Making Infrastructure Customers **Successful**

Volume 6 | 2026






esri® | THE SCIENCE OF WHERE®

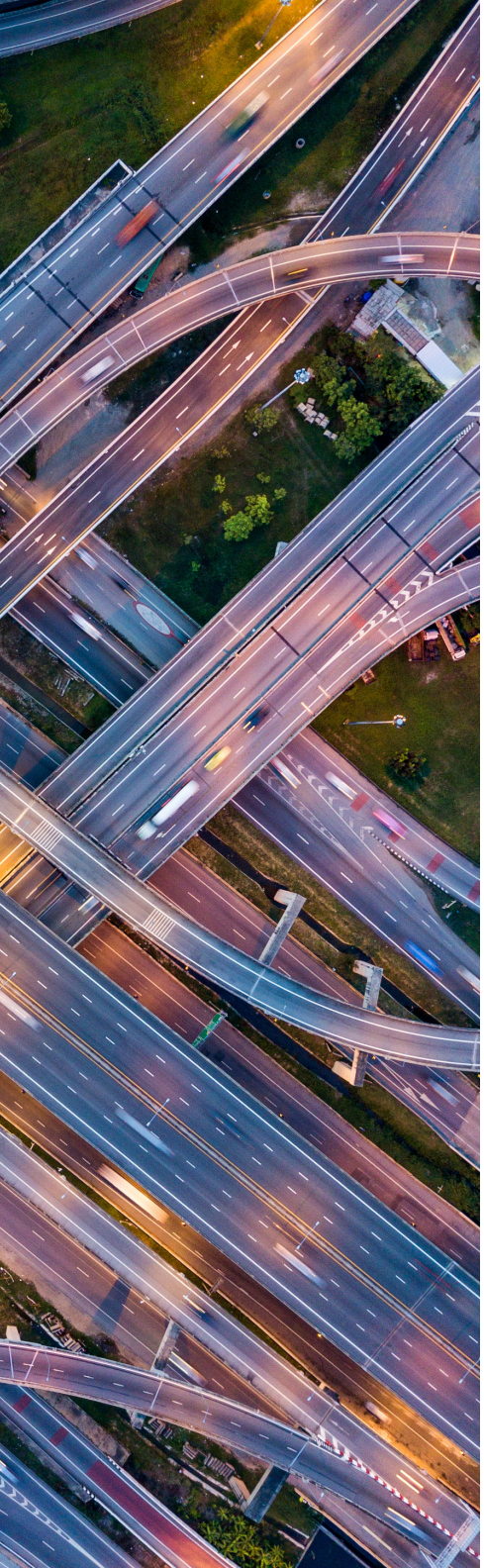


Table of Contents

Solving Infrastructure Challenges with Geospatial Technology and Esri Partners

Infrastructure leaders face mounting pressures, aging assets, climate volatility, regulatory compliance, and rising customer expectations. Infrastructure-focused industries such as electric; gas; water; telecommunications; transportation; and architecture, engineering, and construction (AEC) must deliver reliable, sustainable services while navigating digital transformation and environmental challenges.

Geographic information system (GIS) technology is no longer optional; it is a strategic imperative for enabling customer success. By harnessing geospatial technology, executives gain a comprehensive view of assets, operations, and the communities they serve. This insight enables data-driven decisions that reduce risk, optimize investments, and accelerate innovation, ensuring resilience and competitive advantage.

For utilities, GIS powers grid modernization, outage mapping, and renewable energy analysis. Water providers leverage GIS for leak detection and asset risk management. Telecom companies use GIS to expand networks efficiently, while transportation agencies optimize routes and manage infrastructure vulnerabilities and life cycle. In AEC, GIS drives smarter design and construction through real-time collaboration, project delivery, and environmental analysis.

The value of GIS is amplified through Esri's ArcGIS® platform and the global Esri Partner Network. Partners deliver specialized solutions, integration expertise, and industry-specific workflows that accelerate time-to-value and maximize return on investment (ROI). Together, Esri and its partners enable organizations to move beyond mapping and toward predictive analytics, digital twins, and connected ecosystems that transform infrastructure management.

Executives who embrace GIS and the Esri partner ecosystem position their organizations to lead in resilience, sustainability, and customer satisfaction. This is not just technology; it's a strategic advantage shaping the future of infrastructure.

Migrating to a Modern Network Information Management System

Infrastructure organizations needing to manage the complexities of a connected integrated network require modern technologies and capabilities that were designed to manage these networks not only today but also into the future. ArcGIS Utility Network represents a generational shift in how utility organizations manage critical infrastructure networks. Moving beyond legacy database systems concepts and solutions, Utility Network offers a service-based, high-fidelity digital twin that mirrors real-world network behavior with unprecedented accuracy. For executives, the migration to a modern network information management system is a strategic move to enhance grid resiliency, data integrity, and cross-departmental efficiency.

As of 2025, the migration process has been significantly simplified with the following:

- Migration wizard and toolset: New tools in ArcGIS Pro 3.5 allow organizations to map legacy data to the Utility Network schema more quickly, reducing implementation timelines and upfront complexity.
- Premigration quality assurance: The ability to discover and report topological errors before fully enabling the network topology allows for proactive data cleanup.
- Phased implementation: Organizations can now start with a foundation model for basic workflows and progressively enable advanced features like 3D modeling and complex containment as business needs evolve.

Successful migrations prioritize iterative data readiness and executive alignment. By modernizing now, utilities future-proof their infrastructure against evolving cybersecurity threats and regulatory requirements while positioning themselves for long-term innovation.

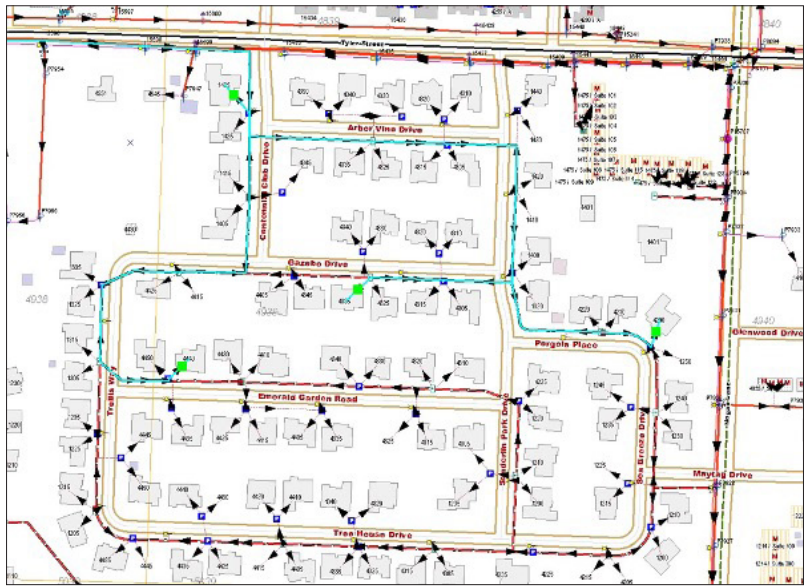
Conway Corp Powers Up with ArcGIS Utility Network

Electric

Conway Corp, a city-owned utility in Conway, Arkansas, has delivered essential services—including electric, water, wastewater, internet, and voice—to over 30,000 customers since 1929. GIS plays a critical role in managing infrastructure, optimizing operations, and improving customer service. For more than two decades, Conway Corp has relied on Esri® technology for asset management, outage response, and system planning. However, the utility's geometric network architecture limited mobile capabilities and integration with systems like SCADA, AMI, and OMS. Upgrading to ArcGIS Utility Network was essential to maintaining operational stability and enabling advanced features such as real-time tracing and offline maps. In late 2022, Conway Corp launched its migration initiative, correcting over 95 percent of data inconsistencies through automated QA/QC. A dual-network model ensures that legacy integrations remain functional while preparing for full mobile integration, allowing crews to trace electric and water networks directly from maps. This modernization strengthens outage response, improves data accuracy, and positions Conway Corp for future scalability.

"Our web-based GIS has improved our operations across the board and inspired a culture of digital transformation to the benefit of real-time data. From engineers to field techs, everyone benefits from seeing the full picture of our assets."

Brett McDaniel,
Chief Operating Officer, Conway Corp



fenux LABS

FenuxLabs partnered with Conway Corp to deliver a seamless Utility Network migration. Using advanced tools and algorithms, FenuxLabs scanned electric, water, and wastewater datasets for geometry and attribute issues, correcting errors automatically and reducing manual workload. The team configured tiers, terminal settings, and trace rules in collaboration with Conway Corp engineers. FenuxLabs staff's expertise ensured a smooth transition, preserving critical integrations while enabling next-generation GIS capabilities.

Learn more about FenuxLabs.

Read the full story

From Days to Minutes: Washington City Power Modernizes with the Latest Network Information Management Solutions

Electric

Washington City Power (WCP), a growing municipal electric utility in southwest Utah, serves 12,000 customers and adds 30–60 new connections monthly. To support expansion and improve efficiency, WCP transitioned from ArcMap to ArcGIS Utility Network, aiming to enhance workflows; data accuracy; and integration with SCADA, OMS, and AMI systems. Previously, WCP's legacy GIS lacked connectivity and topology rules, making outage management inefficient and data maintenance nearly impossible. Crews relied on outdated maps, slowing restoration and increasing risk.

"The migration process went smoother than I anticipated. We finished earlier than expected and got to do a few more things that weren't on the original list. When our crews go out on an outage, I think it's important to have the best information available. Our system has only been up for a few weeks, but we're already seeing the value of the map staying up to date with the current switching configuration."

Rick Hansen,
Director, Washington City Power

Esri Infrastructure Management & GIS Conference (Esri IMGIS) 2025 Award Winner

Partnering with SSP Innovations, WCP implemented ArcGIS Utility Network in under 90 days using SSP Accelerate. Automated tools cleaned and migrated data, ensuring connectivity and phasing accuracy. WCP adopted SSP Productivity for streamlined asset editing and ArcGIS Field Maps for real-time field data access. Since deployment, switching procedures that once took days now take minutes, outage response times have improved, and data integrity has increased through advanced tracing and phase propagation. The upgrade also laid the foundation for advanced metering infrastructure (AMI) and outage management system (OMS) integration, positioning WCP for future automation and scalability.

SSP Innovations partnered with WCP to deliver a rapid, tailored Utility Network implementation using the SSP Accelerate solution. SSP provided automated data migration, rigorous QA/QC, and productivity tools to simplify editing and improve accuracy. By leveraging best practices and prebuilt models, SSP enabled WCP to modernize its GIS quickly and efficiently. SSP specializes in helping electric, gas, and water utilities achieve GIS modernization and operational excellence.

Learn more about SSP Innovations.

Read the full story

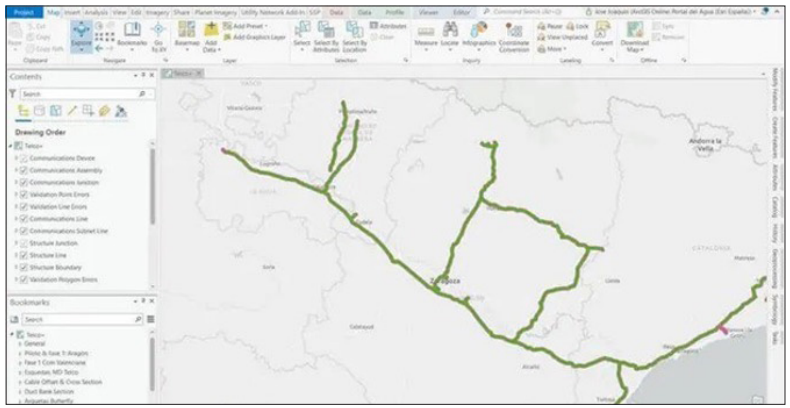
Enagás Digitalizes Fiber Network Management with Geospatial Technology

Telecom

Enagás, Spain's leading natural gas storage and transport company, is digitally transforming its 6,000-kilometer fiber-optic network that parallels its gas pipeline system. Previously, network management was hindered by scattered documentation in multiple formats (CAD, PDF, Visio, Excel, KMZ) and incomplete records for some devices, creating inefficiencies and the risk of human error. To improve operations, Enagás needed a solution for agile network management, real-time access, and detailed graphical documentation of its fiber assets. The company implemented Esri's ArcGIS Utility Network and Khatib & Alami's (K&A) telecom solution to create a comprehensive digital map and a robust telecom data model based on the Communications Utility Network Foundation. The project began with a 133-kilometer testing ground, followed by digitizing 1,500 kilometers in the first phase with plans to cover the full network. This initiative delivers accurate physical and logical documentation, real-time visibility, and streamlined updates, reducing errors and improving reliability. Benefits include enhanced network diagrams, service monitoring at every point, and simplified maintenance and planning.

"Digitizing our fiber-optic network with Esri's geospatial technology and K&A telecom solution has revolutionized our operations, providing us with real-time, reliable data and significantly reducing human error."

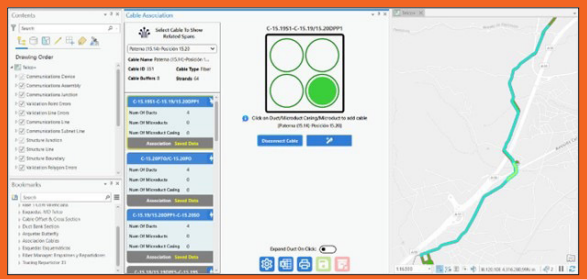
Fernando Herranz Maestro, Telecommunication & Control Engineer at Enagas



KHATIB & ALAMI

K&A and Esri Spain partnered with Enagás to design and implement the telecom data model, integrate ArcGIS Utility Network, and implement a configured K&A telecom solution. K&A and Esri Spain's expertise in GIS and utility systems enabled seamless migration from fragmented formats to a unified platform. By providing advanced mapping, system integration, and scalable workflows, K&A and Esri Spain ensured that Enagás achieved operational efficiency and a future-ready network.

Learn more about Khatib & Alami.



Read the full story

Covington Water District Manages Vast Water Assets with GIS

Water

Covington Water District relied on paper CAD drawings and quarter-section maps of underground assets, often using historic data to estimate system connection points. Covington Water managers determined that the maintenance of the CAD drawings was ultimately inefficient, and Esri tools were the chosen way of the future. The district knew it needed a strategy for its GIS to clean up data, access as-built drawings quickly, produce comprehensive maps, make informed infrastructure decisions, and ultimately save time and costs.

"GIS is our central hub, and there are offshoots everywhere."

Steve Lee,
Engineering Manager, Covington Water District

HDR

Esri IMGIS Conference
2025 Award Winner

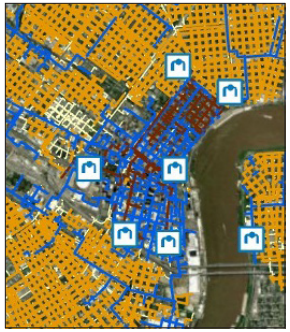
Over the years, the district's GIS evolved, supporting daily workflows and organizational goals. The most recent evolution was the implementation of ArcGIS Utility Network. In preparation, the district's GIS team began to research and learn as much as possible about ArcGIS Utility Network. Staff met with other utilities and took Esri trainings on ArcGIS Utility Network before developing a road map to complete the project. Staff needed help cleaning data errors and moving from their testing environment to an enterprise implementation of a fully functioning utility network. The district made the decision to hire HDR to support its utility network development while at the same time working side by side with staff to ensure knowledge transfer.

Once ArcGIS Utility Network was live, staff used it as a foundation for development of an outage solution tool. They also took advantage of branch versioning to support the creation of field-based as-built workflows. Implementing ArcGIS Utility Network has led to many benefits for the district, including better quality control for asset management, improved network analysis capabilities, and streamlined data management.

Learn more about HDR.

Read the full story

Migrating Gas Assets to ArcGIS Utility Network for Delta Utilities



Gas

Delta Utilities, a newly formed gas utility in Louisiana, partnered with Entergy to modernize the utility's operations by migrating legacy gas asset data from GE Smallworld to Esri's ArcGIS Utility Network. The goal was to create a unified system of record for asset management, network modeling, and field operations. Delta faced an aggressive timeline and significant challenges, including years of legacy data requiring validation and transformation.

Traditional migration methods risked delays, high costs, and operational disruptions. To overcome these hurdles, Delta implemented a next-generation solution using ArcGIS Utility Network, ArcGIS Pro, and EpochSync Pro. This approach automated complex data transformations, enforced connectivity rules, and ensured compliance with Esri's data model. The result was a rapid, accurate migration that delivered a connected, rules-based network. Field crews now access real-time data, eliminating paper workflows and reducing errors. Utility Network integrates seamlessly with OMS and enterprise resource planning (ERP) systems, providing cost savings and a future-ready foundation for Delta's gas operations.

"Leveraging EpochSync Pro and the Epoch UN Blueprint methodology, EpochSync Pro was instrumental in accelerating the conversion from the previous utility owner's legacy GE Smallworld GIS's ecosystem to [our deployment of] ArcGIS Utility Network. Its robust integration, automation, and synchronization capabilities streamlined the data migration process, reduced manual intervention, and ensured data integrity throughout. These tools enabled the team to meet an aggressive project timeline without compromising quality, making EpochSync Pro a highly efficient and reliable solution for this critical GIS transition."

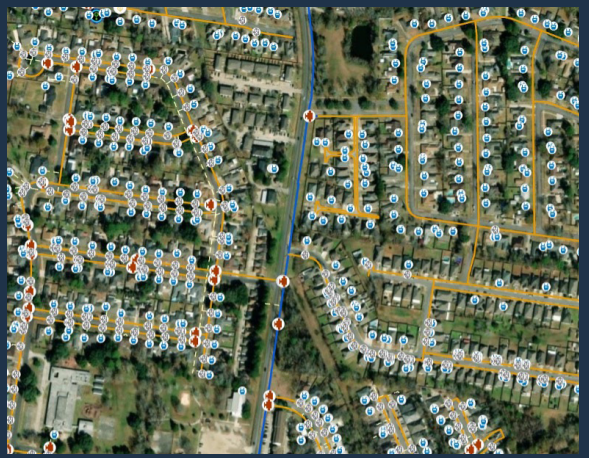
Mark Mitchell, GIS Director, Delta Utilities

epoch Solutions Group

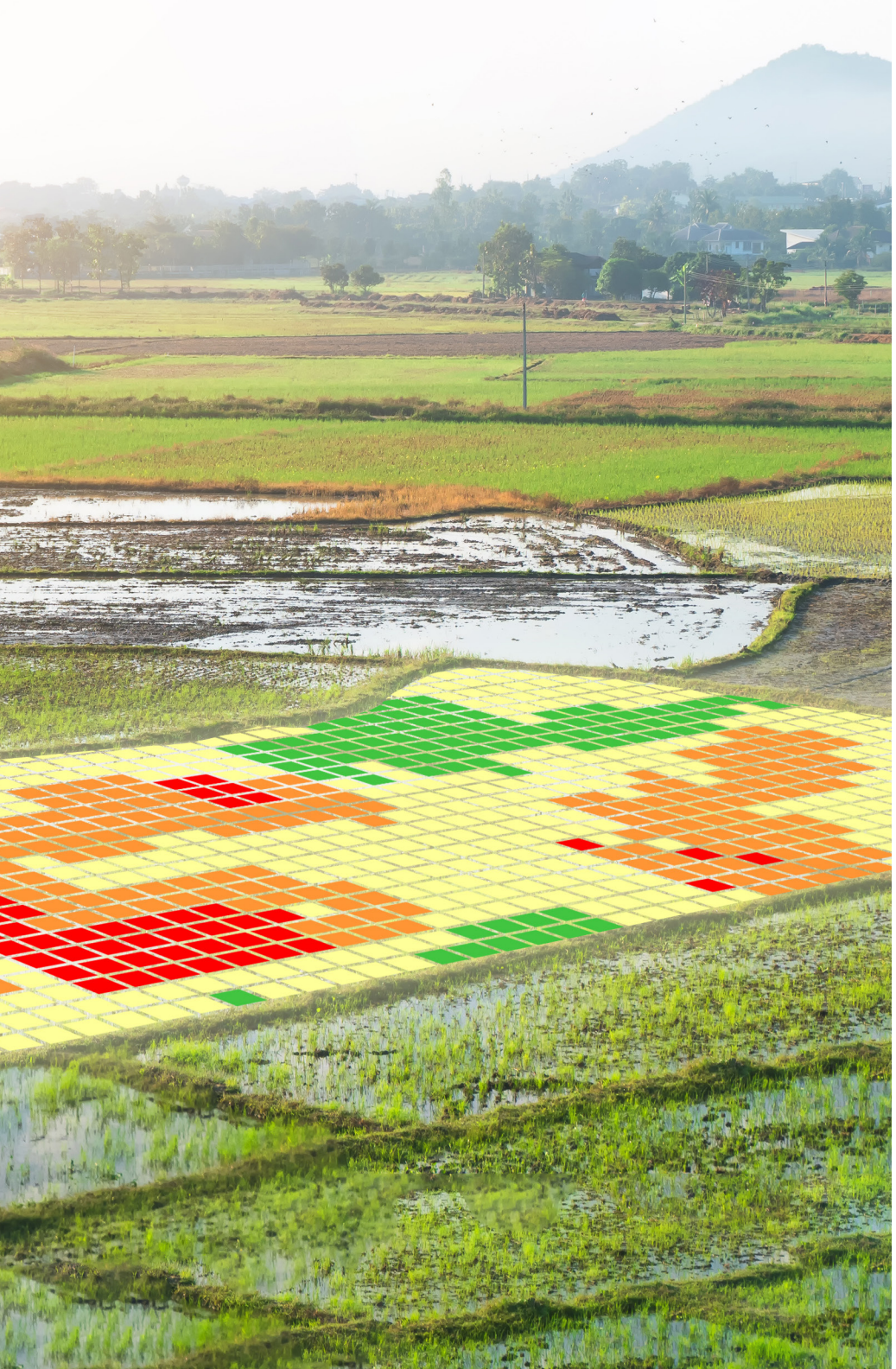
Esri IMGIS Conference 2025 Award Winner

Epoch Solutions Group, an Esri partner, led the migration using its specialized tool, EpochSync Pro. The solution automated the extraction, transformation, and loading of legacy assets; validated data integrity; and accelerated deployment. Epoch's expertise in Utility Network and field mobility ensured that Delta achieved its modernization goals quickly and confidently. Epoch continues to support Delta with managed services, enhancements, and best-practices guidance.

Learn more about Epoch Solutions Group.



Read the full story



Transforming Field Operations and Data Capture

Infrastructure organizations face mounting pressure to transform the way they do work, and to deliver more with fewer resources and less funding. ArcGIS is at the center of this transformation, providing a unified geospatial platform that connects field operations, network management, and other enterprise workflows.

ArcGIS revolutionizes field operations by replacing paper-based processes with fit-for-purpose, location-aware mobile applications. These applications enable high-accuracy data collection; rapid synchronization to asset updates, both online and offline; and seamlessly integrate with additional enterprise systems. Field crews gain real-time visibility and operational efficiency through routing, geofencing, and location tracking. Data flows bidirectionally and instantly from the field to the office.

ArcGIS is designed as a system of systems, bridging field operations systems with other enterprise systems. Its scalable architecture supports organizations of all sizes, offering cloud and on-premises deployment options for flexibility and security. Integration with other business systems streamlines workflows and drives digital delivery across all departments.

ArcGIS field applications provide not just a data mapping solution; they act as a strategic enabler of digital transformation. By unifying field data capture with network information management and other enterprise solutions, ArcGIS applications reduce information latency, improve data capture and safety, and optimize operations.

From Months to Moments: EWSU Cuts Turnaround Time and Improves Accuracy with Eos GNSS

Water

To modernize its network information management capabilities, Evansville Water and Sewer Utility (EWSU) decided to migrate to ArcGIS Pro and ArcGIS Utility Network. As EWSU transitioned its data, staff saw an opportunity to resolve widespread inaccuracies in existing asset locations. Inaccurately mapped clusters of infrastructure made it difficult to locate individual assets during maintenance tasks, annual inspections, and capital refresh projects. Remapping and rectifying the utility's asset data could provide a host of additional immediate benefits.

To enable high-accuracy location while collecting data, EWSU purchased real-time Global Navigation Satellite System (GNSS) receivers from Eos Positioning Systems. Eight Arrow Gold receivers with surveying range poles were distributed to field crews. For projects that needed only submeter accuracy, Arrow 100 GNSS receivers were used. By pairing the receivers with ArcGIS Field Maps, crews could instantly and accurately update asset locations during inspections.

"We've collected about 9,000 assets in as little as two years. And we can see those on the map in real time, including maintenance holes, system valves, service connections, and other infrastructure assets."

Ryan Key, GIS Manager, EWSU

Using dashboards created with ArcGIS Dashboards, staff in the office visualize and analyze data collected in the field. A GIS technician monitors these dashboards, responding to edit requests in real time. EWSU also built a custom ArcGIS Utility Network capability-based web application, U-Net, that enables teams to access information from GIS-related systems, such as an asset management system, a CCTV application, a customer service portal, and historical and as-built drawings, all on a map. Non-GIS teams use U-Net to view information geospatially. This expands GIS benefits to teams that are not GIS professionals.

EWSU's integration of ArcGIS and Eos Positioning Systems receivers has resulted in better accuracy and streamlined workflows, setting a new standard for the utility timelines.

Learn more about Eos Positioning Systems.

Read the full story

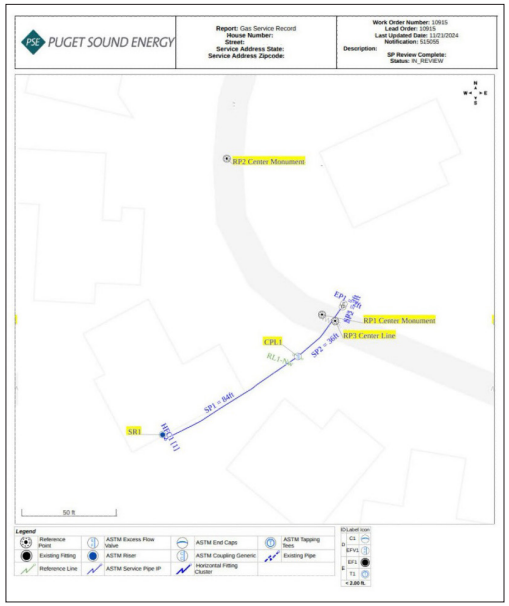
Puget Sound Energy Speeds Up Gas Asset Data Collection

Gas

Puget Sound Energy (PSE), Washington's largest and oldest gas and electric utility, serves 1.5 million customers and employs over 3,000 people. To address evolving regulatory requirements, including proposed Pipeline and Hazardous Materials Safety Administration (PHMSA) 49 CFR §192.3 standards for plastic pipe traceability, PSE needed to improve gas asset location accuracy and operational workflows. Traditional methods relied on handwritten notes and measurements from landmarks, which were prone to error and change over time. PSE implemented high-accuracy GPS data collection and digital as-built processes to meet stringent compliance standards. Leveraging ArcGIS Enterprise integrated with SAP, GE Smallworld, and OpenText, PSE created a comprehensive spatial analysis and data management solution. This solution dramatically reduced asset data processing time from 120 days to 24 hours, improved data integrity, and enhanced safety through better material tracking and traceability. The improvements streamlined job packet corrections, minimized document versioning, and supported informed planning, ensuring compliance and operational efficiency.

"The materials tracking and tractability project in partnership with Locusview has revolutionized the way we do business when it comes to asset tracking. It has given us near real-time visibility to our underground assets as well as increased confidence in the accuracy of our records. The intangibles are too much to quantify at this point. As we become more versed in the product, the benefits realization continues to increase exponentially."

Marc Raniero,
Manager of Gas First Response, Puget Sound Energy



LOCUSVIEW

Esri IMGIS Conference
2025 Award Winner

Locusview, an Esri partner specializing in digital construction management, tailored its preconfigured solution to PSE's needs. By integrating near real-time data with PSE's Esri database and GE Smallworld, Locusview enabled seamless workflows from planning to closeout. The platform delivered a high-fidelity digital twin, improved operational efficiency, and boosted productivity, helping PSE achieve compliance and modernize its gas operations.

Learn more about Locusview.

Read the full story

California Utility Maps Recycled Water System with High-Accuracy GNSS and GIS

Water

Based in Perris, California, Eastern Municipal Water District (EMWD) is the sixth-largest public water utility in the state. Its team of over 600 employees provides nearly one million accounts with water, wastewater, and recycled water services across 682 square miles.

A longtime Esri ArcGIS user, EMWD has established maps as a critical technology for managing resources, prioritizing asset management, communicating information, and streamlining operations. Recently, EMWD decided to upgrade legacy GNSS devices that required a time-intensive process of loading and unloading files before and after field work.

"The amount of processing work we would have to do has gone way down. We've streamlined it so much that it's kind of hard to believe."

James Lee, Water Operations Manager, EMWD

Esri IMGIS Conference 2025 Award Winner

EMWD transitioned to using Arrow Gold GNSS receivers from Eos Positioning Systems, taking advantage of their amazing technical support and integration with existing technologies, such as Esri apps, mobile devices, and a base station. The receivers provide an average one-centimeter horizontal accuracy in real time, which eliminated the need for postprocessing in the office.

The new receivers, paired with ArcGIS apps, have enabled staff to improve workflows across the organization. Field staff submit as-built information in near real time. Previously, the same task could take up to a year. The water operations group has remapped over 90 percent of EMWD's valves. EMWD is implementing GNNS and GPS workflows for water system and sewer system teams, and it plans to use the Eos Positioning Systems Skadi Smart Handle to perform short-distance offsets to map assets without having to enter a trench or road. In addition, collecting accurate elevation data will support creation of 3D underground maps.

The improvements to data accuracy have coincided with an even greater demand for geospatial data throughout the water district, playing an even bigger role in daily work of EMWD staff than ever before.

Learn more about Eos Positioning Systems.

Read the full story

The Strategic Backbone for Asset Management

Infrastructure organizations today face a dual challenge: maintaining aging assets while meeting the demands of modernization, sustainability, and resilience. Traditional asset management approaches often fall short because they lack the spatial intelligence needed to understand the full context of infrastructure networks. This is where the power of extending your asset management solutions with ArcGIS is essential. ArcGIS integrates data, optimizes workflows, and drives strategic decisions.

GIS enables organizations to visualize and analyze their entire asset portfolio in real time. By linking location data with operational and financial information, GIS provides a single source of truth for asset condition, performance, and risk. This spatial perspective is critical for prioritizing maintenance, planning capital investments, and ensuring compliance with regulatory standards. Instead of reactive repairs, organizations can adopt predictive and prescriptive strategies, reducing downtime and extending asset life cycles.

The business value of GIS lies in its ability to optimize resource allocation and improve decision-making. GIS transforms asset management from a tactical necessity into a strategic advantage. For utilities, transportation agencies, and AEC organizations, GIS supports everything from managing vegetation along transmission corridors to monitoring water pipelines for leaks. By integrating GIS with Internet of Things (IoT) sensors and SCADA systems, organizations gain real-time insights into asset health and operational efficiency. This convergence of technologies enables proactive maintenance, minimizes service disruptions, and enhances customer satisfaction.

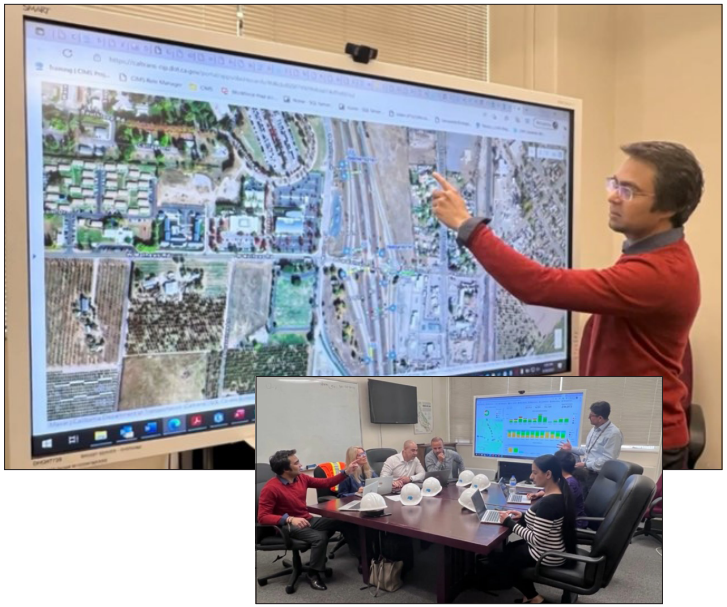
Modernizing the Caltrans Culvert Inspection Program

Transportation

Caltrans—responsible for managing over 50,000 miles of roadway across California—oversees more than 200,000 culverts, a critical asset for water flow beneath roads. Many culverts are over 50 years old, and failures can lead to costly repairs, traffic disruptions, and safety risks. Historically, culvert data was stored in nonspatial databases and inconsistent formats across 12 districts, leaving Caltrans reactive rather than proactive in maintenance. To modernize operations and to meet regulatory requirements ensuring that 90 percent of culverts are rated good or fair by 2027, Caltrans launched the Culvert Inspection Management Solution (CIMS). This initiative standardized statewide data models, migrated decades of legacy data, and created a centralized enterprise geodatabase as the authoritative system of record. Inspectors now use GIS-enabled tools to record, visualize, and analyze culvert conditions in real time, improving decision-making, reducing redundancies, and enabling proactive asset management. The modernization represents a cultural shift toward data-driven operations and sets a model for other transportation agencies.

"The commercial off-the-shelf enterprise GIS technology solution used in CIMS establishes a precedent for a sustainable technology approach that's easier to maintain, and it can also be repeated for a number of other business use cases across Caltrans."

Harold Feinberg,
GIS Implementation Manager, Caltrans



TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Timmons Group led the modernization of CIMS, designing the statewide data model, automating migration with ArcGIS Data Interoperability as well as FME, and building the enterprise system architecture. Timmons Group implemented ArcGIS Workforce, ArcGIS Field Maps, ArcGIS Survey123, ArcGIS Dashboards, and ArcGIS Pro for streamlined workflows, along with QA/QC processes and staff training. With decades of GIS expertise, Timmons Group delivered a scalable, future-ready solution tailored to Caltrans' needs.

Learn more about Timmons Group.

Read the full story

A Unified Approach to Asset Management: Transforming SCV Water's Management of Linear and Vertical Assets

Water

Santa Clarita Valley Water Agency (SCV Water) was formed by a merger of three retail water agencies and one wholesale agency. Staff faced a significant challenge following its formation, as each agency brought distinct practices for managing assets and infrastructure. These disparate approaches created a fragmented environment in which asset information was scattered across various systems and used different formats and processes.

SCV Water implemented Esri ArcGIS technology as a unified framework to manage linear assets, such as distribution and transmission networks, with the goal of streamlining processes and enhancing data integration. This included adopting Esri's ArcGIS Utility Network for linear asset management. It also presented an opportunity to extend the technology's capabilities to vertical assets. However, the project team soon realized that the stakeholders managing vertical assets differed significantly from the GIS experts typically responsible for linear assets, requiring a tailored approach to ensure successful implementation.

"The adoption of [Esri's] Utility Network has allowed us to not only streamline the management of our linear assets but also extend these powerful capabilities to vertical assets. With GEAR, our non-GIS staff can manage these assets without needing to know GIS. The integration of 3D visualization and drone-based reality capture gives us a truly comprehensive view of our facilities, helping transition and empower our next generation of water professionals."

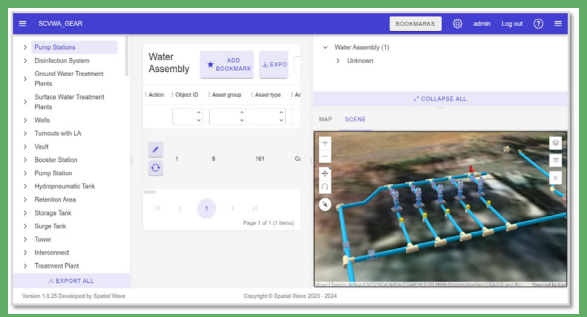
Cris Pérez,
Director of Technical Services, SCV Water

dcse

Esri IMGIS Conference 2025 Award Winner

To address this challenge, SCV Water partnered with DCSE Inc. to develop GEAR ("GIS-enabled asset registry"), a user-friendly solution tailored for non-GIS professionals. GEAR empowered asset managers with limited GIS expertise with an intuitive, web-based interface. Users can view, locate, and interact with assets across over 90 pump stations, more than 60 tank sites, and over 50 wells. The solution provides stakeholders with access to critical information, streamlining workflows and enhancing team collaboration while significantly improving operational efficiency.

Learn more about DCSE.



Read the full story

From Recollection to Precision: Alexander City's Tech Evolution in Sewer Management

Water

Alexander City's sewer network stretches over 150 miles through rolling terrain. Not that long ago, the city struggled with outdated methods, relying on staff's memory to find sewer line locations. This approach was far from efficient, especially considering the city's responsibility to Lake Martin, Alabama's largest treasure lake, where treated sewage discharges.

The city decided to use GPS to map its entire sewer system, creating a comprehensive Esri GIS map of buried assets. While this was a significant step in the right direction, the inspection data of the city's pipes was disorganized and full of inconsistencies and errors. After considering several options, Alexander City chose ITpipes to improve sewer management capabilities. ITpipes provides inspection solutions for water and wastewater utilities to help effectively collect, analyze, manage, and integrate inspection data in a fully integrated Esri solution.

"Our partnership with ITpipes and Esri has been a game changer. The enhanced data accuracy and accessibility have allowed us to implement effective maintenance strategies, leading to our proud reduction in sewer overflows and more efficient use of resources."

Danny Jo Pike,
CCTV Inspection Supervisor, Alexander City

The integration of ITpipes software with Esri's GIS technology has had a significant impact on the management of Alexander City's sewer system. Before the integration, the city experienced up to 100 overflows annually. With access to geospatial pipe-condition data, proactive maintenance strategies have been implemented, resulting in the number of overflows being reduced to single digits annually. Routine maintenance has become more efficient, allowing the city to comprehensively inspect its entire system every two years. This efficiency has enabled the city to prioritize sewer lining projects effectively, leveraging ITpipes data to inform annual lining contracts.

The successful partnership with ITpipes and Esri is a great example of how integrated solutions can bring a significant change in infrastructure asset management.

Learn more about ITpipes.

Read the full story

The Cornerstone of Regulatory Compliance

Infrastructure organizations operate in a complex environment where regulatory compliance is nonnegotiable. From environmental mandates and safety standards to reporting obligations and sustainability goals, the regulatory landscape is vast and ever-changing. Failure to comply can result in penalties, reputational damage, and operational disruptions. ArcGIS is a strategic enabler, transforming compliance from a reactive burden into a proactive, value-driven process.

At its core, ArcGIS provides a spatial framework that integrates asset data, operational workflows, and regulatory requirements into a unified system. This integration ensures that compliance activities, such as monitoring, reporting, and auditing, are accurate, timely, and transparent. For example, water utilities leverage GIS to track infrastructure conditions, monitor water quality, and generate reports that meet stringent regulatory standards. Similarly, electric and gas organizations use ArcGIS to manage right-of-way data and environmental impact assessments, ensuring adherence to federal and state guidelines.

The power of ArcGIS lies in its ability to automate compliance workflows. ArcGIS enables real-time monitoring of asset and work performance against regulatory benchmarks. Automated alerts and dashboards help organizations identify potential violations before they escalate, reducing risk and avoiding costly fines. Moreover, ArcGIS supports spatial analytics that reveal patterns and trends, enabling predictive compliance strategies rather than reactive fixes.

ArcGIS empowers infrastructure organizations to navigate complexity with confidence, ensuring that compliance efforts contribute to operational excellence and financial performance.

City of Plano, Texas, Inventories over 81,000 Water Service Lines to Meet LCRR Requirements and Inform Residents

Water

Plano, Texas, a fast-growing community near Dallas with nearly 300,000 residents and over 81,000 water service lines, faced a major challenge: meeting the Environmental Protection Agency's Lead and Copper Rule Revisions (LCRR) by October 2024. The rule requires water systems to inventory all service lines, public and private, detailing material, age, and location. For Plano, spreadsheets were impractical for such a massive task. Instead, the city leveraged Esri's ArcGIS to visualize water mains, meters, and service lines, enabling spatial analysis and efficient planning.

The public works asset management team, supported by GIS staff, built a comprehensive inventory using historical records, as-built drawings, and repair documentation. Ordinance verification and bulk editing tools helped populate material data quickly, while field crews verified unknown lines. This approach reduced unnecessary inspections and revealed that 92 percent of public lines and 50 percent of private lines contained no lead. The city published a public dataset for property owners and aimed for 100 percent material identification. ArcGIS was critical for mapping, layering data, and streamlining workflows, making an otherwise daunting project achievable.

> "OpenGov's Cartegraph Asset Management and the ArcGIS integration were crucial in our work to create a lead service line inventory. [The technology] lets us track historical records and repairs. It gives us information that allows us to go out and see trouble spots and how they correlate with the rest of our system. It's a game changer."
>
> Brendon Lockette,
> Asset Management Coordinator, City of Plano

OPENGOV

OpenGov, an Esri partner, provided its Cartegraph Asset Management platform, which integrates seamlessly with ArcGIS. This integration allowed Plano to combine GIS maps with asset data, track work history, and analyze conditions for high-performance reporting. Data entry was accelerated by bulk editing and historical task linking, while the platform's visualization tools supported strategic planning. Together, OpenGov and Esri delivered a game-changing solution that empowered Plano to meet federal requirements efficiently and continue providing safe drinking water to its residents.

Learn more about OpenGov.

Read the full story

Operating as One Company, Avangrid Standardizes Gas Leak Surveys

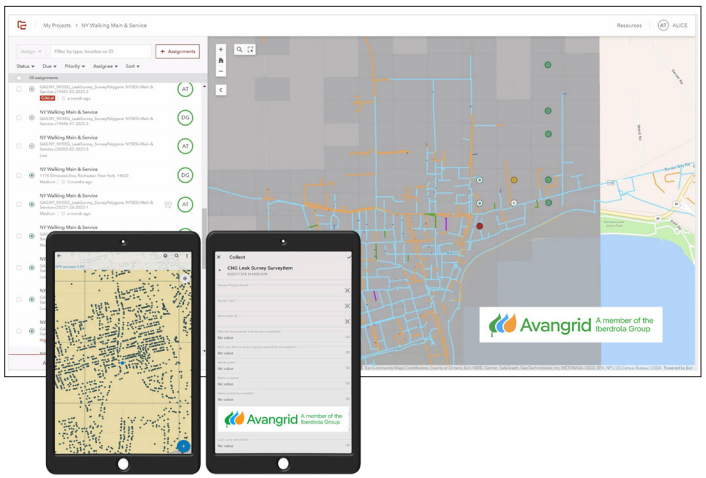
Gas

In January 2023, Avangrid, a leading sustainable energy company composed of eight electric and natural gas utilities in the Northeast US, launched Esri's Network Information Management solution at two natural gas operating companies. This marked the first step toward standardizing systems and processes across its organization, enabling the utilities to operate as one company. To meet growing regulatory compliance requirements, Avangrid developed a GIS-based natural gas leak survey solution using ArcGIS Workforce, ArcGIS Field Maps, and ArcGIS Dashboards. The digital workflows replaced paper-based processes, enabling time-stamped, spatially accurate records; granular reporting; and historical tracking.

The solution supports multiple state-specific programs and integrates with ArcGIS Utility Network and geometric network models. It streamlines scheduling, field data collection, GPS breadcrumb tracking, and real-time compliance monitoring. The system improves accuracy, efficiency, and regulatory reporting while providing insights for process improvement and capital planning.

"Having a mobile device and digitally enabled solution has been a big improvement for users over paper maps and forms and for the organization, [which] is required to maintain regulatory reporting standards."

Keith Anderson,
GIS Mapping and Records Supervisor, Avangrid



UDC™

UDC, an Esri partner, documented Avangrid's requirements, designed the solution architecture, and configured dashboards for compliance tracking and reporting. Leveraging Esri's out-of-the-box tools, UDC enabled remote work assignment, breadcrumb tracking, and streamlined data collection. As a GIS-centric systems integrator, UDC supports utilities throughout project life cycles, helping clients maximize ROI on enterprise digital investments.

Learn more about UDC.

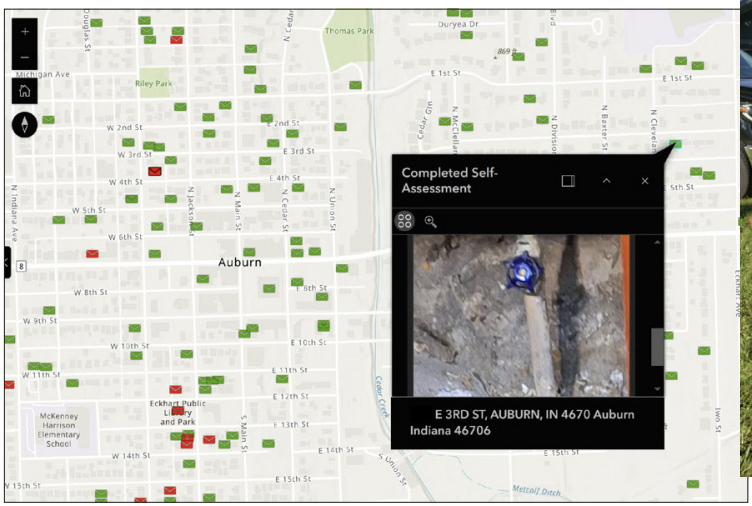
Read the full story

Building Transparency and Added Value into Lead Service Line Discovery for Indiana Communities

Water

Government mandates require public water system (PWS) departments to complete an inventory of water service line material, with the goal of removing all lead service lines and lead-tainted galvanized pipes. State and federal agencies expect PWS departments to continuously update and submit these inventories.

Funding through the Indiana Department of Environmental Management and the Indiana Finance Authority has provided PWS departments with needed support. In addition, Indiana designated third-party consultants and technology firms to help manage workflows for PWS departments. Abonmarche is consulting for many communities in Indiana, partnering with them to meet mandate requirements.



ABONMARCHE

Abonmarche partnered with the City of Knox to quickly configure a site created using ArcGIS Hub℠. The site, Lead-Safe Knox, provides residents an easy way to find service line information and understand the Lead-Safe Knox program's goals through self-education, reducing phone calls and emails to city staff.

The City of Auburn used Esri solutions to enable hundreds of residents to self-report service line information. The process developed into an inexpensive way to build resident support and compliance.

The Town of Hamilton needed support to identify service line material. A web application simplified, standardized, and expedited home visits. The app allowed for quick data entries in the field, resulting in each visit lasting about 10 minutes.

Hebron, Indiana, used system data to train a machine learning model that helped prioritize hydroexcavation sites. Online maps and mobile apps were used to track calls to 811 for locate requests, verify addresses, notify customers, capture service line material type, and confirm dig completion and restoration. ArcGIS Dashboards enabled town leaders to monitor progress in real time.

Learn more about Abonmarche.

Read the full story

Elevating Operations and Situational Awareness for Infrastructure Organizations

Infrastructure organizations operate in an environment where operational efficiency and situational awareness are critical to success. From managing complex networks to responding to emergencies, the ability to see, understand, and act on real-time information determines resilience and performance. ArcGIS has evolved the role that GIS plays far beyond its origins as a mapping tool; today, it serves as the operational nervous system that connects assets, people, and processes across the enterprise.

ArcGIS provides a unified spatial framework that integrates data from diverse sources—IoT sensors, SCADA systems, asset management platforms, and field applications—into a single, dynamic view. This integration enables organizations to monitor infrastructure health, track field crews, and visualize operational and project delivery workflows in real time. Instead of relying on fragmented systems and static reports, decision-makers gain a common operating picture that supports rapid, informed action. Whether it's optimizing maintenance schedules, managing outages, or coordinating emergency response, ArcGIS ensures that every decision is grounded in accurate, location-based intelligence.

By layering live telemetry data, environmental data, and asset information onto interactive maps and dashboards, organizations can anticipate risks and respond proactively. For example, utilities leverage GIS to model wildfire risk zones, monitor weather patterns, and plan Public Safety Power Shutoff (PSPS) events with precision. Transportation agencies use GIS to track traffic flows and manage incident response, while water utilities monitor pipeline integrity and detect leaks before they escalate. This real-time visibility enhances situational awareness, reduces downtime, improves safety, and builds public trust through transparent communication.

Roanoke County Deploys Smarter Waste Management with ArcGIS Experience Builder

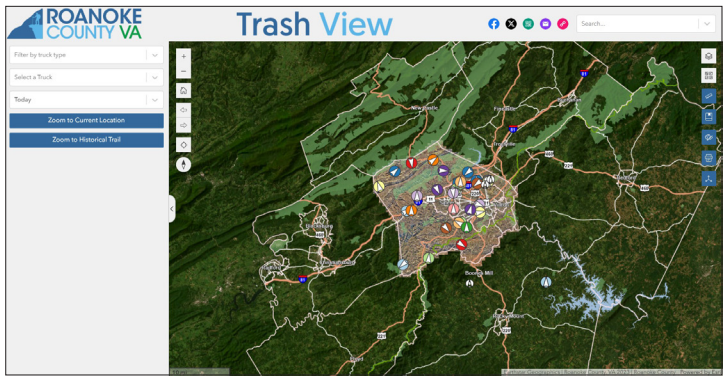
AEC

Roanoke County, Virginia, set out to modernize waste collection and improve operational efficiency. Legacy JavaScript GIS apps were becoming obsolete, creating security risks and limiting scalability. Without real-time data, the county faced challenges such as unclear maintenance needs, inefficient routes, and lack of visibility for residents. Breakdowns and high repair costs were common, and residents lacked timely service updates. To address these issues, Roanoke County partnered with NV5 to build TrashView, an ArcGIS Experience Builder solution that integrates IoT sensors, telematics, and predictive analytics.

The TrashView platform provides real-time truck tracking, monitors compaction cycles and robotic arm usage, and enables predictive maintenance. Virginia Tech students assisted with IoT sensor installation, enhancing data collection for mileage and route completion. The platform improves fleet efficiency, reduces fuel costs, and enhances customer engagement through transparent service updates. Scalable by design, TrashView positions Roanoke County for future smart city initiatives across departments like emergency response and transportation planning.

"Working with NV5 and Esri's Experience Builder, we were able to deliver a solution that integrates seamlessly with our operations, configured for Roanoke County's needs and scalable for what comes next."

David Wray,
GIS Manager, Roanoke County



NV5

NV5 partnered with Roanoke County to design and implement TrashView using Esri's ArcGIS Experience Builder. NV5 customized the solution to integrate IoT data, fleet telematics, and predictive analytics, enabling real-time tracking, preventive maintenance, and route optimization. The platform supports internal operations and customer engagement while laying the foundation for scalable, GIS-powered smart county solutions. NV5 helps governments modernize GIS and create data-driven strategies for efficiency and resilience.

Learn more about NV5.

Read the full story

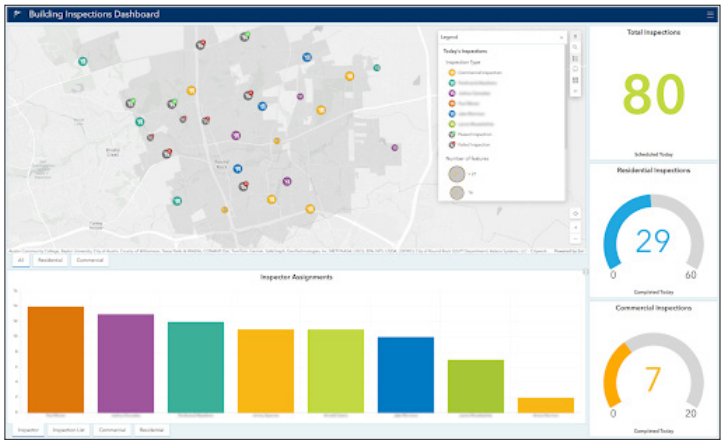
City of Round Rock Streamlines Permitting and Asset Life Cycle Management with GIS-centric Trimble Solutions

Water

The City of Round Rock, Texas, has earned multiple municipal excellence awards for public safety and public works. Despite these achievements, Round Rock faced challenges with its permitting system. City officials relied on an outdated, paper-based system that required applicants to visit the office in person to submit forms and payments. The city needed an online platform where residents could submit applications, schedule inspections, pay fees, and monitor progress. City staff wanted dashboards to provide instant assessments of building permits in the system. In addition, city personnel needed a way to streamline water meter installations without a third-party software integration.

"Our entire city has become more cohesive. I feel confident using Trimble and Esri solutions because they allow me, as well as city staff, to get information we need quickly. Having key information gives us confidence when we're going into a meeting with stakeholders and executives."

Nathan Smith,
Geospatial Services Manager, City of Round Rock



Trimble

Esri IMGIS Conference 2025 Award Winner

To accomplish these goals, the city adopted Trimble's Cityworks PLL and Esri's ArcGIS Utility Network. Cityworks PLL allows the municipality to process permit applications and contractor registrations digitally. This has significantly improved internal efficiency, resulting in a 16 percent decrease in plan review processing time and a 58 percent decrease in inspection completion time. Contractors and residents now schedule inspections through the self-service Permit Portal, ensuring timely coordination and faster project progress.

The city uses Cityworks PLL and ArcGIS Utility Network to manage utility and telecommunications infrastructure. When a new water meter is entered into GIS, it must conform to predetermined rules from the Utility Network system. "There's a specific model that the meter must adhere to," said Nathan Smith, geospatial services manager. "Using Utility Network in conjunction with Cityworks is extremely powerful." The integration has resulted in a 54 percent decrease in the time required to install a water meter after a permit is issued. What used to take up to four days now takes just under two days.

Learn more about Trimble.

Read the full story

WCID No. 17 Improves Operational Efficiency and Data-Driven Decisions for a Growing Water District

Water

Travis County Water Control and Improvement District (WCID) No. 17, located near Austin, Texas, faced two major challenges in 2020: a global pandemic and outdated preventive maintenance software that couldn't meet the district's growing needs. The district wanted a modern system to document, report, and visualize maintenance activities on a map, supporting preventive maintenance planning, life cycle management, and budgeting. Leveraging its ArcGIS Enterprise investment, the district centralized its asset inventory and data collection workflows using ArcGIS Field Maps.

"The implementation and combining of Elements XS and ArcGIS has allowed us the ability to establish various metrics that help us operate more efficiently. WCID No. 17 can better track the servicing of equipment and status of work orders. We are able to staff more effectively, which increases production, efficiency, and ultimately improves our bottom line, resulting in a more proficient organization, a satisfied customer base, and happier employees."

Joseph Kunz, Operations Manager, Travis County Water Control and Improvement District No. 17

NOVOTX

After evaluating multiple vendors, the district selected Novotx's Elements XS for its seamless GIS integration and advanced maintenance features. Within six months, the district achieved a 15 percent increase in equipment uptime, faster turnaround for servicing, and quicker resolution of service requests. The integration of ArcGIS Field Maps with Elements XS enabled real-time field data collection, streamlined work order creation, and improved tracking of asset issues. These efficiencies allowed the district to optimize staffing, forecast costs, and enhance customer service, creating a more productive, data-driven organization.

Novotx's Elements XS is a GIS-centric asset management platform designed for utilities and local governments. Its real-time integration with Esri's ArcGIS eliminates data synchronization challenges and provides a unified interface for asset visualization, maintenance scheduling, and operational analytics. By combining ArcGIS Enterprise technology with Elements XS, WCID No. 17 gained powerful tools to manage preventive maintenance, track performance metrics, and improve decision-making. This partnership delivered a modern, scalable solution that transformed WCID No. 17's workflows and set a new standard for efficiency and customer satisfaction.

Learn more about Novotx.

Read the full story

Driving Resilience in Damage Assessment and Emergency Response

Infrastructure organizations face immense pressure when disaster strikes. Whether the challenge is a natural hazard like floods, wildfires, or hurricanes, or an unplanned asset failure such as a pipeline rupture or power outage, the ability to assess damage and respond swiftly is critical to protecting lives, assets, and business continuity. ArcGIS has become mission critical in transforming emergency response from a reactive scramble into a coordinated, data-driven response plan.

ArcGIS provides the spatial intelligence needed to understand the full scope of an event, creating a dynamic operational picture that guides decision-making. Emergency managers can visualize impacted areas, identify vulnerable assets, and prioritize response efforts based on severity and accessibility. This capability ensures that resources are deployed where they are needed most, reducing downtime and mitigating risk.

Damage assessment is one of the most challenging aspects of disaster recovery, and GIS streamlines this process. Mobile GIS applications enable field teams to capture high-accuracy data on damaged infrastructure, even in disconnected environments. Photos, condition reports, and geotagged observations flow seamlessly into centralized systems, providing decision-makers with immediate insights. This accelerates repair planning, supports insurance claims, and ensures compliance with regulatory reporting requirements, all while reducing manual errors and delays.

ArcGIS plays a vital role in communicating with the public during emergencies. Outage maps powered by GIS provide customers with real-time visibility into service disruptions, estimated restoration times, and safety alerts. These interactive maps can be accessed via web portals or mobile apps, reducing call center volumes and improving customer experience. By delivering clear, location-specific information, organizations not only keep communities informed but also strengthen trust and demonstrate accountability during critical events.

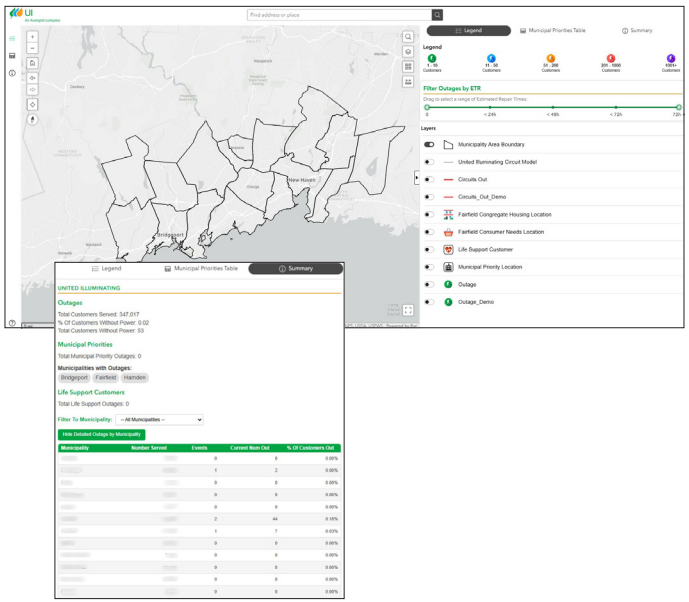
The United Illuminating Company Enhances Critical Outage Response with Real-Time GIS Dashboards

Electric

The United Illuminating Company (UI), an Avangrid subsidiary, deployed a modern, cost-effective municipal outage dashboard built on Esri technology to provide towns and cities with real-time, spatially enabled outage information. The solution needed to be secure, publicly accessible, and intuitive for nontechnical municipal coordinators. UI faced challenges including building a reliable data pipeline from Avangrid processes, upgrading ArcGIS Enterprise for ArcGIS Experience Builder, and resolving complex security and connectivity issues such as SSL certification and OAuth errors.

"RAMTeCH's outage dashboard has transformed how UI shares and manages outage information, giving municipalities and the public a reliable, continuously updated GIS viewer. Its purpose-built tools reduce manual coordination, improve transparency, and provide a scalable platform that strengthens communication and supports future innovation."

George Porto,
Senior Manager, IT GIS Applications at Avangrid



RAMTeCH

UI partnered with RAMTeCH to implement a cloud-hosted GIS solution that streamlined outage data into a secure Amazon Web Services (AWS) environment and modernized UI's ArcGIS Enterprise platform. The solution's dashboard delivers near real-time updates every 10 minutes, outage summaries by municipality, repair time filters, and priority views—all through an interactive, mapcentric interface. This solution enhances transparency; improves communication; and supports faster, data-driven decisions during service disruptions, while providing a scalable foundation for future enhancements.

RAMTeCH designed, built, and hosted UI's ArcGIS technology-based outage dashboard, leveraging Avangrid's Esri licensing and RAMTeCH's AWS infrastructure to minimize IT overhead. RAMTeCH configured secure environments; managed ArcGIS Enterprise; implemented extract, transform, and load (ETL) processes for automated data updates; and developed custom widgets in Experience Builder. Through requirements workshops, testing, and a train-the-trainer program, RAMTeCH ensured a smooth go-live transition and continues to provide ongoing maintenance via subscription services.

Learn more about RAMTeCH.

Read the full story

Faster Fixes, Smart Apps: NES Transforms Storm Damage Workflow

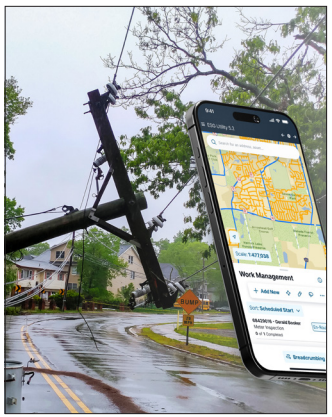
Electric

Nashville Electric Service (NES), one of the largest public electric utilities in the US, serves nearly 460,000 customers across 700 square miles in Middle Tennessee. With storms becoming more frequent and severe, NES faced major challenges in assessing and tracking storm damage. Disparate data sources led to redundant field checks, slow restoration, and inefficiencies in Federal Emergency Management Agency (FEMA) cost recovery. A single storm could require days of assessment and countless hours of reconciling data across departments.

NES needed a unified system of record to improve visibility, coordination, and speed. By expanding its ArcGIS ecosystem and integrating EpochField Work Management, NES centralized storm damage data, streamlined field workflows, and enabled faster crew deployment. Mobile GIS apps allow assessors to trace circuits, collect structured data, and attach georeferenced photos, even offline during major storms. Live dashboards—created using ArcGIS Dashboards—provide real-time visibility for operations teams to monitor progress, prioritize repairs, and dynamically reassign crews. This approach reduced preparation time, improved prestorm planning, and eliminated redundant checks, significantly enhancing efficiency and resilience.

"We're no longer wasting time reconciling spreadsheets or rechecking the same circuit. Everyone's working off the same map. The integration of ArcGIS with EpochField allows us to organize resources efficiently, track progress in the office and the field, deploy crews faster, inventory repaired equipment more accurately with less effort, and supply all our field users with our GIS maps. Now, we can all be on the same page during and after a storm."

John Savary, Technical Lead, NES

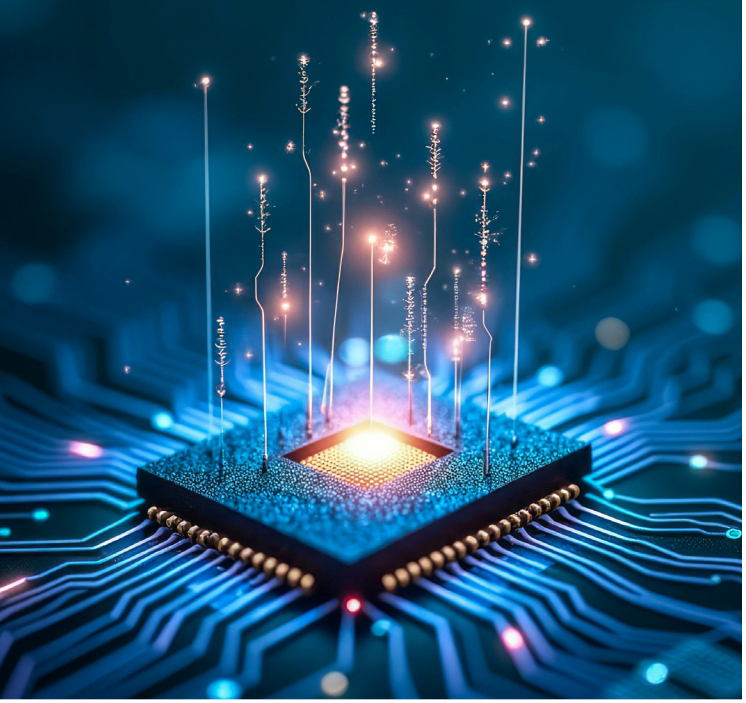


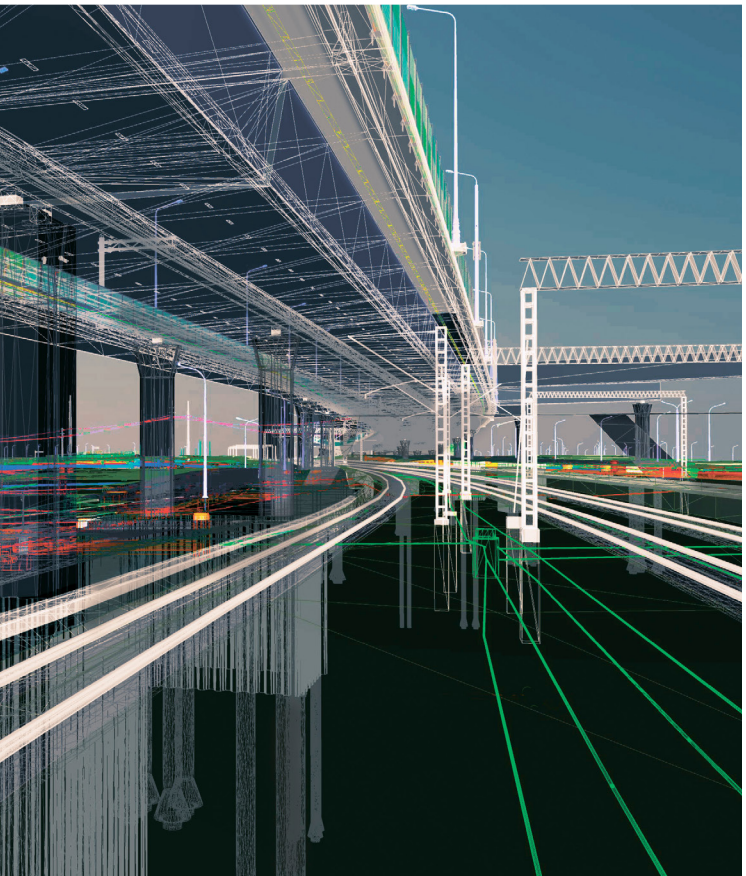
epoch Solutions Group

Epoch Solutions Group partnered with NES to implement EpochField, a mobile workforce management solution that is purpose built for utilities. EpochField integrates seamlessly with ArcGIS, enabling digital field operations at scale. With Epoch Solutions Group's technical expertise, NES aligned mobile and web mapping workflows with its GIS architecture, ensuring efficient data capture and connectivity. Epoch Solutions Group helps utilities modernize field operations; improve response times; and connect people, systems, and data for smarter decision-making.

Learn more about Epoch Solutions Group.

Read the full story





Modern Network Information Management: Unlocking Business Value with Enhanced Workflows

Modern utilities are moving beyond legacy GIS technology to the modern network information management enabled through ArcGIS Utility Network because it doesn't just update technology, it expands what an organization can do. Once migrated, utilities gain a high-fidelity network information model that becomes the operational nerve center for planning, engineering, field operations, and customer service. The enhanced business value starts with richer, rules-driven network data and extends to faster decisions, safer operations, lower cost to serve, and stronger regulatory posture.

At the core is a next-generation network information model designed for today's grids, pipelines, and fiber networks. Organizations can represent complex connectivity explicitly; manage nonspatial objects; separate structural networks; and use containment and associations to express how components relate and behave, without the brittle customizations common in older systems. This fidelity translates into fewer work-arounds, simpler integrations, and a lower total cost of ownership.

The migration streamlines workflows and enhances analytics that are situationally aware and business ready. Planners and operators can trace upstream or downstream impacts, isolate faults, and simulate switching or valve operations with confidence, because the model enforces connectivity and attribute rules before analysis runs. That shift, from ad hoc mapping to validated network analytics, supports reliability engineering, outage management, and safety procedures, helping teams shorten restorations and improve KPIs for SAIDI/SAIFI, leaks, and service levels.

These modern network information management capabilities let utilities run their network as a platform. Now, they can stand up digital twins that combine validated topology with sensor data and visualize simulations; use advanced tracing in planning, design, and operations; and expose secure services to partners and customers where appropriate. In practical terms, that means faster emergency response, smarter inspections, more precise data integrity governance, and better customer communication during outages or planned work, all driven by the same authoritative network model.

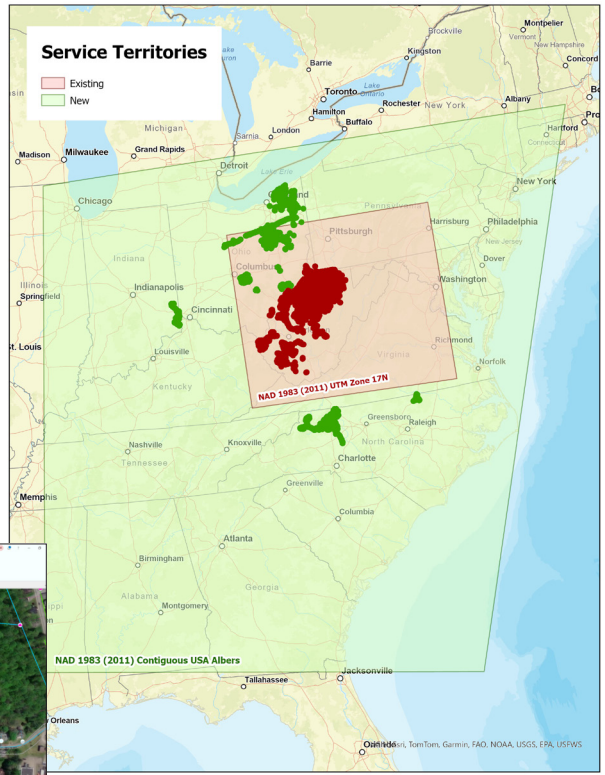
Hope Gas Expands Its Utility Network GIS for Service Growth

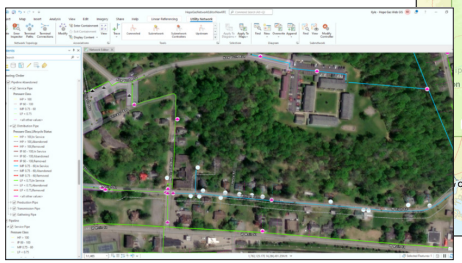
Gas

Hope Utilities sought to integrate its newly acquired service areas—served by Northeast Ohio Natural Gas Corp., Sycamore Gas, and Frontier Natural Gas—into its existing Esri ArcGIS Enterprise geodatabase. The goal was to consolidate all territories into a single GIS platform and deploy mobile GIS solutions for field crews. Challenges included incompatible spatial references, outdated schemas, and offline access limited to West Virginia. Expansion into North Carolina, Ohio, and Indiana required a new SAP HANA Enterprise geodatabase, standardized spatial references, and updated data models to support future growth. Hope also needed mobile GIS access for new crews.

"By unifying all six service areas into one Esri ArcGIS Enterprise geodatabase, Hope has reduced duplication, cut maintenance costs, and improved data consistency. Our field crews now operate more efficiently with RAMTeCH's gMobile offline access, enabling faster, more efficient operations across all territories."

Nagy Nagiub, Vice President of Corporate Services, Hope Utilities





RAMTeCH

RAMTeCH delivered a comprehensive solution that unified six service areas into one Esri ArcGIS Enterprise geodatabase, enabling centralized GIS data maintenance through ArcGIS Pro and ArcGIS Utility Network tools. Field crews now use gMobile for Windows and iOS for offline access to mission-critical data, ensuring uninterrupted operations across all territories. The consolidated system improves data accuracy, streamlines workflows, and provides a scalable foundation for future acquisitions.

RAMTeCH partnered with Hope to design and implement data model updates, migrate the existing West Virginia Utility Network, and integrate new assets using uNet data migration tools. RAMTeCH deployed gMobile for iOS alongside the existing Windows solution, enabling offline field access for all crews. Specializing in GIS integration and Utility Network implementations, RAMTeCH delivered centralized workflows, improved efficiency, and a scalable system for continued growth.

Learn more about RAMTeCh Software Solutions, Inc.

Read the full story

Pioneering Grid Modernization with ArcGIS Utility Network

Electric

Duquesne Light Company (DLC), a leader in grid modernization, set out to improve operational efficiency, data quality, and scalability while supporting a growing customer base. Legacy systems created challenges in integrating critical platforms like OMS, ADMS, AMI, and distribution planning applications. DLC needed a modern network management solution to ensure real-time data exchange, enhance field workflows, and maintain high data accuracy.

"[ArcGIS] Utility Network and ArcFM have significantly enhanced our operational capabilities. The seamless connectivity and data accuracy provided by these solutions are instrumental in maintaining the reliability and efficiency of our electrical infrastructure. This is a crucial step forward in our commitment to providing safe, reliable, and affordable services to our customers."

Alan Hope, ADMS Program Manager,
Duquesne Light Company

Schneider Electric

By implementing Esri's ArcGIS Utility Network and Schneider Electric's ArcFM Solution Series, DLC established a robust connectivity model that streamlined communication across systems. ArcFM Feeder Services enabled standardized data exchange, while ArcFM Editor and ArcFM Mobile improved asset management and field operations. The results have been transformative: 99 percent data accuracy in meter-to-transformer relationships, over 97 percent of meters connected, and digitized workflows that boost productivity and situational awareness. DLC now operates with greater efficiency, faster response times, and improved organizational alignment for GIS initiatives.

Schneider Electric partnered with DLC to implement the ArcFM Solution Series, delivering a comprehensive suite of utility-specific GIS applications. These tools bridge gaps between siloed data and disconnected workflows, ensuring accurate network modeling and seamless integration with critical systems. Schneider Electric's expertise enabled DLC to fully digitize GIS processes, optimize data sharing, and support its long-term grid modernization strategy.

Learn more about Schneider Electric.

Read the full story

TVWD Boosts Capital Planning with Utility Network Tracing

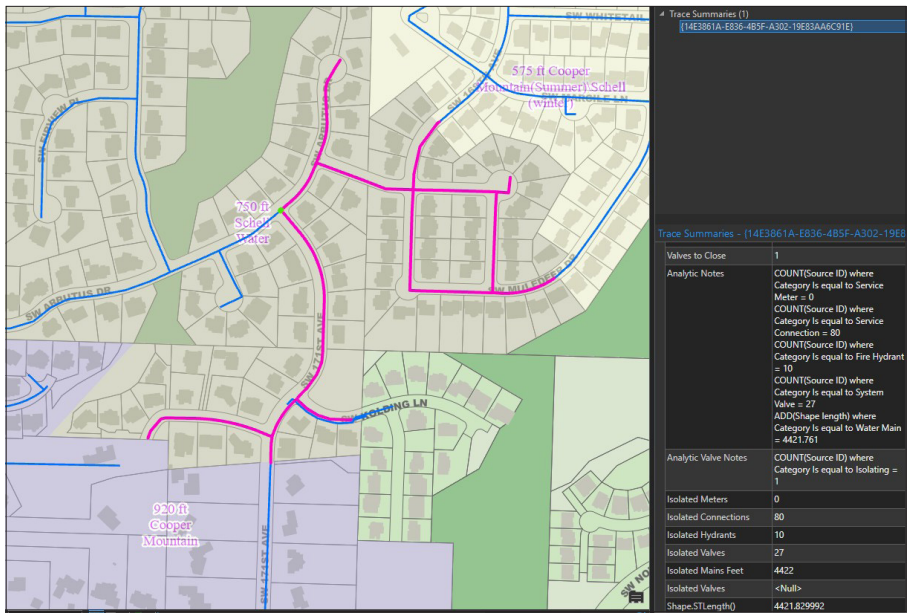
AEC

Tualatin Valley Water District (TVWD)—serving over 222,000 Oregon residents in Washington County and the cities of Beaverton, Hillsboro, and Tigard—sought more than modernization; it aimed for optimization. TVWD needed smarter tools to evaluate its water system, prioritize capital projects, and strengthen resilience. While its GIS enabled accurate valve mapping, it couldn't reveal vulnerabilities like single-supply areas or complex shutdowns. An incident requiring nearly a mile of main to be shut down, impacting 800 customers, underscored the need for change.

Through the Esri Advantage Program, TVWD launched its ArcGIS Utility Network journey, focusing on identifying dead ends, reducing negative impact on customers, and improving emergency preparedness. Today, automated traces highlight outage risks, guide capital improvements, and allow what-if simulations, enabling TVWD to make data-driven decisions that enhance reliability and customer service.

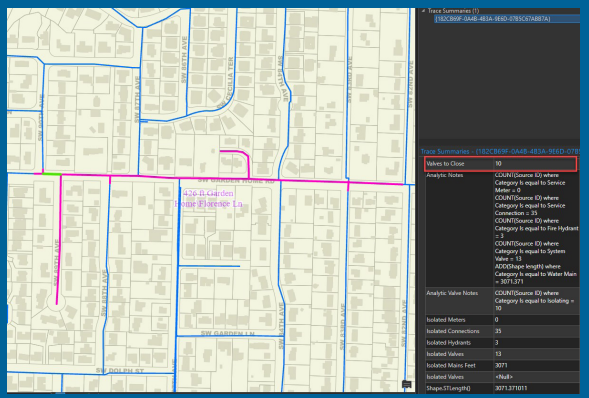
"We didn't want to just modernize our GIS. We wanted a platform that could drive smarter decision-making and help us proactively manage risk across our system."

Matt Oglesby,
Asset Management Division Manager, TVWD

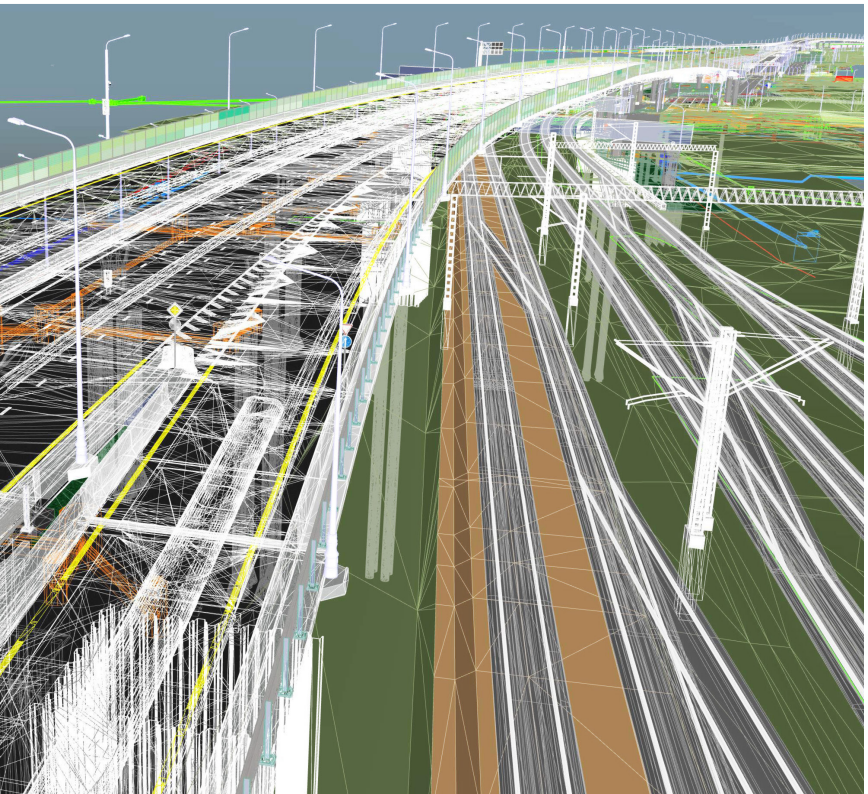


NV5 partnered with TVWD to implement ArcGIS Utility Network and extend its capabilities with custom trace tools. NV5 developed the Valve Impact Trace and Customer/Asset Impact Trace, which calculate isolation requirements and summarize outage impacts. These automated, repeatable tools are now integrated into TVWD's workflows, supporting planning, operations, and resilience. NV5 helps utilities and agencies modernize GIS and optimize systems for long-term success.

Learn more about NV5.



Read the full story



GIS-Driven Digital Twins

GIS-driven digital twins have emerged as a transformative solution, offering virtual representations of physical assets, processes, and environments and enabling real-time monitoring, predictive analytics, and scenario modeling. At the heart of this innovation is ArcGIS, providing the spatial intelligence and integration capabilities required to make digital twins actionable and achievable.

ArcGIS enables digital twins to go beyond static 3D models, embedding location as the organizing principle. This spatial context connects disparate data sources—CAD, BIM, IoT sensors, SCADA systems, imagery, and lidar—into a unified framework. By doing so, organizations gain a holistic view of their assets and networks, not just as isolated components but also as interconnected systems within their natural and built environments. This integration is critical for understanding relationships, dependencies, and risks, which traditional models often overlook.

The business value of GIS-driven digital twins lies in their ability to improve decision-making and operational efficiency. With ArcGIS, organizations can monitor asset performance in real time, simulate future scenarios, and automate workflows that reduce downtime and optimize resource allocation. For example, utilities can model outage impacts and restoration strategies, transportation agencies can test traffic rerouting plans, and cities can evaluate climate resilience measures, all within a dynamic, spatially accurate environment. These capabilities translate into measurable benefits: lower operational costs, enhanced safety, improved regulatory compliance, and accelerated project delivery.

ArcGIS also supports the full life cycle of infrastructure management, from planning and design to construction, operations, and maintenance. Digital twins built on ArcGIS allow stakeholders to collaborate through interactive dashboards and immersive experiences, whether on desktop, web, or mobile platforms. This transparency fosters alignment across departments and external partners, reducing data silos and enabling faster, more informed decisions. Moreover, by integrating predictive analytics and AI, ArcGIS technology-powered digital twins help organizations anticipate failures, optimize maintenance schedules, and extend asset lifespans, shifting from reactive to proactive management.

Pennichuck Water Works Expands Its Digital Transformation with 3D Digital Twins

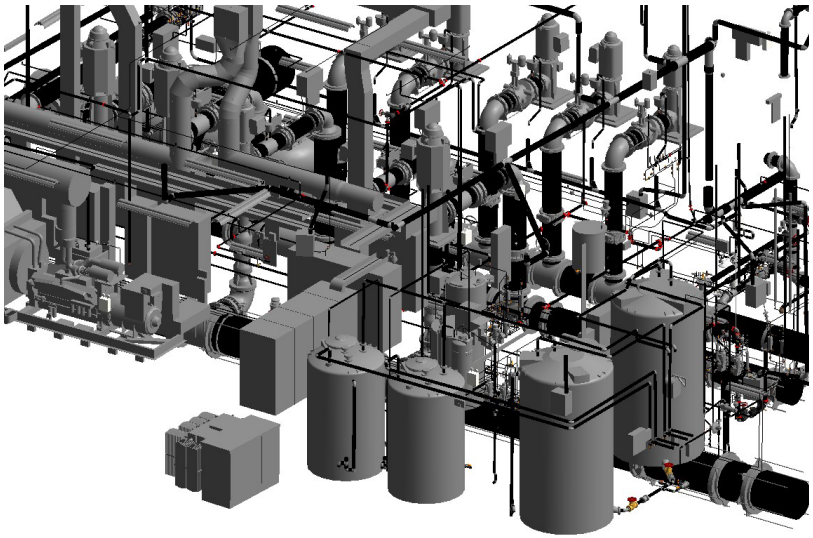
Water

Pennichuck Water Works uses ArcGIS Utility Network and map-based workflows that seamlessly connect asset management and operations. This has been a powerful solution for managing Pennichuck's distribution network and is the foundation for expanding GIS into facilities.

Facilities such as pump stations and treatment plants used to be represented mostly as points on a map. These facilities contain layers of complexity within a single location, with multiple assets working together. Staff relied on operator expertise and systems with limited visibility into this environment. Integrating facilities into the GIS environment would provide staff with a unified view of all assets and enable the same clarity in the field and inside a plant.

"This project is the natural next step in our modernization journey. By bringing our facilities into the GIS environment, we're unlocking a new level of visibility and connectedness across our operations."

John Boisvert,
CEO, Pennichuck Water Works



LandTech Consultants

To bring this vision to life, Pennichuck partnered with LandTech Consultants, taking advantage of the firm's deep experience in reality capture, 3D modeling, and GIS-based digital twin development. A pilot project was launched to explore the role of digital twins in facilities management. The effort focused on three key sites: a pump station, a booster station, and the finish water pumping station at the main treatment plant. The workflow followed a structured but adaptable path: Phase 1–Scan, Phase 2–Model, Phase 3–GIS Conversion, Phase 4–App Configuration, and Phase 5–System Integration.

Seeing familiar facilities in realistic 3D detail was exciting, but what truly resonated was the usability. Staff valued being able to see multiple systems in one spatial view. The project has reinforced GIS as a core enterprise system, serving not just as a mapping tool but also as a unifying framework that connects people, data, and operations.

Learn more about LandTech.

Read the full story

Advancing the Digital Twin Journey with Esri Technology

AEC

The City of Altamonte Springs, Florida, partnered with England-Thims & Miller (ETM) to launch an innovative digital twin initiative that transforms how the city visualizes, manages, and plans its infrastructure. Traditional tools had limited situational awareness and made it difficult to anticipate structural or environmental challenges.

To address this, the city sought a solution that could deliver immersive visualization, integrate real-time data, and support proactive planning. ETM deployed a cutting-edge digital twin platform using Esri's ArcGIS Reality, Site Scan for ArcGIS, ArcGIS Online, and ArcGIS Enterprise to create a high-quality 3D mesh and interactive environment. This platform goes beyond static models by incorporating sensor data and scenario planning, enabling officials to model outcomes, anticipate risks, and make data-driven decisions. The result is improved resiliency, smarter governance, and enhanced community benefits through better infrastructure planning and environmental management.

"This project was about more than building a 2D or 3D model; it was about giving the City of Altamonte Springs a living, breathing digital twin that can grow with their needs. We wanted to create a platform that empowers leaders to make smarter, more resilient decisions for their community."

Daniel Johns, GISP,
Director of Geospatial Technologies

ETM
ENGLAND-THIMS & MILLER

ETM, an Esri partner, designed and implemented the digital twin solution, leveraging the ETM Geospatial Technologies Group's expertise in GIS, remote sensing, and 3D modeling. By integrating Esri's advanced tools with real-time data and interactive capabilities, ETM delivered a scalable platform that supports visualization, analysis, and decision-making. ETM's client-focused approach and technical innovation help communities like Altamonte Springs embrace smart governance and long-term resilience.

Learn more about England-Thims & Miller, Inc.

Read the full story

Conclusion

Esri has collaborated with infrastructure customers and partners for years to create and develop software that meets evolving needs. Esri's mission is clear: to empower infrastructure organizations to thrive in an era of rapid change and increasing complexity. Success in this landscape requires more than technology—it demands a robust ecosystem of expertise, innovation, and collaboration. That is why Esri pairs its industry-leading ArcGIS platform with an extensive global partner network, ensuring that customers have access to specialized solutions, implementation support, and domain-specific knowledge to help accelerate digital transformation.

Esri delivers more than GIS capabilities; we provide a foundation for operational excellence, resilience, and sustainable growth. Our partners bring deep industry experience and complementary technologies that extend the value of ArcGIS. Together, we help organizations modernize infrastructure management; enhance situational awareness; and unlock new efficiencies across planning, design, delivery, operations, and maintenance.

Thanks to Our Partners

Esri thanks our valuable partners for their contribution to Esri customer success. Maximize your ArcGIS platform's potential by partnering with these Esri experts. They provide customized, specialized services like system integration, data migration, application development, and training. Leveraging their expertise accelerates your technology implementations and returns on investment. Esri partners offer guidance and innovative solutions, fostering collaboration for successful geospatial initiatives. Choose Esri partners to unlock your ArcGIS capabilities fully.

About Esri

Esri, the global market leader in geographic information system (GIS) software, location intelligence, and mapping, helps customers unlock the full potential of data to improve operational and business results. Founded in 1969 in Redlands, California, USA, Esri software is deployed in more than 350,000 organizations globally and in over 200,000 institutions in the Americas, Asia and the Pacific, Europe, Africa, and the Middle East. Esri has partners and local distributors in over 100 countries on six continents, including Fortune 500 companies, government agencies, nonprofits, and universities. With its pioneering commitment to geospatial information technology, Esri engineers the most innovative solutions for digital transformation, the Internet of Things (IoT), and advanced analytics.

Visit us at esri.com.

Contact Esri

380 New York Street
Redlands, California 92373-8100 USA

1 800 447 9778
T 909 793 2853
F 909 793 5953
info@esri.com
esri.com/locations

Offices worldwide
esri.com/locations

Please Take This Survey

Read More of Our Partner Customer Success Stories

Visit the Infrastructure Management Page

G7944350