



Next-Generation Asset Management Powered with ArcGIS

John Ruffing

The Missing Context in Asset Management

- *Seamless integration with Esri GIS*
- *Unlock spatial intelligence across assets*
- *Backed by the IBM + Esri partnership*



Industry Trends

Perform Predictive
Maintenance

Maximize Capital
Investment

Detect Asset Failure

Passive Data
Collection (AI/ML)

Real Time Weather
Response

Drones and AI

Comprehensive
Field Operations

Safer Streets

Network Management
Utility Network
Roads and Highways

Why Location Matters



GIS Connects all

Governments and Citizens | Domain and Disciplines



What, Where, Why and What's Next

Asset Data



Public Safety

Citizens

Emergency Management

Economic Development

Planning

External Agencies

Engineering

Code Enforcement

ArcGIS is a Gateway to Advanced Technologies

Use ArcGIS to integrate advanced technology into your business



Maximo ↔ Esri Data Sync

Bidirectional synchronization for trusted data



MAXIMO INTEGRATION FRAMEWORK

Acts as the core engine managing data exchange between Maximo and Esri



Asset Type
Asset Group



- Two-way sync between GIS & Maximo
- Ensure consistency of asset data
- Keep spatial & operational views aligned



Real Scenarios

How organizations use Maximo Spatial in practice

Update the WO with a new Status in Maximo, and see it reflected on the GIS



Create a new item in GIS, and this one will be created automatically in Maximo



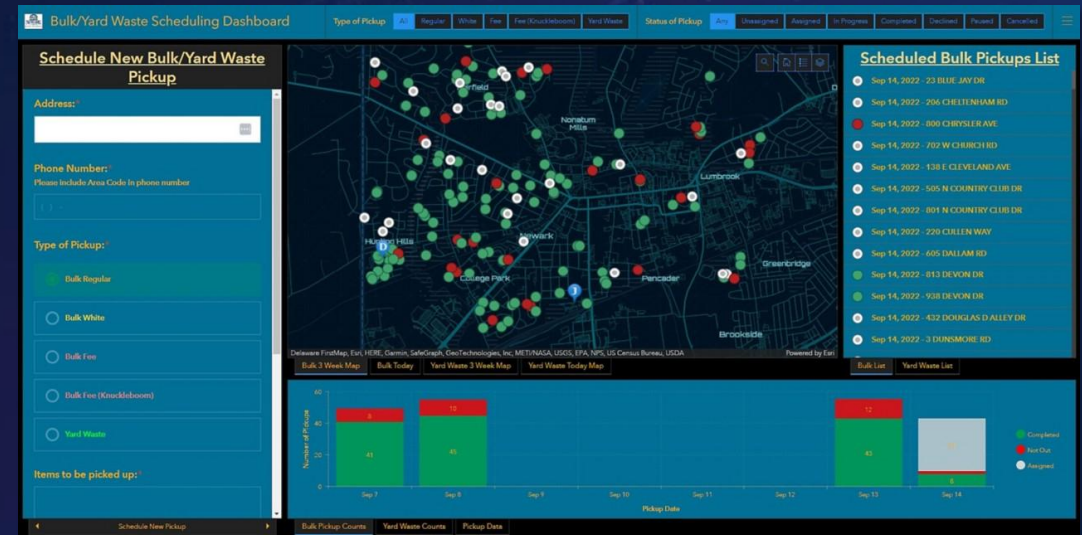
What can I do now that I couldn't do before

Core Capabilities

- Asset location and asset verification (native GIS data)
- Asset validation & visualization
- Work Order Mapping
- Mobile and offline field access

Operational Efficiency

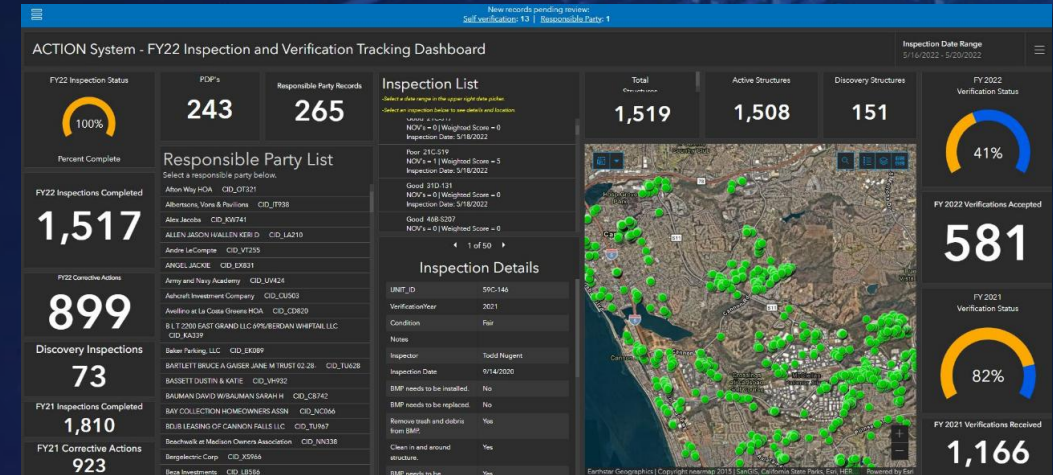
- Assign work based on proximity
- Create/manage work orders from map
- Optimize routing & scheduling
- Real-time field updates and syncs



What can I do now that I couldn't do before

One system, two perspectives

- Bidirectional sync
- Keep asset, work and location data aligned
- Eliminate duplicate datasets and errors
- Maintain single source of truth



Reactive vs. Proactive Operations

- Geofencing & event driven workflows (auto trigger actions)
- Heatmaps & spatial analytics (identify risk patterns)
- AI powered insights & natural language search
- Automated work order generation from spatial interactions

What's Next?

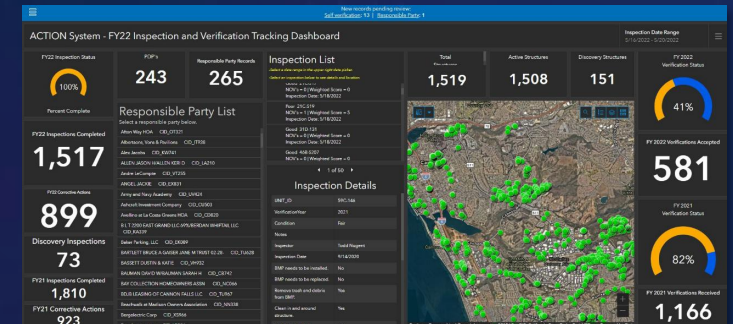


John Ruffing

What can I do now that I couldn't do before

Capabilities

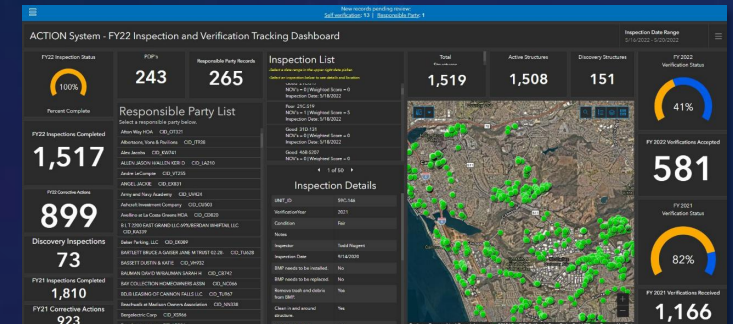
- Asset location and asset verification (native GIS data)
- Work Order Mapping
 - See work orders spatially
 - Identify clusters of work, optimize crew dispatching, reduce windshield time and better coordinate maintenance activities
 - Where are today's jobs, can we combine work, are multiple crews going to the same area
- Impact analysis
 - Shutoff or valve replacement impacts on water, electric, sewer, etc.
- Reduced paper usage by 73%
- Reduced inspection time by 34%
- Reduced verification time by 75%
- Saving \$100,000-\$350,000 on services



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Challenges are Opportunities to Adopt Technology

Use technology to mitigate challenges

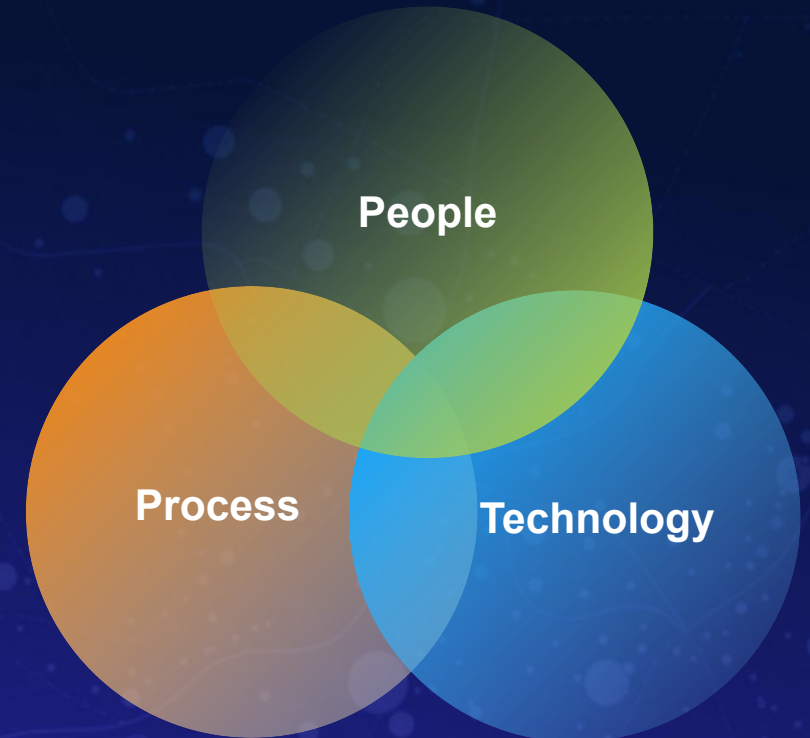
Seek out challenges.

Do not use technology for technology's sake.

Identify the business problem.

Design a solution following best practices.

Don't forget about the people.



Six Focus Areas of Public Works

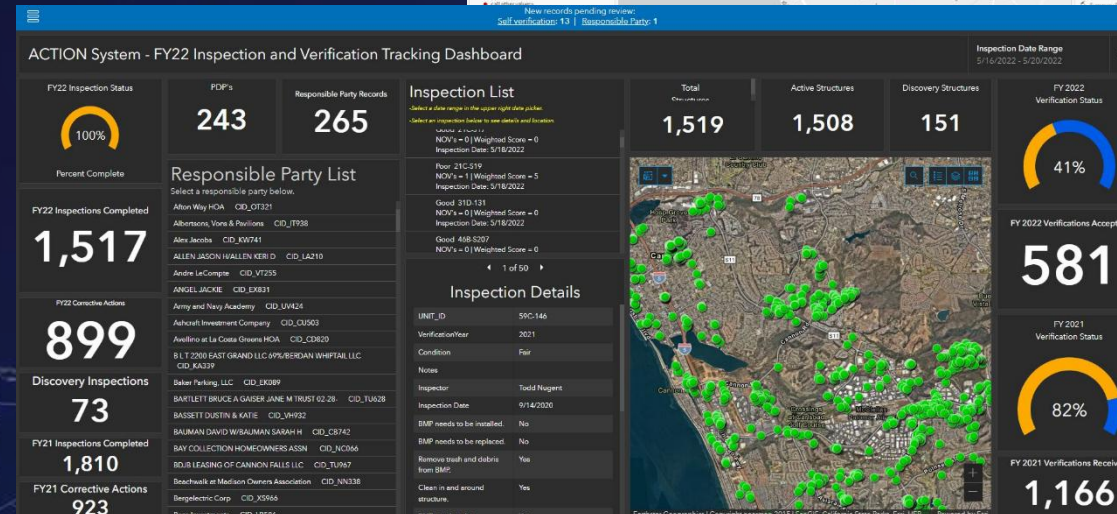
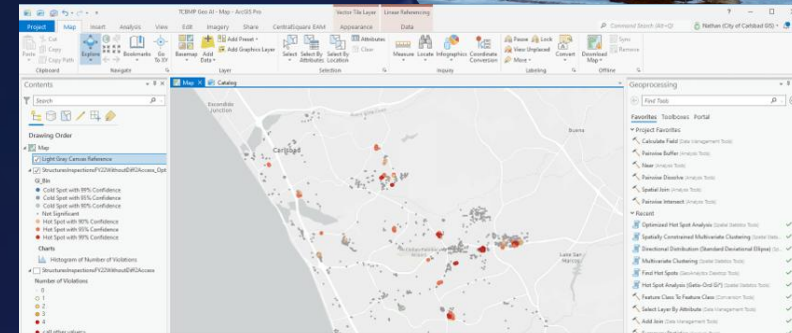


Operations & Maintenance

Managing Water Quality Assets

Carlsbad, CA

- Discovered 150 assets
- Reduced program cost by 44%
- Reduced paper usage by 73%
- Reduced inspection time by 34%
- Reduced verification time by 75%
- Saving \$100,000-\$350,000 on services



Street, Roads, & Bridges



Field & Fleet Management

Automatic Vehicle
Location (AVL)

Field Staff

Preventative
Maintenance

Routing

Winter Weather

Real-Time

Connected & Disconnected
Environments

Street Sweeping

Field Mobility

Safety

Customer Service

Operational Awareness

Bulk Waste Pickup

Sensors



Artificial Intelligence

Asset Management

Fleet Management

Service Delivery

311 Service Requests

Streamlined Workflows

Data Collection

Field Mobility

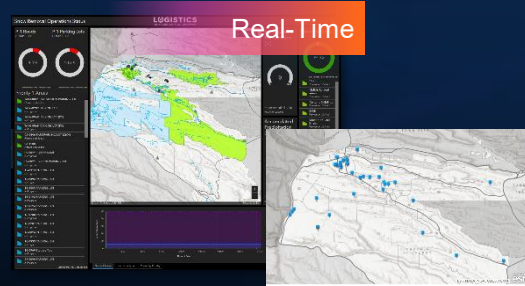
Inspections

Operations & Maintenance

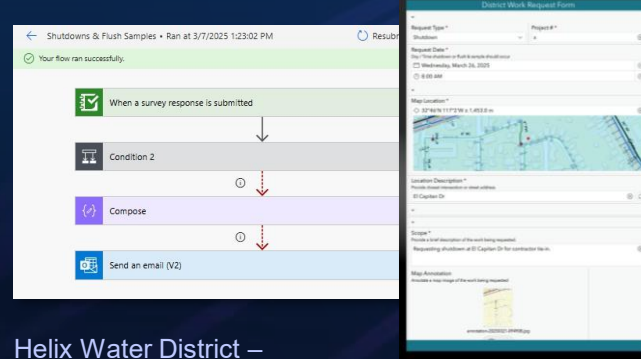


Field and Fleet Management

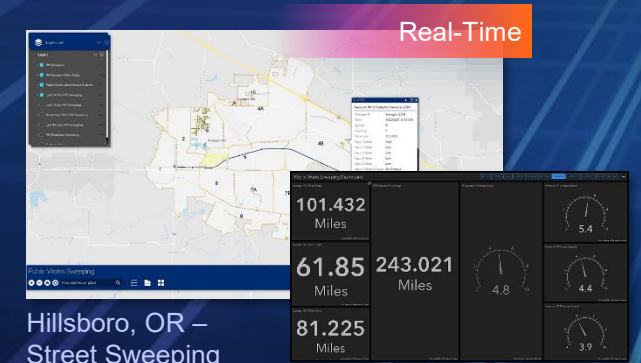
Customers Using GIS to Respond Faster and More Efficiently



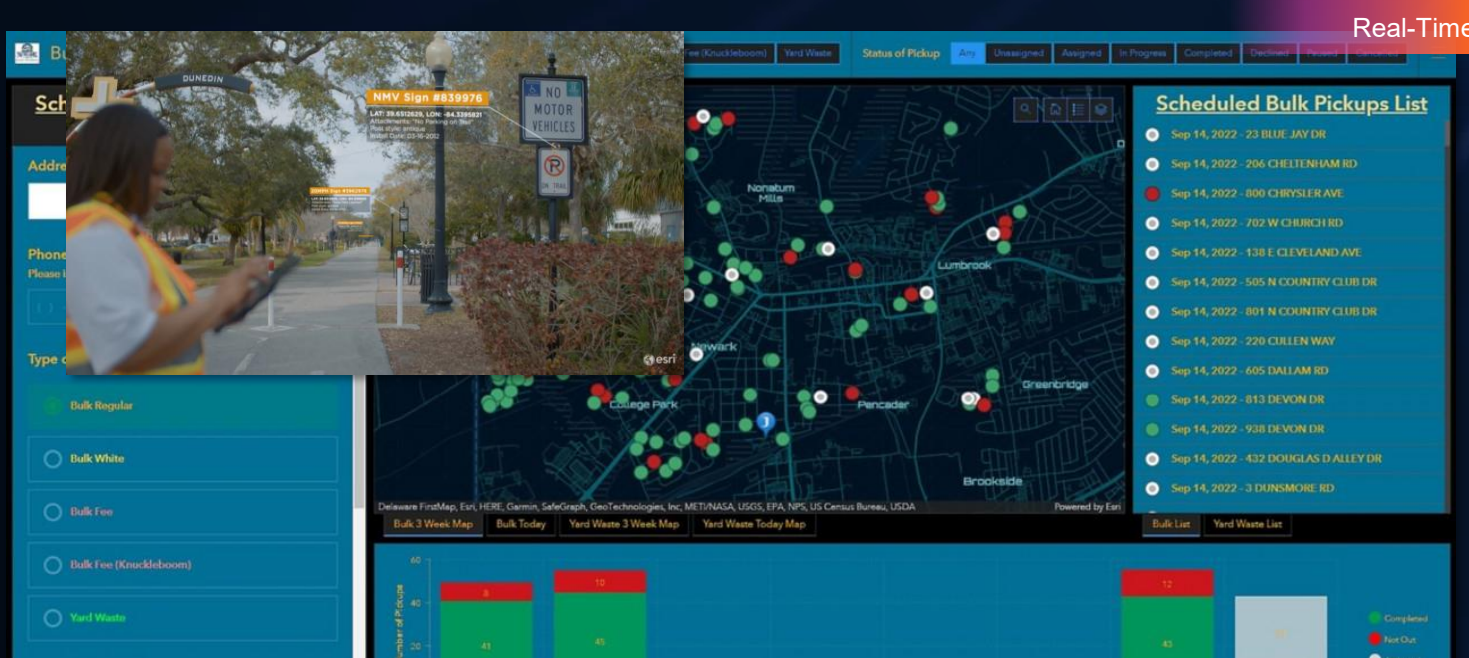
Los Alamos, NM National Laboratory –
Sidewalks, Parking Lots, & Roads Clear of Snow



Helix Water District –
Streamlining Water System Management



Hillsboro, OR –
Street Sweeping



St. Johns Co., FL –
Preventative Maintenance on County Vehicles

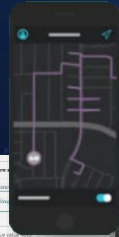
Field and Fleet Management

In Action

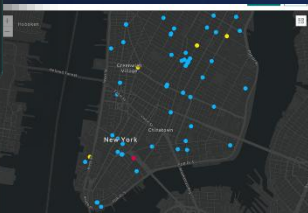
ArcGIS Velocity



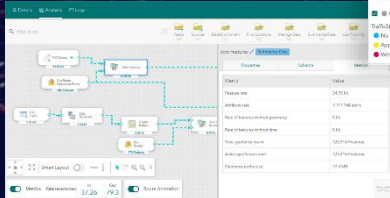
Tracking, Monitoring,
and Alerting



Supporting High-Velocity
Data Streams



Receive Data from Sensors

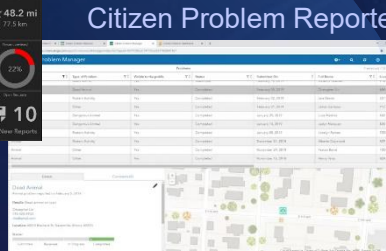


Setup Triggers and Thresholds

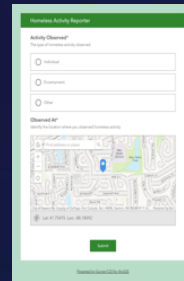
ArcGIS Solutions



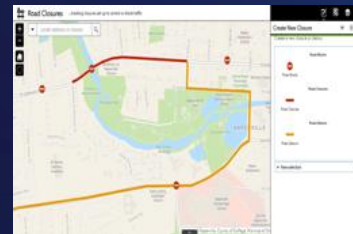
Winter Weather
Operations



Citizen Problem Reporter



Sign Management



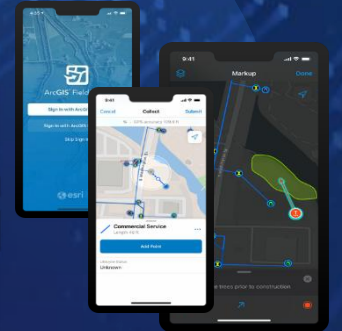
Emergency Debris
Management

Field Apps

ArcGIS
QuickCapture

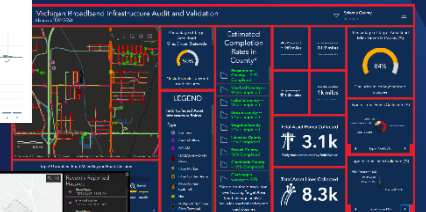
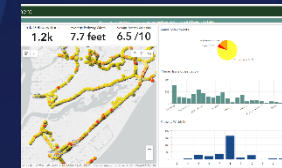


ArcGIS Field Maps



ArcGIS
Survey123

ArcGIS Dashboards



Operational Awareness

Infrastructure
Management

Capital Project Design

Project
Prioritization

Deconflicting
Permits

Project Lifecycle

Public Participation

Transparency

Federal Funding

Cross-Departmental
Collaboration

Resiliency

Equity

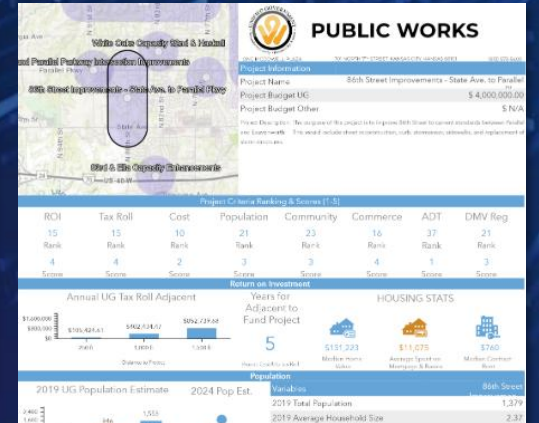
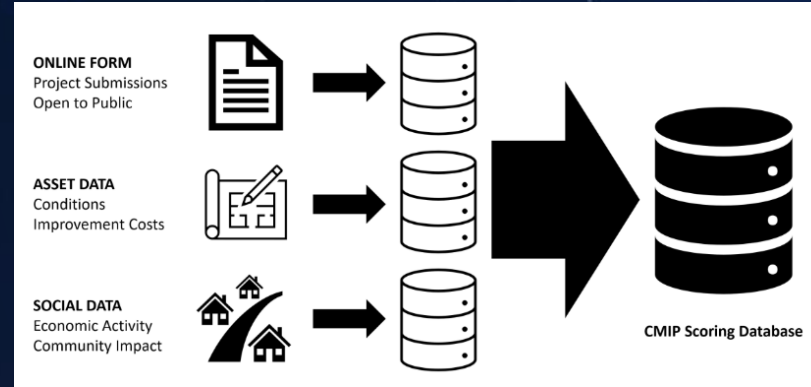
Environmental Impact



Capital Project Design

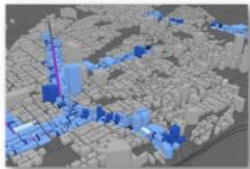
Prioritizing Projects with Spatial Analysis

Wyandotte Co./Kansas City, KS



Return on Investment (ROI)

- Historical Impact of Public Works Activity on
 - Commercial Values
 - Residential Values
- Use data to assess the ROI for specific projects



Capacity & Safety Needs



Coordination

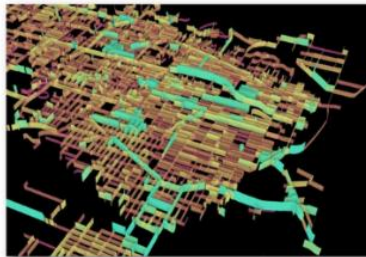
Sequencing activity to reduce expenses and the impact on the community

NEXT STEPS:
Having capital improvement plans from other utilities



Infrastructure Condition

- Pavement Condition Index (PCI)
- Curbs
- Sidewalks
- Striping
- Signs
- Storm & Sanitary Infrastructure



Population Density

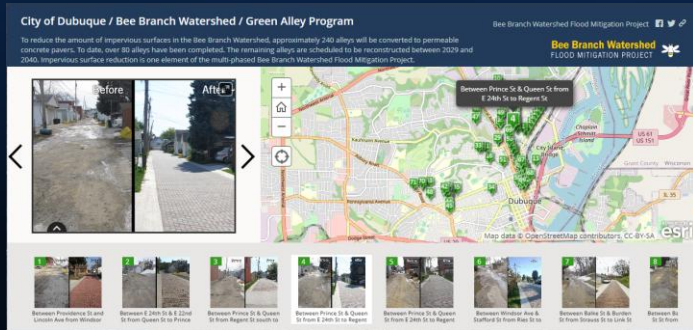
- Every Quarter
- Down to the Address



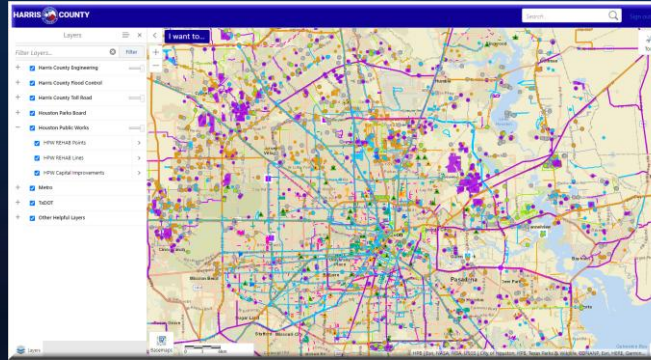
Master Plans & Community Sites



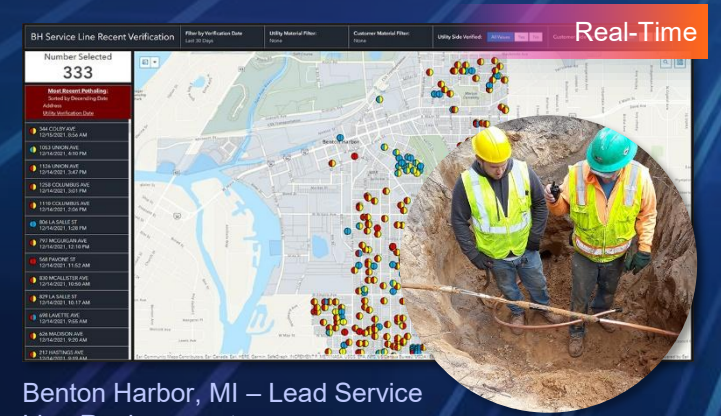
Customers Using GIS to Better Plan Infrastructure Investments



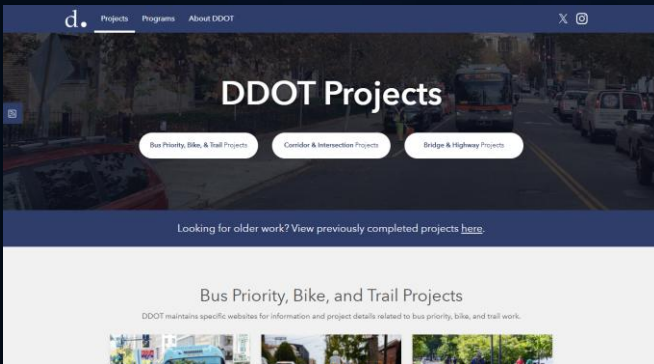
Dubuque, IA – Before & After StoryMap for Flood Mitigation Projects



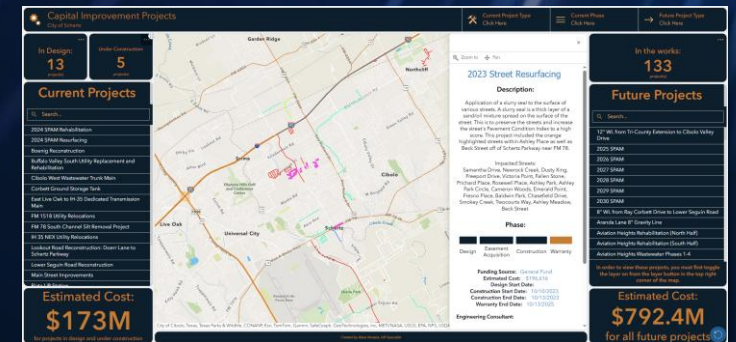
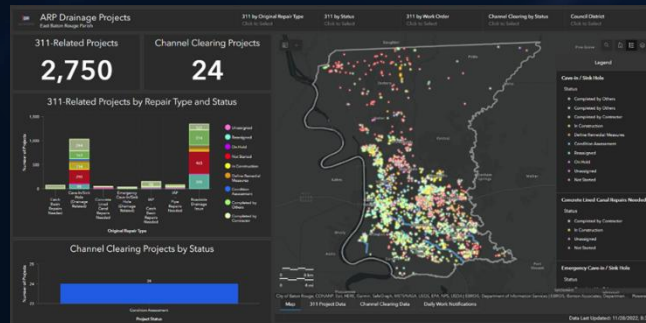
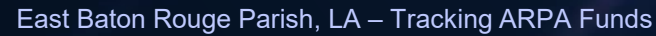
Houston, TX – Interagency Coordination Assessment Tool



Benton Harbor, MI – Lead Service Line Replacement



Washington, DC – DOT Project Sites



Schertz, TX – CIP Dashboard

Public Grounds & Facilities

CAD & BIM
Integration

Asset
Management

Facility Management

Space Planning

Indoor GIS

Security

Wayfinding

Energy Use

Parks & Recreation

Emergency Planning

Climate Change

Trails

Digital Twin

3D



Public Grounds & Facilities

Real-World Building Spaces Enables a Vertical Asset Management Program

Raleigh, NC Water



Digital Twin



Public Grounds & Facilities

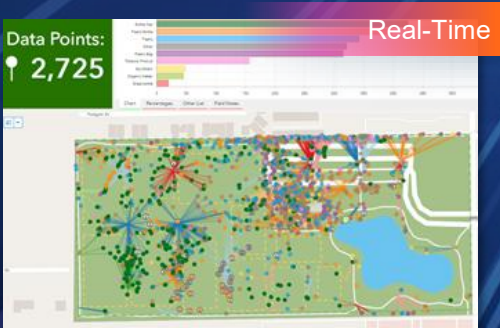
Customers Using GIS to Support Parks and Facilities



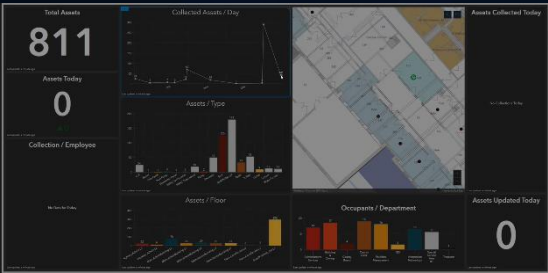
Escondido, CA – IoT for Park Planning



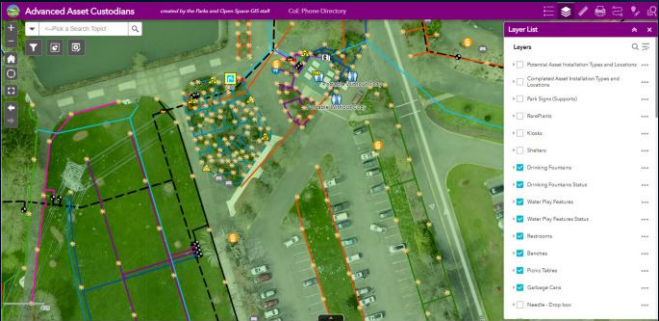
Clackamas County, OR – Camera security for facilities



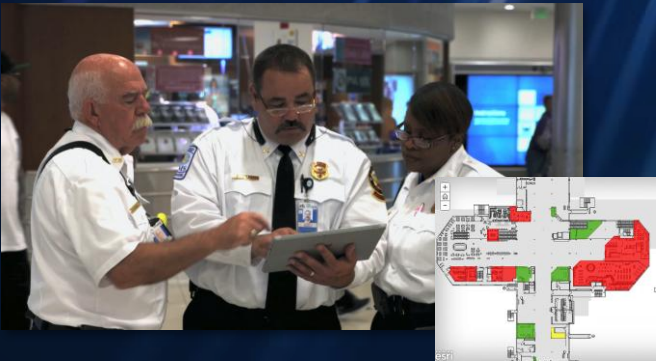
Sugarland, TX – Volunteer Park Trash Pick Up



Madison Co., IL – Indoor GIS for Facility Management



Eugene, OR – Smart Park Operations



Hartsfield-Jackson Atlanta, GA International Airport – Fire Risk Assessment

Emergency Response

Road Closures

Planning

Damage Assessment

Public Notification

FEMA Reporting

Natural Disasters

Multi-Departmental
Collaboration

Mitigate Risks

Recovery

Wildfires

Resilience

Man-Made Disasters

Debris Removal

Snowstorm



Emergency Response

GIS Supports Ice Storm Emergency Response

City of Salem, OR

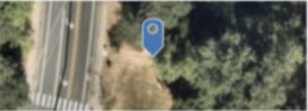


2021 Ice Storm Cleanup

2021 Ice Storm Tree Cleanup

Location
If you started in Collector or Explorer, do not move the point on the map

44°58'N 123°5'W



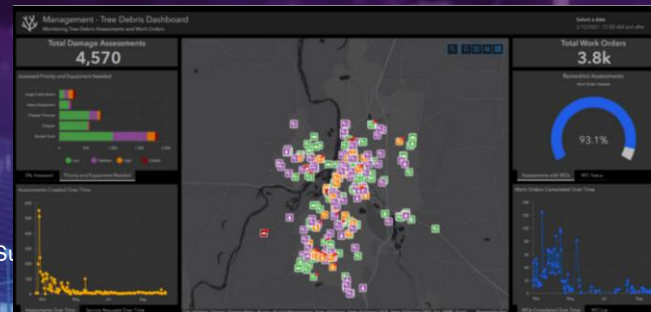
Hazardous Condition *
Is there a hazard other than the tree damage (overhead lines, etc.)?

☐ Yes
☐ No

Priority *

☐ Critical - affecting life, property, or utilities
☐ High - blocking arterial, leaning on house
☐ Medium - blocked sidewalk or bike lane
☐ Low - debris cleanup
☐ None - private property

Joe Cavaretta/South Florida State



Emergency Response

Communities That Use GIS Recover the Fastest

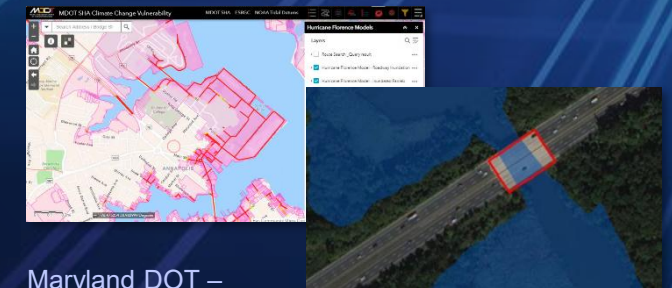
Respond,
Recover,
Mitigate...



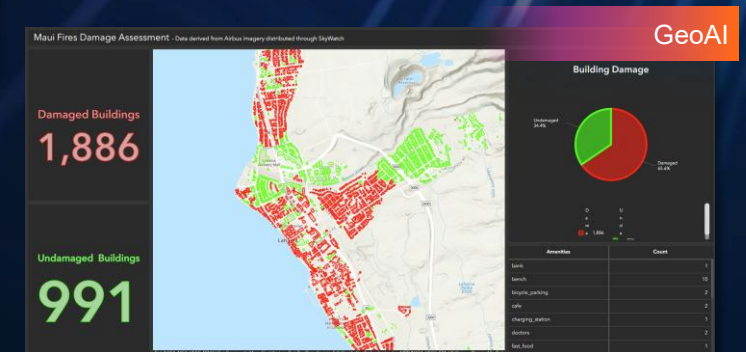
New York City – Community Risk Assessment Dashboard



Douglas Co., NE – Drone Assistance for FEMA Documentation & Clean-Up



Maryland DOT – Climate Change Vulnerability Viewer



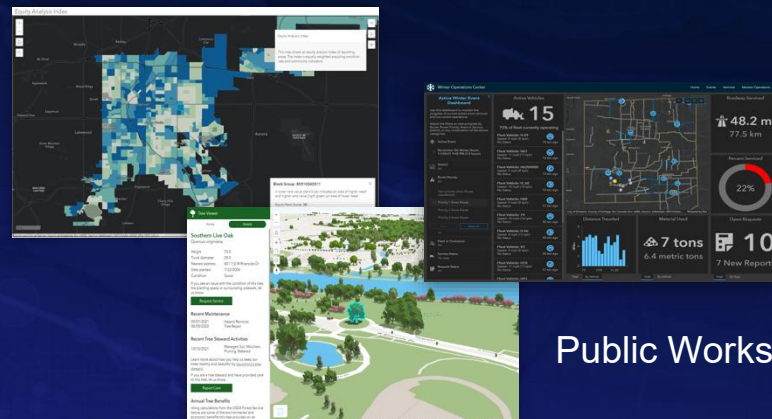
Lahaina, HI – Automated Damage Assessments with AI

ArcGIS Solutions

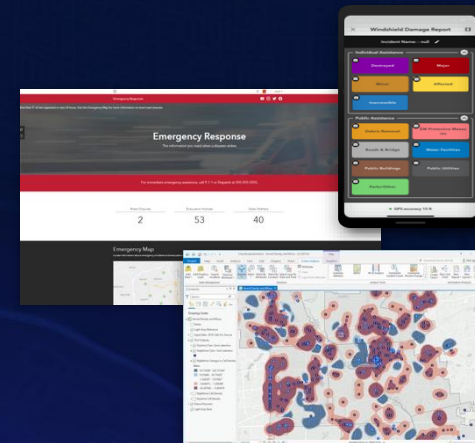
Ready-to-Use Applications and Configurations

Preconfigured

Tools
Data Models
Apps
Workflows
Maps
Initiatives
Add-Ins
Dashboards



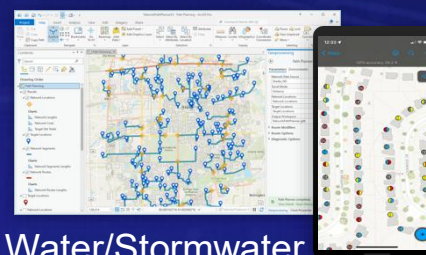
Public Works



Emergency Management
& Public Safety



Health & Human
Services



Water/Stormwater



Transportation

Industries

- Land Records
- Planning and Development
- Public Works
- Emergency Management
- Utilities / Network Management
- Elections
- Natural Resources
- Conservation
- Transportation
- Defense
- Public Safety
- Telecommunications
- Health & Human Services

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... Helping Public Works Professionals Quickly Realize Value