MDOT'S APPROACH TO MITIGATION USING THE WATERSHED RESOURCES REGISTRY (WRR) TOOL

Presented By

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Office of Environment

Maryland Department of Transportation

MARYLAND DEPARTMENT OF TRANSPORTATION

PRESENTATION OVERVIEW

- MDOT - The 2 Slide Tour
- A Historical Look at Need's Assessments
- The Watershed Resources Registry Tool
- Using the WRR

MARYLAND DEPARTMENT OF TRANSPORTATION

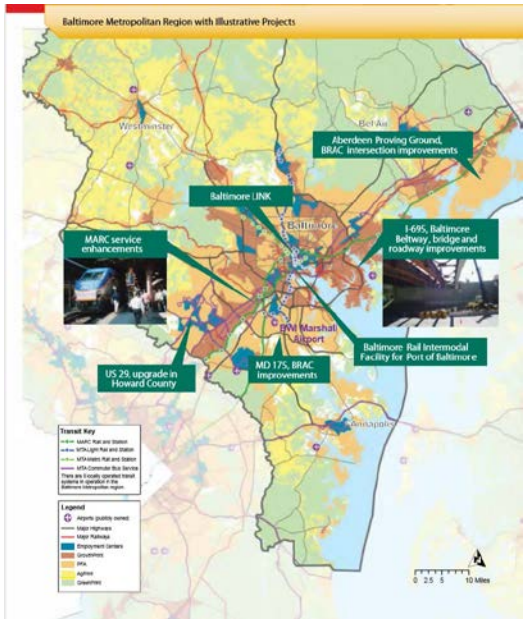
- Six Business Units and One Authority
  - The Secretary's Office
  - State Highway Administration (MDOT SHA)
  - Maryland Transit Administration (MDOT MTA)
  - Motor Vehicle Administration (MDOT MVA)
  - Maryland Port Administration (MDOT MPA)
  - Maryland Aviation Administration (MDOT MAA)
  - Maryland Transportation Authority (MdTA)

MDOT – CONNECTING YOU TO LIFE'S OPPORTUNITIES

DETERMINING OUR NEEDS

DETERMINING NEEDS:

- Review the Consolidated Transportation Program
- Review the Maryland Transportation Plan
- Review MPO Long Range Transportation Plans
- Review System Preservation Projects



Maryland Transportation System Performance Dashboard 2018
Annual Attainment Report Highlights

Goal: System Preservation

Objectives:

- Preserve and maintain State-owned or supported roadways, bridges, public transit, rail, bicycle and pedestrian facilities, port, airports and other facilities in a state of good repair.

Select a Measure:

Pavement Quality | Bridge Conditions | Average Fleet Age

@maximize2040

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A PERFORMANCE-BASED TRANSPORTATION PLAN
for a greater Baltimore Region

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DETERMINING OUR IMPACTS

- TRADITIONAL DESKTOP ANALYSIS (PRE-GIS)
  - REVIEW OF PLANS
  - REVIEW SOIL SURVEYS, TOPOGRAPHIC MAPS, AERIAL PHOTOGRAPHY, NATIONAL WETLAND INVENTORY MAPPING, ETC.
  - ESTIMATE POTENTIAL IMPACTS BASED ON REVIEWS

- LIMITATIONS
  - OUTDATED DATA SOURCES
  - WATERSHED CONTEXT CHALLENGING
  - ACCURACY OF ESTIMATES

EMBRACING TECHNOLOGY – YOU CAN TEACH AN OLD BIOLOGIST NEW TRICKS!

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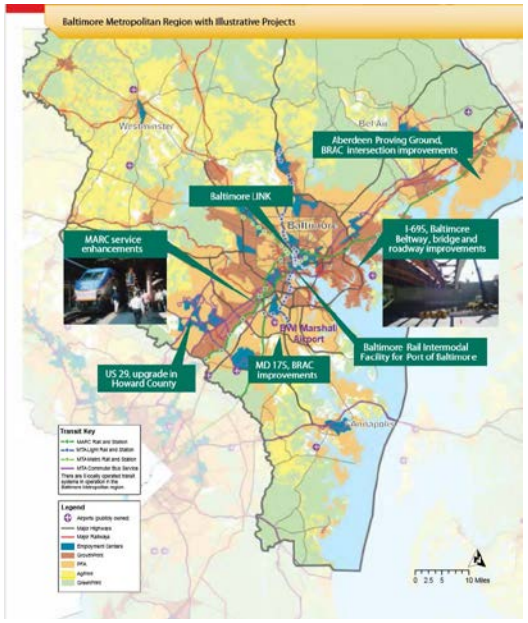

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A PERFORMANCE-BASED TRANSPORTATION PLAN
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MDOT'S CHALLENGES

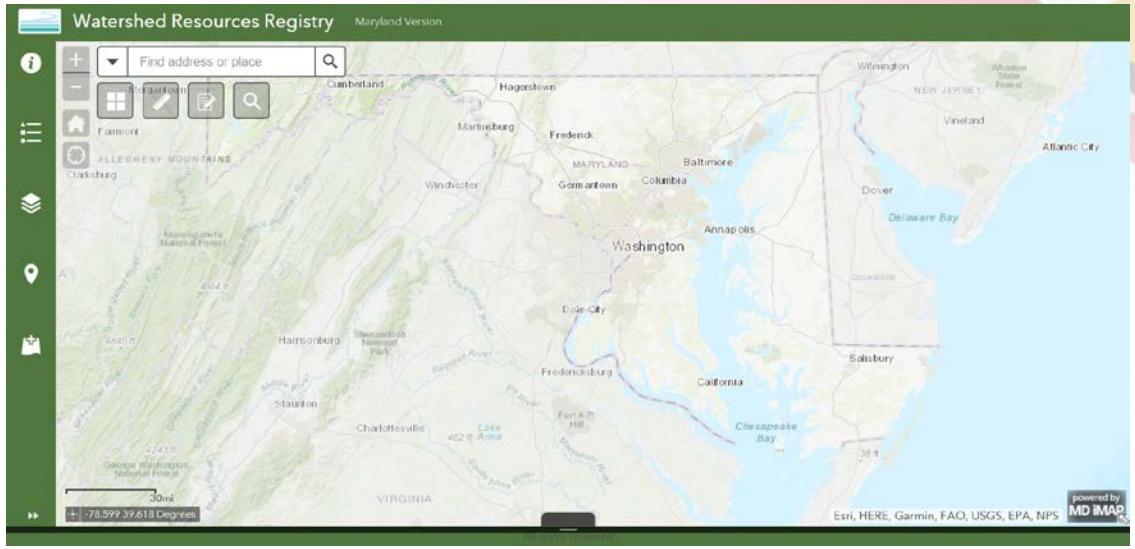
- Small State
  - Many watersheds
  - Developed
  - Few banks
  - Small mitigation program
- Hard to find mitigation
  - Opportunity-based
  - Difficult to get agency buy-in
  - Poor sites (no functional replacement)
  - Outside impacted watersheds
- Delayed projects
- Delayed mitigation

"I want you to find a bold and innovative way to do everything exactly the same way it's been done for 25 years."

THE WATERSHED RESOURCES REGISTRY TOOL (WRR)

WHAT IS THE WRR?

- Collaborative Initiative
- GIS Based Mapping Tool
- Integrate Program Data
- Avoidance and Minimization
- Identify Opportunities
- Assess and Compare Projects
- Export Data and Site Maps
- Record Site Information



AASHTO Innovation Initiative

Maryland Department of Natural Resources

United States Environmental Protection Agency

MDOT Maryland Department of Transportation

Maryland Environmental Service

U.S. Fish & Wildlife Service

Department of Transportation United States of America

US Army Corps of Engineers

Maryland Department of Planning

Maryland Department of the Environment

USES FOR THE WRR

- Avoid and/or minimize impacts
- Find mitigation sites for impacts
- Find areas to permanently preserve
- Find opportunities for restoration
- Find areas for reforestation to meet TMDL
- Evaluate alignment options for transportation projects

BENEFITS OF THE WRR

- Integrates and streamlines regulatory programs
- Promotes the watershed approach
- Maximizes public investment's value
- Guides resource planners and regulators
- Saves time and money, increases program efficiencies

BUILDING THE REGISTRY

Watershed Resources Registry

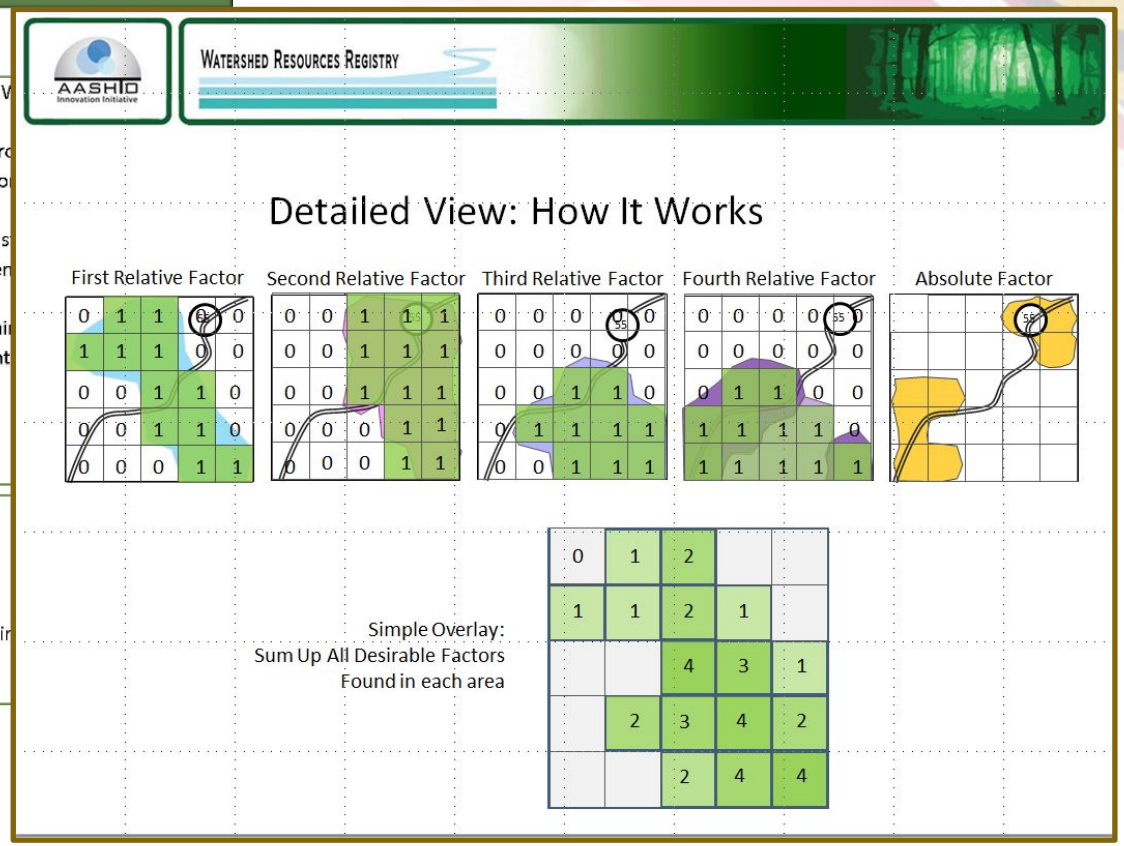
Factors for Wetland Restoration

Relative Factors

- In Biodiversity Conservation Network area (BioNet 4, 5 or new FIDS get ½ point)
- In a Blue Infrastructure high priority watershed
- In Chesapeake Bay Commission Critical Area (LDA or RCA only)
- In a Biological Restoration Initiative Watershed
- in a 100-year floodplain
- In a Green Infrastructure "gap" area
- Near or in a Green Infrastructure "hub" or "corridor
- Near (200') but not in a V State Concern
- Near (200') but not in pro
- In Potential Migration Zo marshes, etc.
- Near (200') but not in a s
- Near (200') or in a Green Ecological Area
- Is locally impaired: impai Phosphorus, or sediment

Absolute Factors

- Cannot be forested
- Cannot be a wetland
- Cannot be developed
- Must be on a very poorly drained, somewhat poorly drained, or poorly drai

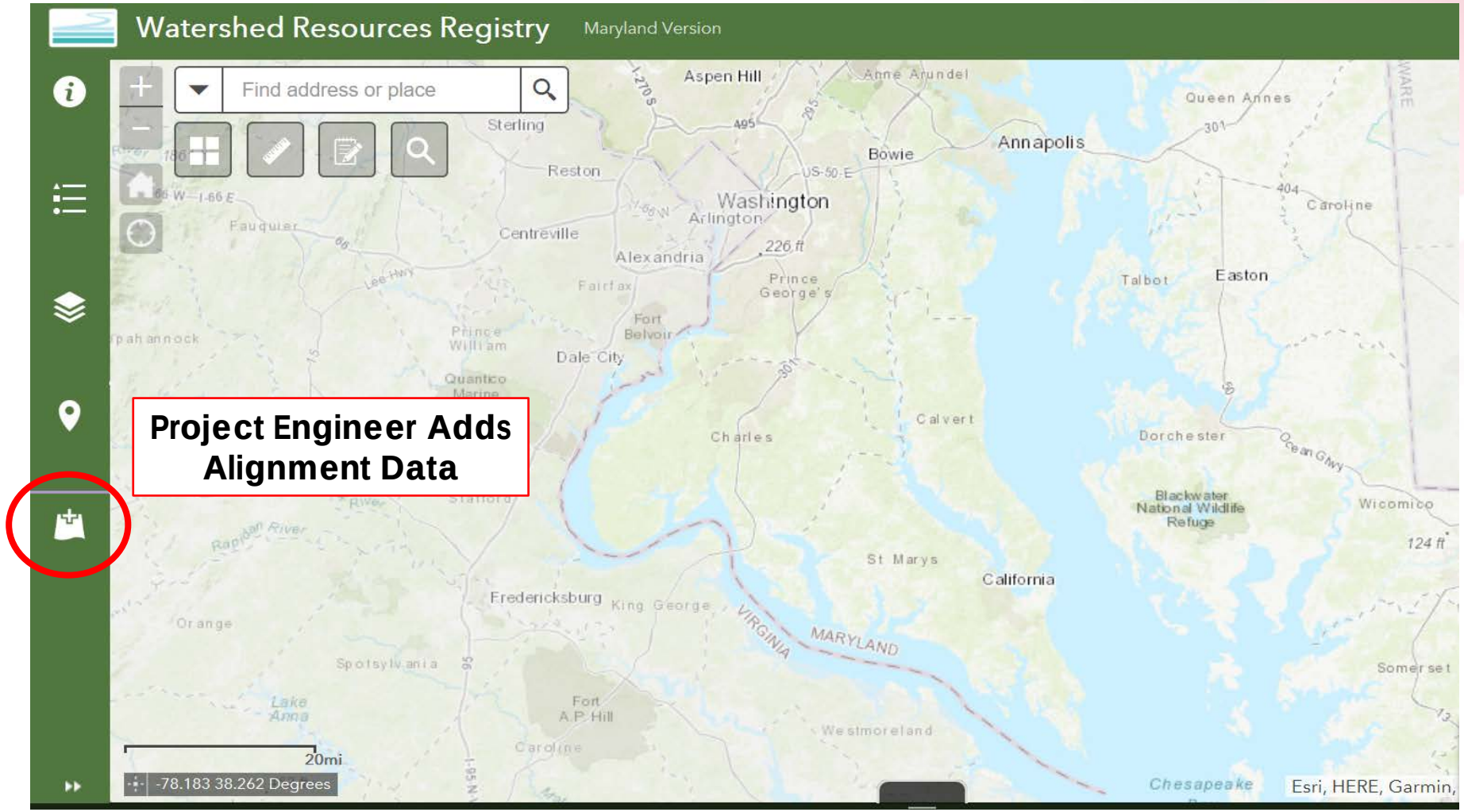


EIGHT GIS SPATIAL ANALYSES

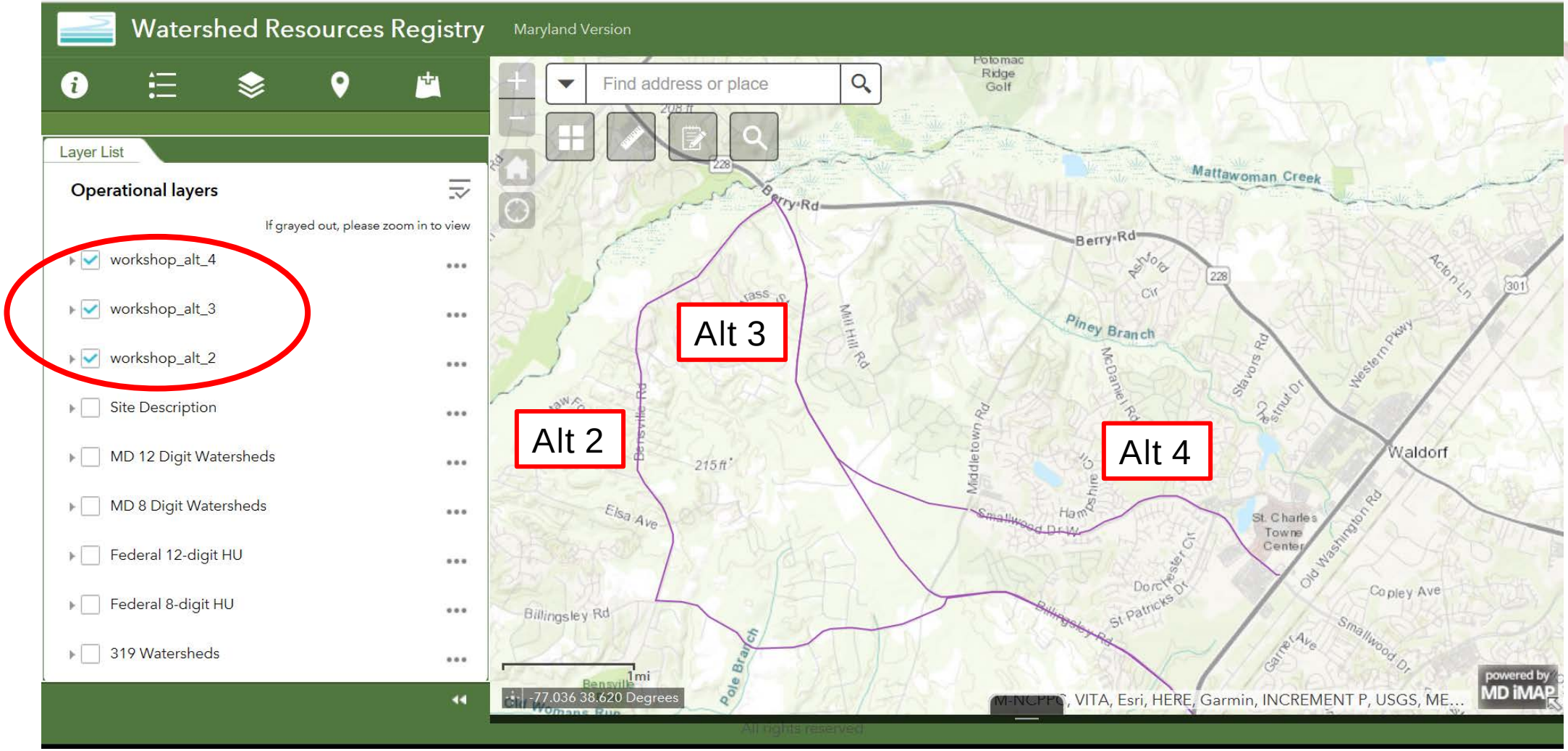
- Wetland Preservation
- Wetland Restoration
- Stream / Riparian Zone Preservation
- Stream / Riparian Zone Restoration
- Terrestrial Habitat Preservation
- Terrestrial Habitat Restoration
- Preserving Natural Hydrology for Stormwater
- Restoring Natural Hydrology / Addressing Degraded Systems

USING THE WRR

SCENARIO: TRANSPORTATION PLANNER CONSIDERING NEW CONNECTOR ROAD



ALIGNMENTS UPLOADED TO WRR



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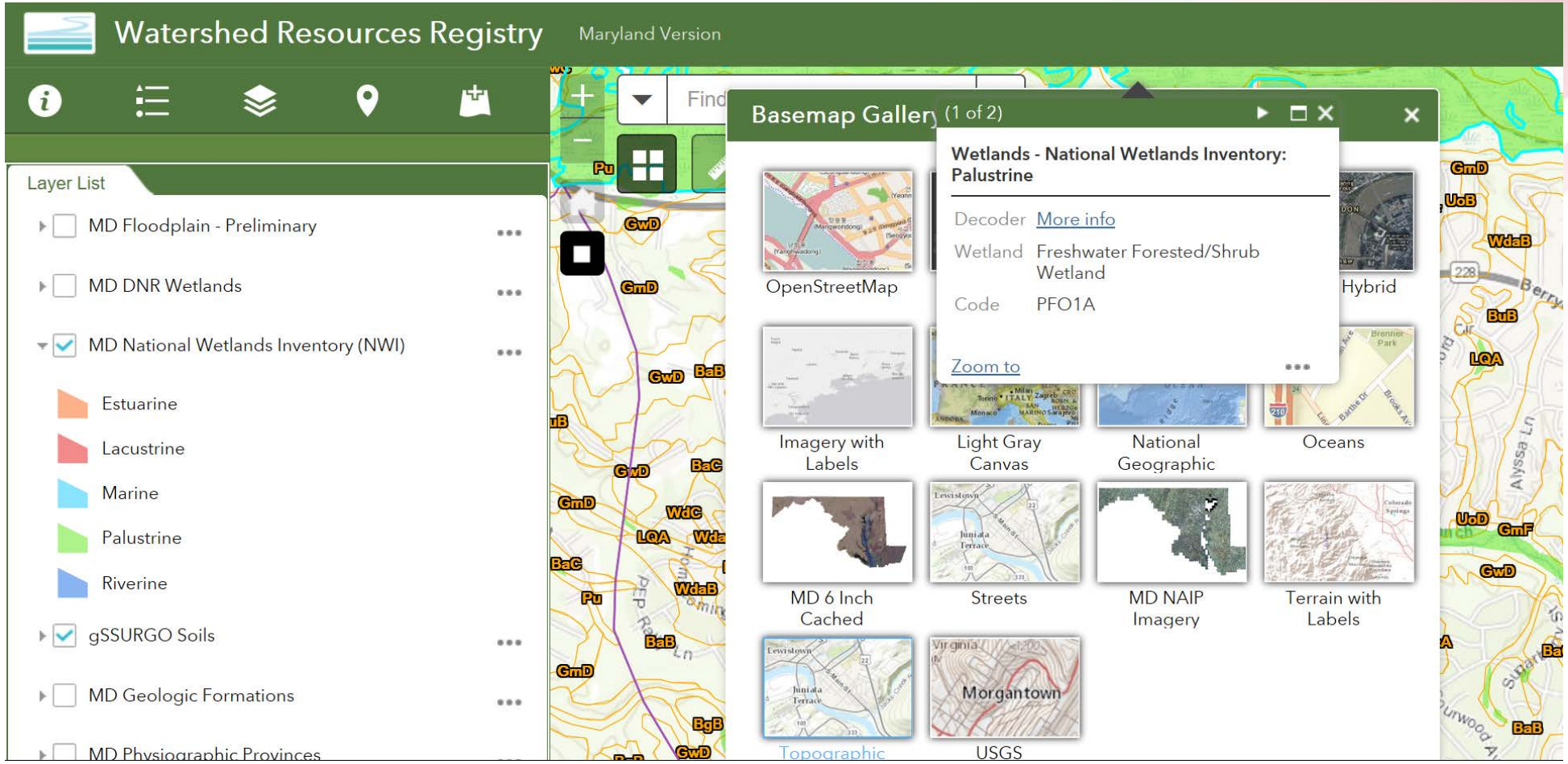
DETERMINING IMPACTS



AVOID AND MINIMIZE USING THE WRR

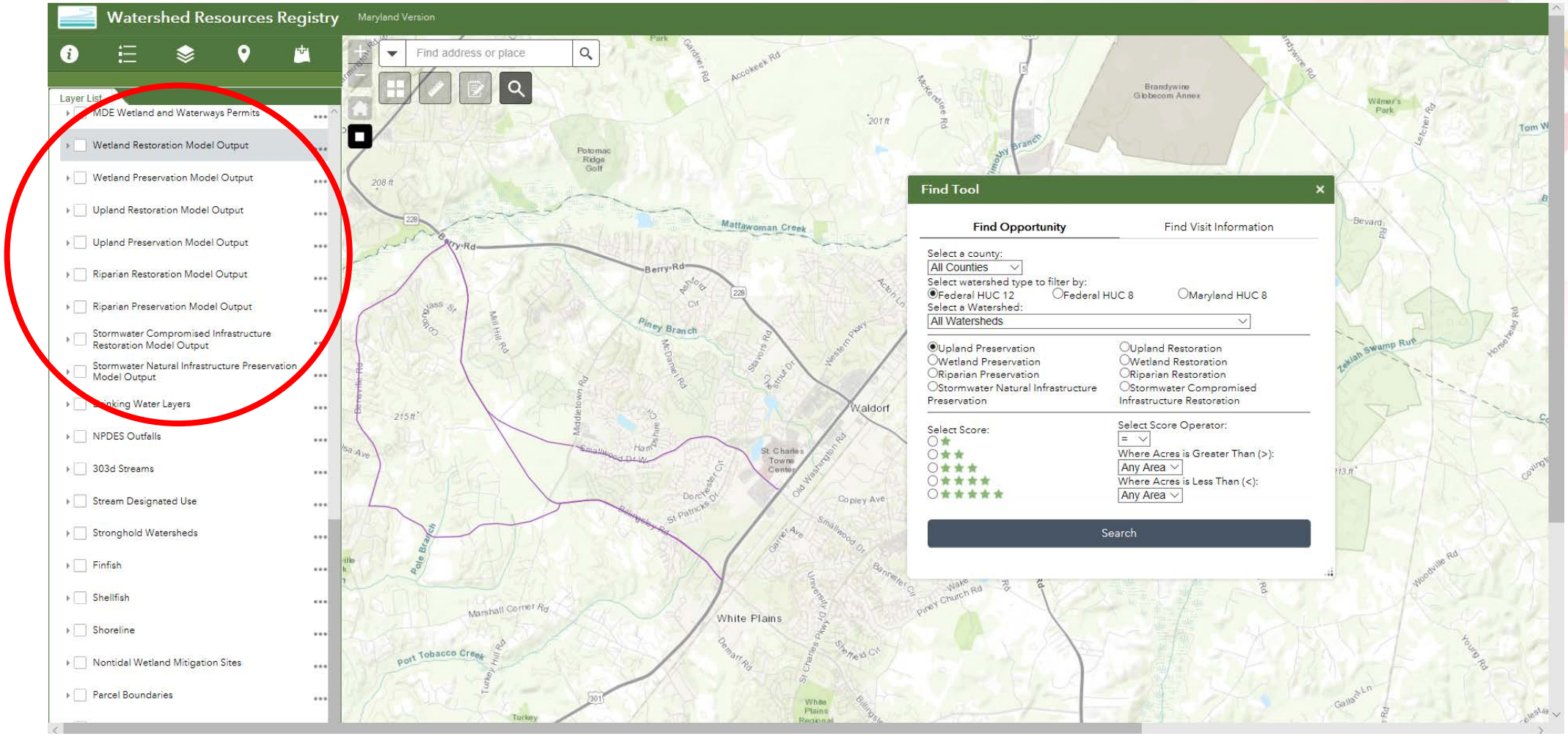
Considerations for Potential Alignments:

- 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

EVALUATE IMPACTS

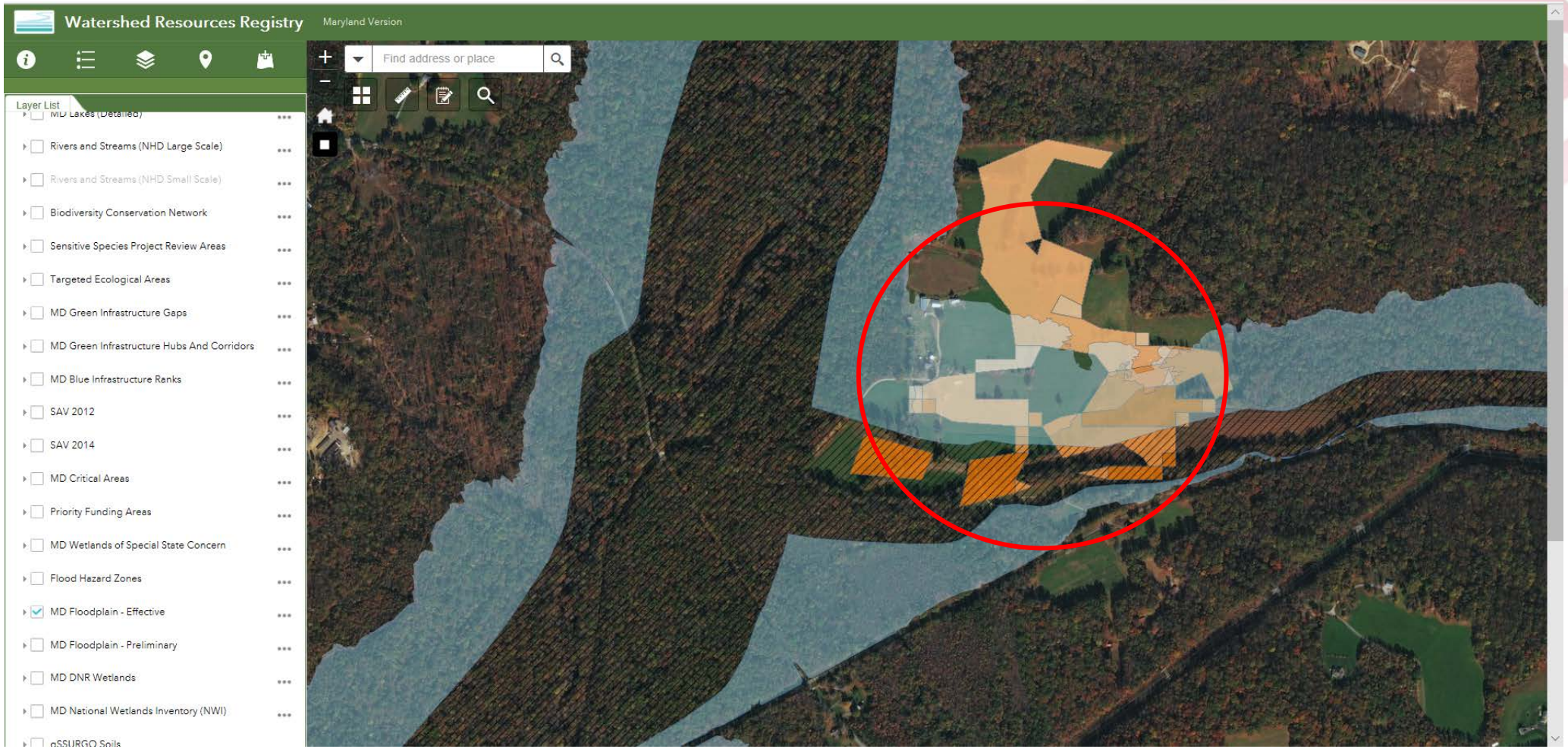
- Tier II Watersheds
  - Piney Branch
  - Mattawoman
  - Port Tobacco
- Wetlands/Streams
  - 1.03 acres PFO wetland
  - 940 lf stream
- Mitigation required
  - 2.06 acres PFO wetland
  - 940 lf stream

MITIGATION SITE SEARCH

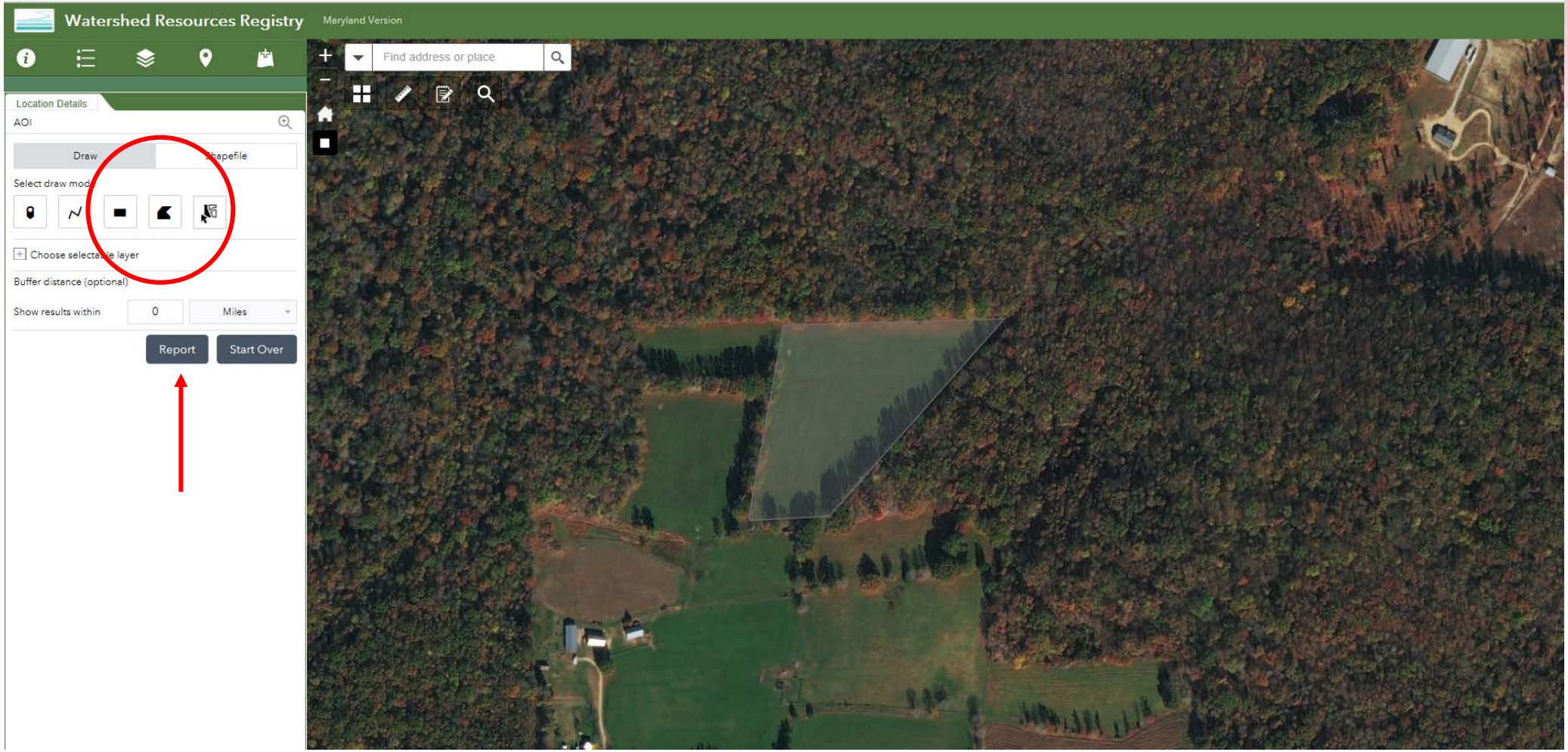


DESKTOP REVIEW OF SITE CONDITIONS

REVIEW EXISTING RESOURCES



EVALUATE SITE USING LOCATION DETAILS



LOCATION DETAILS REPORT

SHARING SITE INFORMATION

Screening Report

Area of Interest (AOI) Information

Area : 9.02 acres

Enter comments here

Summary

Name	Count	Area (acres)	Length (mi)
8 Digit Watershed	1	9.02	N/A
12 Digit Watershed	1	9.02	N/A
Geology	2	9.03	N/A
Wetlands NWI	0	0	N/A
Wetlands of Special State Concern	0	0	N/A
MD DNR Wetlands	1	9.02	N/A
Blue Infastructure	0	0	N/A
Green Infastructure	1	6.45	N/A
DNR lands	0	0	N/A
Local Protected Land	0	0	N/A
Federal Protected Land	0	0	N/A
Impaired Waters	0	N/A	0
Upland Preservation Opportunities	6	9.03	N/A
Upland Restoration Opportunities	1	7.18	N/A
Wetland Preservation Opportunities	0	0	N/A
Wetland Restoration Opportunities	1	3.57	N/A
Riparian Preservation Opportunities	2	2.21	N/A
Riparian Restoration Opportunities	1	1.23	N/A
Stormwater Preservation Opportunities	2	9.02	N/A
Stormwater Restoration Opportunities	1	7.17	N/A
Grandfathered Mitigation	0	N/A	N/A
In Lieu Fee Program Mitigation	0	N/A	N/A
Permitte Responsible Mitigation and Banks	0	N/A	N/A
Stream Use	0	N/A	0
Stronghold Watersheds	1	9.02	N/A
gSSURGO Data	2	9.03	N/A

8 Digit Watershed

#	Watershed Number	Watershed Name	Area (acres)
1	021401	LOWER POTOMAC RIVER	9.02

12 Digit Watershed

#	Watershed Number	Area (acres)
1	021401110784	9.02

Geology

#	Geologic Era	Physiographic Province	Geologic Period	Area (acres)
1	Cenozoic	Coastal Plain	Quaternary, Pleistocene epoch	8.83
2	Cenozoic	Coastal Plain	MC = Tertiary, Paleocene to Eocene epoch. N = Tertiary, Eocene epoch.	0.2

MD DNR Wetlands

#	Wetland Type	Wetland Class	Area (acres)
1	Upland	U	9.02

Green Infastructure

#	Element	Area (acres)
1		6.45

Upland Preservation Opportunities

#	Score	Area (acres)
1	2	7.57
2	3	0.86
3	4	0.6

Upland Restoration Opportunities

#	Score	Area (acres)
1	2	7.18

Wetland Restoration Opportunities

#	Score	Area (acres)
1	3	3.57

Riparian Preservation Opportunities

#	Score	Area (acres)
1	2	1.56
2	3	0.65

Riparian Restoration Opportunities

#	Score	Area (acres)
1	2	1.23

Stormwater Preservation Opportunities

#	Score	Area (acres)
1	1	8.16
2	2	0.88

Stormwater Restoration Opportunities

#	Score	Area (acres)
1	2	7.17

Stronghold Watersheds

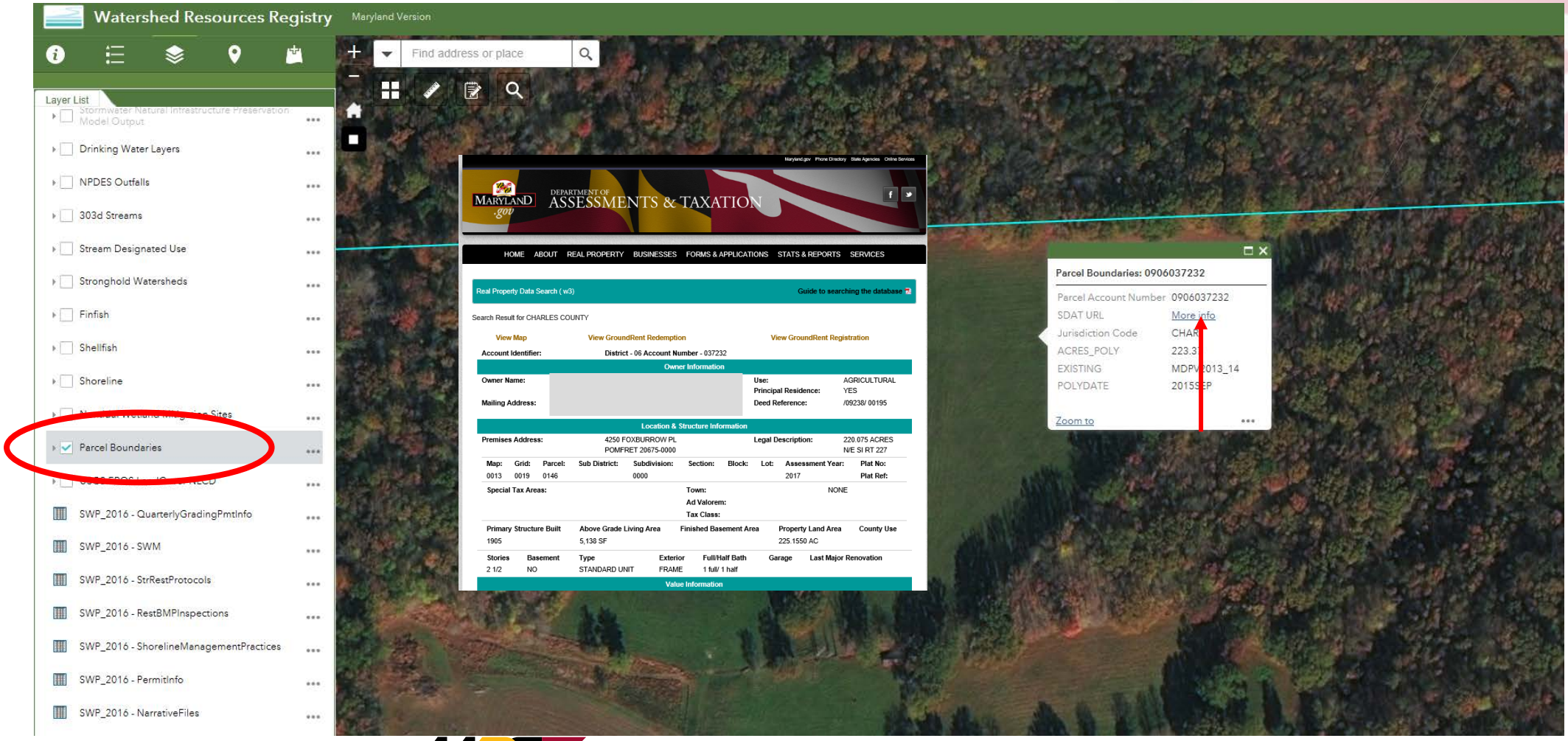
#	MDE8NAME	MDE8NAME	DNR12DIG	Area (acres)
1	Mattaworman Creek	LOWER POTOMAC RIVER	021401110784	9.02

gSSURGO Data

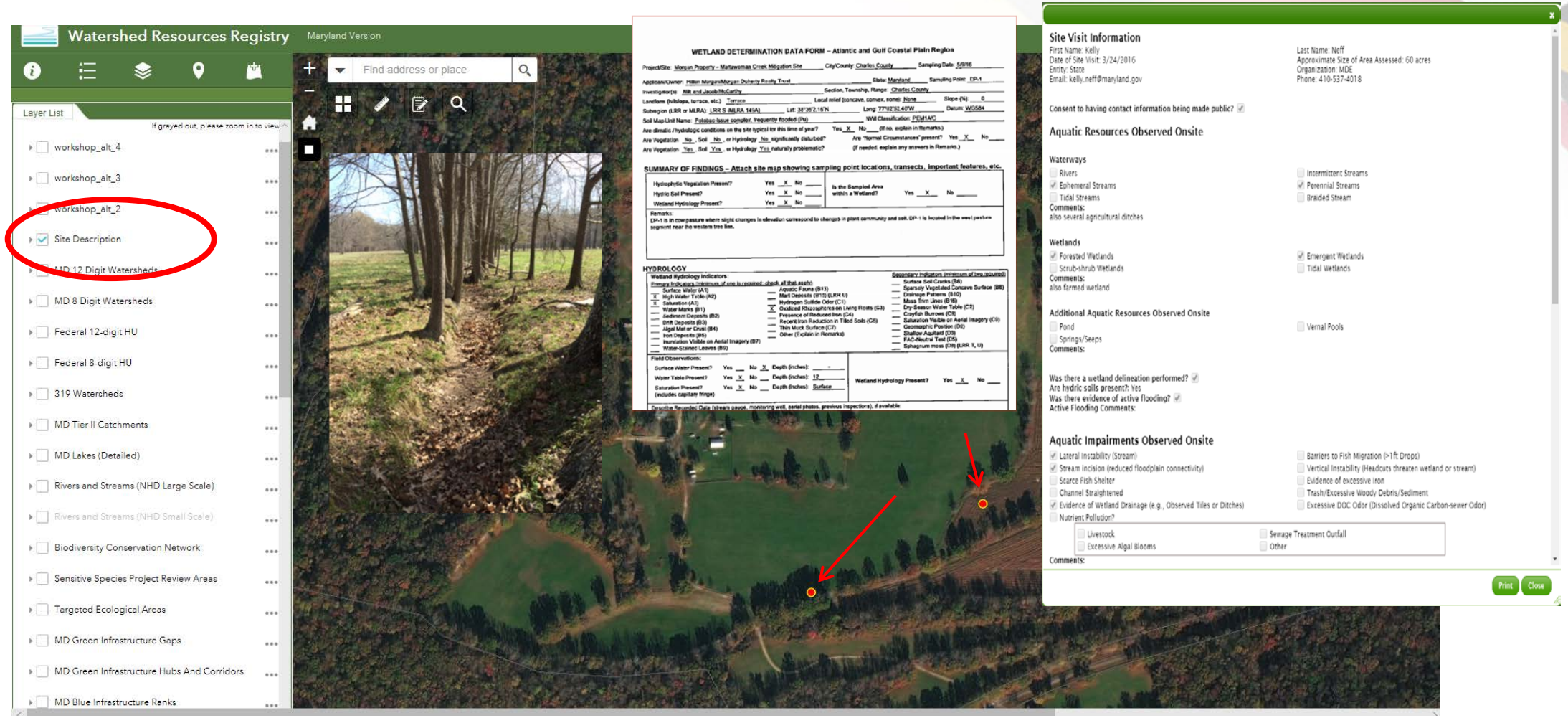
#	Mapunit Name	MUSYM	Drainage Class Dominant Condition	Hydrologic Group Dominant Conditions
1	Potobac-Issue complex, frequently flooded	Pu	Poorly drained	B/D
2	Issue silt loam, occasionally flooded	Is	Somewhat poorly drained	B/D

#	Slope Gradient Dominant Component	Hydric Classification Presence	Area (acres)
1	1	75	4.78
2	1	10	4.26

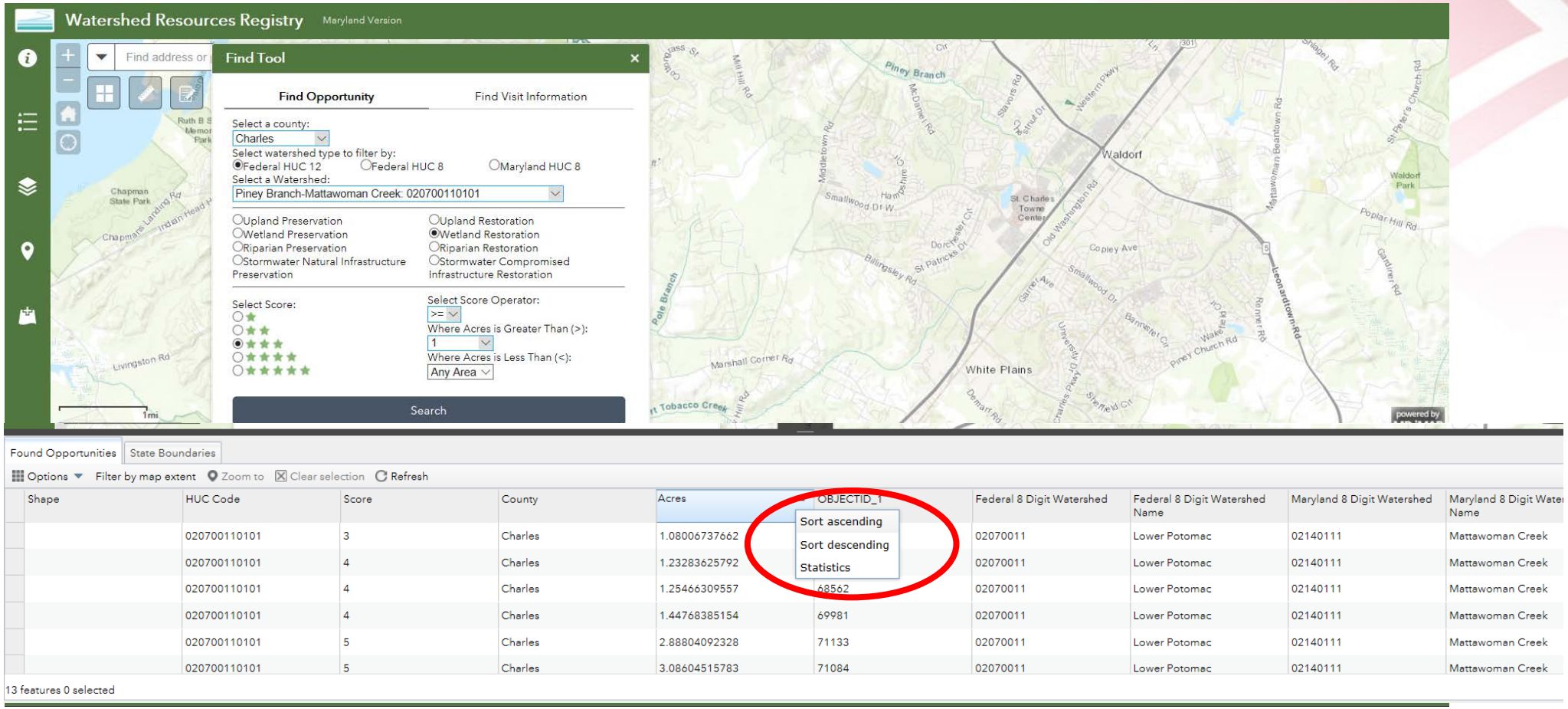
EVALUATE SITE . . .
PROPERTY OWNER INFORMATION



EVALUATE SITE . . .
SITE VISIT INFORMATION

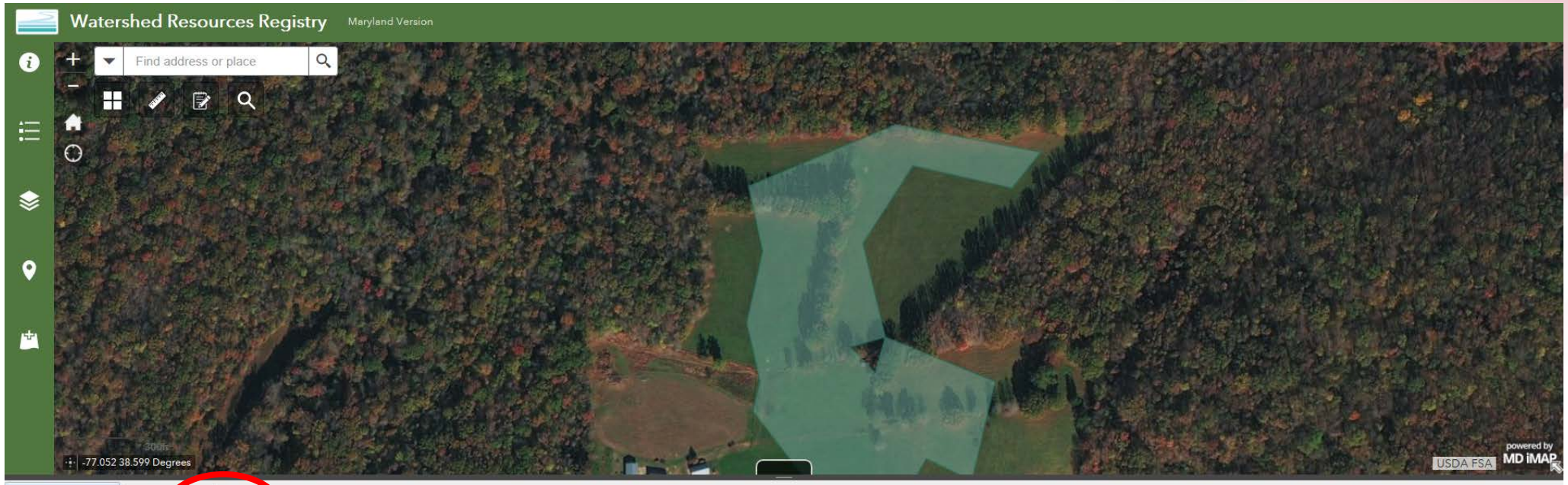


LOOK FOR WETLAND RESTORATION . . . USING "FIND OPPORTUNITIES"



Shape	HUC Code	Score	County	Acres	OBJECTID_1	Federal 8 Digit Watershed	Federal 8 Digit Watershed Name	Maryland 8 Digit Watershed	Maryland 8 Digit Water Name
	020700110101	3	Charles	1.08006737662		02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	4	Charles	1.23283625792		02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	4	Charles	1.25466309557	68562	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	4	Charles	1.44768385154	69981	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	5	Charles	2.88804092328	71133	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	5	Charles	3.08604515783	71084	02070011	Lower Potomac	02140111	Mattawoman Creek

LOOK FOR WETLAND RESTORATION . . . USING "FIND OPPORTUNITIES"



Found Opportunities | State Boundaries

Options | Filter by map extent | Zoom to | Clear selection | Refresh

Shape	HUC Code	Score	County	Acres	OBJECTID_1	Federal 8 Digit Watershed	Federal 8 Digit Watershed Name	Maryland 8 Digit Watershed	Maryland 8 Digit Watershed Name
	020700110101	4	Charles	3.8485685477	67549	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	3	Charles	4.12212317013	68563	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	3	Charles	4.22202710367	71001	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	4	Charles	4.61555963434	71063	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	4	Charles	5.14540032819	70984	02070011	Lower Potomac	02140111	Mattawoman Creek
	020700110101	3	Charles	21.724626471	70930	02070011	Lower Potomac	02140111	Mattawoman Creek

13 features 0 selected

THE WRR CAN BE USED BY REGULATORY/RESOURCE AGENCIES AND APPLICANTS TO EVALUATE IMPACTS…

- Proposed impacts (e.g., linear projects)
- Impact alternatives (e.g., alternate alignments)
- Site visit pre-screening

AND TO EVALUATE COMPENSATORY MITIGATION . . .

- Locate a mitigation site
- Evaluate ecological benefits of a proposed mitigation site (Bank, In-Lieu Fee, or Permittee-Responsible)
- Compare different proposed mitigation sites

ADDITIONAL BENEFITS

- Help meet Federal Mitigation Rule requirements
  - Site selection based on watershed approach
  - “Environmentally preferable” mitigation option
  - “12 Elements” requirements
  - In-Lieu Fee Program – Compensation Planning Framework
- Allows multiple users to enter site data – registry
- Improves likelihood of agency concurrence on proposed projects

SUMMARY

- MDOT uses the WRR to better evaluate project impacts and mitigation opportunities
- WRR is a good screening tool to locate and evaluate proposed impacts and mitigation
- While it shows technical feasibility of projects, the main goal of the WRR is to show the landscape value

THANK YOU!

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www.watershedresourcesregistry.com