



Briefing on a Countywide Green Infrastructure Network Map



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Description

Green Infrastructure includes natural areas such as waterways, forests, meadows, and wetlands. Increasing the health and connectivity of green infrastructure elements better conserves natural ecosystem values and functions, helps support native plants and animal species, sustains clean air and water, and provides a wide array of benefits to the residents of Montgomery County. Benefits for local communities include enhanced resilience to the effects of extreme weather and climate change, increased economic activity, improved public health, optimizing locations of new parks and trails of all types Countywide, and more equitable access to nature. The Montgomery County Green Infrastructure Map shows a Countywide conceptual network composed of natural areas and gaps between those areas which can provide potential opportunities to enhance network connectivity.

The purpose of the Green Infrastructure Network Map is to meet State Land Preservation, Parks and Recreation Plan (LPPRP) green infrastructure guidance for local jurisdictions and continue to qualify for the highest eligibility rating for State Program Open Space (POS) funding. The map will also serve to enhance ongoing work in implementing the green infrastructure-related objectives and strategies in the General Plan, Water Resources Functional Master Plan, County Climate Protection Plan, and support countywide park and trail planning, local master plan updates, the forest conservation program, urban green enhancements, and the County's efforts to comply with State water quality standards for its many impaired water bodies. To do this, staff have incorporated new data and land cover information to update a draft green infrastructure map that was prepared under an earlier work program, adapted it to an interactive map format, and identified applications for its use with current County processes to enhance natural area health and connectivity in the County. The network map will be used as a source of information to support the many existing planning, review, and programmatic processes that identify natural areas for protection, conservation, mitigation, restoration, enhancement, connection, and acquisition. Providing information on potential opportunities to enhance natural area connectivity and function will help to increase the ecological value of local and Countywide decisions regarding natural areas.

Staff Recommendation: Briefing on the Green Infrastructure Network Map prior to adding the layer to the Department's GIS system for staff use, and posting an interactive version of the map on the Department's web site.

Background

The importance of connectivity for the functionality and benefits of natural areas has long been recognized, and was a key component of the rationale in the original General Plan to create the County's stream valley

park system. Building on that concept, the County's General Plan Refinement of 1993 included many environmental objectives and strategies to achieve the benefits of a healthier and more connected natural environment. (See Attachment 1 for green infrastructure-related goals, objectives, and strategies in the General Plan.)

Over the years, a wide variety of Planning Department and Department of Parks planning, review, and programmatic processes have served to implement these objectives and strategies by identifying, conserving, and protecting natural areas, and increasing their connectivity. These include the County's park planning, acquisition, and management process, the forest conservation program, the master plan process, and the environmental component of development review. Many natural areas have been, and continue to be, protected as parkland, and managed for their natural resource values. In applying the County's Environmental Guidelines for Development, natural resources on proposed development sites are identified along with required buffers, forest conservation areas, locations for onsite or offsite forest mitigation, conservation easements and park dedication areas. In the County's area and master planning process, natural areas are often identified for protection, primarily through park dedication or acquisition. In some cases, master plans also identify forest retention areas as part of future development. In addition, many other municipal, County, Regional, State, and Federal agencies and organizations have plans and programs that identify, protect, and enhance natural areas. Over time, the result has been a significant number of protected natural lands, many of which are connected along stream corridors.

Nevertheless, there is still a large degree of discontinuity between natural areas throughout the County along streams, in upland areas, and between watersheds. These discontinuities offer potential opportunities for increasing green connectivity and the benefits of a healthy natural environment. Although the General Plan has excellent green infrastructure connectivity, preservation, protection, and enhancement objectives and strategies, the County has lacked a conceptual green infrastructure network map that provides Countywide information on potentially connectible natural areas. The Green Infrastructure Network Map provides information that can be used in existing processes to help further fulfill the objectives and strategies of the General Plan and other County plans. The map will help identify areas throughout the County, at a range of analytical scales ranging from local to Countywide, where habitat mitigation, restoration, enhancement, protection, conservation, and acquisition can provide the greatest benefits to ecological function and connectivity.

Under an earlier work program, planning staff prepared a draft green infrastructure network map as part of a new functional master plan. During the recession in 2009, further work on the project was curtailed, as the Department's work program was revised to focus limited staff resources on the most urgent and time-sensitive projects. Shortly thereafter, the State issued LPPRP guidance for local governments that included the need for green infrastructure mapping and enhancement strategies. Local jurisdictions that develop these elements, along with meeting other LPPRP requirements, can qualify for the highest eligibility ranking for State POS funds. The Commission has previously indicated to the State that work had begun on developing a green infrastructure map for the County.

Maryland LPPRP Planning Guidance for Local Governments

The Maryland Department of Planning 2009 Maryland Land Preservation, Parks, and Recreation Plan-Volume I, states that local jurisdictions should identify a Countywide contiguous network of all environmentally important areas. The State stressed the importance of connectivity in sustaining natural resources, and that local jurisdictions should have a strategy to map and prioritize a network of contiguous green infrastructure and identify gaps in the network.

Additional LPPRP guidance for local green infrastructure provided by the State for 2017 includes:

- *Expand and connect forests, farmlands, and other natural lands as a contiguous network of green infrastructure.*
- *Protect critical terrestrial and aquatic habitats, biological communities, and populations.*
- *Manage watersheds in ways that protect, conserve, and restore stream corridors, riparian forest buffers, wetlands, floodplains, aquifer recharge areas, and their associated hydrologic and water quality functions.*

In order to meet State LPPRP guidance, staff have used current data to revise the earlier draft green infrastructure map, to create a map that provides information that can be used to further enhance green connectivity in the County.

Parks, Recreation, and Open Space (PROS) Plan

Although the green infrastructure network map is not a formal part of the PROS Plan, the 2017 revision to the PROS Plan can point to the map, as it does to other Commission sources of information, and the ways the map and its applications satisfies the State’s LPPRP green infrastructure-related guidance to local jurisdictions.

Urban Parks and Green Streets

Although urban parks and green streets are not generally considered to be natural areas, they can provide important tree canopy and other green space in developed and redeveloping areas, and, depending on their location, have the potential to enhance green connectivity. The green infrastructure network map provides local and broader contexts that can be useful in locating urban parks and greens streets to increase green connections both within urban areas and between urban areas and nearby parklands.

Trails and Bikeways

In addition to supporting the park acquisition and management process, the green infrastructure network map will also be of use in planning park recreational facilities such as trails. Park trails serve a vital purpose in increasing access to natural areas, and considering natural connectivity along with trail connectivity will provide mutual benefits. Outside of parks, the green infrastructure network map can be useful in planning for green street enhancements that can coincide with existing and planned bikeways. This, too, can provide multiple benefits for bike users and enhanced green connectivity within urban areas, and between urban areas and nearby park trail systems.

Relationship to the State’s Green Infrastructure Map

The State of Maryland created a green infrastructure map that identified a network of natural areas of Statewide significance and network gaps. Although useful for State-level planning purposes, the State map does not supply the level of detail needed for county and local-level planning. Because of this, the State has for some time encouraged local jurisdictions to map green infrastructure networks using more detailed local data, and has more recently amended its LPPRP guidance for local jurisdictions to include green infrastructure mapping and enhancement. The Montgomery County Green Infrastructure Map was created using the higher-resolution information available at the County-scale, and shows potential linkages between natural areas. In creating the County map, however, the State’s green infrastructure network was considered to ensure that natural area hubs, corridors, and network gaps identified by the State were incorporated in the County network map.

(Attachment 2 shows the County Green Infrastructure Network Map.)

Montgomery County Green Infrastructure Network Map

Green Infrastructure Definition

Green Infrastructure includes natural areas such as waterways, forests, meadows, and wetlands. Increasing the health and connectivity of green infrastructure elements better conserves natural ecosystem values and functions, helps support native plants and animal species, sustains clean air and water, and provides a wide array of benefits to the residents of Montgomery County. Although green infrastructure is sometimes defined to include small site-scale green stormwater management facilities such as rain gardens, as a County-scale analysis, the Green Infrastructure Network Map focusses on natural areas. However, even though the placement of green stormwater management occurs at the site-level scale, the network map can provide information that can help to locate green stormwater management facilities where they can provide the most connectivity benefits with respect to nearby natural areas.

Green Infrastructure Network Mapping

The Montgomery County Green Infrastructure Network Map includes two basic land cover types, Natural Areas, and Network Gaps between those areas:

Natural Areas

Natural Areas include streams, forests, wetlands, and non-forest habitat within the mapped network. These areas form the existing green infrastructure network elements that have the potential to be further connected, enhanced, conserved, and protected.

The Green Infrastructure Network uses three natural area mapping categories:

- Natural Areas in “Regulated” Areas,
- Natural Areas in Other Protected Lands, and
- Evaluation Areas

Network Gaps

Network Gaps are natural area discontinuities within and between natural areas within the green infrastructure network. These areas provide potential sites for enhancements to the network.

The Green Infrastructure Network uses three network gap mapping categories:

- Network Gaps in “Regulated” Areas,
- Network Gaps in Other Protected Lands, and
- Other Network Gaps.

These six detailed mapping categories fall under four general mapping categories: “Regulated” Areas, Other Protected Lands, Evaluation Areas, and Network Gaps, as described below.

Green Infrastructure Network Mapping Categories

“Regulated” Areas

“Regulated” Areas include environmentally sensitive features and their buffers such as streams, wetlands (where mapped in GIS), and 100-year floodplains, that are protected during the land development process by laws, guidelines, or regulations, and meet minimum criteria for inclusion in the network. In “Regulated” Areas, preservation is the main focus and development is not generally permitted except for necessary construction of road crossings and installation of public utilities.

Quotation marks in the “Regulated” Area category designation are used to indicate that these areas are only rough approximations of the areas that are regulated in the development review process. One reason for this is that the network map was based on County-scale GIS data, which are less accurate than site-specific data. As a result, the Green Infrastructure Network Map is not a substitute for site-specific evaluations of natural resources, including those required for development review, but should always be used together with field-verified data.

“Regulated” Areas are mapped using two sub-categories:

Natural Areas in “Regulated” Areas

- Streams, forests, wetlands, and non-forest habitats within “Regulated” Areas

Network Gaps in “Regulated” Areas

- Discontinuities between Natural Areas in “Regulated” Areas

Other Protected Lands

Other Protected Lands includes existing lands that are protected primarily for their natural resource values by Local, State, and Federal government. These areas include: conservation parkland owned by M-NCPPC, Federal and State parkland, Category 1 conservation easements, and WSSC source water protection lands.

Other Protected Lands are mapped using two sub-categories:

Natural Areas in Other Protected Lands

- Streams, forests, wetlands, and non-forest habitats within Other Protected Lands

Network Gaps in Other Protected Lands

- Discontinuities between Natural Areas in Other Protected Lands

“Regulated” Areas within Other Protected Lands are mapped as “Regulated” Areas.

Evaluation Areas

Evaluation Areas are natural areas adjacent to or near “Regulated” Areas or Other Protected Lands, that have the potential to form larger protected natural corridors through preservation, and through connection with existing corridors if currently separated by gaps. Evaluation Areas should be examined during the development review, park planning, and other master planning processes. This will help determine which

non-regulated natural resources, if protected, would best serve to enhance the network, or to identify areas where restoration or mitigation could better serve to expand or connect adjacent resources.

Network Gaps

Network Gaps are natural area discontinuities within the green infrastructure network that may provide opportunities to revegetate and enhance connectivity within and between “Regulated” Areas, Other Protected Lands, and Evaluation Areas. Potential connections in upland areas across watershed divides were also identified and mapped. When restored or enhanced, Network Gaps can increase connectivity within the network, and increase the acreage of forest, non-forest habitat such as meadows, and non-forest tree canopy. During the development review, park planning, and other master planning processes, Network Gaps should be evaluated to determine the potential to improve green infrastructure connectivity.

Network Gaps are mapped using three sub-categories:

Network Gaps in “Regulated” Areas

Discontinuities within forest and managed non-forest managed habitats within “Regulated” Areas are mapped as Network Gaps in “Regulated Areas

Network Gaps in Other Protected Lands

Network Gaps on Other Protected Lands are discontinuities within forest and non-forest managed habitats that occur on lands that are already protected primarily for the forest and non-forest natural values of the land. Some of the parklands in the Other Protected Lands category may have non-natural areas within them such as farmland and park facilities.

Other Protected Lands will continue to be maintained and managed by the respective government landowners under their current policies, plans, and programs. In the course of implementing park plans, such as the County’s PROS Plan and specific park or natural resource management plans, some of the gaps on these lands may be reforested or revegetated over time.

Other Network Gaps

Other forest and non-forest managed habitat discontinuities are mapped as Other Network Gaps. These are typically within Evaluation Areas or between Evaluation Areas and “Regulated” Areas or Other Protected Lands.

(Attachment 3 contains additional information on the mapping categories and “Regulated” Areas mapping criteria.)

Green Infrastructure Network Map Applications in Existing Planning, Review, and Programmatic Processes to Enhance Natural Area Health and Connectivity

The County’s General Plan currently contains a number of objectives and strategies related to protecting and enhancing ecological health and connectivity. In addition, the County has a wide variety of existing planning, review, and programmatic processes that serve to implement these, and other important environmental goals, objectives, and strategies. By showing which areas provide higher potential local and regional natural area connectivity benefits, the Green Infrastructure Network Map provides Countywide information that, in conjunction with other more site-specific environmental data, can be useful in making decisions related to natural area mitigation, restoration, enhancement, protection, conservation, or acquisition.

In addition to Montgomery County agencies, many other entities, including local jurisdictions, municipalities, adjoining counties, regional authorities, State and Federal agencies, and non-governmental organizations will be able to use the network map to enhance their environmental efforts.

The existing public and private planning, review, and programmatic processes that can potentially use the green infrastructure map as a source of additional information to support environmental decision making are listed in Attachment 4.

General Priorities for Habitat Mitigation, Restoration, Enhancement, Protection, Conservation, and Acquisition within the Green Infrastructure Network

The Green Infrastructure Network Map provides information on potential locations for enhancing natural area health and connectivity that will be used in existing planning, review, and programmatic processes related to natural area mitigation, restoration, enhancement, protection, conservation, or acquisition. Depending on which of these are the goals, enhancement or protection of certain areas within of the green infrastructure network can often provide higher potential environmental benefits than other areas, and opportunities for network enhancement can be ranked accordingly in terms of relative priority.

Attachment 5 contains basic prioritization factors and general priority ranking guidance for natural resource mitigation, restoration, enhancement, protection, conservation, and acquisition within the Green Infrastructure Network.

ATTACHMENTS

1. Green Infrastructure-Related Goals, Objectives, and Strategies in the General Plan
2. Montgomery County Green Infrastructure Network Map
3. Green Infrastructure Network Mapping Categories and “Regulated” Area Mapping Criteria
4. Green Infrastructure Network Map Applications in Existing Planning, Review, and Programmatic Processes to Enhance Natural Area Health and Connectivity
5. General Priorities for Habitat Mitigation, Restoration, Enhancement, Protection, Conservation, and Acquisition within the Green Infrastructure Network

Green Infrastructure-Related Goals, Objectives, and Strategies in the General Plan

Through the General Plan Refinement of 1993, Montgomery County incorporated a number of important goals, objectives and strategies related to enhancing and protecting green infrastructure into the General Plan. These include:

Goal: Conserve and protect natural resources to provide a healthy and beautiful environment for present and future generations. Manage the impacts of human activity on our natural resources in a balanced manner to sustain human, plant, and animal life.

Objective: Preserve and enhance a diversity of plant and animal species in self-sustaining concentrations.

Strategies:

- Determine and protect the land and water masses and linkages necessary to support a diversity of species in self-sustaining concentrations.
- Plan a system of parks, conservation areas, subdivision open space, and easements to support a diversity of species in self-sustaining concentrations.
- Minimize forest fragmentation to protect habitat continuity.

Objective: Conserve County waterways, wetlands, and sensitive parts of stream valleys to minimize flooding, pollution, sedimentation, and damage to the ecology and to preserve natural beauty and open space.

Strategies

- Identify and protect wetlands and other sensitive parts of watersheds.
- Continue parkland acquisition in key stream valleys.
- Maintain the natural character of drainage areas in the immediate vicinity of streams, rivers, and lakes.
- Plant and retain trees and other vegetation near streams.

Objective: Increase and conserve the County's forests and trees.

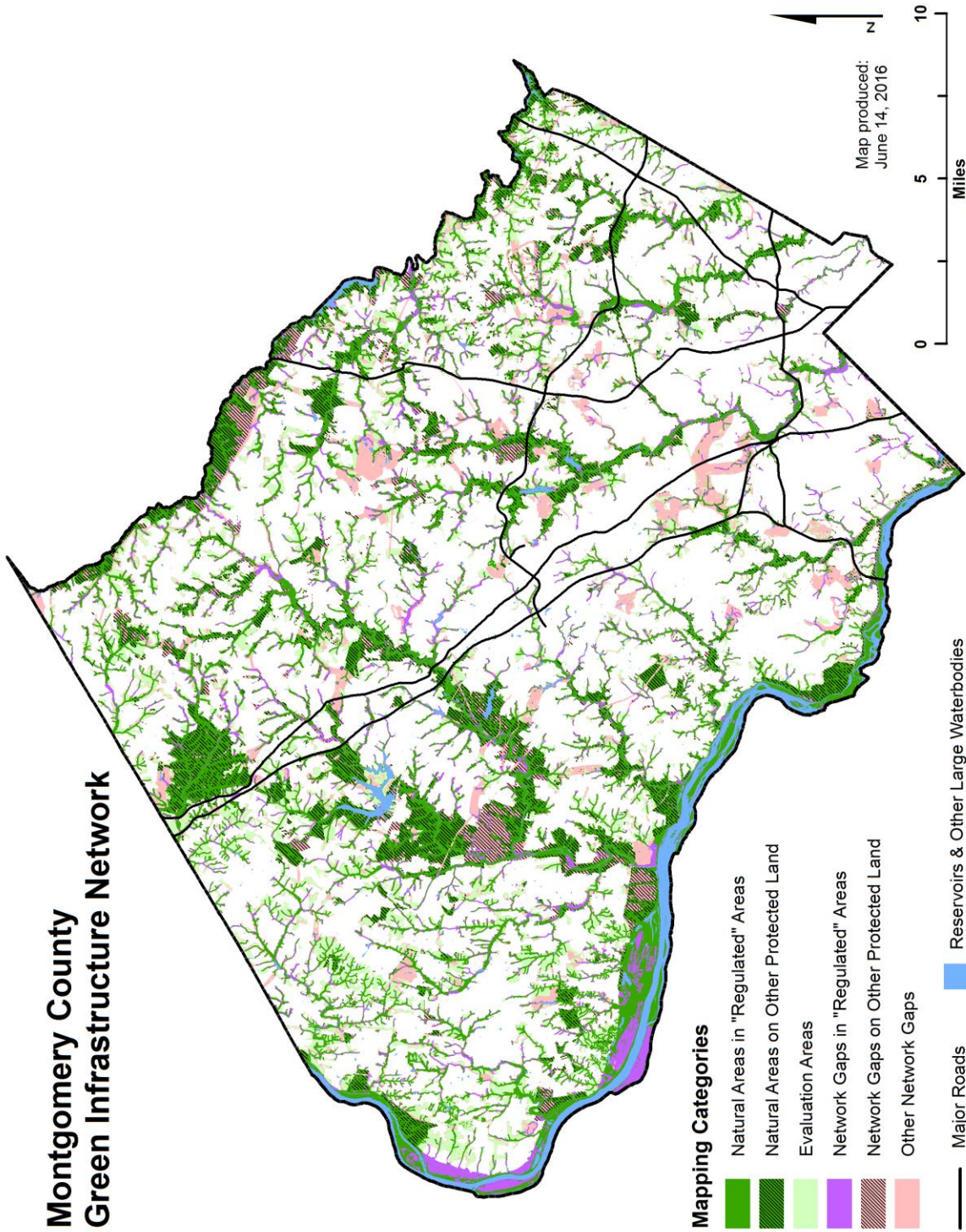
Strategies

- Identify and designate forest preservation and tree planting areas.

Objective: Preserve natural areas and features that are ecologically unusual, environmentally sensitive, or possess outstanding natural beauty.

Strategies

- Connect parks and conservation areas to form an open space and conservation-oriented greenway system.



Green Infrastructure Network Mapping Categories and “Regulated” Areas Mapping Criteria

“Regulated” Areas

“Regulated” Areas include environmentally sensitive features and their buffers such as streams, wetlands (where mapped in GIS), and 100-year floodplains, that are protected during the land development process by laws, guidelines, or regulations, and meet minimum criteria for inclusion in the network. “Regulated” Areas are the areas along stream corridors (based on GIS data) that have a minimum width of existing forest, non-forest habitat managed by the Department of Parks, or unmanaged non-forest habitat discernable on aerial photographs, on both sides of the stream. “Regulated” Areas also include stream segments that do not meet the minimum natural area buffer coverage criteria, but provide potential linkages between stream segments that do meet the minimum criteria, or between other significant natural resources. In “Regulated” Areas, preservation is the main focus and development is not generally permitted except for necessary construction of road crossings and installation of public utilities.

Quotation marks in the “Regulated” Area category designation are used to indicate that these areas are only rough approximations of the areas that are regulated in the development review process. One reason for this is that the network map was based on County-scale GIS data, which are less accurate than site-specific data. Another reason is that other natural features that are used in determining regulated areas, such as steep slopes or erodible soils, need to be determined using field-verified data, and are not factored into the Countywide map. In addition, because “Regulated” Areas incorporate only those areas that meet the minimum criteria for inclusion within the green infrastructure network, the network map includes most, but not all, of the natural areas in the County that may be regulated. As a result, the Green Infrastructure Network Map is not a substitute for site-specific evaluations of natural resources, including those required for development review, but should always be used together with field-verified data.

“Regulated” Areas are mapped using two sub-categories:

Natural Areas in “Regulated” Areas

- Streams, forests, wetlands, and non-forest habitats within “Regulated” Areas

Network Gaps in “Regulated” Areas

- Discontinuities between Natural Areas in “Regulated” Areas

“Regulated” Area Mapping Criteria

The following criteria were based on information from published literature regarding the importance of stream corridors in ecological health and connectivity. The criteria are applied depending on whether a site is located within the Urban Ring (as defined in the County’s General Plan) which includes part of the County’s State-approved Primary Funding Area (PFA), the rest of the PFA outside of the Urban Ring, or the remainder of the County outside of the PFA. Development density generally increases (and the mapping criteria for “Regulated” Area more inclusive) as one moves from the area outside of the PFA, to the PFA outside of the Urban Ring, to the Urban Ring. Resource mapping inclusivity increases with increasing density because of the significant loss of stream corridors over time in urban areas, and the

heightened importance of those that remain in these areas.

Outside of the Primary Funding Area:

- Minimum 200-foot wide stream corridors that are covered by forest, non-forest habitat buffer managed by the Parks Department, or unmanaged non-forest habitat discernable by aerial photographs
- Stream segments that do not meet the minimum criteria for natural area buffer coverage, but provide potential linkages between stream segments that do meet the minimum criteria, or other significant natural resources

Priority Funding Areas outside of the Urban Ring:

- Minimum 100-foot wide stream corridors that are covered by forest, non-forest habitat buffer managed by the Parks Department, or unmanaged non-forest habitat discernable by aerial photographs
- Stream segments that do not meet the minimum criteria for natural area buffer coverage, but provide potential linkages between stream segments that do meet the minimum criteria, or other significant natural resources

Urban Ring:

- No minimum stream corridor width

“Regulated” Area stream corridors were mapped at 200 feet, 250 feet, or 300 feet in width depending on the State Water Use Class, per the County’s current Environmental Guidelines for Development. As described above, the “Regulated” Area corridor widths were also expanded to include the 100-year floodplain, and GIS-mapped wetlands and ponds and their buffers that are within, or contiguous with, the “Regulated” Area corridors. Until a revised version of the Environmental Guidelines for Development is promulgated, the approximate buffers for streams within the Ten Mile Creek watershed will be shown per the current Environmental Guidelines.

Other Protected Lands

Other Protected Lands includes existing lands that are protected primarily for their natural value by Local, State, and Federal government. These areas include:

1. Existing M-NCPPC Parkland of the following types:
 - a. Best Natural Areas,
 - b. Biodiversity Areas,
 - c. Stream Valley Parks,
 - d. Conservation Parks,
 - e. Neighborhood Conservation Parks, and
 - f. Managed Open Natural Areas within these Parks, such as meadows

All of the above parklands were included in the network except for several Neighborhood Conservation Parks that are very small and located more than 600 feet* from the network.

2. Existing Federal and State Parks

Although some of the parks listed above have some non-natural areas within them such as agricultural land and park facilities, they are mostly natural lands. These areas will continue to be maintained and managed, by the respective government landowners as parklands that are recognized for the importance of the values and functions of their natural areas.

3. Category 1 Forest Conservation Easements including:
 - a. Category 1
 - b. Offsite (Category 1)
 - c. Bank (Category 1)

Category 1 Forest Conservation Easements within 600 feet* of the network were included except for some very small or very narrow easements. Very small or very narrow easements, however, when located adjacent to the network, were also included in the network.

4. Washington Suburban Sanitary Commission (WSSC) Lands (source water protection)

These are lands owned and managed by WSSC as natural areas (predominantly forested) that provide protection for drinking source waters.

* The 600-foot distance criterion is based on published data and is the distance beyond which forest birds typically tend not to fly across gaps between forested areas.

Other Protected Lands are mapped using two sub-categories:

Natural Areas in Other Protected Lands

Streams, forests, wetlands, and non-forest habitats within Other Protected Lands

Network Gaps in Other Protected Lands

Discontinuities between Natural Areas in Other Protected Lands

“Regulated” Areas within Other Protected Lands are mapped as “Regulated” Areas.

Evaluation Areas

Evaluation Areas are natural areas adjacent to or near “Regulated” Areas or Other Protected Lands, that have the potential to form larger protected natural corridors through preservation, and through connection with existing corridors if currently separated by gaps. Evaluation Areas should be examined during the development review, park planning, and other master planning processes. This will help determine which non-regulated natural resources, if protected, would best serve to enhance the network, or to identify areas where restoration or mitigation could better serve to expand or connect adjacent resources. Evaluation Areas may contain environmentally sensitive features such as forest or special habitats, and they should be given high priority on such issues as onsite forest and habitat conservation during the development review and master planning processes. Development review, park plans, and other master plans in these areas should consider protection of natural resources, or non-forest tree canopy creation, in places that optimize network connectivity.

Network Gaps

Network Gaps are natural area discontinuities within the green infrastructure network that may provide opportunities to revegetate and enhance connectivity within and between “Regulated” Areas, Other Protected Lands, and Evaluation Areas. Potential connections in upland areas across watershed divides were also identified and mapped. When restored or enhanced, Network Gaps can increase connectivity within the network, and increase the acreage of forest, non-forest habitat such as meadows, and non-forest tree canopy. During the development review, park planning, and other master planning processes, Network Gaps should be evaluated to determine the potential to improve green infrastructure connectivity.

Discontinuities between natural areas that met the green infrastructure mapping criteria were mapped as gaps regardless of the underlying land use or cover. As a result, it should be noted that not all of the land within Network Gaps will be suitable or practicable for habitat or tree canopy enhancements. Many gaps in the network will remain gaps because of the existing land use and cover, or plans for future development. Again, site-specific data are necessary in evaluating mapped gaps for potential network enhancements. In other cases, site-specific evaluations may show a mapped gap to be a non-forested natural area, and therefore not a gap.

Network Gaps, therefore, provide a general guide, which, when augmented by more detailed site-scale study, can aid in identifying potential sites for habitat enhancement, or other green area enhancements short of habitat creation, that can still provide increased green connectivity values. For example, Network Gaps in developed areas that are not suitable for establishing additional woodlands may provide opportunities to enhance green connectivity by increasing non-forest tree canopy, such as street trees. In any case, the conceptual network map can provide information regarding potential opportunities for enhancing local and Countywide natural area connectivity that might not otherwise be recognized and considered.

Network Gaps are mapped using three sub-categories:

Network Gaps in “Regulated” Areas

Discontinuities within forest and managed non-forest managed habitats within “Regulated” Areas are mapped as Network Gaps in “Regulated Areas. These gaps, however, may include non-forest habitats that are not managed by the Parks Department or mapped in GIS, which should be identified and evaluated during site-specific investigations to determine whether it would be preferable to reforest them or leave them as non-forest successional habitat. Network Gaps in “Regulated” Areas will generally have a higher priority for restoration or protection because of their proximity to aquatic features such as streams and wetlands.

Network Gaps in Other Protected Lands

Network Gaps on Other Protected Lands are discontinuities within forest and non-forest managed habitats that occur on lands that are already protected primarily for the forest and non-forest natural values of the land. Some of the parklands in the Other Protected Lands category may have some non-natural areas within them such as farmland and park facilities. As with Network Gaps in “Regulated” Areas, these gaps may include unmanaged or unmapped non-forest habitats. In such cases, site-specific evaluations will help to determine whether it would be preferable to reforest these areas or leave them as non-forest successional habitat. In any case, Other Protected Lands will continue to be maintained and managed by the respective government landowners under their current policies, plans, and programs.

In the course of implementing park plans, such as the County’s PROS Plan and specific park or natural resource management plans, some of the gaps on these lands may be reforested or

revegetated over time. As with Network Gaps, Network Gaps on Other Protected Lands that are not suitable for reforestation due to existing land use and cover, or planned park development, may still provide opportunities to enhance green area connectivity by increasing non-forest tree canopy.

Gaps on Other Protected Lands mapped within Category 1 Conservation Easements may be indicative of tree stands that have died, tree plantings that have not yet occurred or failed in part or in whole, potential violations of the easements, or easements that predate the Forest Conservation Law.

Other Network Gaps

Other forest and non-forest managed habitat discontinuities are mapped as Other Network Gaps. These are typically within Evaluation Areas or between Evaluation Areas and “Regulated” Areas or Other Protected Lands. Due to the lower detail of map data available on a Countywide scale, Other Network Gaps may include unmapped non-forest habitats, which should be evaluated during site-specific evaluations to determine whether it would be preferable to reforest them or leave them as non-forest successional habitat.

Open areas on golf course lands are included as Other Network Gaps because they are relatively large open spaces, and network connections and ecological functions could potentially be strengthened if they are proposed for redevelopment in the future.

Green Infrastructure Network Map Information Applications in Existing Montgomery County Planning, Review, and Programmatic Processes to Enhance Natural Area Health and Connectivity

Maryland-National Capital Park and Planning Commission

Planning Department

1. Development Review Process
 - a. Natural Resource Identification
 - b. Natural Resource Protection
 - c. Forest Retention and Mitigation
 - d. Conservation Easements
 - e. Park Dedication
2. Master Plan Update Analyses and Recommendations
 - a. Stream Buffers
 - b. Natural Area
 - i. Enhancement,
 - ii. Connectivity, and
 - iii. Protection
 - c. Tree Canopy
 - d. Park Dedication Recommendations
3. Upland and Riparian Reforestation Planting Projects
4. Forest Banking Program
5. Urban Tree Canopy and Street Tree Enhancement Projects
6. Water Resources Functional Master Plan Implementation
7. Patuxent River Watershed Functional Master Plan Implementation
8. Environmental Setting Analyses in Historic Preservation Cases

Department of Parks

1. Park System Planning
 - a. PROS Plan
 - b. Legacy Open Space Functional Master Plan
2. Park Management Plans
 - a. Natural Area
 - i. Identification,
 - ii. Protection,
 - iii. Conservation,
 - iv. Enhancement,
 - v. Restoration, and
 - vi. Management
3. Park Development Review Process
 - a. Natural Resource Identification
 - b. Natural Resource Protection

- c. Forest Retention and Mitigation
- d. Conservation Easements
4. Natural Resources Management Plans
5. Countywide Parks Trails Plan
6. Water Quality Permit (TMDL) Planning and Implementation

Washington Suburban Sanitary Commission (WSSC)

1. Source Water Protection Plans and Programs
2. Reservoir Watershed Management Plans
3. Forest Management Plans
4. Water Quality Permit (TMDL) Planning and Implementation

County Agencies

Department of Environmental Protection (DEP)

1. Watershed Restoration Studies Planning
 - a. Stream and Riparian Restoration Projects
 - b. Upland and Riparian Reforestation Projects
2. Water Quality Permit (TMDLs) Planning and Implementation
3. Regional Watershed Feasibility Studies with the US Corps of Engineers to assess potential and locations for water quality improvement practices
4. Tree Montgomery Projects
5. DEP's Watershed Restoration and Outreach Grant Applications
6. County Climate Protection Plan Implementation and other Sustainability Efforts

Department of Transportation (DOT)

1. Street Tree Planting Projects
2. Potential Conversion of Undeveloped Road Rights-of-Way to Parkland

Municipalities, Nearby Counties, Regional Planning Authorities, State Agencies, and Federal Agencies

1. Park System Planning
2. Park Management Plans
3. Watershed Protection Plans
4. Water Quality Protection Programs
5. Air Quality Programs
6. Drinking Source Water Protection Planning
7. Water Quality Permit Implementation
8. Forest, Wetland, and Tree Canopy Programs
9. Development Review
10. Coordination with the Montgomery County for Natural Area and Trail Connectivity

Private Organizations and Other State Programs

Private Citizen and Other Non-Government Organizations (NGOs)

1. Reforestation Projects
2. Tree Planting and Canopy Enhancement Projects
3. Habitat Enhancement and Maintenance Activities
4. Regional Green Infrastructure Initiatives

Other State Land Conservation Programs

1. Program Open Space
2. Rural Legacy Program
3. GreenPrint Program
4. Maryland Environmental Trust (MET)
5. The Conservation Reserve Enhancement Program (CREP)
6. The Maryland Agricultural Land Preservation Foundation (MALPF)

General Priority Guidance for Habitat Mitigation, Restoration, Enhancement, Protection, Conservation, and Acquisition within the Green Infrastructure Network

The Green Infrastructure Network Map provides information on potential locations for enhancing natural area health and connectivity that can be used in existing planning, review, and programmatic processes related to natural area mitigation, restoration, enhancement, protection, conservation, or acquisition. Depending on which of these are the goals, enhancement or protection of certain areas within of the green infrastructure network can often provide higher potential environmental benefits than other areas, and opportunities for network enhancement can be ranked accordingly in terms of relative priority.

It should be noted that the following prioritization factors are only a general guide. A thorough analysis of regional and local conditions, resources, and opportunities available for specific enhancement and protection projects may reveal factors that result in different priorities. For example, in urban areas with limited opportunities for natural area creation, the enhancement of urban tree canopy may be a higher priority.

Basic factors that should be considered in prioritizing network enhancement opportunities include maximizing the:

- Location within the Network
 - Headwater areas generally have higher priority than downstream areas. Priority also generally increases with increasing proximity to streams, wetlands, and other water features.
- Area of natural land that can be connected
- Length of green corridors that can be created
- The number of separated natural lands and corridors that can be connected.
- In some cases, potential project sites can be given a higher priority because they would significantly facilitate additional future efforts to connect large or important areas.
- In urban areas where the focus is on tree canopy, the highest priority should be on street trees and other tree canopy that maximizes greenway connections between urban parks and other urban green spaces, and natural areas within or adjacent to the area under consideration.

The following lists provide generalized priorities that should be considered in conjunction with the basic factors listed above, and local goals, needs, and opportunities, in decisions regarding natural resource mitigation, restoration, enhancement, protection, conservation, and acquisition within the Green Infrastructure Network. The highest priority should generally be given to areas where green area enhancements would provide the greatest benefits for local and Countywide ecological connectivity and ecological function.

Generalized Priorities for Natural Resource Mitigation, Restoration and Enhancement within the Green Infrastructure Network

1. Network Gaps in “Regulated” Areas within Other Protected Lands
2. Network Gaps in “Regulated” Areas between Other Protected Lands
3. Remaining Network Gaps in “Regulated” Areas
4. Other Network Gaps between Other Protected Lands
5. Other Network Gaps between “Regulated” Areas
6. Other Network Gaps that would increase the area of interior forest
7. Other Network Gaps between Other Protected Lands and Evaluation Areas
8. Other Network Gaps between “Regulated” Areas and Evaluation Areas
9. Other Network Gaps within and between Evaluation Areas
10. Areas within all Network Gaps that are not suitable for habitat restoration but suitable for other environmental enhancements such as urban tree canopy and street trees

Master plans, zoning, and field-verified data will be essential in setting final priorities or sub-priorities for a given area or site.

Natural resource mitigation, restoration, and enhancement on Other Protected Lands will continue to be identified and prioritized under the policies, plans, and programs of the respective agency landowners.

Generalized Priorities for Natural Resource Protection, Conservation, and Acquisition within the Green Infrastructure Network

1. Lands containing significant forest or other natural area coverage that are designated as future conservation parkland or identified for natural resource values through the Legacy Open Space Functional Master Plan implementation process
2. Natural Areas in “Regulated” Areas that are not within Other Protected Lands
3. Evaluation Areas contiguous with Natural Areas in “Regulated” Areas
4. Evaluation Areas contiguous with Other Protected Lands
5. Network Gaps in “Regulated” Areas between Other Protected Lands
6. Network Gaps in “Regulated” Areas that separate significant natural areas in “Regulated” Areas outside of Other Protected Lands
7. Evaluation Areas closest to Other Protected Lands and associated Other Network Gaps
8. Evaluation Areas closest to Natural Areas in “Regulated” Areas and associated Other Network Gaps
9. Remaining Evaluation Areas and associated Other Network Gaps
10. Other Network Gaps across watershed divides

Master plans, zoning, and field-verified data will be essential in setting final priorities or sub-priorities for a given area or site.

Natural resource protection, conservation, and acquisition on Other Protected Lands will continue to be identified and prioritized under the policies, plans, and programs of the respective agency landowners.