Utilizing Data Reviewer and Python to Develop a Quality Control System

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Greenville Utilities since 1905

- Provide Electric, Water, Sewer, and Gas Utilities
- Over 150,000 customers
- 600+ Miles of Water Mains
- 1000+ Miles of Gas Mains
- 500+ Miles of Sewer Mains
- 3000+ Miles of Electric Lines
- About 500 employees
History

- Natural transition from analog data
- Paradigm shift: “Not just making pretty maps anymore”
- Higher demand for geospatial data
- Multiple system integrations, increased interoperability

GIS

*(Geographic Information System)*

- Since 90’s
- SQL database
- Silo to enterprise
- Mobile, interactive, traditional
- SCADA, Responder, Customer Service

WAM

*(Work and Asset Management)*

- Active since 2015
- Oracle database
- Tracks an Asset lifecycle
- Inspections, Asset specifications
- Basically metadata about your Assets
Architecture

GIS

WAM ID

Geonexus

WAM ID

Management Quality Control ???

XY Location

Asset Information

Quality Control Tool: Data Reviewer
• Extensional Toolbar within ArcMap
• Available through ArcGIS Server
• Over 40 Checks available
• Single Checks or Batch Checks available
• Can be automated through scripting
• Outputs: reports or spatial violation locations
• Compare records between tables
**Data Reviewer**

**Table to Table Attribute**

<table>
<thead>
<tr>
<th>GIS Table</th>
<th>WAM Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>OID</td>
<td>WAM_ID</td>
</tr>
<tr>
<td>1</td>
<td>GS123</td>
</tr>
<tr>
<td>2</td>
<td>GS523</td>
</tr>
<tr>
<td>3</td>
<td>GS844</td>
</tr>
<tr>
<td>4</td>
<td>GS444</td>
</tr>
</tbody>
</table>

| GS123 |
| GS844 |
Model Builder Approach: 1st Run

Framework
- 2 Tables
- GIS Table: All FC that participate
- WAM Table: All participating Assets

Limitations
- Cumbersome
- Time Consuming
- “Buggy”
- Troubleshooting
Frequency by Asset

- Asset at Risk
- Overlooked Assets
- Workflow guidance
Timeline

- Abrupt changes
- KPI Overtime
- Upper Management Tool
Violation Map

- Spatial Identification
- Clustering
- Spatial Relationships
- Interactive quality control
Road Ahead

• Continual Monitoring
• Providing SOP’s
• Workflow guidance
• Increased communication
• Interactive quality control

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