Digital Work Management Through Web Based GIS
Creating Efficiencies in Water & Sewer System Operations

PA-AWWA
April 17, 2019
Case Study Summary

Effective operations and maintenance of water and sewer pipelines are integral to sustaining system reliability to customers. Using GIS in a web-based platform, Lower Paxton Township Authority (LPTA) has integrated a web-based GIS to organize the volumes of information captured over time.

In addition to system mapping, the GIS provides a digital library of documents based on location. Record drawings, lateral diagrams, easement contracts, and building inspections are a sampling of the documents organized by the GIS.

This presentation will present LPTA's experience in building and utilizing a web-GIS solution and review how the positive feedback by staff has expanded the scope of the GIS's capabilities to efficiently manage additional assets.
ESRI Local Government Information Model (LGIM)

Standardized database model that helps local governments leverage their geographic information to improve GIS activities and enhance user services

• ESRI industry-wide design standard
• Enables and enforces data entry rules using standard fields and domains
• Facilitates data sharing between public entities
• Database Model Structures available:
  o Sanitary Sewer
  o Storm Water
  o Water Distribution
  o Electric
  o Gas
  o Land Records
Standard **LGIM Layers**

- **Sanitary Sewer**
  - Manholes
  - Gravity Pipe
  - Force Mains
  - ...

- **Storm Sewer**
  - Outfalls
  - Inlets
  - Pipe
  - Detention Basins
  - ...

- **Water**
  - Pipes
  - Valves
  - Hydrants
  - Storage
  - ...

- **Gas**
  - Pressure Lines
  - Regulators
  - Service Connections
  - ...

- **Base Layers**
  - Parcels
  - Streets
  - Waterways
  - Flood
  - Imagery
  - ...

Base Layers include:
- Parcels
- Streets
- Waterways
- Flood
- Imagery
Use of **Cloud Hosting**

**Mobile Devices**
- Field Operations
  - Tablets
  - Smart Phones
  - Laptops
  - Data Collectors

**Web Mapping**
- Accessible Data
  - Staff
  - Remote Offices
  - Home

**Virtual Desktop**
- GIS Coordinator
  - Maintains GIS Data live on Web Hosting Server
  - Performs Edits

**GIS Web Servers**
- Enterprise GIS Data Hosting
  - Access by many
  - Editing by many
  - Synchronous Editing
  - Live Updating

**Online Maps & Data**
- Utilize other data sources
  - Aerial Images
  - Base Maps
  - County Tax Parcels
Benefits of Web Mapping

Leverages Existing GIS
• Captures effort already completed in GIS development
• Expands GIS use and capabilities

Manages Data and Users
• Controls user permissions for viewing and editing data
• ESRI is industry standard for GIS data

Centralized Cloud Database
• Real-time data, live updates, everyone is using current version
• Standardizes data entry

Custom Web Interface
• Accessible anywhere with internet service (office, field, home, etc.)
• Accessible across various devices (desktop, mobile, data collectors, etc.)
• Scalable and customizable
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