



# **NORTH CAROLINA**

Department of Transportation



# Project ATLAS

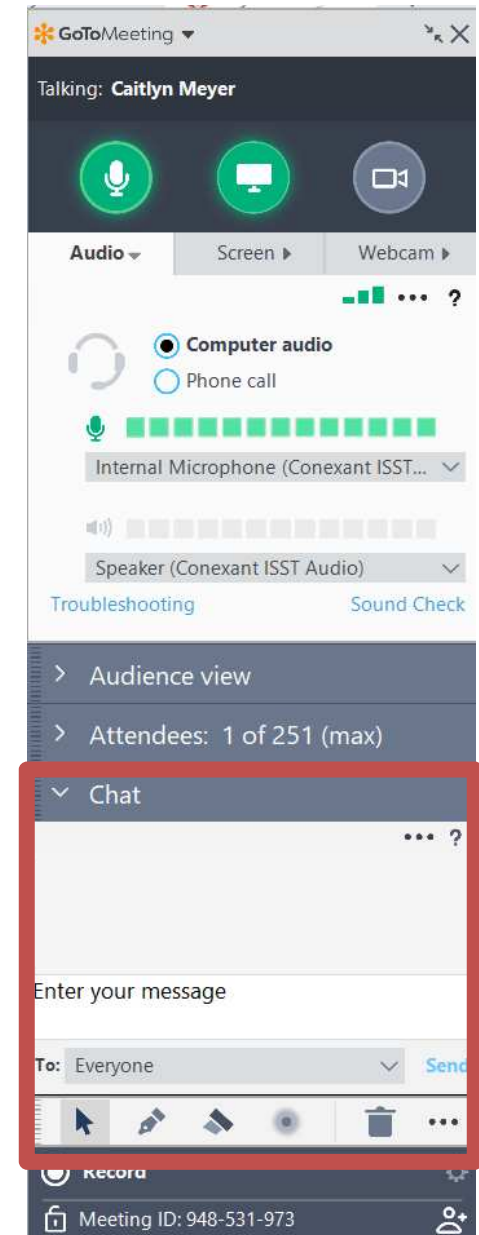
Michelle Warf – NCDOT EAU

Caitlyn Meyer – ATLAS GIS Consultant

February 25 & 26, 2019

# How to Participate

- Use chat throughout the webinar to submit questions
- Questions will be monitored throughout the session
- Full Q&A at end of the agenda



# Agenda

- ATLAS Overview
- Review of ATLAS Applications
- Live Demo of ATLAS Applications
- Review of ATLAS Deliverables Standards
- Next Steps
- Q&A



# NCDOT Project ATLAS



Advancing **T**ransportation through **L**inkages, **A**utomation, and **S**creening

- Goal is to streamline project development by utilizing GIS tools, applications, and data
- Adheres to Secretary's Priorities for **Improved Program Delivery**
- Accelerated project delivery has strong economic impact and enhances NC's economic competitiveness



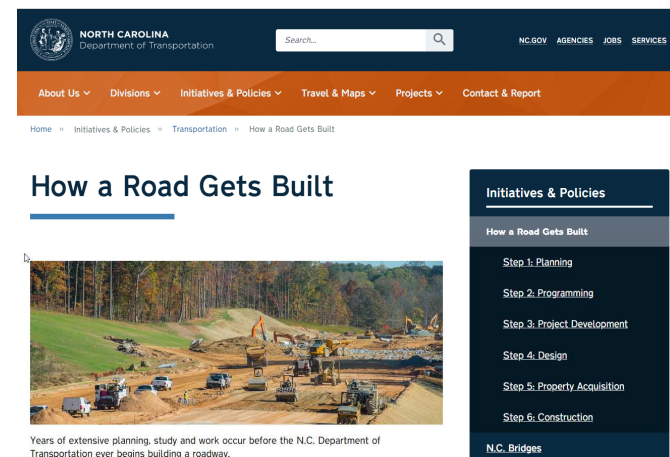
- Prioritization/Programming
- Scoping, Scheduling
- Project Development
- Procurements
- Right-of-Way
- Operations and Maintenance
- Revenue and Cash Model

# What really is Project ATLAS?

- A place to distribute data to everyone
- A place for consultants to submit deliverables and PMs to track progress
- A place for subject matter experts to provide project information
- Single location for project data – no more searching multiple places for the same documents

# Where does ATLAS fit into Project Delivery at NCDOT?

- Step 1: Planning
  - Comprehensive Transportation Planning (20-25 years)
- Step 2: Prioritization and Programming
  - State Transportation Improvement Program (10 years)
- **Step 3: Project Development and Env. Analysis**
  - **Project is funded and proposed project is evaluated for environmental effects (NEPA/SEPA)**
- Step 4: Design
- Step 5: Property Acquisition
- Step 6: Construction

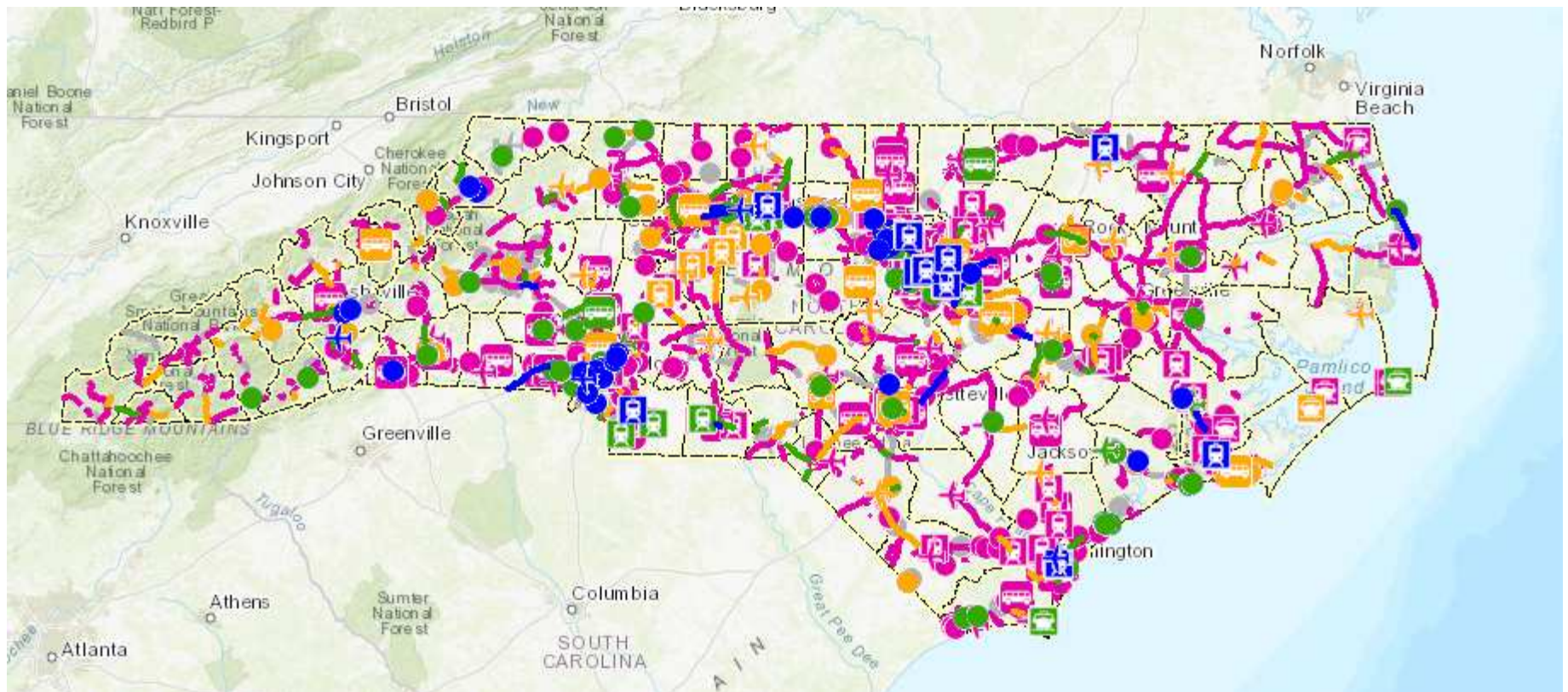




# ATLAS Disciplines



# Current Projects





# Future Projects

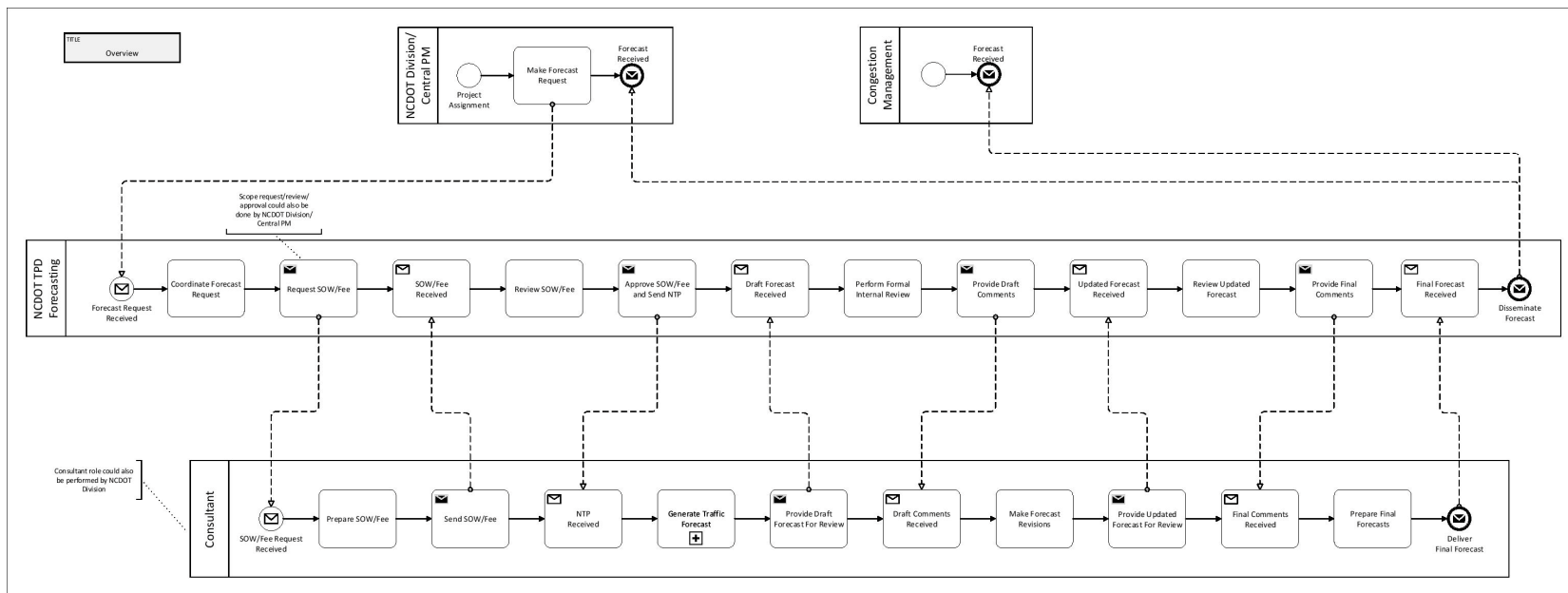
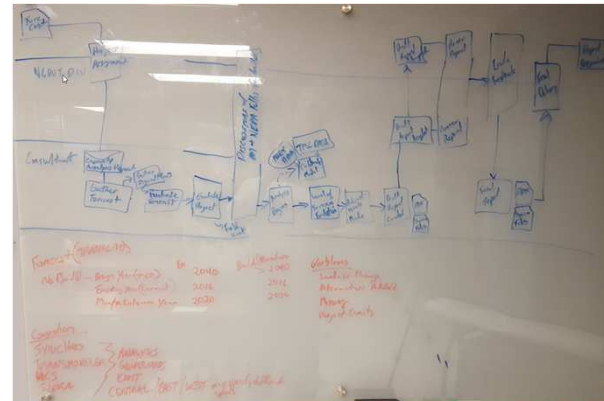
The [2020-2029 draft State Transportation Improvement Program](#) consists of 1,663 projects.

Transportation Mode	Total Projects
Aviation	86
Bicycle/Pedestrian	235
Ferry	6
Highway	1,266, including: - 181 bridge projects - 83 interstate maintenance projects - 37 safety projects
Public Transit	23
Rail	47
<b>Total</b>	<b>1,663</b>

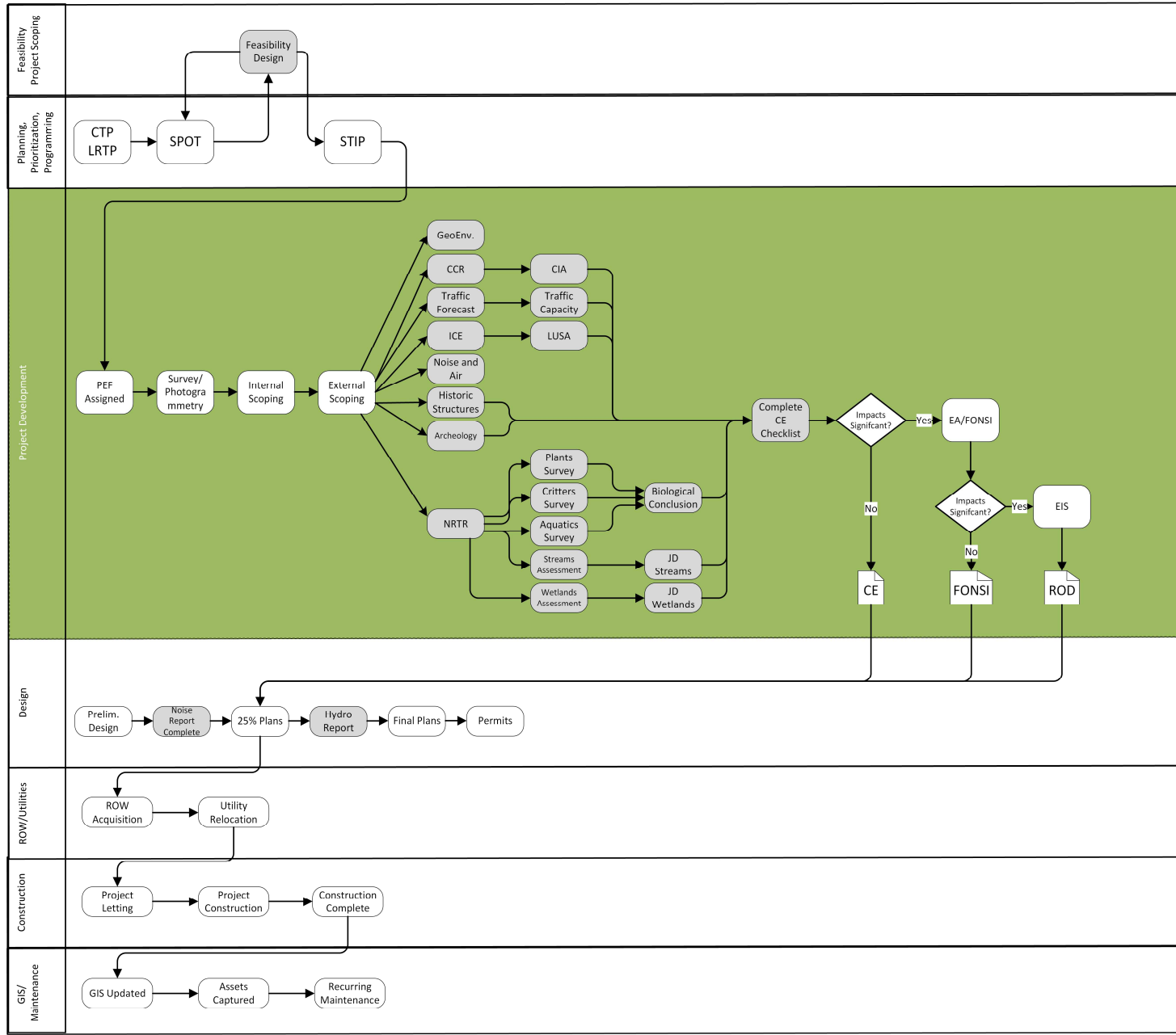
# How did ATLAS get started?



# Drawings to Diagrams



AS IS Flow



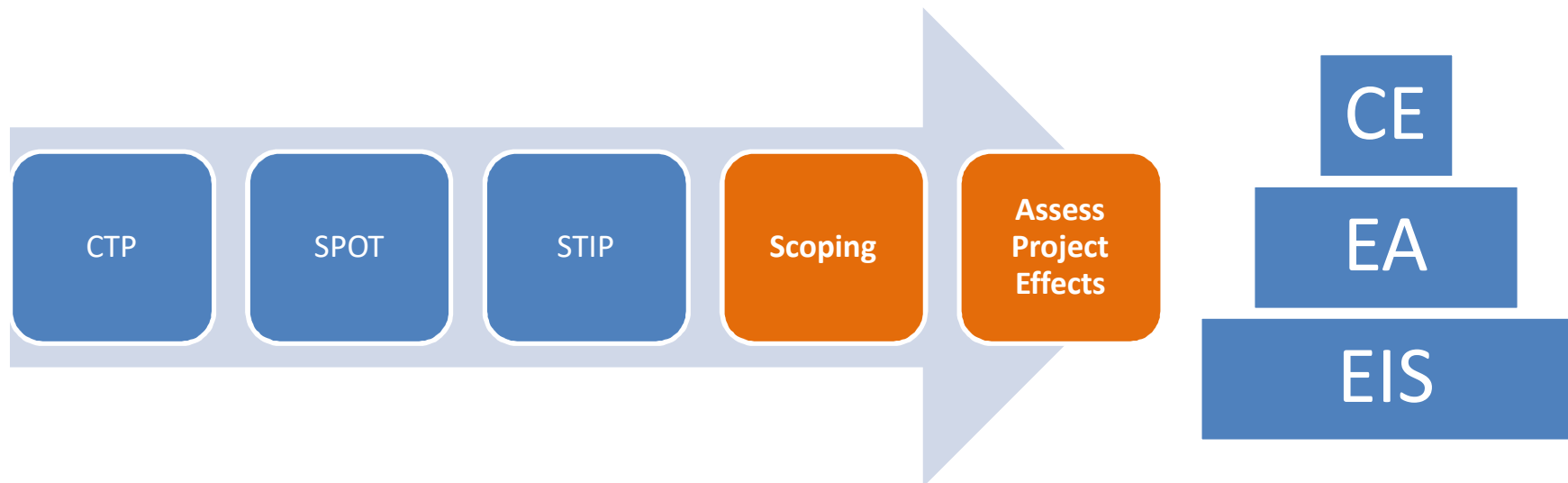


# Current State of Project Development

- Lack of standard deliverables
- No delivery of spatial data created in course of project
- Lack of system integration and enterprise data
- No single source of data authority
- Lacking the ability to track projects

# Overall picture takes shape

- Need to improve the project development business process as a whole, not just address data issues
- Project Managers need better information before a project begins
  - "An informed scoping meeting"



# GIS Specific Goals Developed

#	Business Goal
1.	Provide the transportation project community a <b>searchable gateway</b> to all spatial data used in project delivery at NCDOT.
2.	Create a tool that <b>screens</b> NCDOT projects against spatial project data for potential effects.
3.	Provide a platform for project managers to <b>view their project</b> , their project's <b>effects</b> , and other significant information related to managing that project.
4.	Stand-up an <b>enterprise</b> GIS SDE for NCDOT project data.
5.	Create enterprise GIS data for <b>project delivery</b> .

# From Goals to Tools

## Search Tool

A gateway to search and retrieve verifiable, current and accurate project related data.

Addresses NCDOT's need to have consistent data available to Project Managers and Consultants.

## Screening Tool

A powerful web-based tool to evaluate potential impacts to NCDOT projects using GIS data and predictive modeling.

Allows Project Managers and NCDOT Consultants to understand and coordinate earlier about challenges projects will encounter.

## ATLAS Workbench

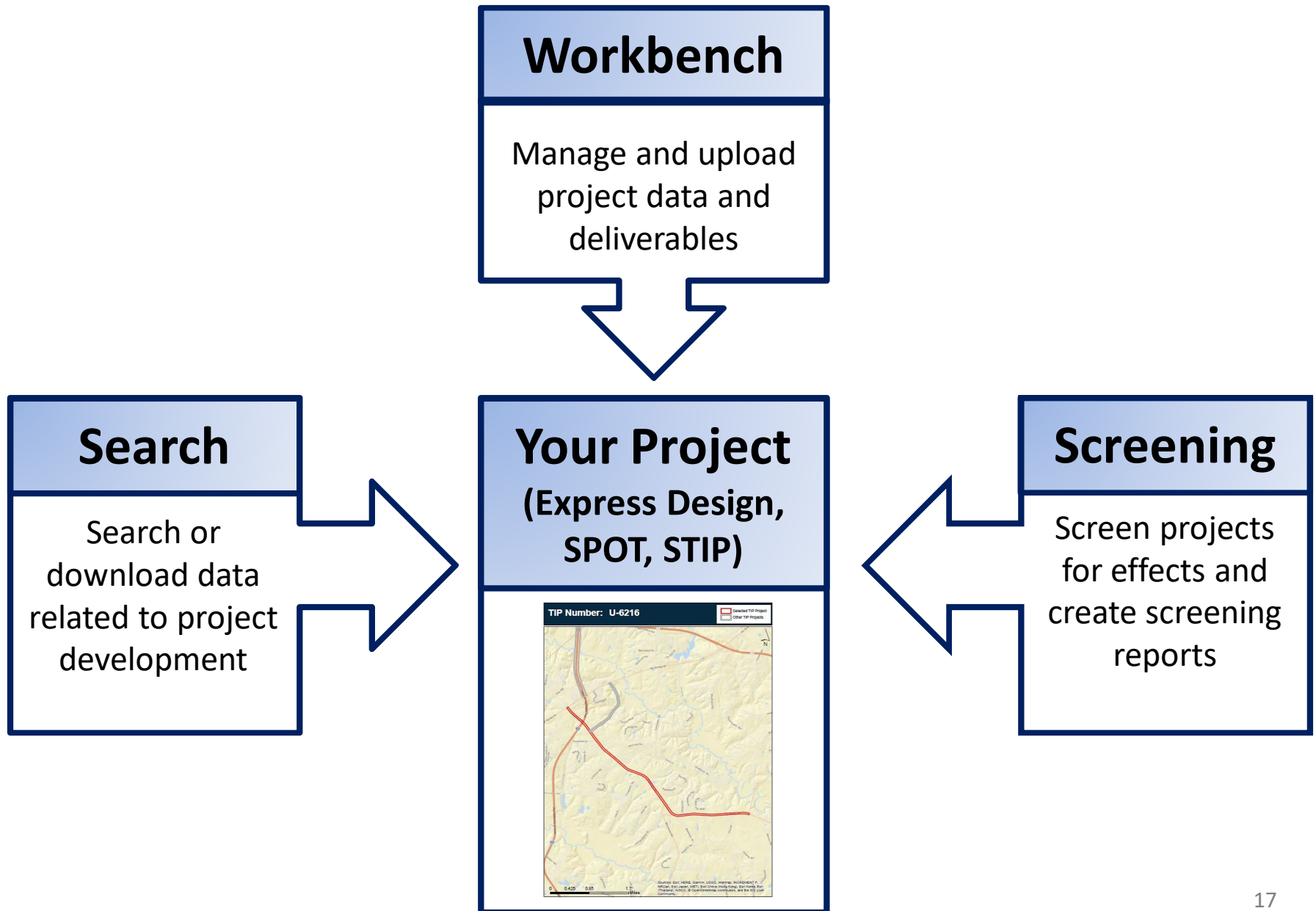
A unified toolset for Project Managers to assess and monitor their projects via the web.

Allows Project Managers and Consultants a common platform to access current project data, historic project data, current deliverable status, and visualize project progress.



Team is also supporting: Automation, Data Creation, and Post Deployment App Management Tool.





# Search Tool

# Search Tool

Who?  
NCID Users

## Key Functionality

- Search for data by document type, DOT discipline, and keyword
- Download data package in GBD and DGN formats
- View data package on a map

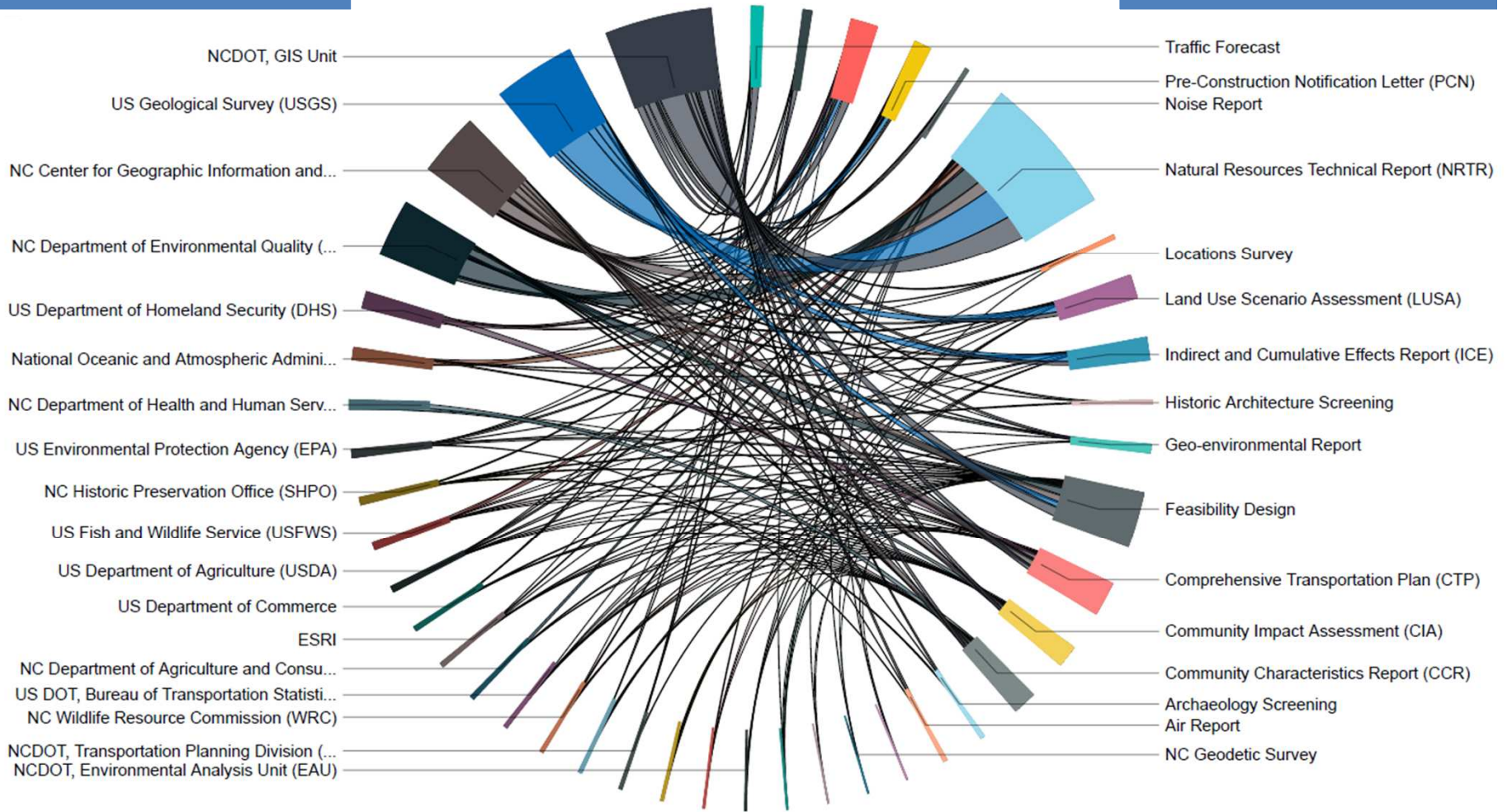
The screenshot displays the ATLAS Search Tool interface. At the top left is the ATLAS Search Tool logo. A navigation bar contains links for 'About', 'Additional Resources', and 'Help'. The main heading is 'Search'. Below this, a search form titled 'What Data Are You Searching For?' contains three input fields: 'Search By Document' with a dropdown menu showing '--Select Document Type--', 'Search By Organization' with a dropdown menu showing '--Select Organization(s)--', and 'Search By Keyword' with a text input field. At the bottom right of the form are 'Search' and 'Clear' buttons.

# Data Facts

564 = Total Layers

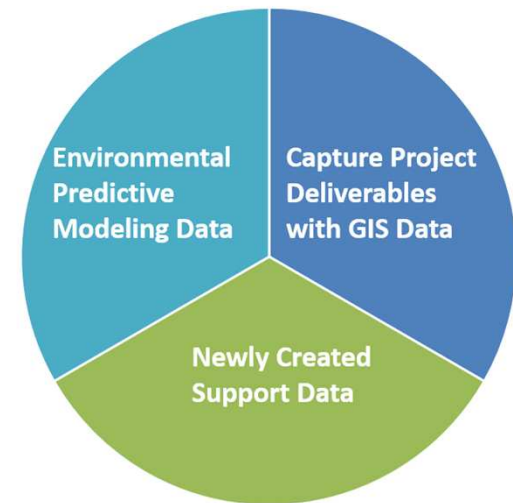
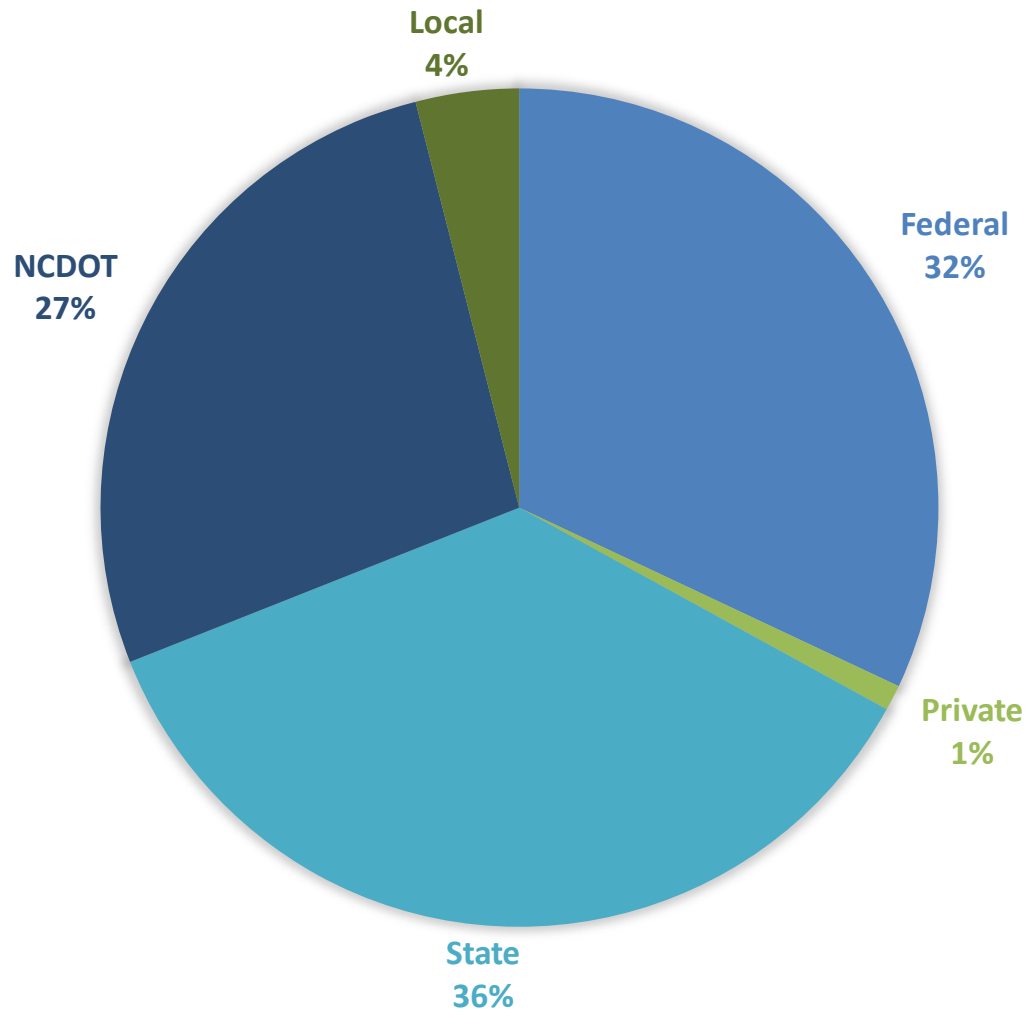
## Sources

## Documents





# ATLAS Data Sources



130 New Data Layers

# Data Availability

- Web services
- New layers
- Metadata
- Data vetting and authority



# Search Tool - Demonstration

# Screening Tool

# Screening Tool

Who?  
NCID Users  
known to DOT

## Key Functionality

- Screen against 60+ key data layers for area effects
- Screen STIP and SPOT projects, uploaded study area, or draw a study area
- Produce screening report
- Provide ability to download data sets
- View related data on a map

The screenshot shows the ATLAS Screening Tool homepage. At the top, there is a dark blue header with the ATLAS logo and the text "ATLAS Screening Tool". Below this is an orange navigation bar with links for "About", "Additional Resources", and "Help". The main heading is "Welcome to the Project Development Screening Tool". Below the heading, there is a list of steps to complete for screening a project study area: 1. Build Your Study Area, 2. Buffer Your Study Area (optional), 3. Select Data to Screen, and 4. View, Download, and/or Share Your Screening Report. The "To begin" section asks "How would you like to build your Project Study Area?" and provides three options: 1. "By Project ID" (highlighted in yellow), 2. "Upload Study Area" (highlighted in dark blue), and 3. "Draw Study Area" (highlighted in dark blue). Each option has a brief description below it.

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.



# Screening Tool

140/564 are  
Screening Layers

Build your  
Study Area

- Project ID (STIP or SPOT ID)
- Upload a .zip file
- Build using map tools

Buffer your  
Study Area

- Required for point and line features

Select Data  
to Screen

- Choose from over 60 layers

Your  
Report

- View
- Download
- Share

# Screening Report

**Project Development Screening Report**

test

N/A

County: Buncombe

Division: 13

EPA: 4

HUC8: 06010105

Threatened and Endangered: Yes

Transportation: Yes

Utilities: Yes

Water Quality: Yes

Wetlands: Yes

Buffer Size: 2 Miles

STIP/SPOT ID:

STIP/SPOT Description:

N/A

**Summary of Results**

Category	Result
Community	Yes
Conservation Area	Yes
Fish and Aquatics	Yes
Geo Environmental	Yes
Historic Archaeology	Yes
Hydrography	Yes
Mitigation	No
Physiography	Yes
Public Property	Yes

**Human Environment**

Community	Feature Count	Total Coverage	Nearest Feature
<a href="#">North Carolina Public Schools</a>	8	N/A	307.0 ft
<a href="#">NC Non Public Schools</a>	6	N/A	71.5 ft
<a href="#">NC Hospitals</a>	3	N/A	N/A
<a href="#">US DHS HIFLD Day Care Centers</a>	14	N/A	101.0 ft
<a href="#">NC Colleges and Universities</a>	1	N/A	N/A
<a href="#">NC Multi Hazard Threat Database Community Colleges</a>	1	N/A	N/A
<a href="#">NC Public Libraries</a>	1	N/A	576.3 ft
<a href="#">NC DEQ DWR Animal Operation Permits</a>	0	N/A	N/A
<a href="#">NC Multi Hazard Threat Database Nuclear Power Plants</a>	0	N/A	0
<a href="#">NC Multi Hazard Threat Database State Prisons</a>	0	N/A	175.7 ft
<a href="#">US DHS HIFLD Manufactured Home Parks</a>	0	N/A	285.0 ft
<a href="#">US HUD Public Housing Building</a>	0	N/A	0

**Geo Environmental**

	Feature Count	Total Coverage	Nearest Feature
<a href="#">NC Brownfield Agreement Locations</a>	8	N/A	1569.0 ft
<a href="#">NC DEQ Dry Cleaning Solvent Cleanup Act Sites</a>	3	N/A	158.5 ft
<a href="#">NC DEQ Manufactured Gas Plant</a>	2	N/A	N/A
<a href="#">NC DEQ Pre Regulatory Landfill Sites</a>	1	N/A	1577.1 ft
<a href="#">NC DEQ Active Permitted Landfills</a>	0	N/A	0
<a href="#">NC DEQ Charlotte Brownfield Agreement Boundaries</a>	0	0 ac	0
<a href="#">Southern Env. Law Center Coal Ash Basins</a>	0	0 ac	0

**Historic Archaeology**

	Feature Count	Total Coverage	Nearest Feature
<a href="#">NC Historic Preservation Office NR SL Site Boundaries Poly</a>	8	208.4 ac	1488.1 ft
<a href="#">NC Historic Preservation NR Points</a>	43	N/A	29.5 ft
<a href="#">NC Historic Preservation Office SL Points</a>	31	N/A	14.2 ft
<a href="#">NC Historic Preservation Office NR DOE Site Points</a>	22	N/A	11.5 ft
<a href="#">NC Historic Preservation Office NR DOE Site Boundaries Poly</a>	20	242.5 ac	66.4 ft
<a href="#">NC Historic Preservation Office Local District Boundaries</a>	2	59.1 ac	380.0 ft
<a href="#">NC Historic Preservation Office Surveyed Only Points</a>	1275	N/A	17.5 ft

1 of 8
2 of 8

# Screening Tool - Demonstration

# Workbench

# ATLAS Workbench

Who?  
PMs &  
Consultants  
Assigned to  
Project

- Key Functionality
  - Integration with SharePoint (Scoping and PreConstruction)
  - Ingestion of standard deliverable data (PDF and spatial data deliverables)
  - View your project within the context of surrounding projects and data for those projects
  - Flexible in conjunction with policy changes



# Launching Workbench - PreCon

Connect NCDOT  
BUSINESS PARTNER RESOURCES

Home Help Team Sites 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



# Launching Workbench - Scoping

Connect NCDOT  
BUSINESS PARTNER RESOURCES

Doing Business | Bidding & Letting | Projects | Resources | Local Governments

**Scoping** ▸ **A-121117 Dare Scoping validation**  
Test project

Home ▸ Scoping

Scoping Home

Scoping Project Requests

Consulting Firm Access Requests

ATLAS Workbench

ATLAS Search

ATLAS Screening



+ New

↑ Upload

↻ Sync

More ▾

By Topic

All Documents

...

Find a file



Name

Modified

# ATLAS Workbench



ATLAS Workbench

Workbench

Map

About

Additional Resources

Help

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

## Merger



Is Merger required?

Yes  No

a. Merger Activities

\* Select lead agency

US Army Corps of Engineers (USACE) ▼

\* Was merger screening meeting held?

Yes  No

If yes, enter meeting date.

Upload Merger Screening Meeting Minutes (PDF)

Browse

What potential project impacts were identified?

None selected ▼

# Project Deliverables

## Scoping

- Scoping Report (PDF)

## Survey and Photogrammetry

- Limits of Survey (PDF)

## Traffic Analysis

- Project Level Traffic Forecast Report (PDF)
- Traffic Forecast Study Area (GIS)

## Community Characteristic Report

- Community Characteristics Report (PDF)
- Direct Community Impact Area (GIS)

# Project Deliverables

## Natural Resources

- NRTR/NRTM Document (PDF)
- Preliminary Jurisdictional Determination Package (PDF)
- NRTR Project Study Area (GIS)

## Indirect & Cumulative Effects (ICE)

- ICE Report (PDF)
- Future LUSA (GIS)

## Air Quality

- Air Quality Report (PDF)
- Project Vicinity (GIS)

## Traffic Noise Analysis

- Traffic Noise Report (PDF)
- Noise Study Area (GIS)



# Project Deliverables

## Cultural Resources

- Historic Survey & Eligibility Report (PDF)
- Archaeological Survey Required Form (PDF)
- Area of Potential Effect (GIS)

## Geo-Environmental

- Geo-Environmental Planning Report (PDF)
- Project Study Area (GIS)

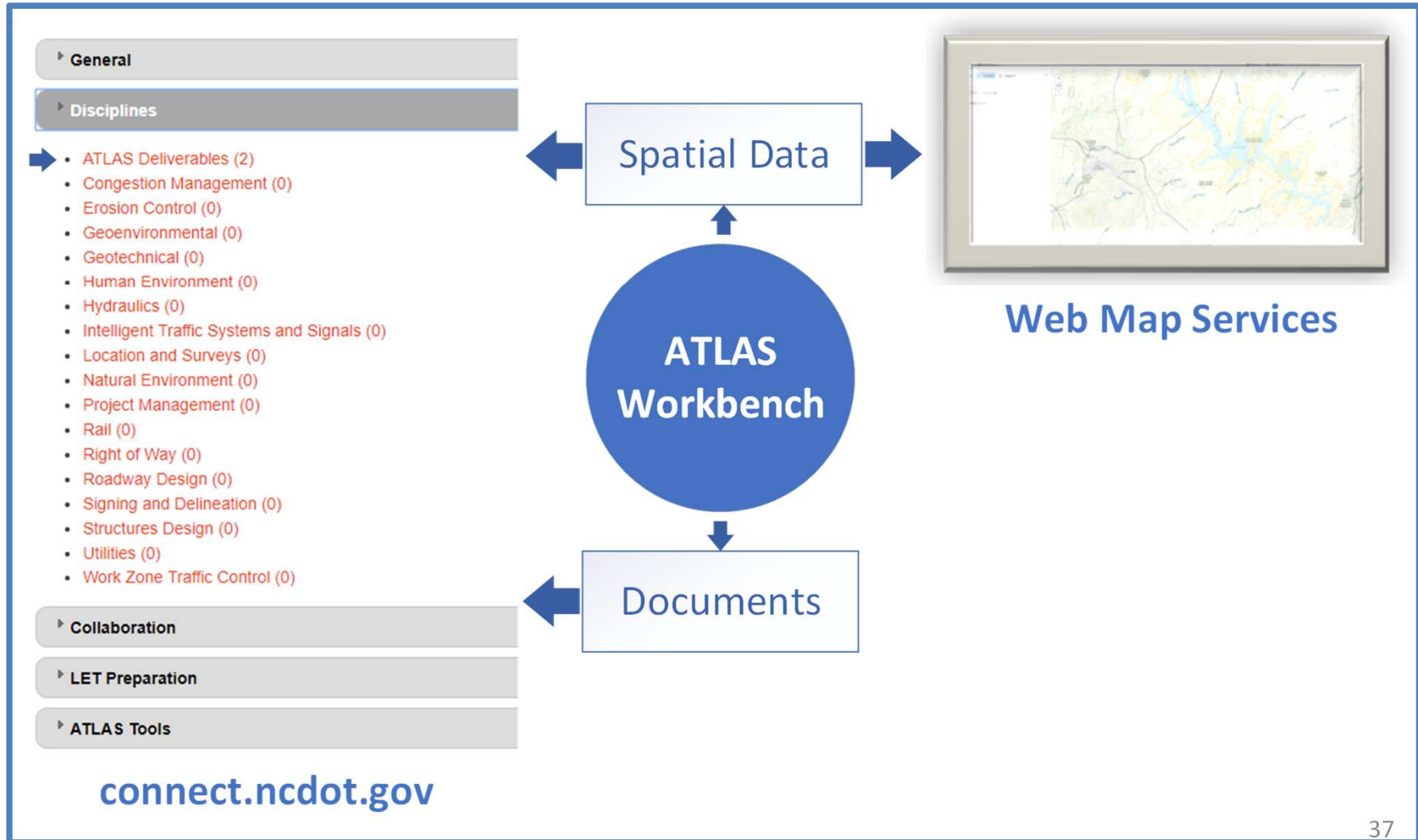
## Land Use Scenario Assessment (LUSA)

- LUSA Report (PDF)
- Probable Development Area (GIS)

## Community Impact Assessment (CIA)

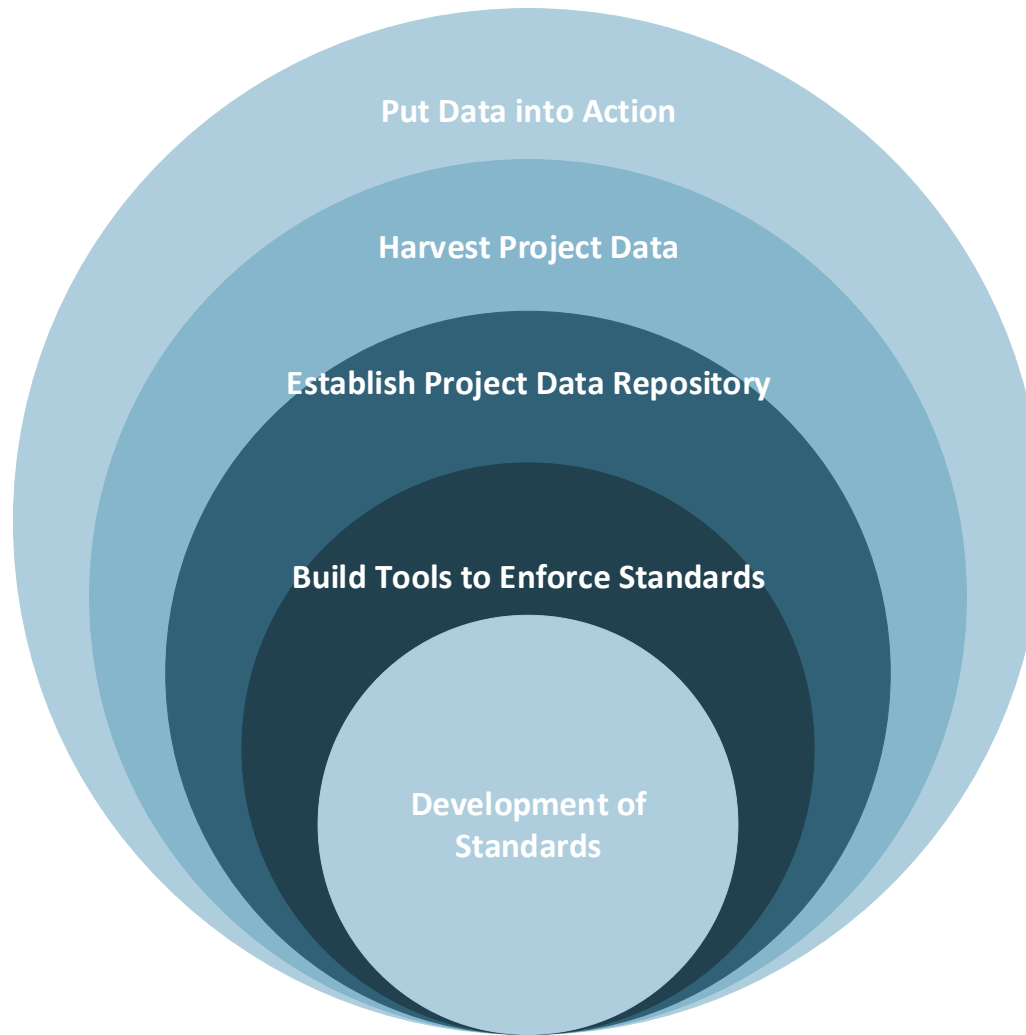
- CIA Report (PDF)
- Direct Community Impact Area (GIS)

# Workbench – Data Flow



# Workbench - Demonstration

# Workbench – Snowball Effect



# Standards for Workbench Uploads

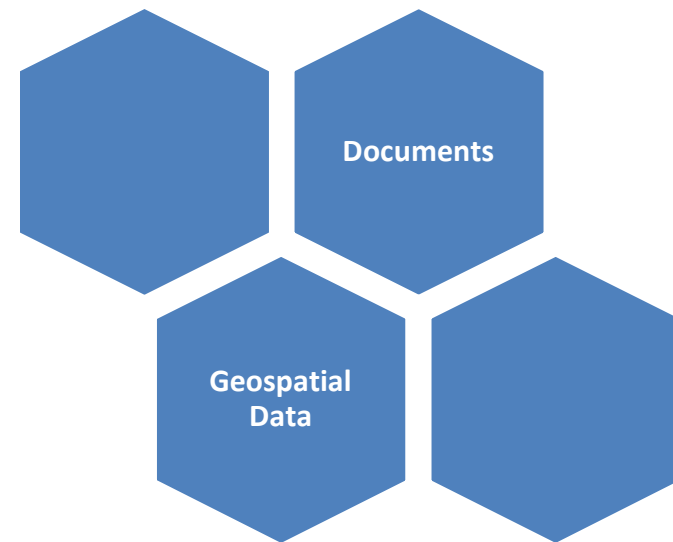


# Why Standards?

Standards allow for better management, sharing and integration of data across the many subject areas.

## Subject Areas:

- Feasibility
- Public Involvement
- Survey and Photogrammetry
- Traffic
- CCR
- NRTR
- ICE/LUSA
- Air Quality
- Traffic Noise Analysis
- Cultural Resources
- Geo-Environmental
- CIA



# Standards for Documents

- ProjectID\_ReportName.pdf
- Project ID is usually the TIP ID.
- Report Name is a short name for the report. No spaces or special characters (except underscores).
- Examples: U5711\_CCR.pdf, U5711\_TrafficForecast.pdf, U5711\_NRTR.pdf

# Standards for Geospatial Deliverables

## Naming:

- ProjectID\_StudyArea.shp
- Begins with the Project ID
- Does not include dashes, spaces or special characters
- Should not start with a number or special character

## Format:

- Submitted as zipped shapefiles
- Must include .shp, .shx, .dbf, .prj
- CAD files are in .dgn format

# Standards for Geospatial Deliverables

## Spatial Reference:

- North American Datum 1983 (NAD83)
- NC State Plane Coordinate System (NCSPC)
- North American Vertical Datum of 1988 (NAVD88)
- Measurement units are in US Survey feet.

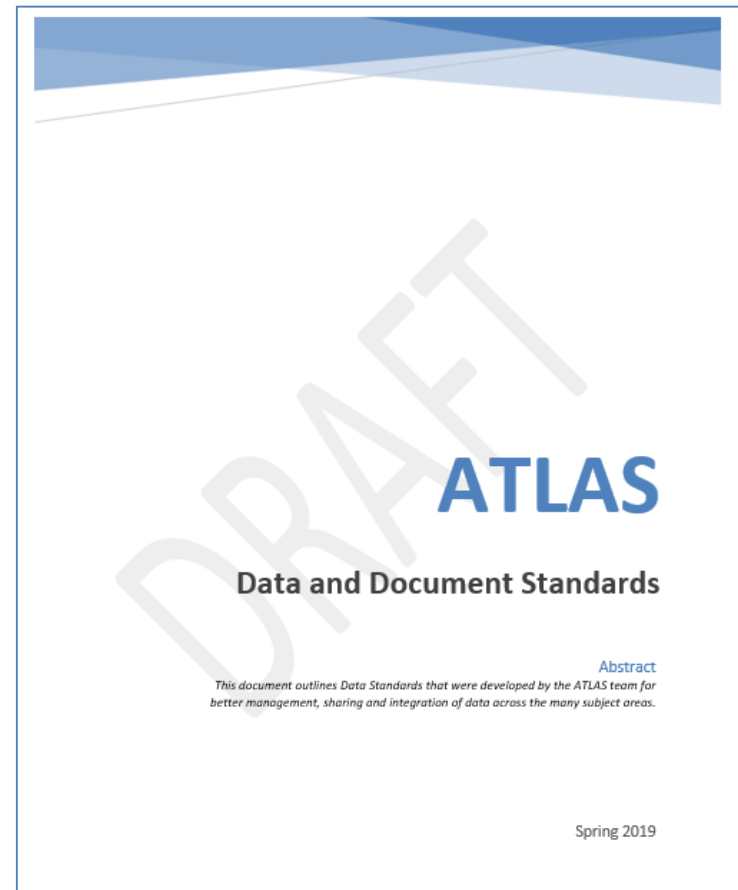
Projected Coordinate System:	NAD_1983_StatePlane_North_Carolina_FIPS_3200_Feet
Projection:	Lambert_Conformal_Conic
False_Easting:	2000000.00261667
False_Northing:	0.00000000
Central_Meridian:	-79.00000000
Standard_Parallel_1:	34.33333333
Standard_Parallel_2:	36.16666667
Latitude_Of_Origin:	33.75000000
Linear Unit:	Foot_US
Geographic Coordinate System:	GCS_North_American_1983
Datum:	D_North_American_1983
Prime Meridian:	Greenwich
Angular Unit:	Degree

# Standard ATLAS Fields (GIS)

Field Name	R/NR for consultants	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	10	Project Number
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes

# Standards Summary

- There is a detailed Standards Document.
- Geospatial templates will be provided.
- The ATLAS Fields are required for all GIS files.





# Additional Resources



ATLAS Screening Tool

[About](#)

[Additional Resources](#)

[Help](#)

## Additional Resources

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Resource Name	Resource Description
<a href="#">ATLAS Search Tool Tip Sheet</a>	This document highlights key functionality of the Search Tool.
<a href="#">ATLAS Screening Tool Tip Sheet</a>	This document highlights key functionality of the Screening Tool.
<a href="#">ATLAS Workbench Tip Sheet</a>	This document highlights key functionality of the Workbench.
<a href="#">ATLAS User Guide</a>	This document provides detailed descriptions of user functionality in the Search, Screening and Workbench applications.
<a href="#">ATLAS Standards</a>	This document outlines Data Standards that were developed by the ATLAS team for better management, sharing and integration of data across the many subject areas. Standards must be adhered to when uploading documents and data to the ATLAS Workbench.
<a href="#">How a road gets built</a>	NCDOT overview of "How a road gets built"
<a href="#">NCDOT State Transportation Improvement Program</a>	Access information about the NCDOT State Transportation Improvement Program
<a href="#">NCDOT Feasibility Study Documents</a>	Access NCDOT Feasibility Study Documents
<a href="#">NCDOT Scoping SharePoint Home</a>	Access NCDOT Scoping SharePoint Home
<a href="#">NCDOT Preconstruction SharePoint Home</a>	Access NCDOT Preconstruction SharePoint Home

# Application Management Tool

# Application Management Tool

The screenshot displays the ATLAS Application Management Portal interface. It includes a navigation menu on the left with options like 'Manage ATLAS Search Tool', 'Manage ATLAS Screening Tool', 'Manage ATLAS Workbench', 'Manage ATLAS Disclaimer', 'Manage ATLAS About', 'Manage ATLAS Additional Resources', and 'Manage ATLAS Help'. The main content area shows a table of layers with columns for 'Layer Name', 'Linked Documents', and 'Linked Categories'. Below this, there are sections for 'Decision Tree Administration' and 'Configure Controls for Natural Resources'.

**Layer Name** | **Linked Documents** | **Linked Categories**

2012 Integrated Reporting Water Quality Assessments	NRTR . FeasibilityDesign	Natural Environment
2015RareRoadsidePopulations_pt_nodupl.shp	None selected	None
2016 Traffic Segments Primary		
2016 Traffic Segments Secondary		
303d and 305b Streams (ESM Layer)		
911 Response with Transport Capability		
911 Response without Transport Capability		
Air Medical/Specialty Care Transport		

**Decision Tree Administration**

Select a part of the decision tree to configure:

- Categories
- Groups
- Controls

**Configure Controls for Natural Resources**

Add Control

Order	Title	Control Type	Edit	Delete	Up	Down
1	Was Jurisdictional Area Delineation completed?	Yes No	Edit	Delete	Up	Down
2	Were T&E surveys completed?	Yes No	Edit	Delete	Up	Down
3	What effect will the project have on Threatened and Endangered Species or their critical habitat?	Dropdown	Edit	Delete	Up	Down
4	Select species that are potentially impacted:	Multiple Select	Edit	Delete	Up	Down
5	Are there any species for which biological conclusions are unresolved?	Yes No	Edit	Delete	Up	Down
6	If so, which and why?	Text	Edit	Delete	Up	Down
7	Has the USFWS requested a Biological Assessment during Section 7 consultation?	Yes No	Edit	Delete	Up	Down

## Key Functionality

- Add/remove layers
- Manage deliverables types
- Manage workbench questions
- Update About, Application Disclaimers, Additional Resources, and Help

# Wrap Up

# Important Notes on ATLAS

We are:

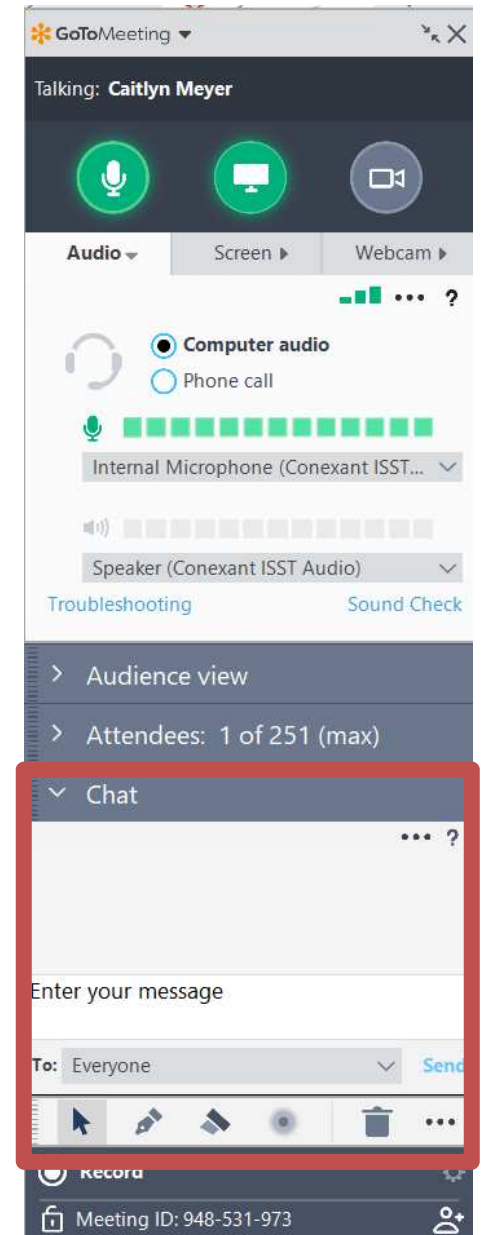
- Not eliminating field work or jobs
- Pushing more work earlier in the process to help scheduling, budgeting and scoping
- Helping to deliver better projects by:
  - Improving GIS data and management
  - Improving processes

# Next Steps

- 500+ people are participating in this week's webinars
- In-person training is coming
- Rollout – TBD
- ATLAS is dynamic based on your feedback!

# How to Participate

- Use chat to submit questions





# Questions?

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

- LeiLani Paugh, NCDOT EAU, [lpaugh@ncdot.gov](mailto:lpaugh@ncdot.gov)
- Morgan Weatherford, NCDOT EAU, [mdweatherford@ncdot.gov](mailto:mdweatherford@ncdot.gov)
- Michelle Warf, NCDOT EAU, [mlwarf@ncdot.gov](mailto:mlwarf@ncdot.gov)
- Ryan Arthur, NCDOT GIS Unit, [rarthur@ncdot.gov](mailto:rarthur@ncdot.gov)
- Wendee Smith, North State, [w.smith@nsenv.com](mailto:w.smith@nsenv.com)
- Eric Wilson, GeoDecisions, [ewilson@geodecisions.com](mailto:ewilson@geodecisions.com)
- Caitlyn Meyer, GeoDecisions, [cmeyer@geodecisions.com](mailto:cmeyer@geodecisions.com)