NCDOT

PROJECT ATLAS

Training Manual

This document includes training materials and reference documents for Project ATLAS training. All materials were developed by the NCDOT ATLAS team.

Version 1.7.3

January 2020

NCDOT ATLAS Policy

Streamlining Project Delivery through GIS-based Regional Modeling

Introduction

The North Carolina Department of Transportation (NCDOT or the Department) is committed to optimizing program performance through streamlining and expediting project development and delivery. The Department is dedicated to accomplishing this goal without sacrificing statutory requirements, public engagement, the environment, or project quality. This continuous effort includes evaluating recommendations for improving procedures, embracing technology improvements, and leveraging data sharing opportunities.

In support of this goal, NCDOT has developed **ATLAS**, which stands for **A**dvancing **T**ransportation through **L**inkages, **A**utomation, and **S**creening. Through use of GIS-based data on a regional level, ATLAS will improve business processes and provide a data access and storage framework to support informed project development. This effort aligns with the Secretary of Transportation's priorities to improve program delivery.

Purpose

The purpose of this policy is to guide the integration of ATLAS into project development and program delivery. Adherence to this policy will allow NCDOT staff and consultants to better understand and define transportation problems; identify existing resources; recognize issues and constraints; develop potential solutions; and more effectively plan a project's approach and next steps.

Scope and Applicability

This policy applies to all Department staff and consultants supporting all transportation project delivery methods and technical units.

Effective Date

This policy is effective from May 31, 2019. The latest version of referenced publications (i.e., the ATLAS Data Standards Document and ATLAS Guidance) should be used in conjunction with this policy.

Policy

NCDOT's primary mission is to connect people, products, and places safely and efficiently with customer focus, accountability, and environmental sensitivity to enhance the economy and vitality of North Carolina. NCDOT is a performance-based organization with a strategic, data-driven, decision-making process that is transparent and accountable. NCDOT values innovation and promotes the development and use of new and better solutions.

ATLAS is an essential resource for NCDOT staff and consultants, and it was designed to improve business processes and provide a framework for data. It is an aid to, and not a substitute for, critical thinking and decision making throughout a project's lifecycle. ATLAS is not a replacement for subject matter expertise or field verification.

It is the Department's policy that ATLAS will streamline and expedite project development and delivery. This will be accomplished through use of the ATLAS Screening Tool, Search Tool, and Workbench. Early screening of projects will aid in the identification of issues that may affect scope, schedule, and budget. Access to, and automation of, reports will reduce repetitive manual tasks. A central repository for project deliverables and associated data in a geospatial format will improve efficiency and communication. As data is captured for individual projects, the cache of data available for future projects will grow.

Responsibilities

Successful integration of ATLAS requires NCDOT staff and consultants to be fully vested in embracing process improvements and technology advancements. Accordingly, NCDOT staff and consultants are expected to abide by the following requirements:

- NCDOT staff and consultants will submit all signed documents, project deliverables, reports, and official plan submittals through the ATLAS Workbench. Files will be automatically placed in the correct SharePoint folder. Spatial data will be displayed in the Workbench Map.
- NCDOT staff and consultants will use the ATLAS Workbench to manage their projects. The Workbench steps teams through all facets of the project lifecycle and tracks the progression of a project based on reporting from multiple business units.
- NCDOT staff and consultants will use the ATLAS Screening Tool to assess study areas for potential affects to the human and natural environment. The Screening Tool will help project teams quickly understand a project's scope and schedule. It will provide information essential to a Scoping meeting and for completion of the CE checklist.
- NCDOT staff and consultants will use the ATLAS Search Tool to help create project deliverables by searching for relevant data and downloading the files within the study area, such as an environmental base map for a project's Natural Resources Technical Report or Indirect and Cumulative Effects document.
- NCDOT staff and consultants will follow the basic data standards (i.e., file naming conventions, spatial data standards, and document and data submission protocols) identified in the *ATLAS Data Standards Document*. These basic data standards will ensure that spatial data and reports received by NCDOT can be incorporated into tools developed by NCDOT.
- NCDOT staff and consultants will include acknowledgement of, and planned adherence to, the ATLAS Policy and basic data standards in contract documents.
- NCDOT staff and consultants will ensure appropriate involvement from technical units and Subject Matter Experts.

- NCDOT staff and consultants will communicate issues and opportunities for improvement to the ATLAS team. The success of ATLAS is reliant on active input from NCDOT staff and consultants.

Contact

- For questions or comments, contact ATLAS at Atlas@ncdot.gov.

****

ATLAS Search Tool

What is the ATLAS Search Tool?

Whether you are preparing for the initial scoping meeting, completing your natural resource technical report, or compiling your environmental document, all the data is at your fingertips. The data sets available through the ATLAS Search Tool have been identified by subject matter experts with the involvement of agency representatives and others as essential information to evaluate projects. The data accessible through ATLAS comes from a variety of sources and is connected to our applications through live web services. Instead of visiting individual local, state, and/or federal webpages for data, the Search Tool allows you to search, view, and download data from multiple source agencies at one time and in one place. You can also have confidence that not only has this data been reviewed and approved by subject matter experts and often agency representatives, it comes with extensive metadata, including the source and detailed descriptions.

High-level Search Tool Functionality

1. Find GIS data from multiple sources in one place
2. View data on map
3. Download multiple data sources at once in GDB, SHP, and/or DGN format

Topics covered in this Tip Sheet:

A. Getting Started
B. Executing a Search and Building a Study Area
C. Downloading Spatial Data
D. Using the Map Viewer
E. ATLAS Resources and Help

Step by Step Instructions

A. Getting Started

1. Navigate to ATLAS Search Tool link from the Connect Preconstruction Homepage, a Connect Preconstruction Project site, or the Connect Scoping Homepage.

Note: Chrome is the only fully supported browser.

Use Google Chrome!

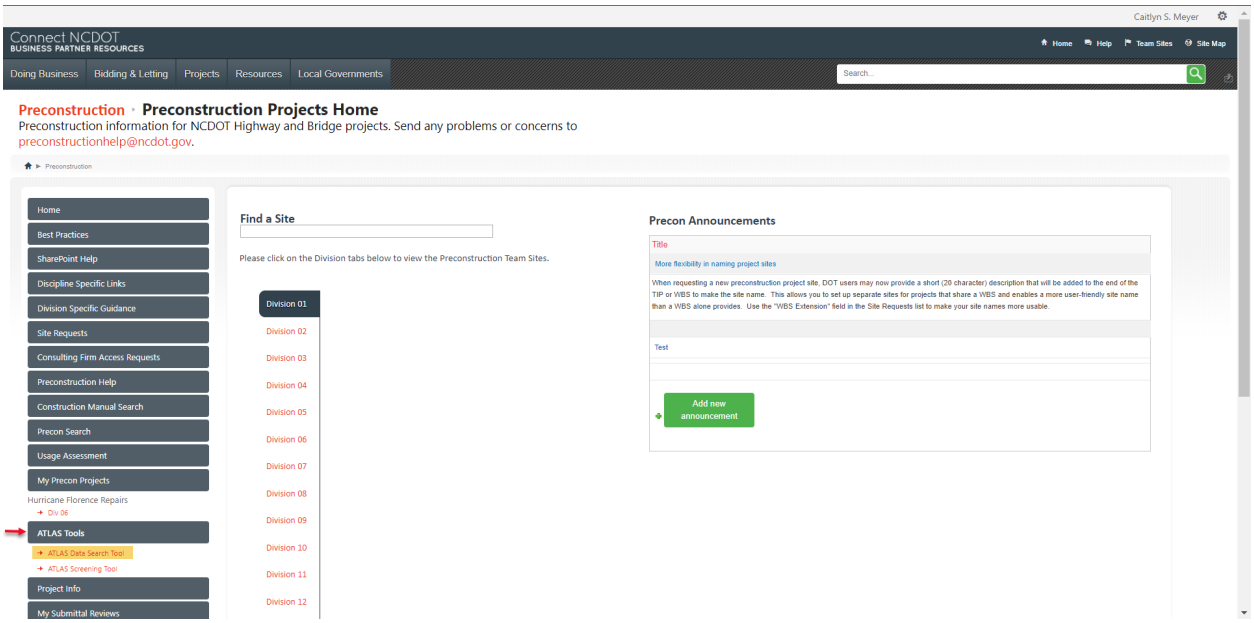


Figure 1: Preconstruction Home Page

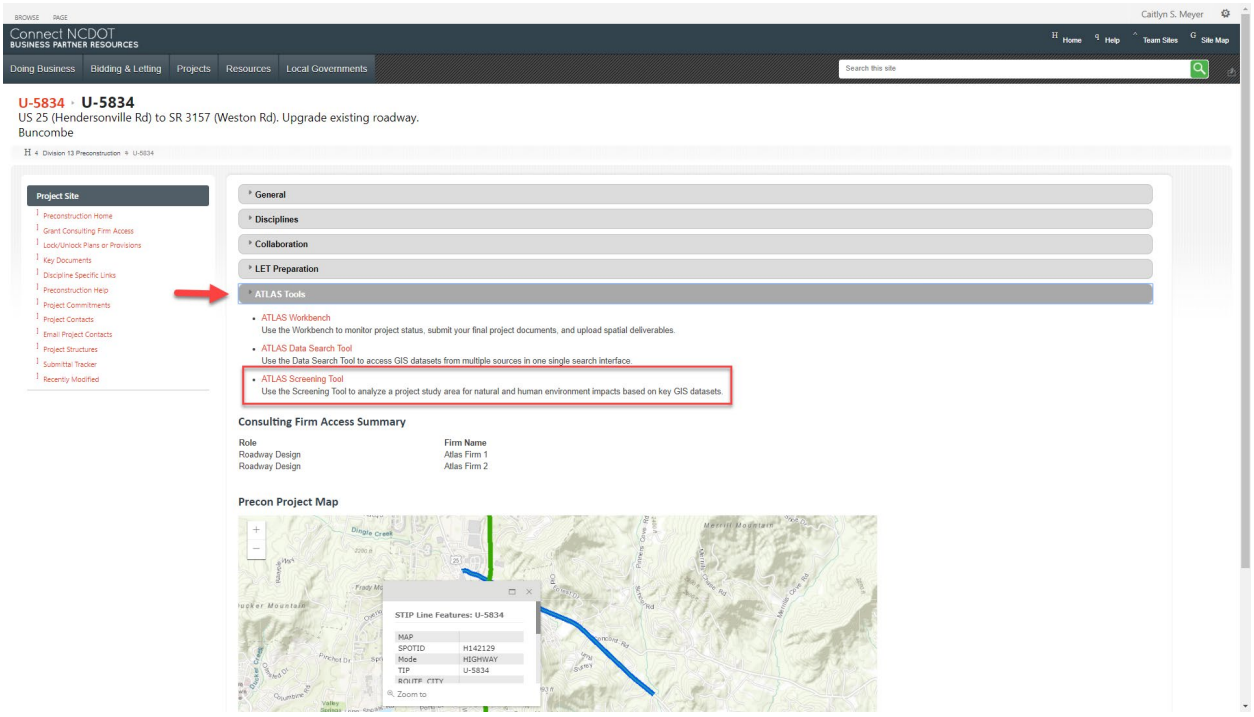


Figure 2: Preconstruction Project Site

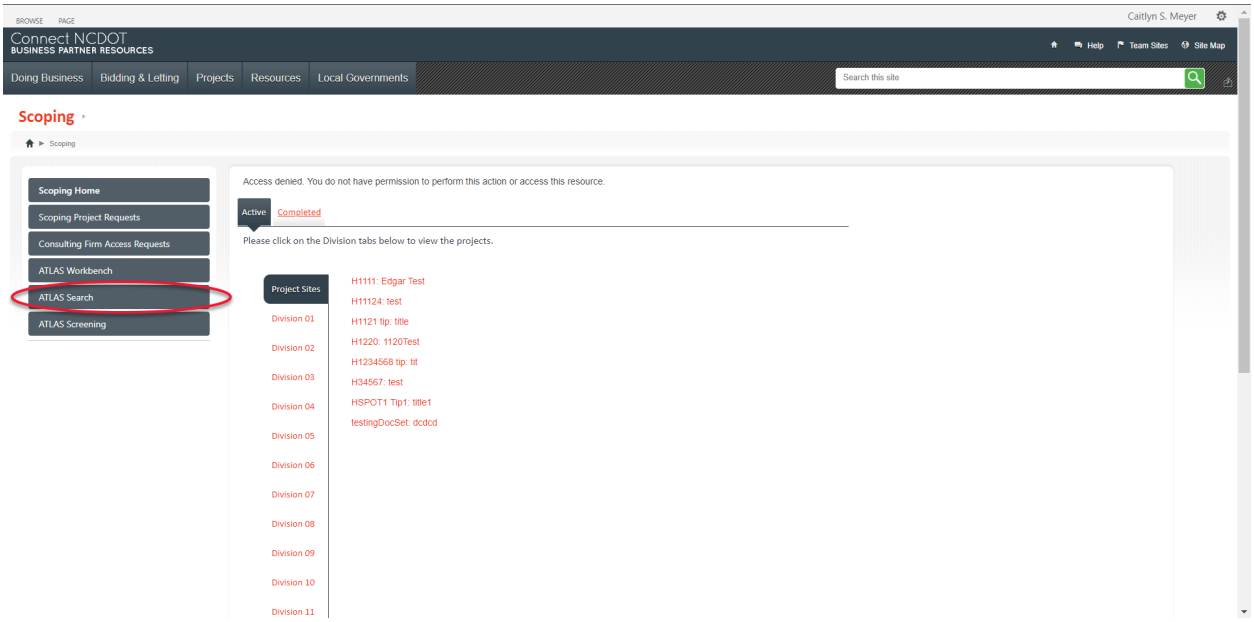


Figure 3: Scoping Home Page

2. You will be directed to the application disclaimer page. All users must accept this disclaimer before accessing the ATLAS Search Tool.

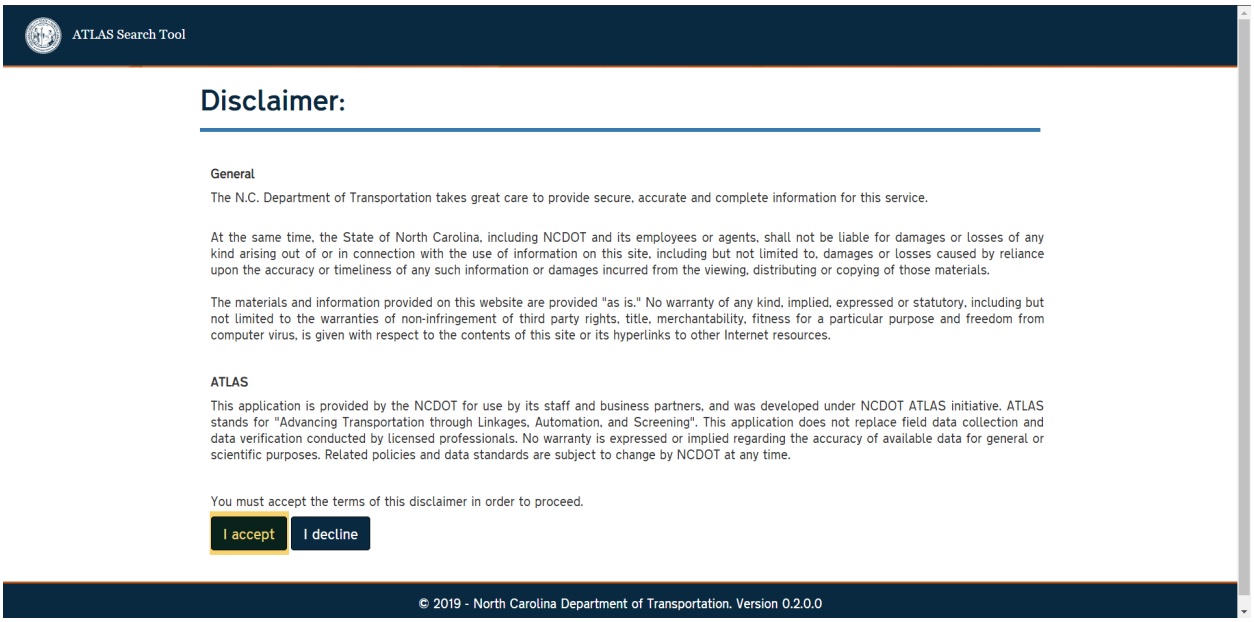


Figure 4: ATLAS Disclaimer

3. After you accept the disclaimer, the ATLAS Search Tool Home will be displayed. From this page, you can input your search parameters. The Search Tool allows you to search for GIS layers in three different ways:

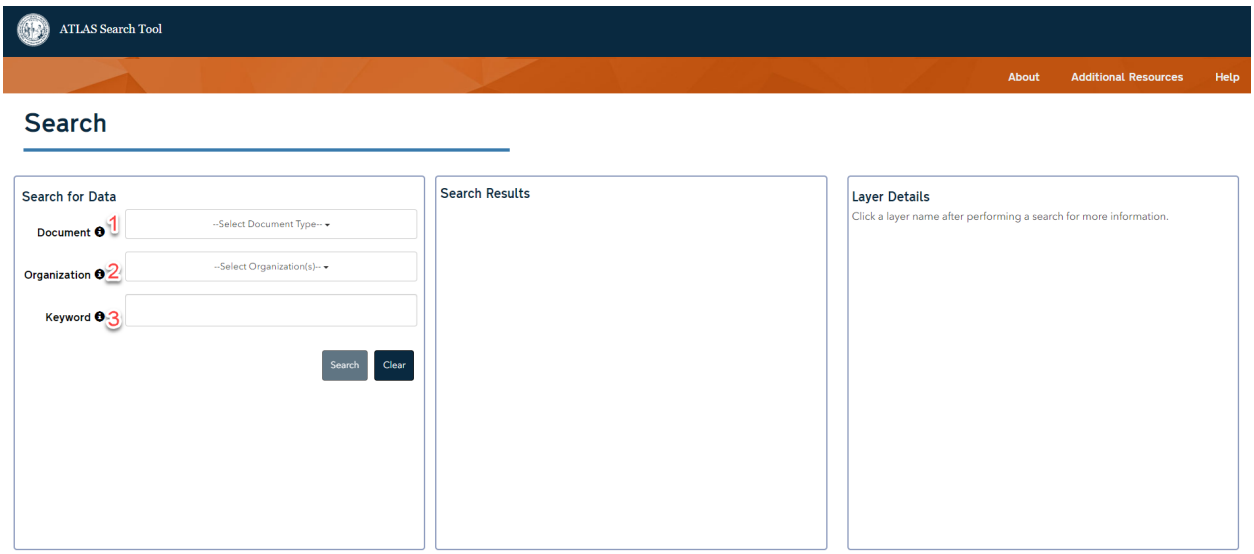


Figure 5: Search Home Page

i. Search By Document
   - This search feature allows you to return a limited list of GIS layers that have been associated with a key project deliverable in the ATLAS Database.

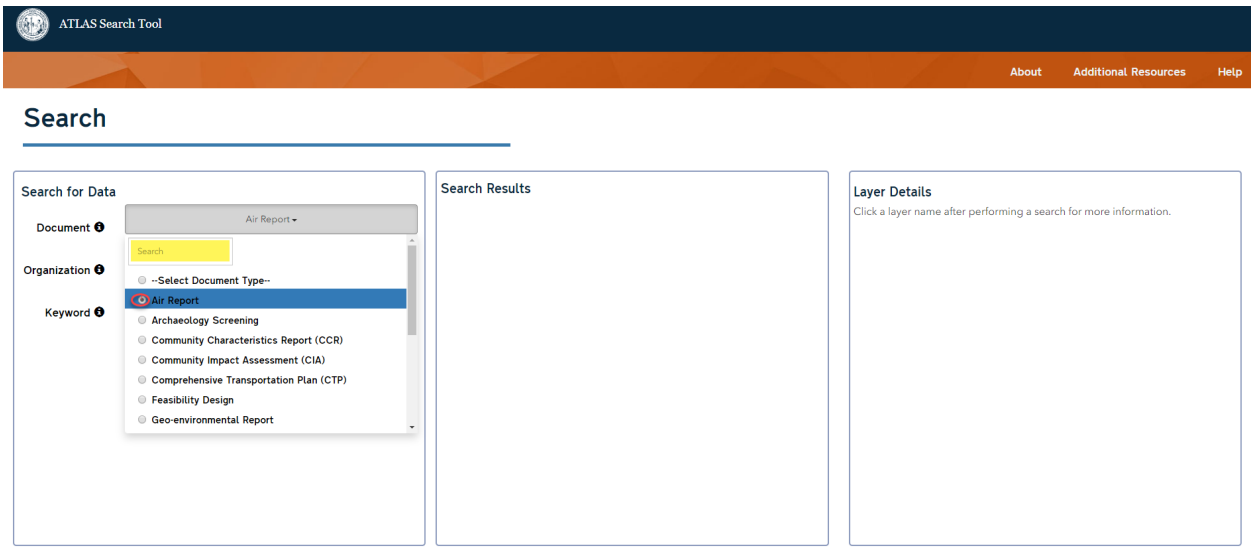


Figure 6: Search by Document Type

Note: Use the list search box to limit the selectable document(s) list.

ii. Search By Organization

- This search feature allows you to return a limited list of GIS layers by the data owner's organization in the ATLAS Database.

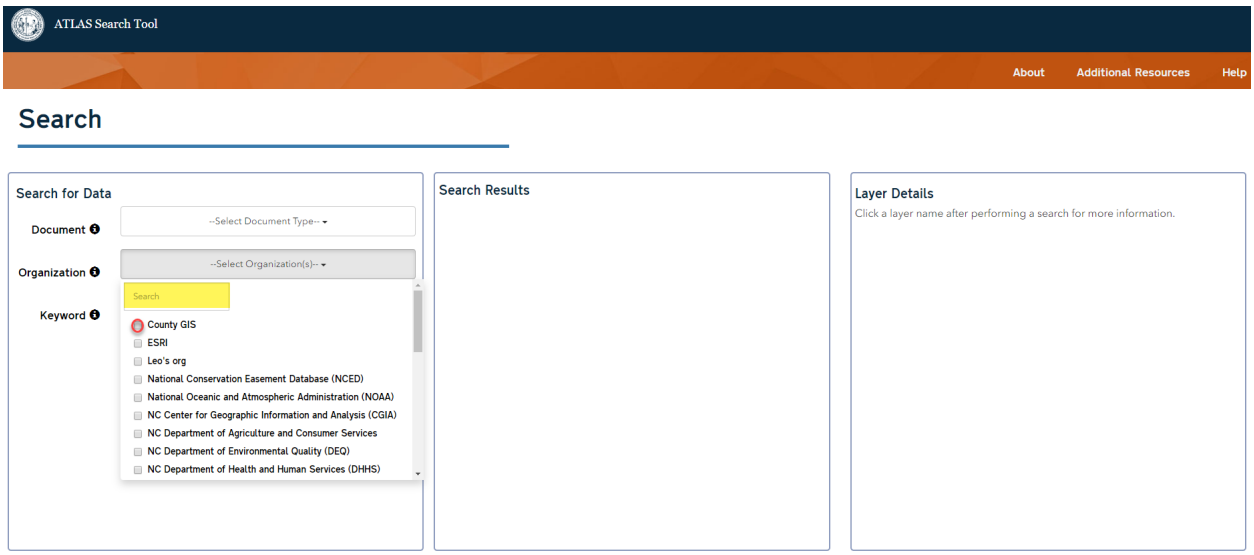


Figure 7: Search by Organization

Note: Use the list search box to limit the selectable organization(s) list.

iii. Search By Keyword

- This search feature allows you to return a limited list of GIS layers that contain the keyword in the Layer Name, Description, or Owner in the ATLAS Database.

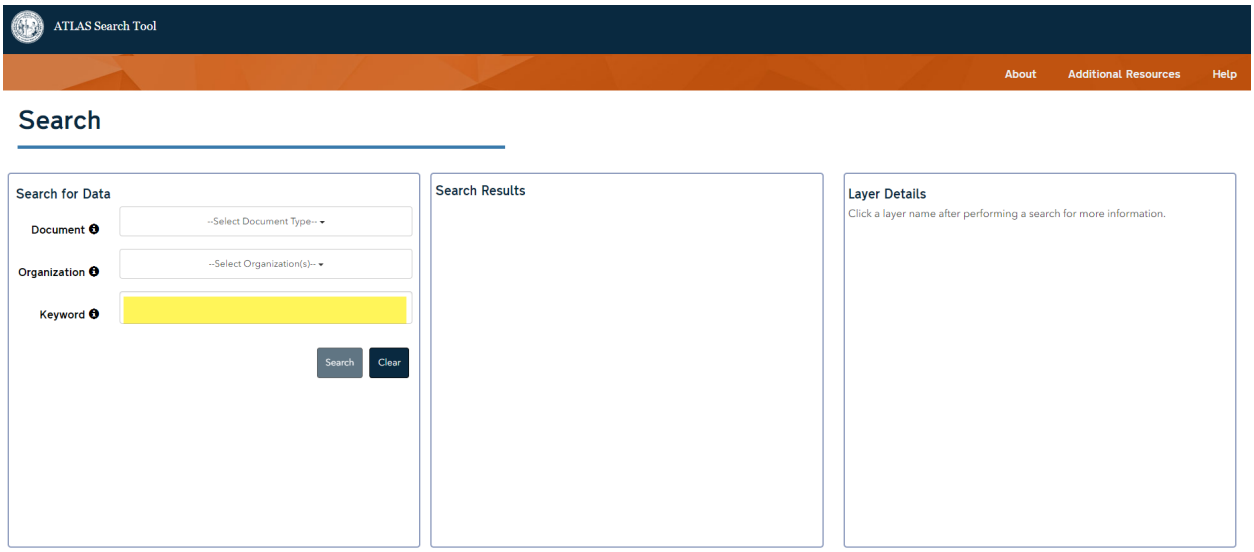


Figure 8: Search by Keyword

B. Executing a Search and Building a Study Area

1. To execute a search, begin by entering your search parameters. You can use one or combination of parameters to limit the data layers returned. Then, hit Search.

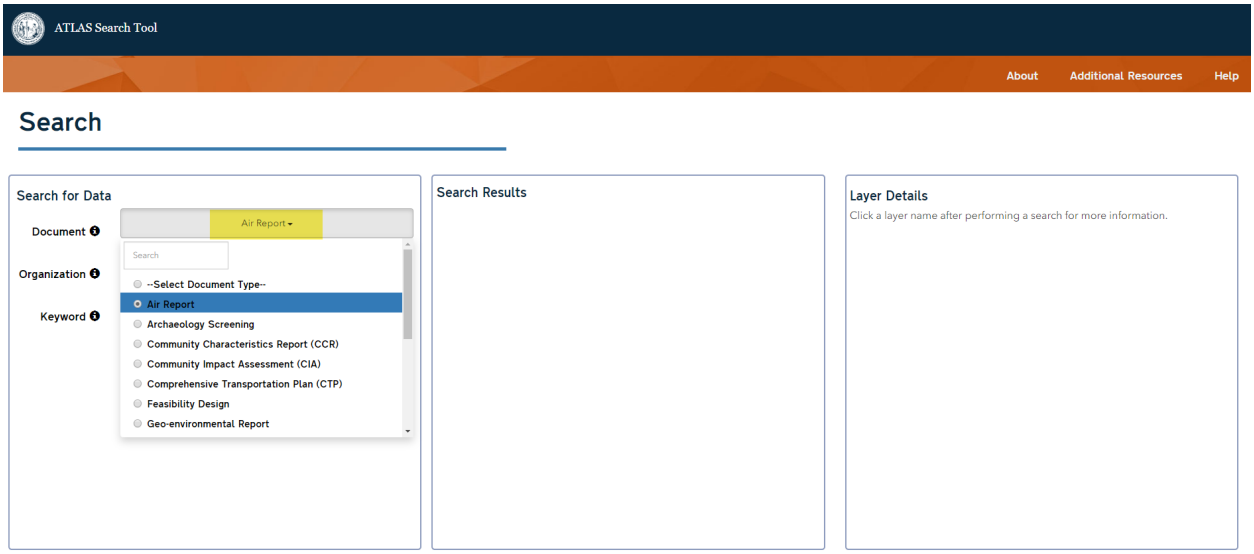


Figure 9: Executing a Search

Tip! Don't use the browser back button while using ATLAS applications. Instead, use the breadcrumb trail and back button within the application interface.

2. The search will return all data layers that fit the search criteria you entered. In this example, the user selected “Air Report” as the search criteria. Out of the 700+ data layers in ATLAS, 15 layers are linked to the Air Report business process.

Note: These relationships (between layers and business processes) are configurable, and they can be updated by the ATLAS Admin (atlas@ncdot.gov), as needed, based on user feedback.

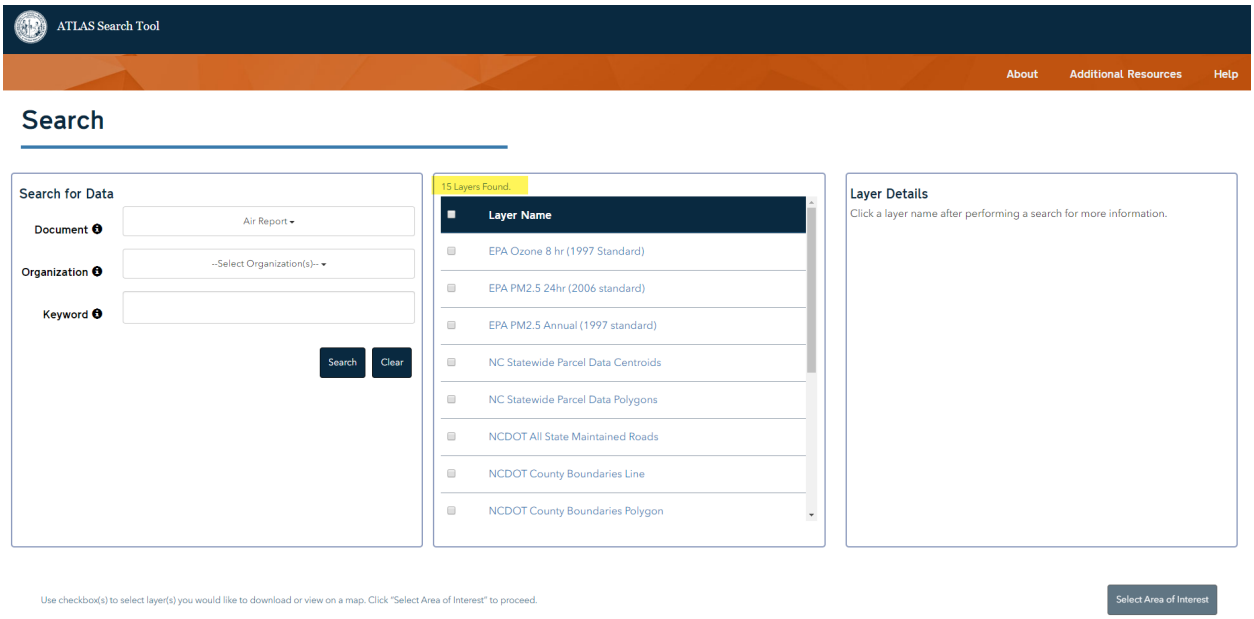


Figure 10: Search Results

Tip! You can only select 100 layers at a time. You will see better performance if you select less that 50 layers. So narrow your search for what you really need!

3. From the search results, you can select a layer name to view the full metadata of a layer. On the detailed information panel, you can choose to Get Field information or Select Area of Interest.

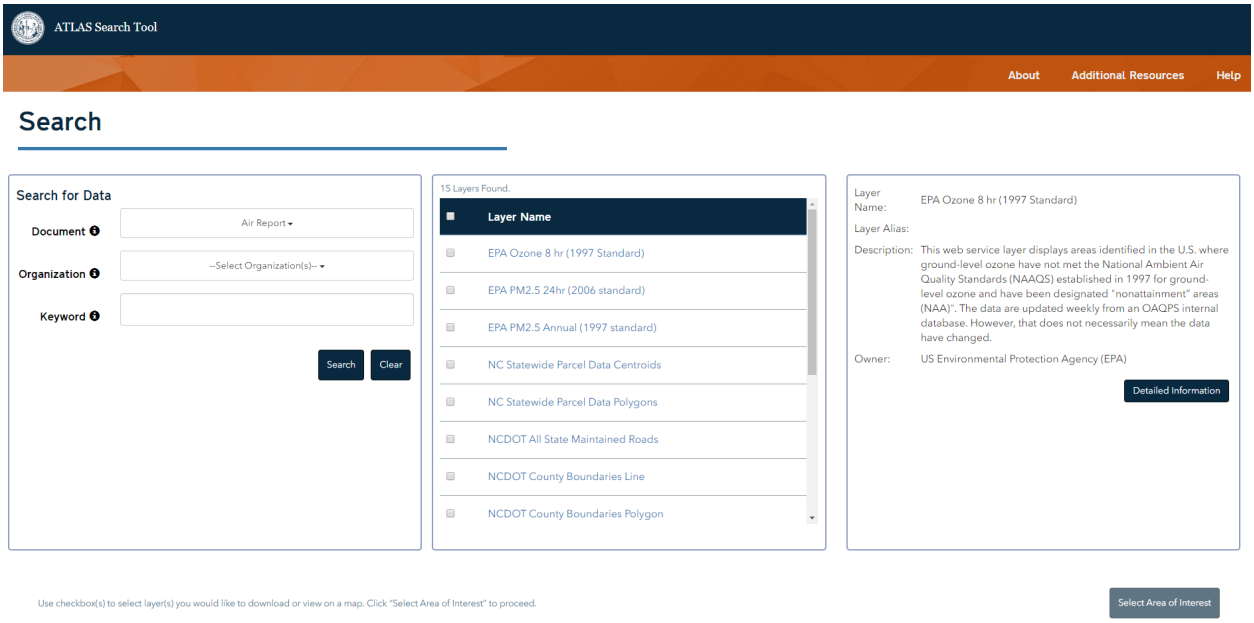


Figure 11: Layer Details Page

4. From the search results, you can select all, one, or multiple datasets by utilizing the check boxes. Once you check a layer, Select Area of Interest button will be enabled.

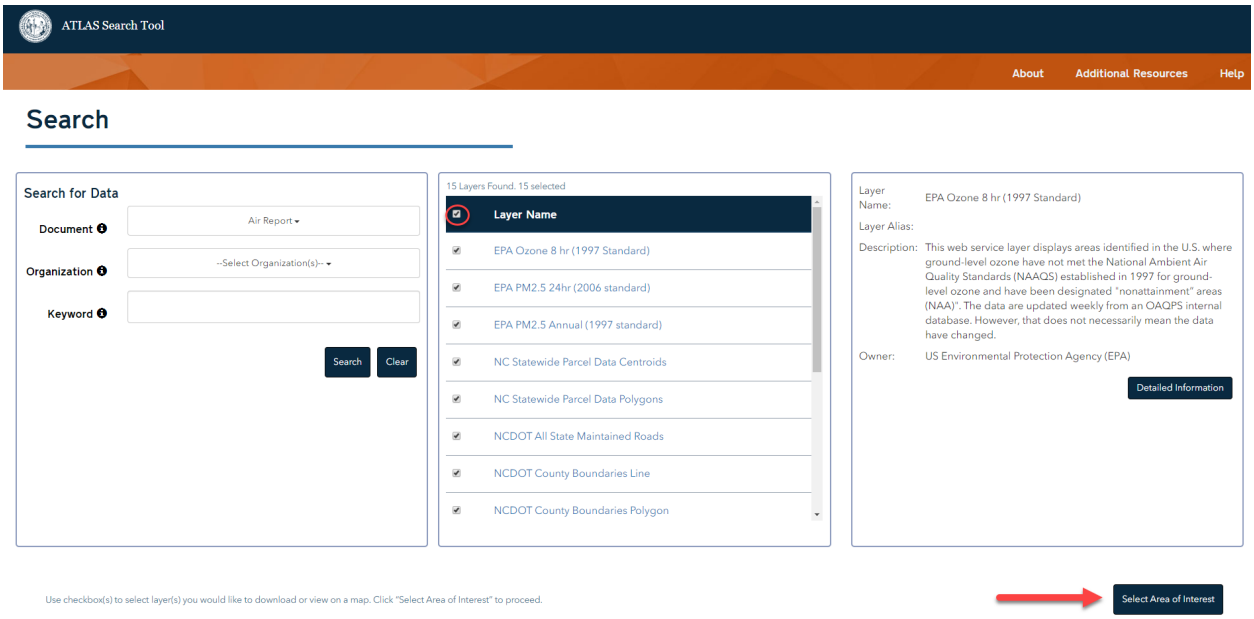


Figure 12: Select Layers to Download or View On Map

5. After clicking Select Area of Interest, you will be prompted to tell the system your Area of Interest. Area of Interest is the geographic boundary (polygon) for which the application will deliver your data. You can define your Area of Interest one of two ways:
   i. Upload a boundary of your project study area
      - This function is for users that have already created their project study as a shapefile in their local GIS software, such as ArcMap or QGIS. To upload a boundary, click the "Upload Zipped Shapefile" navigate to your .zip folder (containing with boundary).

Tip! Having system issues? Try clearing your cache and restarting your browser. Find instructions to clear your cache here.

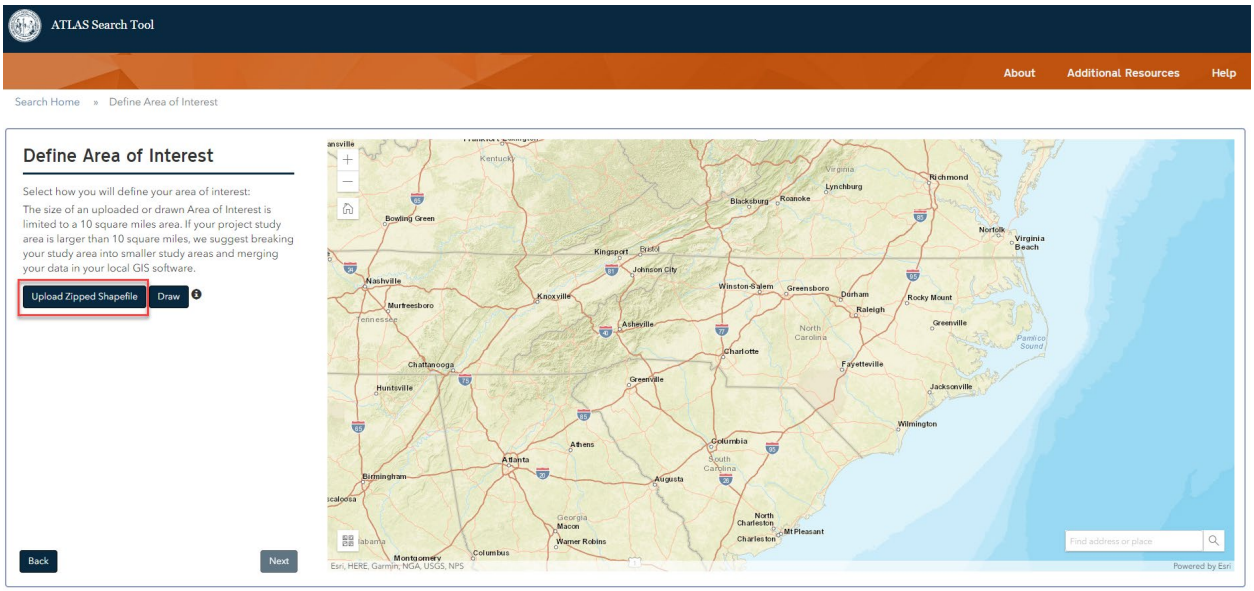


Figure 13: Define Your Area of Interest

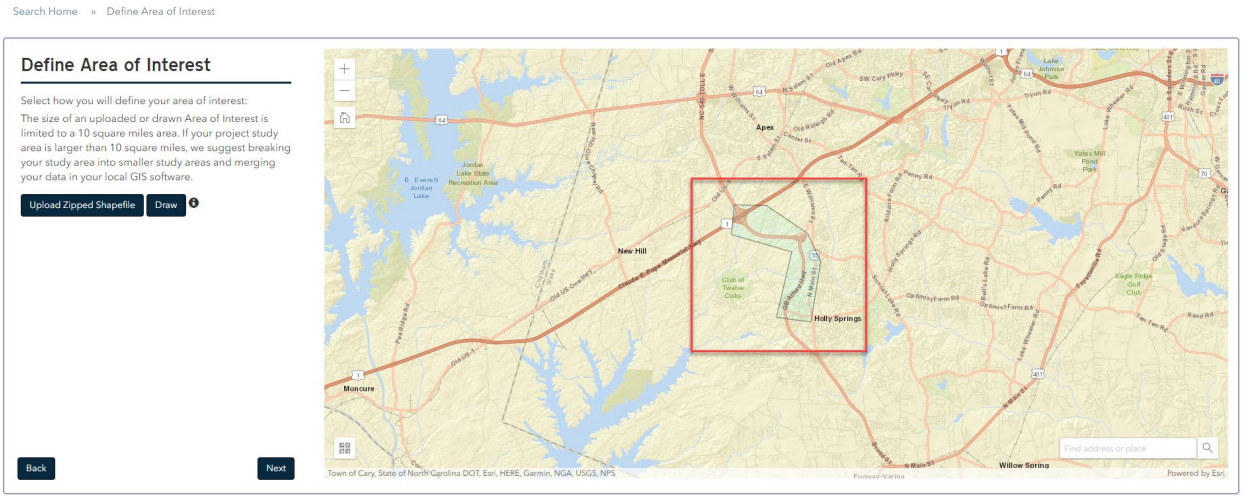


Figure 14: Your Uploaded Polygon

ii. Draw Area of Interest

- This option allows users to sketch their study area on the map. You can draw a polygon, rectangle, or circle.
- Use the Draw tool bar on the right corner of the map to draw your area of interest.

Note: Drawings are limited to one feature and the drawn feature must be under the ten square miles limit.

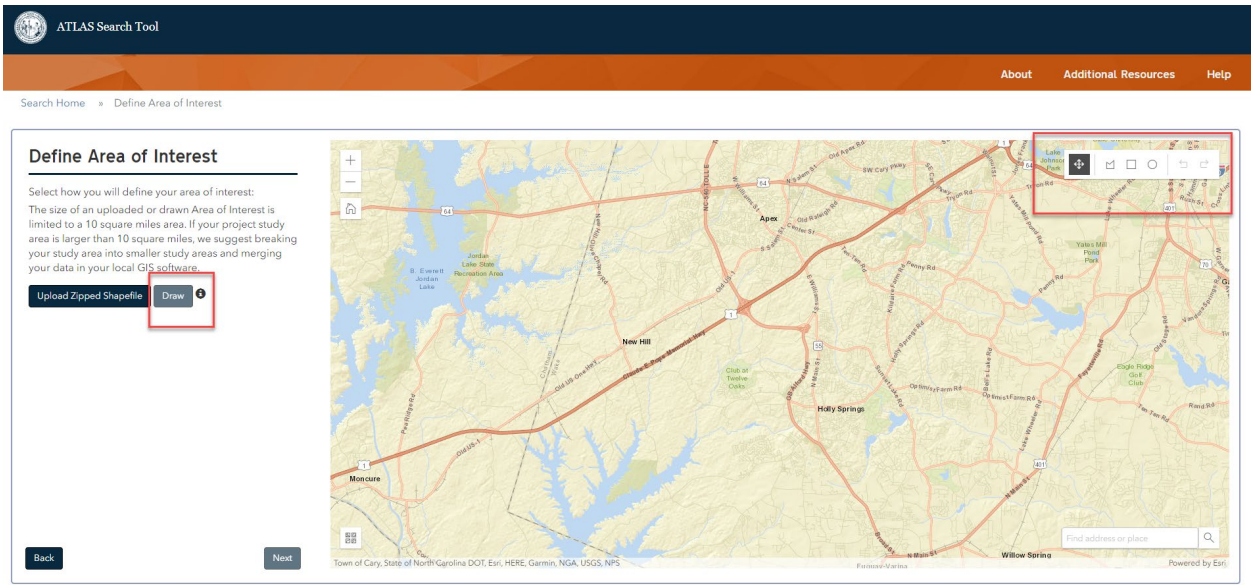


Figure 15: Draw Area of Interest Page

- To begin drawing, select one of the tools (polygon, rectangle, circle) and start drawing on the map.
- Complete a line or polygon by double clicking.
- To erase a drawing and start over, click the 'X' icon and the feature will be delete

Tip! External systems can get overwhelmed when handling complex geometry. Uploading or drawing simple geometry will get you the most reliable results.

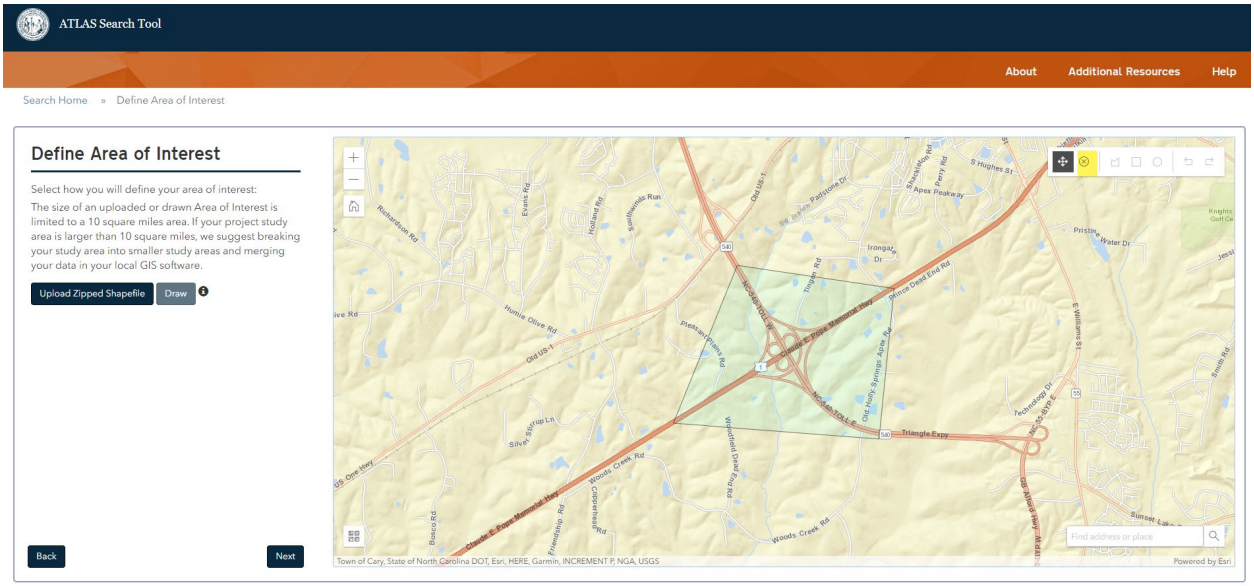


Figure 16: 'Draw' Area of Interest Page – Delete Feature

C. Downloading Spatial Data

Once your area of interest has been defined, either by uploading a boundary or by drawing, click the Next button to view the search results.

Tip! The Search Tool's download functionality allows GIS users to search for and download spatial data from multiple data sources at once. Data will be automatically clipped to your Area of Interest boundary and projected into the same coordinate system for you!

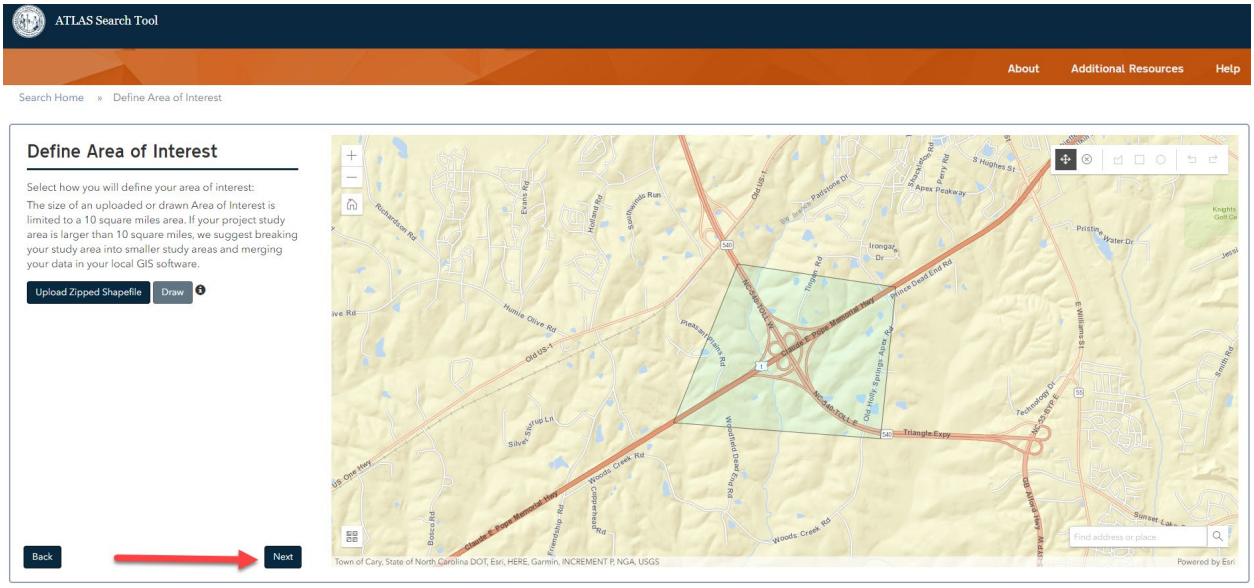


Figure 17: Next for Search Results

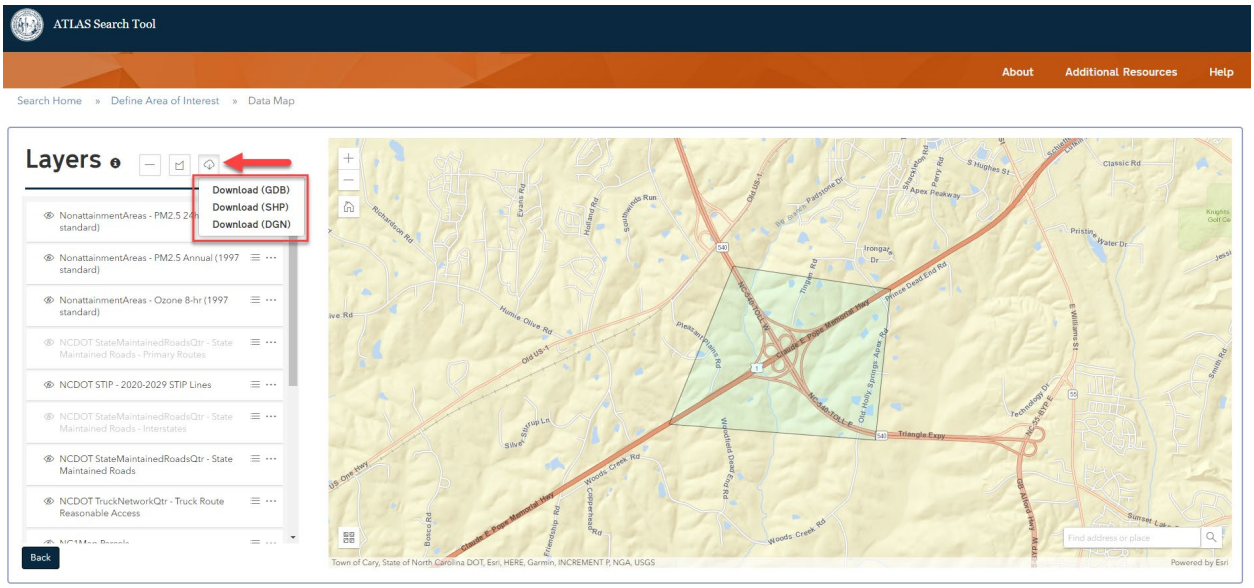


Figure 18: Download directly from the Map Viewer

D. Using the Map Viewer

Once you have defined your Area of Interest, you may proceed to the Map Viewer. Please note that this map viewer is not intended to be used for high-level spatial analysis, but rather is simply a data visualization tool.

Want to perform robust analysis or custom a map for your project?

Download the data and continue your work in your local GIS platform.

1. **Initial Map Loading**
   a. During the initial map load, you will see a loading progress bar along the top of your screen. Because ATLAS utilizes live web services, each time you load the map viewer, the Search Tool application calls and queries the external agencies to receive their organization's data for your Area of Interest.

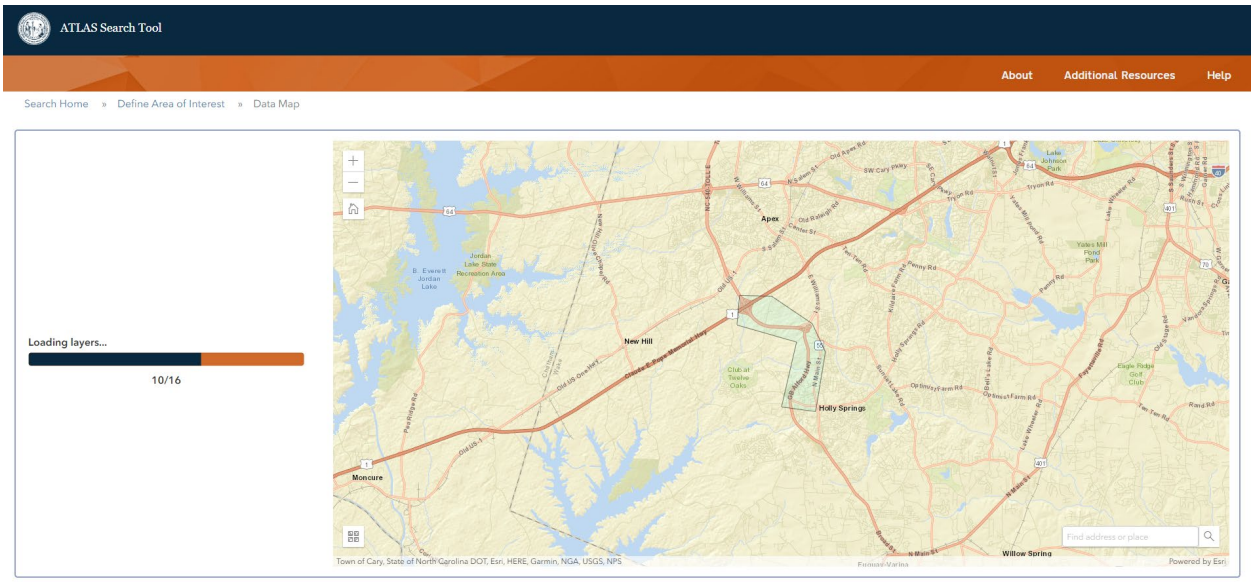


Figure 19: 'Loading please wait' bar will provide progress of loading the layers you requested on initial Search screen.

   b. Once the layers have been loaded, you will receive an informational window as shown in below screenshot.
   c. Additionally, the informational window will let you know what layers you requested are currently having issues. Hover over the 'i' icon to get details on the errors our application is receiving from the data owner's web service.

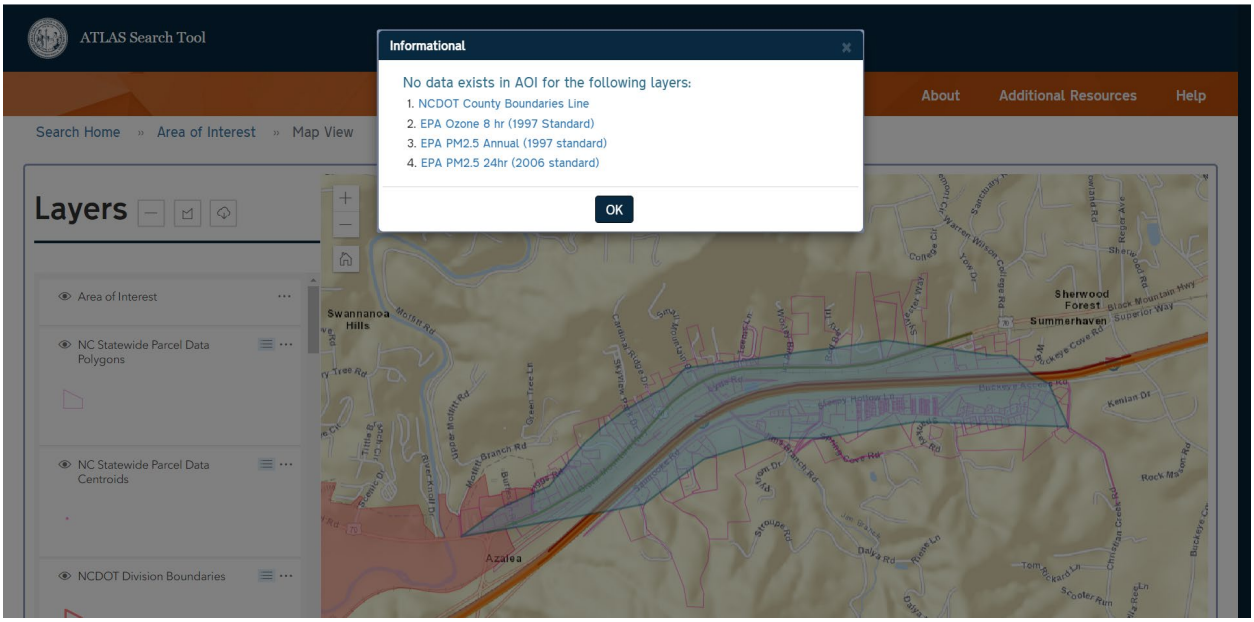


Figure 20: Informational window will list the layers that you requested for which there were no features present, and as a result were not loaded to the map.

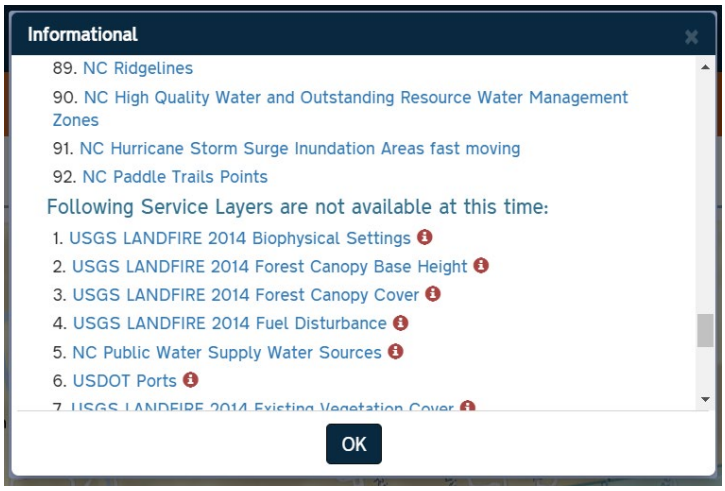


Figure 22: Informational window will also list layers you requested that were unavailable because of an issue with the data owner's web service. Hover over the info icon to see the error.

2. Navigation Tools

In the upper left hand corner of the map, there are map navigation tools.

a. Use the zoom tools on the map, or use your mouse to navigate as you would in tool such as ArcMap or Google Maps.
b. The home icon will recenter the map on your Area of Interest.

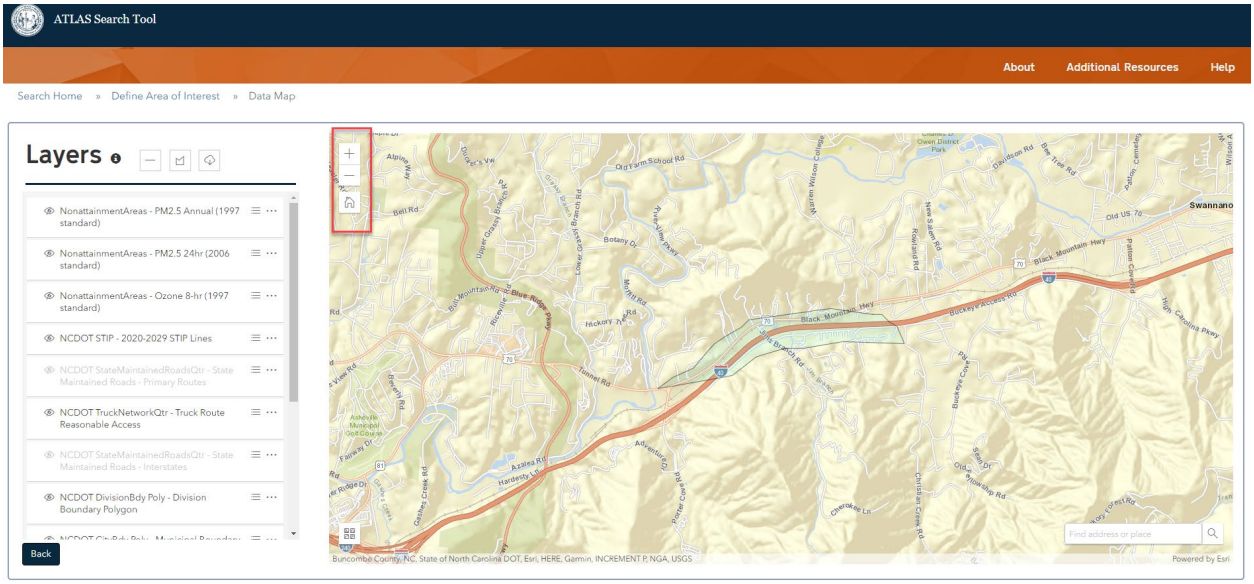


Figure 21: Map Navigation Tools

3. **Legend Tools**
    a. Use the 'eye' icon to turn a layer on and off in the map.
    b. Click the 'dots' icon next to a layer name to expand the layer tools.
        - Click Layer Information to see details on the layer owner, descriptions, etc.
        - Use opacity tools to increase and decrease the opacity on an individual layer for easier viewing.

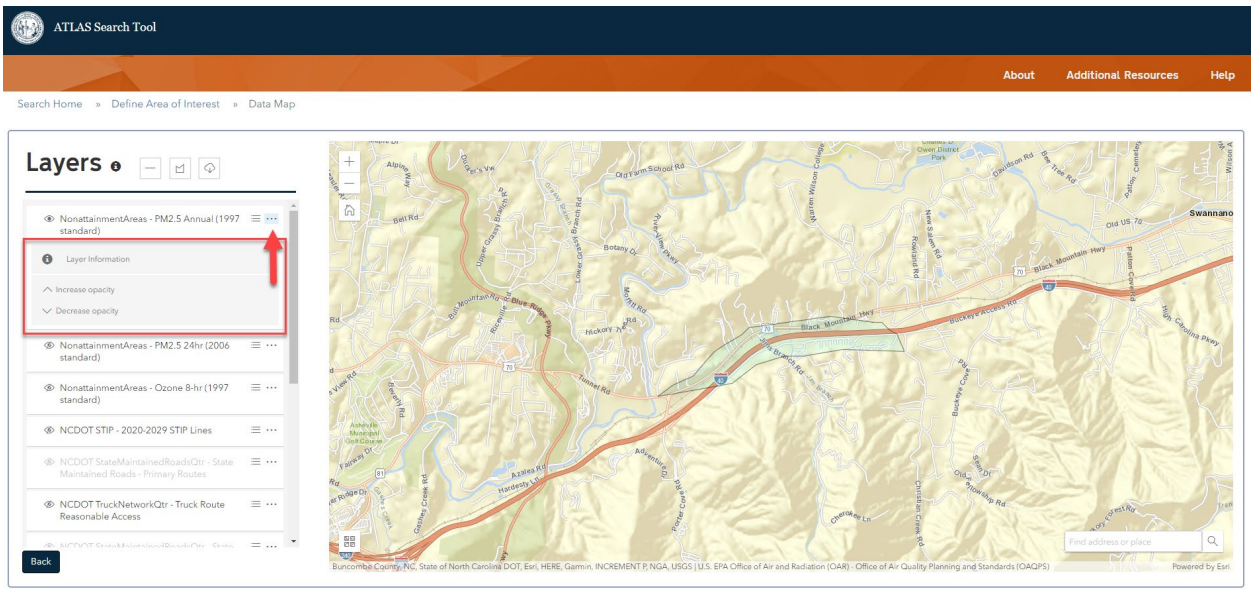


Figure 22: Layer Tools

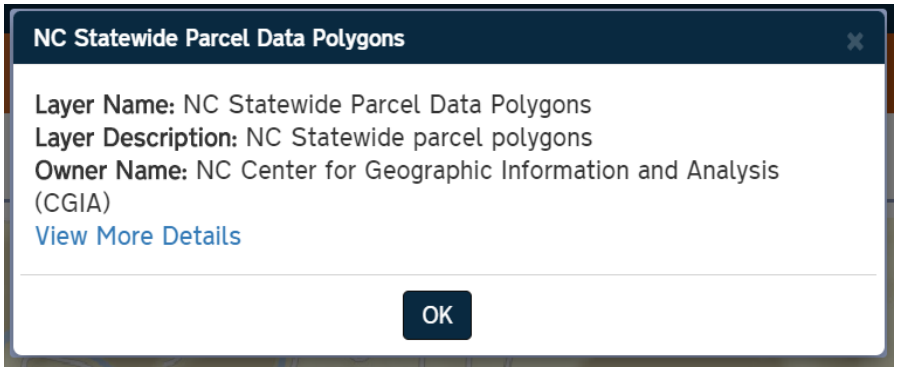


Figure 23: Layer Information Window. Click View More Details to see the service url and other layer details.

4. Measure Tools

There are two measure tools available in the Map Viewer: a linear measurement tool and an area measurement tool.

a. Click the line or polygon measurement tool next to Layers to activate the tool. To start a measurement, click New Measurement.

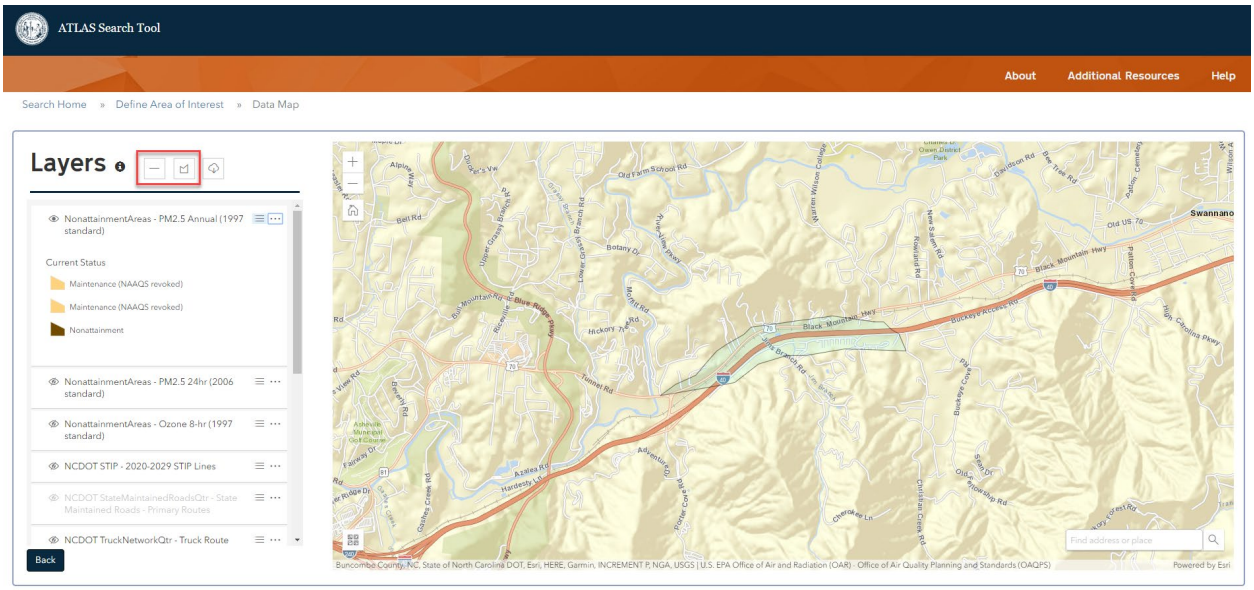


Figure 23: Measurement Tools

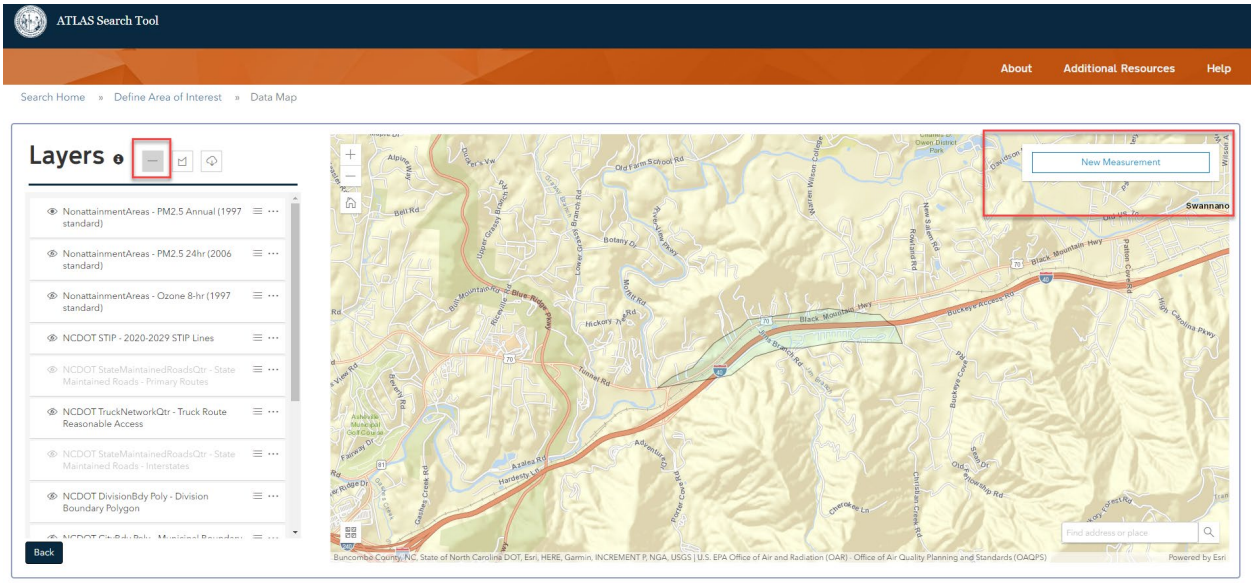


Figure 24: New Linear Measurement

a. Click to begin measureing, double click to end the measurement.
b. To turn off the tool on the map interface, reclick the tool next to Layers.

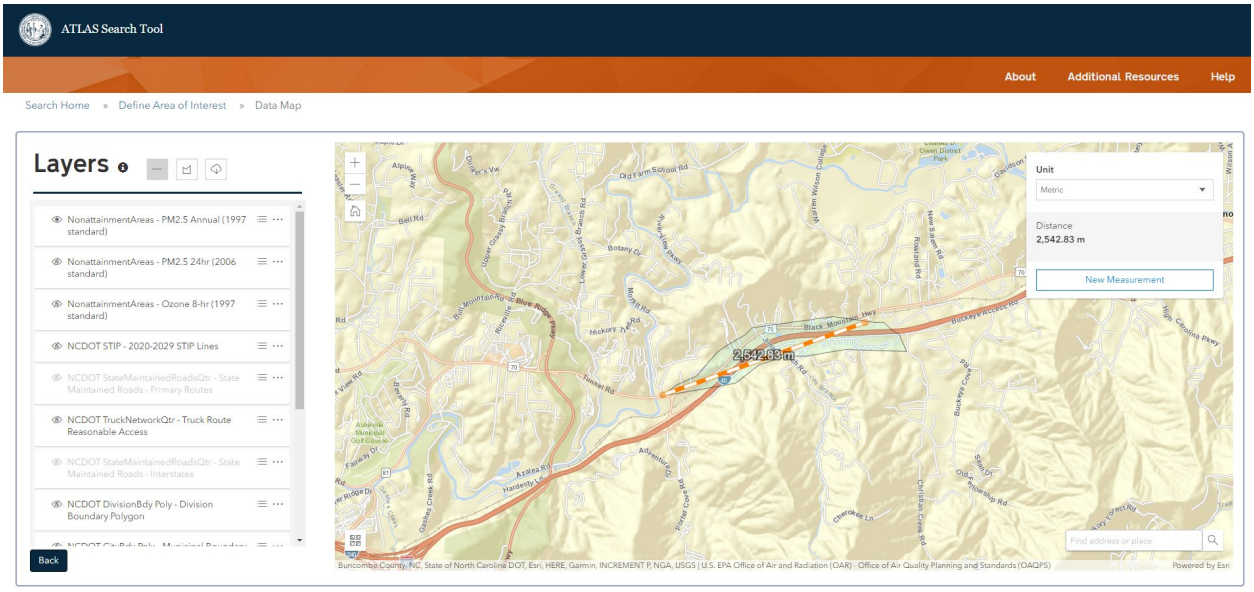


Figure 25: Linear Measurement

5. Using Identify

You can click on any map feature to open the identify window. The identify window provides information on the features attributed. You can use the arrows icon along the bottom of the identify window to scroll through stacked features across layers.

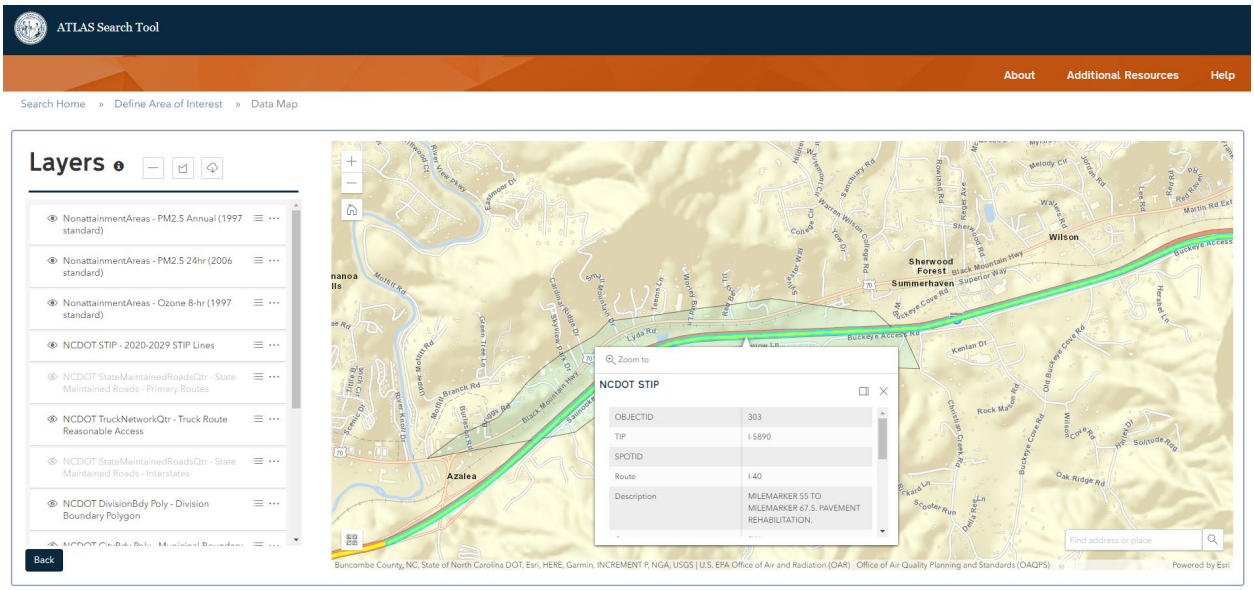


Figure 26: Identify pop-up

6. Change the Base Map
    a. Select the base map selection tool in the bottom left corner of the map.

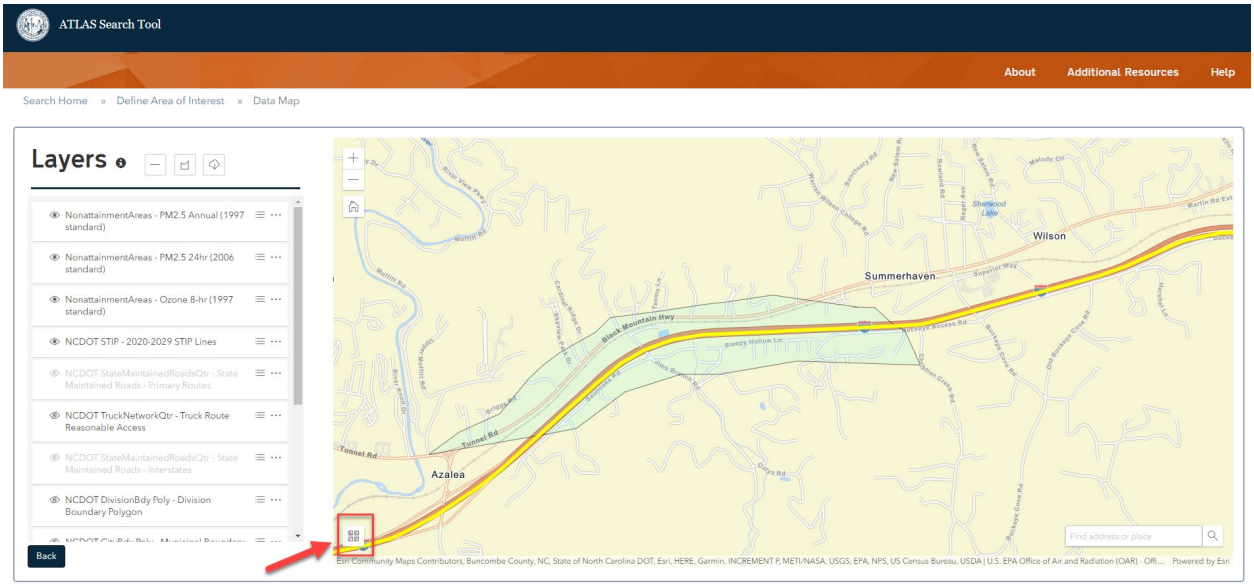


Figure 27: Base Map Selection Tool

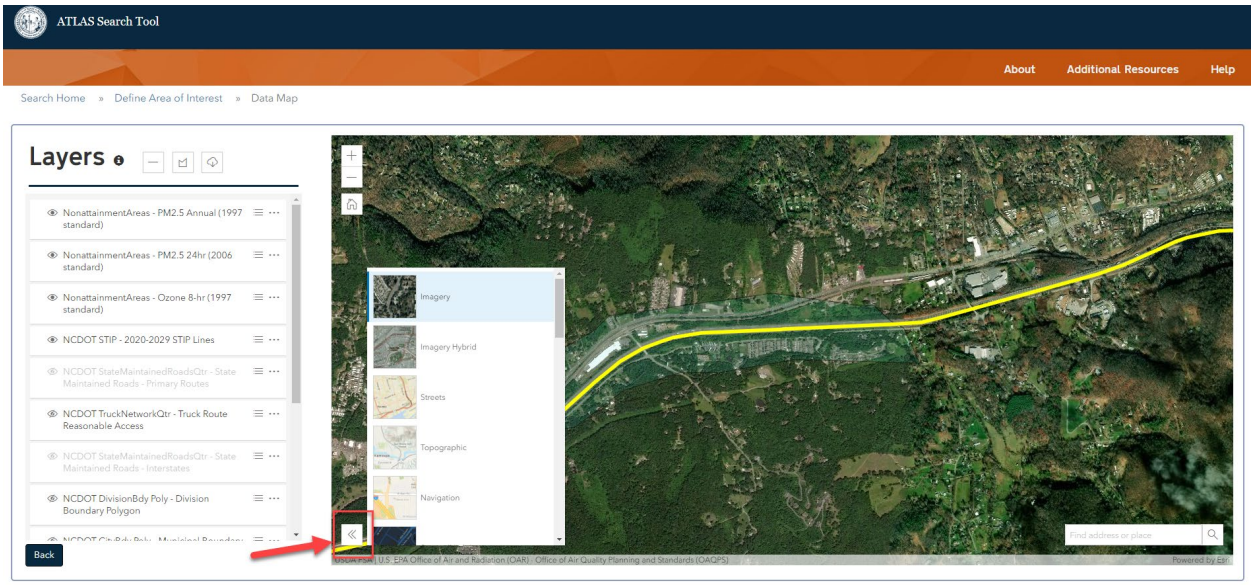


Figure 27: Base Map Selection Tool – Imagery Option

E. ATLAS Resources and Help

Across the header of each ATLAS application, you will see: 1) About, 2) Additional Resources, and 3) Help.

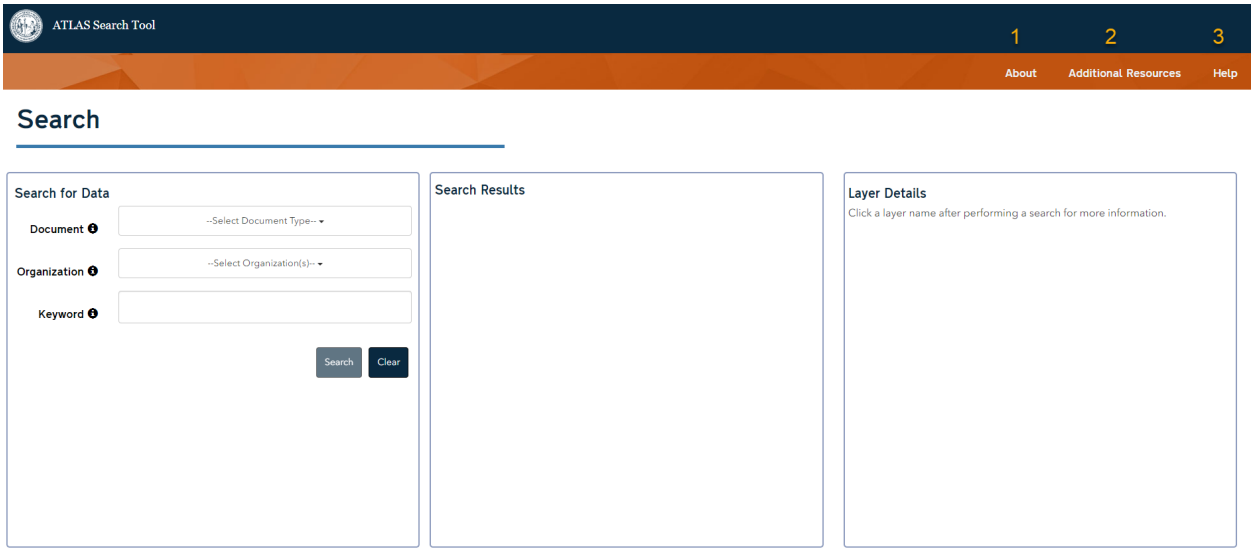


Figure 28: All pages have helpful page links in the header of the app window.

Reference these pages to learn more about Project ATLAS, access training materials, and find other helpful resources.

1. About

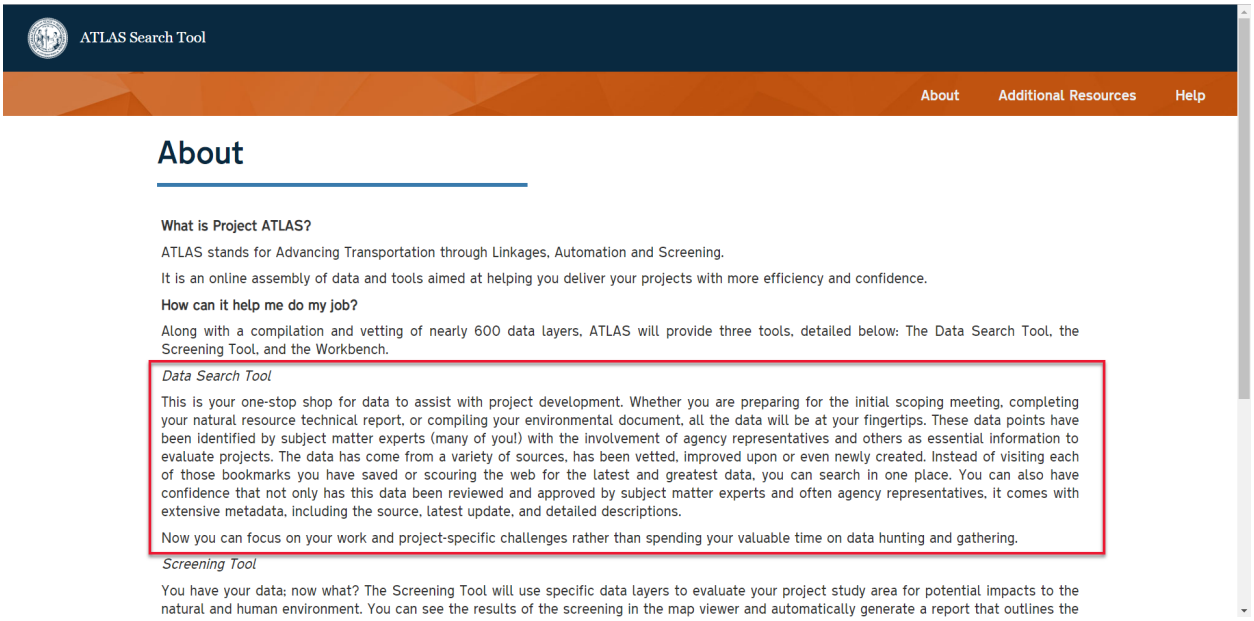


Figure 29: ATLAS About Page

2. Additional Resources

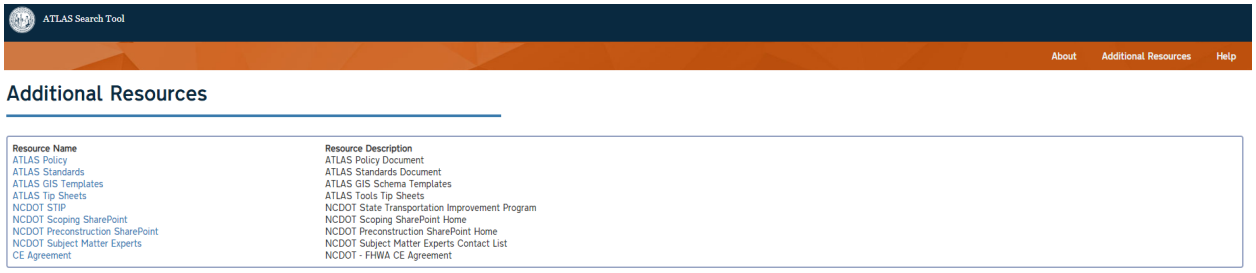


Figure 30: ATLAS Additional Resources page

3. Help

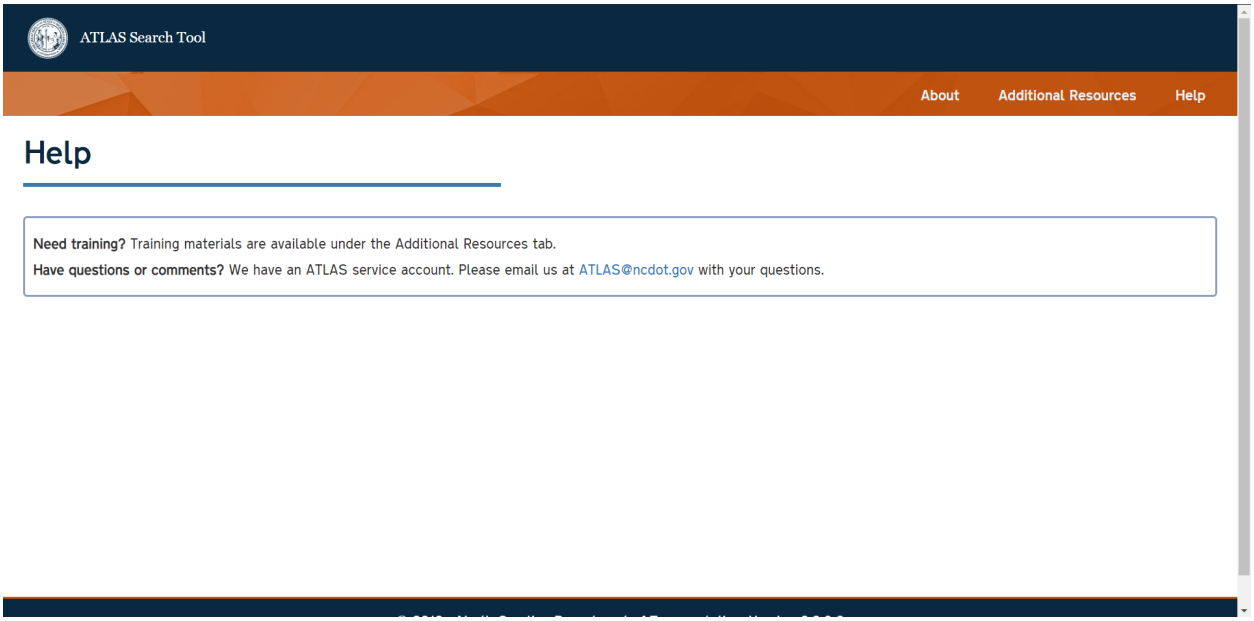


Figure 31: ATLAS Help page

Need support?

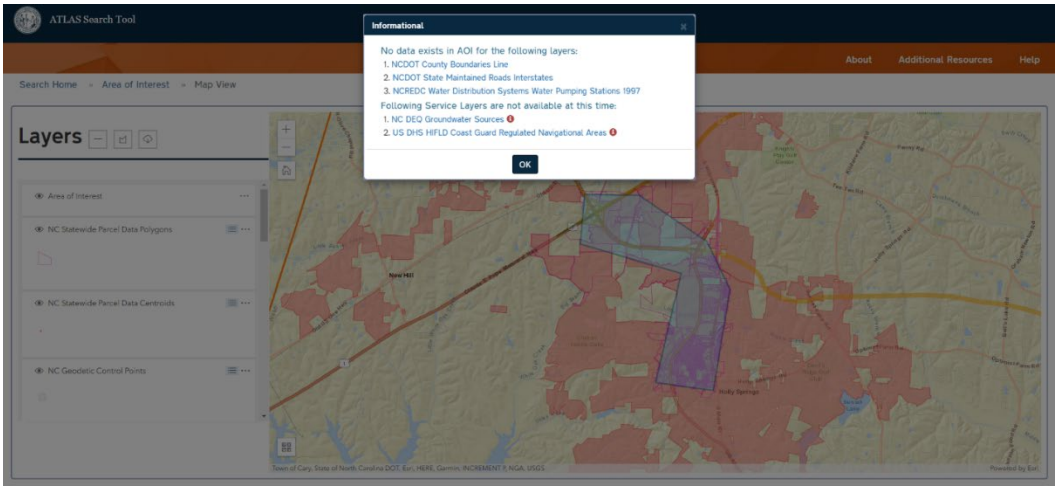
atlas@ncdot.gov is your best resource!

ATLAS Search Tool: - Search by Uploading a Study Area

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Search Tool and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'
4. On the Search home page, under Search by Document, select 'Location Surveys', click Search. This should return 15 layers.

Tip: If the number of layers is slightly off, don't worry! We are constantly adding and removing data layers to the system to provide you with the best available resource.

5. Click on the check box next to Select, to select all layers.
6. Click on 'Select Area of Interest'.
7. On the Define you Area of Interest page, choose 'Upload Zipped Shapefile'.
8. Open your USB, navigate to the Search Exercise folder.
9. Select ***SearchUploadArea.zip,*** click 'Open'.
10. Now click 'Next' to proceed. The map layers will begin to load at this point.
11. Once loaded you should be on the Map Viewer page which should look similar to this:



The Informational Box will show you layers that did not load on the map either due to issues on the web service end, or if there is no data in the area of interest.

Tip: You may hover over the red "i" to view the error that the layers produced.

12. Click OK to view the map and go through the layers that loaded.
    a. Use the measurement tools (line and area).
    b. Click a feature on the map to enable the identify tool.
    c. Look up Layer Information by clicking on the dots by the layer name.
    d. Change opacity of the layers.

ATLAS Search Tool: - Search by hand drawn Project Area

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Search Tool and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'
4. On the Search home page, under Search by Document, select 'Feasibility Design', click Search. This should return 215 layers.

Tip: If the number of layers is slightly off, don't worry! We are constantly adding and removing data layers to the system to provide you with the best available resource.

5. To narrow the search down a bit, under 'Search by Organization' select the following:
   NCDOT GIS Unit,
   NCDOT Rail Division,
   NCDOT Right of Way Unit and
   NCDOT Transportation Planning Division.
   Then click 'Search'. This should return 51 layers.
6. To further narrow the search, let us add a keyword in the Search by Keyword box. Type in 'road'. This should return 16 layers.
7. Click on the check box next to Select, to select all layers.
8. Before we proceed, uncheck the following layers:
   NC Implicit Outfalls 19 Western Counties
   NCDOT Existing Bicycle Facilities
   NCDOT Proposed Bicycle Facilities
9. You should now have 48 layers.
10. Click on 'Select Area of Interest'.
11. On the Define Your Area of Interest Page, choose 'Draw'.
12. Zoom into a region of your choosing and start drawing your study area on the map using the draw toolbar located on the top right corner of the map.
13. Once you have drawn your study area, Click 'Next'. The map layers will begin to load at this point.
14. The Informational Box will show you layers that did not load on the map either due to issues on the web service end.
15. Click OK to view the map and go through the layers that loaded.
    a. Use the measurement tools (line and area).
    b. Click a feature on the map to enable the identify tool.
    c. Look up Layer Information by clicking on the dots by the layer name.
    d. Change opacity of the layers.
16. To change your area of interest, you may use the breadcrumb trail to either upload a study area or modify your drawn area.

ATLAS Screening Tool

High-level Screening Tool Functionality

1. Build a unique Project Screening
2. Generate a Project Screening Report
3. Download data packages

What is the ATLAS Screening Tool?

The Screening Tool will use specific data layers to evaluate your project study area for potential affects to the natural and human environment. You can see the results of the screening in the map viewer and automatically generate a report that outlines the presence of data features within your study area. The purpose of this is to give the user a relatively quick and easy way to see early in the project's development what issues or challenges might exist. The information from this tool could be used in project planning to help develop the scope, schedule, and budget.

Use Google Chrome!

This tip sheet covers the following topics:

A. Getting Started
B. Build Your Study Area
C. Use Screening Settings
D. Buffer Your Study Area
E. Select Data to Screen
F. Run and Access Your Screening Report Results
G. How to Read a Screening Report
H. How to Review Screening Data in Other Software
I. Resources & Help

Step by Step Instructions

A. Getting Started

Note: Chrome is the only fully supported browser

1. Navigate to ATLAS Screening Tool link from the Connect Preconstruction Homepage, a Connect Preconstruction Project site, or the Connect Scoping Homepage.

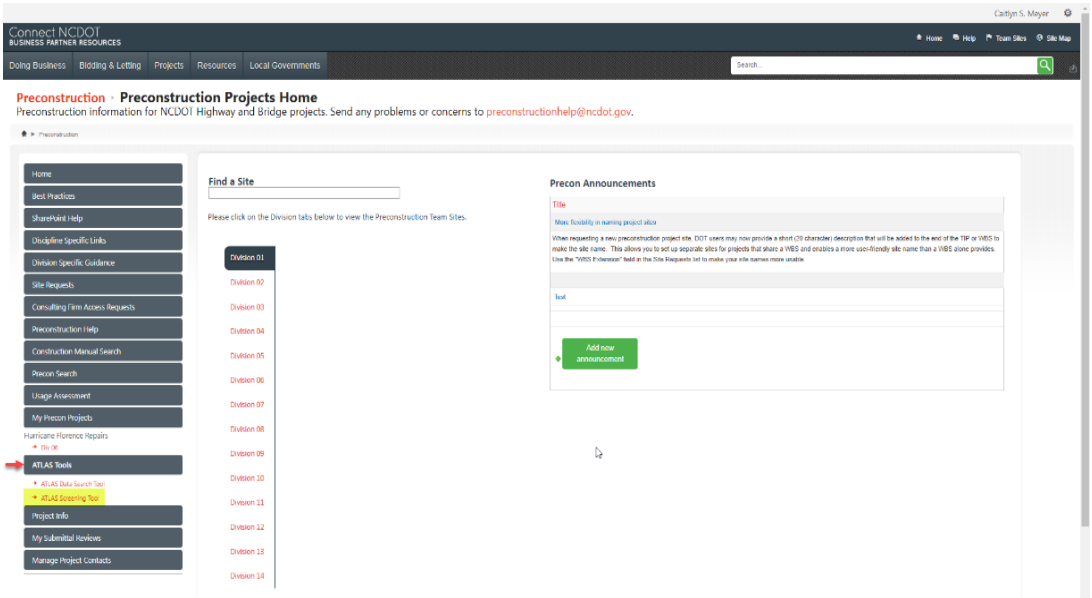


Figure 1: Connect PreConstruction Home Page

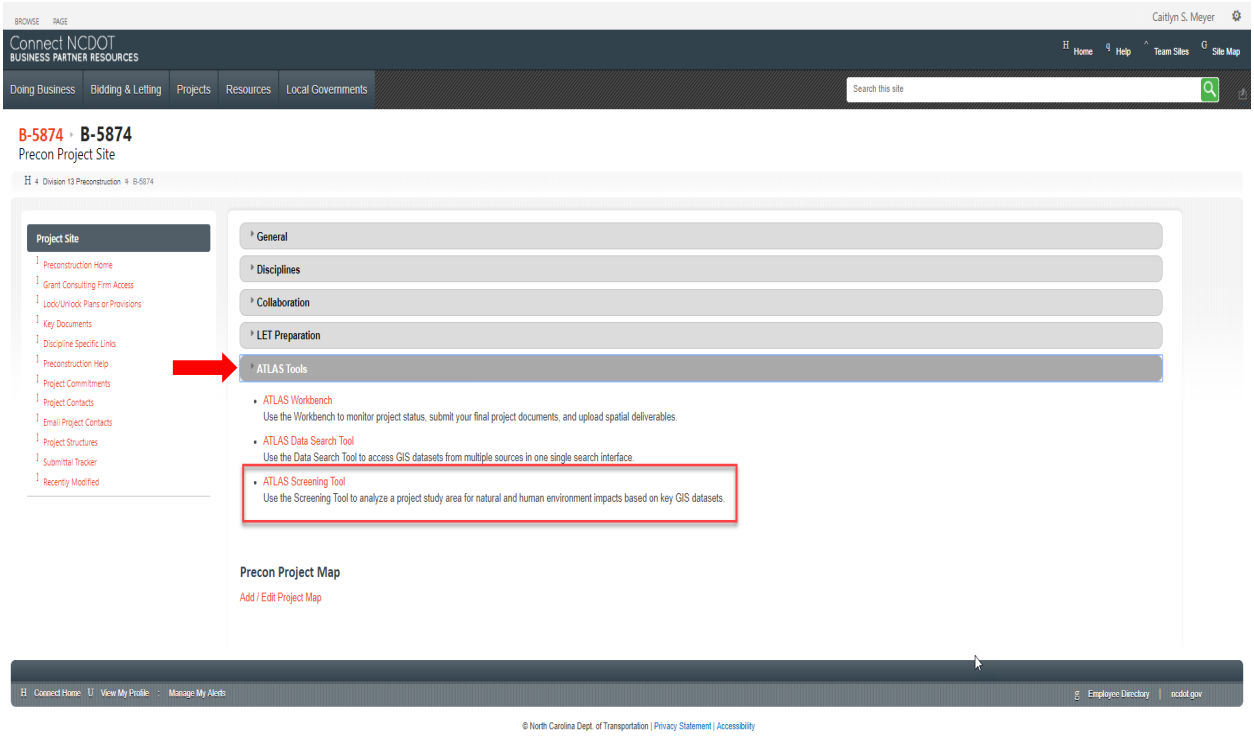


Figure 2: Connect PreConstruction Project Site

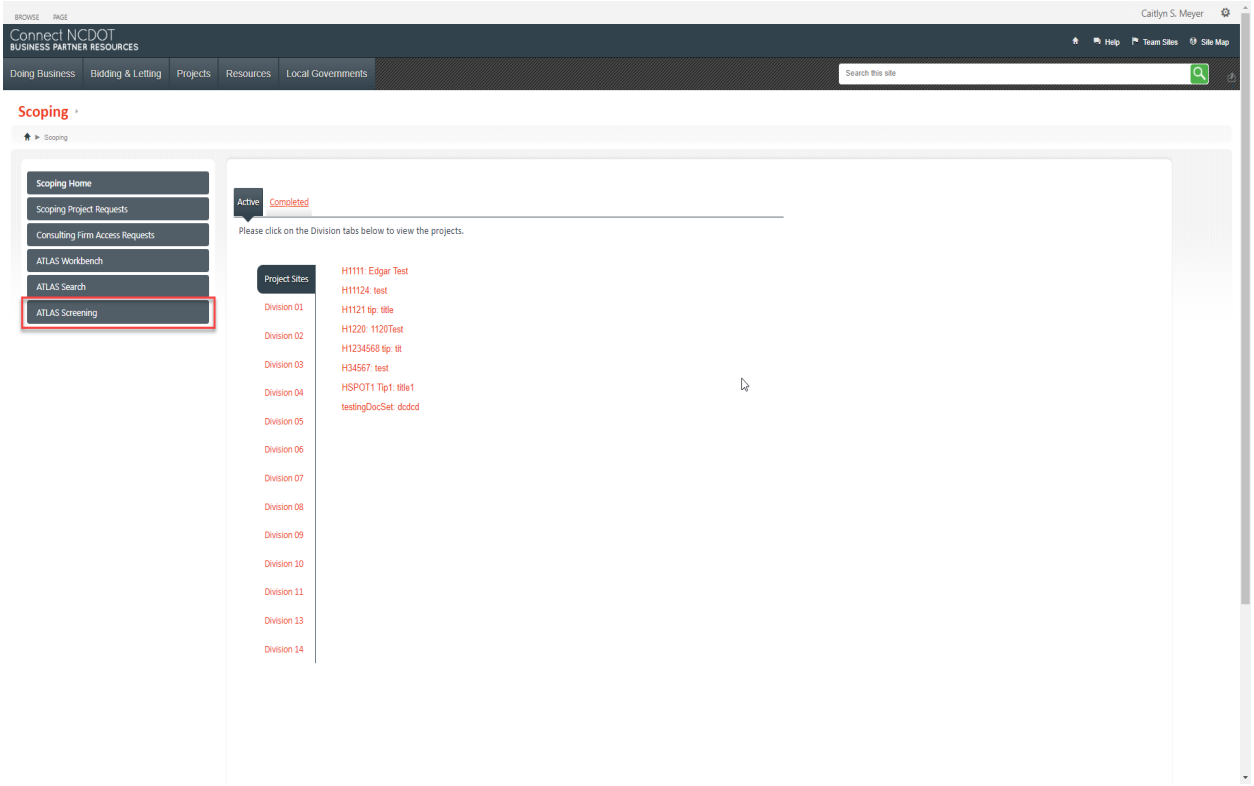


Figure 3: Connect Scoping Home Page

2. You will be directed to the application disclaimer page. All users must accept this disclaimer before accessing the ATLAS Screening Tool.

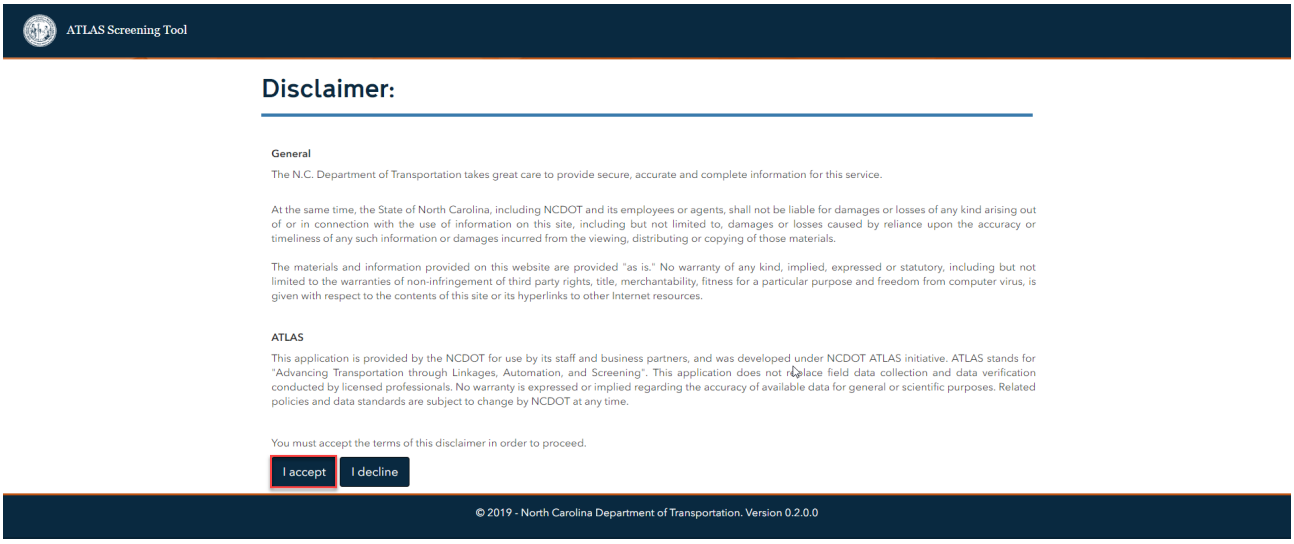


Figure 4: ATLAS Disclaimer

3. After you accept the disclaimer, the ATLAS Screening Home will be displayed. From this page, you can start to build your Screening Report. Steps to build your screening include:
   i. Build Your Study Area
   ii. Buffer Your Study Area
   iii. Select Data to Screen
   iv. Run and Access Your Screening Report Results

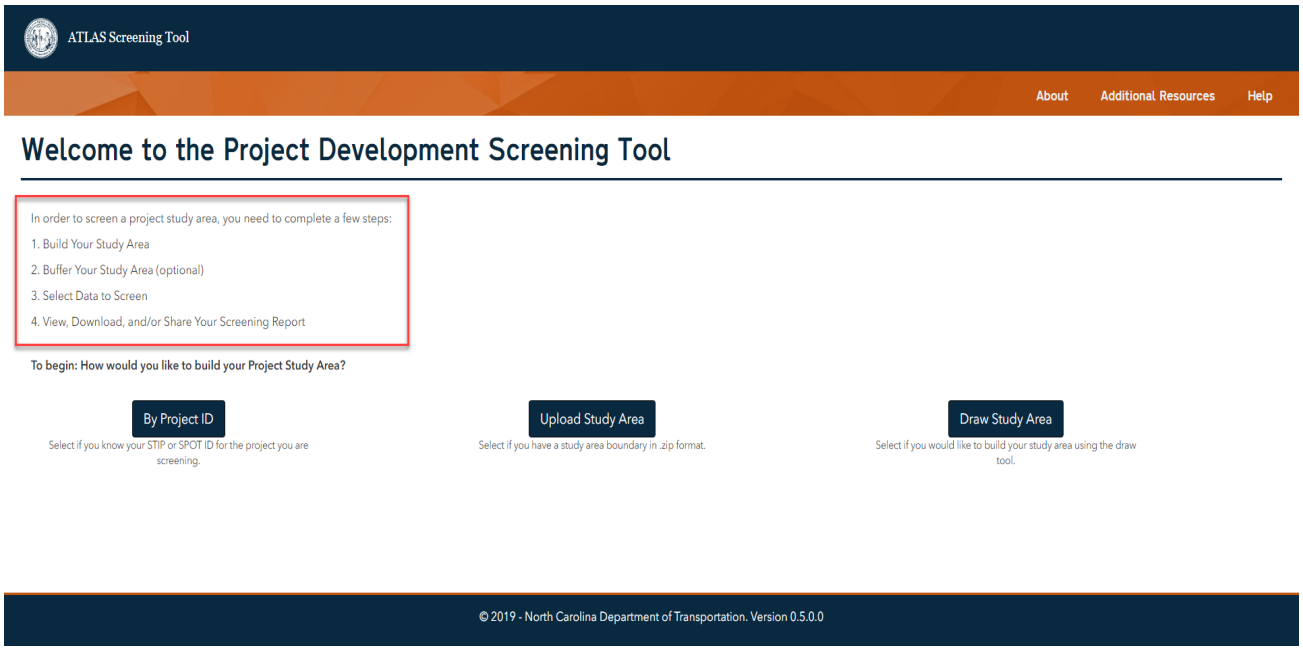


Figure 5: Screening Welcome Page

B. Build Your Study Area

The first step to complete a screening is to build your Project Study Area.

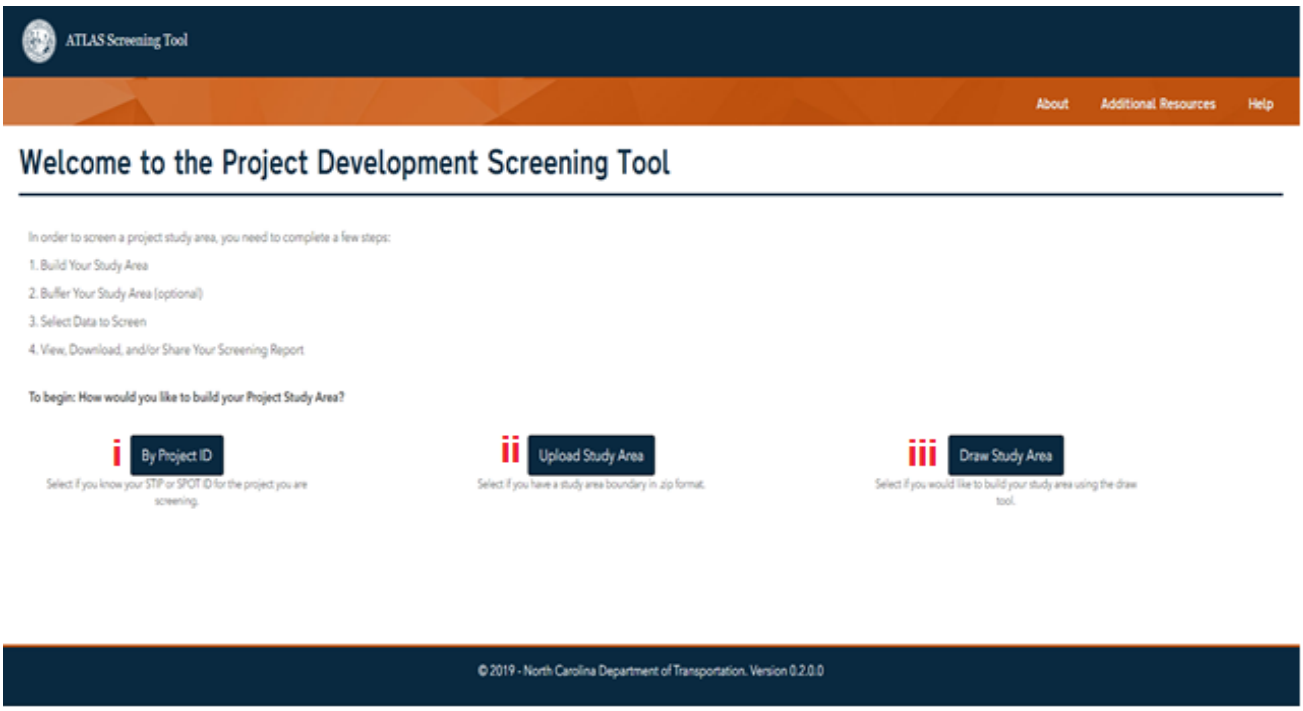


Figure 6: Screening Welcome Page – with options to Build Study Area

There are three ways to build your study:

i. By Project ID
   - This option allows users to search for or select from the map a STIP project. You can also search by SPOT project ID.

Note: The search by SPOT ID queries the STIP projects layer. If a SPOT ID does not have an associated STIP, it will not be returned. Also, you can select multiple STIP projects to be screened at the same time as long as they are within two miles of each other. After you have selected one or multiple STIP geometries, you will have the option to add up to a two-mile buffer. The combination of the selected project geometry AND the buffer will be your final study area that is screened.

ii. Upload Study Area
   - This option allows users to upload a point, line, or polygon that represents a study area. The system requires a .zip file format. Only one feature should be represented in the Shapefile. A line feature may not be longer than six miles. A polygon feature may not be bigger than ten square miles.

Note: You will have the option to buffer your uploaded study area by up to two miles. For example, if you upload a six square mile polygon, you may then add a two-mile buffer. The combination of the uploaded geometry AND the buffer will be your final study area that is screened.

iii. Draw Study Area
- This option allows users to sketch their study area on the map. You can draw a point, line, polygon, rectangle, or circle.

Note: Drawings are limited to one feature and the drawn feature must be under the ten linear mile (line) or ten square miles (polygon, rectangle, circle) limit. After your feature is drawn, you will have the option to add up to a two-mile buffer. The combination of the drawn geometry AND the buffer will be your final study area that is screened.

B.1 – Build Your Study Area: By Project ID

1. Select 'By Project ID' button on the Screening Home page.

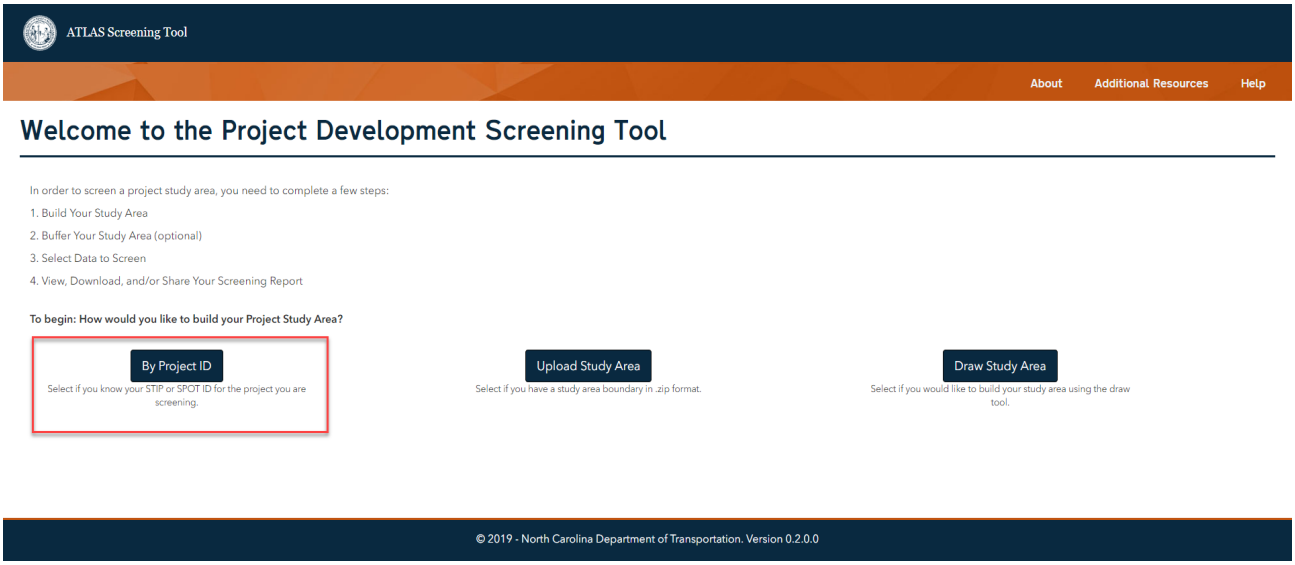


Figure 7: Screening Welcome Page – Select 'By Project ID'

2. 'Screen By Project ID' page will be displayed.

3. You can select the STIP(s) you wish to screen, by
   i. Searching for a project ID using the Search box, or;
   ii. Selecting a project from the map using the map selection tools.

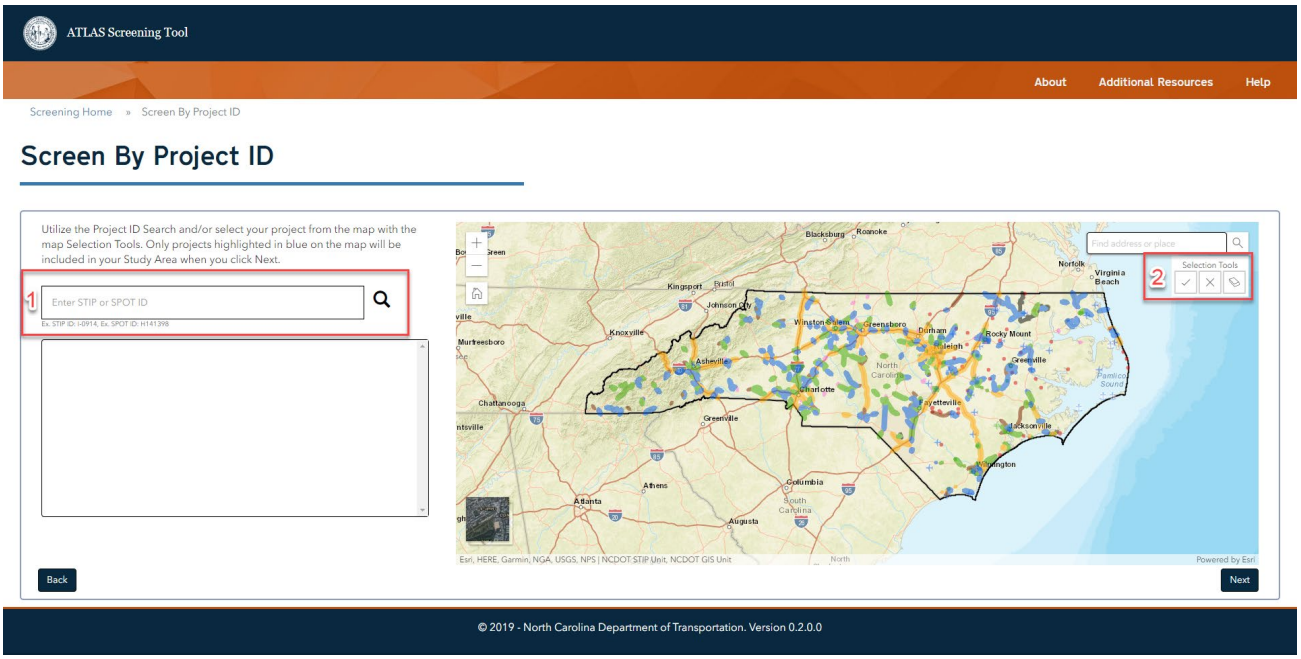


Figure 8: 'Screen By Project ID' options

i. Search for your Project ID using the Search box

- Start typing your STIP or SPOT ID into the search box. After three characters are entered, the system will start to suggest STIP #'s.
- Select the correct project ID and hit search.

Note: You must include the hyphen (-) in your STIP #. (E.g. I-0914). No punctuation is needed to search by SPOT #.

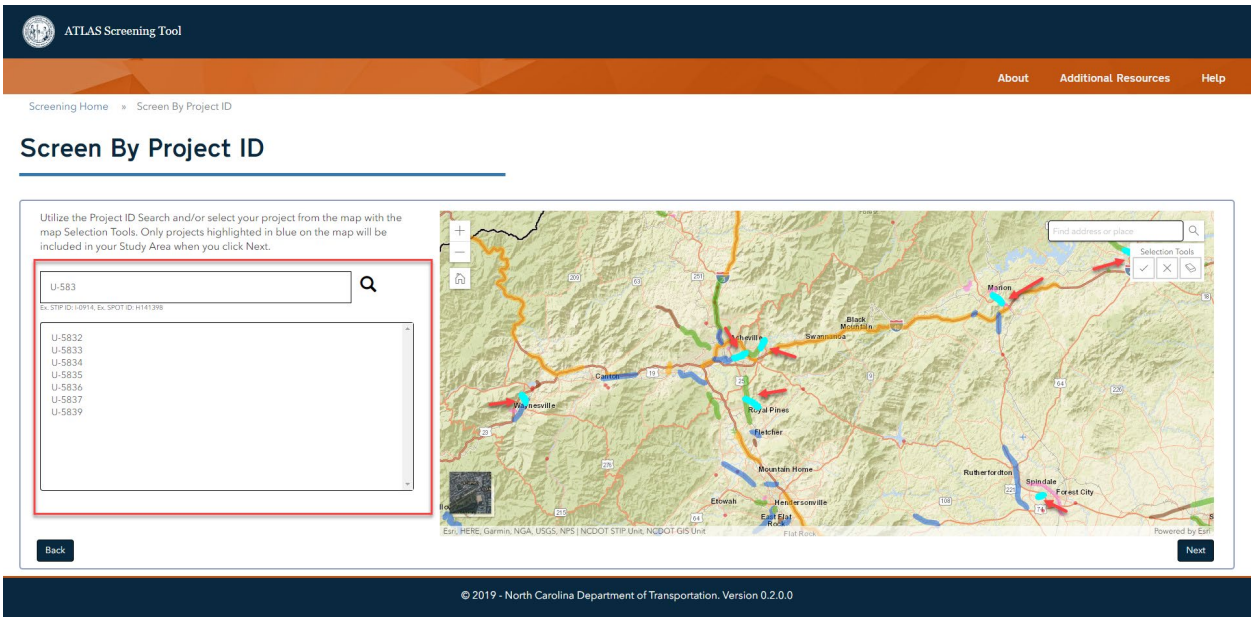


Figure 9: 'Screen By Project ID' – Search for STIP/SPOT #

Note: If you hit Search before completing a full project ID, a suggestion list matching your input criteria will be shown with projects highlighted in the map. Not sure which is which? Click the project from the list and your selection will be highlighted in yellow on the map.

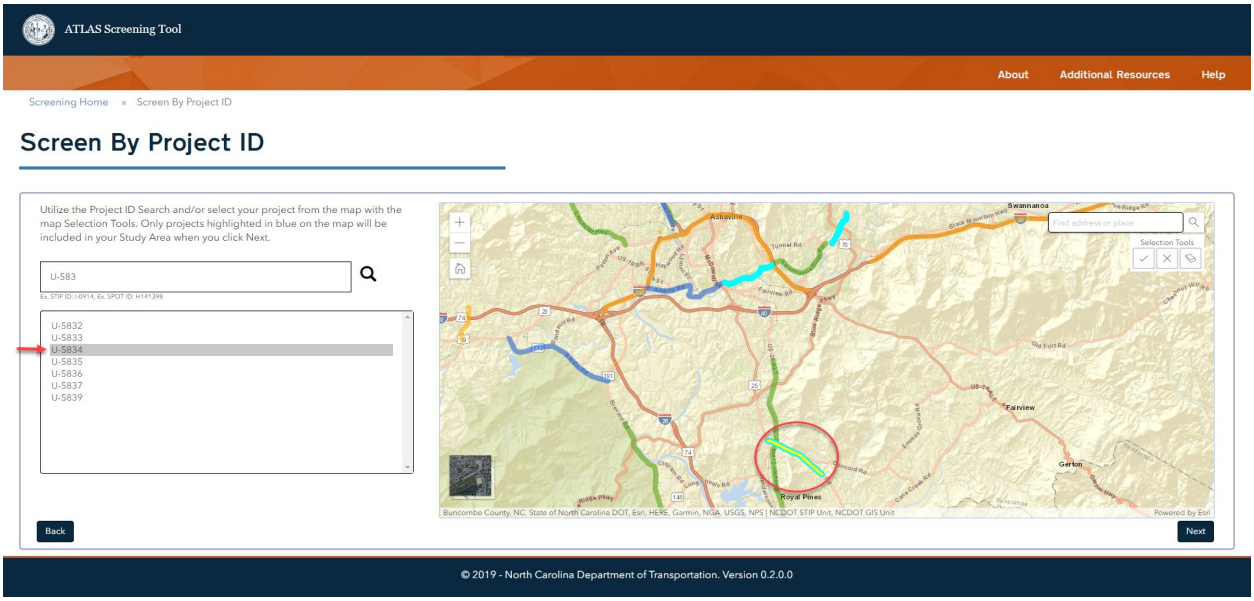


Figure 10: 'Screen By Project ID'- STIP selected in left panel is highlighted in yellow

ii. Use map Selection Tools

- To enable the selection tools, click the checkmark icon. Selection tool is active when it is blue. Use the crosshair to select projects from the map.

Tip! Zoom in tight to have better accuracy when using the selection tool.

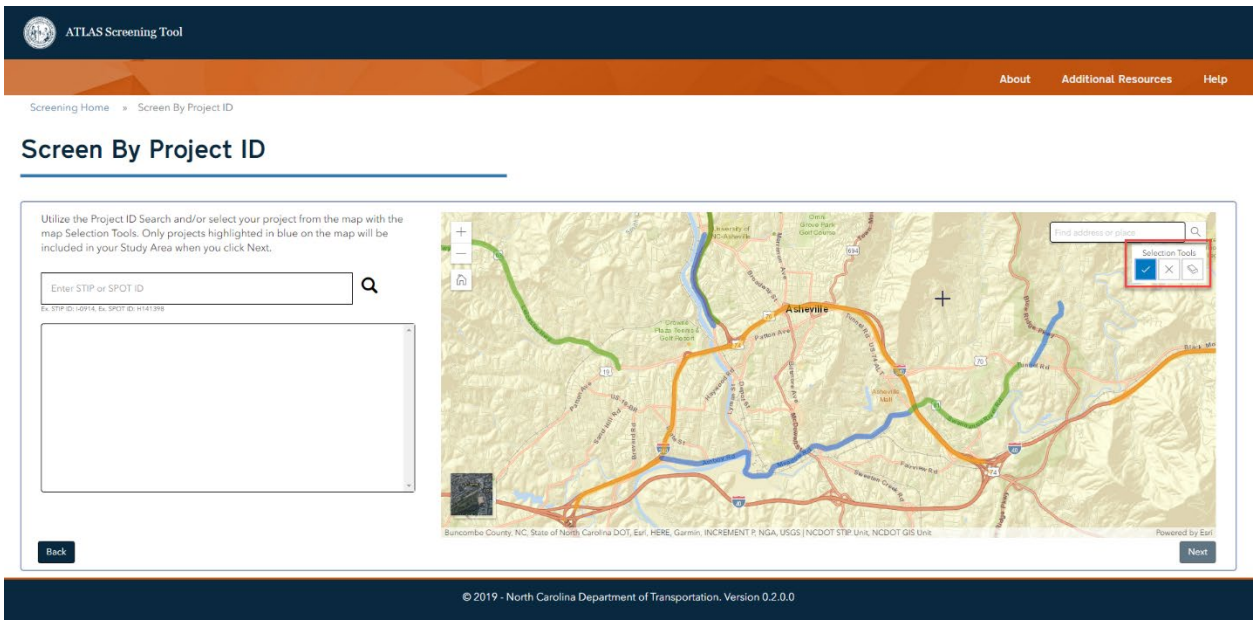


Figure 11: 'Screen By Project ID' – Select project on map using the crosshair

- To unselect a project, click the X icon and click on the project you want to unselect from your selection.
- To erase all selected projects from selection, click the eraser icon.

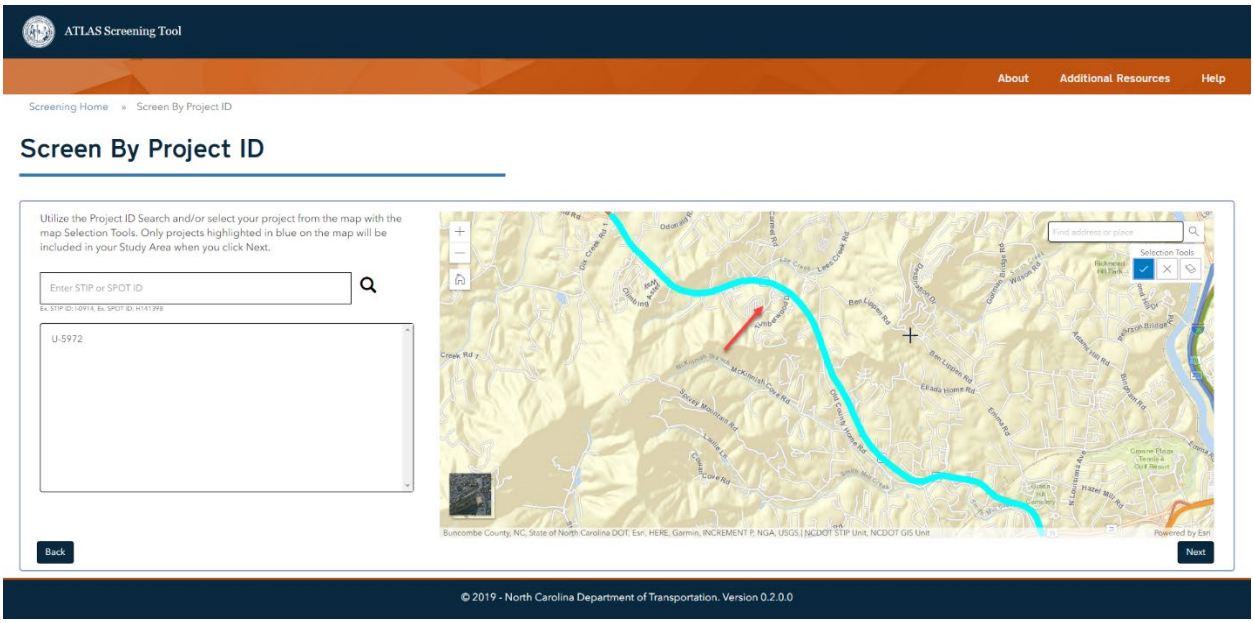


Figure 12: 'Screen By Project ID' – Project selected when highlighted in aqua (blue)

Projects highlighted in aqua on the map = Projects that will be screened

- If picking multiple STIPs to screen together, the projects must be within 2 miles of each other. The following warning will show up if projects are not close enough.

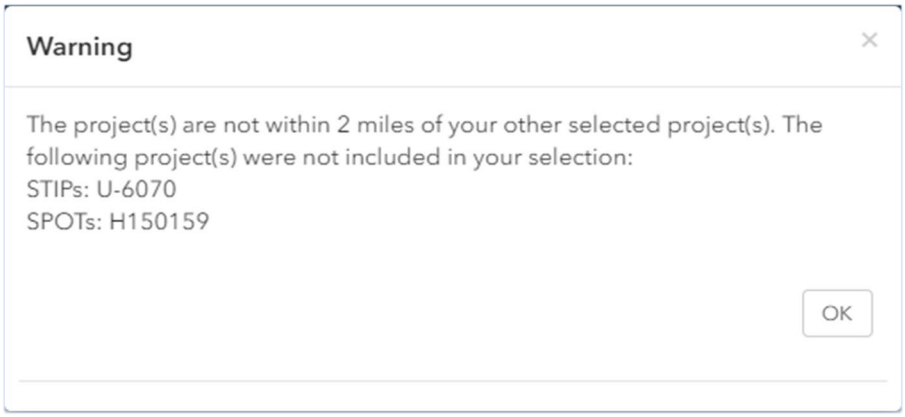


Figure 12: 'Screen By Project ID' – If the selected STIP projects are more than 2 miles apart, then you will receive an error. While it can be helpful for a PM to screen multiple projects in their jurisdiction, you cannot select a project in Wilmington and a project in Asheville at the same time

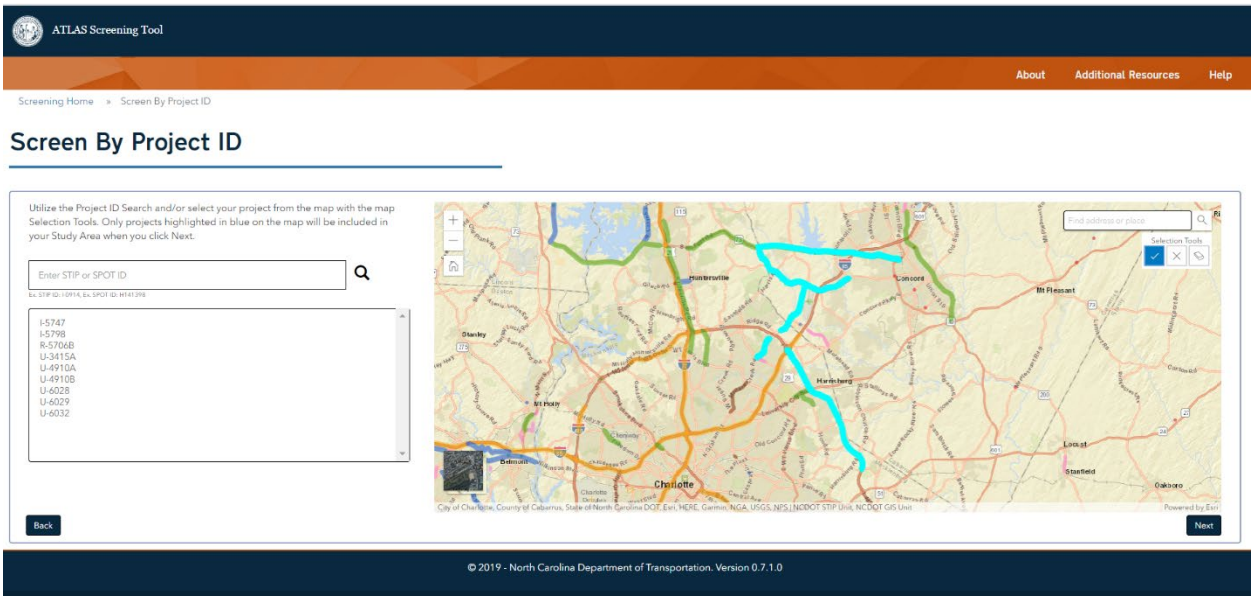


Figure 13: 'Screen By Project ID' – Multiple Projects selected where the ends of each project are within the allowable distance.

4. Proceed to the Buffer Your Study Area (Section C).

Tip! Lose track of where you are on the map? Use the Home map button to zoom to state level.

B.2 – Build Your Study Area: Upload Study Area

1. Select 'Upload Study Area' button on the Screening Home page.

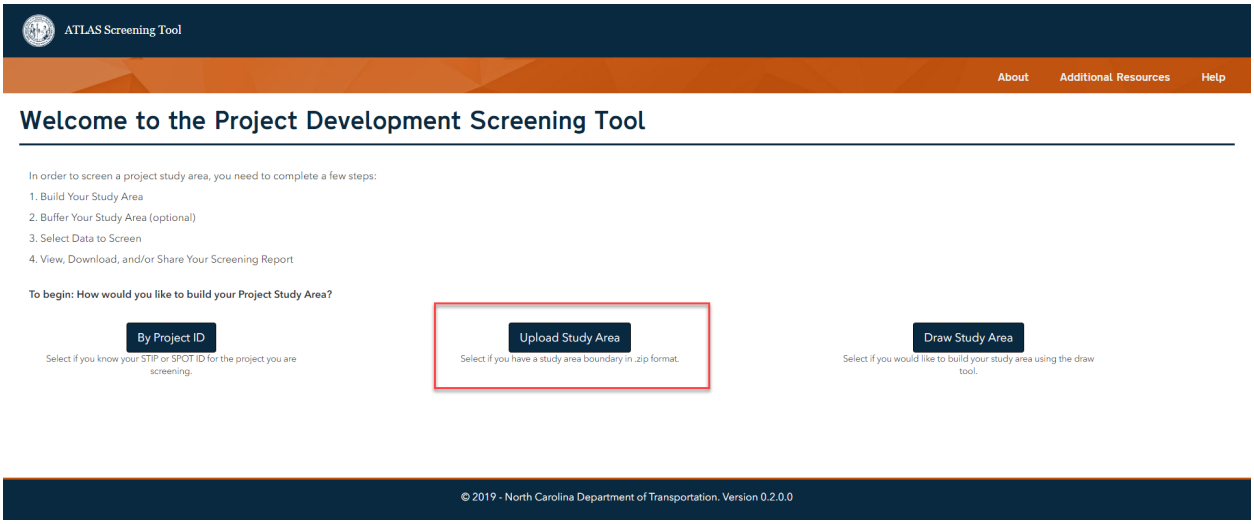


Figure 14: Screening Welcome Page – Select 'Upload Study Area'

2. 'Upload a Study Area' page will be displayed.

3. Click Upload Shapefile. Now, you can upload a zipped point, line or polygon shapefile to serve as the Study Area.

Note: The zipped shapefile should only contain one feature (i.e. one point, one line, or one polygon).

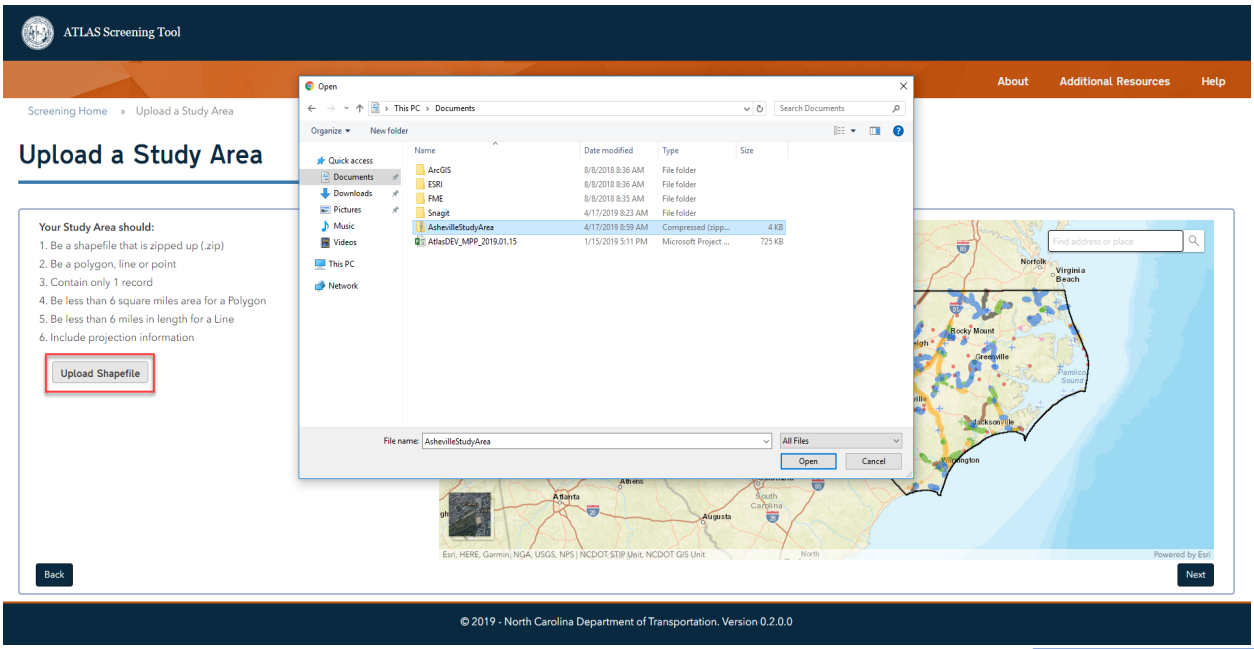


Figure 15: 'Upload a Study Area' Page – Select your .zip file

Tip! Make sure study area zip file contains valid projection information!

4. Uploaded Study Area is displayed on the map.

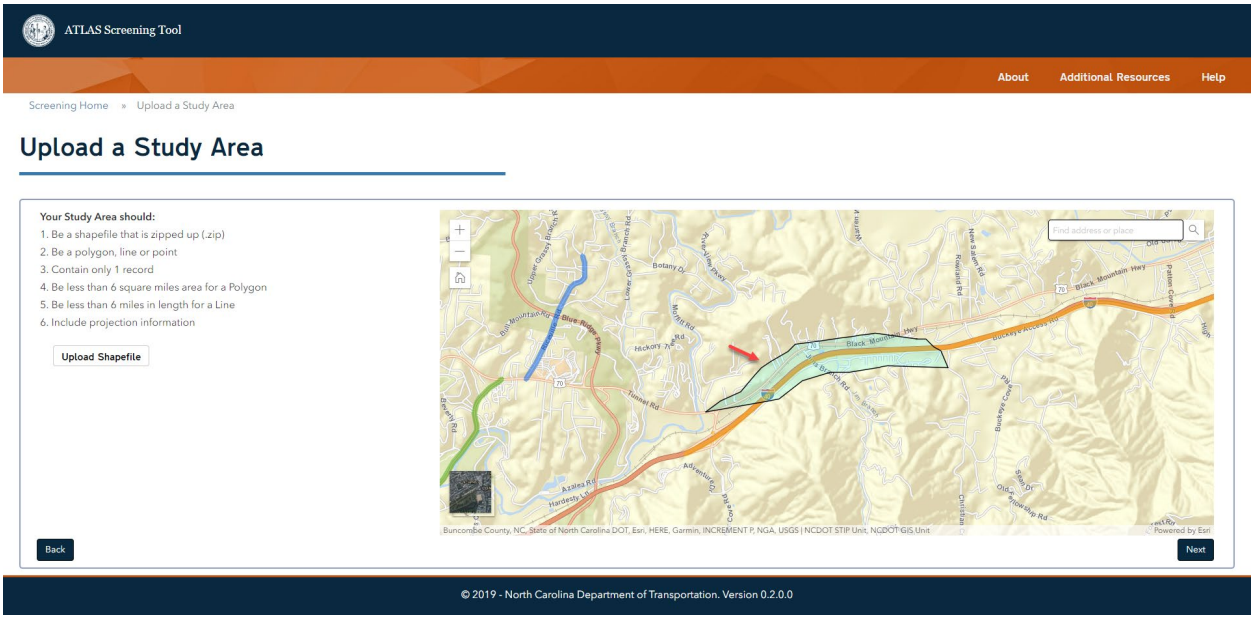


Figure 16: 'Upload a Study Area' Page – Uploaded geometry is displayed

Note: Uploaded study area (point, line, or polygon) must be less than ten miles in length or ten square miles of area. Bigger study areas will prompt the following warning box, and you will need to upload a smaller study area.

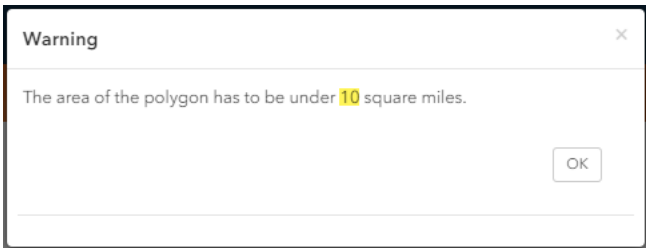


Figure 17: 'Upload a Study Area' Page – Uploaded geometry is too large.

5. Proceed to the Buffer Your Study Area (Section C).

B.3 – Build Your Study Area: Draw Study Area

1. Select 'Draw Study Area' button on the Screening Home page.

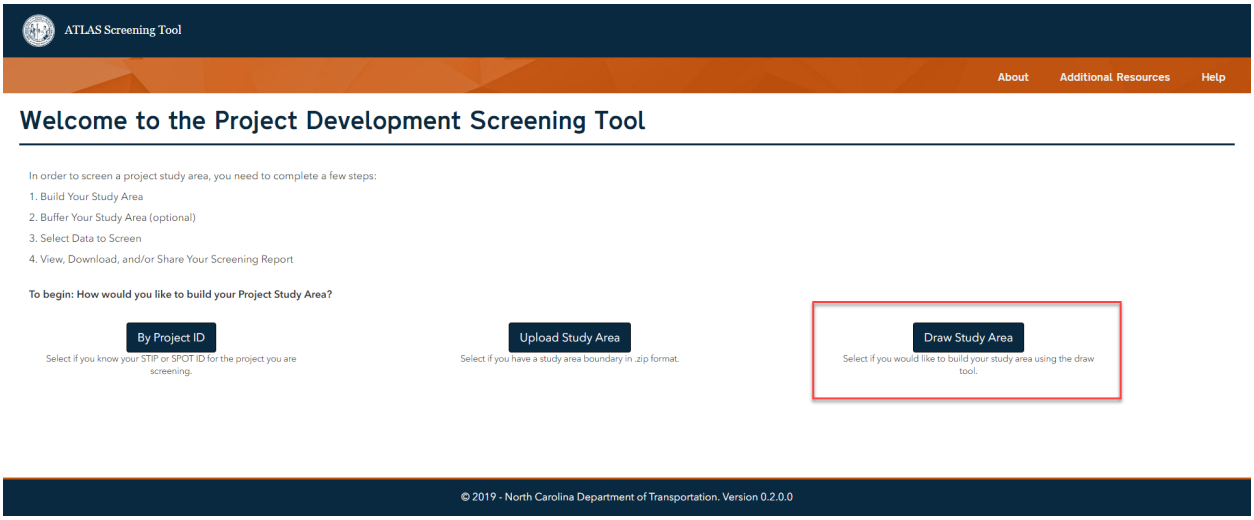


Figure 18: Screening Welcome Page – Select 'Draw Study Area'

2. 'Draw a Study Area' page will be displayed.

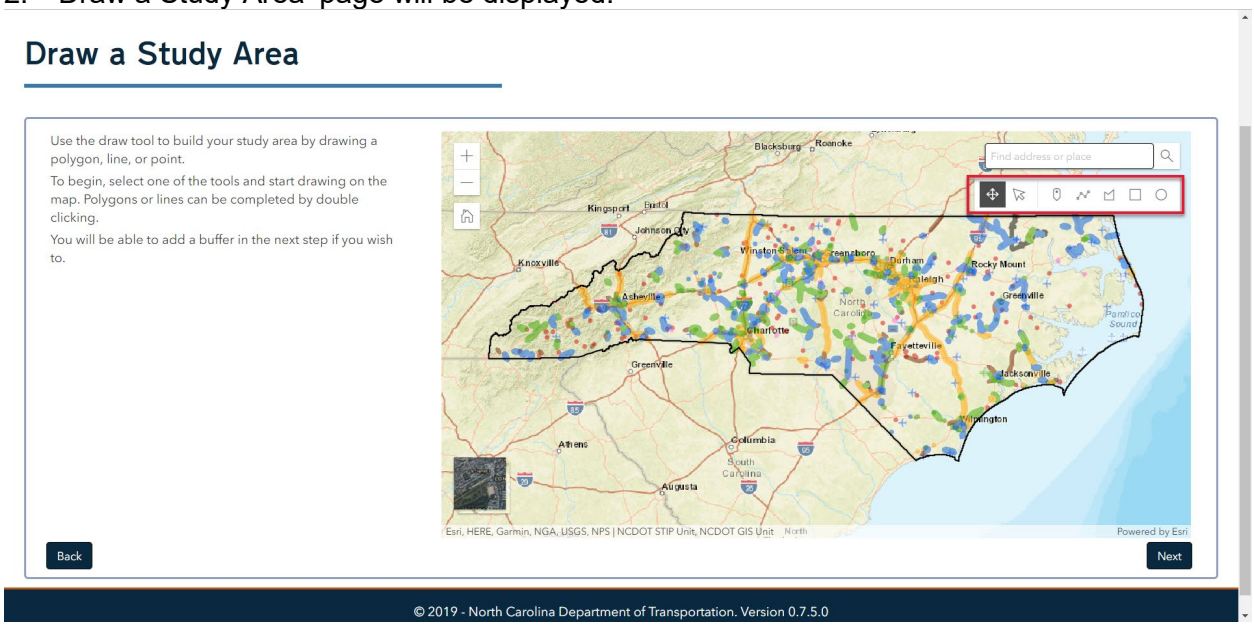


Figure 19: 'Draw Study Area' Page

Tip! Use the address search to zoom to your project area.

3. Use the Draw toolbar on the right corner of the map to draw your study area.
   - You can draw a point, line, polygon, rectangle or circle.
   - You can draw only 1 feature as your study area.
   - Lines must be less than 10 miles long.
   - Polygons/rectangles/circles must be less than 10 square miles in area.

4. To begin drawing, select one of the tools (point/line/polygon/rectangle/circle) and start drawing on the map.

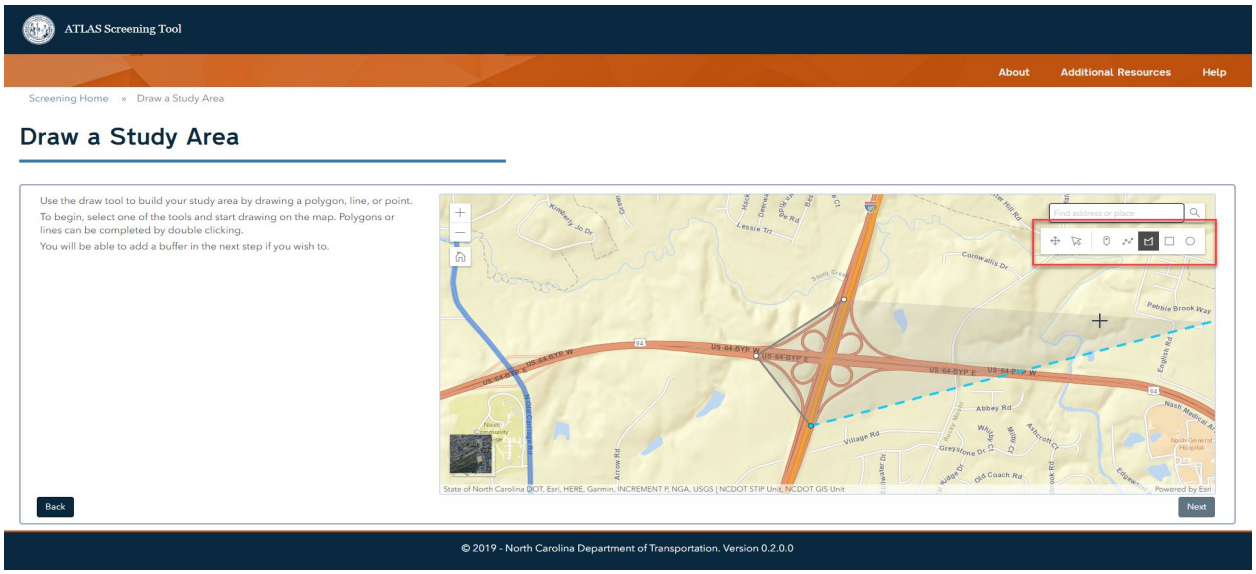


Figure 20: 'Draw Study Area' Page

- Complete a line or polygon by double clicking.
- To erase a drawing and start over, click the arrow or move icon, then click on the feature you would want to erase. Then click the delete feature icon.
- To reshape a feature that was drawn, click on the arrow or move icon, and click on the feature you want to reshape. Then, reshape it by moving vertices around. When you are done reshaping click outside the feature to finalize. Or, you may click the delete icon to delete the feature.

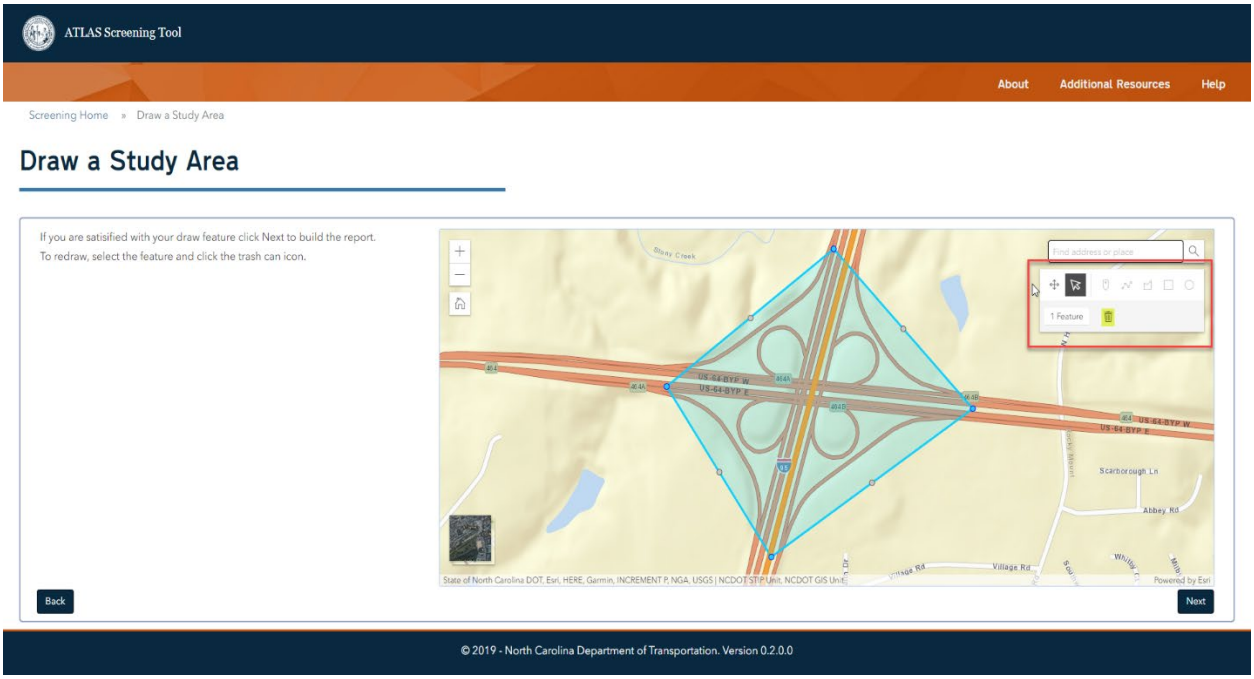


Figure 21: 'Draw Study Area' Page – Delete or reshape a feature

5. Proceed to the Buffer Your Study Area (Section C).

Tip! Don't use the browser back button while using ATLAS applications. Instead, use the breadcrumb trail and back button within the application interface.

C. Use Screening Settings

Once you have built a Study Area using one of the three identified methods in Section B, you have the option to start a brand-new screening or use settings from a previous screening.

Many system users will want to run the same screening for each project. Screening settings allows users to save preferences and reuse them on each project they screen without having to manually make selections again.

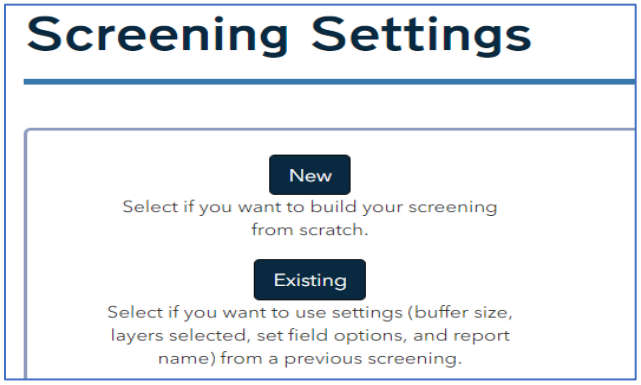


Figure 22: Screening Settings

1. Screening Settings page is displayed.
2. Click New or Existing button.
   - If you select New, click Next and proceed to Section D.

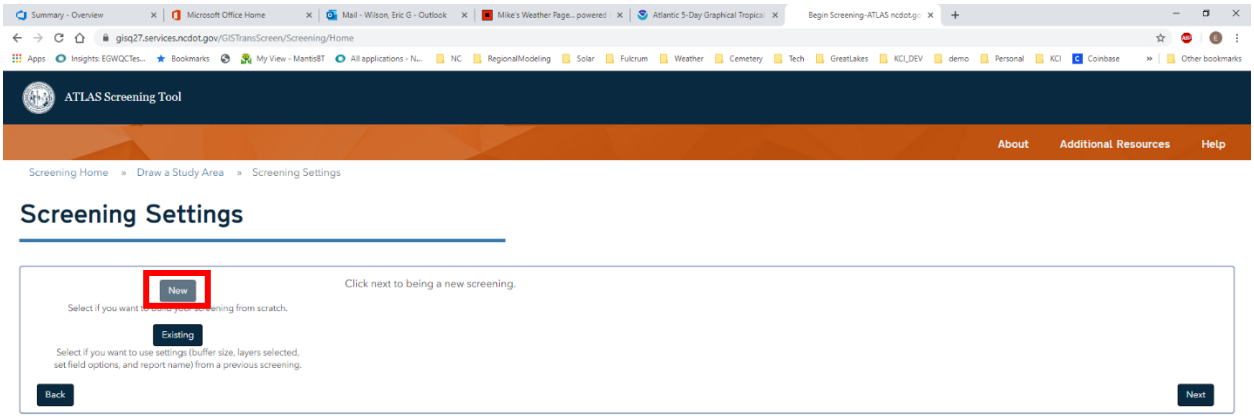


Figure 23: Screening Settings – New Selection

   - If you select Existing, select your preferred saved screening template. The options described in Sections D through F will be prepopulated with the selections you made in a previous screening.

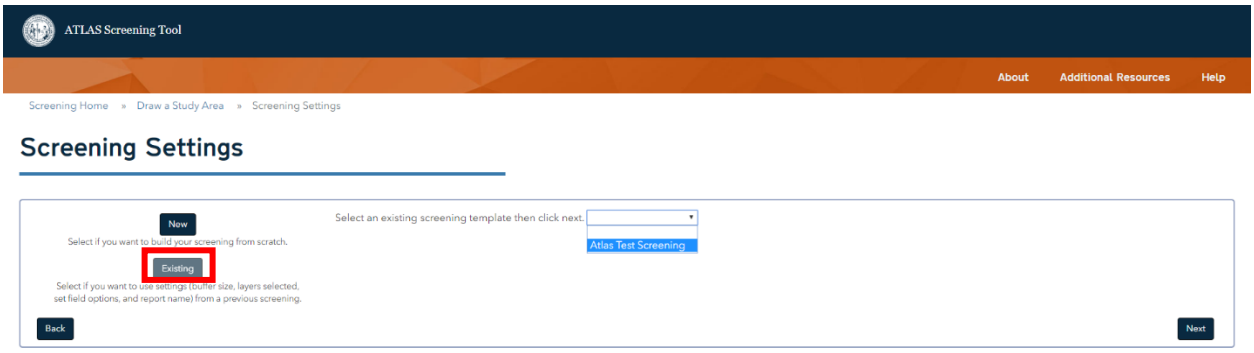


Figure 24: Screening Settings – Existing Selection

3. To save a New Screening Template or update an Existing Screening Template, navigate through the app as decribed in the following sections, selecting your perferences you would like to save as you go, until you are at the Screening Results page.
4. On the Screening Results, you will have the option to Save Screening Settings.

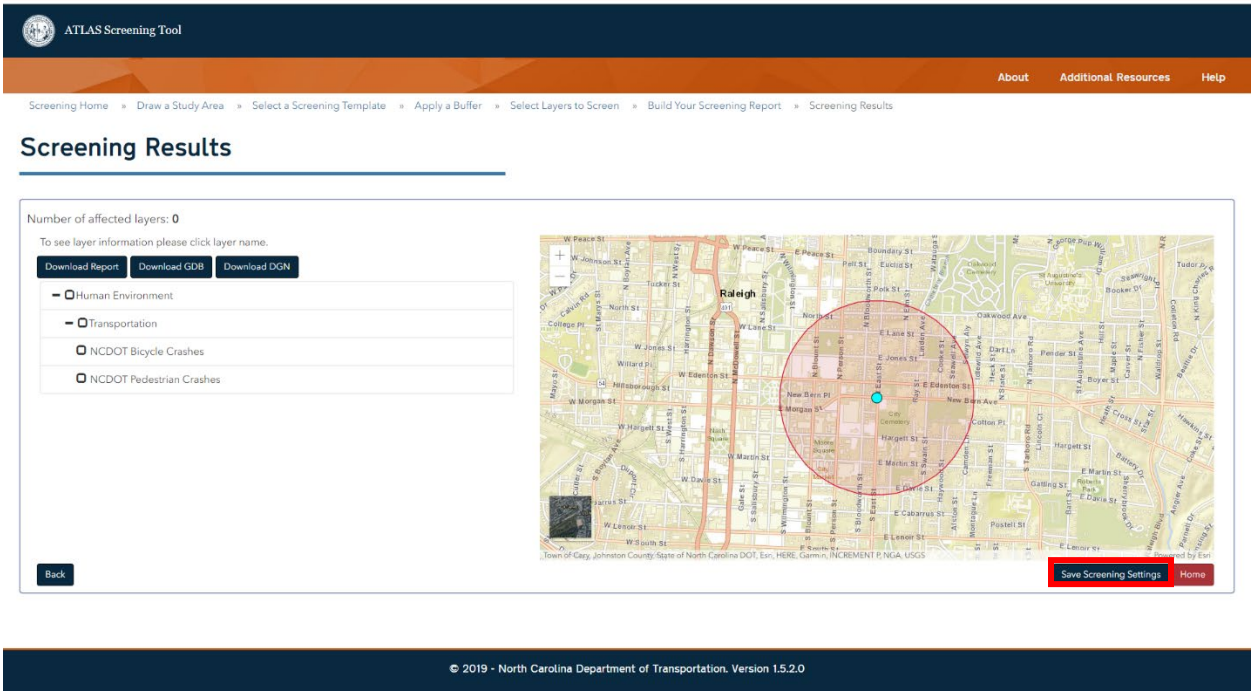


Figure 25: Screening Settings – Save Screening Setting

D. Buffer Your Study Area

Once you have built a Study Area using one of the three identified methods in Section B, you have the option and/or requirement to add a buffer around it.

1. Click on the Next button at the end of 'Build Your Study Area' page to get to the 'Apply a Buffer' page.

Tip! Point and line study areas are required to have buffers, while it is optional for polygons.

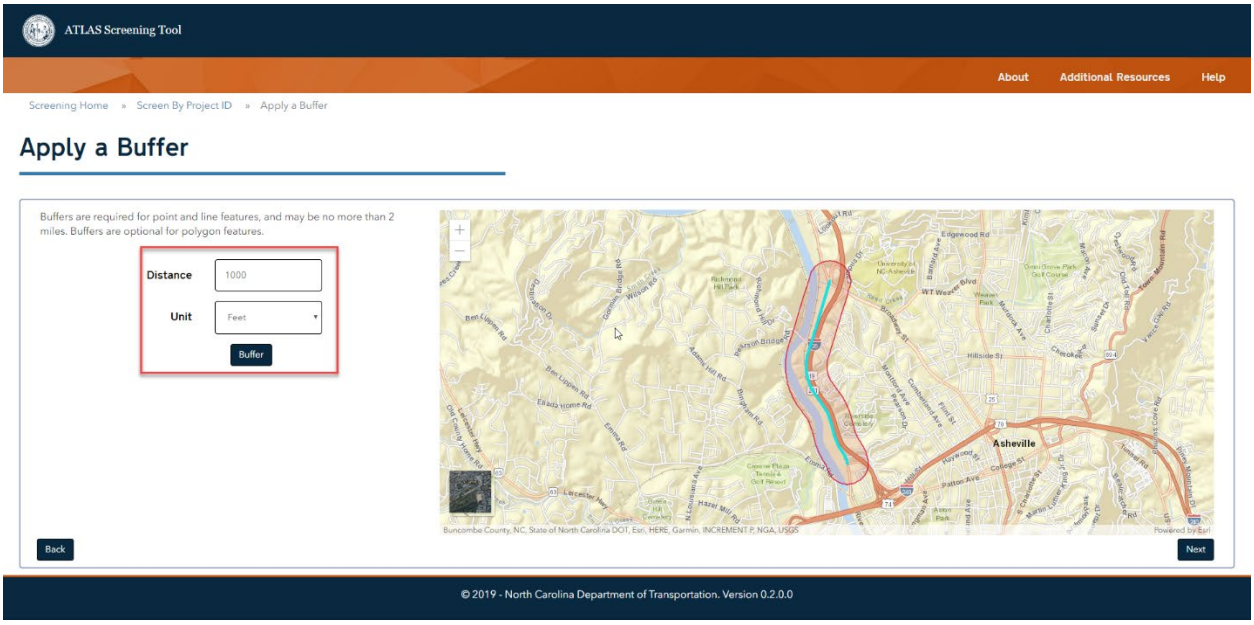


Figure 26: 'Apply a Buffer' Page

- Buffers must be bigger than 0.01 mile (40 feet) and smaller than 2 miles (10,560 feet).
- A range of units may be selected while applying buffers. (Feet, Yards, Miles, Meters, Kilometers)

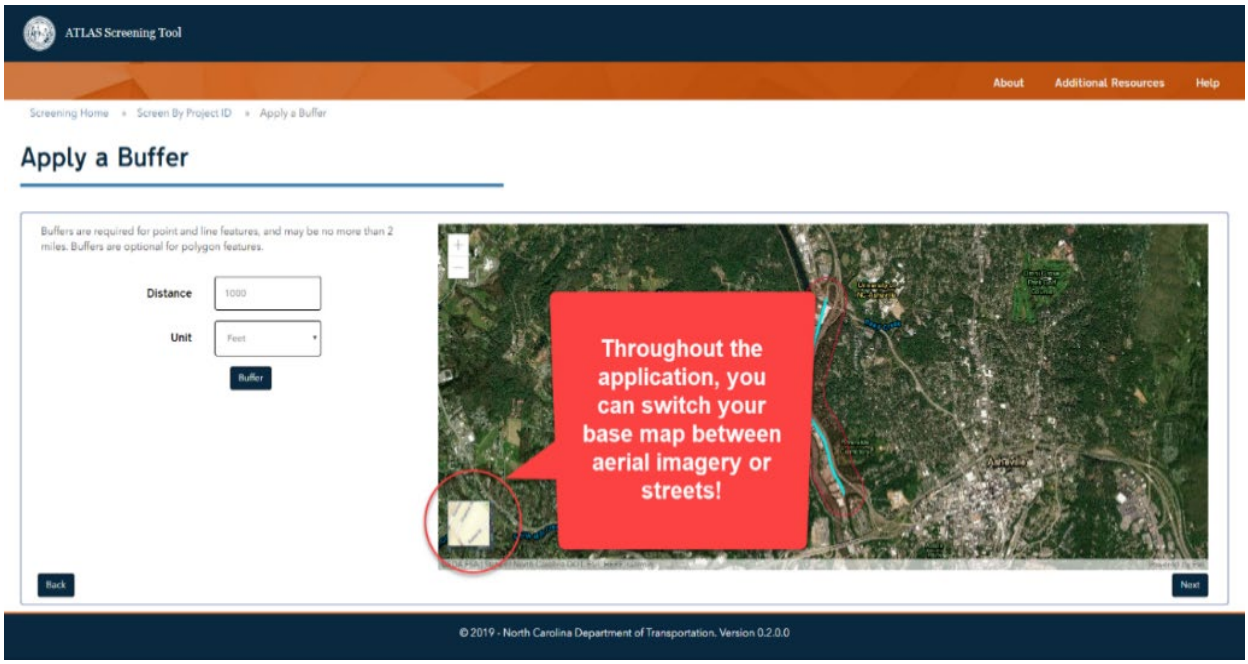


Figure 27: 'Apply a Buffer' Page – Use aerial imagery to confirm your study area.

2. Enter a number in the 'Distance' box, select a unit from the drop-down list under 'Units' and click Buffer to view the buffer around the study area on the map.

Note: Your final buffered area is the study area for which your screening results will be calculated against.

3. Click next to proceed to Select Data to Screen (Section D).

E. Select Data to Screen

Once you have a final Study Area, you are ready to select data against which you want to perform your screening. Screening data layers have been divided under Human Environment and Natural Environment. Under each of these top-level headers, there are a number of data categories to help with ease of data look up.

1. Use the check boxes to add layers to your project screening.
   - If you select a top-level check box (Human / Natural), all layers under it will be selected for screening.
   - If you select a second level check box under any of the top levels, all layers under it will be selected for screening.

Tip! To perform a screening of ALL LAYERS, just click on the check boxes for Human & Natural.

2. Use the 'Search box' to search for layers.
   - As you start typing keywords in the Search box, results will be populated below it.
   - Once you find the right layer, select it using the check box.
   - Delete the search keywords to get back to all layers.

3. Once you have selected all layers that you want to include in screening, click the Next button.

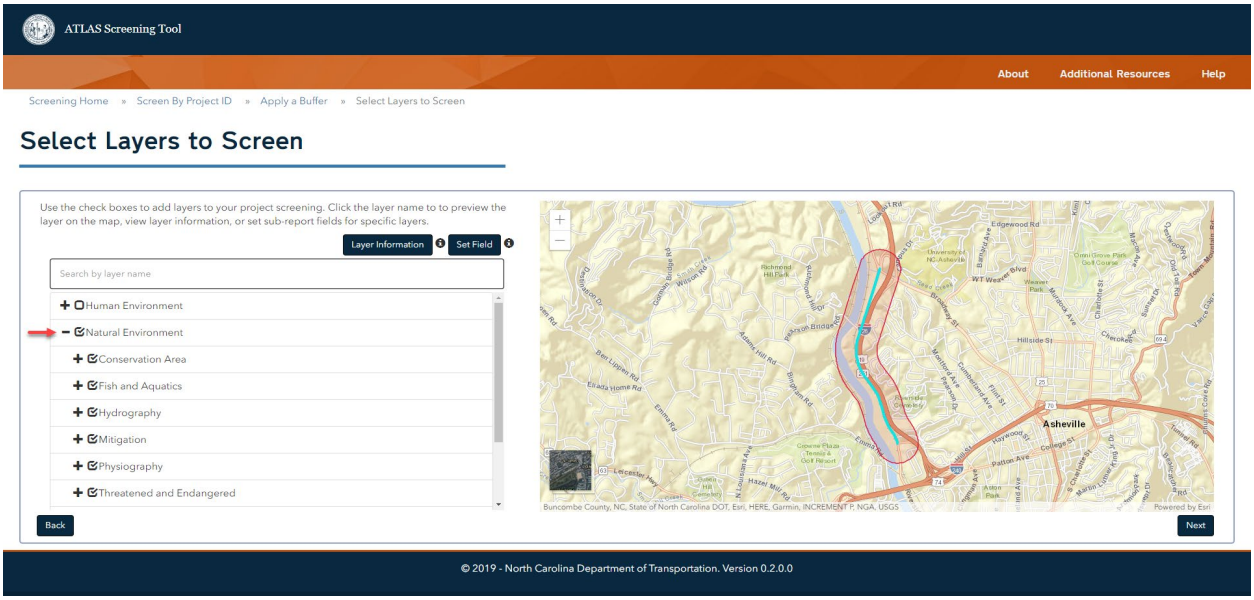


Figure 28: 'Select Layers to Screen' Page – Check box indicates the layers that will be included in your screening

Additional functionality to help you choose which layers to screen and customize your Screening Report:

- **Preview Layer on the Map**
  1. In order to preview a layer in the map view, select the layer name on the layer list. This will highlight the layer name in blue.

  2. If available, the highlighted layer will be added to the map. Click a feature to identify and view some details about the feature.

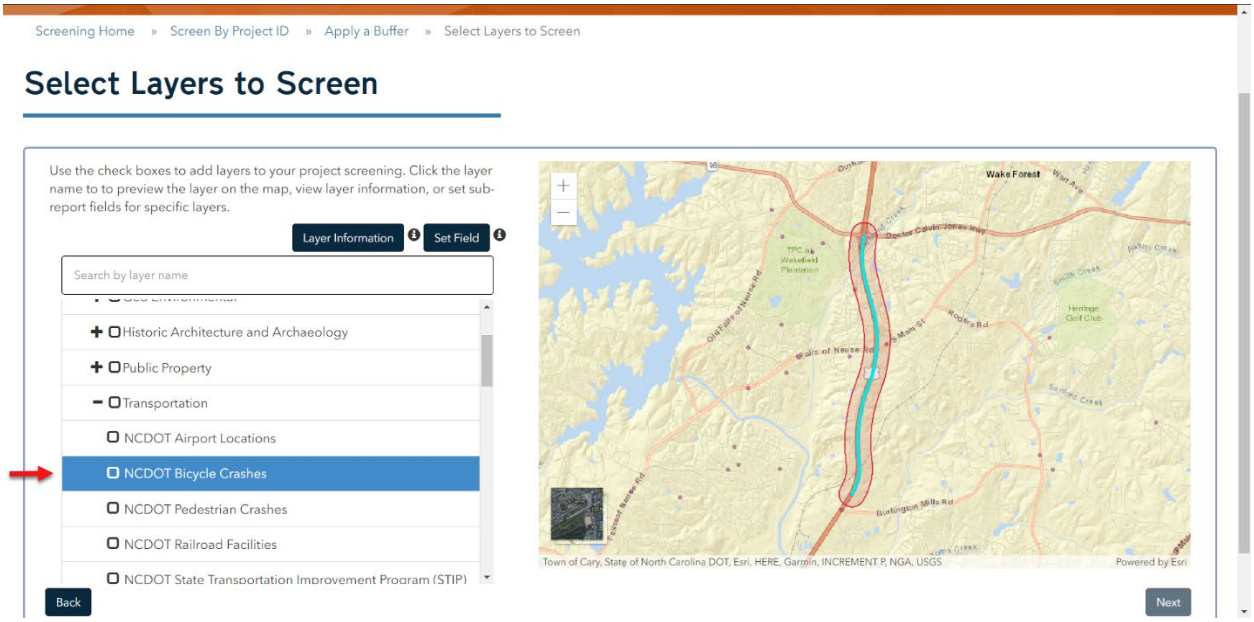


Figure 29: 'Select Layers to Screen' Page – Highlight layer name to preview and identify layer features on the map before executing your full screening.

Note: Identify function and symbology displayed is driven by the settings of the layer owner. So if layers do not visualize, it is likely disabled by the source agency.

Tip: Having trouble seeing the layer symbology? Try changing the base map!

- **View Layer Information**
  1. Click on the layer name so it is highlighted
  2. Then, click on the 'Layer Information' button to open the Layer Information message box. This contain details like Layer Description, Data Owner Name etc.
  3. For more information, click View More Details and the Layers Details page will be opened in a new tab.

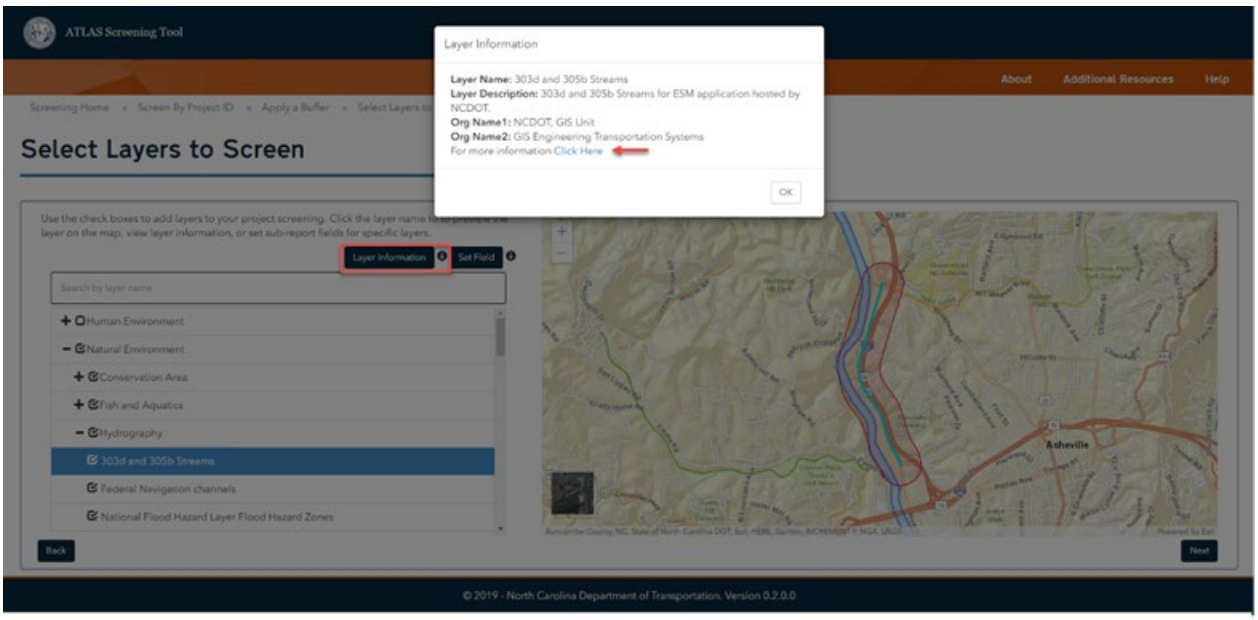


Figure 30: View more layer information

- **Use Set Field to Report Screening Results by a Specific Attribute**
  1. Highlight the layer you would like to Set Field on.
  2. Click on the 'Set Field' button, and a list of fields within that layer will be displayed in a separate message box.
  3. Click on the check box next to the field name for which you want to set field. You can select to summarize the data for up to two fields
  4. Click Save.

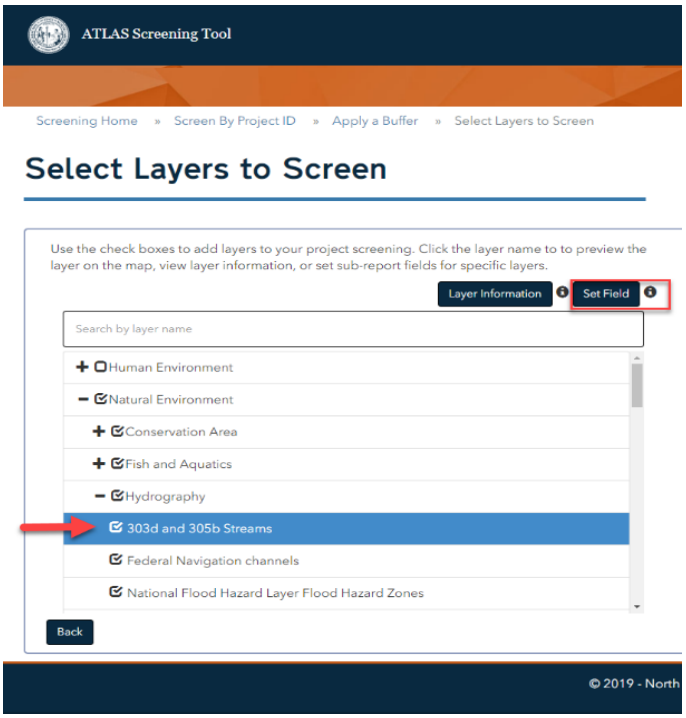


Figure 31: 'Select Layers to Screen' – Set Field

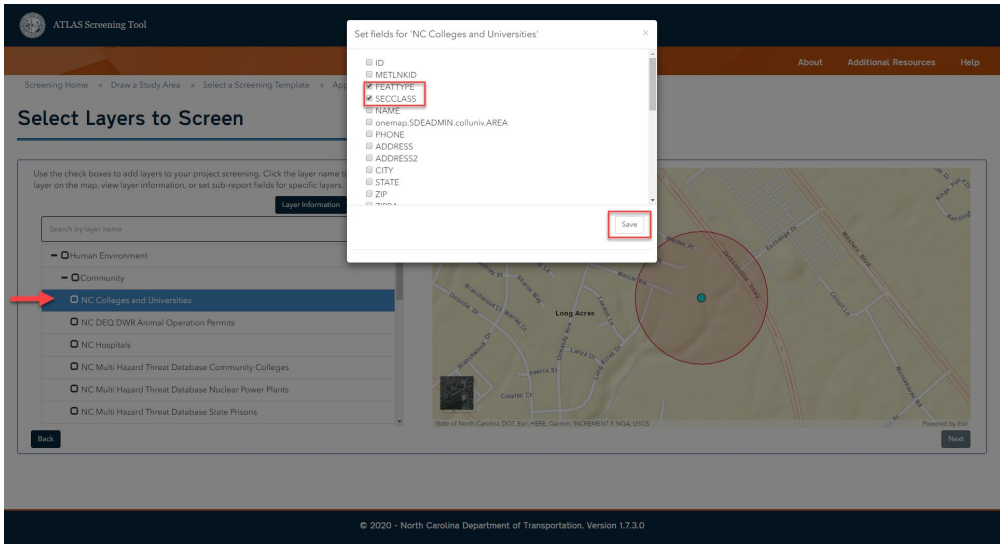


Figure 32: 'Select Layers to Screen' – Set Field

5. Click Next to proceed to the final report building step (Section F).

F. Run and Access Your Screening Report Results

Once you have selected layers for your screening, move on to the next page to build your report.

1. On the 'Build your Screening Report' page, enter a name and description for your Report.

Note: Names are restricted to 50 characters and descriptions are restricted to 200 characters. If STIP / SPOT IDs exist for the project selected for screening, then these values are auto populated.

2. Click on the 'Screen you Project' button to launch the screening process.

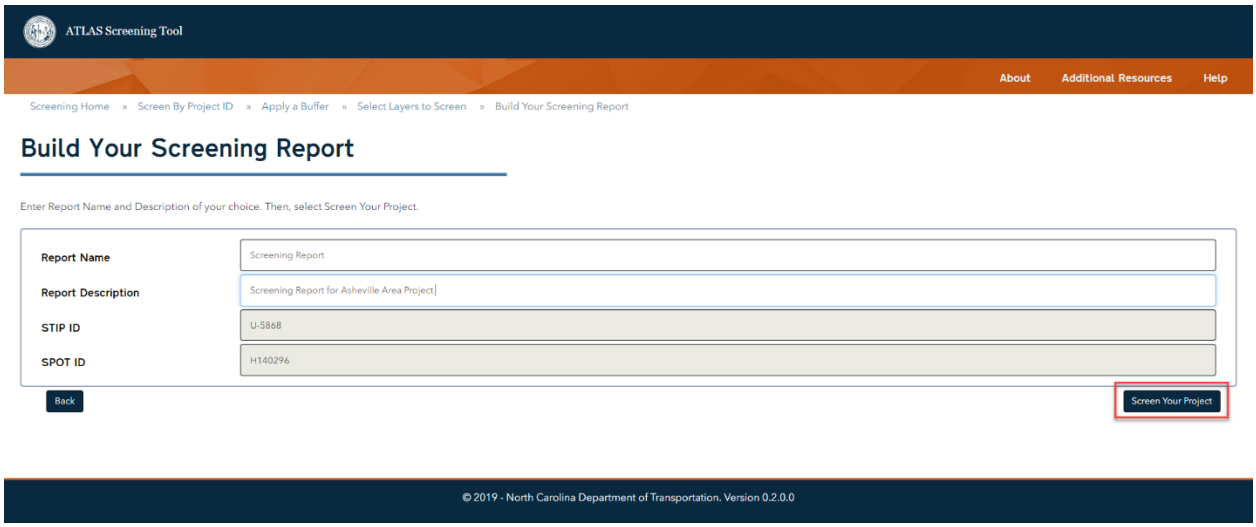


Figure 33: 'Build Your Screening Report' – Enter Name and Description, and then Screen Your Project.

3. You will be able to view a progress bar which updates as layers are screened.

Note: Depending on the number of layers you selected for screening, time to complete a screening will vary.

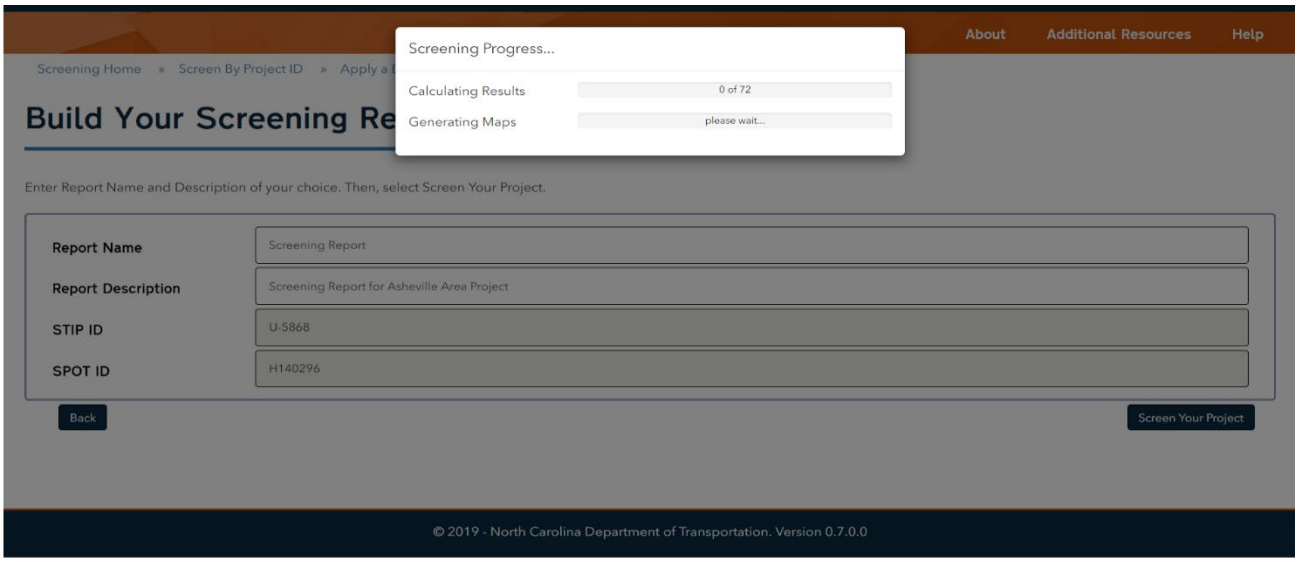


Figure 34: Screening Progress Page - Start of Screening

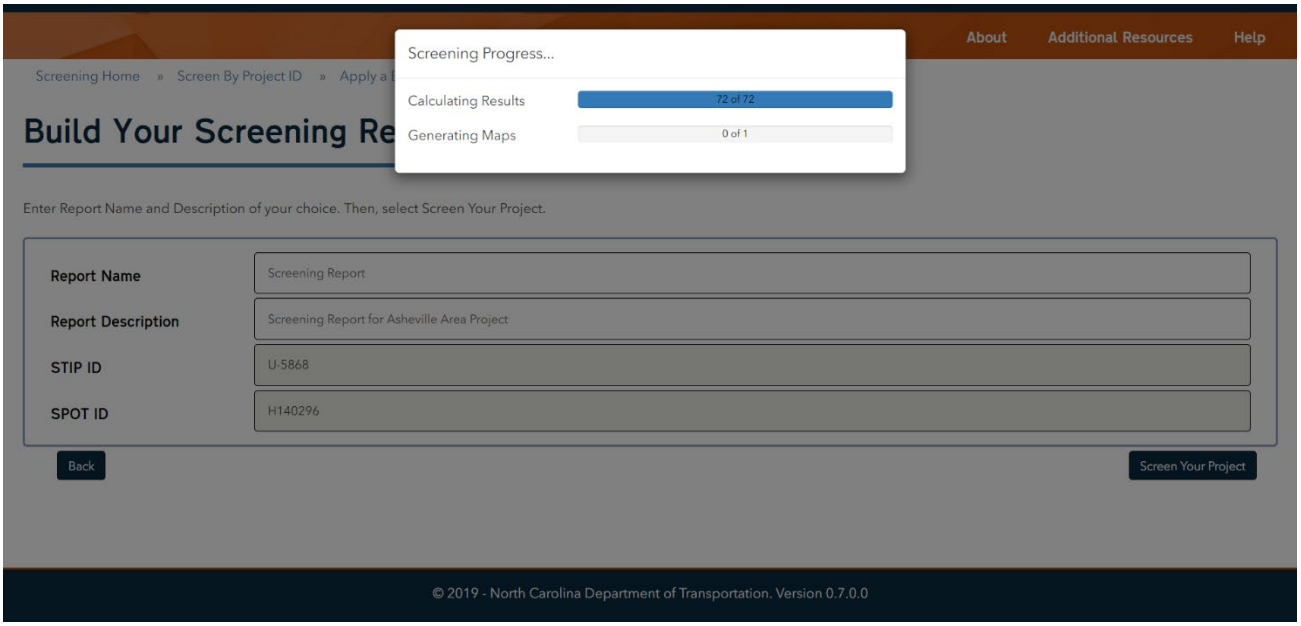


Figure 35: Screening Progress Page - Screening of Layers Complete, Report Generation Starts

4. The progress bar disappears, and the Screening Results page is displayed when Screening is complete.

5. This page has options to Download the PDF Report, GDB data layers, and DGN data layers.

Number of affected layers = number of highlighted layers

6. Layers that are highlighted in dark blue are layers that have intersections with the project study area (affected layers).
    - To view more information on the layers on this result screen, click on the layer name so it highlights in blue. Layer Information box will be displayed
    - Use check mark to preview the layer on the web map. Select feature on the map to view individual feature attributes.

Note: Identify function and symbology displayed is driven by the settings of the layer owner. Having trouble seeing the layer symbology? Try changing the base map!

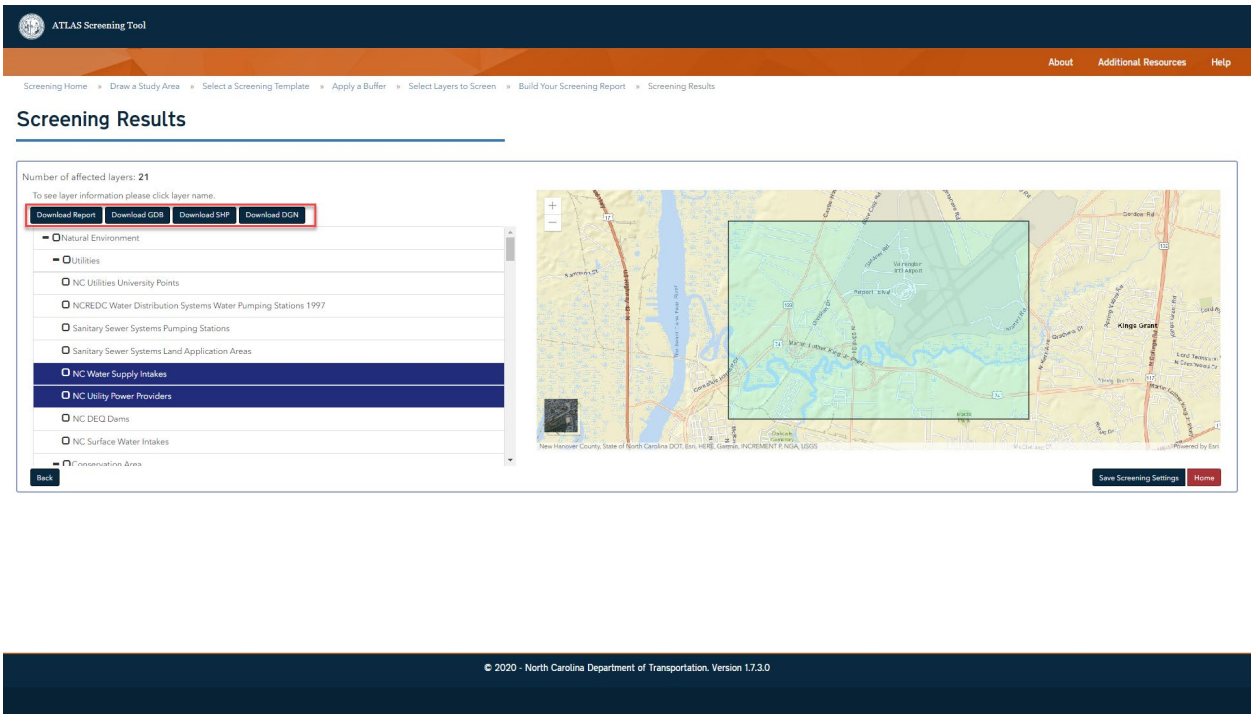


Figure 36: Screening Complete / Results Page

7. To View the PDF Report, click on “Download Report”. Once download completes, you will be able to view the PDF report.
    - This report is automatically saved to the Downloads Folder in your C drive.

8. To download data in SHP, GDB, or DGN format, click the Download SHP / Download GDB / Download DGN buttons.
    - Each of these functions might take a little while to download based on the number of layers selected for screening!

9. Once these are downloaded, they can be viewed in an appropriate software (GDBs and SHPs can be viewed in an ESRI ArcGIS Desktop Viewer or other GIS software. DGNs and SHPs can be viewed in ESRI ArcGIS Desktop Viewer or other GIS software, or any CAD software.)

Note: If you would like to modify your screening and rerun, use the 'Back' button to trail back and edit your entries.

10. To start a new Screening run, click the red 'Home' button. **If you have not downloaded your results, these will now be lost.**

Tip! Having system issues? Try clearing your cache and restarting your browser. Find instructions to clear your cache here.

G. How to Read the Screening Report

Once you have the Screening Report downloaded, open up the PDF file.

- The top header of the Report contains general information like Report run date, Report Name, description (both user entered fields) and a general location attributes for the study area (county, NCDOT division, EPA Level III / IV ecoregion, HUC8, CAMA, Riparian Buffer and Airports). This section also contains a general map showing the location of the study area with the buffer around it (if applicable), as well as the study area size in acres, buffer size entered by the user, STIP / SPOT ID (if user used Screen by Project ID), and a project description (pulled from the STIP layer).

- The next section(s) Human Environment / Natural environment contain a breakdown of each of the layers under each of the categories selected for screening.

Reminder!

The screened study area = Your feature + Buffer area

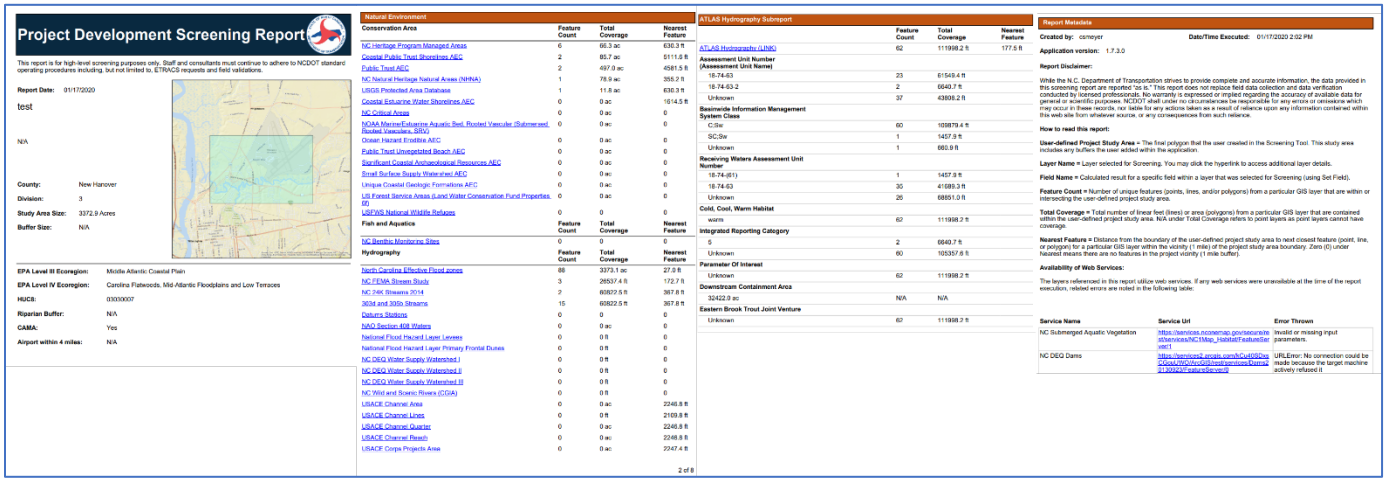
- A count of features intersecting the study area, total coverage of feature within the study area, and the distance to the nearest feature from the study area are identified for each layer.

- Every layer is hyperlinked to its layer details page.

- If sub-reports exist, then these fields will show up under the appropriate layer.

- If the user selected the ATLAS Hydrography layer as a screening layer, a Hydrography sub-report will be included.

- The next section on 'Report Metadata' explains in detail on how to read the Screening Report. Every report also contains a general disclaimer. Since the Screening Tool utilizes external web services, availability of these layers could vary. Layers that were not available for use during the Screening run will be noted in a table towards the end of the report.



Project Development Screening Report

This report is for high-level screening purposes only. Staff and consultants must continue to adhere to NCDOT standard operating procedures including, but not limited to, ETRACS requests and field validations.

Report Date: 01/17/2020

test

N/A

County: New Hanover
Division: 3
Study Area Size: 3372.9 Acres
Buffer Size: N/A

EPA Level III Ecoregion: Middle Atlantic Coastal Plain
EPA Level IV Ecoregion: Carolina Flatwoods, Mid-Atlantic Floodplains and Low Terraces
HUC8: 03030007
Riparian Buffer: N/A
CAMA: Yes
Airport within 4 miles: N/A

Natural Environment

Conservation Area	Feature Count	Total Coverage	Nearest Feature
NC Heritage Program Managed Areas	6	66.3 ac	636.3 ft
Coastal Public Trust Shorelines AEC	2	85.7 ac	5111.5 ft
Public Trust AEC	2	497.0 ac	4581.5 ft
NC Natural Heritage Natural Areas (NHNA)	1	78.9 ac	355.2 ft
USGS Protected Area Database	1	11.8 ac	636.3 ft
Coastal Estuarine Water Shorelines AEC	0	0 ac	1614.5 ft
NC Critical Areas	0	0 ac	0
NOAA Marine/Estuarine Aquatic Bed, Rooted Vascular (Submersed Rooted Vascular, SRV)	0	0 ac	0
Ocean Hazard Erosion AEC	0	0 ac	0
Public Trust Unvegetated Beach AEC	0	0 ac	0
Significant Coastal Archaeological Resources AEC	0	0 ac	0
Small Surface Supply Watershed AEC	0	0 ac	0
Unique Coastal Geologic Formations AEC	0	0 ac	0
US Forest Service Areas (Land Water Conservation Fund Properties, 6f)	0	0 ac	0
USFWS National Wildlife Refuges	0	0	0
Fish and Aquatics	**Feature Count**	**Total Coverage**	**Nearest Feature**
NC Benthic Monitoring Sites	0	0	0
Hydrography	**Feature Count**	**Total Coverage**	**Nearest Feature**
North Carolina Effective Flood zones	88	3373.1 ac	27.0 ft
NC FEMA Stream Study	3	26537.4 ft	172.7 ft
NC DWI Streams 2014	2	60822.5 ft	367.8 ft
303d and 305b Streams	15	60822.5 ft	367.8 ft
Datums Stations	0	0	0
NAD Section 408 Waters	0	0 ac	0
National Flood Hazard Layer Levees	0	0 ft	0
National Flood Hazard Layer Primary Frontal Dunes	0	0 ft	0
NC DEQ Water Supply Watershed I	0	0 ft	0
NC DEQ Water Supply Watershed II	0	0 ft	0
NC DEQ Water Supply Watershed III	0	0 ft	0
NC Wild and Scenic Rivers (CGIA)	0	0 ft	0
USACE Channel Area	0	0 ac	2248.8 ft
USACE Channel Lines	0	0 ft	2109.8 ft
USACE Channel Quarter	0	0 ac	2248.8 ft
USACE Channel Reach	0	0 ac	2248.8 ft
USACE Corps Projects Area	0	0 ac	2247.4 ft

2 of 8

ATLAS Hydrography Subreport

	Feature Count	Total Coverage	Nearest Feature
ATLAS Hydrography (LINK)	62	111998.2 ft	177.5 ft
Assessment Unit Number (Assessment Unit Name)			
18-74-63	23	61549.4 ft	
18-74-63-2	2	6640.7 ft	
Unknown	37	43808.2 ft	
Basinwide Information Management System Class			
C;Sw	60	109879.4 ft	
SC;Sw	1	1457.9 ft	
Unknown	1	660.9 ft	
Receiving Waters Assessment Unit Number			
18-74-(61)	1	1457.9 ft	
18-74-63	35	41699.3 ft	
Unknown	26	68851.0 ft	
Cold, Cool, Warm Habitat			
warm	62	111998.2 ft	
Integrated Reporting Category			
5	2	6640.7 ft	
Unknown	60	105357.6 ft	
Parameter Of Interest			
Unknown	62	111998.2 ft	
Downstream Containment Area			
32422.9 ac	N/A	N/A	
Eastern Brook Trout Joint Venture			
Unknown	62	111998.2 ft	

Report Metadata

Created by: csmeyer **Date/Time Executed:** 01/17/2020 2:02 PM

Application version: 1.7.3.0

Report Disclaimer:

While the N.C. Department of Transportation strives to provide complete and accurate information, the data provided in this screening report are reported "as is." This report does not replace field data collection and data verification conducted by licensed professionals. No warranty is expressed or implied regarding the accuracy of available data for general or scientific purposes. NCDOT shall under no circumstances be responsible for any errors or omissions which may occur in these records, nor liable for any actions taken as a result of reliance upon any information contained within this web site from whatever source, or any consequences from such reliance.

How to read this report:

User-defined Project Study Area = The final polygon that the user created in the Screening Tool. This study area includes any buffers the user added within the application.

Layer Name = Layer selected for Screening. You may click the hyperlink to access additional layer details.

Field Name = Calculated result for a specific field within a layer that was selected for Screening (using Set Field).

Feature Count = Number of unique features (points, lines, and/or polygons) from a particular GIS layer that are within or intersecting the user-defined project study area.

Total Coverage = Total number of linear feet (lines) or area (polygons) from a particular GIS layer that are contained within the user-defined project study area. N/A under Total Coverage refers to point layers as point layers cannot have coverage.

Nearest Feature = Distance from the boundary of the user-defined project study area to next closest feature (point, line, or polygon) for a particular GIS layer within the vicinity (1 mile) of the project study area boundary. Zero (0) under Nearest means there are no features in the project vicinity (1 mile buffer).

Availability of Web Services:

The layers referenced in this report utilize web services. If any web services were unavailable at the time of the report execution, related errors are noted in the following table:

Service Name	Service Url	Error Thrown
NC Submerged Aquatic Vegetation	https://services.ncsenmap.gov/secure/arcgis/services/NC1Map_Habitat/FeatureServer/1	Invalid or missing input parameters.
NC DEQ Dams	https://services2.arcgis.com/KCxE6BQbsCGsdUWQ/ArcGIS/rest/services/Dams/FeatureServer/0	URLError: No connection could be made because the target machine actively refused it

Figure 37: Screening Report

H. How to Review Screening Data in Other Software

- Once you have the SHP / GDB / DGN downloaded on the C drive, unzip it. Add the data layers (from the GDB folder to ArcMap or other software) for detailed review of the downloaded data.

- There is a Readme text file within the main folder that has details on layers that were downloaded and layers with errors / layers that didn't download.

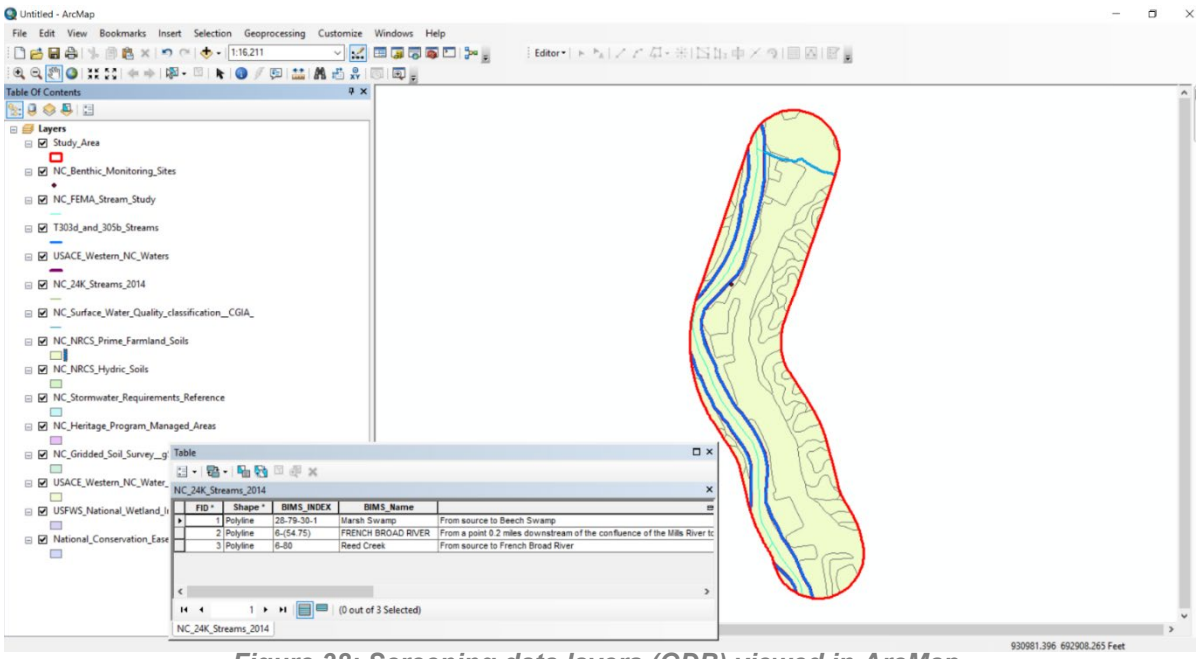


Figure 38: Screening data layers (GDB) viewed in ArcMap

I. Resources & Help

Every page of the Screening Tool contains the top help toolbar which contains three help items-

- About
- Additional Resources
- Help

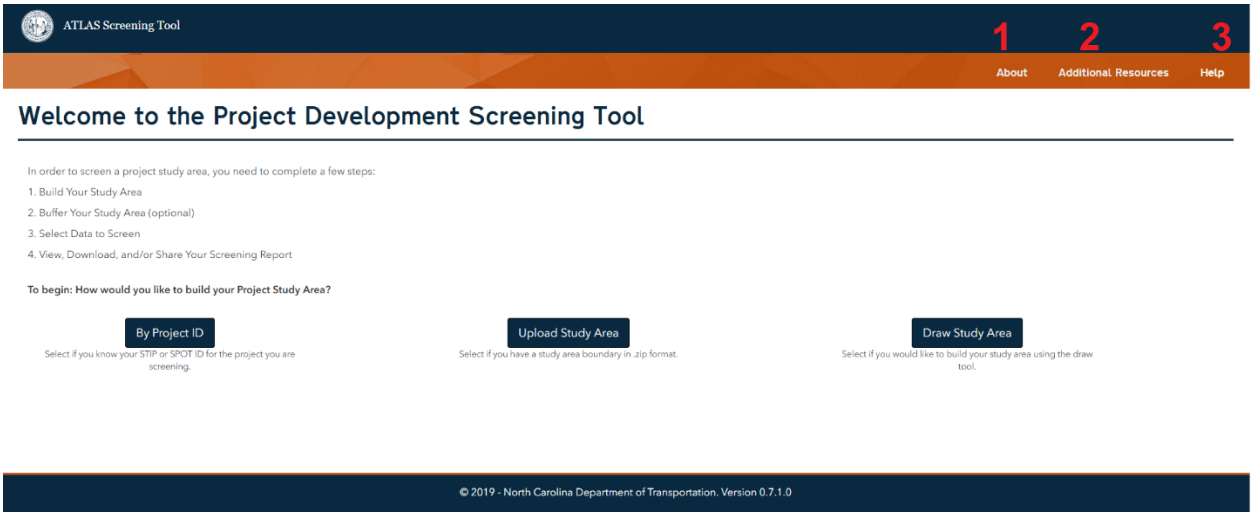


Figure 39: Screening Help Toolbar

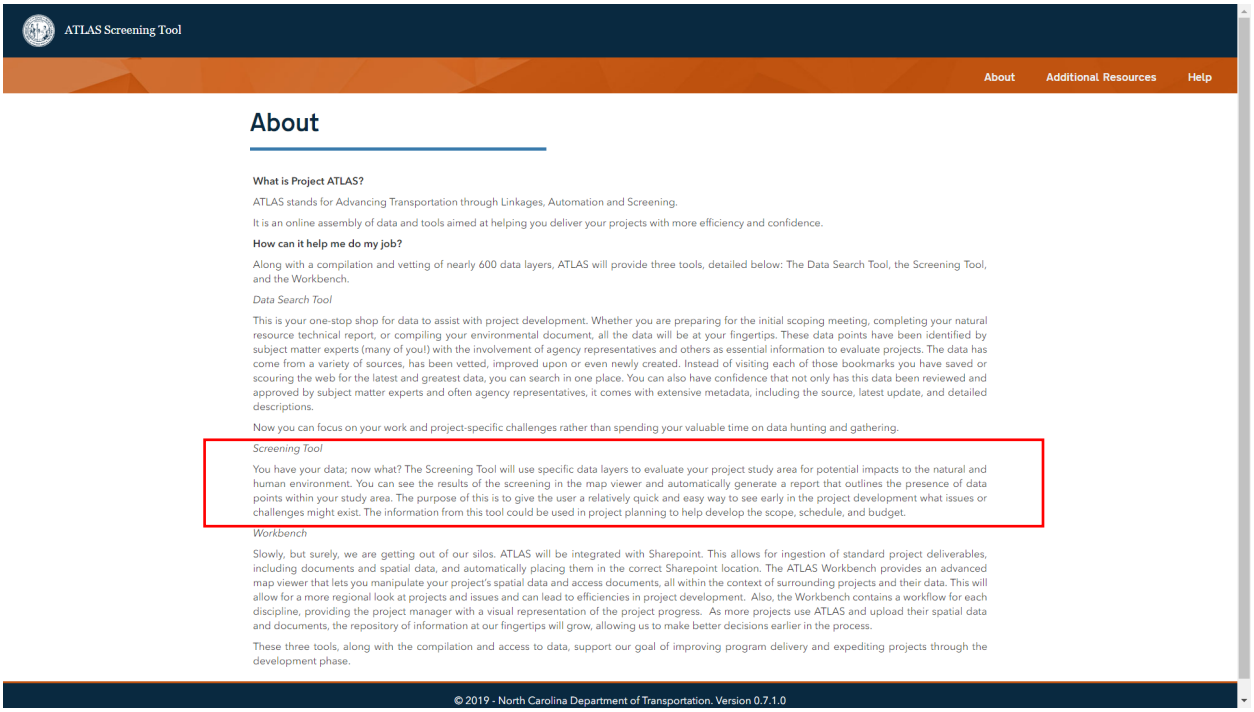


Figure 40: About

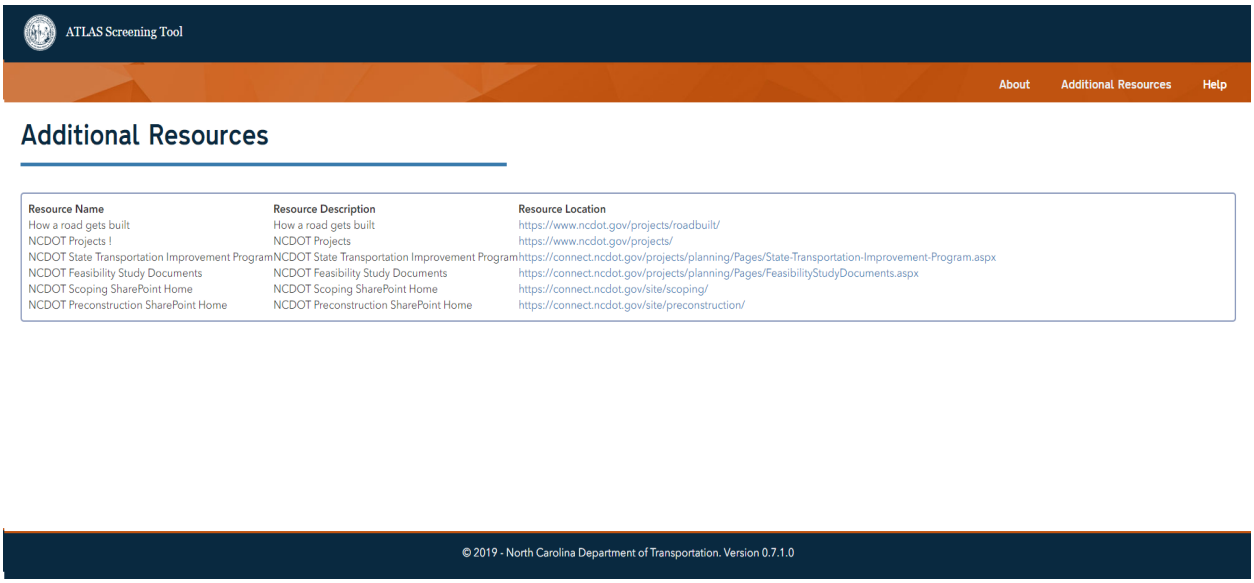


Figure 41: Additional Resources

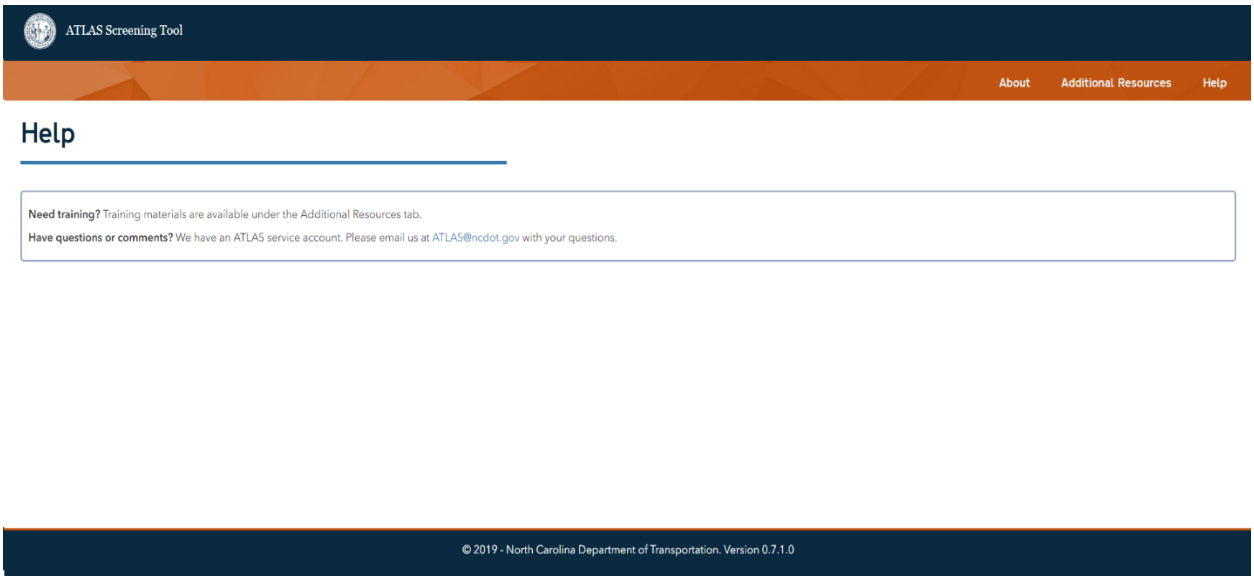


Figure 42: Help

Need support?

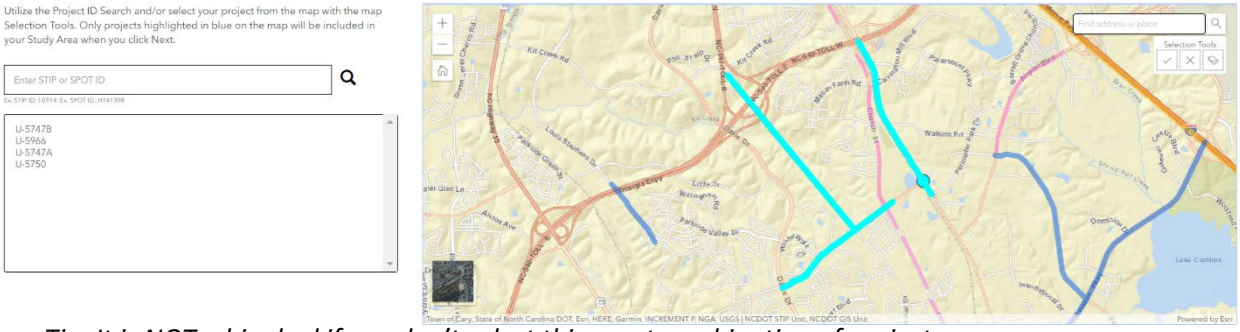
ATLAS@ncdot.gov is your best resource!

ATLAS Screening Tool - Screening a STIP Project

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Screening Tool and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'.
4. On the Welcome Page, click on the 'By Project ID' button.
5. When the map has finished loading on the Screening By Project ID page, in the search box type 'U-5966' and click the lens icon. The map will zoom to the STIP.
6. Zoom out two levels by clicking the "**–**" on the map twice. There are several STIPs around the project we selected. Let us select a few more.
7. Click the check icon under Selection Tools, found on the top right corner of the map and wait for it to turn blue.
8. Now do the following:
    a. Select the project attached directly to the south end of U-5966 (i.e. U-5747A). Make sure your selection tool is still active (cursor should be a crosshair).
    b. Then select the projects that runs parallel to U-5966 (i.e. U-5750 and EB-5838). Notice the point project U-5747B will also be selected.
    c. We would like to unselect the EB project, so click the X mark till it turns blue. Then select the pink dashed line for EB-5838. It should get unselected.

Tip: Use the eraser icon to erase all and start a fresh selection if needed.

    d. Below is your final selection of projects for screening. Click 'Next'.



Tip: It is NOT a big deal if you don't select this exact combination of projects.

9. Screening Settings page displayed. Select New, and hit Next.
10. In the Apply a Buffer page, type in 5000 in the Distance box. Leave units at Feet. Click 'Buffer', then 'Next'.
11. On the Select Layers to Screen Page, **do <u>ONE</u> of the FOLLOWING (a – c):**

    a. Click on the checkbox for **Transportation** (under Human Environment)
        i. Expand Transportation to view a layer on the map by clicking on it (**Airport Locations**).
        ii. You may view more information on the layer by clicking the 'Layer Information' button.

iii. Click on a layer (**Pedestrian Crashes**), the layer name will be highlighted in blue, data displayed on the map.
iv. click on 'Set Field' to sub-report on fields.
v. Click on **AmbulanceR** and hit 'Save'.
vi. Click 'Next'.

b. Click on the checkbox for **Water Quality** (under Natural Environment)
i. Expand Water Quality to layer on the map by clicking on it (**NC Stormwater Requirements Reference**).
ii. You may view more information on the layer by clicking the 'Layer Information' button.
iii. Click on a layer (**NC Stormwater Requirements Reference**) and click on Set Field to sub-report on fields.
iv. Click on **CATEGORY** and hit 'Save'.
v. Click 'Next'.

12. On the Build Your Screening Report Page, type in a name for your report. Append the name of the data category you selected in the previous page. (E.g.: Report1_Transportation)
13. Click 'Screen your Project'.
14. The Screening will begin to run at this point. Please do not close your browser.
15. Once Screening has finished running, you will land on the Screening Results Page.
16. The Results page will show the number of affected layers X. (Number of layers will vary based on what category you ran).
17. Affected layers will be highlighted in blue for you to investigate further if you wish.
a. You may click on the check boxes on legend and to view layers on the map.
b. You may click on the map feature to identify the feature.
c. You may click on the layer name to view more information on the layer.
18. Click on Download Report to get a PDF report.
19. You may run a modified screening on the same study area by going back and adjusting layers and details.

ATLAS Screening Tool - Screening an uploaded Project area in GIS

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Screening Tool and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'.
4. On the Welcome Page, click on the 'Upload Study Area' button.
5. When the map has finished loading on the Upload a Study Area page, click the 'Upload Shapefile' button to upload your study area.
6. Open your USB and go to the Screening Exercises folder.
7. Select the ***.zip*** file and click Open. You will be able to view the uploaded polygon on your map. Click 'Next'.
8. Screening Settings page displayed. Select New, and hit Next.
9. Buffer page is displayed. We do not wish to buffer our polygon study area, so click 'Next' to proceed.
10. On the Select Layers to Screen Page, we will select some individual layers (**do ALL of the following**):
    a. Under Human, Community, look for ***US DHS HIFLD Manufactured Home Parks*** layer and select it for screening.
    b. Under Human, look for the ***Transportation*** group and select the whole group for screening.
    c. Under Natural, Fish and Aquatics, look for ***NC Benthic Monitoring Sites*** layer and select it for screening.
    d. Under Natural, look for the ***Hydrography*** group and select the whole group for screening.
    e. Click 'Next'.
11. On the Build Your Screening Report Page, type in a Report Name. Under Report Description type in description of your choosing.
12. Click 'Screen your Project'.
13. The Screening will begin to run at this point. Please do not close your browser.
14. Once Screening has finished running, you will land on the Screening Results Page. The Results page will show the number of affected layers.
15. Affected layers will be highlighted in blue for you to investigate further if you wish.
    a. You may click on the check boxes on legend and to view layers on the map.
    b. You may click on the map feature to identify the feature.
    c. You may click on the layer name to view more information on the layer.
16. Click on Download Report to get a PDF report.
17. You may run a modified screening on the same study area by going back and adjusting layers and details.

ATLAS Screening Tool - Screening a hand drawn Project Area

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Screening Tool and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'.
4. On the Welcome Page, click on the 'Draw Study Area' button.
5. When the map has finished loading on the Draw a Study Area page, you may start drawing your study area on the map using the draw toolbar located on the top right corner of the map.
6. First, let us navigate to the map and do a search for Columbia, NC using the Find Address box.
7. Then use the 'draw a polygon' tool and start drawing a polygon that looks like the one below (does not need to match exactly).
8. Click 'Next'.

9. Screening Settings page displayed. Select New, and hit Next.
10. On the Buffer page, lets add a 1-mile buffer. Click 'Next'.
11. On the Select Layers to Screen Page, we will select some individual layers (**do <u>ALL</u> of the following**):
    a. Select **Human Environment** for Screening.
    b. Click on **Transportation** group to unselect the group for Screening
    c. Select **Natural Environment** for Screening.
    d. Click 'Next'.
12. On the Build Your Screening Report Page, type in ***Draft Study Area1*** for Report Name.
13. Click 'Screen your Project'.
14. The Screening will begin to run at this point. Please do not close your browser.
15. Once Screening has finished running, you will land on the Screening Results Page. The Results page will show the number of affected layers.
16. Affected layers will be highlighted in blue for you to investigate further if you wish.
    a. You may click on the check boxes on legend and to view layers on the map.
    b. You may click on the map feature to identify the feature.
    c. You may click on the layer name to view more information on the layer.
17. Click on Download Report to get a PDF report.
18. You may run a modified screening on the same study area by going back and adjusting layers and details.

ATLAS Workbench

What is the ATLAS Workbench?

The ATLAS Workbench is a platform to manage DOT projects across multiple disciplines. Throughout the project development process, DOT staff and consultant partners produce tons of documentation and data to support NEPA/SEPA final documents and permitting decisions.

High-level Workbench Functionality

1. Upload project deliverables (spatial and non-spatial)
2. Answer questions about status and findings for ATLAS Disciplines
3. See project-specific and reference spatial data on the map

The documentation is stored on NCDOT's Connect Preconstruction and Scoping project sites in Disciplines sub-folders. While this is a great step forward for organizing project documentation, files could easily be mislabeled or saved to incorrect locations. The ATLAS Workbench automates the sharing and saving of documentation to the correct location on Connect Preconstruction and Scoping.

ATLAS will be integrated with NCDOT Connect (SharePoint). This allows for ingestion of standard project deliverables, including documents and spatial data, and automatically placing them in the correct SharePoint location. Also, the Workbench contains a workflow for each discipline, providing the project manager with a visual representation of the project progress.

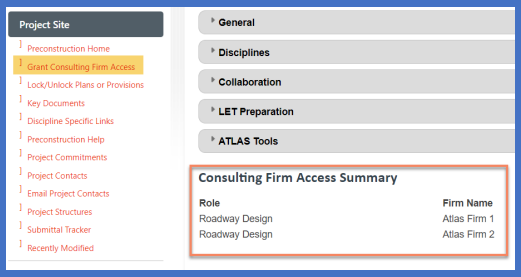
ATLAS Workbench is for uploading FINAL project deliverables only. You may continue to use the Disciplines folder on Connect Preconstruction to share drafts or other non-ATLAS deliverables.

Disciplines or Subject Areas currently covered by the ATLAS Workbench include the following, and more may be added in the future:

- Basic Project Info
- Project Scoping
- Merger
- Local/Public Involvement
- Survey & Photogrammetry
- Community Characteristic Report (CCR)
- Traffic
- Threatened & Endangered Species
- Natural Resources Technical Report (NRTR)
- Air Quality
- Traffic Noise Analysis
- Historical Architecture
- Archaeology
- Geo-Environmental
- Permitting

Who can access Workbench?

- Consultants must be assigned to the DOT project in SharePoint



- Any DOT staff can access any project

- Community Impact Assessment (CIA)
- Hydraulics
- ICE/ICI
- Bicycle, Pedestrian and Transit
- Project Management

As more projects use ATLAS and upload their spatial data and documents, the repository of information at our fingertips will grow, allowing us to make better decisions earlier in the process.

A key aspect of creating this new and ongoing spatial data repository of project data is the standardization of the data delivery. The **ATLAS Data and Document Standards Manual** is your key resource to ensure standardization of data across projects. As you upload data through the Workbench, it will be actively validated against the naming conventions and schema rules outlined in the Standards Document. If standards are not met, the system will reject your upload and provide guidance on what needs to be changed before the upload is accepted, If standards are met, the upload will be placed on SharePoint, or published into the state-wide data set in the case of spatial uploads.

How to get Workbench access?

- If you are a Consultant, you will only have access to Workbench projects if your firm has been granted Consulting Firm Access via Connect site and your NCID is associated with that firm.
- Need to be added to a Project site? Contact your DOT Project Manager. Instructions for Preconstruction Project Site Owners can be found here.

The ATLAS Data and Document Standards Manual is a living document.

Do NOT refer to local copies as they may be out of date.

Please find the current version of ATLAS Standards *here*.

Topics covered in this Tip Sheet:

A. Getting Started
B. Workbench – General Information
C. Workbench – Document and Spatial Uploads
D. Workbench Integration with Connect (SharePoint)
E. Workbench Reports
F. Additional Resources

Step by Step Instructions

A. Getting Started

1. Navigate to ATLAS Workbench link from the Connect Preconstruction Project site or the Connect Scoping Project site.

Note: Chrome is the only fully supported browser.

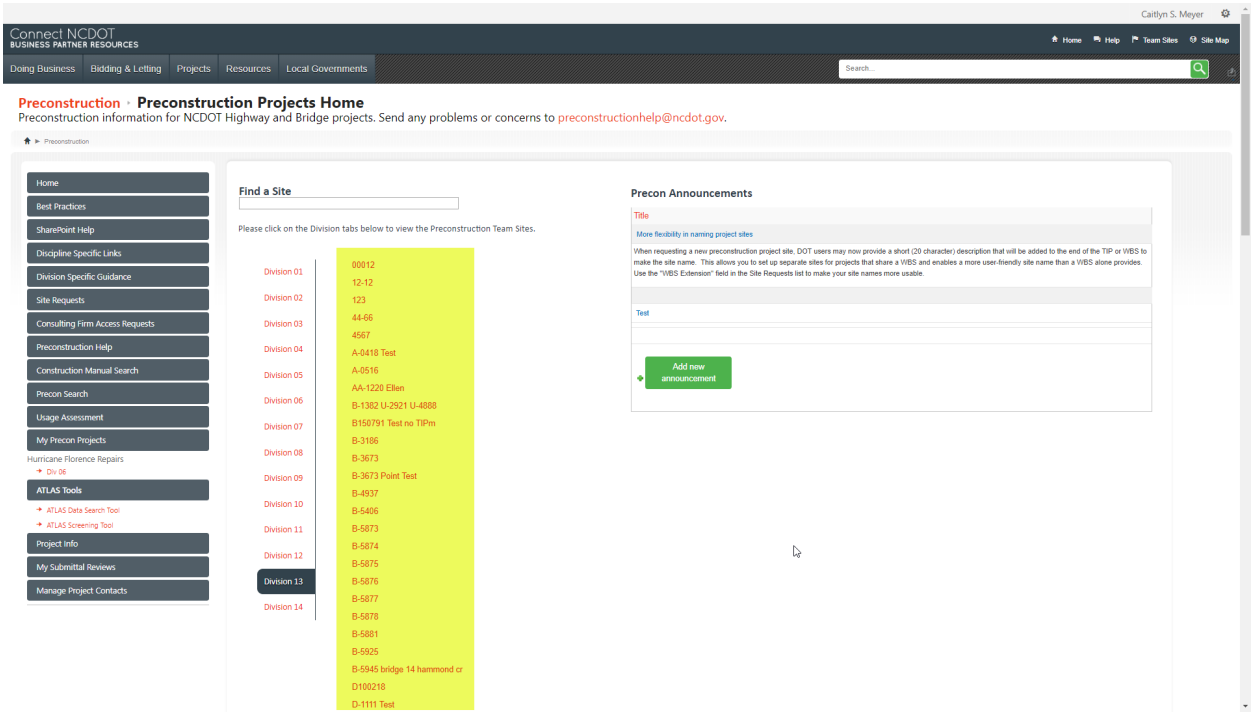


Figure 1: Preconstruction Project Sites

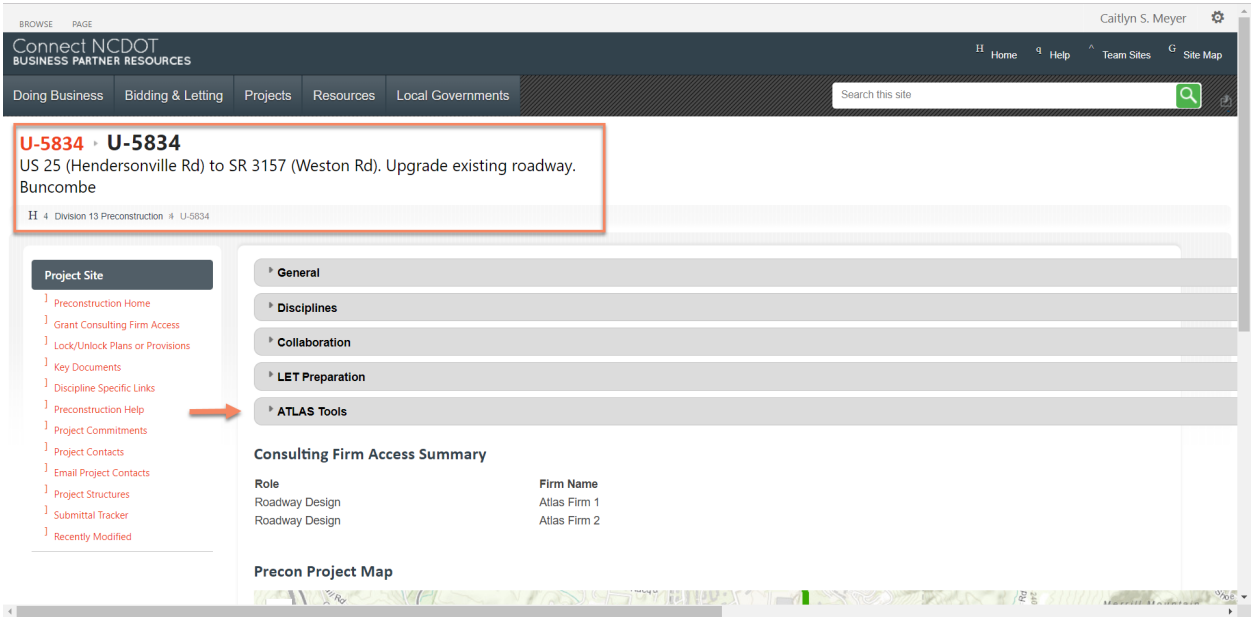


Figure 2: Preconstruction Project Site – ATLAS Accordion

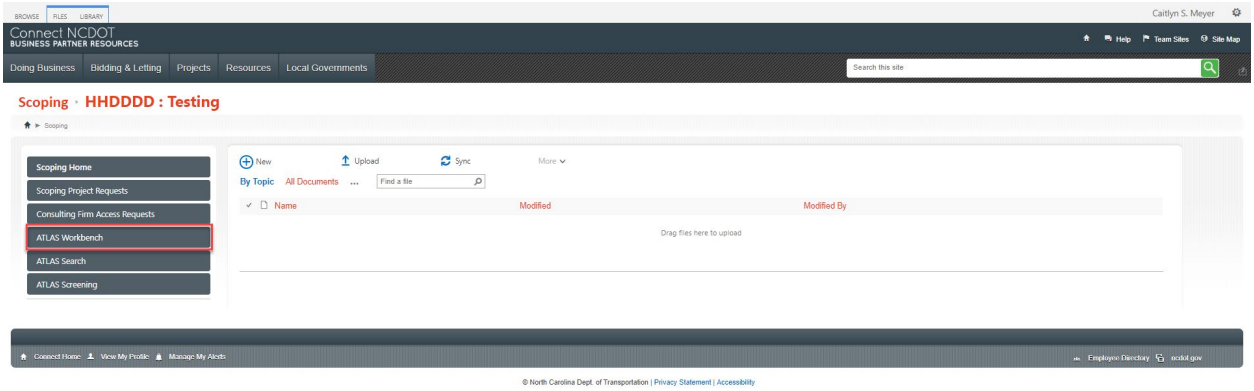


Figure 3: Scoping Project Site – ATLAS Workbench Link

1. Navigate to the project site on Connect for which you are completing work.

Note: Workbench can be accessed by any project (STIP or Non-STIP) that has a Project Site in Connect Scoping or Connect Preconstruction.

2. Click the Workbench link from the Preconstruction or Scoping Project site.

Workbench is a project-specific application.

While you can explore GIS data from other projects and surrounding area, all the uploads and questions you answer are tied to the Project ID you are working on.

Note: If you are not authorized to access the Workbench for the project, you will receive the following message. Contact your Project Manager to make sure that access is requested through the Connect team.

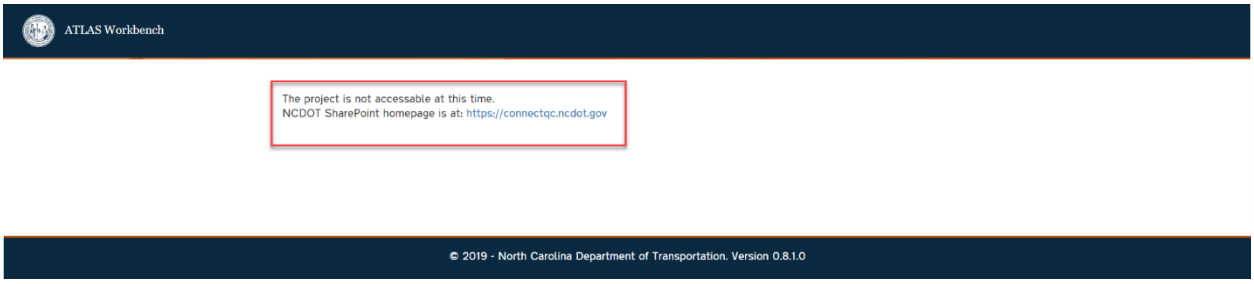


Figure 4: Project not accessible error

3. You will be directed to the Disclaimer page. You must accept the disclaimer before entering the application.

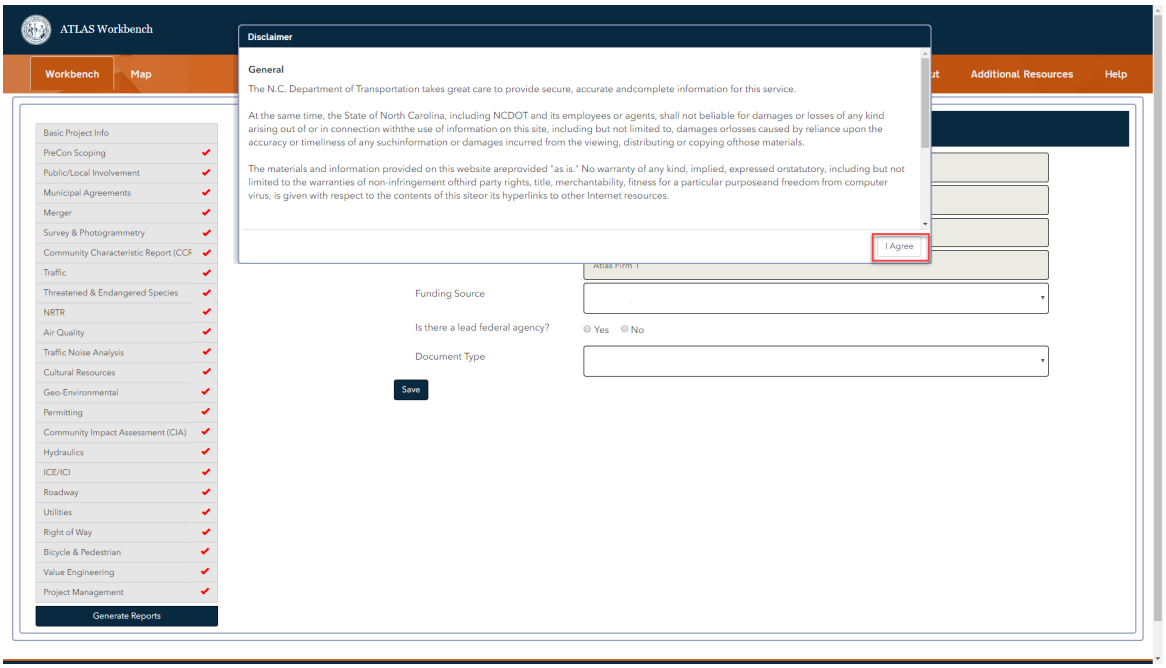


Figure 5: ATLAS Workbench Link - Disclaimer

B. Workbench – General Information

Workbench vs. Map

Along the header of the application, there are two tabs: Workbench and Map.

1. The Workbench is where you will upload project deliverables and answer key project questions.
2. The Map is a web map viewer that allows you to view project data and explore regional reference data.

Figure 6: Workbench and Map Tabs

Note: Full details on the Map Viewer functionality is covered in a separate tip sheet. See the Additional Resources tab within the application to find other training materials.

Basic Project Info

When you first enter the application, you will be brought to the Basic Project Info page. Your Project ID will be populated in the page header. Items in gray boxes are automatically populated by values passed from SharePoint.

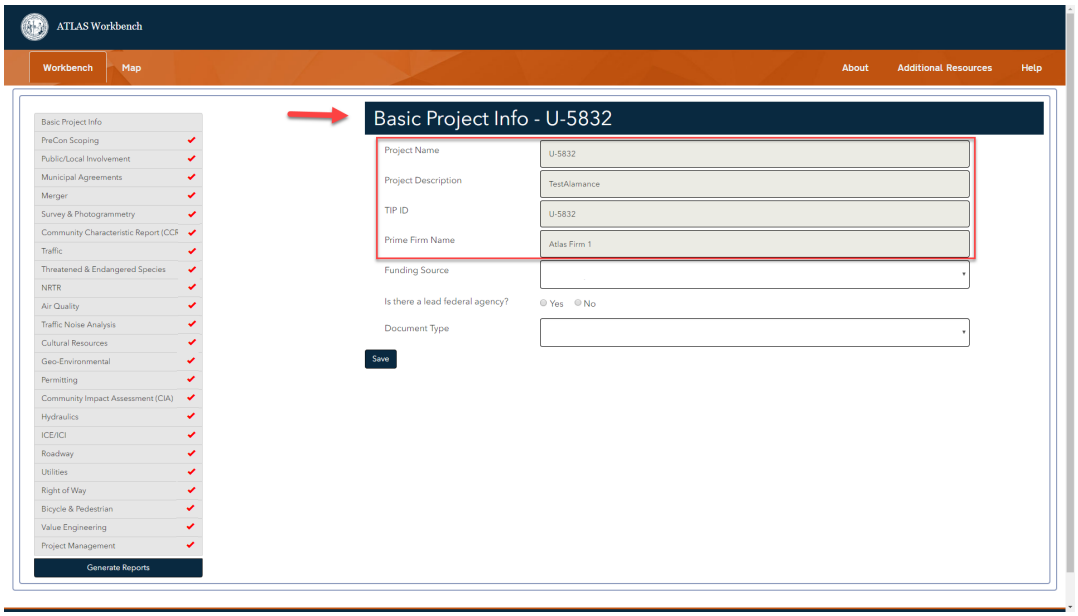


Figure 7: Workbench – Basic Project Info

Those questions that are not marked in grey should be answered by the Project Manager or their designee. The general questions, such as “What is the Funding Source?” or “What Agencies are Involved?”, on the Basic Project Info tab are designed to give the viewer a general sense of a project’s complexity at a quick glance.

Workbench Categories

Along the left side of the Workbench tab, you will see a list of categories. These categories represent sub-disciplines or specialty areas that contribute to the overall project development process. Project development, in the case of the Workbench, is defined as work between a project being let and permitting.

The Workbench Categories differ if you are navigating from the Connect Scoping or the Connect Preconstruction project site.

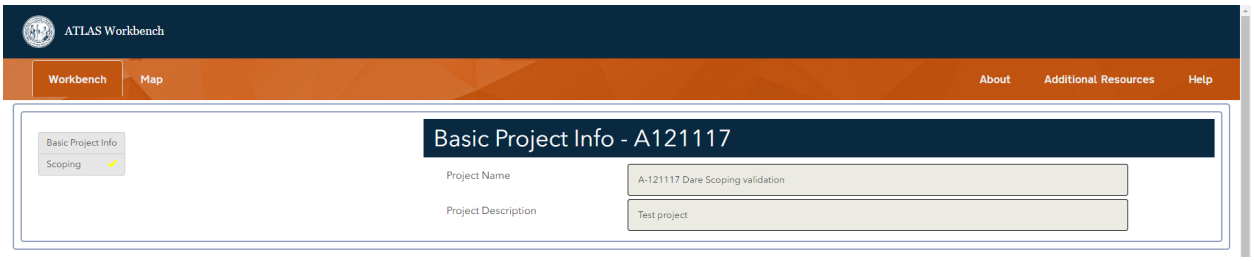


Figure 8: Workbench Categories – Scoping

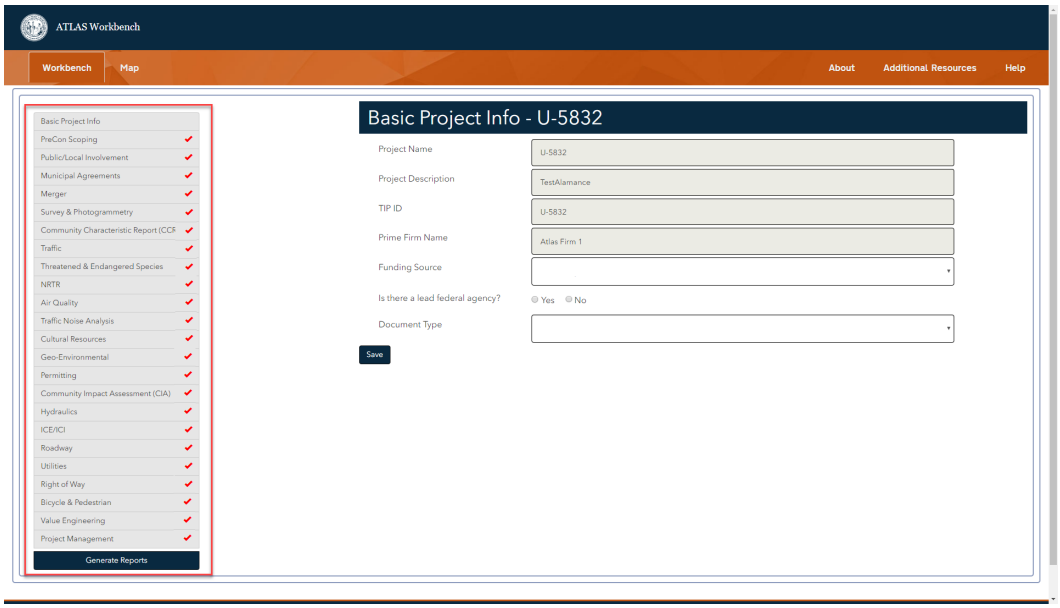


Figure 9: Workbench Categories – Preconstruction

As a project progresses, DOT staff or Consultants performing activities under each category will be responsible for answering questions and uploading required deliverables.

Note: More DOT Disciplines and related categories may be added to the ATLAS Workbench in the future.

Required Questions and Deliverables

Not all questions and deliverables are required under each category. Required questions and deliverables are noted as such with an asterisk (*) in the user interface. ***Remember to hit "Save" on the bottom of the Category page in order to save your question responses.***

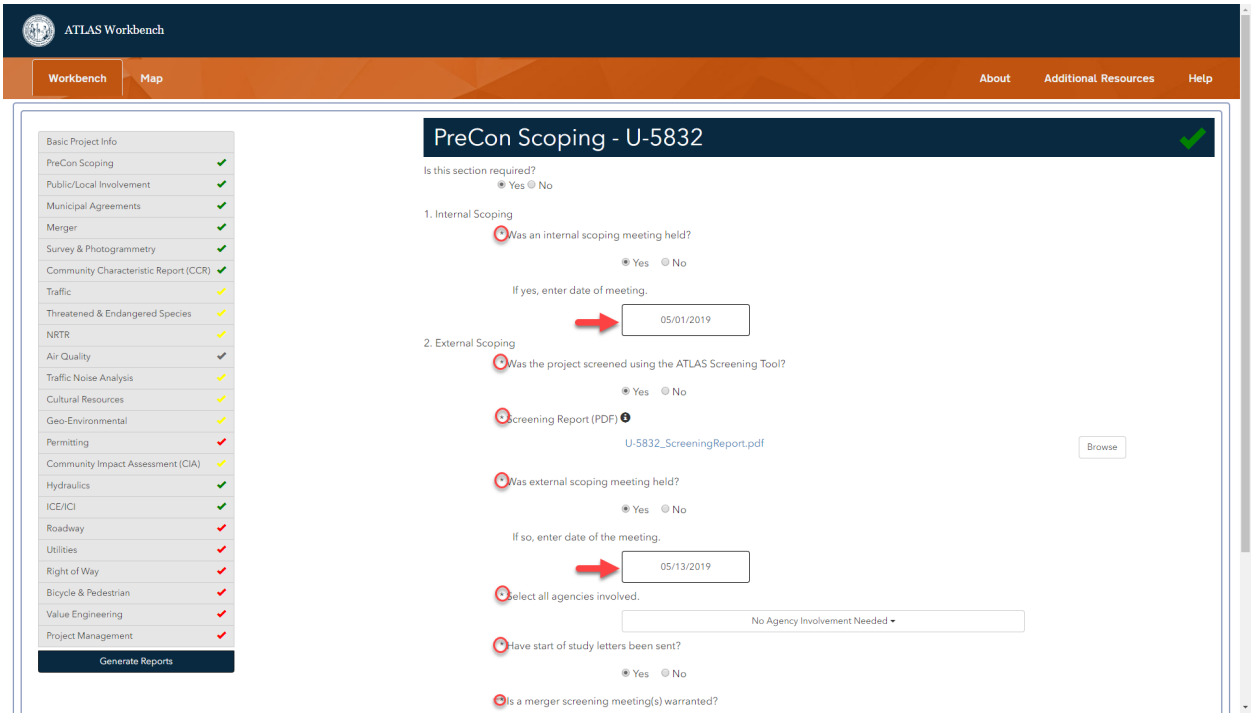


*Figure 10: Workbench - * is a required response*

All Workbench questions are designed to help track the status, important decision points, and results of a project activity. The Workbench Administrator has the ability to configure, change, and add Workbench questions as the applications development overtime.

A Workbench Project is a live and shared tool.

If one member of the team updates a question, all people accessing the Workbench Project will see the response the next time they refresh the application.

One person makes a change, all people see the change.

Workbench Status Checkmarks

When a project starts, the DOT project manager will request that a project site is created by the Connect team. Once project site is created, the project team will be able to access the project's Workbench. When you first navigate to the Workbench for a project all categories will be marked by a **red** checkmark, indicated that the project activity is Not Started.

As a project progresses, DOT staff or Consultants performing activities under each category will be responsible for answering questions and uploading required deliverables.

ATLAS Data and Document Standards Manual lists all required deliverables (spatial and non-spatial) by Category

The answers and uploads under each category will drive the color of the category check mark. Checkmarks allow a Project Manager to quickly see the status of each phase. Color and related meanings are as follows:

- **Red** = Not Started
  - A status of Not Started indicates that no questions have been answered under the respective category.
- **Yellow** = In Progress
  - A status of In Progress indicates that some responses have been entered, but not all required fields have been entered for that category.
- **Green** = Complete
  - A status of Complete indicates that all required responses (questions and uploads) have been filled in for that category.
- **Grey** = Not Required
  - A status of Not Required indicates that a category is not applicable or a required activity for the project.

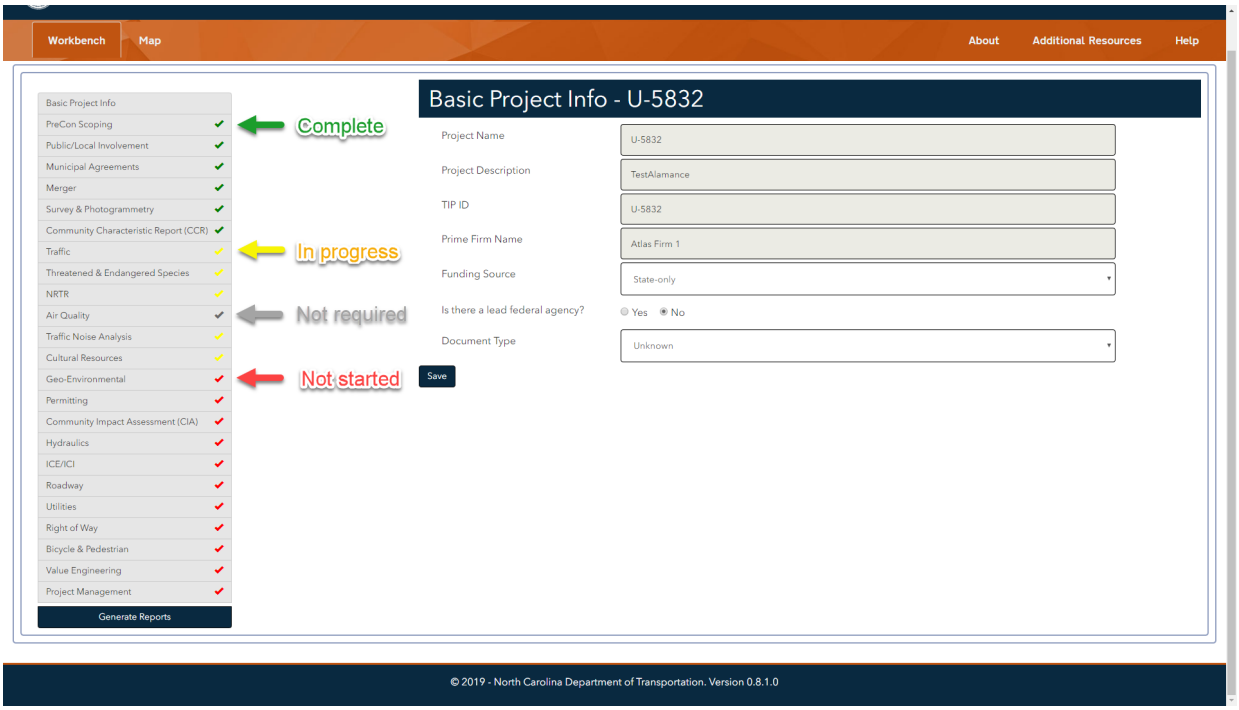


Figure 11: Workbench Categories – Status Checkmarks

Categories (Project Activities) Not Required for a Project

Not all categories are required for every project. This could be due to a project's location, type of project, or another factor known to the Project Manager. Frequent example of a category that may not be required for every project is Air Quality. Enter a comment on why a section is not required so that other people currently on the project or in the future have an understanding.

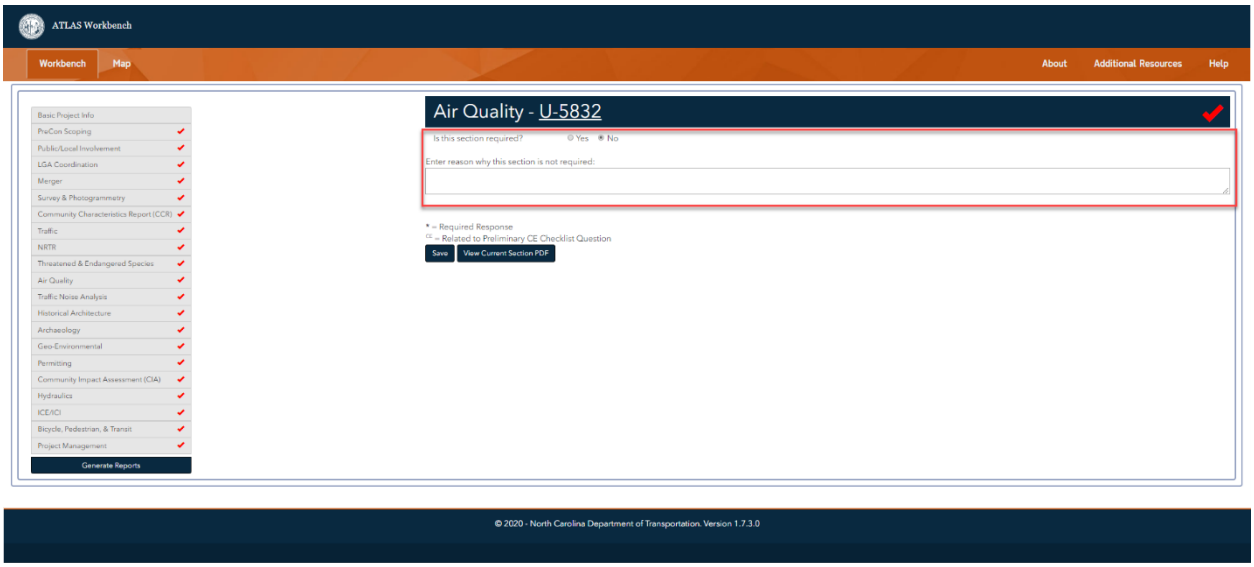


Figure 12: Workbench – Marking a category as Not Required

C. Workbench – Document and Spatial Uploads

Full information on what is a Workbench deliverable is maintained in the ATLAS Data and Document Standards Manual. Only final version of documents shall be uploaded via the ATLAS Workbench. The Standards are organized according to the Workbench Categories, listed along the left panel of the Workbench tab.

The data collected under these Categories can be broadly categorized into two types:

1. Documents (non-geospatial data that would include report documents)
2. Geospatial Data (GIS/CAD data that are field collected and/or created using GIS/CAD software)

Workbench Uploads

=

Final Project Deliverables
(Documents and Spatial Data)

Every project activity, from completing a Natural Resources Technical Report (NRTR) to a Traffic Noise Report (TNR), generates a variety of data (documents and geospatial data), many of which are required to be delivered to NCDOT during, or upon completion, of a project. Basic data standards must be followed, and all reports and geospatial data that are uploaded to the NCDOT SharePoint platform, via the ATLAS Workbench, are expected to adhere to these standards. These standards will ensure that spatial data received by NCDOT can be incorporated into tools developed by NCDOT. Two key standardization items, Naming Conventions and GIS Deliverable Schemas, are described at a high-level below.

Naming Conventions

Deliverables uploaded in ATLAS Workbench must following the naming conventions outlined in detail in the ATLAS Standards. Most deliverable naming conventions will follow this general format: “ProjectID” _ “ReportName”. “file format” (Example: U-5832_TrafficForecastReport.pdf)

In the application, hover over the “i” icon next to an upload to preview the file name expected for a particular upload. Your project ID must match the Workbench project you are working in.

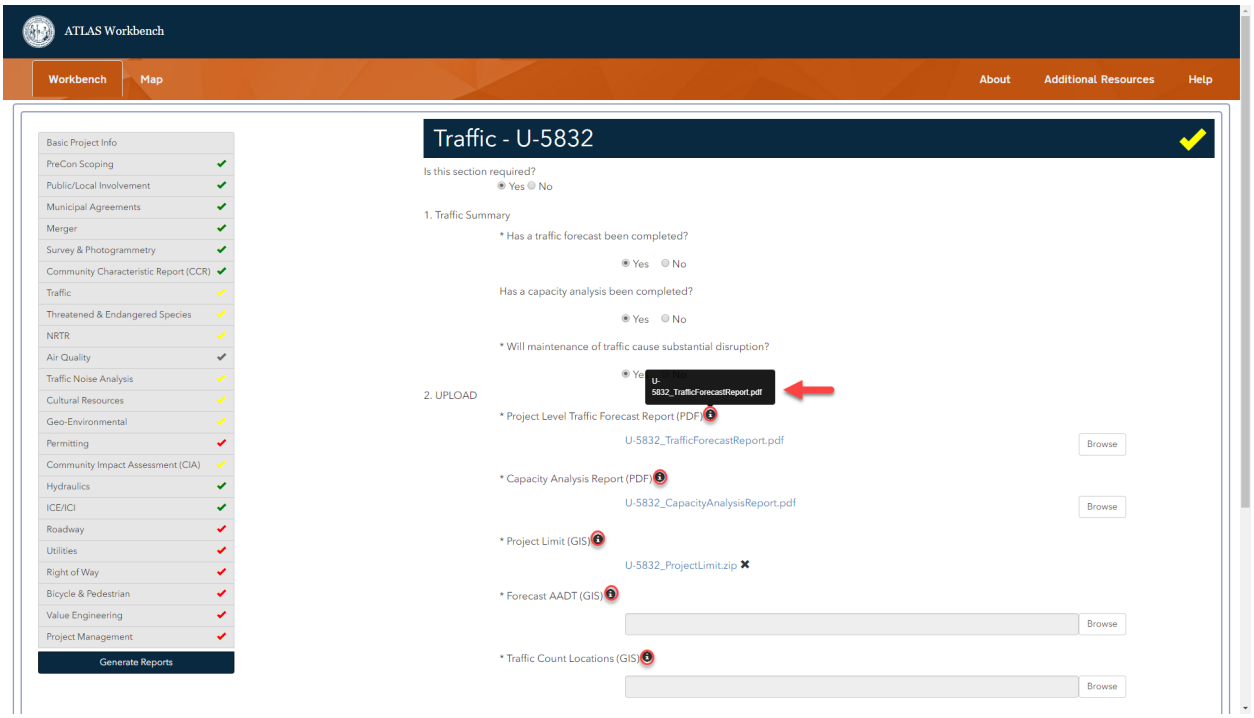


Figure 13: Workbench – Naming Convention Guidance

If your uploaded deliverable does not meet the required naming convention, you will receive the following error message.

Figure 14: Workbench – File Name Error

GIS Schemas

Tip! Use the schema templates as a starting place when generating your spatial deliverables.

The ATLAS Standards Manual details a specific schema and expected values for every spatial deliverable (GIS and CAD). A set of blank template shapefiles are available for download here.

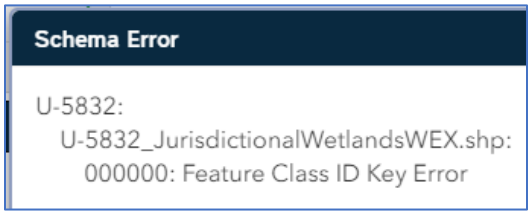


Figure 15: Workbench – Schema Error

If your schema does not meet the standards, you will receive an error message in the application when you try to upload a spatial deliverable.

Once you upload a document or a spatial file, you will need to hit the Category "Save" button. This will complete the upload to the appropriate SharePoint Location for all files, and the ATLAS SDE for the spatial data.

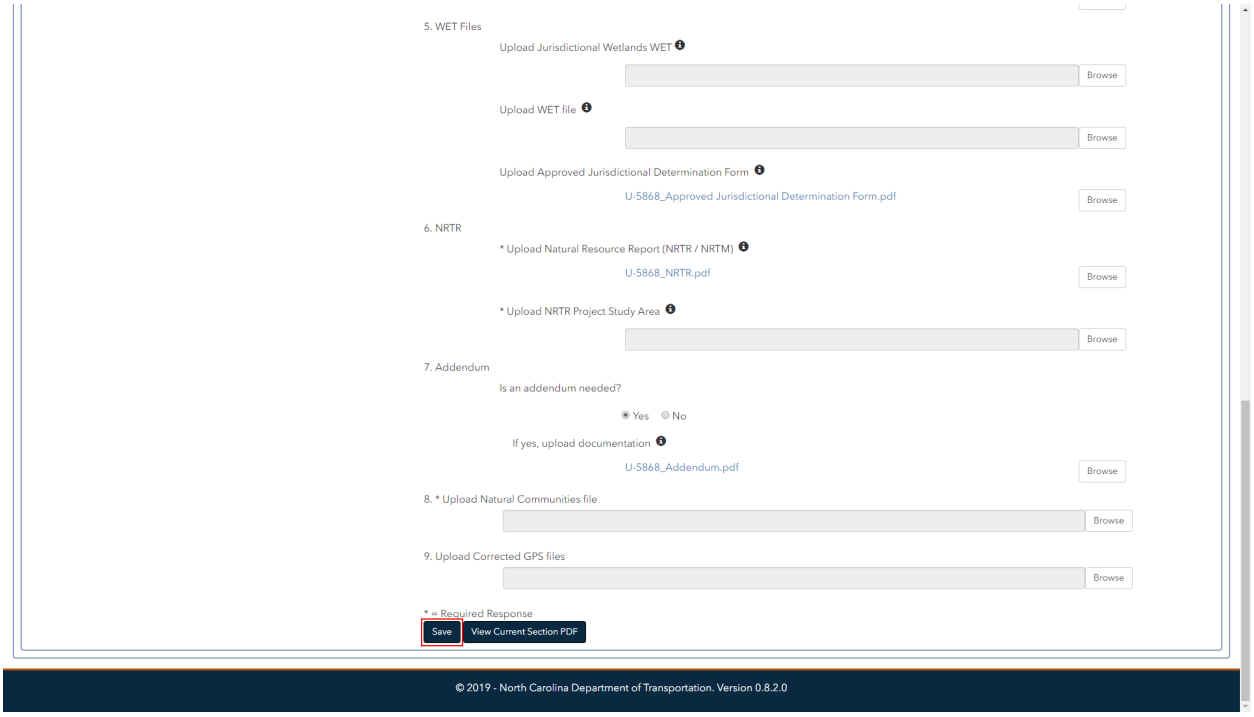


Figure 16: Workbench – Save your page

Clicking “Save” will save all questions responses for the entire Category page. You must hit save to capture any data entry on the page. Once a deliverable is saved successfully, you will see a Save Complete message.

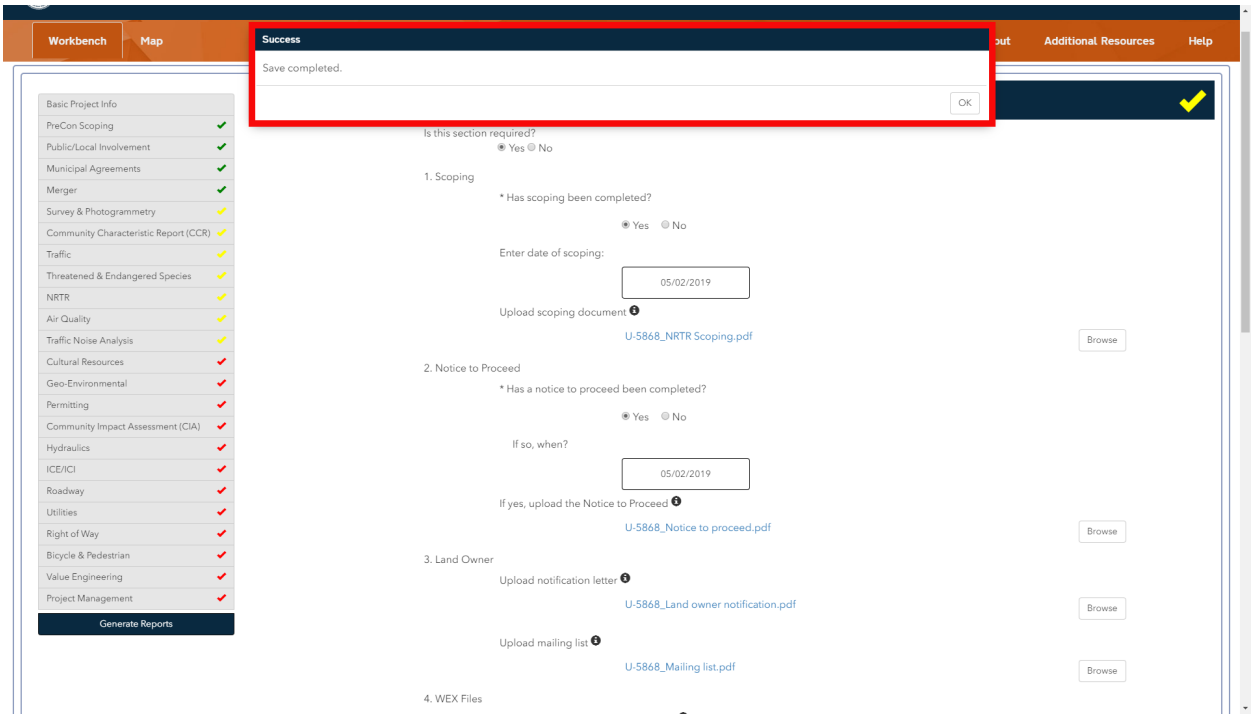


Figure 17: Workbench – Save Success

D. Workbench Integration with Connect (SharePoint)

As discussed in earlier sections, the Workbench is heavily integrated with Scoping and Preconstruction Connect sites. Prior to ATLAS applications, DOT, Consultants and Agency Partners used the Connect project sites to share and collaborate on documents and project work. This collaboration platform does not change as a result of ATLAS. The only change is that now FINAL documents and spatial data (which was not previously collected) must be submitted through the Workbench application.

You do NOT have to put your final document on Connect, then duplicate work by putting the final document into ATLAS. Final documents and spatial data deliverables will be uploaded only into ATLAS Workbench. The Workbench will automatically save your deliverable into the correct Connect location with the associated metadata filled in for you.

Once a deliverable is uploaded, you can view that deliverable either directly from the Workbench, or from the ATLAS Deliverables folder on Connect. After you have saved your Workbench page, the uploaded file will become hyperlinked on the page. For a PDF upload, click the hyperlink and your document will open in a new browser tab. This is linked directly to the Connect (SharePoint) location of the document. For a spatial upload, click the hyperlink and the zip folder will be downloaded into your browser downloads folder.

Note: Any spatial data deliverables that are Secure (i.e. Archaeology and Threatened and Endangered Species related data) will not be accessible outside of a secured AD group access.

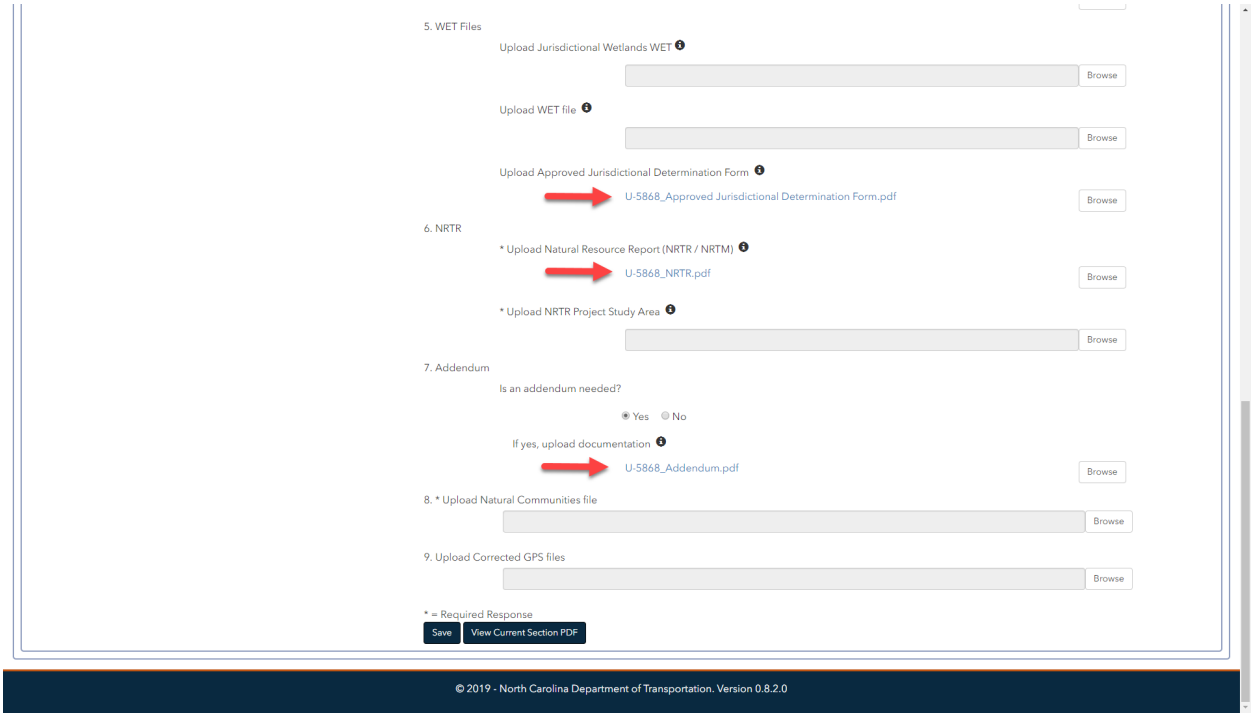


Figure 18: Workbench – Uploaded Deliverable Hyperlinks

Once saved, project deliverables submitted through the ATLAS Workbench will be saved to the respective project site on Connect.

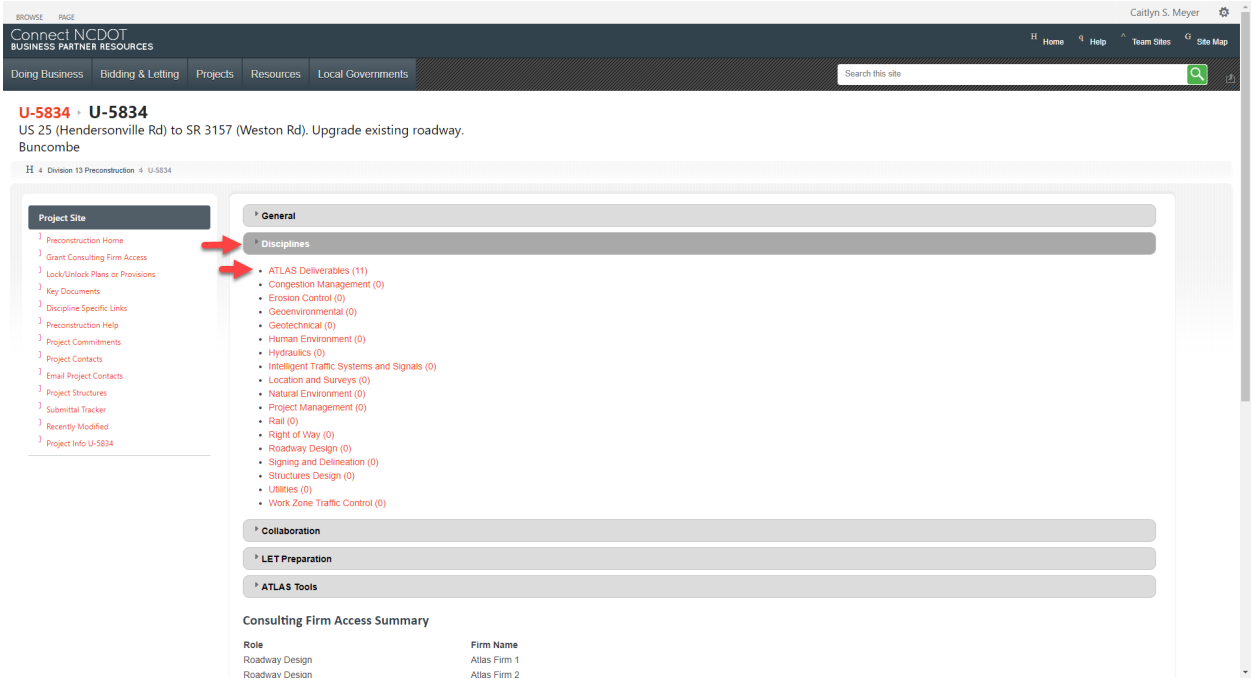


Figure 19: Connect Preconstruction Project Site – ATLAS Deliverables folder (ATLAS Uploads Location)

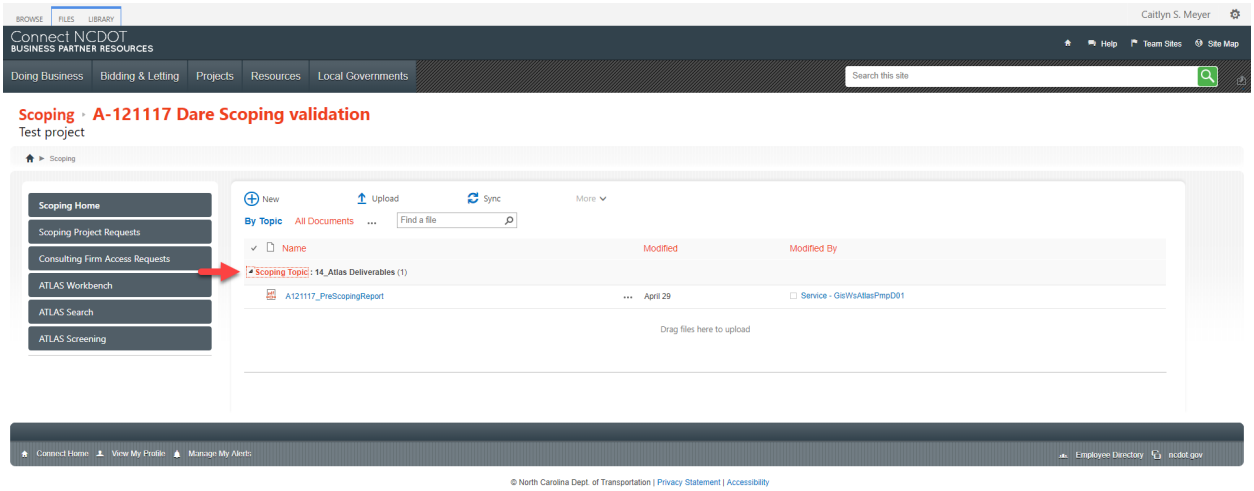


Figure 20: Connect Scoping Site – Scoping Topic>Atlas Deliverables (ATLAS Uploads Location)

Preconstruction Workbench deliverables of Secured spatial data will be automatically placed in a sub-folder of the ATLAS Deliverables folder that is only accessible by approved users.

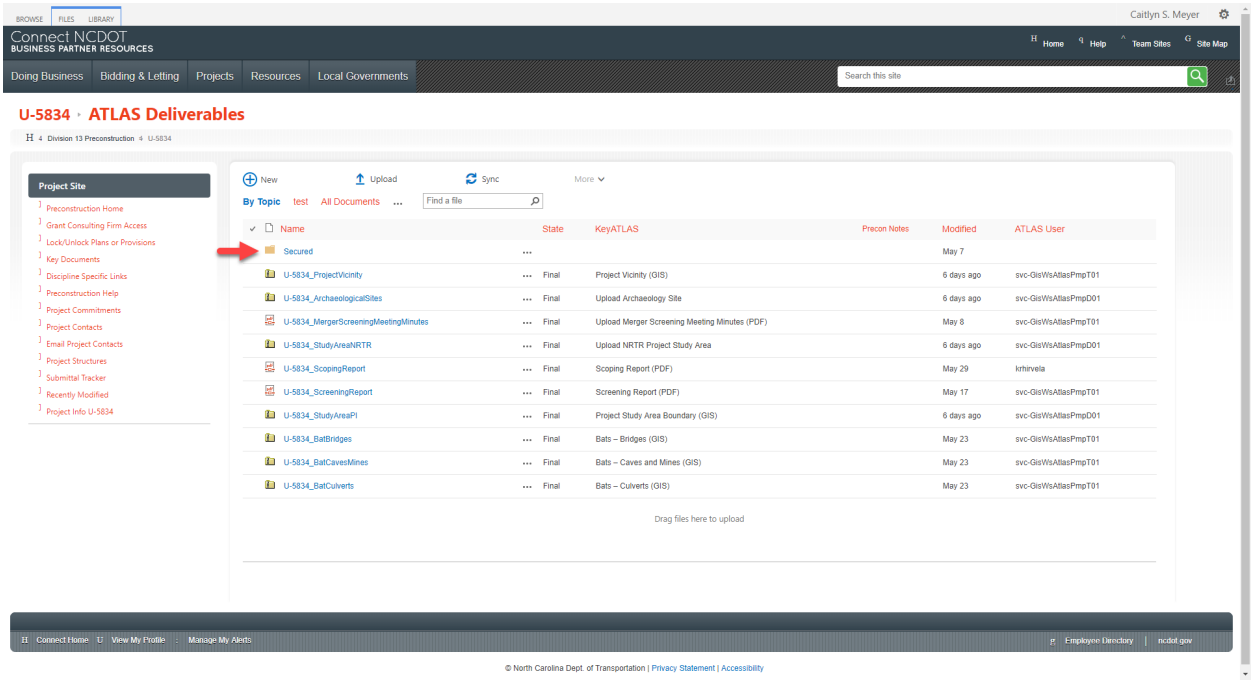


Figure 21: Connect Preconstruction Project Site – ATLAS Deliverables>Secured folder

Tip! Having system issues? Try clearing your cache and restarting your browser. Find instructions to clear your cache here.

E. Workbench Reports

At times, it may be helpful to generate and print the information in Workbench to a PDF file. You have access to reports through the application, in addition to reports for Preliminary CE Checklists (CE Type 1, CE Type 2, and CE Type 3). To access reports, there are several options.

Current Section PDF

1. From a Category page, you can generate a PDF specifically for that Category.
2. Click 'View Current Section PDF'

Figure 22: View Current Section PDF

3. You will receive a warning message to make sure you have saved your data. Click Ok.

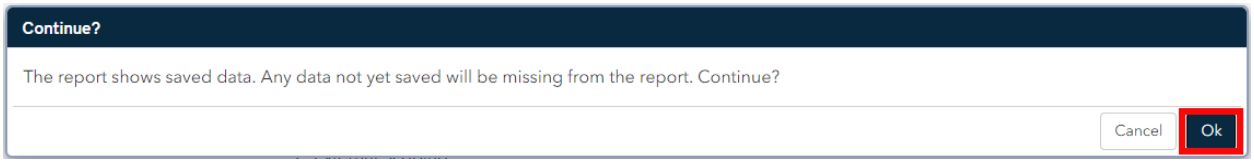


Figure 23: View Current Section PDF – Error Message

4. Download will be available in your browser downloads.
5. PDF will include all saved question responses, as well as hyperlinks to any uploaded documents.

Tip! Don't use the browser back button while using ATLAS applications. Instead, use the breadcrumb trail and back button within the application interface.

Generate Reports

From the Generate Reports button, you can access all available Workbench Reports. Click Generate Reports button, and the Generate Reports page will open.

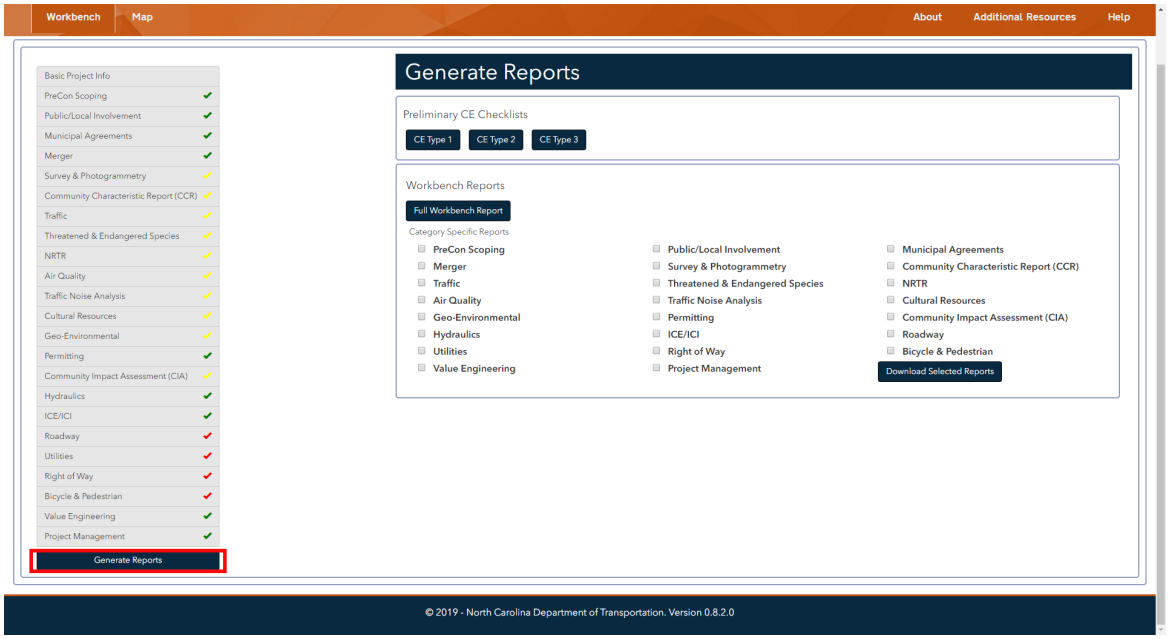
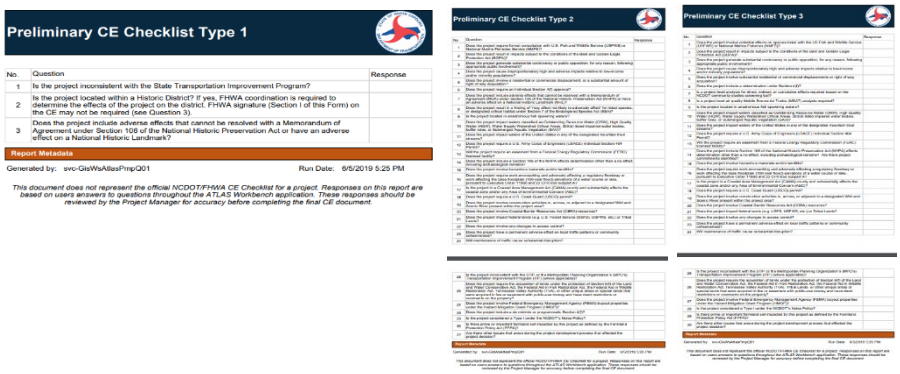


Figure 24: Generate Reports Page

From here, you have a few reporting options.

1. **Preliminary CE Checklists (Type 1, Type 2, and Type 3)**
    a. The Preliminary CE Checklist reports will print to PDF a list of all CE related questions for the selected project type, and Yes/No responses from questions scattered in the various Workbench Categories. The relationship between a Workbench Question and a Preliminary CE Question is managed systematically by the ATLAS Administrator.

Note: Workbench questions and the Workbench Question to Preliminary CE Checklist Question relationships can be updated by the ATLAS Coordinator.



Preliminary CE Checklist Type 1

No.	Question	Response
1	Is the project inconsistent with the State Transportation Improvement Program?	
2	Is the project located within a Historic District? If yes, FHWA coordination is required to determine the effects of the project on the district. FHWA signature (Section I of this Form) on the CE may not be required (see Question 3).	
3	Does the project include adverse effects that cannot be resolved with a Memorandum of Agreement under Section 106 of the National Historic Preservation Act or have an adverse effect on a National Historic Landmark?	

Report Metadata

Generated by: svc-GisWsAtlasPmpQ01 Run Date: 6/6/2019 5:25 PM

This document does not represent the official NCDOT/FHWA CE Checklist for a project. Responses on this report are based on users answers to questions throughout the ATLAS Workbench application. These responses should be reviewed by the Project Manager for accuracy before completing the final CE document.

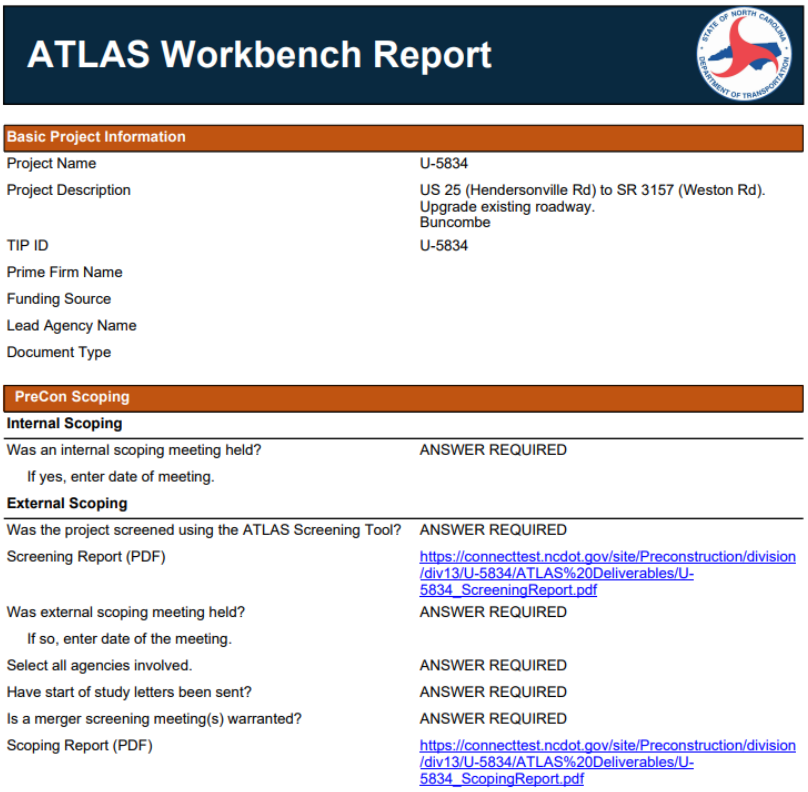
Preliminary CE Checklist Type 2

Preliminary CE Checklist Type 3

Figure 25: Preliminary CE Checklist Reports

2. Full Workbench Report

a. The Full Workbench Report will consolidate all Categories and related data (question responses and hyperlinked uploads) into a single PDF.



ATLAS Workbench Report

Basic Project Information	
Project Name	U-5834
Project Description	US 25 (Hendersonville Rd) to SR 3157 (Weston Rd). Upgrade existing roadway. Buncombe
TIP ID	U-5834
Prime Firm Name	
Funding Source	
Lead Agency Name	
Document Type	

PreCon Scoping	
Internal Scoping	
Was an internal scoping meeting held?	ANSWER REQUIRED
If yes, enter date of meeting.	
External Scoping	
Was the project screened using the ATLAS Screening Tool?	ANSWER REQUIRED
Screening Report (PDF)	https://connecttest.ncdot.gov/site/Preconstruction/division/div13/U-5834/ATLAS%20Deliverables/U-5834_ScreeningReport.pdf
Was external scoping meeting held?	ANSWER REQUIRED
If so, enter date of the meeting.	
Select all agencies involved.	ANSWER REQUIRED
Have start of study letters been sent?	ANSWER REQUIRED
Is a merger screening meeting(s) warranted?	ANSWER REQUIRED
Scoping Report (PDF)	https://connecttest.ncdot.gov/site/Preconstruction/division/div13/U-5834/ATLAS%20Deliverables/U-5834_ScopingReport.pdf

Figure 26: Full Workbench Report

3. Category Specific Reports

a. Category Specific Reports allow you to generate multiple Category Specific Reports at the same time by selecting one or multiple category check boxes.

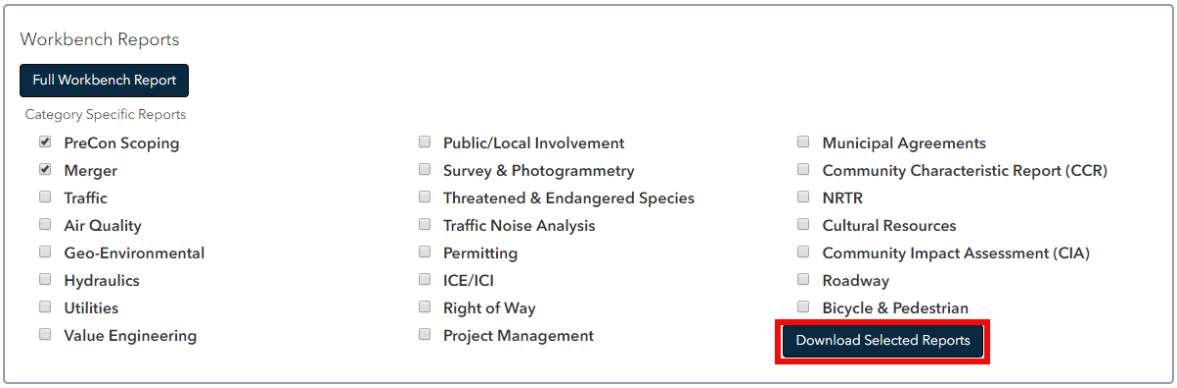


Figure 27: Workbench Reports

F. Additional Resources

The top right panel of the Workbench contains the help toolbar which contains three help items:

- About
- Additional Resources
- Help

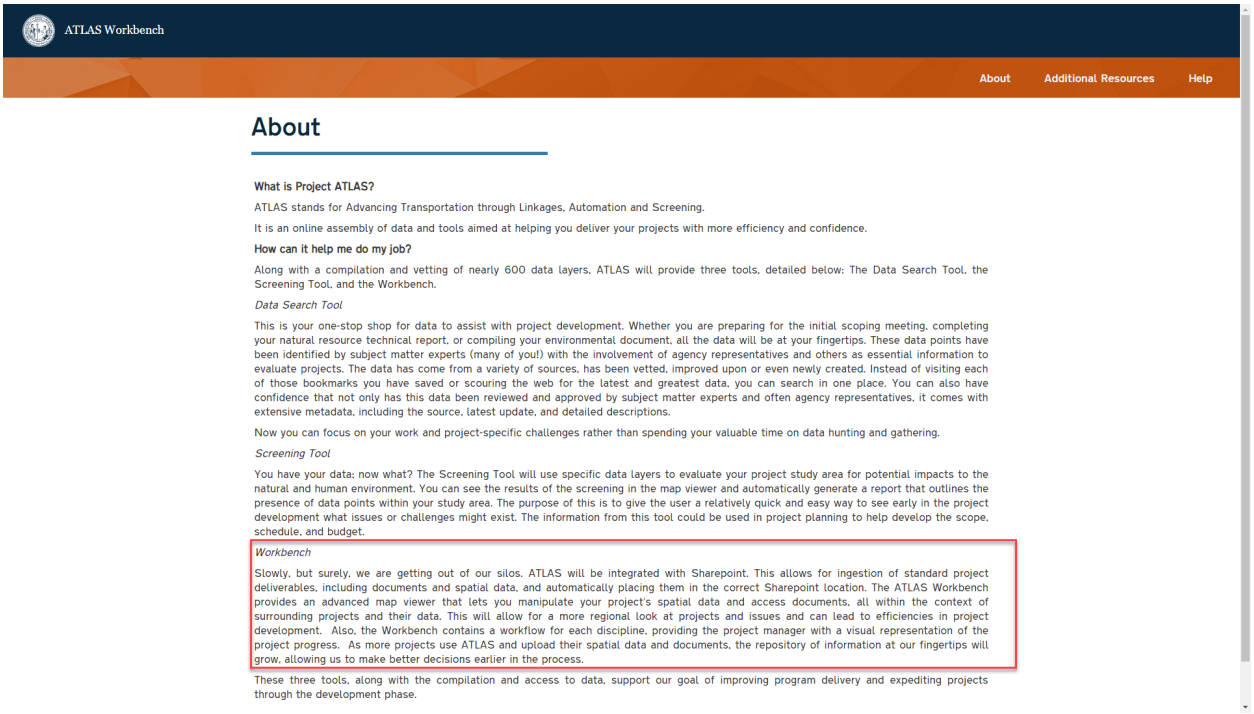


Figure 28: About

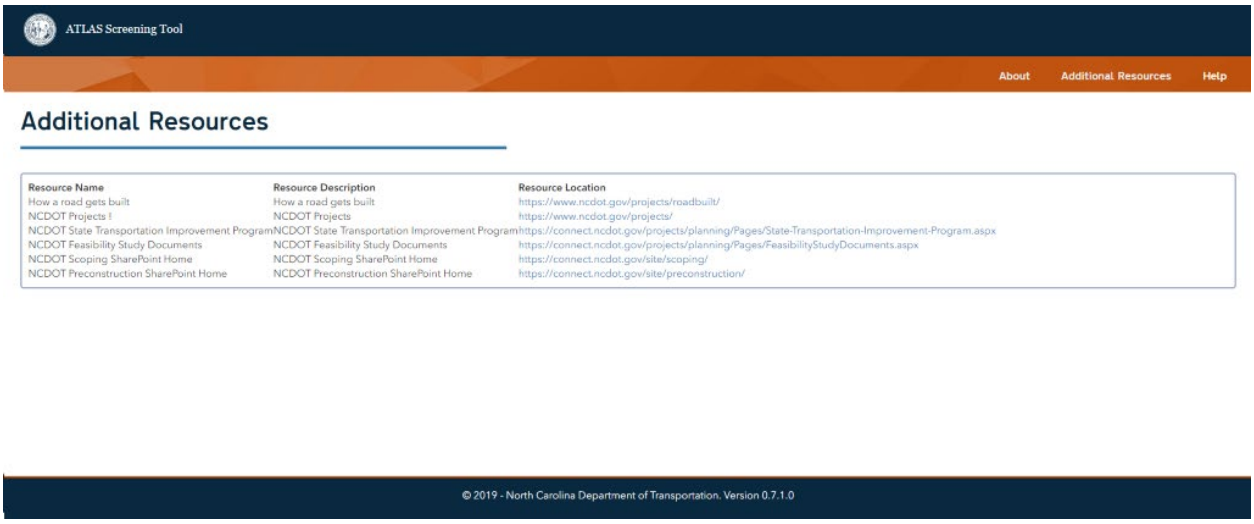


Figure 29: Additional Resources

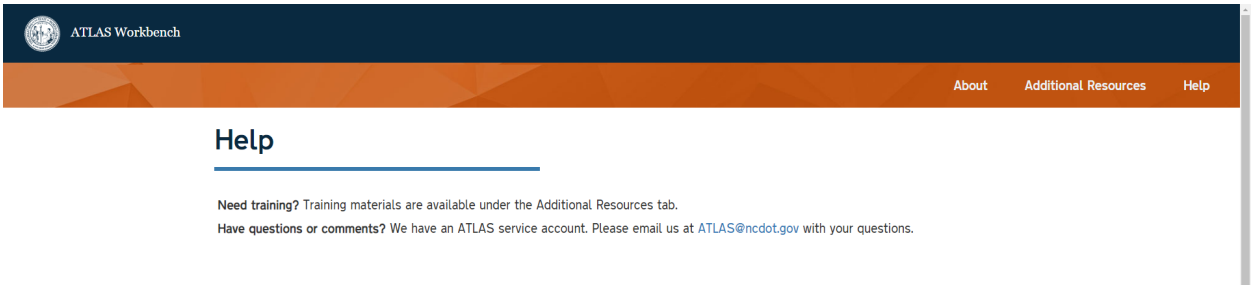


Figure 30: Help

Need support?

atlas@ncdot.gov is your best resource!

ATLAS Workbench - Map Viewer

What is the Workbench Map Viewer?

High-level Workbench Map Viewer Functionality

1. View uploaded project data interactively on a map
2. View ATLAS layers on a map
3. Use some basic and advanced map functionality

The ATLAS Workbench tool seeks to provide an interactive map viewer. Users will be able to access this tool through the Connect site (SharePoint Portal). The Map Viewer portion of the ATLAS Workbench allows users to explore all project development related data that is also available in the ATLAS Search Tool. Currently, the number of available GIS layers for viewing is over 500. This will allow DOT Project Manager's and other project team members to explore and understand their project in the context of available GIS data. This tool will also bring awareness of other projects in the vicinity of the project being worked on, and what data has been gathered through work on those surrounding projects.

With ATLAS, project staff, including DOT consultants, are required to upload project deliverables for through the ATLAS Workbench. This includes the delivery of spatial data related to the document deliverable. The delivered spatial data will be used to improve data sets used in future regional projects. Spatial data must be uploaded according to the ATLAS Data and Document Standards Manual. This will allow for one project's data to match up with other project's data, and, therefore, be available as a state-wide project data layer moving forward. When spatial data is successfully uploaded through the Workbench in adherence to the ATLAS Standards Manual, that data will be validated and will be loaded into an SDE database. This process will make data viewable through the Map Viewer in near real time. Note that any spatial data related to sensitive resources will be secured and not viewable in the Map Viewer.

Step by Step Instructions

A. Getting Started

1. You may navigate to the ATLAS Workbench Tool link from the Connect Preconstruction Project site, or the Connect Scoping Project Site.

   Preconstruction Project Site:
   https://connect.ncdot.gov/site/preconstruction/default.aspx

   Scoping Project Site:
   https://connect.ncdot.gov/site/scoping/default.aspx

Find the project you would like to work on the Preconstruction site. Once you are on the project page, click on the ATLAS Tools dropdown to find the link to ATLAS Workbench (Figure 1). On the Scoping site, once you are on the project page, click on the ATLAS Workbench link from the left column (Figure 2).

Note: Chrome is the only fully supported browser

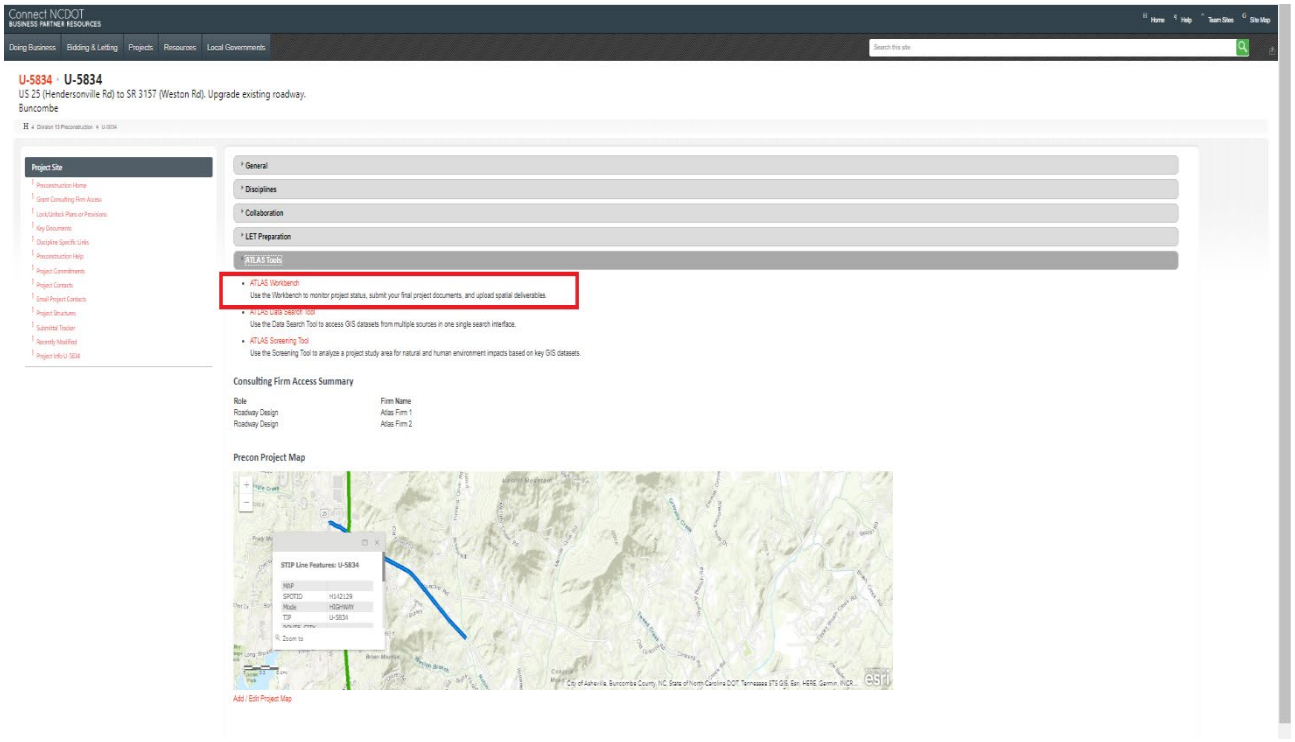


Figure 1: Connect PreConstruction Project Page

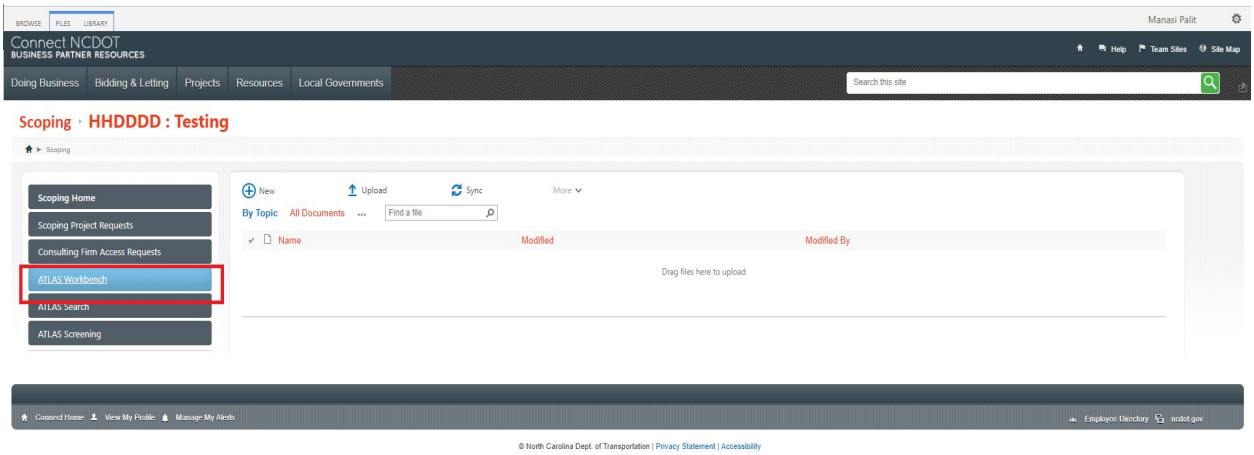


Figure 2: Connect Scoping Project Page

2. You will be directed to the application disclaimer page. All users must accept this disclaimer before accessing the ATLAS Workbench Tool.

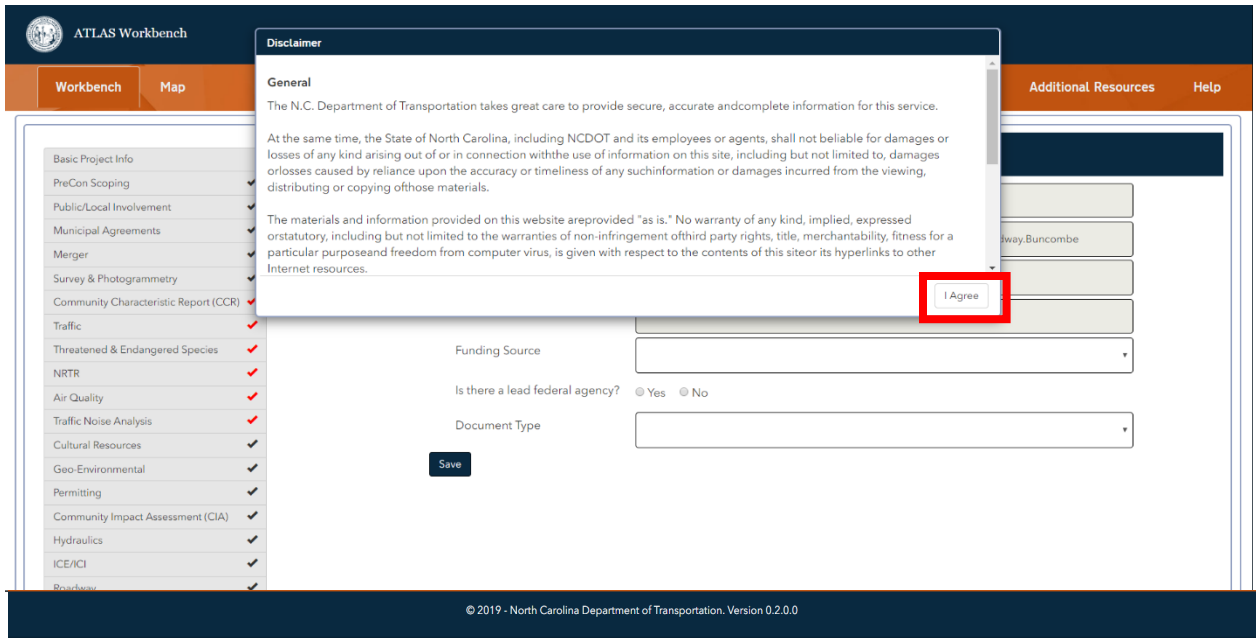


Figure 3: ATLAS Disclaimer

3. After you accept the disclaimer, the ATLAS Workbench Home will be displayed. It consists of a tabbed page each for Workbench and Map.

4. Click on the Map to access the Map Viewer.

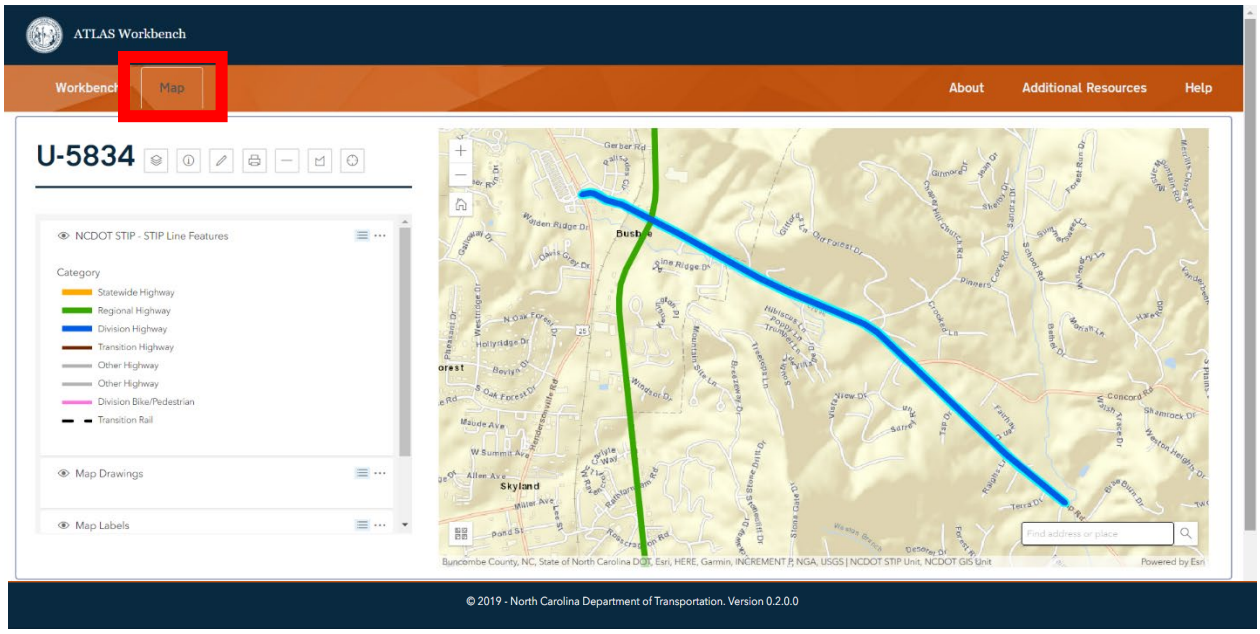


Figure 4: Workbench Homepage – Map Viewer

5. This is the Map Viewer. It will load with the project number that you navigated from the workbench site. The project number is noted in the table of contents. The map tools show up beside the project number. If geometry exists for the project, then the map will zoom to it and select it in aqua. The map will by default load with a few map layers turned on - the STIP Project layer, Drawing and Labels. If a project geometry was found, then a Current Workbench Project layer also loads.

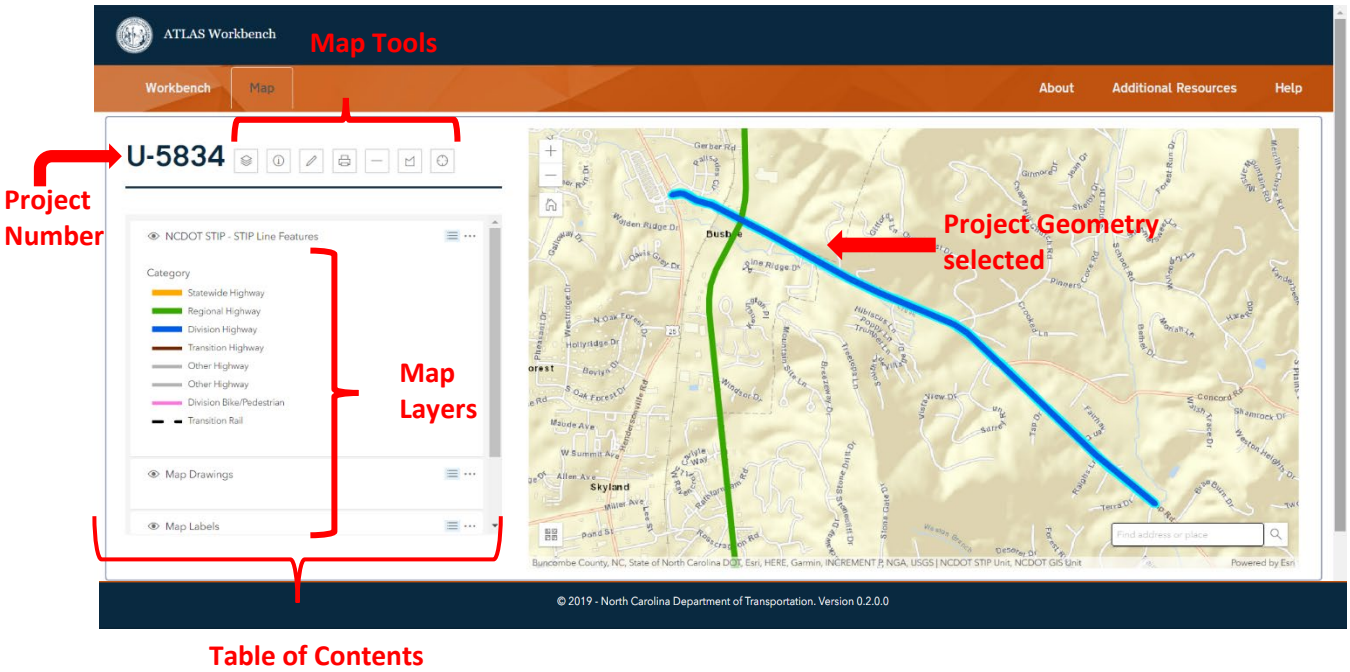


Figure 5: Map Viewer (with project geometry)

Note: If the project you navigated from does not contain a geometry, then no project will be selected on the map. The map will load and zoom to the boundary of the state of NC.

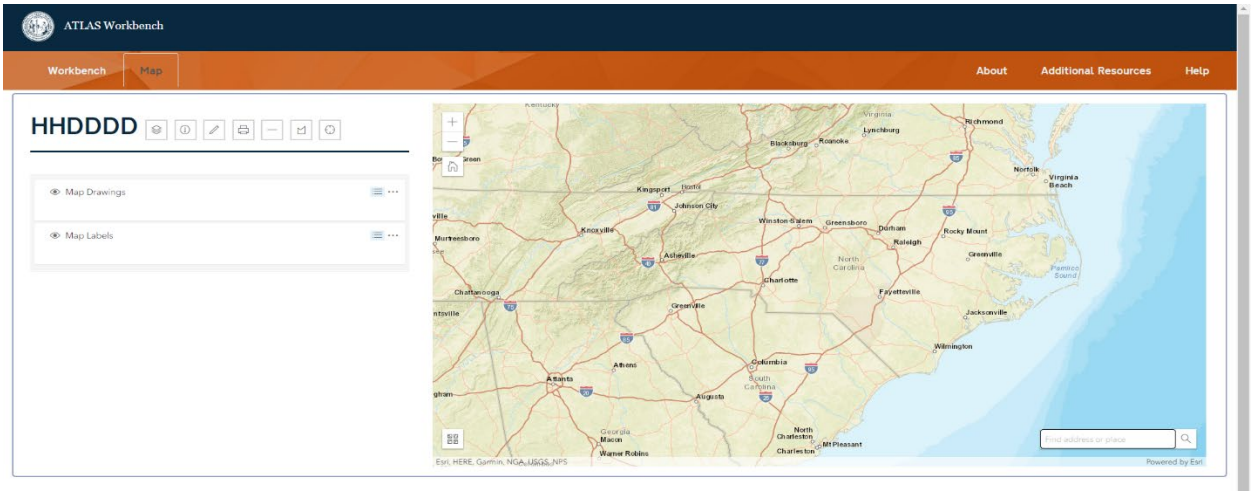


Figure 6: Map Viewer (no project geometry)

Note: Use the Address Search box on the bottom right corner to search for an address!

B. Map Tools

Map tools are placed right beside the project number. In this section, we will go over the various tools and their functionality.

Figure 7: Map Tools

1. **Add New Layer:**
   Use this tool to add layers to your map. When you click on the add new layer icon, the Add Layers box opens. All ATLAS data layers are listed here grouped by data owners. Click on the + to view layers under each owner category. Click the check box to add the layers to the map. Then, click View on Map.

Looking for your workbench uploaded data and data from surrounding projects?

This data is available in the layer catalog under NCDOT, GIS Unit!

Note: If you can't find your data layer, then use the Search box to find layers from the layers list. As you start typing, your keyword results will start appearing.

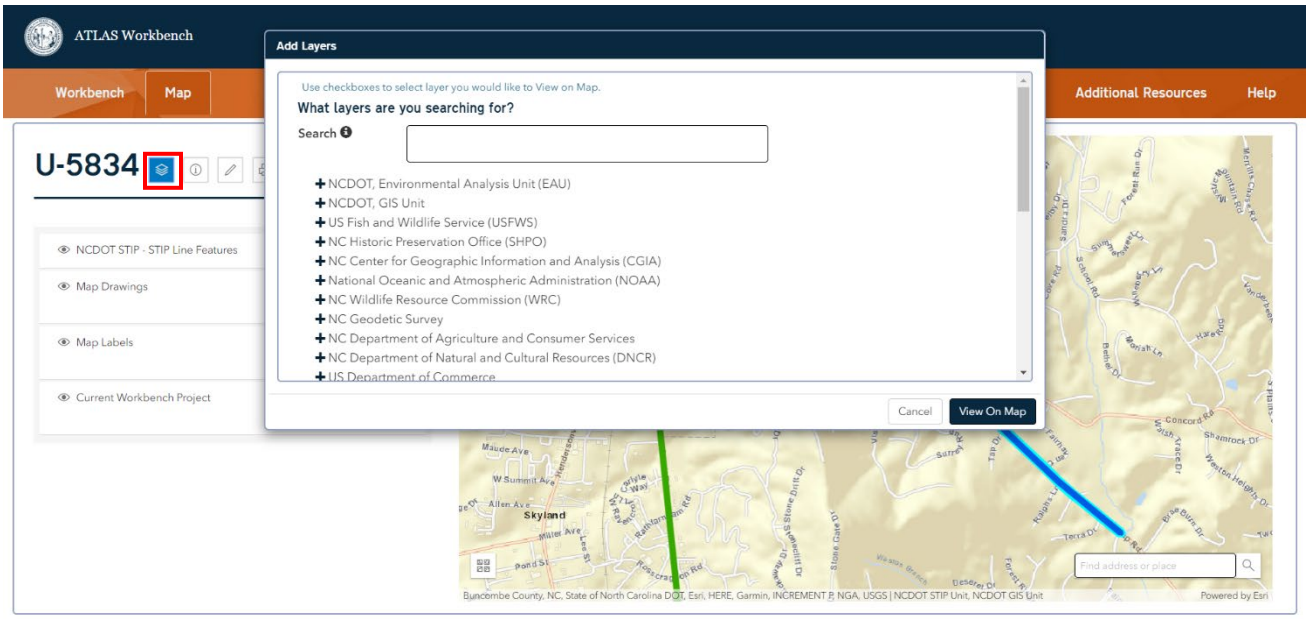


Figure 8: Map Tools – Add New Layer

To check the details of a layer, before you add it to your map, you may click on the information button marked with an 'i' to receive more information on the layer. Clicking on 'i' will bring up a message box containing layer name, description, and layer owner name. You may click on view more details to pull up the layer details from the Search Tool which will also contain the direct link to the web service among other details.

Did you know?

You have access to **more than 500 project development related GIS layers** through the Workbench Layer Catalog

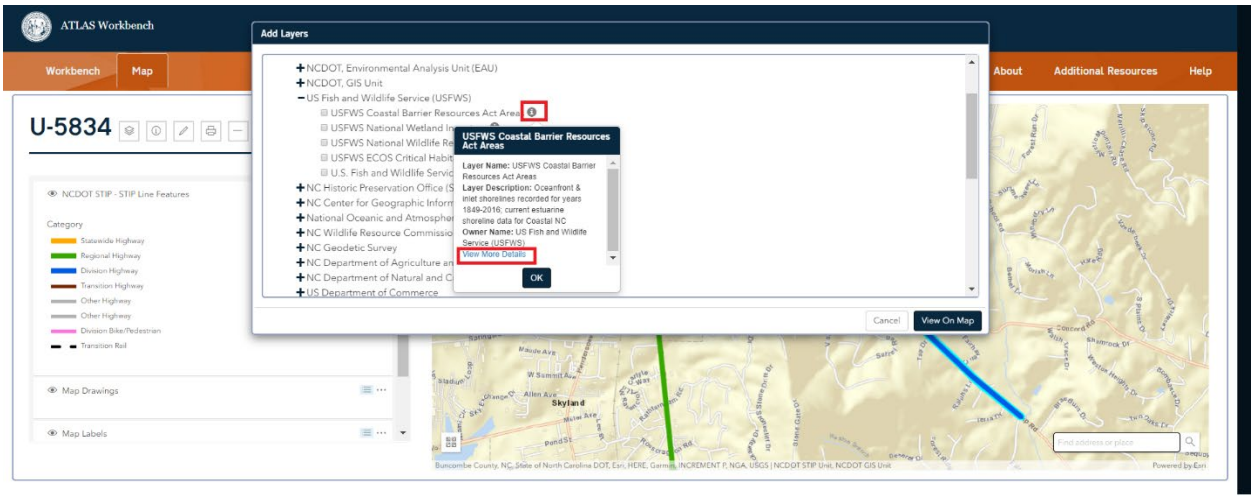


Figure 9: Map Tools – Add New Layer - Check Layer information

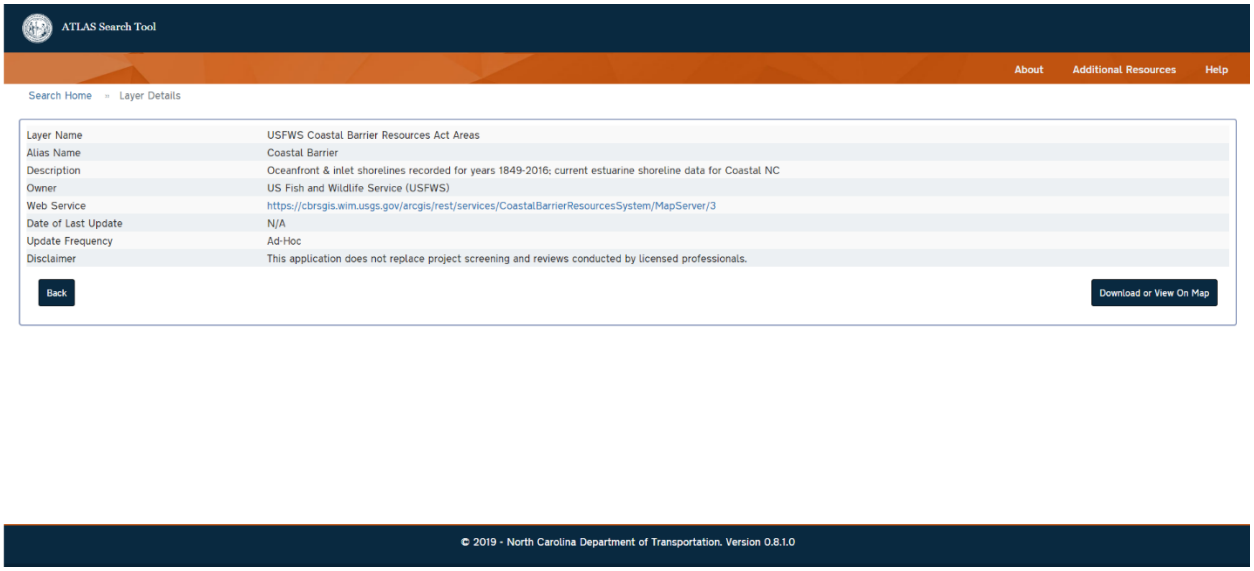


Figure 10: Layer Details

2. **Identify Feature:**
   Use this tool to identify features on the map. Click on the identify feature tool, then click on a feature in the map. An identify window will appear showing more information on the feature you clicked. You can choose to zoom to the feature by clicking on the Zoom to button. If more than 1 feature exists where you clicked, you may access information on these stacked features by clicking on the forward arrow at the bottom on the identify window. Click on the X to close the identify window.

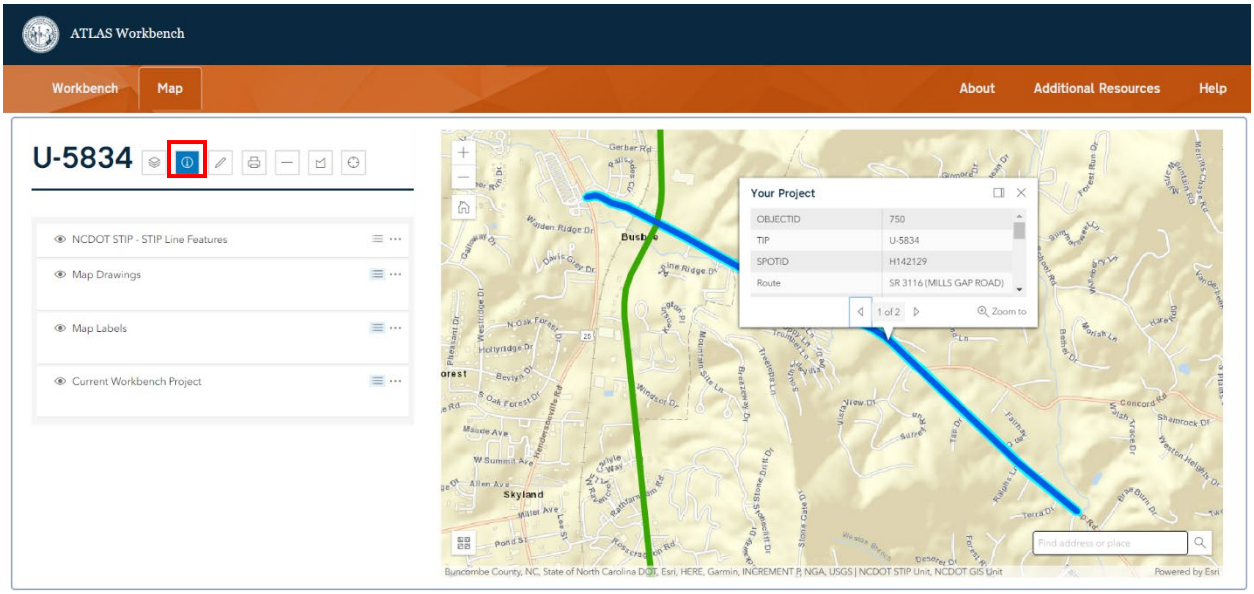


Figure 11: Map tools - Identify

3. Draw:

Use the draw tool to add redline graphics to your map. When you click on the draw tool, a bunch of drawing tools will appear on the top right corner of the map. This is your drawing toolbar. Your drawn features will be added to the 'Map Drawings' layer on your Table of Contents (TOC). Use the 'eye' icon on the TOC to turn all drawn features on and off.

There are 11 Draw Tool functions (a-k), and each are described below:

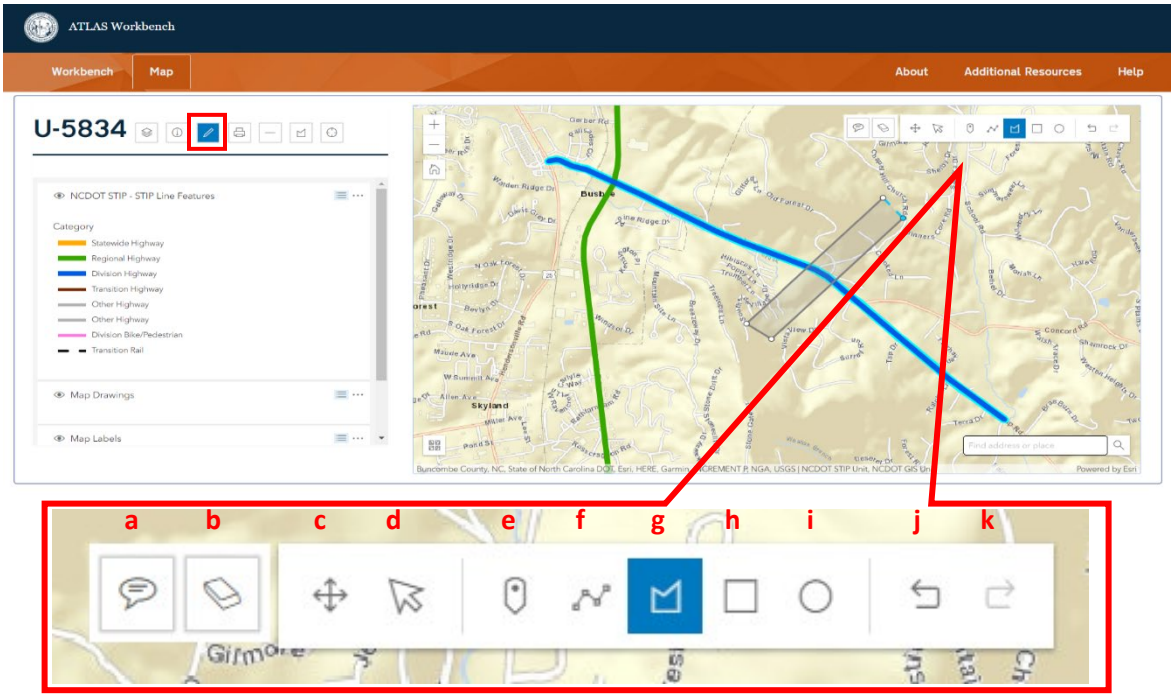


Figure 12: Map tools – Draw

a. **Add Label:** This is the tool to add labels to your map. When you click on it a Create Label box appears where you specify the Label text, color, angle, weight and size. Once filled out click on the OK and Select Location button to click a location on the map to place the label.

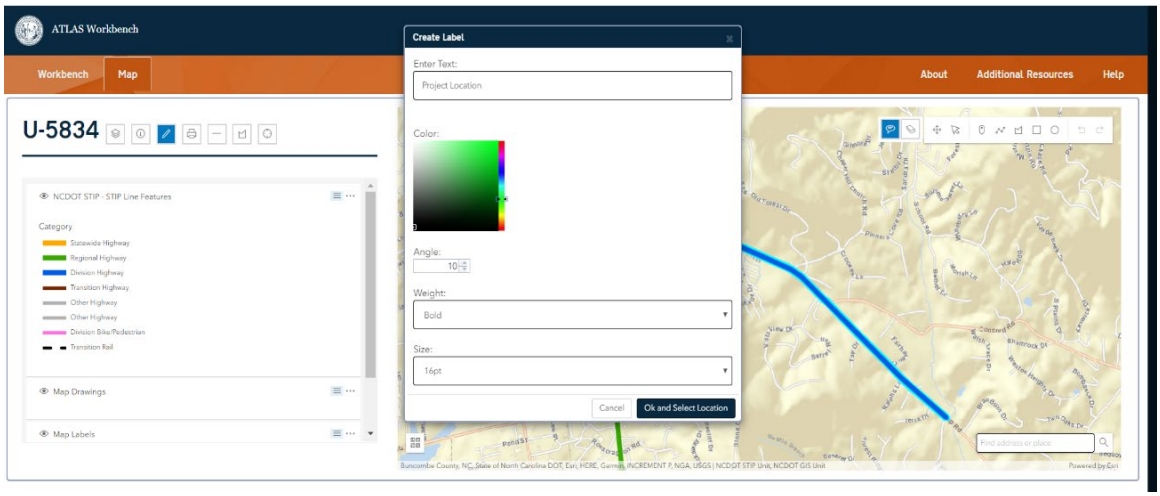


Figure 13: Add Label – Create Label

Your labels will be added to the 'Map Labels' layer on your Table of Contents (TOC). Use the 'eye' icon on the TOC to turn all drawn features on and off. Then click the location on the map that you would like to place the label.

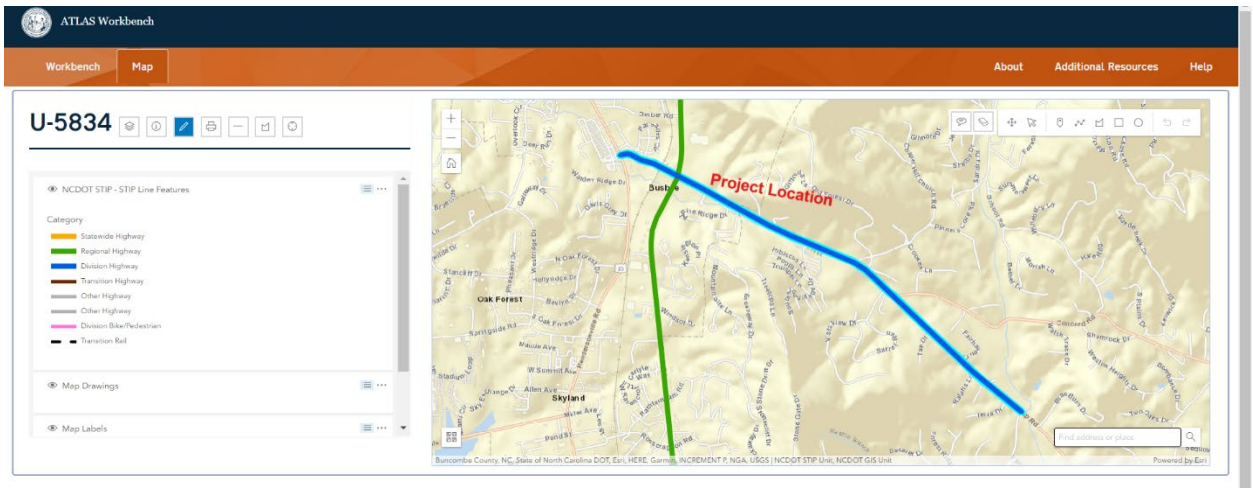


Figure 14: Label placed on map

b. **Remove Label** – To remove a label that you have placed on the map, click on the button, and click on the label in the map. The label will be removed.

Note - All labels being drawn to the map are added to the Map Labels layer (see Table of Contents). The entire layer can be turned on and off using the 'eye' icon.

e. **Draw a point** – Use this tool to drop a point anywhere on your map.

f. **Draw a polyline** – Use this tool to drop a polyline anywhere on your map. Double click to finish drawing.

g. **Draw a polygon** – Use this tool to drop a polygon anywhere on your map. Double click to finish drawing the polygon.

h. **Draw a rectangle** – Use this tool to drop a rectangle anywhere on your map.

i. **Draw a circle** – Use this tool to drop a circle anywhere on your map.

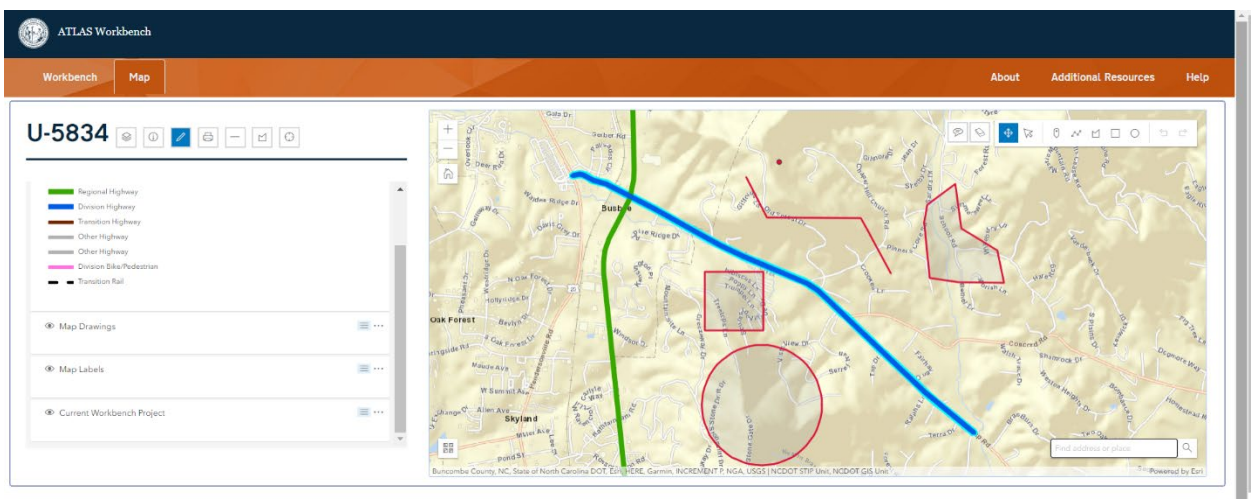


Figure 15: Map tools – Draw features

Note - All features being drawn to the map are added to the Map Drawings layer (see Table of Contents). The entire layer can be turned on and off using the eye icon.

c. **Move** – Use the Move tool to move any of the features drawn on the map.

d. **Reshape** – Use the Reshape tool to reshape the vertices of any of the features drawn on the map.

Note - Use either Move or Reshape to delete a feature from the map.

j. / k. Undo / Redo – Use these tools to undo or redo a map operation.

4. **Print Map** – Use this tool to export a digital copy of your map. This will include all redline labels and features.

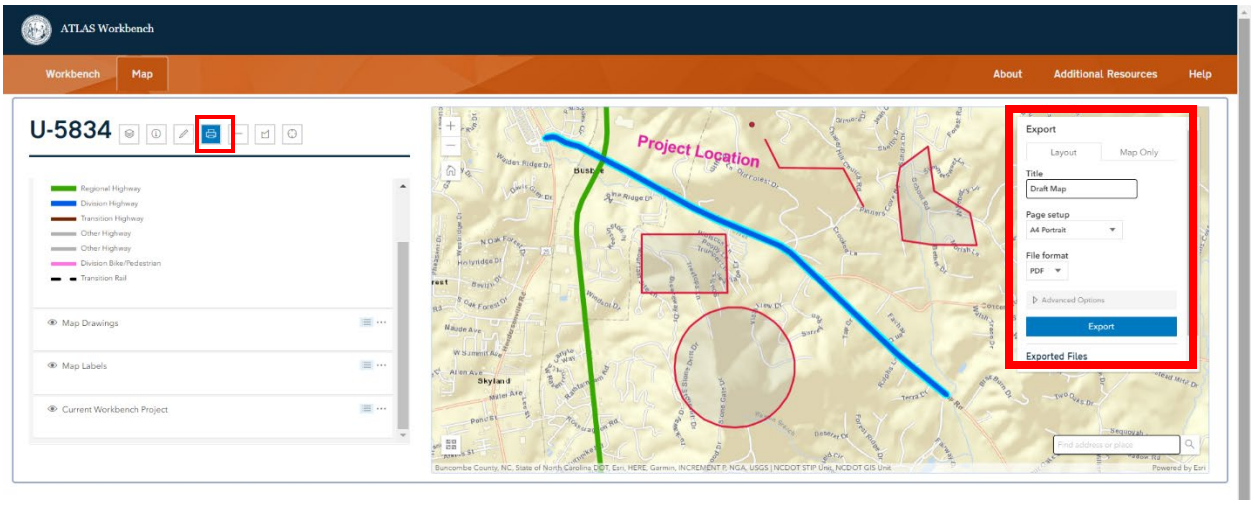


Figure 16: Map tools – Print Map

Use the Layout tab to include a legend, date, scale and title along with your map. Fill out details like title, page size and format. Use the Map Only tab to just export the map. Exported maps will be listed by file name under 'Exported Files' until the tool is closed.

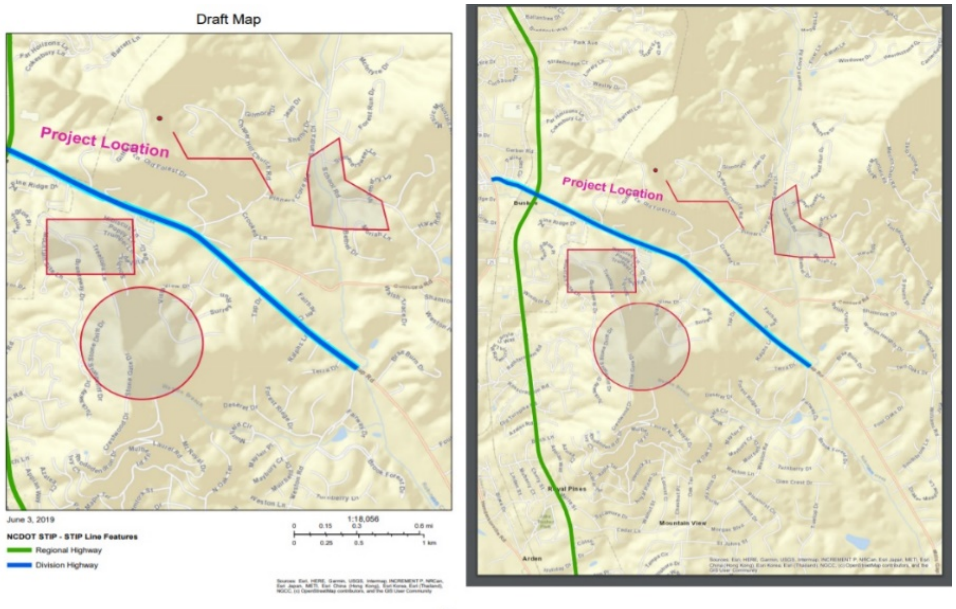


Figure 17: Exported Maps

5. **Measure Distance (between two or more points**) – Use this to measure distance between any two points on the map. When you click the icon, you will be asked to start a new measurement using a button on the right top corner of the map. Click on it and start measuring. As you measure, the distance will be noted. You may change the Units and Mode using the dropdowns. You may start a new measurement at any point using the New Measurement button.

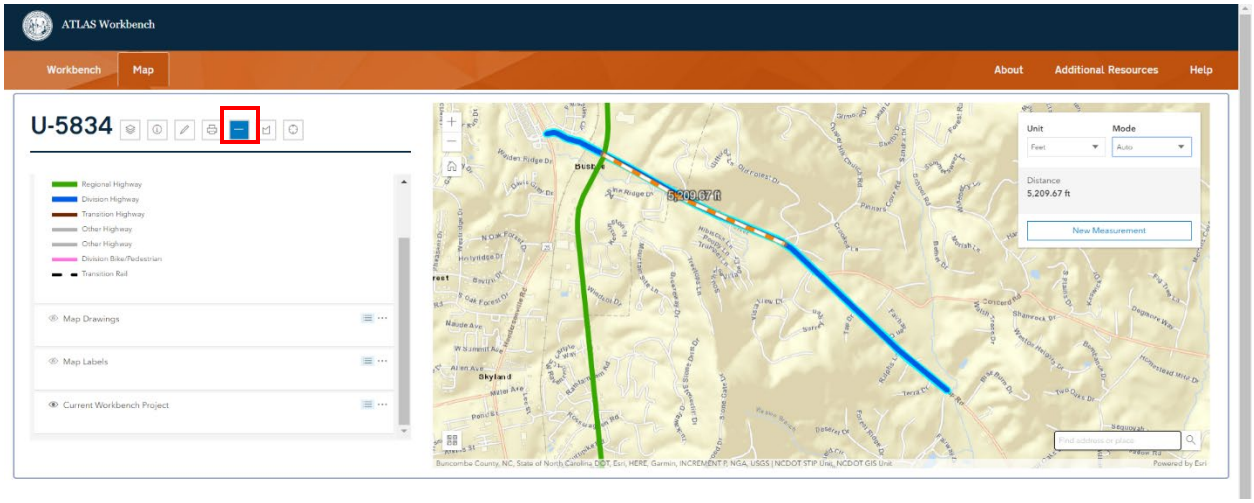


Figure 18: Map tools – Measure distance

6. **Measure Area** – This tool works much like the previous one to measure distance, but measures area. When you click the icon, you will be asked to start a new measurement using a button on the right top corner of the map. Click on it and start measuring. As you measure, the area and perimeter will be noted. You may change the Units and Mode using the dropdowns. You may start a new measurement at any point using the New Measurement button.

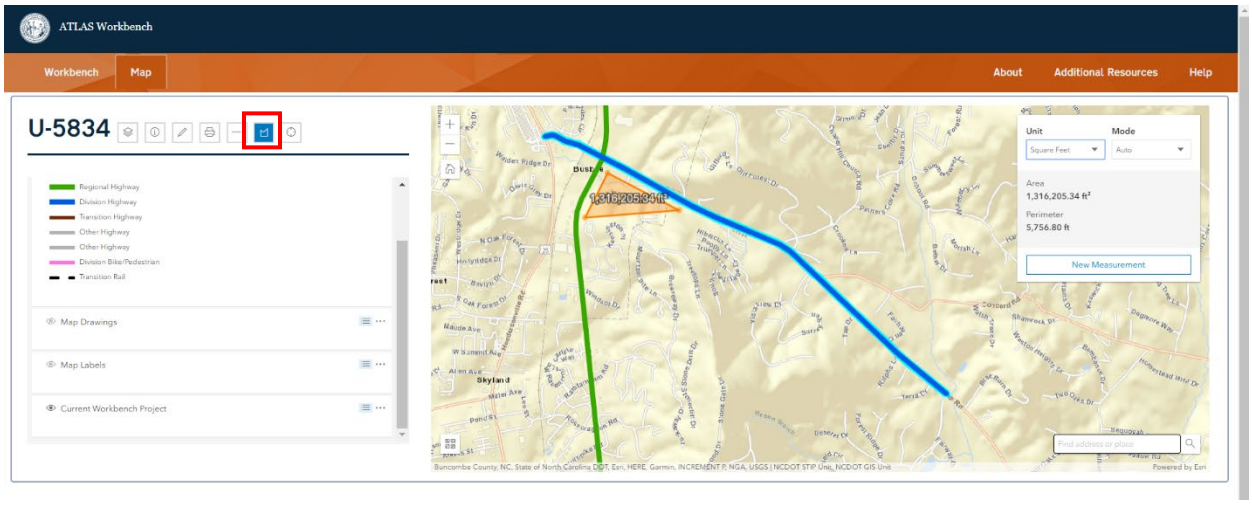


Figure 19: Map tools – Measure Area

7. **Find Location** – Use this tool to find the coordinates of any point on the map. Click the tool, then click anywhere on the map. The XY coordinates will be displayed on the top right corner of the map. Click on XY to change the units of coordinates.

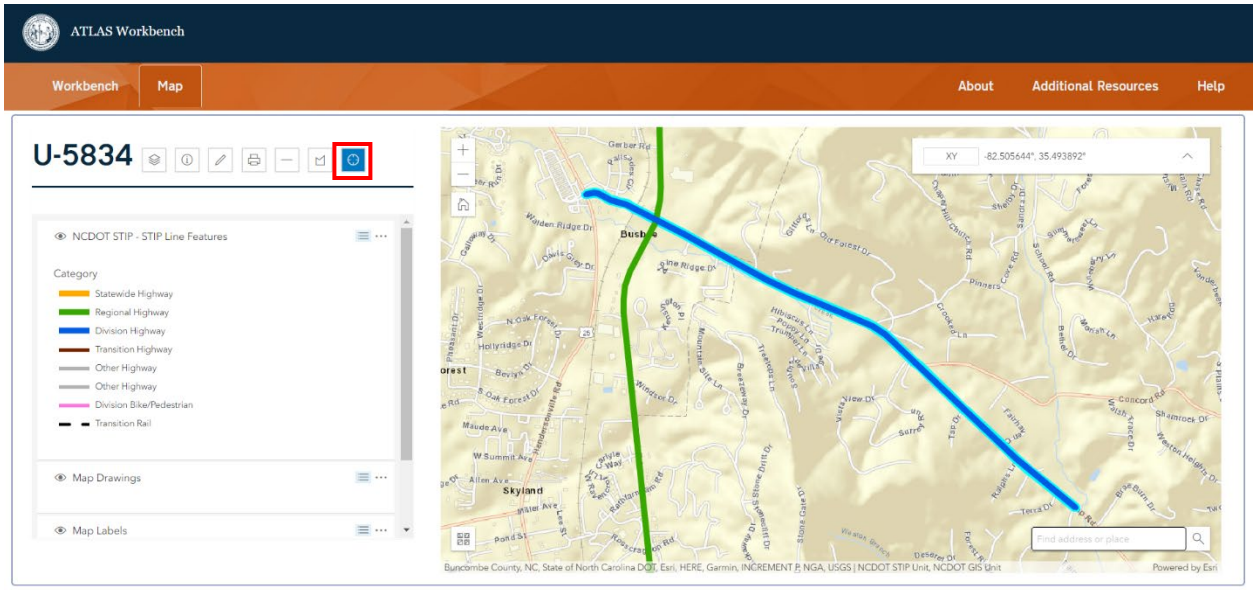


Figure 20: Map tools – Find Location

8. **Save Layers** – Use this tool to save a combination of layers that you want to easily add to the map in future sessions. To save, add all the layers you want to the map, then hit the save button. This saved list of layers will be accessible through the Add Saved Layers tool described below. You may save multiple layer combinations using this tool.

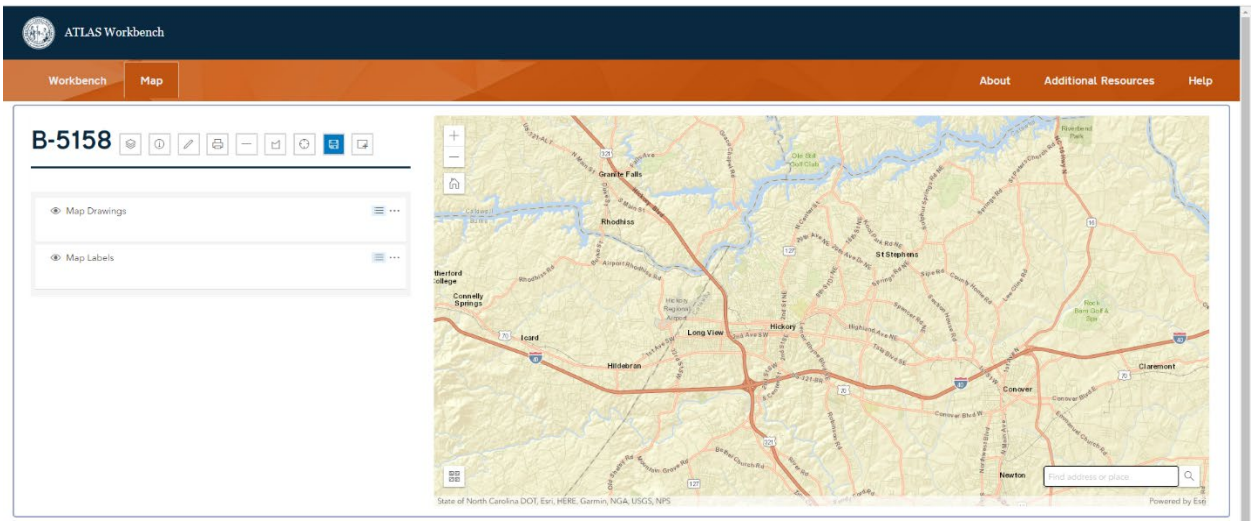


Figure 21: Map tools – Save Layers

9. **Add Saved Layers** – Use this tool to add a previously saved list of layers. Select the tool to see list of saved layer sets, and select your preference. All layers in that set will be added to your legend. This saved list is associated with your NCID and will be available on all Workbench maps for projects you can access.

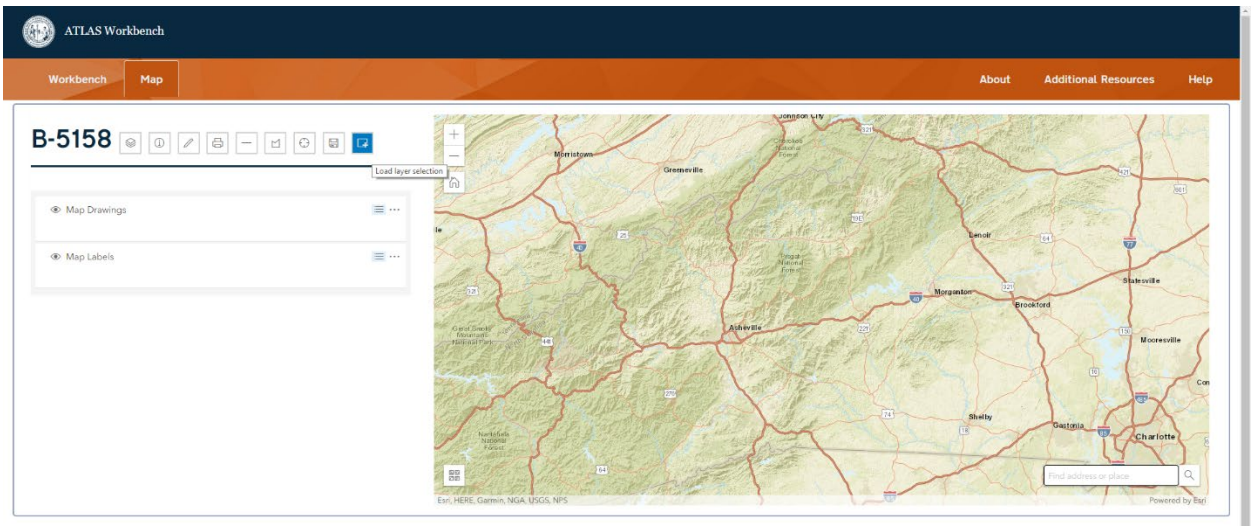


Figure 22: Map tools – Add Saved Layers

C. General Map Functions

1. Navigation Tools

In the upper left hand corner of the map, there are map navigation tools.

a. Use the zoom tools on the map, or use your mouse to navigate as you would in tool such as ArcMap or Google Maps.
b. The home icon will recenter the map on your project area.

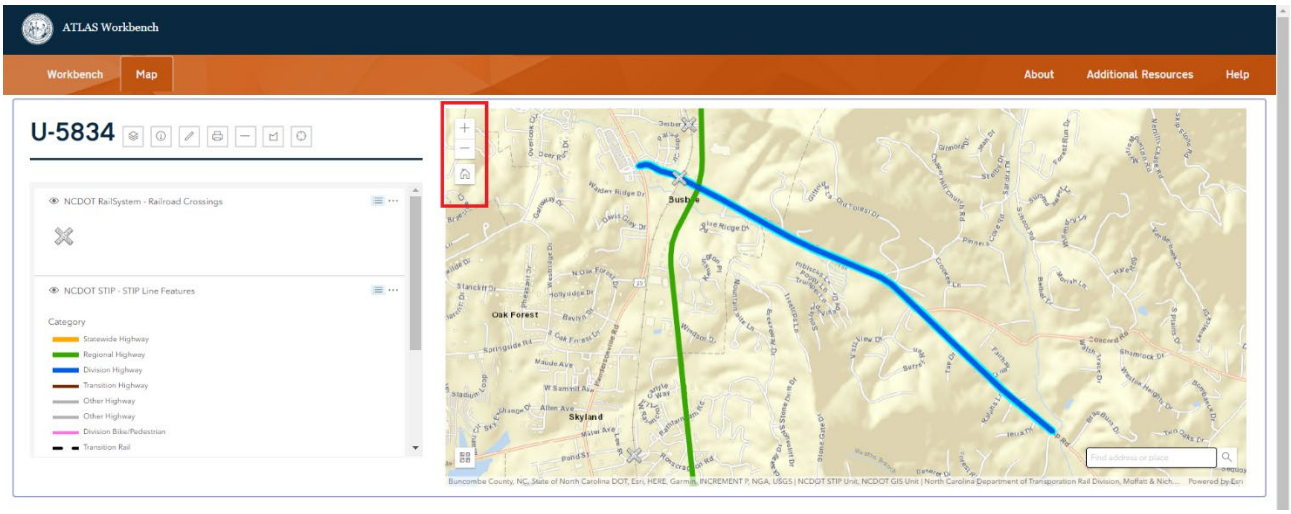


Figure 23: Map Navigation Tools

2. Legend Tools

a. Use the 'eye' icon to turn a layer on and off in the map.
b. Click the 'dots' icon next to a layer name to expand the layer tools.
   - Click Remove Layer to delete layer from Table of Contents.
   - Use the Move Layer Up and Move Layer Down tools to change the order of layers in the Table of Contents.

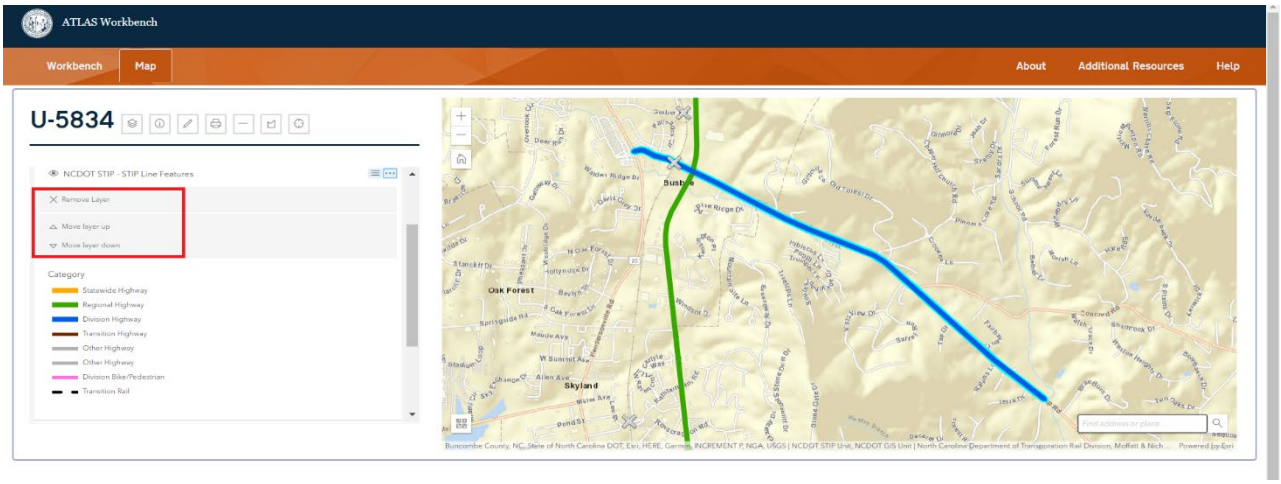


Figure 24: Legend Tools

3. Change the Base Map

a. Select the base map selection tool in the bottom left corner of the map.

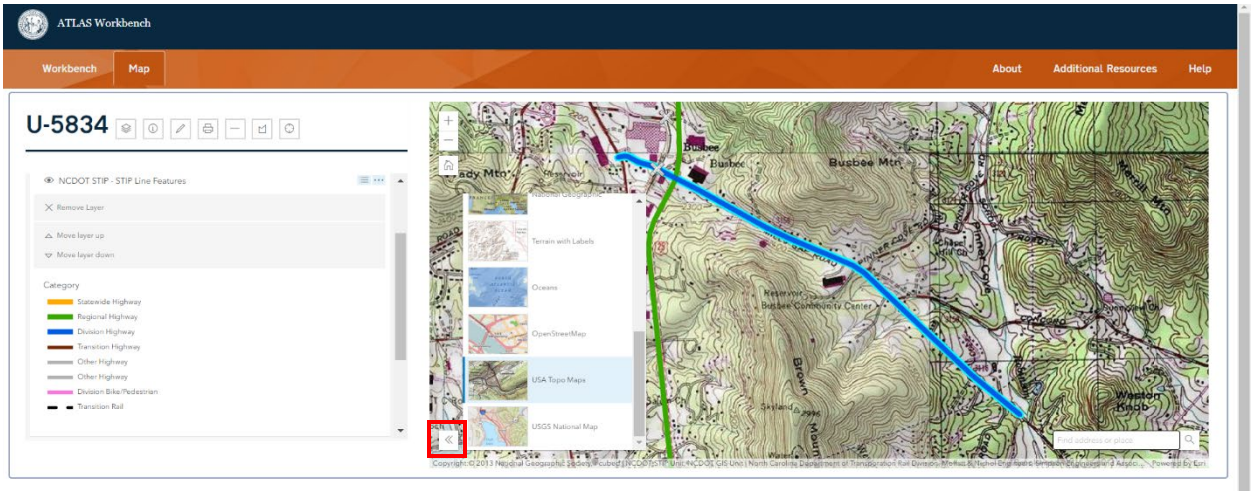


Figure 25: Base Map Selection Tool

D. Resources & Help

The top right panel of the Workbench Map contains the help toolbar which contains three help items:

- About
- Additional Resources
- Help

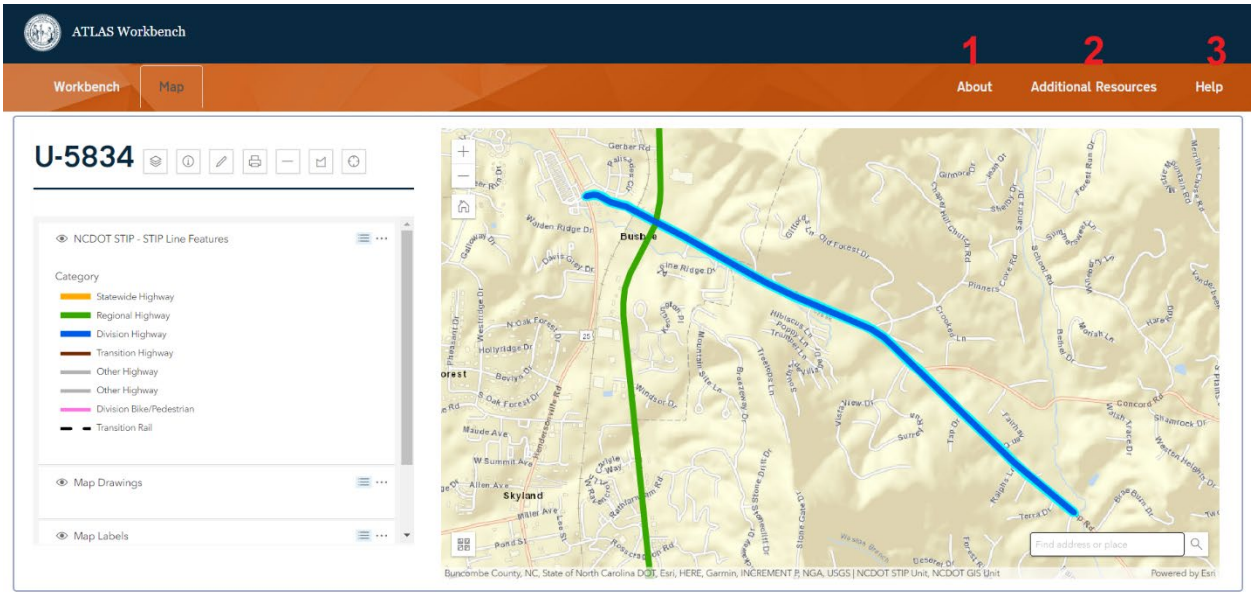


Figure 26: Workbench Map - Help Toolbar

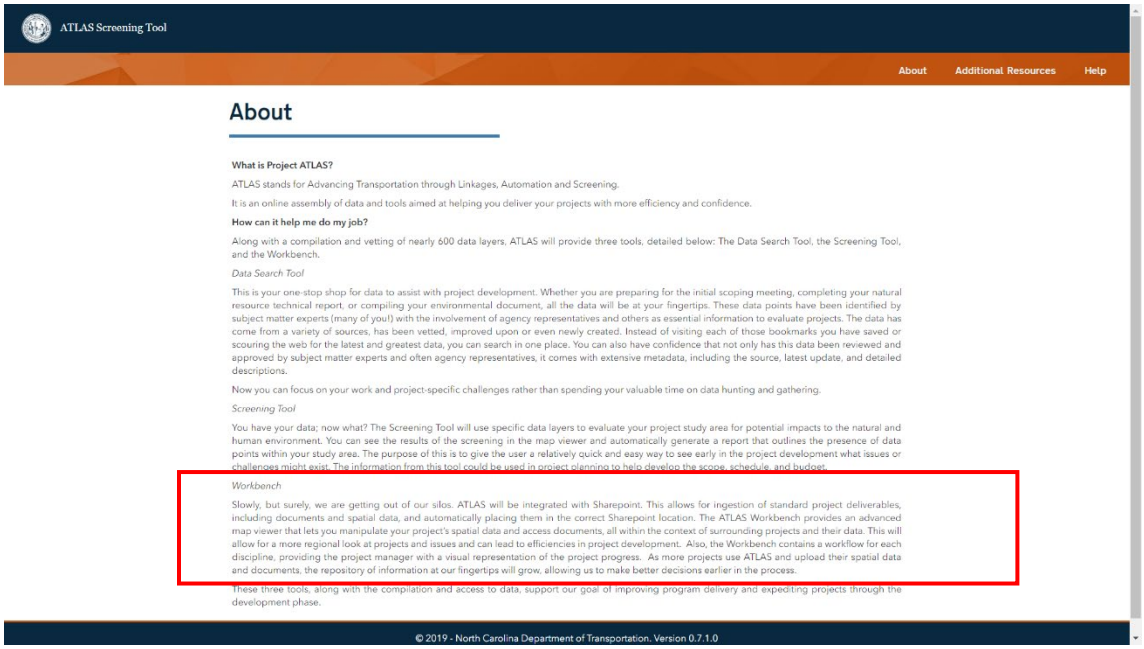


Figure 27: About

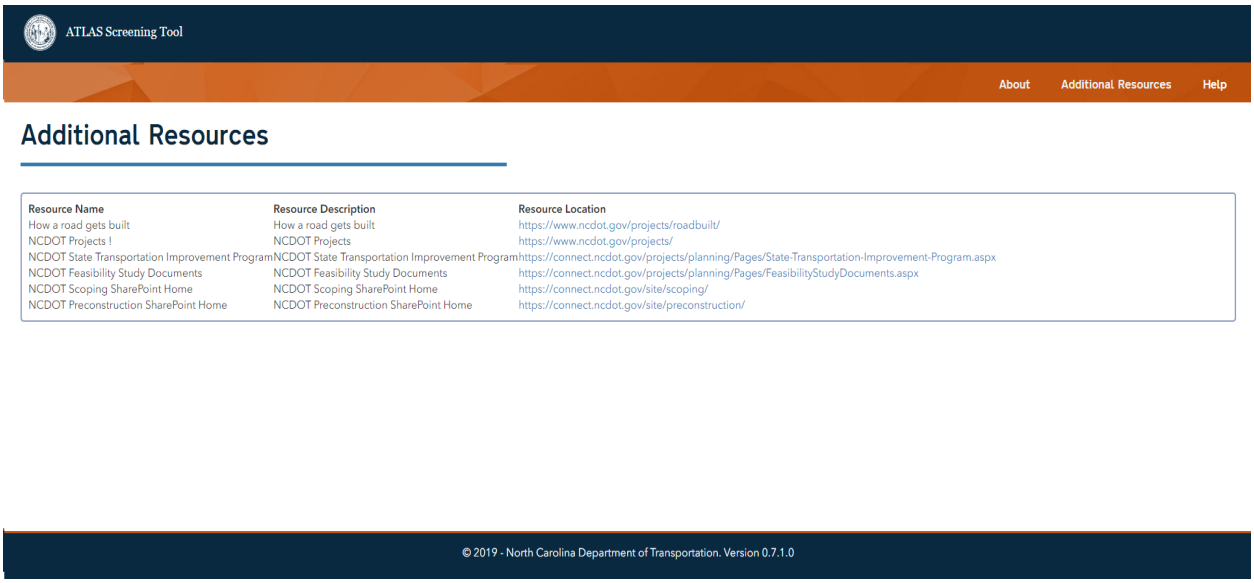


Figure 28: Additional Resources

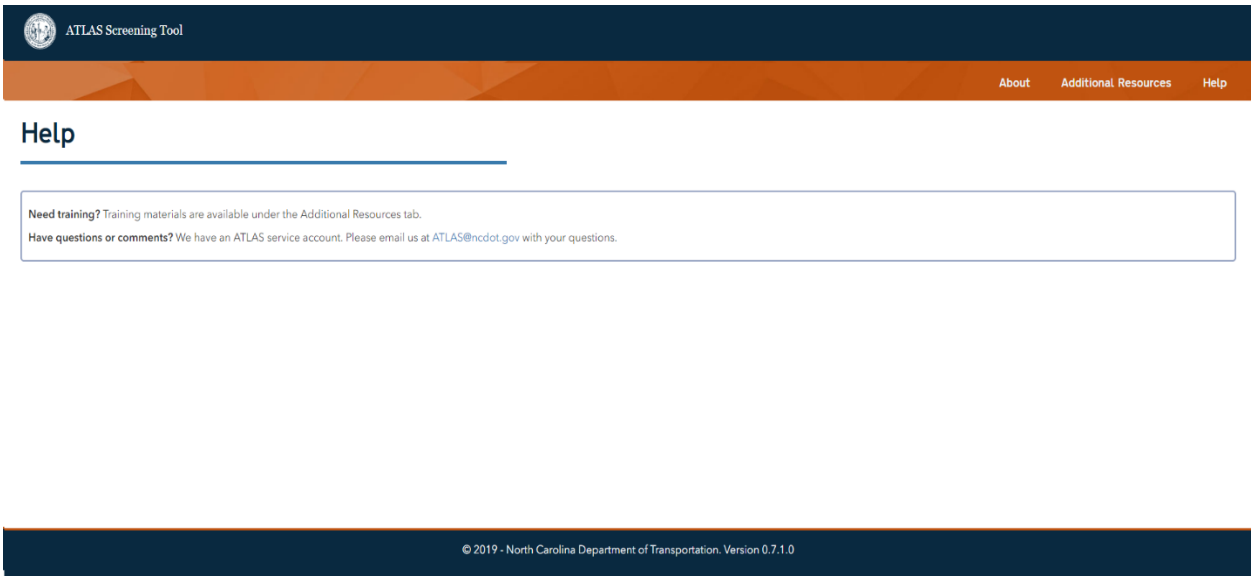


Figure 29. Help

Need support?

ATLAS@ncdot.gov is your best resource!

ATLAS Workbench – Questions and Uploads

Instructor will break the room into 4 groups. You will complete Step 6 with your group.

1. Navigate to https://connect.ncdot.gov/site/Preconstruction/division/div13/U-1000/SitePages/Home.aspx or use the U-1000 link on your jump drive.
2. Under ATLAS Tools, select Workbench and log in using the ATLAS username and password provided to you. Click the top blue box for logging in with your NCID.
3. Read the disclaimer and click on 'I Accept'
4. You are now viewing the Workbench. Click on the tabs on the left column to view each of them.
5. We will now begin answering some questions and uploading documents.
6. Navigate to your USB, and the Workbench Exercises folder. Open the folder of your assigned Workbench Category.
7. **DO ONE OF THE FOLLOWING (6A or 6B) WITHIN YOUR ASSIGNED GROUP.**

6A. Community Impact Assessment (CIA)

1. Next click on the Community Impact Assessment Tab.
2. Begin answering the questions and uploading documents that are required.
3. Upload the following documents:
    a. U-1000_CIAReport.pdf
4. Upload the following spatial files:
    a. U-1000_ciaDCIA.ZIP
    b. U-1000_ciaDSA.ZIP
5. Once you are done, click Save. Notice the check mark turns green.

6B. ICE/ICI

1. Next click on the ICE/ICI Tab.
2. Begin answering the questions and uploading documents that are required.
3. Upload the following documents:
    a. U-1000_ICEReport.pdf
    b. U-1000_LUSA.pdf
4. Upload the following spatial files:
    a. U-1000_iceFLUSA.ZIP
5. Once you are done, click Save. Notice the check mark turns green.

ATLAS Workbench – Map Functionality

Complete the following exercise independently.

1. To view the Map Viewer, click on the Map Tab. The map will load zoomed to the project location.
2. Click on ***Add new layer*** and do a search for 'crash'. Select 2 layers under NCDOT, Division of Bicycle and Pedestrian Transportation and click 'View on map'. 2 layers will be added to the map table of contents.
3. Click on the ***Identify*** tool to identify features on the map.
4. Click on the ***Draw*** Tool to add a label to the map.
    a. On the draw toolbar click the Add label icon.
    b. In the Add Text Box type in the following 'Project: U-1000'
    c. Choose a color
    d. Choose Normal under Weight
    e. Choose 20pt under Size.
    f. Click 'OK and Select Location'.
    g. Now click the location on the map that you want the label placed (top center).
    h. Click on the Draw polygon tool to draw a polygon around the STIP project. Double click to complete the polygon.
5. Click on the ***Measure Distance*** tool to measure the length of the STIP project.
6. Click on the ***Measure Area*** tool to measure the area of the NRTR Study Area polygon.
7. Click on the ***Find Location*** tool to find the UTM locations of the start and end point of the STIP project line.