Cecil County Green Infrastructure Community Meeting

May 15, 2019

Proud Partners of the Cecil County Green Infrastructure Plan

THE CONSERVATION FUND

MARYLAND DEPARTMENT OF NATURAL RESOURCES

CECIL COUNTY 1674

SUSQUEHANNOCK WILDLIFE SOCIETY

Jean K. Akers, AICP, PLA

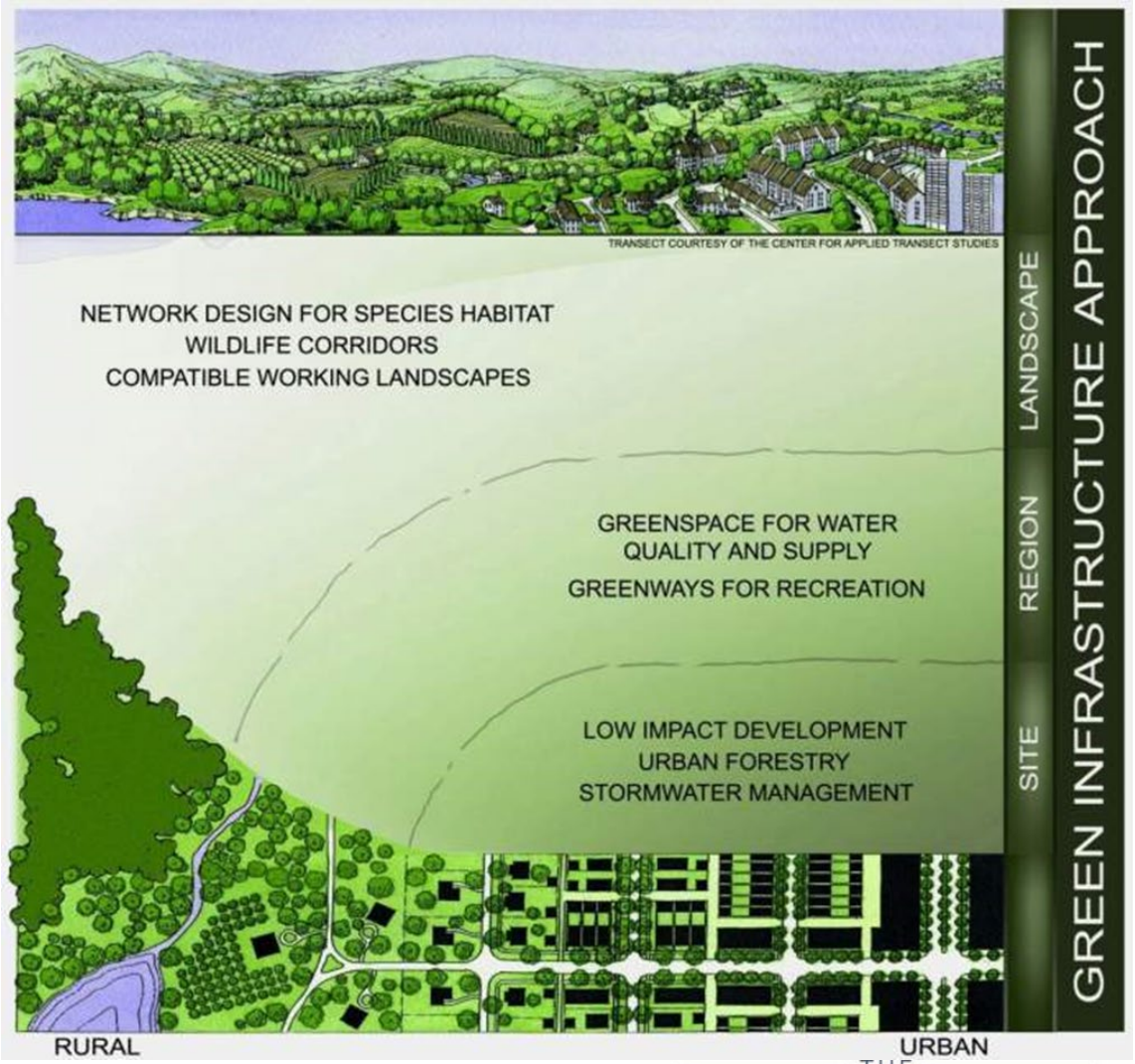
Tonight's Agenda

6:00 – 6:15 p.m.	Open House – view displays
6:15 – 6:45 p.m.	Report progress & findings
6:45 – 7:15 p.m.	Open discussion / Ranking
7:15 – 7:30 p.m.	Hazard Mitigation Assistance
7:30 – 7:45 p.m.	Mapping Demonstration

What is Green Infrastructure?

A strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserves ecosystem values and functions and provides associated benefits to human populations

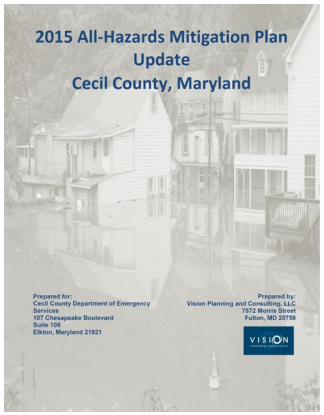
(Benedict & McMahon, 2006)



Source: THE CONSERVATION FUND

Why implement a Green Infrastructure Plan?

Cecil County Comprehensive Plan



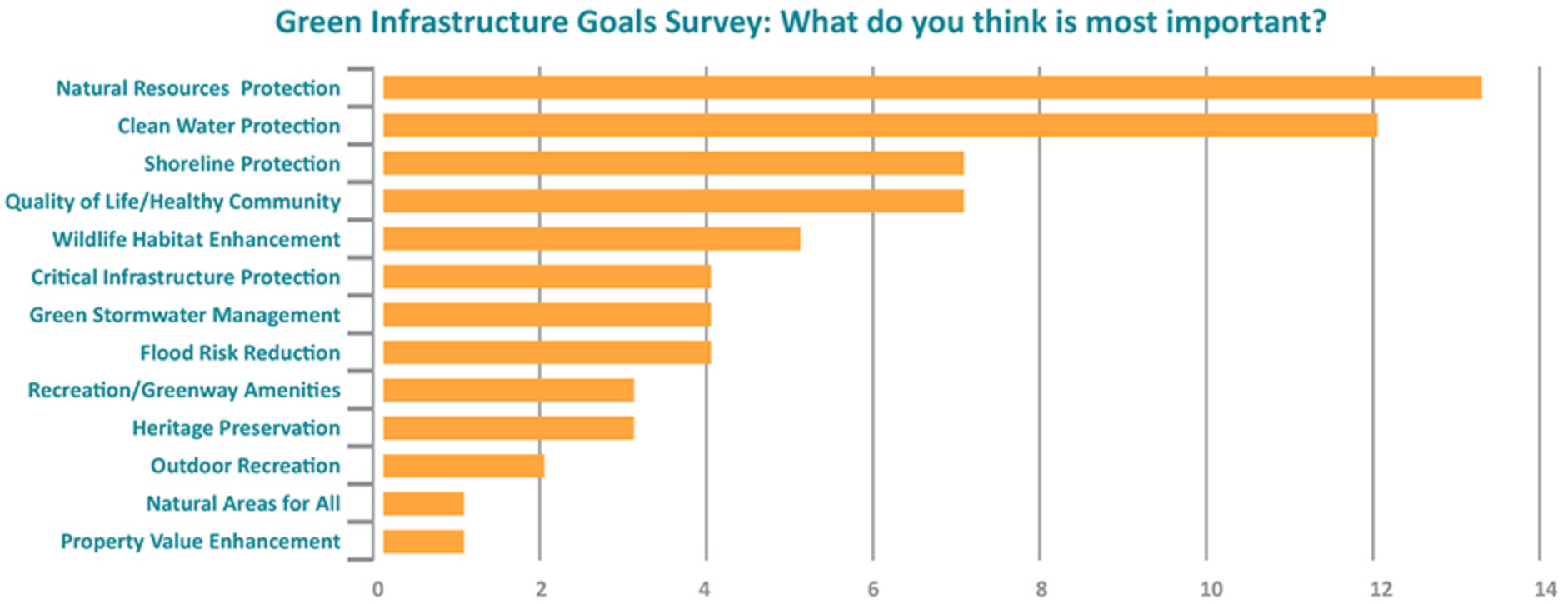
Cecil County Hazard Mitigation Plan

Cecil County Strategic Plan

Cecil County
LPPR Plan

Cecil County Green Infrastructure Plan
protect ~ preserve ~ restore

Feedback received at first workshop 12/5/18



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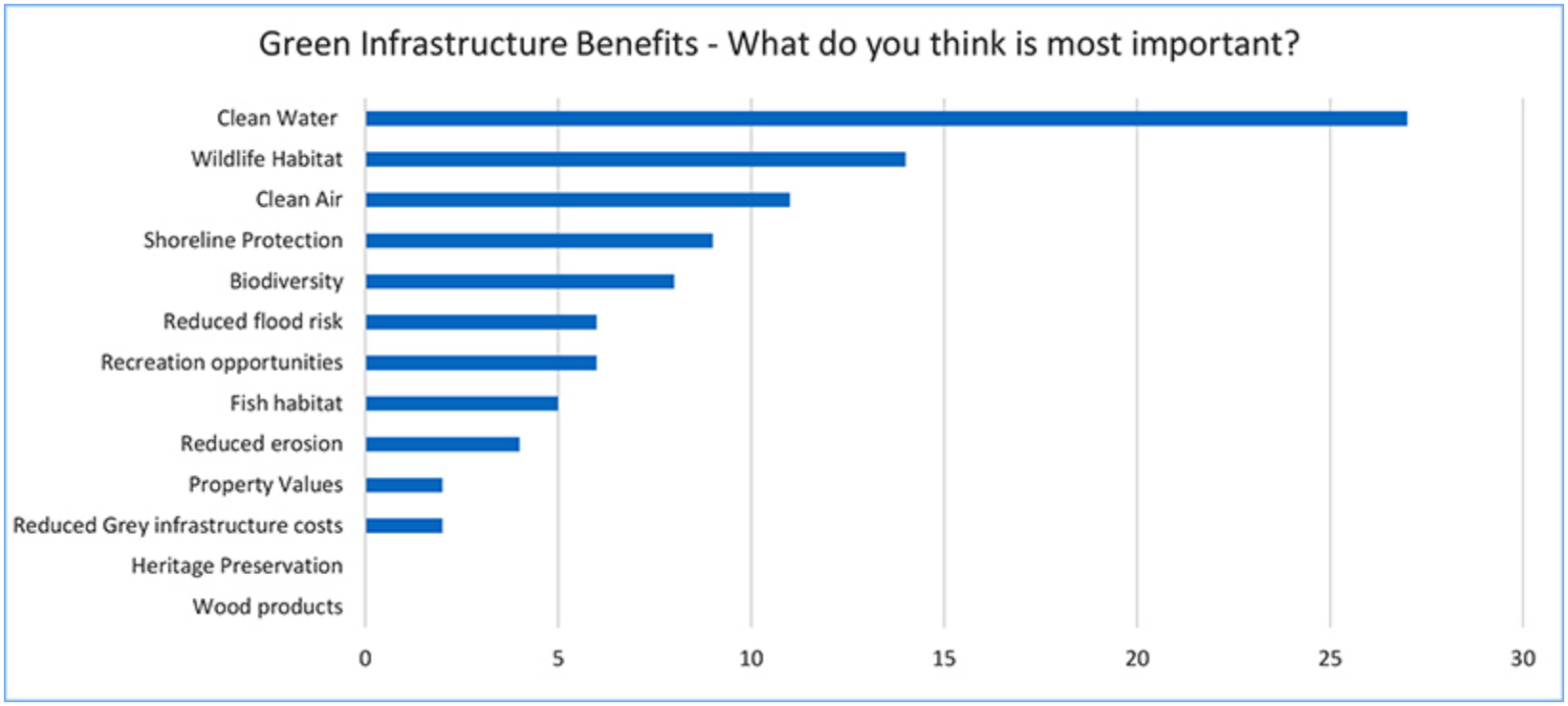

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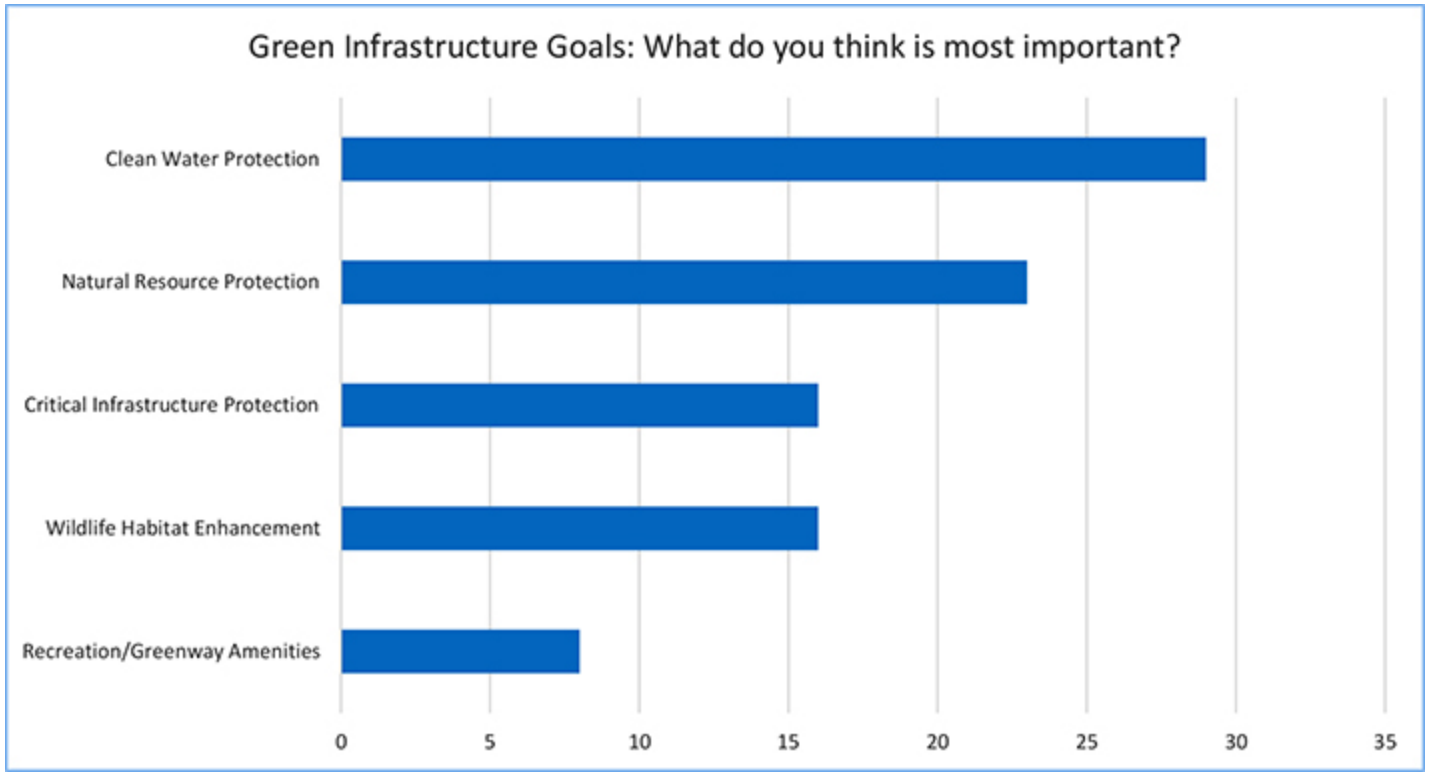


Feedback received at first workshop 12/5/18

Name one strategy the County should take to achieve one of the top 3 GI goals for the table	
Development Policy & Regulation	• Growth areas should require stream buffers & limit development in floodplains. • Subdivision approval should require open space be dedicated for public access. • Anadromous fish spawning habitat is important as well as protecting all streams with buffers. • Maintain vegetation around waterways • Regulate amount of impervious surfaces • Accountability & enforcement • Prevent excess nutrient runoff from all sources
Education	• Public Education for homeowner actions in their yards and gardens • Training opportunities for educators, from elementary thru high school • Educate public about stormwater and runoff retention, such as rain barrels, etc. • Educate kids, create element about why green spaces are important and their benefits • Train landscape companies to educate homeowners about native plants • Clean air & water are important, but biodiversity helps us get there
Park & Open Space Expansion	• Protect drinking water supplies through preservation • Provide recreation opportunities in certain areas • Property owners might be willing to provide public access across their property with incentives like tax credits, look for guidance from New York State regarding liability concerns • Encourage public access to shoreline properties, leads to public interest • Vacant lots in flood zones should become part of public open spaces • Consider utility easements for access/trail development
Planning & Funding	• Define & identify critical infrastructure • Use existing resources to identify areas of concern • Windshield survey after storms to idenify problem areas, i.e. stormwater runoff • Incorporate GI plan into Comprehensive Plan • County could help identify streams for CLT easements
Restoration Programs	• Protect drinking water supplies through riparian buffer tree planting programs • CLT easements require 100-ft. forest buffers around streams and wetlands, County easements could apply the same • Improve trout streams & bird habitat • Native plantings to help with filtration • Incorporate smart forest conservation plantings to grow the GI network • Forestry Board has access to existing tree planting programs, need to connect restoration opportunities within the GI network to existing funding sources, prioritize riparian areas, biodiversity projects & shoreline stabilization • Re-purpose public/private lands that have frequent flooding • Encourage native vegetation for stormwater management, consider tax credits

Additional Feedback received

- Agricultural Preservation Advisory Board
- Cecil County Farm Bureau
- Soil Conservation District Board
- Economic Development Commission

What ideas, opportunities, or strategies could help create an effective GI network in Cecil Co? Projects to implement? Policies to improve? Programs to adopt?	
Development Policy & Regulation	• There should be more emphasis placed on identifying voluntary preservation and restoration opportunities, and perhaps creating more incentives for action, rather than implementing new regulations. The County should consider creating a policy for development on County owned land to limit tree clearing and impervious surfaces, and provide mitigation for tree clearing, in ecologically valuable areas within the GI Network. • When land is developed within the designated growth areas, ensure adequate habitat protection areas are established on-site, so as to enhance the naturally functioning ecosystems within the GI Network. This will help to maintain natural ecosystem processes on adjacent rural areas.
Education	• When using nature-based solutions for restoration projects, communicate these cost savings to citizens, via project website, press releases, etc. • There should be more education and awareness for sustainable maintenance practices, especially within our stormwater drainage systems. Identify best practices for using native plants that don't require as much mowing, weeding, or herbicide application.
Funding	• Determine the best funding sources for implementing future GI programs and initiatives.
Planning	• The purpose of this planning process makes a lot more sense when taking into account how it can help to reduce future flood damages. • Increase funding (from public or private sources) for the Purchase of Development Rights (PDR) program and adjust the scorecard to strategically preserve more of the GI Network, helping to close unpreserved gaps, where possible. • Don't try to please everybody and create lots of different programs, they may fail. Rather, focus on a few programs, and do them well.

What ideas, opportunities, or strategies could help create an effective GI network in Cecil County? Projects to implement? Policies to improve? Programs to adopt?	
Development Policy & Regulation	• Some farmers didn't like how SHA handled tree planting programs along their right-of-ways in the past. They don't want to see the County taking land for restoration projects, especially productive land. • There should be more emphasis placed on identifying voluntary preservation and restoration opportunities, and perhaps creating more incentives for action, rather than implementing new regulations. The County should consider creating a policy for development on County owned land to limit tree clearing and impervious surfaces, and provide mitigation for tree clearing, in ecologically valuable. • When land is developed within the designated growth areas, ensure adequate habitat protection areas are established on-site, so as to enhance the naturally functioning ecosystems within the GI Network. This will also help to maintain natural ecosystem processes in adjacent rural areas.
Education	• Target particular areas in and around the GI Network and help to market available cost share programs with the Soil Conservation District, DNR Forest Service, and others. • Celebrate the good things farmers are already doing. Bryan will try to connect with those in the future who are willing to volunteer their success stories. • We should target agricultural uses on smaller lot sizes, in the 3 to 5-acre range, to educate on water quality issues and try to connect with cost share programs, if possible.
Park & Open Space Expansion	• Enhancing a GI Network to promote wildlife corridors is a worthy goal, but there is a concern about using corridors for recreational greenways. • The County should consider deer control measures like periodic archery hunts on County lands to discourage over-browsing impacts on surrounding forests.
Restoration Programs	• Work with State partners on State owned land to improve stormwater management. Fair Hill Natural Resource Management Area should consider forest management techniques. • Ensure stream restoration projects are implementing adequate soil conservation techniques and are providing ecological uplift. Be sure to quantify and publicize the water quality benefits for years after the project is completed.

What ideas, opportunities, or strategies could help create an effective GI network in Cecil County? Projects to implement? Policies to improve? Programs to adopt?	
Development Policy & Regulation	• Consider Watershed Master Plans as a framework to offset new development with stormwater management and create incentives for implementation. • Use solar power projects as an opportunity to increase wildlife habitat, such as implementing wildflower meadows to increase pollinator habitat.
Park & Open Space Expansion	• Identify funding sources to preserve lands with forest, floodplain, and steep slopes..
Planning	• Publicly funded agricultural preservation programs should target land with optimal soils and those most vulnerable to development. Remember that most 200-acre farms usually have 50 acres of forest. • In regards to CRS, quantify the 15% discount on flood insurance premiums to illustrate the economic impact. If the County moves up a class to earn a 20% discount, how much more will that save? This can be used as a rationale for acquiring funding to implement additional floodplain management programs. • The GI plan shouldn't sit on a shelf, make sure action items are attainable and prepare annual reports to document progress.
Restoration Programs	• Avoid targeting reforestation efforts on agricultural land with optimal soils. • Learn from others, such as the City of Lancaster, and the Lancaster County Conservation District, in regards to successful stormwater management incentive programs. Don't reinvent the wheel and gather lessons learned from others. • Coordinate with the Towns on tree canopy and stormwater management programs and try to make funding go further, incorporating other benefits, such as increasing handicap accessibility. • Remember that one size doesn't fit all, planting riparian forest buffers along streams and wetlands can range from 300 feet wide to 25 feet wide, depending on the situation. • Consider targeting reforestation efforts using the Web Soil Survey.

GI Plan Steering Committee

- Includes stakeholders from all levels of government, non-profits, private business, schools, & libraries
- Filtered project goals and objectives
- Refined mapping assessments
- Ideas for community engagement

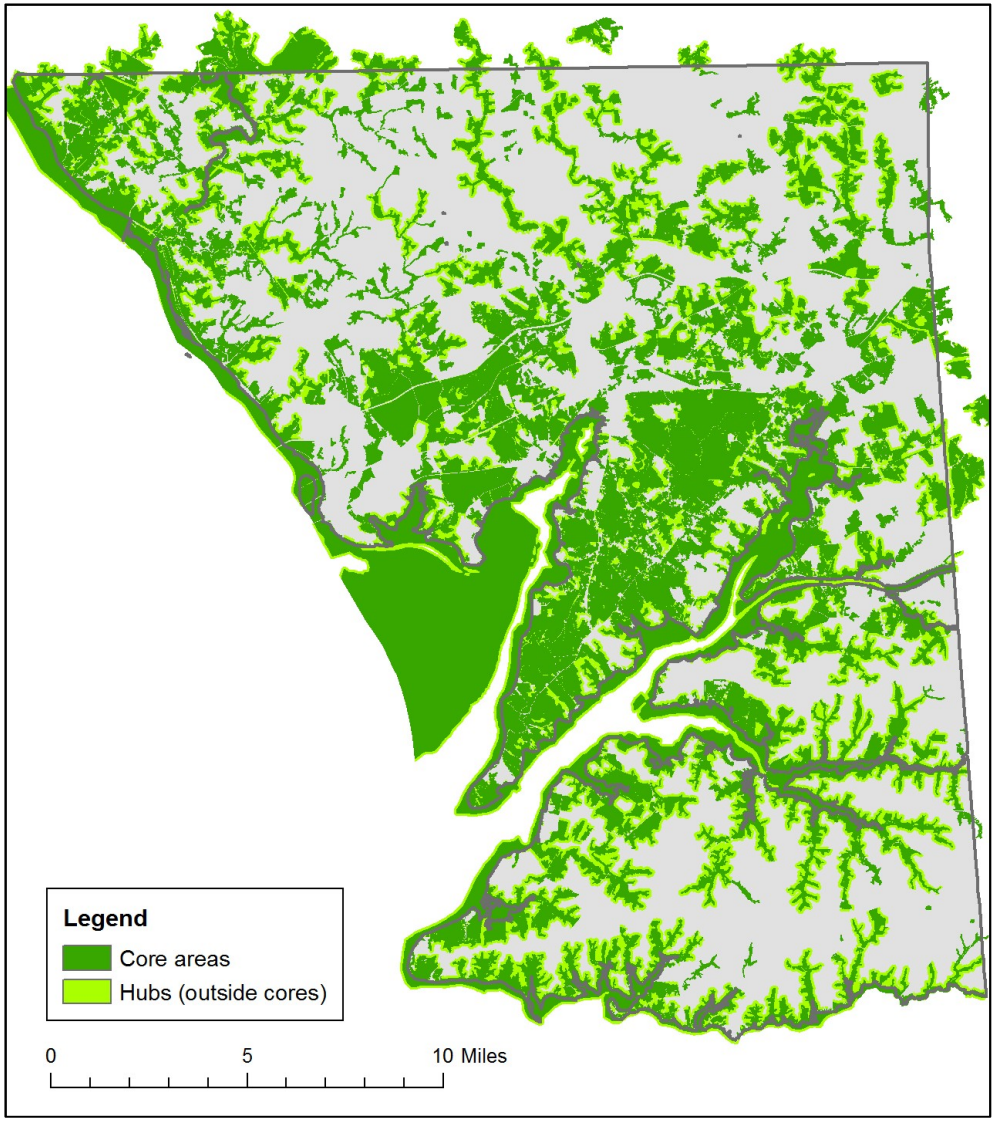
- Can also be a resource to help monitor progress with annual meetings

Core Areas and Hubs

Core forest: Forest patches with at least 1 acre of interior conditions; and at least 100 acres in size, or overlapped core aquatic areas, core wetlands, or key biodiversity areas.

Core wetlands: Unimpaired wetlands with 100 ft buffers.

Core aquatic areas: Streams supporting sensitive fish and invertebrates, other high quality waters, important coastal areas, SAV beds, and anadromous fish spawning and juvenile habitat.

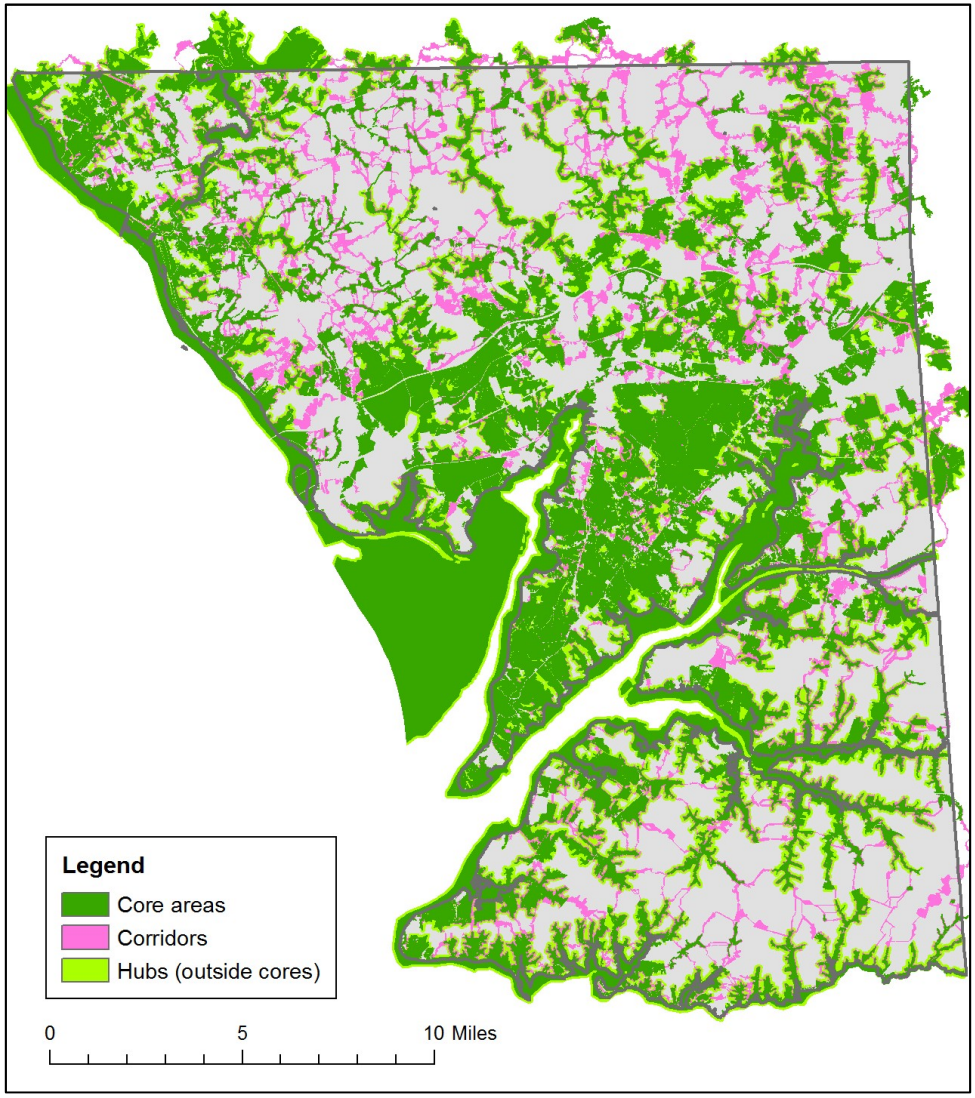


Corridors

To model landscape connectivity, we simulated the movement of animals through the landscape and identified the best connections between suitable habitat.

Connectivity was modeled separately for forest, wetland, and aquatic organisms.

Modeling included randomization to reflect uncertainties.

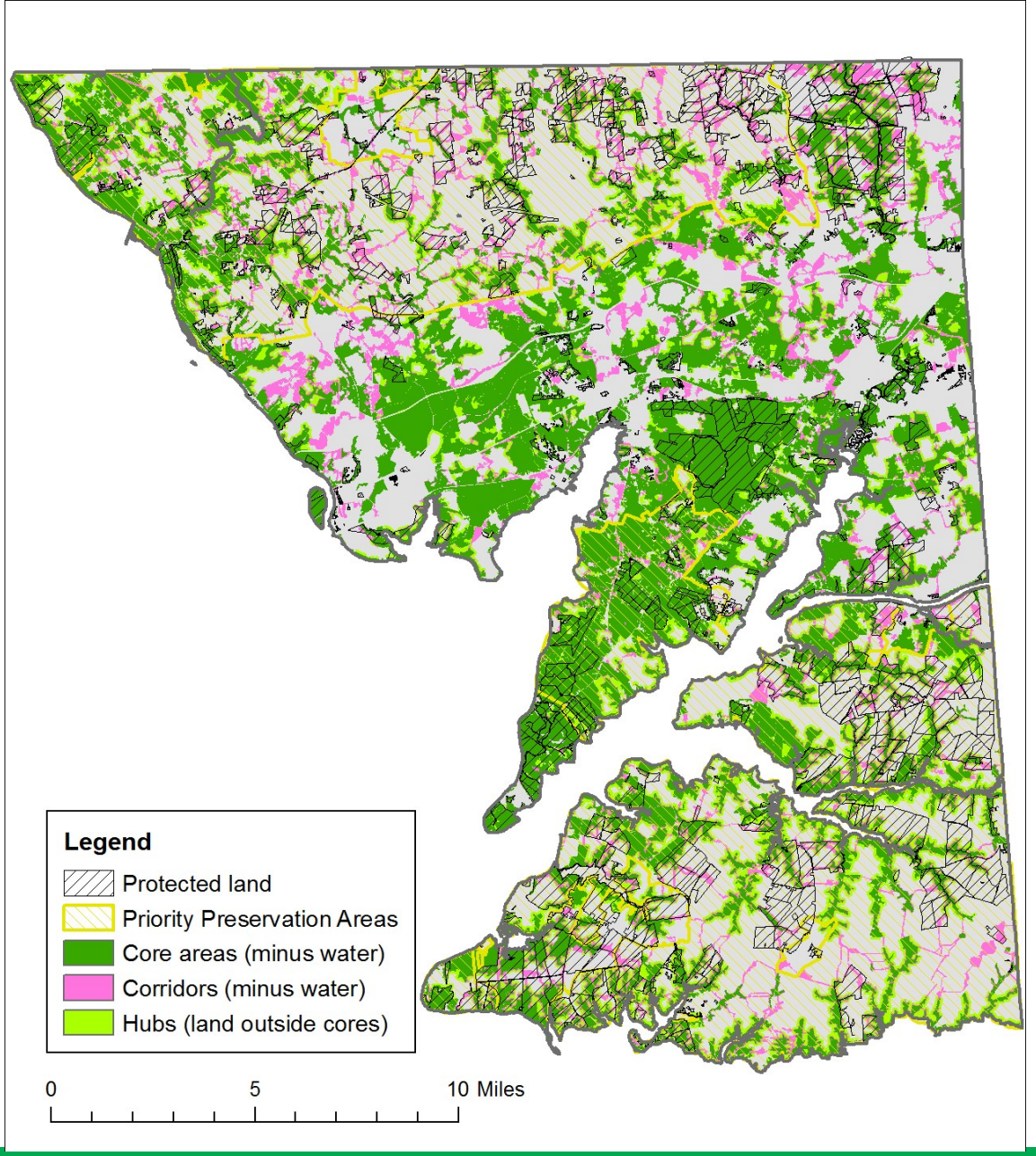


Where is it?

- 78,933 acres of core areas (36% of land)
- 23,879 acres of corridors (11% of land)

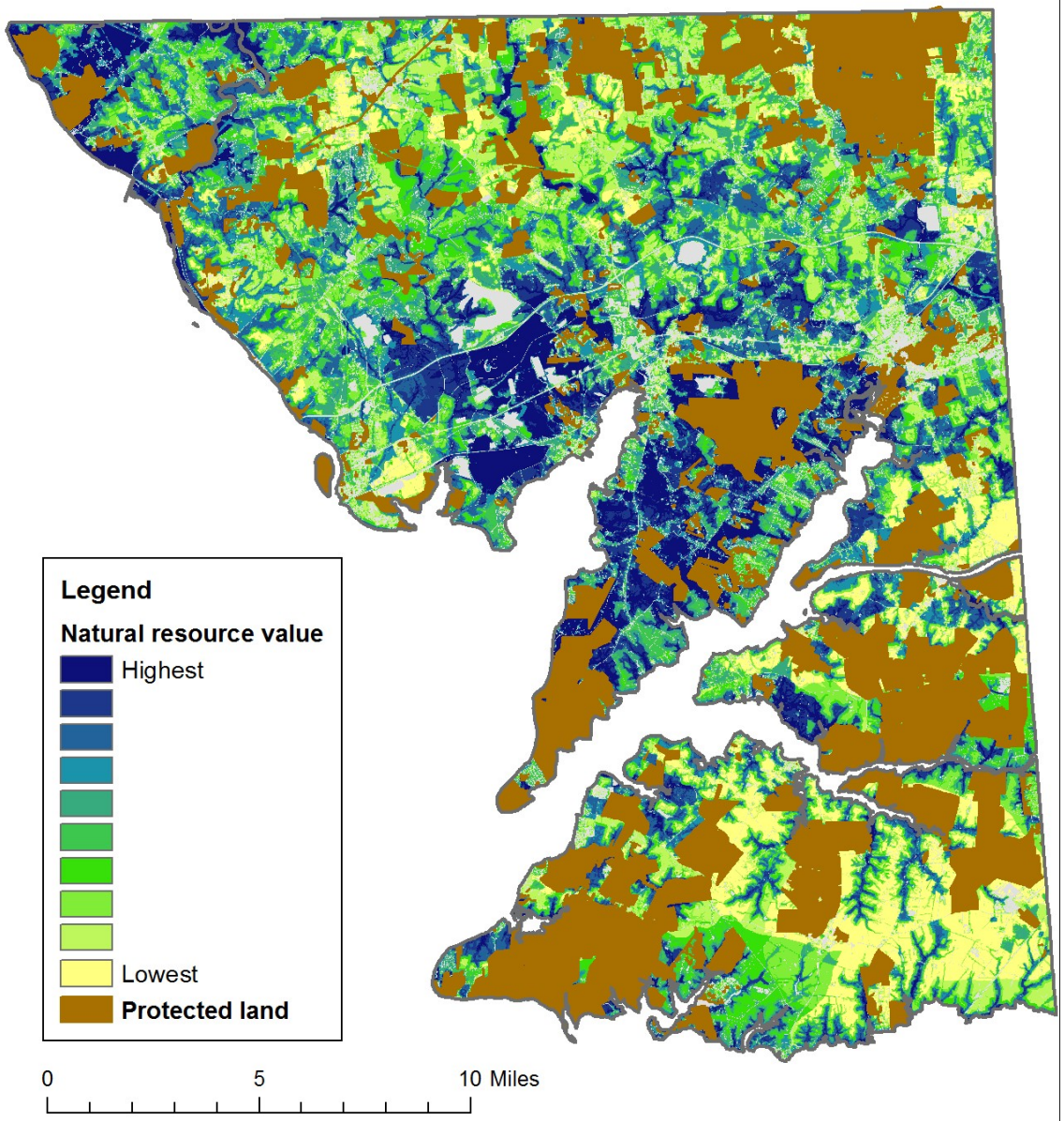
How protected is it?

- 28% of core area land and 34% of corridor land in parks, conservation easements, or other protected land.
- 49% of core areas and 57% of corridors in Priority Preservation Areas.



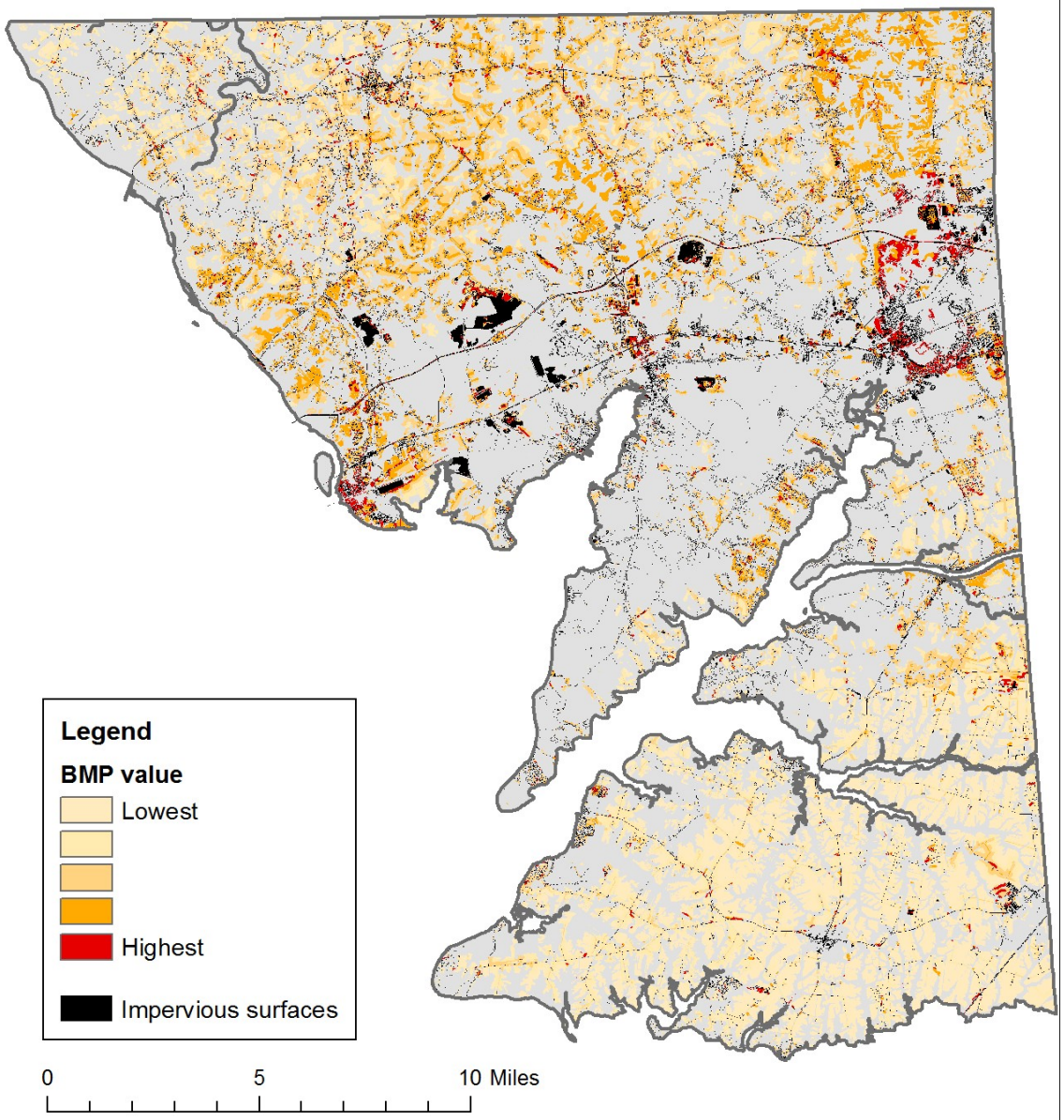
Natural Resource Protection

Preserve, restore or enhance land and water resources providing hazard mitigation and resilience, including floodplains, wetlands, forest, stream systems, and steep slopes.



Stormwater Reduction

Multi-Benefit Green Stormwater Infrastructure: Retrofit developed areas to reduce impervious surface and incorporate best management practices such as bioretention areas, green streets, and green roofs to reduce vulnerability to flooding and associated pollution.



Critical Infrastructure Protection

Use GI to buffer critical infrastructure from extreme weather impacts, including key transportation corridors, power production and transmission facilities, hospitals, emergency management centers, water supplies, stormwater infrastructure, and waste water treatment facilities.

Critical Infrastructure Protection

We shall have special concern for the long-range consequences of present actions

University of Maryland University College Graduate students Capstone Project Partnership

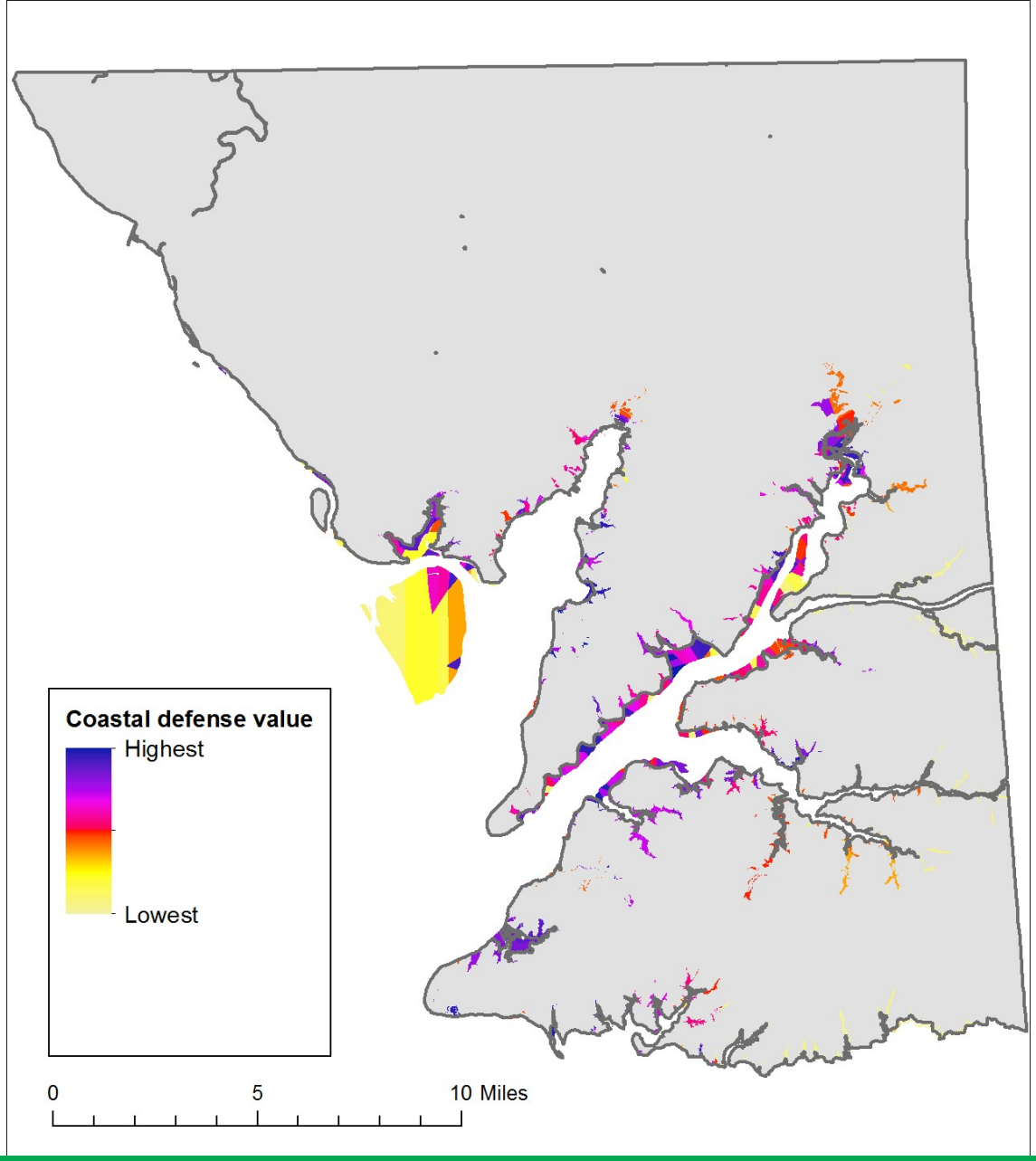
Facility Name	Threat	Criticality Level	Current Protection	Potential Measures to Increase Protection
Port Herman Condominiums Water Treatment Plant	-Not in a 100 or 500yr floodplain -0.2% chance storm with sea level rise by 2100	Low	-Permeable surfaces surrounding, little wooded area	-Retention or detention pond nearby -Constructed wetland and/or submerged gravel wetlands
Harbour View Waste Water Treatment Plant	-Within a 100yr floodplain -0.2% chance of storm with sea level rise by 2050 -10% chance of storm with sea level rise by 2100	High	-Existing forest provides some protection -Most plant components have been relocated outside of 100yr floodplain	-Constructed wetland with infiltration berms and retentive grading -Conservation landscaping -Restoration of floodplain once relocation is complete
Elkton Water Treatment Plant 11001	-Within a 100yr floodplain -0.2% chance of sea level inundation by 2100 -0.2% chance of storm with Level 3 Hazard Vulnerability on Delaware Ave by 2050	Medium	-Wooded areas surrounding facility and lining adjacent creek	-Bio-swale into adjacent forested area -Conservation landscaping -Constructed wetland with infiltration berms and retentive grading
Cecil County Detention Center	-Within a 500yr floodplain -0.2% chance of storm with sea level rise 2050 -10% chance of storm with sea level rise by 2100	Medium	-Minimal impervious surfaces surrounding facility -Wooded area along adjacent shoreline	-Retention or detention pond on the grounds -Upgrade to porous pavement and addition of filter strips -Constructed wetland
North East Town Hall	-Within a 100yr floodplain -0.2% chance of storm with sea level rise by 2050 -0.2% chance of storm with Level 3 Hazard Vulnerability on Main St & Level 2 on Race St by 2050	High	-Little natural protection -Microbioretention project installed in parking lot in May 2016	-Green roof and/or wall -Rain garden and barrels -Upgrade to porous pavement
North East Police Department	-Within a 100yr floodplain -0.2% chance of storm with sea level rise by 2050 -10% chance of storm with sea level rise by 2100 -0.2% chance of storm with Level 3 Hazard Vulnerability on Cecil Ave & Level 2 on Race St by 2050	High	-Forested area behind facility	-Detention area on grounds or in parking lot and/or filter strips -Upgrade to porous pavement -Conservation landscaping and bio-swale into forested area -Dry wells or green roof -Managed retreat if other options are unsuccessful
Perryville Volunteer Fire Department	-Within a 500yr floodplain	Low	-Wooded areas surrounding 2/3 of facility	-Conservation landscaping, rain garden and/ barrels -Upgrade to porous pavement -Bio-swale and/or detention ponds on grounds -Green roof and/or wall
Port Deposit Water Treatment Plant	-Within a 100yr floodplain -0.2% chance of storm with sea level rise by 2100 -0.2% chance of storm withLevel 2 Hazard Vulnerability on Rock Run Lndg by 2100	Medium	-Adjacent wooded strip between facility and shoreline	-Constructed wetland with infiltration berms and retentive grading -Conservation landscaping and bio-swale into forested area
Port Deposit Waste Water Treatment Plant	-Within a 100 yr floodplain -10% chance of storm with sea level rise by 2050	High	-Large forested area behind facility	-Managed retreat and restoration of floodplain -Seawall or jetty -Constructed wetland and/or submerged gravel wetlands -Conservation landscaping and bio-swale into forested area
Port Deposit Town Hall and Police Department	-Within a 500yr floodplain -0.2% chance of storm with sea level rise by 2100 -0.2% chance of storm with Level 3 Hazard Vulnerability on S Main St by 2100	Medium	-Forested area behind facility	-Bio-swale to forested area -Dry well, rain barrels and/or green roof
Water Witch Volunteer Fire Department	-Within a 100yr floodplain -0.2% chance of storm with sea level rise by 2100 -0.2% chance of storm with Level 3 Hazard Vulnerability on S Main St by 2100	High	-Wooded area behind adjacent structures	-Upgrade to porous pavement in parking lot and addition of filterstrips or bio-swale -Rain garden and barrels
Rising Sun Water Treatment Plant and Pump House	-Within a 100yr floodplain	Medium	-Forest surrounding 2/3 of facility	-Conservation landscaping and bio-swale into forested area -Retention or detention pond nearby

- Town Halls, Police & Fire Stations, Water & Wastewater Treatment Plants
- Roads, sewer lines

Cecil County Green Infrastructure Plan
protect - preserve - restore

Coastal Defense

Preserve, restore, or enhance natural habitat and promote nature-based practices (e.g., living shorelines) to buffer coastal areas from impacts of coastal flooding, storm surge, and sea level rise.



Ecosystem Services

Benefits gained by people from the environment

Eco-Price

Look at different ways society invests in protecting or replacing the environment:

– In a regulatory market
– Cost of restoration
– Through mitigation fees
– Cost to regulate

Use the average value

Benefits Evaluated

- Reduction of air pollution
- Carbon sequestration
- Groundwater recharge
- Nitrogen removal
- Flood Prevention
- Wildlife Habitat

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Ecosystem Services

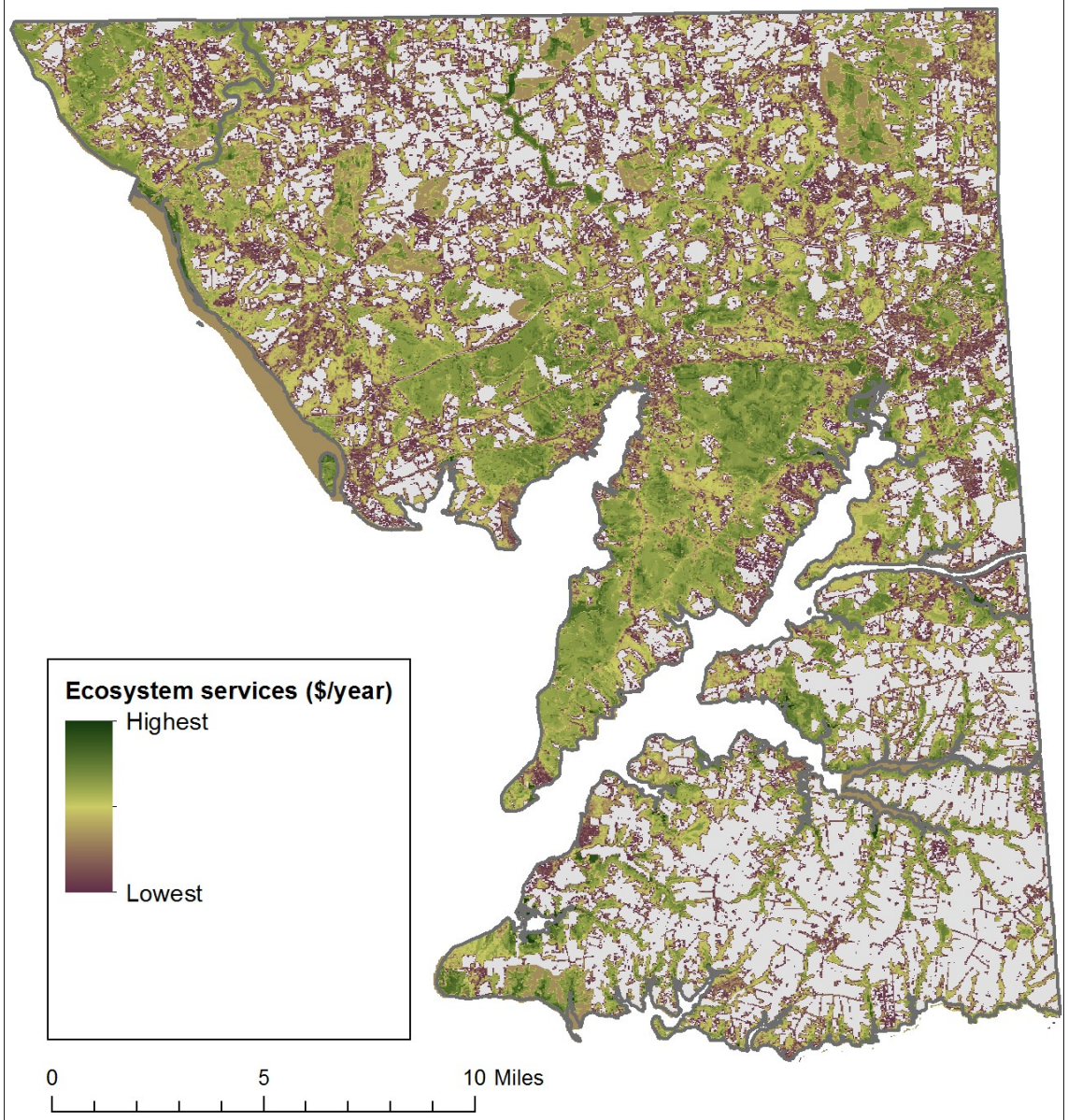
Benefits Evaluated

- Reduction of air pollution
- Carbon sequestration
- Groundwater recharge
- Nitrogen removal
- Flood Prevention
- Wildlife Habitat

Spatial Analysis

- Amount provided
- Who Benefits?

Total = $236.7 million/year
75% in the GI Network



Summary of Wildlife Habitat Validation Tests

- The research team from Susquehannock Wildlife Society (SWS) visited each of the two selected hub / corridor sites multiple times during the project period to document wildlife diversity and assess the quality of the habitat.
- The two sites were chosen both geographically, to cover different regions of the county, and based on their connectivity through green corridors. Both were found to confirm use by a wide variety of species and showed the value of preserving core, hub and corridor sites to protect wildlife diversity and connectivity.
- Surveys included recording the general status of the forest, plant diversity, presence of invasives and quality of the understory, mapping out what types of habitats were available for wildlife at each site.

High resolution trail cameras with nighttime infrared illumination were placed at each site for a period of at least two weeks to record the diversity and density of species that might be nocturnal, weary of humans, or just not encountered during the on site visits

Summary of Wildlife Habitat Validation Tests

Elk River Park

- Wildlife species recorded during surveys were mammals (including tracks and scat), birds, reptiles, amphibians, and larger / significant insects. Fish, mollusks, and crustaceans were not specifically targeted due to existing extensive stream surveys previously performed by others.

Summary of Wildlife Habitat Validation Tests

Elk Mills Property

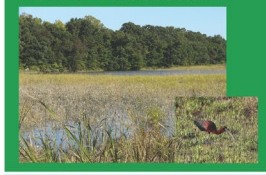
- Wildlife species recorded during surveys were mammals (including tracks and scat), birds, reptiles, amphibians, and larger / significant insects. Fish, mollusks, and crustaceans were not specifically targeted due to existing extensive stream surveys previously performed by others.

Guiding the County GI Plan Implementation

GREEN INFRASTRUCTURE PLAN

Actions and Strategies for Implementing Cecil County's GI Network

USE STICKY NOTES TO ADD YOUR COMMENTS

LAND PRESERVATION 	Connect vacant lots in flood risk areas as part of open space & habitat protection
	Reduce flooding severity by increased water holding & capturing sediment & debris
	Fund forest & floodplain preservation, including TDR program enhancement
RESTORATION 	Convert mown grass to naturalized meadows to create pollinator habitat on public lands
	Partner (with Exelon?) to conduct regular stream clean-up activities for removing trash & debris.
	Encourage green SWM BMP's & evaluate effectiveness (using the U of MD Smart Tool)
EDUCATION 	Control shore erosion using more natural techniques
	Other? Your idea?

Cecil County Green Infrastructure Plan

COMMUNITY MEETING
MAY 15, 2019

Planning Team: Department of Land Use & Development Services; The Conservation Fund, Jean K. Akers, AICP, PLA; Susquehannock Wildlife Land Society

Please add your ideas, thoughts, & any comments.

GREEN INFRASTRUCTURE PLAN

Actions and Strategies for Implementing Cecil County's GI Network

USE STICKY NOTES TO ADD YOUR COMMENTS

PLANNING 	Combine incentives and regulations to establish 70% riparian forest buffer corridors
	Protect & restore forests in priority drinking water supply areas
	Develop mitigation solutions for indentified priority flood areas
LAND USE POLICIES 	Limit forest clearing and encourage mitigation to protect high ecological value core areas
	Develop county-owned lands using green sustainable policies that limit tree clearing and impervious surfaces within the GI network
	Offset development using green stormwater techniques as recommended for Watershed Master Plan implementation
EDUCATION 	Collaborate with Partners to preserve high-value GI links
	Other? Your idea?

Cecil County Green Infrastructure Plan

COMMUNITY MEETING
MAY 15, 2019

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Cecil County Green Infrastructure Plan
protect - preserve - restore

Guiding the County GI Plan Implementation

Name: Agency/Organization:

PLANNING

Your Priority for Cecil County? Top 3:

ACTION	FOCUS	High	Medium	Low
UNITE	Collaborate on watershed management strategies across political boundaries	☐	☐	☐
DELIVER	Make data more accessible for effective response, recovery, and flood risk communication, including mitigation opportunities	☐	☐	☐
PERSUADE	Create incentives residential and commerical flood mitigation efforts	☐	☐	☐
INFORM	Integrate flood risk communication into real estate transactions in high flood risk areas	☐	☐	☐
MOTIVATE	Incentivize forest harvest best management practices	☐	☐	☐
PROTECT	Set a goal to establish 70% of streams with riparian forest buffers using a combination of incentives and regulations	☐	☐	☐

Name: Agency/Organization:

LAND USE POLICIES

Your Priority for Cecil County? Top 3:

ACTION	FOCUS	High	Medium	Low
PROTECT	Core areas of GI Network with higher mitigation ratios and forest clearing limitations	☐	☐	☐
IMPROVE	Regulatory protection for intermittent streams to yield benefits for the entire hydrology system & GI Network	☐	☐	☐
REQUIRE	Growth areas to protect stream buffers; limit development in floodplains	☐	☐	☐
UNPAVE	Regulate amount of of impervious surfaces in priority watersheds	☐	☐	☐
ENCOURAGE	More voluntary preservation and restoration opportunities, more incentives for action, rather than implementing new regulations.	☐	☐	☐
LEAD	Create a policy for development on County-owned land to limit tree clearing and impervious surfaces in ecologically valuable areas within the GI Network.	☐	☐	☐
PROTECT	Adequate habitat areas when land is developed within designated growth areas to enhance the functioning ecosystems within the GI Network.	☐	☐	☐
WMP's	Consider Watershed Master Plans as a framework to offset new development with stormwater management and create incentives for implementation.	☐	☐	☐
OTHER?		☐	☐	☐

To guide the county in prioritizing their efforts and future policies, choose your recommended top 3 high priority actions, then rate the remaining (medium and low priorities).

Acting on the Green Infrastructure Plan

Name: Agency/Organization:

LAND PRESERVATION

ACTION	FOCUS	Your Agency/Organization's Role? Lead	Partner	Support
ACCESS	More public shoreline/waterfront properties.	☐	☐	☐
CONNECT	Vacant lots in flood risk areas as part of public open space	☐	☐	☐

Name: Agency/Organization:

EDUCATION

ACTION	FOCUS	Your Agency/Organization's Role? Lead	Partner	Support
PROMOTE	Hunting on public lands to manage deer populations	☐	☐	☐
DEVELOP	Habitat management guidelines for use by foresters and land managers and assist with implementation.	☐	☐	☐

Name: Agency/Organization:

RESTORATION

ACTION	FOCUS	Your Agency/Organization's Role? Lead	Partner	Support
UPGRADE	Replacement of aging and undersized infrastructure to address higher flood flows in urbanized areas.	☐	☐	☐
CONVERT	Existing mown grass to tall grass/meadow along County roads and utility rights of way areas to create habitat for pollinators	☐	☐	☐
CREATE	Conversion of mown grass to meadows and tall grassland habitat on public lands. (Use Brantwood Park as a demonstration project.)	☐	☐	☐
IDENTIFY	High priority stream candidates for restoration	☐	☐	☐
EVALUATE	Sustainable uses on public/private lands that have frequent flooding	☐	☐	☐
REMOVE	Determine best methods for trash/debris removal within local waterways (Partner with Exelon?)	☐	☐	☐
MONITOR	Evaluate stormwater BMP's effectiveness (U of MD Extension Smart Tool to measure & Cecil County Watershed Stewards Academy to map and track)	☐	☐	☐
OTHER?		☐	☐	☐

To engage partners and support for the GI plan, identify your role in helping implement a strong GI network.

Please indicate your agency's role in each relevant action item across the three themes of restoration, education and preservation.

Green Infrastructure Plan

What's Next?

The County will be accepting comments on the Green Infrastructure planning process over the next month.

You can submit your comments by:
- Filling out the comment card at your seat
- Emailing the County = blightner@ccgov.org
- Calling the County = 410-996-5220

The Draft Plan and online map viewer will be made available via the project website during the spring/summer of 2019.

Thank you!