Flint Water Response

Data Sharing

MSP-GIS Perspective
Outline

• Introduction
• Types of Data/Technology
• ArcGIS Online (AGOL)
• ESRI Disaster Response Program (DRP)
• Challenges
• Lessons Learned
• Questions
Introduction
Matt McCormick

  - Geographic Information Systems (GIS) Servers
  - Mapping for State Emergency Operations Center (SEOC)
  - Unmanned Aerial System (UAS) Image Processing
  - Python Programming
  - Michigan Critical Information Management System (MI CIMS) Development

- Former Volunteer Firefighter/EMT in Western U.P.
Data/Technology
What is AGOL?
AGOL Decisions

- Immediate need for an existing, responsive web mapping platform
- City of Flint already had an AGOL site
- MSP GIS administrator account
- FEMA and other agencies have their own AGOL site and user accounts
- Firewall rules prevented other sharing services
AGOL Capabilities

- Build web maps and applications without needing developers
- Create groups for sharing content with specific users
- Spatial analysis using ESRI cloud architecture
- Geocoding
- Multivehicle routing
- Utilize ESRI apps for data collection
AGOL Apps

Collector for ArcGIS
Efficient, accurate data collection on smartphones or tablets replaces paper forms. Respond, record, work on- or offline, and sync automatically.

Web AppBuilder for ArcGIS
Create HTML/javascript apps with ready-to-use widgets that run on any device. Customize the look with configurable themes. No coding required.

Operations Dashboard for ArcGIS
Get a real-time view and common operating picture. Add data feeds to events or daily operations. Integrate maps, charts, gauges, and histograms.

Survey123 for ArcGIS
Use a form-based survey interface in a lightweight, intuitive app. In just a few clicks you can collect, manage, and analyze survey results.

Workforce for ArcGIS
Staff and apps can work together. Sync with other apps to get assignments, navigate to them, and collect data in one workflow, on one mobile device.

ArcMap
Part of ArcGIS Desktop, ArcMap is an advanced cartographic authoring, data editing, spatial and imagery analysis, and workflow automation application.
## Credits and Users

<table>
<thead>
<tr>
<th>Service</th>
<th>Credits per Unit</th>
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<tbody>
<tr>
<td>Feature Services Storage (includes feature extractions)</td>
<td>2.8 credits per 10 MB used based on hourly calculations of storage per month</td>
</tr>
<tr>
<td>Tile and Data Storage (map tiles, feature attach files, scene layer packages, and documents)</td>
<td>1.2 credits per 1 GB stored per month</td>
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### Analytics
- Geocoding: 40 credits per 1,000 geocodes
- Simple Rasters: 0.06 credits per simple raster
- Customized Routes: 0.3 credits per customized route
- Drive Times (Service Areas): 0.9 credits per drive time
- Clusters: 0.8 credits per closest facilities route
- Multivariate Routes (MVR): 1 credit per multivariate route
- Spatial Analysis: 1 credit per 1,000 features (query for Find Existing Locations and Devise New Locations analysis tools)
- Elevation Analysis: 1 credit per 1,000 features
- Airborne LiDAR: 0.1 credit per demand point

### Demographics & Lifestyle Maps
- Business Search: 10 credits per 1,000 records
- Demographics Maps and Layers: 10 credits per 1,000 map requests (pin, zoom, and identify)
- Data Enrichment: 10 credits per 1,000 data variables (attributes)
- Infographics: 10 credits per 1,000 views
- Reports: 10 credits per report

### Other
- Map Generation: 1 credit per 1,000 tiles generated

### ESRI Credit Calculator
http://www.esri.com/software/arcgis/arcgisonline/credits
ESRI DRP

Disaster Response Program

Contact for help with:

- Credits and user accounts
- App development/support
- IT architecture
- Training

http://www.esri.com/services/disaster-response
Challenges
Collector for ArcGIS
Data Collection
Data Collection
Operations Dashboard
Former SEOC
Additional Data Shared

- Parcels from Flint
- Parcels from Genesee County
- Water lines (old paper maps)
- Service lines (paper index cards)
- MDNR/MDEQ testing
- Warehouse/Logistic data
- Functional Needs/211 Callers (MI CIMS Board)
- Analyses
Challenges

• Addresses and Multi-tenant Residences
• Terminology (Vacant/Abandoned, Active Water Customer)
• Paper Forms
• Deploying Technology to Volunteers
• Email: MSP-SEOCGIS@michigan.gov
• Freedom of Information Act (FOIA)
Lessons Learned

• Get support at the highest levels
• Communication – Daily teleconferences and in-person meetings
• Utilize GIS staff, share knowledge and technical know-how
• Build and share common data sets
• Ask for help – ESRI Disaster Response Program
• MI CIMS Boards including Resource Requests and Task Assignments
• Use AGOL to share with Federal/State/Local Partners
Questions?

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