



## **NORTH CAROLINA**

Department of Transportation



# Project ATLAS

ECCOG Meeting

LeiLani Paugh

Morgan Weatherford

Technical Services EAU

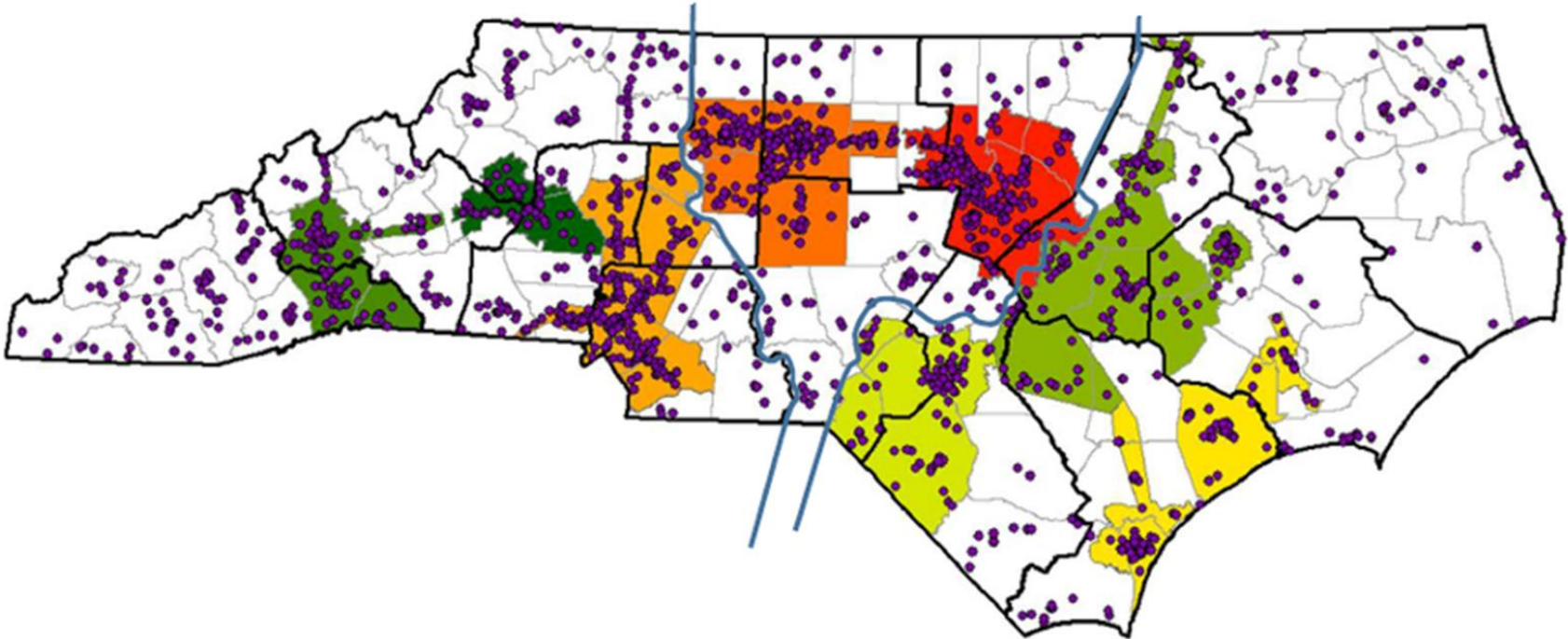
August 8, 2019

# NCDOT Project ATLAS

- Advancing Transportation through Linkages, Automation, and Screening

Goal is to improve program delivery using GIS tools, applications, and data

# 2018 STIP projects

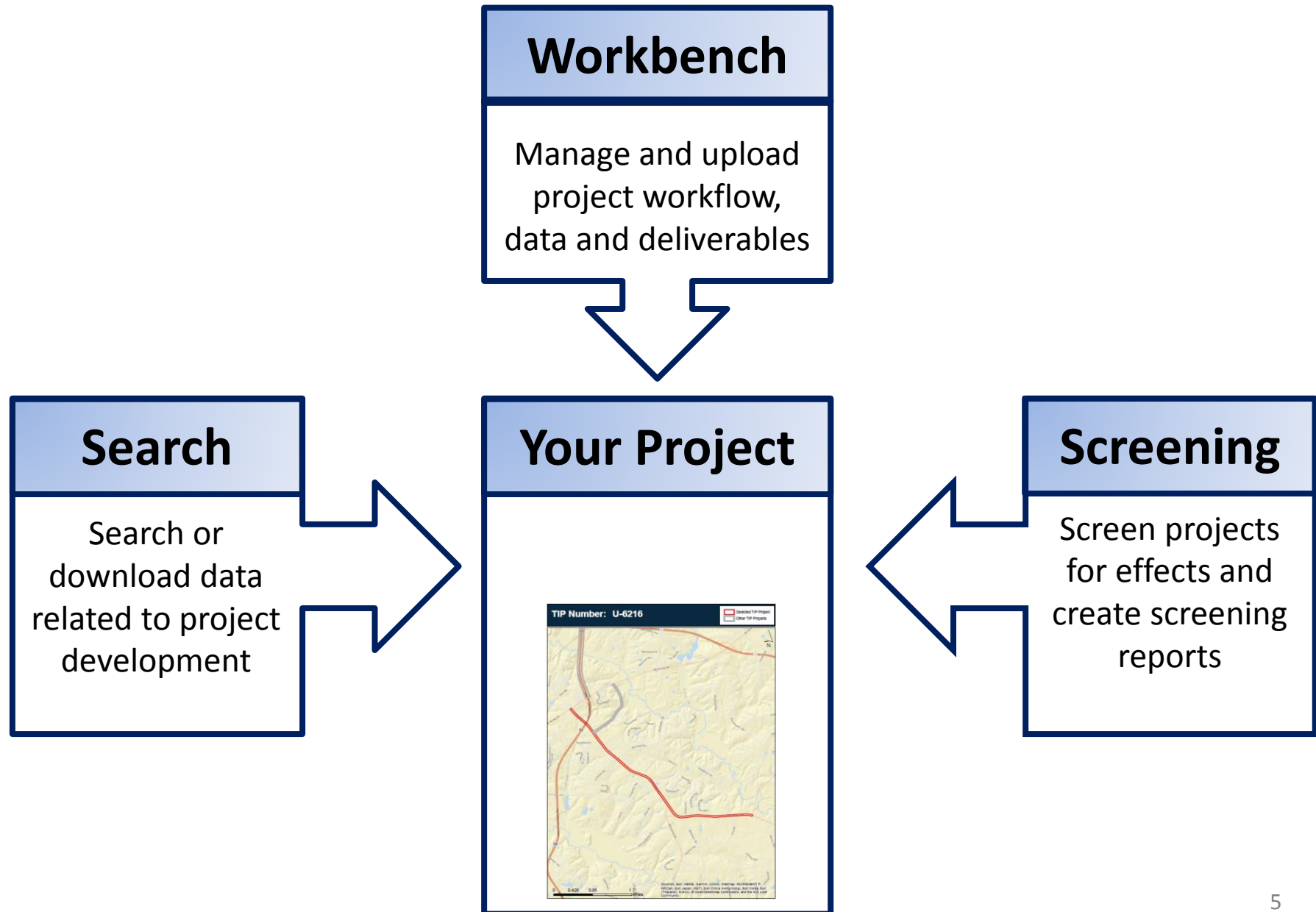


## Prioritization

- urban loops and extensions, less bypasses
- more regionalized approach to project assessment.

# NCDOT Project ATLAS

- Objectives
  - Regional evaluation using GIS
  - Early screening
  - Inform scope, schedule and budget
  - Automated reporting
  - One-stop-shop for a project tracking and data



# ATLAS GIS Data



Wetlands &  
Streams



Protected  
Species



Historic  
Resources



Traffic



Community  
Studies



Bike & Ped



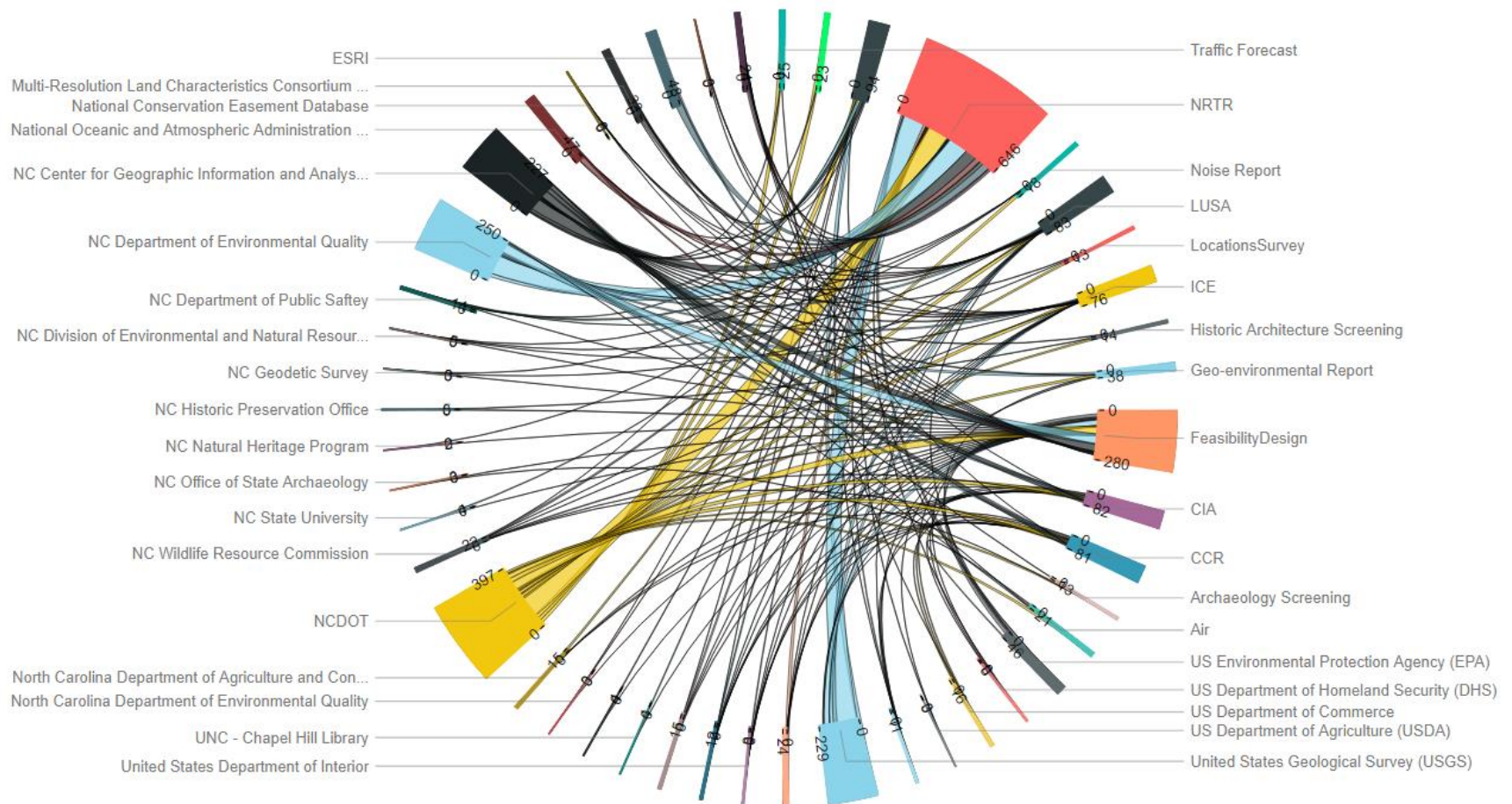
Right of Way



Utilities

**GIS**

# Data Sources and Users



# ATLAS GIS Data: Connections and Ownership

- Pulling multiple data sources into a single location via web services

- NCDOT
- USGS
- NC CGIA
- NC DEQ
- NOAA
- NC DHHS
- US EPA
- NC SHPO
- USFWS
- USDA
- US Commerce
- ESRI
- NC Ag
- US DOT
- NC WRC
- Local Gov'ts
- Others...

# New Data

- Examples of new reference layers:
  - NC IPaC
  - NC Mines
  - NC Childcare
  - NC Medical Facilities
  - NC Places of Worship
  - Hydrography with attributes
  - Wetlands
- Examples of new project data layers:
  - Archaeological Area of Potential Effect
  - Bat Bridges
  - CCR Direct Community Impact Area
  - Noise Monitoring Sites
  - Geo Environmental Phase 1 Sites of Concern
  - ICE Impervious Surface Mapping

*... many more will be available, with more coming soon!*

# ATLAS Search Tool

## What the tool does for you:

- Review and download data from multiple sources at once
- Establish consistency on data sources being used across project teams for the same deliverables and decisions

# ATLAS Search Tool



ATLAS Search Tool

[About](#)[Additional Resources](#)[Help](#)

## Search

What Data Are You Searching For?

Search By Document ⓘ

--Select Document Type-- ▾

Search By Keyword ⓘ

Search By Organization ⓘ

--Select Organization(s)-- ▾

Search

Clear

# ATLAS Search Tool



ATLAS Search Tool

## Search

What Data Are You Searching For?

Search By Document ⓘ

NRTR ▾

- ☐ FeasibilityDesign
- ☐ Geo-environmental Report
- ☐ Historic Architecture Screening
- ☐ ICE
- ☐ LocationsSurvey
- ☐ LUSA
- ☐ Noise Report
- ☒ NRTR
- ☐ Pre-Construction Notification Letter (PCN)
- ☐ Preliminary Design Report
- ☐ Traffic Capacity/Impact Analysis
- ☐ Traffic Forecast

Search Organization ⓘ

--Select Organization(s)-- ▾

Search Clear

# ATLAS Search Tool

237 Layers Found.

Select	Layer Name	Description	Owner
<input checked="" type="checkbox"/>	<a href="#">2012 Integrated Reporting Water Quality Assessments</a>	This data set contains the detailed water quality assessment for the 3,381 waterbodies in North Carolina where assessment data or information were available. The data assessed were from over 5,000 monitoring stations with data and information mostly collected in calendar years 2006-2010. This data set includes parameters assessed and water quality rating.	NC Department of Environmental Quality, Division of Water Resources
<input checked="" type="checkbox"/>	<a href="#">303d and 305b Streams (ESM Layer)</a>	303d and 305b Streams for ESM application hosted by NCDOT.	NCDOT, GIS Engineering Transportation Systems, GIS Unit
<input type="checkbox"/>	<a href="#">Albemarle - Pamlico National Estuary Partnership Map</a>	AP map is an interactive mapping application designed to provide geographic information about the Albemarle-Pamlico (A-P) watershed and APNEP.	NC Department of Environmental Quality, Albemarle-Pamlico National Estuary Partnership
<input checked="" type="checkbox"/>	<a href="#">Alluvial Fans</a>	Location and attributes of alluvial fan studies. Only the 1-percent-annual-chance flood is mapped for alluvial fans. The alluvial fan could be mapped as: Zone AO areas with depths and velocities; Zone AO areas with just depths; or Zone A, AE, or X. This information is needed for the Summary of Alluvial Fan Analyses and Results of Alluvial Fan Analyses tables in the FIS report.	Department of Homeland Security, Federal Emergency Management Agency
<input checked="" type="checkbox"/>	<a href="#">Anadromous Fish Spawning Areas</a>	NC DEQ maps here: <a href="http://portal.ncdenr.org/web/mf/afsa-maps">http://portal.ncdenr.org/web/mf/afsa-maps</a>	NC Department of Environmental Quality, Division of Marine Fisheries

Use checkboxes to select data sets you would like to Download or View on Map, then hit Download or View on Map button. You will then be prompted to define your geographic area of interest.

Download or View On Map

# ATLAS Search Tool



ATLAS Search Tool

[About](#)[Additional Resources](#)[Help](#)[Search Home](#) » [Area of Interest](#)

## Define Your Area of Interest

The next step is to define your geographic Area of Interest. You can do this by:

- ☒ Uploading a boundary of your project study area.
- ☐ Select a pre-defined boundary.

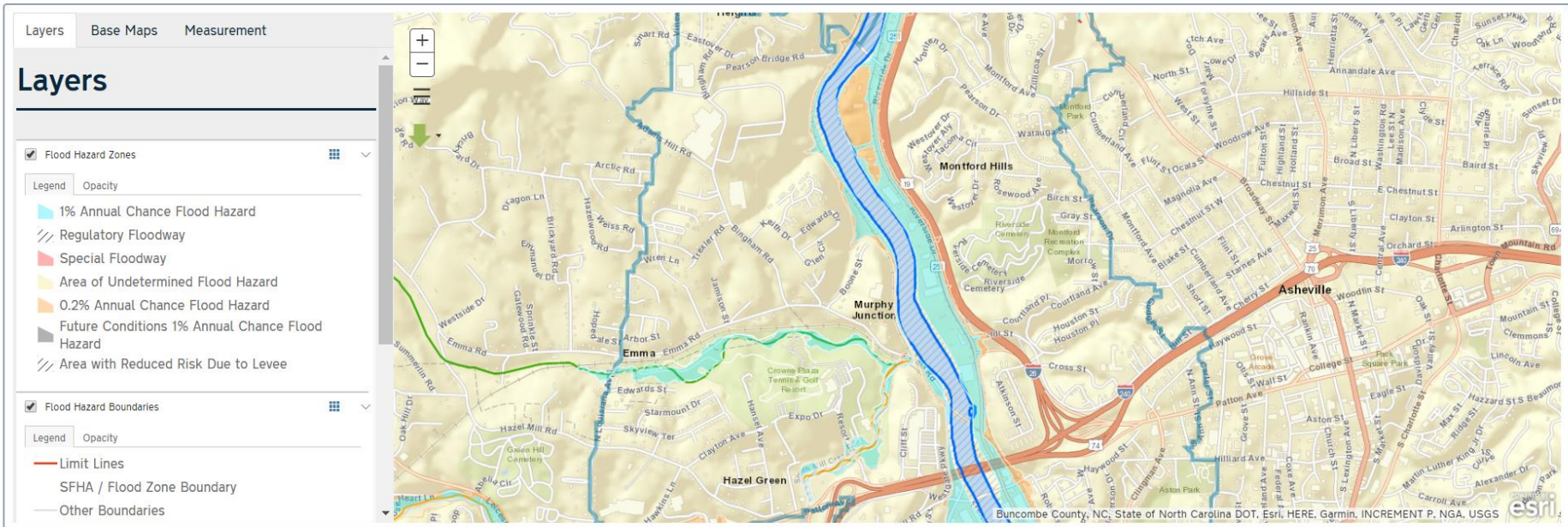
### Upload Your Geometry ⓘ

Upload [Verify](#)[Download](#)[View On Map](#)

# ATLAS Search Tool



ATLAS Search Tool

[About](#) [Additional Resources](#) [Help](#)[Search Home](#) » [Area of Interest](#) » [Map View](#)

# ATLAS Search Tool



ATLAS Search Tool

[About](#)[Additional Resources](#)[Help](#)[Search Home](#) > [Area of Interest](#) > [Map View](#)

Layers Base Maps Measurement

## Base Maps



Imagery

Imagery  
with Labels

Streets



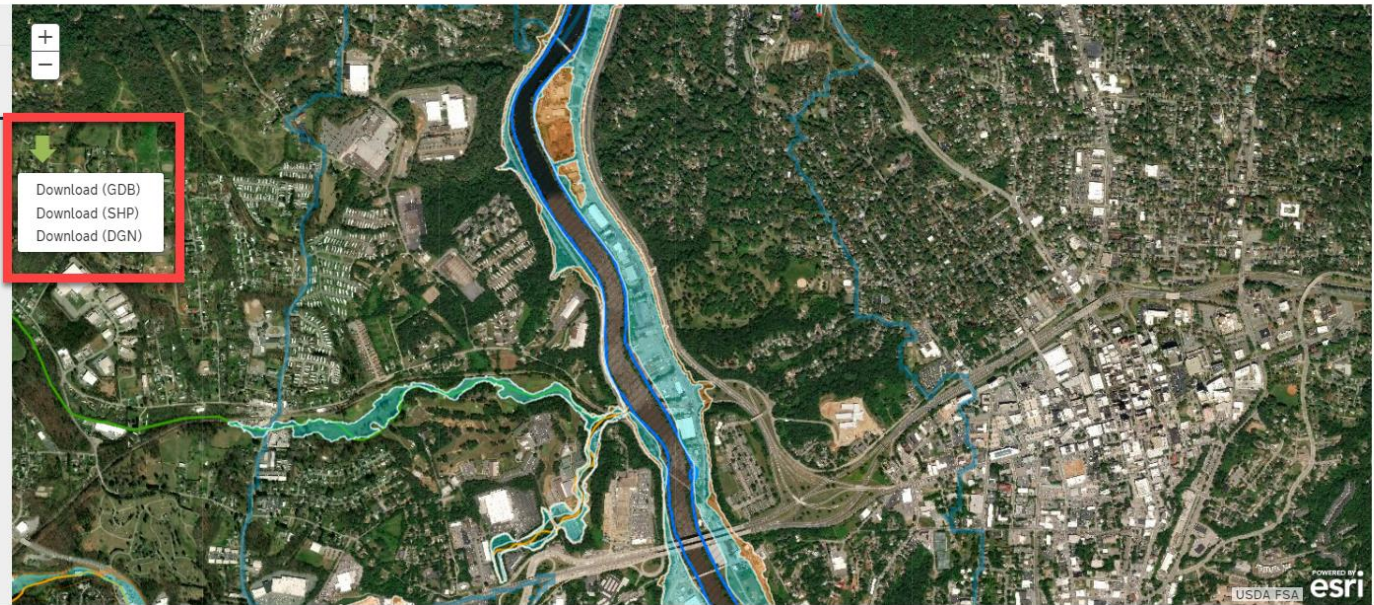
Topographic

Dark Gray  
CanvasLight Gray  
CanvasNational  
GeographicTerrain with  
Labels

Oceans



OpenStreetMap

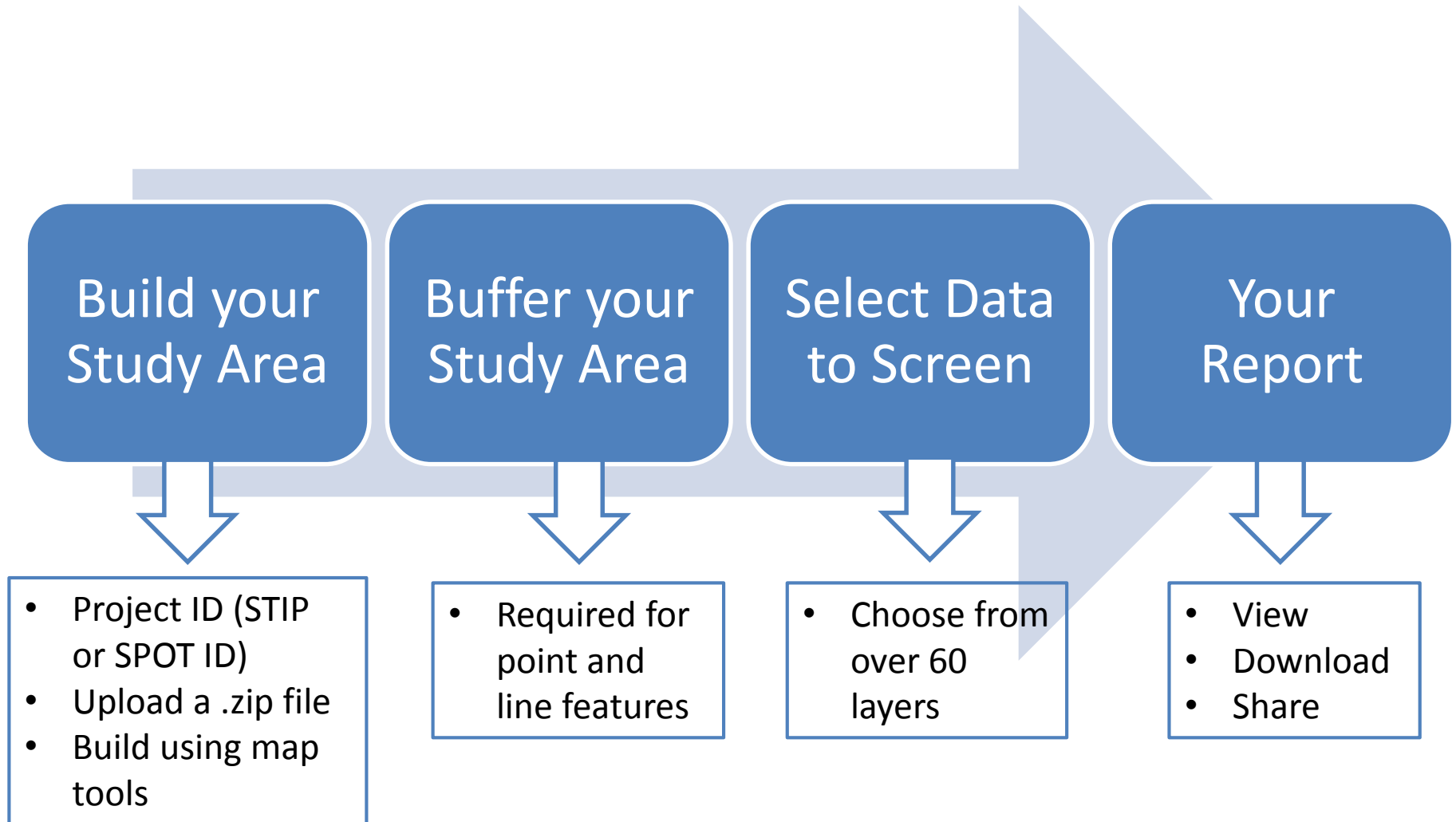
USA Topo  
MapsUSGS  
National

# ATLAS Screening Tool

## What the tool does for you:

- Provides high-level summary report on key environmental layers/features in your study area
- Downloads of GIS datasets with features in your study area

# How to Build a Screening



# ATLAS Screening Tool



ATLAS Screening Tool

[About](#)[Additional Resources](#)[Help](#)

## Welcome to the Project Development Screening Tool

In order to screen a project study area, you need to complete a few steps:

1. Build Your Study Area
2. Buffer Your Study Area (optional)
3. Select Data to Screen
4. View, Download, and/or Share Your Screening Report

To begin: How would you like to build your Project Study Area?

1

**By Project ID**

Select if you know your STIP or SPOT ID for the project you are screening.

2

**Upload Study Area**

Select if you have a study area boundary in .zip format.

3

**Draw Study Area**

Select if you would like to build your study area using draw tool.

# ATLAS Screening Tool

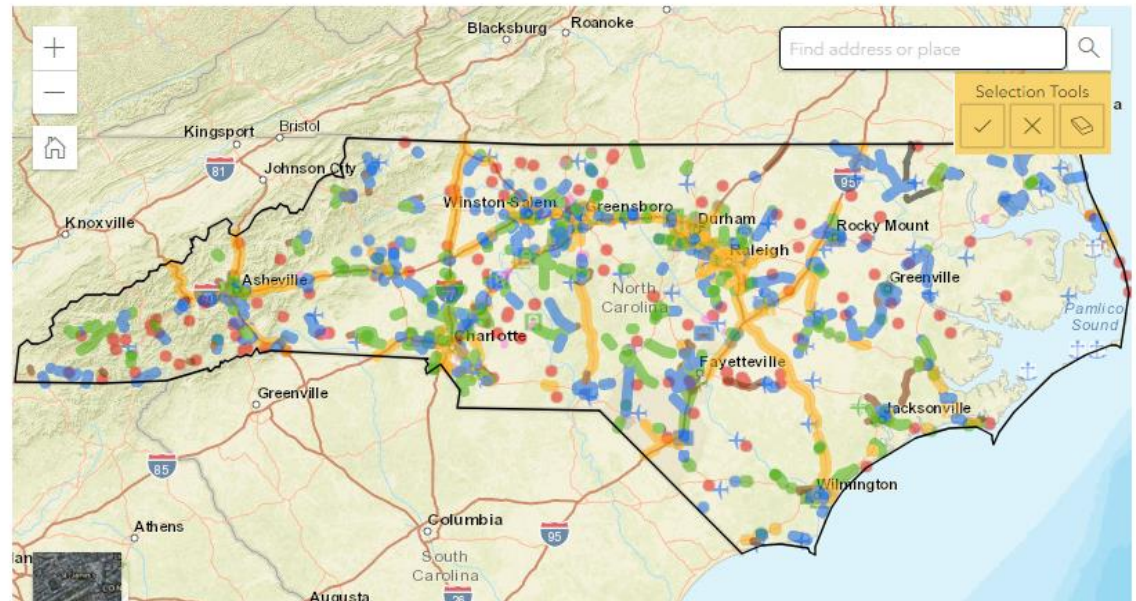
[About](#)[Additional Resources](#)[Help](#)[Screening Home](#) » [Screen By Project ID](#)

## Screen By Project ID

Utilize the Project ID Search and/or select your project from the map with the map Selection Tools. Only projects highlighted on the map will be included in your Study Area when you click Next.



Ex. STIP ID: I-0914, Ex. SPOT ID: H141398



# ATLAS Screening Tool

Buffers are required to be:

1. Applied for point and line features
2. No more than 2 miles

Buffers are optional for polygon features.

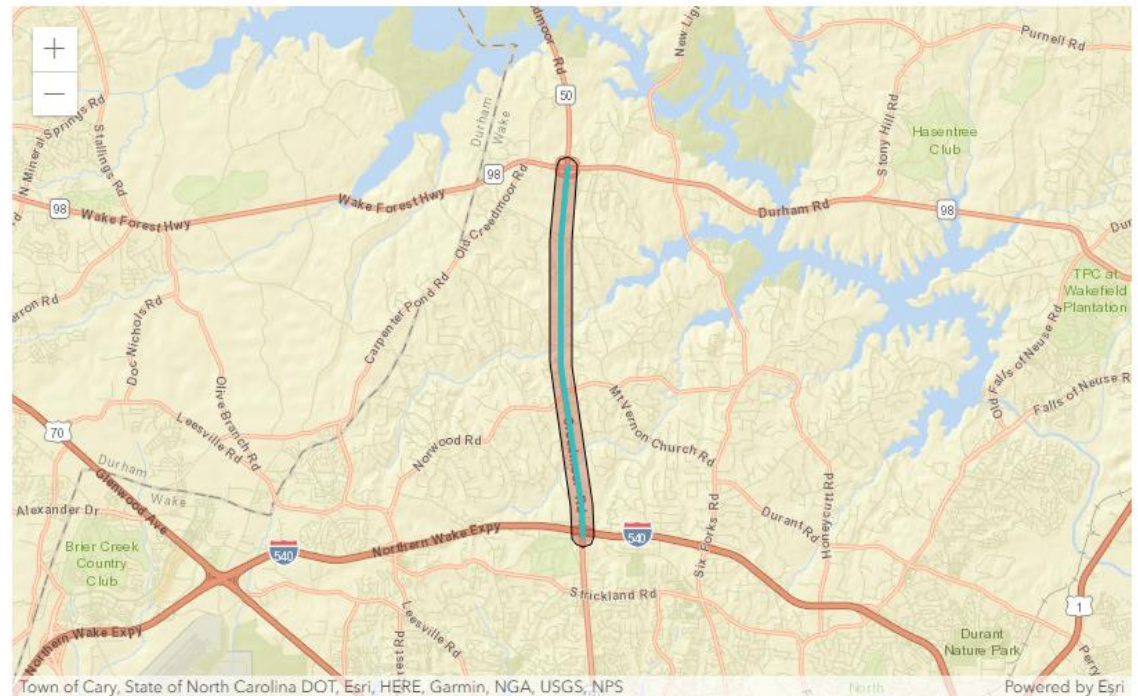
Distance

1000

Unit

Feet

Buffer



Back

Next

# ATLAS Screening Tool

Select the data sets against which you would like to screen your project. Use check boxes to add layers to your screening. Click the layer name to preview the layer on the map, view layer information, or set sub-report fields for specific layers.

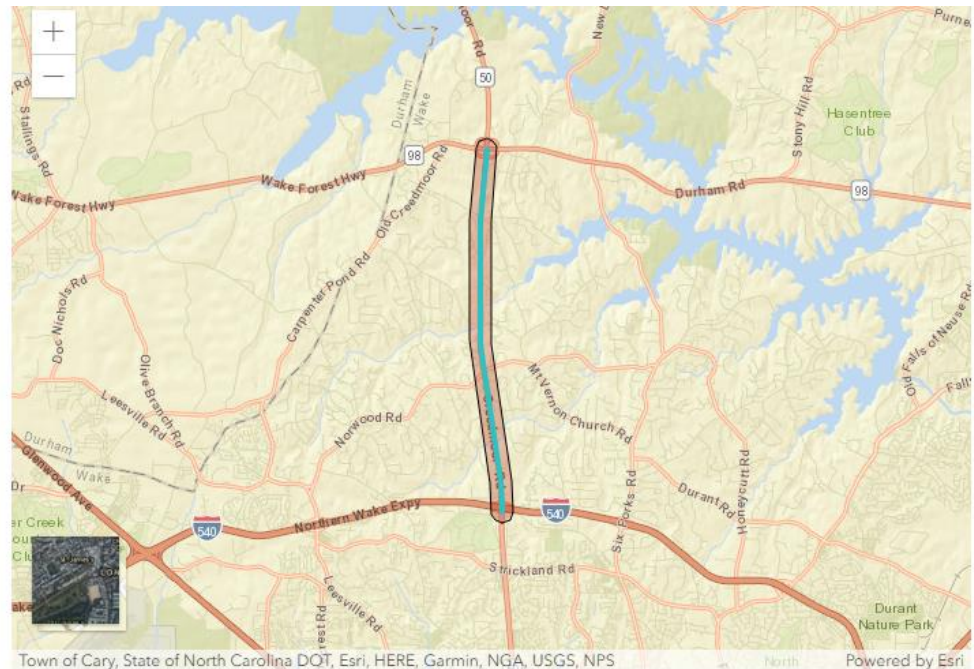
Layer Information

Set Field

Search by layer name

- ☐ Human Environment
- ☒ Natural Environment
- ☒ Conservation Area
- ☒ Critical Areas (ESM Layer)
- ☒ National Conservation Easement Database
- ☒ National Wildlife Refuges (>3M)
- ☒ NC CAMA Counties (DCM List)
- ☒ NC DEQ DCM Coastal Reserve Boundary

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Next

# ATLAS Screening Tool

Number of potential impacts: 14

Download Report

Download GDB

Download DGN

Show Layer Information

☒ Submerged Aquatic Vegetation

☒ NOAA Essential Fish Habitat

☐ Hydrography

☒ NC DEQ Draft 303d Category 5 Assessments

☒ FEMA Stream Study Type (ESM Layer)

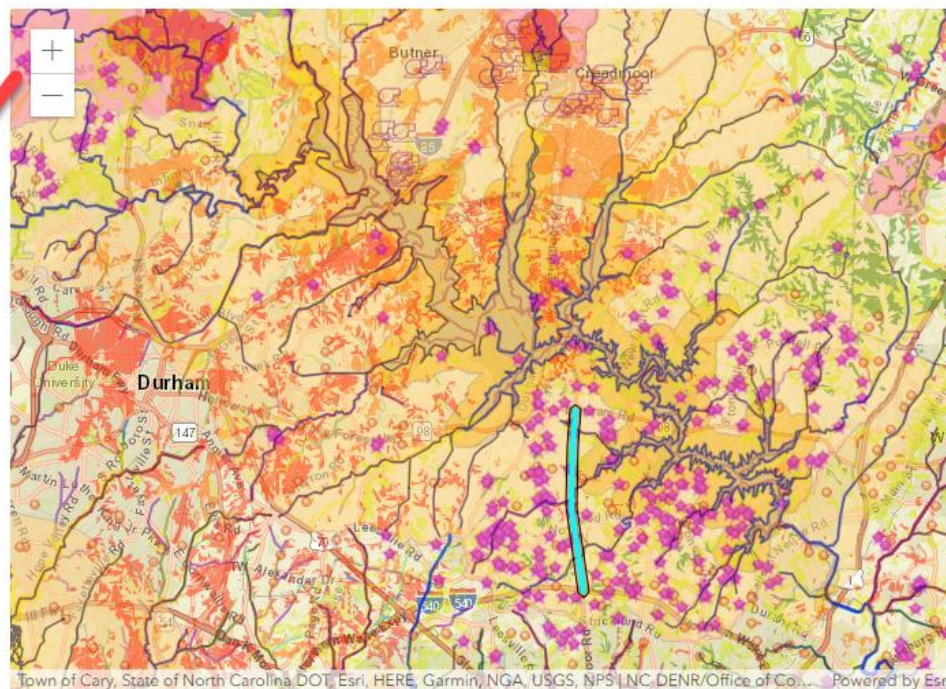
☒ DWR Trout Waters 2014 (ESM Layer)

☒ 303d and 305b Streams (ESM Layer)

☒ NC DEQ Outstanding Resource Waters in North Carolina

☒ NC DEQ Water Supply Watershed III

☒ NC DEQ High Quality Waters in North Carolina



# ATLAS Screening Tool

Number of potential impacts: 14

Download Report

Download GDB

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☒ Submerged Aquatic Vegetation

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☒ NC DEQ Outstanding Resource Waters in North Carolina

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☒ NC DEQ High Quality Waters in North Carolina

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## Layer Information

**Layer Name:** NC DEQ Draft 303d Category 5 Assessments

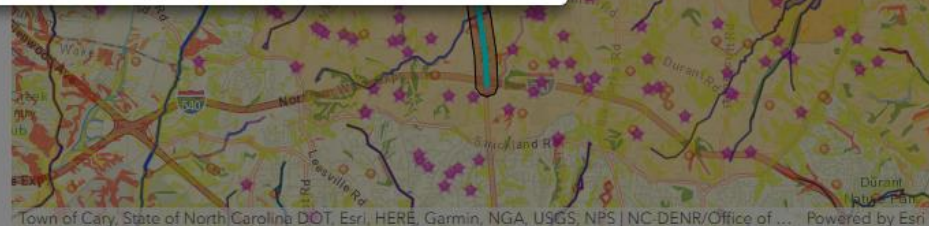
**Layer Description:** DRAFT North Carolina category 5 assessments or 303(d) assessments. This list of stream segments represents portions of streams that were monitored by a state agency or other approved organizations between 2010 and 2014 and are shown to be exceeding one or more surface water quality standards. This is a DRAFT list and is pending approval by the US Environmental Protection Agency.

**Org Name1:** NC Department of Environmental Quality

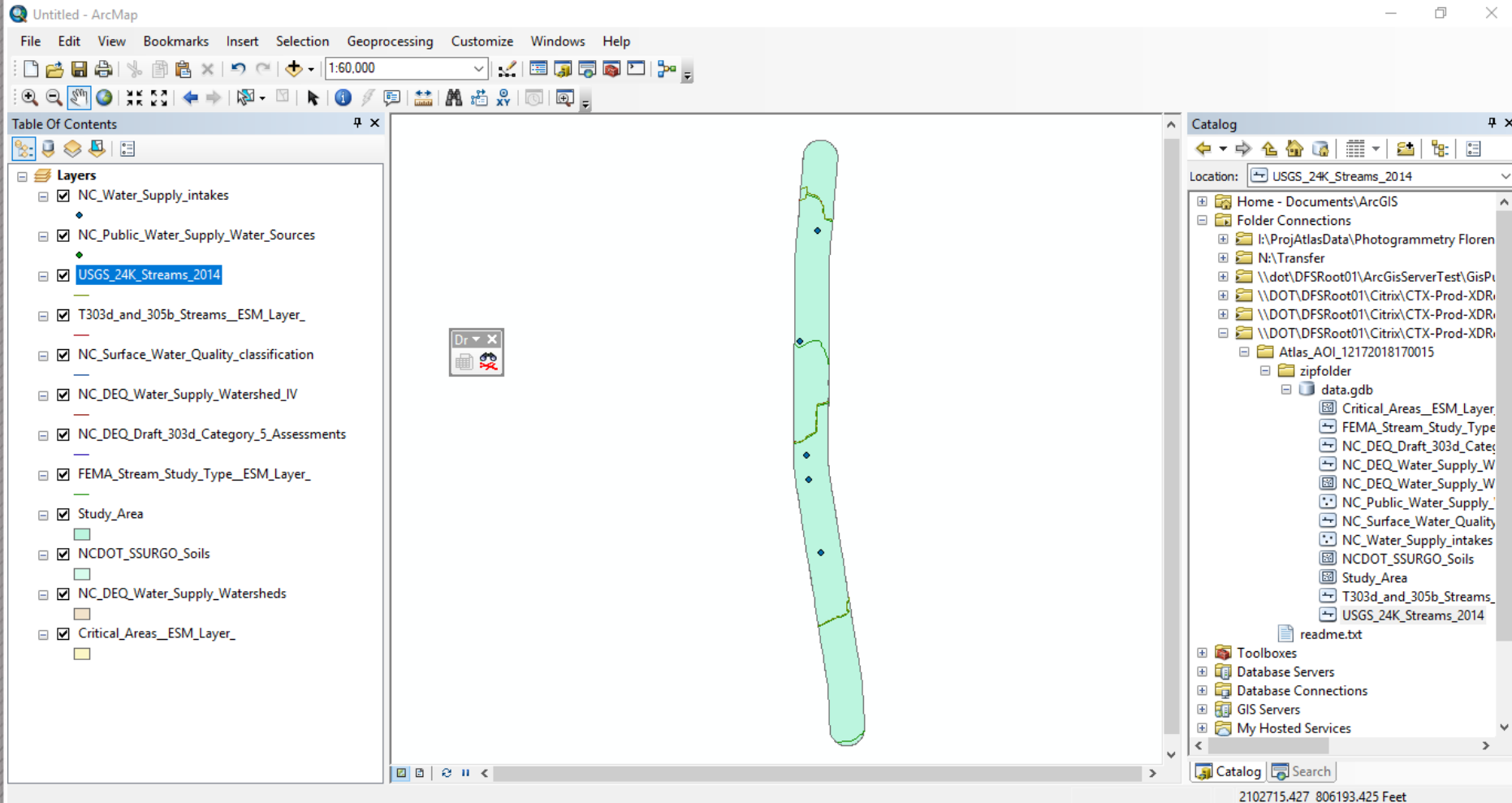
**Org Name2:** Division of Water Resources

For more information [Click Here](#)

Ok



# ATLAS Screening Tool



# Screening Report

## Project Development Screening Report



**Report Date:** 06/12/2019

Training Example

ATLAS Screening Report for Training

**County:** Forsyth

**Division:** 9

**EPA Level III Ecoregion:**

Piedmont

**EPA Level IV Ecoregion:**

Southern Outer Piedmont, Northern Inner Piedmont

**HUC8:** 03040101

**CAMA:** No

**Riparian Buffer:** N/A

# Screening Report

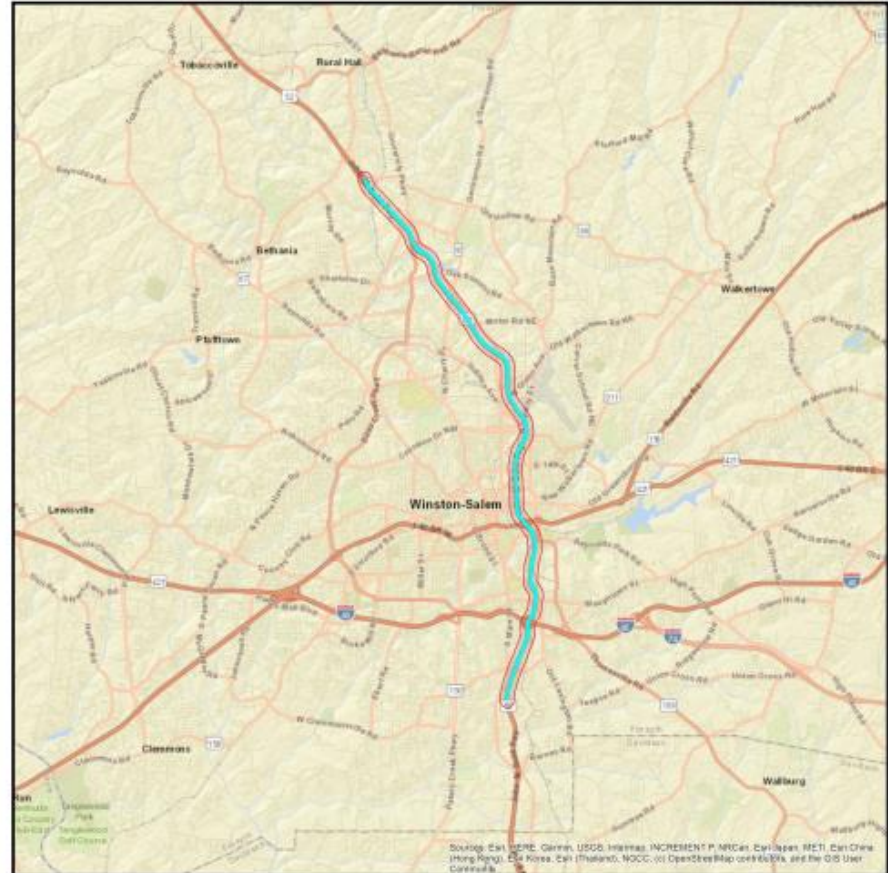
**Study Area Size:** 2595.3 Acres

**Buffer Size:** 1000 Feet

**STIP/SPOT ID:** U-2826, H090370

**STIP/SPOT Description:**

U-2826: SOUTH OF SR 2747 (CLEMMONSVILLE ROAD) TO FUTURE I-74 (WINSTON-SALEM NORTHERN BELTWAY). ADD LANES.



# Screening Report

## Summary of Results

Category	Result
Community	Yes
Conservation Area	Yes
Design Complexity	No

1 of 7

Fish and Aquatics	Yes
Geo Environmental	Yes
Historic Architecture and Archaeology	Yes
Hydrography	Yes
Mitigation	No
Physiography	Yes
Public Property	Yes
Threatened and Endangered	No
Transportation	Yes
Utilities	Yes
Water Quality	Yes
Wetlands	Yes

# Screening Report

## Human Environment

Community	Feature Count	Total Coverage	Nearest Feature
<a href="#">US HUD Public Housing Building</a>	50	N/A	11.7 ft
<a href="#">US DHS HIFLD Day Care Centers</a>	3	N/A	112.3 ft
<a href="#">North Carolina Public Schools</a>	2	N/A	10.9 ft
<a href="#">NC Colleges and Universities</a>	1	N/A	736.9 ft
<a href="#">NC Public Libraries</a>	1	N/A	8.9 ft
<a href="#">US DHS HIFLD Manufactured Home Parks</a>	1	N/A	701.2 ft
<a href="#">NC DEQ DWR Animal Operation Permits</a>	0	0	N/A
<a href="#">NC Hospitals</a>	0	0	0
<a href="#">NC Multi Hazard Threat Database Community Colleges</a>	0	0	0
<a href="#">NC Multi Hazard Threat Database Nuclear Power Plants</a>	0	0	0
<a href="#">NC Multi Hazard Threat Database State Prisons</a>	0	0	1461.4 ft
<a href="#">NC Non Public Schools</a>	0	0	279.5 ft

# Screening Report

## Natural Environment

Conservation Area	Feature Count	Total Coverage	Nearest Feature
<a href="#">NC Heritage Program Managed Areas</a>	1	23.2 ac	990.1 ft
<a href="#">National Conservation Easement Database</a>	0	0 ac	1505.0 ft
<a href="#">NC Critical Areas</a>	0	0 ac	0
<a href="#">NC DEQ CAMA Counties (DCM List)</a>	0	0 ac	N/A
<a href="#">NC DEQ DCM Coastal Reserve Boundary</a>	0	0 ac	0
<a href="#">NC DEQ Oceanfront Setback Factors</a>	0	0 ac	0
<a href="#">NC DEQ Outstanding Resource Water Management Zones</a>	0	0 ac	0
<a href="#">NC DEQ Primary Fish Nursery Areas</a>	0	0 ac	0
<a href="#">NC DEQ Unique Wetlands</a>	0	0 ac	0
<a href="#">NOAA Marine Protected Area</a>	0	0 ac	0
<a href="#">USFWS National Wildlife Refuges</a>	0	0 ac	0

# Screening Report

## Report Metadata

**Created by:** AtlasUser1

**Date/Time Executed:** 06/12/2019 4:32 PM

### 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).

# Screening Report

## 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
Blue Ridge Forever Appalachian Trail Centerline	<a href="https://services1.arcgis.com/PwLrOgCfU0cYShcG/ArcGIS/rest/services/Appalachian_Trail_centerline/FeatureServer/0">https://services1.arcgis.com/PwLrOgCfU0cYShcG/ArcGIS/rest/services/Appalachian_Trail_centerline/FeatureServer/0</a>	URLError: No connection could be made because the target machine actively refused it
NC Natural Heritage Natural Areas (NHNA)	<a href="https://services.nconemap.gov/secure/rest/services/NC1Map_Habitat/FeatureServer/2">https://services.nconemap.gov/secure/rest/services/NC1Map_Habitat/FeatureServer/2</a>	Invalid Token
NC Shellfish Growing Area Classifications	<a href="https://services.nconemap.gov/secure/rest/services/NC1Map_Habitat/FeatureServer/3">https://services.nconemap.gov/secure/rest/services/NC1Map_Habitat/FeatureServer/3</a>	Invalid or missing input parameters.
NOAA Marine/Estuarine Aquatic Bed, Rooted Vascular (Submersed Rooted Vasculars, SRV)	<a href="https://coast.noaa.gov/arcgis/rest/services/MarineCadastre/Seagrasses/MapServer/0">https://coast.noaa.gov/arcgis/rest/services/MarineCadastre/Seagrasses/MapServer/0</a>	Error handling service request :0x80004005 - Unspecified error
TVA Land Plans (EGISMap)	<a href="https://egismaps.tva.gov/arcgis/rest/services/Land_Plans/MapServer/0">https://egismaps.tva.gov/arcgis/rest/services/Land_Plans/MapServer/0</a>	URLError: No connection could be made because the target machine actively refused it

# ATLAS Workbench

- Key Functionality
  - Track project workflow
  - Ingestion of standard deliverable documents and spatial data
  - View your project within the context of surrounding projects and data for those projects
  - Automated report generation

# ATLAS Workbench

Connect NCDOT  
BUSINESS PARTNER RESOURCES

[H Home](#) [q Help](#) [^ Team Sites](#) [G Site Map](#)

[Doing Business](#) [Bidding & Letting](#) [Projects](#) [Resources](#) [Local Governments](#)

Search this site



## U-5834 ▶ U-5834

US 25 (Hendersonville Rd) to SR 3157 (Weston Rd). Upgrade existing roadway.  
Buncombe

[H](#) [4](#) [Division 13 Preconstruction](#) [4](#) [U-5834](#)

### Project Site

- [Preconstruction Home](#)
- [Grant Consulting Firm Access](#)
- [Lock/Unlock Plans or Provisions](#)
- [Key Documents](#)
- [Discipline Specific Links](#)
- [Preconstruction Help](#)
- [Project Commitments](#)
- [Project Contacts](#)
- [Email Project Contacts](#)
- [Project Structures](#)
- [Submittal Tracker](#)
- [Recently Modified](#)

### General

### Disciplines

### Collaboration

### LET Preparation


### ATLAS Tools

- [ATLAS Workbench](#)  
Use the Workbench to monitor project status, submit your final project documents, and upload spatial deliverables.
- [ATLAS Data Search Tool](#)  
Use the Data Search Tool to access GIS datasets from multiple sources in one single search interface.
- [ATLAS Screening Tool](#)  
Use the Screening Tool to analyze a project study area for natural and human environment impacts based on key GIS datasets.

### Precon Project Map



# ATLAS Workbench

 ATLAS

MapWorkbenchAboutAdditional ResourcesHelp

LayersBase MapsTools

## Layers

☒ WRC Trout Waters

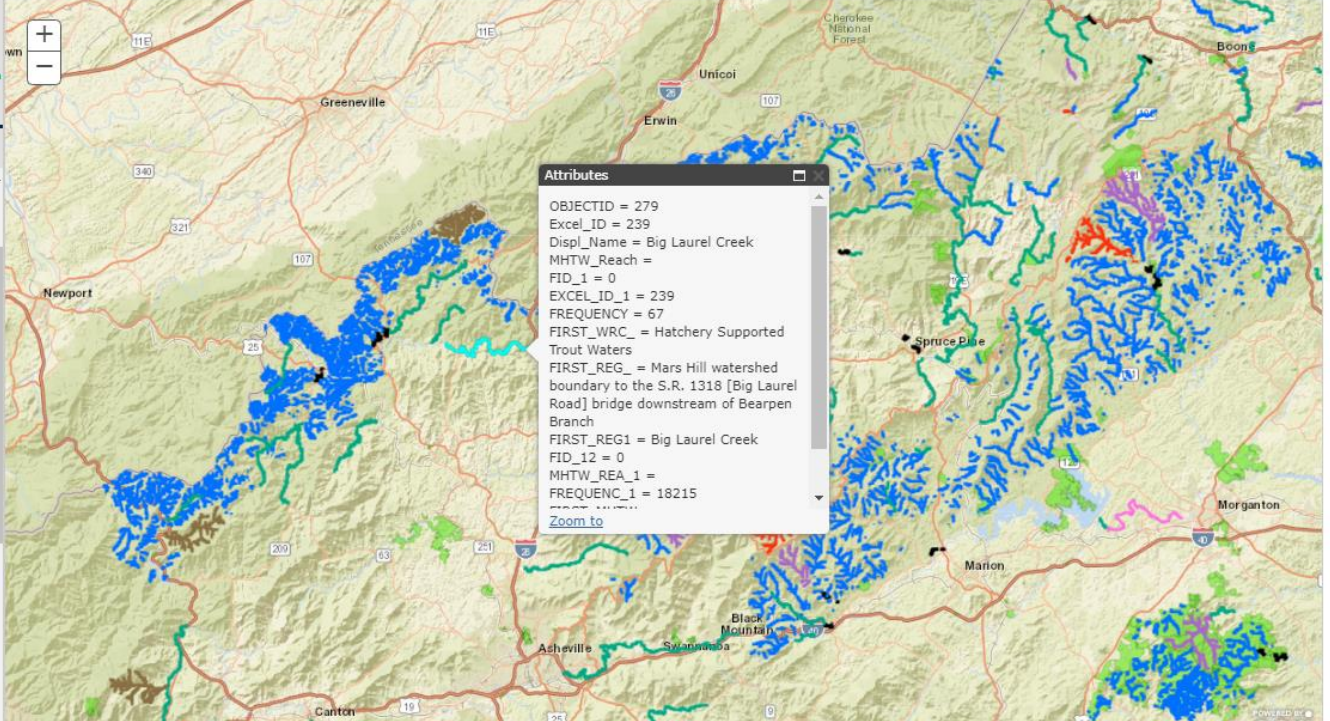
LegendOpacity

- Catch and Release/Artificial Flies Only Trout Waters
- Catch and Release/Artificial Lures Only Trout Waters
- Delayed Harvest Trout Waters
- Hatchery Supported Trout Waters
- Special Regulation Trout Waters
- Wild Trout Waters
- Wild Trout/Natural Bait Waters

☒ Boating Access Areas

LegendOpacity

☒ North Carolina State Parks



**Attributes**  
OBJECTID = 279  
Excel\_ID = 239  
Displ\_Name = Big Laurel Creek  
MHTW\_Reach =  
FID\_1 = 0  
EXCEL\_ID\_1 = 239  
FREQUENCY = 67  
FIRST\_WRC\_ = Hatchery Supported Trout Waters  
FIRST\_REG\_ = Mars Hill watershed boundary to the S.R. 1318 [Big Laurel Road] bridge downstream of Bearpen Branch  
FIRST\_REG1 = Big Laurel Creek  
FID\_12 = 0  
MHTW\_REA\_1 =  
FREQUENC\_1 = 18215  
[Zoom to](#)

# ATLAS Workbench

Map










Workbench

About

Additional Resources

Help

Basic Project Info

Scoping Public/Local Involvement Merger Survey & Photogrammetry Traffic Community Characteristic Report (CCR) Natural Resources Indirect & Cumulative Effects (ICE) Air Quality Noise Analysis Cultural Resources Geo-Environmental Land Use Scenario Assessment (LUSA) Community Impact Assessment (CIA) Project Conclusion 

## Natural Resources

Is Natural Resources required?

☒ Yes ☐ No

a. Natural Resources;

\* Was Jurisdictional Area Delineation completed?

☐ Yes ☐ No

\* Were T&amp;E surveys completed?

☐ Yes ☐ No

\* What effect will the project have on Threatened and Endangered Species or their critical habitat?

\* Select species that are potentially impacted:

\* Are there any species for which biological conclusions are unresolved?

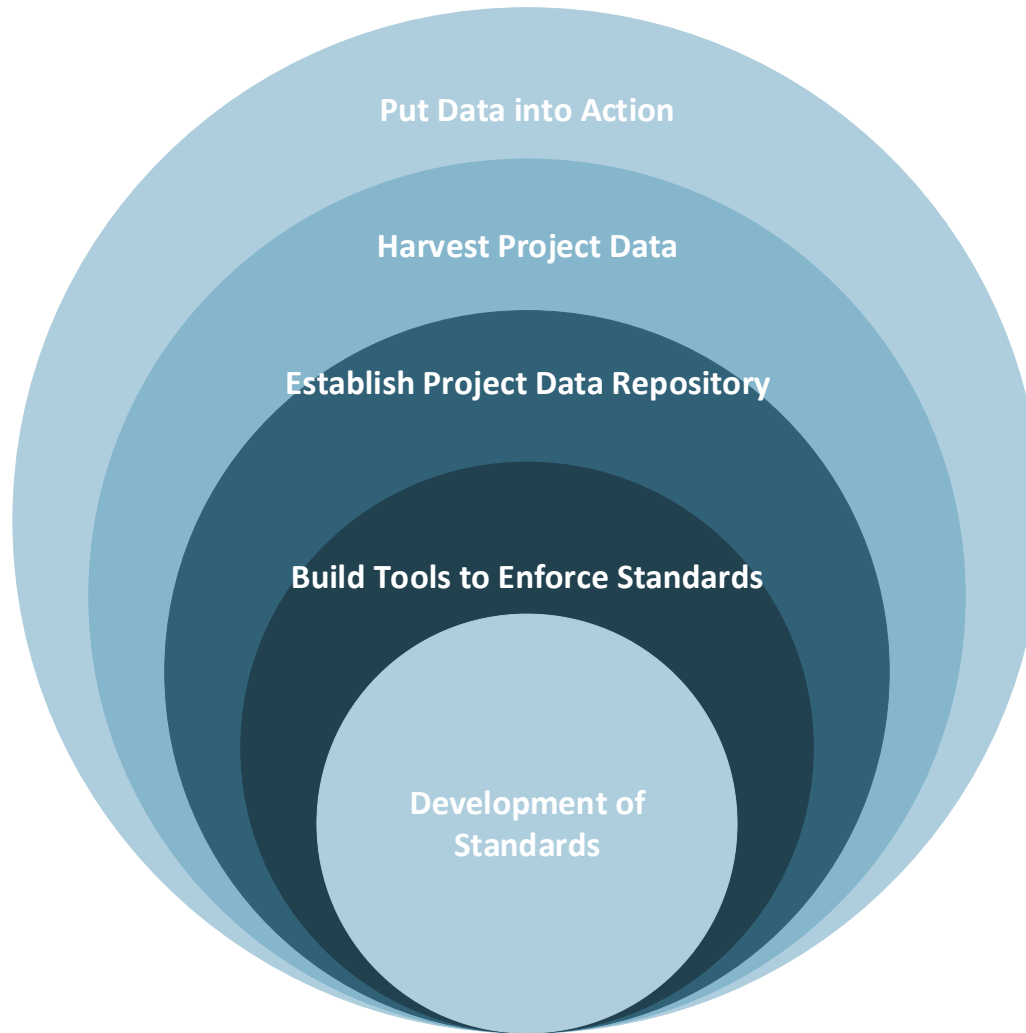
☐ Yes ☐ No

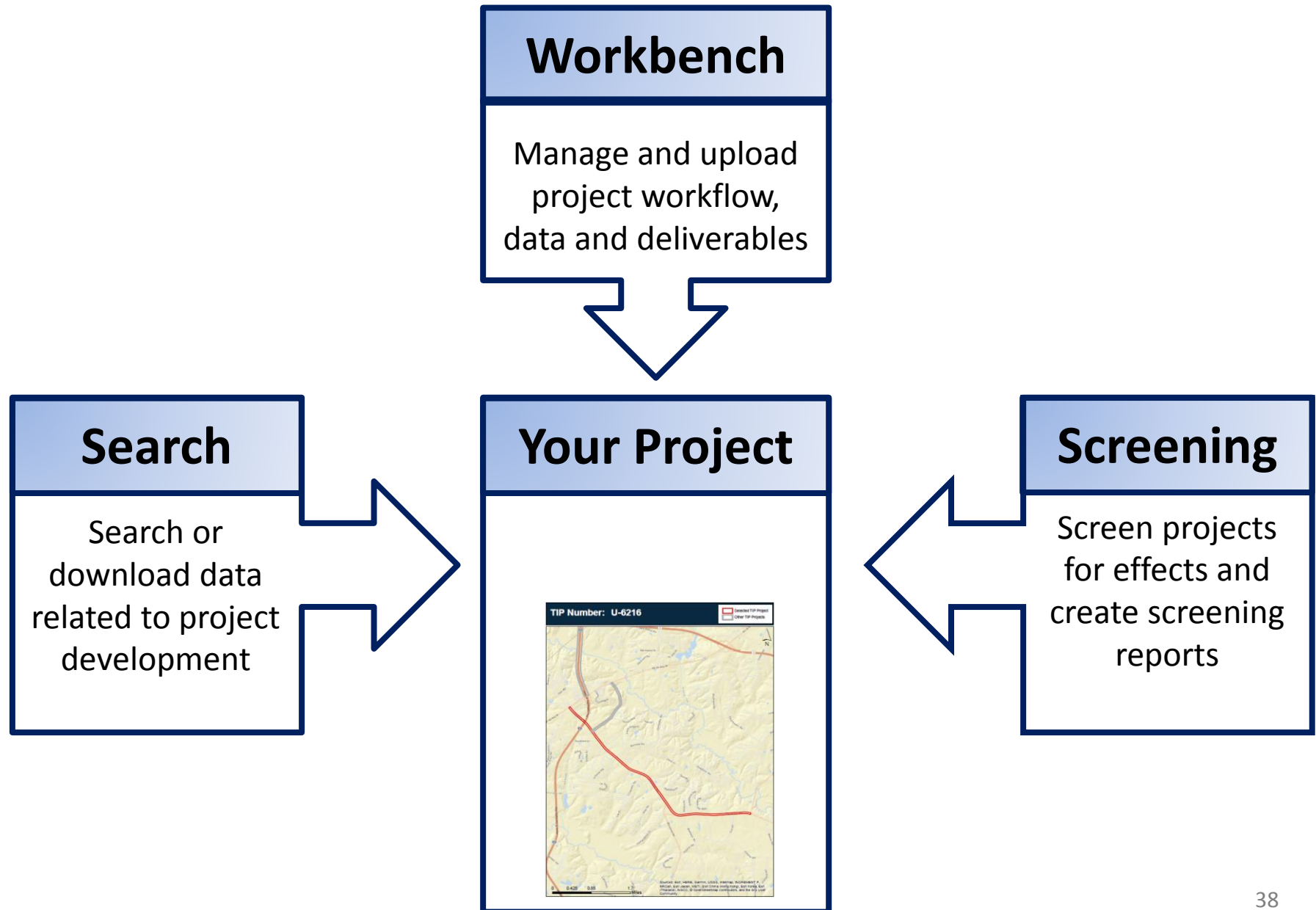
If so, which and why?

\* Has the USFWS requested a Biological Assessment during Section 7 consultation?

☐ Yes ☐ No

# Workbench – Snowball Effect





# NCDOT Project ATLAS

We are:

- Not eliminating field work or jobs
- Pushing more work earlier in the process to help scheduling, budgeting and scoping
- Helping to deliver better projects by:
  - Tracking workflow and deliverables
  - Improving GIS data and management
  - Improving processes
  - Providing Automation

# NCDOT Project ATLAS

- Ongoing Work
  - Creating and compiling new data layers
  - Verifying modeled layers with field work
  - Engaging agencies in process improvements
- ATLAS 2.0
  - Incorporating other business users
  - Expanding data layers
  - Integrating multiple systems
  - Increasing automation

# NCDOT Project ATLAS

NCDOT EAU CONNECT SITE

<https://connect.ncdot.gov/resources/Environmental/Pages/NES-Procedures-Manual.aspx>

QUESTIONS

[ATLAS@ncdot.gov](mailto:ATLAS@ncdot.gov)