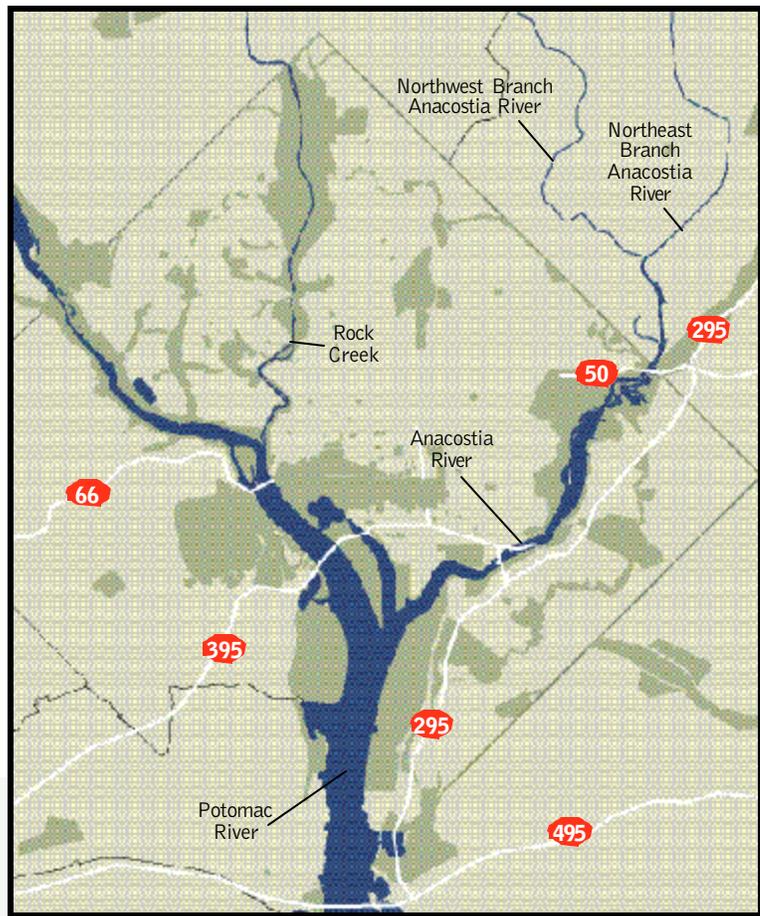
**THE CHESAPEAKE BAY 2000 PROGRAM IS AN INITIATIVE THAT HAS BEEN DEVELOPED TO PROTECT, RESTORE, AND ENHANCE THE CHESAPEAKE BAY AND THE NATURAL RESOURCES THAT RELY ON THE BAY'S CONTINUED GOOD HEALTH.**

management systems. Contingency plans are also needed to respond to emergency contaminations. Federal, state, and local government agencies will all have a contributing role in the full range of solutions. MWCOG is a focal point for coordinating planning efforts in the region between local, state, and federal agencies.

As further emphasis is placed on development opportunities along portions of the area's waterways, the importance placed on the quality of the region's water will increase. The federal interests, goals, and policies that are outlined in this element are directed at protecting the region's waterways for generations to come.



Major waterways in the District of Columbia



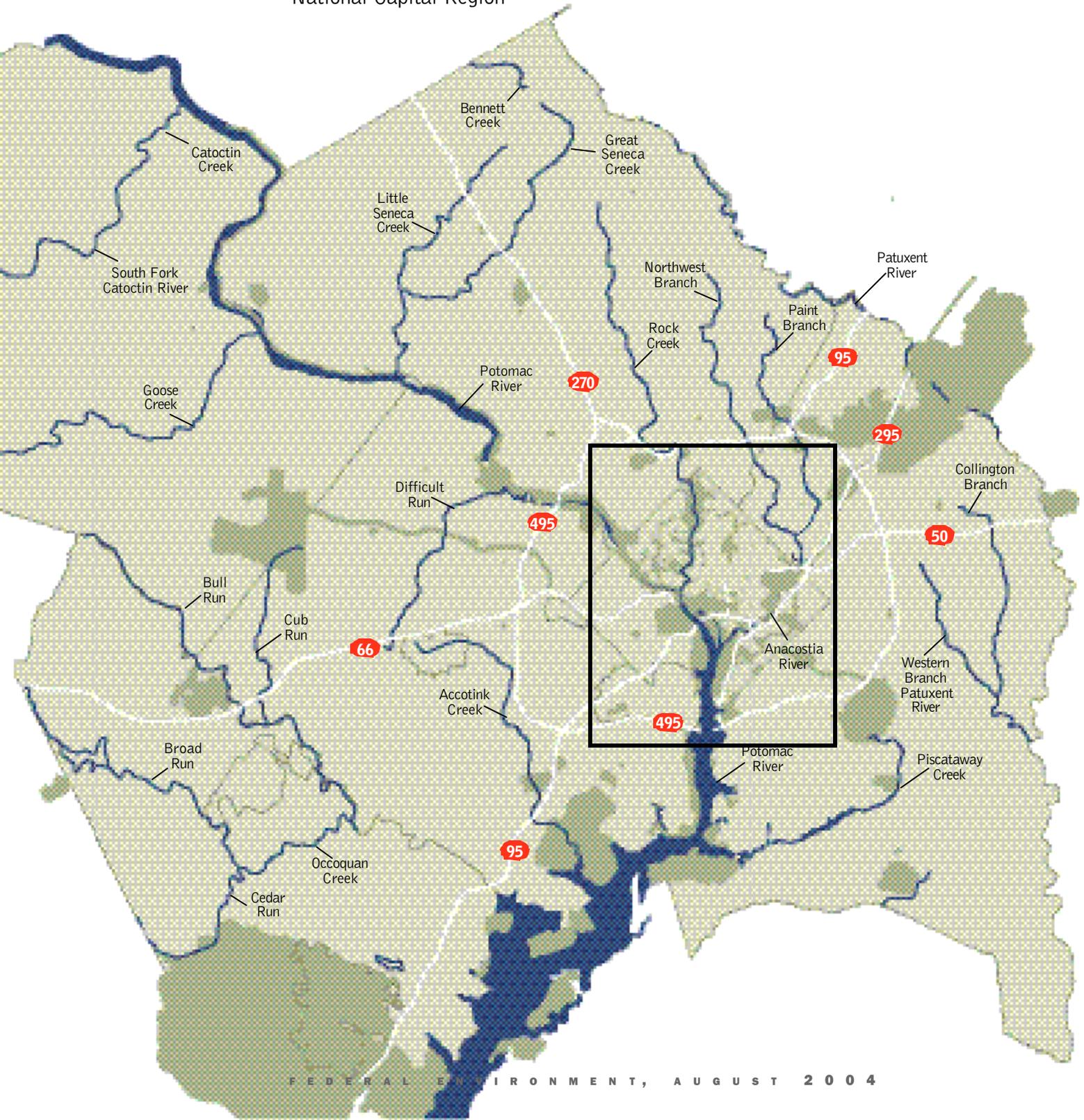
## Water Quality

### *Policies*

Federal actions in the region should conform to the following policies:

7. Upgrade water supply and sewage treatment systems, and separate storm and sanitary sewers, to avoid the discharge of pollutants into waterways.
8. Avoid thermal pollution of waterways, and provide and maintain adequate vegetated buffers adjacent to bodies of water, to protect fish and other aquatic life and to reduce sedimentation and pollutants.
9. Minimize tree cutting and other vegetation removal to reduce soil disturbance and erosion, particularly in the vicinity of waterways. When tree removal is necessary, trees should be replaced to prevent a net tree loss.
10. Control the use of pesticides, herbicides, fertilizers, chemicals, oil, salts, and other threats to prevent the pollution of groundwater and waterways.
11. Use pervious surfaces and retention ponds to reduce stormwater runoff and impacts on off-site water quality.
12. Avoid actions that could have significant long-term adverse effects on aquatic habitats. Such actions include dredging and filling operations that disrupt and destroy aquatic organisms.
13. Encourage the use of innovative and environmentally friendly "Best Management Practices" in site and building design and construction practice, such as green roofs, rain gardens, and permeable surface walkways, to reduce erosion and avoid pollution of surface waters.
14. Require wastewater reduction through conservation and reuse in all new federal buildings and major federal renovation projects.
15. Encourage participation in regional agreements and programs that improve water quality and address watershed issues.

### Major waterways in the National Capital Region



## Water Supply

### *Context*

The Potomac River supplies about 79 percent of the area's water. The Washington Suburban Sanitary Commission's Patuxent River Plant and Fairfax County Water Authority's Occoquan River Plant provide the region's balance in roughly equal proportions. Despite occasional low flows in the Potomac River, and ongoing growth in the region, MWCOG projects that the region has sufficient water supply to accommodate expected demands.

**THE NATIONAL  
CAPITAL REGION HAS  
SUFFICIENT WATER  
SUPPLY TO  
ACCOMMODATE  
EXPECTED DEMAND.**

The region's major water supply agencies cooperate on water supply operations in the Potomac watershed, essentially operating as one entity in sharing water across the Potomac, Patuxent, and Occoquan basins during periods of low flow. In the

event that a drought were to lead to actual water supply shortages, the existing system would equitably allocate the water that can be drawn from the Potomac River and impose a set of rules for implementing restrictions.

Federal government operations are dependent on the local water supply system. The federal government should strive to limit water consumption, where feasible, such as by selecting drought-tolerant landscaping at federal facilities, and using new technologies for water recycling. The federal government, along with state and local authorities, has a responsibility to help ensure that the water supply is protected from accidental or terrorist contamination, and that the future water supply is adequate for federal facility operations, private-sector activities, and the general public.

## Water Supply

### *Policies*

Federal actions in the region should conform to the following policies:

16. Encourage the natural recharge of groundwater and aquifers by limiting the creation of impervious surfaces, avoiding disturbance to wetlands and floodplains, and designing stormwater swales and collection basins on federal installations.
17. Promote water conservation programs and the use of new water-saving technologies that conserve and monitor water consumption in all federal facilities.
18. Encourage the implementation of water reclamation programs at federal facilities for landscape irrigation purposes and other appropriate uses.

# Land Resources

The environment of the National Capital Region contains a wide variety of land resources, many of which are particularly sensitive to human intervention. These include floodplains, wetlands, sensitive soils, vegetation, and wildlife habitats. These features are important to the environmental well-being of the region and provide a unique scenic resource, but many have been lost or altered as a result of development. The concentration of federal facilities in this area, and the growth of new facilities, have contributed to increasing pressures on the region's land resources. The environmental and public benefits derived from these resources should be considered during the planning and development process, to ensure conservation and balanced management of the region's ecosystem.

Environmental regulations, such as NEPA and the Endangered Species Act of 1973, help diminish adverse impacts on land resources and have better equipped federal agencies to protect these resources as they implement their development needs.

The "Best Management Practices" developed by government agencies and other experts provide additional guidance. Consultation with local governments is particularly important to assure consistency with local data and policies.

As federal agencies conduct their activities and fulfill their missions, some development within sensitive areas may be unavoidable. Therefore, the policies below guide federal agencies in developing plans and programs that: protect and conserve endangered and threatened species; preserve and enhance the natural value of wetlands; and avoid the impacts associated with the occupancy and modification of floodplains.

**THE FLOODPLAINS AND WETLANDS THAT COMPRISE MUCH OF THE CHESAPEAKE BAY'S WATERSHED AND TRIBUTARIES ARE HOME TO OVER 3,600 SPECIES OF PLANTS, FISH, AND ANIMALS.**



Patuxent Research Refuge

## Floodplains

### *Context*

Floodplains are the land areas near waterways that are subject to periodic flooding. Floodplains perform important water management functions, including temporary storage of groundwater, helping to moderate peak flows; maintenance of water quality; groundwater recharge; and prevention of erosion. Floodplains can also provide wildlife habitat, recreational opportunities, and aesthetic benefit.

The federal government maps floodplain areas to aid in planning for human activity and investment; federal policy discourages placing permanent facilities in floodplains or altering the natural function of the floodplains.

Extensive federal property in the region is located in floodplain areas. Some of this is used appropriately for parkland and memorials, or developed with water-related uses such as boathouses. Other unrelated federal facilities have also been historically placed in these sensitive areas, and their continued use is likely. Planning and ongoing operations at flood-prone facilities should involve the preservation of the floodplain to the extent possible.

## Floodplains

### *Policies*

Federal actions in the region should conform to the following policies:

19. Prohibit highly flood-sensitive activities (e.g., archival storage, or activities that generate potential pathogenic and toxic substances) in floodplain areas.
20. Encourage modification of existing developments to correct flood hazards and to restore floodplain values. If the necessary modifications cannot be accomplished, the buildings should be removed when feasible to allow restoration of the natural values of the floodplain.
21. Discourage investment in floodplain areas unless related to correcting flood hazards, restoring floodplain values, or supporting appropriate recreational or memorial uses.
22. Adhere to the following if construction in a floodplain is necessary: (a) return the site as closely as possible to its natural contours; (b) preserve natural drainage; and (c) floodproof the proposed development.

## Wetlands

### *Context*

Wetlands are generally defined as lands that are wet for significant periods during the year. These areas are also sometimes called marshes, swamps, and bogs. Wetlands are a significant part of the region's ecosystem, providing fish and wildlife habitat, flood protection, erosion control, and maintenance of water quality.

Human development often disturbs wetland areas directly, or affects wetlands indirectly by altering the hydrology of an area. The steady conversion of undeveloped land to impervious surface is an ongoing threat to the region's wetlands, resulting in increased peak run-off volumes of stormwater that produce erosion and pollution problems, and cause the need for significant additional investment in water treatment facilities.

Federal policies therefore discourage disturbance of wetland areas, and the general patterns of development that alter the function of wetlands in the natural ecosystem. The federal government is also striving to restore natural streams that have been altered, and to establish planted buffers along waterways.

## Wetlands

### *Policies*

Federal actions in the region should conform to the following policies:

23. Avoid destruction of or damage to wetlands.
24. Encourage only compatible land uses adjacent to wetlands.
25. Coordinate wetland activities with federal, state and local government programs and regulations, and with special programs such as the Chesapeake Bay 2000 Agreement.
26. Utilize the best engineering practices available to minimize adverse impacts when project construction in a wetland is deemed to be the only practical alternative.

## Soils

### *Context*

Soils are a critical component of the environment, helping to support clean air and water, productive forests, diverse wildlife, and beautiful landscapes. The soil's function is based on its composition and nutrient health. Soils generally perform five essential functions:

- Sustain plant and animal life;
- Regulate water flow, by temporarily absorbing water from rain, melting snow, or irrigation;
- Filter potential pollutants, through the mineral and microbial components of the soil;
- Cycle nutrients that are stored and transformed in the soil, for use by plants and animals; and
- Support vegetation and man-made structures.

In addition, many archaeological resources are preserved within the soil.

Soil qualities can vary naturally, including varying degrees of stability and nutrients. Soil quality is not easily altered, but soil is subject to erosion as well as pollutants. The activities of federal agencies can affect the quality of soil, resulting in impacts on the ecosystem as well as on the ability of the soil to support the structures and activities of the federal government.

## Soils

### *Policies*

Federal actions in the region should conform to the following policies:

27. Discourage development in areas of identified high erosion potential, on slopes with a gradient of 15 percent and above, or on severely eroded soils. Excessive slopes (25 percent and above) should remain undeveloped.
28. Employ "Best Management Practices" to reduce the potential for soil erosion and the transport of sediment, consistent with state and local requirements.
29. Limit activities on highly unstable soils to passive recreation and open space.
30. Locate and design buildings to be sensitive to the natural groundwater flows. Avoid development in areas where useful mineral resources, such as diabase clay and shale, are located.



Many street trees are in distressed condition.

Street trees and landscaping can complement federal buildings and create pleasant pedestrian environments.



## Vegetation

### *Context*

Vegetation provides aesthetic appeal, as well as food and habitat for wildlife. Vegetation also provides root systems that help to maintain soil integrity, natural aquifers, and recharge areas, and help to reduce erosion, particularly on steep slopes and areas adjacent to waterways. Large trees, especially in groupings, are a particularly valuable environmental resource.

ACCORDING TO 1999 DATA FROM AMERICAN FORESTS, DURING 1973-1997 WASHINGTON, D.C. EXPERIENCED A 64 PERCENT DECREASE IN THE AREA OF HEAVY TREE COVER DUE TO DISEASE, DEVELOPMENT, AND NATURAL CAUSES.

## Vegetation

### *Policies*

Federal actions in the region should conform to the following policies:

31. Preserve existing vegetation, especially large stands of trees.
32. Incorporate new trees and vegetation to moderate temperatures, minimize energy consumption, and mitigate stormwater runoff.
33. Enhance the environmental quality of the national capital by replacing street trees where they have died or where they have been removed due to development.
34. Maintain and preserve woodlands and vegetated areas on steep slopes and adjacent to waterways, especially to aid in the control of erosion and sediment.
35. Encourage the use of native plant species, where appropriate.

## Chesapeake Bay 2000 Program

The Chesapeake Bay Program, encompassing the National Capital Region, is one example of federal, state, and local efforts that are focusing on biodiversity as a key component of environmental health.

Participants in the program have formulated the "Chesapeake Bay Agreement," which includes 29 commitments to action in six areas: living resources, water quality; population growth and development; public information, education, and participation; public action and governance.

The agreement establishes the productivity, diversity, and abundance of estuary plants and animals (referred to as "living resources") as the ultimate measures of the Chesapeake Bay's condition.

As part of the program, a Living Resources Subcommittee is charged with providing a permanent body of scientists and managers to guide living resource restoration. This group consists of 11 workgroups in such areas as waterfowl, wetlands, submerged aquatic vegetation, fishery management plans, fish passage, habitat objectives, living resources monitoring, exotic species, and ecologically valuable species. The subcommittee has recently completed a multi-volume study, *Habitat Requirements for Chesapeake Bay*, that supports a deeper understanding of the complex linkages that bind the Chesapeake ecosystem. This is an example of the background information required for full biodiversity management, developed with various levels of federal, state and local input and review.

## Wildlife Habitats

### *Context*

Wildlife habitats are adversely affected by the destruction, degradation, and fragmentation of habitat areas, resulting in the ongoing decline of biodiversity. As the largest landholder in the region, the federal government has an important role in maintaining and improving wildlife habitat areas. Applicable laws include the Endangered Species Act, and the Fish and Wildlife Coordination Act. To more fully protect wildlife habitats and biodiversity, federal agencies should also broadly consider the impact of environmental changes on non-listed species and non-protected areas, as well as cumulative impacts.

Interest in biodiversity has grown with increasing concern about the loss of biodiversity and the resulting degradation of ecosystems. Recent studies suggest that reductions in biodiversity can alter both the magnitude and stability of ecosystem processes.

It is critical that federal agencies understand and take into account general principles of biodiversity conservation in their decision-making. However, biodiversity cannot be adequately conserved on the federal level alone. Effective safeguarding of entire ecosystems will usually require the cooperation of several agencies or levels of government, including state and local jurisdictions. Even though federal lands and resources play a major role, the protection of biological resources will require concerted efforts by all levels of government and the private sector.

## Wildlife Habitats

### *Policies*

Federal actions in the region should conform to the following policies:

36. Discourage locating intensive land uses within or adjacent to designated and important wildlife habitats.
37. Encourage facility design and landscaping practices that provide cover and food for native wildlife.
38. Discourage development or significant alteration of areas used by migratory wildlife.
39. Encourage the restoration of degraded water and land habitats, in coordination with federal and local agencies.
40. Consider the impacts, including cumulative impacts, of environmental changes on wildlife habitats and the biodiversity of an ecosystem. Consideration should extend to non-protected areas, as well as areas protected by designations such as parks and wetlands.

# Human Activities

## Environmental Justice

### *Context*

Concerns are growing about Environmental Justice—the disproportionate impact of environmental pollution on particular segments of the population. Minority and low-income populations, in particular, are felt to bear a disproportionately high burden from pollution, both economically and in terms of quality of life.

The federal government has a significant impact on the issue of Environmental Justice in the National Capital Region for several reasons: the proximity of federal facilities to residential communities, businesses, public recreation areas, and visitor attractions; the large amount and historic distribution patterns of federal property and facilities throughout the region; and the historic use of many federal facilities for environmentally hazardous operations. Federal agencies have been striving to address existing problems through the clean-up of contaminated sites, particularly in minority and low-income areas. Additionally, recent federal developments sometimes make use of "brownfield" sites, which are typically located in minority and low-income areas, further contributing to the remediation of past environmental problems. Federal agencies have a responsibility to be good neighbors and to support the good health and welfare of all sectors of society.

“THE WASHINGTON REGION IS DIVIDED BY RACE, INCOME, JOBS, AND OPPORTUNITY, WITH THE EASTERN HALF OF THE REGION CARRYING THE AREA’S BURDEN OF POVERTY AND SOCIAL DISTRESS WHILE THE WESTERN HALF ENJOYS MOST OF THE REGION’S FRUITS OF PROSPERITY. . . STRUGGLING NEIGHBORHOODS WITH POOR PERFORMING SCHOOLS AND WEALTHIER NEIGHBORHOODS WITH EXPENSIVE HOUSING — BOTH LOCATED IN THE CORE OF THE REGION — COMPEL SOME BUSINESSES AND FAMILIES TO LOCATE IN OUTLYING SUBURBS, PUTTING ADDITIONAL PRESSURES IN THESE ALREADY FAST-GROWING COMMUNITIES. THE PROBLEMS OF HYPER GROWTH ON ONE HAND AND SOCIAL DISTRESS ON THE OTHER ARE INTERTWINED.”

source: A Region Divided: The State of Growth in Greater Washington, D.C. by Center on Urban and Metropolitan Policy, July 2003, <http://www.brookings.edu/es/urban/dc/DCRegion.pdf>

## Environmental Justice

### *Policies*

Federal actions in the region should conform to the following policies:

41. Identify and address any disproportionately high and adverse health or environmental effects on minority and low-income populations resulting from agencies’ programs, policies, and activities. Consider the indirect, multiple, and cumulative effects of actions on the cultural, social, historical, and economic characteristics of an affected community.
42. Analyze and consider, as prescribed by the National Environmental Policy Act, the demographics of a potentially affected area to determine whether such communities are characterized by low income levels or high minority populations.
43. Establish effective public outreach programs so that the affected community can participate in decisions that will impact its future.
44. Support the re-use of brownfield sites for federal or private-sector redevelopment.

## Solid Waste Management

### *Context*

At the regional level, solid waste typically includes two major categories: ordinary trash, from households or commercial activities; and sludge from wastewater treatment systems (such as Blue Plains). Hazardous wastes, such as those generated by some laboratory or research activities, are discussed in a separate section.

Solid waste management involves three strategies:

- Reducing the amount of waste generated
- Recycling waste material.
- Effectively disposing of waste that cannot be recycled.

The Pollution Prevention Act of 1990 established national policy on this topic: pollution should be prevented, whenever feasible; pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally responsible manner; and disposal should be employed only as a last resort.

Executive Order 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition," expanded this policy by promoting the increased use of green products, particularly products with recycled content, environmentally preferable products, and biobased products.

Additional recycling measures are being implemented by federal agencies, including the General Services Administration (see sidebar at right). Several federal agencies are participating in the U.S. Green Building Council's "Leadership Energy and Environmental Design™" (LEED) Program. The LEED program identifies a potential rating system for existing buildings that would establish recycling goals of 30-75 percent.

For the remaining solid waste, disposal has the potential to cause significant environmental problems. Two methods are commonly used: incineration at waste-to-energy facilities, and landfill. Incineration plants, if properly designed with pollution control technology, can be a valuable solution. Landfills must also be carefully designed, to avoid degradation of surface and ground water. The transportation of solid waste also typically requires the use of transfer facilities, to consolidate waste from local trucks into larger shipments. The siting of these transfer facilities, as well as incineration and landfill facilities, causes much public concern, and there is little support for creating new facilities. The emphasis on reduced waste generation therefore remains critical in addressing this environmental concern.

## Solid Waste Management

### *Policies*

Federal actions in the region should conform to the following policies:

45. Pursue waste reduction measures that extend the life of waste disposal systems and sanitary landfills in the region, including recycling programs, composting, and utilizing biodegradable products.
46. Encourage procurement policies that increase the purchase and use of products containing recycled content.

## GSA's Recycling Initiatives

The General Services Administration, as a major building management agency for the federal government in the region, procures recycling contracts that are used by over 100 federal agencies serving over 130,000 employees. In fiscal year 2002, GSA saved the federal government \$500,000 in disposal fees through recycling 6,800 tons of material — including 6,700 tons of paper. By recycling this amount of paper, these agencies saved the equivalent of 22,000 cubic yards of landfill space; 113,000 trees; 2.6 million gallons of oil; 27 million kilowatts of energy; and 47 million gallons of water. GSA estimates that recycling production for paper products is based on the factor of 25 pounds per 10,000 sq. ft. of office space per day.

Currently, GSA recycling contracts have targets ranging from 61 to 100 percent for all grades of paper and at least 50 percent for other materials (metal, glass, plastics), when that option is accepted. It should be noted, however, that recycling of these other materials has significant costs and is generally not cost-effective. Still, these target goals are high and represent important contributions by federal agencies in the region, equaling local-government or private-sector recycling programs.

GSA also uses the procurement process to reduce waste flow. GSA strives to use designated green items (considering price, availability and performance requirements). Federal contractors are requested to identify items that have recycled content (using EPA criteria); are energy and/or water conserving; and have reduced pollutants

## Hazardous Materials Management

### *Context*

Hazardous materials generated by federal facilities, such as military installations, research centers, and laboratories, pose risks to humans and to the environment. In some cases these facilities are located close to residential communities, businesses, and public recreation areas. An increased awareness of the potential for contamination has led to significant improvements in the safe transfer and disposal of hazardous materials, in accordance with local, state, and federal guidelines and procedures. The proper management of hazardous materials has long been a community concern, and is now of paramount importance given its possible association with terrorism.

The proper management of hazardous materials significantly affects the regional economy and human health. The release of toxic chemicals from

damaged or leaking underground storage tanks leads to contamination of natural aquifers, estuaries, ground water resources, and the regional water supply. Without regular maintenance and monitoring, underground tanks could also produce hazardous leachate, resulting in soil contamination that would leave federal or nearby land unsuitable for federal use, private development, or recreational use by the general public. Historic federal buildings may contain potentially hazardous materials that must be carefully controlled.

While significant improvements have been made in procedures supporting the safe transfer and disposal of hazardous materials, the topic remains a concern. The management of hazardous materials is particularly important in the region, where federal facilities are often located near highly populated areas and sensitive habitats.

## Hazardous Materials Management

### *Policies*

Federal actions in the region should conform to the following policies:

47. When incineration of hazardous materials is necessary, base site selection on (a) the projected effect of atmospheric conditions and land features on wind patterns and the dispersal of emissions; (b) requirements for special engineering and facility design to ensure acceptable dispersion of air contaminants and compliance with air quality requirements; and (c) an assessment of the impact of hazardous materials on surrounding land uses.
48. Avoid locating and operating federal facilities that produce hazardous waste and toxic materials in heavily populated or environmentally sensitive areas (e.g., unstable ground, high-value groundwater recharge areas, floodplains, and wetlands).
49. Consider the following in designing and constructing facilities that use or produce hazardous materials, as part of a thorough regulatory review process: (a) the physical characteristics of the site; (b) design procedures (e.g., underground tanks, EPA guidelines for cleaning/filtering materials that release toxins) to protect the quality of surrounding air, soil, and groundwaters; and (c) the operating conditions and adequate technology to handle, transport, treat, or dispose of waste.
50. Monitor and conduct periodic testing to detect and avoid leaks or spills from structures that hold hazardous materials (e.g., underground storage tanks, pipes, and retention areas), and remediate groundwater contamination.
51. Manage and dispose of hazardous wastes and toxic substances in a safe manner in accordance with national, state, and local regulations.
52. Implement procedures and appropriate design specifications to safeguard against accidental or terrorist-related release of hazardous materials during usage, storage, and transportation.

## Noise Pollution

### *Context*

Noise affects the regional population's general health and welfare. It is an invisible form of pollution that can impact human health and contribute to economic decline. Noise pollution can lead to increased stress, hearing loss, a decline in productivity, higher health care costs, and reduced property values. Common sources of noise pollution include aircraft operations, automobiles and trucks, boats, construction activities, loading docks, industrial and appliance-related noise, and amplified noise from recreational activities such as outdoor concerts.

One of the most controversial noise issues in the region results from flight operations at military airfields and at commercial airports such as Ronald Reagan Washington National Airport.

There is also increasing concern about the impact of noise from helicopters and fixed wing aircraft on populated areas as well as recreational activities along the Mall and along the pastoral settings of the Potomac and Anacostia Rivers. While modern technology has reduced noise levels produced by commercial aircraft operations, growth in air traffic may have offset some of these improvements.

Noise will continue to be a concern in the absence of policies and technologies that can further mitigate noise levels. The federal government should do its part to reduce its contribution to noise pollution, and should coordinate with local governments to avoid close proximity of noise-generating activities and sensitive uses.

## Noise Pollution

### *Policies*

Federal actions in the region should conform to the following policies:

53. Avoid locating activities that produce excessive noise near sensitive natural resources, and sensitive human uses such as residential areas, hospitals, and schools.
54. Locate, design, and construct improvements to roads, driveways, loading docks, and parking lots for federal facilities in a manner that is sensitive to existing adjacent land uses.
55. Ensure that construction activities comply with local noise ordinances, and coordinate with local government and the community to establish limits on the intensity and hours of noise generation.
56. Ensure that noise-generating activities at federal facilities, such as loading dock operations, festivals, and concerts, are sited and scheduled with sensitivity to the surrounding environment and community.
57. Maintain aircraft flight procedures for fixed-wing aircraft and helicopters to minimize adverse noise levels on noise-sensitive land uses.

## Radiofrequency Radiation and Electromagnetic Fields

### *Context*

The federal government has extensive and growing requirements for antennas as part of the communication needs of governmental operations capital. In addition, widespread Personal Communication System mobile phone usage has resulted in the proliferation of new private-sector antennas and antenna towers throughout the region, including a surge in the number of requests for antennas and antenna towers on federal property. The cumulative effect of these antennas is a significant impact on the visual quality of the nation's capital as well as potential impacts on human health.

Wireless communication continues to show a trend of significant growth, particularly considering the steady population growth in the National Capital Region, suggesting continued demand for new antenna locations. Although much of the antenna construction is coming from private carriers, federal agencies also rely on communication technologies that require locating various kinds of antennas (e.g., dish, whip, panel) on federal property.

During the 1980s and 1990s, the Commission became increasingly concerned about the possible adverse visual and health effects of antennas. In 1997, the National Research Council (NRC) found "no conclusive and consistent evidence" linking ordinary exposure to Electromagnetic Fields (EMFs) to adverse biological effects. As research in this area continues, however, the American Medical Association has recommended a policy of "prudent avoidance," suggesting that manufacturers and



employers begin reducing the exposure of workers and the public to EMF radiation. The Commission therefore continues to closely monitor the placement of antennas on federal property, and relies on the rules and regulations of the Federal Communications Commission (FCC) regarding the environmental effects of radiofrequency emissions.

Policies in this element address the impact of antennas on human health and the environment, and are intended to: (1) ensure adequate monitoring of all antenna installations in the region; (2) address the public's concerns for the adequate review of such antenna installations on federal property; (3) provide guidance to federal agencies as they consider antenna proposals; (4) support NCPC's Guidelines and Submission Requirements for Antennas on Federal Property; and (5) uphold FCC standards for radiofrequency emissions.

Additional policies in the Parks and Open Space Element address the siting and design of antennas and towers.

## Radiofrequency Radiation and Electromagnetic Fields

### *Policies*

Federal actions in the region should conform to the following policies:

58. Evaluate the possibilities for joint-use of antennas and collocating antennas to reduce aesthetic impacts and limit the area of radiofrequency (RF) exposure. Federal agencies should also evaluate the cumulative effect of multiple transmitters at one location to ensure that the combined radiofrequency emissions continue to meet Federal Communications Commission guidelines.
59. Follow a practice of "prudent avoidance" of RF exposure. Federal agencies should reduce the exposure of workers and the public to RF fields where they may be prevalent; including those from power lines, antennas, equipment, and other recognized sources of RF and Electromagnetic Field emissions.
60. Incorporate adequate interior building attenuation measures to reduce RF field penetration into the habitable areas of buildings.
61. Require adequate communication of potential risks where occupational/controlled exposure may be present.
62. Utilize advances in technology, such as fiber optics, cooperative antenna technologies and teleports; and monitor changes in standards and guidelines for the installation of antennas.