

ENVIRONMENT

Subregion 6 contains environmental assets of county, state, and even national importance, particularly near and along the Patuxent River. As discussed earlier in the plan, it is also home to the most substantial portion of the county's Rural Tier, which includes large tracts of land in forests, agriculture, and open space. These areas offer unique opportunities in the Washington metropolitan region for preserving essential habitat, strengthening the local food system, mitigating the impacts of climate change, and more. At the same time, protecting and enhancing the ecological integrity of the subregion depends upon smart transportation and land use development choices both in and around the study area, as well as individual decisions on energy and water consumption, waste disposal, etc.

The term green infrastructure is used to encompass the interconnected system of public and private lands containing significant areas of woodlands, wetlands, wildlife habitat, and other sensitive areas that provide valuable ecological functions to current and future generations. Maintaining the longevity of the assets within this environmental infrastructure requires minimal intrusions from land development, light, and noise pollution, as well as an overall orientation to creating a sustainable subregion.

The following sustainability goals relate to restoring the integrity of environmental infrastructure in Subregion 6:

- Preserve, protect, restore, and enhance the quality of air, water, and land to preserve biodiversity and environmental health while providing a natural resource base for current and future generations.
- Implement a watershed-level approach to preserving, restoring, and enhancing the natural environment in order to mitigate the land use-related impacts of climate change and development on ecological functions.



The water of the Patuxent River adds to the serenity of the shoreline.

GREEN INFRASTRUCTURE

The green infrastructure network, identified in the 2005 *Approved Countywide Green Infrastructure Plan*, is a comprehensive framework for conserving significant environmental ecosystems in Prince George’s County. The network is divided into three categories: countywide significant regulated areas, evaluation areas, and network gaps.¹ Approximately 37 percent of the countywide green infrastructure network is located within Subregion 6, accounting for approximately 64 percent of the subregion’s land area (see Map 7 in back of plan). This is an indication of the vast areas of environmentally sensitive lands in the subregion.

One of the strategies for implementation of the Green Infrastructure Plan states that the network boundaries should be refined during the master plan process to reflect areas of local significance and consider additional opportunities for connectivity and resource protection. This subregion plan identifies twelve primary and secondary corridors within the local Green Infrastructure network (Map 12):

PRIMARY AND SECONDARY CORRIDORS

Primary Corridors	Secondary Corridors
Patuxent River	Mattaponi Creek
Mattawoman Creek	Hotchkins Branch
Collington Branch	Spice Creek
Western Branch	Rock Branch Creek
Piscataway Creek	Black Swamp Creek
Swanson Creek	Charles Branch

With the exception of Piscataway Creek, which flows east to west toward the Potomac River, the environmental corridors support stream systems that flow generally west to east through the subregion toward the Patuxent River. The corridors include the mainstems of the major waterways within the subregion and receive most of the depositional runoff from surrounding land uses. These corridors are areas where connectivity is critical to the long-term viability and preservation of the overall green infrastructure network and are critical to preserving the subregion’s water quality. Conservation and preservation of these corridors, particularly the headwater areas, will preserve and improve downstream water quality.

¹ Regulated areas are environmentally sensitive features (streams, wetlands, 100-year floodplains, severe slopes, and buffers) protected during the development review process. Evaluation areas contain environmentally sensitive features (interior forests, colonial waterbird nesting sites, and unique habitat) not currently protected. Network gaps are areas critical to the connection of the regulated and evaluation areas.

Special Conservation Areas

The Green Infrastructure Plan places special attention on special conservation areas (SCA), which are areas of countywide significance. Four of the ten SCAs in the county are in Subregion 6 (Map 12). The largest is the Patuxent River primary corridor, which extends along the entire eastern boundary of the subregion. This corridor in Subregion 6 is part of the larger Patuxent River watershed and multicounty and agency initiatives to preserve the woodlands, marshes, grasslands, and swamps critical to the health of the watershed and the Chesapeake Bay.

Within the Patuxent River primary corridor is the Jug Bay complex, the second of the subregion's four SCAs. Jug Bay is part of the Chesapeake Bay Reserve and National Estuarine Research Reserve System, one of 25 such reserves with federal protection through the National Oceanic and Atmospheric Administration. The Chesapeake Bay is the largest estuary in the country and with fully half of it lying within the state, its environmental, economic, and cultural importance has been recognized for decades. The reserve system in Maryland is comprised of nearly 5,000 acres of diverse estuarine habitats at three different locations throughout the state. Jug Bay, the largest freshwater tidal marsh in the state, serves as a laboratory for tidal, riverine ecosystems;² receiving researchers and visitors from all over the world every year. The Patuxent River corridor and Jug Bay also offer unique opportunities for passive recreation and environmental education through a variety of programming options operated through the Department of Parks and Recreation and the state.

The other countywide SCAs are Cedarville State Forest/Zekiah Swamp Watershed and the Mattawoman Creek Stream Valley. The Mattawoman Creek watershed is shared by Charles and Prince George's Counties, with a larger portion of the stream corridor on the Prince George's side falling within the adjacent Subregion 5 planning area. Due to the limited amount of development in the watershed and its still relatively pristine condition, it has been recognized in recent years by the state, as well as environmental groups, for its high level of biodiversity and fish-spawning habitat.³ Successfully protecting Mattawoman Creek will require cross-county collaboration to limit the impact of future planned development in the Mattawoman Creek watershed. Cedarville State Forest and the Zekiah Swamp watershed are other important resources shared with Charles County and the subregion. According to the county's Green Infrastructure Plan, Zekiah Swamp is



Merkel Wildlife Management Area, along the Patuxent River, is home to flocks of Canadian Geese and other species of wildlife.

² <http://www.nerrs.noaa.gov/ChesapeakeBayMD/>

³ Cite MDNR, Sierra Club, and Smart Growth Coalition recognition.

MAP 11: ENVIRONMENTAL CORRIDORS AND SPECIAL CONSERVATION AREAS



the largest freshwater swamp in the state, with its headwaters in Cedarville Forest. Many other areas of the Zekiah Swamp watershed are in private ownership. The Green Infrastructure Plan recommends that any development of these lands maintain and protect the existing water hydrology given the sensitive and vulnerable nature of this SCA.⁴

Portions of several of the primary and secondary corridors and the countywide SCAs are within this plan's proposed priority preservation area (see Development Pattern/Land Use chapter).

Subregion 6 is home to diverse terrestrial habitats including large tracts of woodlands, grasslands, pastures, and wetlands that support a rich diversity of wildlife. Woodland characteristics vary across the subregion with a combination of dominating deciduous forests and mixed deciduous/coniferous forests. Woodlands act as a buffer from nutrient runoff, reduce erosion, improve air quality, and provide habitat for wildlife. The largest contiguous interior forest tracts are along the Patuxent River, Mattawoman Creek, and Zekiah Swamp Run, including the Jug Bay Natural Area/Merle Wildlife Sanctuary and Cedarville State Forest. The majority of the forests in the subregion are included in the regulated and evaluation areas of the green infrastructure network, though significant fragmentation exists and efforts to consolidate woodlands are needed.

Open grasslands and pastures, while not prevalent within the subregion (approximately 5.4 percent of the total land area), provide unique habitat for a variety of species such as ground nesting birds.

This habitat is quickly disappearing due to development pressure on open lands. The state has identified grasslands as a key habitat and grassland breeding bird species, including grasshopper sparrow, Henslow's sparrow, and vesper sparrow (grassland birds known to occur in Maryland) as species in great need of conservation.⁵ There is concern that Henslow's sparrow may have already disappeared from the subregion, though increasingly infrequent encounters with well-known species like the Northern Bobwhite and Eastern Meadowlark highlight further the critical importance of preserving this vital habitat.⁶ Grasslands are also stopover habitat for migratory songbirds.

Wildlife and Habitat



Forests cover much of the subregion.

⁴ Approved Countywide Green Infrastructure Functional Master Plan, Prince George's County Planning Board, June 2005, p. 25.

⁵ Maryland Wildlife Diversity Conservation Plan, 2005.

⁶ Personal interview with Greg Kearns, Patuxent Riverkeeper.



A flock of Canadian Geese are resting at Merkel Wildlife Management Area.

Maryland is located within the Atlantic Flyway, which is one of the four major bird migration routes in North America, and several locations within the subregion are known as exceptional birding locations. The Jug Bay Natural Area and wetland complex is nationally recognized and designated as an important bird area (IBA)⁷, cataloging over 290 observed species including more than 100 confirmed nesting species such as the least bittern, a state-identified species in need of conservation. It is also a major stop over for unique wetland species such as the sora rail and more than two dozen species of waterfowl. The Merkle Wildlife Sanctuary, combined with the Patuxent River Park Jug Bay

Natural Area, is one of the Smithsonian's top ten significant natural areas within the Chesapeake Bay and is the largest Canada goose wintering area on the western shore of the Chesapeake Bay.⁸

State Sensitive Species Project Review Areas (SSPRA) identify known occurrences of rare, threatened, or endangered species and other sensitive habitats. These occur primarily along the major waterways in the subregion with other documented occurrences within the headwater tributaries of Piscataway Creek, Charles Branch, and Black Swamp Creek. All or portions of all of these SSPRAs are included within the green infrastructure network. A notable SSPRA is the Upper Patuxent Marshes Natural Heritage Area (see below under Chesapeake Bay Critical Area).

The county's Woodland Conservation and Tree Preservation Ordinance places a priority on the preservation of woodlands in conjunction with floodplains, wetlands, stream corridors, and steep slopes and emphasizes the preservation of large, contiguous woodland tracts. The Planning Department is currently coordinating an update to the development parameters of the Woodland Conservation Ordinance to assist in the implementation of the Green Infrastructure Plan.

POLICY 1

Protect, preserve, and restore the identified green infrastructure network and areas of local significance within Subregion 6 in order to protect critical resources and to guide development and mitigation activities.

⁷ National Audubon Society <http://iba.audubon.org/iba/viewSiteProfile.do?siteId=371&navSite=state>

⁸ Approved Countywide Green Infrastructure Functional Master Plan, Prince George's County Planning Board, June 2005, p. 23.

STRATEGIES

1. Protect priority areas that will meet multiple protection objectives such as those related to green infrastructure, the priority preservation area, and the Patuxent River Rural Legacy Program.
 - Update and centralize geographic information from county, state, and other agencies to allow for an efficient, initial evaluation of potential protection measures as they relate to land development proposals and potential sites for acquisition with public funds for conservation easements or passive recreation.
2. Protect primary corridors (Patuxent River, Charles Branch, Collington Branch, Piscataway Creek, Mattawoman Creek, and Swanson Creek) during the review of land development proposals to ensure the highest level of preservation and restoration possible, with limited impacts for essential development elements. Protect secondary corridors to restore and enhance environmental features, habitat, and important connections.
3. Preserve and connect habitat areas to the fullest extent possible during the land development process.
4. Preserve or restore regulated areas designated in the green infrastructure network through the development review process for new land development proposals.
5. Protect portions of the green infrastructure network outside the primary and secondary corridors to restore and enhance environmental features, habitat, and important connections.
6. Evaluate land development proposals in the vicinity of SCAs to ensure that the SCAs are not negatively impacted and that green infrastructure connections are either maintained or restored.
7. Preserve and enhance, where possible, grassland habitats that are of critical importance to native and migratory bird species.

Water quality within the subregion is generally poor. 13 of the 17 watersheds in the subregion (See Map 6, Subregion Analysis chapter) were ranked “poor” to “very poor” for either or both aquatic habitat and the Benthic Index of Biological Integrity (IBI)⁹. Black Swamp Creek was the only watershed in the subregion rated “fair” for measures of aquatic habitat and

⁹ Benthic Index of Biological Integrity (IBI) is a method standardized by the Maryland Department of Natural Resources of assessing the health of streams in Maryland. Benthic macroinvertebrates are sampled from the stream and the composition of the species present provide information on the overall health of the system based on their sensitivity to pollution.

WATER QUALITY AND STORMWATER MANAGEMENT



TABLE 8: PRIMARY ENVIRONMENTAL CORRIDORS

Corridor	Subwatershed	Index of Benthic Integrity Rating ^A	Aquatic Habitat Quality ^A	303(d) list categories ^B
Patuxent River	Middle Patuxent River	Poor	Very Poor	Biological, nutrients, sediments, toxins
	Lower Patuxent River	Poor	Very Poor	Bacteria, biological, metals, nutrients, sediments, toxins
Collington Branch	Collington Branch	Poor	Poor	Biological, nutrients, sediments
	Western Branch	Poor	Very Poor	Biological, nutrients, sediments
Western Branch	Western Branch	Poor	Very Poor	Biological, nutrients, sediments
Piscataway Creek	Piscataway Creek	Fair	Poor	Bacteria, biological, nutrients, sediments
Mattawoman Creek	Mattawoman Creek	Poor	Fair	Biological, nutrients, sediments
	Zekiah Swamp Creek	Poor	Fair	Biological, nutrients, sediments
	Swanson Creek	Fair	Poor	Bacteria, biological, metals, nutrients, sediments, toxins
Swanson Creek	Swanson Creek	Fair	Poor	Bacteria, biological, metals, nutrients, sediments, toxins
	Lower Patuxent River	Poor	Very Poor	Biological, metals, nutrients, sediments, toxins

^A Countywide Green Infrastructure Plan, 2005.

^B Maryland Department of the Environment, 2006. The 303(d) list is Maryland's list of impaired surface waters submitted in compliance with section 303(d) of the 1972 Federal Clean Water Act

IBI. Swanson Creek, Spice Creek, and Piscataway Creek were ranked fair under the IBI measure. Swanson Creek, a portion of Rock Creek, and an unnamed tributary of Mataponi Creek are tributaries listed as Tier II waters by the Maryland Department of the Environment.¹⁰ Table 8 summarizes three major indicators of ecological health for the primary corridors in the subregion.

Major contributors to poor water quality are sediments, nutrients, and toxins from development and other land uses. Particular concerns in Subregion 6 are:

- **Buffering of streams.** Stream buffer requirements currently vary with stream location. Within the Chesapeake Bay Critical Area the buffer combines the individual buffers for wetlands, streams, floodplains, steep slopes, erodible soils, and rare or sensitive wildlife habitats to an overall buffer requirement. Within the Patuxent River watershed (82 percent of the

¹⁰ Tier II waters are currently the highest quality waters in Maryland and planning initiatives and development proposals are required to review all new or modified discharges according to the state's antidegradation policy.



The waters of the Patuxent River and its tributaries are protected from water runoff by vegetative buffers.

subregion) a Patuxent River Primary Management Area Preservation Area (PMA) is established within which a similar, but variable, conglomerate buffer is required.

- **Nutrient-leaching.** Septic systems may not adequately process their nutrient intake. As systems age, they may leach nitrogen to the surrounding environment, including surface waters. Excessive nitrogen deposition in streams, rivers, and lakes can lead to eutrophication,¹¹ which impairs water quality and ecosystem functioning, sometimes to the point where fish and other aquatic species cannot survive.
- **Nutrient deposition.** Fertilizer and pesticide applications to both agricultural areas and lawns contribute significantly to pollution of streams and the Chesapeake Bay.
- **Lack of stormwater management.** Some areas of the subregion were developed without, or with poorly performing, stormwater management facilities. As areas develop or redevelop, proper stormwater management techniques will assist in addressing water quality and quantity issues.

Through HB 1141, the state has mandated that each county develop a water resources functional plan to address stormwater issues on a watershed basis, addressing in particular how much development the county's watersheds can accept before pollutant thresholds are exceeded. These could include nutrient load thresholds (i.e., the amount of nitrogen and phosphorus discharged from wastewater treatment plants, stormwater runoff, and septic systems) or other types of pollution such as bacteria, biological, fecal coliform, metals, sediments,



A typical stream flowing through the subregion.

¹¹ Eutrophication refers to the increase in plant growth and decay caused by increased nutrient run-off to water bodies. This growth and decay results in oxygen depletion and a corresponding decline in water quality, fish, and other populations.

or toxins, some of which may be covered by total maximum daily loads (TMDL). These plans are expected to make countywide recommendations regarding stormwater design and the use of environmentally sensitive design techniques.

The Prince George's County Department of Environmental Resources (DER) has undertaken or is planning several stream restoration initiatives in the subregion:

- Complete Watershed Restoration Action Strategies (WRAS), in coordination with the Maryland Department of Natural Resources, for watersheds of which portions are in Subregion 6: Western Branch and Lower Patuxent River watersheds (finished).
- Design stream restoration projects along Western Branch.
- Assess a stream corridor for the Piscataway Creek watershed (currently underway), with the Henson Creek watershed to be evaluated following the completion of this work.
- Assess a stream corridor to identify potential restoration sites within the Western Branch watershed.
- Create a countywide inventory of restoration and mitigation sites. These areas would be targeted during future development and permitting processes as priority mitigation projects (ongoing).

The Washington Suburban Sanitary Commission (WSSC) is responsible for two environmental protection/restoration projects within Subregion 6: an upgrade to the Western Branch Wastewater Treatment Plant—to reduce nitrogen discharges into Western Branch—and assisting residents to disconnect storm drains that contribute to sewer overflows and backups during storm events.

POLICY 2

Restore and enhance water quality in degraded areas and preserve water quality in areas not degraded.

STRATEGIES

1. Protect and restore groundwater recharge areas such as wetlands and the headwaters areas of streams and watersheds.
2. Develop an interjurisdictional development and management plan with Charles County for the protection of the Mattawoman watershed.
3. Require retrofitting of locations without stormwater management, or with poorly performing facilities, as they are identified during the development review process.
4. Define and identify operations and activities that create stormwater management “hot spots” to adjust development and enforcement as necessary for pollution prevention.



The beautiful and placid Patuxent River is available for all to enjoy.

5. Require private developers to perform stream corridor assessments, where one has not already been conducted, when development along stream corridors without completed assessments is proposed. Use the outcome of these assessments to guide restoration requirements upon which development approval will be contingent.
6. Complete stream corridor assessments for all watersheds in the subregion in support of the countywide watershed restoration efforts.
7. Require environmentally-sensitive site design which includes limiting impervious surfaces and implementing best practices in on-site stormwater management to reduce the impact of development on important water resources.
8. Update the county road code and parking standards to reduce impervious surface requirements, without compromising safety, in watersheds where development pressure is great and impervious surface coverage is, or is projected to reach, more than ten percent of the watershed (e.g. Western Branch, Mattawoman, etc.).
9. Evaluate current right-of-way requirements and opportunities for bioretention and on-site stormwater management in watersheds with ten percent or greater impervious surface.

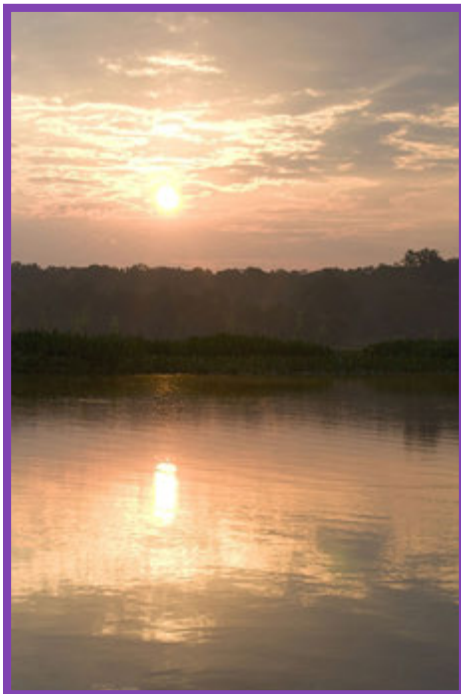
POLICY 3

Increase planning and informational data collection efforts at the watershed level, raising the profile and awareness about the importance of shared aquifers and other resources to water quality and supply.

STRATEGIES

1. Promote agricultural and other resource industry practices which support environmental restoration such as conservation tillage, intercropping, and crop rotation, integrated pest management, etc., to contribute to healthier waterways and provide wildlife habitat.
2. Centralize and disseminate information to landowners about best practices in land management, as well as financial and other program incentives available to do so.
3. Educate homeowners about alternatives to conventional lawn care to reduce the runoff of nutrients to waterways, including the use of rain gardens to promote bioretention and provide backyard habitat.
4. Require the application of a conglomerate stream buffer, similar to the one that applies in the Patuxent PMA, in all areas of the subregion.

CHESAPEAKE BAY CRITICAL AREA



The Patuxent River at sunrise is a beautiful sight.

5. Work with the Patuxent River Commission to implement the Patuxent River Policy Plan, a multi-agency effort to protect the river through land management and pollution control practices.
6. Monitor the short- and long-term impact of climate change on the Patuxent River, including increased saltwater intrusion and potential impacts to aquifers and drinking water supplies.
7. Require the use of low-nitrogen septic systems in the Rural Tier portion of the subregion within 1,000 feet of any stream or tributary.
8. Investigate the status and number of monitoring wells in the county to determine if support for a greater number is required.

The Maryland General Assembly enacted the Chesapeake Bay Critical Area law in June 1984 to foster more sensitive development along the shorelines of the Chesapeake Bay so as to minimize damage to natural habitats and degradation of water quality. State-wide goals for protection of the critical area include minimizing water quality impacts from pollutants in runoff; conserving fish, wildlife, and plant habitat; and establishing land use development policies that accommodate limited growth while also addressing adverse environmental impacts inherent to human activity.

The Chesapeake Bay Critical Area is defined as the land 1,000 feet landward of the mean high tide line along tidal waters. It extends the entire length of the Patuxent River within Subregion 6 and into the tidal reaches of several tributary streams. All of the critical area in the subregion is within the green infrastructure network (see Map 13).

Natural heritage areas (NHAs) are plant or animal communities within the critical area that are considered to be among the best statewide examples of their kind. All NHAs are designated by the Code of Maryland Regulations (COMAR) and contain at least one-half dozen species designated or proposed as endangered, threatened, or in need of conservation. The Upper Patuxent Marshes NHA extends along the Patuxent River from Ferry Branch to Mattaponi Creek and is the only NHA within the subregion.

Overlay zoning districts apply within the critical area. Nearly all the critical area in Subregion 6 is in the Resource Conservation Overlay (R-C-O) Zone, which allows residential development at a density of one dwelling unit per 20 acres. Some small areas are in the Intense Development Overlay (I-D-O, Chalk Point Power Plant) or in the Limited Development Overlay (L-D-O, Eagle Harbor) Zones, which allow development at a density of one dwelling unit per four acres.

MAP 12: CHESAPEAKE BAY CRITICAL AREA



AIR QUALITY AND GREENHOUSE GAS EMISSIONS

The county periodically revises and updates its critical area program. Many of the recommended actions elsewhere in this chapter also support and encourage protection and resource enhancement when applied to the critical area.

POLICY 4

Protect, restore, and enhance the Chesapeake Bay Critical Area.

STRATEGIES

1. Ensure that the primary buffers and secondary buffers are protected and enforced to the fullest extent possible.
2. Increase enforcement activities as needed within the critical area.

The 2002 General Plan discusses air quality primarily in relation to improving air quality in the Developed Tier by enhancing environmental features and green infrastructure elements. Since 2002 climate change and greenhouse gas emissions have emerged as major issues at the international, national, and local levels. The General Plan describes development patterns that, if implemented, will help curb greenhouse gas emissions. Growth is targeted where infrastructure elements already exist and away from areas such as Subregion 6 where infrastructure expenditures are not planned.

The Washington Metropolitan area is a nonattainment area for ground-level ozone, an invisible gas formed when volatile organic compounds (VOC) and nitrogen oxides (NO_x) react in sunlight. Ozone is also a greenhouse gas. The primary sources of VOCs and NO_x are utilities and other industrial activity, motor vehicles, small gasoline-powered engines, solvents, cleaning solutions, paints, and insecticides.

Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Some GHGs such as water vapor, carbon dioxide, methane, nitrous oxide, and ozone occur naturally but are also emitted to the atmosphere through human activities. Other GHGs such as fluorinated gases are created and emitted solely through human activities.

The *Maryland Climate Action Plan* was developed in August 2008. It recommends a 90 percent reduction in GHG emissions by 2050. A report from the Metropolitan Washington Council of Governments recommends a regional 80 percent reduction from 2005 levels by 2050. Finally, at the county level, in 2008, the Prince George's County Council adopted a goal of reducing countywide GHG emissions below 80 percent of 2008 levels by 2050 (CR-24-2008).

The county has an important role to play in reducing GHG emissions and preparing for the impacts of climate change through policies and actions in the areas of land use planning, transportation, woodland conservation, and energy use.

Prince George's County recently hired an energy manager, whose responsibilities include the completion of a greenhouse gas emissions inventory to account for county GHG emissions. DER will develop an accountability program to implement reduction strategies and monitor the achievement of program goals.

Although it is difficult to quantify the subregion's contribution to degraded air quality and greenhouse gas emissions (versus the county's contribution) at this time, several observations suggest that the subregion plays a complex role in these issues and will continue to do so. For starters, Subregion 6 contains the largest coal-fired power plant in the state, generating electricity at Chalk Point as well as a significant amount of carbon and other greenhouse gas emissions. Given the rural and suburban character of much of the subregion, residents are largely dependent upon personal vehicles for transportation. At the same time, it is precisely because of the character of the Rural Tier in Subregion 6 that significant woodlands exist, serving as critical resources for sequestering or storing carbon now and in the future. With increased agricultural production, remaining open space and agricultural areas can play a greater role in the future (see Economic Development chapter) by reducing the miles that food must travel between farms and the plates of Prince George's County residents. In addition, these areas, along with woodlands, hold potential for serving as sources of renewable forms of energy that would generate fewer emissions than fossil fuels such as coal.

There is certainly a role that all residents of the subregion can play in reducing their personal emissions from vehicle use, home energy consumption, and more. Residents can and should actively help the county as a whole to reduce its overall emissions so that it can turn its attention to mitigating the impact of climate change. At the same time, the county must take the lead in not only promoting more environmentally-conscious behaviors in its own operations, but it must promote a development pattern that facilitates opportunities for current and future residents to generate fewer emissions in their daily activities. This means, among other things, protecting and enhancing critical environmental resources such as woodlands and open space and approving compact, walkable development patterns, particularly as outlined by the General Plan.

POLICY 5

Promote compact, walkable development patterns in appropriate locations such as the Town of Upper Marlboro,

Marlton, and rural centers and communities such as Baden, Aquasco, Eagle Harbor, Cedar Haven, and Croom.

STRATEGIES

1. Design development and redevelopment projects to minimize the need for motor vehicle trips (see Development Pattern/Land Use and Living Area chapters)
2. Provide pedestrian and bicycle facilities (see Transportation System chapter).
3. Provide for extremely limited bus service to Marlton.

POLICY 6

Increase awareness regarding air quality and greenhouse gas (GHG) emissions and the unique role that the Developing and Rural Tiers in Subregion 6 have to play in this effort.

STRATEGIES

1. Engage citizens, businesses, and public agencies through educational outreach efforts to raise awareness on how they can address air quality and climate change at the subregion level.
 - Maximize reductions in energy use and GHG emissions from government and institutional operations in the subregion.
2. Encourage the use of clean and renewable energy sources such as biomass and solar and wind power.

GREEN BUILDING/ ENERGY EFFICIENCY

The 2002 General Plan includes in its vision for the future of the environment in Prince George's County a reduction in overall energy consumption and implementation of more environmentally sensitive building techniques. Among the plan's policy recommendations are to reduce sky glow and minimize spill-over light between properties and from roadways. Among the strategies for implementing this policy are calls for the development of lighting standards appropriate for each tier that also consider safety and energy conservation. Similar strategies for the Rural Tier portion of Subregion 6 are discussed in the Development Pattern/Land Use chapter. Buildings have a huge impact on energy use and resource consumption. In the U.S., buildings account for 39 percent of total energy use, 12 percent of the total water consumption, and 68 percent of total electricity consumption¹².

In September 2007, County Executive Johnson established a Green Building Executive Steering Committee and Energy Efficiency Council as part of the county's Going Green initiative. The committee was tasked with evaluating the feasibility of

¹² Prince George's County Going Green Initiative.

the following green building goals and developing goal-specific implementation guidelines, actions, and financial strategies:

- Reduce 2007 energy consumption per square foot in all existing county buildings by 20 percent by the year 2015.
- Design and construct all new county buildings and public schools in accordance with the Leadership in Energy and Environmental Design (LEED)¹³ silver rating.
- Establish incentives for both new and existing private commercial buildings to achieve a LEED silver rating or an equivalent rating under a comparable green building performance measure.
- Establish a green building education and outreach program, working with county and other agencies to identify opportunities for demonstration projects in schools, parks, community centers, etc.
- Ensure that a sufficient number of development and permit review staff possess LEED accreditation and are able to sign off on tax credits and certifications, and to adequately assist commercial developers or large-scale property owners in meeting performance measures.

LEED has developed standards for neighborhood development (LEED-ND) that allow for evaluation and certification of neighborhoods regarding their level of energy and environmental design.

POLICY 7

Encourage the use of green building techniques and community designs that reduce resource and energy consumption.

STRATEGIES

1. Support this subregion plan's policy of redevelopment and infill development in existing and planned development areas rather than "green field" development (See Development Pattern/Land Use chapter).
2. Initiate a project that meets the full standards of the LEED-ND in the subregion. Consider this for a development/redevelopment project near Upper Marlboro (see Living Areas chapter).

POLICY 8

Reduce energy usage from lighting, as well as light pollution and intrusion into residential, rural, and environmentally sensitive areas.

¹³ The LEED Green Building Rating System™ is a voluntary national standard developed by the U.S. Green Building Council for the design, construction, and operation of high performance green buildings.

STRATEGIES

1. Encourage the use of alternative and energy-saving lighting technologies for athletic fields, shopping centers, gas stations, and car lots so that light intrusion on adjacent properties is minimized. Limit the amount of light output from these uses.
2. Require the use of full cut-off optic light fixtures for all proposed uses to reduce sky glow.

NOISE INTRUSION

Noise is generally defined as any form of unwanted sound. Noise is a composite of all background noises, which emanates from point and nonpoint sources and is transferred to a receptor or receiver. The amount of noise transmitted can vary considerably due to elevations, the existence of barriers, and project design.

Federal, state, and local ordinances and guidelines have been developed to ensure the reduction of noise levels to acceptable standards. The consensus of these standards is that 65 “A-weighted” decibels (dBA), measured using a “level day and night” penalty or Ldn, is the maximum noise level generally acceptable for outdoor activity areas within residential uses. The indoor noise standard is 45 dBA or Ldn.

In Subregion 6, major sources of noise are Joint Base Andrews (JBA), construction and mining operations, and vehicular traffic. Noise and accident potential zones restrict the type of development that can occur around the base in the interest of health and human safety. These zones are discussed in detail in the Development Pattern/Land Use chapter.

While mining and construction operations generate noise, sometimes large amounts owing to the necessary use of heavy equipment and trucks, their relatively small numbers and intermittent nature result in their impact not being as significant as the impact from vehicular traffic along roadways.

Local highways generate noise according to the speed and volume of traffic carried as well as other factors including noise reception location and topography. Freeways are normally the noisiest facilities. The use of sound-deadening barriers or other sound attenuation measures can reduce noise to acceptable residential levels to meet the state noise standards of 65 dBA Ldn in outdoor activity areas and 45 dBA Ldn in interior living areas. Site design that separates the noise generator from the noise receptor also can reduce noise levels on a site.

POLICY 9

Reduce adverse noise impacts to meet acceptable state noise standards.

STRATEGIES

1. Evaluate development and redevelopment proposals using Phase I noise studies and noise models where noise levels exceed 65 dBA.
2. Provide for adequate setbacks for development exposed to existing and proposed noise generators and roadways of arterial classification or greater.
3. Provide for the use of approved attenuation measures when noise issues are identified.
4. Continue to work with JBA to promote compatible land development in areas subject to aircraft noise and accident potential.
5. Require development within Ldn 65 dBA and greater noise exposure areas to be properly protected from the transmission of noise through the use of appropriate site designs, the use of barriers that affect sound propagation, and/or the use of sound-absorbing materials in construction.
6. Work with the State Highway Administration to ensure that as state roads such as MD 4 and US 301 are upgraded, appropriate noise reduction measures are incorporated into the roadway design.

