



SHRP2 SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

Streamlining Project Development through the Watershed Resources Registry

Douglas Simmons, Deputy Administrator
Planning, Engineering, Real Estate and Environment, MDOT/SHA

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Development of WRR

Watershed Resources Registry initiated in 2007

- Comprehensive web based GIS mapping tool that assists with improving the regulatory process efficiency on a watershed scale.
- Intended to integrate the Clean Water Act (CWA) Sections 319, 401, 402, and 404, TMDL implementation practices, and multiple state programs.

- Collaborative approach with EPA Region III, U.S. Army Corps of Engineers, MDE, DNR, USFWS and MES.

US Army Corps of Engineers

SHA State Highway Administration

Maryland Department of Natural Resources

Green Highways Partnership

United States Environmental Protection Agency

Department of Transportation United States of America

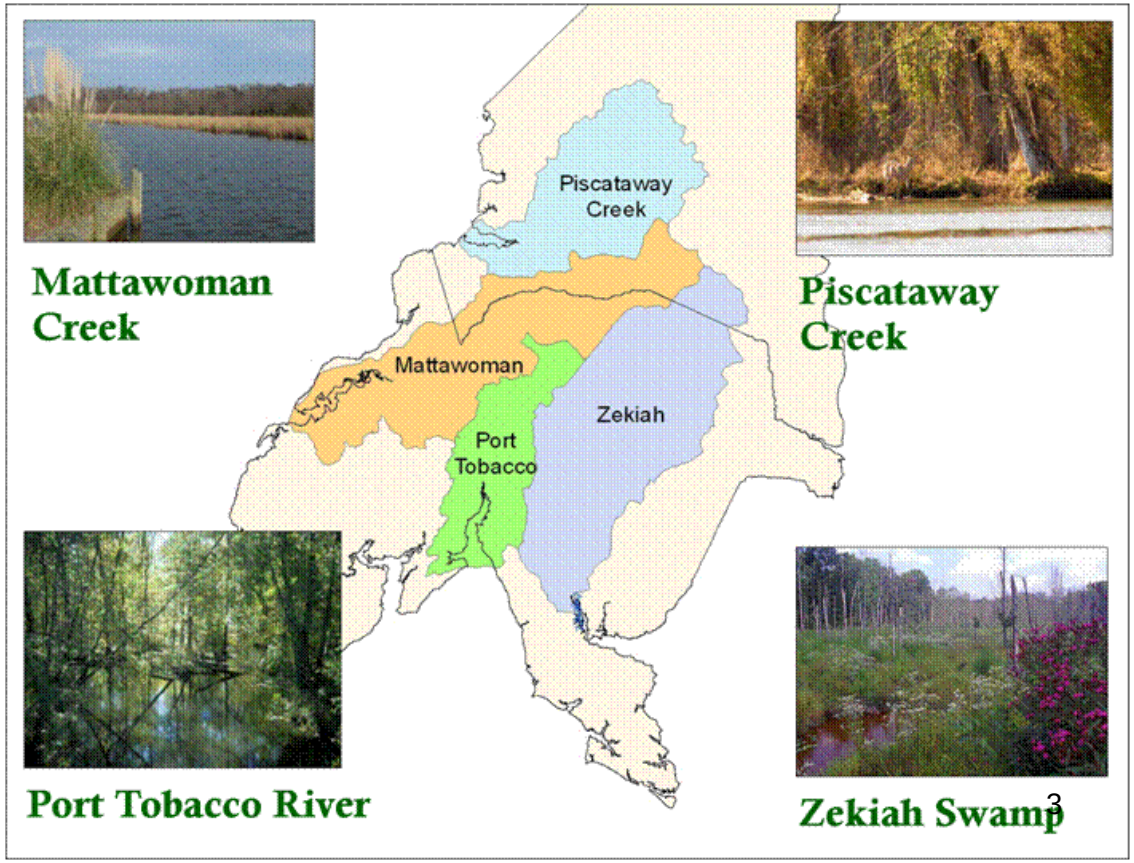
MDE

U.S. Fish & Wildlife Service

Why Did SHA Develop WRR?

- Resolve agency conflicts on by-pass project that had significant wetland and forest impacts

- Models developed to evaluate alternative options and environmental stewardship opportunities



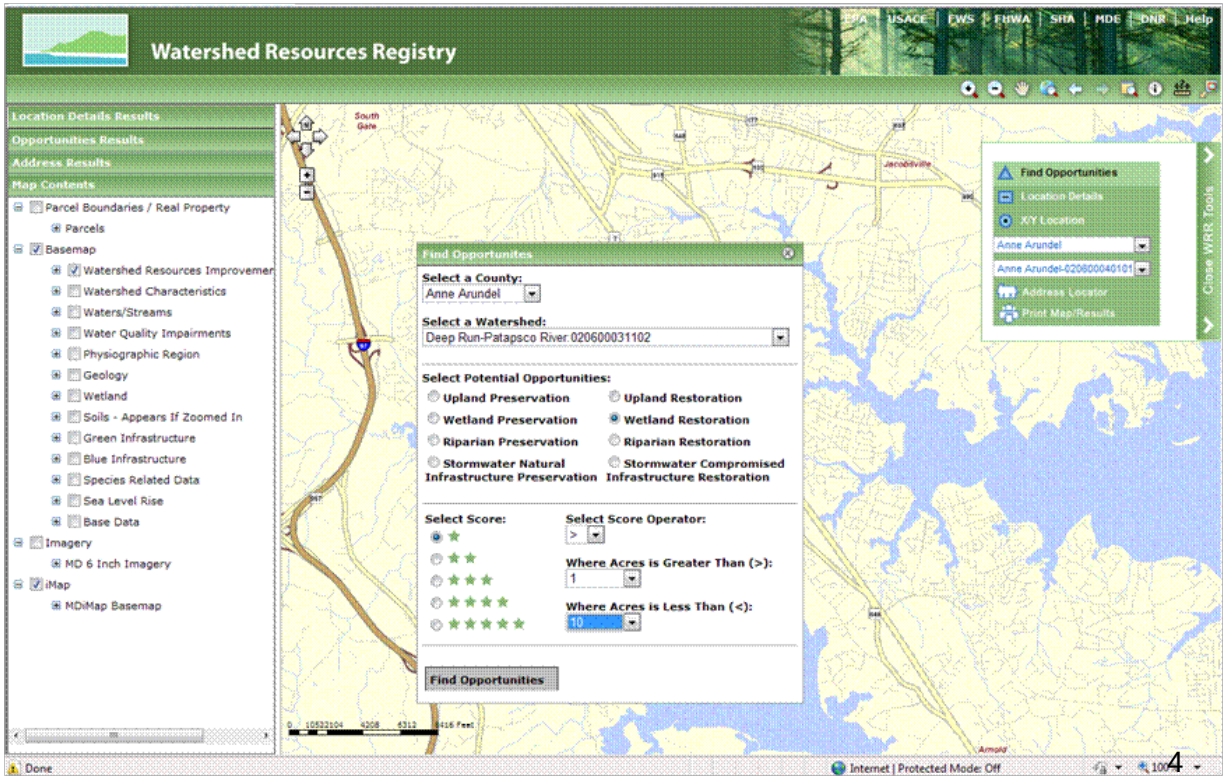
What is WRR?

- Interactive Geographic Information System (GIS)-based screening tool that:

•Contains natural resource data that can be queried real time.

•Data web based and shared outside DOT

•Can be applied to large or small projects



WRR is Transferable

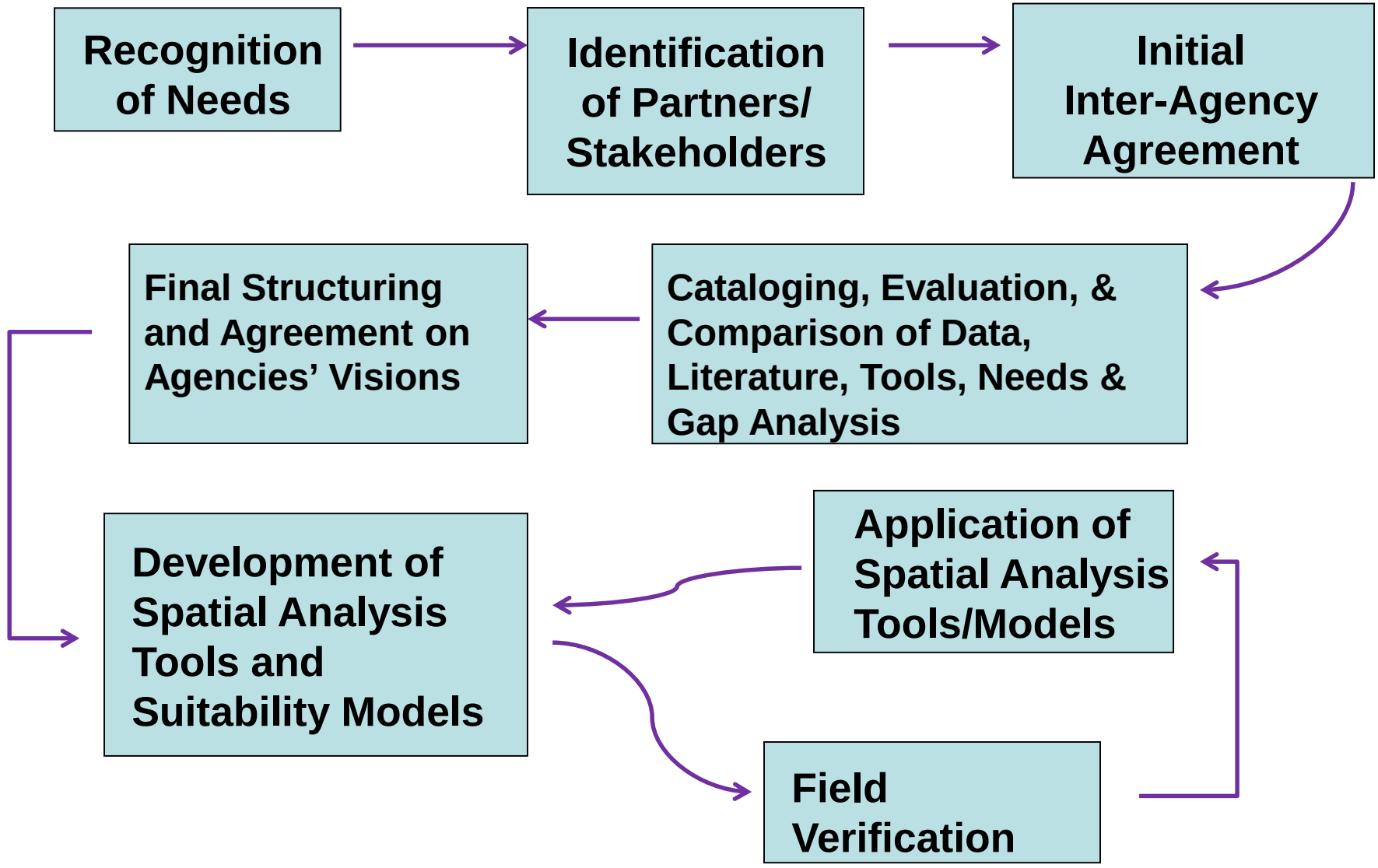
- Readily available, public domain datasets
- State datasets can be incorporated
- Reflects shared federal/state priorities

National Datasets	Maryland Datasets
USFWS NWI wetlands	Green Infrastructure
NRCS soils	Blue Infrastructure
USGS land use/land cover	GreenPrint
USGS streams, rivers, lakes, estuaries, etc.	Wetlands of Special State Concern
USGS Watershed boundaries	Tier II Waters
EPA impaired watersheds	
and more…	

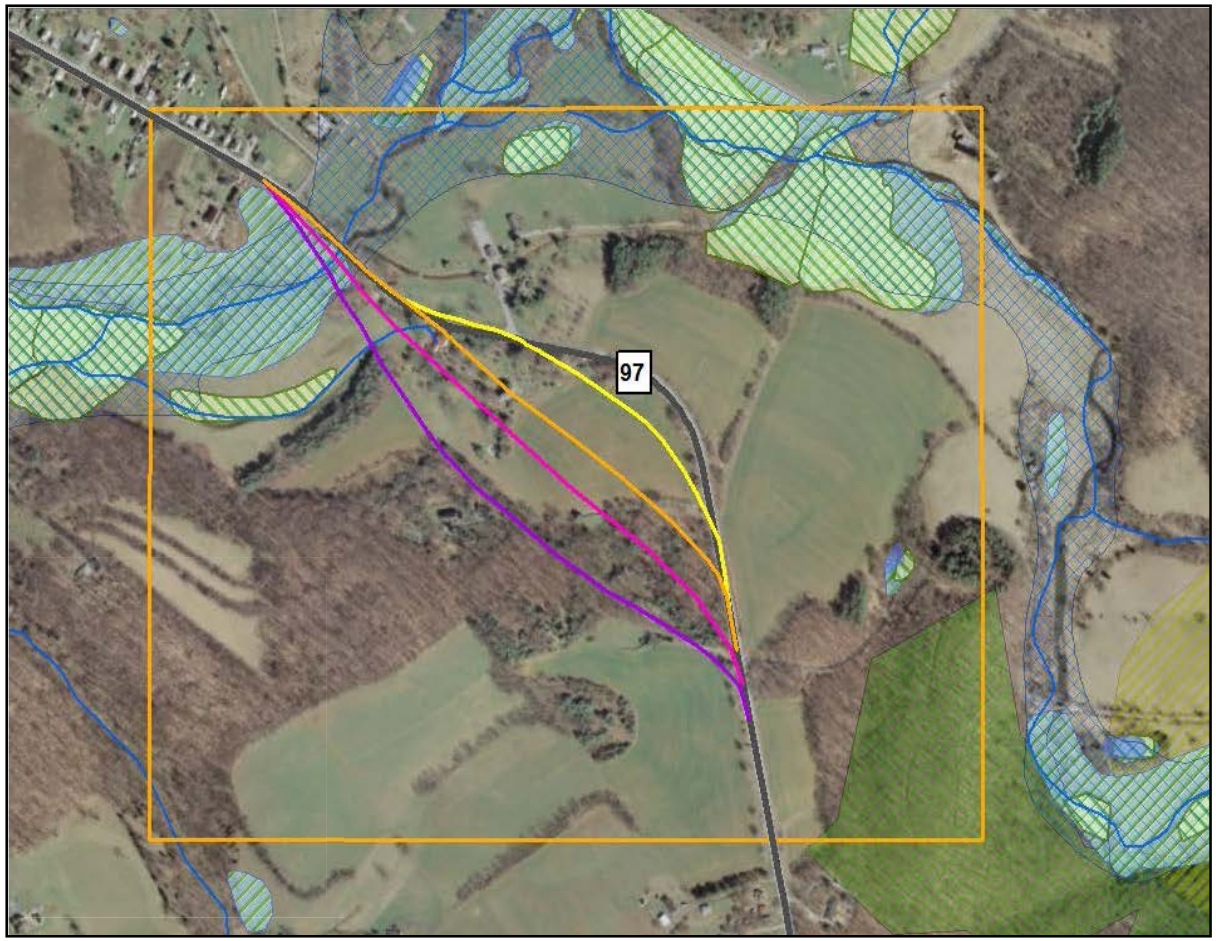
Benefits to WRR

- Reduces schedules and costs
- Less review/site assessment/coordination time
- Maximize avoidance and minimization efforts and identify mitigation opportunities that optimize ecological outcomes
- More informed and integrated decision making among multiple users
- Provides access to updated, consistent, and defensible data
- Is transparent, predictable, and reliable
- Because of its success, other agencies are also using it for their projects

WRR Development Framework



Avoid and Minimize Using the WRR



Considerations for Potential Alignments:

- Wetlands
- Streams
- Floodplains
- Green/Blue Infrastructure
- Land Use/Land Cover
- Forest Interior Dwelling Species
- Targeted Ecological Areas
- Sensitive Species Area
- Chesapeake Bay Critical Area
- Property Owner Information

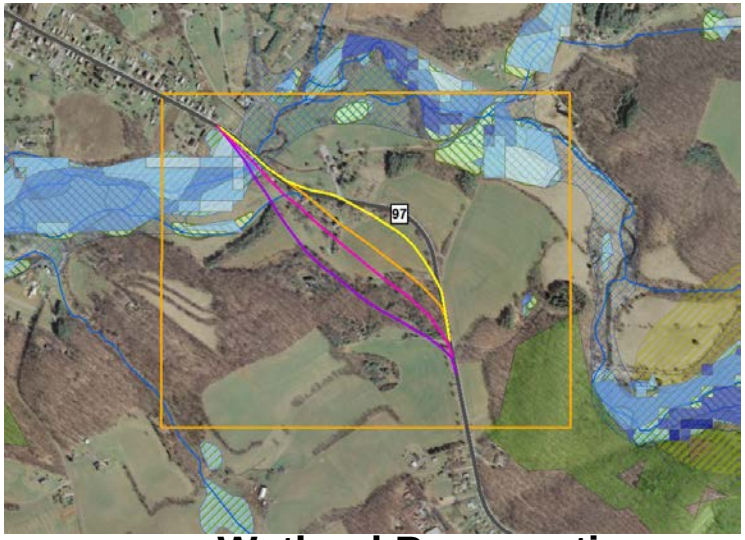
Avoidance and Minimization Results

Impact Types	No-Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 3A
Community Impacts					
Residential Displacements	0	1	1	2	0
Residential Properties Impacted	0	7	9	9	6
Range of Natural Environmental Impacts					
100-Year Floodplain Affected (acres)	0	1.64	1.78	1.77	0
Wetlands Affected (acres)	0	1.35	1.36	0.56	0
Streams (lf)	0	289.3	409	113.7	11.1
Woodlands Affected (acres)	0	7.6	3.8	4.1	1.1
WRR Preservation Opportunity Impacts					
Wetland Preservation (acres)	0	1.77	10.6	0.6	0
Upland Preservation (acres)	0	15.4	11.45	11.29	8.5
Riparian Preservation (acres)	0	8.9	6.6	5.09	3.02
TOTAL ACRES	**0**	**26.07**	**28.65**	**16.98**	**11.52**

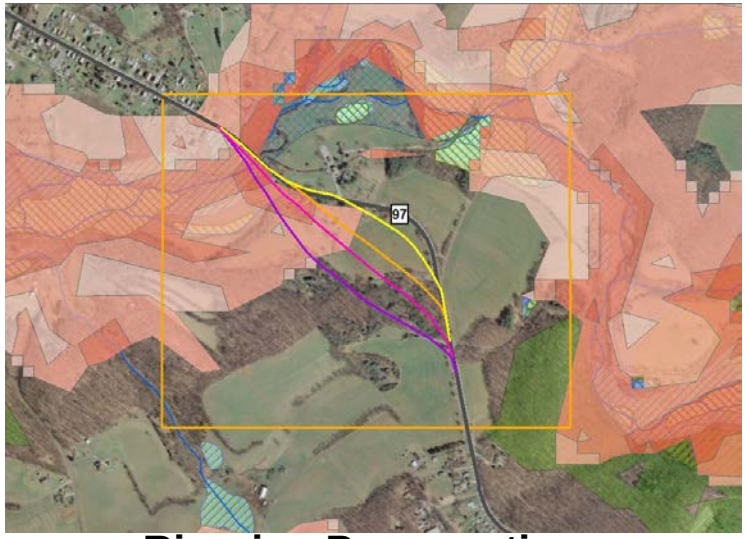
Typical PACM Matrix Using the WRR Results

Potential Preservation Impacts

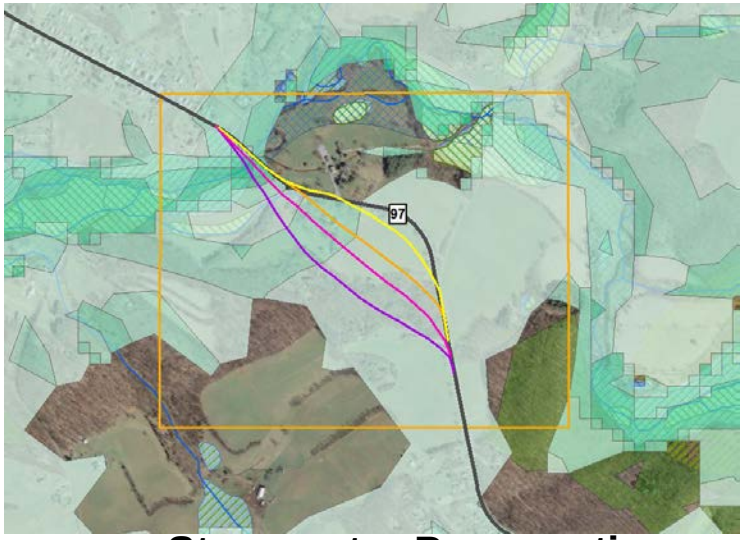
Upland Preservation



Wetland Preservation

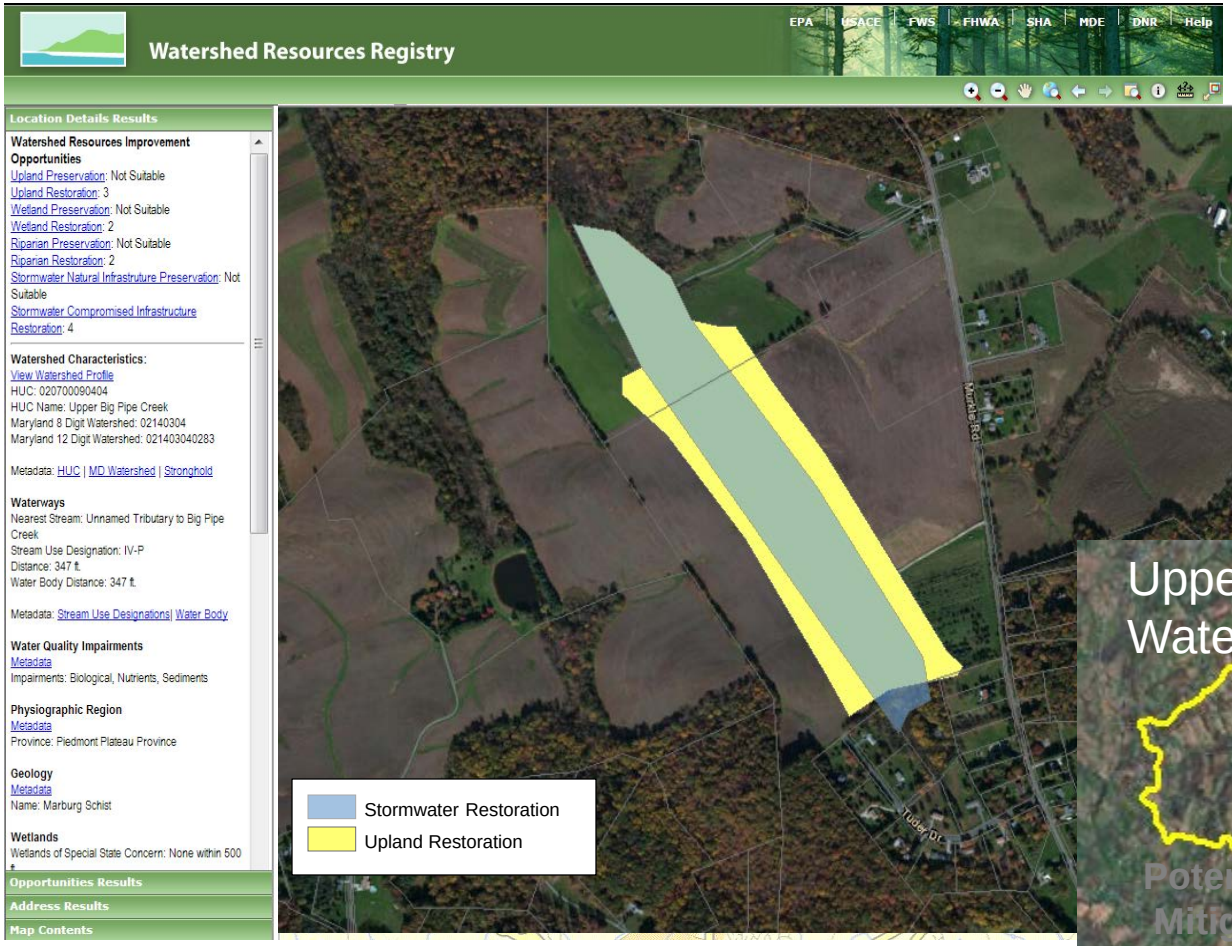


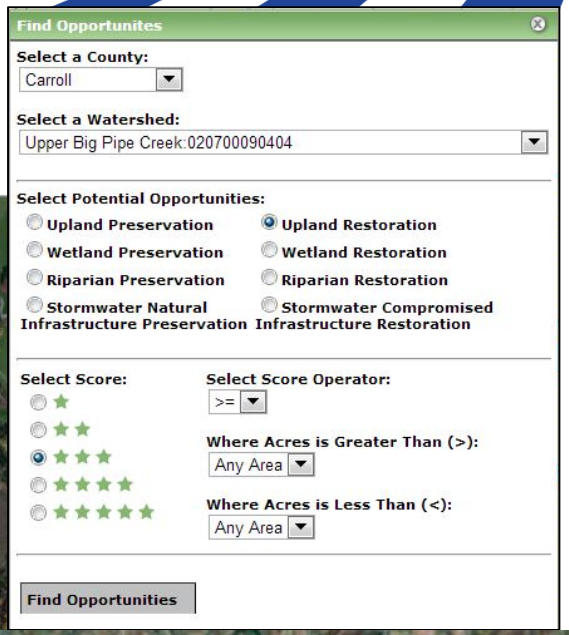
Riparian Preservation

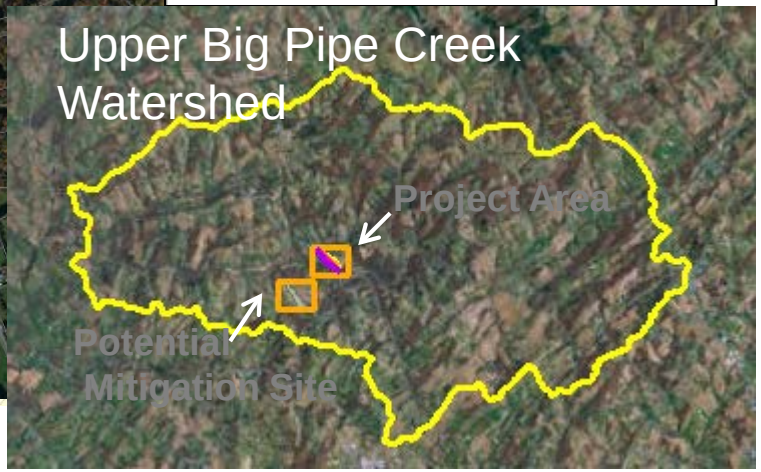


Stormwater Preservation

Using the WRR to Identify Mitigation Sites







Capital Program Savings

	Costs	Time	Cost Savings with WRR	Time Savings with WRR
Site Search	$50,000	4 months	$37,500	3 months
Design	$210,000	18 months	$60,000	6 months
Agency Coordination/ Regulatory Review	$10,000	12 months	$2,500	3 months
Total	$270,000	2.8 years	$100,000	1 year

**Cost/time savings would be post Location Approval and includes only mitigation tasks.*

Chesapeake Bay TMDL – WRR Strategies

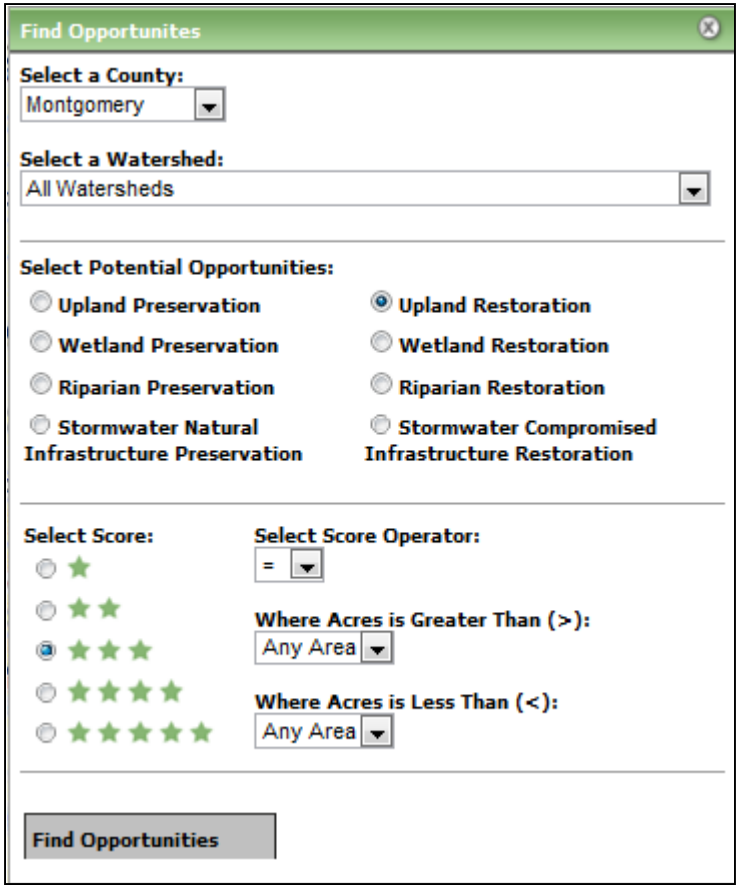
SWM Restoration/Preservation

Wetland Restoration

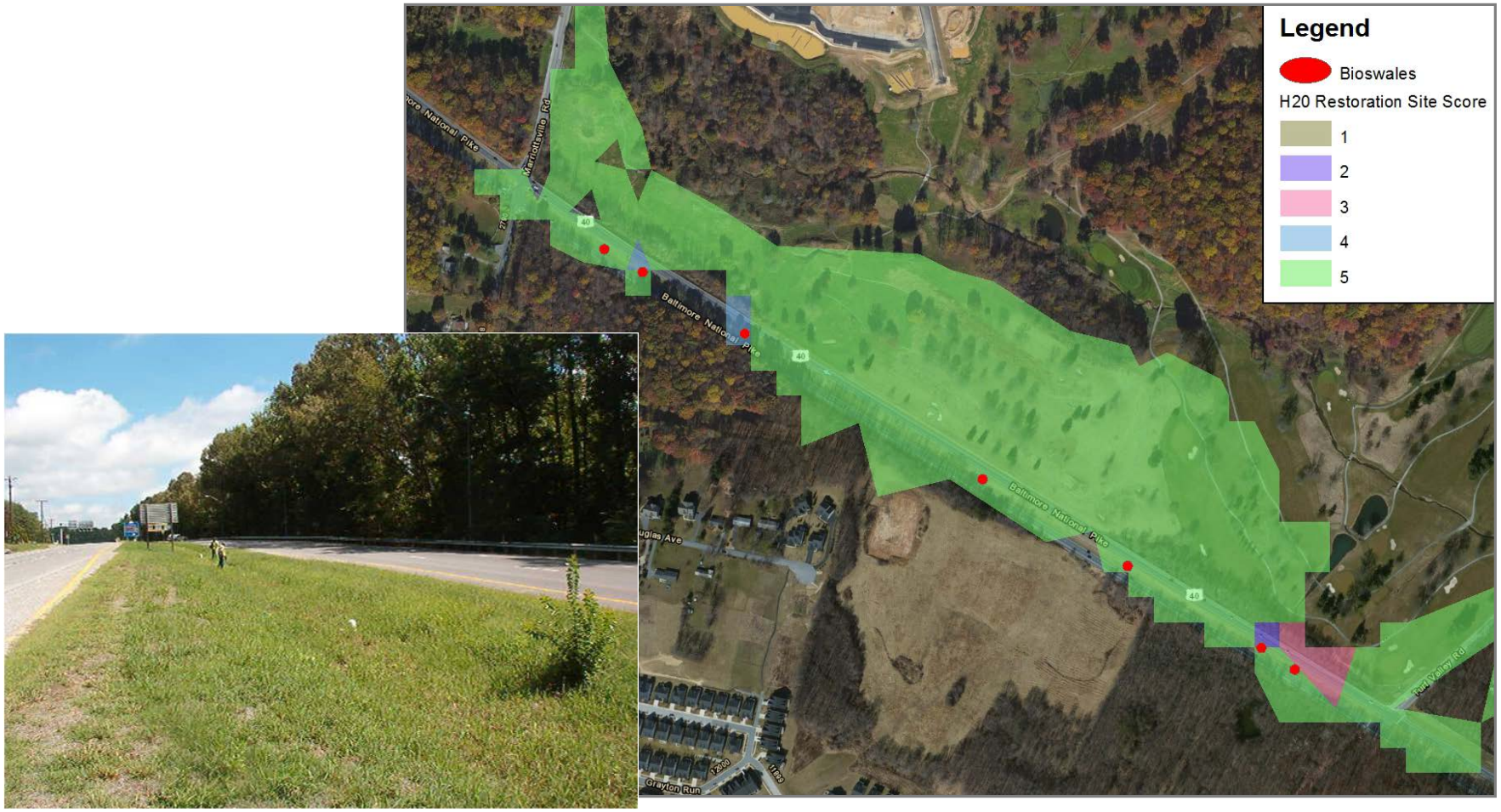
Upland Restoration/Preservation

Riparian Restoration/Preservation

Stream Restoration - Future

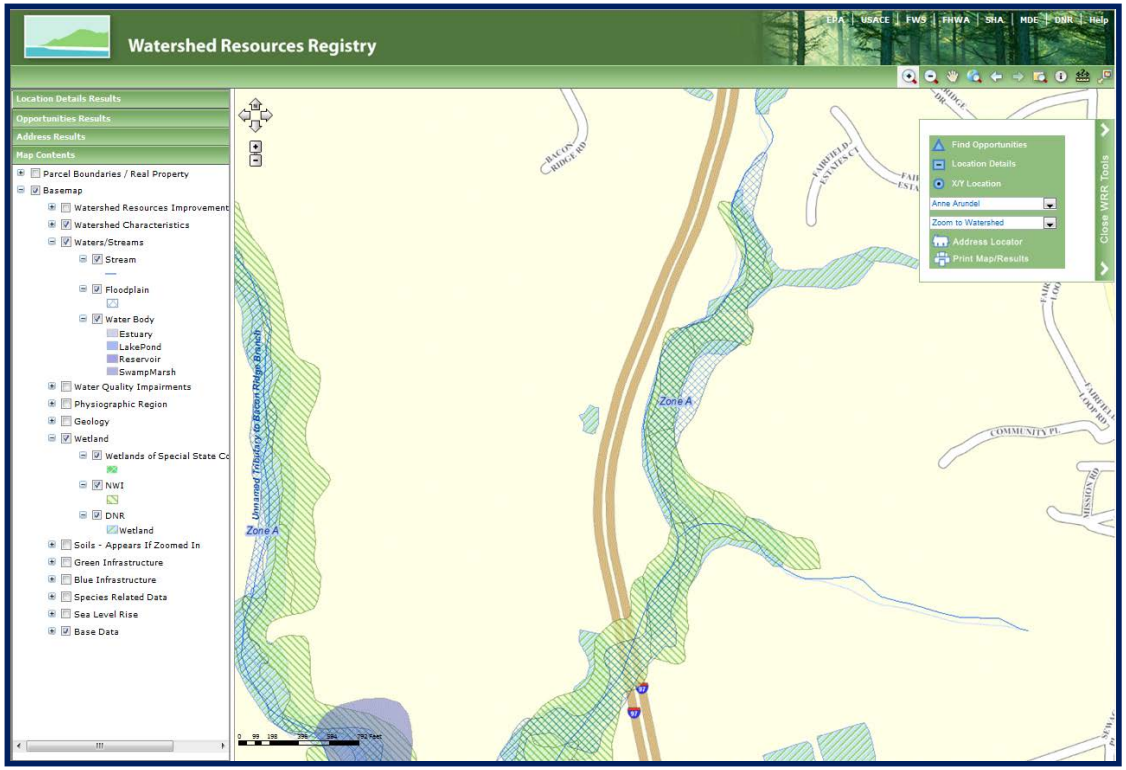


Stormwater Facilities



Roadway Maintenance

- Identification of sensitive resources areas in close proximity to our maintained ROW areas
- Allows crews to avoid impacts in sensitive areas
- Avoidance/modification of work in sensitive areas
- Reduced potential for non-compliance



- Opportunity to further the benefit of WRR through Operations

Summary Case Study Findings

- Ensures a holistic approach to transportation planning – Better Decision Making

- Process supports a balanced approach to project implementation that moves closer to meeting both the transportation and natural resource needs.

- Integrated approach (saves time/money)

- Improved stakeholder relationships

WRR Works Beyond SHA

- Web based tools allows use by other agencies
- Resource agencies validate data and analysis
- Charles County recommends it to development applicants
- MDE recommends it to consultants for use on their projects (mitigation site identification)
- Collaborating to ensure clean water in the Chesapeake Bay for all

Similarities to Eco-Logical

- SHA has developed and implemented new procedures, policies and tools for more effectively integrating ecological resource values into the transportation project-development process.
- Utilization of the WRR is expected to improve review times and add a layer of consistency in the process.

Contact Us

Douglas Simmons, Maryland SHA
dsimmons@sha.state.md.us

Website:
http://watershedresourcesregistry.com/