



# How to Use the Vermont Agency of Natural Resources (VT ANR) Natural Resources Atlas

2023

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# How to Use the VTANR Natural Resources Atlas<sup>1</sup>

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<sup>1</sup> Last updated January 11, 2023

## How to Use This Guidance Document

This guidance document is for use with Vermont's Natural Resources Atlas, which is found at:  
<https://anrmaps.vermont.gov/websites/anra5/>

You will notice some symbols throughout these instruction sheets.



The red arrows highlight where to look and click in the Natural Resources Atlas to complete a task.



Look for the star symbol as you flip through the pages of this guide to identify when to practice a task.

# Basic Functions

## Go to the Natural Resources Atlas Website

Go to <https://anr.vermont.gov/maps/nr-atlas> and click on one of the links for the Natural Resources Atlas or on the image. The Atlas will open. This may take a few moments. You may also go direct to: <https://anrmaps.vermont.gov/websites/anra5/>.

VERMONT OFFICIAL STATE WEBSITE

STATE OF VERMONT  
**Agency of Natural Resources**

FOR THE PUBLIC MUNICIPALITIES BUSINESSES

Home  
Environmental Conservation  
Fish and Wildlife  
Forests, Parks and Recreation  
Planning and Permitting  
Maps and Mapping  
Natural Resources Atlas  
Web Maps  
GIS Data  
Downloadable Maps  
BioFinder  
You and the Environment  
Public Records  
About the Agency  
Contact Us

### NATURAL RESOURCES ATLAS



**Natural Resources Atlas**

The purpose of the [Natural Resources Atlas](#) is to provide geographic information about environmental features and sites that the Vermont Agency of Natural Resources manages, monitors, permits, or regulates. In addition to standard map navigation tools, this site allows you to link from sites to documents where available, generate reports, export search results, import data, search, measure, mark-up, query map features, and print PDF maps.

View our [Natural Resources Atlas](#) by clicking the map above.

If you have any questions regarding the Atlas, please contact:  
[Erik Engstrom, the Natural Resources Atlas Guru.](#)

**Julie Moore**  
Agency Secretary  
**Peter Walke**  
Deputy Secretary

1 National Life Drive  
Davis 2  
Montpelier, VT 05620-3901  
(802) 828-1294

**Get Involved**  
Volunteer with ANR  
Buy a Habitat Stamp  
Stewardship Opportunities

**Get Outdoors**  
Find a State Park  
Don't Move Firewood  
Fishing In Vermont

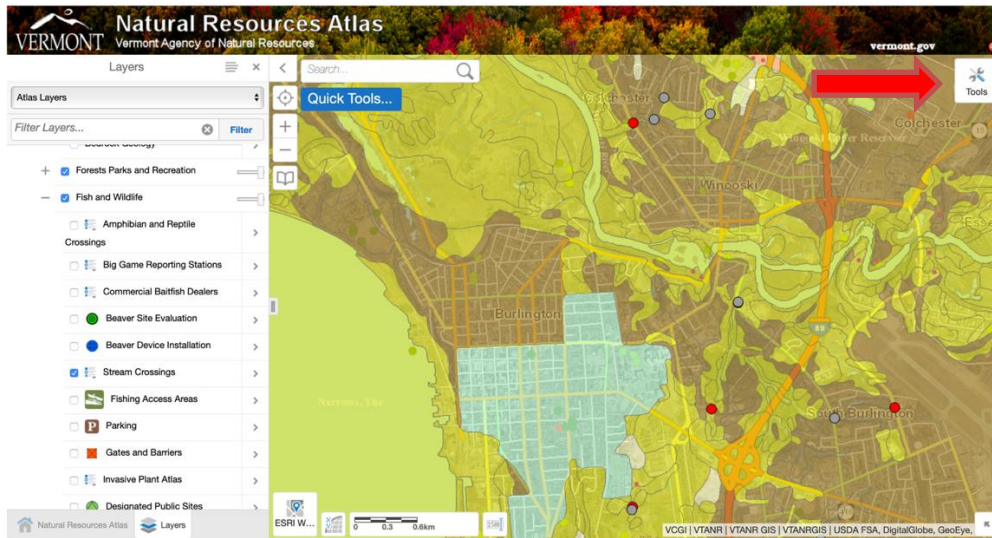
**How Do I?**  
Report a Violation?  
Get Help with a Permit?  
Find Emerald Ash Borer information?  
Get PFOA Information?  
Request a Public Record?

Copyright © 2019 State of Vermont. All rights reserved. Accessibility Policy + Privacy Policy + Feedback Survey.

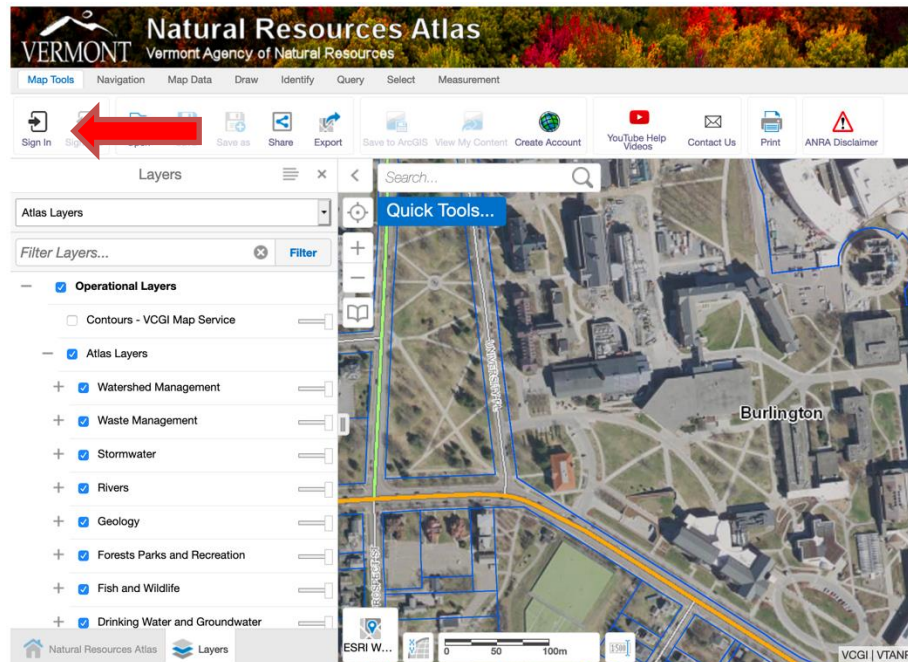
## Open the Toolbar to Sign In

While not mandatory, if you want to save your projects, you must sign in to the Natural Resources Atlas. When you sign in, the Atlas resets, thus it is a good idea to just sign in when you begin your work session. The first step to signing in is to open the toolbar.

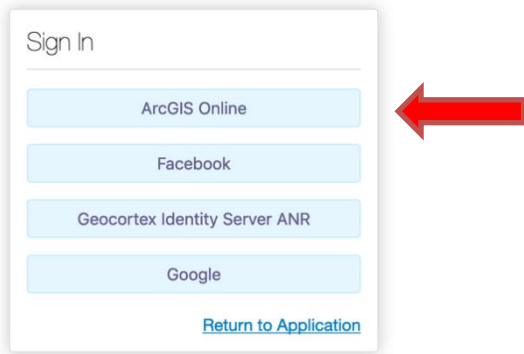
In the top right corner of the screen, click on the **Tools** icon to open the Toolbar. This will open a toolbar along the top of the screen.




Next, click on **Sign In** on the toolbar at the top left.




Signing in requires using one of several options (e.g., Google, Facebook). You will be prompted to select from the four sign-in options.



If you do not already have one of the account types listed, you will need to set one up to be able to save your maps. You can set up a free ArcGIS user account by clicking on the ArcGIS option (see arrow

above) or by clicking on the button on the toolbar to **Create Account** icon  before clicking **Sign In**.

Once you have logged in, you will have the option to click on the **Save** icon . We will cover this later in the manual.




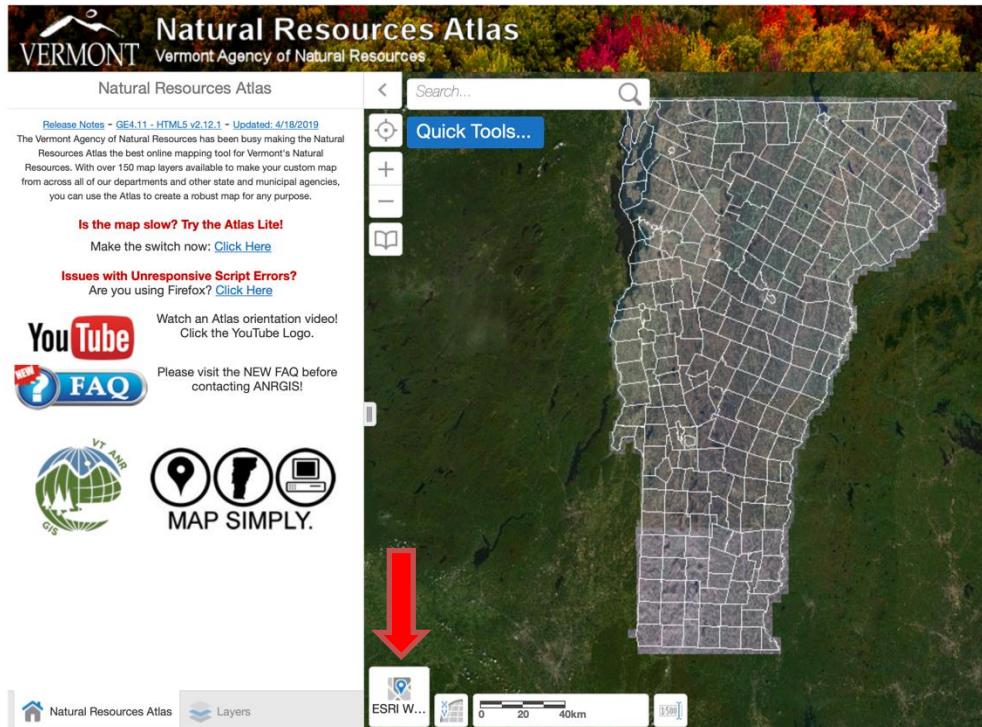
Try it out. Click on the **Tools** icon to open the toolbar. Then click on **Sign In**. Choose which application you would like to use to sign in or, alternatively, create an ArcGIS Online account. The Natural Resources Atlas opens a new window when you login. Therefore, after you have logged in, you must again click on the **Tools** icon to open the toolbar. At this point, you should see the option to save a project. If you have not signed in, this icon will be greyed out and not available to be selected.

Save icons When Not Signed-In	Save Icons When Signed-In
    	    

## Set and Change the Base Map

The base map is the imagery on which all of the map elements you select to use will be placed. Choose a base map that highlights what you are trying to show with the map. There are several options on the

Atlas. Some are satellite imagery and others are maps. Click on the ESRI W icon  in the lower left to open the suite of base map options.



Options include:

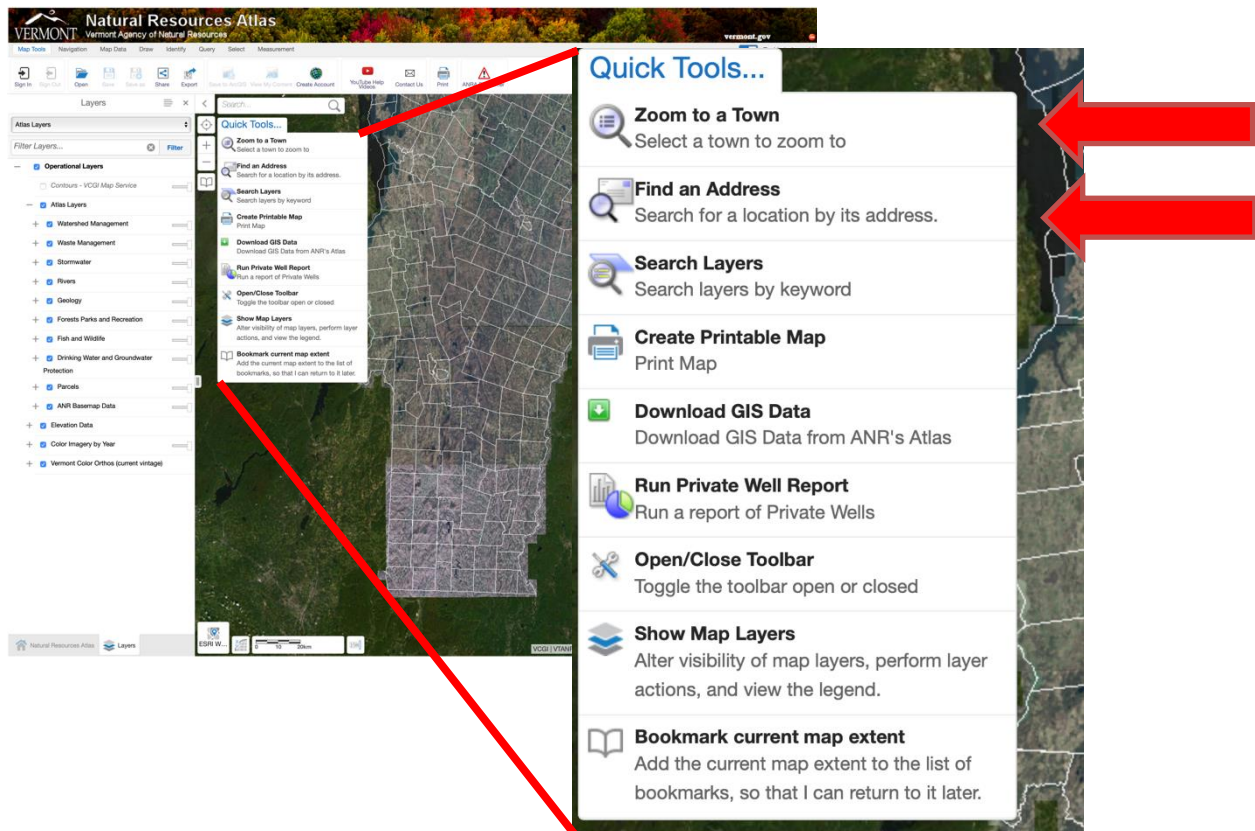
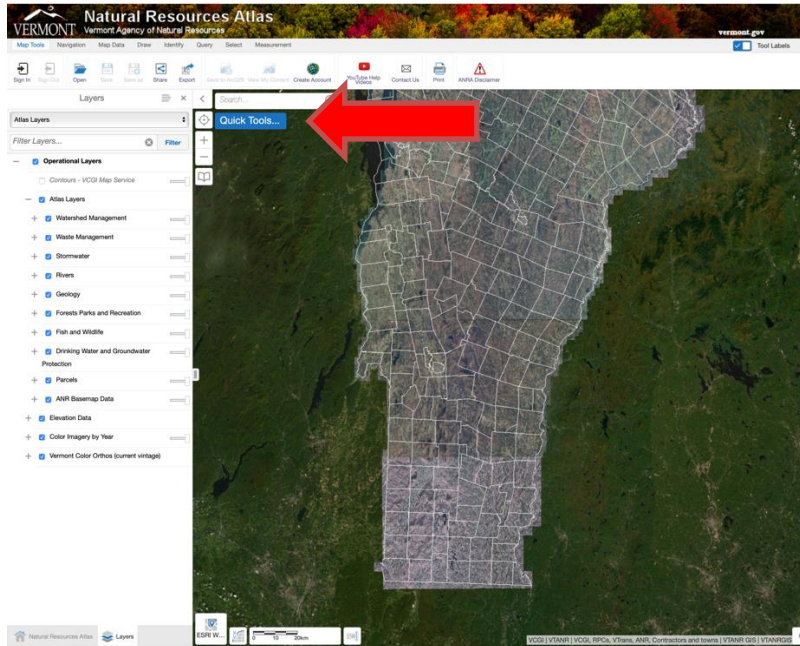
- ESRI world imagery: satellite imagery or high-resolution aerial imagery
- LIDAR Hillshade: a black and white image showing elevation changes in the land-based light shined towards a location and reflection of that light. LIDAR stands for LIght Detection And Ranging.
- B + W orthophoto: a digital black and white aerial image
- CIR orthophoto: a digital orthophoto made using color-infrared imagery. This type of imagery can go through haze in the atmosphere and is used to determine health of vegetation.
- Topo map: This is a topographic map, showing elevation changes and contours of equal elevation. These are like USGS topographic maps, but without some features.
- Grey canvas: This base map can be useful to draw attention to the layers you add to the map.
- USGS topo: Historical USGS 7.5-minute topographic maps have some features that the Topo map does not have, such as buildings. These were made until 1992. (For more details see: <https://www.usgs.gov/faqs/how-do-us-topo-maps-differ-historical-usgs-topographic-maps.>)



Click through the base map options to see how they display. Find one that you prefer and click on it to make it your base map for these exercises. (You can always change later if you don't like it.)

## Identify your Area of Investigation

**Zoom to a Town** or **Find an Address** in the **Quick Tools** menu are both ways to zoom in on the map to see the area you want to investigate more closely. Click on **Quick Tools** to open this dropdown menu.

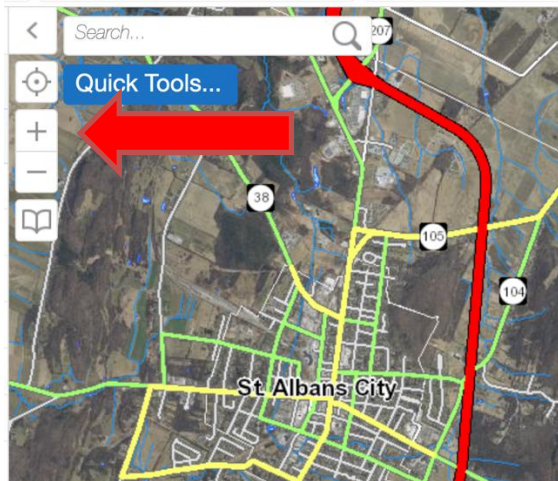


When using the **Zoom to a Town** function, simply click on that option and then enter the name of the town of interest. It will zoom to the extent of that town. For the **Find an Address** function, enter the



street address and town where you wish to zoom. You will be given a list of matches and will need to choose the best match for your needs (e.g., you may be given the option to zoom to that address using E911 data or using a Bing search engine address). Double click on the name in the list of available options to zoom to that address.

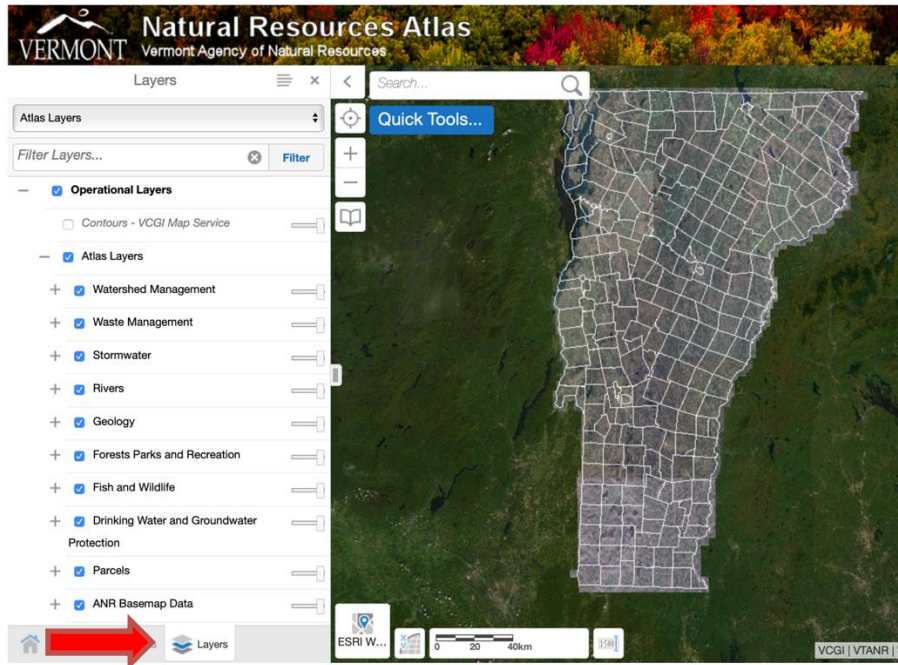
Two alternative ways to zoom to a location is to zoom in on the map using the mouse to double click on an area in which you are interested, or click on the '+' symbol on the map just below the **Quick Tools** menu, and then use the mouse to move up or down or sideways on the map.



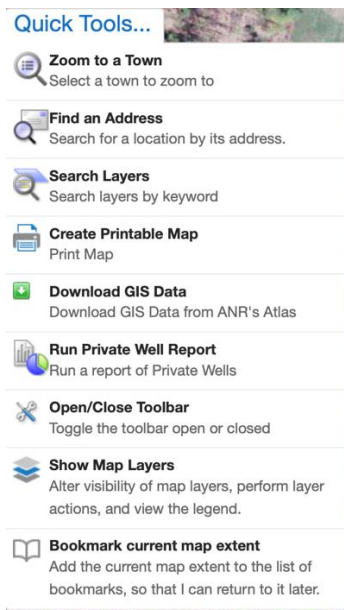
Try zooming to a town by clicking on that command and entering the name of a town where you have some interest. Then use the find an address command and enter an address of a property that you represent. Click on the best match that comes up and see how the map zooms into that location.

## Determine Which Layers to Use

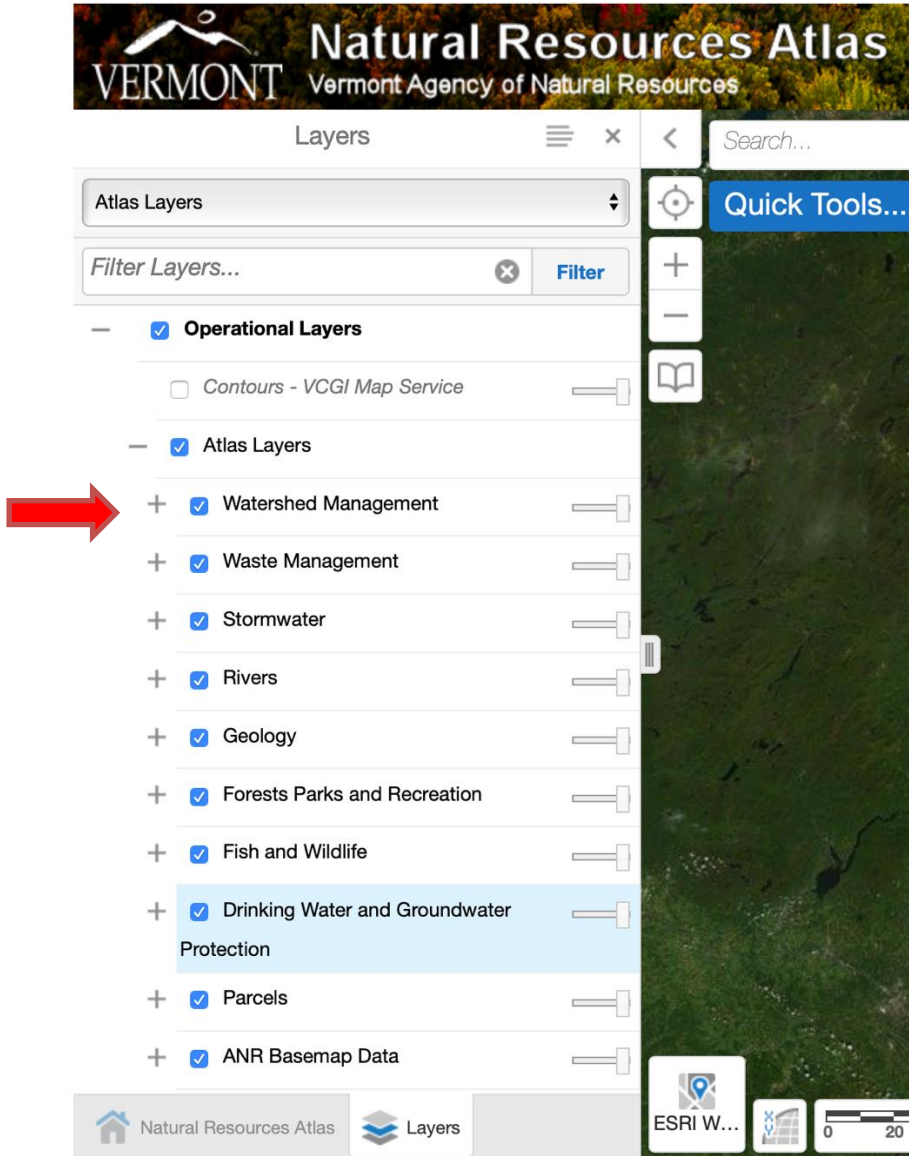
“Layers” refer to the types of data that you can show on your map. When selected, the chosen information is *layered* onto your map like sheets of paper being laid on top of one another. To show the list of possible layers from which you can choose, click on the “Layers” tab at the bottom right of the left panel.



Alternatively, you can click on Quick Tools, and choose Show Map Layers. This is also handy if you accidentally close the layers pane on the left.

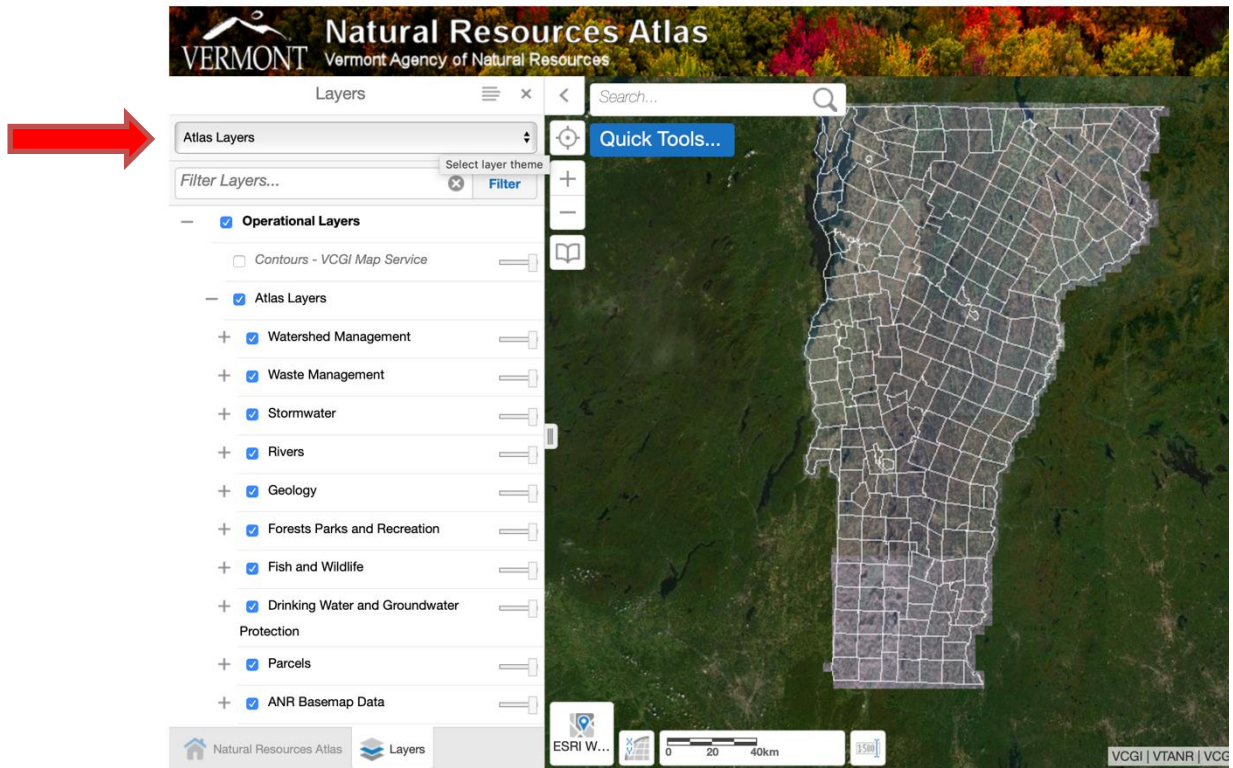


A list of layer categories with small checkboxes next to them and '+' or '-' signs should appear. To expand any layer category to see all the possible layers within the category, click on the '+' next to the category and it will expand to list all of the layers in that feature. To hide layers in any category, click the '-' sign.



## Explore Specialty Maps

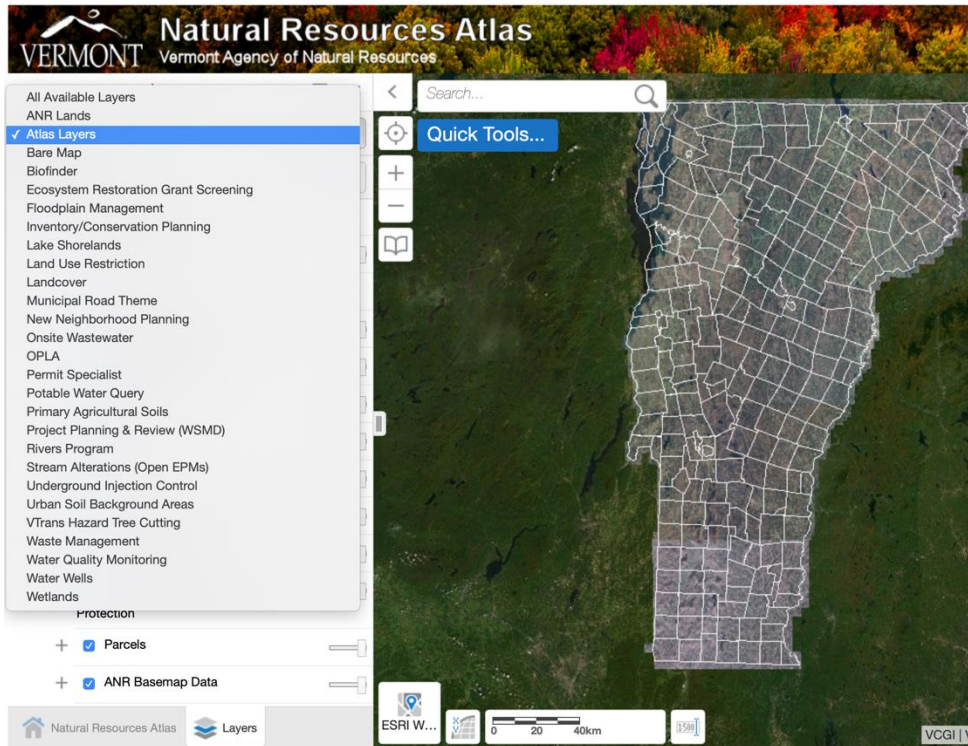
You will notice that there are many layers – far more than you can use in a single map. The Vermont Agency of Natural Resources has created a selection of specialty maps that select a reduced number of layers to show specific information. For instance, there is a specialty map for the **Rivers Program** that includes such layers as rivers, stormwater, geology, and fish and wildlife information.





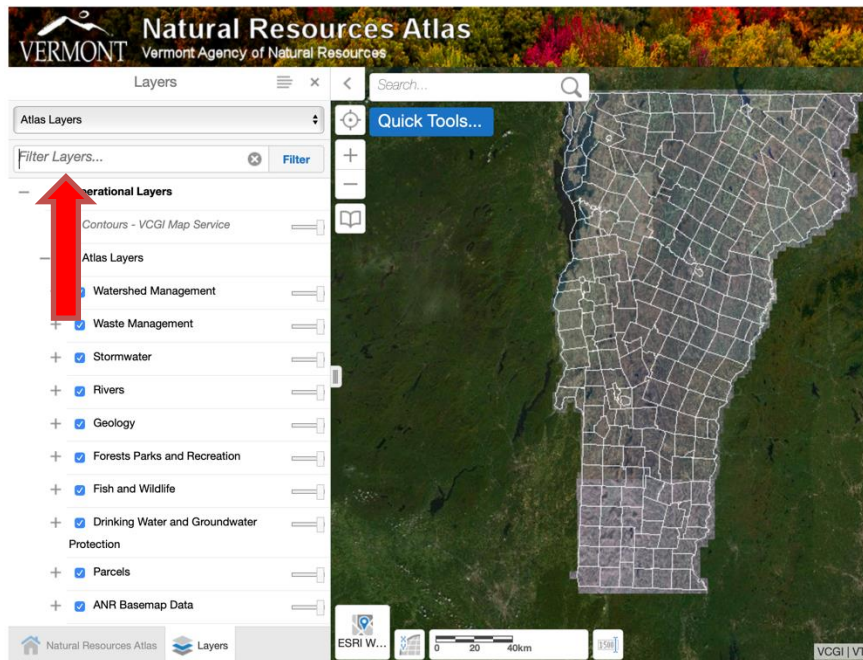
Click on the **Atlas Layers** dropdown menu at the top left to see the list of possible specialty maps you might choose to use. Click on a specialty map to see how the list of layers and the map changes. What do you find? Is there a theme that suits your needs more than another? Choose it! If you aren't sure what you are looking for, just leave the theme on the default, **All Available Layers**, so all the layers will be visible for you to choose.

Choose One



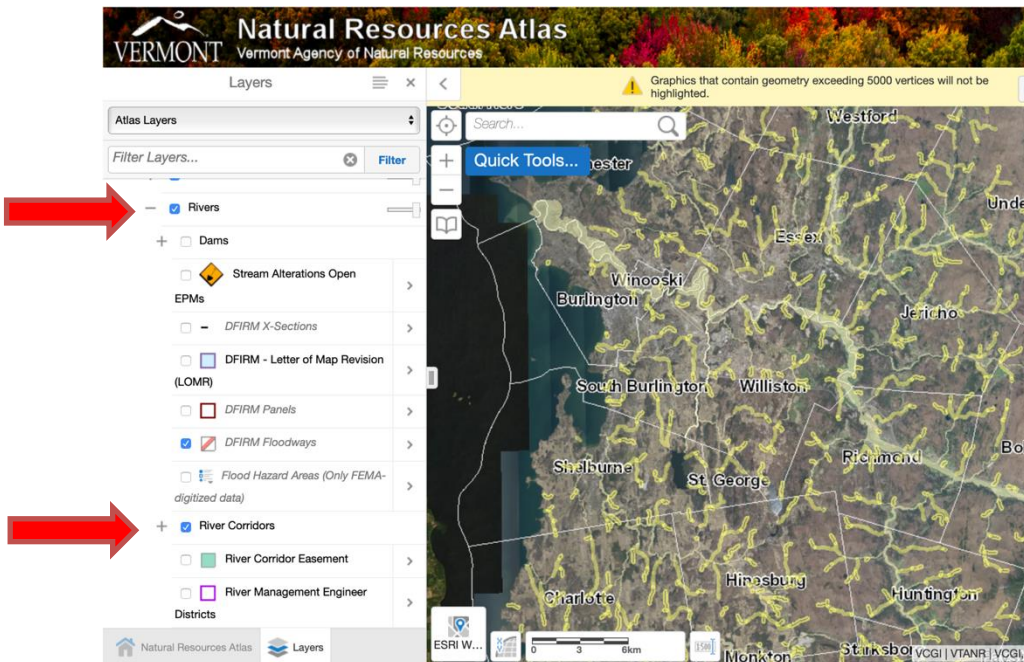
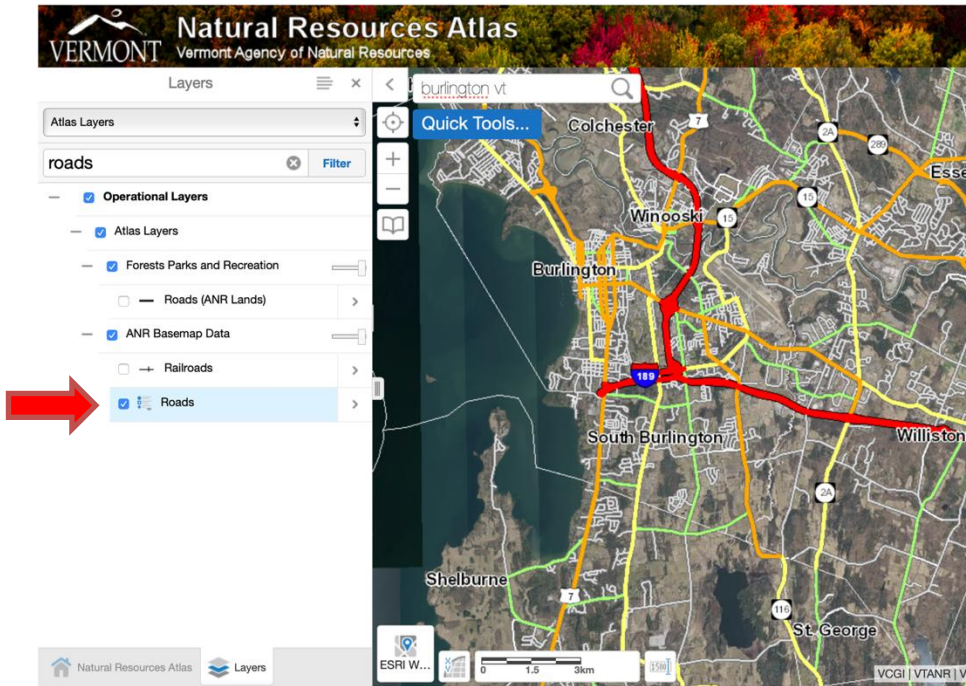
## Filter Layers

Another way to locate specific layers is to filter them by filling in the box just below the **All Available /Atlas Layers** dropdown menu that says **Filter Layers**. Type a word for which to search among the available layers and then click **Filter**. Examples of search terms include “permit,” “water,” and “transportation.” When you filter, only the layers that have your search word associated with them will be displayed in the Layers list.



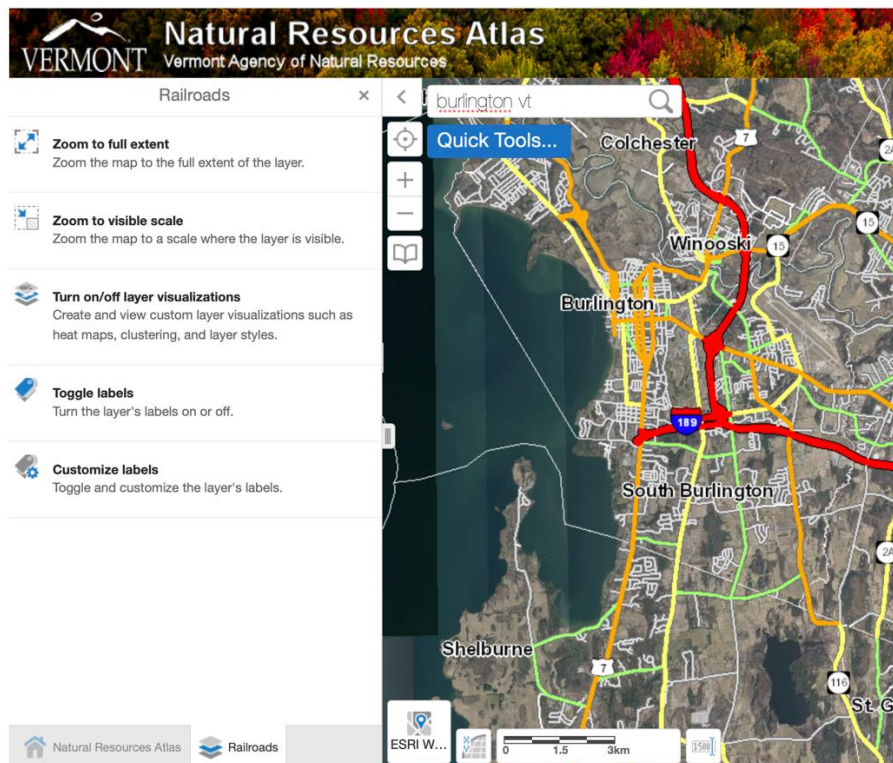
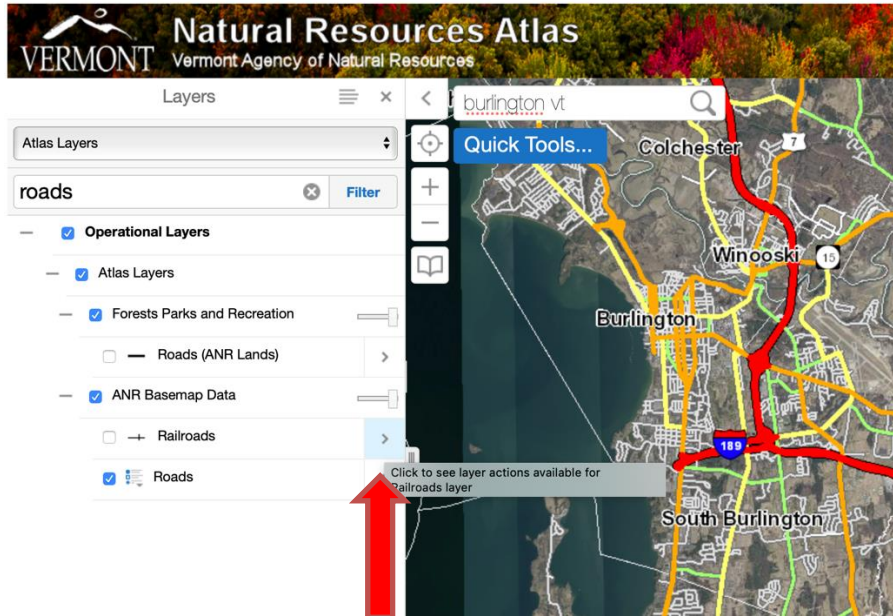
## Select (Turn on) Layers

To select a layer so that it will appear on your map, click the box next to the title so that a check mark appears in the box. In the examples below, the roads layer was turned on in the top image while the river corridors layer was turned on in the lower image.



## Zoom to Layers

If some of the layer names appear gray, you are zoomed out too far. You can zoom in on the map by double clicking on an area of interest or you can click on the arrow at the right side of layer name and then click **Zoom to Visible Scale**. The map will automatically zoom in to a level where you will be able to show that layer data.





## Commonly Used Layers

Some layers may be particularly useful to Real Estate Professionals. Here is a listing of several and the headings under which you can find them:

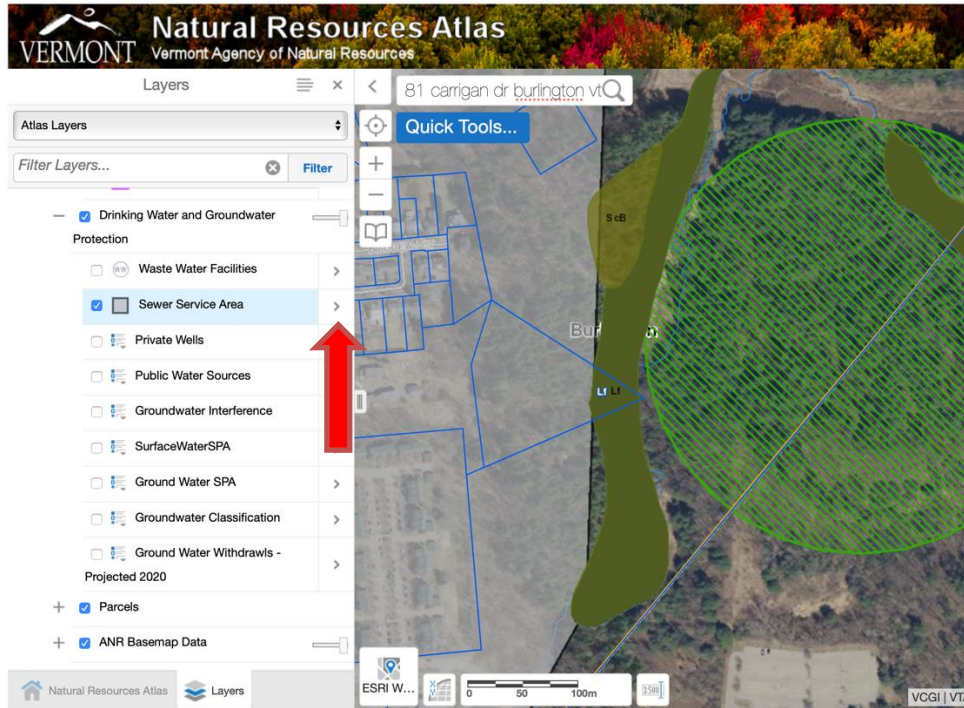
- **Watershed Management**
  - Lakes and Ponds Shoreland Permits
    - A project within 100 feet of mean water level is considered Category A.
    - A project at least 100 feet away is considered Category B.
  - Protected Shoreland Areas
    - Wetlands – VSWI
- **Waste Management**
  - Underground Storage Tanks
- **Rivers**
  - River Corridors
  - DFIRM Floodways
  - Flood Hazard Areas
- **Stormwater**
  - Small MS4
- **Geology**
  - Floodable Soils
- **Forest, Parks and Recreation**
  - Recreation Sites
- **Drinking Water and Groundwater Protection**
  - Sewer Service Area
  - Private Wells
  - Public Water Source
- **Parcels**
- **ANR Basemap Data**
  - Buildings (E911)
  - Act 250 Permits (Note: database is incomplete)
  - Roads
  - Waterbody
  - Stream/River
  - Town Boundary
- **Elevation Data**
  - Slope
  - Elevation



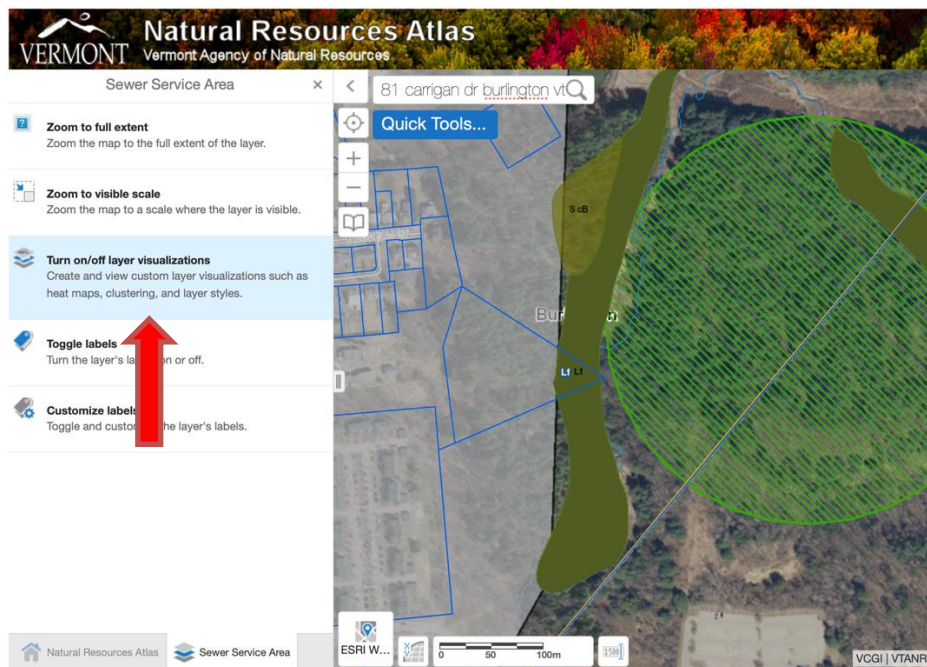
Turn on several layers and see what happens. What do you find? Anything surprising? Is your map hard to read with all those layers turned on?

## Modify Layer Properties

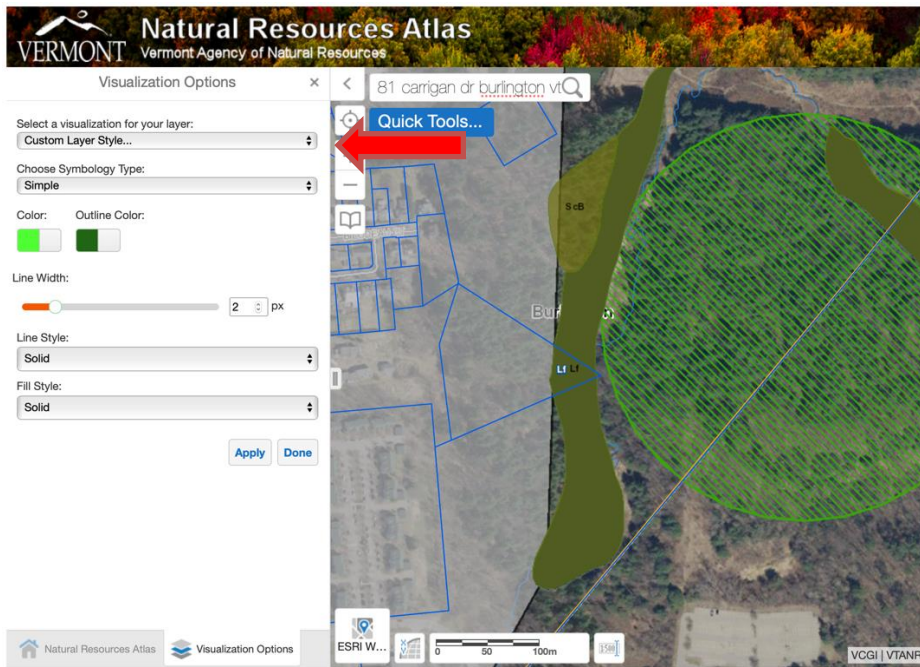
When you are viewing many layers, or even when just a few layers overlap, it can be difficult to see everything on the map. You can change the transparency, color, and outline of some of the layers by clicking on the arrowhead to the right of the name of the layer in the layers list.



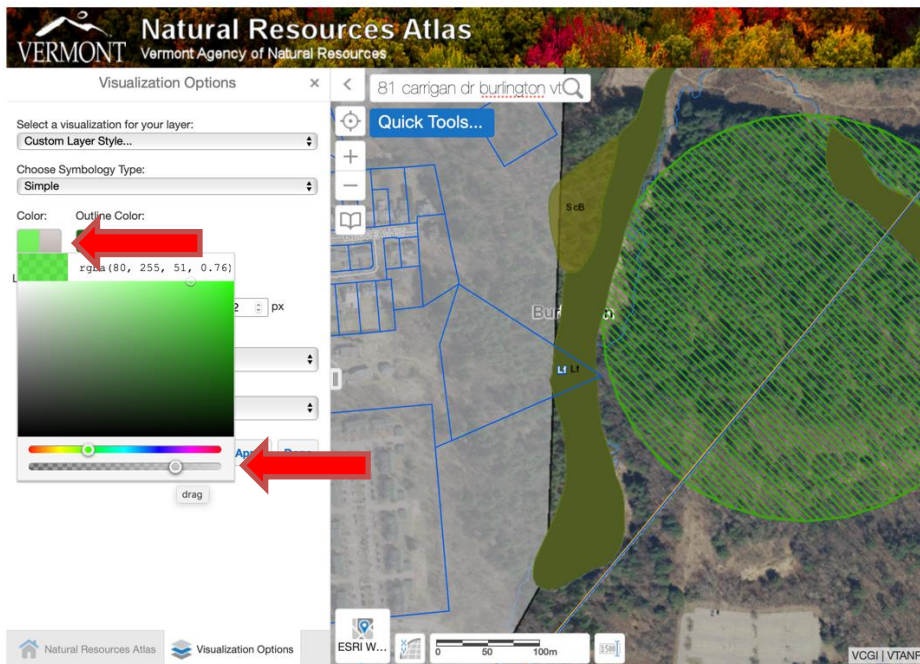
When you click on the arrowhead, a box will pop up with several options. If you have the ability to change its look, the option to **Turn on/off layer visualizations** will be an option in the list.



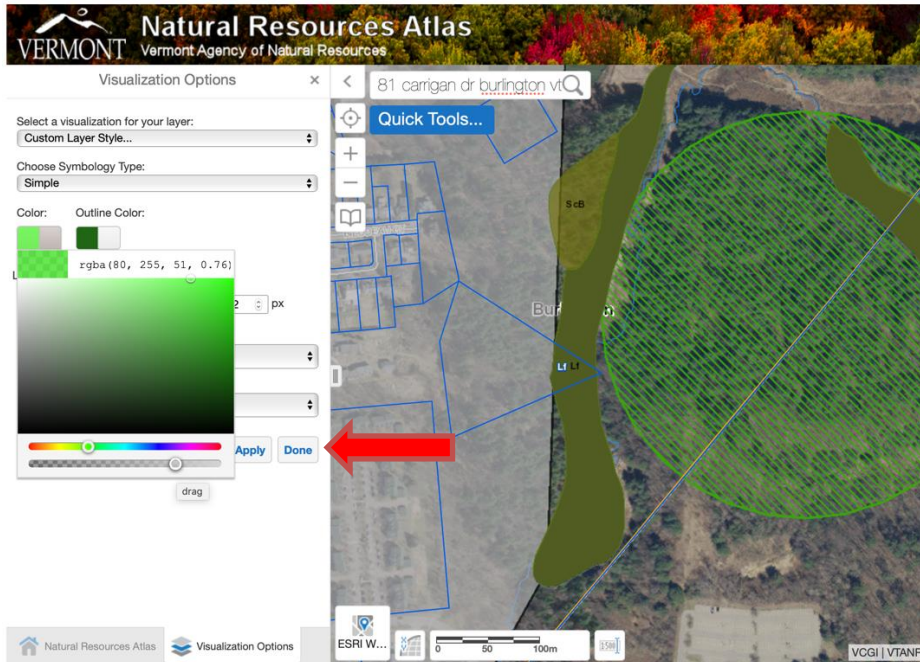
Click on **Turn on/off layer visualizations**. A box will appear where you need to select a visualization for your layer. Choose **Custom Layer Style**. This will reveal visualization options that allow you to change symbology, colors, line width, and line and fill style.



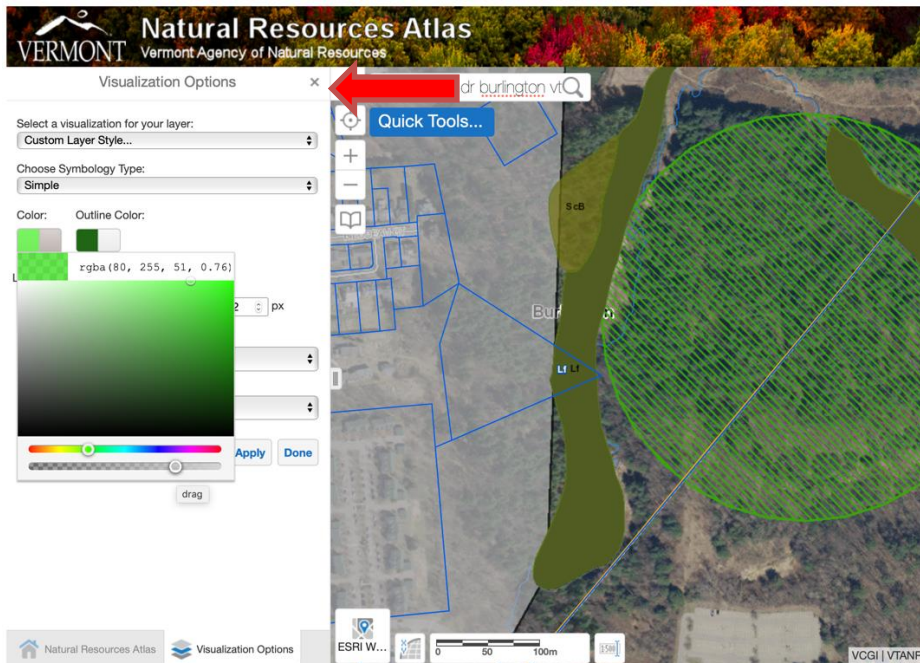
To change the color or its transparency, click on **Color**. Select a color of your choice from the box or the color bar below the box. Use the toggle bar at the bottom of the box to select a percent transparency. Note: You may also change transparency of the layer using the slider to the right of the layer title, like shown here for the ANR Basemap Data layer:



Click **Apply** to see your changes, and **Done** once you have finished editing.



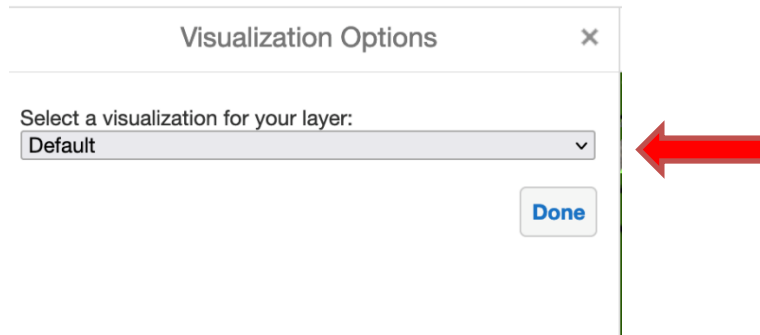
To return to the layers menu, click the **x** in the upper right of the **Visualization Options** menu.



Turn on several layers of interest to you, then select one to try changing how it looks. Choose your own color scheme, or make this layer bright yellow, 40% transparent, and

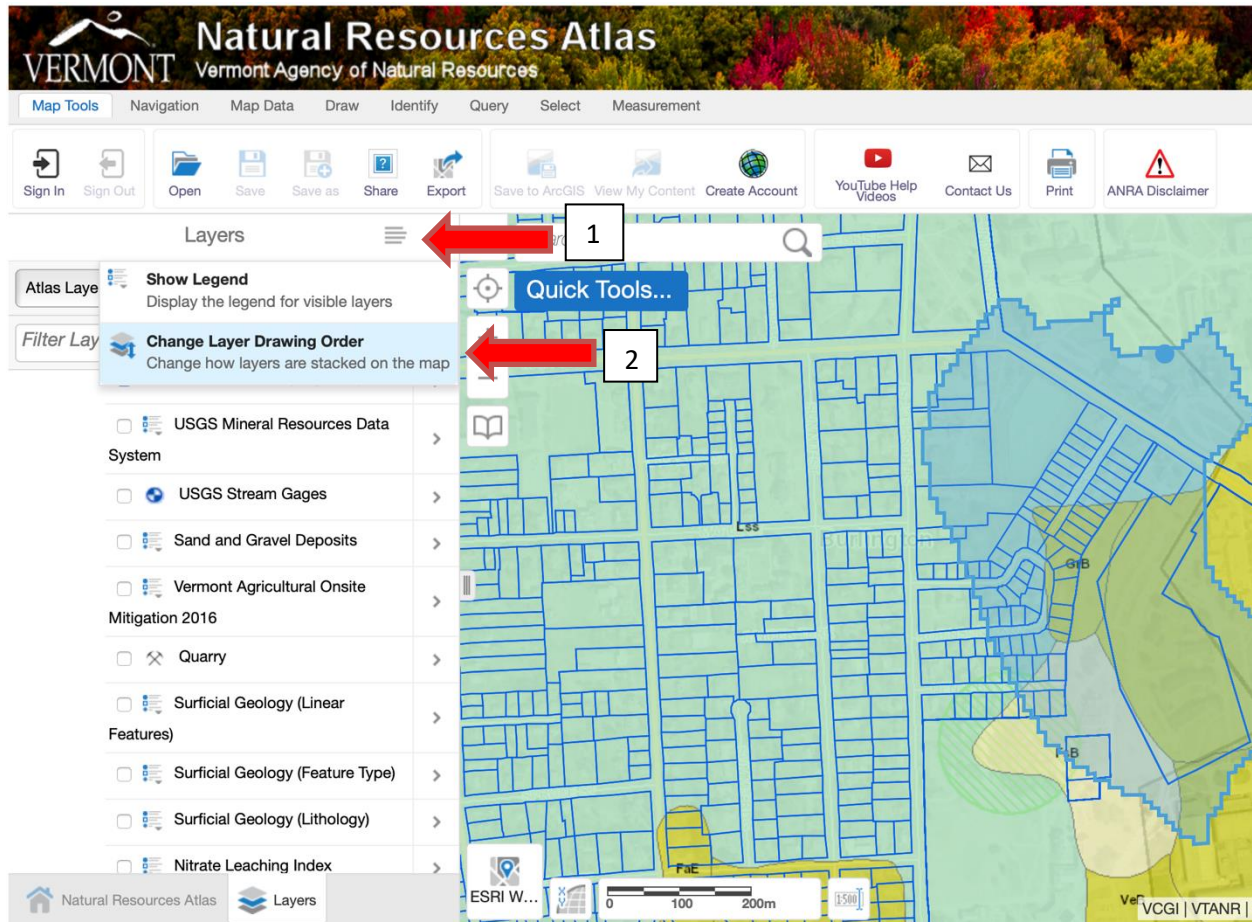
shown with a “diagonal cross” fill style. Preview the change by clicking **Apply** and **Done** to save the changes on your map.

If you want to return to the default color scheme, choose **Default** from the dropdown menu at the top of the **Visualizations Options** menu. This allows you to change back and forth between your personalized layer properties and the default. Give it a try.

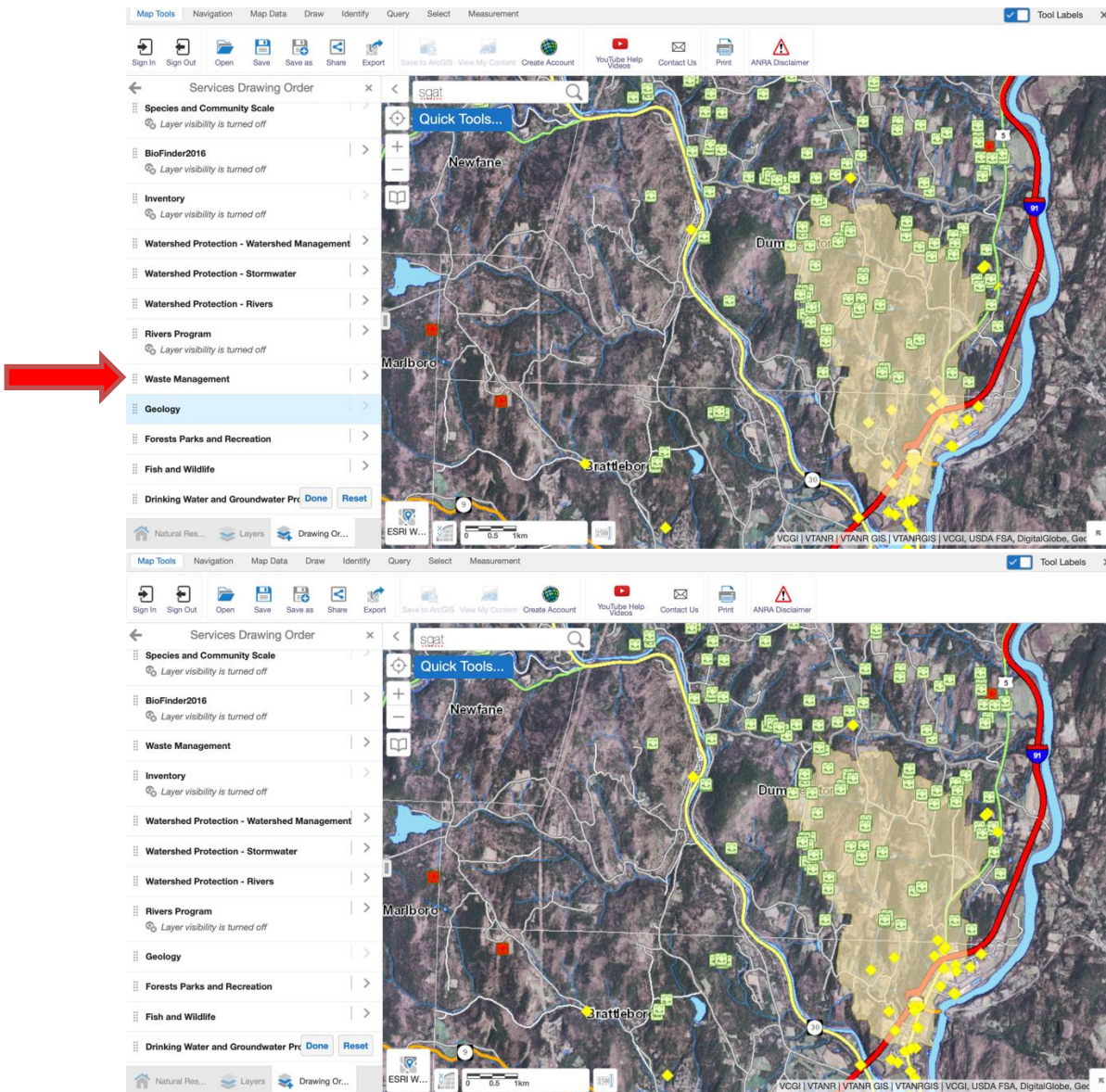


## Change Layer Drawing Order

The order in which layers are drawn indicates which one will sit on top. If you have many layers that cover large swaths of land (like soils, slope, FEMA floodways) you may wish to put point features (like homes, bridges, wells, tanks) on top of the others so they stand out. To do this, in the left side bar, click on the four bars icon to the right of **Layers**, and then click **Change Layer Drawing Order**.



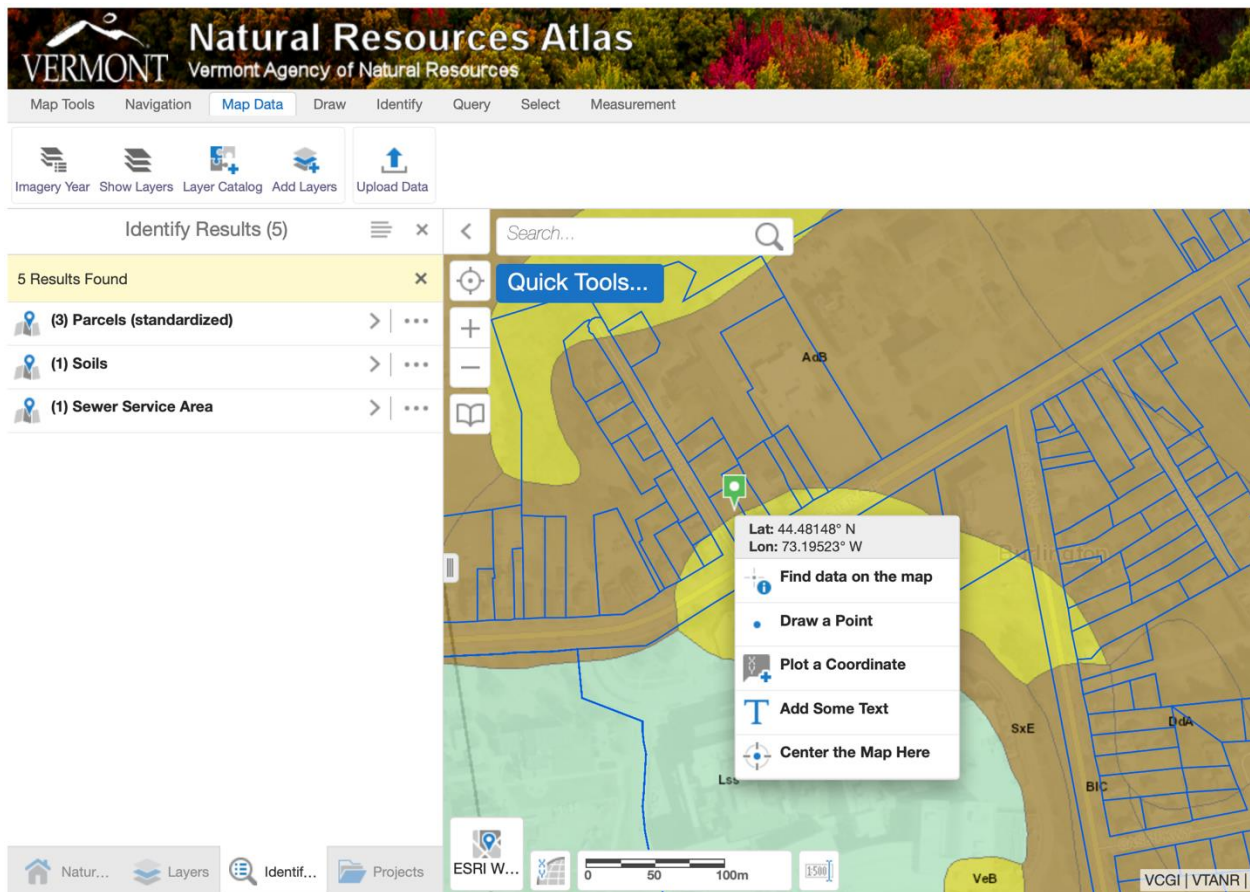
Now you can drag and drop the layers to be in the order that you like. Click on the 8 dots at the left of the layer to drag it. In the series of two images below, the Waste Management layer was moved up so the yellow diamonds displayed more visibly on top of the yellow watershed area in the bottom image.



Now you try it. Turn on some layers on your map. Make it a mixture of layer types (some point and some “raster” – like the watershed area in the image above – so that some point features are hidden beneath the raster layers.) Rearrange the layer drawing order so that your point feature(s) are on top of the raster layers (i.e., move the point features so they are at the top of the list). Once you have done this, click **Done** and check out your map. It should look different. If at any time you want to return to the layer list, just click on the icon in the lower left that looks like three stacked pages.

## Learn More Information About Layers

Once you have some features displayed on your map in a manner that works for you, you may want more information about what is shown. To learn more, hover your cursor over some feature on the map and right click (control-click on a Mac). A little box should appear with five options listed. Click on the first one, **Find data on the map**. This will ask (or “query”) the map data to identify what is at that location. Dozens of results may appear in the left side bar, or just one, or nothing, depending on where you click and what layers are in use.



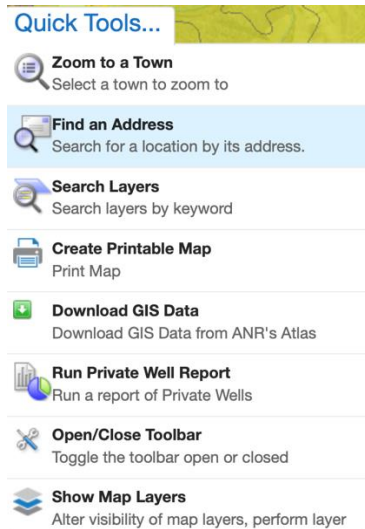
Click on one of the Results in the list that appears when you try this on your map. It should display some more information about the feature that you selected. Sometimes it is very specific – like a hazardous waste report for a particular gas station or the actual stormwater permit for a given neighborhood - and sometimes it is more general – like the soil fact sheet for the type of mapped soil in a given location. This is a quick and easy way to dig a little deeper into what the map is displaying. We will learn more techniques for getting this information in the toolbar section.



## Quick Tools and Toolbar Functions

### Quick Tools

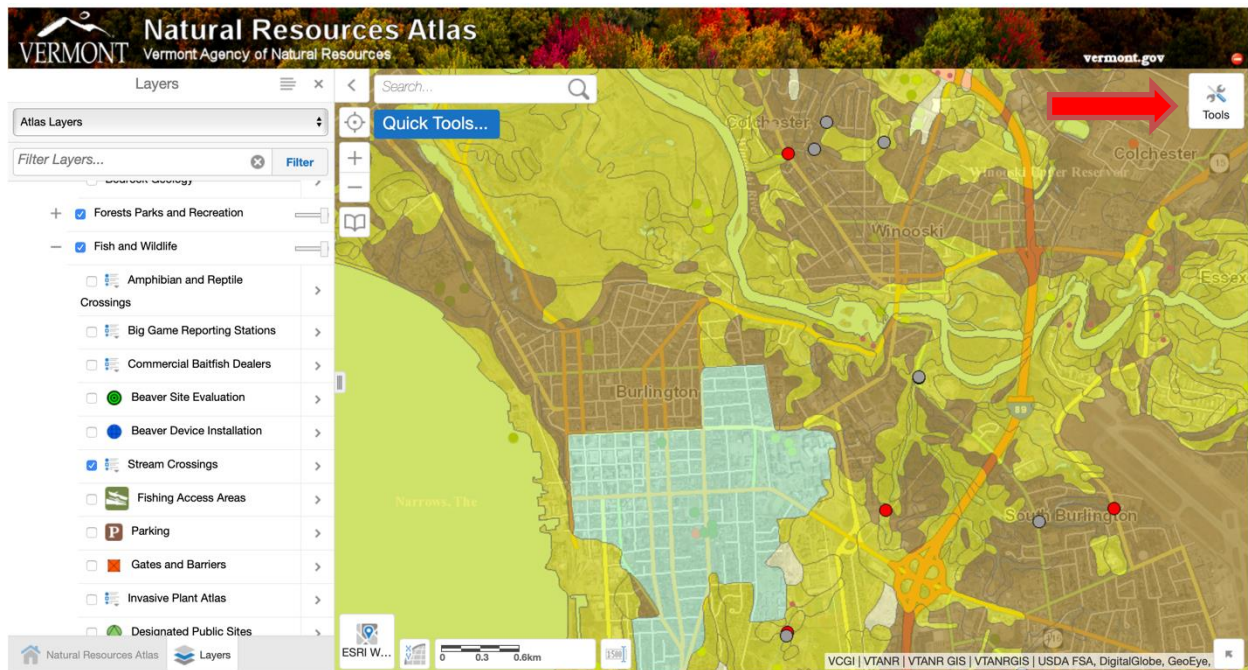
Some commonly used tools in the toolbar can be easily found in the “Quick Tools” drop down menu.



Try it out. Run a Private Well Report by clicking on this option from the Quick Tools menu and following steps to generate a report for a neighborhood of your choice.

## Open the Toolbar


In the top right corner of the screen, click on the **Tools** icon to open the Toolbar.

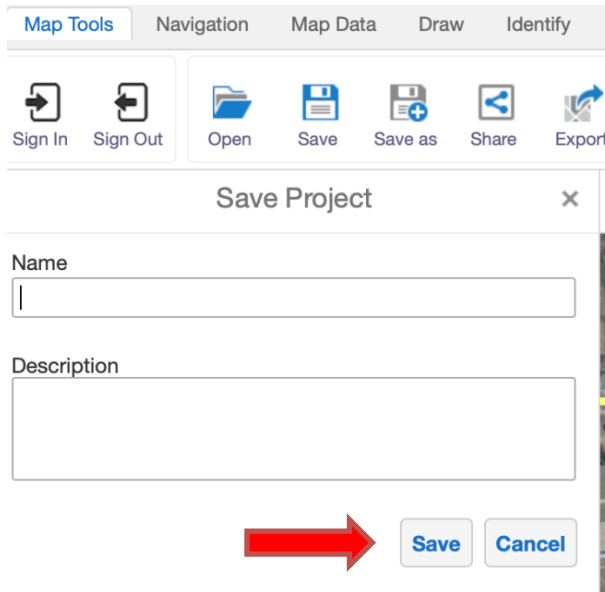


This will open a toolbar along the top of the screen. Let's explore more of the functionality along that bar.

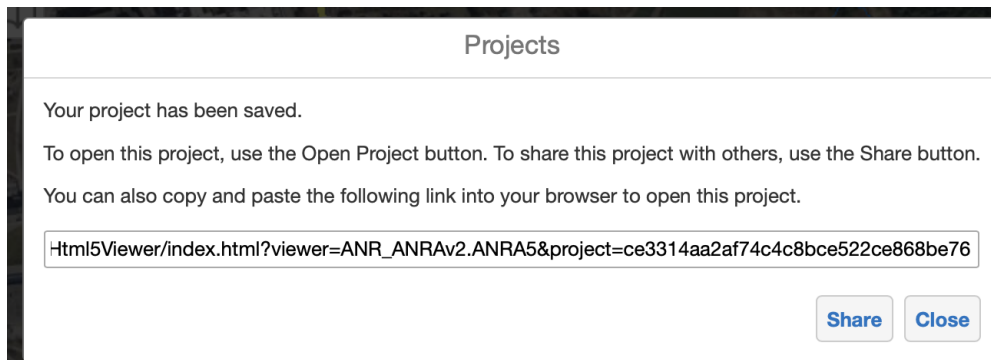
## Map Tools Toolbar


### Save and Open Projects

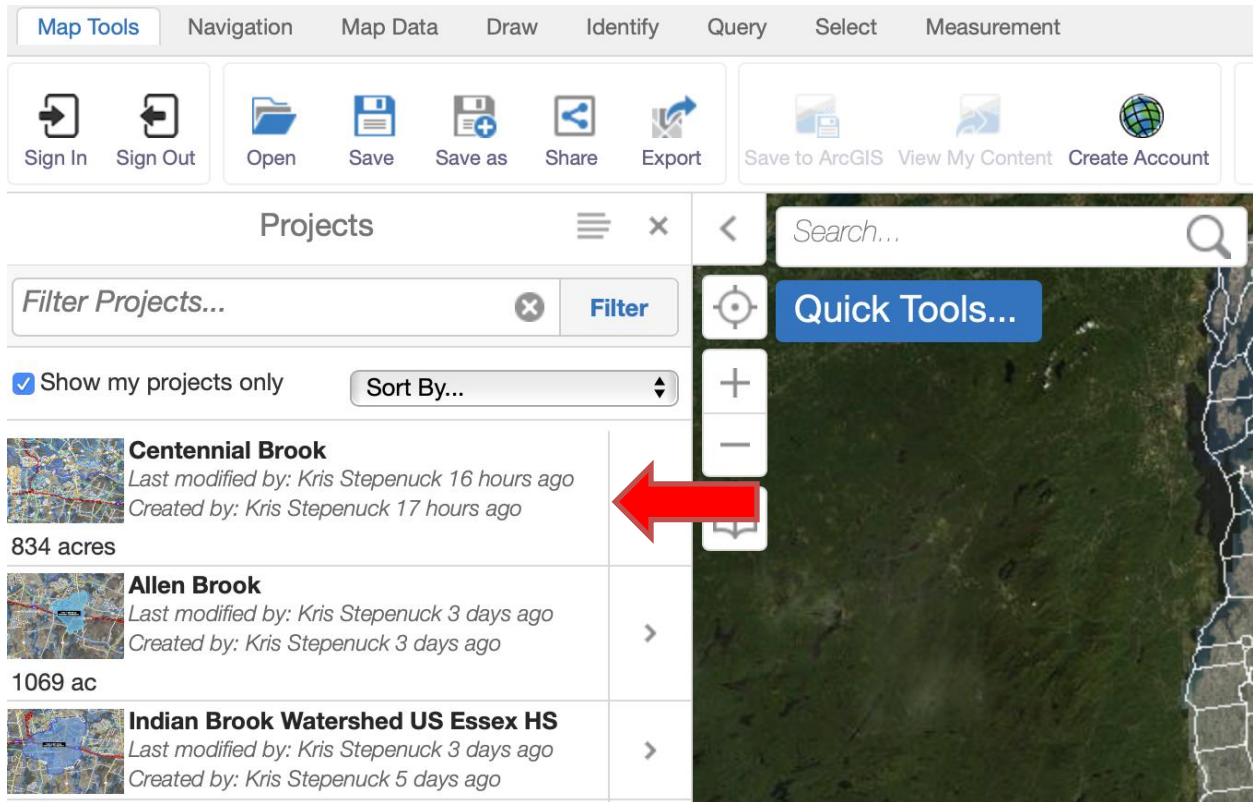
If you are working on a project and need to stop in the middle, recall that you can save your work but that you must first have signed in. Once you have signed in, you will have the option to click on the **Save** icon . To save the project, give it a name. You may also add additional descriptive information to help you remember what is in the project. Once you have filled in the name and description, click on the **Save** button.




After you save the file, you will be prompted with options to share it with others, save a link to use to access the project later, or access it from within the Natural Resources Atlas later.




If you choose to access the project later, when you return to the Natural Resources Atlas, sign in, and click on the **Open Project** button  to access it. It will open with all of the features you had previously included.











Try it out. Save your project by clicking on the save icon and giving your project a name. Now, to test it out, navigate back out to the full extent of the state of Vermont and turn off all the layers that you had on. (To do this, click on **Navigation** in the toolbar and then on

the **Full Extent** icon  . Then uncheck the layers you have checked.) Now click on

**Map Tools** and then on the **Open** icon  . Your file should be listed and available to be selected. When you click on it, it will open, and you can continue to work on it, building from the point where you left off earlier.


## Navigation Toolbar

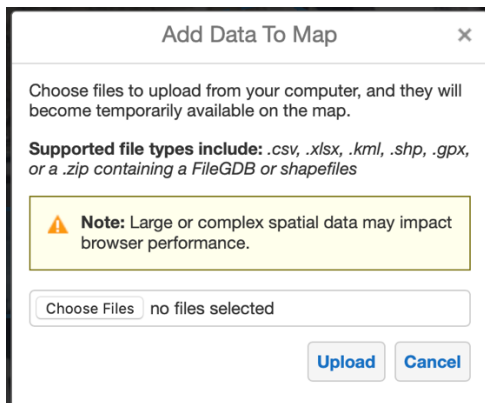
The **Navigation** toolbar menu has some basic functions that you will use regularly. Some of the icons may look familiar to you from other mapping tools such as Google. Here is a quick overview of the basic options:

- |  |   |
|--|---|
| <br>Pan                 | Click on this tool to pan or move the area you are viewing on the map.  |
| <br>Zoom In             | Use this tool to mark a box on the map that you want to zoom in on. The smaller the box you create, the more you zoom in.   |
| <br>Zoom Out            | Use this tool to zoom out to a designated extent. In this case, the smaller the box you create, the more you zoom out.  |
| <br>Zoom to Town        | Use this tool to zoom in on a specified town. It can also be found in the Quick Tools.  |
| <br>Zoom to Coordinates | Use this tool to zoom in using latitude and longitude in decimal degrees.   |
| <br>Zoom to SPAN        | Use this tool to zoom to a parcel using the School Property Account Number (SPAN). This unique 11-digit identification number is assigned by municipalities to each property. |
| <br>Full Extent       | Use this tool to zoom the map out to the full extent of Vermont.  |
| <br>Previous Extent   | Use this tool if you want to go back to the extent to which you were just zoomed.   |

## Map Data Toolbar

### Upload Data

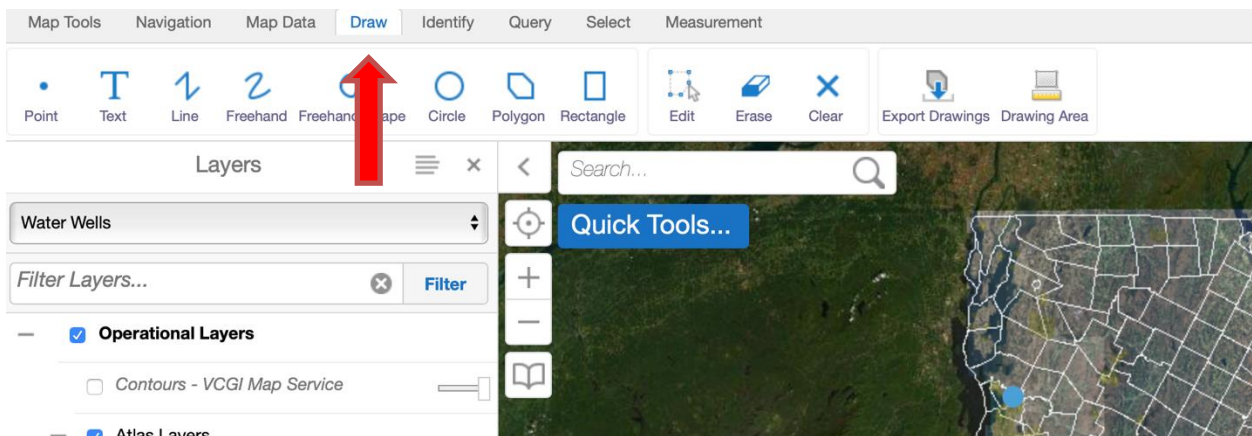
The Upload Data icon  in the **Map Data** menu of the toolbar gives options for adding a variety of data to the map. Click this icon to display the options.



You may upload a variety of files types, including .csv, .xlsx, .kml, .shp, .gpx, or FileGDB. This is useful if you have personal data specific to your location or layers that are available but not loaded onto the ANR Atlas already that you wish to have displayed. Just be sure when you are adding layers that you select ALL the files that the layer needs to display properly.

## Draw Toolbar

The **Draw Toolbar** includes allows you to draw points and shapes. Click on **Draw** to bring up the Draw toolbar.



The icons in this toolbar allow you to place points, text, lines, and shapes on the map. You can edit each feature, erase them one at a time or erase all mark-ups using the available icons. Using the drawing tools are easy to do and are useful if you want to highlight an area of the map, draw attention to some feature, or add text to help clarify something on the map. The color and thickness of the lines on these features can be altered using the style tools.

Map Tools Navigation Map Data Draw Identify Query Select Measurement

Point Text Line Freehand Freehand Shape Circle Polygon Rectangle Enable Snapping Select Snapping Layers Styles Edit Erase Clear Export Drawings Drawing Area

Select Drawing Style × < Click or tap a map location to add a point. ×

Type: Choose a style

Solid Blue Circle


Library: Solid

Search... Quick Tools... Test Rectangle Burlington

Detailed description: The image shows a software interface for drawing on a map. At the top, there are tabs for 'Map Tools', 'Navigation', 'Map Data', 'Draw', 'Identify', 'Query', 'Select', and 'Measurement'. Below these are icons for various drawing tools: Point, Text, Line, Freehand, Freehand Shape, Circle, Polygon, Rectangle, Enable Snapping, Select Snapping Layers, Styles, Edit, Erase, Clear, Export Drawings, and Drawing Area. A 'Select Drawing Style' panel is open on the left, showing a grid of colored shapes (circles, squares, diamonds) and a 'Library' dropdown set to 'Solid'. The main map area shows an aerial view of a city with a blue rectangle labeled 'Test Rectangle' and a blue circle drawn over a building. A search bar and 'Quick Tools...' button are visible on the map. A yellow notification bar at the top right says 'Click or tap a map location to add a point.'

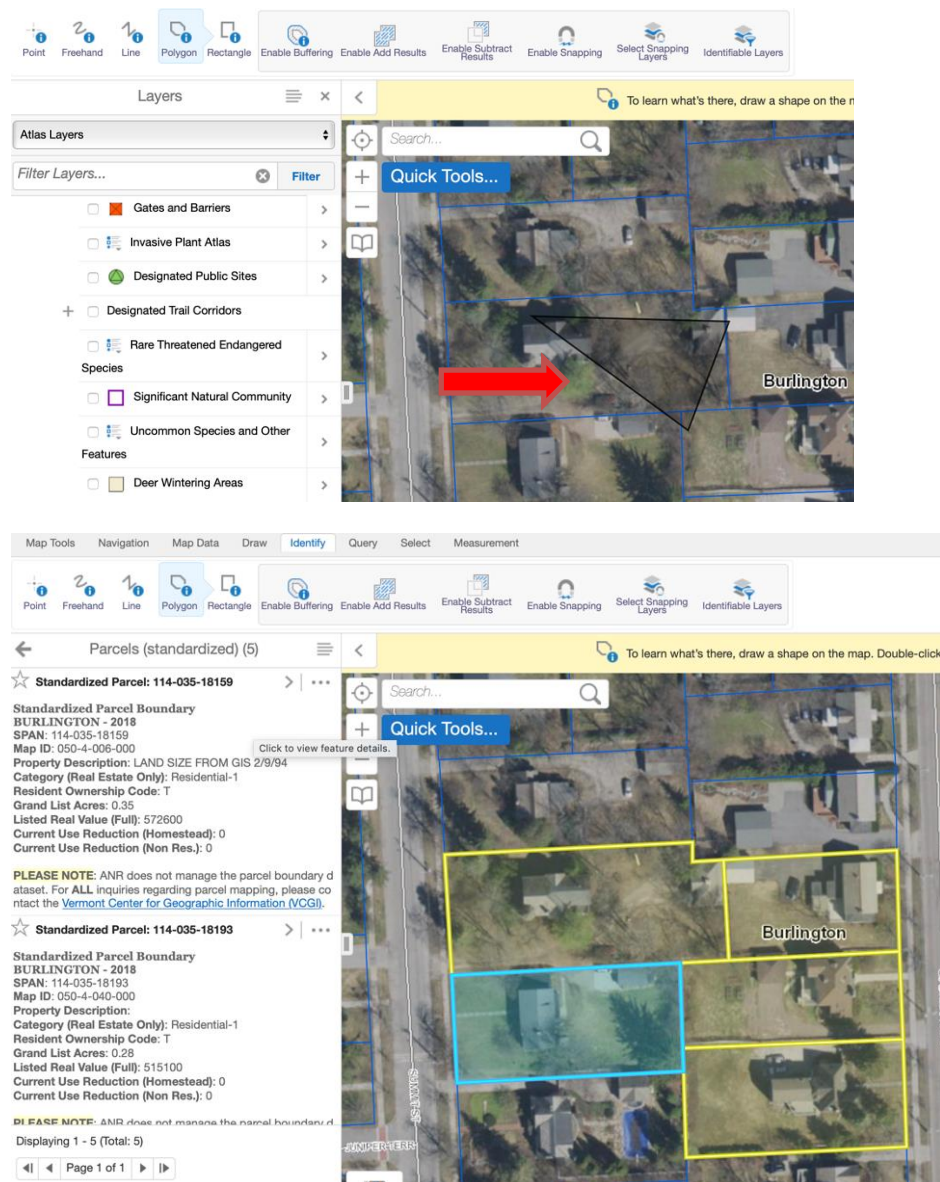
## Identify Toolbar

This options in the **Identify Toolbar** allow you to add your own shapes based on a number of criteria. The location information includes Point, Freehand, Line, Polygon, and Rectangle icons




. With these tools you can select areas within which you would like more information. With some layers turned on and displayed on your map extent, you can click on any of these options, select a point, line, or polygon on the map and the Results pane will display all of the selected layers that have a feature in the area and any information about that feature(s).

For instance, in the example below, a triangle-shaped polygon was drawn, and that polygon was part of five different parcels. Thus, information about these five parcels (shown in lower image) came up after the polygon was completed by double-clicking.

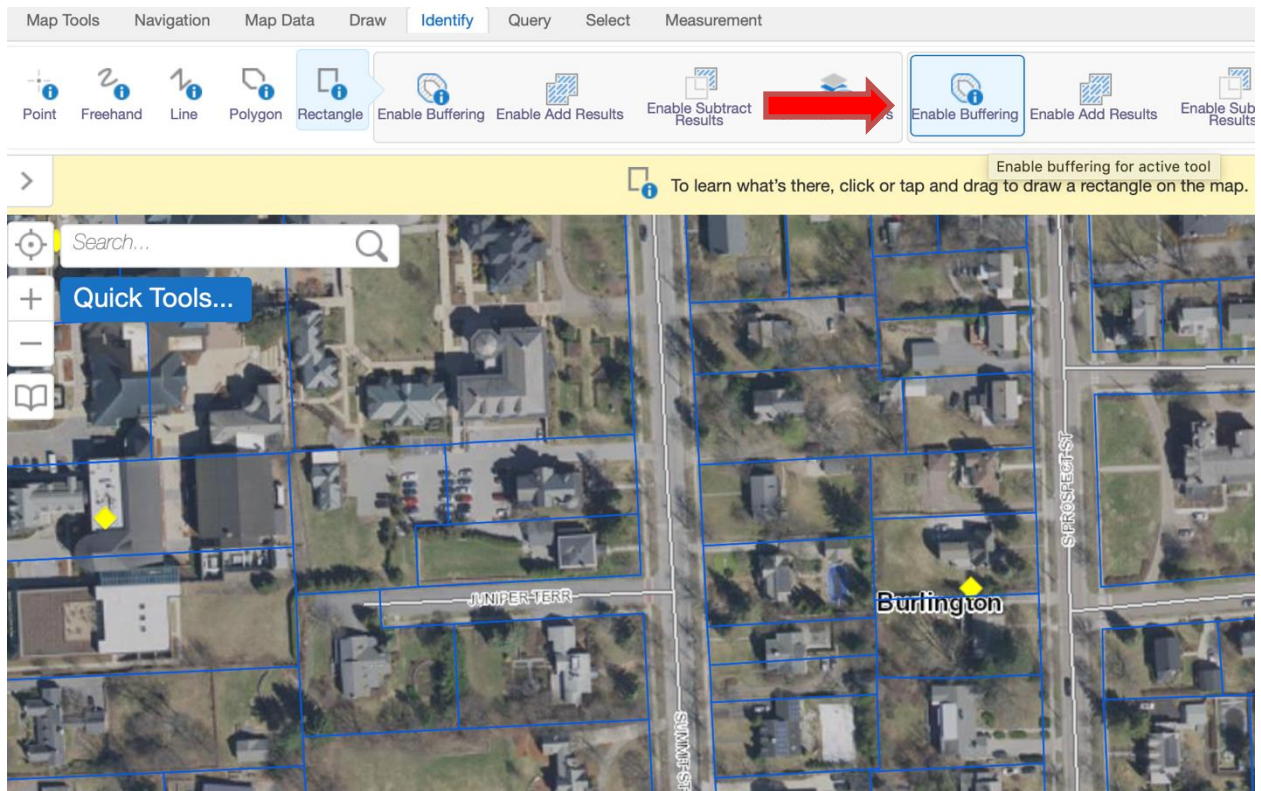




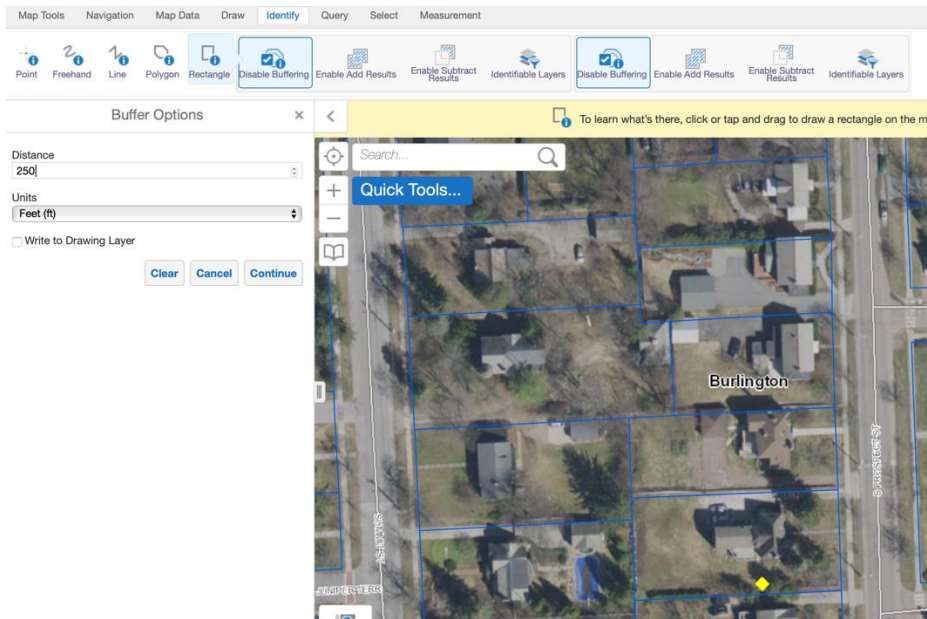
## Add a Buffer

The Enable Buffering icon  in the **Identify** toolbar allows you to add a buffer of your desired size to the shape that you draw. This is helpful if you want to query the map for features that fall within an area (such as a property) and within a certain distance from that property line or if you simply want to identify all visible features within some distance of a point. For instance, perhaps you want to identify any hazardous waste sites on a given property AND within 250 feet of the border. You would first be sure that the hazardous waste layer is selected. Then you would outline the area of the property on your map in which you are interested, and then click the Enable Buffering icon so that a check mark appears and the

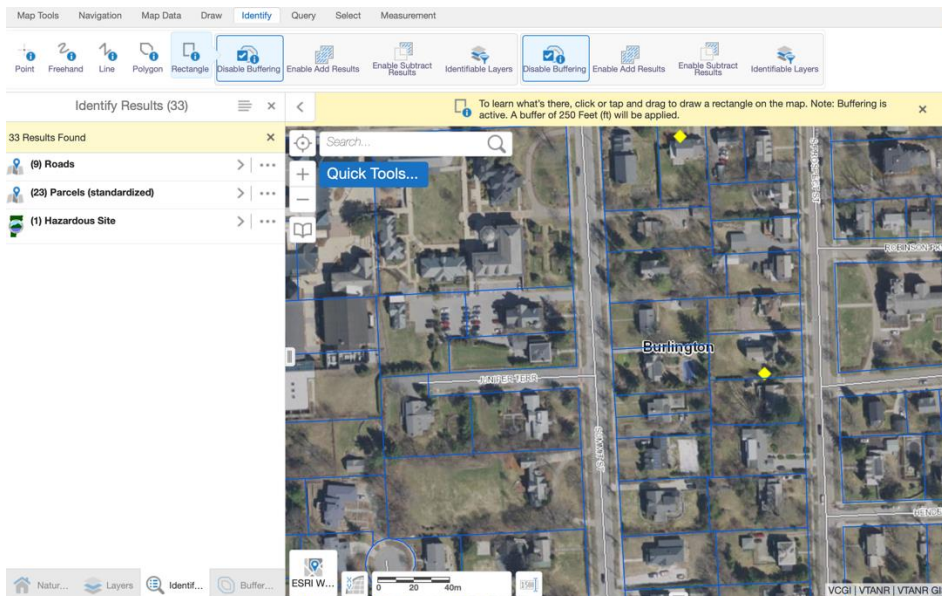
icon is listed as Disable Buffering .



When the box pops up, indicate the size of your buffer that you desire (250 feet in this case). Then click **Continue**.



Directions to draw a rectangle on the map appear at the top of the screen, and a buffer shape appears momentarily, with Results showing up in the left sidebar based on the data request you made. Click on any of the results to learn more about those areas and features.




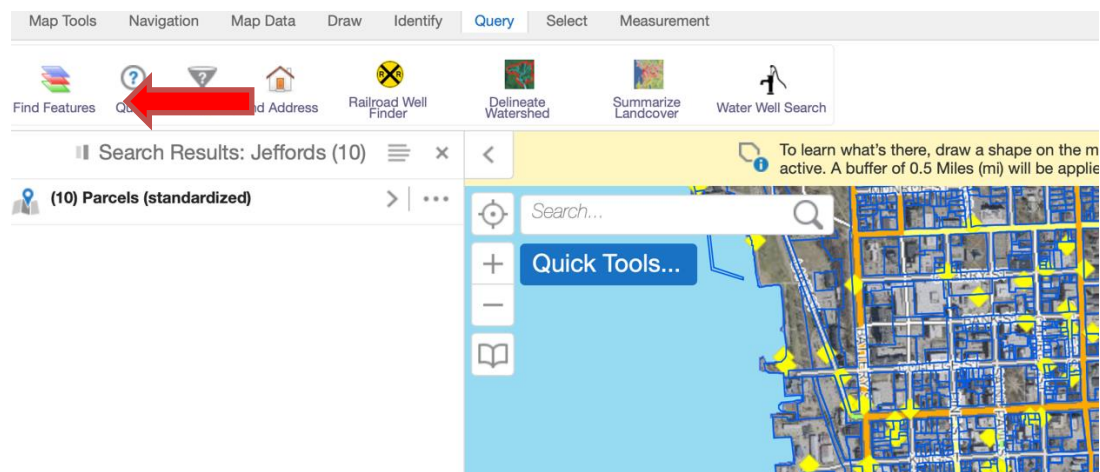
★ Try identifying all visible (selected) features present in a given area (e.g., a neighborhood or a large tract of land) by using the identify polygon feature. Now retry it with a ½ mile buffer.

## Query Toolbar

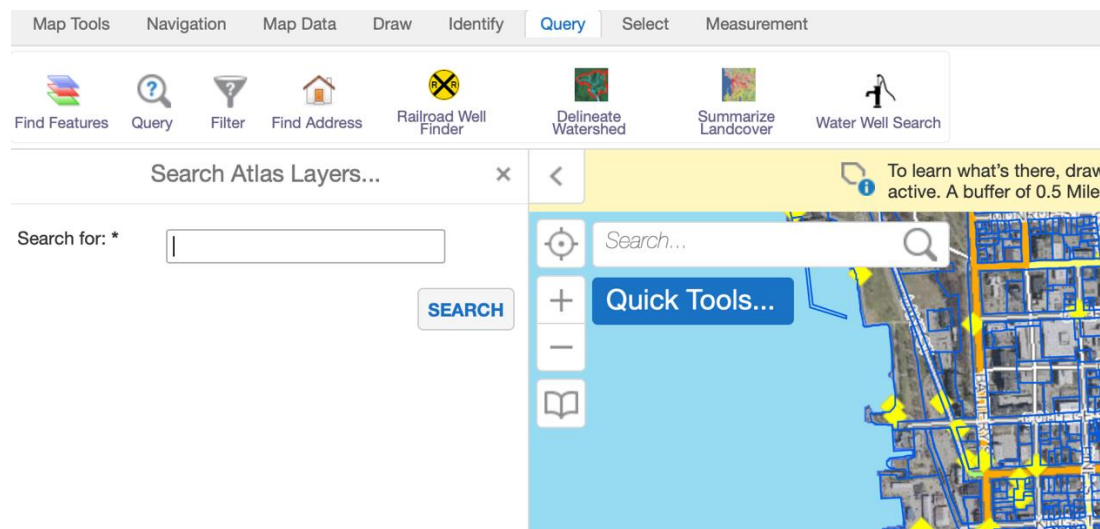
This toolbar allows you to run queries of the data in a variety of ways. Remember, simple queries of the map can also be done by right clicking on the map in a location where you want more information and selecting **Find Data on the Map** from the dropdown menu. The toolbar offers more options for how you can query the data.

## Find Features

The Find Features icon  in the **Query** Toolbar allows you to search for specific features that contain a keyword. This may be useful if you, for instance, have a well number but cannot locate it via geographic zooming or you know that there is a stormwater permit under the name “Jeffords” but you aren’t quite sure of the location of the property. Click on Find Features icon.



When prompted, type in your keyword.



The results will be displayed in a list on the left side of your screen and as flags on the map.

The screenshot displays a GIS application interface. At the top, a menu bar includes 'Map Tools', 'Navigation', 'Map Data', 'Draw', 'Identify', 'Query', 'Select', and 'Measurement'. Below this is a toolbar with icons for 'Find Features', 'Query', 'Filter', 'Find Address', 'Railroad Well Finder', 'Delineate Watershed', 'Summarize Landcover', and 'Water Well Search'. The main interface is split into two panels. The left panel, titled 'Search Results: Jeffords (20)', lists 20 results found, categorized as follows:

- (10) Parcels (standardized)
- (1) Hydrologically Connected Road Segments (MRGP)
- (3) Managed Lands
- (1) Stream Crossings
- (1) Act250 Permits **\*\*INCOMPLETE\*\***
- (3) Buildings (E911)
- (1) Roads

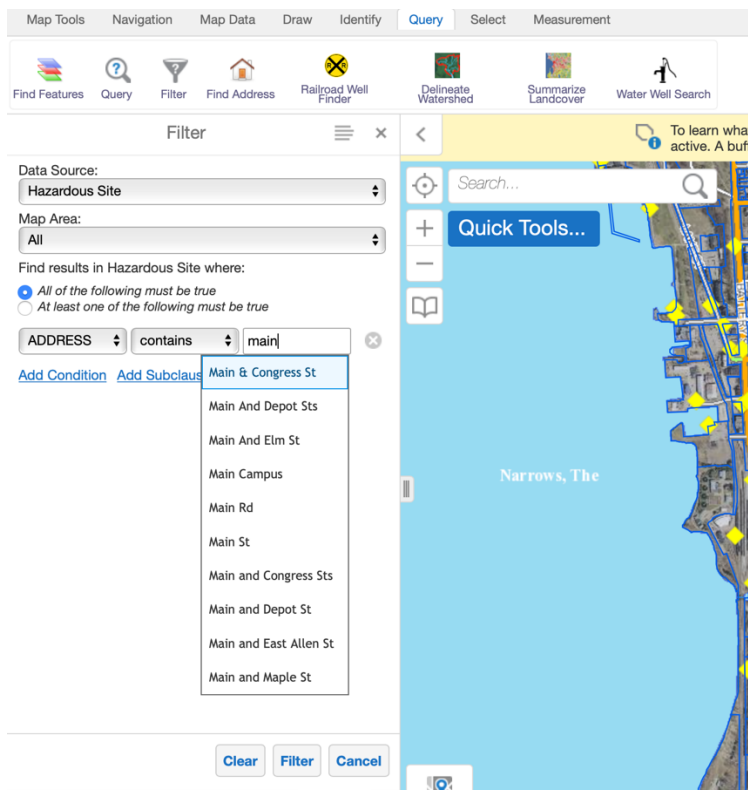
The right panel shows a map of the area, with yellow diamond-shaped flags indicating the search results. The map includes a search bar with the text 'Search...', a 'Quick Tools...' button, and a 'Narrows, The' label. A tooltip at the top right of the map area reads: 'To learn what's there, draw a shape on the map. Double-click. A buffer of 0.5 Miles (mi) will be applied.'

## Filter



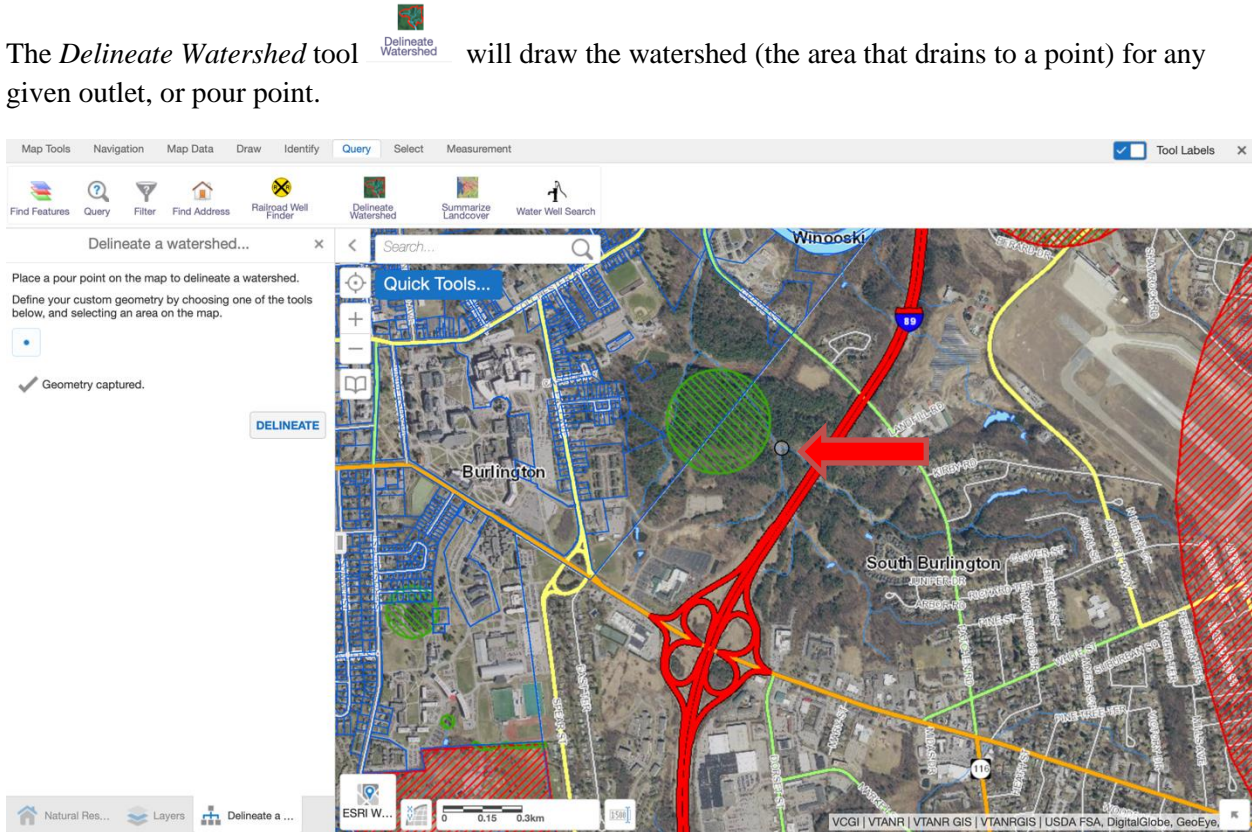
The *Filter* icon is useful when you wish to search for particular field values within a feature layer. Each layer has a corresponding database of information with fields filled with values for each location. This function is best used when you have specific interest and knowledge of a given feature and what the field values may be in a given circumstance. For instance, if you wish to identify all of the impaired streams that are identified as measuring high *E. coli* levels, but not the streams that are impaired for other pollutants, you would use the filter tool to indicate the field name layer name “303(d) List of impaired Streams” the field name “POLLUTANT” and the field value “*E. coli*.” This will only work if you get the syntax of a given field in database correct. When you start to type, a list of options will populate from which you can choose.

In the example below, the filter icon was used to search for hazardous waste sites on streets that contained the word “Main.” Ten options for Main Street addresses where there is a hazardous waste site appeared.

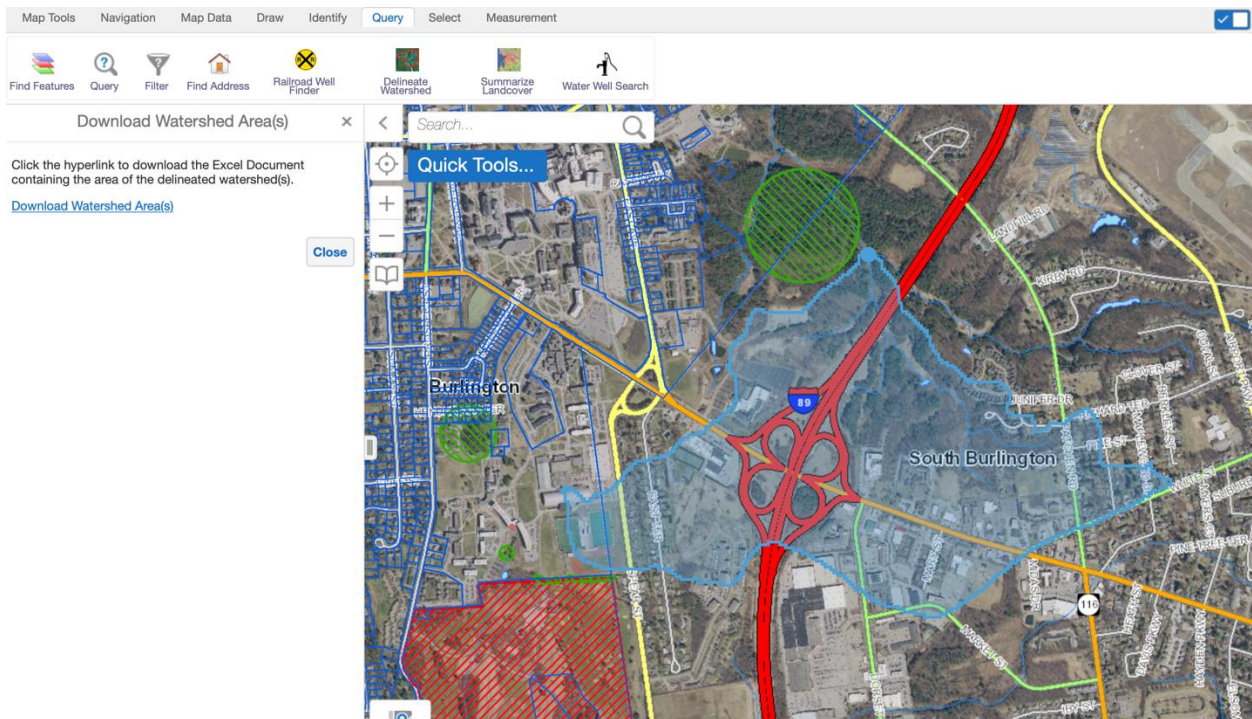


## Delineate a Watershed Area

The *Delineate Watershed* tool will draw the watershed (the area that drains to a point) for any given outlet, or pour point.

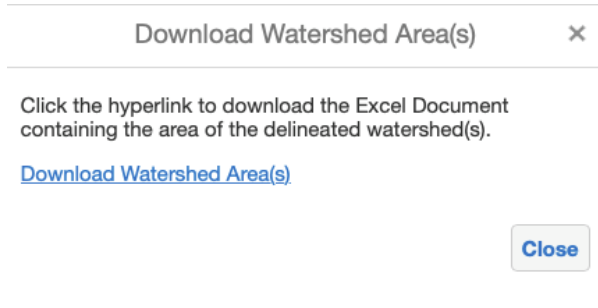


For the point marked with the arrow above, the Atlas delineated the watershed area in blue below.



After the Natural Resources Atlas delineates the watershed you request, it will prompt you to ask if there are other watershed you wish to delineate as well. If you choose yes, it will add the next watershed to the same map. You can add watersheds indefinitely. Note though, that occasionally, the system has a failure and so if you add many watersheds to one map, you may risk losing them if the system fails mid-calculation.

Once you are finished delineating watersheds, you can download area and length information for the watersheds by clicking on the link that appears on the left side of the screen to **Download Watershed Area(s)**.

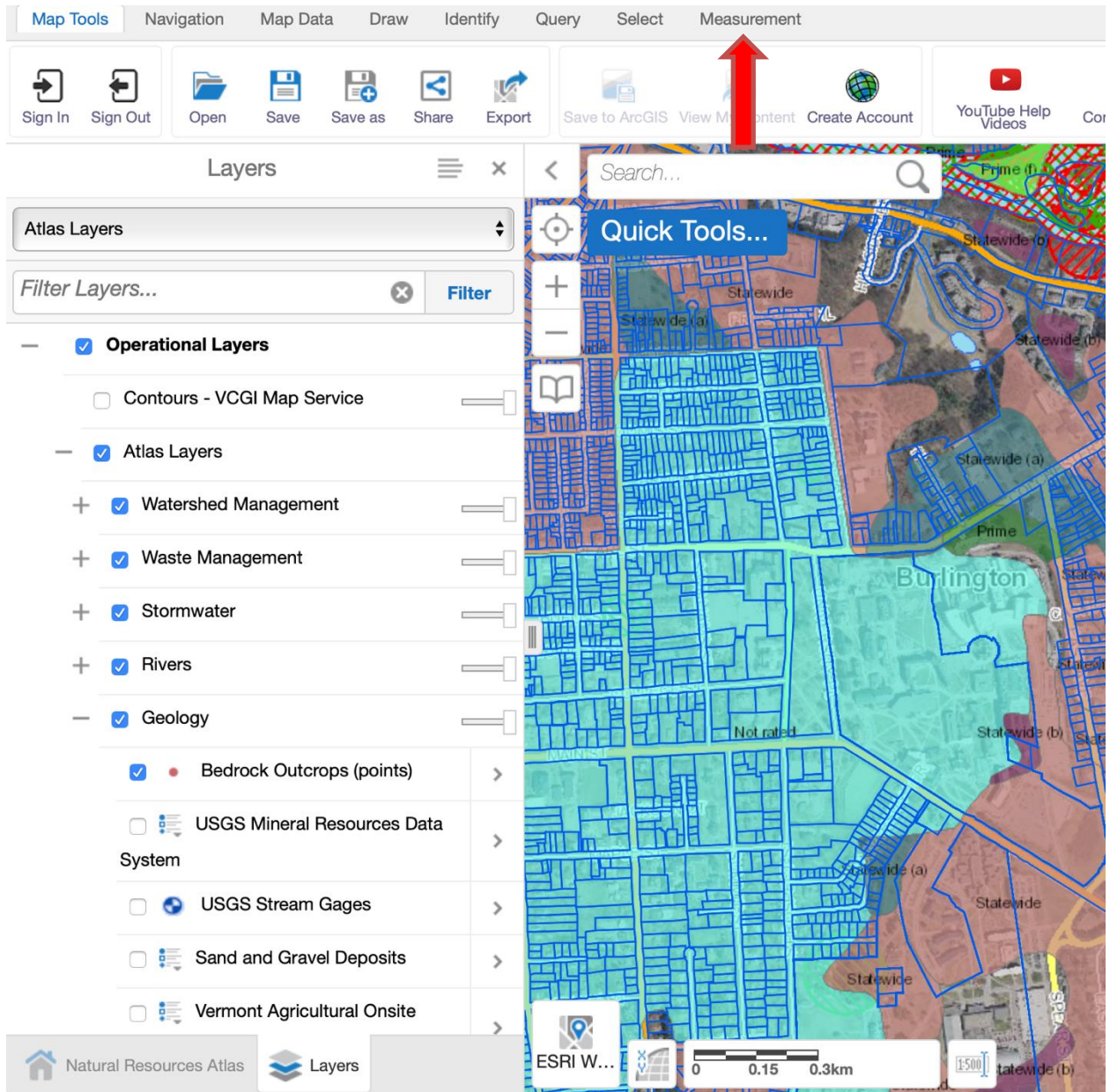


An Excel file will download to your computer. It contains the watershed name that you provide, the area (in square meters), the size in acres, the size in square miles, and the length of the stream within the delineated watershed in meters.


# Measurement Toolbar

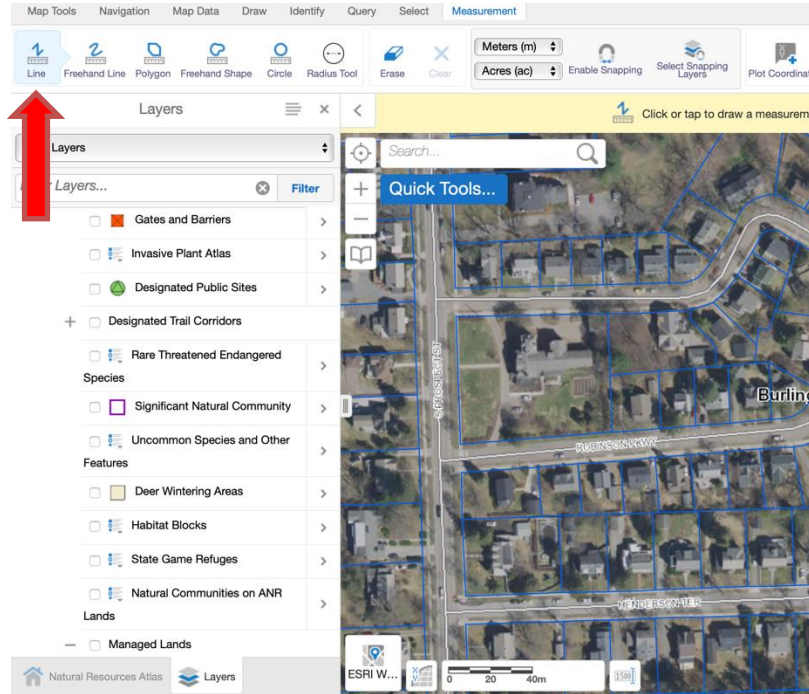
## Measure Distance on a Map

You can easily use the Natural Resources Atlas to measure distance or area. First click on the **Measurement** toolbar.

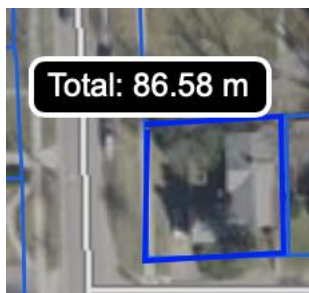




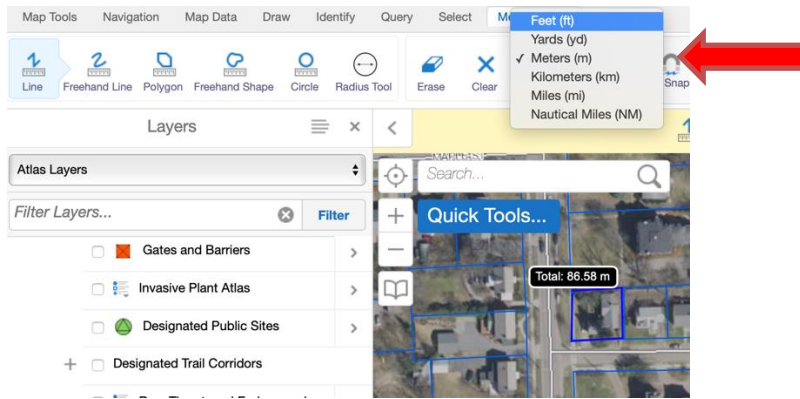
Use the Line icon  to measure linear distance. Once you select that icon by clicking on it, click on the map where you want to begin measuring a distance. You can then either single click to mark a stopping point along a distance, such as a side of a property, or you can double click to complete a distance to measure. The distance will display on the map.



In the example below, the perimeter of the parcel was the distance measured. To make this measurement, single click one corner of the parcel to begin (e.g., the top left corner). Then single click the other corners of the parcel (e.g., top right, bottom right, and bottom left corners). Finally, double-click the corner where you first clicked (e.g., the top left corner).



You can change the units that are displayed on the map using the dropdown menu at the top.



## Measure Area on a Map


Measuring area works in a similar way, though you have multiple tools from which you can choose to make this type of measurement. There are Polygon, Freehand Shape and Circle icons





in the menu. Simply click on one of these icons and click on the location on the map where you want to start drawing the polygon. With the Polygon and Freehand Shape icons, you can create any shape, just keep moving the cursor and single clicking to expand the space. When you have surrounded the desired area, double click to see the area as well as the perimeter displayed on the map. With the circle icon, the point on which you click will be the center of the area being measured.



Now you try. Scroll, pan, and zoom to a property in which you are interested. Then click on


the Tools icon  at the top right to open the toolbar, including the **Measurement** toolbar. Click on **Measurement**, and then select one of the following icons: Line, Freehand Shape, Polygon, or Circle. Measure the length of a location of your choosing (e.g., a parcel, parking lot). Then try measuring the area and perimeter of an area. If you want to restart the

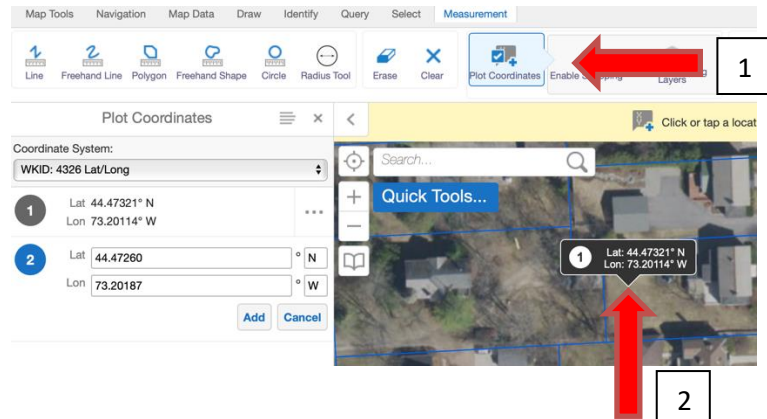
measuring tool and erase the polygon or line that you just drew, click the Erase  or

Clear  icons in the toolbar. Use the Erase icon to remove one drawing at a time. Use the Clear icon to remove all drawing from the map.

## Identify Latitude and Longitude for a Location

If you do not have the coordinates for a location but would like them to be indicated on the map (e.g., so you can find it accurately with a GPS unit on the ground or to settle a dispute over location) simply click

the Plot Coordinates icon  and click on the location on the map where you would like to identify coordinates. They will appear.




Now you try. Click on the Plot Coordinates icon and then click on a place on the map. The coordinates should pop up. Try changing the coordinate system and see what happens.

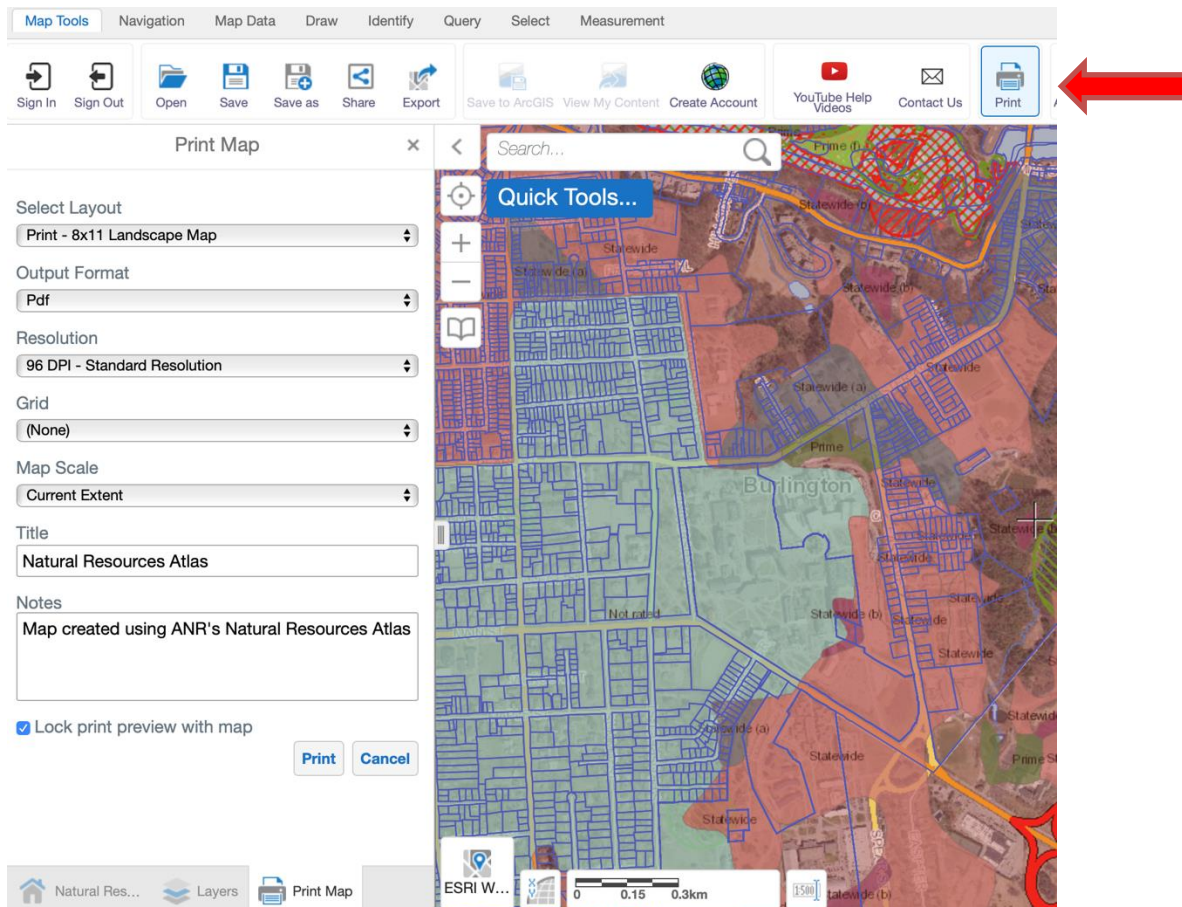
## Map Tools Toolbar Revisited

### Save, Share and Print Your Map

Once you have a map that includes all of the elements that you are interested in displaying, you can save, share and print it. As you might recall, these options are available in the **Map Tools** toolbar.

To print a map, the Natural Resources Atlas first saves it as a .pdf (or other file type of your choosing), so even if you don't want to print the map immediately, and just want to save it, you should click on the print icon to make your map into a .pdf. This function **will not work** unless you have enabled pop-ups from this site (see page 2).

From the **Map Tools** toolbar, select the Print icon . When you click the Print icon, a form will pop up on the left part of the screen (where the layers were listed before). Here, you can choose your desired layout and format, give your project a title, and add notes to remind you of important information about the map.

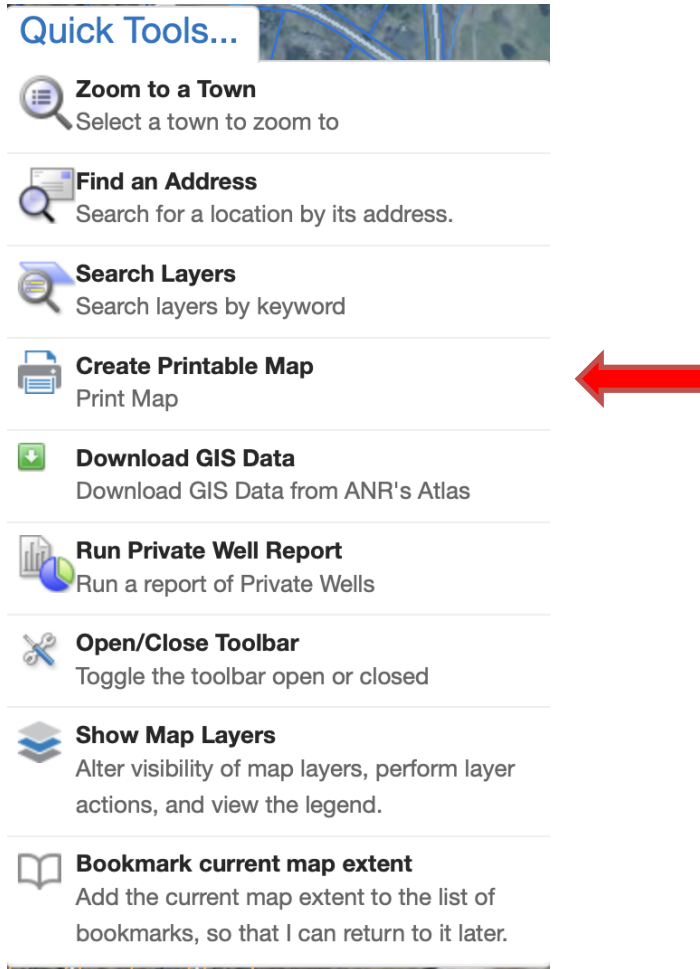


The screenshot shows the Map Tools toolbar at the top of the application. The 'Print' icon, represented by a printer symbol, is highlighted with a red arrow pointing to it from the right. Below the toolbar, the 'Print Map' dialog box is open on the left side of the screen. The dialog box contains the following options:

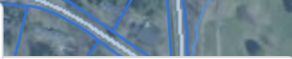
- Select Layout:** Print - 8x11 Landscape Map
- Output Format:** Pdf
- Resolution:** 96 DPI - Standard Resolution
- Grid:** (None)
- Map Scale:** Current Extent
- Title:** Natural Resources Atlas
- Notes:** Map created using ANR's Natural Resources Atlas
- Lock print preview with map

At the bottom of the dialog box are 'Print' and 'Cancel' buttons. The background shows a map of Burlington, Vermont, with various zoning districts labeled, such as 'Statewide (a)', 'Statewide (b)', and 'Prime (a)'. A search bar is visible at the top of the map area.

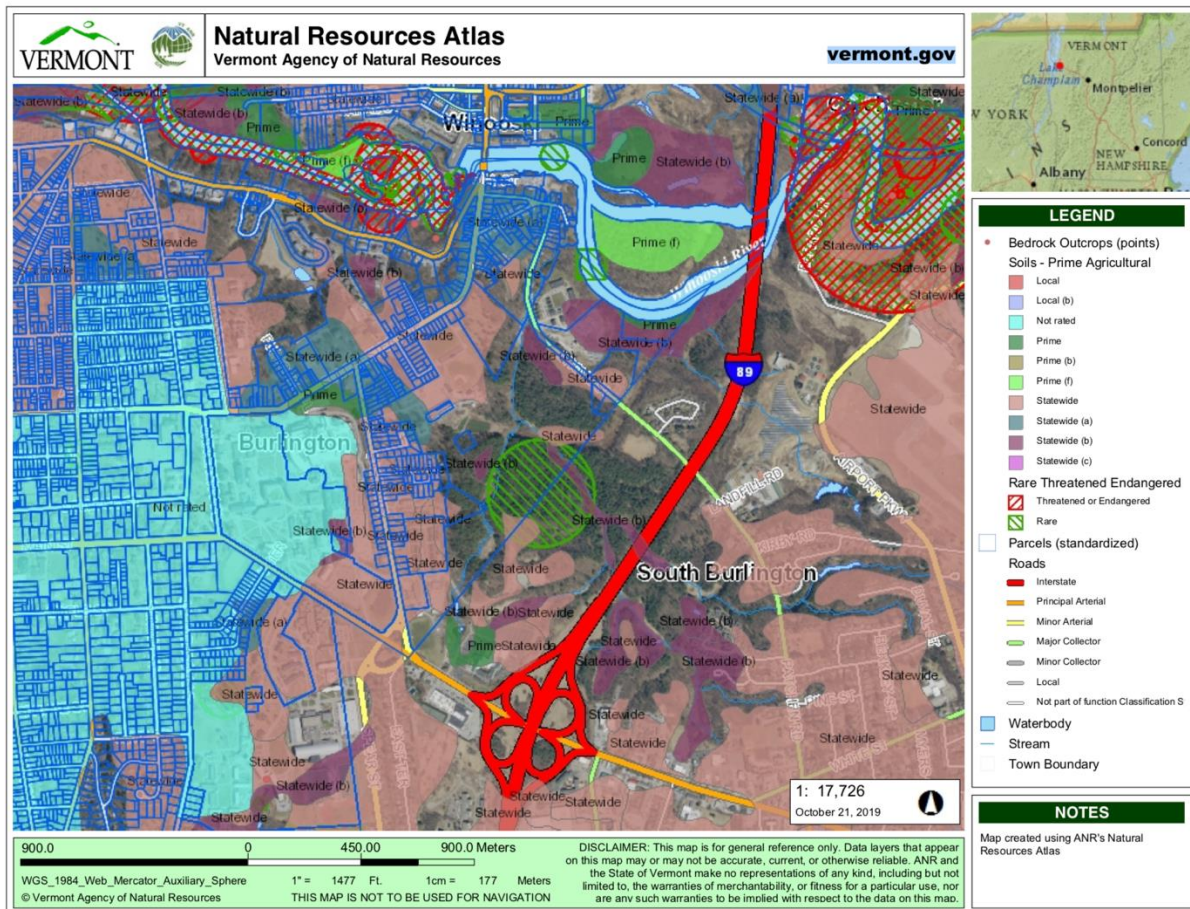
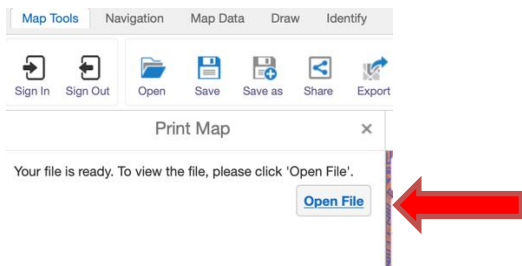
Another way to access the information is to use the Quick Tools menu and select **Create Printable Map**.



The image shows a vertical list of quick tools. Each tool has an icon, a bold title, and a brief description. A red arrow points to the 'Create Printable Map' option.

- Quick Tools...** 
- Zoom to a Town**  
Select a town to zoom to
- Find an Address**  
Search for a location by its address.
- Search Layers**  
Search layers by keyword
- Create Printable Map**  
Print Map
- Download GIS Data**  
Download GIS Data from ANR's Atlas
- Run Private Well Report**  
Run a report of Private Wells
- Open/Close Toolbar**  
Toggle the toolbar open or closed
- Show Map Layers**  
Alter visibility of map layers, perform layer actions, and view the legend.
- Bookmark current map extent**  
Add the current map extent to the list of bookmarks, so that I can return to it later.

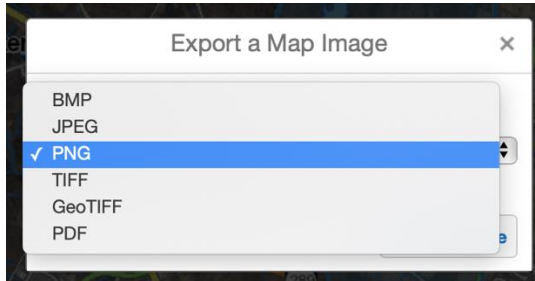
Once you have filled this information in to your satisfaction, click the **Print** button. A .pdf (or other file type of your choosing) will be created. Click the **Open File** link that appears to view the map and then download and save it to your computer.



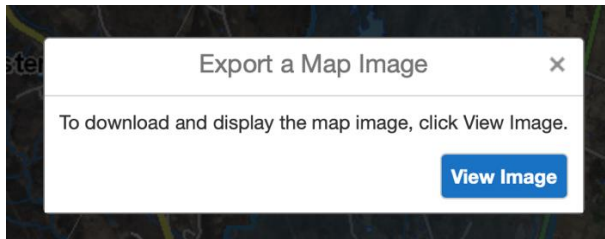
Notice that the legend includes all the layers that you have selected. If you have many features selected and not all are displaying within your map extent, your legend could be too full. You can remove features from the legend by going back to your map project and unclicking unwanted elements and resaving your project.

## Export Your Map

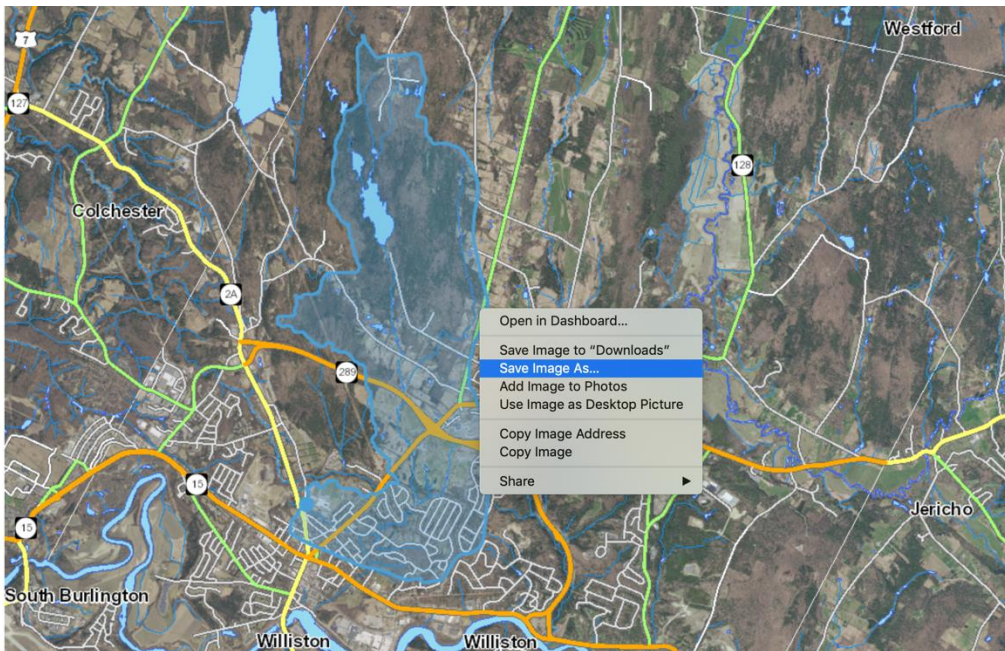
If you wish to export your map for use in another file or with a customer, click on the export icon in the **Map Tools Menu**. You will be prompted to select a file type for the export.



Next, you will be prompted to view the image.



In your browser, you will have the open to save the file to your computer in a variety of ways.



**Congratulations! You have completed the Natural Resources Mapping course for Real Estate Professionals. You are now well on your way to becoming a mapping master.**