

Course 6: Mapping Tools

TRACS Manual

(Updated 7/15/2021)

This course covers the mapping tools available in TRACS to map a specific location or upload a shapefile into the system.

Table of Contents

Lesson 6a: Draw and Edit a Polygon or Point.....	2
Key Terms and Concepts	2
Where is mapping available in TRACS?	3
Find a location on the map	4
Draw a Shape.....	6
Draw a Rectangle	8
Delete or Edit a Shape or Rectangle	8
Draw a Point	11
Delete or Edit a Point	12
Complete the Location Description	14
Lesson 6b: Import a Shapefile.....	15
Steps to Import a Shapefile into TRACS	15

Lesson 6a: Draw and Edit a Polygon or Point

Objectives

By the end of this lesson, learners will be able to:

1. Define key terms and concepts including GIS, Mapper, Base Map, Layer, Feature, Polygon, Vertex, and Point.
2. Demonstrate how to find a location on the map.
3. Identify the steps to draw and edit a polygon.
4. Identify the steps to draw and edit a point.

Key Terms and Concepts

GIS = A Geographic Information System (GIS) is a computer program capable of capturing, storing, analyzing, and displaying geographically referenced information, that is, data identified according to location. Practitioners also define a GIS as including the procedures, operating personnel, and spatial data that go into the system (USGS definition, 270 FW 8).

Mapper = The mapper is the GIS tool used to draw a polygon or point within the TRACS application. It displays a basemap and tools to zoom in or out, and draw and edit a polygon or point.

Base Map = A basemap provides a background of geographical context for the content you want to display in a map. In TRACS, you can choose which basemap you want to use by clicking on the map icon in the lower right of the mapper. Note: Basemaps are made up of imagery tiles, which change at a different scale (elevation zoomed in or out) and are updated at random intervals by satellite and other imagery providers.

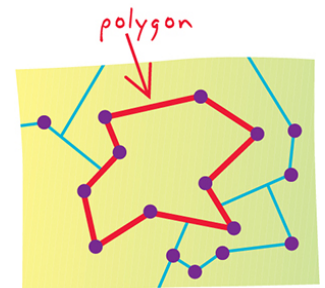
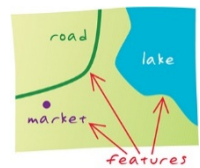
Shapefile = A shapefile is a vector data storage format for storing the location, shape, and attributes of a geographic feature or set of features. It is stored as a set of files in a GIS software program, such as ArcGIS, and may be exported as a .zip file in order to upload it to TRACS.

Layer = A logical set of thematic data described and stored in a map library. Layers act as digital transparencies that can be laid atop one another for viewing or spatial analysis.

Feature = A representation of a real-world object on a map, such as a road, lake or building.

Polygon = A polygon represents an area on a map with a multi-sided closed **shape or rectangle** made of connected lines or edges. Polygons have attributes that describe the geographic feature they represent (such as habitat information, etc.)

Vertex = The point where two lines intersect in a polygon is called a “**vertex**” (or plural are vertices).



Point = A point is a single x,y coordinate that represents a geographic feature too small to be displayed as a line or area at that scale. In TRACS, a point is used as a reference tag/pin that is dropped onto a location on the mapper.

Where is mapping available in TRACS?

The TRACS mapper was developed using Geographic Information System (GIS) software and has been customized to meet the needs of the WSFR program. There are several benefits of geospatial information. It aids communication by showing where grants are occurring and can help WSFR and its partners better understand spatial patterns and relationships between grants. It also provides the capability for automated data entry, and spatial queries for analysis and reports.

The TRACS Mapper contains tools to draw and edit polygons and points. The mapper can be found on the location page of Real Property Records, Facility Records, and when entering Performance Reports with the objective strategy of 'Direct Habitat Management' and 'Species Stocking'. For real property interests, we recommend a survey by a qualified surveyor at a data-scale of 1:100 or less, to help ensure better accounting and control of those interests.

Users will identify the location by drawing a polygon or point on the map (note that points are only available to identify the location of a facility). Users with access to external mapping or GIS software may have a shapefile of the location that can be uploaded to TRACS instead of drawing a polygon or point (see [Lesson 6b: Import Shapefile](#)).



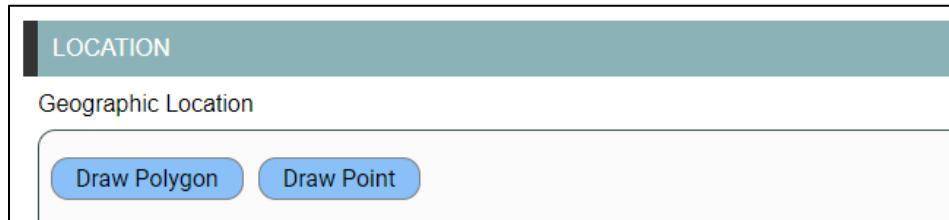
The geospatial data contained in the TRACS mapper is only required to the extent that it is necessary to fulfill the requirements of regulations for describing the geographic location of performance data and inventory (real property and facilities) records. For more information, visit the [Geographic Information Systems \(GIS\) FAQs](#) page.

Mapping tools are available in the following:

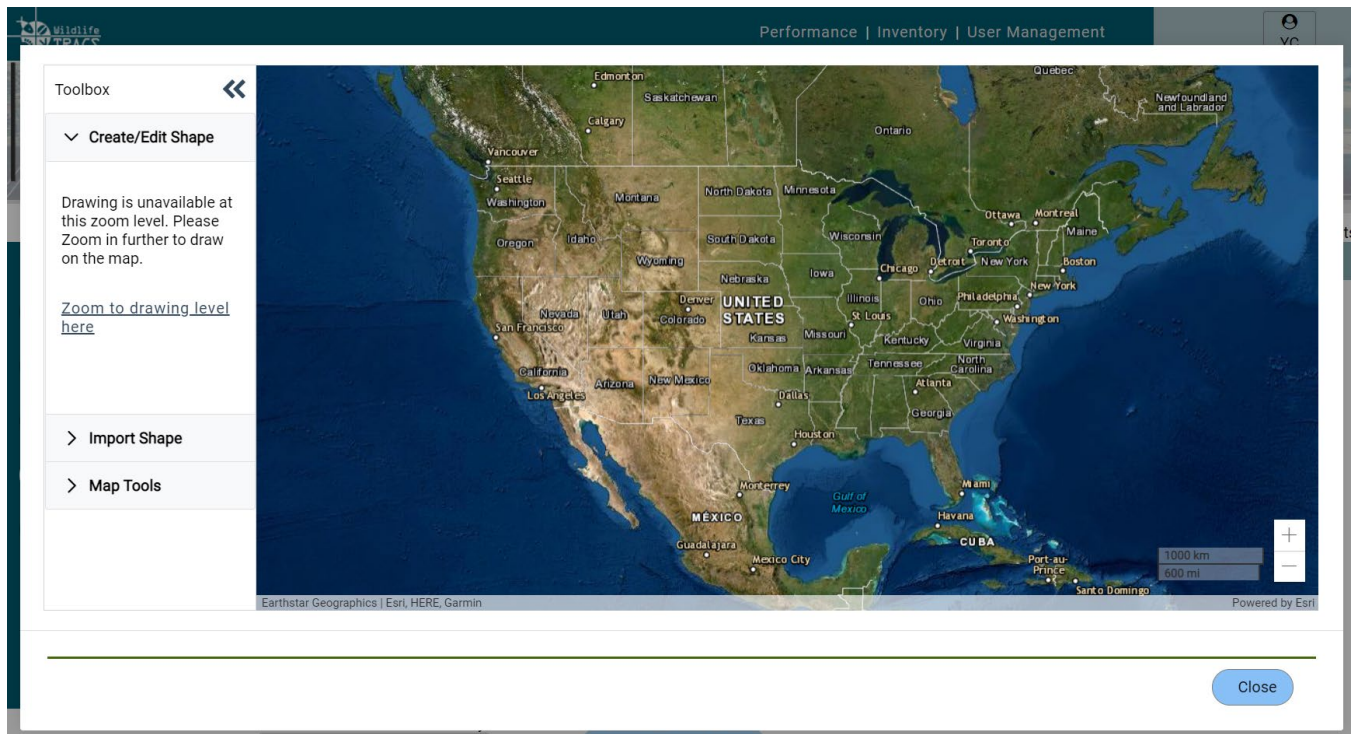
- **Performance Module - Performance Reports:** Mapping tools are available for reporting on activities with the strategy of "Direct Habitat and Species Management" and "Species Stocking". The user has the option to either "Draw a Shape" or "Pick a location" (such as the state or county). If "Draw a Shape" is selected, the tools to "Draw Polygon", "Upload Shapefile" or "Pick a Location Instead" display.
- **Inventory Module - Real Property Records:** Mapping is required for Real Property records in the Inventory Module. On the Location tab, the real property location can be defined by a polygon or shapefile.
- **Inventory Module - (Facilities) Site Details:** The mapping tools are optional on the Site Details form, with options to "Draw a Shape" or "Pick a Location" (such as the state or county). If "Draw a Shape" is selected, the tools to "Draw Polygon", "Upload Shapefile" or "Pick a Location Instead" display.
- **Inventory Module - Facility Records:** Mapping is required for Facility Records in the Inventory Module. On the Location tab, the facility location can be defined by a polygon, a point or a shapefile.

Find a location on the map

1. From the location page, select either the "Draw Polygon" or "Draw Point" button to open the mapper window.

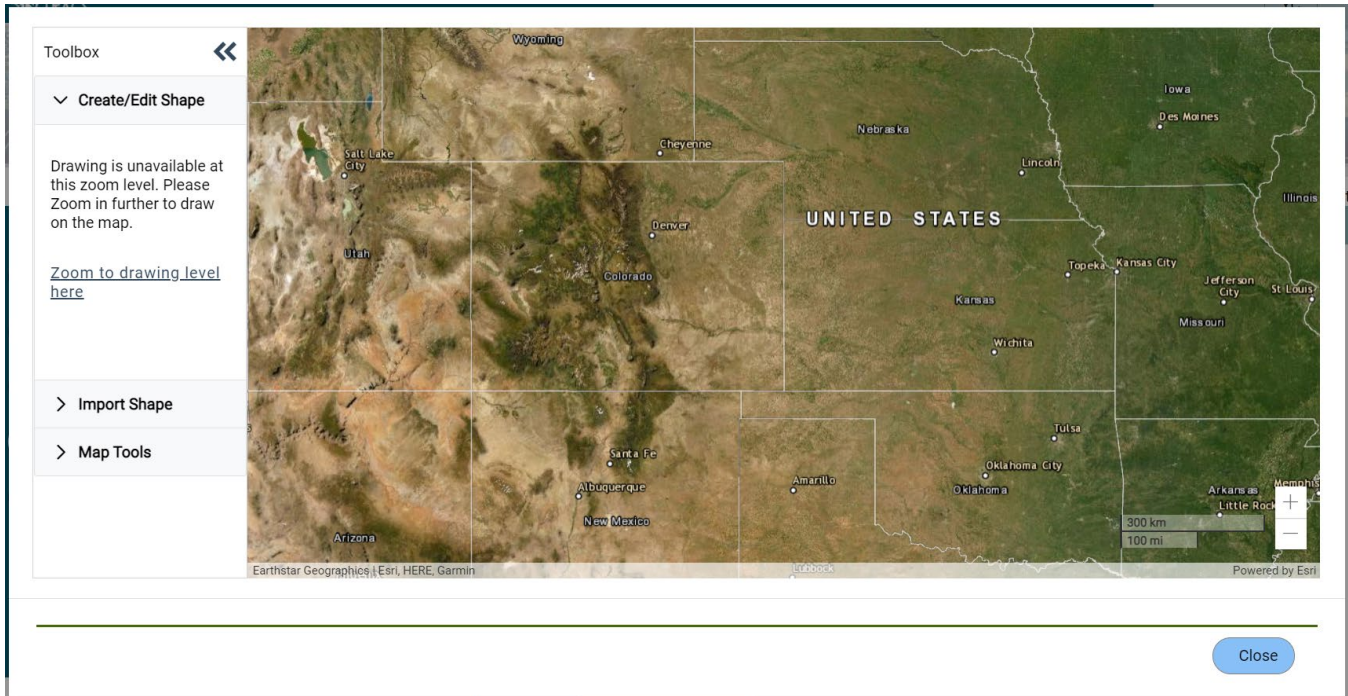


- Mapper information will display in gray at the bottom of the screen, including the scale in the lower left (ex. 1000 km/600 mi) and the basemap name (ex. Earthstar Geographics, ESRI, Garmin).
- The toolbox on the left is open by default but can be closed by clicking on the double arrow icon in the upper left.
 - The Toolbox opens with the "Create/Edit Shape" section open. It will display the warning "drawing is unavailable at this zoom level. Please zoom in further to draw on the map".
 - The "Import Shape" section can be opened to import a shapefile to the mapper. See [Lesson 6b: Import Shapefile](#) for more information.
 - The "Map Tools" section can be opened to use additional map tools. Currently, this includes two options for base maps (Imagery with Labels map and National Geographic map).

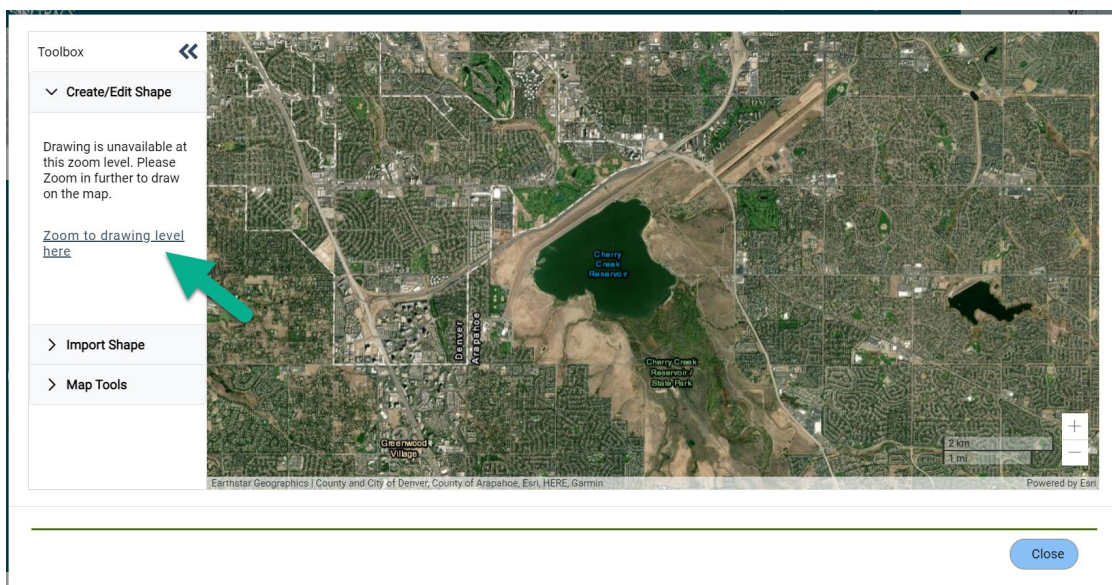


2. Left-click on the map and hold the mouse down to pan or move to your location. To zoom in and out, select the plus (+) and minus (-) icons respectively in the upper left.

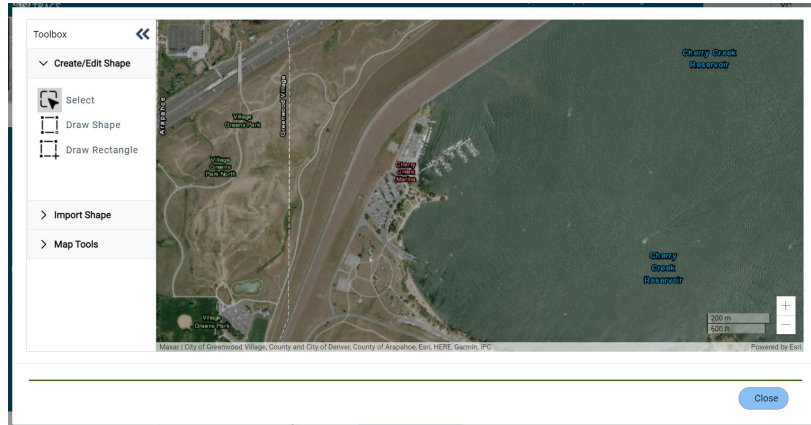
Alternately, click the map and use the scroll wheel on your mouse to zoom in by scrolling up or zoom out by scrolling down. Or use keyboard tools such as using the plus (+) and minus (-) keys to zoom in and out and use the arrow keys to move the map around.



3. The map needs to be zoomed into a scale of at least 1:24,000, which is 0.4 km/0.3 mi or closer for a polygon or 0.3km/1000ft or closer for a point. Tip: Once the map is centered over the desired area, click the link on the left "Zoom to drawing level here". The pan and zoom in further if needed.



- Once zoomed in, the polygon drawing tools bar appears on the left. When a tool is selected it will appear highlighted in grey.



- The "Select" tool is selected by default and allows you to pan and zoom around on the mapper, as well to select and work with existing drawn shapes, points, or rectangles.
- The "Draw Shape" tool is the freehand polygon drawing tool, used to draw a geometric polygon shape with editable vertices (points on the polygon).
- The "Draw Rectangle" tool is used to draw a rectangular polygon.
- The top arrow is the "undo" and the bottom arrow to "redo" (these options are only available when editing a polygon or point).
- The trash can icon is used delete a polygon or point (this option is only available when editing a polygon or point).

Draw a Shape

- Move the map to see the area where the shape will be located. (Note for Facility Records, if the Site Record has a mapped location it will display as the starting map for the Facility Record).
- Select the "Draw Shape" tool (the icon will darken when selected).
- Click on the map at the starting point for your shape and a blue vertex point will appear. Drag your mouse to create a straight line and left-click to create a new vertex point.



- Continue to drag your mouse to create a new line and left-click at each vertex point marking each corner or change in direction until the desired shape is visible and you return to the starting vertex point. Use the "Undo" or "Redo" buttons as needed.



- Double-click on the starting vertex point to close the shape and complete the polygon. The polygon will change to a dark blue outline. In the shape info section, the number of elements (distinct closed shapes) and acres will display.



- If the polygon has multiple areas (such as two dock areas), repeat the steps to draw additional shapes. Then click "close".



Draw a Rectangle

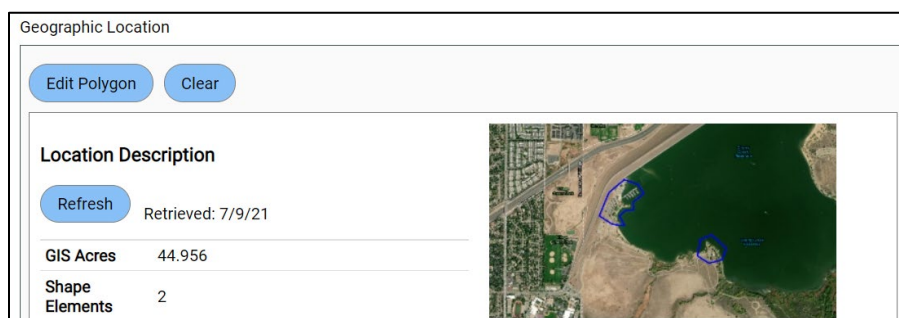
1. Move the map to see the area where the polygon will be located. (Note for Facility Records, if the Site Record has a mapped location, the site map will display as the starting map for the Facility Record).
2. Select the "Draw Rectangle" tool (the icon will darken when selected).
3. Click on the map at the starting point and hold down while dragging your mouse to create the rectangular shape, releasing when the shape is the desired area.



4. If the polygon has multiple areas (such as two dock areas), repeat the steps to draw additional shapes. Then click "close".

Delete or Edit a Shape or Rectangle

1. After creating a shape or rectangle and closing the mapper, the shape will display in the preview window. To delete the shape and start over, click the "Clear" button. To edit, click "Edit Polygon".



2. If edit is selected, the mapper will open and display the existing shape(s).



3. Click inside the shape and it will change from the dark blue outline to the editable light blue outline displaying the vertices or points around the shape's outline. Use the "Undo" or "Redo" buttons as needed while editing the shape. The delete option is available when a shape is selected.



4. Left-click on a vertex to drag it to a better position and add a mid-point vertex. To delete a vertex point, right-click on it or hit the delete key to remove it.

Note: The blue vertices are the original (primary) points. The white vertices display midway between the primary vertices and allow the user to create more complex shapes. By clicking on a white vertex, it becomes a primary blue vertex and adds more points to manipulate.

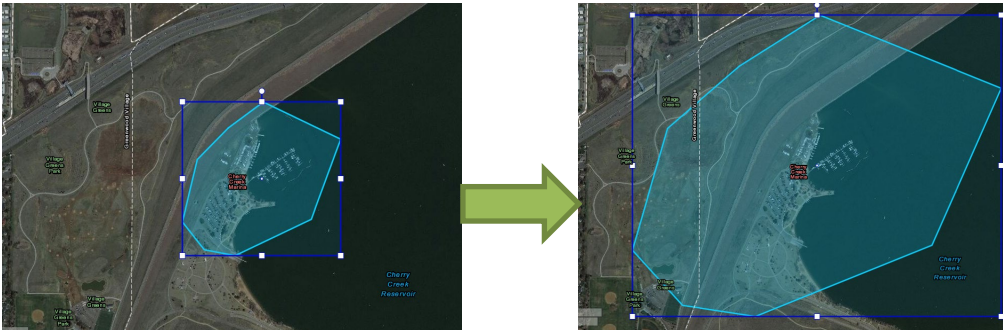


5. **To delete, expand, shrink or move the shape**, click inside it again and a blue box will display around it.

- a. To delete the selected shape, click on the trash can icon in the toolbar on the left.

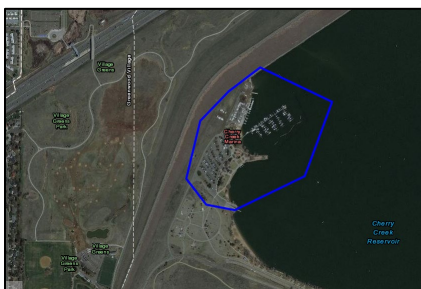


- b. To expand or shrink the shape, click on a white vertex point on the dark blue box and drag it outward to expand or inward to shrink the shape.



- c. To move the shape click inside the box and drag it to the correct location.

6. Click outside the shape to close editing and turn it back to the dark blue outline. Click "close".



Draw a Point

1. The “Draw Point” option is only available for the Facility Record or Facility Adjustment.

Wildlife TRACS Performance | Inventory | User Management YC

Inventory

Manage Attachments

LOCATION

Geographic Location

Draw Polygon Draw Point

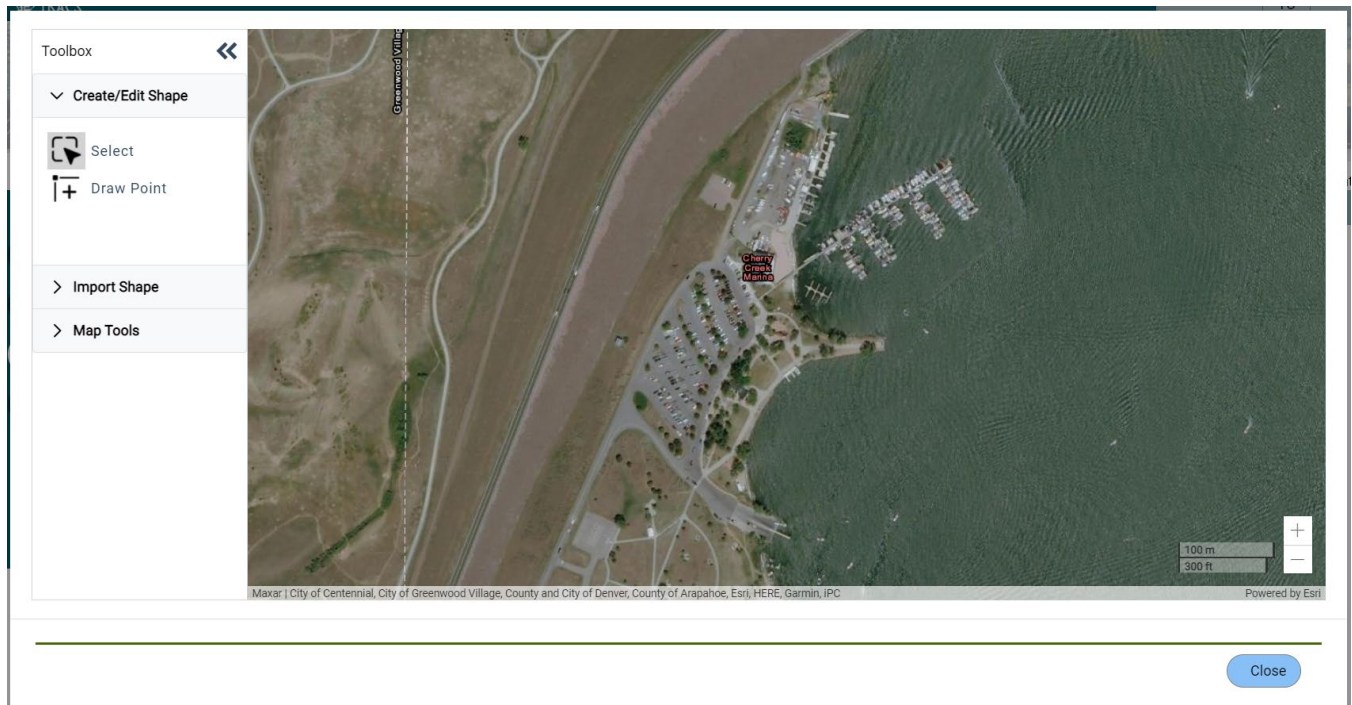
Describe your location ⓘ

Not Applicable

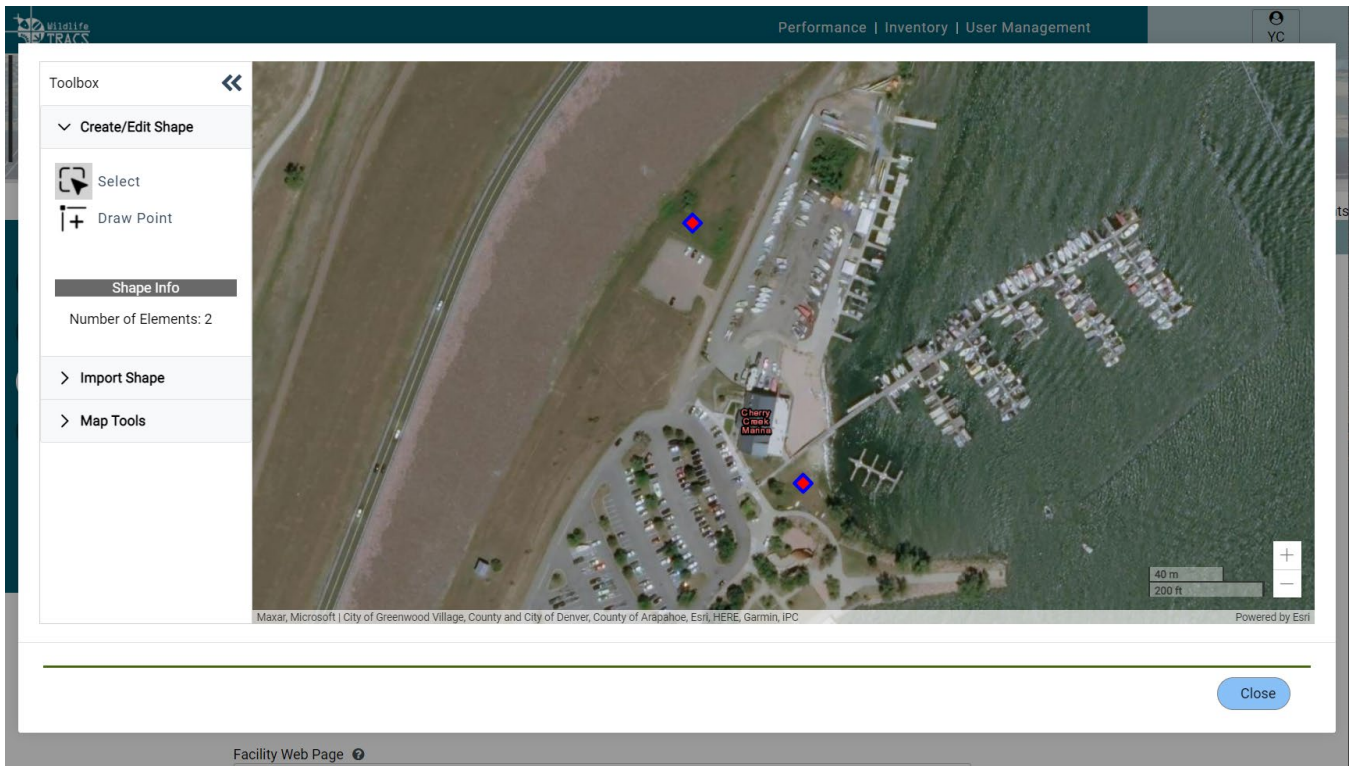
Add Describe your location

View / Attach Files (optional)

2. Select “Draw Point” and move the map to see the area where the point will be located. (Note: If the Site Record has a mapped location, the site map will display as the starting map for the Facility Record).

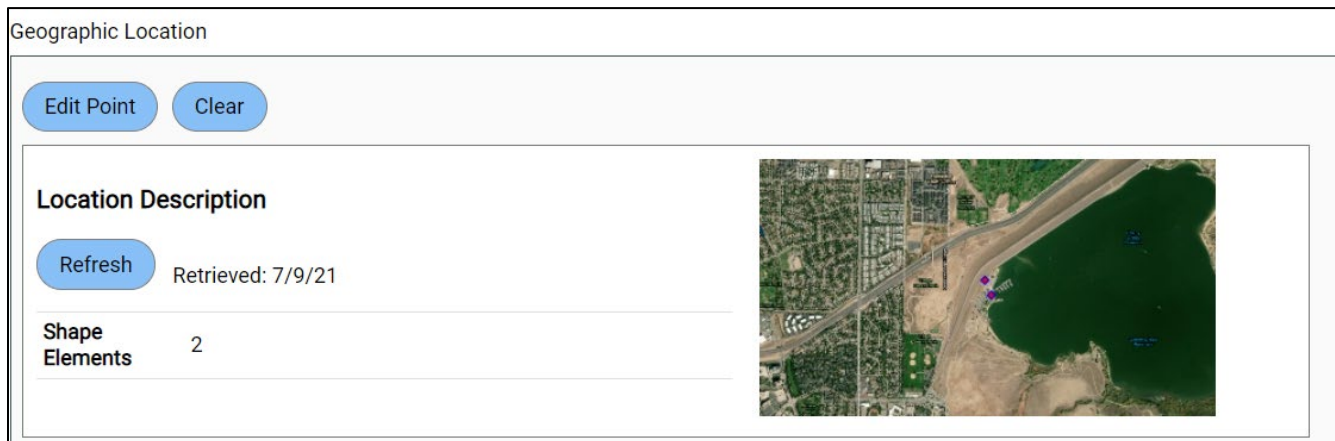


3. Select the “Draw Point” tool (the icon will darken when selected).
4. Click on a spot on the map to drop the point (red with blue outline). Repeat if there are multiple points (such as multiple restroom facilities). Then click “close”.

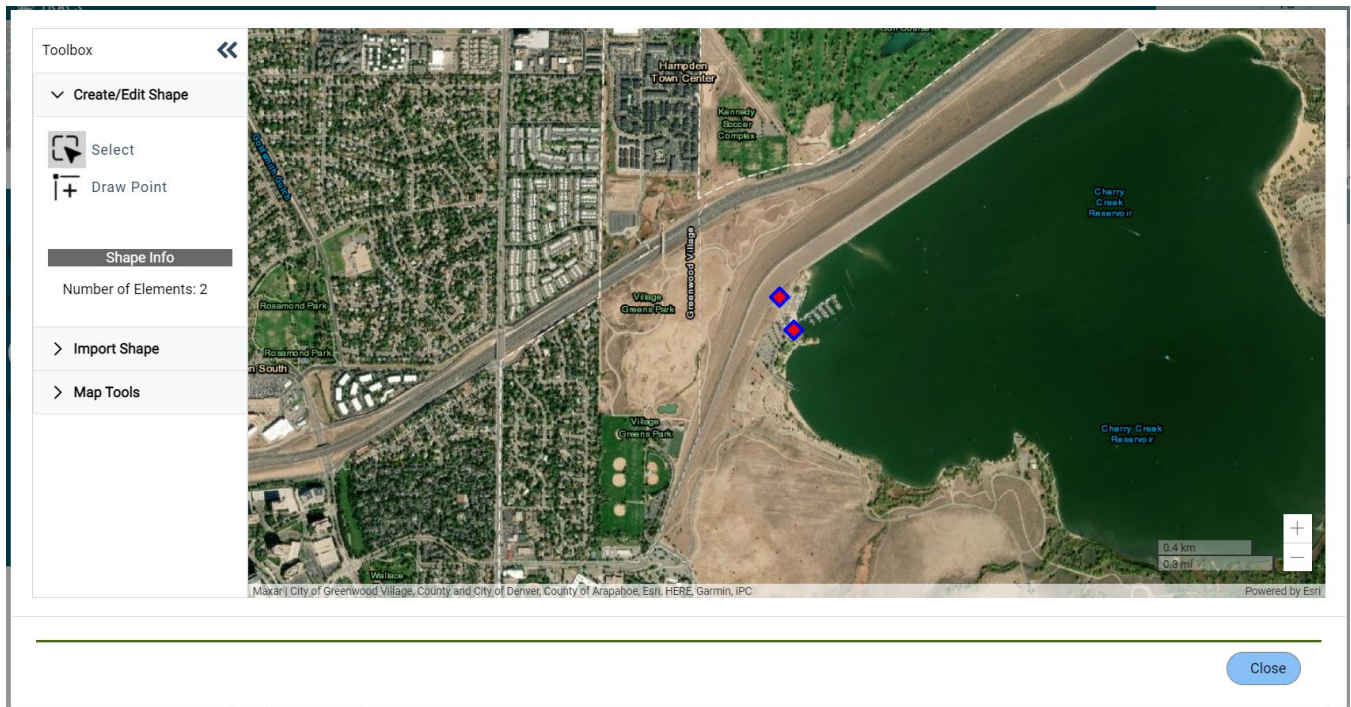


Delete or Edit a Point

1. After closing the mapper, the point(s) will display in the preview window. To delete the point(s) and start over click the "Clear" button. To edit, click "Edit Point".



2. If edit is selected, the mapper will open and display the existing point(s). Zoom in or out as needed.



3. To add more points, select the point icon and click on a spot on the map to drop the point.
4. To edit existing points, click the "Select" tool.
 - a. Select a point and it will turn into a blue circle.
 - b. To move the point, click on it and drag and drop it to a new location.
 - c. To delete the point, click on it and select "delete" on the left.



5. Click elsewhere on the map to close editing and turn the point back to the red square with a blue outline. Click "close".

Complete the Location Description

1. After closing the mapper, the Location Description will display with an image of the polygon(s), GIS acres, shape elements (number of shapes), and other details associated with the mapper, such as survey data (with the optional button to "Copy Survey Data to Survey Data Table"). Click "refresh" to update the details if needed. The "Retrieved date" will display the last time the data was retrieved or refreshed.
2. Complete the additional required fields:
 - **Is this location sensitive?** If applicable, check the box to prevent the specific location from being displayed in public reports.
 - **Describe your location (optional)**

Geographic Location

Edit Polygon Clear

Location Description

Refresh Retrieved: 7/9/21

GIS Acres 44.956

Shape Elements 2

Copy Survey Data to Survey Data Table

Survey Location

- CO060050S0670W0SN100ASWNE
- CO060050S0670W0SN110ASWNW
- CO060050S0670W0SN030ASWSE
- CO060050S0670W0SN020ASESW
- CO060050S0670W0SN100ASENE
- CO060050S0670W0SN020ASWSW
- CO060050S0670W0SN110ANENW
- CO060050S0670W0SN110ASENW
- CO060050S0670W0SN030ASESE
- CO060050S0670W0SN110ANWNW
- CO060050S0670W0SN100ANWNE
- CO060050S0670W0SN100ANENE

Is this location sensitive? ⓘ

Describe your location ⓘ

Not Applicable

[Add Describe your location](#)

[View / Attach Files \(optional\)](#)

Lesson 6b: Import a Shapefile

Objectives

By the end of this lesson, learners will be able to:

1. Demonstrate how to import and manage a shapefile.



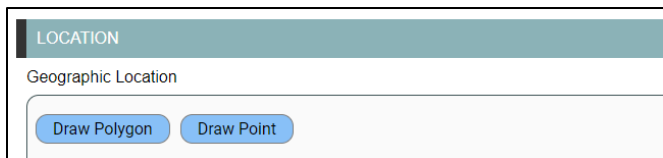
A shapefile is a vector data storage format for storing the location, shape, and attributes of a geographic feature or set of features. It is stored as a set of files in a GIS software program, such as ArcGIS, and may be exported as a .zip file in order to be uploaded into TRACS to represent the location instead of drawing a shape.

Shapefile Guidelines:

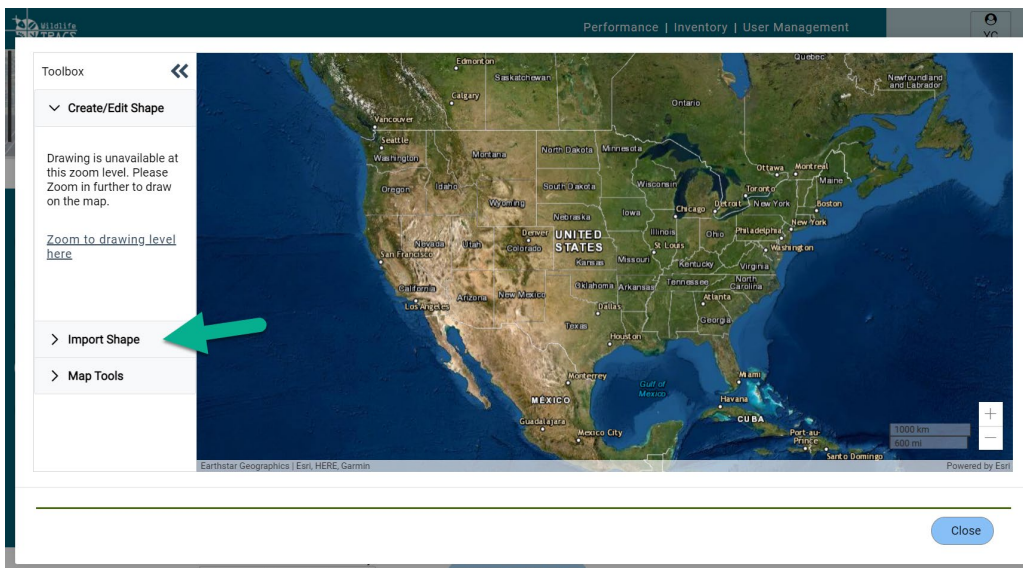
- Must be a zipped shapefile (*.zip)
- Must be 2-dimensional coordinates (no z- or m- coordinates)
- Should use WGS84 / NAD83 coordinate system
- Shapefile must be smaller than 10 MB
- Large shapefiles may fail to load properly (contact the TRACS Help Desk for assistance)

Steps to Import a Shapefile into TRACS

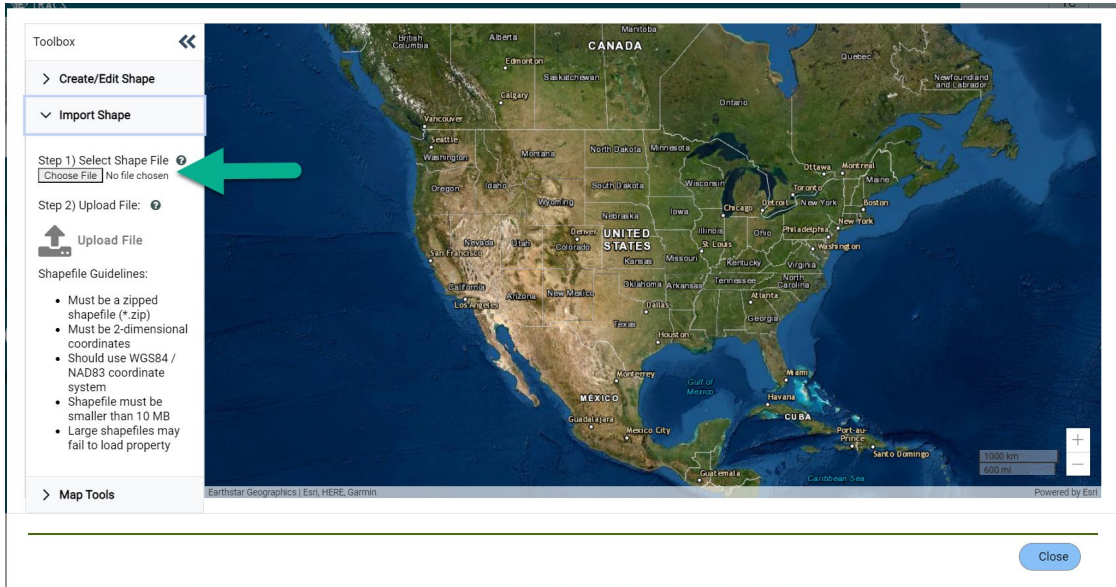
1. From the location page, select either the "Draw Polygon" or "Draw Point" button to open the mapper window.



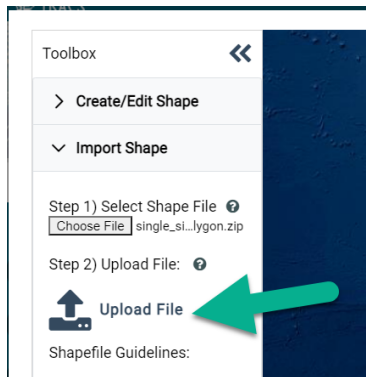
2. The mapper window opens. Select the "Import Shape" section to open it.



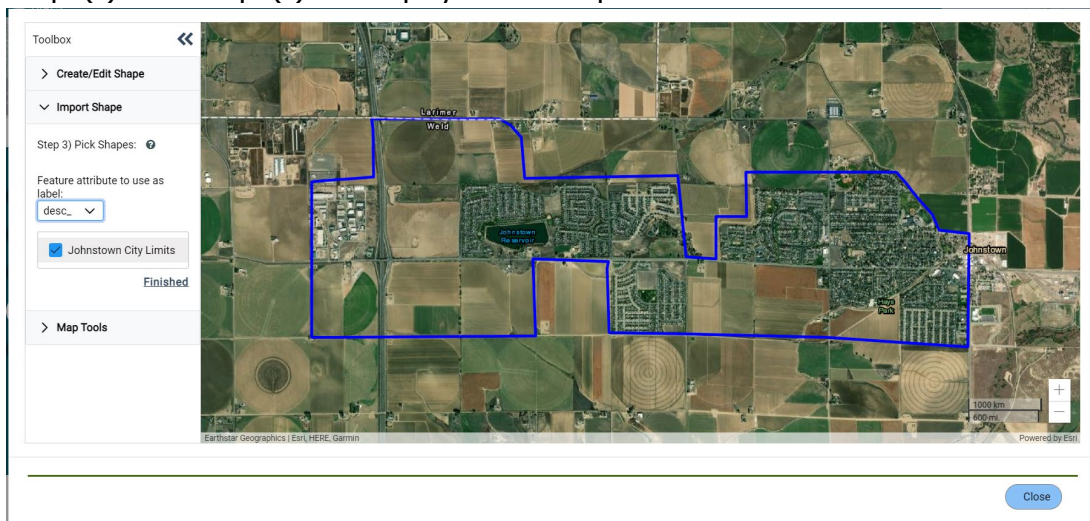
3. The Import Shape section opens. Click the "Choose File" button and select the file from your computer to open.



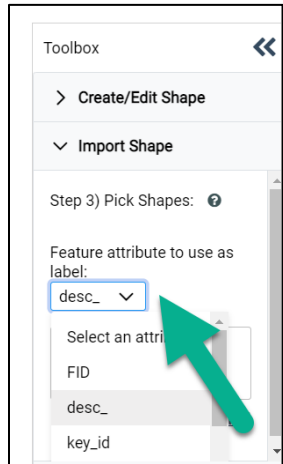
4. The file name will display next to "Choose File". Click the "Upload File" button.



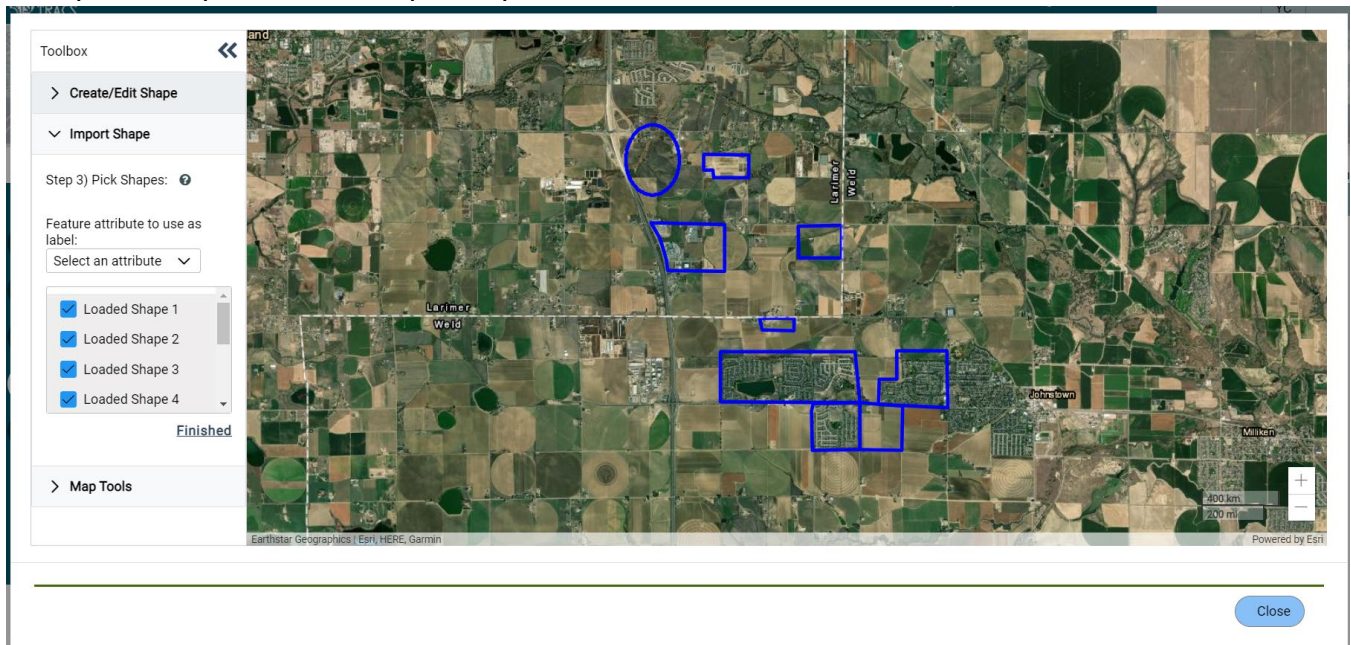
5. "Step 3) Pick Shapes" opens. Select the shape(s) to include by checking the box for the shape(s). The shape(s) will display on the map once selected.



- a. Optional: Click on the drop-down menu for "Feature attribute to use as label". This label is used behind-the-scenes. Select an attribute to use as the label for all of the selected shapes. The list of attributes may vary and is based on the attribute data associated with the imported shapefile.



Example of shapefile with multiple shapes:



6. Click "Finished" on the left side. If any additional shapes need to be added, repeat the steps to import additional shapefiles or refer to Lesson 6a for steps to draw additional polygons (shapes or rectangles) or points. Click "Close".
7. The polygon(s) will display in the location preview window. Complete the Geographic Location details (refer to Lesson 6a for more details).