

Technology Update

Midwest Esri Utility User Group

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Esri, Inc



THE SCIENCE OF WHERE™

Enterprise Vision for Utilities



Enterprise Vision

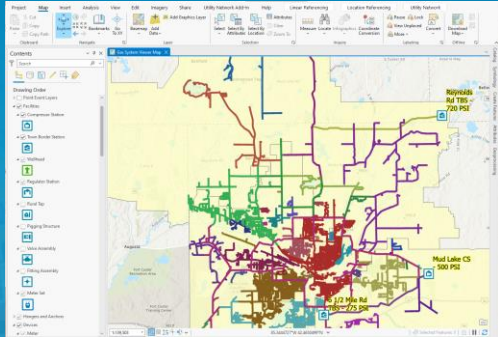
Pervasively accessible data and analytics for the entire organization



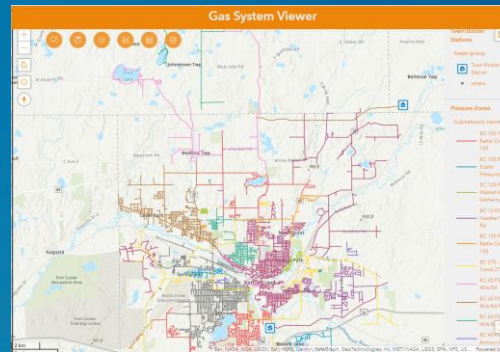
Pervasive Access to the Entire Organization

Supporting the entire organization

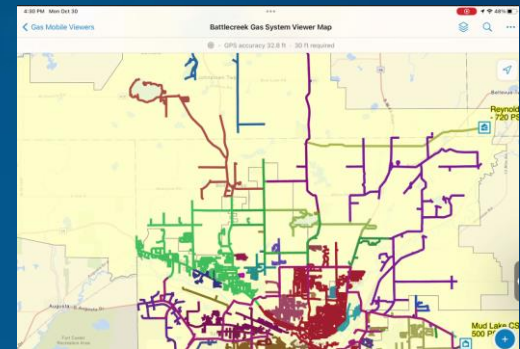
Desktop



Web



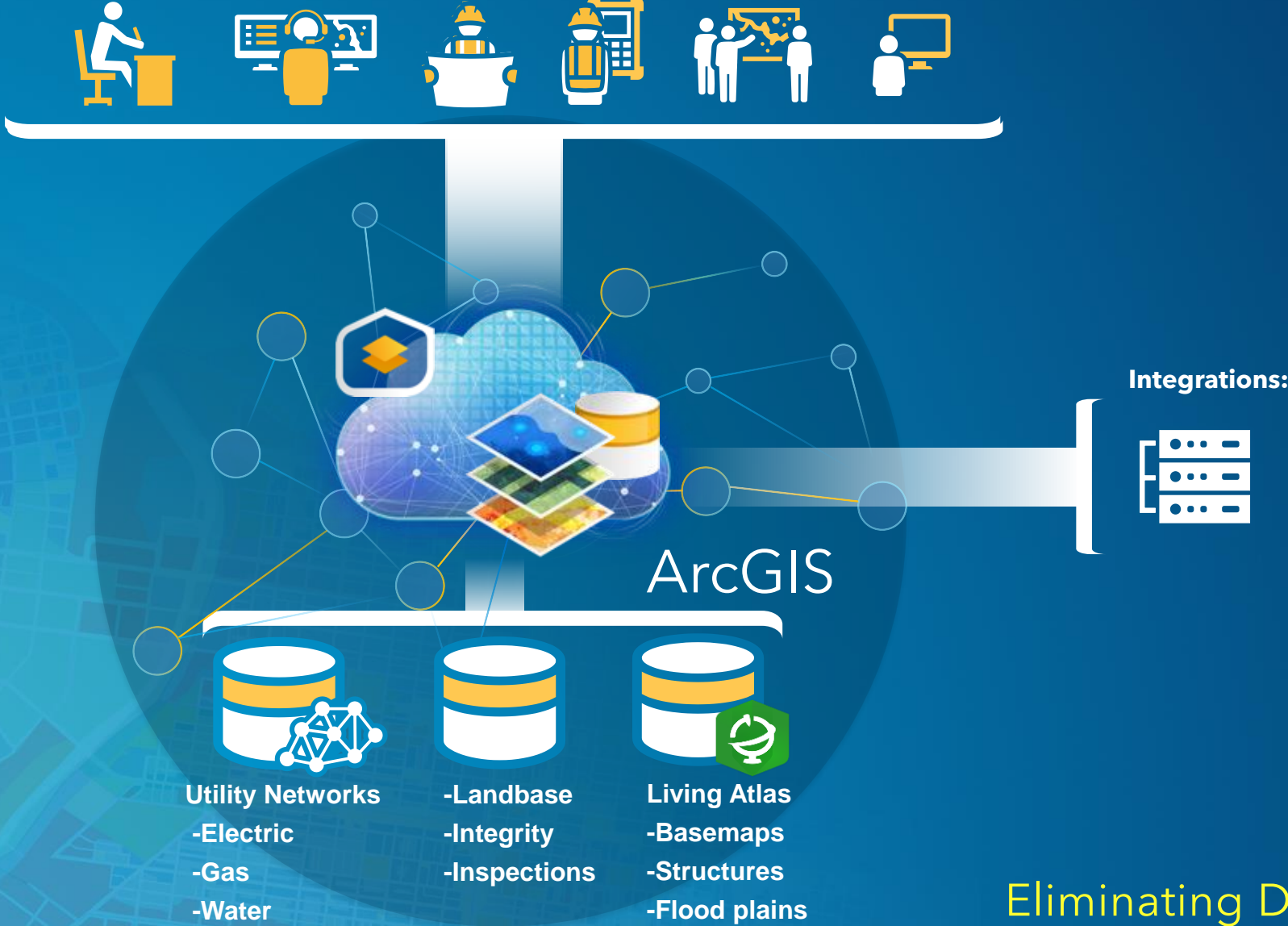
Mobile



Eliminating Data Duplication

Enabling a Single Source of Truth - Web Services

Supporting the entire organization



Eliminating Data Duplication

Open Data – Web Services

Share data with industry standard web services

Open Geospatial Consortium

Web Coverage Service (WCS)

Web Feature Service (WFS)

Web Map Service (WMS)

Web Map Tile Service

KML – Keyhole Markup Language

ArcGIS Server Web Service

REST – Representative State Transfer

SOAP – Simple Object Access Protocol

GeoJSON - Geospatial Javascript Object Notation



COTS Enterprise System

Connecting to ArcGIS Web Services



Example: Single Source of Truth for Entire Organization

Accessible by everyone, anywhere at anytime





Demonstration



Benefits of an ArcGIS For Your Organization

Standards based on security, accessibility, and interoperability

Everyone sees the same information

No need for copying of data



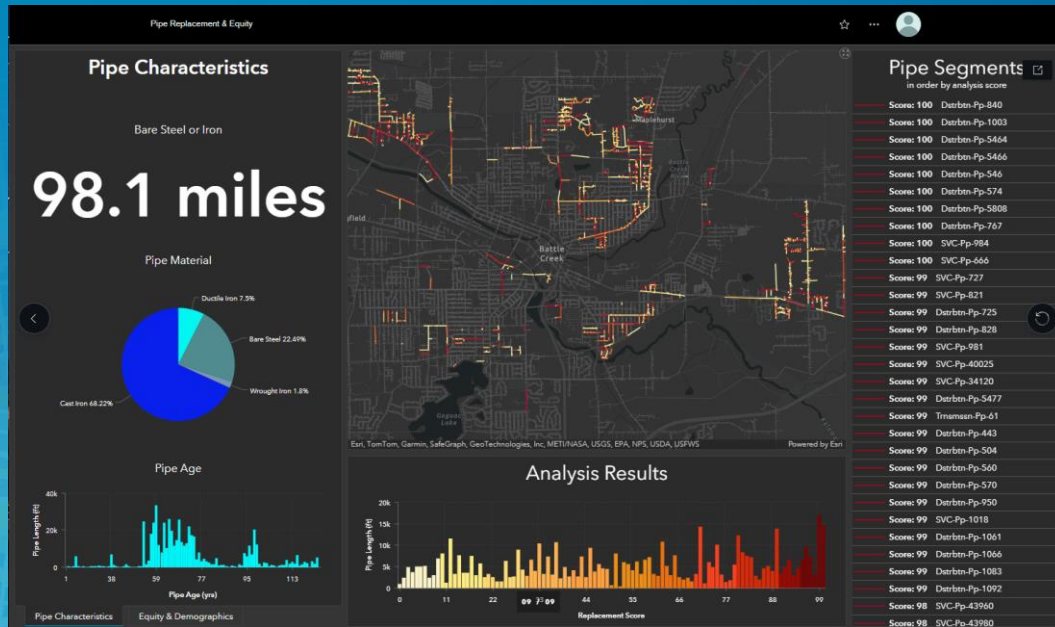
A single Source of the Truth

Analytics

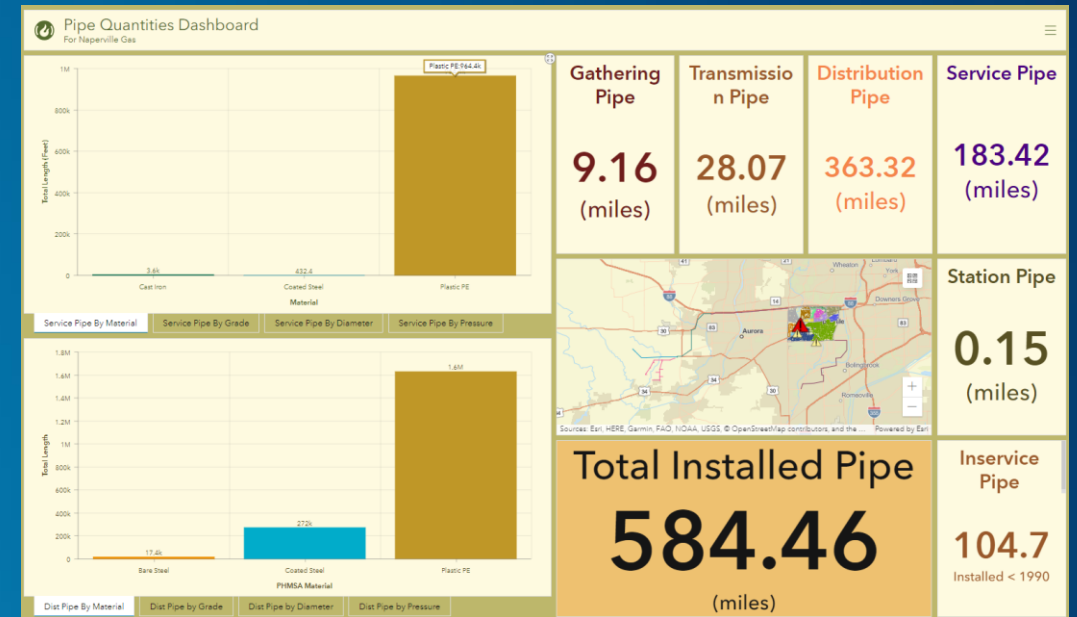


Analytics

Applying a Geospatial approach to discover patterns and trends



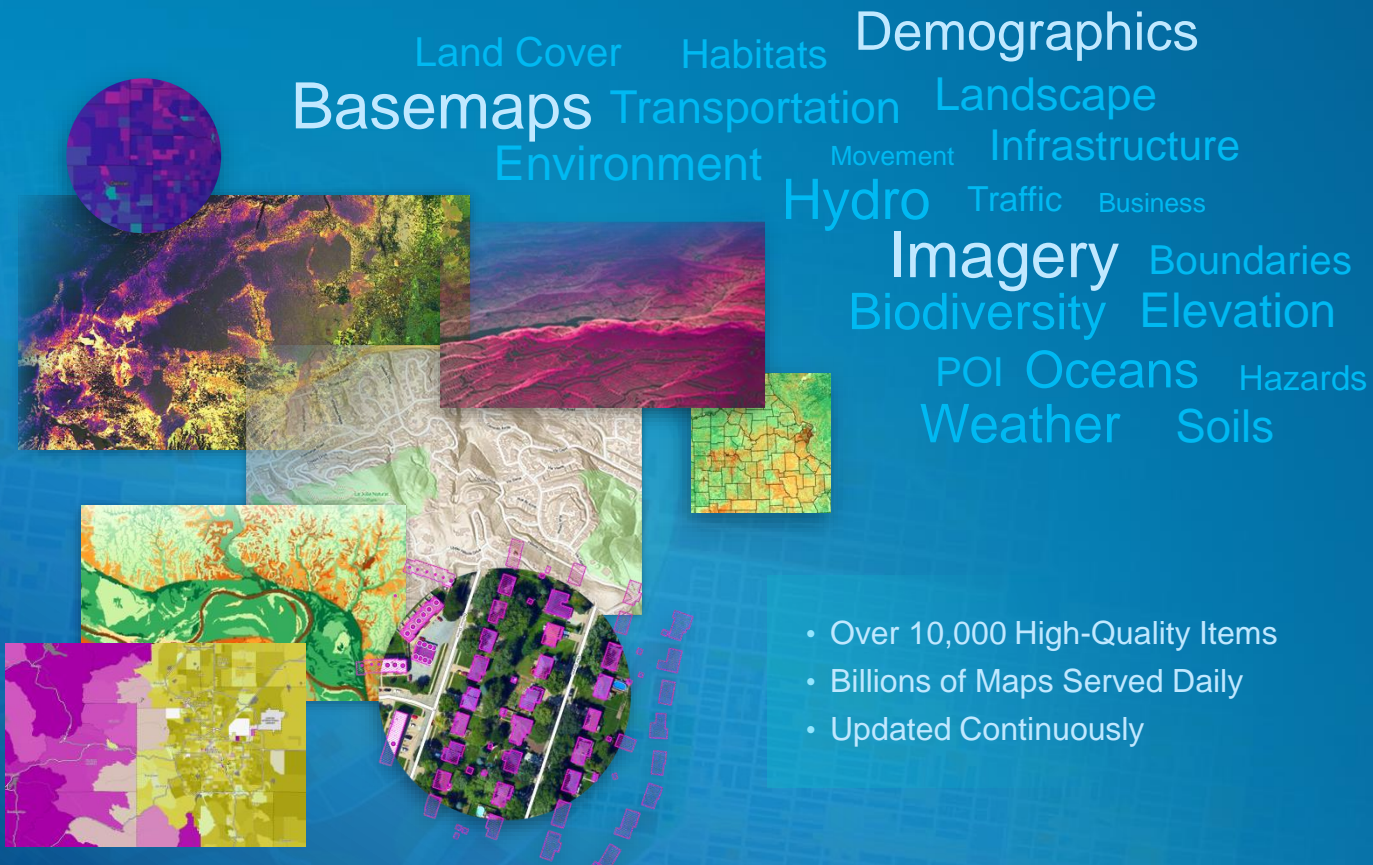
Asset Replacement Prioritization Analysis



Realtime Summary of Asset Quantities

Living Atlas of the World

Curated Collection of Ready-to-Use Maps, Layers, and Apps



- Over 10,000 High-Quality Items
- Billions of Maps Served Daily
- Updated Continuously

- Built from Best Available Commercial and Community Sources

New & Improved

- U.S. Federal Datasets (NGDA+)
- New OSM 3D Scene Layers
- Analysis-Ready Imagery
- Global Places (POIs)
- Global Land Use (2017-2021)
- WorldPop 2000-2020
- Global Climate Layers
- Global Tree Canopy Height
- Global Air Quality
- U.S. Census 2020 Data
- U.S. Structures (FEMA/ORNL)
- NAIP Imagery Collection
- . . . and Many More

New Outdoor Basemap



Recent Air Quality



OpenStreetMap
2D and 3D Layers

Living Atlas of the World

USA Live Feeds

- Weather Watches and Warnings
- Short-Term Weather Warnings
- Storm Reports
- National Water Model (18-hr and 10-day)
- Current Wildfires
- Drought Monitor
- COVID-19 County Level Updates

- 72-Hour Weather Forecasts

Wind Speed

Wind Gust

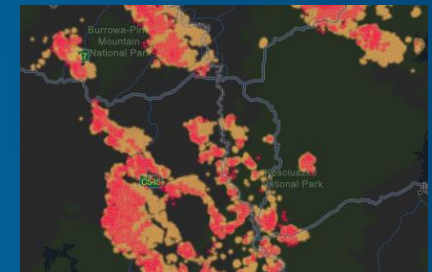
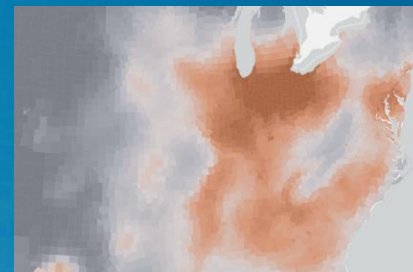
Wind Direction

Precipitation

Snowfall

Ice

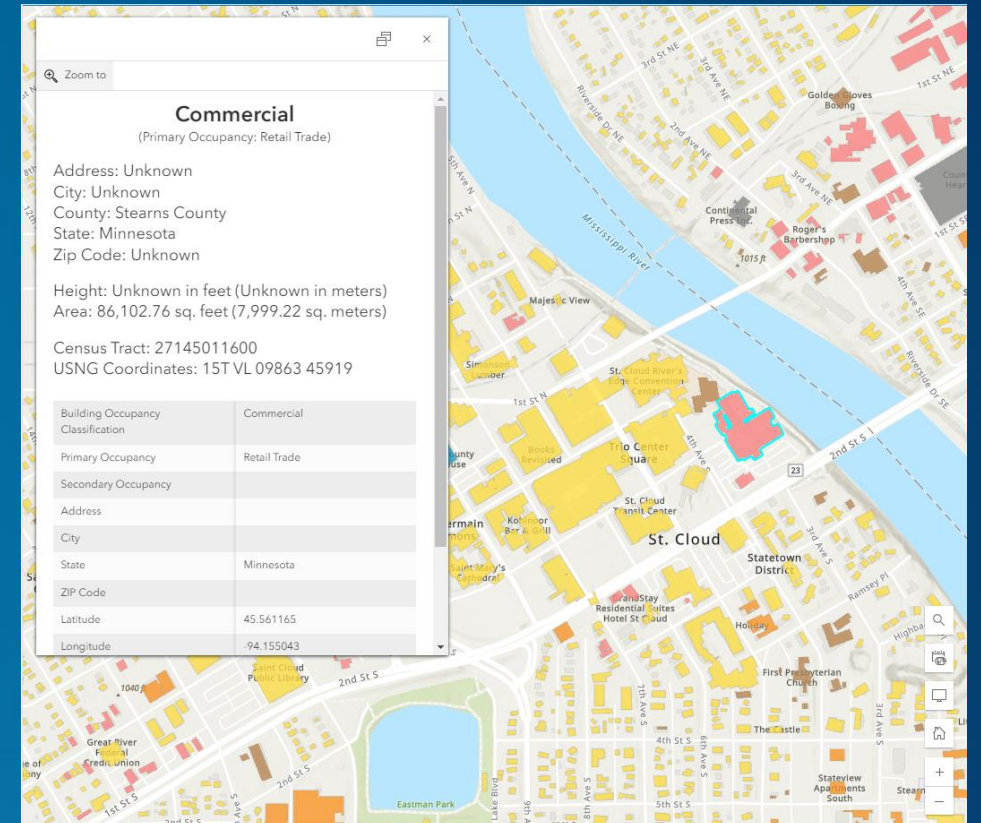
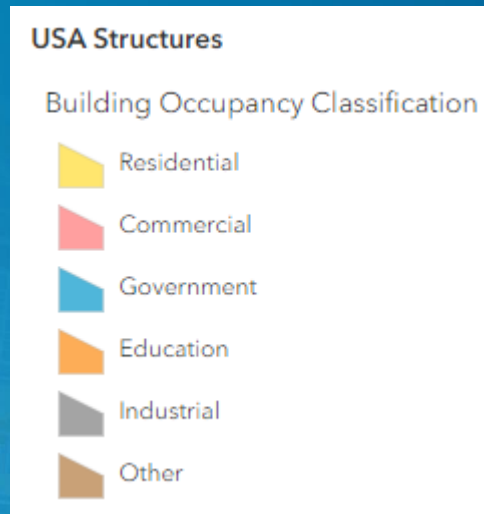
Smoke Concentration



Living Atlas of the World

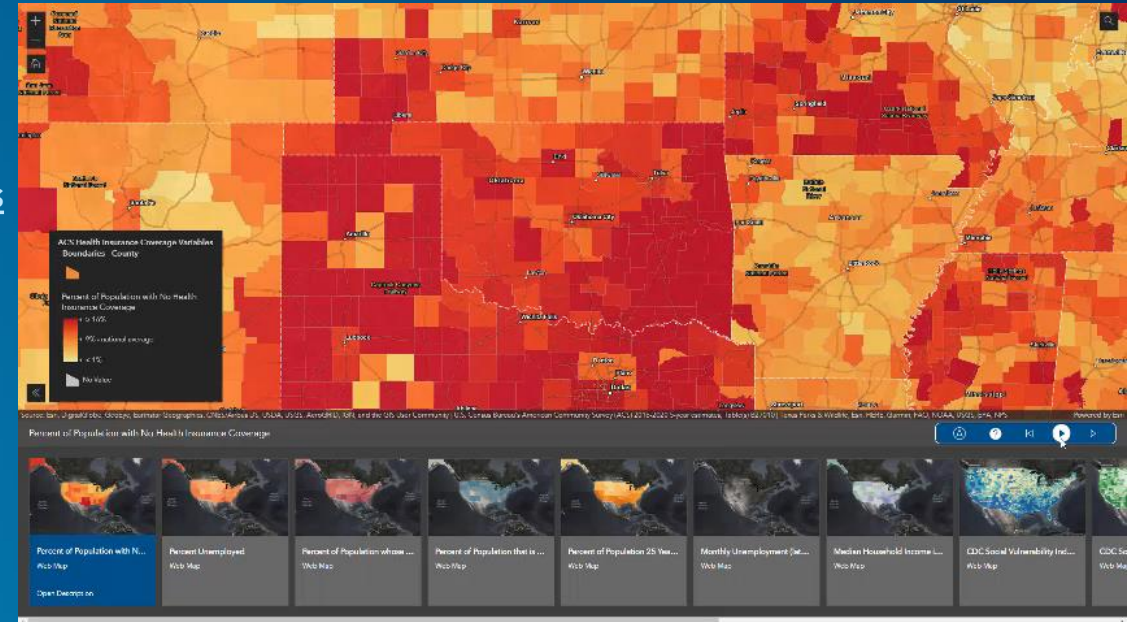
USA Structures

- An inventory of every building of greater than 450 sq ft in the United States and its territories.
- Created and maintained by FEMA.
- Over 130 million structures
- ArcGIS Feature Layer



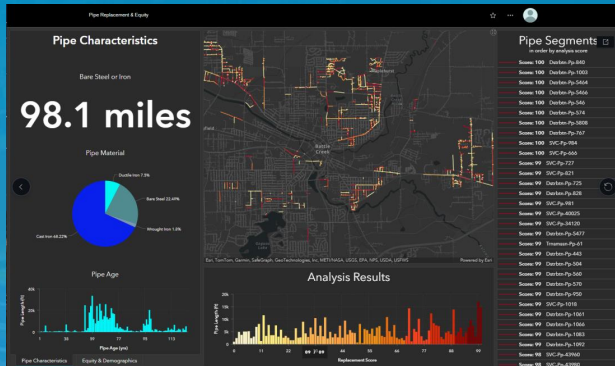
Living Atlas Equity Data

- **Income:**
 - [ACS Median Household Income Variables - Boundaries](#)
 - [ACS Household Income Distribution Variables - Boundaries](#)
- **% of Population below the Poverty Line**
 - [ACS Poverty Status Variables - Boundaries](#)
- **% of Population that is Minority**
 - [CDC Social Vulnerability Index 2018 - USA](#)
- **% of Population with no High School Diploma**
 - [ACS Educational Attainment Variables - Boundaries](#)
- **% of Population 65 Years or Older**
 - [ACS Context for Senior Well-Being - Boundaries](#)
- **Unemployment Rate**
 - [ACS Employment Status Variables - Boundaries](#)
 - [Bureau of Labor Statistics Monthly Unemployment \(latest 14 months\)](#)
- **% with Broadband**
 - [We have quite a few layers with this data. Both ACS and FCC data.](#)
- **% with no Health Insurance - [ACS Health Insurance Coverage Variables - Boundaries](#)**
- **There are also two new layers containing detailed breakdown of Hispanic and Asian groups:**
 - [ACS Specific Asian Groups - Boundaries](#)
 - [ACS Specific Hispanic or Latino Origin - Boundaries](#)

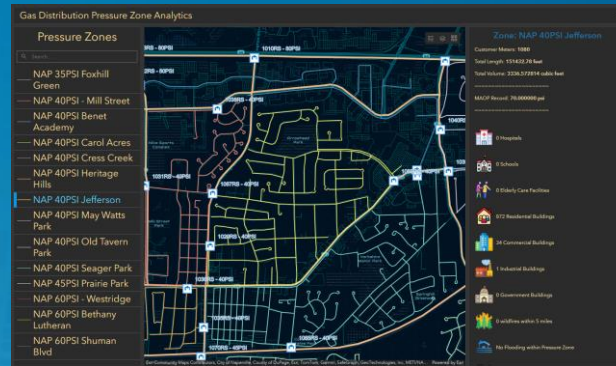


Analysis with Living Atlas Content

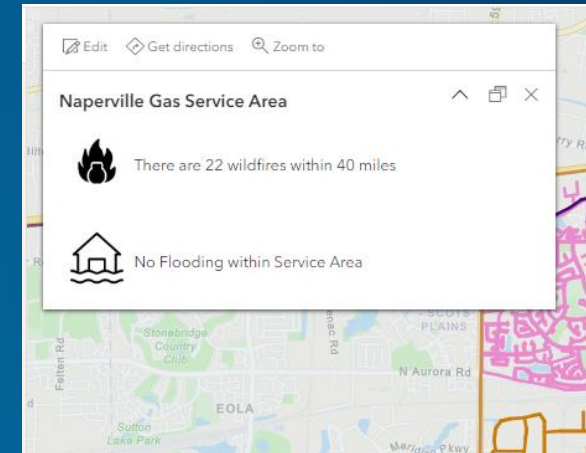
Example 1 Improving Asset Replacement Planning



Example 2 Planning/Engineering Awareness



Example 3 Real-time weather awareness





Demonstration








Imagery



Mobility



ArcGIS Field Maps

-  Data Collecting
-  Map Viewing
-  GPS Tracking
-  Safety Awareness
-  Tracing

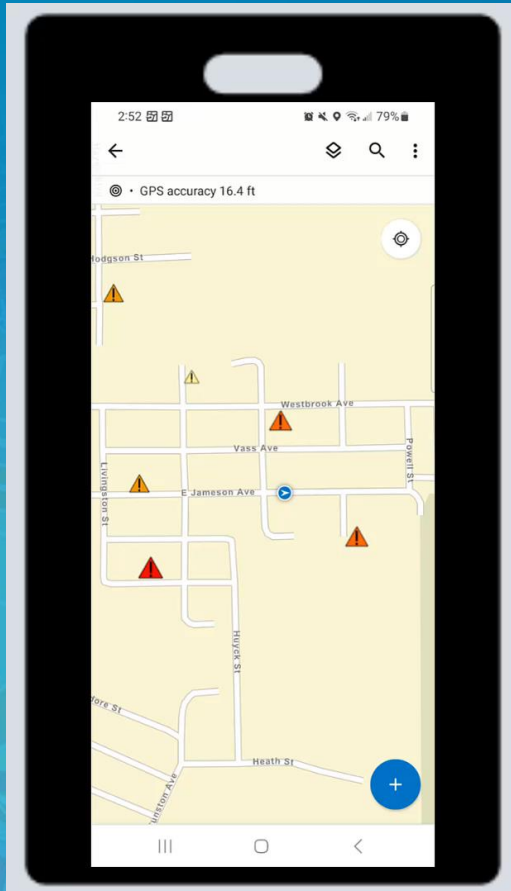


Safety Awareness

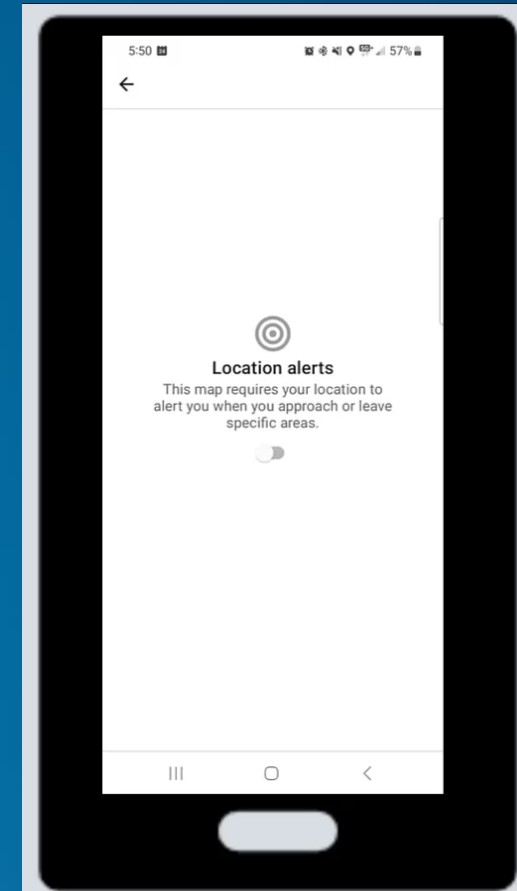
Real-time Notifications based on proximity to a hazard

Application based Geofencing

Known Hazards



Emergency Events



Map Viewing - Offline Map Areas

Automatic Updating on Portal

< Naperville Gas Operating Area ...

Next Update
Apr 4, 2024

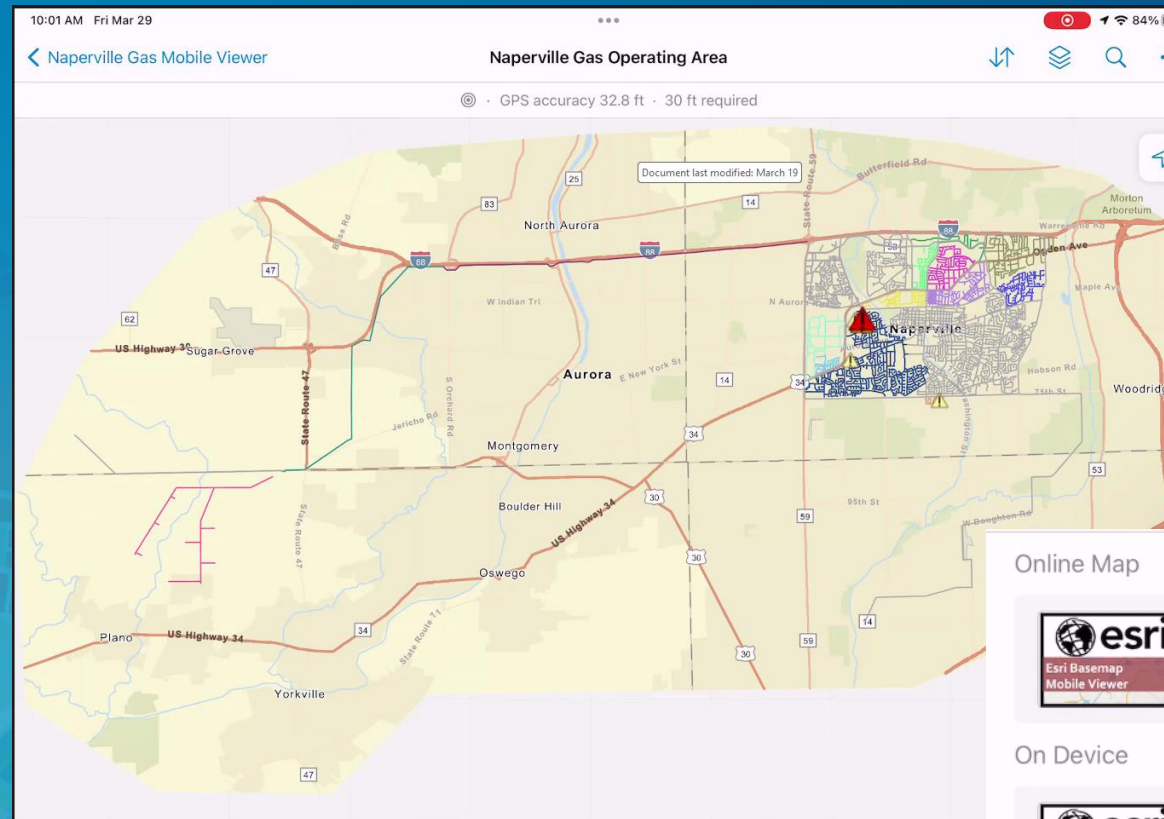
Updates
Weekly at 19:56:00

Packages

Tip
If you have added or removed layers from the map, select update on your offline map area

226.9M

Gas_Known_Hazards	Feb 19, 2024	442.4K
Naperville_Gas_Utility_Network	Mar 28, 2024	82.4M
VectorTileServe	Feb 19, 2024	144.1M



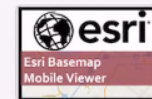
Automatic Updating On Device

Sync

Sync Now · Just now

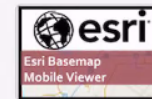
Auto-Sync
In 15 min

Online Map



Naperville Gas Mobile Viewer

On Device



Naperville Gas Operating Area

224 MB · ↑ Feb 19, 2024

Data Collection - Smart Forms

Smart Form Capabilities

- Conditional Visibility
- Required Fields
- Radio Buttons, Switches
- Field Grouping
- Embedded Calculations
- Conditional Editing

The screenshot displays a web-based form builder interface for a 'Naperville Gas Mobile Exposed Pipe' project. The main form is titled 'Exposed Pipe Inspection' and is divided into several sections:

- Project Information** (10 items):
 - Inspection Number: Text input field.
 - Inspection Date: Date picker.
 - Inspected By: Text input field.
 - Operator Qualified: Text input field.
 - Length Exposed: Text input field.
 - Joint Trench: Dropdown menu (No value).
 - Joint Encroachment: Dropdown menu (No value).
 - Location Description: Text input field.

The right-hand side of the interface features a 'Form builder' panel with the following sections:

- Form elements**: A list of fields currently in the form, including 'Creator (creator)', 'Creation date (creationdate)', 'Updated by (updatedby)', 'Last update (lastupdate)', 'Project GlobalID (project_globalid)', and 'Operator Qualified (oqstatus)'. Each field has a small icon and a 'Delete' button.
- Form settings**: A section for configuring the form's behavior.

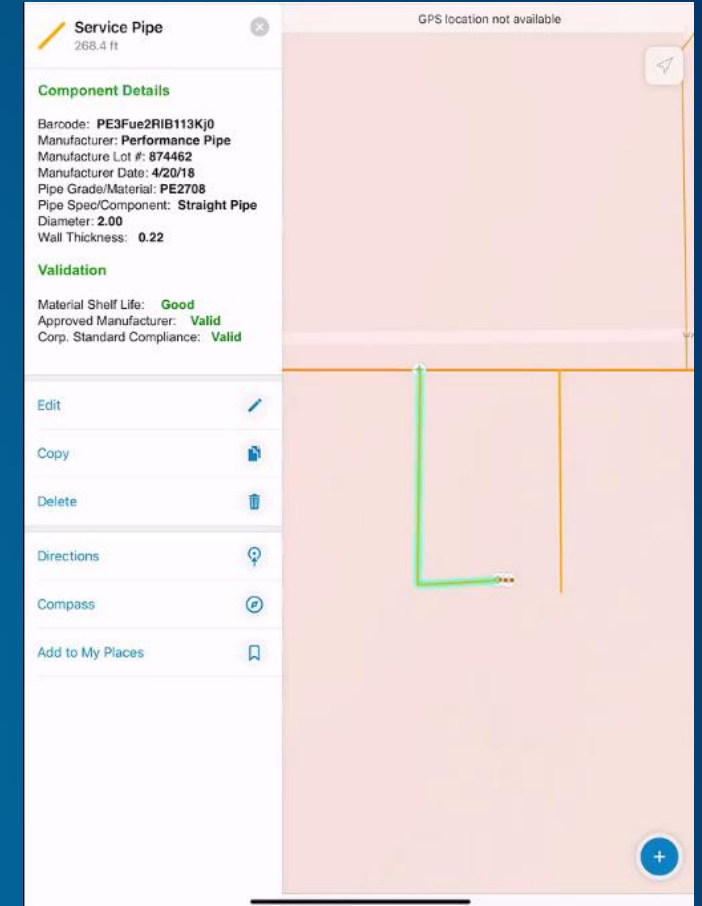
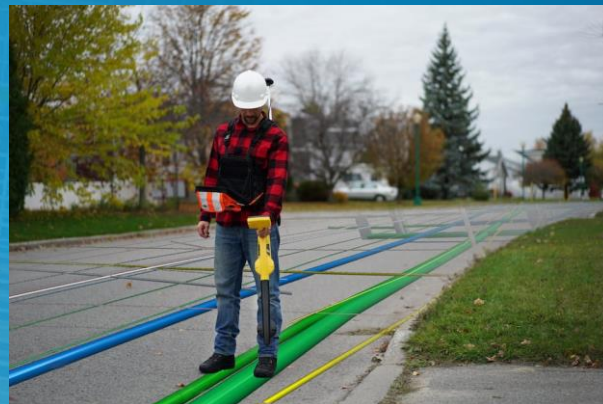
The left-hand side of the interface shows a navigation menu with options like 'Overview', 'Forms', 'Geofences', 'Offline', 'App settings', and 'Sharing'. The 'Forms' section is expanded, showing a list of layers including 'Known Hazards', 'Inspection Note', 'Relative Offset', 'Exposed Pipe Inspection' (highlighted), 'Pipeline Facilities', 'Pipeline Fittings', 'Pipeline Devices', 'Structure Junction', 'Pressure Zones', 'Pipeline Pipes & Wires', 'Structure Line', and 'Structure Boundary'.

Digitally Documenting Installed Assets

- Documenting Newly Installed Assets



- Remapping Existing Assets



ArcGIS Field Maps



Demonstration

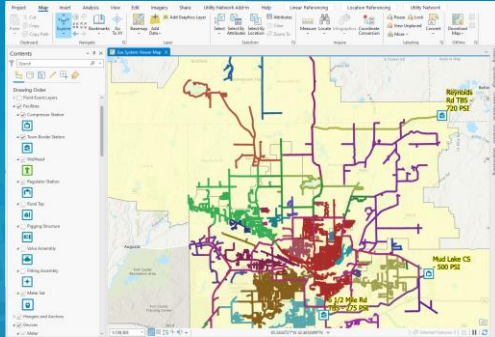


System of Record

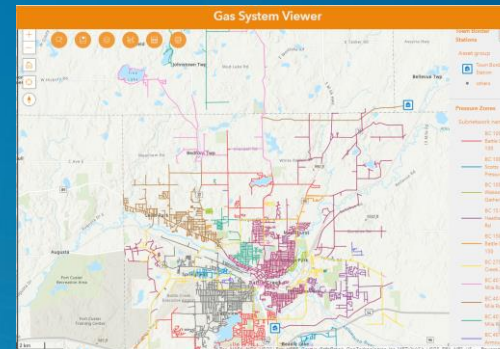
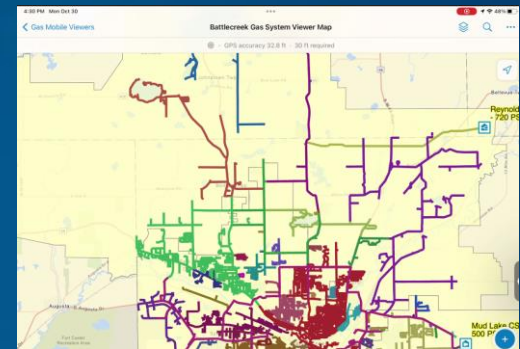


Pervasive Access

Desktop



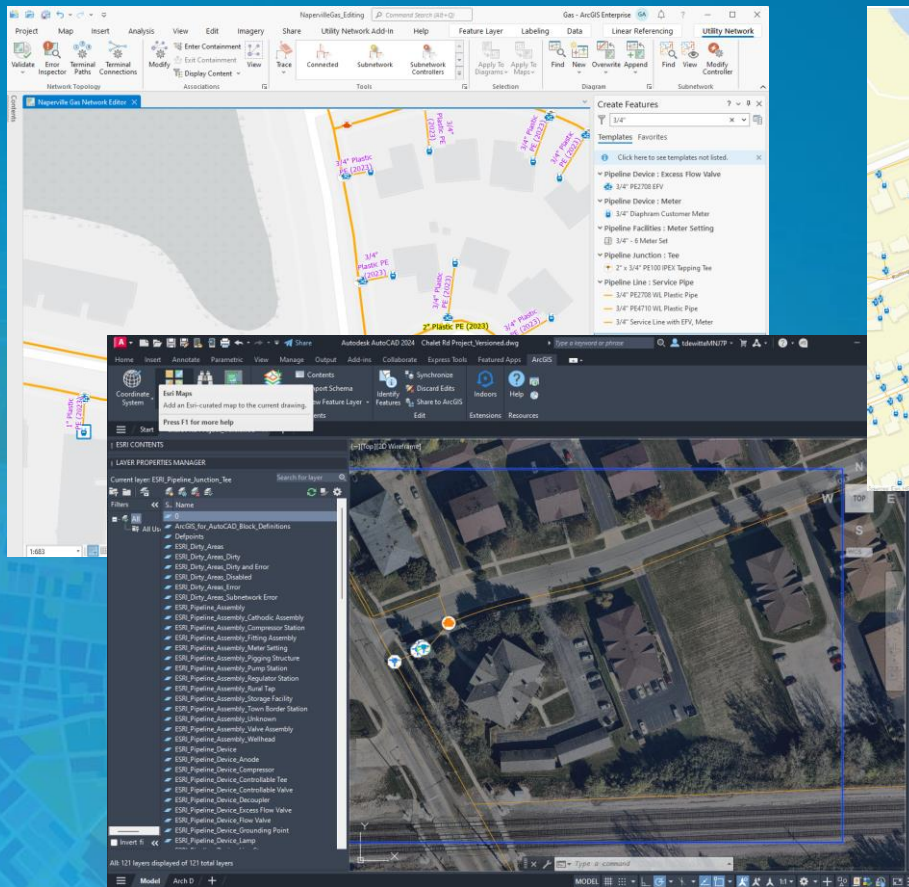
Mobile



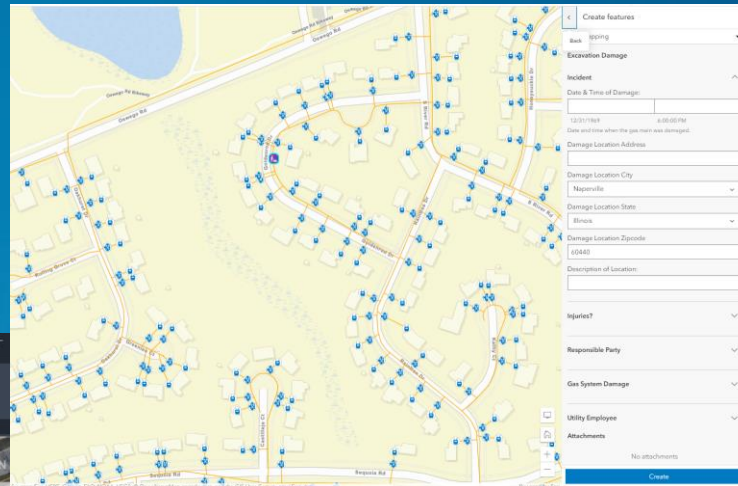
Realtime updates to all users

Pervasive Editing

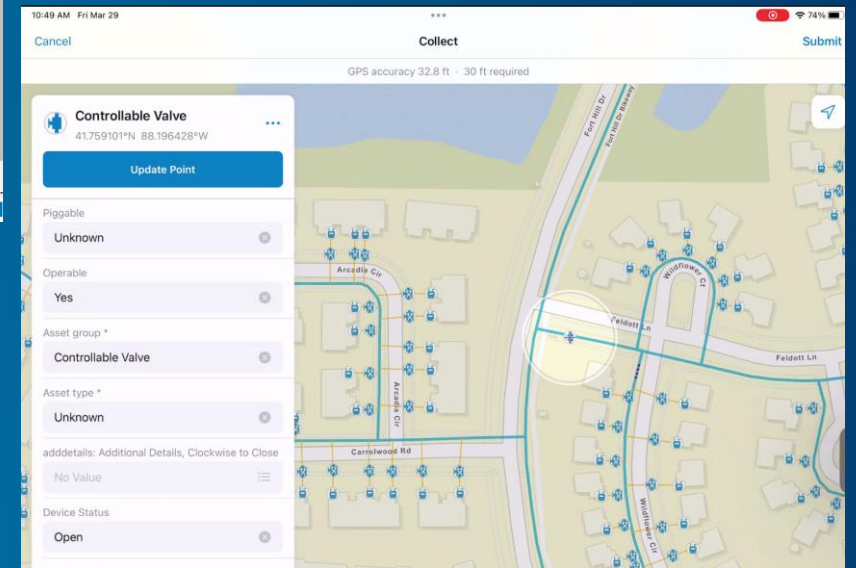
Desktop



Web



Mobile

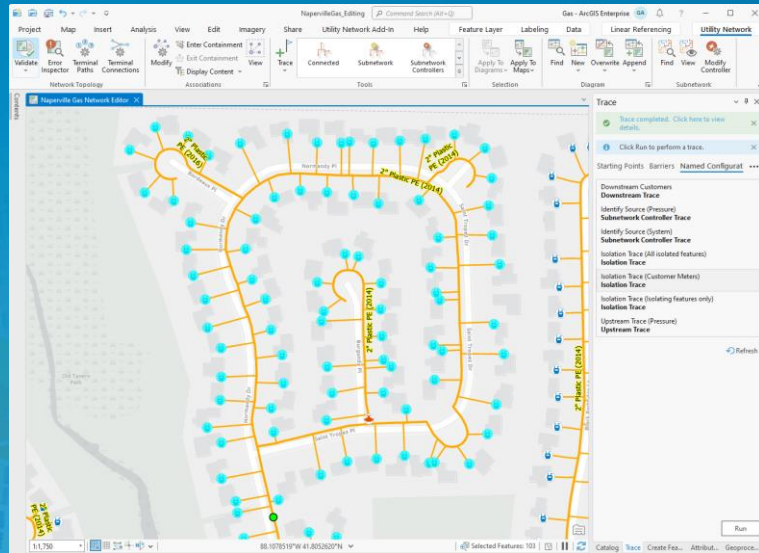


AutoCAD

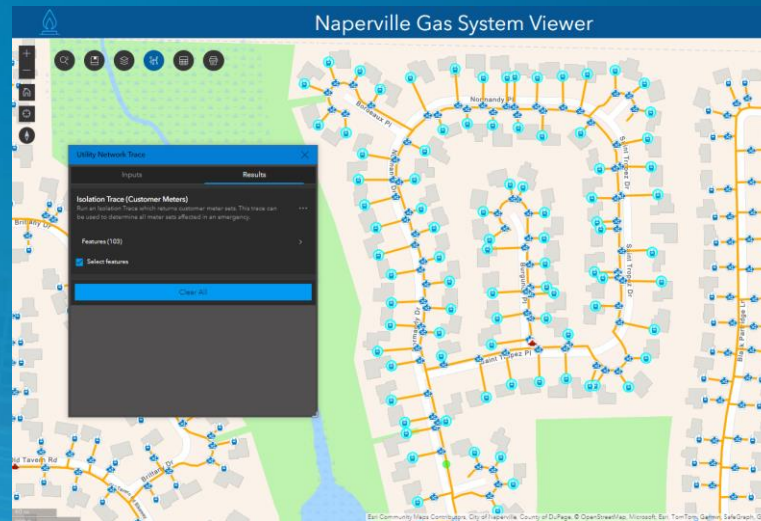
Editing across the enterprise

Pervasive Tracing

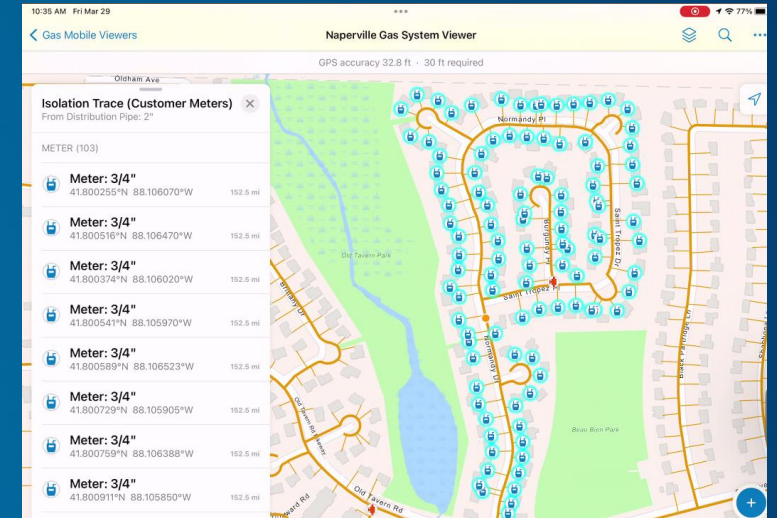
Desktop



Web



Mobile



Trace Configurations: Define once, use pervasively



Demonstration



Questions





THANK YOU



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