



# Watershed Resources Registry

## User Guide

**Watershed Resources Registry**

Overview Contents Details Results

Login to add Site Visit Information: [Log In](#)

Find a place

ZOOM TO COUNTY

ZOOM TO WATERSHED

**To begin, please follow the steps below:**

- Use the 'Address Locator' tool or 'Zoom/Pan' tools above to find your location.
- Select the 'Find Opportunitites' tool to locate resources within the study area.
- Select the 'Location Details' tool above and then click the location of interest on the map.

Esri, DeLorme, FAO, USGS, EPA, NPS



Updated September 2014



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## Getting Started

The Watershed Resources Registry (WRR), a Green Highways Partnership project, is a GIS based targeting tool to analyze watersheds and identify the best opportunities for the protection of high quality resources, restoration of impaired resources and improvement of stormwater management. The WRR is intended to integrate the Clean Water Act (CWA) authorities by facilitating implementation of CWA Sections 319, 401, 402, 404 and multiple state programs.

### Lead and Partner Agencies

Lead: U.S. Environmental Protection Agency (EPA) Region 3, U.S. Army Corps of Engineers (USACE) and MD State Highway Administration (SHA)

Partners: US Fish and Wildlife Service (FWS), Federal Highways Administration (FHWA), Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (MDNR), Maryland Environmental Service (MES), Maryland Department of Planning (MDP).

### Prioritizing opportunities based on the ecological needs of the watershed

Eight (8) opportunity assessments were developed through an interagency workgroup to identify the best opportunities for the following practices. Priorities were based on ecological needs as defined by water quality, habitat and biological assessments.

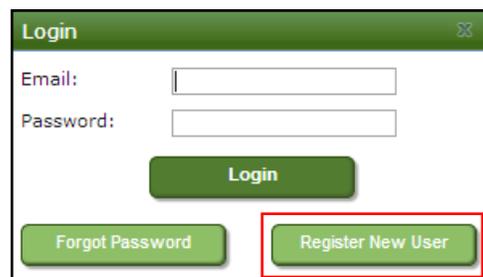
- Restoring Wetlands
- Restoring the Riparian Zone
- Restoring Uplands
- Restoring Compromised Stormwater Hydrology
- Preserving Wetlands
- Preserving the Riparian Zone
- Preserving Uplands
- Preserving Natural Stormwater Hydrology

### Status

The WRR is available in Maryland statewide. WRR data is available through this web-based application developed by MES and funded by SHA, EPA, and DNR. USACE Baltimore District is also expanding to other states. Field verification studies are being performed. All of the partner agencies are promoting the tool as a national model and are currently working to help other states develop the WRR for their specific resource needs.

## Becoming a Registered User

In order to take advantage of all of the benefits the WRR provides, users are encouraged to **Register**. The registration process is easy and is followed by an email verification. Once you become a registered user, you will be permitted to **Add Site Description Forms** (refer to Add Site Description Forms) under your account.

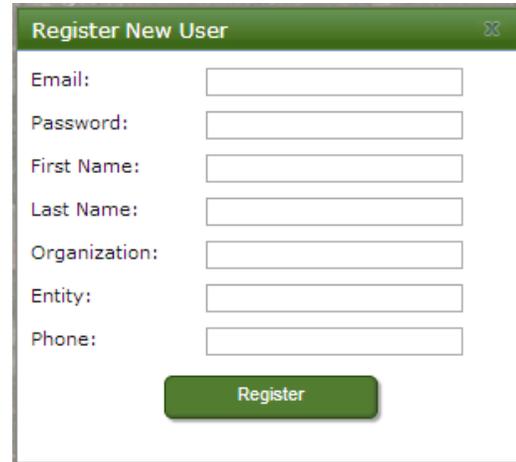


For first time users, click the Log In button in the top-right corner of the screen. A **Register New User** dialog box will appear and you will be prompted to provide the following information:

- Email address
- Create a Password
- First & Last Name
- Organization
- Entity (optional)
- Phone (optional)

Click Register. You will receive a message directing you to check your email for the verification link. Note: if you do not receive the email within a few minutes, be sure to check your Junk or Spam folders.

Once your email has been confirmed, you will be directed to return to the WRR to log in. Note: most aspects of the registry are available to non-registered users. However, non-registered users will not be permitted to view Site Description Forms registered by other users or gain other information associated with this tool.



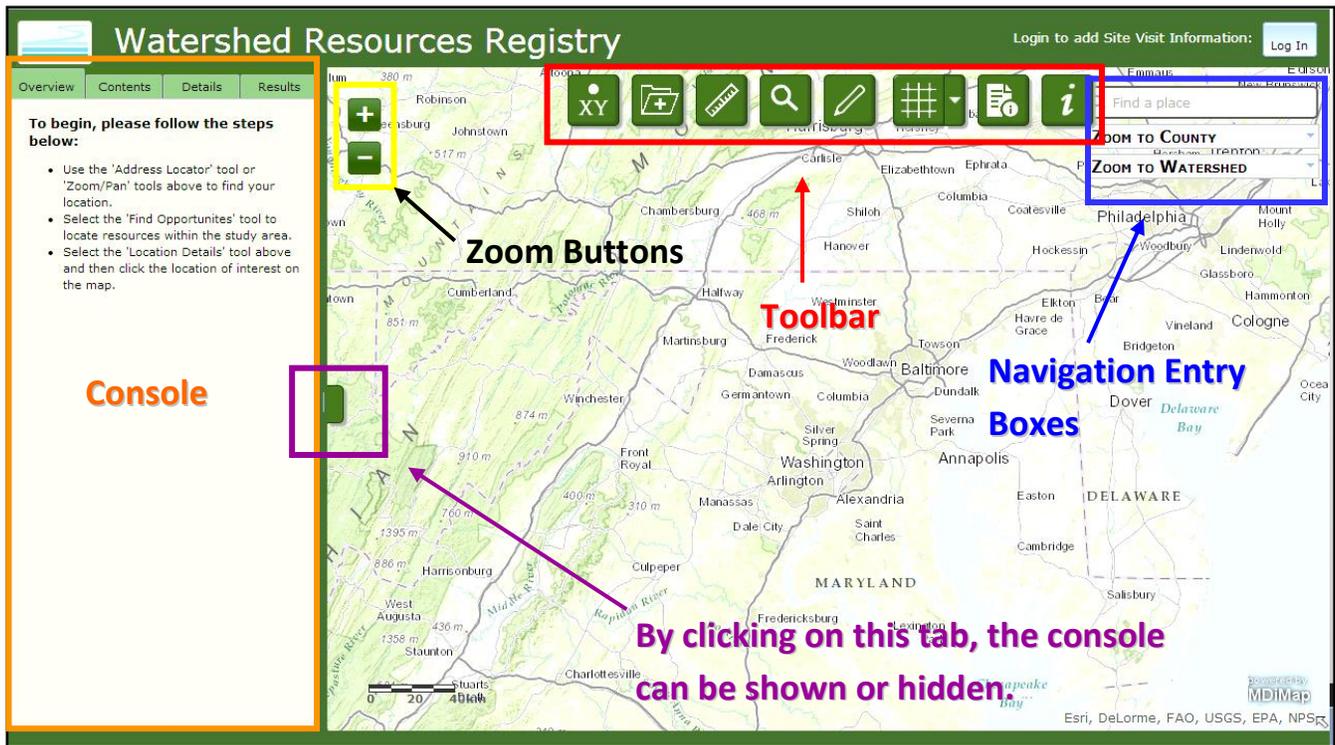
The image shows a 'Register New User' dialog box with a green header and a close button (X) in the top right corner. Below the header are seven input fields, each with a label to its left: 'Email:', 'Password:', 'First Name:', 'Last Name:', 'Organization:', 'Entity:', and 'Phone:'. At the bottom center of the dialog is a green button with the text 'Register' in white.

## How it works

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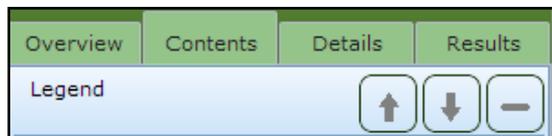
The WRR Web Mapping Application page has three main parts:

- **Navigation Entry Boxes:** Find a place (Street Address), Zoom to County, or Zoom to Watershed
- **Toolbar:** (found across the top of the application) enables you to find and interact with data. Available tools include:
  - Zoom to X/Y Location
  - Data
  - Measure
  - Find Opportunities
  - Site Visit Information
  - Base maps
  - Location Details
  - Identify Features
  - Zoom in/zoom out
- Map, the largest area of the interface illustrates data found in the Map Contents panel.
- Console, on the left side of the page, provides information about the map contents and also displays results when added to the Console.
  - Overview
  - Map Contents
  - Details
  - Results



## Working with the Console

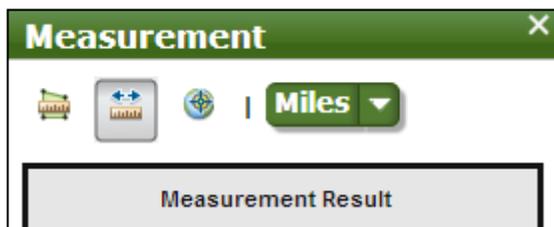
You can expand and collapse sections as needed by clicking on the header tab of a given panel in the Console section. For example if you click on the 'Contents' header it will open 'Map Contents' and minimize the other panels.



The content of the other sections is hidden but not deleted. Expand the section to see the content again by clicking once more on the heading of the panel in the console.

## Working with moveable elements

Some elements, such as the **Measure window**, may be moved around the page, closed, or remain open while another tool is being used such "Find Opportunities". You can arrange these elements to suit your own work.



To move elements, click and hold with the left mouse button on the title bar of the element. As you hover over the element's title bar, the cursor changes to a pointing hand, indicating you can move it by clicking and dragging.

Drag the element to the position you want, then release the mouse button.

Close a moveable window by clicking the close button "X", it its upper right corner or by clicking the element's icon button in the Toolbar. Most such windows may be re-opened from the appropriate location. For example, the Find Opportunities window may be re-opened from the Toolbar.

## Quick Tour

The WRR quick tour is designed to walk users through the process of quickly utilizing the WRR application to FIND, REVIEW, and EXPORT information on ecological opportunities in support of subsequent field visits. Detailed information regarding all of these steps can be found in the WRR

- Find Opportunities
- Review Opportunities
- Location Details
- Print Map/Results

- Find Opportunities:



- In the Toolbar menu, click on 'Find Opportunities' button to open the Find Opportunities dialogue box.
- The 'Find Opportunities' dialog box will appear.
- Within the 'Find Opportunities' dialog box perform the following steps:
  - Select a county and a watershed. (Note: if you choose a county first only those federal HUC watersheds within the chosen county will be available in the watershed list)
  - Select an ecological opportunity of interest (Note: Only one opportunity can be selected at a time.)
    - Choose the acceptable score and operator
    - Designate the desired area (acreage) for the opportunity
    - Click **Find Opportunities**
  - Note: If no opportunities exist based on the current selection criteria, refine criteria and click Find Opportunities once more.

**Find Opportunities**

Select a county:  
All Counties ▾

Select a Watershed:  
All Watersheds ▾

Select Potential Opportunities:

Upland Preservation       Upland Restoration  
 Wetland Preservation       Wetland Restoration  
 Riparian Preservation       Riparian Restoration  
 Stormwater Natural Infrastructure Preservation       Stormwater Compromised Infrastructure Restoration

Select Score:  
 ★  
 ★ ★  
 ★ ★ ★  
 ★ ★ ★ ★  
 ★ ★ ★ ★ ★

Select Score Operator:  
= ▾

Where Acres is Greater Than (>):  
Any Area ▾

Where Acres is Less Than (<):  
Any Area ▾

Find Opportunities

- Review Opportunities:
  - Once the 'Find Opportunities' tool is properly executed, the first 25 results are shown in the Results Panel on the left side of the browser.

**Found Opportunities**  
Using the following criteria  
Model: Wetland Preservation  
County: Anne Arundel  
Watershed: 020600040201  
Score <= 5  
Acrage > 1  
Acrage < 10

Zoom	Remove	Code	Acres
		1	1.02
		2	1.03
		1	1.03
		2	1.07
		1	1.19

- Left-click the 'Zoom To' button of your desired result.

		1	3.62
		1	3.74
		1	4.04
		2	4.57
		1	4.61
		1	4.66

- The map will then zoom to the extents of the chosen result.

**Watershed Resources Registry** Login to add Site Visit Information: Log In

**Found Opportunities**  
Using the following criteria  
Model: Wetland Preservation  
County: Anne Arundel  
Watershed: 020600040201  
Score <= 5  
Acrage > 1  
Acrage < 10

Zoom	Remove	Code	Acres
		2	3.07
		1	3.27
		1	3.48
		2	3.56
		1	3.62
		1	3.74
		1	4.04
		2	4.57
		1	4.61
		1	4.66
		1	4.79
		1	5.04
		1	5.04
		1	5.11
		1	5.20

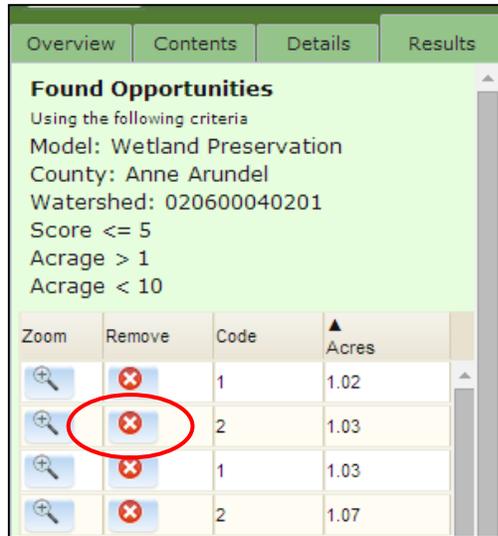
Map controls: XY, +, -, Measure, Search, Grid, Info, Find a place

Map zoom controls: ZOOM TO COUNTY, ZOOM TO WATERSHED

Map content: Aerial view of a residential area with a green polygon highlighting a specific parcel.

Map footer: powered by MDIMap, DigitalGlobe, GeoEye, Microsoft | Esri, HERE, DeLorme, TomTom

- Depending on the selection criteria chosen, the Find Opportunities tool will convey multiple results. If the user decides some opportunities do not appear to be appropriate, the result can be removed from the list by right clicking the result in the Opportunities Results panel and choosing 'Remove'.



- Mapping data layers can be turned on/off using the Map Contents Panel. To adjust viewable layers on the map, click on the heading that says 'Map Contents' and click on the checkboxes provided to turn layers on / off. (Note: Data layers are nested inside Group Layers, to view all available data in a group layer, click on the + sign next to the group layer name to expand the list of all available data layers for a particular group. Once complete, click on the 'Opportunities Results Heading to expand the results panel once more).

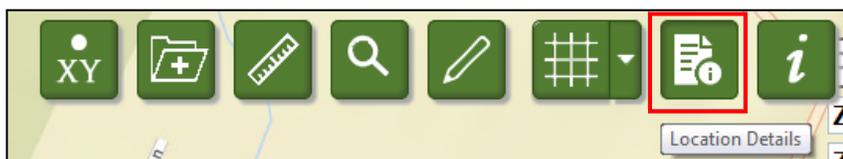


- Use the Zoom In and Zoom Out tools to review an opportunity

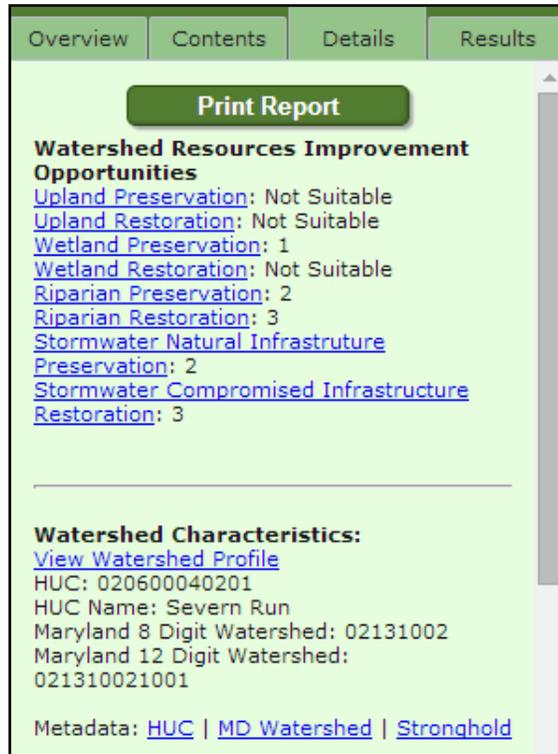
- Note: Turn on the desired ecological opportunity layer (i.e. Wetland Preservation) within the Contents Tab to see the selected site in relation to other sites in the area. This helpful when you want to group a few small sites together.

• **Location Details:**

- Move the mouse pointer over the 'Open WRR Tools' button on the right hand side of the screen and a menu will appear, click on 'Location Details' button



- Once you select the 'Location Details' tool, you may click on any area of interest within the map.
- Details about the specific location selected on the map will be returned in the Location Detail Results Panel on the left hand side of the screen. There is also a location box that pops up in the map area that provides the latitude/longitude and opportunity score like what is shown below (located in the left console).



- Review the specific results about the location. Users have the ability to click any location on the map at any time for new location details. (Note: Use the hyperlinks that are provided in the Location Detail Results panel to find out more information about source data in addition to reviewing the factors that play into each of the suitability analyses.)
- Print Map/Export Results
  - Upon completion of a desktop review for a particular location, export details by generating a map that will include the area of interest along with specified location details in support of subsequent field visits.
  - Turn on data layers of interest in the Map Contents panel. Zoom to the area of interest (Note: Assure the location details point [Green Point] previously created is viewable on the map – The results will be printed on the map you create, if the point is not viewable use the location details tool once more and click on the specified area of interest within the current map extents).
  - Click the 'Print Report' button that the top of the Location Details report to print the map and location details information.



- Repeat Print Map/Export Results steps for each area where a field visit will be conducted. (Note: The Location Details Results also provides the Latitude/Longitude value for the location selected on the map. This information can be loaded into a GPS for field navigation).

# Navigating the Map

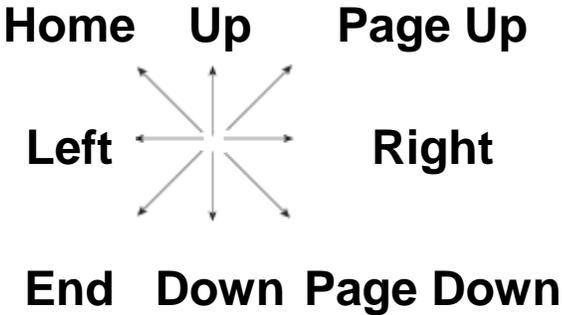
## Using the mouse

You can use a mouse or pointing device to move around and explore the map.

Map action	Use this tool...	...and do this
<b>Re-center the map</b>	Pan tool 	Click and hold the left mouse button down to pan in different directions around the map.
<b>Zoom in</b>	Mouse wheel 	Scroll the mouse wheel forward or up to zoom in. Each wheel click will zoom the map by about 50 percent in width and height.
	Shift+Left mouse 	Hold the Shift key down, then hold the left mouse button down and drag to draw a rectangle. The map will zoom in to the area of the rectangle.
	Zoom in tool 	Click the plus button on the zoom level control to zoom in. Some maps may have ticks between the plus and minus buttons, which may be clicked to zoom to a specific scale.
<b>Zoom out</b>	Mouse wheel 	Scroll the mouse wheel backward or down to zoom out. Each wheel click will zoom the map by about 50 percent in width and height.
	Zoom-level 	Click the minus button on the zoom level control to zoom out. Some maps may have ticks between the plus and minus buttons, which may be clicked to zoom to a specific scale.

## Using the keyboard

You can use keyboard to move around and explore the map. These keys navigate the map **when the mouse cursor is over the map area**.

Map action	Keyboard shortcut	Description
Zoom in	+	Each click of the plus key (on numeric keypad only) zooms in the map by a fixed amount when the focus is on the map.
Zoom out	-	Each click of the minus key (on numeric keypad only) zooms out by a fixed amount when the focus is on the map.
Recenter (pan) the map		These keys move the map a small amount with each click. Arrow keys move vertically or horizontally. Home/End/PageUp/PageDown move diagonally. To use these keys on a numeric keypad, turn off the number lock (Num Lock key).

## Using the Toolbar

The toolbar allows you to interact with the map by clicking on the map with a tool. For example, if you click in the toolbar on the Zoom In tool, the map will zoom in at the center of the map.

You can also interact with the map using the [keyboard](#). Also see [Using the mouse](#) for tips on using the mouse to interact with the map.

### To use a tool

- In the toolbar, click on the tool you want to use.
- Move the cursor over the map. The cursor may change to indicate the tool you are using.
- Click on the map with the left mouse button. *Note:* Some tools work by depressing the mouse and dragging the cursor to draw a rectangle, line or polygon, then releasing the mouse button.
- The results depend on the tool. The map appearance may change, such as zooming in or out. Or the results may appear in the Console's Results section, such as with the Identify tool.

### Tools

Tools in your website depend on the purpose and use of the application. *Note:* To find out what each icon button is, hover your mouse pointer over button and the name will appear.

Name	Icon	Description
Zoom in		<b>Click:</b> Click and hold the left mouse button down on the map at one corner of the rectangle to zoom in to. Drag the mouse to the other corner of the rectangle, and release the mouse button. The map will zoom in to the area of the rectangle.
Zoom out		<b>Click:</b> the map will zoom out so that the current map area will fit into the rectangle drawn. The smaller the rectangle you draw, the more the map will zoom out.
X/Y Coordinates		<b>Click to active:</b> Input X and Y coordinates (decimal degrees) then click 'Zoom'. The map will pan and zoom to that location with a green circle marking the location.
Data (import)		<b>Import your own data:</b> Add a zipped shapefile to personalize your map.
Measure		<b>Measure area, distance or location:</b> See <a href="#">Measuring</a> for usage.
Find Opportunities		<b>Locate desired ecological opportunity sites:</b> See <a href="#">Find Opportunities</a> for usage
Site Visit Information		<b>Access stored site assessments:</b> See <a href="#">Site Visit Information</a> to learn how to access past site visits stored by other WRR members.
Base Maps		<b>Change map interface:</b> Use drop-down menu to select a desired map (Imagery, Topographic, Street map, etc.)
Location Details		<b>Review details of selected site:</b> See <a href="#">Location Details</a> for usage.
Identify Features		<b>Access parcel property information:</b> See <a href="#">Identify features</a> for how to use the identification information.

## Finding a Pre-Determined Location

If you have a pre-determined location or want to look within a specified area, there are several methods to find that location:

- X/Y Location tool
- Find a place
- Zoom to County
- Zoom to Watershed

## X/Y Coordinates (Zoom To)

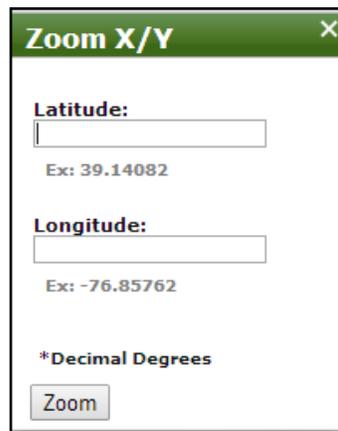
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If you want to zoom to a coordinate pair, you can do so by using the X/Y Location tool.



**Important Note:** To use this tool you must enter your geographic coordinates (latitude/longitude) in decimal degrees.

1. In the top toolbar, click the X/Y Location button.
2. Enter the X and Y coordinates (in decimal degrees) and select 'Zoom'. The map window will automatically zoom to the desired location.

A dialog box titled "Zoom X/Y" with a close button (X) in the top right corner. It contains two input fields: "Latitude:" with an example "Ex: 39.14082" and "Longitude:" with an example "Ex: -76.85762". Below the fields is a checkbox labeled "\*Decimal Degrees" and a "Zoom" button.

## Find a Place

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If you have a specific location address, you can zoom directly to that site by entering the street address into the **Find a place** entry box in the top right of the map. Press "Enter" to initiate the search. The map will center on that location.

Note: You must enter a numbered address and town/city name. Intersections will not be located.

## Zoom to County

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To search within a specific county, click on the **down arrow** in the **Zoom to County** drop-down box in the top right of the map.

Choose the desired county from the list to center the map on that county. The entire county will be shaded for a few seconds, to be replaced with grey or white dotted lines (depending on the basemap) to identify the boundaries.

## Zoom to Watershed

To search within a specific county, click on the **down arrow** in the **Zoom to Watershed** drop-down box in the top right of the map.

Choose the desired watershed number from the list to center the map on that watershed. The entire watershed will be shaded for a few seconds.

## Data Import

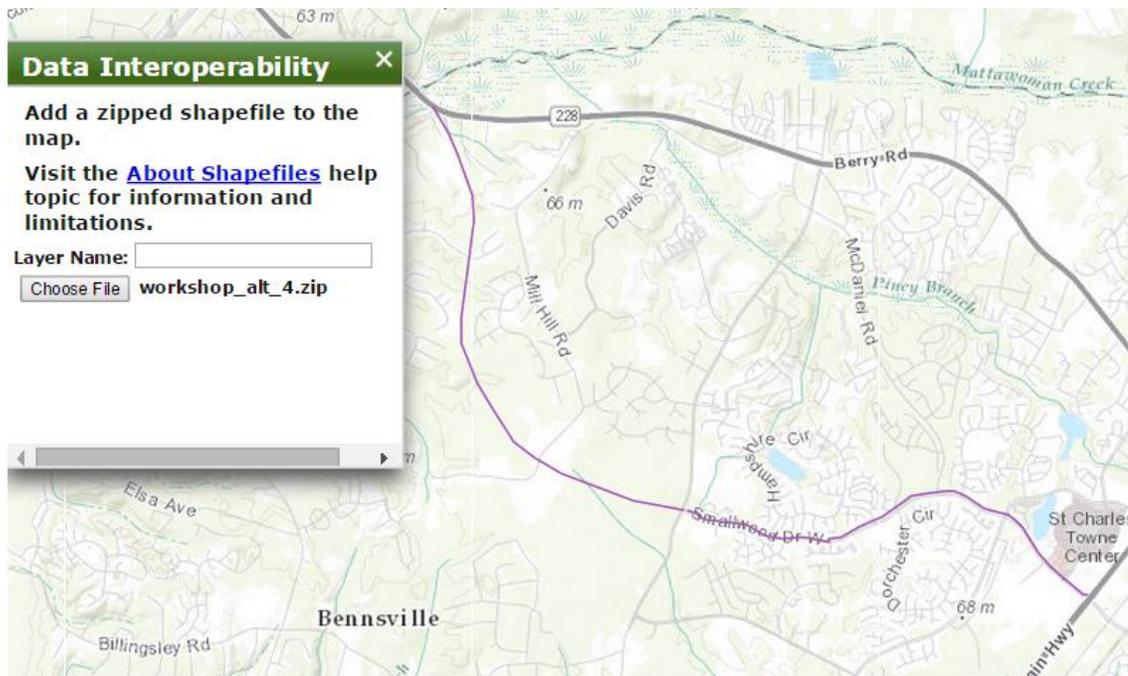


If you would like to add a shapefile to the map, you can do so using the Add Data Tool

## To Add Data



1. In the Toolbar, click the Add Data icon
2. Navigate to a zipped shapefile and click Choose File. It is important to note that shapefiles must be added one at a time in a zipped folder. Additionally, adding files with numerous features will decrease application performance, as will adding many shapefiles at one time. The tool works great for adding shapefiles of such things as highway alignments (as seen below) or a limit of disturbance.



## Measure Distance and Area

You can use the Measure tool to measure distances and areas. To use one of these tools, open the Measure dialog and then use the appropriate tool.

- To open the Measure dialog
- To measure a line
- To measure a polygon
- To find X,Y coordinates

## To open the Measure dialog

---

1. In the **Toolbar**, click the **Measure** icon . If the Measure icon is not visible, then the Measure tool is not available for this application.
2. This opens the Measure element dialog.



See the instructions below depending on whether you want to measure a line or measure area. You can also use the point option to find the X/Y coordinates of a location on the map.

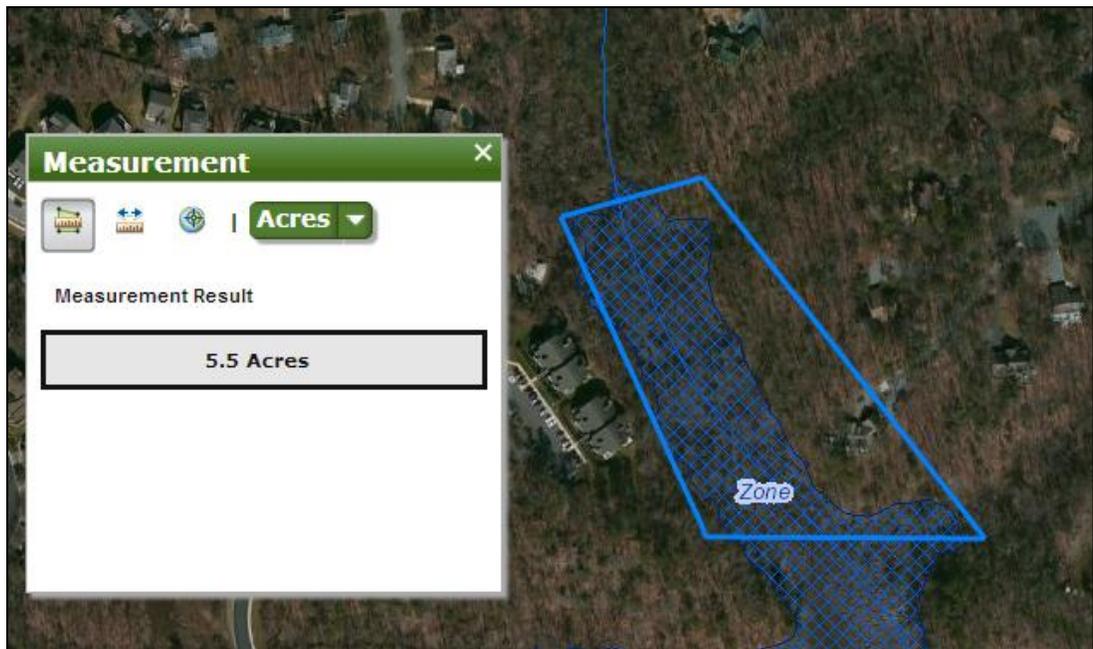
3. After measuring, you can close the Measure dialog by clicking on its Close icon in the upper right, or by re-clicking to Measure icon

## To measure area

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3. In the Measure dialog, click the Polygon icon . The Polygon icon is outlined to show it is the active type, and the dialog changes to show information on measuring polygons.
4. Set the units for measuring distance. For polygons, the measured area displays in the Area Units, and the perimeter displays in the Distance Units.
5. Click the left mouse button at the first point in the polygon. As you move the mouse from this location, you will see the line stretching to the current position.

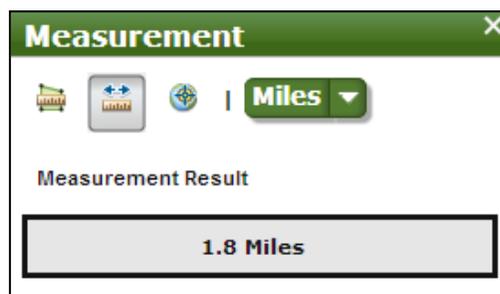
- Click the second point of the polygon. The first segment draws, and the polygon now stretches to the current position from the last point as well as to the initial point. When you click the third point, the measure dialog displays the perimeter and area of the polygon based on the vertices added. The total is updated as you add more vertices.



- Continue adding points (vertices) of the polygon. New vertices add segments connecting to the previous vertex.
- At the last vertex in the polygon, double-click the mouse. You do not need to click at the original point again. Read the Area and Perimeter from the Measure dialog. You can change the Distance Units to see the same polygon expressed with different units.
- To draw a new polygon, simply click on the map to start the new polygon. This erases the previous polygon.
- To erase the polygon from the map, click any of the measure type icons in the Measure dialog. If you click any other tool in the Tools element, this will close the Measure dialog, and any line or polygon will also be erased.

## To measure a line

- In the Measure dialog, click the Line icon . The Line icon is outlined to show it is the active type.
- Move the cursor to the first point of the line you want to measure, and click the left mouse button. As you move the mouse from this location, you will see the line stretching to the current position. The measure dialog will also begin to display distance.
- Move the cursor to the second point of the line. If you only want to measure one straight-line segment, double-click at this location. Otherwise click once with the left mouse button.
- If measuring a line with multiple segments (polyline), continue clicking at vertices to add segments. The **Measurement Result** displays the sum of segments added so far.

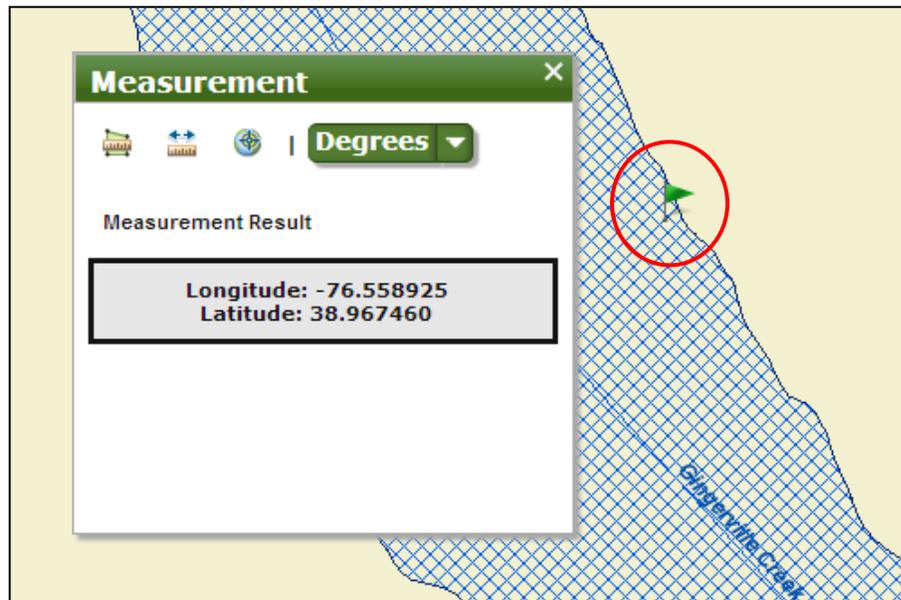


5. At any point during the measuring, you can change the units for measuring distance by using the drop-down list in the measure dialog. You can also change units after completing the measurement.
6. At the last vertex, double-click to end the line. The **Measure Result** displays the length of the line, including all segments if multiple ones were drawn. You can change the units in drop-down list to see the same line expressed with different units.
7. To draw a new line, simply click on the map to start the new line. This erases the previous line.
8. To erase the line from the map, click any of the measure type icons in the Measure dialog. If you click any other tool in the Tools element, this will close the Measure dialog, and any line or polygon will also be erased.

## To measure a location

The Measure dialog also allows finding the X,Y coordinates at a point where you click on the map.

1. In the Measure dialog box, click the Location icon . The Location icon is outlined to show it is the active type.
2. Click on the map. A green flag will appear in place of the location you clicked.
3. The **Measurement Result** displays the X/Y coordinates.



## Find Opportunities

If you want to find opportunities for a given watershed, you can use the Find Opportunities Tool



## To Use the Find Opportunities Tool

1. In the top toolbar, click the Find Opportunities button.  The button changes to a light green background to indicate it is the tool is active. A dialog box will appear:
  - A. Choose a 12 Digit Federal Hydrologic Unit Code (HUC) Watershed of interest from the drop down

list provided.

- B. If you are interested in only a portion of a Watershed in a specific county. Choose the county of interest from the drop down list provided. Note: Leaving this option set to 'All Counties' will return results for the entire Watershed selected in Step A.
- C. Click on the checkbox corresponding to your opportunity of interest. Note: You may select only one opportunity at a time.
- D. Choose a Star Score Value (Score 1-5) and Operator (<, >, =, <=, or >= ) from the drop down lists provided. Note: A 5 star signifies all factors utilized to create the opportunity map were met for a given location.
- E. Choose from the drop down lists provided the preferred size of your opportunity area of interest. Note: Units are in Acres.
- F. Once all parameters have been set, click the Find Opportunities Button. Note: Depending on the Grid Value selected in addition to the combination of opportunities chosen, limited and/or no results may return. If no results return, refine parameters and click on the Find Opportunities Button once more.

**Find Opportunities**

Select a county:  
Anne Arundel

Select a Watershed:  
Severn Run:020600040201

Select Potential Opportunities:

<input type="radio"/> Upland Preservation	<input type="radio"/> Upland Restoration
<input checked="" type="radio"/> Wetland Preservation	<input type="radio"/> Wetland Restoration
<input type="radio"/> Riparian Preservation	<input type="radio"/> Riparian Restoration
<input type="radio"/> Stormwater Natural Infrastructure Preservation	<input type="radio"/> Stormwater Compromised Infrastructure Restoration

Select Score:  
 ★  
 ★★  
 ★★★  
 ★★★★  
 ★★★★★

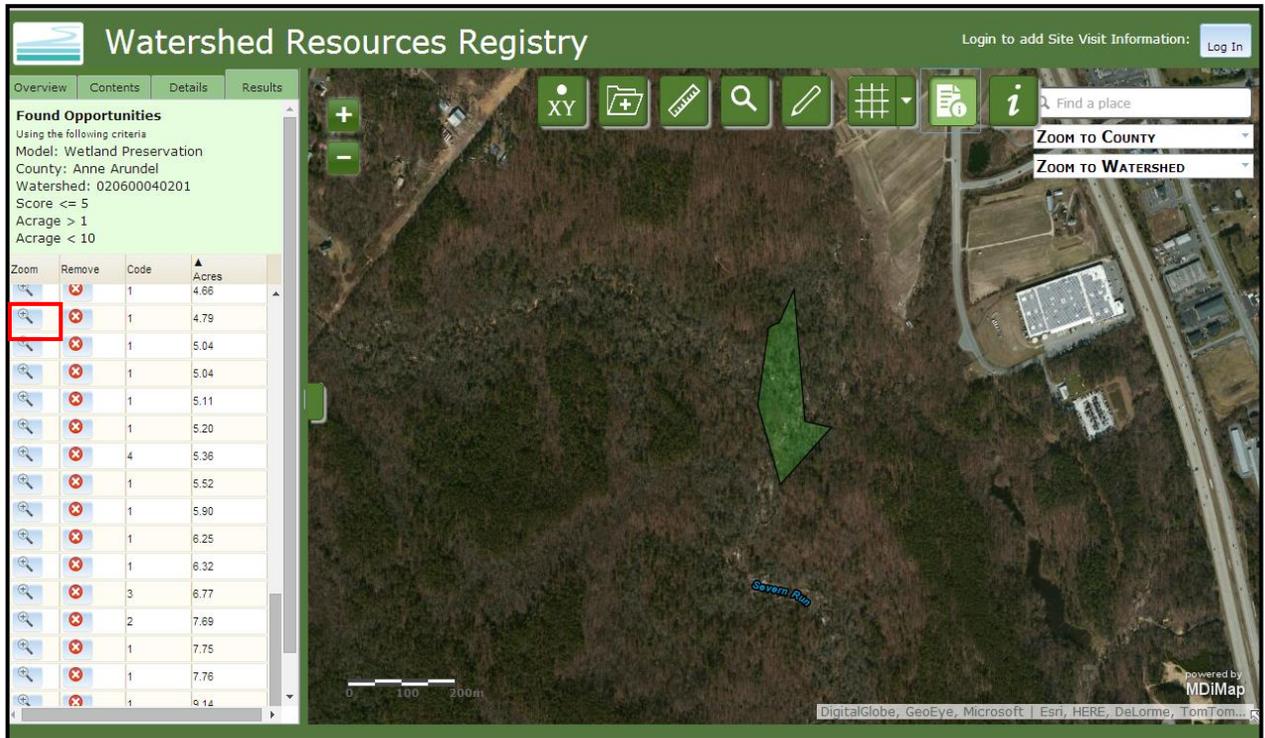
Select Score Operator:  
<=

Where Acres is Greater Than (>):  
1

Where Acres is Less Than (<):  
10

Find Opportunities

- 2. Results are returned from the Find Opportunities Tool in the Results Tab on the dialogue column on the left of the screen. They are shown on the map as polygons in a green color. To navigate to a result, click on the Zoom button next the desired score and acreage. This will zoom the extents of the map to the opportunity selected. Choosing 'Remove' will remove the result from the Results pane in its entirety.



## Location Details

If you want to find out more information about a particular location, you can do so by using the Location Details tool.



### To Zoom to a Site

1. To focus on one of the locations queried, click on the **Zoom In**  button for the map to center on that location.
2. In the top toolbar, click the **Location Details** button. 
3. Click within the location of interest on the map:
  - Results are returned in the **Details** tab in the left panel. Use the scroll bar provided to view all of the information about the location selected on the map.
  - Embedded in the panel are hyperlinks that will take users to metadata about the source of the information returned. Clicking on the link will open a new web page. (below)
  - A list of scores for all opportunities coincident for that specific location on the map are also returned, clicking on the hyperlink next to the score will open a new web page that describes the parameters used to create a given opportunity map.

Overview Contents **Details** Results

**Print Report**

**Watershed Resources Improvement Opportunities**  
[Upland Preservation](#): Not Suitable  
[Upland Restoration](#): Not Suitable  
[Wetland Preservation](#): 4  
[Wetland Restoration](#): Not Suitable  
[Riparian Preservation](#): 4  
[Riparian Restoration](#): 5  
[Stormwater Natural Infrastructure Preservation](#): 3  
[Stormwater Compromised Infrastructure Restoration](#): Not Suitable

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**Watershed Characteristics:**  
[View Watershed Profile](#)  
 HUC: 020600040201  
 HUC Name: Severn Run  
 Maryland 8 Digit Watershed: 02131002  
 Maryland 12 Digit Watershed: 021310021001

Metadata: [HUC](#) | [MD Watershed](#) | [Stronghold](#)

**Waterways**  
 Nearest Stream: Severn Run  
 Stream Use Designation: IV  
 Distance: 170 ft

## Finding Registered Sites near Your Location

After running Location Details for a selected site, you can query whether there are any other registered site visits in the vicinity of your location by clicking on the **Click for Site Visit Information within 500ft** button at the bottom of the **Details** panel.

If there have been any sites registered in the area of your location, the sites will be listed below the button providing information including: the registered site description, site ID, date of visit, and visiting organization.

**Click for Site Visit Information Within 500ft**

View	Id	Date	Organization
	9201	5/8/2014	MES
	12003	7/29/2014	MES

If no sites are available, a message stating "Currently no site visits within 500ft" will replace the button.

## Print Map Results

The **Print Report** tool is designed to be used in combination with the Location Details tool. In general you will want to use the Print Map tool after running the Location Details tool. The Print Map tool will generate a

map as well as information about the Location Details selection made on the map. To start printing, use the Print Report button.

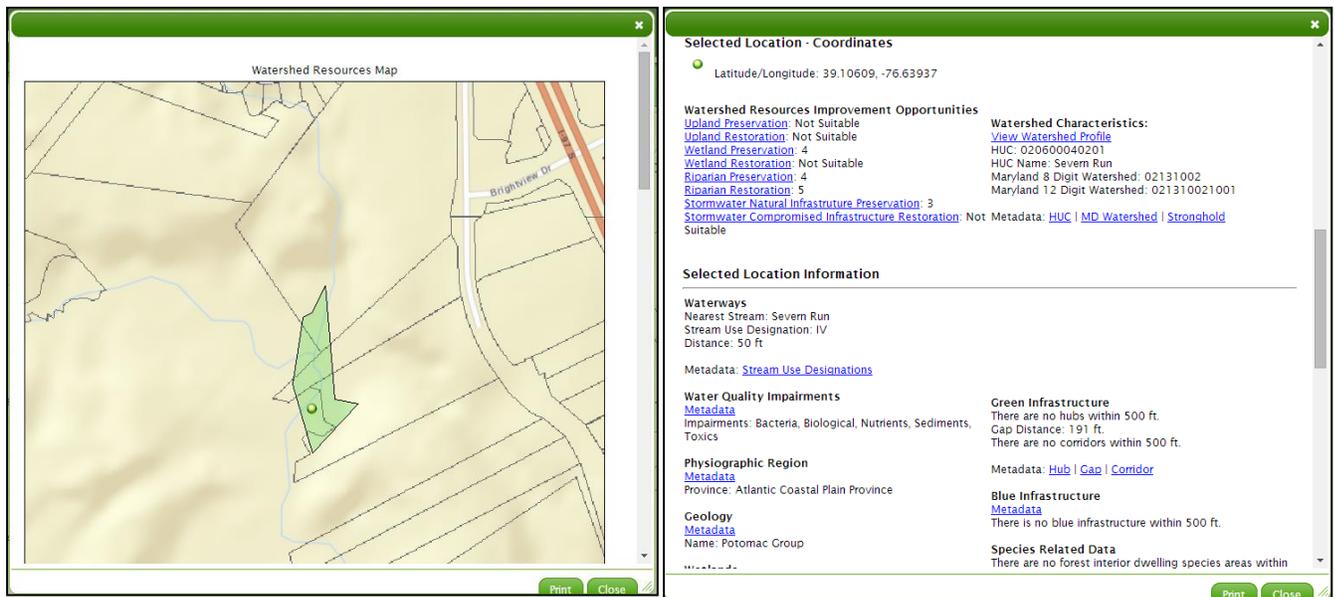


## To Print a Map/Results

1. At the top of the Details column, click the Print Report button.



2. A new web page window will open and the application will begin processing your map. Once the page has finished loading, a Map of your area of interest along with Location Detail results will be illustrated.



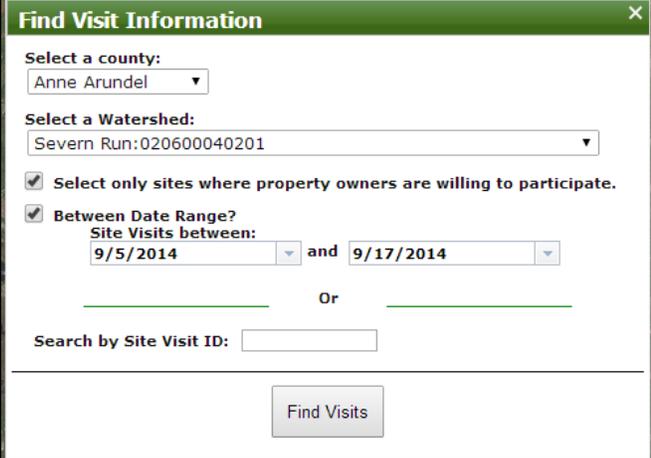
## Find Site Visit Information

The WRR allows users to search for location details that have been previously visited and registered to the site.

## To Find Site Information

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- Start by clicking on the **Site Visit Information**  button in the toolbar.
- You can then select the parameters you are looking for (county, watershed, landowner willingness, and/or date range(optional)).
- Or, if you already have specific site in mind, you can enter the Site Visit ID designated for that site.
- Click **Find Visits**.
- The results of your search will be found in the **Results** tab providing the Site ID, Date, and Organization/Agency who registered the site.



**Find Visit Information** ✕

Select a county:  
Anne Arundel ▼

Select a Watershed:  
Severn Run:020600040201 ▼

Select only sites where property owners are willing to participate.

Between Date Range?  
Site Visits between:  
9/5/2014 ▼ and 9/17/2014 ▼

Or

Search by Site Visit ID:

Find Visits

# Site Description Form

**Note: To access the Site Description Form, you must be a registered user.**

## To Add a Site Description Form

Once you are logged in, the Add Site Description Form will be available on the left side of your screen. To add a site description, click the Add Site Description Button.

### ADD SITE DESCRIPTION FORM

USE THE ZOOM AND PAN TO NAVIGATE IN THE MAP TO THE LOCATION OF THE SITE.

OR USE THE ADDRESS LOCATOR ABOVE OR THE XY LOCATOR IF THIS INFORMATION IS AVAILABLE

ONCE YOU HAVE LOCATED WHERE THE SITE VISIT WAS PERFORMED, CLICK THE BUTTON BELOW AND CLICK ON THE LOCATION

**ADD SITE DESCRIPTION**

### Site Description Form

First Name:	<input type="text" value="Jane"/>	Last Name:	<input type="text" value="Green"/>
Date of Site Visit:	<input type="text"/>	Approximate Size of Site:	<input type="text" value="Site size"/>
Entity:	<input type="text" value="Your entity"/>	Organization:	<input type="text" value="US EPA"/>
Project Name:	<input type="text" value="Project name"/>		
Email:	<input type="text" value="green.jane@gmail.com"/>	Phone:	<input type="text" value="(555)555-1212"/>
Site Description:	<input type="text"/>		

**Do you consent to having your contact information being made public?**  Yes  No

**I'm looking for the following opportunities:**

Upland Preservation	<input type="checkbox"/>	Upland Restoration	<input type="checkbox"/>
Wetland Preservation	<input checked="" type="checkbox"/>	Wetland Restoration	<input type="checkbox"/>
Riparian Preservation	<input type="checkbox"/>	Riparian Restoration	<input type="checkbox"/>
Stormwater Natural Infrastructure Preservation	<input type="checkbox"/>	Stormwater Compromised Infrastructure Restoration	<input type="checkbox"/>

**Landscape Characteristics**

**Land Use:**

Commercial	<input type="checkbox"/>	Low Density Residential	<input checked="" type="checkbox"/>
Medium Density Residential	<input type="checkbox"/>	High Density Residential	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Agricultural	<input type="checkbox"/>
Open Space	<input type="checkbox"/>		

Site Description Form

**Land Type:**

- |              |                                     |             |                                     |
|--------------|-------------------------------------|-------------|-------------------------------------|
| Forested     | <input checked="" type="checkbox"/> | Wetland     | <input checked="" type="checkbox"/> |
| Aquatic      | <input type="checkbox"/>            | Grassland   | <input type="checkbox"/>            |
| Marsh        | <input type="checkbox"/>            | Barren/Open | <input type="checkbox"/>            |
| Urban        | <input type="checkbox"/>            | Rural       | <input type="checkbox"/>            |
| Agricultural | <input type="checkbox"/>            | Other       | <input type="checkbox"/>            |

**Natural Land Features:**

- |                 |                                     |              |                          |
|-----------------|-------------------------------------|--------------|--------------------------|
| Riverine Waters | <input checked="" type="checkbox"/> | Tidal Waters | <input type="checkbox"/> |
| Pond            | <input type="checkbox"/>            | Lake         | <input type="checkbox"/> |
| Mountain        | <input type="checkbox"/>            | Beach        | <input type="checkbox"/> |
| Floodplain      | <input checked="" type="checkbox"/> | Ditch        | <input type="checkbox"/> |
| N/A             | <input type="checkbox"/>            | Other        | <input type="checkbox"/> |

**Visible Stormwater Infrastructure:**

- |                         |                          |                        |                                     |
|-------------------------|--------------------------|------------------------|-------------------------------------|
| Inlet                   | <input type="checkbox"/> | Outfall                | <input checked="" type="checkbox"/> |
| Stormwater Manhole      | <input type="checkbox"/> | Culvert                | <input type="checkbox"/>            |
| Drainage Pond           | <input type="checkbox"/> | Natural Stream Channel | <input checked="" type="checkbox"/> |
| Concrete Stream Channel | <input type="checkbox"/> | Riser                  | <input type="checkbox"/>            |
| Rip Rap Channel         | <input type="checkbox"/> | Check Dam              | <input type="checkbox"/>            |
| Monitoring Well         | <input type="checkbox"/> | Underground Storm Pipe | <input type="checkbox"/>            |

**Invasive Species:**

10% - 40% ▼

**Common Identifiable Species:**

**Construction on site/Public Notices/Flags/Survey Markings?:**

No ▼

**Site appears suitable for:**

- |  |                                     |   |                          |
|--|-------------------------------------|---|--------------------------|
| Upland Preservation                            | <input type="checkbox"/>            | Upland Restoration                                | <input type="checkbox"/> |
| Wetland Preservation                           | <input checked="" type="checkbox"/> | Wetland Restoration                               | <input type="checkbox"/> |
| Riparian Preservation                          | <input type="checkbox"/>            | Riparian Restoration                              | <input type="checkbox"/> |
| Stormwater Natural Infrastructure Preservation | <input type="checkbox"/>            | Stormwater Compromised Infrastructure Restoration | <input type="checkbox"/> |

**If applicable please indicate the NWI classification:**

**Land Owner Willingness:**

Willing to Participate ▼

**Hydric Soil?:**

Yes ▼

**Site Suitability Comments:**

**Overall Ecological Quality of the Existing Site:**

**General Comments:**

e.g. site accessibility, hazards, additional mitigation opportunities, etc...

Save and Add Attachments

Save and Close

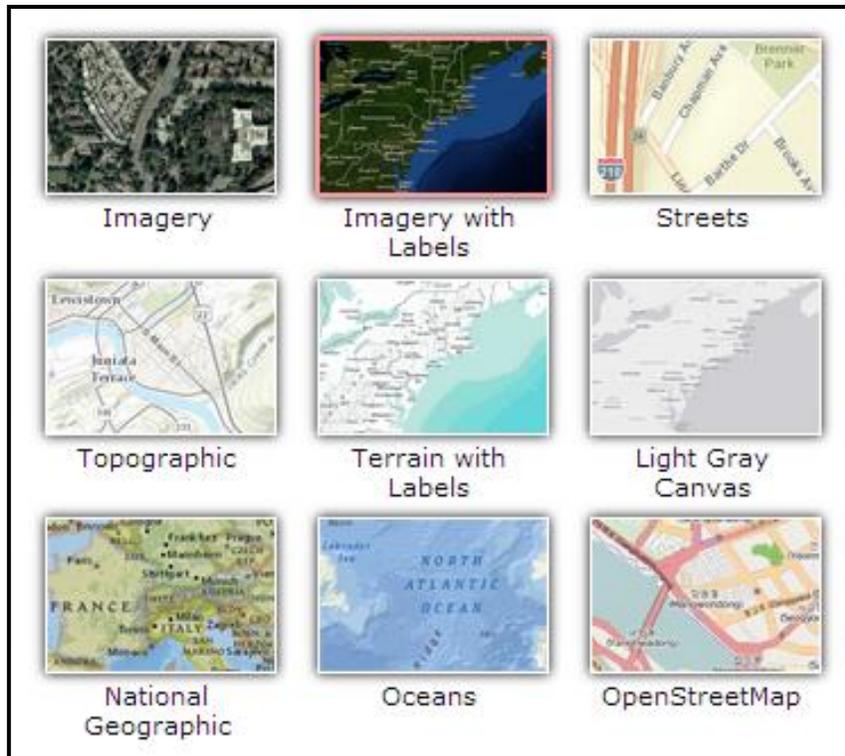
# Choosing a Basemap

There are nine (9) basemaps to utilize within the registry that allow you to view the map with or without labels and to view data layers with different contrasting colors . 

## To choose a Basemap

Click on the **Basemaps**  button in the toolbar to select a desired basemap. There are nine (9) basemaps to utilize within the registry:

- **Imagery**
- **Imagery with Labels**
- **Streets**
- **Topographic**
- **Terrain with Labels**
- **Light Gray**
- **National Geographic**
- **Oceans**
- **OpenStreetMap**



# Identify Features

If you want to search for a parcel information, you can do so by using the Identify Features button. 

## To Search for Parcel Information

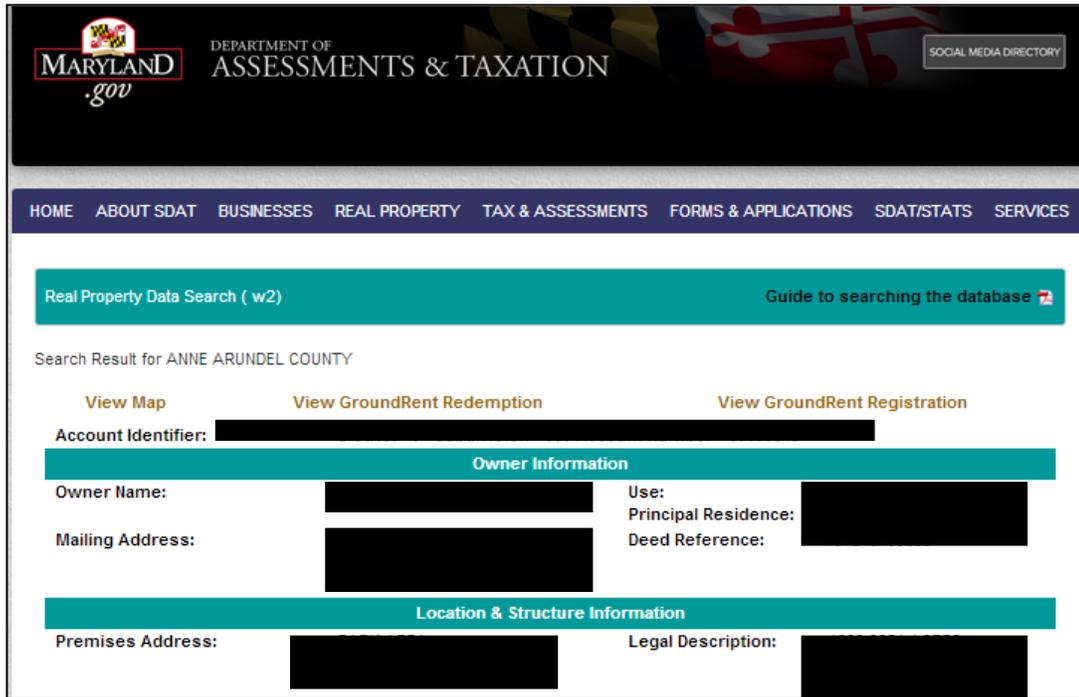
1. In the top toolbar, click the Identify Features button. . Note: The 'Parcel Boundaries' layer within the 'Contents Tab' must be turned on (checked) to use this feature.



2. Click within the site and a Location dialogue box will appear. Note: If a Location Details dialogue box is already open, the Identify Features results will be found on another page within this dialogue box. It can be accessed by clicking the arrow to the next page.



3. By clicking on the 'More info' link, a new window will open, directing you to Maryland's Department of Assessment & Taxation webpage providing detailed property attributes for the selected parcel.



## Working with Layers and Map Contents

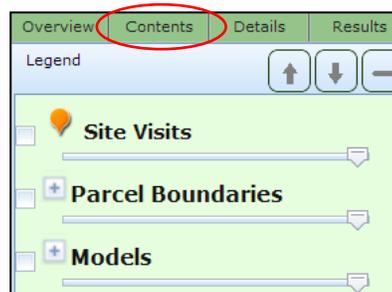
### Turn Map Layers On and Off (Personalize)

A mapping application can use one or more content sources. Each content item corresponds to a service, such as an ArcGIS Server service or ArcIMS service. Each source contains one or more map layers. A map layer is a type of data shown on the map, such as roads, cities or a satellite image.

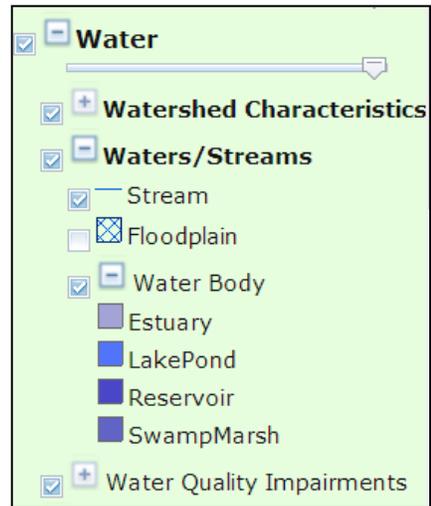
If the mapping application allows it, you can view the list of the contents of the map, turn on and off layers, and examine the symbols for layers.

To examine the map contents:

- In the **Console**, display the **Map Contents** item, if necessary, by clicking the down arrow for Contents. If Contents is not present, then this mapping application does not allow viewing the contents list.
- When Map Contents opens, only the top-level content items may be visible. Your content item(s) will probably differ from this graphic.



- Click the plus button  next to a content item to display the **layers** within it.
- A **check-box** next to the layer indicates whether the layer is currently turned on. These check-boxes may not be present in your application.
- If enabled, you can click the check-box next to the layer name to **turn the layer on or off**. The map automatically redraws to reflect the changes in layer visibility.
- Some layers may not be visible at the current map scale (zoom level). These layers are called **scale dependent**. You may need to zoom the map in or out to see a particular layer displayed, even if its check-box is checked to draw.
- If layers have a plus button  next to the name, you can expand the layer to display a **legend** for the layer. The legend may display a single symbol or multiple symbols for the layer.

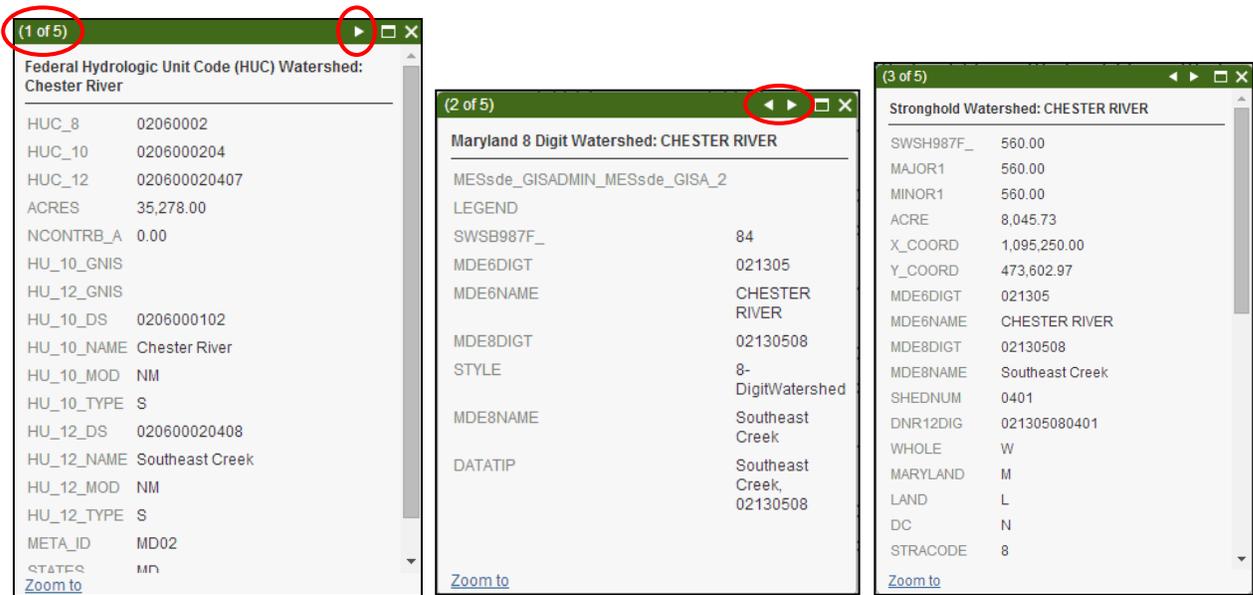


## Identify Features on the Map

If you want to know about a feature on the map, you can get more information about it using the Identify tool. 

### To identify a feature

1. In the **Toolbar**, click the Identify button.  The button changes to a light background to indicate that the tool is the active.  (If no Identify button is visible, then the Identify function is not available in this application.)
2. Click on the feature you want to identify.
3. To view details (attributes) for the feature, click the white right-facing arrow at the right side of the callout label. This expands the callout box to show the attributes of the feature, as well as the layer name, and an option to add to results (see below).



## More information

### System requirements

#### Supported Web browsers

To use this website it is recommended a high-speed internet connection be used with Google Chrome or Internet Explorer 10.0 and 11.0 in **Compatibility Mode**. Additionally, the resolution of your monitor is also important; make sure your resolution is 1024 x 768 or above.

For the most up-to-date information on supported browsers, visit [System Requirements](#) at ESRI Support. Select ArcGIS Server in the Software list, select the current version (e.g., 9.3) in the Version list, then click Go. In the system requirements page that displays, under ArcGIS Server for the Microsoft .NET Framework, click the Supported Web Browsers link.

#### Other requirements

- JavaScript enabled in the browser
- For the Print task, popup blockers must allow the website to open a new browser window.

## WRR FAQ

- 1. What browser should I use for best performance?** Google Chrome is recommended.
- 2. How accurate is the registry at predicting opportunity sites?** The registry is purely a targeting tool, no guarantees are made about its accuracy; choosing a registry suggestion as a mitigation site does not ensure approval.
- 3. What information is needed to use the registry?** None. Although having either a geographic location or type of mitigation in mind would be helpful.
- 4. Who is involved?** The Baltimore District Army Corps of Engineers, Headquarters Army Corps of Engineers, US Environmental Protection Agency Region 3, Federal Highway Administration, Maryland State Highway Administration, US Fish and Wildlife Service, Maryland Department of Natural Resources, Maryland Department of the Environment, Maryland Department of Planning, Charles and Prince George's Counties, and Nongovernmental organizations.
- 5. Who can utilize this tool and for what purposes?** Anyone can use the WRR interactive website. It is used as a targeting tool for mitigation sites of a specific ecological opportunity or in a specific watershed.
- 6. What ecological opportunities can be identified using the registry?** Upland preservation, upland restoration, wetland preservation, wetland restoration, riparian preservation, riparian restoration, stormwater natural infrastructure preservation and stormwater compromised infrastructure restoration are the 8 different models available within the registry.
- 7. What makes the WRR different from other programs?** It integrates multiple programs from the Clean Water Act, and moves mitigation efforts away from a stovepipe approach, towards a comprehensive watershed view. There was also collaboration between regulatory and non-regulatory agencies.
- 8. Can I use it to pinpoint areas that impact my special interest?** Yes, by using the Find Opportunities tool you can select a particular type of mitigation. Also, by turning data layers on and off in the left hand menu you can determine where your special interest is located within a watershed and perform watershed appropriate mitigation in the surrounding area.
- 9. Is it possible to incorporate information not presented in the registry? If so, how can this be done?** It is not possible to add extraneous data layers to the registry. However, if there is existing data you would like to include in your search you can select sites and then compare your maps manually.
- 10. How can my organization (or other organizations) contribute new information to the registry?** Users can register site visits and input their data into the WRR using the Site Description Form. These forms can be made public or private at the discretion of the user.
- 11. Where can willing owners enter mitigation sites?** See answer for question 10.
- 12. What can be done if the registry is found to be inaccurate after conducting a ground-truthing?** See answer for question 10.
- 13. How was the registry developed? Is it available for consumption in GIS software?** The WRR was developed through the GIS Model Builder and is accessible to those with the GIS software. Most of the raw data used to develop the registry is available through public download sites which are listed on the GIS layers page.
- 14. Can it be expanded to cover my state/county/watershed/etc.?** At the moment the WRR is only functional for Maryland statewide. There is the potential to replicate the model in any area where the needed

data exists.

**15. Why should I use the WRR if I am still going to hire a consultant?** The WRR will simplify the work for the consultant. Instead of searching blind they can use the registry to select a few sites that show potential, then ground truth them to determine which is the best for your specific needs.

**16. After finding opportunity sites of my interest, what is the next step to take before implementing any information into my plans?** Compare the data to the aerial photo, if it seems to match, the next step is ground-truthing.

**17. How can the information from the registry be useful in planning a land use design?** The WRR could help to identify areas that should be targeted for conservation versus development.

**18. How could the WRR inform me relating to work I am presently conducting?** The WRR could provide additional resource information from an avoidance and minimization perspective during the design process, and can help inform decision making when it comes to appropriate stormwater management controls/BMPs and mitigation/stewardship for wetlands, streams, and uplands.

**19. Can permits be established through the registry?** No.

**20. Since all of the government agencies helped to put the WRR together, does that mean I don't need approval if I pick my mitigation site from the choices on the WRR?** You still need approval for your site. The WRR is just a targeting tool, selecting a site it finds for your mitigation does not guarantee approval.

**21. How could the WRR be used by non-governmental agencies?** It could also be used by private developers to guide their land use decisions and help target mitigation needs as well as being used by Land Trust and wetland bankers to target areas for purchasing and preserving.

**22. How can the WRR be used on a local level?** The WRR should be used at the local level to guide master planning efforts. It can be utilized by local DOTs and agencies protection and mitigation opportunity identifications. Perhaps others regulated and intended to support Chesapeake Bay TMDL may also utilize this tool.

## Getting more Help and information about WRR

### Federal Agency Contacts

#### US Environmental Protection Agency

Ralph Spagnolo, (215) 814-2718, [spagnolo.ralph@epa.gov](mailto:spagnolo.ralph@epa.gov)

#### US Army Corps of Engineers

Ellen Bryson, (410) 962-6084, [ellen.bryson@usace.army.mil](mailto:ellen.bryson@usace.army.mil)

### State Agency Contacts

#### State Highway Administration

Sandy Hertz, Deputy Director, Office of Environmental Design, [shertz@sha.state.md.us](mailto:shertz@sha.state.md.us)  
Donna Buscemi, Team Leader, Environmental Planning Division, [dbuscemi@sha.state.md.us](mailto:dbuscemi@sha.state.md.us)  
Heather Lowe, Team Leader, Environmental Planning Division, [hlowe@sha.state.md.us](mailto:hlowe@sha.state.md.us)  
Dana Havlik, Chief, Highway Hydraulics Division, [dhavlik@sha.state.md.us](mailto:dhavlik@sha.state.md.us)

Department of the Environment

Kelly Neff, Wetlands and Waterways, [kneff@mde.state.md.us](mailto:kneff@mde.state.md.us)

Gregorio Sandi, Natural Resources Planner, Science Services Administration, [gsandi@mde.state.md.us](mailto:gsandi@mde.state.md.us)

Department of Natural Resources

Helen Stewart,

Kevin Coyne, Chesapeake and Coastal Watershed Services, [kjcoyne@dnr.state.md.us](mailto:kjcoyne@dnr.state.md.us)

Erin McLaughlin, Chesapeake and Coastal Watershed Services, [emcloughlin@dnr.state.md.us](mailto:emcloughlin@dnr.state.md.us)

Maryland Environmental Service

Michael Herzberger, Supervisor, GIS Services, [mherz@menv.com](mailto:mherz@menv.com)

Theresa Foye, GIS Services, [tfoye@menv.com](mailto:tfoye@menv.com)

**Editor**

Brittany Smith

Intern, Oak Ridge Institute of Science and Education

U.S. Environmental Protection Agency

[smith.brittany@epa.gov](mailto:smith.brittany@epa.gov)

**Additional Information**

For additional help regarding the use of Web Mapping Applications, the [ESRI User Forums](#) provide a place to share information with other users.

For more information about ESRI GIS products, please visit the [ESRI website](#).