Project ATLAS

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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 Transportation through Linkages, Automation, and Screening

• 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
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

- Wetlands & Streams
- Protected Species
- Sweeping
- Historic Resources
- Traffic
- Community Studies
- Bike & Ped
- Right of Way
- Utilities

GIS
Current Projects
Future Projects

The [2020-2029 draft State Transportation Improvement Program](https://www.ncdot.gov) consists of 1,663 projects.

<table>
<thead>
<tr>
<th>Transportation Mode</th>
<th>Total Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviation</td>
<td>86</td>
</tr>
<tr>
<td>Bicycle/Pedestrian</td>
<td>235</td>
</tr>
<tr>
<td>Ferry</td>
<td>6</td>
</tr>
<tr>
<td>Highway</td>
<td>1,266, including:</td>
</tr>
<tr>
<td></td>
<td>- 181 bridge projects</td>
</tr>
<tr>
<td></td>
<td>- 83 interstate maintenance projects</td>
</tr>
<tr>
<td></td>
<td>- 37 safety projects</td>
</tr>
<tr>
<td>Public Transit</td>
<td>23</td>
</tr>
<tr>
<td>Rail</td>
<td>47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,663</strong></td>
</tr>
</tbody>
</table>
How did ATLAS get started?

- **Industry Day** • Aug. 2017
- **Project Initiated** • Oct. 2017
- **Development** • May 2018
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"
# Business Goal

1. Provide the transportation project community a **searchable gateway** to all spatial data used in project delivery at NCDOT.

2. Create a tool that **screens** NCDOT projects against spatial project data for potential effects.

3. Provide a platform for project managers to **view their project**, their project’s **effects**, and other significant information related to managing that project.

4. Stand-up an **enterprise** GIS SDE for NCDOT project data.

5. Create enterprise GIS data for **project delivery**.
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.
Project ATLAS - Overview

**Workbench**
Manage and upload project data and deliverables

**Search**
Search or download data related to project development

**Your Project**
(Express Design, SPOT, STIP)

**Screening**
Screen projects for effects and create screening reports
Search Tool
Search Tool

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

Who?
NCID Users
Data Facts

564 = Total Layers

Sources
- NCDOT, GIS Unit
- US Geological Survey (USGS)
- NC Center for Geographic Information and Analysis
- NC Department of Environmental Quality (NCDEQ)
- US Department of Homeland Security (DHS)
- National Oceanic and Atmospheric Administration (NOAA)
- NC Department of Health and Human Services (NC DHHS)
- US Environmental Protection Agency (EPA)
- NC Historic Preservation Office (SHPO)
- US Fish and Wildlife Service (USFWS)
- US Department of Agriculture (USDA)
- US Department of Commerce
- ESRI
- NC Department of Agriculture and Conservation
- US DOT, Bureau of Transportation Statistics
- NC Wildlife Resource Commission (WRC)
- NCDOT, Transportation Planning Division
- NCDOT, Environmental Analysis Unit (EAU)

Documents
- Traffic Forecast
- Pre-Construction Notification Letter (PCN)
- Noise Report
- Natural Resources Technical Report (NRTR)
- Locations Survey
- Land Use Scenario Assessment (LUSA)
- Indirect and Cumulative Effects Report (ICE)
- Historic Architecture Screening
- Geo-environmental Report
- Feasibility Design
- Comprehensive Transportation Plan (CTP)
- Community Impact Assessment (CIA)
- Community Characteristics Report (CCR)
- Archaeology Screening
- Air Report
- NC Geodetic Survey
ATLAS Data Sources

- NCDOT: 27%
- Federal: 32%
- State: 36%
- Local: 4%
- Private: 1%

130 New Data Layers
- Environmental Predictive Modeling Data
- Capture Project Deliverables with GIS Data
- Newly Created Support Data
Data Availability

- Web services
- New layers
- Metadata
- Data vetting and authority
Search Tool - Demonstration
Screening Tool
Project ATLAS – Screening Tool

Screening Tool

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

Who?
NCID Users known to DOT
Screening Tool

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

140/564 are Screening Layers
## Project Development Screening Report

### Summary of Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>Yes</td>
</tr>
<tr>
<td>Conservation Area</td>
<td>Yes</td>
</tr>
<tr>
<td>Fish and Aquatic</td>
<td>Yes</td>
</tr>
<tr>
<td>Ocean Environmental</td>
<td>Yes</td>
</tr>
<tr>
<td>Historic Archaeology</td>
<td>Yes</td>
</tr>
<tr>
<td>Hydrography</td>
<td>Yes</td>
</tr>
<tr>
<td>Mitigation</td>
<td>No</td>
</tr>
<tr>
<td>Phylography</td>
<td>Yes</td>
</tr>
<tr>
<td>Public Property</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Human Environment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Total Coverage</th>
<th>Nearest Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened and Endangered</td>
<td>Yes</td>
<td>300 ft</td>
</tr>
<tr>
<td>Transportation</td>
<td>Yes</td>
<td>71.5 ft</td>
</tr>
<tr>
<td>Utilities</td>
<td>Yes</td>
<td>170 ft</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Yes</td>
<td>770 ft</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Yes</td>
<td>300 ft</td>
</tr>
</tbody>
</table>

### Geo Environmental

<table>
<thead>
<tr>
<th>Feature</th>
<th>Total Coverage</th>
<th>Nearest Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC Brownfield Agreement Locations</td>
<td>8</td>
<td>150 ft</td>
</tr>
<tr>
<td>NC DEQ Dry Cleaning Source Clean up Sites</td>
<td>3</td>
<td>175 ft</td>
</tr>
<tr>
<td>NC DEQ Manufactured Gas Sites</td>
<td>2</td>
<td>570 ft</td>
</tr>
<tr>
<td>NC DEQ Pre Development Lots</td>
<td>1</td>
<td>1577 ft</td>
</tr>
<tr>
<td>NC DEQ Active Permitted Landfills</td>
<td>0</td>
<td>0 ft</td>
</tr>
<tr>
<td>NC DEQ Drycleaning Brownfield Agreement Boulevards</td>
<td>0</td>
<td>0 ft</td>
</tr>
</tbody>
</table>

### Historic Archaeology

<table>
<thead>
<tr>
<th>Feature</th>
<th>Total Coverage</th>
<th>Nearest Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC Historic Preservation Office NR SR Site Bounded Poly</td>
<td>5</td>
<td>1445 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office NR SR Site Parks</td>
<td>43</td>
<td>20 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office Site Parks</td>
<td>31</td>
<td>142 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office NR DOE Site Points</td>
<td>22</td>
<td>11.5 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office NR DOE Site Boundaries Poly</td>
<td>29</td>
<td>600 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office Local District Boundaries</td>
<td>2</td>
<td>390.3 ft</td>
</tr>
<tr>
<td>NC Historic Preservation Office Surveyed Only Poly</td>
<td>1275</td>
<td>17.5 ft</td>
</tr>
</tbody>
</table>
Screening Tool - Demonstration
Workbench
ATLAS Workbench

• 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

**U-5834**

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

Buncombe

**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
ATLAS Workbench

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)

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

ATLAS Workbench

Spatial Data

Documents

Web Map Services

General

Disciplines

- ATLAS Deliverables (2)
- Congestion Management (0)
- Erosion Control (0)
- Geoenvironmental (0)
- Geotechnical (0)
- Human Environment (0)
- Hydraulics (0)
- Intelligent Traffic Systems and Signals (0)
- Location and Surveys (0)
- Natural Environment (0)
- Project Management (0)
- Rail (0)
- Right of Way (0)
- Roadway Design (0)
- Signing and Delineation (0)
- Structures Design (0)
- Utilities (0)
- Work Zone Traffic Control (0)

Collaboration

LET Preparation

ATLAS Tools

connect.ncdot.gov
Workbench - Demonstration
Workbench – Snowball Effect

- Put Data into Action
- Harvest Project Data
- Establish Project Data Repository
- Build Tools to Enforce Standards
  - Development of Standards
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_SummaryArea.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)

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

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

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATLAS Search Tool Tip Sheet</td>
<td>This document highlights key functionality of the Search Tool.</td>
</tr>
<tr>
<td>ATLAS Screening Tool Tip Sheet</td>
<td>This document highlights key functionality of the Screening Tool.</td>
</tr>
<tr>
<td>ATLAS Workbench Tip Sheet</td>
<td>This document highlights key functionality of the Workbench.</td>
</tr>
<tr>
<td>ATLAS User Guide</td>
<td>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.</td>
</tr>
<tr>
<td>ATLAS Standards</td>
<td>NCDOT overview of “How a road gets built”</td>
</tr>
<tr>
<td>How a road gets built</td>
<td>Access information about the NCDOT State Transportation Improvement Program</td>
</tr>
<tr>
<td>NCDOT State Transportation Improvement Program</td>
<td>Access NCDOT Feasibility Study Documents</td>
</tr>
<tr>
<td>NCDOT Feasibility Study</td>
<td>Access NCDOT Scoping SharePoint Home</td>
</tr>
<tr>
<td>Documents</td>
<td>NCDOT Preconstruction SharePoint Home</td>
</tr>
<tr>
<td>NCDOT Scoping SharePoint</td>
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<tr>
<td>Home</td>
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<tr>
<td>NCDOT Preconstruction</td>
<td></td>
</tr>
<tr>
<td>SharePoint Home</td>
<td></td>
</tr>
</tbody>
</table>
Application Management Tool
Application Management Tool

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

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