Managing Utility Asset IDs and Links to Related Documents with ArcGIS

City of Baltimore Department of Public Works

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Utility System Size

Water
- City of Baltimore, Baltimore County, and small portion of adjacent Anne Arundel County
- TODO: Number of water main features, water valves, customers, etc.

Wastewater
- City of Baltimore
- TODO: Number of features

Stormwater
- City of Baltimore
- TODO: Number of features
History & Background

Initial conversion to GIS
1997

Decision on structure of feature IDs
- Engineering staff wanted an ID format that would allow them to quickly determine the vicinity of the asset
- Not the greatest ID technique for management of data
- Separation of functional and meaningful IDs
History & Background

Todo: Import diagram of ID structure from revision guidelines document
History & Background

Document Management System (circa 2008)

Selection Criteria:
- TODO
- OnBase from Hyland Software

TODO: pictures
The Problem

- Aging Utility Infrastructure
  - Requires frequent rehabilitation and replacement contracts
  - Generates huge volume of documents (engineering plans, inspection reports, etc) that need to be linked to features

- How do we manage the changes to the features and their IDs while maintaining links to these critical documents?
The Solution

- Set of custom ArcGIS Desktop add-ins
  - ID creation and tracking tools
    - 1 for each utility (water, wastewater, stormwater)
    - Creates new feature IDs based on spatial location and type of feature
    - Tracks ID updates by writing to updates table
    - Use these tables to update document keywords in OnBase
  - Document entry and GIS feature linking tool
    - Allow users to enter info about drawing and link it to the depicted utility assets
The Solution

Python scripts

- URL update script
  - Ensures all features with linked documents have the correct link to the OnBase web client

- ID updates table script
  - Generates OnBase keyword update queries from ID update tables (generated from ID creation ArcGIS Desktop add-in)

- Overnight script to create IDs for features that may have been missed by editors
  - Leverages same backend tables as ID add-ins
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