Translating Spatial Awareness to Operational Efficiency using Web Maps

Christina Martinez, GIS Manager
Overview

- About EPCOR Water
- EPCOR Water’s GIS Evolution
  - Phase 1: Data development
  - Phase 2: Transition
  - Phase 3: From web maps to web portal
- Lessons Learned
- Q & A
**About EPCOR Water**

<table>
<thead>
<tr>
<th>Water Infrastructure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrants</td>
<td>14,036</td>
</tr>
<tr>
<td>Valves</td>
<td>45,199</td>
</tr>
<tr>
<td>Water Mains</td>
<td>2,359 miles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wastewater Infrastructure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manholes</td>
<td>12,169</td>
</tr>
<tr>
<td>Cleanouts</td>
<td>1,533</td>
</tr>
<tr>
<td>Sewer Mains</td>
<td>686 miles</td>
</tr>
</tbody>
</table>

- Largest private utility in Arizona & New Mexico
- 198,000 customer connections
- Population served over 300,000
- 280 US based employees
- 3 GIS professionals
13 Water Districts
5 Wastewater Districts
GIS at EPCOR

From Paper to Web Maps
Phase 1 – Data Development

Data

- Establish data models for water & wastewater
- Standardize editing, mapping, and reporting templates
- Data in personal geodatabases on file server
Phase 1 - Architecture

- 4 Total ArcGIS Desktop Users
  - 3 Standard
  - 1 Advanced

- 50 Desktop Map Viewer
  - Third Party
  - Map Objects Based

File Server
- Water GDB 1
- Water GDB 2
- Water GDB 3
- Water GDB 4
- Water GDB 5
- Water GDB 6
- Wastewater GDB 1
- Water GDB 7
- Water GDB 8
- Water GDB 9
- Water GDB 10
- Wastewater GDB 2
## Phase 1 – Pros & Cons

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured data</td>
<td>Data management</td>
</tr>
<tr>
<td>Thematic maps</td>
<td>Restricted editing</td>
</tr>
<tr>
<td>Reporting capabilities</td>
<td>Limited data security</td>
</tr>
<tr>
<td>Paper and PDF maps only</td>
<td></td>
</tr>
</tbody>
</table>
Why make the switch?

- Isolation of GIS data
- Inefficiencies
- Data currency
- Distance decay from GIS staff location
- Too many geodatabases
Project Justification

Operational Excellence

- Manage multi user access to GIS
- Improve communication between staff in same or remote locations
- Wider access to GIS data
Implementation Overview

Hardware
- 4 Virtual Machines on 16 core Physical Server
  - Pre-Production
  - Production

Software
- ArcGIS 10.1 Server Standard
- EDN License
- Microsoft SQL Server 2008

Client Tools
- 6 ArcGIS Desktop
- Silverlight Application by EMS
- ArcGIS Online

Services
- ESRI 3 Day Jump Start
- Engineering Mapping Solutions (Silverlight App)
The “Visible” Result

- All EPCOR Water employees can access Web Maps from their desktop
- GIS data has been “freed”
- Users “Thinking about GIS”
Web Map Accessibility

- Minimize barriers to use
- Get the word out
- Incorporate feedback
Web Map Functionality

- View water and sewer infrastructure
- Query data (Material = “Asbestos Cement”)
- Search by address or asset ID
- Link to digital record drawing library
- New infrastructure polygons
Operational Efficiencies

- Fewer requests for custom maps
- Data currency improved from months to days
- Data feedback loop improved
- Outlying districts have access to web map
- Field staff have access to web map
Thinking about GIS

Can the web maps….

• Support red lining?
• Perform valve isolation tracing?
• Show other layers?
• Maintenance tasks
• Dashboards
• A web map “just for me”
From Web Map to Web Portal

- Leverage existing investment in ArcGIS Server
- Continue use of Silverlight Web Viewer
- Work within IT security guidelines
- Fulfill requests for additional web maps and applications
EPCOR’s Mission, Vision and Overarching Goal

**Mission:** We make life better in our communities by providing clean water and safe, reliable electricity.

**Vision:** Our vision is to be a premier North American essential services company, providing great tasting drinking water, clean wastewater and safe, reliable electricity; a company whose employees go home to their families safe each night.

To achieve our vision, we will focus on:

- People and Safety: Be a place where people choose to work, known for our zero-injury culture and focus on continuous improvement.
- Operational Excellence: Be recognized as an expert in our business by adopting best available technology and solutions that enhance water and power quality, system reliability, and our efficiency and cost-effectiveness.
- Environment: Make the environment a priority in everything we do.
- Growth: Deliver increasing value to our shareholder.
ArcGIS Online

- Feature & map services hosted on ArcGIS Server
- Configurable applications hosted in AGOL
- “Cloud Hybrid” Solution
- 50 Named Users
- 12 Content & Functional Groups
ArcGIS Online

- Opens GIS to customer service, executive team, finance & rates
- Replace or augment paper workflows with electronic workflows
Sample Applications

- Premise Lookup App
- Red Line App
- Operations Dashboard
- Developer Services Content
Takeaways

Engagement

Quick Wins

Success!

Help

Evangelization
Summary

- Discovery
- Shapefile to Geodatabase Conversion
- ArcGIS Server Implementation

- 2009
  - Data Model Development
- 2010
- 2011
- 2012
- 2013
- 2014 & Beyond
  - Business case for ArcGIS Server
  - ArcGIS Online, continuous improvement
Questions?

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