Project ATLAS: Improving Program Delivery at NCDOT

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Environmental Analysis Unit

October 2, 2019
Project ATLAS is an effort to increase efficiency of Transportation Program Delivery.
A Confluence of Agency Needs

Reorganization
+
3, 2, 1 Mandate
+
Secretary’s Priorities

Kinston Bypass Experience
+
Screening Tool
How We Got Here:

Collaboration Wins

Project Initiation
August 2017

Business Process Analysis
Fall 2017

Enterprise Data Development
Winter 2018

Application Development
Summer 2018

ATLAS Live
June 2019

Business
GIS
IT
Improving the Project Delivery Process

1. PLANNING
2. PRIORITIZATION & PROGRAMMING
3. PROJECT DEVELOPMENT
4. DESIGN
5. PROPERTY ACQUISITION
6. CONSTRUCTION
7. MAINTENANCE

ATLAS DATA

ATLAS APPS

EXPRESS DESIGN
ATLAS Data & Business Workflows

- WETLANDS & STREAMS
- PROTECTED SPECIES
- HISTORIC RESOURCES
- TRAFFIC
- COMMUNITY STUDIES
- BIKES & PEDESTRIANS
- RIGHT OF WAY
- UTILITIES

GIS
ATLAS Applications

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

**SCREENING TOOL**
Screen projects for effects and create screening reports

**WORKBENCH**
Manage and upload project data and deliverables, track project progress, and report on activities

**APP MANAGEMENT TOOL**
Configuration tools in the hands of DOT Business
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

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

### 237 Layers Found.

<table>
<thead>
<tr>
<th>Select</th>
<th>Layer Name</th>
<th>Description</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️</td>
<td>2012 Integrated Reporting Water Quality Assessments</td>
<td>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.</td>
<td>NC Department of Environmental Quality, Division of Water Resources</td>
</tr>
<tr>
<td>✔️</td>
<td>303d and 305b Streams (ESM Layer)</td>
<td>303d and 305b Streams for ESM application hosted by NCDOT.</td>
<td>NCDOT, GIS Engineering Transportation Systems, GIS Unit</td>
</tr>
<tr>
<td></td>
<td>Albemarle - Pamlico National Estuary Partnership Map</td>
<td>AP map is an interactive mapping application designed to provide geographic information about the Albemarle-Pamlico (A-P) watershed and APNEP.</td>
<td>NC Department of Environmental Quality, Albemarle-Pamlico National Estuary Partnership</td>
</tr>
<tr>
<td>✔️</td>
<td>Alluvial Fans</td>
<td>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 AQ 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.</td>
<td>Department of Homeland Security, Federal Emergency Management Agency</td>
</tr>
<tr>
<td></td>
<td>Anadromous Fish Spawning Areas</td>
<td>NC DEQ maps here: <a href="http://portal.ncdenr.org/web/mf/afsa-maps">http://portal.ncdenr.org/web/mf/afsa-maps</a></td>
<td>NC Department of Environmental Quality, Division of Marine Fisheries</td>
</tr>
</tbody>
</table>

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.
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
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

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
ATLAS Screening Tool

Number of potential impacts: 14

- 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

Download Report  Download GDB  Download DGN
**ATLAS Screening Tool**

**Project Development Screening Report**

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

**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
ATLAS Screening Tool

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.
## ATLAS Screening Tool

### Human Environment

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

## Natural Environment

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

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Service Url</th>
<th>Error Thrown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Ridge Forever Appalachian Trail Centerline</td>
<td><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></td>
<td>URLError: No connection could be made because the target machine actively refused it</td>
</tr>
<tr>
<td>NC Natural Heritage Natural Areas (NHNA)</td>
<td><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></td>
<td>Invalid Token</td>
</tr>
<tr>
<td>NC Shellfish Growing Area Classifications</td>
<td><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></td>
<td>Invalid or missing input parameters.</td>
</tr>
<tr>
<td>NOAA Marine/Estuarine Aquatic Bed, Rooted Vascular (Submersed Rooted Vasculars, SRV)</td>
<td><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></td>
<td>Error handling service request 0x80004005 - Unspecified error</td>
</tr>
<tr>
<td>TVA Land Plans (EGISMap)</td>
<td><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></td>
<td>URLError: No connection could be made because the target machine actively refused it</td>
</tr>
</tbody>
</table>
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
NRTR - B-4487

Is this section required?
* Yes ☑ No

1. Land Owner
   - Upload Land Owner Notification Letter (PDF)
   - Upload Land Owner Mailing List (PDF)

2. WEX Files
   - Upload Jurisdictional Wetlands WEX (GIS)
   - Upload WEX file (DGN)
   - * Upload Preliminary Jurisdictional Determination Package (PDF)

3. WET Files
   - Upload Jurisdictional Wetlands WET (GIS)
   - Upload WET file (DGN)
   - Upload Approved Jurisdictional Determination Form (PDF)
ATLAS Workbench
## ATLAS: By the Numbers

### June 2019
- **ATLAS Go-Live Date**
- **27** ATLAS Regional Trainings
- **14** Divisions Represented at Training
- **4** ATLAS Live Webinars

### ATLAS Go-Live Data
- **600+ GIS Data Layers Available through ATLAS**
- **100+ Interviews with DOT Staff and Consultants as Part of Business Analysis Phase**
- **27** ATLAS Regional Trainings
- **500+ ATLAS Training Attendees**
- **4** ATLAS Live Webinars
- **70+ Data Downloads Run Since Go-Live**
- **200+ Screenings Reports Run Since Go-Live**
- **130+ Brand-New GIS Layers Created by ATLAS Team**
Who Has ATLAS Reached?

- Consultants
- Mobility & Safety
- Mitigation & Modeling
- Rail
- Locations & Surveys
- Public Involvement
- Community Studies
- Roadway Design
- Structures
- Hydro
- Traffic
- Air & Noise
- Archaeology
- Environmental Policy
- Environmental Analysis
- Biological Surveys
- Transportation
- ROW
- SPOT
- Corridor Development
- TRB
- Aviation
- ACEC/NC
- Design Build
- FHWA
- GeoTech
- ECAP
- NCLUG
- NC DEQ
- Hydro
- USACE
- NCDOT
- MPOs & RPOs
- Project ATLAS: Improving Program Delivery at NCDOT
- Feasibility Studies
ATLAS Feedback

Great tool!
Thank you for listening to suggested updates/improvements for 2.0.

I've wasted so much of my time in the past searching for files; this will save time!

Great interactive, useful tool!

It was far better than I expected. The search, screening, and workbench tools are an absolute game changer!

Atlas will be a highly effective method of delivering projects more efficiently.

I was nervous because I am not tech savvy, but this was very simple.

As a consultant PM, this system will be great to track progress and to provide screening.

I was blown away by the organization and fully covered process.

This is one-stop shopping for preconstruction and streamlines what I need to prepare before going in the field.

Fantastic tool, can't wait to use.

Exceeded expectations

The software is user friendly.

I see myself using this daily.

I think Atlas is a great idea and long overdue. Thank you for your efforts, communication between agencies is key! Please share with SCDOT too!

Overall Training Rating = 4.7/5
Progress Toward Integrated Project Delivery (IPD)

- Workflow Management
- Authoritative Data
- Central Repository
- Regional View
- Better Systems Integration and Handoffs
- Maximize Historical Knowledge
- Easier Project Transitions
- A Platform to Guide the Process
Ongoing Work

- NCDOT ATLAS Policy
- IPD Collaboration
- Actively working on enhanced functionality
  - *Release 1.5 is coming end of August*
- Machine learning efforts
- Scope for ATLAS 2.0
  - *Further collaboration throughout the program delivery process*
The Future of ATLAS ...

- More and more data development
- Smoother handoffs between project phases and existing DOT investments/applications
- Provide management-level views to track overall project development activity and guide funding/prioritization
- More map tools to put power of GIS into the hands of the non-GIS user
- Enable regional and statewide screenings
- More automation of standard reports/documents (PCRs, Project Commitments, etc.)
- Incorporate more business units

and much more...
Questions And Discussion

ATLAS@ncdot.gov