watershed resources registry

History

- A pilot Registry grew out of the **Green Highways Partnership** and the Maryland State Highway Administration (MDSHA) proposal for making the Route 301 Project the **1st Green Highway**.

WRR: Three meanings

- WRR: a collaborative, ongoing partnership with EPA Region 3, several MD agencies, the Corps (Baltimore District and HQ) and several others

- WRR: a set of eight suitability analyses

- WRR: an interactive website that provides all users, including the general public, access to the findings

What is the WRR?

- It is a comprehensive replicable framework and GIS-based targeting tool that:
  - Integrates and streamlines regulatory programs
  - Guides resource planners
  - Saves time and $, and increases program efficiencies
  - Screens for preferred actions and maximizes watershed benefits
  - Is transparent, predictable and reliable
  - Facilitates multiagency input and coordination

Why is the WRR unique?

Unlike many mapping and targeting tools…

There is agency collaboration and program integration between:

- CWA 319, 401,402,404, 303(d)
  - Watershed planning, permit review, mitigation assessments
  - TMDL and WIP applications
  - Stormwater management
- Resource conservation/ environmental resource planning
- Green Print and Rural Legacy priorities
- Section 7 (Threatened and Endangered Species)
- Transportation and land use planning
- NEPA review

… and more!

Collaboration

Current partner agencies:

- U.S. Environmental Protection Agency (EPA), Region III
- U.S. Army Corps of Engineers , Baltimore District
- Maryland Department of the Environment (MDE)
- State Highway Administration
- U.S. Fish and Wildlife Services
- Maryland Environmental Services
- Maryland Department of Natural Resources
- U.S. Federal Highway Administration
- Maryland Department of Planning
- Natural Resources Conservation Service
- Prince Georges County
- Charles County
- Mattawoman Watershed Society
- Interstate Commission on the Potomac River Basis

A Technical Action Committee (TAC), consisting of individuals from these partner agencies, collaboratively strategizes the development, progress, and future of the WRR, and uses it as a vehicle to discuss how to reduce cost and maximize environmental benefit.

The Initial Process

- The Technical Action Committee (TAC) was a product of the October 2009 Managers Meeting

- Circulated stakeholder questionnaire to explicitly:
  - Identify **unique needs** of each agency
  - Identify what questions need to be answered
  - Identify what **data is required** to answer these questions

WRR Technical Development Process

- TAC and questionnaire helped assemble a wide variety of information and geospatial data sets, and identify data gaps
  - Highlighted commonly available datasets vs. those available *only* in MD
  - Nationally available datasets (facilitate transferability)
  - Locally available & advanced datasets
  - Green Infrastructure

- Agreed upon factors for each Suitability Analysis (SA)

The Suitability Analyses (SA)

- Upland Preservation
- Upland Restoration
- Wetland Preservation
- Wetland Restoration
- Riparian Zone Preservation
- Riparian Zone Restoration
- Preserve Healthy Stormwater Systems
- Restore Degraded Stormwater Systems

Goals of the Eight Suitability Analyses

- To find and score areas that might present “eco-opportunities”
- Eco-opportunity is a place where some specific action beneficial to the resource, watershed, or environment might be undertaken
- Examples:
  - find mitigation sites for a transportation project
  - find areas to create riparian buffer zones
  - evaluate which of three proposals has least impact
  - find areas to re-create a former wetland
  - find areas to construct new stormwater management system on degraded infrastructure systems

Factors for Wetland Restoration

Relative Factors

- in a Blue Infrastructure priority watershed
- in a Biological Restoration Initiative (BRI) watershed
- in Chesapeake Bay Commission Critical Area (LDA or RCA only)
- near (200') or in a Green Infrastructure hub or corridor
- in a Green Infrastructure "gap" area
- in a 100-year (1 point) or 500-year (½ point) flood plain
- in an impaired watershed (as indicated by §303-d)
- in or near (200 feet) of a GreenPrint Targeted Ecologic Area
- near (200') but not in a protected land
- near (within 200') but not in a Sensitive Species Project Review Area (SSPRA)
- near (200') but not in a stream or wetland
- within 200' (1 point) or within 600' (½ point) of a stream designated for uses II, II or IV
- in a Stronghold Watershed area 1 (1 point) or 2 (½ point)
- in a Tier II "watershed"
- in a Trust Fund Watershed - High Priority (1 point) or Medium Priority (½ point)
- is near (200') but not in a Wetland of Special State Concern

Absolute Factors

- cannot be a wetland
- cannot be forested and
- must be on a very poorly drained soils, somewhat poorly drained soils or poorly drained soil

Factors for Stormwater Restoration

Relative Factors

- in a Blue Infrastructure watershed
- in a Biological Restoration Initiative (BRI) watershed
- in an area that was probably developed before 1985 (1 point) or between 1985 and 2000 (½ point)
- is area of relatively higher impervious surfaces
- in an impaired watershed (as indicated by §303-d)
- is within 200' (1 point) or within 600' (½ point) of a stream designated for uses II, II or IV
- In a Stronghold Watershed (1 point for "1"; ½ point for "2")
- in a Tier II watershed

Discouraged Factors

- flood plains
- forested areas
- karst geology
- in a wetland

Data Updates

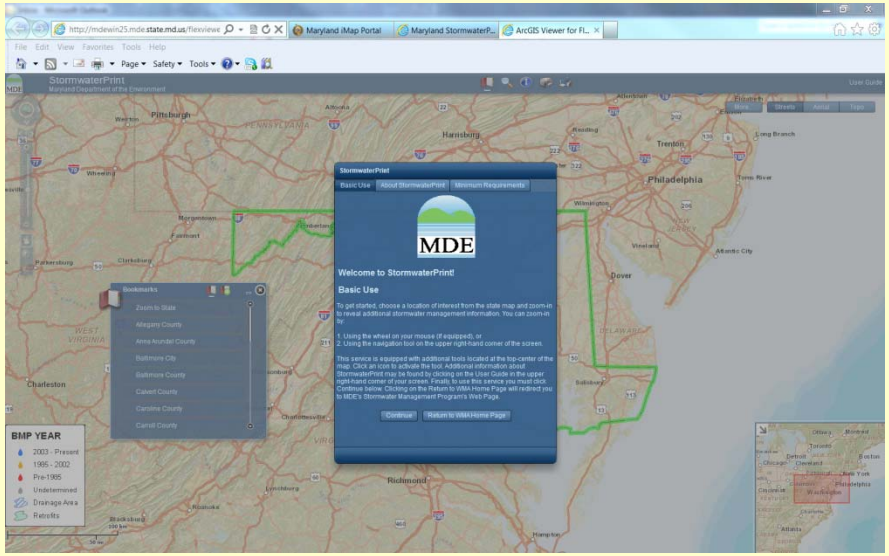
- TAC has decided upon a cyclical data update
  - Critical to the success of the WRR is the need for ongoing updates to the analytic models.
    - Outreach to various entities to identify new and/or updated data
    - Maintaining data matrix to track optimal data update schedule and strategy

Suitability Analyses Updates

- Stormwater GIS models to be updated in coming months
- Possible updates to the criteria and the data used to build the models
  - Inclusion of MS4 NPDES data from Phase I and II jurisdictions, Stormwater Print data, MS4 boundaries, drainage areas and elevation data
  - New NPDES data submission requirements will rely heavily on GIS

Benefits of Data Integration

- Use of the Stormwater Print data and the NPDES Annual Report data will allow users to see not just their data, but how other BMP's are being implemented in adjacent jurisdictions.



- Data integration bridges the gap between programs and minimizes duplication of effort.

Assisting with Compliance

- WRR can assist agencies and counties in meeting regulatory requirements
  - Utilizing the WRR GIS-based web application
  - Customizing analyses using WRR outputs as supplemental input to a more refined model
  - GIS practitioners can consume the WRR Web Map Service (WMS), directly in ESRI's ArcGIS™ to develop their own custom map products
  - Ensures a watershed based approached

Agency Specific Uses:

MDE

- In-lieu Fee Program
  - Can be used to satisfy the Comprehensive Planning Framework requirement
- Proposed Impacts
- Impact Alternatives
- Compensatory mitigation

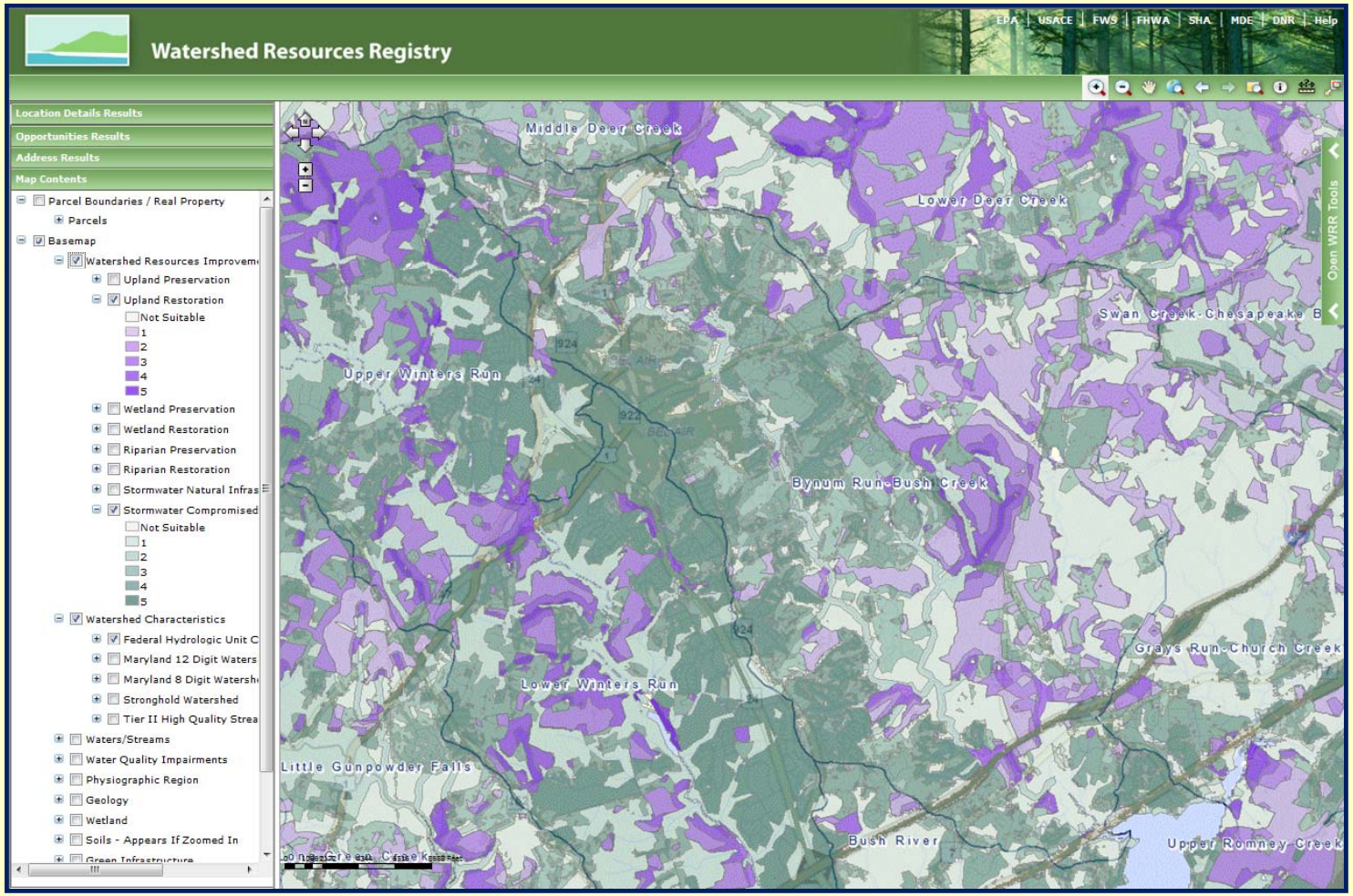
DNR

- Program Open Space
  - Can use WRR to determine if proposed projects meet certain eligibility criteria
  - Can use WRR to provide field ready maps to assist with design plans

Agency Specific Uses: SHA

- Capital Program
  - Helps key stakeholders characterize and identify potential watershed needs as well as target suitable opportunity sites for protection and restoration of important resources
- Roadway Maintenance
  - Helps in avoidance of impacts to sensitive resources
- Bay TMDL
  - Can be used with the TMDL implementation plan

SHA Strategies – Watershed Approach



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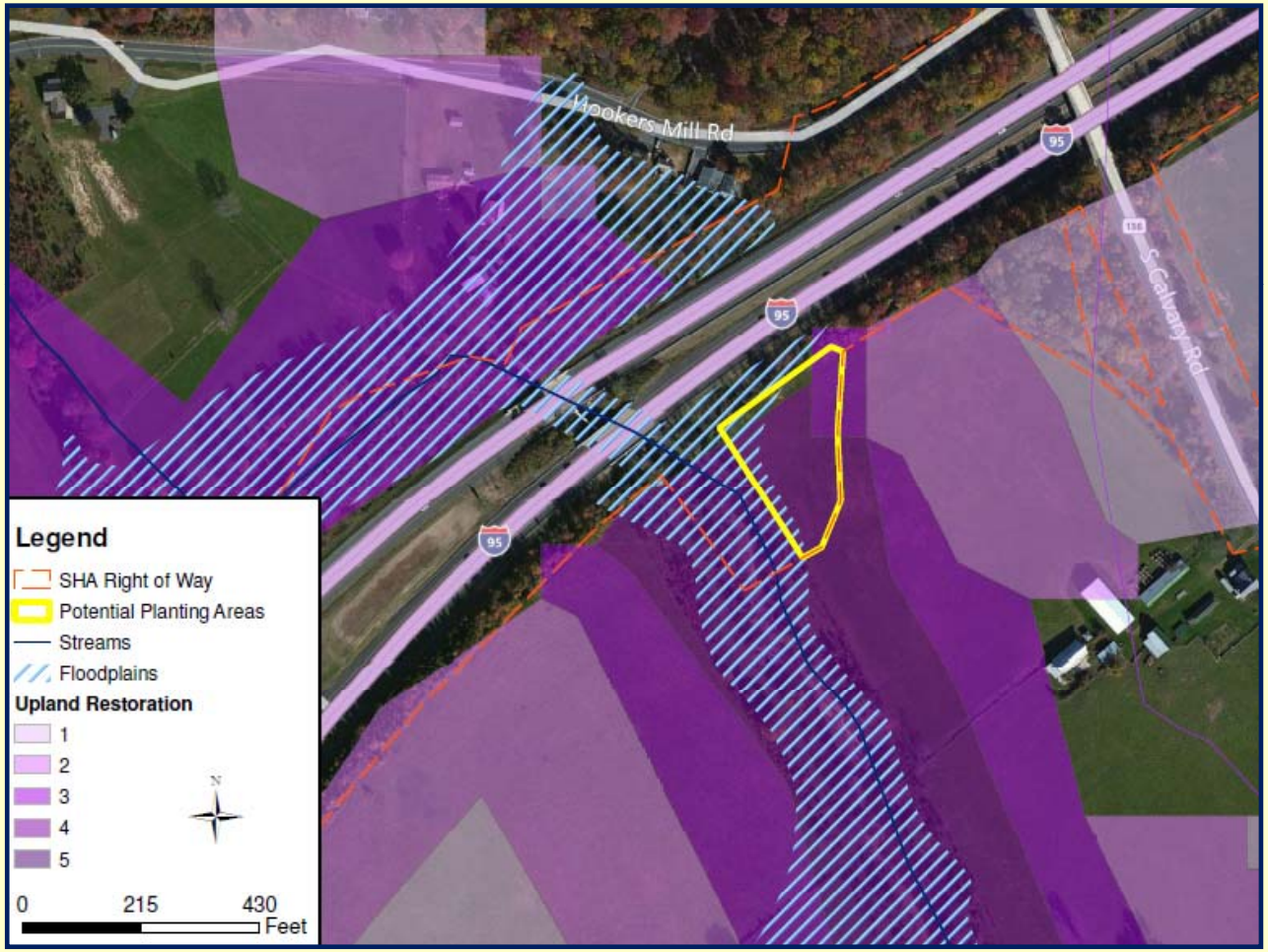
SHA Strategies – Site Specific



watershed resources registry

- Home
- About Us
- History
- Methodology
- Suitability Analyses
- GIS Layers
- Feedback
- FAQs
- Related Information
- Contact Us

Supplementary Documents:

- 2 page Fact Sheet
- Post Cards
- 2x2 Cards
- Flyer
- Model Descriptions

Welcome

Watershed Resources Application

Model Descriptions

Factsheet

Welcome to the Watershed Resources Registry, an interactive mapping tool to charaterize and prioritize natural resource management opportunities using a Watershed Approach. Areas across Maryland have been scored on a scale of one to five stars based on their potential benefits for restoration or preservation. Users can either access the interactive mapping tool or download the data directly.

Using the Watershed Resources Registry allows you to:

- Identify candidate locations
- Assess and compare potential projects
- Export data and print site maps for field visits

After exploring the site or utilizing the mapping tool for watershed information, we welcome your feedback.

Technical Requirements

To use this website we recommend using a high speed internet connection using Internet Explorer 7.0 or 8.0. Additionally, Adobe PDF Reader 9.0 and Adobe Flash Player 10.0 are required. The resolution of your monitor is also important; make sure your resolution is 1024 x 768 or above.

Get Adobe Reader | Get Flash Player | Get Internet Explorer

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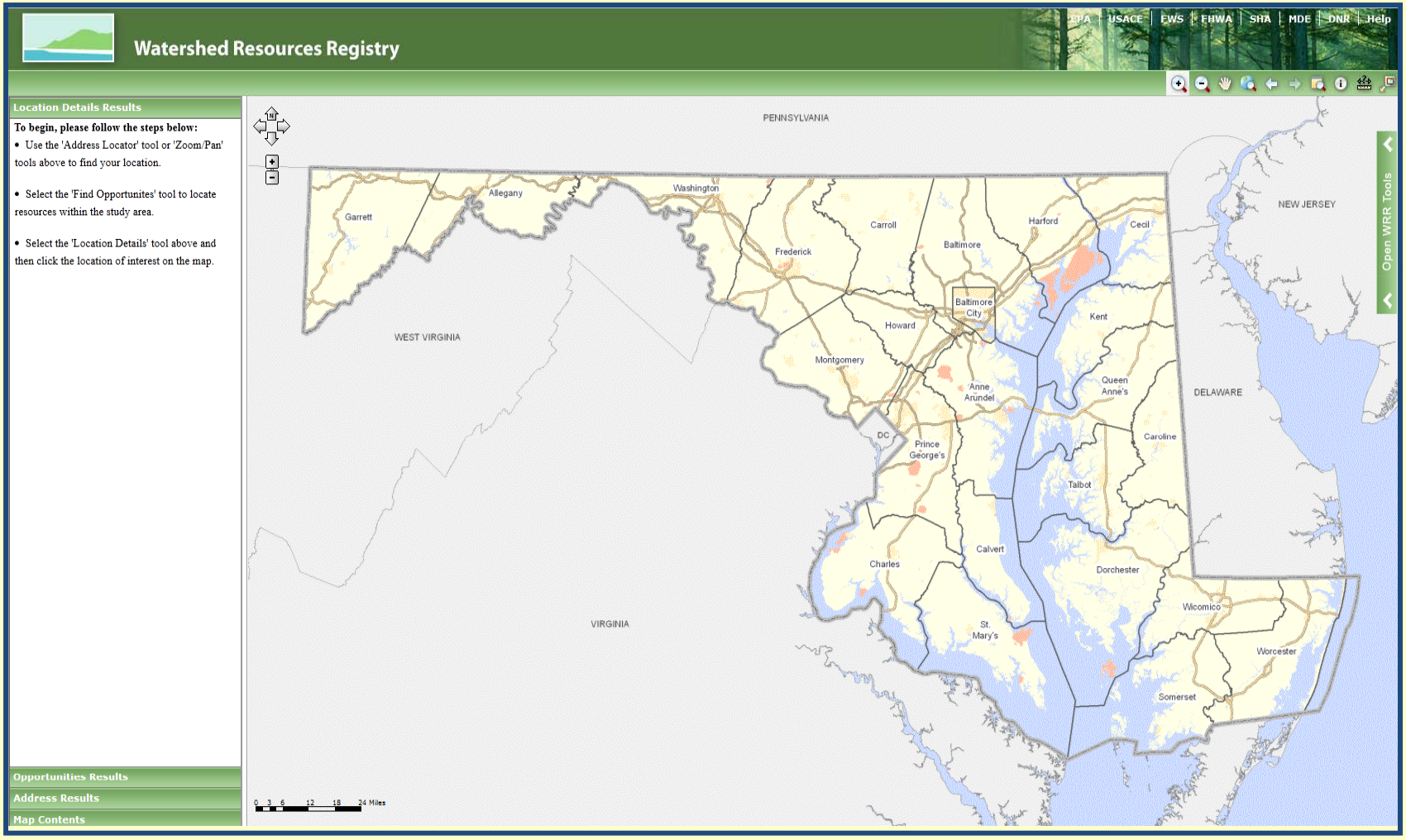
Watershed Resources Registry: Web Application



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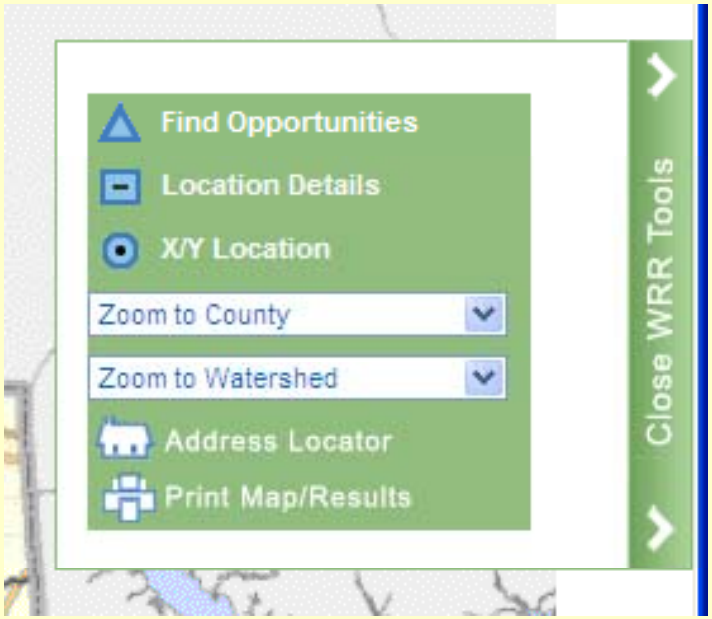
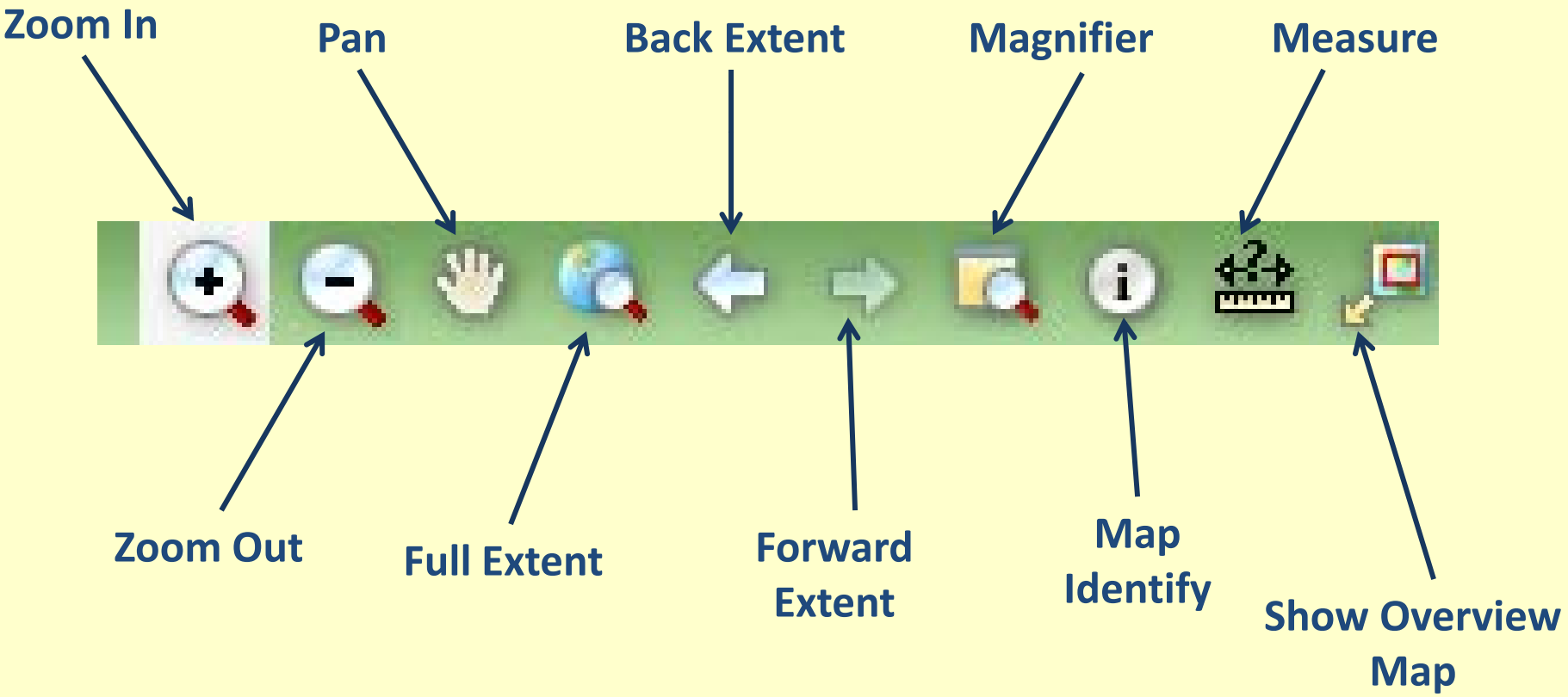
Search by County or Watershed



Toolbar Buttons



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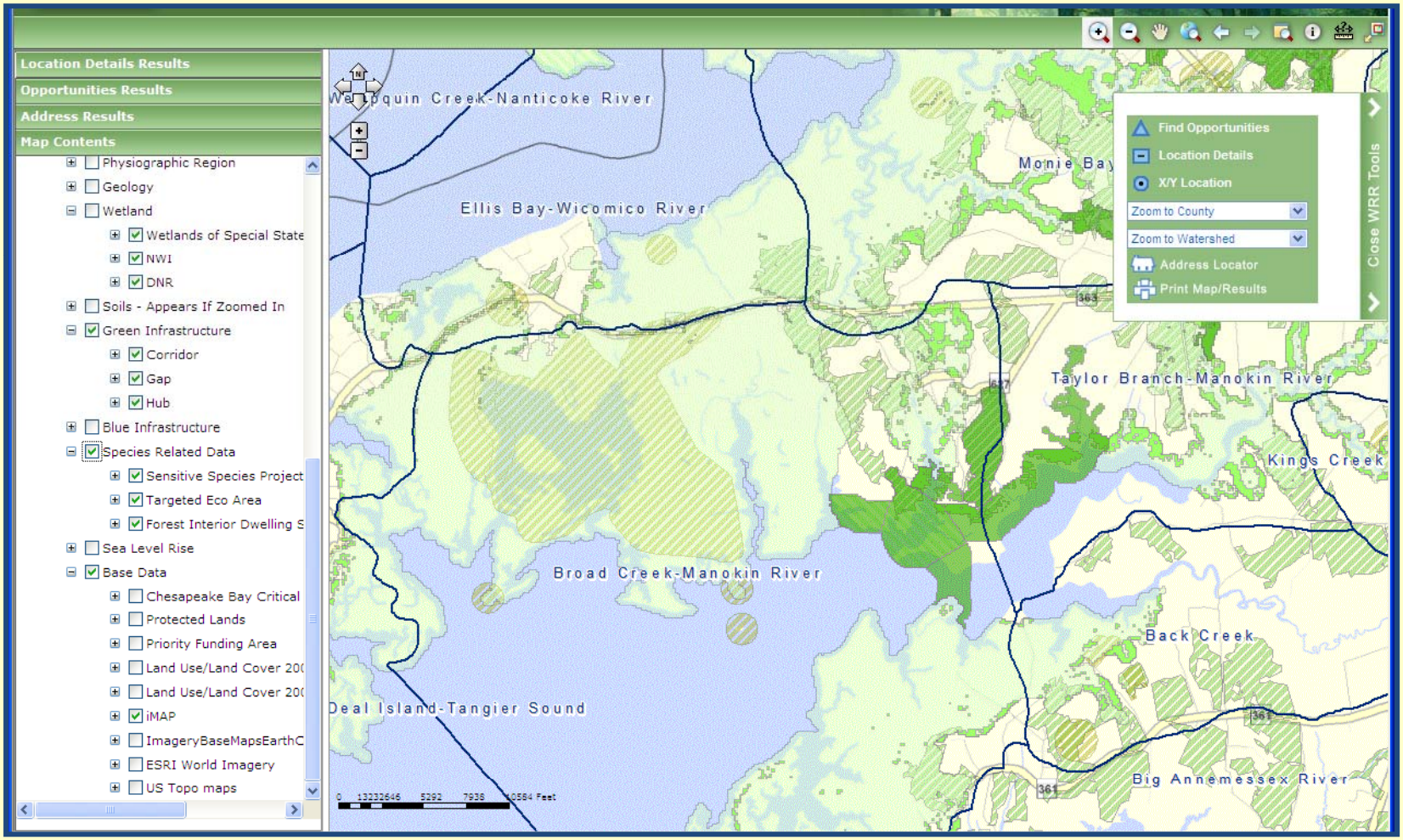
Overlaying Multiple Layers



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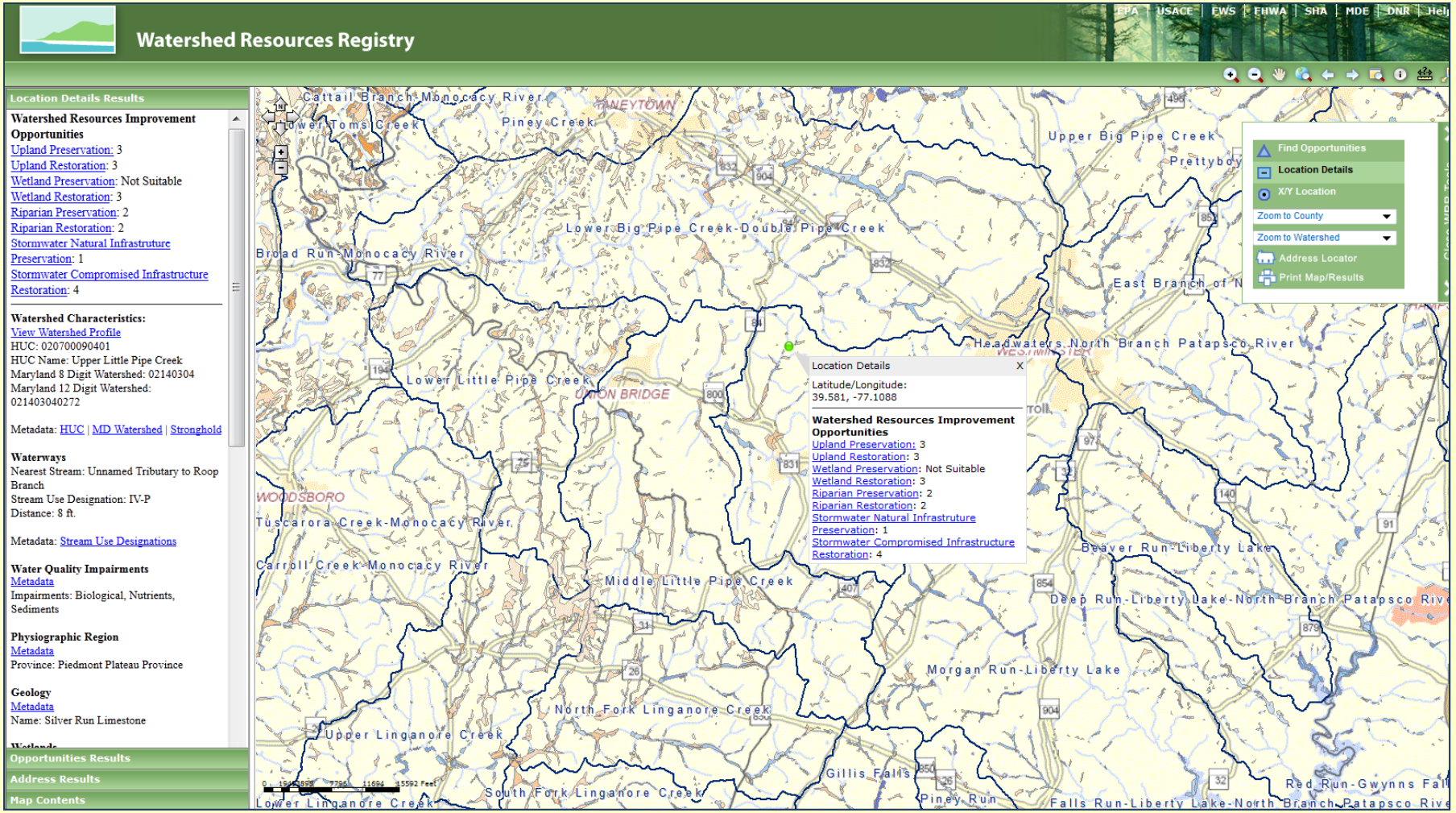
Selecting “Location Details”



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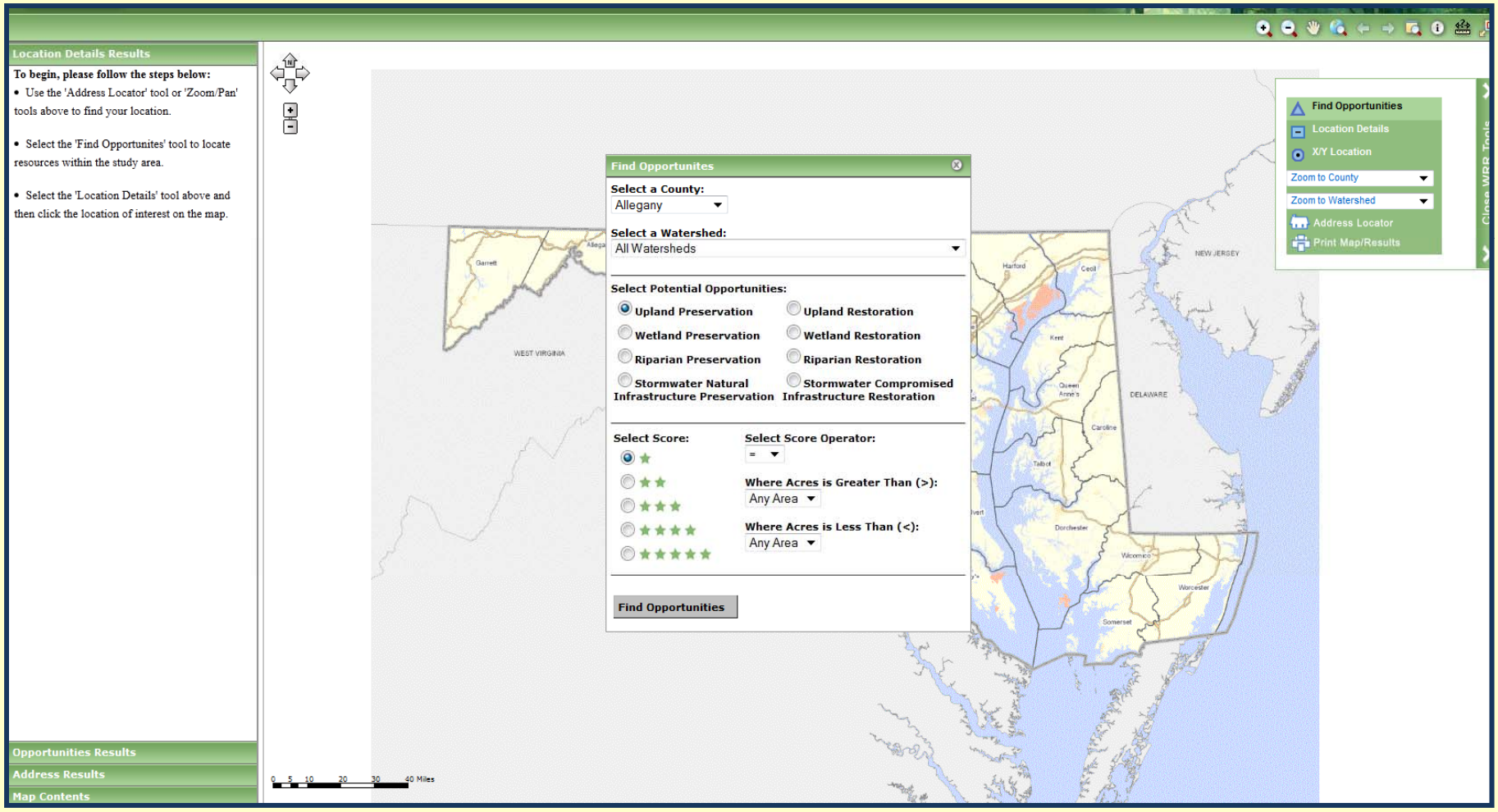
Using The “Find Opportunities” Query



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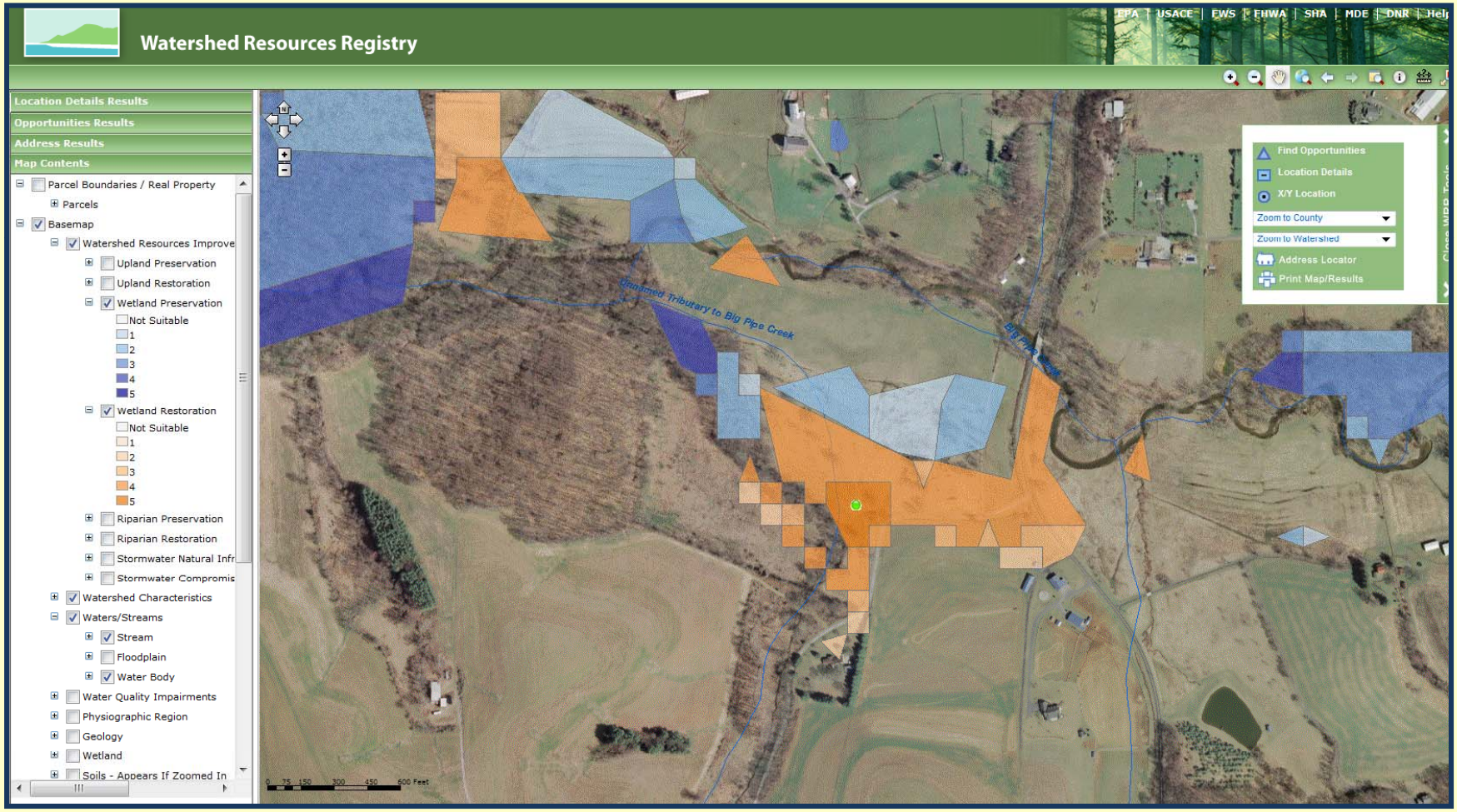
Overlaying Layers On Aerial View Map



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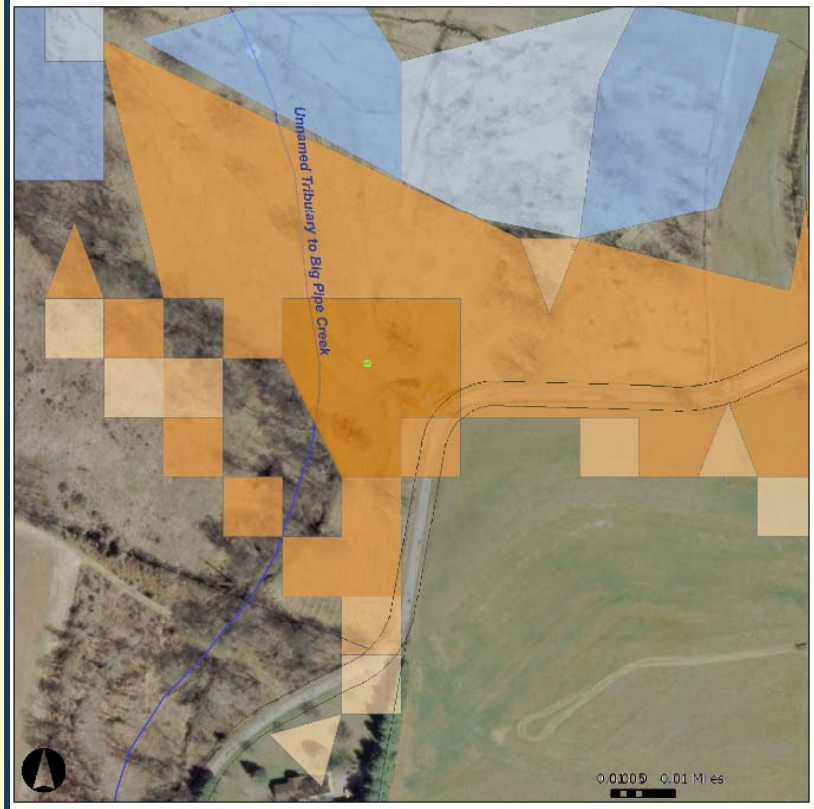
Print Map/Results

Watershed Resources Map



Map Projection: State Plane Maryland (NAD83 - Meters)

Selected Location - Coordinates

Latitude/Longitude: 39.6599,-77.05192

Watershed Resources Improvement Opportunities

Upland Preservation: 3
Upland Restoration: 4
Wetland Preservation: Not Suitable
Wetland Restoration: 5
Riparian Preservation: 3
Riparian Restoration: 3
Stormwater Natural Infrastruture Preservation: 1
Stormwater Compromised Infrastructure Restoration: 2

Watershed Characteristics:

View Watershed Profile
HUC: 020700090404
HUC Name: Upper Big Pipe Creek
Maryland 8 Digit Watershed: 02140304
Maryland 12 Digit Watershed: 021403040283

Selected Location Information

Waterways
Nearest Stream: Unnamed Tributary to Big Pipe Creek
Stream Use Designation: IV-P
Distance: 80 ft.
Location inside the floodplain.

Metadata: Stream Use Designations| Floodplain

Water Quality Impairments
Metadata
Impairments: Biological, Nutrients, Sediments

Wetlands
Wetlands of Special State Concern: None within 500 ft.
DNR: Type - Upland
NWI: Distance - 276 ft., Type - Freshwater Emergent Wetland

Metadata: WSSC | DNR | NWI

Green Infrastructure
There are no hubs within 500 ft.
Location inside a gap
Location inside a corridor

Metadata: Hub | Gap | Corridor

Blue Infrastructure
Metadata
There is no blue infrastructure within 500 ft.

Species Related Data
There are no forest interior dwelling species areas within 500 ft.

Metadata: FIDs

Soils
Metadata
Soil Type: Ht
Hydric: Hydric
Drainage: Poorly Drained
Prime Farm Land: Not prime

Land Use/Land Cover
Land Use Type (2002): Decidous Forest
Land Use Type (2007): Pasture

Metadata: Metadata | Metadata

Physiographic Region
Metadata
Province: Piedmont Plateau Province

Geology
Metadata
Name: Marburg Schist

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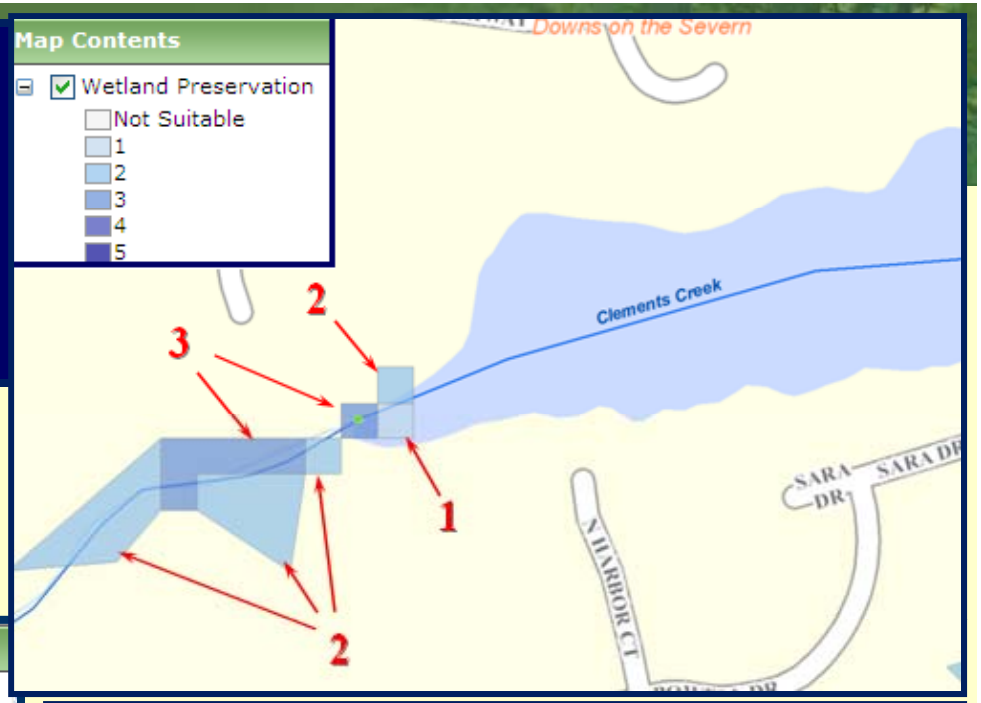
Application Example

WRR Analysis: Wetland Preservation



Location Details Results

Watershed Resources Improvement Opportunities

Upland Preservation: Not Suitable
Upland Restoration: Not Suitable
Wetland Preservation: 3
Wetland Restoration: Not Suitable
Riparian Preservation: 3
Riparian Restoration: Not Suitable
Stormwater Natural Infrastruture Preservation: 4
Stormwater Compromised Infrastructure Restoration: 2

Watershed Characteristics:

View Watershed Profile
HUC: 020600040203
HUC Name: Whitehall Creek-Severn River-Chesapeake Bay
Maryland 8 Digit Watershed: 02131002
Maryland 12 Digit Watershed: 021310020997

Location Details Results

Waterways

Nearest Stream: Clements Creek
Stream Use Designation: I
Distance: 72 ft.
Location inside the floodplain.

Metadata: Stream Use Designations| Floodplain

Water Quality Impairments

Metadata
Impairments: Bacteria, Biological, Nutrients, Sediments, Toxics

Physiographic Region

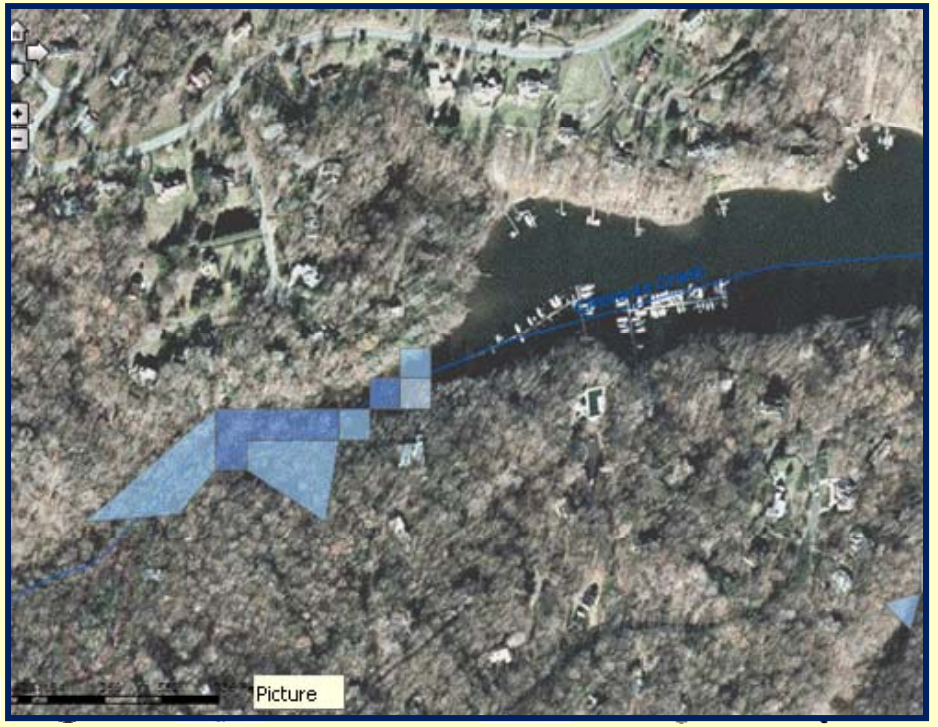
Metadata
Province: Atlantic Coastal Plain Province

Geology

Metadata
Name: Matawan Formation

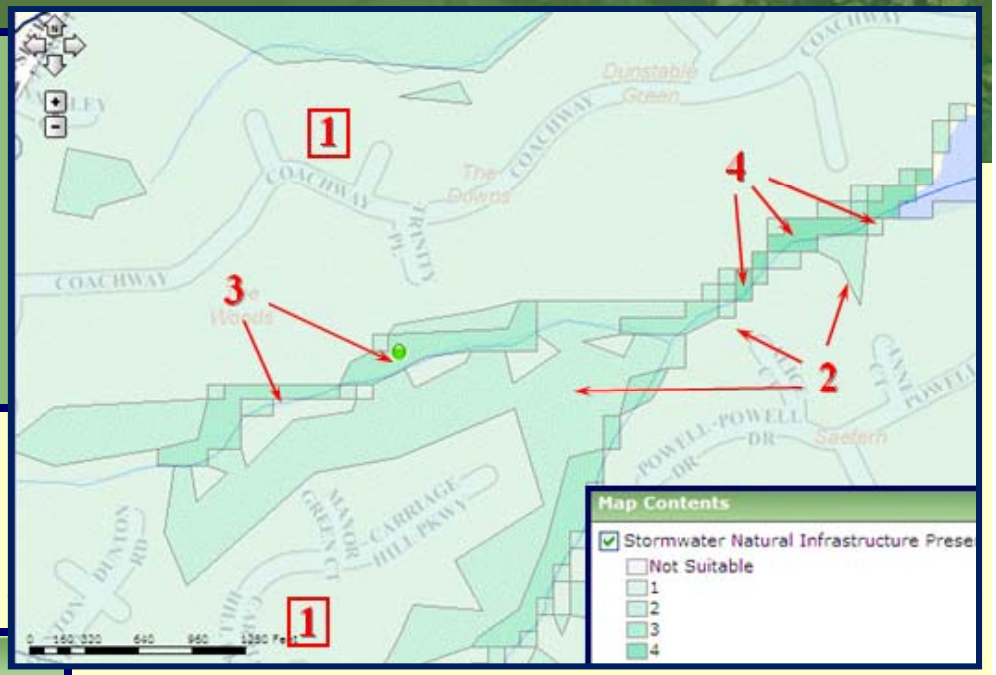
Wetlands

Wetlands of Special State Concern: None within 500 ft.
DNR: Type - PFO1A



Application Example

WRR Analysis: **Stormwater Natural Infrastructure Preservation**



Location Details Results

Watershed Resources Improvement Opportuniti

Upland Preservation: 3
Upland Restoration: Not Suitable
Wetland Preservation: Not Suitable
Wetland Restoration: Not Suitable
Riparian Preservation: 2
Riparian Restoration: Not Suitable
Stormwater Natural Infrastruture Preservation: 3
Stormwater Compromised Infrastructure Restoration:

Watershed Characteristics:

View Watershed Profile
HUC: 020600040203
HUC Name: Whitehall Creek-Severn River-Chesapea Bay
Maryland 8 Digit Watershed: 02131002
Maryland 12 Digit Watershed: 021310020997

Metadata: HUC | MD Watershed | Stronghold

Waterways

Nearest Stream: Clements Creek
Stream Use Designation: I
Distance: 108 ft.

Location Details Results

Location inside the floodplain.

Metadata: Stream Use Designations| Floodplain

Water Quality Impairments

Metadata
Impairments: Bacteria, Biological, Nutrients, Sediments Toxics

Physiographic Region

Metadata
Province: Atlantic Coastal Plain Province

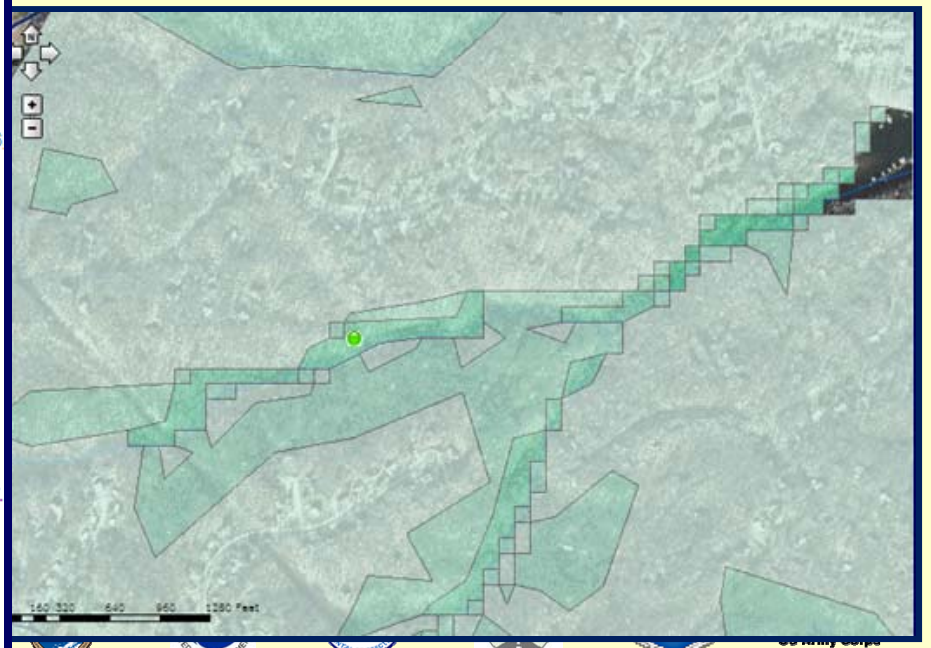
Geology

Metadata
Name: Aquia Formation

Wetlands

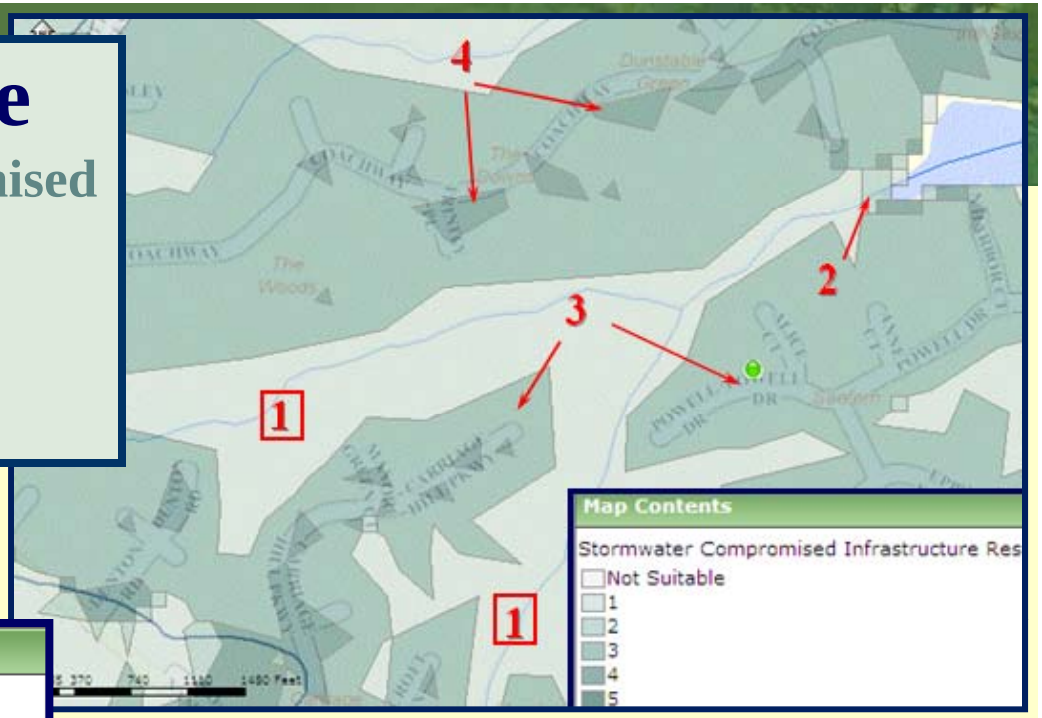
Wetlands of Special State Concern: None within 500 ft.
DNR: Type - Upland
NWI: None within 500 ft.

Metadata: WSSC | DNR | NWI



Application Example

WRR Analysis: **Stormwater Compromised Infrastructure Restoration**



Location Details Results

Watershed Resources Improvement Opportuniti

Upland Preservation: 3
Upland Restoration: Not Suitable
Wetland Preservation: Not Suitable
Wetland Restoration: Not Suitable
Riparian Preservation: 2
Riparian Restoration: Not Suitable
Stormwater Natural Infrastruture Preservation: 1
Stormwater Compromised Infrastructure Restoration

Watershed Characteristics:

View Watershed Profile
HUC: 020600040203
HUC Name: Whitehall Creek-Severn River-Chesapea Bay
Maryland 8 Digit Watershed: 02131002
Maryland 12 Digit Watershed: 021310020997

Metadata: HUC | MD Watershed | Stronghold

Waterways

Nearest Stream: Clements Creek
Stream Use Designation: I
Distance: 52 ft.

Location Details Results

Water Quality Impairments

Metadata
Impairments: Bacteria, Biological, Nutrients, Sediments, Toxics

Physiographic Region

Metadata
Province: Atlantic Coastal Plain Province

Geology

Metadata
Name: Aquia Formation

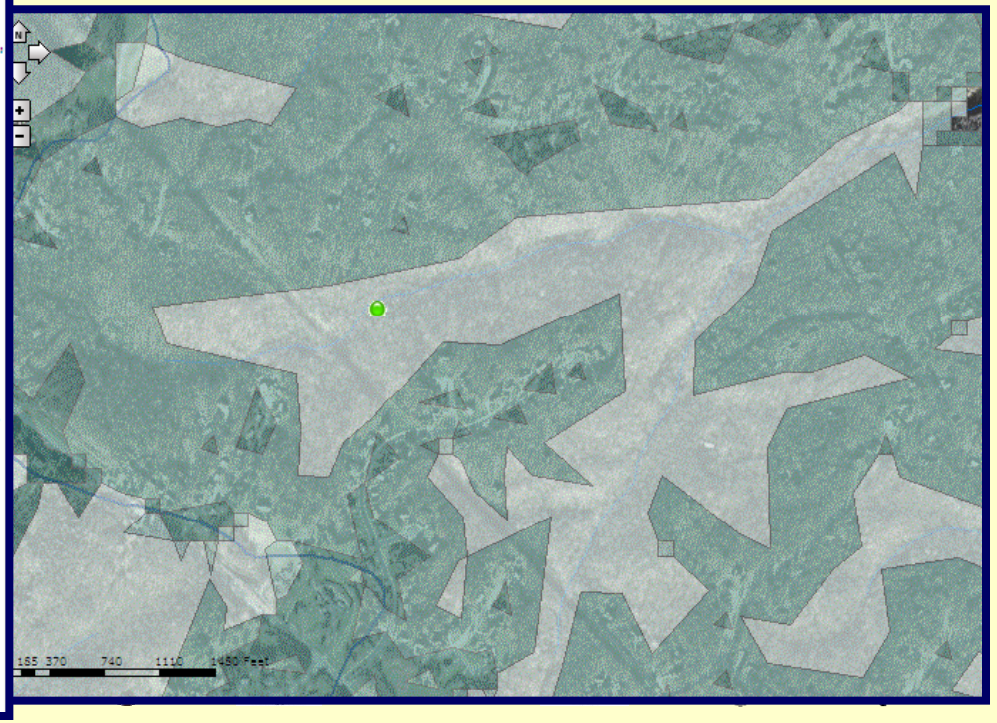
Wetlands

Wetlands of Special State Concern: None within 500 ft.
DNR: Type - Upland
NWI: None within 500 ft.

Metadata: WSSC | DNR | NWI

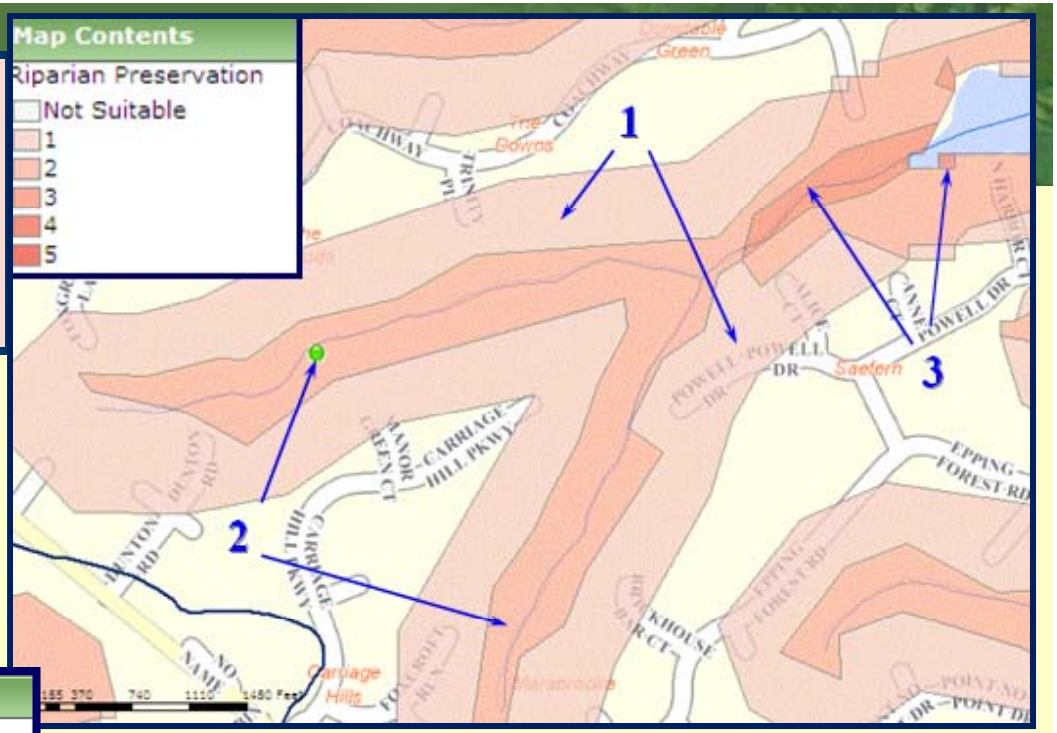
Soils

Metadata
Soil Type: CSF
Hydric: Not hydric



Application Example

WRR Analysis: **Riparian Preservation**



Location Details Results

Watershed Resources Improvement Opportunities

Upland Preservation: 3
Upland Restoration: Not Suitable
Wetland Preservation: Not Suitable
Wetland Restoration: Not Suitable
Riparian Preservation: 2
Riparian Restoration: Not Suitable
Stormwater Natural Infrastruture Preservation: 1
Stormwater Compromised Infrastructure Restoration: 1

Watershed Characteristics:

View Watershed Profile
HUC: 020600040203
HUC Name: Whitehall Creek-Severn River-Chesapeake Bay
Maryland 8 Digit Watershed: 02131002
Maryland 12 Digit Watershed: 021310020997

Metadata: HUC | MD Watershed | Stronghold

Location Details Results

Waterways

Nearest Stream: Clements Creek
Stream Use Designation: I
Distance: 42 ft.

Metadata: Stream Use Designations

Water Quality Impairments

Metadata
Impairments: Bacteria, Biological, Nutrients, Sediments, Toxics

Physiographic Region

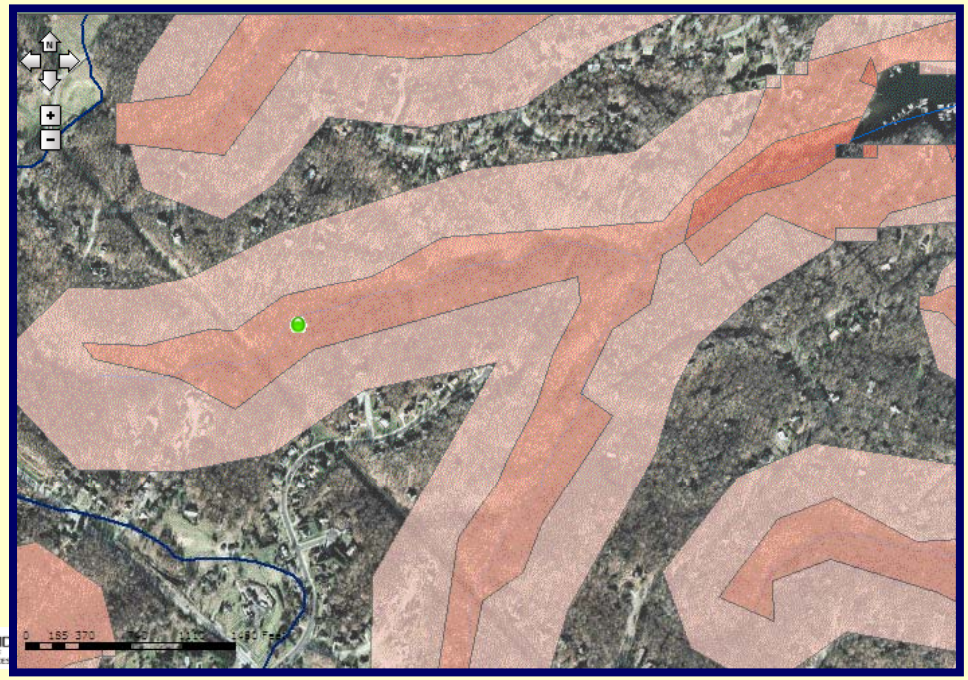
Metadata
Province: Atlantic Coastal Plain Province

Geology

Metadata
Name: Aquia Formation

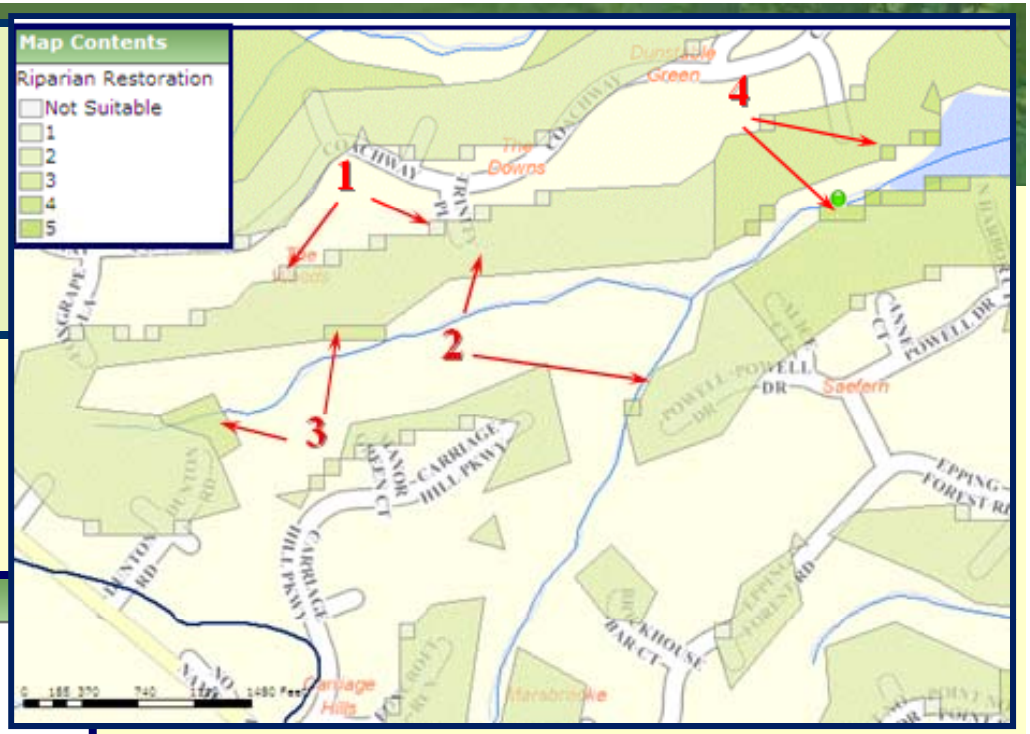
Wetlands

Wetlands of Special State Concern: None within 500 ft.
DNR: Type - Upland
NWI: None within 500 ft.



Application Example

WRR Analysis: Riparian Restoration



Location Details Results

Watershed Resources Improvement Opportunities

Upland Preservation: Not Suitable
Upland Restoration: Not Suitable
Wetland Preservation: Not Suitable
Wetland Restoration: Not Suitable
Riparian Preservation: 1
Riparian Restoration: 2
Stormwater Natural Infrastruture Preservation: 1
Stormwater Compromised Infrastructure Restoration: 3

Watershed Characteristics:

View Watershed Profile
HUC: 020600040203
HUC Name: Whitehall Creek-Severn River-Chesapeake Bay
Maryland 8 Digit Watershed: 02131002
Maryland 12 Digit Watershed: 021310020997

Metadata: HUC | MD Watershed | Stronghold

Waterways

Nearest Stream: Clements Creek

Location Details Results

Waterways

Nearest Stream: Clements Creek
Stream Use Designation: I
Distance: 289 ft.

Metadata: Stream Use Designations

Water Quality Impairments

Metadata
Impairments: Bacteria, Biological, Nutrients, Sediments, Toxics

Physiographic Region

Metadata
Province: Atlantic Coastal Plain Province

Geology

Metadata
Name: Monmouth Formation

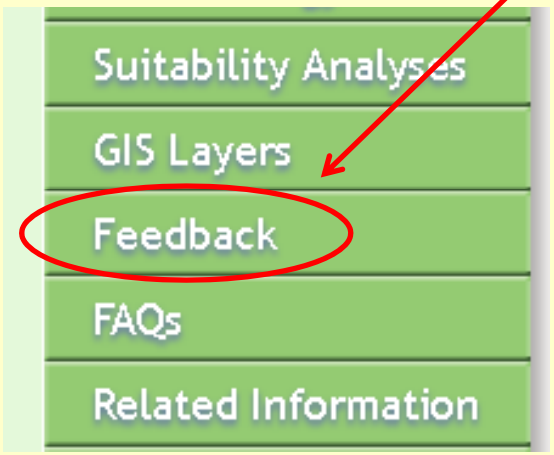
Wetlands

Wetlands of Special State Concern: None within 50 ft.
DNR: Type - Upland
NWI: None within 500 ft.

US Army Corps of Engineers

How to provide Feedback

- On the Menu located in the top-left of the website, click “Feedback”



Contribute Your Feedback

http://www.watershedresourcesregistry.org/feedback.php

Please give us your feedback concerning your use of the WRR mapping tool.

Please select one:
- ○ I would like to report a problem/issue
- ○ I have a general comment

Which aspects of the WRR are you interested in? (Select all that apply)
- ☐ WRR Application Interface
- ☐ Accuracy/Relevancy of the basemap/data layers
- ☐ Website
- ☐ Mapping/General site information
- ☐ Other (Please specify below)

Which Suitability Analysis/Ecological opportunity are you interested in? (Select all that apply)
- ☐ Upland Preservation
- ☐ Upland Restoration
- ☐ Wetland Preservation
- ☐ Wetland Restoration
- ☐ Riparian Preservation
- ☐ Riparian Restoration
- ☐ Stormwater Natural Infrastructure Preservation
- ☐ Stormwater Compromised Infrastructure Restoration

Please describe the issue/comment.

If possible, please provide the coordinates of a site that demonstrates the issue (Decimal Degree format).

Latitude: Longitude:

Have you field-verified the results of the WRR Application?
- ○ Yes
- ○ No

Did the application results accurately depict what you found in the field?
- ○ Yes
- ○ No
- ○ Not Applicable

If not, please elaborate.

How could the WRR be enhanced or improved?

Would you like to be contacted regarding your comments?
- ○ Yes
- ○ No

Name (optional)

Email (optional)

Affiliation (optional)
- ○ Government
- ○ Private
- ○ Non-Profit
- ○ Citizen

Submit Reset Response Survey

Recent and Current Events

- A series of training workshops were held from October - December 2012 at several agency locations
- A team of experts is being assembled to consult on the stormwater models
- User website and application are both live
  - www.watershedresourcesregistry.org
- Upcoming private training opportunities
- Site registration being developed
- Currently soliciting feedback from participating agencies

watershed resources registry

Dominique Lueckenhoff
Lueckenhoff.Dominique@epa.gov

THANK YOU

Contact Ralph Spagnolo with any further questions. M1
(215) 814-2718;
spagnolo.ralph@epa.gov
www.watershedresourcesregistry.org

Slide 38

M1 Need Dom's Contact Info...
MHERZ, 2/26/2013