Managing Web-Based GIS for North Carolina Dept. of Transportation

Jeremy Aycock  jhaycock@ncdot.gov
NCDOT, GeoService Solutions Group
Topics

• Overview of GO!NC Responsibilities
• Recent Accomplishments
• Current Development Projects
• On the Horizon for NCDOT Web-based GIS
What is **GO! NC**?

https://ncdot.maps.arcgis.com

- **GO! NC** = GIS Online at **NCDOT**
- Tools and resources that support the publishing and sharing of official NCDOT Geospatial Data
- Accessed by the **GO! NC** Portal, a web-based portal through which users can access NCDOT Geospatial Data
GO!NC

Administration

- Publish and manage GeoServices provided by the GIS Unit
- Deploy and support GeoServices created and maintained by NCDOT Business Units
- Develop, deploy, and maintain GeoServices to support custom applications (eg. RoadNC, Road Characteristics Editor)
- Support AGOL user accounts for NCDOT
- Documentation to support use of services and AGOL (e.g. Collector for ArcGIS, Survey123, Editing in AGOL)
By the Numbers

- **1000+** NCDOT employees with active GO!NC/AGOL accounts
- **300+** employee accounts added in 2017
- **200+** layers shared to public (Map-Image and Feature Service)
- **100+** WebMaps shared to the public
- **50+** Contractors actively using GO!NC for data collection
Current Trends

• Training/onboarding NCDOT business units to host and manage their own GeoServices

• Web and Mobile Data Collection

• ArcGIS/SharePoint Integration

• Geo-enabling NCDOT construction project data

• Customized Application Development using WebApp Builder GP Services, and other GIS/Web tools
Recent Completed Projects

- Utilizing ArcGIS Collector for ADA
  Curb Ramp Inventory
- Using AGOL to Manage NCDOT Remnant Properties
- RoadNC Product Suite creation
  (SLD Viewer and analysis tools)
Utilized ArcGIS Collector for Project

Enabled Field crews with efficient methods to survey and report on ADA compliance for curb ramps on State Maintained Roads
Business Requirements

• Ability to perform survey on a mobile device with minimal training
• One synced dataset accessible to both field crew and office staff
• Minimize free-form data entry
• Ability to track edits by user and date
• Reference NC Aerial Imagery, State Maintained Roads, existing intersection surveys
ADA Curb Ramp Inventory

**Business Requirements**

- Allow the ability to attach documents and images to features
- Allow users to collect data when disconnected from the internet
- When offline or online, editors must have access to the NCOOneMap orthoimagery
- On-device GPS accuracy acceptable
Components in Solution

- AGOL and Collector
- GO!NC AGOL User Accounts
- AGOL User Group
- AGOL Web Map
- Editable Feature Layer (Curb Ramp Inventory)
- Reference Services
- Orthoimagery Tile Packages (Side Loaded to Device)
ADA Curb Ramp Inventory

Data Design

- One feature class containing curb ramps and attribute data
- Feature class supports attachments

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Data Design

- Domains to validate data entry
- Subtypes to support an edit template and default values
- “Compliant” attribute participates in the subtype definition

**Subtype Code: 1**
**Subtype Name: Compliant** (indicates the curb ramp is compliant in all areas)

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**Subtype Code: 2**
**Subtype Name: NonCompliant** (indicates curb ramp is noncompliant for one or more reasons)

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**Subtype Code: 3**
**Subtype Name: Missing** (indicates a curb ramp is missing where one is expected)

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**Note:** The default values for NonCompliant match Compliant to assist with the data entry process. Only those values that make the curb ramp noncompliant are changed by editors.

**Note:** No default values are set for this type of curb ramp.
NCDOT Remnant Property

• Designed for Right-of-Way staff to keep Remnant Property up to date and perform the data maintenance work independently

• Editing performed in GO!NC/ArcGIS Online using editable Remnant Property Layer and WebMap

• Un-Editable Remnant Property “View” configured for Sharepoint page which consumes a specially configured service (for the list) and separate AGOL web map (for the map display)
NCDOT Remnant Property

Business Requirements – Editing Application

• Designed for non-technical staff to carry out requested tasks
• Editing performed using a map-type interface
• No GIS software installation required for editing
• Application is accessed by more than one user, but restricted to the public
• Ability to add, update, and delete remnant property points in the geospatial data
• Ability to track when, who and what changes are made to the Remnant property information
NCDOT Remnant Property

Business Requirements – Public View

• Editing layer given ability to support a public facing Remnant Property SharePoint page map and list
• Data available to the public shall be live
• Data available to the public shall not be editable
• Remnant data viewable by the public will consist of only properties whose status = “Available”
Created map services of our existing roadway data and leveraged two applications we had at our disposal:

- AGOL- Hosted Map Viewer
- Straight Line Diagram- Analyze Transportation data
Four map services are used to make RoadNC happen

1. Road Events - Characteristics, features, and assets
2. Road Centerlines in gray symbology
3. Road Centerlines in color symbology
4. Road Name Labels

- All data used is from a daily snapshot of our network, road assets, features and characteristics
- Can be used in any client application that supports the use of map services
RoadNC Data Viewer

- Built using an ArcGIS Online Web Map
- Includes the RoadNC map services
- Allows user to inspect NCDOT’s statewide roadway data in a simple to use, straightforward manner
Data Viewer directly links to our Straight Line Diagram Viewer
• Created by Transcend Spatial Solutions
• Customized for NCDOT
• Integrated with RoadNC as well as Google maps and Street View
Current Projects

• Geoservice and AGOL Metadata Standards and Guidelines
• Asset Inventory Projects
• Regional Environmental Modeling
• Road Characteristics Editor (Rocks & Highways Event Editor)
• HiCAMS Project Tracker
• GIS data Clip & Ship
On the Horizon

- GeoEvent Server for real-time location tracking
- Incorporating WebApp Builder for Customized Applications
- Spatial Data Viewer overhaul using AGOL Web App Builder
- GIS Data Portal
Any Questions?

Contact Us:

gishelp@ncdot.gov
jtyaycock@ncdot.gov