

Infrastructure Elements



6 • Natural Resources/ Environment

An area's natural resources contribute to its sense of identity. "Green" elements such as open spaces, waterways, and woodland areas both frame and shape development and offer a range of benefits, including animal habitats, cooling microclimates, drinking water, pollutant filtration, recreational opportunities, and community beauty. Over time, however, development can encroach upon these natural elements, fragmenting landscapes and wildlife corridors, impairing natural drainage systems, and damaging local ecosystems. The growing recognition of the importance of resource conservation has led to widespread efforts to protect these fragile resources from the impacts of development.

The Glenn Dale–Seabrook–Lanham plan area is, to a large extent, defined by its water and woodland resources. Three major watersheds extend "fingers" through the area, and large tracts of open space provide green infrastructure in the eastern and central portions of the plan area. Suburban development over the past five decades has eroded the integrity of many of these resources, and evidence of development impacts can be found throughout the plan area in the form of impaired water quality, erosion, and periodic flooding. The rate of new development within the plan area, however, will slow over the next decades, as fewer parcels are available for development under existing zoning regulations. Important opportunities exist for implementation of conservation measures that will enhance the ecological functions of natural systems within the Glenn Dale–Lanham–Seabrook plan area.

KEY FINDINGS

- All streams within the plan area have "poor" or "very poor" water quality ratings due mainly to the lack of stormwater controls and sedimentation.
- Large contiguous tracts of woodland cover exist within the plan area.
- Areas with both groundwater and surface flooding issues are known to exist, especially within the Folly Branch watershed.

- Area waterways and the existing trails network—particularly the stream valley corridors—provide important wildlife habitat and connectivity for wildlife and human movements.
- The plan area is part of the Washington metropolitan region, an EPA-designated nonattainment area for air quality.

MAJOR CHALLENGES

- Addressing flooding in known problem areas.
- Reducing the amount of stormwater runoff and retrofitting areas through the use of innovative stormwater management practices.
- Reclaiming and restoring previously disturbed wetlands and stream corridors.
- Maintaining and enhancing the existing tree canopy coverage within the plan area.

EXISTING CONDITIONS

Topography/Landscape Character

The Glenn Dale–Seabrook–Lanham plan area lies in the central part of Prince George’s County, which is located in the Atlantic Coastal Plain physiographic region of Maryland. This area is underlain by unconsolidated deposits of gravel, sand, silt, and clay. The topography ranges from gently rolling to nearly level. The dominant hydrologic soil groups in the plan area are Group C, which consist of mostly sandy clay loam and have generally low infiltration rates for rainwater when they are fully saturated. The stream valleys in the area contain mostly Group D soils that have low infiltration rates, are mostly composed of clay, and have a high runoff potential. The plan area’s relatively low topographical relief, generally developable soils, and location near employment centers have made it a prime place to locate development in the county.

Waterways and Wetlands

Surface Water

A watershed is the topographic division between two bodies of water, and the Glenn Dale–Seabrook–Lanham plan area consists of three major watersheds—Folly Branch, Bald Hill Branch, and Lottsford Branch—which all flow to the Patuxent River. The area also contains three watersheds with smaller drainage areas,

Table 18.
Habitat and Benthic IBI Water Quality of Major Watersheds

<i>Basin</i>	<i>Watershed Name</i>	<i>Benthic Index of Biological Integrity*</i>	<i>Habitat</i>
Patuxent	Bald Hill Branch	Very poor	Poor
	Folly Branch	Very poor	Poor
	Horsepen Branch	Poor	Very poor
	Lottsford Branch	Very poor	Poor
Potomac	Brier Ditch	Poor	Very Poor
	Lower Beaverdam Creek	Very Poor	Very Poor

*Standardized by the Maryland Department of Natural Resources, the Benthic Index of Biological Integrity (IBI) is a method of assessing the health of streams in the state. Benthic macroinvertebrates (i.e., “small bugs”) are sampled from the stream, and the composition of the species present provides information on the overall health of the system based on the macroinvertebrates’ sensitivity to pollution.

Source: 2005 Countywide Green Infrastructure Plan

including Horsepen Branch, Brier Ditch, and Lower Beaverdam Creek. Water quality assessments have been performed by the Prince George’s County Department of Environmental Resources (DER) in all six area watersheds; all watersheds rank as either poor or very poor when evaluated for benthic invertebrates (“small bugs” found in the streams that react to pollutants) and habitat quality (see Table 18).¹

The degraded conditions of these streams can be attributed to the high levels of impervious surfaces, such as asphalt and concrete, within their respective watersheds and the fact that much of the area within these watersheds was developed prior to the current stormwater management regulations. These surfaces create an impermeable layer that prevents rainfall from filtering back into the ground and thus leads to high volumes of stormwater runoff. Accumulations of runoff have several negative effects: (1) Stormwater running across impervious surfaces often picks up pollutants, such as oil, grease, and sediment; (2) Pollutant-laden stormwater flows off the land into existing stormwater management infrastructure systems (if they exist) and subsequently into streams, degrading water quality; and (3) Because impervious areas without stormwater controls lack anything to slow the water’s velocity as it travels downhill, stream systems eventually receiving this influx of water become severely eroded.

1 Scale includes “good,” “fair,” “poor,” and “very poor” ratings. Prince George’s County has no streams rated “good.”

Wetlands

Wetlands comprise 2.3 percent of the Glenn Dale–Seabrook–Lanham land area. These are marshes, wet meadows, bogs, and other natural features that serve as important areas for water filtration and plant and wildlife habitat. Wetlands are inundated or saturated by surface or groundwater at a frequency and duration



Folly Branch

sufficient to support vegetation typically adapted for life in saturated soil conditions. These areas aid in flood control and water quality improvement by trapping and filtering out water pollutants. The plan area contains an extensive amount of nontidal wetlands, especially along the stream valley corridors. Folly Branch, Lottsford Branch, and Bald Hill Branch all have large floodplain areas that host wetland fringes, which serve as important habitats for many plants and animals.

These environmentally-sensitive areas are protected under the Prince George's County Code. During the review of development applications, wetlands are identified and impacts are avoided or minimized when avoidance is not an option. Mitigation is also a requirement as part of the state permitting process.

Habitats and Biodiversity

Water resource areas, such as the three major stream valleys running through the plan area, provide rich wildlife habitat. Waterways and their associated buffer areas function as wildlife corridors, offering valuable links between open spaces and animal habitats. The plan area's trail network, particularly within the stream valley parks, also provides important habitat connections for area wildlife. When development is proposed in the plan area, care should be taken to preserve large, contiguous blocks of woodlands.

Rare, Threatened, and Endangered Species

The Maryland Department of Natural Resources houses the Maryland Natural Heritage Program (NHP), the state agency which holds primary responsibility for the management and protection of rare, threatened, and endangered species in Maryland. According to current NHP data sources, no state- or federal-listed plants or animals of rare, threatened, or endangered status exist within the Glenn Dale–Seabrook–Lanham plan area. However, to ensure the maintenance of any supporting

habitats of potentially listed species within the plan area, each subdivision proposal must be reviewed by the Maryland NHP to verify the presence or absence of any listed species on the relevant property.

Urban Forest

The term “urban forest” includes trees located on public or private lands in cities and towns. These trees may grow individually, in small groups, or in forested conditions. The urban tree canopy offers many community benefits, including reducing the overall temperature of built spaces, providing oxygen, removing pollutants from the air, and, when strategically planted or preserved, improving water quality by absorbing pollutants from stormwater runoff. Trees also provide beauty and a sense of proportion to the built environment. “Urban forestry” refers to the practice of preserving and managing these trees in developed areas. Urban forestry does not seek to re-create forests as they existed prior to development; instead, its goals include ensuring tree canopy coverage that intercepts rain water, helps reduce overall temperatures, and provides oxygen in developed areas.

Existing Woodlands

The most significant portion of forest cover within the plan area exists within stream valleys, on parkland, in areas of regenerating agricultural fields, and within small woodlots. The dominant forest cover type is the yellow poplar association and a red oak association also exists. The yellow poplar association includes sweetgum, sycamore, elm, and red maple species typical of wet or lowland areas; the red oak association includes white oak, red maple, hickory, beech, and Virginia pine species.

Woodlands provide invaluable environmental and aesthetic benefits to the plan area. The 2002 General Plan recognizes the importance of woodland conservation and provides a tree cover objective for Developing Tier communities such as the Glenn Dale–Seabrook–Lanham area: 38 percent urban tree canopy and forest cover in the Developing Tier in 2025. In 2009, the plan area contained approximately 2,225 acres of tree and forest cover (27 percent of the plan area).

Green Infrastructure

The 2005 *Countywide Green Infrastructure Plan* was developed to protect, enhance, and/or restore important environmental features of countywide significance.² The plan emphasizes the importance of maintaining connections

² According to the *Countywide Green Infrastructure Plan*, “countywide significance” is “based on the presence of environmentally sensitive features, size, connectivity, and contiguity” (p. 5).

between environmentally-significant areas for ecosystem protection for future generations. The designated local green infrastructure network for the plan area is shown Map 11.

Within the plan, environmentally-sensitive areas are divided into three assessment categories:

- **Regulated areas:** Areas containing environmentally-sensitive features such as streams, wetlands, buffers, the 100-year floodplain, and steep slopes. These areas currently are protected in the land development process through local, state, or federal regulations.
- **Evaluation areas:** Areas containing nonregulated environmentally-sensitive features, such as unique wildlife habitats. These are considered high-priority preservation areas for on-site woodland and wildlife habitat protection.
- **Network gaps:** Areas critical to the connection of “regulated” and “evaluation” areas that are targeted for restoration in order to support the overall function and connectivity of the green infrastructure network.³

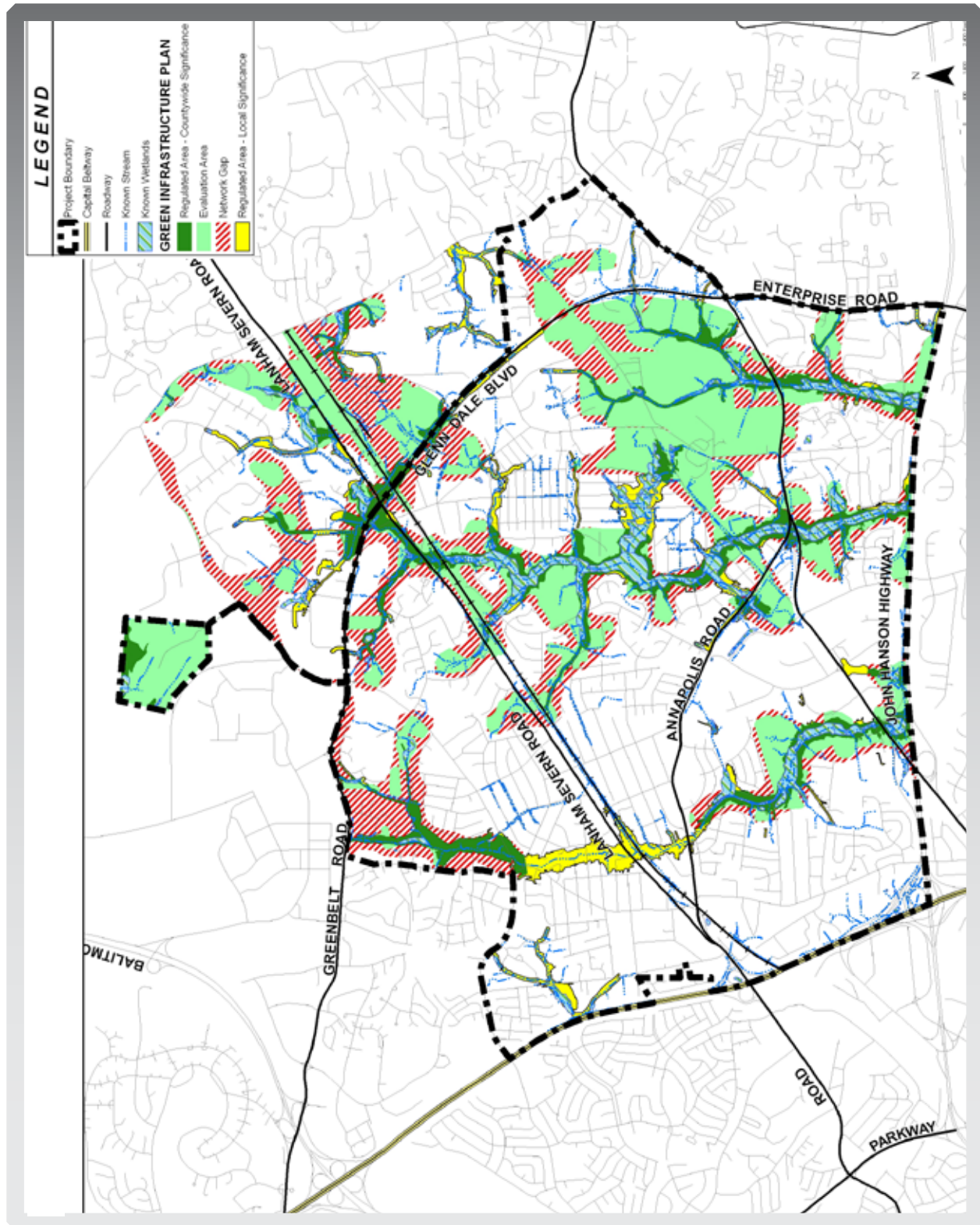
These classifications affect development review in Prince George’s County, as properties within different categories receive differing levels of consideration according to the category’s importance within the overall green infrastructure network. Table 19 defines these levels of review.

Table 19. Green Infrastructure Assessment Categories	
<i>Category</i>	<i>Development Review</i>
Regulated Area	Preservation required; impacts to regulated features are approved only where necessary for road crossings and public utilities
Evaluation Area	Consideration must be given to on-site resources and their priority for preservation/conservation
Network Gap	Evaluated to determine whether the areas can aid in creating critical connections within green infrastructure network and/or to restore areas and enhance ecological functioning of network
Source: 2005 Countywide Green Infrastructure Plan	

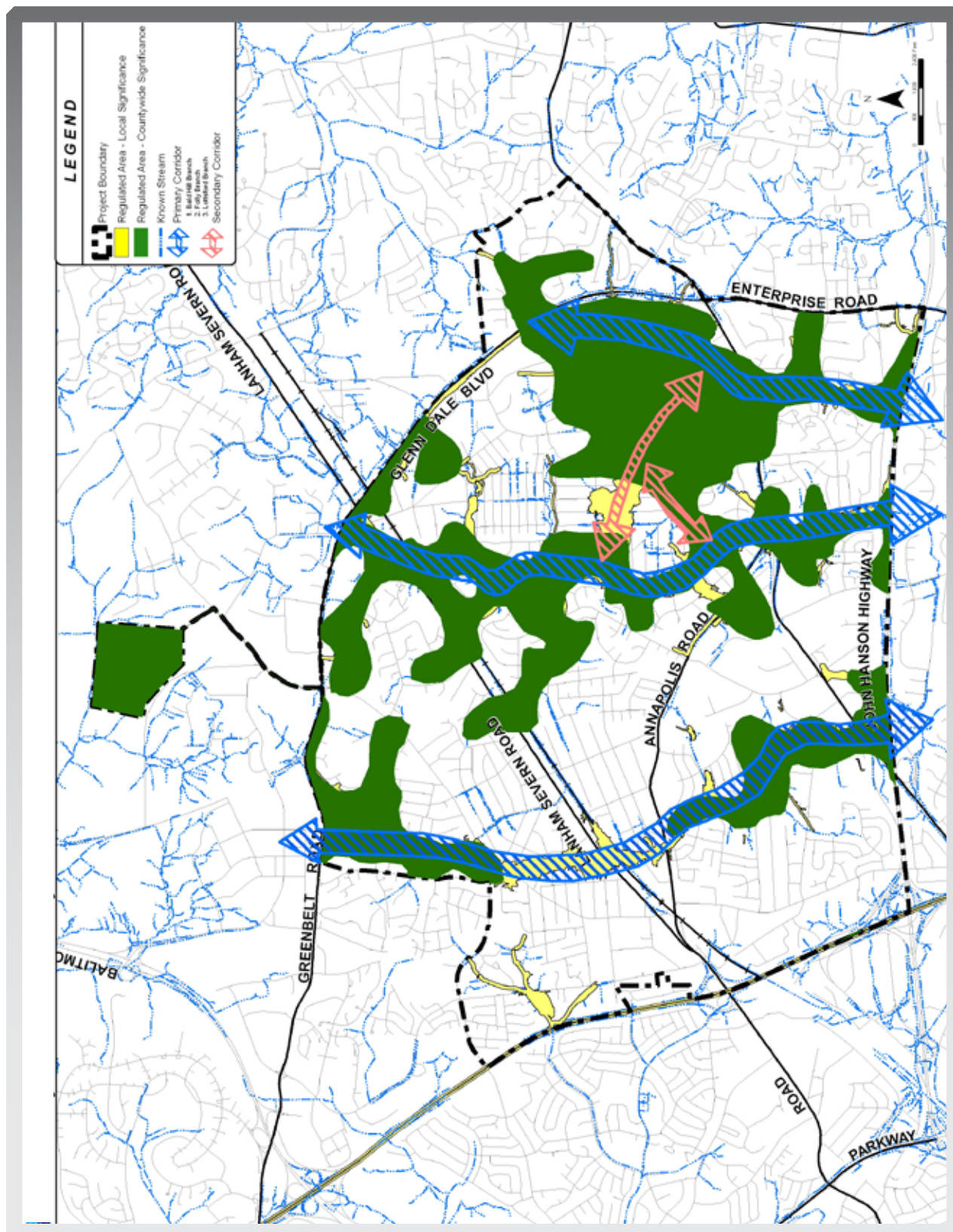
The three primary green infrastructure corridors in the plan area are the Bald Hill Branch, Folly Branch, and Lottsford Branch corridors. All three corridors support stream systems that generally flow north to south through the majority of the sector plan area and eventually on to the Patuxent River and the Chesapeake

3 Prince George’s County *Approved Countywide Green Infrastructure Plan* (p. 1).

Map 11: Green Infrastructure Network



Map 12: Primary and Secondary Green Infrastructure Corridors



Bay. Secondary corridors are areas where connectivity is critical to the long-term viability of the primary corridors. The secondary corridors shown in Map 12 represent the best opportunities for preserving and/or reestablishing connectivity for wildlife and their supporting habitat within the sector plan area.

Area Environmental Issues

Stormwater Management

In residential suburban communities like Glenn Dale, Seabrook, and Lanham, the greatest threat to water quality is nonpoint source pollution. This type of pollution does not come from a specific “point,” like an industrial discharge; instead, pollutants enter the area’s water systems at many points through stormwater runoff. Impervious surfaces are problematic because they do not allow water to filter into the ground; rather, they cause water to accumulate into runoff flows that can carry large numbers of pollutants, such as oil, fertilizer, and pesticides, into area waterways. Development that creates more impervious surfaces and lawns (instead of trees and other vegetation) results in greater runoff during and after storms and also leads to increased risk of erosion, sedimentation, and flooding in stream valleys. Fertilizers and other chemicals also can increase nitrogen and other nutrients in area waterways and water bodies, leading to harm to animal species and excessive algae growth known as eutrophication. Excessive algae growth is problematic because as the algae decomposes it consumes oxygen, resulting in a disruption of the natural processes in the stream.

Surface areas in watersheds that contain more than ten percent impervious surfaces are known to lead to degraded water quality. This plan area contains three different watersheds, none of which have an impervious surface number greater than ten percent, but they are approaching this percentage. The plan area contains approximately 1,456 acres of impervious surfaces (approximately 17.5 percent of the sector plan area), which is a misleading calculation because the plan area is composed of portions of six watersheds. While it is important to calculate impervious surface percentages, it should be done on a watershed basis and not on a plan area basis. Future planning efforts should address the imperviousness within each watershed to better address water quality issues.

The plan area is affected not only by nonpoint source pollution within its boundary, but also by nonpoint source pollution from new development outside the plan area (i.e., upstream from the plan area within the same watershed). Despite this fact, how impervious surfaces are designed and how stormwater runoff is treated both within and outside the plan area can result in positive changes for the receiving streams. Subtitle 4 of the Prince George’s County Code requires

stormwater management plans for proposed development. Additionally, Subtitle 24 of the County Code requires all properties regulated by the Subdivision Ordinance to provide on-site stormwater management. Each property or group of properties must have a storm drainage and stormwater management concept plan reviewed and approved by the Prince George's County Department of Environmental Resources (DER). Additionally, special buffers are required for perennial streams and wetlands to reduce the impact of stormwater flows.

The Stormwater Management Act of 2007 is administered by the Maryland Department of the Environment (MDE) and affects local county stormwater authority. The new Stormwater Management Act will require the use of environmental site design (ESD) or the use of nonstructural best management practices to the maximum extent practicable on development sites. The new regulations will require Prince George's County to update its stormwater ordinance.

Flooding

Periodic surface and ground flooding exists in several locations within the plan area, with the majority of surface flooding issues occurring within the Folly Branch watershed. This watershed is extensive and Folly Branch itself carries a large quantity of water, especially during storms. Aerial photography and field visits by DER staff confirm that large expanses of fringe wetlands line the mainstem of Folly Branch, indicating a large volume of water storage within the stream valley. Many platted lots exist within the floodplain that were created prior to County Code restrictions on subdividing lots that are fully within the floodplain. The county's Floodplain Ordinance (Subtitle 4) protects areas within the defined 100-year floodplain, which is delineated at the time of development review application. The floodplain used for development review purposes differs from the Federal Emergency Management Agency (FEMA) 100-year floodplain because it considers future development in the floodplain, whereas the FEMA floodplain limits only address existing conditions. New development is required to place buildings above the floodplain elevation and new residential development is required to provide a 25-foot-wide building setback from all 100-year floodplain limits. Limited renovations/improvements to existing properties in the floodplain are allowed, and these improvements must be elevated.

Flooding after large storm events, especially flooding in residential basements, occurs throughout the plan area, but more frequently and severely in the central section and along streams. These areas are most likely to contain soils with

seasonally high water tables, which can lead to perched groundwater due to an impermeable clay layer located a few feet below the ground surface.⁴ These are also areas where stormwater management was not required when they were developed. The impermeable soils within the plan area exhibit moderate to severe constraints for development of basements, which are highly susceptible to water seepage and may flood during the spring and winter months. New residential subdivisions that propose basements are required to perform water table testing to ensure that newly created basements will not flood.

Air Pollution

Under the Clean Air Act Amendments of 1990, the Washington, D.C., metropolitan area is considered an air quality nonattainment area by the Environmental Protection Agency (EPA). Air quality issues in the region and the plan area result mainly from nitrogen oxide gases and volatile organic compounds that are mostly by-products of burning gasoline and coal. When heated by summer days and increasingly-warm urban areas, these gases combine to create ozone, a chemical compound which can be detrimental to the health of humans, animals, and plants. In urbanized areas, ozone often forms from the mixing of vehicle exhaust in the atmosphere and the heating effect of the earth.

Noise

Noise is generally defined as any form of unwanted sound from man-made or natural sources. Noise is a composite of all background sounds emanating from point and nonpoint sources and can vary considerably due to elevations, the existence of barriers or structures, and project design. In general, the noise environment of the plan area falls within the parameters set by the state of 65 dBA Ldn for residential outdoor activity areas and 45 dBA Ldn for indoor living areas on residential properties.⁵

The majority of noise in the plan area originates from highway traffic. Noise sources include the Capital Beltway (I-95/495) and US 50 (John Hanson Highway), both of which are classified as freeways, and Martin Luther King, Jr. Highway (MD 704), Annapolis Road (MD 450), and Lanham Severn Road (MD 564), all of which are classified as arterials. All of the mentioned roads are possible sources of noise generation that can exceed 65 dBA Ldn. Acceptable indoor noise levels can be achieved through the use of appropriate building materials including, where needed, special windows and doors with higher sound transmission ratings.

4 “Perched” means that groundwater is unable to penetrate a layer of impermeable soil to reach the water table and thus “perches” on top of it just below the soil surface.

5 Code of Maryland Regulations, Title 26, Subtitle 2, Chapter 3, Section 3.

Light Pollution

Light pollution is defined as light that causes a glow in the night sky from artificial sources such as street lights, lights from commercial uses, and light from residential sources. Light pollution also includes “light spillover,” when one property is more brightly lit than an adjacent one. High light levels negatively affect both humans and wildlife populations. Studies have shown that humans get less sleep and sleep less soundly where there are light intrusions. High and disparate light levels affect wildlife movements and the habits of normally nocturnal animals. Reducing light pollution serves to lower overall energy costs by directing the correct light levels in the right places, reducing the need for higher wattage fixtures. Containing light spillover may help prevent crime, as constant light levels across properties/ areas reduce the amount of time the human eye needs to adjust to different light levels.⁶

The main sources of light pollution in the plan area are existing commercial uses, particularly auto-related uses along Annapolis Road (MD 450) and Lanham-Severn Road (MD 564) near the Capital Beltway.

Maintaining Existing Woodlands

The plan area’s woodlands have been decimated over time by development. Residential and commercial projects involve necessary lot clearing that removes the majority of on-site trees and vegetation to allow for building construction and to ensure proper drainage. Such clearing affects not only the property under development, but properties adjacent to it. The loss of woodlands also has significant environmental consequences, such as alteration of drainage patterns, loss of pollutant infiltration, increased heat, and potential erosion.

Tree conservation plans are required with all development applications unless a site is less than 40,000 square feet in size or has fewer than 10,000 square feet of existing woodlands. Activities that disturb fewer than 5,000 square feet of woodlands are also exempt. The exemptions only apply to properties that do not currently have an approved tree conservation plan. These plans must identify existing woodlands, nonwoodland vegetation, and existing constructed and natural features. Priority areas are identified for preservation and include streams and wetlands and their associated buffers, as well as the 100-year floodplain. The regulations contain fines for woodland destroyed without a permit or in violation of a tree conservation plan. If trees are to be planted to meet the woodland conservation requirements, a bond must be posted to ensure completion.

6 This principle can be found in the widely-accepted Crime Prevention Through Environmental Design (CPTED) Guidelines.

Subtitle 23 of the Prince George's County Code requires the planting and protection of street trees along county roadways as part of private development projects. In addition, the *Prince George's County Landscape Manual* contains standards for planting street and shade trees on residential, commercial, and industrial properties (including parking lots). The Landscape Manual requirements do not result in additional forests being planted; however, they do provide much-needed tree canopy on developed portions of a site.

Energy Consumption/Green Building

In the United States, buildings account for approximately 12 percent of national water consumption, 39 percent of carbon dioxide emissions, and 71 percent of electricity consumption.⁷ Rising energy costs and concerns about environmental sustainability have prompted green building practices, which aim to reduce resource consumption by promoting efficient building siting, design, construction, landscaping, operation, and maintenance. Green building typically includes elements such as the use of recycled construction materials; the reuse of wastewater; energy-efficient windows, insulation, and HVAC systems; “green roofs” (roofs containing a layer of plant material, which helps cool the environment); and solar panels. The incorporation of “green” elements usually reduces operating and lifecycle costs and improves a building’s longevity. Depending on the market and potential users, the use of green building techniques may increase marketability. Studies have shown that occupant productivity is increased and absentee rates are reduced in buildings that have more ambient light, cleaner indoor air quality, and access to open space.

The United States Green Building Council has established the Leadership in Energy and Environmental Design (LEED) program, a nationally recognized program designed to promote the use of green building techniques (see Appendix 6). LEED involves a rating system for the design, construction, operation, and maintenance of high-performing green buildings. This system evaluates such building elements as indoor air quality, water efficiency, recycling, and energy-efficient lighting, along with site elements such as landscaping and location near existing infrastructure and transit. Points are assigned, and the number of points received determines the building’s level of LEED certification (from lowest to highest): “Certified,” “Silver,” “Gold,” and “Platinum.”



7 U.S. Green Building Council, <http://www.usgbc.org/>.

Many jurisdictions have adopted incentives or requirements for green buildings, including expedited development review, reduced permitting and application fees, and tax credits. In Prince George's County, a 2007 Executive Order—part of the Going Green Initiative—mandates that all new county buildings or those undergoing major renovations achieve LEED Silver certification.⁸ This leadership should translate to more buildings in the county achieving some level of LEED certification.

RECOMMENDATIONS

GOAL: Restore and enhance water quality in areas that have been degraded.

POLICY 1:

- Decrease the amount of pollutants from both storm and nonstorm events entering plan area wetlands and waterways.

STRATEGIES:

Require the use of conservation landscaping techniques that reduce water consumption and the need for fertilizers or chemical applications. These techniques include planting adapted native plant stock, utilizing efficient irrigation, mulching, soil preparation, and appropriate planning, design, and maintenance.

The capture and reuse of rain water is highly encouraged. These principles coupled together can help to reduce the amount of water necessary for maintaining landscaped areas and will help to increase the water and pollutant uptake by landscaped areas. Designing landscaped areas to intercept stormwater will also help to increase the self-sustaining nature of these areas.

Provide educational opportunities for residents and businesses regarding proper lawn fertilization techniques. M-NCPPC should work in coordination with the Department of Environmental Resources (DER) to create an educational outreach program.

Educating homeowners about proper fertilizing and lawn maintenance techniques helps reduce the amount of unnecessary fertilizer which eventually ends up in local waterways. An education program for homeowners will help to reduce nonpoint nutrient pollution of the county's tributaries and eventually the Chesapeake Bay.

⁸ Prince George's County, Prince George's County Goes Green Executive Order, <http://www.princegeorgescountymd.gov/Government/AgencyIndex/GoingGreen/order.asp>.

Develop a trash removal strategy for urban stormwater management and storm drainage programs.

M-NCPPC should coordinate with the Department of Public Works and Transportation (DPW&T) to create a consistent program. The Department of Environmental Resources can increase the circulation of brochures regarding littering and dumping to citizens of the county.

POLICY 2:

- Preserve, enhance, or restore the vegetated buffers around wetlands and waterways.

STRATEGY:

Target priority areas, such as grassed stream buffers, for forest planting or enhancement.

Increasing the stream buffer via tree planting helps buffer the stream against the negative effects of stormwater runoff. The roots of trees help stabilize stream banks and take up the nutrients and pollutants contained in stormwater runoff. The tree canopy provides shade, while the trees themselves provide habitat for wildlife. Increasing the forested riparian buffers around the streams in Prince George's County shall decrease the negative effects from stormwater runoff. This shall be coordinated through the development review process or through voluntary programs. As development sites are reviewed on a case-by-case basis, the type of existing stream buffers should be evaluated. Enhancing the stream buffer by concentrating tree plantings there is highly encouraged.

GOAL: Prevent flooding associated with new and redevelopment.

POLICY 1:

- Ensure stream corridors are clear of debris, both manmade and natural, in known flooding areas.

STRATEGIES:

At the time of a development proposal, evaluate stream corridors for blockages, especially in the Folly Branch watershed.

Keeping stream corridors clear of blockages helps keep water flowing downstream within the stream channel instead of being backed up into the floodplain and potentially into areas adjacent to the floodplain. Culverts, stream banks, and channels shall be assessed for woody debris and trash blockages that could potentially cause flooding in large storm events. The maintenance of stream corridors will help prevent unnecessary flooding along streams.

POLICY 2:

- Ensure that the quantity of stormwater discharged from a site post-development does not exceed predevelopment conditions.

STRATEGIES:**Implement stormwater management techniques on development sites to mitigate the negative impacts of development.**

Techniques such as green roofs, bioretention, rain gardens, infiltration areas, and the like are methods that can be employed to best mimic pre-development conditions on a site. This should be addressed at time of conceptual stormwater management plan approval.

In the Folly Branch watershed, require verification of typical groundwater levels on-site prior to development.

The grading of a site shall not negatively impact the groundwater hydrology in a manner that increases flooding in below-ground structures. This verification will help guide the best type of development for the site while preventing flood water damage to the structure.

Create an electronic database of flooding complaints in order to identify areas of known flooding to avoid future problems.

This comprehensive tool will help guide how development occurs on a property within an area of known flooding and should be housed and maintained by DER. In known groundwater flooding areas, houses with basements should be limited or other mitigation techniques should be implemented.

GOAL: Preserve, enhance, and restore the existing tree canopy within the plan area.**POLICY 1:**

- Focus tree and forest preservation and restoration efforts in appropriate areas.

STRATEGIES:**Prioritize on-site tree preservation within the local green infrastructure network, if applicable.**

The local green infrastructure network has been identified in order to prioritize the area's most valuable ecological resources. Maintaining existing or enhancing tree cover in this area will help to sustain these natural areas for future generations. The network gap areas have been identified in order for reforestation/afforestation to occur, in order to contribute to the overall health of the local green infrastructure network. Afforestation and reforestation efforts should be focused in areas of network gap within the green infrastructure network.

Support shade tree plantings for roadways, residential streets, and parking lots.

These tree plantings can contribute to the enhancement of the urban tree canopy while mitigating heat island effects by creating patches of shading in the urban environment.

Support forest protection and restoration efforts on parkland.

Areas of parkland used for passive recreation should be planted in a diverse mix of native trees in order to contribute to the future forest cover of the plan area.

POLICY 2:

- Encourage the application of urban forestry principles to landscaping and reforestation efforts, while increasing opportunities for incorporating tree planting into the existing landscape.

STRATEGIES:

Utilize the following key principles when implementing landscape and reforestation/afforestation efforts:

- ☐ *Use native plant species for landscape projects*
- ☐ *Plant a mixture of overstory trees and understory trees and shrubs*
- ☐ *Prevent the use of nonnative plant species*

The use of these key principles can contribute to restoring and enhancing the forest cover that once used to dominate the plan area.

Encourage residents, community associations, and businesses to apply for funding from county programs such as ReLeaf, an initiative to provide funding for communities to plant trees on public property.

The county sponsors two tree give-away events: the annual Gorgeous Prince George's Beautification Program and the annual Arbor Day celebration. These programs help contribute to the aesthetic and environmental well-being of a community.

Increase the percentage of urban tree canopy by planting trees and other vegetation, especially along roadways, in median strips, and within residential communities.

Ensure that root space is sufficient for long-term survival. These street tree plantings can also be designed as a stormwater amenity by using recessed planting boxes or open space grates around the trees. This method will help intercept stormwater from surrounding impervious surfaces while providing a source of water for the trees.

POLICY 3:

- Ensure that no net loss of forest cover occurs within the boundaries of the plan area.

STRATEGIES:**Require a minimum of ten percent tree canopy coverage on all new and redevelopment projects.**

Encourage the preservation of existing specimen trees (75 percent of the diameter of the champion tree or over 30 inches in diameter at breast height). These trees enhance both the site's aesthetics and its micro-environment.

Require on-site tree preservation to the maximum extent possible before considering off-site options.

All attempts at preserving tree canopy through off-site mitigation shall be attempted within the plan area before elsewhere in the county is allowed. Fee-in-lieu monies collected for conformance with the Woodland Conservation Ordinance should be directed to specific county tree programs.

GOAL: Utilize innovative stormwater management best practices to mitigate the negative impacts of stormwater runoff.**POLICY 1:**

- Require stormwater to be treated nonstructurally to the maximum extent practicable.

STRATEGIES:**Require environmental site design stormwater management techniques to be used on-site to the maximum extent practicable.**

Environmental site design techniques build on the idea that stormwater is dealt with on a site either through evapotranspiration through vegetation, infiltration back into the ground, or reused graywater in associated buildings. Techniques such as rain gardens, bioretention, and infiltration areas, innovative stormwater outfalls, underground stormwater management, green streets, cisterns, rain barrels, grassed swales, and stream stabilization shall be utilized. The Maryland Stormwater Design Manual shall be utilized for correct design and installation for each project.

Require that large tracts of impervious surfaces be disconnected through the use of careful site design.

This can be achieved by utilizing areas of alternative (pervious) pavers, soil amendments and conditioning, bioretention islands, rooftop gardens, and other landscaping techniques. These techniques mimic the original predevelopment land conditions and will help mitigate the negative effects of stormwater runoff.

Promote use of areas designed to increase infiltration within required open or green space.

Open space areas like ball fields and grassed plazas can contain an underground area that can promote infiltration or contain a cistern. These areas are meant to retain rainfall by promoting infiltration back into the ground instead of conveying the water into the nearby stream systems. Other options for less-intensely used open space areas are to create linear wetland cells that can act as treatment for nearby stormwater runoff.

GOAL: Address issues of energy conservation, light pollution, air pollution, and noise impacts within the plan area.

POLICY 1:

- Increase opportunities for utilizing green building opportunities in the plan area.

STRATEGIES:

Encourage the use of green building techniques as designated by the U.S. Green Building Council or equivalent.

New building designs should incorporate the latest environmental technologies in project buildings and site designs. As redevelopment occurs and where appropriate, existing buildings should be reused and redesigned to incorporate energy and building material efficiencies. These strategies help to create more sustainable conditions of developed areas.

Support the development of a countywide green building program that provides incentives for reducing the overall impacts of buildings on the environment and to provide cleaner, healthier buildings to support the health and wellness of county residents and employees.

A green building program will not only allow for more sustainable development in the county, but will increase opportunities for the creation of more green jobs.

POLICY 2:

- Reduce light pollution and intrusion into residential communities and environmentally sensitive areas.

STRATEGIES:

Encourage the use of lighting technologies for athletic fields, shopping centers, gas stations, and vehicle sales establishments that reduce light intrusion on adjacent properties so that safe and even light levels are maintained.

Require the use of full cut-off optic light fixtures.

These types of fixtures put light on the ground below the fixture only and do not allow for light intrusion into the sky. They direct light to the ground in a

direct, tight pattern. These fixtures will help to reduce the negative effects of light pollution, which not only obscures the night sky but can cause light to trespass onto neighboring properties.

Require a detailed lighting plan to be submitted for all new projects that considers existing light levels.

These lighting plans shall be submitted at the time of development review in order that each site shall be reviewed. Verification of light levels shall ensure that current night-time light levels are not exceeded and do not negatively contribute to the light pollution in this area.

POLICY 3:

- Reduce air pollution to support community health and wellness and champion nonmotorized transportation alternatives.

STRATEGIES:

Design new and redevelopment projects to minimize the need for motor vehicle trips and prevent conditions that may create local air pollution nuisances.

A comprehensive analysis of the surrounding area as a development case is reviewed will help to give a bigger picture of the area. Developing in areas that have existing services can help to reduce the need for automobile trips.

Provide an improved, continuous network of sidewalks and bikeways to facilitate safe pedestrian use and access.

As development sites are reviewed, the surrounding area should be analyzed for comprehensive sidewalk and bikeway connections.

Provide park-and-ride lots along major roads for carpools, vanpools, and transit users.

These areas are especially important around the Seabrook MARC station where people are most likely to be commuting. Encourage the use of carpools and vanpools to decrease the amount of automobile traffic within the plan area.

POLICY 4:

- Reduce adverse noise impacts to meet State of Maryland noise standards.

STRATEGIES:

Evaluate development and redevelopment proposals using Phase I noise studies and noise models.

Provide adequate setbacks for projects located adjacent to existing and proposed noise generators and roadways of arterial or freeway classification or greater.

Provide noise attenuation measures when noise issues are identified.

Provide sound barriers between incompatible uses.

Restrict hours of operation for uses that produce excessive noise.

