Think Beyond

WOOLPERT
STRATEGIC CONSULTING

Woolpert at a Glance

We Cover the State

6 locations
across Texas

Founded in Dayton in
1911

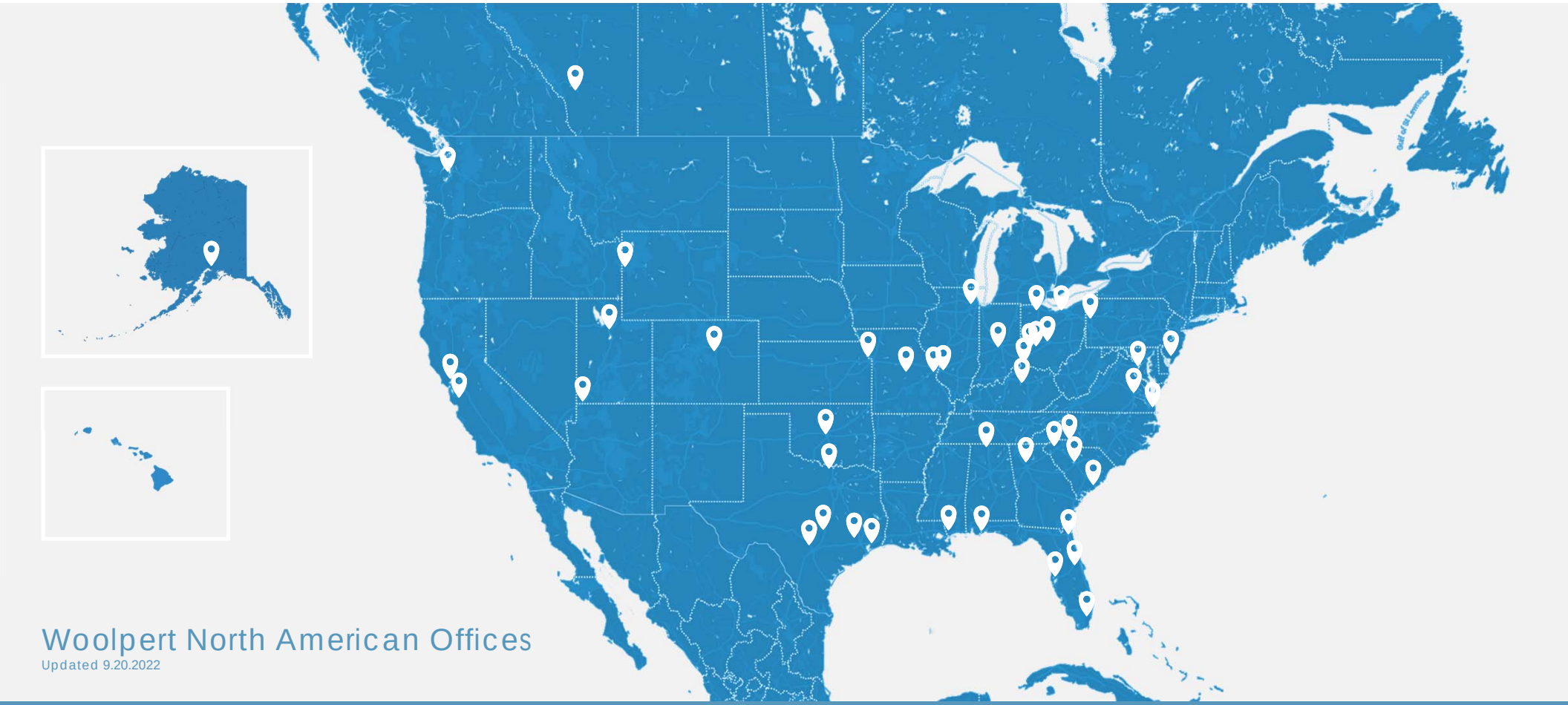
We Cover the World

60+ offices
worldwide

Including Australia, Canada, Malaysia, New Zealand, Singapore, South Africa, UAE

We Have the Experts

1,900+
global employees



Woolpert North American Offices

Updated 9.20.2022

Athens, AL
Atlanta, GA
Austin, TX
Bay St. Louis, MS
Charlotte, NC
Chicago, IL
Cincinnati, OH
Cleveland, OH
Columbia, SC
Columbus, OH
Cypress, TX
Dayton, OH
Denver, CO
Egg Harbor Township, NJ
Fairfax, VA
Fairview Heights, IL
Fort Worth, TX
Greenville, SC
Houston, TX
Indianapolis, IN
Jackson Hole, WY
Jacksonville, FL
Jefferson City, MO
Kansas City, MO
La Porte, TX
Lexington, KY
Miami, FL
N. Charleston, SC
Oklahoma City, OK
Orlando, FL
Pensacola, FL
Pittsburgh, PA
Portland, OR
Port Orchard, WA
Provo, UT
Richmond, VA
Salt Lake City, UT
San Antonio, TX
San Jose, CA
San Rafael, CA
Springfield, OH
St. George, UT
St. Louis, MO
St. Petersburg, FL
Toledo, OH
Virginia Beach, VA
Wasilla, AK
Calgary, Canada

Map data provided for informational and communication purposes only

Strategic Consulting Services

WOOLPERT
STRATEGIC CONSULTING

esri Partner Network Gold

Cityworks Empowering GIS

- **Trimble Partner**
- **Cityworks Platinum Partner**
- **Esri Gold Partner**
- Cityworks Partner 25+ years – 2nd Partner
- 400+ Cityworks Implementations
- 30+ Cityworks PLL Implementations
- 40+ Treatment Plant Implementations
- Trimble e-Builder Silver Partner

The Cityworks–Woolpert business partner relationship spans 25 years, during which time Woolpert has established themselves as our most accomplished business partner. Woolpert's Cityworks implementation professionals consistently perform at a high level in the implementation and support of our products.

Mr. Brian L. Haslam
Founder and former President – Cityworks

Strategic Consulting Services

WOOLPERT
STRATEGIC CONSULTING

esri Partner Network Gold

Cityworks® Empowering GIS

- **Software Implementation**
- Solutions Architecture
- Business Process/Workflow Development
- IAM/ISO 55000 Based Asset Management Consulting
- Integrations Development
- GIS Development and Consulting
- Reporting and Data Analytics Consulting
- Configuration and Upgrade Support

We had momentum from the beginning. Woolpert's confidence and visionary aspect of what they were trying to do really stood out.

Jerry Philpot
Manager, IT and Technical Support Systems –
City of Augusta, Georgia

Digital

Trimble connects between the digital and physical worlds

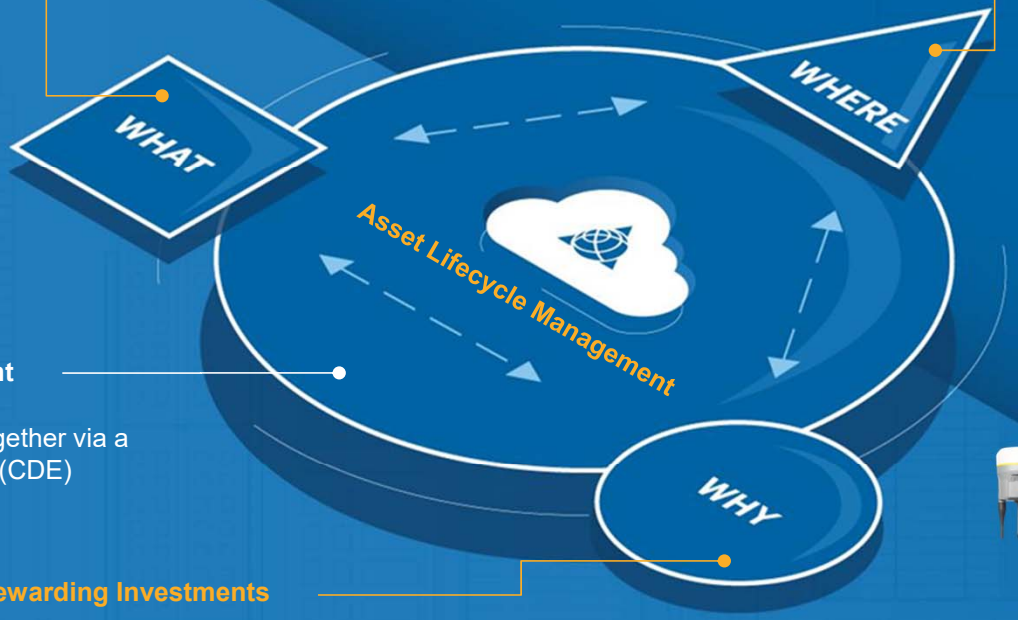
Physical

An Asset Lifecycle Management (ALM) Solution

Software for Enterprise Asset Management (EAM) and Digital Project Delivery (DPD) and

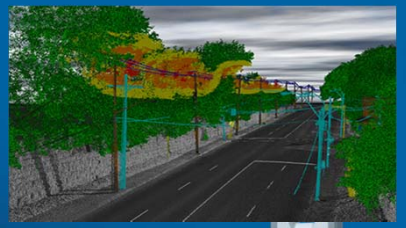
Common Data Environment

Our platform connects these technologies & workflows together via a Common Data Environment (CDE)



Positioning, Sensing & Control, Field Data

Sensing, inspecting, measuring & dynamically maintaining assets

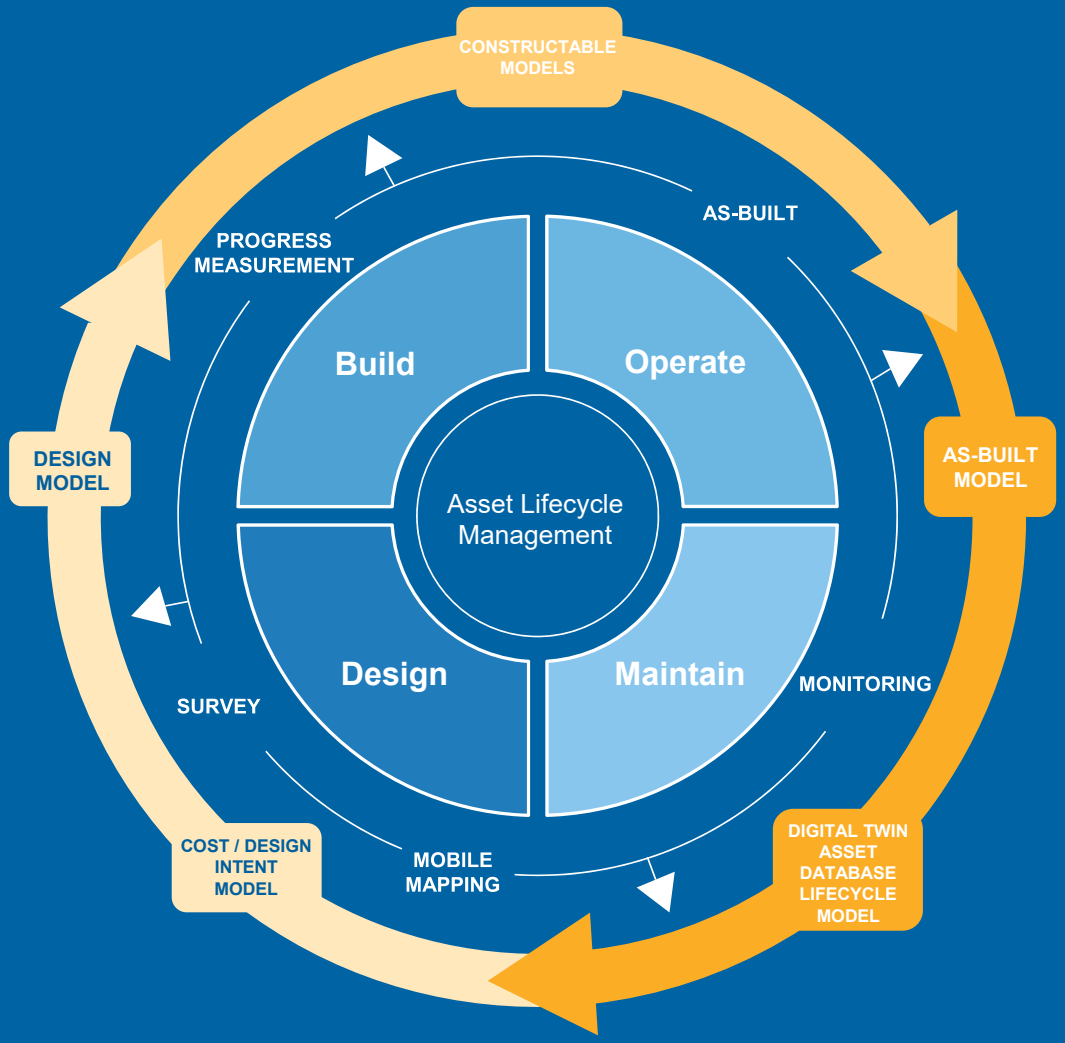


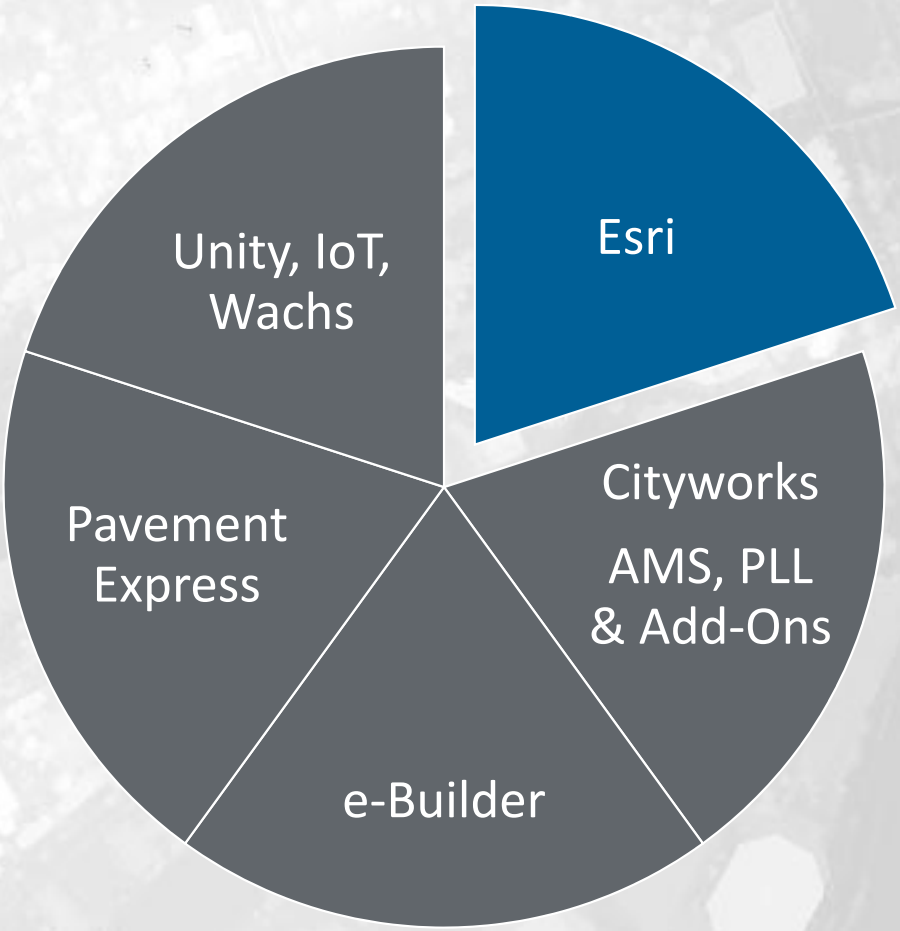
Stewarding Investments

Risk Management, State Investment Program (STIP), Capital Improvement Program (CIP), Operations & Maintenance (O&M), Safety, Sustainability, and Job Creation

Trimble's Asset Platform

- Connects **systems of record** from design through operations by being **open and interoperable**
- From the start, every asset gets a **digital id**
- **Digital delivery** process is used throughout each phase
- This builds & maintains **digital twin**
- Physical world reality is captured and informs a **common data environment**



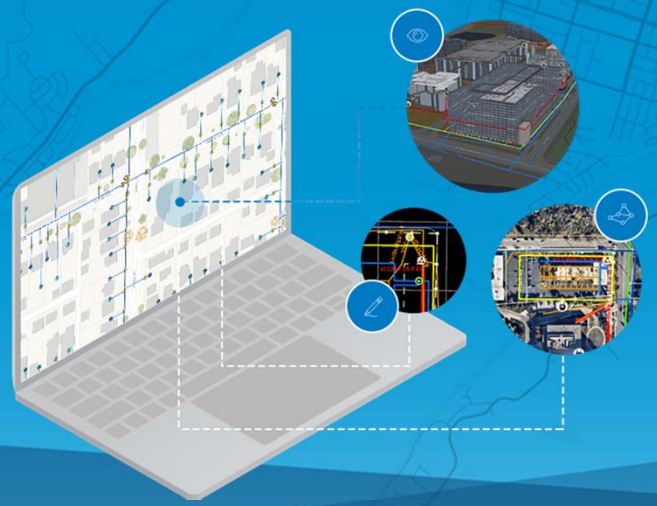

Esri
Cityworks
AMS, PLL
& Add-Ons
e-Builder
Pavement
Express
Unity, IoT,
Wachs

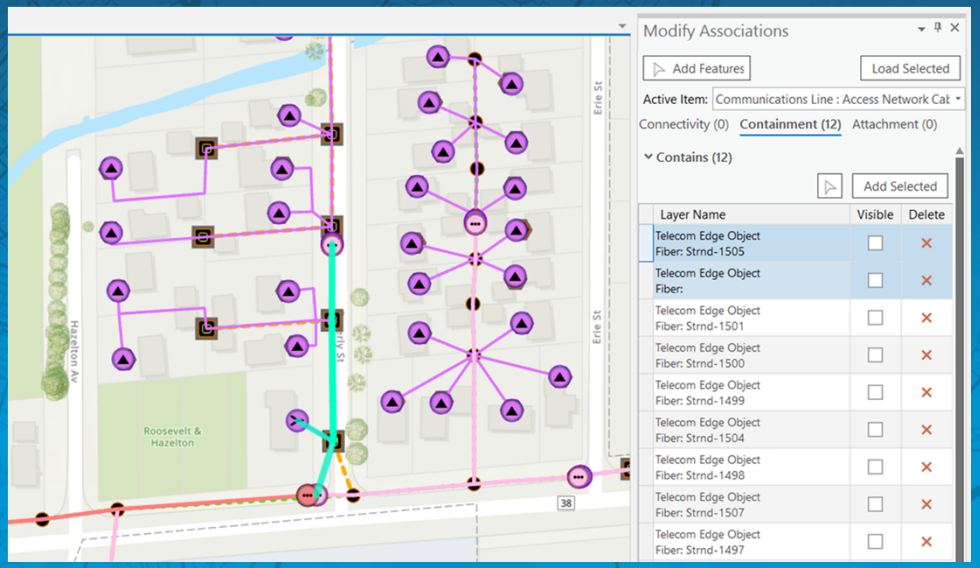
CITYWORKS | **FIELD MAPS**

- Best in breed mapping system
- World class data collection solution
- Revolutionary location tracking technology
- World class tasking and work management
- State of the art navigation capabilities

CITYWORKS | **UTILITY NETWORK**

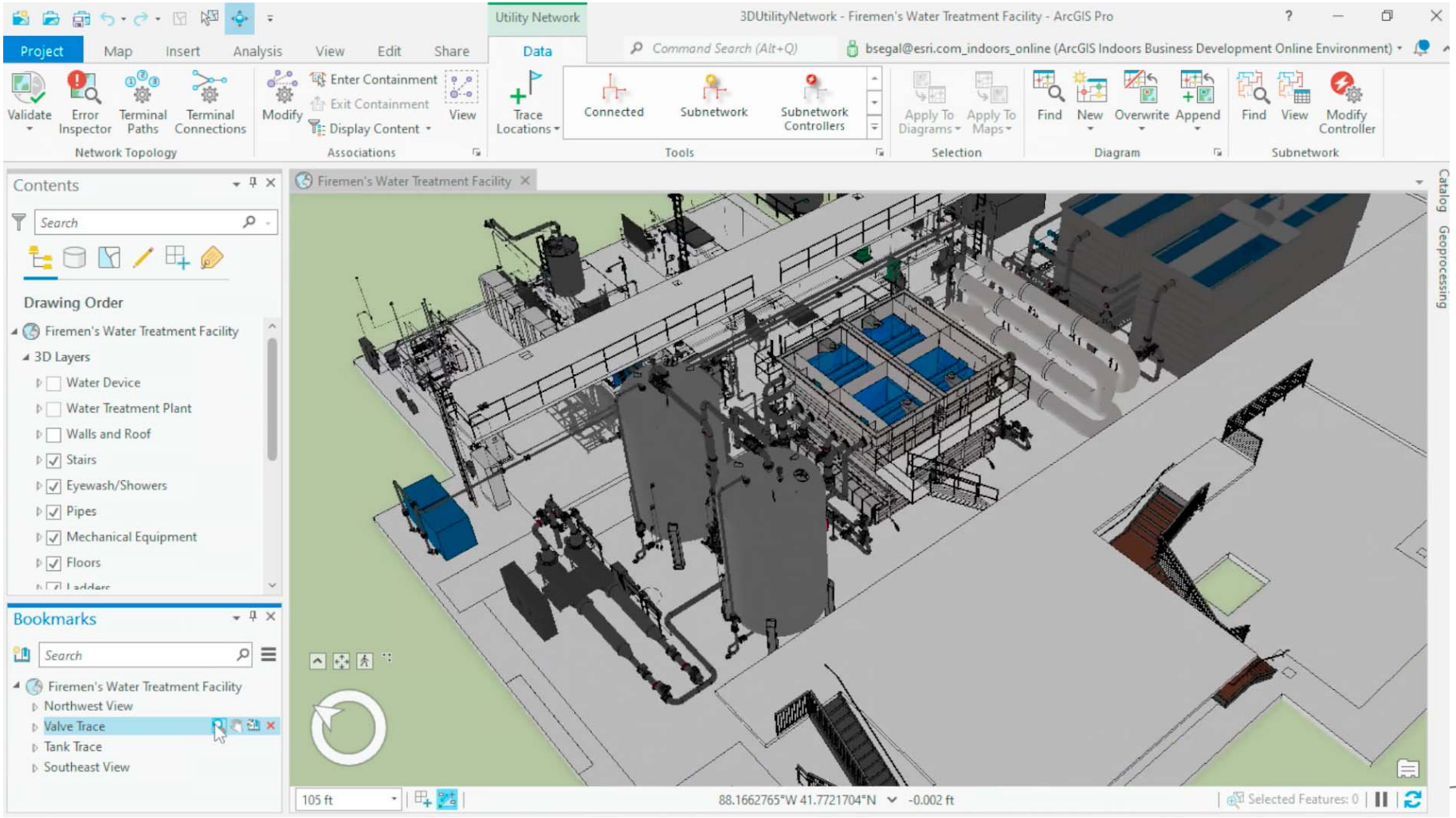
- Utility Network Support in Cityworks
  - Enhancements to support querying and asset searches across the UN



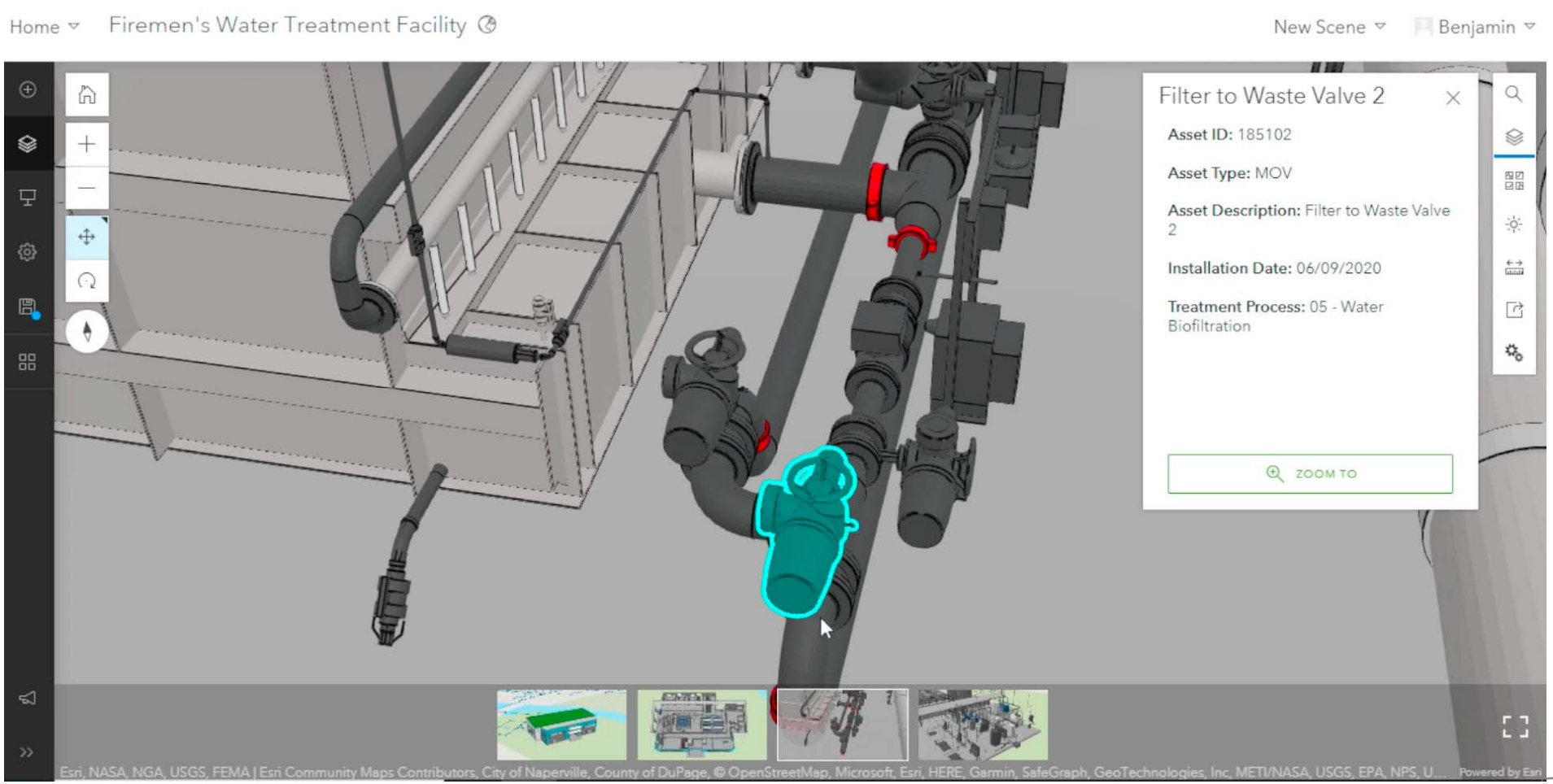


- Cityworks ***live*** with Utility Network at San Juan Water District
  - Water distribution
  - Water treatment

3D Plants


Utility Network
3DUtilityNetwork - Firemen's Water Treatment Facility - ArcGIS Pro
Project
Map
Insert
Analysis
View
Edit
Share
Data
Command Search (Alt+Q)
bsegal@esri.com_indoors_online (ArcGIS Indoors Business Development Online Environment)
Validate
Error Inspector
Terminal Paths
Terminal Connections
Network Topology
Modify
Enter Containment
Exit Containment
Display Content
View
Associations
Trace Locations
Connected
Subnetwork
Subnetwork Controllers
Tools
Apply To Diagrams
Apply To Maps
Selection
Find
New
Overwrite
Append
Diagram
Find
View
Modify Controller
Subnetwork
Contents
Search
Drawing Order
Firemen's Water Treatment Facility
3D Layers
Water Device
Water Treatment Plant
Walls and Roof
Stairs
Eyewash/Showers
Pipes
Mechanical Equipment
Floors
Bookmarks
Search
Firemen's Water Treatment Facility
Northwest View
Valve Trace
Tank Trace
Southeast View
Firemen's Water Treatment Facility
Catalog
Geoprocessing
105 ft
88.1662765°W 41.7721704°N
-0.002 ft
Selected Features: 0

3D Plants


Home
Firemen's Water Treatment Facility
New Scene
Benjamin
Filter to Waste Valve 2
Asset ID: 185102
Asset Type: MOV
Asset Description: Filter to Waste Valve 2
Installation Date: 06/09/2020
Treatment Process: 05 - Water Biofiltration
ZOOM TO
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, City of Naperville, County of DuPage, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, U...
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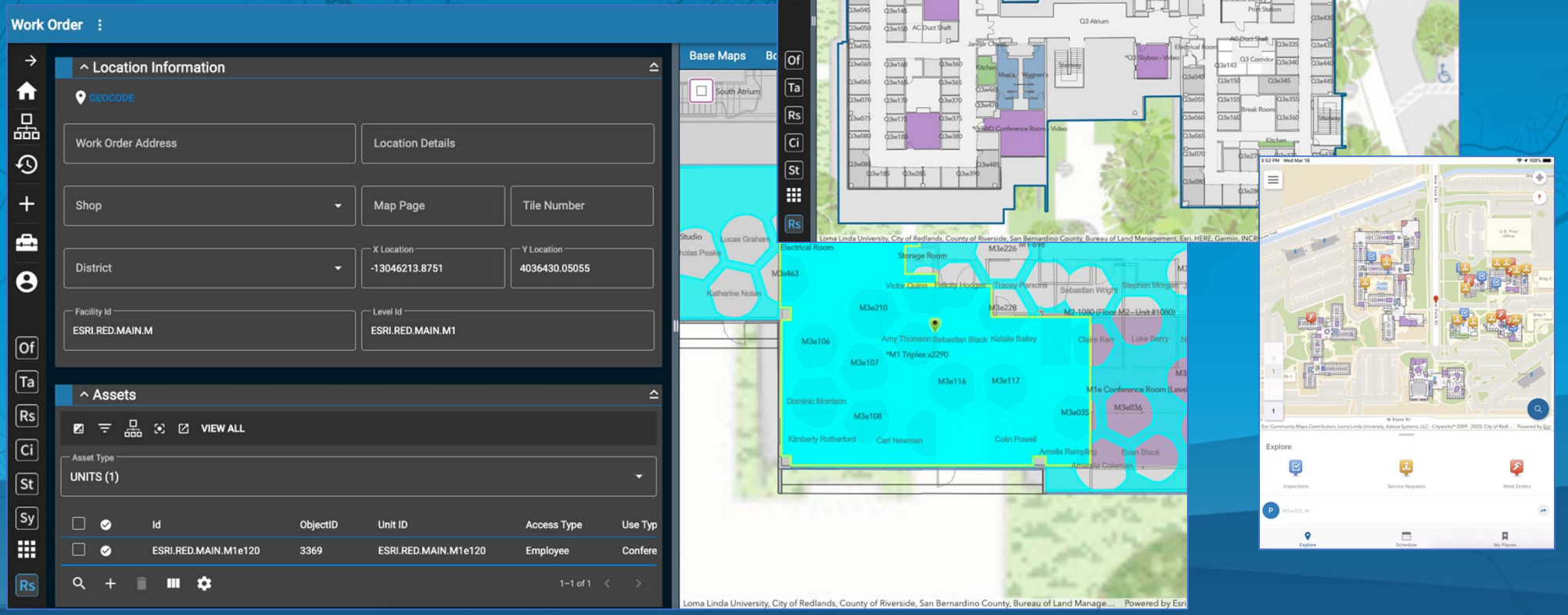
CITYWORKS | **ARCGIS INDOORS**



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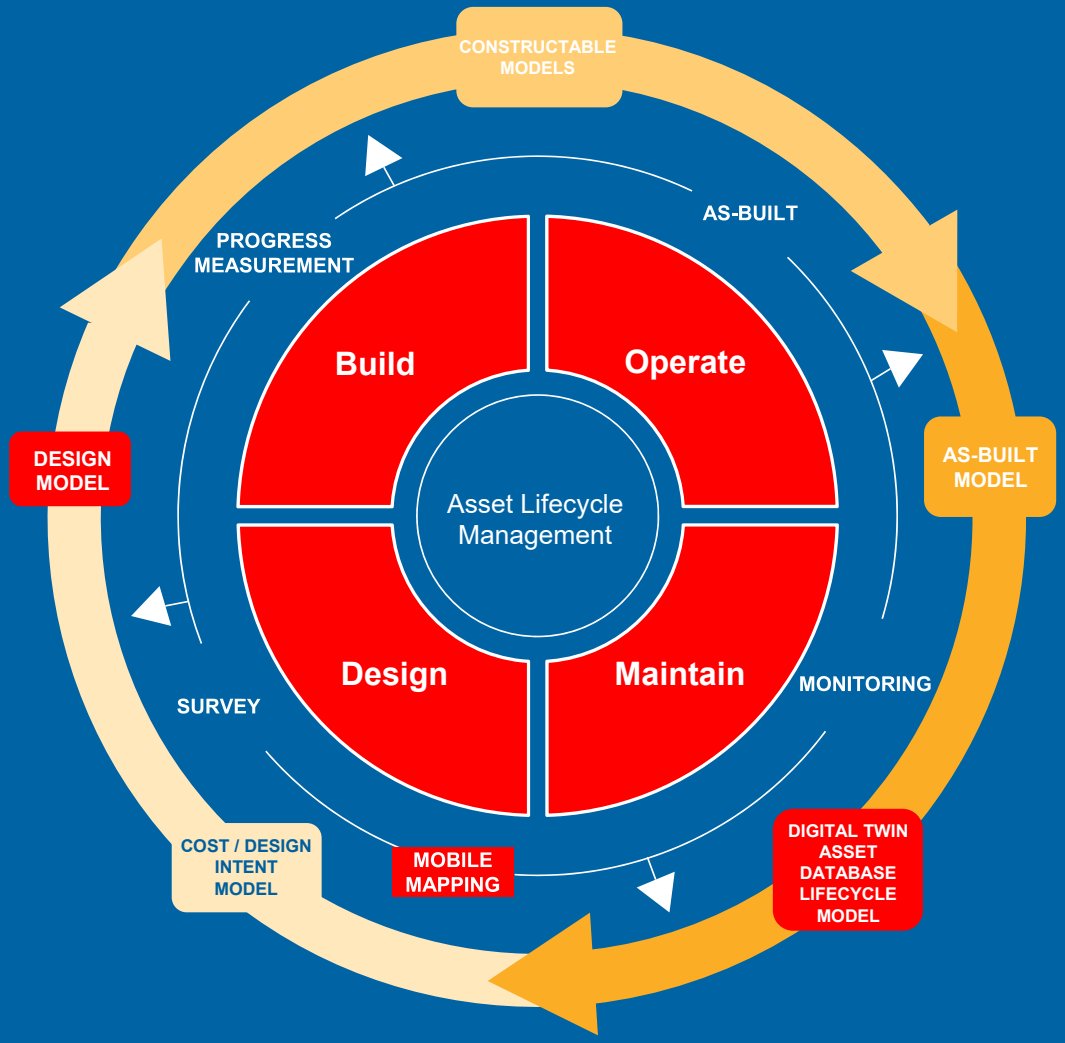
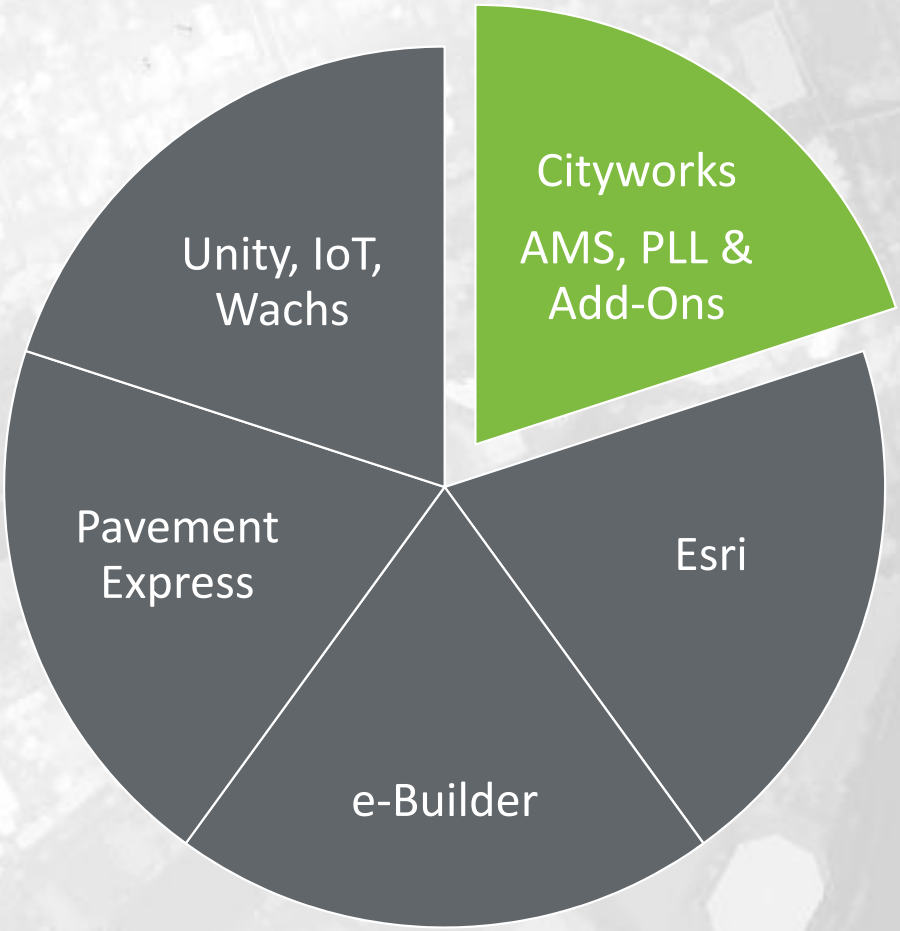
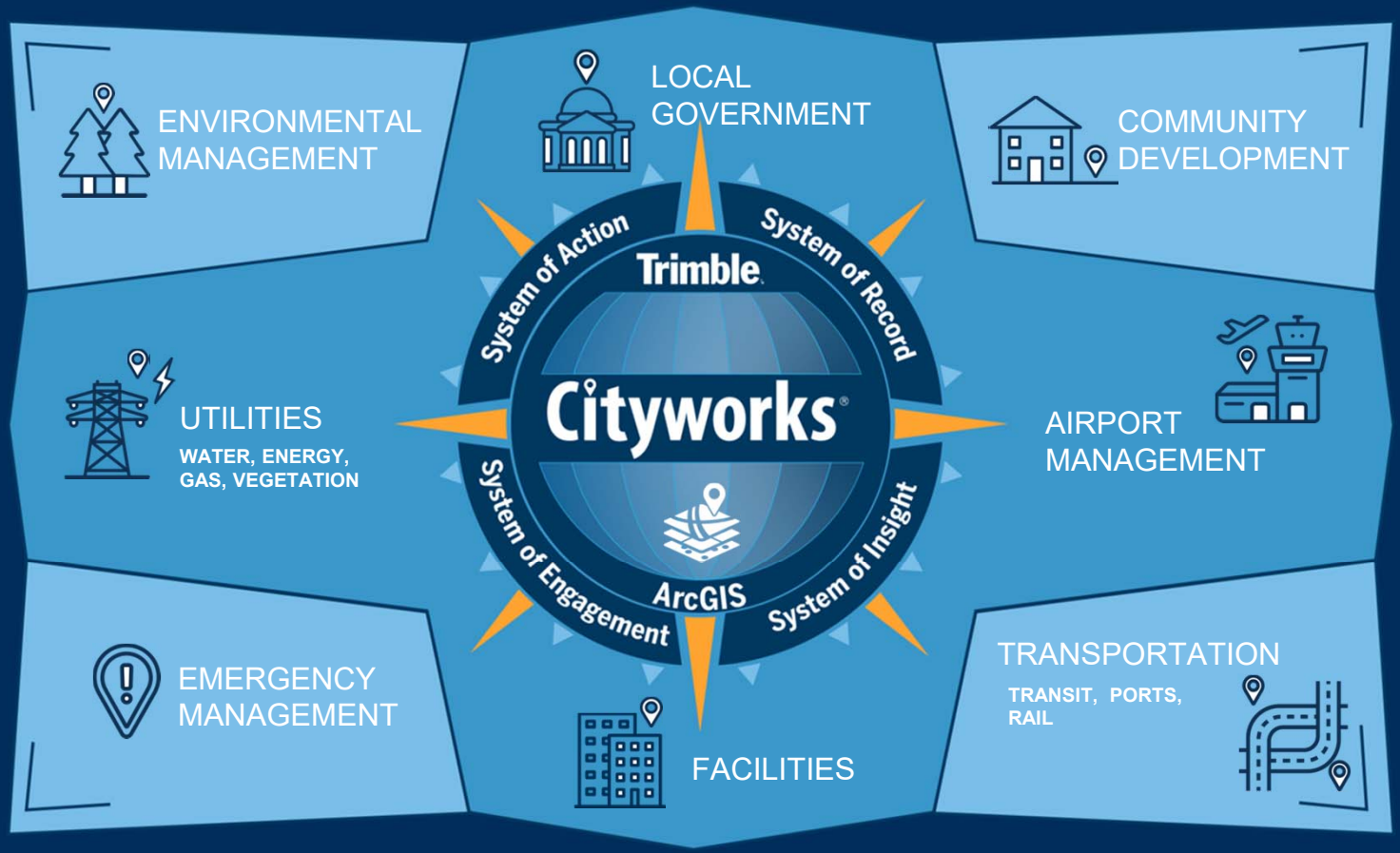
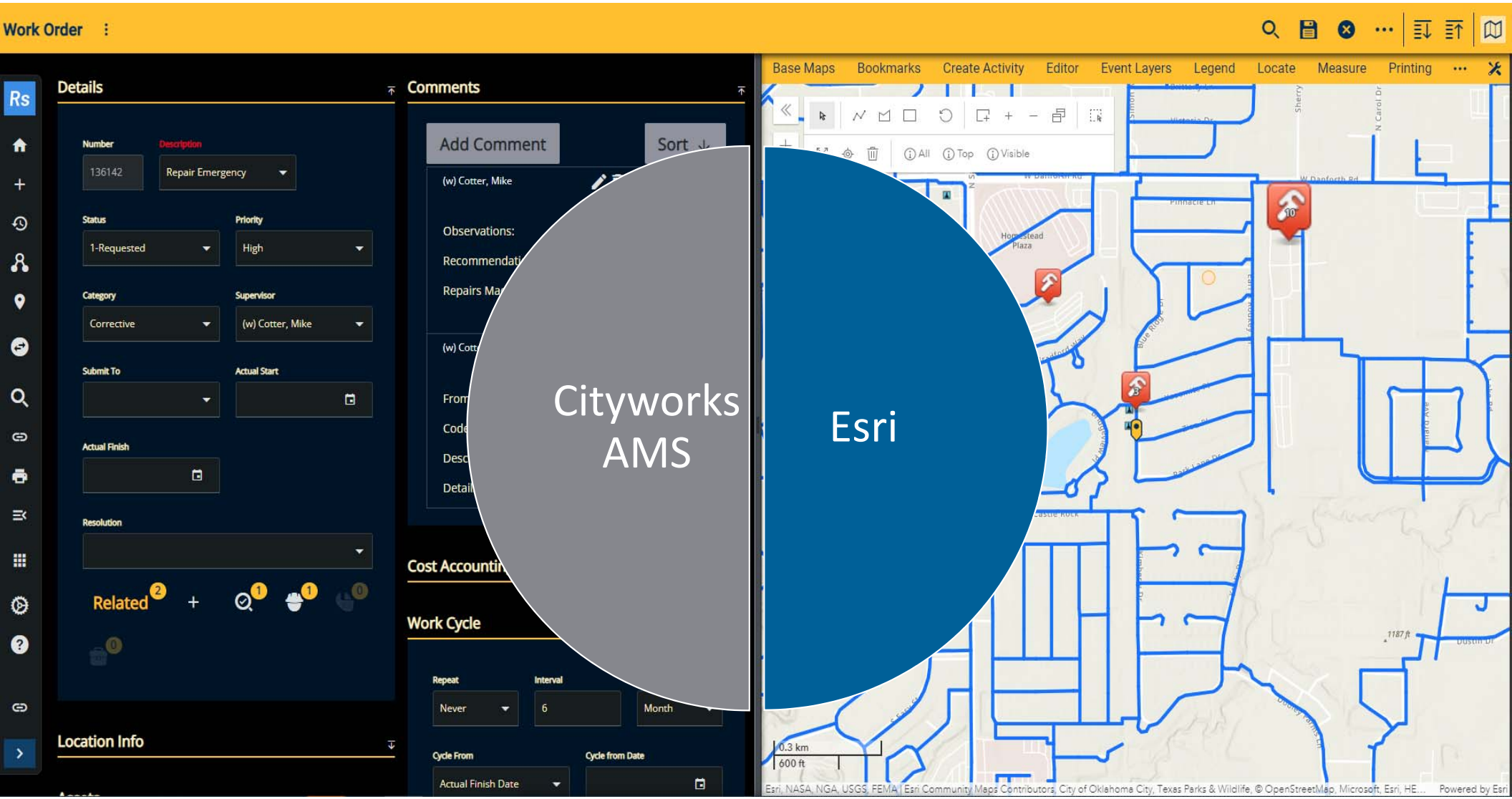
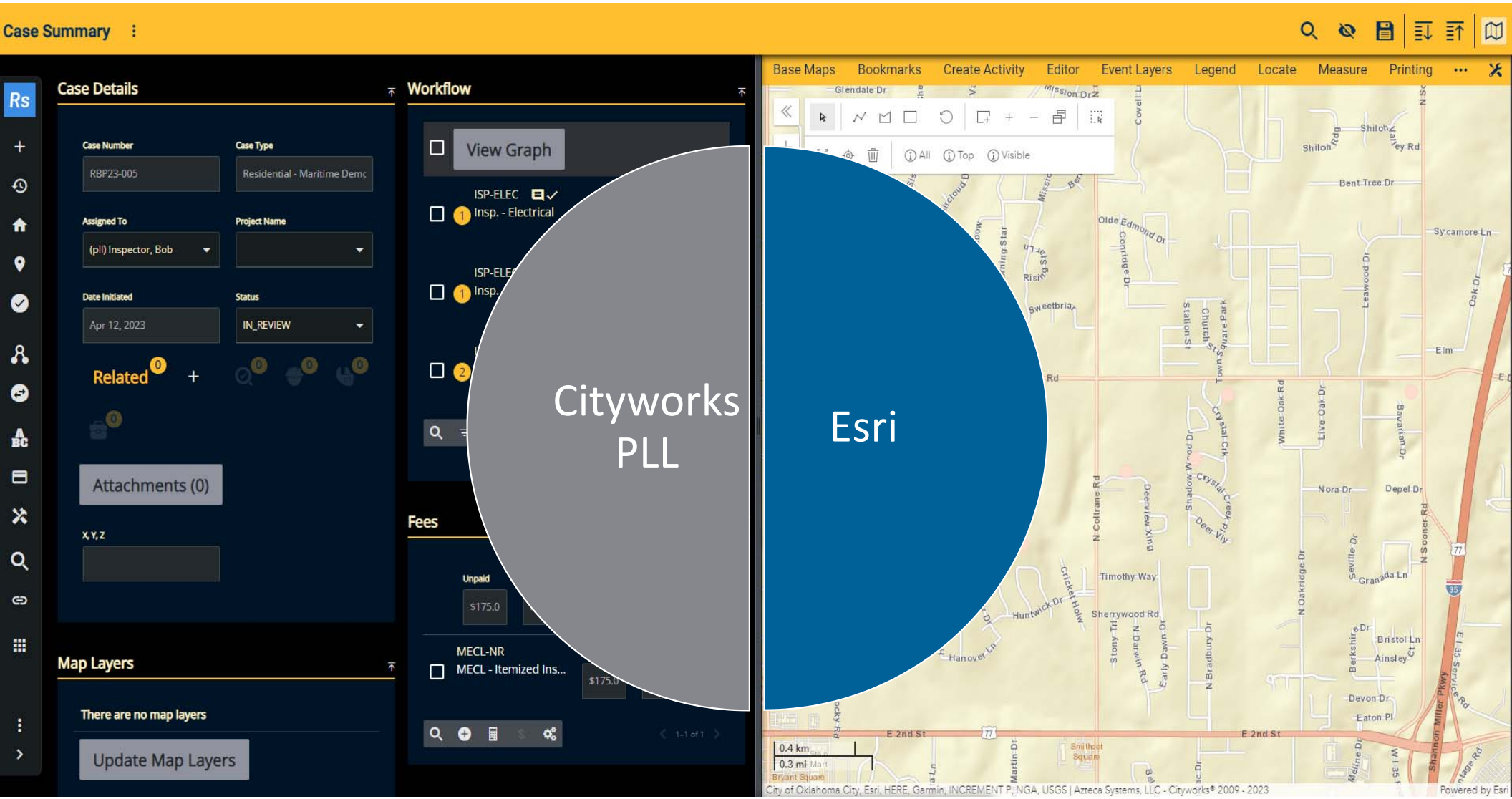



Cityworks
AMS, PLL &
Add-Ons
Esri
e-Builder
Pavement
Express
Unity, IoT,
Wachs

Cityworks platform enables customers to deliver on the promise of creating a smarter and more resilient, sustainable, and safe community.



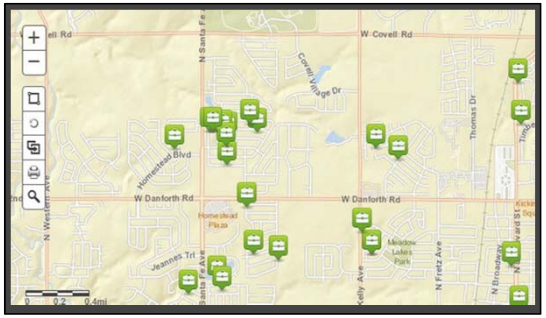

Work Order
Details
Number
136142
Description
Repair Emergency
Status
1-Requested
Priority
High
Category
Corrective
Supervisor
(w) Cotter, Mike
Submit To
Actual Start
Actual Finish
Resolution
Related
Location Info
Comments
Add Comment
Sort
(w) Cotter, Mike
Observations:
Recommendati
Repairs Ma
From
Code
Desc
Detail
Cost Accountin
Work Cycle
Repeat
Never
Interval
6
Month
Cycle From
Actual Finish Date
Cycle from Date
Cityworks AMS
Base Maps
Bookmarks
Create Activity
Editor
Event Layers
Legend
Locate
Measure
Printing
All
Top
Visible
Esri
0.3 km
600 ft
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, City of Oklahoma City, Texas Parks & Wildlife, © OpenStreetMap, Microsoft, Esri, HE...
Powered by Esri


Case Summary
Case Details
Case Number
RBP23-005
Case Type
Residential - Maritime Demc
Assigned To
(pll) Inspector, Bob
Project Name
Date Initiated
Apr 12, 2023
Status
IN_REVIEW
Related
Attachments (0)
X, Y, Z
Map Layers
There are no map layers
Update Map Layers
Workflow
View Graph
ISP-ELEC
Insp. - Electrical
Fees
Unpaid
$175.0
MECL-NR
MECL - Itemized Ins...
$175.0
Cityworks PLL
Esri
Base Maps
Bookmarks
Create Activity
Editor
Event Layers
Legend
Locate
Measure
Printing
All
Top
Visible
Bent Tree Dr
Olde Edmond Dr
Sycamore Ln
Sweetbriar
Elm
Nora Dr
Depel Dr
Timothy Way
Sherrywood Rd
Hanover Ln
Huntwick Dr
Granada Ln
Bristol Ln
Ainsley
Devon Dr
Eaton Pl
E 2nd St
0.4 km
0.3 mi
City of Oklahoma City, Esri, HERE, Garmin, INCREMENT P, NGA, USGS | Azteca Systems, LLC - Cityworks® 2009 - 2023
Powered by Esri

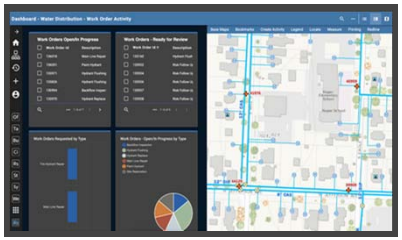
Cityworks + ArcGIS: The Web-GIS Platform with Endless Possibilities

WOOLPERT
STRATEGIC CONSULTING

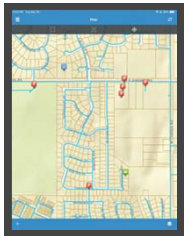
Cityworks AMS



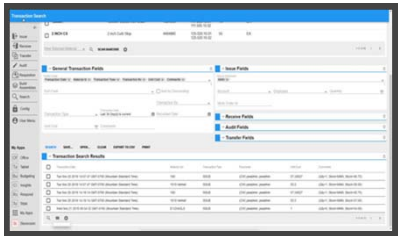
Cityworks PLL



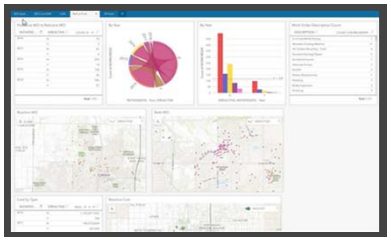
Respond



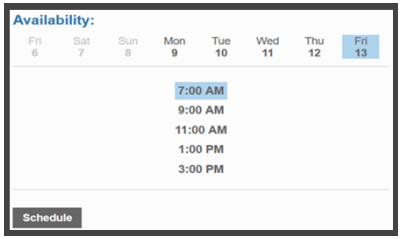
Mobile Native App



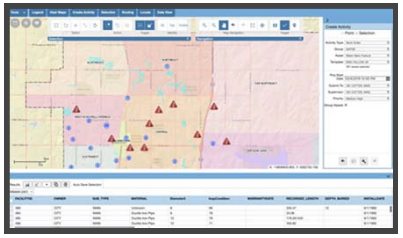
Storeroom



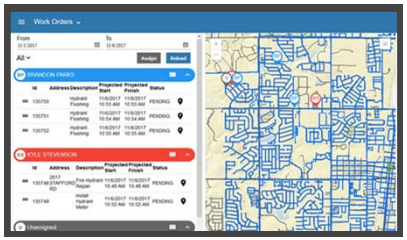
Analytics



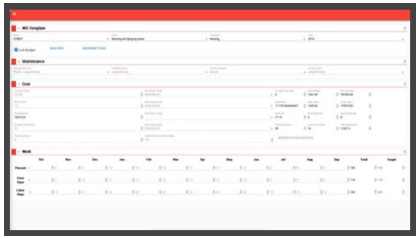
Public Access (PLL)



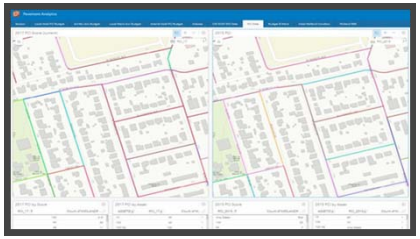
Operational Insights



Workload



Performance Budgeting

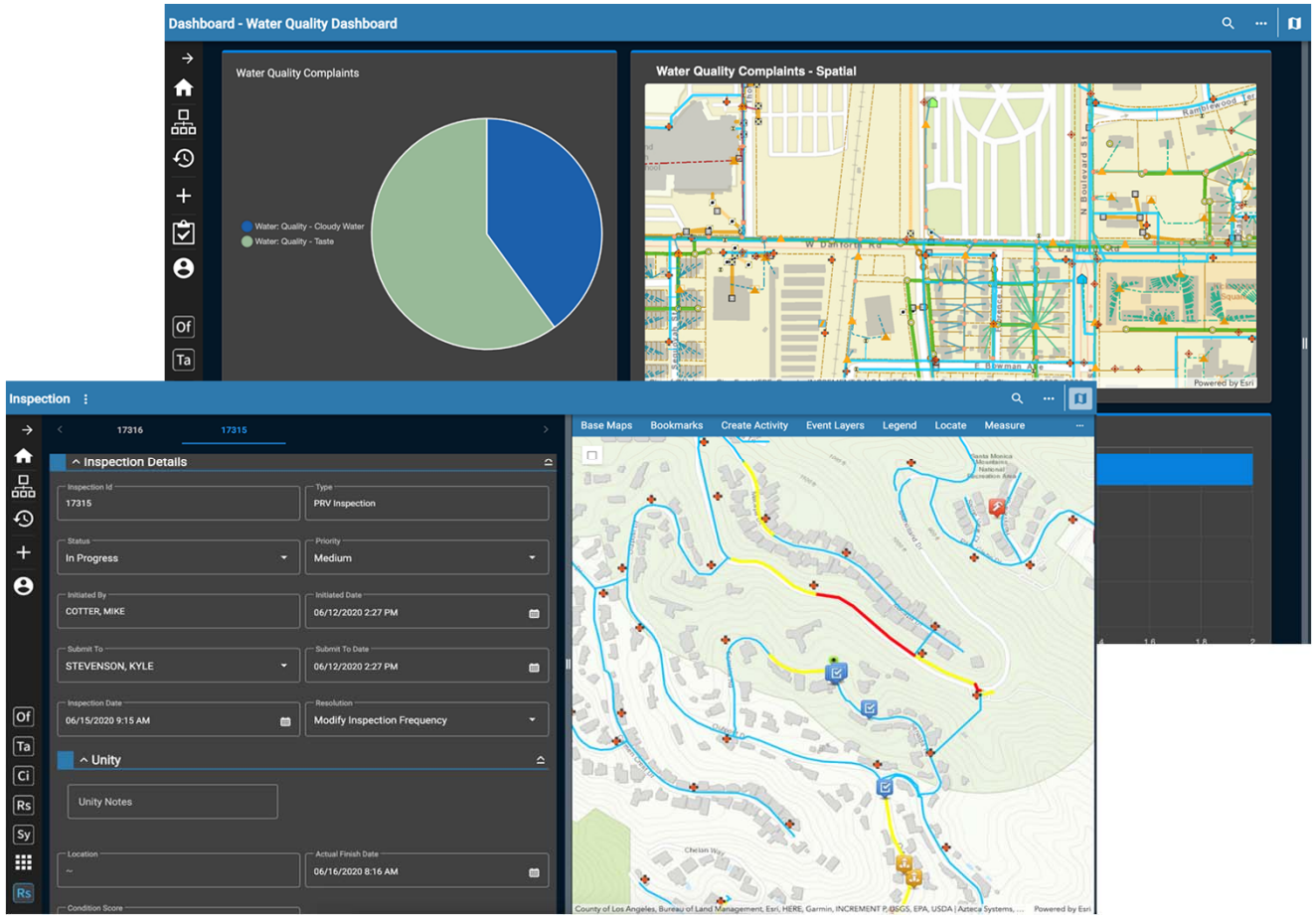


Pavement Management

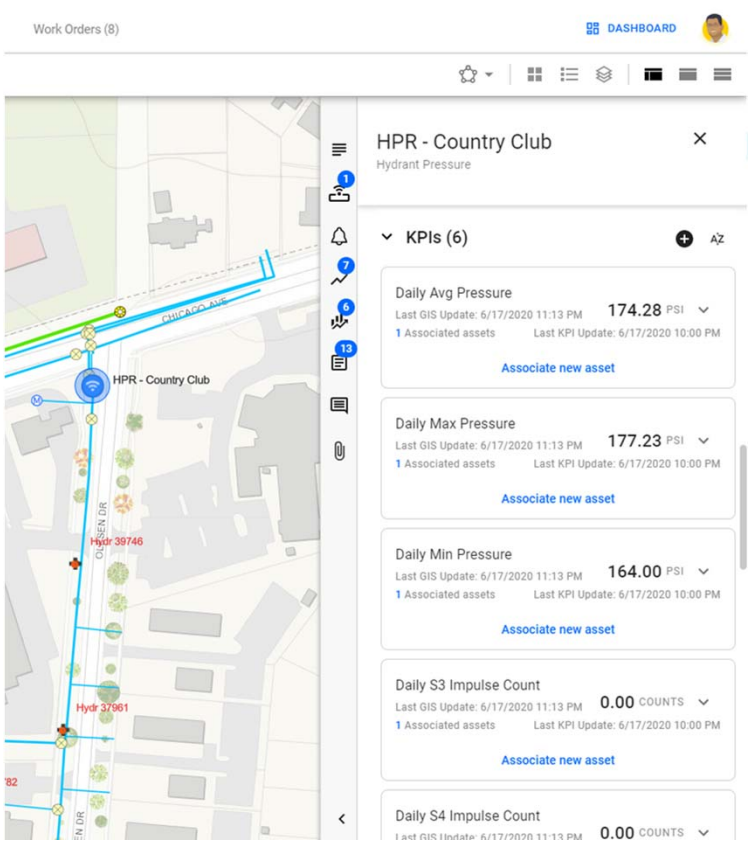
Asset Inspections

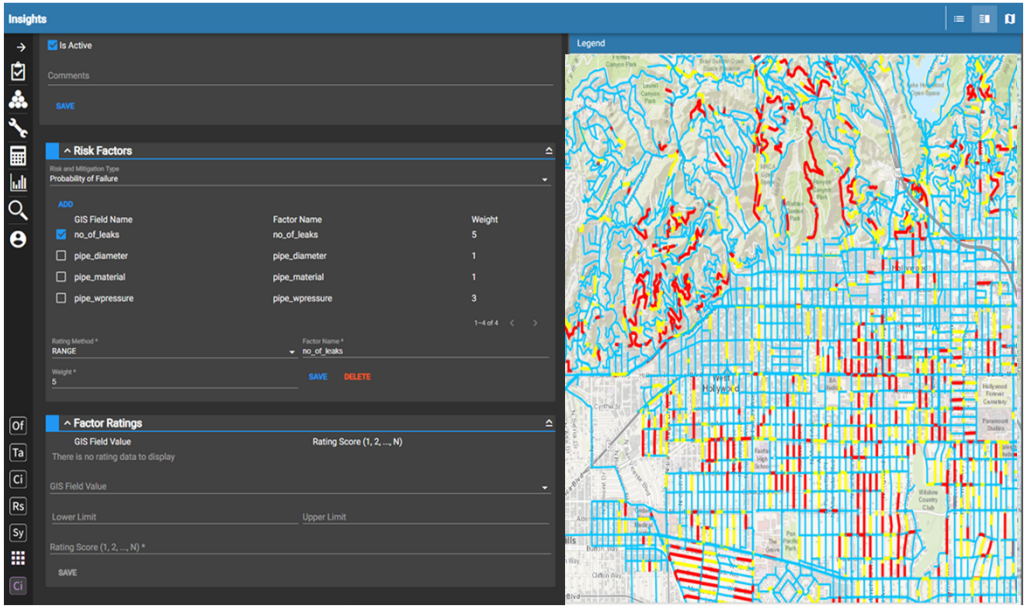
Cityworks Respond provides tools to manage customer inquiries, work orders and inspections with a dynamic map providing context of infrastructure and related activities.

This enables detailed tracking of applied resources (equipment, labor and material), project association, attachments and condition assessment.



Risk Strategy





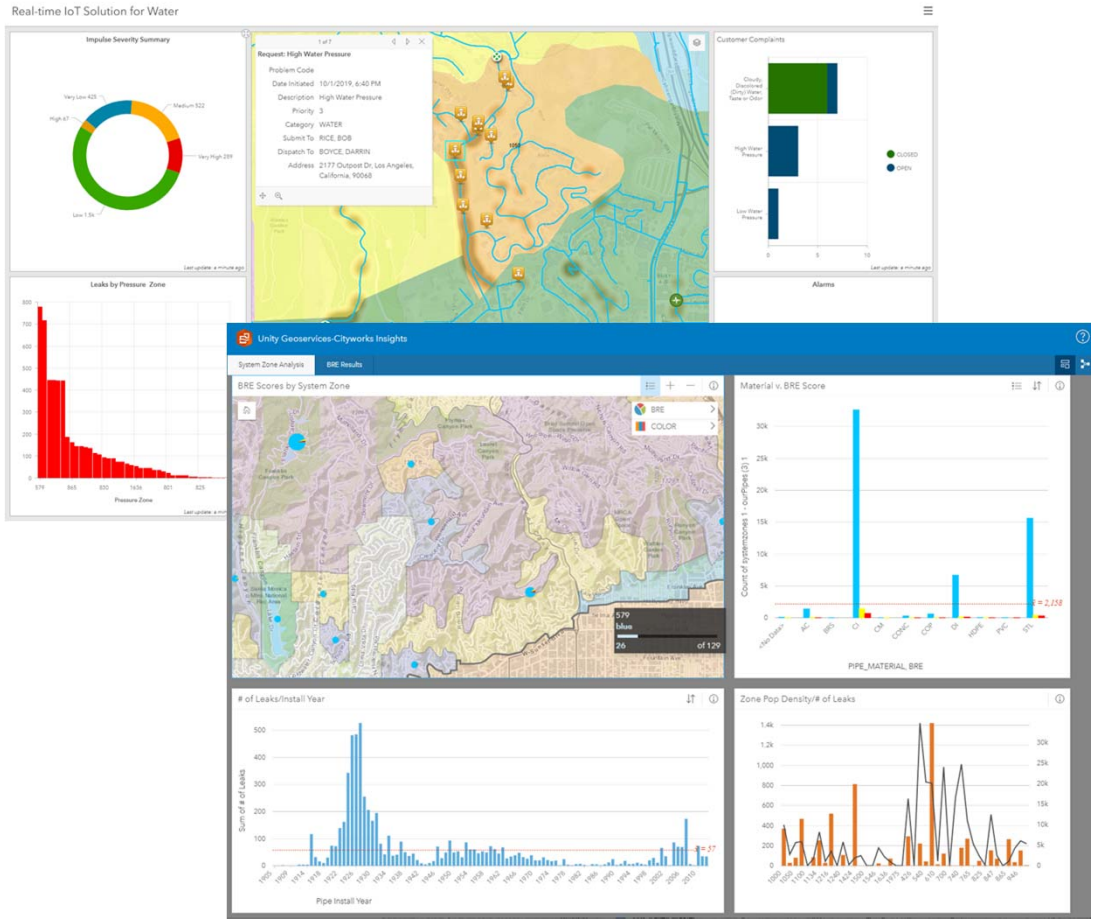
Cityworks Operational Insights provides built-in analytics and tools to calculate probability of failure, consequence of failure, and business risk exposure.

Factors such as asset age, material, historic inspection and repair activities, and key performance indicators (KPIs) captured via the Telog sensors and stored in the GIS can prioritize asset repair activities, perform more expansive monitoring, and enrich analysis with asset replacement cost data to support capital improvement planning.

Analytics

Operations Dashboard for ArcGIS enables a dynamic and real-time view of data from all three platforms - Unity, Cityworks and Esri. This gives users immediate insight to key metrics.

ArcGIS Insights delivers spatial analytics and visualization of historic trends. Users can filter between data from Unity, Cityworks or Esri to identify root causes and the association between variables such as pipe age, material, risk prioritization and historic leak concentrations.

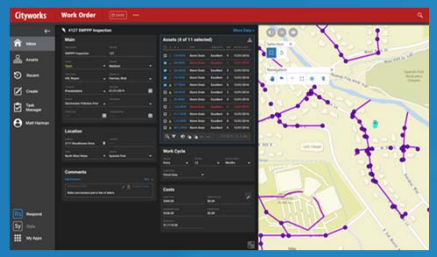


Open Platforms, APIs, Webhooks

Using location to Integrate Everything

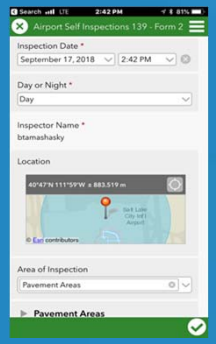
Take your Esri investment to the next level with the Trimble O&PS suite of products

Cityworks® | esri®



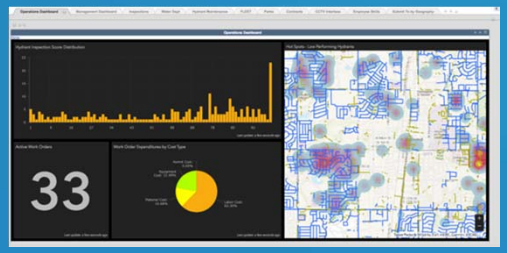
Cityworks Respond with ArcGIS API for JavaScript 4.x

Cityworks with Collector and Field Maps



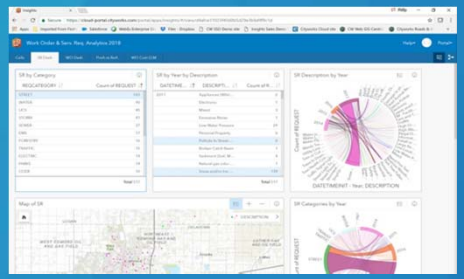
Cityworks with ArcGIS Survey123

Cityworks with ArcGIS Hub

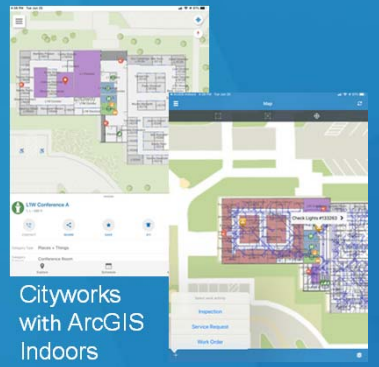


Cityworks with ArcGIS Dashboards

Cityworks with Citizen Problem Reporter



Cityworks Analytics with ArcGIS Insights



Cityworks with ArcGIS Indoors

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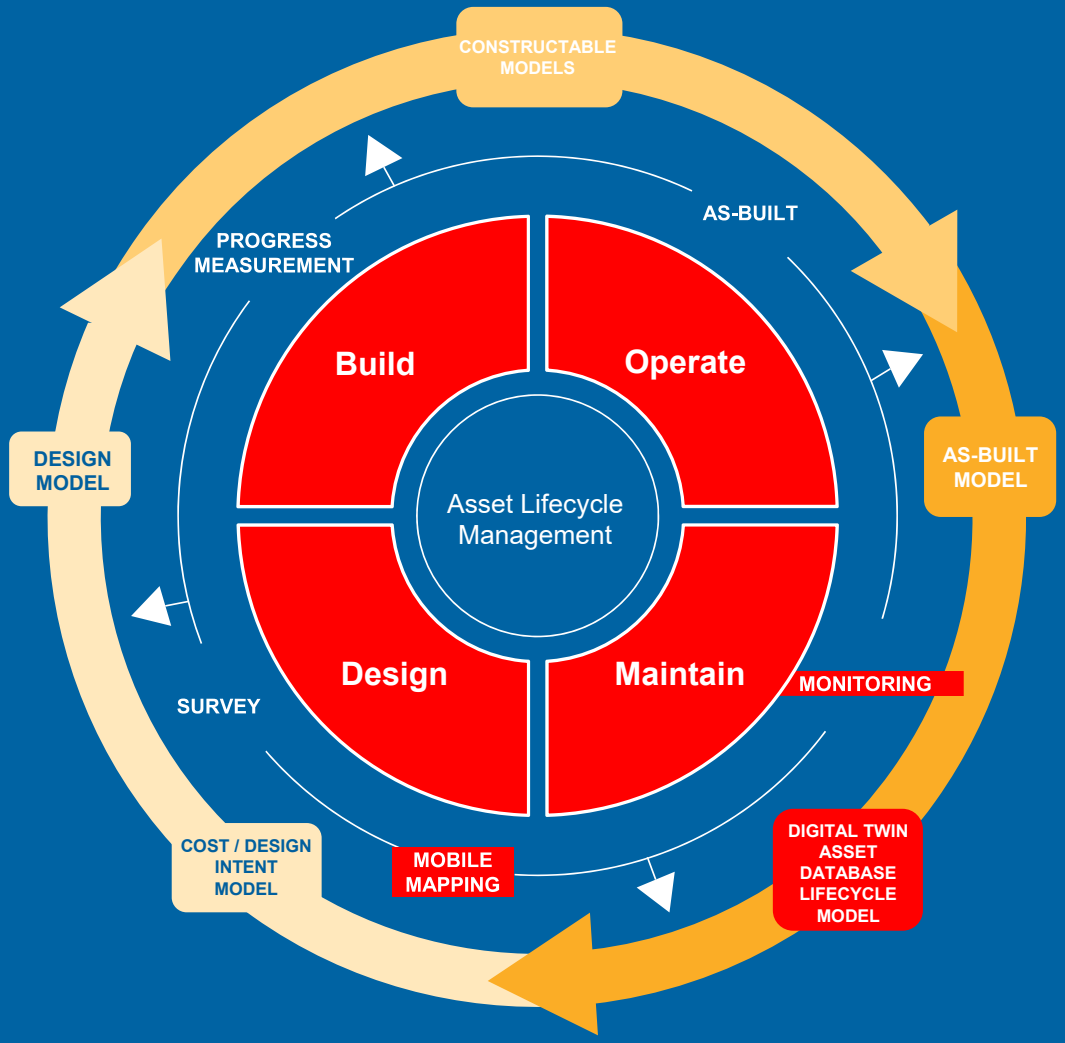
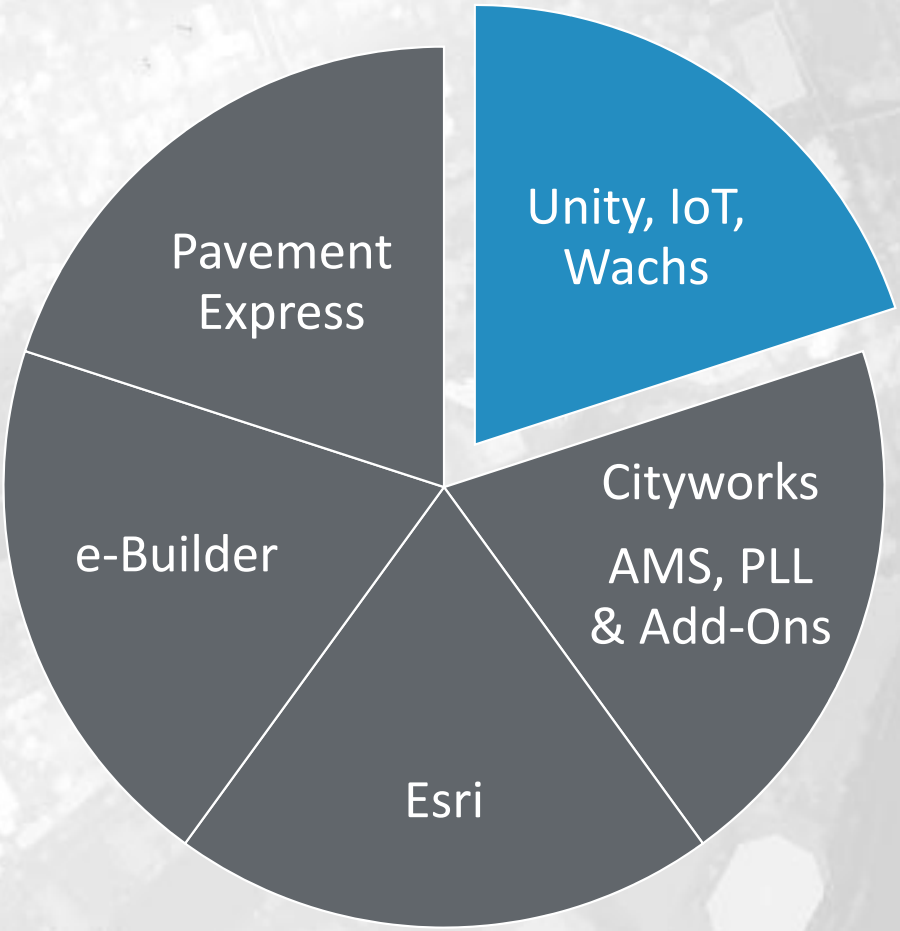



Unity, IoT, Wachs
Cityworks AMS, PLL & Add-Ons
Esri
e-Builder
Pavement Express

Industry Challenges the Trimble Solution Solves

- Aging water infrastructure is a global challenge.
- Many utilities don't have visibility into asset performance.
- Utilities don't have access to real time performance data to identify root cause of problems causing chronic repairs, or to identify future infrastructure damage and service disruptions.
- There isn't access to the tools to help them identify high risk assets for prioritizing asset repairs and capital planning projects.
- Utilities follow reactive asset management practices, perform reactive repairs causing higher repair costs, disruption of service and poor customer service.
- Utilities that have some asset performance monitoring tools, are using them siloed from GIS and EAM, and not realizing the full value of the tools or a fully integrated solution.

The System of Action

Real-time IoT and Intelligent Asset Management Platform

Trimble Telog **Remote Monitoring**

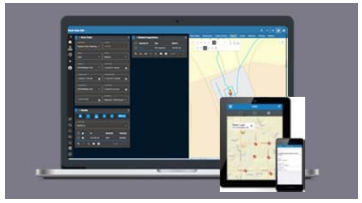
A Broad Range of Rugged, Battery Powered, Wireless Recorders and Sensors

IoT Performance Data

Trimble Unity RM

Real-time Asset Performance and Alarming. IoT KPIs for Insights and Analysis

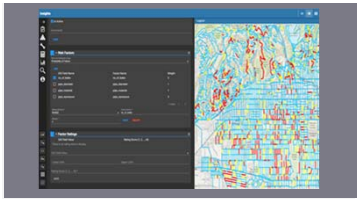
Inspections Work Orders KPIs



Cityworks® AMS

Asset Management and Event Response

Asset Condition Performance KPIs



Cityworks® Operational Insights

Risk Strategy and Repair Prioritization

Integrated view of asset data from GIS, real-time asset performance from IoT sensors, and condition and work activities.

esri Insights and Analytics

Location-aware Data Visualizations and Analytics

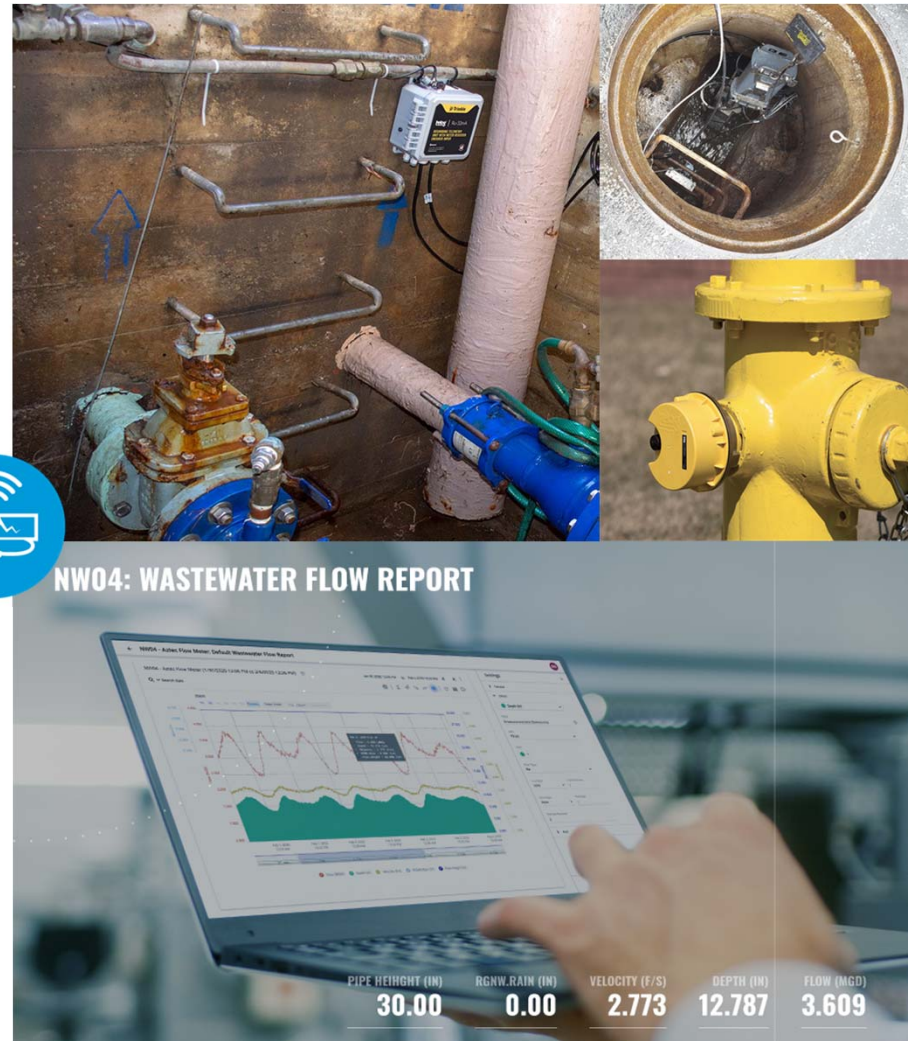
Make informed decisions, prioritize maintenance and capital improvement projects, and streamline event response.

Telog: Proven IoT Solution

telog® BY TRIMBLE

- **Applications across the cycle**
  - NRW, Pressure Mgt, Water Quality
  - Sewer Overflows, Level, Liftstations
- **Full situational awareness**
  - Accurate, timely, reliable data
  - Near real time alarms for anomalies
- **Easy & cost effective to install**
  - Rugged wireless, battery operated devices
- **Low cost of ownership**
  - Up to 5 years battery life

Cityworks® A TRIMBLE COMPANY



IoT and Remote Monitoring… Across the Water Cycle

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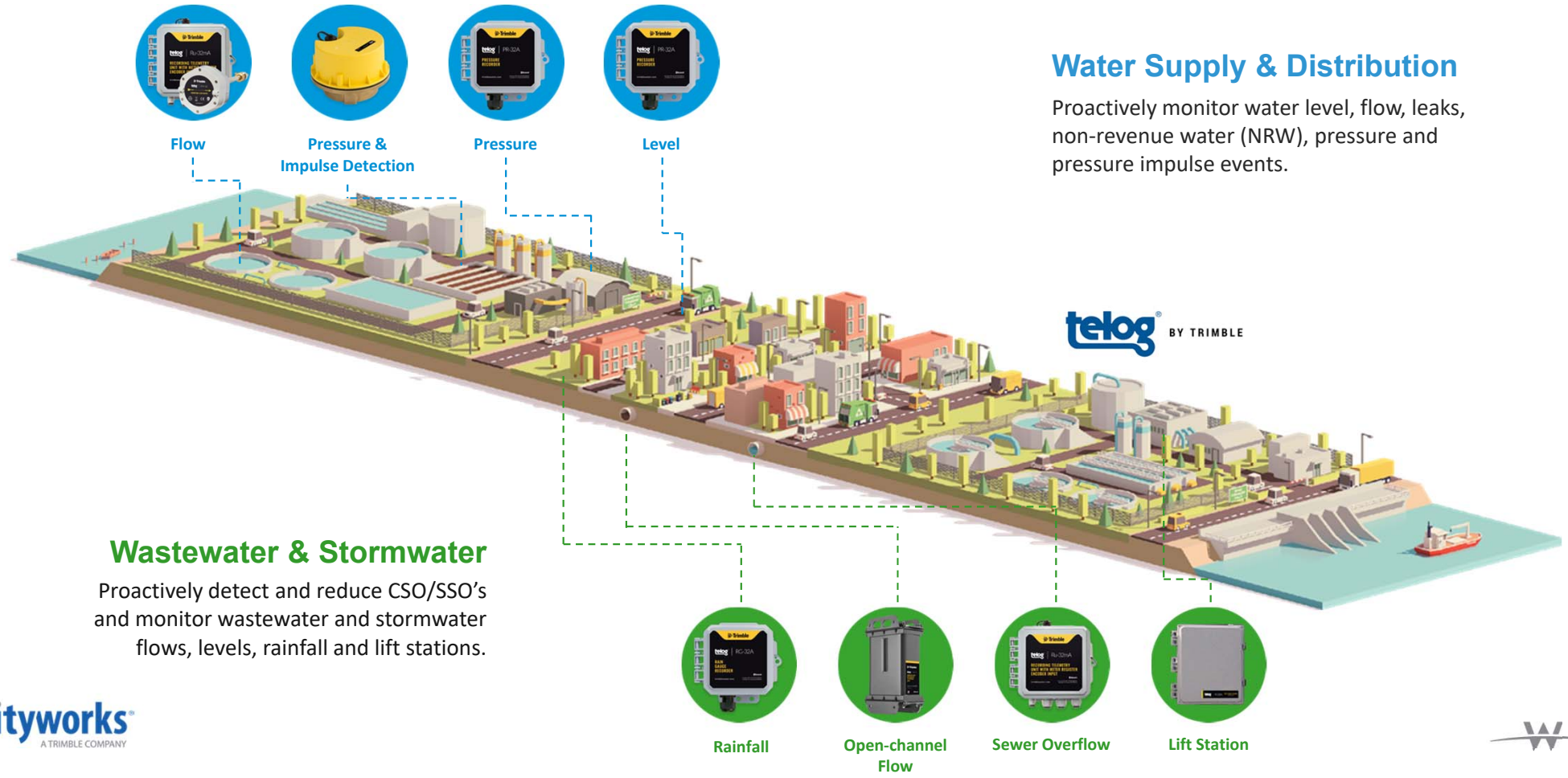

Water Supply & Distribution

Proactively monitor water level, flow, leaks, non-revenue water (NRW), pressure and pressure impulse events.

Wastewater & Stormwater

Proactively detect and reduce CSO/SSO's and monitor wastewater and stormwater flows, levels, rainfall and lift stations.

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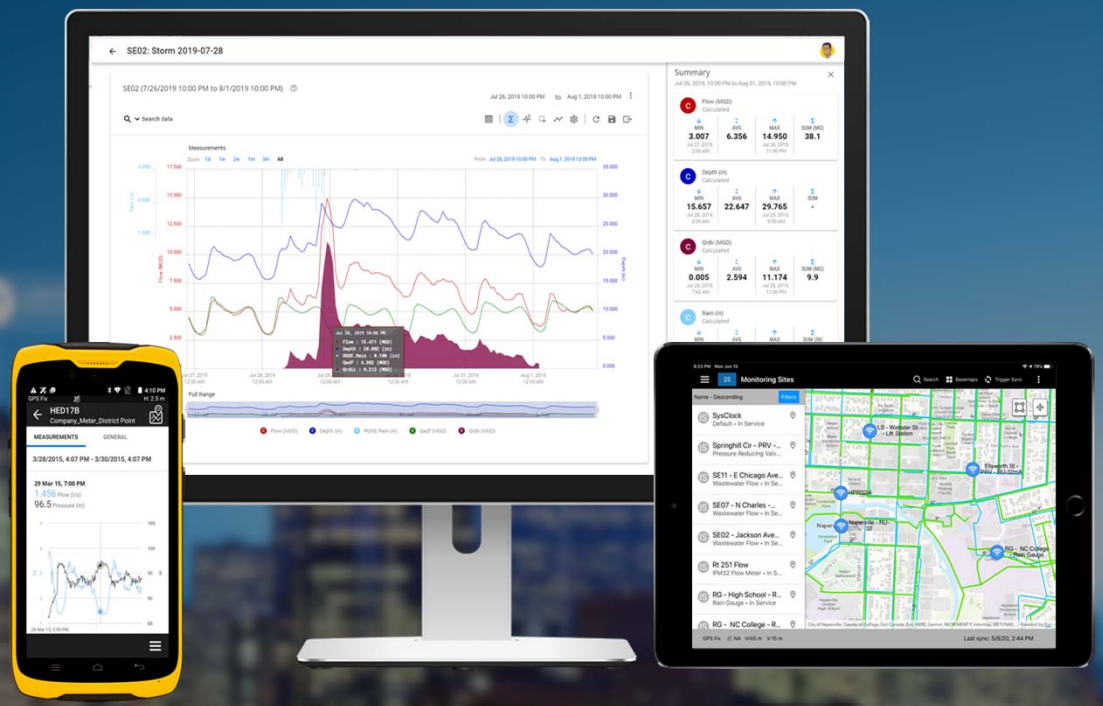
Trimble Unity™ Remote Monitoring Real-time Asset Performance and Alarming

- GIS Centric
- Cloud and Mobile Software
- Integrates with Telog IoT Products
- Offers Real-time Situational Awareness
- Proactive Event Response
- Regulatory Compliance

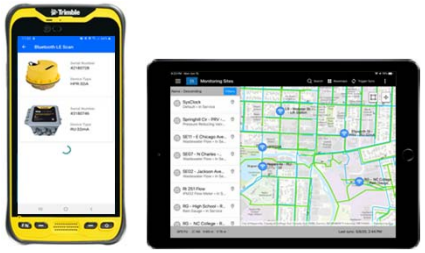


Trimble Unity

Simple Steps to Gain Asset Performance Visibility

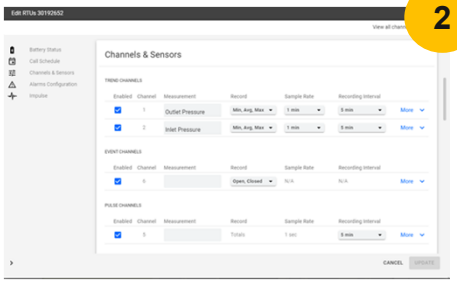
WOOLPERT
STRATEGIC CONSULTING

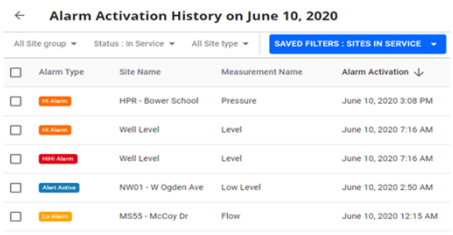
1



Install and Configure Telog RTUs and Sensors

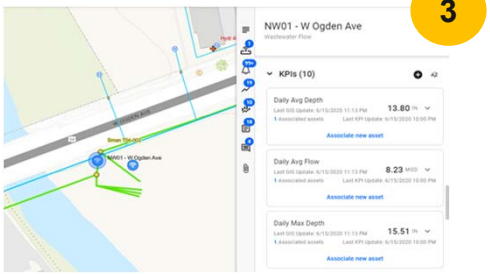
2

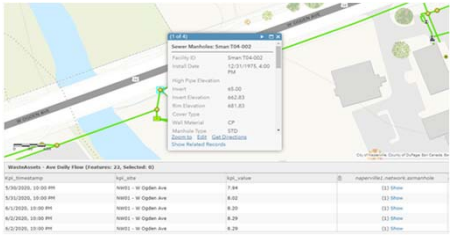




Set up Alarms and Events Triggers

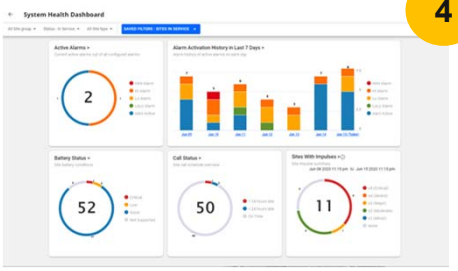
3





Set up KPIs and GIS Updates

4



Analyze and Report on Asset Performance

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Trimble Unity Mobile for Cityworks – Valve Exercising

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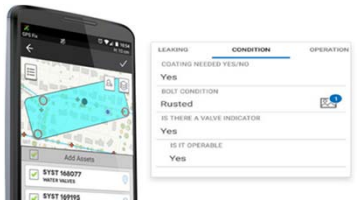
Offering premium mobile capabilities to streamline water field operations, data collection, and analytics.

Cityworks® AMS

Asset Management and Activity Planning

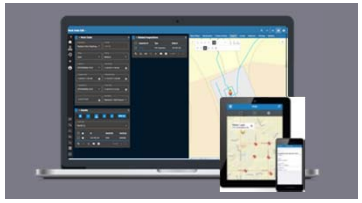
Inspections



Trimble Unity Mobile

Field Execution & Data Collection

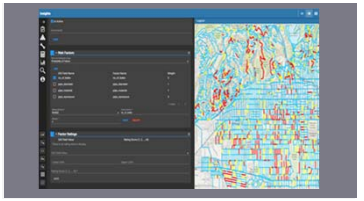
Field Results & Ad-Hoc Inspections



Cityworks® AMS

Asset Management and Activity Follow-Up

Asset Condition Performance



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esri Insights and Analytics

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Make informed decisions, prioritize maintenance and capital improvement projects, and streamline event response.

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Trimble Vegetation Manager

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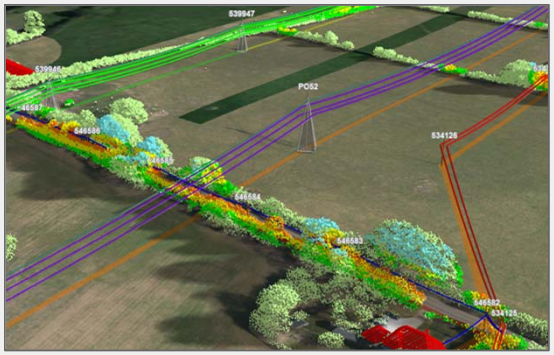
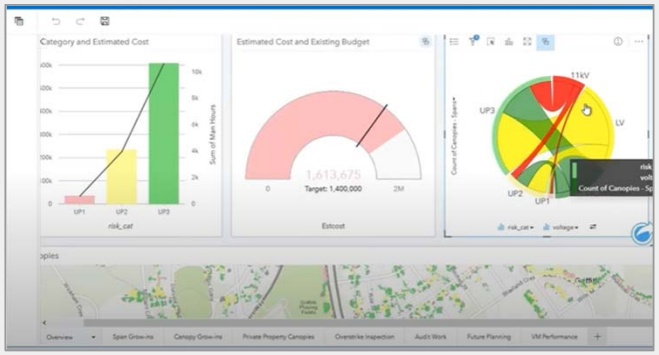
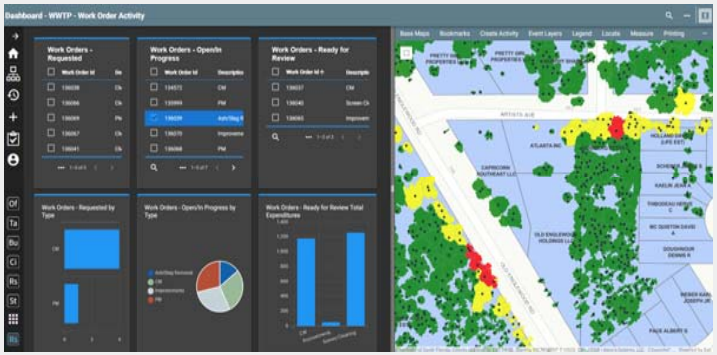






LiDAR Analyzer

Integrate LiDAR, 3D line models & GIS data for a **highly accurate vegetation hazard inventory**.

Program Optimizer

Visualise network & vegetation information to design optimized work programs - **targeting costs, risks or both**.

Operational Manager

Execute projects for staff & contractors in office and field - **get visibility and drive performance.**

Cityworks
A TRIMBLE COMPANY

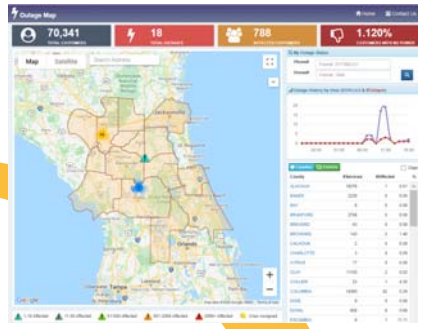
ArcGIS

Built to operate seamlessly with ArcGIS

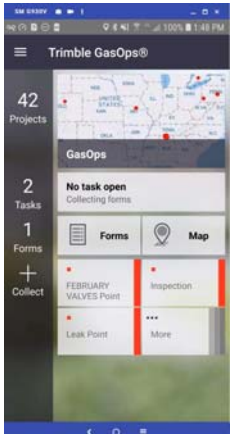
Cityworks for Utilities

Extending into Electric and Gas Utilities

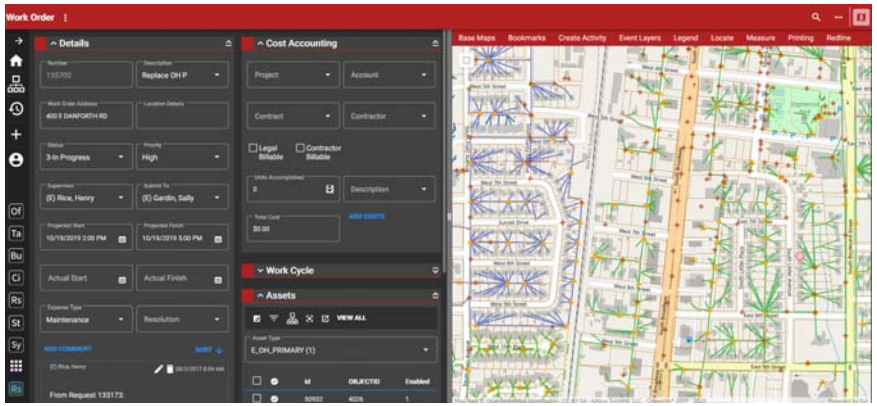
Outage Map (Trimble)



GasOps (Trimble)



Cityworks Respond



SiteVision (Trimble)

Cityworks for Emergency Management

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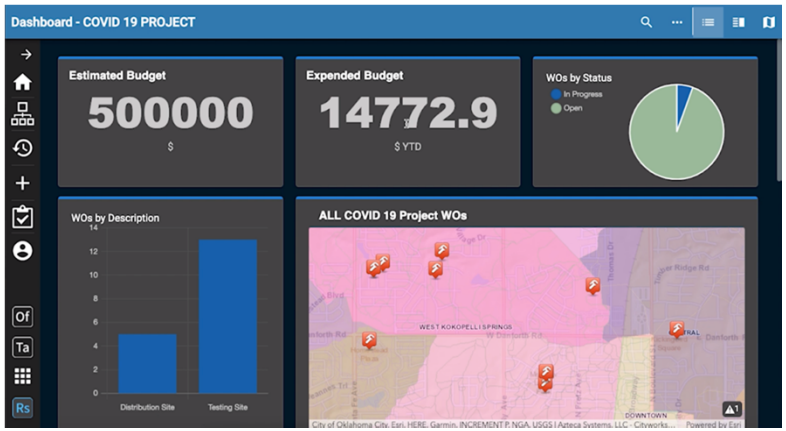
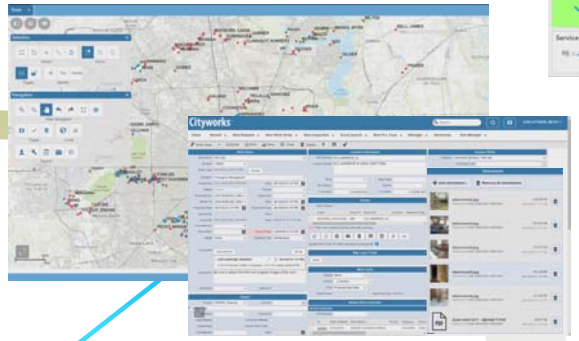
Extending into Disaster Recovery and Relief

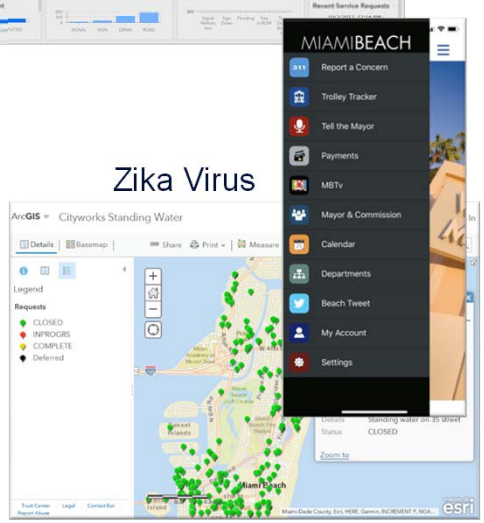
Cityworks Respond



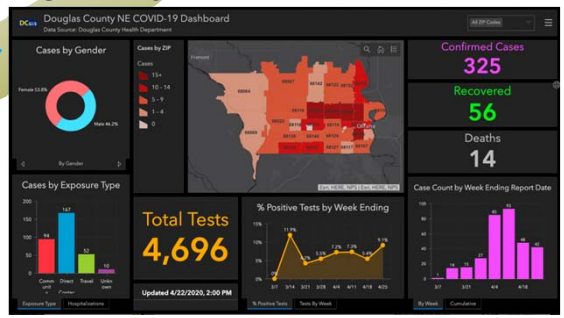
FEMA Blue Roof and Hurricane cleanup



Zika Virus



Covid-19



Cityworks
A TRIMBLE COMPANY

Trimble's Asset Platform

- Connects **systems of record** from design through operations by being **open and interoperable**
- From the start, every asset gets a **digital id**
- **Digital delivery** process is used throughout each phase
- This builds & maintains **digital twin**
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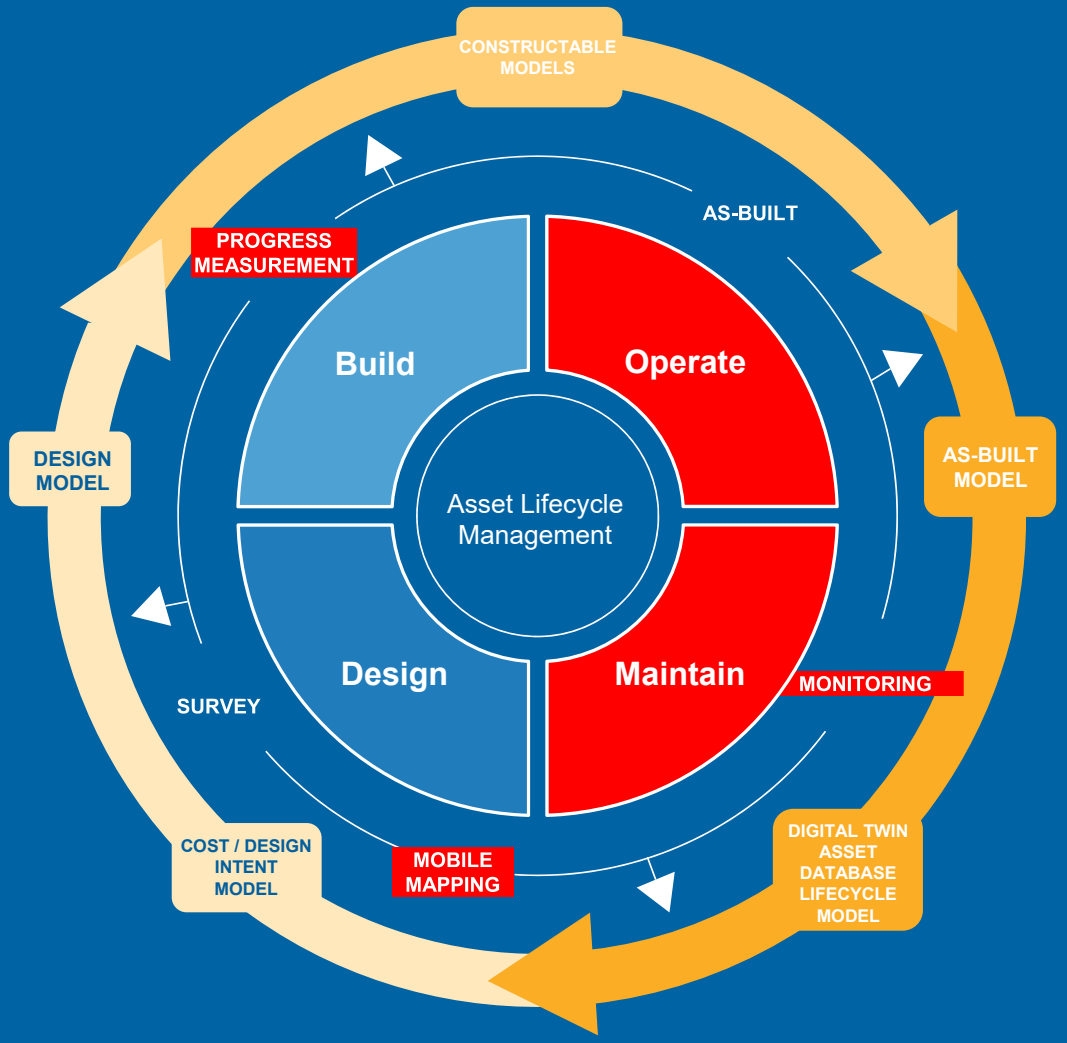

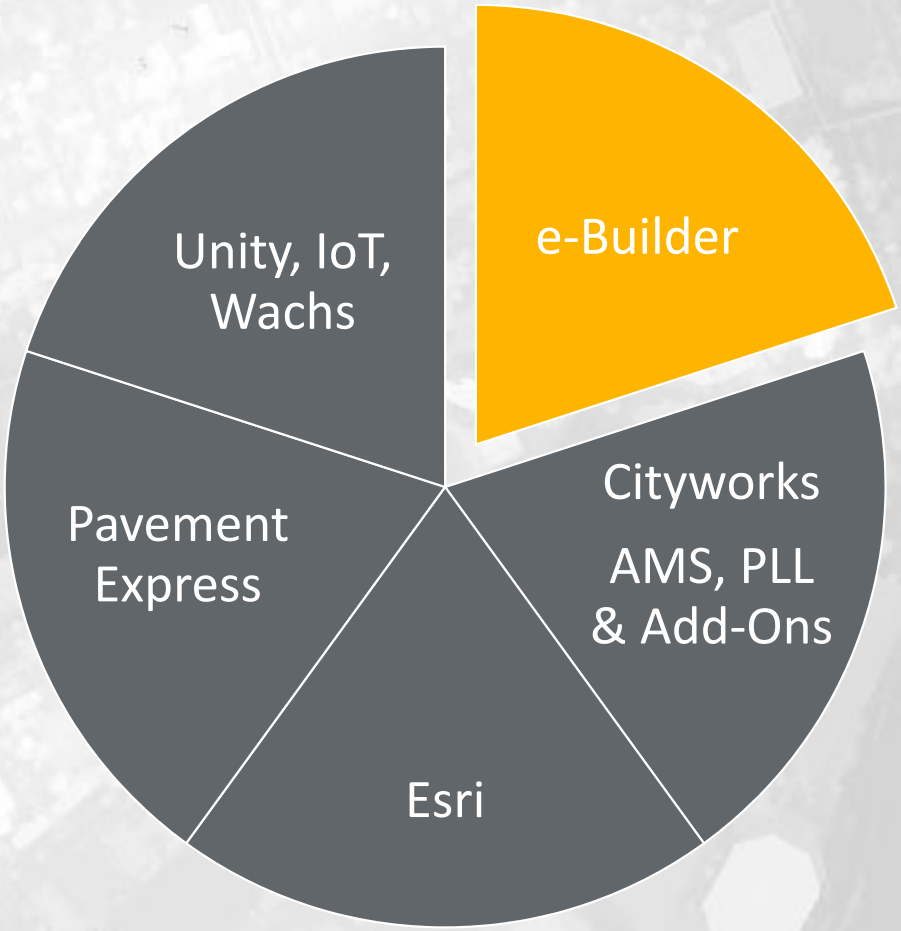
e-Builder
Cityworks
AMS, PLL
& Add-Ons
Esri
Pavement
Express
Unity, IoT,
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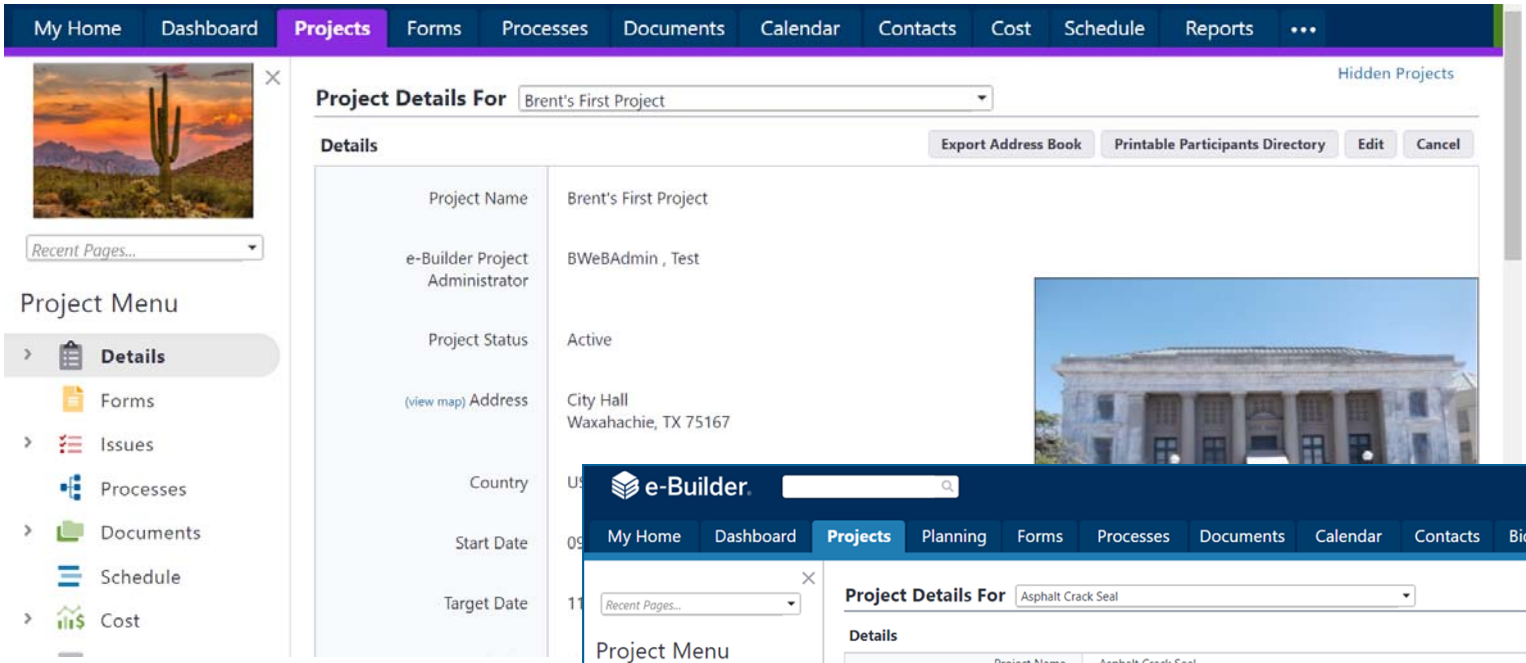
e-Builder


My Home
Dashboard
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Processes
Documents
Calendar
Contacts
Cost
Schedule
Reports
Hidden Projects
Project Details For
Brent's First Project
Details
Export Address Book
Printable Participants Directory
Edit
Cancel
Project Name
Brent's First Project
e-Builder Project Administrator
BWeBAdmin , Test
Project Status
Active
(view map) Address
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Country
Start Date
Target Date
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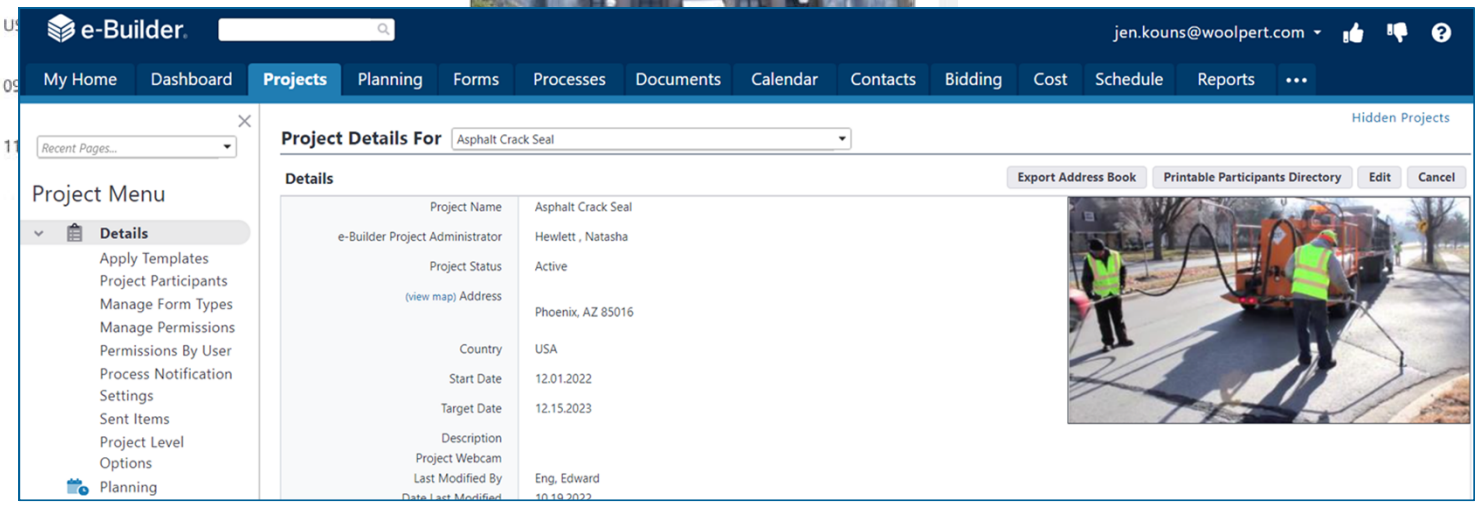
Project Menu
Details
Forms
Issues
Processes
Documents
Schedule
Cost


e-Builder
jen.kouns@woolpert.com
My Home
Dashboard
Projects
Planning
Forms
Processes
Documents
Calendar
Contacts
Bidding
Cost
Schedule
Reports
Hidden Projects
Project Details For
Asphalt Crack Seal
Details
Export Address Book
Printable Participants Directory
Edit
Cancel
Project Name
Asphalt Crack Seal
e-Builder Project Administrator
Hewlett , Natasha
Project Status
Active
(view map) Address
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Country
USA
Start Date
12.01.2022
Target Date
12.15.2023
Description
Project Webcam
Last Modified By
Eng, Edward
Recent Pages...
Project Menu
Details
Apply Templates
Project Participants
Manage Form Types
Manage Permissions
Permissions By User
Process Notification Settings
Sent Items
Project Level Options
Planning

e-Builder

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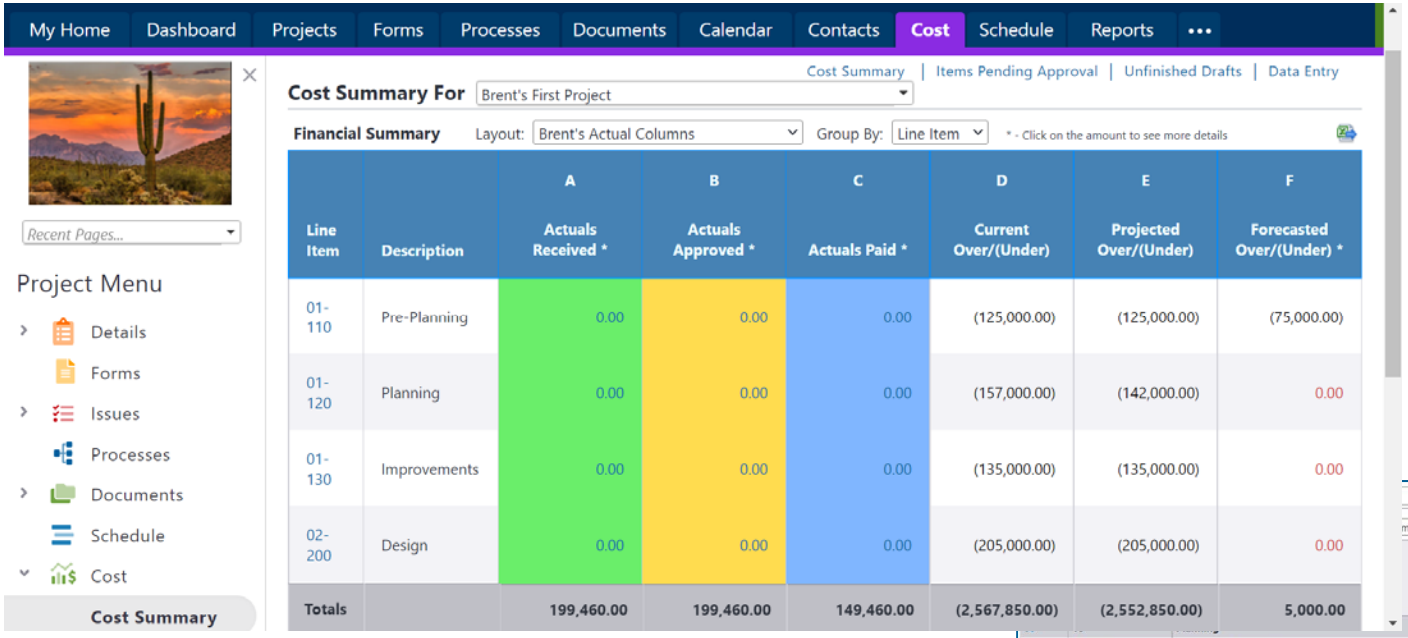
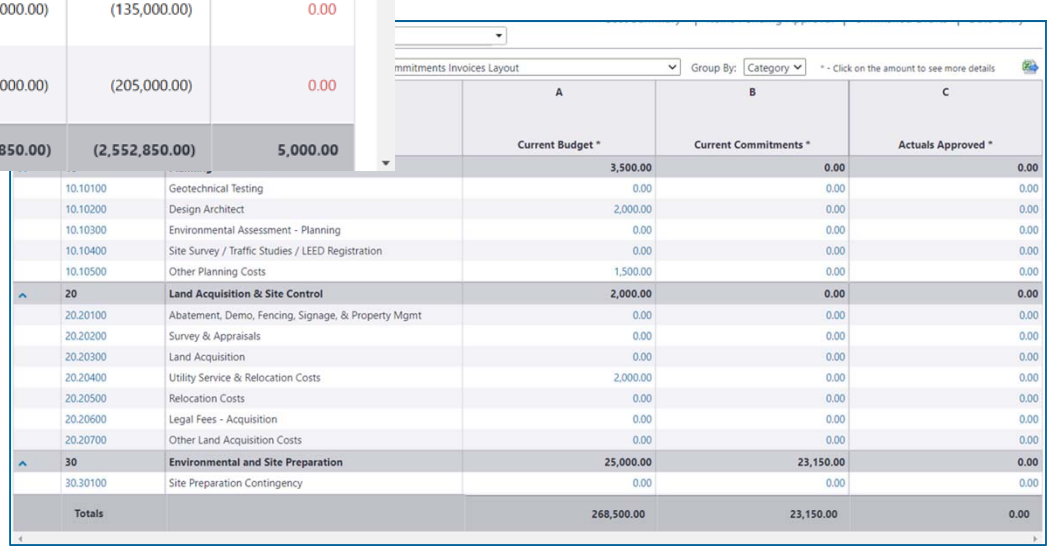


Line Item	Description	A Actuals Received *	B Actuals Approved *	C Actuals Paid *	D Current Over/(Under)	E Projected Over/(Under)	F Forecasted Over/(Under) *
01-110	Pre-Planning	0.00	0.00	0.00	(125,000.00)	(125,000.00)	(75,000.00)
01-120	Planning	0.00	0.00	0.00	(157,000.00)	(142,000.00)	0.00
01-130	Improvements	0.00	0.00	0.00	(135,000.00)	(135,000.00)	0.00
02-200	Design	0.00	0.00	0.00	(205,000.00)	(205,000.00)	0.00
Totals		199,460.00	199,460.00	149,460.00	(2,567,850.00)	(2,552,850.00)	5,000.00



			A Current Budget *	B Current Commitments *	C Actuals Approved *
			3,500.00	0.00	0.00
	10.10100	Geotechnical Testing	0.00	0.00	0.00
	10.10200	Design Architect	2,000.00	0.00	0.00
	10.10300	Environmental Assessment - Planning	0.00	0.00	0.00
	10.10400	Site Survey / Traffic Studies / LEED Registration	0.00	0.00	0.00
	10.10500	Other Planning Costs	1,500.00	0.00	0.00
^	20	**Land Acquisition & Site Control**	2,000.00	0.00	0.00
	20.20100	Abatement, Demo, Fencing, Signage, & Property Mgmt	0.00	0.00	0.00
	20.20200	Survey & Appraisals	0.00	0.00	0.00
	20.20300	Land Acquisition	0.00	0.00	0.00
	20.20400	Utility Service & Relocation Costs	2,000.00	0.00	0.00
	20.20500	Relocation Costs	0.00	0.00	0.00
	20.20600	Legal Fees - Acquisition	0.00	0.00	0.00
	20.20700	Other Land Acquisition Costs	0.00	0.00	0.00
^	30	**Environmental and Site Preparation**	25,000.00	23,150.00	0.00
	30.30100	Site Preparation Contingency	0.00	0.00	0.00
	Totals		268,500.00	23,150.00	0.00

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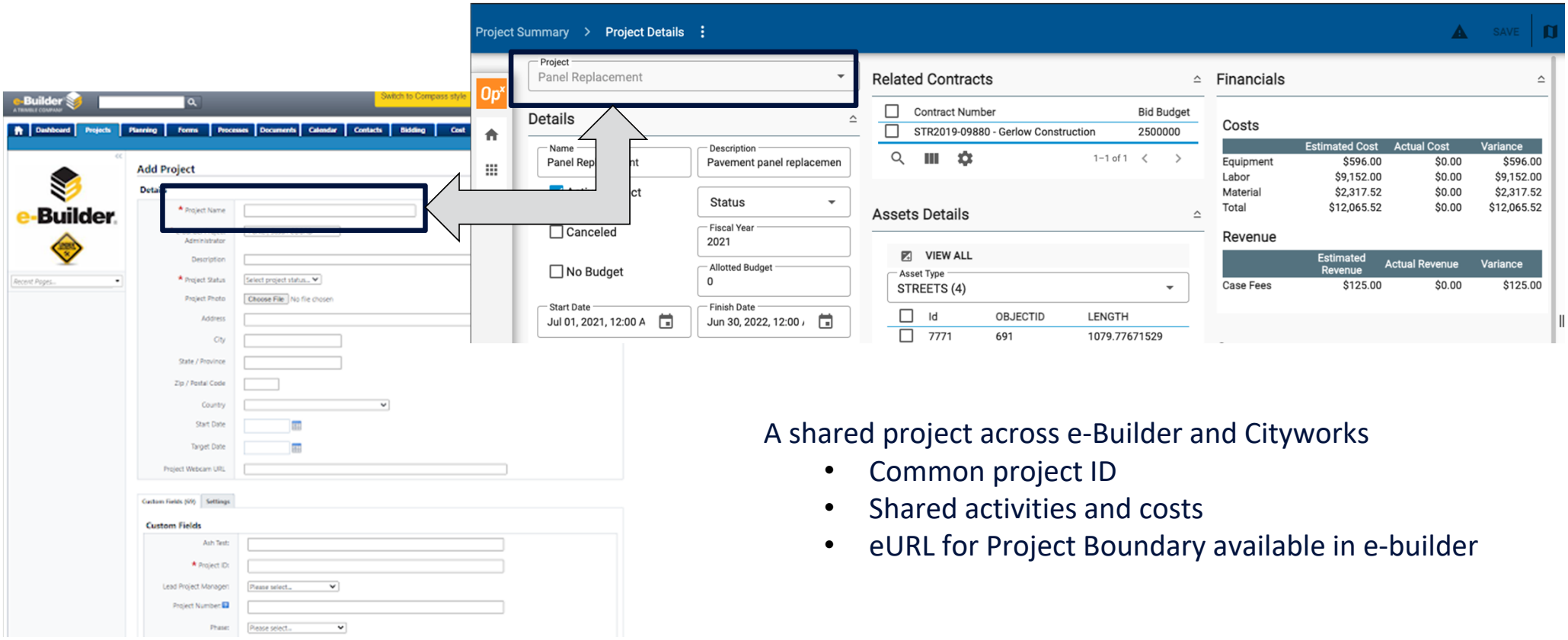
e-Builder + Cityworks



A shared project across e-Builder and Cityworks

- Common project ID
- Shared activities and costs
- eURL for Project Boundary available in e-builder

Trimble's Asset Platform

- Connects **systems of record** from design through operations by being **open and interoperable**
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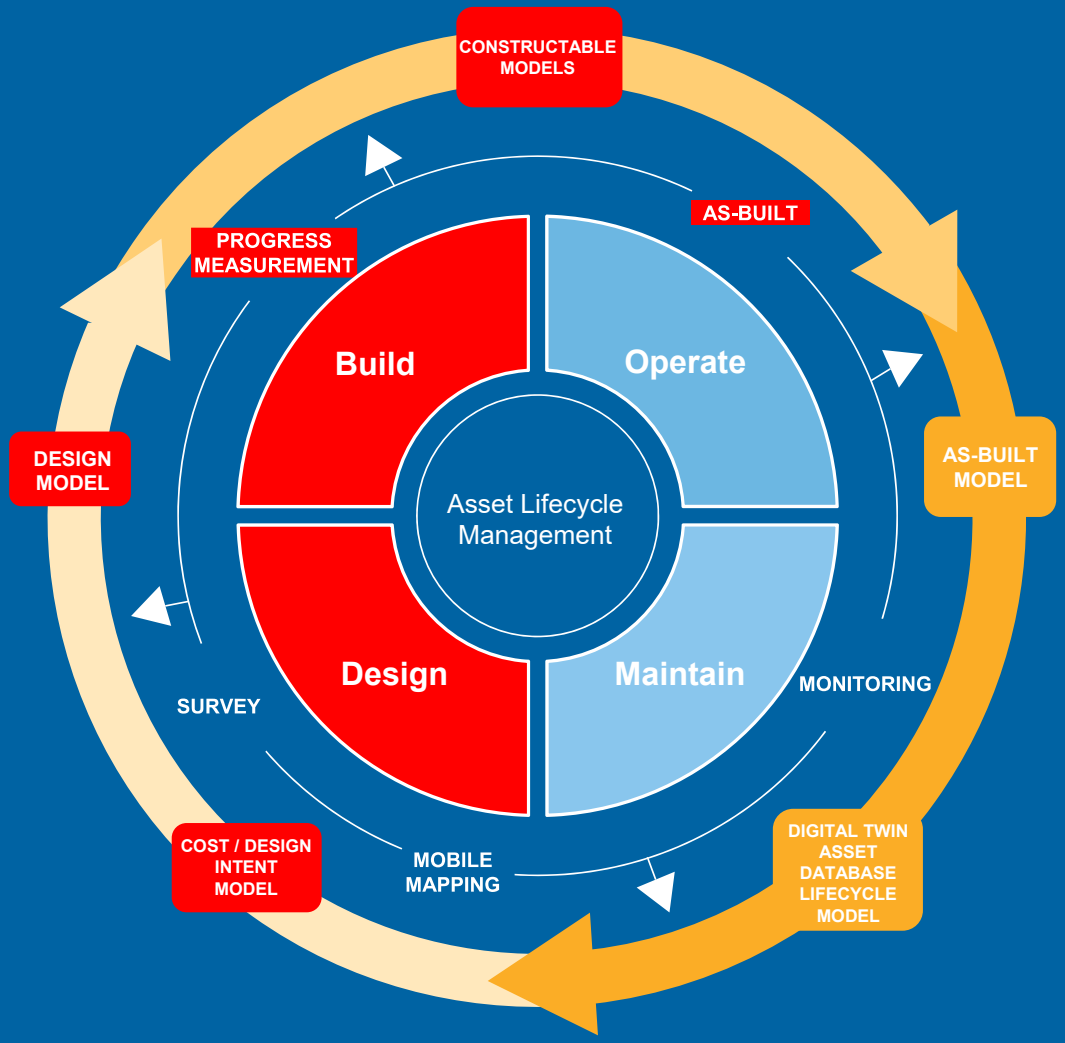
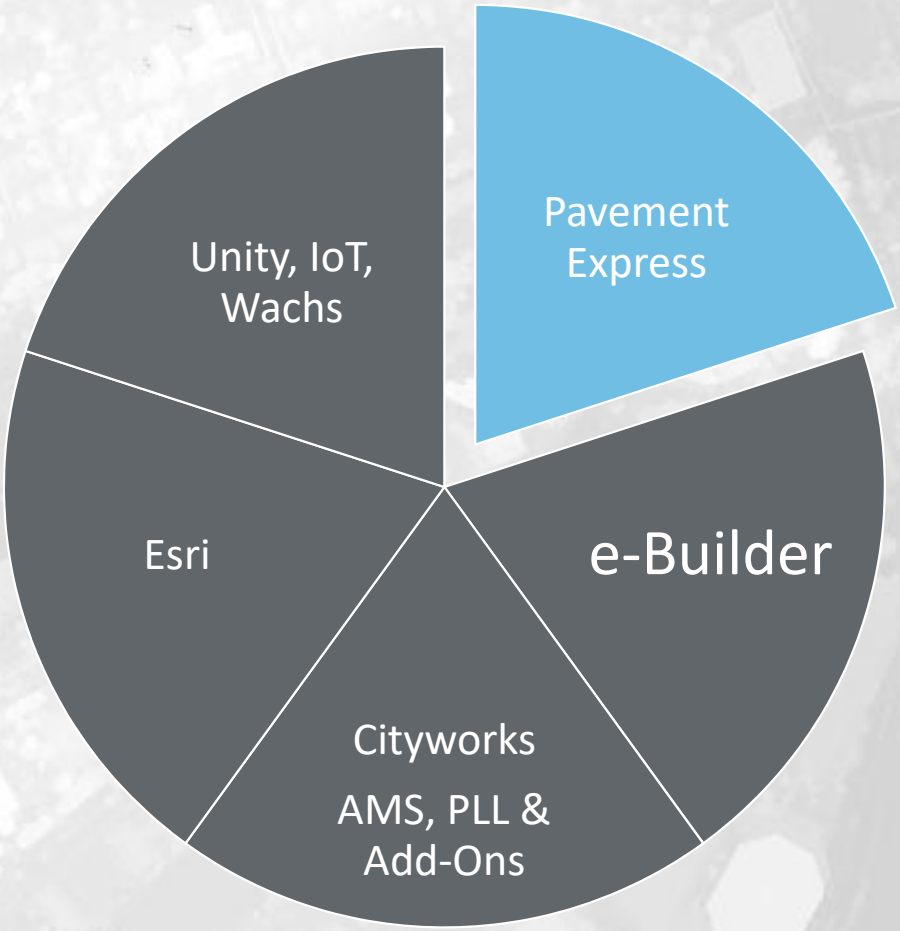
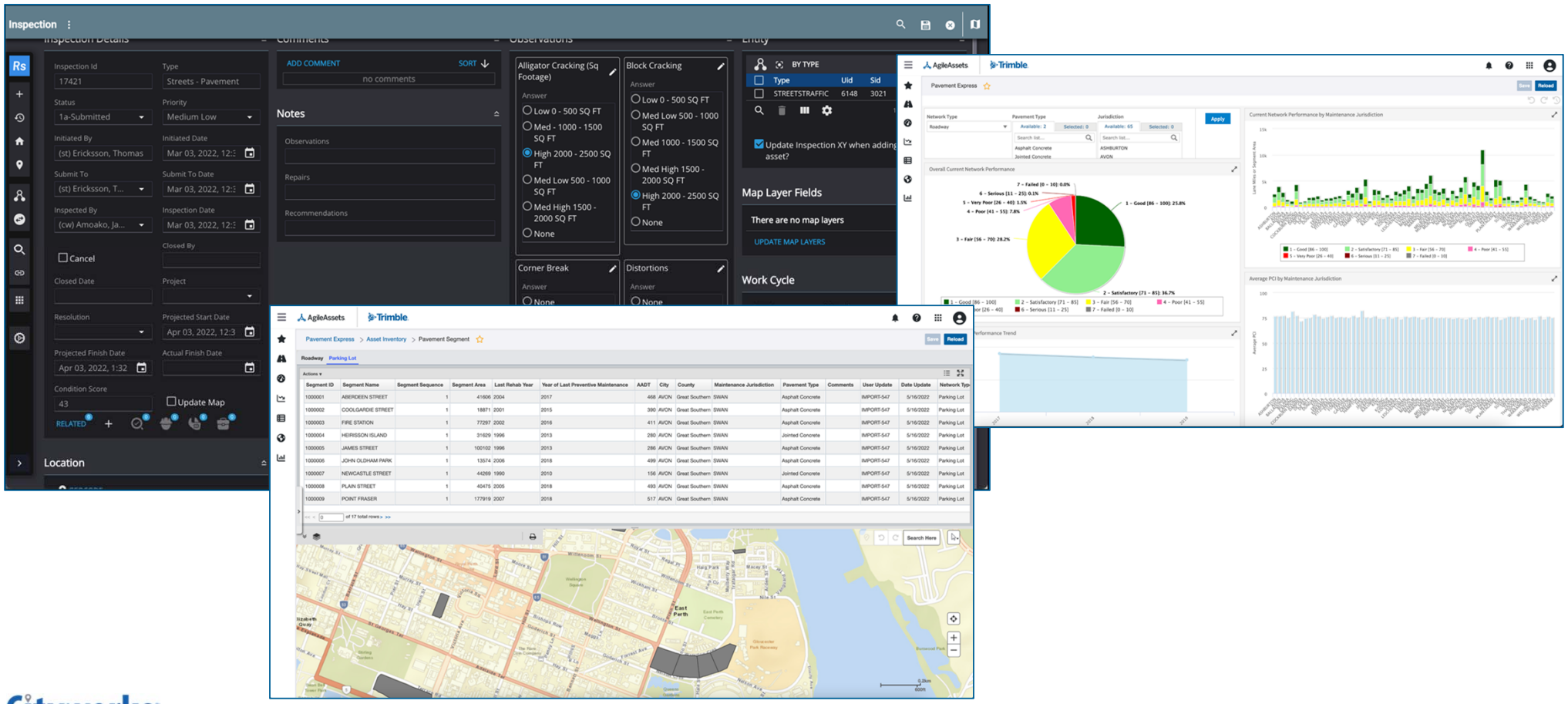
- This builds & maintains **digital twin**
- Physical world reality is captured and informs a **common data environment**




Pavement Express
e-Builder
Cityworks
AMS, PLL & Add-Ons
Esri
Unity, IoT, Wachs

AgileAssets + Cityworks

WOOLPERT
STRATEGIC CONSULTING



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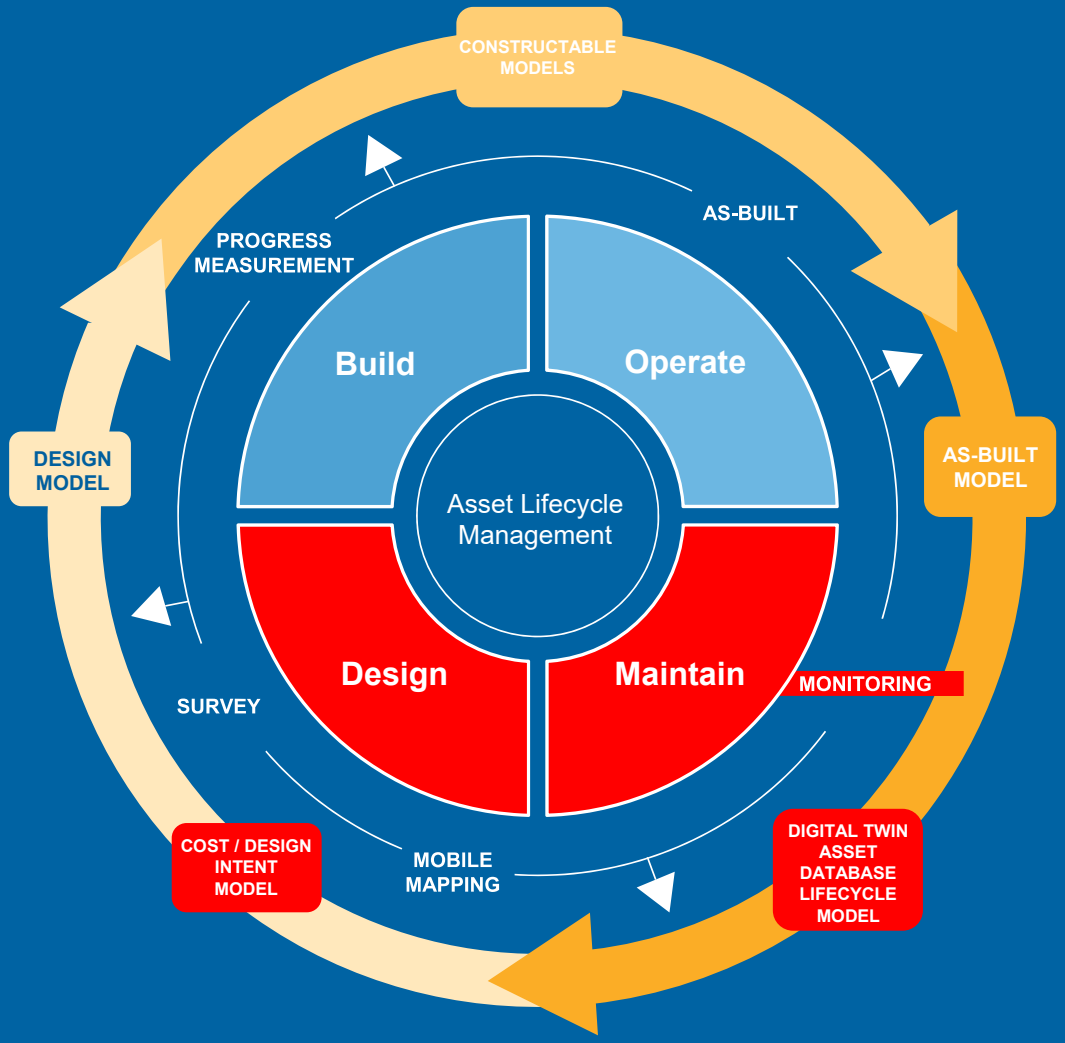

WHY WOOLPERT?

Internationally recognized **asset management thought leaders**

An **award-winning, full-service team** with the right qualifications

A team **trained in ISO certification** and best practices

Proven **infrastructure and organizational management** domain expertise

Successful track record of implementing and integrating technologies

Experience

Woolpert's Cityworks Expertise

Over 400 successful enterprise-class Cityworks implementations around the world

Woolpert is the only implementation partner to have a **Specialty Designation**

Woolpert senior staff **Participate Directly** in the ISO 55000 Committee