



Esri International User Conference | San Diego, CA  
Technical Workshops | 7/14/2011

# ArcGIS for Water Utilities: Configuring

Michael Miller

Scott Oppmann

*with special guest: Steve Grise*

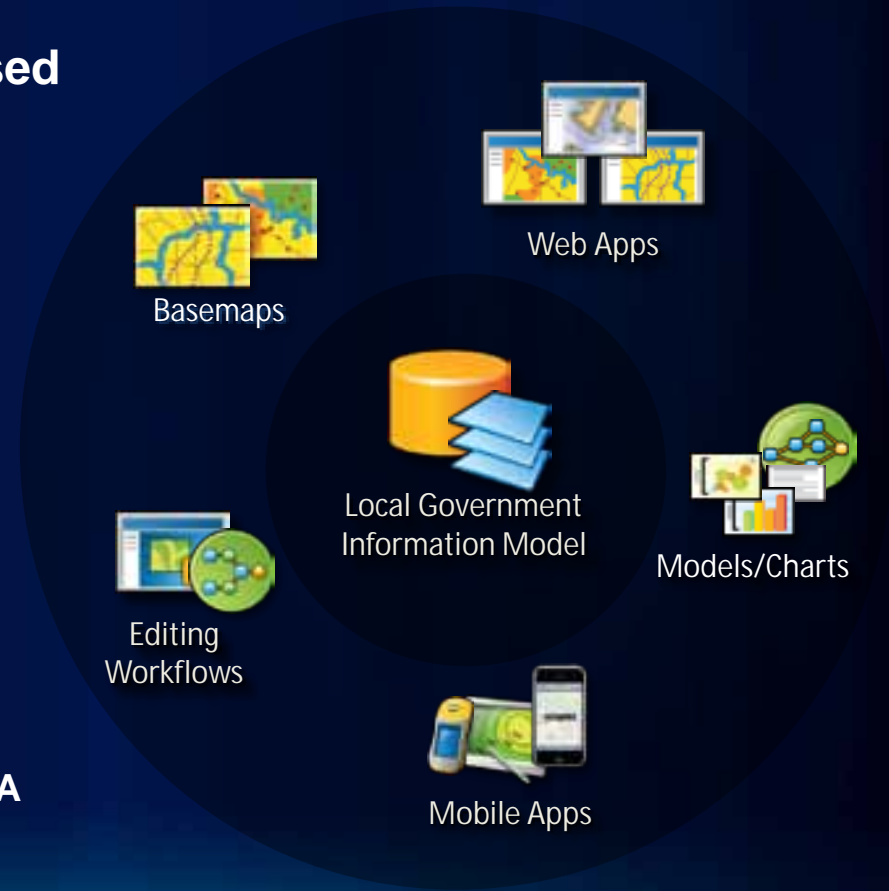
# **Agenda**

- **Introduction**
- **The Local Government Information Model**
- **Configuring the Water Utilities Maps and Apps**
- **ArcGIS for Local Government System**
- **What's Next**
- **Your Feedback**

# ArcGIS for Water Utilities

*A product for Esri's water utility customers*

- **A series of useful maps and apps focused on water utility work**
  - Organized into modules
  - Extensible, configurable
  - A foundation for Partner solutions
- **Participation in the online community**
  - Best Practices / Implementation Support
- **Esri Services and Partner offerings**
  - Help implement, sustain and enhance
- **One ArcGIS product for water utilities**
  - Freely available for individual customer and ELA engagements



*.....available on-premise or in the cloud*

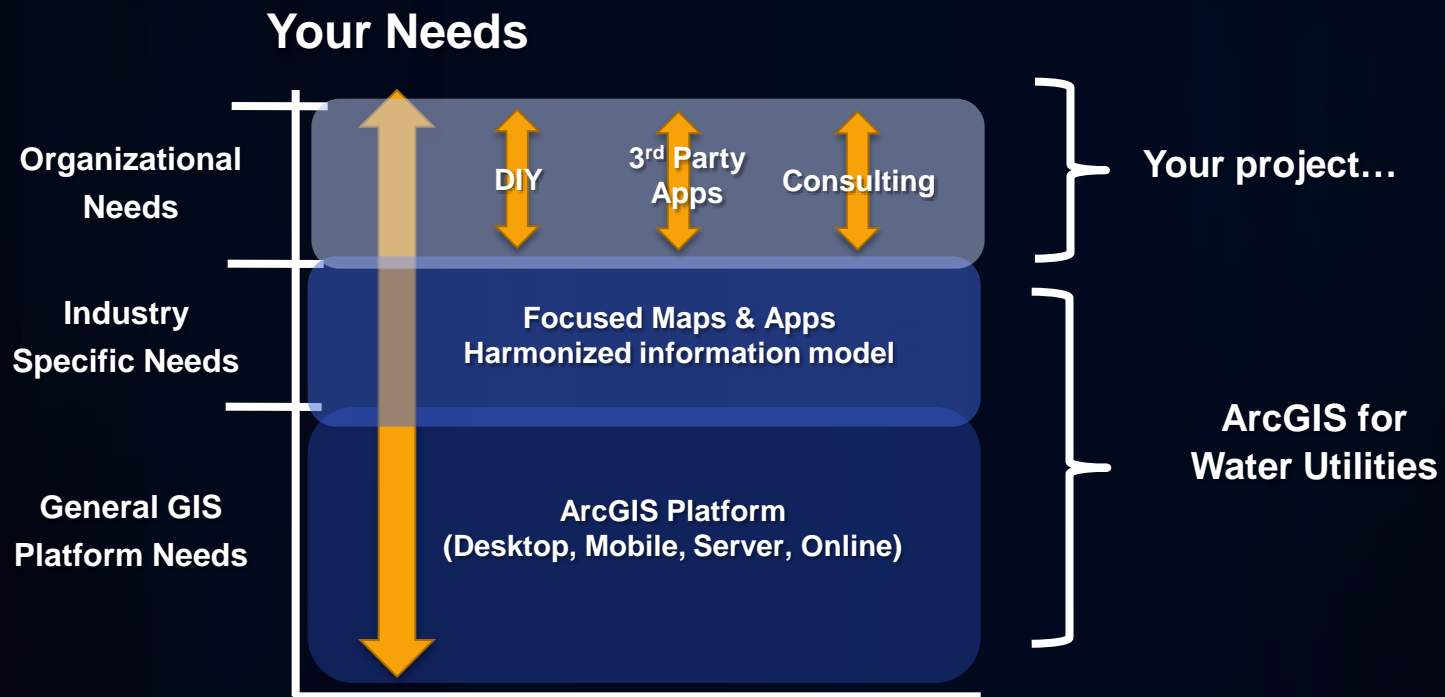
# Our Mission

*Help you increase the value of GIS in your organization*

- **Make it easier to deploy ArcGIS**
  - Deliver applications quickly throughout your organization
  - Stay current with future releases / avoid legacy technology
  - Create a platform of geospatial data that can be leveraged by many
- **Address common constraints in local government**
  - Size and skills of staff
  - Budget and time available to implement
- **Empower the community to contribute**
  - Users
  - Partners

# ArcGIS for Water Utilities

*Changing the way you deploy GIS*

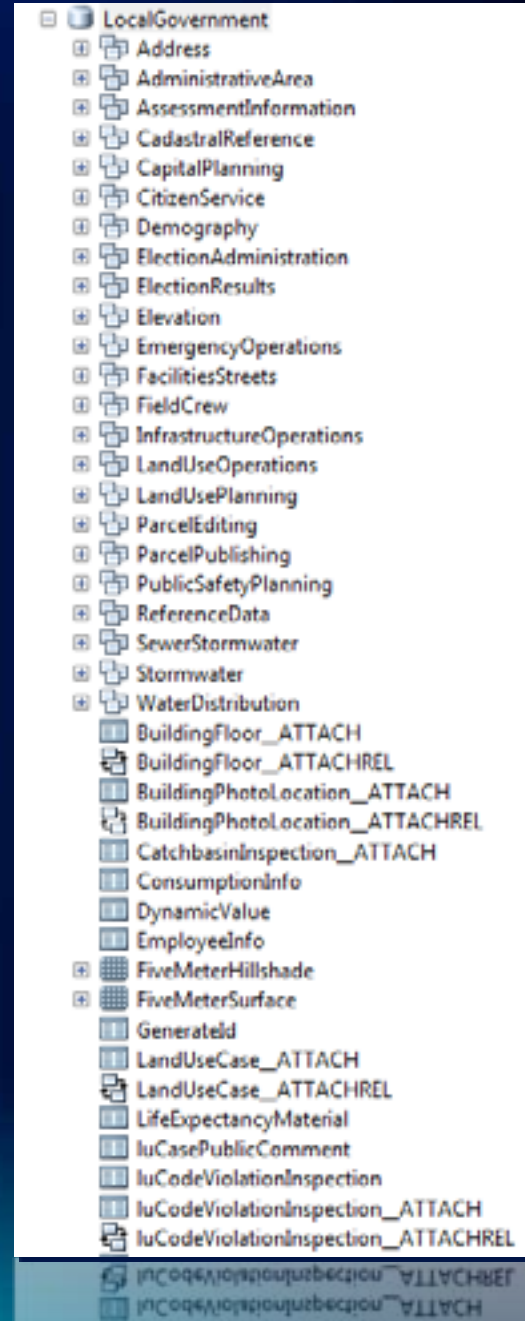


*...reducing time, risk and cost so GIS is easier to deploy and maintain*

# Local Government Information Model

- Supports water utility map and app requirements
  - Traditional and non-traditional apps
- In the context of larger local government model
- Fully documented
  - Features, layers and packages
- Central repository, organized around thematic content and logical permission model
- Organized access/maintenance patterns
  - GDB replication, layers and services
- Easy to adopt and extend

*Safe FME support coming this summer....*





# Local Government Basemaps

*Standard set of basemaps that support water utility desktop, web and mobile apps*



**Parcel**



**Topographic**



**Imagery Hybrid**



**Campus**



**Mobile Night**

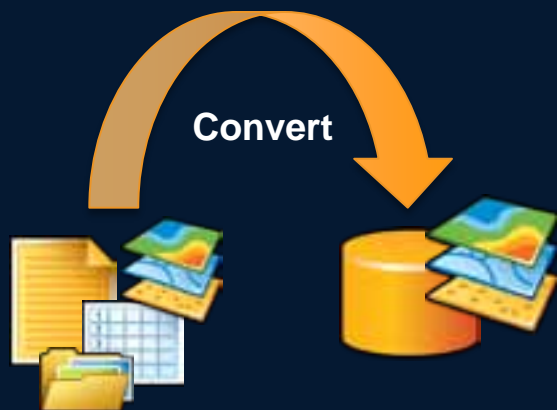


**Mobile Day**

# Adopting the Local Government Information Model

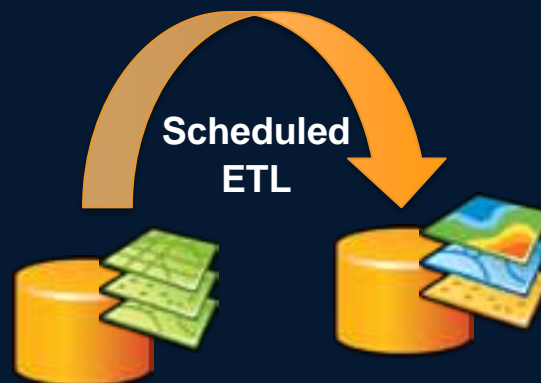
*Many ways to leverage the water utilities maps and apps*

## Adopt the Information Model



Can use all maps and apps  
Tools (GP and FME) to help you get there  
Can incrementally add new maps and apps  
Services Packages available if needed

## Use it as a Publishing Model



Can use basemaps, web apps, and mobile apps  
ETL required to sync content with your GDB  
Incorporate editing workflows over time



# Implementing the Information Model

*Getting started is quite easy*



## Create Empty Development GDB

Use LPK and Data Dictionary / Configure as necessary



## Migrate Schema to RDBMS

Only required for multi-user editing and feature services



## Migrate data to information model



## Validate MXDs and Toolboxes



## Publish map services

Cache basemaps

# Local Government Information Model

Scott Oppmann



# Safe FME Support

Our Special Guest....Steve Grise



# ArcGIS For Water Utilities Map and Apps

Asset Management	Planning & Analysis	Field Mobility	Operational Awareness	Stakeholder Engagement
<b>Infrastructure Editing Template</b> <ul style="list-style-type: none"> <li>• Focused Toolbars</li> <li>• Editor extension</li> <li>• Construction Tools</li> </ul> <b>Data Reviewer for Infrastructure Template</b> <ul style="list-style-type: none"> <li>• Batch Jobs</li> </ul>	<b>Infrastructure CIP Template</b> <ul style="list-style-type: none"> <li>• Data Analyst Toolbox</li> <li>• Project Cost Estimating tools</li> </ul>	<b>Infrastructure Mobile Map Template</b> <ul style="list-style-type: none"> <li>• Configurable Application</li> <li>• Additional Basemaps for Night and Day use</li> </ul>	<b>Infrastructure Operations Dashboard Template</b> <ul style="list-style-type: none"> <li>• Configuration files for the Flex Viewer</li> <li>• Toolbox's to create Reporting Layers</li> </ul>	<b>Public Information Center Template</b> <ul style="list-style-type: none"> <li>• Configurable Application</li> </ul> <b>Citizen Service Request Template</b> <ul style="list-style-type: none"> <li>• Configurable Application</li> </ul>
Data Reviewer		ArcGIS Mobile	ArcGIS Viewer For Flex	ArcGIS API for JavaScript
ArcGIS Desktop	ArcGIS Desktop	ArcGIS Server	ArcGIS Server	ArcGIS Server



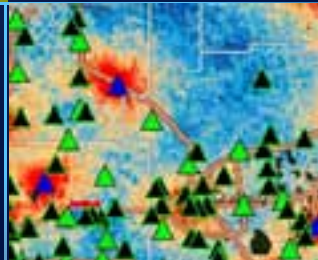
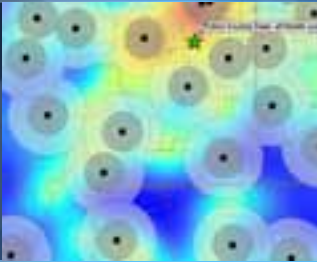
## Local Government Information Model

Data Model and Basemap Services

Fulton County Dept. of Health and Wellness/District 3, Unit 2, GIS

DeKalb County Board of Health

# Editing Template





# Editing Template Breakdown

- **Maps**
  - ArcMap Editing Mxd organized into operational layer groups
  - Basemap group
- **Data**
  - Water, Sewer and Stormwater Layers
  - Additional Tables for tools
    - Dynamic Value and Generate ID Tables
- **Tools, Toolbars and Extensions\***
  - Attribute Assistant Add in
  - Infrastructure Desktop Tools Add In
  - Infrastructure Construction Tools Installer

\*  Source Code included



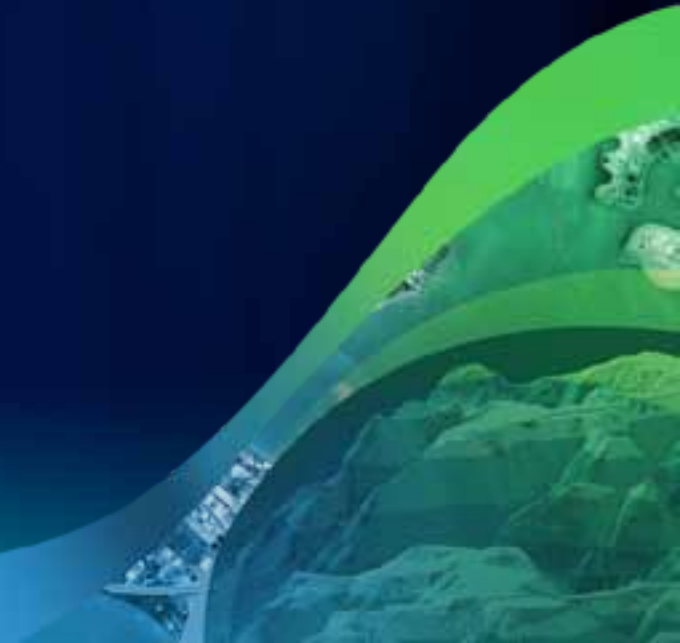
# Configuration

- **Install Add in's and tools**
- **Update Infrastructure Editing Mxd**
  - Adjust Cartography and Labels
  - Review Editing Templates
- **Adjust Configuration XML file**
  - Shared by two add in's and construction tools
    - C:\Users\<UserName>\AppData\Roaming\ArcGISTemplates\EditingTemplate\Config\Config.Config
  - Set or Adjust default values
- **Configure Attribute Assistant Rules**
  - Create or modify rules to match your workflows
  - Generate ID columns if using the Generate ID rules

## **Steps if you are using your own schema**

- **Add the Dynamic Value and Generate ID Table schema to your GDB**
- **Spend additional time reviewing the config and changing all entries to make your field and layer names**

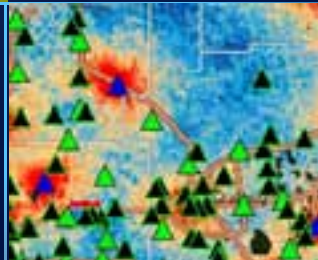
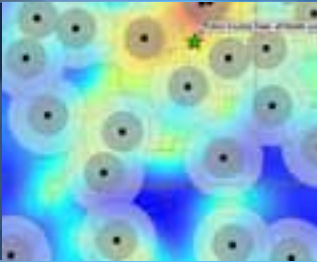
# Changing the configuration



DeKalb County Board of Health

Fulton County Dept. of Health and Wellness/District 3, Unit 2, Office

# Data Reviewer Template



# Data Reviewer Breakdown

- **Maps**
  - Utilizes the ArcMap Editing Mxd
- **Data**
  - Additional GDB for reviewer workspace
- **Jobs**
  - Defined for Water, Sewer and Storm water datasets

# Configuration

- **Activate Data Reviewer Extension**
- **Update Batch Jobs**
- **Set up Data Reviewer Workspace**



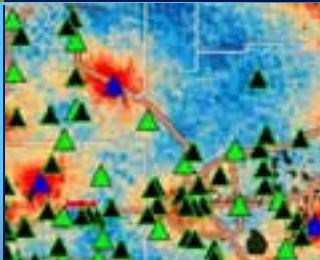
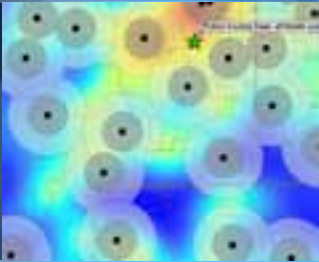
## **Steps if you are using your own schema**

- **Review each batch job**
- **Adjust each check**
  - **Field Names**
  - **Layer Name**
  - **SQL Statements**

Fulton County Dept. of Health and Wellness/District 3, Unit 2, 04

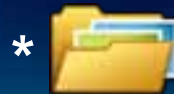
DeKalb County Board of Health

# Capital Improvement Planning Template



# CIP Template Breakdown

- **Maps**
  - ArcMap Planning Mxd organized into operational layer groups
  - Basemap group
  - CIP Analyst Toolbox
- **Data**
  - Water, Sewer and Stormwater Layers
  - Factors for Analyst
  - Model Results
  - CIP Feature Dataset Layers
  - Tables for Cost Estimating Tools
- **Tools and Toolbars\***
  - Project Costing Estimating



\* Source Code included

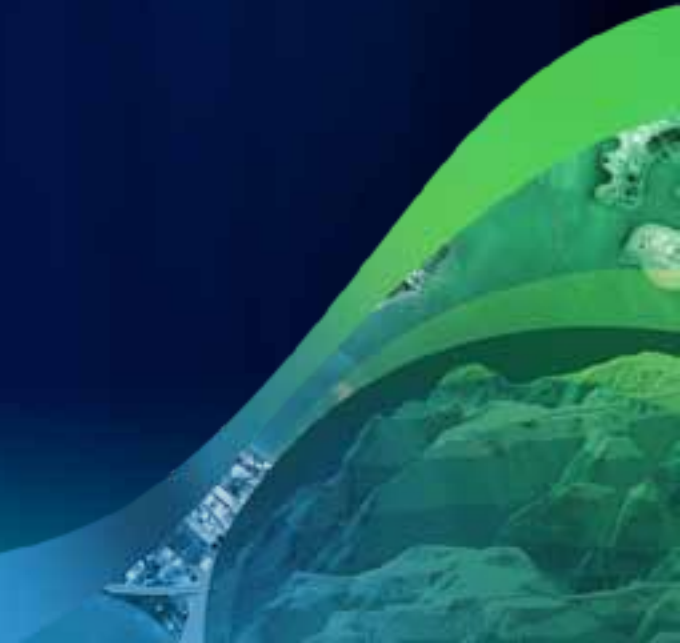
# Configuration

- **Install Add in's**
- **Update ArcMap Infrastructure Planning Mxd**
  - **Adjust Cartography and Labels**
  - **Add your Factors for Analyst**
  - **Adapt Analyst Models for your analyst**
  - **Modify the Capital Planning Layers**
- **Configuration the Costing Tools**
  - **piCIPCost, piCIPDefinition, piCIPReplacement tables**

## **Steps if you are using your own schema**

- **Add the CIP dataset, the piCIP... Tables, and the Model results Layers**
- **Spend additional time reviewing the models and setting them up on your data**
- **Fill out the configuration piCIP... Tables**

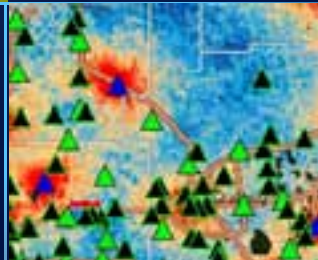
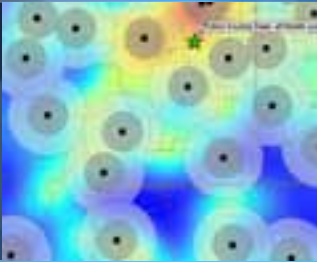
# Quick Tour of the tools





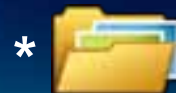
DeKalb County Board of Health  
Fulton County Dept. of Health and Wellness/District 3, Unit 2, 04

# Mobile Map Template



# Mobile Map Template Breakdown

- **Maps**
  - Mobile Map Service with operational data layers
  - Night and Day basemap services
- **Data**
  - Water, Sewer and Stormwater Layers
  - Additional Layers for redlines and field inspections
- **Application\***
  - Mobile Map template



\* Source Code included

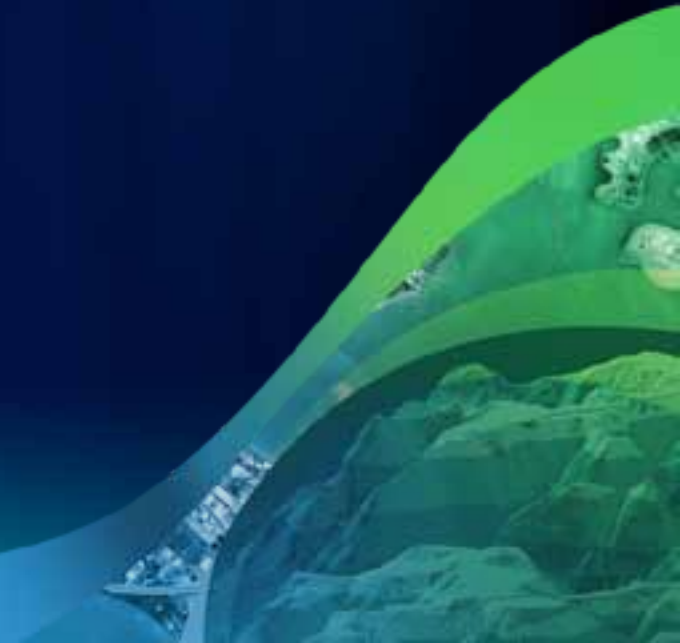
# Configuration

- **Install the Mobile Map Template**
- **Copy Contents to new location**
- **Update ArcMap Mobile Operations Map Mxd**
  - **Adjust Cartography and Labels**
  - **Adjust Fields visibility**
  - **Add or Remove Inspection/Redline Layers**
  - **Published to ArcGIS Server with Mobile Map Access checked on or Create Cache with GP Tools**
- **Publish and Cache Basemaps**
- **Update MobileMap.exe.config file**
- **Deploy new cache and Basemaps**
  - **If using server, just delete the old cache and click refresh once the app opens**

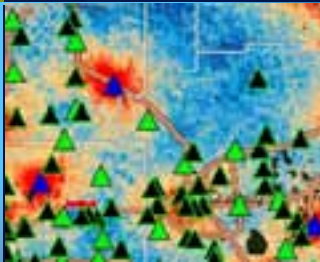
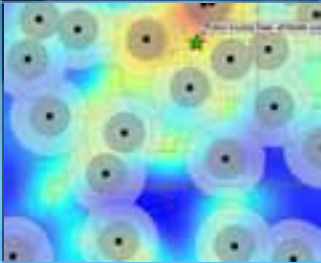
## **Steps if you are using your own schema**

- **Review sample data and required fields**
- **Append your schema with infrastructure operations dataset layers**
- **Recreate Mobile Map Mxd and basemaps**

# Changing the configuration



# Operations Dashboard





# Dashboard Template Breakdown

- **Maps**
  - **Operational Layers**
    - Infrastructure Map Service
    - Reporting Layers Map Service
    - Infrastructure Alerts Map Service
  - **Basemaps**
    - Utilizes Local Government Basemaps
- **Data**
  - Water, Sewer and Stormwater layers
  - Operations and Report data layers
- **Application**
  - Configuration of the ArcGIS Viewer for Flex

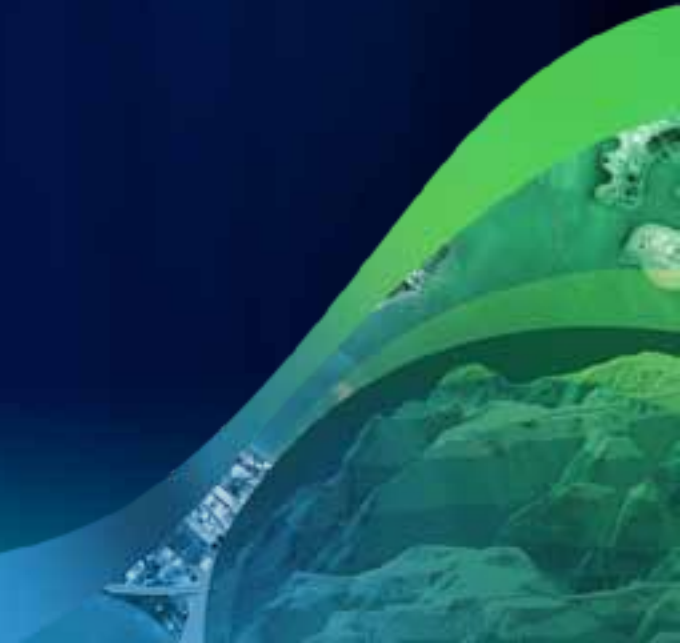
# Configuration

- **Publish the Map Services**
- **Update the configuration files**
  - **Fill in your ArcGIS Server Name**
  - **Adjust Splash screen, title and logos**
  - **Adjust Popups for any additional fields**
  - **Add, remove or adjust widgets**
- **Create web site for Application(IIS or Apache)**
- **Note:**
  - **If you decide to change any of the Op Layers mxd's, you will have to verify all the config files, layers are referenced by order, not name**

## Steps if you are using your own schema

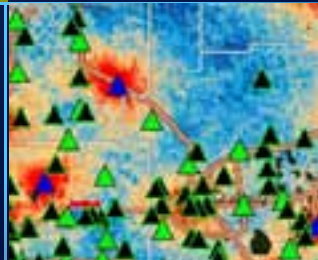
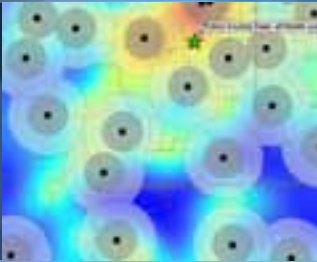
- Fill out your Basemap layers
- Rework the configs to reflect your op layer services
- Rework the popups for your layer order and definition

# A quick review of the configs



Fulton County Dept. of Health and Wellness/District 3, Unit 2, GSA

# Public Information Center



# **PIC/Citizen Service Template Breakdown**

- **Maps**
  - **Operational Layers**
    - Infrastructure Alerts Map Service
    - Service Request Map Service
  - **Basemaps**
    - Utilizes Local Government Basemaps
- **Data**
  - Service Request Dataset
  - Activities and Event Layers
  - Social Media Links
- **Application**
  - Configurable JavaScript Applications

# Configuration

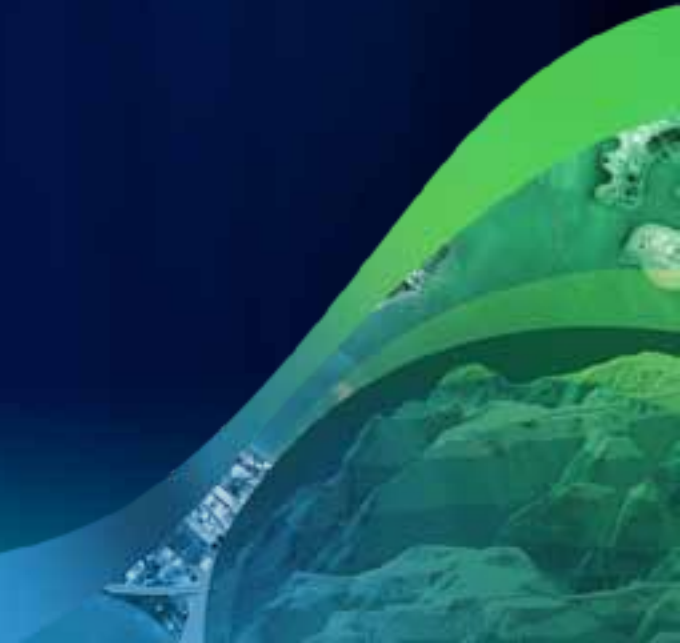
- **Publish the Map Services**
- **Update the configuration files**
  - **Fill in your ArcGIS Server Name**
  - **Adjust default search information**
  - **Adjust Splash Screen**
  - **Adjust Contact Information**
  - **Adjust Social media keywords**
- **Create web site for Application(IIS or Apache)**
- **Note:**
  - **If you decide to change any of the Op Layers mxd's, you will have to verify the layers in the config files**



## **Steps if you are using your own schema**

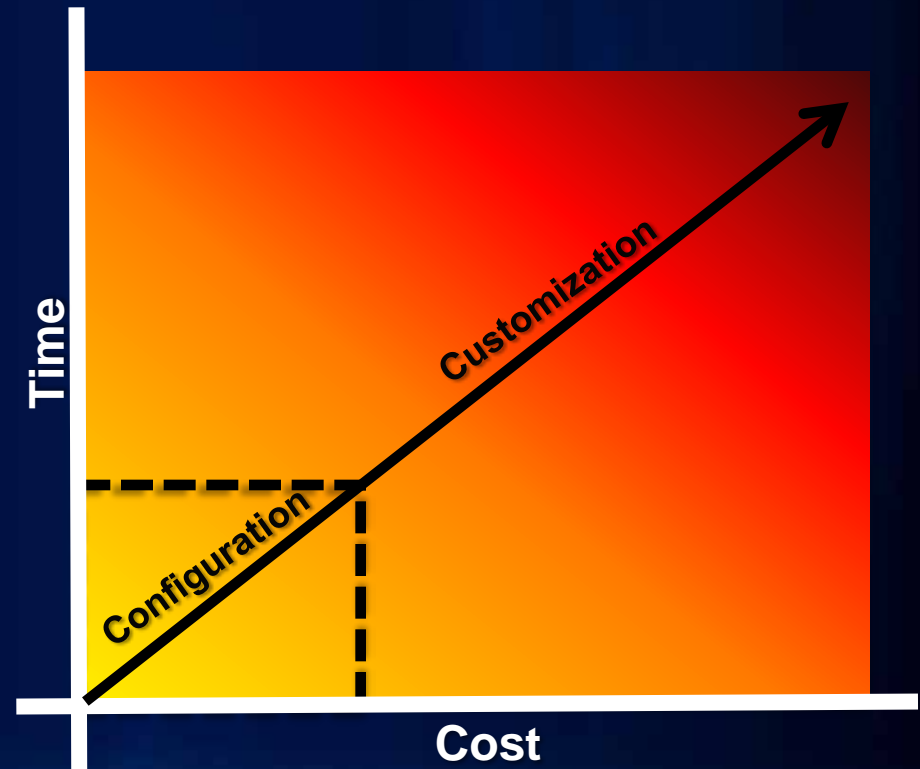
- **Configure your own Basemap layers**
- **Rework the configs to reflect your op layer services**
- **Adjust Layers listed in the Information section**

# A quick review of the configs



# Maps and Apps Wrap Up

- **Configuration don't customize**
  - Implement quickly
  - Easy to add new capabilities
  - Simple to maintain
  - Easy to extend
  - Reduce Risk/Time/Cost
  - Sustainable



*....Configuration starts at the data model*

# Summary

- **Our Goals**
  - **Deliver a “water utilities GIS” that enables your success**
  - **Evolve and grow the collection of apps**
  - **Provide a platform for partners to deploy their solutions**
- **We want your participation and involvement**
  - **Download the maps and apps**
  - **Provide feedback on existing content**
  - **Identify opportunities for new content**

# Questions

*Please fill out your surveys....*

*[www.esri.com/sessionevals](http://www.esri.com/sessionevals)*



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