Leveraging ArcGIS Online for Data Collection
Faith S. Johnson
December 6, 2017
Multi-Use Tool

Communication Tool to Support Data Verification

Online Data Maintenance

Mobile Data Collection

COMPLEXITY
Communication Tool to Support Data Verification

Online Data Maintenance

Mobile Data Collection
Communication Tool

GIS Analyst creates web map using existing data on AGOL

Create Web Map

Review Information

Field Staff reviews map and makes notes of errors

Update Data

GIS Analyst uses feedback to make corrections to enterprise data

Publish Data

At next publication, web map shows corrected data
Rockingham County

Leveraging ArcGIS Online for Data Collection

Web Map using Existing Published Data

Metadata and Detailed Instructions

List of Roads

<table>
<thead>
<tr>
<th>Route</th>
<th>Street Name</th>
<th>From Milepost</th>
<th>To Milepost</th>
<th>Length</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR-1122</td>
<td>Wanda Rd</td>
<td>0.00</td>
<td>0.31</td>
<td>0.31</td>
<td></td>
</tr>
<tr>
<td>SR-1123</td>
<td>Payne Dairy Rd</td>
<td>0.00</td>
<td>0.70</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>SR-1126</td>
<td>Landreth Rd</td>
<td>0.13</td>
<td>0.67</td>
<td>0.54</td>
<td></td>
</tr>
</tbody>
</table>
Online Data Maintenance

Communication Tool to Support Data Verification

Online Data Maintenance

Mobile Data Collection
Online Data Maintenance

1. Create Geodatabase in ArcGIS
2. Publish to AGOL
3. Extract Data from AGOL
4. Maintain Data through Web Map
5. Analyze, QA/QC, Batch Updates using ArcGIS

Leveraging ArcGIS Online for Data Collection
Material Suppliers

• Locations and information about material suppliers maintained by Materials and Tests Unit
  – Asphalt, Fine Aggregate, Coarse Aggregate, Concrete
• Used by DOT to find best available resource for construction and rehabilitation
• Regulated by Department of Justice to prevent monopolies
• Source data was spreadsheets with coordinates
Material Suppliers

Create Geodatabase
Material Suppliers

Create Geodatabase

Publish to AGOL

NCDOT Material Suppliers

Construction material and aggregate suppliers in and around North Carolina. These suppliers have been identified and verified by the North Carolina Department of Transportation.

Access and Use Constraints

The North Carolina Department of Transportation shall not be held liable for any errors in this data. This includes errors of omission, commission, and positional accuracy of the data. This data cannot be construed to be a legal document. Primary sources from which this data was compiled must be used to verify the accuracy of the data.

Export to Shapefile

Export to CSV file

Contents of the Shapefile:

- Material Supplier
- Contact Name
- Phone Number
- Address
- Additional Information

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Material Suppliers

Create Geodatabase

Publish to AGOL

M&T Unit Maintains Data in AGOL
Material Suppliers

- **Create Geodatabase**
- **Publish to AGOL**
- **Automated Geodatabase Updates**
- **M&T Unit Maintains Data in AGOL**
- **Data Freeze and Extraction**

**Materials and Test Unit**
- Requests annual update
- Sends new spreadsheets
- Freezes AGOL updates
Material Suppliers

Create Geodatabase

Publish to AGOL

M&T Unit Maintains Data in AGOL

Materials and Test Unit
  • Requests annual update
  • Sends new spreadsheets
  • Freezes AGOL updates

GIS Analyst
  • Downloads data from AGOL
  • Uses automated process to update data

Automated Geodatabase Updates

Data Freeze and Extraction
Material Suppliers

- **Create Geodatabase**
- **Publish to AGOL**
- **Automated Geodatabase Updates**
- **Data Freeze and Extraction**
- **M&T Unit Maintains Data in AGOL**
- **Materials and Test Unit**
  - Requests annual update
  - Sends new spreadsheets
  - Freezes AGOL updates
- **GIS Analyst**
  - Downloads data from AGOL
  - Uses automated process to update data
- **Materials and Tests Unit**
  - Resumes data maintenance in AGOL
Markers and Striping Inventories

• Division office requested an estimated inventory based on specific criteria for long range planning and budgeting
  
• Pavement Markers
  – All primary roads and ramps
  – Paved non-subdivision secondary roads where AADT > 8,000
  – 7 markers per tenth mile per lane

• Pavement Striping
  – No unpaved roads
  – No subdivision roads
  – No dead-end roads under 1 mile
  – Linear feet of marker per mile assigned based on number of lanes, if it is divided and if it has a continuous turn lane
Striping Inventory
Marker Inventory
Mobile Data Collection

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Mobile Data Collection
Mobile Data Collection

1. Create Geodatabase in ArcGIS
2. Publish to AGOL (configure data and map)
3. Use Tablets to Collect Data
4. Post-Processing (in ArcMap)
5. Extract Data for Analysis, QA/QC, Reporting
Asset Inventory Collection

• Statewide project to build an inventory and condition assessment of:
  – Retaining walls, noise walls, and large pipes (over 48”) on all state-maintained roads
  – Maintenance pipes (48” and below) and inlets on primary roads

• 45 two-person teams collecting data between September 2017 and April 2018
Asset Inventory Collection

Create Geodatabase in ArcGIS

Enable editor tracking
- Creator Field: Creator
- Create Date Field: CreationDate

Edit Tracking

Attachments

Domains
Asset Inventory Collection

- Create Geodatabase in ArcGIS
- Publish to AGOL (configure data and map)
Asset Inventory Collection

Create Geodatabase in ArcGIS

Publish to AGOL (configure data and map)

FEATURE LAYER

WEB MAP

Blog on Updating Hosted Feature Services: https://shar.es/1M6Pqt
Asset Inventory Collection

Create Geodatabase in ArcGIS

Publish to AGOL (configure data and map)

Use Tablets to Collect Data
Asset Inventory Collection

Create Geodatabase in ArcGIS

Publish to AGOL (configure data and map)

Use Tablets to Collect Data

Post-Processing (in ArcMap)

- Download geodatabase to ArcMap
- Post-process any information that can be derived:
  - County
  - Route/Milepost
  - Length
  - Skew angle
  - Condition score
- Republish to AGOL
  - Turn off editing while data collection is dormant
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C O M P L E X I T Y
Questions?

Faith Johnson, GISP
North Carolina
Department of Transportation
(919) 835-8451
fsjohnson@ncdot.gov