

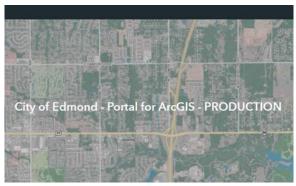
What's going on with City of Edmond GIS in 2025?

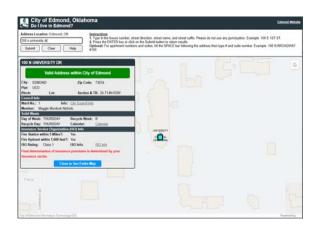
Antonio Adolphues GIS Coordinator 1273 N Broadway, Edmond, OK 73034 (405) 359-4333 antonio.adolphues@edmondok.gov

Cole Howard
GIS Analyst I
1273 N Broadway, Edmond, OK 73034
(405) 216-7215
cole.howard@edmondok.gov

Ian Peebles, GISP GIS Analyst II 1273 N Broadway, Edmond, OK 73034 (405) 359-4561 ian.peebles@edmondok.gov







Abstract:

The City of Edmond GIS Team continues to develop and expand the GIS architecture within the organization allowing for increased capabilities and improved workflows. In 2024, ArcGIS for Portal was introduced within the Organization and is used for all web GIS and Asset Management System (AMS) applications. Currently, the GIS Team is working towards migrating ArcMap Desktop software to ArcGIS Pro Desktop software. Web GIS applications built using Web App Builder (WAB) Developer Edition and custom applications developed from the ArcGIS API for JavaScript 3.x are transitioning to new platforms. New platforms for building web GIS applications include leveraging Experience Builder Developer Edition and ArcGIS API for JavaScript 4.x technologies. Work is progressing on developing Asset Management System (AMS) data models for Facility Maintenance and Parks and Recreation. Other activities include process improvements for updating address and streets data for NG911, data updates for public web GIS applications and internal processes. This presentation covers existing activities, challenges encountered and plans for the future of the City of Edmond GIS.

Keywords:

COE, City of Edmond, Data Models, Edmond GIS, NG911, Portal for ArcGIS, Web Applications



Topics Covered

The following topics will be included in this presentation:

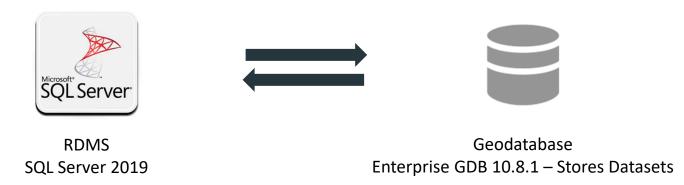
- Overview of Edmond GIS Database, Geodatabase, Datasets and Web Services
- Portal for ArcGIS
- Migrating ArcMap Desktop To ArcGIS Pro Desktop
- Web GIS Application Conversion
- GIS Data Models
- NG911
- Processes used for Updating Data
- Challenges
- Future Plans
- Questions



Database and Geodatabase

Definition: is a collection of geographic datasets of various types held in a common file system folder, or a multiuser relational database management system (RDMS). Geodatabases come in many sizes; have varying numbers of users; and can scale from small, single-user databases built on files up to larger workgroup, department, and enterprise geodatabases accessed by many users. (source: ESRI)

Managing Data, Roles and Permissions



- Data stored in the geodatabase serves a variety of desktop and web applications
- Also have a TEST Environment that contains a copy of the PRODUCTION geodatabase



Geodatabase and Datasets

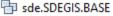
The geodatabase contains:



Fast Facts:

- 43 Feature Datasets
- 578 Feature Classes
- 19 Annotation Classes
- 156 Tables
- 465 Relationship Classes
- 325 Coded Domain Values
- 6 Spatial Views

Feature Dataset with Feature Classes



- ➡ sde.SDEGIS.COELIM_L
- sde.SDEGIS.COELIMIT
- Sde.SDEGIS.EASEMENTS
- sde.SDEGIS.GPS_MONUMENTS
- sde.SDEGIS.GRID_INDEX
- sde,SDEGIS,HSGD
- sde.SDEGIS.NBHD
- sde.SDEGIS.PARCELS
- sde.SDEGIS.PLATS
- sde.SDEGIS.QTR_GRID
- sde.SDEGIS.QTR_QTR_GRID
- sde.SDEGIS.SCHOOLS

Feature Classes – Points, Lines and Polygons, Tables and Relationship classes

Relationship Classes

sde.SDEGIS.Addresses_Has_Customers
sde.SDEGIS.Addresses_Has_EMCollar
sde.SDEGIS.Addresses_Has_Emeter
sde.SDEGIS.Addresses_Has_WMeter

Coded Domain Values – Specified Values for Fields

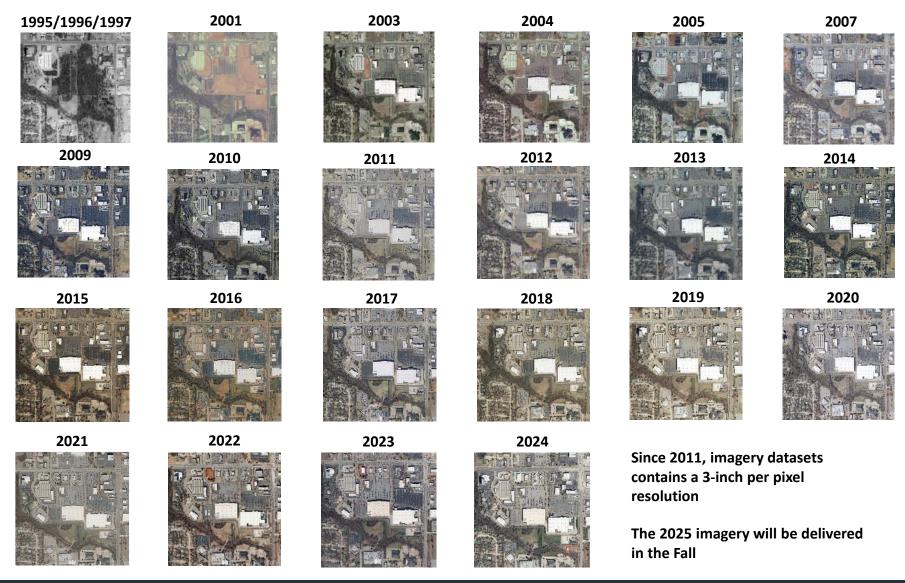
Damaia Nama

| Domain Owner | Domain Name | Description |
|--------------|-------------------------|-------------|
| SDEGIS | ElectricConduitMaterial | |
| Code | Description | |
| Powerped | Powerped | |
| Powerpack | Powerpack | |
| Outlets | Exterior Outlets | |



Datasets - Imagery

Large catalog of imagery. Available imagery datasets include:





Datasets – Topographic Data

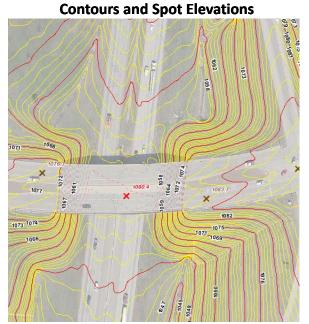
Topographic Data:

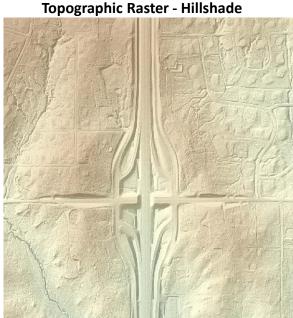
Information about the elevation surface of the earth.

Data Catalog

The City of Edmond has topographic datasets (1-foot contours) for 2007, 2016, 2018, 2019, 2020, 2021, 2022, 2023 and 2024. Data formats include:

Digital Elevation Model (DEM)





Data Collection

Topographic data is collected using Light Detection and Ranging (LIDAR) from aircraft using sensors



Web Mapping Services

ArcGIS Server/Portal for ArcGIS and ArcGIS Online

Our organization uses ArcGIS Server/Portal for ArcGIS and ArcGIS Online to host web mapping services to meet the needs of our end users.

Fast Facts:

- ArcGIS Server installed on 3 machines (2 internal and 1 DMZ)
- Portal for ArcGIS installed on two Machines (PROD and TEST)
- 75 internal ArcGIS Server web mapping services
- 8 internal Geoprocessing Services (Printing and Mapping Tools)
- 1 Composite Address Locator Service (Includes Addresses and Streets)
- 35 external (DMZ) ArcGIS Server web services for Public
- All web services are used in internal and external web mapping applications

```
// Map - Services and Feature Layers
// 01. Air Photo - Map Service
airPhoto = new ArcGISDynamicMapServiceLayer("https://arcgis.edmondok.com/arcgis/rest/services/AirPhotos/AirPhoto/MapServer", {
   id: "Air Photo 2020",
   visible: false,
   outFields: ["*"]
});
```



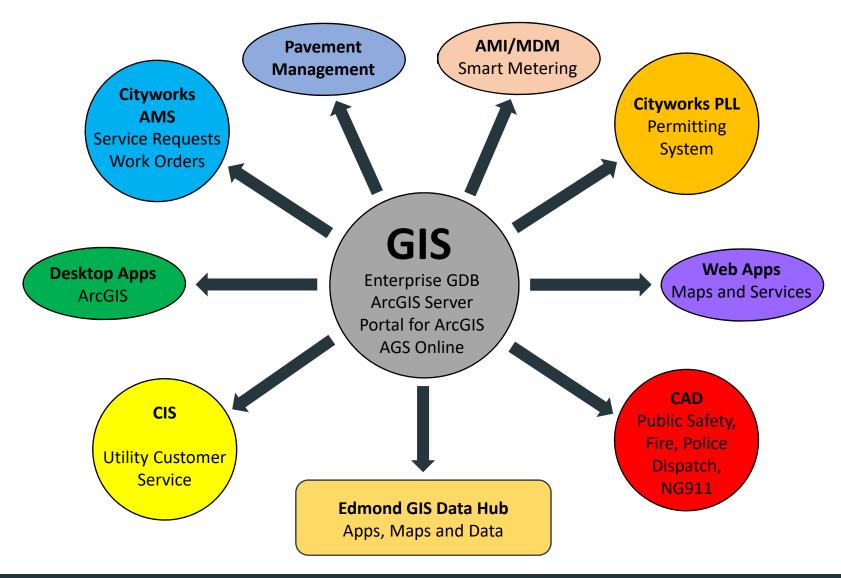






Application Integration

GIS is integrated into other applications that are used for a variety of City operations.

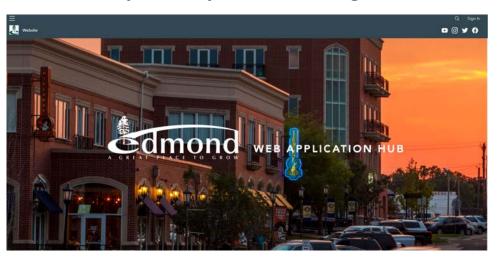


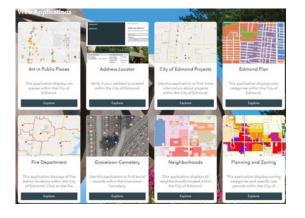


Edmond GIS Data Hub

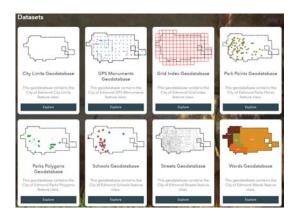
The data hub is a centralized location for accessing applications, maps and datasets. The datahub is intended for internal and public use.

https://maps.edmondok.gov/









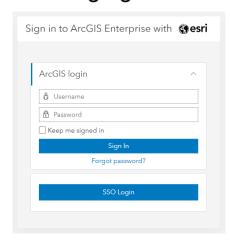


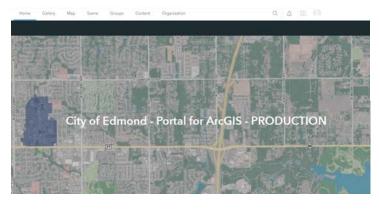
Portal for ArcGIS

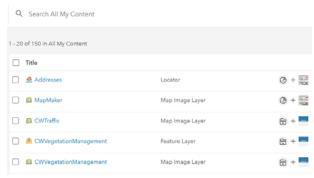
Portal for ArcGIS is used for all internal web GIS applications within the City of Edmond. The City of Edmond has Portal for ArcGIS in both PRODUCTION and TEST Environments.

Portal for ArcGIS is a component of ArcGIS Enterprise that allows you to share maps, scenes, apps, and other geographic information with other people in your organization.

Portal provides centralized data management, streamlined sharing capabilities, enhanced collaboration, robust security controls, accessibility for various user levels, and integration with other ArcGIS products; making it a valuable tool for managing and distributing GIS information within an enterprise environment.





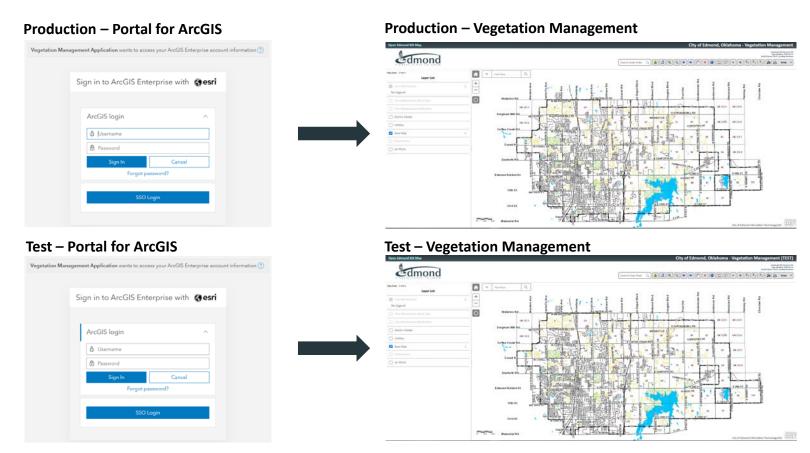




Portal for ArcGIS

Portal for ArcGIS is used for all internal web GIS applications within the City of Edmond. The City of Edmond has Portal for ArcGIS in both PRODUCTION and TEST Environments. Federated with ArcGIS Server in both environments.

Portal for ArcGIS usage started in 2024 for the City of Edmond.





Migrating ArcMap to ArcGIS Pro

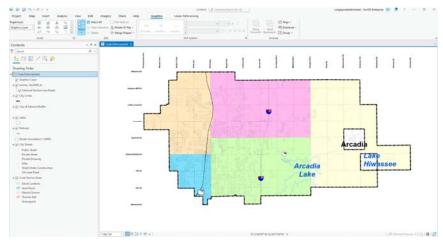
The City of Edmond is currently in the process of migrating ArcMap users to ArcGIS Pro.

- Document current processes that are used in ArcMap
- Replicate these processes using ArcGIS Pro tools and workflows
- Provide training to end users
- Removal of ArcMap...RIP

ArcMap 10.8.1

The control of the co

ArcGIS Pro 3.x

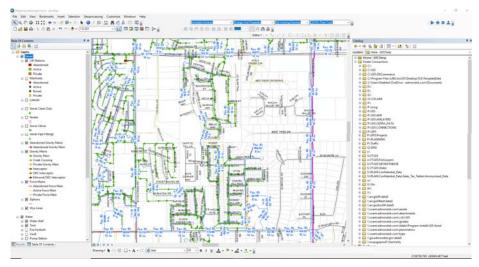




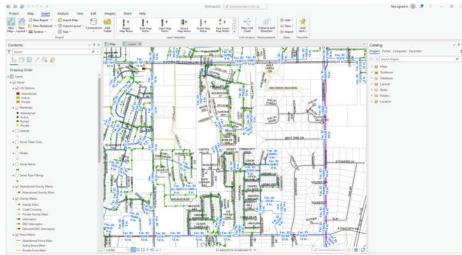
Migrating ArcMap to ArcGIS Pro

Import maps from ArcMap into ArcGIS Pro.

ArcMap



ArcGIS Pro





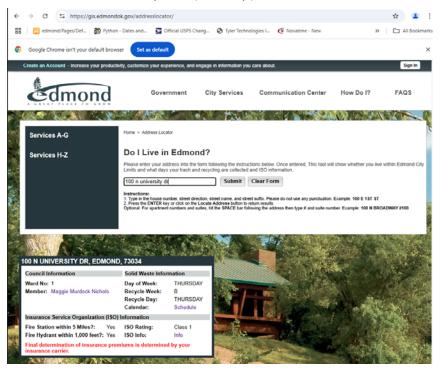
Web GIS Application Conversion

We are currently working on converting web GIS applications.

- Convert all custom web GIS applications from ArcGIS API for JavaScript 3.x to 4.x
- Migrate all Web App Builder (WAB) Developer Edition Applications to Experience Builder

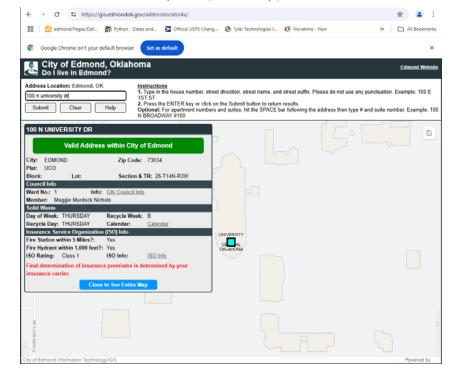
Address Locator Application – For Public Use

ArcGIS API for JavaScript 3.x (No Map)



Address Locator Application – For Public Use

ArcGIS API for JavaScript 4.x (With Map)



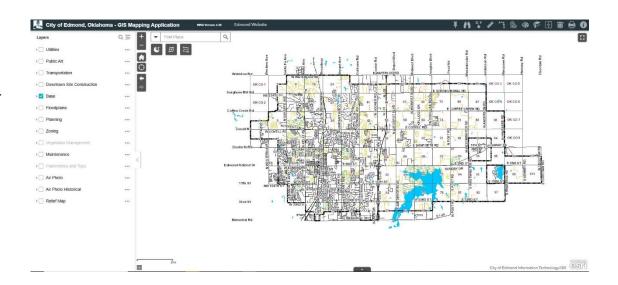


Web GIS Application Conversion

Edmond GIS

Web App Builder Developer Edition

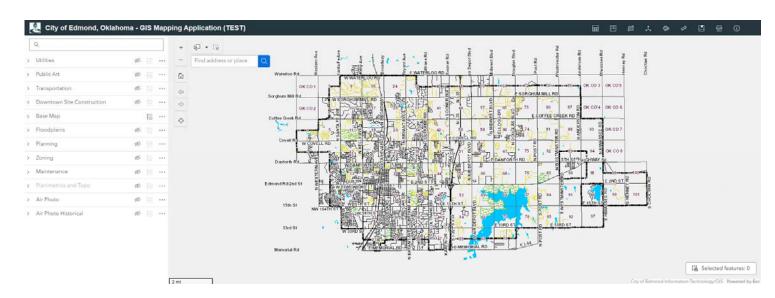
Application Viewer for Internal Use



Edmond GIS

Experience Builder Developer Edition

Application Viewer for Internal Use





GIS Data Models

The GIS Team continues to develop new data models to support the needs of staff members. Data models are used for the Asset Management system.

Data Models in current Development include:

Facility Maintenance

Parks and Recreation

These models contain numerous attributes to describe The characteristics of the asset.





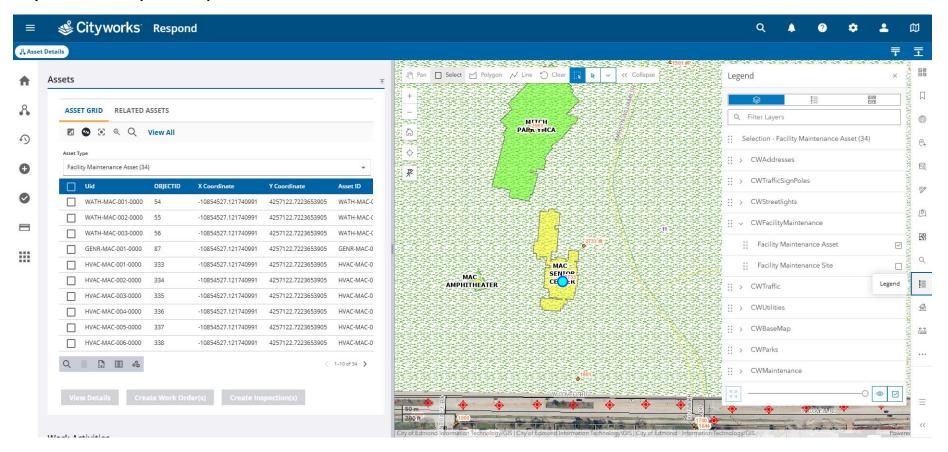






GIS Data Models

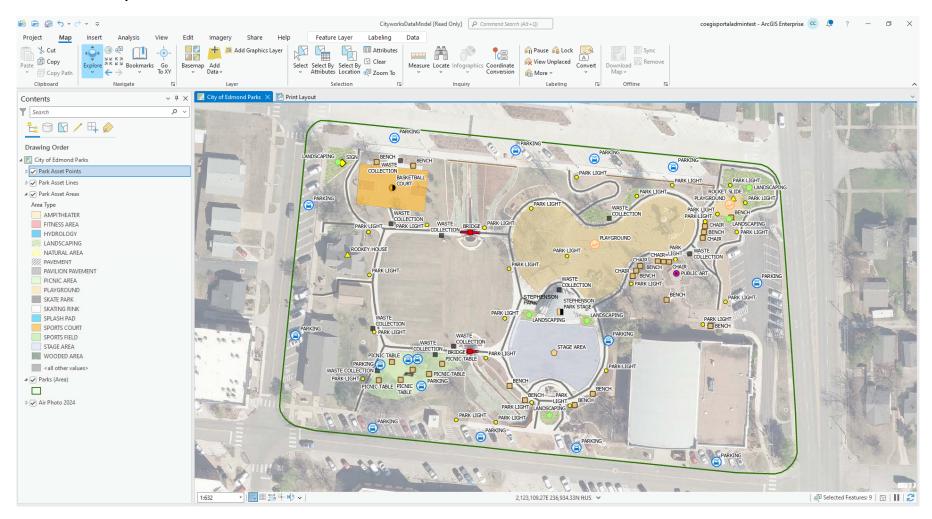
Facility Maintenance – Mitch Mark Cityworks 23 – Respond Sample





GIS Data Models

Parks and Recreation – Stephenson Park ArcGIS Pro Sample





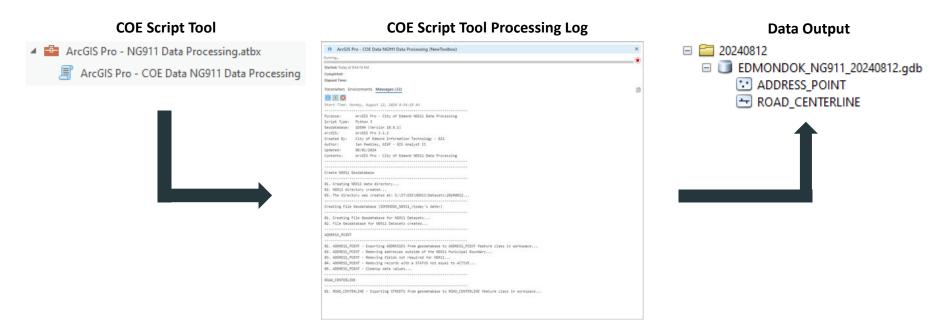
NG911

What is Next Generation 911 (NG911)?

NG911 is an internet protocol (IP)- based 911 system that will replace the existing analog 911 infrastructure. NG911 allows 911 callers, through mobile and digital devices, to communicate with 911 call centers, also known as Public Safety Answering Points (PSAPs).

COE Methodology

We developed an arcpy toolkit to help prepare City of Edmond streets for the State NG911 Toolkit. After running our custom script, we run the State NG911 toolkit to identify errors that need to be corrected.





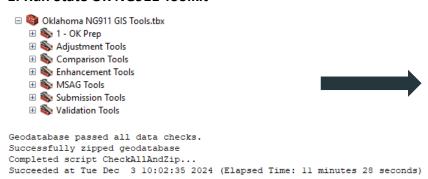
NG911

The State NG911 Toolkit

Frequency of Update

The State of Oklahoma receives data from the City of Edmond monthly.

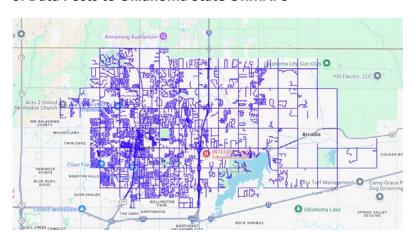
1. Run State OK NG911 Toolkit



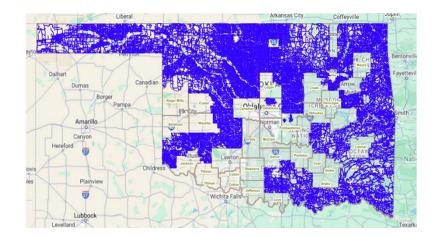
2. Submit Data (as .zip file)



3. Data Posts to Oklahoma State OKMAPS









Processes Used for Updating Data

Behind the scenes processing using python scripting and model builder to streamline manual workflows and improve processes. Examples include:

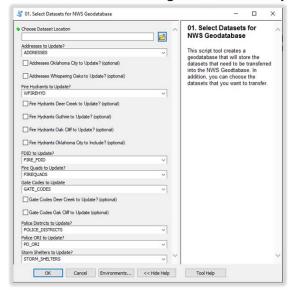
Scheduled Tasks

Numerous scheduled tasks for updating source data and address locators. Run as a .bat file.

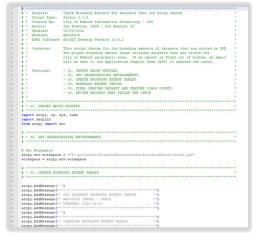
Storm Shelter Registration Processing



CAD GIS Data Processing for Public Safety



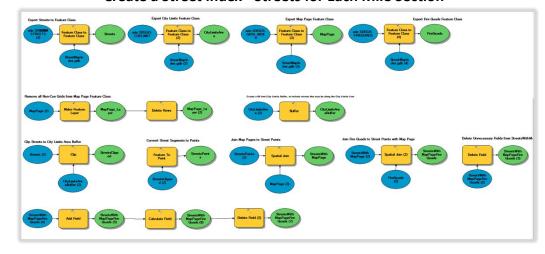
Data Integrity Checks - Nightly Process



NG911 Data Processing



Create a Street Index - Streets for Each Mile Section





Challenges

During the implementation of GIS technology, here are some challenges we have experienced:

- ArcMap to ArcGIS Pro
 - Replicating workflows that users are following
 - Labeling and Symbology for Layers
 - Recreating Map Layouts
- Replicating functionality between Web App Builder (WAB) Developer Edition and the Experience Builder Developer Edition
- Learning a new JavaScript API, migrating from 3.x to 4.x
- Migrating to a Utility Network Dataset for our Electric Data Model
- Complexity of GIS environment. Highly integrated. Not just a simple upgrade.



Future Plans

Continue expanding the capabilities of GIS within the organization and focus on introducing new technology, improving process workflows, web application capabilities and resources for Public use.

Goals for 2025:

- Upgrade ArcGIS Enterprise to version 11X (in Planning Phase)
- Improve processing workflows (time consuming tasks) through scripting
- Complete converting web applications built using JavaScript 3.x API to JavaScript 4.x API
- Survey 123/Dashboard for Emergency Management
- Convert existing geoprocessing tools from Arcpy scripting to custom JavaScript widgets
- Complete moving Staff Members to full use of ArcGIS Pro
- ArcGIS 3D Potential Applications
- ArcGIS Image Server



Questions

Feel free to contact us!

Antonio Adolphues GIS Coordinator 1273 N Broadway, Edmond, OK 73034 (405) 359-4333 antonio.adolphues@edmondok.gov

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