1898 & CO.
PART OF BURNS McDONNELL

PROPOSAL FOR

ESRI UTILITY NETWORK DESIGN SERVICES

#25-21

SUBMITTED TO

GREENVILLE UTILITIES COMMISSION

May 13, 2025

May 13, 2025

Cleve Haddock
Procurement Manager
Greenville Utilities Commission
401 S. Greene St.
Greenville, NC 27834

Re: Esri Utility Network Design Services #25-21

Dear Mr. Haddock and Members of the Evaluation Committee:

1898 & Co., a part of Burns & McDonnell North Carolina, Inc., is pleased to submit this proposal in response to RFP 25-21 for Esri Utility Network Design Services. We appreciate the opportunity to strengthen our relationship with Greenville Utilities Commission (GUC), where we have previously supported your team through utility rate consulting services, and we are excited for the opportunity to assist with your GIS transformation.

Our team offers a structured, milestone-driven approach to Utility Network planning, informed by direct experience delivering similar projects for both electric and gas utilities across the country, including:

- Denton Municipal Electric (TX): Technical advisor for Utility Network implementation, including utility network planning and system architecture
- Gainesville Regional Utilities (FL): Enterprise GIS and Utility Network roadmap development for both Electric and Gas domains
- FirstEnergy (OH): Transmission Utility Network planning and implementation

We are proud to be a Schneider Electric EcoXpert Partner, a Trimble Gold Partner, and an Esri Gold Partner with the Utility Network Management Specialty. Our team brings a deep understanding of Esri's evolving technology stack, enterprise system integration, and the critical business processes that depend on accurate, connected geospatial data. Thank you for the opportunity to support GUC in planning a future ready GIS environment. Please contact Ben Stafford with any questions: ben.stafford@1898andco.com | 816-823-6253 | 9400 Ward Parkway, Kansas City, Missouri, 64114.

Sincerely,

Brian Hiller
1898 & Co. Director Geospatial Solutions

Ben Stafford
Project Delivery Director Geospatial Solutions

Contents

Executive Summary

As utility networks shift to meet new demands, modernization is no longer optional, it's strategic. Greenville Utilities Commission's initiative to move from the ESRI ArcGIS Geometric Network (GN) to the Utility Network (UN) reflects a forward-looking investment in operational agility, data transparency, and long-term performance.

Our Value To You

- Strategic modernization
- Purpose-built delivery
- Proven performance

At 1898 & Co., a part of Burns & McDonnell North Carolina, Inc., we have supported leading utilities across the U.S. in navigating similar transitions. Our focus is on delivering outcomes that align technology decisions with enterprise goals—particularly where large-scale electric and gas systems intersect with evolving regulatory and infrastructure requirements.

GUC's project represents a significant opportunity to streamline and upgrade how utility data is structured, accessed, and leveraged. With one of the largest municipal electric utilities in North Carolina and a gas network that ranks nationally among the top public systems, GUC's operating environment demands a scalable and coordinated transition. The scale, spanning over 3,400 miles of electric distribution and 1,200 miles of gas mains and services, requires a partner who understands how to design and deliver across complex asset portfolios.

Our approach is built around measurable outcomes: clarity in data modeling, reduced risk during migration, and a phased roadmap that supports continuity across departments and systems. We bring a history of delivering UN deployments that balance technical performance with operational priorities, and we align each step with long-term utility goals—from system readiness through to deployment and beyond.

1898 & Co. looks forward to supporting GUC in this pivotal transformation. We will bring GUC the perspective, tools, and structure required to move from concept to execution with confidence.

Company Background and Relevant Experience

As utility networks evolve, GUC needs a partner who understands operations and delivers forward-looking strategies for a successful transition.

Company Overview

1898 & Co. was created to help utilities and critical infrastructure clients move with confidence through complex transformations. Backed by more than a century of engineering and construction experience, we focus on delivering strategies that drive measurable progress—combining deep industry insight with data-driven decision-making. Since our launch in 2019, we've partnered with clients to streamline operations, modernize technology platforms, strengthen cybersecurity, and unlock long-term value through strategic asset planning and digital innovation.

An integral part of Burns & McDonnell

As part of Burns & McDonnell, our team draws upon the vast experience created by the firm's 126 years of architectural, engineering, and construction history. 1898 is the year Burns & McDonnell was founded, and that is why we proudly added it to our name. We not only effectively optimize and integrate business solutions but also build the infrastructure you need to use them. This background also gives us the unique ability to understand the entire life cycle of an asset, no matter the industry. We unlock the solutions that drive smarter business decisions, improving your organization and growing value. Burns & McDonnell is honored to be named to the list of Best Places to Work and Best Employers in North Carolina by Business North Carolina.

Minimum Requirements

1898 & Co. meets all of Greenville Utilities Commission's minimum qualifications for Utility Network (UN) consulting. Our team brings proven experience in electric and gas UN projects, seamless GN to UN transitions, and deep integration experience across core utility systems.

- 126 years in the industry
- 12,000 employees across 75 offices
- Headquarters 9400 Ward Parkway, Kansas City, Missouri, 64114
- Employee-ownership model

Utility Network Experience

Proven experience

1898 & Co. brings deep experience in delivering successful Esri Utility Network (UN) deployments, with a strong focus on electric and natural gas utilities. We have led 14 UN design projects, 12 UN full migrations, and have additional measurable UN experience. Our approach combines strategic system architecture design, robust data readiness planning, and phased implementation to minimize risk and disruption. We also specialize in integration analysis, driving seamless connectivity with edge systems and maintaining or improving service levels throughout the transition. Our proven track record reflects a comprehensive understanding of utility operations and the technical demands of UN modernization.

Our relevant project experience, transition experience, and integration experience is summarized in Figure 1.

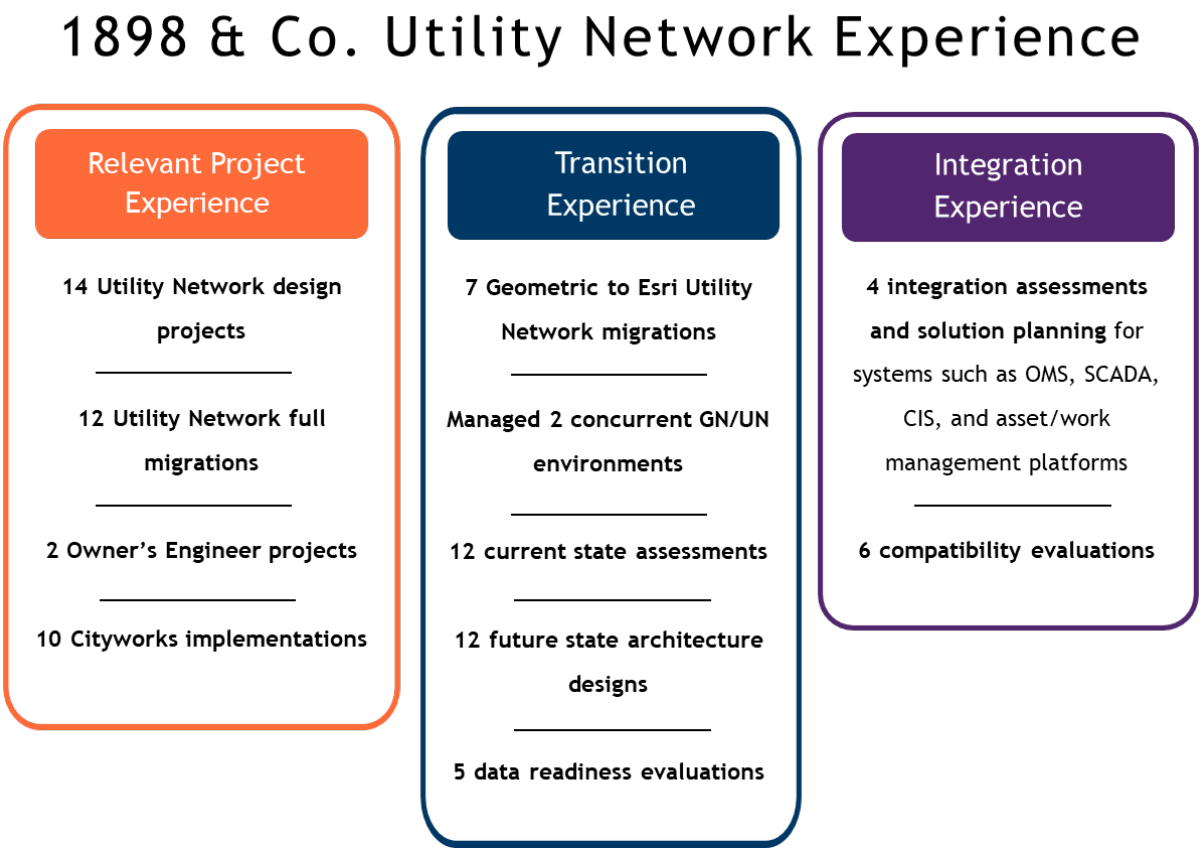


Figure 1. 1898 & Co. offers a depth of relevant project, transition, and integration experience to guide GUC through UN Design.

Relevant Project Experience

1898 & Co. meets and exceeds the requirements for relevant project experience. We have successfully led 12 Esri Utility Network deployments, 14 Utility Network design projects, including more than three major projects for electric and natural gas utilities involving model selection, data migration, and integration evaluation and solutioning. Our experience spans a range of utility clients and operational environments, demonstrating our capability to deliver complex Utility Network implementations aligned with industry best practices. In this Section, we showcase nine projects, each of which emphasize our capabilities in multi-utility deployments, ability to scale, and adaptability to technological changes.

Transition Experience

1898 & Co. has extensive experience managing transitions from the ArcGIS Enterprise Geometric Network (GN) to the Utility Network. We have conducted seven Geometric to Esri UN migrations, managed two concurrent GN/UN environments, and have conducted 12 current state assessments.

Our work includes designing system architecture, developing and validating data models, performing detailed data mapping and readiness assessments, and managing organizational and technical changes throughout the migration process. We have successfully delivered these services to electric and gas utilities, demonstrating our ability to execute smooth, low-risk transitions aligned with operational needs.

Integration Experience

1898 & Co. has a track record of evaluating system integrations and driving compatibility with edge systems across utility environments—shown through our success in managing four integration assessments and six compatibility evaluations. Our approach includes comprehensive analysis of existing processes, systems, and data flows to identify integration requirements and maintain or enhance service levels. We have successfully delivered integration strategies involving GIS, EAM, OMS, ADMS, and mobile platforms, helping utilities achieve seamless interoperability and operational continuity during and after Utility Network migrations.

GIS Experience

With more than 100 technology professionals across the country, many of them specializing in the usage, planning, implementation, and extension of Geographic Information Systems (GIS), 1898 & Co. has the people and tools necessary to meet your GIS services, GIS modernization, GIS application (desktop, mobile, web) development, geodatabase design and maintenance needs. We apply system planning, implementation, and customization capabilities to help our clients to maximize their return on investment in GIS technology.

GEOSPATIAL SERVICE OFFERINGS

- Utility Network Model Advisory
- Enterprise GIS Consulting
- Enterprise Asset Management
- Spatial Analysis
- Field Data Collection & Reporting
- Facilities and Indoors GIS
- Site & Route Selections
- Change Management

Learn more here!

Relevant Technology Partnership Programs

Our firm has numerous commercial partnerships and certifications to provide our clients with the technology solutions and services they need to be successful. As a result, we will leverage our deep knowledge of these relevant technologies to accomplish GUC's desired business outcomes.

Esri Partnership

We have been an Esri business partner for over 20 years and over the last five years we have actively participated in the Business Partner Advantage Program. In addition to our gold tier status in the Esri Partner Network and our engagement in the Business Partner Advantage Program, our staff members actively engage with Esri related to existing technology, as well as participating in activities such as beta testing and holistic testing to help guide and mold the future of the GIS tools.

Utility Network Management Specialty

Indoor GIS Specialty

ArcGIS System Ready Specialty

1898 & Co. staff members are certified at the highest levels in Esri Enterprise System Administration and Enterprise System Design. Esri has recognized our firm's experience with cloud, indoor, and utility GIS by awarding us with ArcGIS Online, System Ready, ArcGIS Indoors, and ArcGIS Utility Network specialty business partner designations.

Schneider Electric EcoXpert Certified Partner

1898 & Co. has earned Schneider Electric's Smart Grid EcoXpert certification, recognizing its advanced technical capabilities with the EcoStruxure ArcFM Solution XI Series on Esri's ArcGIS Utility Network platform. This certification reinforces 1898 & Co. experience in supporting utility grid modernization by integrating siloed workflows, improving efficiency, and enhancing data sharing.

As a certified EcoXpert in the Geographic Information Systems path, 1898 & Co. demonstrates excellence in implementing next-generation ArcFM solutions. The firm maintains strong partnerships with Schneider Electric and Esri, helping utilities adopt modern network management technologies and extend the value of GIS across their organizations.

Trimble Unity / Cityworks Gold Partner

1898 & Co. is a Gold-level Service Partner with Trimble, playing a pivotal role in enhancing client operations through the deployment and support of advanced software solutions like Trimble Unity and Cityworks. Our partnership involves integrating these powerful tools into client workflows, enabling them to leverage their existing GIS to manage assets, work orders, and maintenance activities more efficiently. This integration streamlines operations, improves service delivery, and facilitates data-driven decision-making.

As trusted advisors and technical experts, we are dedicated to helping our clients harness the power of technology to build smarter, more resilient communities.

FME by Safe Software Partner Program

The FME by Safe Software Partner Program has enhanced our ability to provide solutions for 3D/4D web maps, CAD-GIS, Geomatics, real-time construction/environmental monitoring using FME, FME Server, and data integration ETL best practices. Additionally, this agreement allows 1898 & Co. to purchase and resell FME licenses. This software platform connects applications and transforms data using repeatable workflows that seamlessly connect to spatial and GIS data.

Microsoft Azure Partner Program

The Microsoft Partner Program provides our team with the latest technology, training and certifications required to design and implement solutions using Microsoft Technology and Azure Cloud. 1898 & Co. provides tools, training, and resources to help deliver high-quality products to clients using best practices, tools, and technology. Our long-standing Microsoft relationship enables us to leverage Azure to deploy flexible lasting solutions and to include Microsoft solutioning discussions.

Oracle Modern Partner Network

1898 & Co. is a member of the Oracle Modern Partner Program as a Cloud Services provider. This Partner program provides us with the ability to implement, deploy, and manage various Oracle products, including Oracle Primavera, Unifier portfolio of Project and Program software, CC&B and CCS.

Prosci Change Management Certified

Prosci's Change Management Certification Program equips teams to drive effective lasting change. Widely used across utilities and other sectors, the Prosci method, backed by strong research, has been adapted by 1898 & Co. across numerous projects. We blend Prosci with other proven methodologies to tailor our approach for utility clients. Our firm includes a Certified Change Practitioner Community of over 100 Prosci-certified team members, reflecting our firm's strong commitment to change management.

Geographic Reach

With over 12,000 professionals across more than 75 offices worldwide, 1898 & Co. and Burns & McDonnell bring a global network of seasoned experts to support GUC's Utility Network transition. Our extensive partnerships span every region, utility size, and operating environment, enabling us to draw on a rich dataset and strong peer network to quickly identify relevant peers, best practices, and data-driven insights tailored for GUC. As a business, technology, and cybersecurity consulting firm serving critical infrastructure industries, 1898 & Co. leverages over 125 years of cross-industry innovation to deliver practical solutions grounded in operational realities.

Our consultants blend business, financial, and technical know-how with industry experience to deliver solutions that work. We turn business and technology insights into strategic solutions for critical infrastructure industries, helping clients navigate evolving regulatory demands and operational complexities.

Figure 2 illustrates our global presence, showcasing the breadth and depth of our experience in Esri design services, which we bring to bear in supporting GUC's Utility Network project.

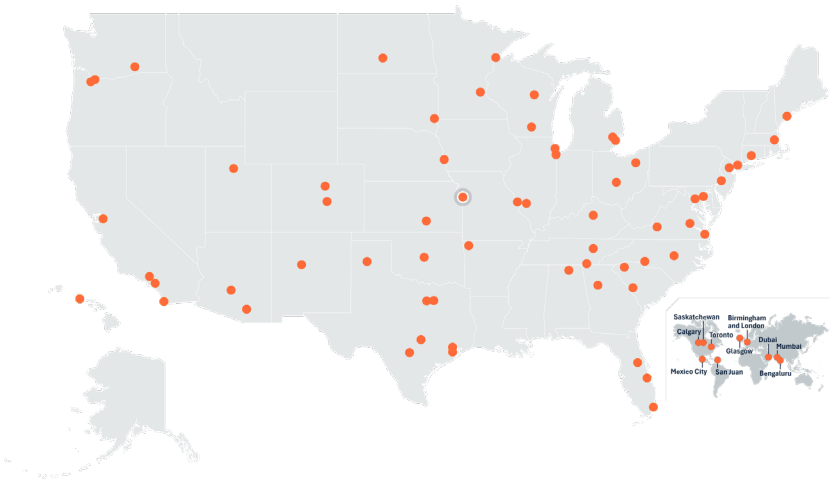


Figure 2. 1898 & Co. and Burns & McDonnell have more than 75 offices worldwide, bringing GUC a wide network of seasoned experts with extensive Esri design service experience.

Relevant Project Experience and Project References

Proven experience

1898 & Co., a Burns & McDonnell company, has led Utility Network transformations for electric and gas utilities nationwide, guiding projects from planning to migration while aligning with operational needs. Table 1 highlights work similar in scope, budget, and scale to GUC's proposed UN Design Services.

No.	Project	Esri UN Migration	Similar Scope/Size	Timeline	Overall UN Budget	Customer Count
1	Evergy	Initialization	UN Implementation Initialization (Distribution, Transmission, Fiber)	Apr 2025 - Ongoing	$418,000	1.7 million
2	FirstEnergy	Yes	Full UN (Transmission) & TAMI Redesign	Jan 2025 - Current	$4,117,500	6 million
3	Denton Municipal Electric	Yes	Full UN Migration, EAM, OMS/ADMS Planning	Multi-year (five-year roadmap started)	$452,500	64,000
4	Gainesville Regional Utilities	Yes	Full UN Migration (Electric & Gas)	Aug 2019 - Sept 2020	$328,100	93,000
5	American Transmission Company	Assessment	Assessment (Transmission)	Nov 2023 - Dec 2023	$217,000	5 million
6	Fairfax Water	Yes	Full UN Migration (Water)	Aug 2023 - Dec 2024	$1,075,000	2 million
7	Hoosier Energy	Assessment	Assessment (Transmission)	Oct 2022 - Feb 2023	$208,000	760,000
8	KC Water	Yes	Pilot UN Migration (Water & Sewer); Full UN Migration (Water)	Apr 2021 - June 2022; Feb 2025 - Ongoing	$460,000; $409,750	172,000
9	Confidential Large Manufacturing Client	Yes	Full UN Migration (Electric (x3), Water (x3), Fire Water)	Completed 2023	$500,000	100,000

Table 1. We have supported public and municipal utilities through every phase of the Utility Network journey, giving us the experience needed to support GUC's Utility Network design.

1. Utility Network Initialization | Evergy

Similar in size and scope Multi-utility Utility Network implementation

SERVICES PROVIDED

- GIS Current State
- Stakeholder Engagement
- Future State Model & Strategy
- UN Roadmap
- Integrations Assessments and Requirements
- Data Remediation
- Budget Planning
- Change Management

Project Overview

Evergy selected 1898 & Co. to execute its Utility Network Initialization Phase for its distribution, transmission, substation and fiber network and assets. Evergy is interested in migrating its current Esri ArcGIS 10.6.1 GIS along with Schneider Electric ArcFM 10.6.1 system into the Utility Network. The network model and data from the GIS platform provide input into numerous operational support systems and serves many important business processes. The current state of Evergy's GIS is a product of consolidation of subsidiaries, application updates, customizations and configurations, field updates and integrations built over a number of years.

Scope of Work

1898 & Co. will guide Evergy through a familiarization stage where both core GIS and IT stakeholders and the wider user base will receive education on the change and opportunities the Utility Network can bring to their organization. High-level presentations, technical workshops, and business-focused workshops will be conducted. Following these efforts and a collaborative project plan development, the project will move into a discovery phase. This phase will endeavor to bring 1898 & Co. up to speed on Evergy's current state through data requests and collaborative evaluation of existing systems and business processes. We will also gather initial future state expectations from the project team and Evergy stakeholders. Discovery will transition into requirements gathering where focus will be given to both the numerous Evergy stakeholder groups, as well as the approximately 10 integration teams currently in use. An Enterprise Requirements Traceability Matrix and Key Business Decisions will be documented and used to guide an Integration Assessment, Finalized Requirements Report, Hardware & Software Recommendations, and an Initial UN implementation project plan. Extensive data readiness, data remediation, and data modeling will occur throughout the project life cycle, setting up Evergy to roll into the pilot and implementation phase following this engagement.

Project Challenges

Evergy is a very large utility that has operated though decades of consolidation, operations, and customizations of their GIS system. There will be intense focus on incorporating input and desires from a number of internal and external integration stakeholders. Education and change management services will be a common theme throughout the engagement to put Evergy in the best possible place for the implementation phase of the Utility Network migration.

Solutions Implemented

Future state activities to be executed will provide Evergy with a comprehensive Readiness Report, Future State Architecture Design, RICEFW list of artifacts, Organizational Readiness Report, and a UN Project Implementation Plan to execute the pilot and migration & implementation phase.

Outcomes and Impact

1898 & Co. and Evergy are kicking off this project in May 2025.

2. Utility Network Implementation and Transmission Asset Mapping Interface (TAMI) Modernization | FirstEnergy

✓ Similar in size and scope Multi-utility Utility Network implementation

Project Overview

1898 & Co. is leading a nearly two-year initiative for FirstEnergy, a Fortune 500 electric utility, to implement an Esri ArcGIS Utility Network and a full redesign of its Transmission Asset Mapping Interface (TAMI). This effort directly supports FirstEnergy's Strategic Asset Management Program (SAMP) and plays a critical role in improving data quality, operational efficiency, and asset lifecycle management practices.

Scope of Work

The scope includes a full ArcGIS Utility Network implementation within a three-tier ArcGIS Enterprise environment (development, testing, production) to support scalability, redundancy, and controlled deployment. The TAMI application, used by thousands at FirstEnergy, is being redesigned for improved usability, advanced visualization, and integration with systems like Cascade. The project covers data cleanup to meet UN standards, full system deployment, customized training, and detailed documentation to support long-term sustainability and self-sufficiency.

REFERENCE CONTACT

Steve Mullinax
Supervisor, Transmission Mapping
330-384-5187
mullinaxs@firstenergycorp.com

APPROXIMATE PROJECT VALUE

$4,117,500

SERVICES PROVIDED

- UN Migration & Implementation
- User Training
- Database Design
- Asset Management

Project Challenges

A key challenge of this project has been migrating large volumes of mission-critical transmission network data while maintaining continuous availability for operational users. TAMI's widespread use by thousands of employees added complexity to the redesign, requiring a user-first approach to avoid disruptions. Aligning the migration effort with SAMP requires tight coordination with enterprise systems and asset management processes, including integration with legacy applications and governance.

Solutions Implemented

1898 & Co. deployed a three-tier ArcGIS Enterprise environment to support development, testing, and a safe production rollout. We used ArcGIS Data Reviewer and custom validation workflows to identify and fix data issues before migration and rebuilt the TAMI interface with modern ArcGIS APIs to enhance usability and integration. We delivered targeted training to GIS editors, admins, and support staff to build internal capability. After deployment, we led an eight-week stabilization period to resolve issues and transition the system to FirstEnergy's internal team.

Outcomes and Impact

The implementation will result in a fully operational ArcGIS Utility Network designed to support FirstEnergy's transmission GIS needs, enabling improved modeling, tracing, and asset connectivity. The reimagined TAMI interface enhances system usability and staff efficiency for thousands. **FirstEnergy benefits from more consistent, accurate GIS data and stronger alignment with asset management strategies under SAMP. With comprehensive documentation and targeted knowledge transfer, FirstEnergy's GIS team is well-positioned to manage and expand the new platform independently.**

3. Grid Modernization, Utility Network Model Implementation, and Business Case | Denton Municipal Electric

✓ Similar in size and scope Multi-utility Utility Network implementation

Project Overview

The 1898 & Co. is partnering with Denton Municipal Electric (DME) on a $100 million, multi-year grid modernization initiative to position DME as Texas' leading customer-focused utility. The transformation prioritizes sustainability, reliability, and operational competitiveness through major process and technology upgrades. Central to this effort is the strategic migration of DME's GIS to the Esri ArcGIS Utility Network.

Scope of Work

The project launched with a 20-year business case and a five-year roadmap, organized into three phases covering key workstreams: Utility Network migration, data model validation, EAM and mobile deployment, network model development, and planning for OMS, ADMS, DERMS, and field automation (DER, CVR/VVO, FLISR). 1898 & Co. is leading the migration of DME's distribution, transmission, and substation GIS data to the ArcGIS Utility Network and ArcFM XI, delivering data assessment, schema mapping, system architecture, configuration, training, cross-team coordination, and governance support.

REFERENCE CONTACT

Jerry Looper
Systems Operations Manager
940-349-7676
Jerry.Looper@cityofdenton.com

APPROXIMATE PROJECT VALUE

$452,500

SERVICES PROVIDED

- Business Case
- UN Migration & Implementation
- Change Management
- User Training
- System Architecture
- Database Design
- ADMS/OMS Selection & Implementation
- Asset Management

Project Challenges

The project involves a broad range of technical and organizational shifts. Key challenges include unifying GIS across multiple voltage levels and legacy systems, preparing data for Utility Network compliance, and coordinating a large, phased rollout across multiple departments. DME is also preparing for system-level changes that include future OMS and ADMS deployment—requiring significant planning and cross-team alignment throughout the process.

Solutions Implemented

1898 & Co. established a phased implementation model that breaks down the program into manageable workstreams, each linked to a specific objective and technical scope. The Utility Network migration is supported by rigorous data validation, a newly designed enterprise architecture, and detailed schema mapping aligned with Esri's model. ArcFM XI is being deployed with custom configurations tailored to DME's workflows. Training and change management are delivered as part of each phase to help DME staff adopt and operate the new systems effectively.

Outcomes and Impact

The GIS migration is the first major step in DME's IT/OT modernization, enabling integration with ADMS, OMS, and IBM Maximo to support connected grid operations and streamlined asset management. It improves data quality and establishes a flexible GIS foundation for future planning and operations. 1898 & Co. is also supporting ADMS and OMS selection and deployment, with coordinated progress across systems throughout this multi-year effort.

4. Utility Network Model Implementation | Gainesville Regional Utilities

Similar in size and scope Multi-utility Utility Network implementation

SERVICES PROVIDED

- System Architecture
- User Training
- Web App Development
- UN Migration Plan
- Stakeholder Engagement

Project Overview

In 2016, Gainesville Regional Utilities (GRU) launched a strategic initiative to modernize its electric and gas GIS platforms by implementing Esri's ArcGIS Utility Network. The effort was designed and managed by Darris Friend, GRU's Energy Delivery GIS Administrator, who also served as the Project Manager for the Utility Network implementation. This modernization replaced outdated GIS tools and consolidated several legacy applications, forming the foundation for scalable, modernized operations across GRU's utility services.

Scope of Work

The initiative included a full redesign of GRU's GIS architecture using the Esri ArcGIS Enterprise platform. The plan covered system architecture development, collaborative workshops with utility staff and third-party vendors, and delivery of training, documentation, and technical administration. GRU deployed ArcGIS Portal, developed web maps and dashboards, configured ArcGIS Field Maps, and integrated both Electric and Gas Utility Networks with Spatial Business Systems' Automated Utility Design (AUD) tool. The project also involved replacing ArcGIS version 10.2.1 and multiple in-house applications—many with extensive customizations—with a more streamlined platform focused on maximizing native ArcGIS Enterprise capabilities and reducing system complexity.

Project Challenges

GRU needed to retire aging software while supporting active electric and gas operations, which required transitioning teams away from heavily customized tools. The shift to the Utility Network had to accommodate modern graphical design workflows, coordinate across multiple utility divisions, and support external system integration—without disrupting existing business processes. Additionally, the system needed to scale to support routine work as well as major events such as hurricane recovery efforts.

Solutions Implemented

The team executed a multi-phase implementation that minimized system downtime and user disruption. GRU's GIS was restructured to support modern Esri capabilities, reducing reliance on custom applications and aligning workflows with Utility Network functionality. The project introduced a scalable work and asset management plan, integrated GIS with SAP CIS and Itron AMI, and expanded the role of GIS in enterprise planning and operations. REST-based GIS services were deployed, providing APIs that support integration with external tools like Synergi Electric and OSI Electra.

Outcomes and Impact

GRU successfully went live with both the Electric and Gas Utility Networks in April 2023, with each integrated into AUD to support streamlined engineering workflows. The updated system architecture now supports accurate and timely GIS data access across the organization and beyond, including real-time interfacing with external systems. **The migration modernized graphical design, reduced the number of engineering applications, and provided a sustainable GIS platform for ongoing innovation and cross-system collaboration.**

5. Utility Network Discovery | American Transmission Company

Project Overview

American Transmission Company (ATC) engaged 1898 & Co. to assess its current GIS environment and evaluate the potential role of the Esri Utility Network in improving data governance and operational efficiency. The effort was focused on enhancing data related to transmission line design and maintenance—particularly as it interfaces with systems like PLS-CADD, Esri GIS, and other applications used for engineering design, equipment ratings, and inspection processes.

REFERENCE CONTACT

Brian McGee
Manager, Technology Business Solutions
bmcgee@atcllc.com
330-384-5187

SERVICES PROVIDED

- GIS Current State Assessment & Roadmap
- UN Migration & Implementation Roadmap
- Asset Management
- Change Management
- Data Governance

Scope of Work

1898 & Co. conducted a current-state assessment of GIS usage across ATC and developed a future-state design, including an implementation roadmap and high-level budget. The discovery effort involved evaluating data models, validating data across systems, and identifying gaps between GIS, PLS-CADD, and related engineering tools. Deliverables included technical reference materials and process documentation, as well as a change management "primer" designed to introduce organizational leaders to the role of change management in successful system transformation.

Project Challenges

ATC's primary challenge was navigating a complex data landscape across GIS and engineering tools that lacked consistency and clear governance. The organization needed guidance on whether adoption of the Utility Network would address these issues or whether targeted improvements to existing workflows would be more effective. The project also needed to generate internal alignment and a clear justification for any proposed technology investments.

Solutions Implemented

1898 & Co. conducted targeted data validation and model assessments to understand the interaction between PLS-CADD and Esri GIS and to evaluate the suitability of the Utility Network. Working sessions were held with technical and business stakeholders to document current pain points and future needs. A future-state architecture and phased roadmap were created to guide technology modernization efforts, and the change management primer was delivered to help leadership prepare for upcoming transitions in process and technology.

Outcomes and Impact

The discovery engagement concluded that, at this time, the Utility Network was not the optimal fit for ATC's specific needs. Instead, the recommended path focused on improving PLS-CADD to GIS workflows, which would deliver the necessary gains in data governance, engineering accuracy, and operational support. **The roadmap and documentation provided a clear direction for ATC to pursue immediate, impactful improvements without unnecessary disruption.**

6. Utility Network Migration | Fairfax Water

✓ Similar in size and scope Multi-utility Utility Network implementation

Project Overview

Fairfax Water is one of the 25 largest water utilities in the United States, providing service to nearly 2 million people. 1898 & Co. performed the migration of Fairfax Water's GIS asset network into the ArcGIS Utility Network model for water distribution. This effort included a full production deployment within an ArcGIS Enterprise 11.3 cloud environment, representing a significant modernization of Fairfax Water's geospatial infrastructure.

REFERENCE CONTACT

Ian Stack
Manager GIS
Fairfax Water
703-698-5600

SERVICES PROVIDED

- UN Migration
- Change Management
- User Training
- System Architecture
- Database Design
- UN Sync Tools

Scope of Work

The project began with a stakeholder assessment and detailed requirements gathering, resulting in a system architecture design and third-party software impact assessment. A collaborative data model process led to Utility Network deployment in a staging environment and a pilot project instance. To maintain mobile and QA/QC functionality, 1898 & Co. developed a Python-based ETL tool for one-way syncing from the versioned enterprise geodatabase to the Utility Network, preserving workflow continuity during the transition.

Project Challenges

Fairfax Water's migration required maintaining compatibility with existing applications and workflows while transitioning to the Utility Network's advanced capabilities. Integration with third-party software, cloud infrastructure, and legacy QA/QC processes added technical complexity. Additionally, the organization needed support in aligning its internal teams around the changes introduced by the new GIS model and architecture.

Solutions Implemented

To address these challenges, the team deployed the Utility Network in a controlled staging and pilot environment for validation, testing, and feedback. The custom Python ETL tool maintained data continuity and remains in use post go-live. A phased data cleanup, dirty area resolution, and application transition planning led to a successful production migration in Q4 2024. In parallel, 1898 & Co. partnered with a cloud provider to move Fairfax Water's ArcGIS Enterprise to an Azure-managed platform, while also providing change management and Innovyze hydraulic modeling support for long-term Utility Network readiness.

Outcomes and Impact

1898 & Co. led Fairfax Water's transition to a production-grade Utility Network, enabling modern asset management, mobile operations, and system integration. We designed a phased deployment with custom tools to reduce disruption and maintain critical functionality. Our team migrated their ArcGIS Enterprise to an Azure-based cloud platform, supporting future scalability. We also provided change management and hydraulic modeling services to align technical work with utility-wide goals. **Serving nearly 2 million people, Fairfax Water now operates a deployed Utility Network in an 11.3 ArcGIS Enterprise environment—planned and delivered by 1898 & Co.**

7. Enterprise Asset Management and Geographic System Assessment | Hoosier Energy

Similar in size and scope

REFERENCE CONTACT

Tommy Roberts
Manager Engineering Services
Hoosier Energy
Troberts@HEPN.com

SERVICES PROVIDED

- EAM and GIS Assessment
- Stakeholder Engagement
- Future State Model
- UN Roadmap

Project Overview

In the winter of 2023, 1898 & Co. completed a joint Enterprise Asset Management (EAM) and Geographic Information System (GIS) assessment for Hoosier Energy, a generation and transmission cooperative based in Indiana. The engagement focused on evaluating the performance and alignment of existing EAM and GIS platforms, identifying gaps, and defining a strategy to support future growth and operational efficiency.

Scope of Work

1898 & Co. conducted a detailed current-state review of Hoosier Energy's GIS and EAM platforms, examining both system functionality and how each was being used across the organization. A series of design workshops were held with business stakeholders and technical staff to gather and confirm system requirements, performance needs, and long-term expectations. From this work, a future-state model was developed to reflect Hoosier's priorities and operational goals. An executive summary of this future-state vision was presented to senior leadership, along with supporting documentation.

Project Challenges

Hoosier Energy sought clarity on how to modernize its existing GIS and EAM systems to better support transmission operations and capital project planning. The challenge involved integrating disparate data systems and defining a future model that could scale to meet business needs, while also prioritizing investment. The organization also needed guidance on how best to align its GIS strategy with enterprise asset management practices.

Solutions Implemented

The project team developed a comprehensive roadmap of programs to implement the proposed future-state model. Each program definition included scope, estimated level of effort, timeline, dependencies, and a high-level assessment of business value. A key recommendation was the adoption of the ArcGIS Utility Network model to support Hoosier's Transmission GIS modernization. This recommendation was based on identified data and workflow needs gathered during the assessment and workshops.

Outcomes and Impact

Hoosier Energy received a complete, actionable roadmap for modernizing its GIS and EAM platforms. The proposed future-state model and program plan provided clear direction and prioritization for implementation, with a focus on enhanced system integration, improved asset visibility, and stronger support for field and engineering workflows. **The Utility Network recommendation offered a scalable GIS framework aligned with future transmission system needs.**

8. Utility Network Pilot Migration | KC Water

Similar in size and scope Multi-utility Utility Network implementation

SERVICES PROVIDED

- GIS Assessment
- Stakeholder Engagement
- GIS Data Remediation
- Future State Model
- UN Roadmap

Project Overview

KC Water engaged 1898 & Co. to modernize and enhance its water, sewer, and asset management capabilities through strategic GIS consulting and infrastructure planning. Our collaboration includes key initiatives to improve system reliability, enable data-driven decision-making, and align investments with operational and community needs. Our phased approach supports KC Water's mission to deliver safe, efficient, and equitable utility services citywide.

Scope of Work

We developed an ArcGIS Utility Network roadmap and are leading Phase 1 migration for Water, Sewer, and Stormwater, including data model design, quality assessment, cleanup, and integration analysis. We built a BRE model in InfoAsset Planner, integrating GIS, CMMS, and other systems to prioritize water main replacements. Our team documented the break response process and created a GIS tool to boost efficiency. For wastewater, we're building an asset management model using GIS, CMMS, and CCTV data to identify high-risk assets. We also support KC Water's consent decree through GIS and asset management services, managing the 'Keep Out the Rain' I/I program with mobile tools and Azure dashboards, and prioritizing large-diameter sewer inspections.

Project Challenges

KC Water faced several key challenges at the start of the engagement. Its legacy GIS lacked the scalability and interoperability needed for modern asset management. Inconsistent data across GIS, CMMS, and CCTV systems hindered accurate risk assessment and investment planning. Enabling equitable capital project distribution added complexity, especially with environmental justice concerns. Coordinating across departments and public-facing programs required strong alignment and real-time data sharing, all while meeting regulatory mandates under a long-term federal consent decree.

Solutions Implemented

To address these challenges, we led a phased migration to the ArcGIS Utility Network, aligning KC Water's GIS with modern Esri standards. We built advanced BRE models in InfoAsset Planner to prioritize water and sewer programs, streamlined field workflows with tailored GIS apps, and integrated data for a unified view of infrastructure health. To support community engagement, we also developed user-friendly dashboards that enabled residents to take part in private property inspections for inflow and infiltration mitigation.

Outcomes and Impact

KC Water has made major strides in building a resilient, modern utility network. The Utility Network rollout created a scalable GIS foundation, while risk-based models now guide smarter, more proactive infrastructure investments—reducing failures and extending asset life. New GIS tools have improved operational efficiency, particularly in emergency response. **KC Water has selected 1898 & Co. to lead the Production Migration and Implementation of their Water Utility Network in January 2025. This project should be completed by Q4 of 2025, and KC Water will move to begin the production migration of their Wastewater Utility Network.**

9. Utility Network Migration | Large Confidential Manufacturing Client

Similar in size and scope
Multi-utility Utility Network implementation

SERVICES PROVIDED

- System Architecture
- User Training
- Web App Development
- UN Migration Plan
- Stakeholder Engagement
- System Architecture Design
- Automated ETL Development (FME Server)
- CADD-to-GIS Data Conversion
- Utility Network Schema Mapping
- Utility Network Migration
- Web App Development (ArcGIS Experience Builder)
- Utility Network Tracing Enablement
- Stakeholder Engagement and Coordination
- Data Validation and

Project Overview

1898 & Co. partnered with a confidential client to support a multi-campus GIS modernization initiative focused on the migration of their electric and water utility systems to the Esri ArcGIS Utility Network. The project aimed to replace legacy CADD-based infrastructure with a modern GIS environment that would enhance operational visibility, asset management, and cross-departmental collaboration. The work directly supports the client's broader digital transformation strategy, including future integration with their enterprise asset management system, IBM Maximo.

Scope of Work

The engagement included the design and implementation of an automated CADD-to-GIS ETL pipeline using FME Server to process and convert MicroStation DGN and AutoCAD DWG files stored in ProjectWise. The scope covered the migration of medium voltage electric, domestic water, and fire protection networks across three campuses to the ArcGIS Utility Network model. The updated datasets were integrated into Experience Builder web applications with embedded Utility Network tracing functionality, enabling access and use by electrical maintenance, facility engineering, and asset management teams.

Project Challenges

The client faced significant challenges transitioning from a heavily CADD-based workflow to a Utility Network-compliant GIS. These included managing diverse data formats across three campuses, maintaining data integrity during schema transformation, and creating a scalable framework for future EAM integration. The effort also required a high degree of coordination across internal teams.

Solutions Implemented

1898 & Co. implemented a fully automated ETL workflow using FME Server to convert and validate utility data. Custom schema mapping aligned the CADD datasets to Utility Network requirements, and web-based GIS tools were deployed to provide broad user access and trace functionality. All nine utility systems were successfully migrated to the ArcGIS Utility Network within 12 months. The work was completed on time and within budget and was supported by cross-functional engagement to validate data and align future systems integration plans.

Outcomes and Impact

The migration enabled the client to retire legacy CADD-based utility maps and transition to a centralized, scalable GIS that supports long-term digital transformation. **With foundational GIS improvements in place, the organization is now positioned to integrate Maximo for work order and asset management, enhancing operational efficiency and lifecycle planning across facilities.**

Approach and Solution Design

At 1898 & Co., we treat Utility Network transitions as business transformations—not just technology deployments. For Greenville Utilities Commission (GUC), our structured, phased methodology is specifically tailored to the utility environment. The engagement begins with mapping GUC's current state—reviewing data structures, workflows, and system integrations within the ArcGIS Enterprise environment. This foundational analysis informs a future-state model that is shaped through collaborative workshops with GUC stakeholders and results in a practical, actionable roadmap. This roadmap highlights current gaps, identifies achievable milestones, and prepares both electric and gas operations for Utility Network deployment.

Our approach balances technical depth with practical execution. It draws from a history of working with public utilities navigating similar transitions and is anchored in three interconnected concepts: People, Process, and Technology, with data as the central driver of all decisions, illustrated in Figure 3. The methodology emphasizes stakeholder collaboration, future-state readiness, and risk-informed planning, aligning with GUC's operational goals and growth trajectory.

The proposed engagement is structured into two primary phases: assessment and roadmap development, with optional services that include pilot conversions and system architecture design. This phased approach delivers targeted insights, supports confident decision-making, prepares GUC for its migration to the Utility Network, and favors realizing the greatest return on investment in the new technology.

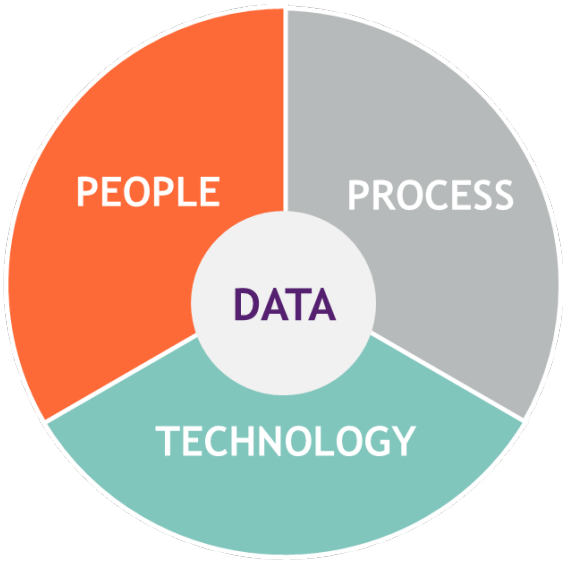


Figure 3. Our approach and methodology for GUC is built on three interconnected pillars—people, process, and technology, with data at the core of every decision.

People: We have a dedicated Organizational Change Management (OCM) practice, which can help an organization increase its return on investment by driving adoption and alignment across the organization.

Process: Our approach is business-value driven, backed by deep utility operations knowledge and hands-on experience mapping and aligning critical business processes.

Technology: As an Esri Gold Partner with Utility Network Certification, and with additional certifications across Trimble Unity/Cityworks, Schneider Electric platforms, we integrate complex systems like SBS AUD and SE ArcFM into a unified, scalable Utility Network solution.

Data: We prioritize data as the foundation of Utility Network success focusing on quality, governance, and model alignment from day one. Our methodology includes early validation, structured remediation plans, and hands-on workshops that equip GUC to maintain high-integrity data across systems, enabling smarter decisions and future scalability.

To support a smooth and effective transition to the UN, we begin by assessing the current and future states of GUC's GIS environment, illustrated in Figure 4.

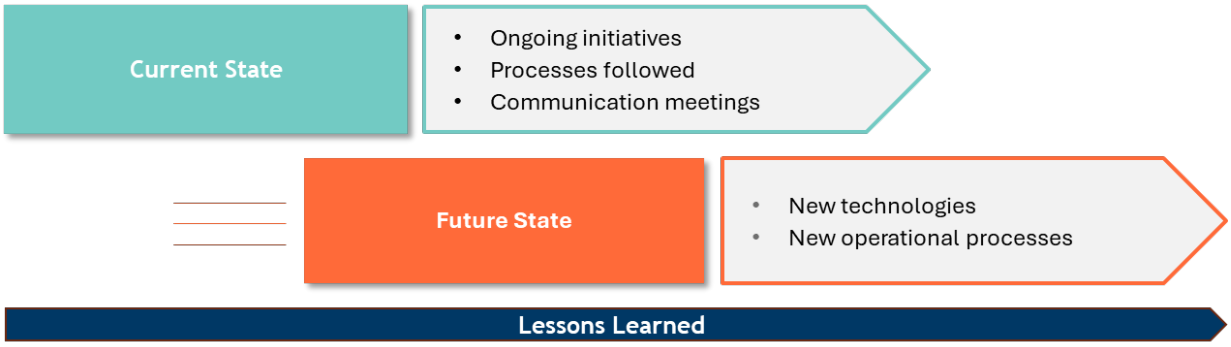


Figure 4. Our approach to mapping GUC's current state with future state allows us to understand how data, processes, and integrations will perform with ArcGIS Enterprise.

System Design

Through our optional system architecture design task, we can help GUC design an ArcGIS Enterprise environment that supports the ArcGIS Utility Network and meets GUC's operational complexity and performance expectations. Our system design efforts focus on aligning technology with operational requirements. We work side-by-side with utility teams to analyze the current GIS schema, user needs, and future-state architecture. Each recommendation is based on business drivers and integration dependencies, factoring in existing workflows and cross-departmental use. This avoids a one-size-fits-all approach and supports a focused system architecture design built around how GUC functions today and intends to grow.

Current-State Analysis

We begin with a thorough review of GUC's existing Geometric Network configuration, GIS schema, domain structure, and integration landscape. Through a series of discovery workshops with GUC's GIS, operations, and IT teams, we will document current workflows, usage patterns, and system pain points.

This collaborative process enables a shared understanding of the existing environment and surfaces key design considerations for the Utility Network model.

Model Development

Using Esri Utility Network best practices as a foundation, we will design a future-state data model tailored to GUC's needs. This includes asset groups and types, subtypes, domains, network rules, and attribute field mapping. We balance GUC's need for customization with opportunities to simplify and adopt out-of-the-box capabilities where possible—supporting maintainability and long-term scalability. An example of how we map a future-state model tailored to GUC's needs is shown Figure 5.

Figure 5. We will design a future state model tailored to GUC's needs that will support maintainability and long-term scalability.

Workflow Alignment

Our model recommendations are grounded in operational requirements—not generic templates. We assess key workflows such as field design, switching, service point management, and outage response to enable the new system supports how GUC works. This approach avoids a one-size-fits-all model and results in a design that serves field crews, analysts, planners, and engineers alike.

Validation and Readiness

We will conduct sample data mapping and a preliminary migration using ArcGIS tools and internal scripts to validate schema design and identify data issues early. This step surfaces potential dirty areas, connectivity breaks, and schema gaps providing GUC actionable insights into both data quality and model performance before full deployment. Our proposed data mapping process will give GUC actionable insights into data quality and model performance, shown in Figure 6.

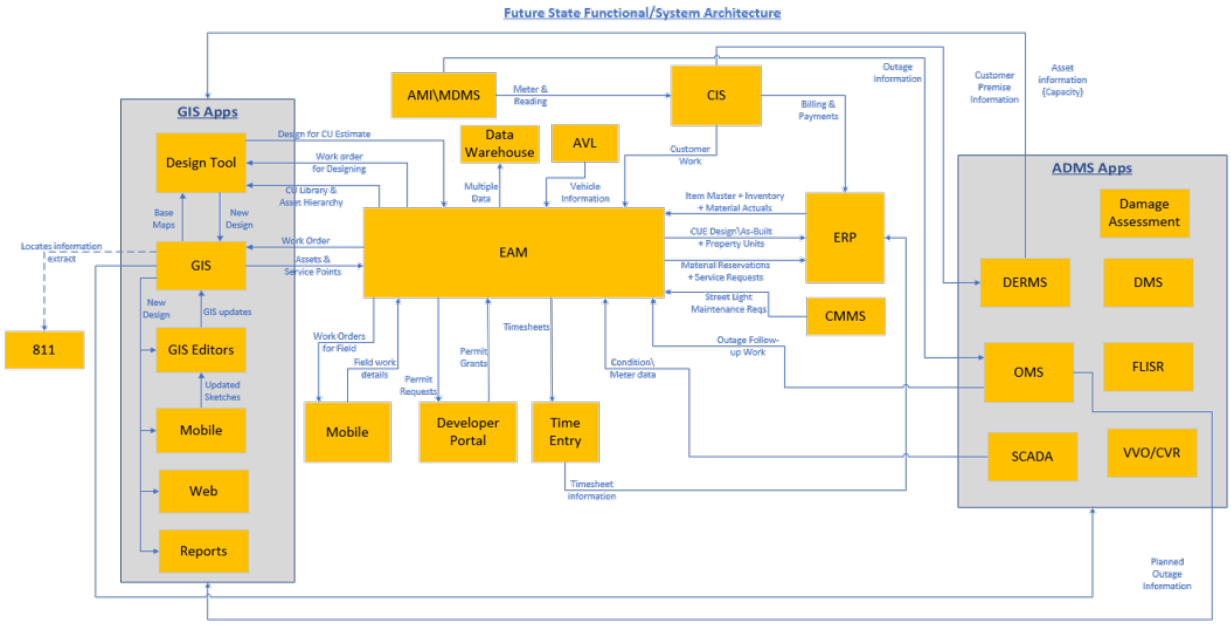


Figure 6. Our proposed data mapping exercise gives GUC actionable insights into data quality and model performance before full deployment.

Integration Strategy

Integration experience

Recognizing GUC's heavy reliance on real-time integrations, we will establish a robust, future-proof integration framework. Our approach enables business-critical systems such as CIS, OMS, SCADA, and planning platforms to maintain continuity throughout the transition, while identifying modernization pathways for systems incompatible with the Utility Network. Integration will be designed to unlock cross-platform data utility and operational insights.

We assess current system integrations across CIS, OMS, SCADA, and other edge platforms to identify compatibility with Utility Network. This process includes developing an interface inventory, evaluating middleware where necessary, and recommending transition plans for any systems that cannot be sustained under the new architecture. Our goal is to support continuous data access and transparency across the enterprise.

Current-State Integration Inventory

We will begin by documenting GUC's current integration landscape, including CIS, OMS, SCADA, planning and design, and asset management systems. This includes cataloging data exchanges, middleware components, and update mechanisms. Special attention will be given to GIS-dependent systems, including any custom integrations or legacy connections that rely on the Geometric Network model.

Compatibility Assessment and Risk Identification

Once the inventory is complete, we will assess each integration for compatibility with the Utility Network framework. This includes identifying key dependencies, evaluating integration methods, and determining which systems will require updates. For any known incompatibilities like legacy OMS platforms we will work with GUC to evaluate transition options or alternative approaches.

Future-State Architecture and Design

Building on the results of the assessment, we will design a scalable, service-oriented integration architecture that aligns with GUC's operational priorities. This framework will promote flexibility and minimize tight coupling between systems. Where feasible, we will recommend web services, API layers, or middleware solutions to support bi-directional data flow and near real-time updates across the enterprise.

Transition Planning and Dual-System Support

During the migration period, GUC may need to operate GN and UN environments concurrently. Our team will identify integration touchpoints impacted by this dual-support scenario and develop mitigation strategies, including temporary interfaces or phased cutovers. This enables continuity of service for mission-critical systems during the transition.

Work Plan

We will deliver a structured, milestone-based work plan aligned with GUC's timeline and governance standards. The plan balances rigor and flexibility, enabling rapid identification of data quality issues, collaborative model design, and stakeholder alignment at each stage. Our approach allows GUC leadership to maintain visibility, control, and confidence throughout the project lifecycle.

The proposed work plan includes stakeholder interviews, data readiness evaluations, and delivery of a high-level implementation roadmap. Activities are divided across three phases—current state assessment, master plan development, and optional system architecture design. Each phase produces tangible deliverables, including interface diagrams, migration strategies, and budgetary estimates, which support decision-making at each step. For an example of a past work plan that 1898 & Co. has successfully executed, please see Appendix C.

Transition Management

We will guide GUC through a carefully managed transition from Geometric Network to Utility Network, with minimal risk and no loss of operational capability. Our dual-environment strategy promotes service continuity while preparing teams for long-term adoption. Executive stakeholders can expect a disciplined transition approach, backed by proven change management and knowledge transfer protocols.

Our process is built to support concurrent GN and UN environments. We define required workflows and personnel involvement, analyze resource impacts, and provide corrective actions based on data quality findings. This approach supports a smoother handoff from old to new environments while reducing operational risk during the transition window.

Dual-System Support Strategy

Given GUC's reliance on the Geometric Network for critical operations, we will enable GN and UN environments to run concurrently during the transition window. This includes defining parallel workflows, identifying overlap points, and configuring synchronization protocols where necessary. Our approach allows for iterative testing and staged cutover, minimizing business disruption.

Operational Impact and Workflow Planning

We will work with GUC teams to assess the operational impact of the transition and define clear roles, workflows, and handoffs between systems. Key functions—such as editing, tracing, and asset updates—

will be mapped and tested in both environments to validate readiness. Where gaps are identified, we will propose temporary procedures or tooling to bridge functionality.

Change Management and Stakeholder Readiness

Our transition planning incorporates change management activities tailored to different user groups. This includes identifying affected roles, documenting impacts, and preparing communication and training materials. We use lessons learned from similar migrations to anticipate resistance points and build a support plan that reinforces adoption.

System Architecture

1898 & Co. follows Esri's 'ArcGIS Well-Architected Framework' guiding principles when providing system architecture design services, shown in Figure 7. This approach considers three key foundational elements in designing an efficient, resilient, modular, and secure ArcGIS system.

Figure 7. Data tier, services tier, and application tier are foundational to designing the right ArcGIS system for GUC.

Data Tier: GUC's ArcGIS system should be adaptable and provide extensive support for different types of geospatial data stored in File and Enterprise Geodatabases (On-premises or Cloud).

Services Tier: The ArcGIS Server component of ArcGIS Enterprise will be the backbone of the services tier, hosting various GIS services (map, feature, geoprocessing, etc.) that the application tier can consume. The team will work with GUC to fine-tune the performance of these services, especially the ones that are business-critical.

Application Tier: GUC's application tier will be user-centric and built on top of the ArcGIS Enterprise Portal to provide a seamless web service-based architecture. GUC's application portfolio can include web maps, out-of-the-box Esri solution templates, custom GIS applications, and more.

Project Management Strategy

Our program governance model is built for executive oversight and operational alignment. With a clear focus on outcomes, accountability, and risk mitigation, our strategy guides transparency at all levels—from technical execution to board-level reporting. We integrate PMO best practices to support GUC's fiscal discipline and timeline-driven execution.

Our delivery structure incorporates weekly touchpoints, phase-based governance, and clear change control procedures. Roles and expectations are documented from day one. We leverage a standard project management framework that aligns with public utility workflows and reporting structures, making it easier for GUC leadership to monitor outcomes and adjust scope if needed.

Knowledge Transfer and Risk Mitigation

To kick off the project 1898 & Co. will conduct two Utility Network familiarization workshops with the goal of providing a baseline understanding of the ArcGIS Utility Network. The workshops will provide knowledge transfer sessions focused on UN administration, workflow changes, and system usage. Workshops will include:

- One overall Utility Network familiarization workshop for the wider stakeholder group.
- One technically focused workshop for GIS and IT staff who will be the primary stakeholders for data modeling and migration activities.

Project Plan

The Utility Network Design Services engagement will be delivered over a structured 20-week (five-month) timeline, divided into two primary phases with optional add-on tasks, shown in Figure 8. The project plan focuses first on establishing a shared understanding of GUC's current state and desired outcomes, and then delivering a roadmap and implementation strategy for Utility Network migration.

We propose beginning with a formal onsite kickoff meeting at GUC's facilities. This trip will establish alignment on project scope, confirm roles and communication protocols, and initiate discovery. During **Phase 1**, our team will conduct workshops with representatives from Electric Engineering, Gas Engineering, and GDS to assess business processes, document current integrations, and evaluate GIS data quality. These sessions will result in a Current State Assessment and a conceptual Utility Network data model design for electric and gas.

In **Phase 2**, we will focus on roadmap development and planning. Building on Phase 1 findings, we will define implementation workstreams, estimate the level of effort and cost, and prioritize action items. The result will be a practical Utility Network Master Plan, including a high-level schedule and budget.

To support final alignment and knowledge transfer, we propose a second onsite trip near project closeout. This trip will be used to deliver and review the draft roadmap and master plan with GUC stakeholders, address questions, and drive consensus on key recommendations. We will support all remaining collaboration, including working sessions and status updates, through remote meetings.

We will manage the project using milestone-based deliverables, weekly check-ins, and our dedicated project manager, Ben Stafford, will support timely delivery and quality assurance. Optional items such as pilot data conversion or system architecture design may be added at GUC's discretion.

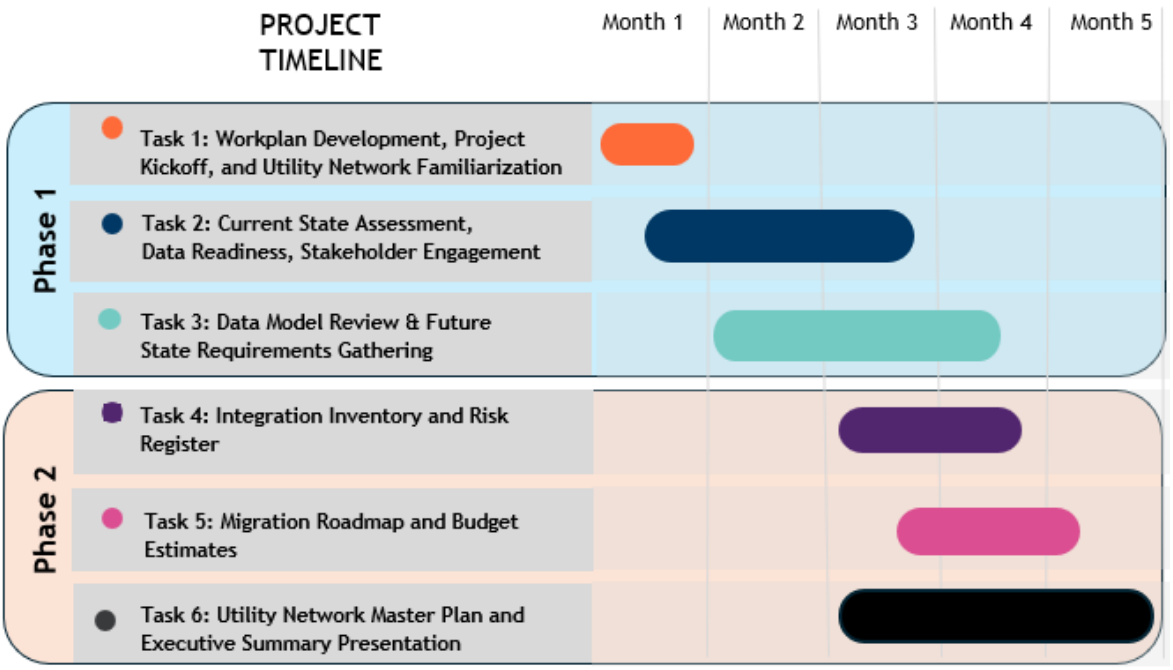


Figure 8. Our proposed project plan is organized across two phases over five months.

Phase 1: Current State Assessment & Future State Model Design

In this phase, 1898 & Co. will conduct a comprehensive review of GUC's existing GIS environment, including electric and gas data models, integrations, workflows, and system architecture. We will identify areas of risk and opportunity and work with GUC stakeholders to define a clear, achievable vision for the future-state Utility Network.

Phase 1 is foundational to the success of the Utility Network planning engagement. During this phase, 1898 & Co. will work closely with GUC's internal teams to establish a clear understanding of the current GIS landscape, identify gaps and opportunities, and define a practical vision for the future Utility Network model. This phase includes a mix of onsite and remote activities designed to promote alignment, uncover integration needs, and begin prioritizing essential system and workflow changes.

We will conduct the following key activities in Phase 1:

- Conduct an onsite kickoff meeting with GUC stakeholders to confirm goals, review project structure, and establish communication protocols.
- Review GUC's current electric and gas GIS architecture, data models, editing environments, and ArcFM configurations.
- Evaluate how GIS data flows between existing systems, including OMS, SCADA, CIS, and Designer with Session Manager.
- Facilitate discovery workshops with GUC teams (Electric Engineering, Gas Engineering, Greenville Department Services (GDS)) to understand business processes and current use cases.
- Review approximately 25 business processes to identify which will be impacted by Utility Network and which can be streamlined or redesigned.

- Assess the current state of GIS data for Utility Network readiness and identifying areas of concern, such as network violations, topology issues, missing attributes, or inconsistent domains.
- Draft a conceptual Utility Network model for electric and gas, considering Esri's and Schneider Electric's schemas while accommodating GUC-specific needs.
- Compile an initial list of system and data risks that could affect the future Utility Network deployment, with potential mitigation strategies.

The outcome of Phase 1 will be a comprehensive Current State Assessment report and a Future State Model summary that clearly articulates where GUC is today and what foundational changes are needed to successfully transition to the Utility Network. These findings will feed directly into the Phase 2 planning and roadmap development.

Phase 2: Utility Network Migration Roadmap & Master Plan

This phase focuses on transforming the findings of Phase 1 into a detailed implementation strategy. We will define implementation programs, prioritize activities, and estimate the budget and level of effort required to execute the migration to the Utility Network.

Phase 2 builds on the findings of Phase 1 and transitions the engagement from assessment into actionable planning. The objective is to define the scope, timeline, resources, and estimated costs associated with transitioning GUC's electric and gas systems to the Esri Utility Network. This phase includes roadmap development, program definition, and stakeholder alignment around priorities, risks, and interdependencies.

Key activities in Phase 2 include:

- Confirming business benefits and future-state goals identified in Phase 1.
- Facilitating working sessions to prioritize implementation elements using a structured methodology.
- Defining workstreams and implementation programs for data preparation, system configuration, and business process alignment.
- Estimating the level of effort and resource needs for both internal GUC staff and potential implementation partners.
- Preparing cost estimates with a ±30% range, categorized by major workstream.
- Mapping interdependencies, risks, and potential phasing strategies.
- Developing a high-level implementation roadmap with timelines and key decision points.
- Preparing the Utility Network Master Plan report and summary presentation for executive review.

The result of Phase 2 will be a clear and practical roadmap that GUC can use to plan for implementation funding, procurement, resource allocation, and organizational readiness. It will also help GUC compare technology toolsets and workflows, and set realistic expectations for execution.

Optional Task 1: System Architecture Design & Planning

For utilities operating in high-availability environments like GUC, proper architecture planning is essential for performance, security, and scalability. If selected, this phase provides GUC with a tailored architecture plan to support its Utility Network deployment.

This optional phase provides GUC with a comprehensive review and recommendation for the Utility Network system architecture. **Key activities of the System Architecture Design & Planning activity include:**

- Reviewing GUC's existing high-availability ArcGIS Enterprise deployment and current on-premises architecture.
- Facilitating a remote workshop with GUC IT stakeholders to assess infrastructure, authentication methods, and system usage patterns.
- Comparing on-premises and cloud-hosted models based on scalability, cost, and support implications.
- Recommending an optimal deployment architecture, including system sizing, backup, recovery, and security considerations.
- Delivering a written system architecture design suitable for planning and procurement decisions.

System architecture design deliverables:

- Technical memorandum in .pdf format with recommended system architecture design

Optional Task 2: Utility Network Pilot Conversion - Electric and Gas

As an additional option, 1898 & Co. proposes a Utility Network pilot conversion for both the electric and gas networks. This pilot will serve as a readiness checkpoint for GUC, helping to uncover practical data issues and build internal confidence in the Utility Network model. GUC will provide their Electric and Gas network geodatabases, and the pilot will result in a preliminary conversion of these datasets into Esri's Utility Network foundational schemas for Electric and Gas.

Pilot deliverables:

One File Geodatabase each for Electric and Gas, structured in Utility Network format.

A technical memo summarizing the data mapping, conversion process, validation results, and areas requiring attention before full migration.

A review session with stakeholders to walk through the pilot output, identify lessons learned, and inform long-term planning.

Pricing

1898 & Co. proposes a preferred fixed-fee pricing model for the Utility Network Design Services engagement. The total cost for the base scope is fixed at $105,000. Optional tasks may be added at GUC's discretion. This pricing is based on the scope, high-level activities, and deliverables outlined in this proposal. A detailed phase breakdown is provided in the accompanying cost table.

In accordance with GUC's request, the cost tables below include both a fixed cost and a Time and Materials (T&M) approach with a not-to-exceed (NTE) cap in the total fee line.

The inclusion of the T&M with NTE model is specific to this engagement and does not reflect a standard pricing structure for future phases or implementation efforts. For subsequent phases, especially those involving system configuration, integration, or deployment we recommend milestone-based or fixed-fee pricing to maintain delivery rigor, cost control, and mutual accountability.

Under the T&M approach, actual labor hours incurred by role will be tracked and invoiced monthly, up to the agreed-upon NTE amount. Any scope adjustments will be managed through a standard change order process and mutually agreed to in writing.

Core Tasks

Task No.	Description	Estimated Hours	Fee ($)
1	Work Plan Development and Project Kickoff	40	$12,500
2	Current State Assessment, Utility Network Data Readiness Assessment	100	$27,500
3	Data Model Review and Future-State Requirements Definition	80	$18,000
4	Integration Inventory and Risk Register	60	$12,500
5	Migration Roadmap and Budgetary Estimates	80	$18,000
6	Utility Network Master Plan and Executive Summary Presentation	70	$16,500
Total		**430**	**$105,000**

Optional Tasks

Task No.	Description	Estimated Hours	Fee ($)
7	System Architecture Design Workshop & Recommendations	80	$18,800
8	Utility Network Pilot Conversion – Electric (File Geodatabase Output)	60	$12,000
9	Utility Network Pilot Conversion – Gas (File Geodatabase Output)	60	$12,000
Total		**200**	**$42,800**

Milestones & Deliverables

1898 & Co. will deliver the Utility Network Design Services engagement in structured phases with clear milestones tied to tangible deliverables. Each milestone will be invoiced upon delivery of the associated deliverables.

Milestone	Deliverables	% of Total Fee
1	Work plan, project charter, and kickoff presentation	25%
2	Current state assessment summary and data review results	25%
3	Integration inventory and future state requirements summary	25%
4	Final plan document and executive summary presentation	25%

The following table contains the deliverables that 1898 & Co. will provide during this engagement per task. 1898 & Co. owns each deliverable; however, both 1898 & Co. and GUC are required contributors, and 1898 & Co. will coordinate each deliverable for approval by GUC.

Task	Deliverable
1	Work plan in MS Excel and MS Project format
1	Project charter in MS Word Format
1	Kickoff presentation in MS PowerPoint format
2	Current state assessment notes and summary of findings in MS Word (Draft) and PDF format (final)
2	Data Review results memorandum in PDF format and Geodatabase output
3	Source geodatabase to target Utility Network geodatabase preliminary mapping spreadsheets for Electric and Gas geodatabases in MS Excel format
3	Future-state goals and business requirements memorandum in MS Word (draft) and PDF formats
4	List of third-party integrations with a Utility Network impact assessment in MS Excel format
5	Implementation roadmap with timelines and budgetary estimates per workstream in MS Word (draft), PDF (final), and PowerPoint (final) formats.
6	Utility Network Master Plan report in MS Word (draft) and PDF (final) formats
6	Utility Network Master Plan summary presentation for executive stakeholders in PowerPoint format.

Data Security and Compliance Strategy

Security Frameworks and Protocols

1898 & Co. and Burns & McDonnell's information technology and physical security posture for both domestic and international offices includes the following points. We will make our director of Cyber Security available to answer additional questions and provide further documentation at the request of GUC.

- Operating an ISO 27001 certified Information System Management System (ISMS).
- Receiving annual audit and penetration testing of information security controls.
- Reviewing security policies and continuity plan annually.
- Performing pre-employment background check.
- Managing and monitoring of both physical and cyber security controls by US based Corporate Security Dept.
- Controlling office access with unique RFID badge with picture, restricted by need, and monitored 24/7.
- Connecting offices and resources via secure cloud deployed SDWAN technology providing redundancy, optimization, and prioritization of internal and external network traffic, as well as wireless protection, and network access control.
- Controlling system access through unique user credentials (automated provisioning and deprovisioning within 24 hours) multi-factor authentication for internet accessible application, requiring authentication prior to accessing system resources, limiting access to data on an as-needed basis, creating separate special access privilege accounts, and following industry password best practices.
- Utilizing vendor agnostic cloud hosting model allowing active project information and files to be available for quick restoration providing a robust business continuity and disaster recovery capability.
- Deploying internet security systems, including next generation enterprise-grade firewalls with a default deny policy, URL & DNS filtering technology, advanced persistent threat detection and blocking, dynamic malware analysis, and administrative access restricted to internal IPs using multi-factor authentication.
- Deploying end user devices built using a secure configuration, (removing unnecessary accounts, services, and applications, restricting administrator passwords, installing only approved software, disabling auto-run feature, and enabling full disk encryption), protected with a host-based firewall, an "always on" VPN, automated file scanning, malware detection software updated daily, application allow listing and sandboxing, and can be remotely rendered inoperable should the device become lost or stolen.
- Scanning email for malware, rewriting URLs, and employing imposter prevention technology.
- Continuous monitoring and logging of production systems, including anomalous behavior.

- Identifying vulnerability through our daily and monthly scans, patching regularly during the monthly maintenance window or using our expedited change management process for applying critical and high updates.
- Documenting and approving all changes within an ITIL compliant system.
- Conducting regular information security awareness training to include simulated phishing tests.
- Evaluating subcontractors and suppliers through our Third-Party Risk Management Program (TPRM).

Assumptions

To define the scope and expectations for the Utility Network Design Services project, the following assumptions apply to the base and optional work described in this proposal:

General Assumptions

- This proposal covers planning and design services only. GUC has clarified that implementation and data migration will be handled under a separate project.
- The selected vendor for this planning engagement may be eligible to respond to future RFPs for implementation, subject to GUC's procurement process.
- GUC will provide all available documentation related to current GIS systems, data models, integrations, and business processes prior to project start.
- GUC will coordinate scheduling and access to stakeholders across Electric Engineering, Gas Engineering, and GDS departments.
- Up to 25 key business processes will be reviewed during this engagement to support the Utility Network transition.
- No prior Utility Network data readiness assessment has been conducted for the electric or gas networks.
- Deliverables will be provided in digital format (PDF or editable Microsoft Office formats).
- GUC will commit the necessary resources and management involvement to support the Project and will give access to 1898 & Co. to tools and data required for the Project.
- All information, data, and documentation provided by the client as part of this RFP package is complete and accurate.

Travel & Meetings

- Two onsite trips are included, one during the Kickoff and Current State Assessment phase to support stakeholder workshops and discovery and one during the Utility Network Migration Roadmap and Master Plan phase to share the results of the roadmap.
- Additional travel, if requested, will be handled through a change order.
- Remaining workshops and meetings will be conducted remotely via Microsoft Teams or a GUC-approved platform.

Optional Architecture Design Assumptions

- GUC currently operates in a high-availability, on-premises environment using SQL Server.
- GUC is open to cloud-hosted and hybrid solutions. Recommendations will reflect GUC's existing infrastructure, cost sensitivity, and security requirements.
- One remote workshop will be held to gather IT input and inform system architecture

Optional Pilot Conversion Assumptions

- GUC will provide a representative electric and gas dataset in File Geodatabase format for conversion to the Esri Utility Network model.
- Pilot conversions will be delivered as File Geodatabases, along with summary documentation outlining transformation logic and data quality observations.
- These pilots are not intended to support production migration but will serve to evaluate readiness and highlight required remediation.

Commercial Terms

1898 & Co. proposes to perform this scope of work using the terms and conditions agreed to in the Master Professional Services Agreement executed February 3, 2025, between Greenville Utilities Commission and Burns & McDonnell North Carolina, Inc.

Insurance Certificate

We provide a Certificate of Insurance in Appendix A. Required Forms and Adherence to GUC Policy and Other Requirements.

Staffing Approach

1898 & Co. brings GUC a highly qualified team with deep utility GIS project delivery experience, supported by a structured and scalable staffing approach. With 130 years of combined relevant experience, our proposed team blends technical depth, practical implementation history, and strong working knowledge of both legacy systems and modern Esri Utility Network architecture.

We use a structured staffing model with clear roles, dedicated leadership, and scalable support aligned to project needs. Our team will work alongside GUC to transfer knowledge, build internal capability, and align expectations, supported by clear communication to keep the project moving forward. Our company also provides a local North Carolina presence, enabling in-person collaboration and efficient coordination with GUC's internal teams. Our proposed staff and organizational chart are shown in Figure 8.

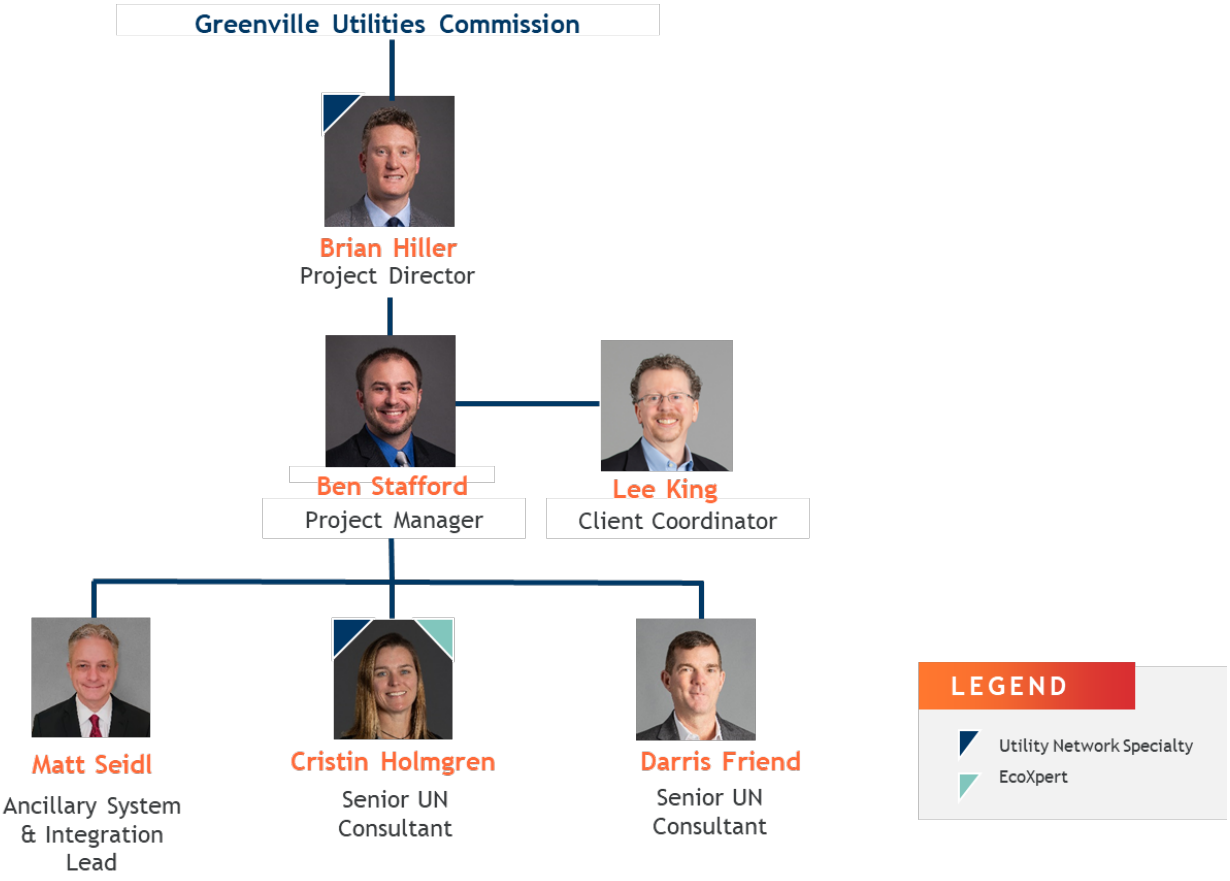


Figure 7. Our team offers GUC more than 130 years of relevant experience for your UN Design.

Key Staff

Years Experience: 19

Certifications: Esri ArcGIS Utility Network Specialty; GIS Professional; Prosci Certified Change Manager

Brian Hiller | Project Director

As Project Director, Brian will bring GUC strategic leadership and technical depth to guide a successful Utility Network transition. With extensive experience managing enterprise GIS implementations and change management initiatives, Brian will drive tangible operational improvements and long-term organizational alignment for GUC. His ability to bridge technical execution with organizational readiness will help GUC achieve both immediate deployment success and sustained system adoption.

As Geospatial Technologies Manager at 1898 & Co., Brian leads enterprise GIS projects focused on utility transformation. He holds multiple Esri certifications, including ArcGIS Utility Network, and is a Prosci Certified Change Management Practitioner. His combined technical and organizational skills help align people, processes, and platforms to meet business goals.

Previously at Esri, Brian advised utilities nationwide on maximizing the ArcGIS platform. His experience spans ArcGIS Enterprise design, Utility Network implementation, and GIS-EAM integration. With deep utility-sector experience, Brian is a key contributor to GUC's Utility Network project—from planning to implementation and long-term optimization.

Years Experience: 18

Certifications: Esri ArcGIS; Certified GIS Professional

Ben Stafford | Project Manager

As Project Manager, Ben brings GUC direct, hands-on experience managing Utility Network projects, making him a valuable asset for a seamless, timely transition that is within scope, and aligned to your strategic objectives. His deep familiarity with Utility Network migrations positions him to anticipate challenges, manage risk, and drive successful outcomes.

As Project Manager, Ben will lead the day-to-day execution of GUC's Utility Network Initialization project, including defining expectations, managing scope and schedule, and achieving business goals within budget. He has over 18 years of experience in GIS and geospatial technologies, with a strong focus on design, engineering, and construction projects for utilities of all sizes.

Ben has led numerous Utility Network readiness initiatives, including conducting current-state assessments, developing future-state roadmaps, and overseeing data modeling and migration for complex utility networks. He will coordinate a successful, efficient migration plan to the Utility Network.

Lee King | Client Coordinator

Years Experience: 30

Certifications: P.E.

As Client Coordinator, Lee will serve as a strategic advisor, helping guide the client through digital transformation initiatives by aligning utility operations with long-term growth, energy transition, and grid modernization goals. Lee is a technology executive focused on the utilities industry. His experience spans generation, transmission, and distribution engineering; software implementation; and system integration. He is an experienced solution architect and delivery lead for large transformational programs related to T&D operations, smart metering, and customer care.

Cristin Holmgren | Senior UN Consultant

Years Experience: 23

Certifications: Esri Utility Network Specialty; EcoXpert Certified

As Senior UN Consultant, Cristin brings Greenville Utilities Commission (GUC) a valuable mix of deep Utility Network experience, multi-utility experience, and technical leadership to support a smooth GIS modernization. She has successfully led Utility Network implementations across electric, gas, water, wastewater, and telecommunications utilities, providing GUC with proven strategies for system configuration, data readiness, migration, and deployment.

Cristin holds Esri technical certifications in ArcGIS Enterprise and the ArcGIS Utility Network and led the 1898 & Co. Schneider Electric EcoXpert certification initiative, demonstrating advanced knowledge of ArcFM and Fiber Manager solutions. Her project experience spans electric transmission and distribution, fiber design and management, stormwater systems, site/route selection, electric reconductoring, renewable energy, and 3D spatial analysis—giving her a broad perspective on utility GIS needs and data complexities.

She brings critical skills in spatial analysis, linear referencing, data modeling, and enterprise database configuration. Her experience administering ArcGIS Enterprise and ArcGIS Online environments enables system integrity and performance at scale. Cristin's ability to analyze, organize, and integrate complex datasets makes her a key contributor to aligning GUC's GIS platform with operational and business goals.

Darris Friend | Senior UN Consultant

Years Experience: 25

Certifications:
Certified GIS Professional

As Senior UN Consultant, Darris brings hands-on experience leading a full Utility Network implementation at Gainesville Regional Utilities (GRU), Florida's fifth-largest municipal electric and gas utility, experience that aligns directly with Greenville Utilities Commission's (GUC) GIS modernization goals. He understands the complexity of migrating from legacy systems and offers GUC proven strategies for planning, execution, stakeholder engagement, and long-term sustainability.

With 25 years of experience in Esri's ArcGIS Enterprise platform, Darris developed and led GRU's Utility Network migration, managing cross-functional teams, system integration, and a $450,000 annual GIS software budget. His leadership on enterprise GIS initiatives totaling $1.2 million earned him recognition as an Esri Electric GIS Hero in 2021. He also serves on the Panasonic Utility & Energy Advisory Council and is a frequent speaker at industry conferences including Esri GeoConX, Cityworks Innovate, and FMEA's Hurricane Preparedness Forum.

Darris is highly skilled in ArcGIS Pro, ArcGIS Enterprise, and the Utility Network, with additional experience in Schneider Electric's ArcFM and Trimble's Cityworks. He also brings intermediate Python experience (ArcGIS Python API, arcpy) to support automation and process optimization. His ability to document and align business processes with GIS makes him a strong asset to GUC's long-term strategy.

Matt Seidl | Ancillary System & Integration Lead

Years Experience: 24

Certifications: P.E.

As Ancillary System & Integration Lead, Matt is a utility industry and engineering professional with more than 20 years of experience leading change and modernizing utility technologies and processes. Matt served for 17 years at a combined electric and gas utility operator, managing the GIS department, leading a team of 49 employees supporting GIS, field services, and work management processes and technologies. Matt's GIS team was recognized by AGA as a best practice in 2023.

Matt has enjoyed leading teams for the past 17 years and has developed a great track record of providing vision and leadership as an implementer of enterprise processes and technology solutions. His broad career experience includes leading both business and IT applications teams, building the Utility of the Future vision and strategy, managing the geographic information systems department, managing enterprise projects, selecting solutions, creating business cases, and marketing projects internally. Matt is excited to leverage the latest technologies and data to help employees have the right information at the right time to make great decisions.

APPENDIX A REQUIRED FORMS AND ADHERENCE TO GUC POLICY AND OTHER REQUIREMENTS

RFP Acknowledgement and Signature Form

RFP No.: 25-21, Utility Network Vendor Selection

The undersigned having carefully examined the location of the proposed work, the local conditions of the place where the work is to be done, the Invitation, the General Conditions, the Specifications and all of the documents for this project, proposes to enter into a contract with Greenville Utilities Commission in Greenville North Carolina perform the work listed in this RFP, including all of its component parts, and to furnish any and all required labor, materials, equipment, insurance, bonding, taxes, transportation and services required for this project in strict conformity with the plans and specifications prepared, including any Addenda, within the time specified.

Addendum Acknowledgement:

The following addendum (addenda) is (are) acknowledged in this RFP: 25-21 QA.pdf

Acknowledgement and Signature:

1. No Proposal is valid unless signed in ink by the person authorized to make the proposal.
2. I have carefully read, understand and agree to the terms and conditions on all pages of this RFP. The undersigned agrees to furnish the services stipulated in this RFP.

Respondent's Name and Title:

Company Name: 1898 & Co.® a part of Burns & McDonnell North Carolina, Inc.

Address: 9400 Ward Parkway, Kansas City, MO 64114

Telephone: 816-652-2820 Fax: N/A

Email: Brian.Hiller@1898andCo.com Cell Number: 785-633-4762

Contractor License # (if applicable): N/A Expiration Date: N/A

Federal Tax Identification Number: Should be on file with GUC

Authorized Signature:  Date: 4/10/2025

Decline RFP:

We **do not** wish to submit an RFP on this Project. Please state your reason below. Please also indicate if you would like to remain on our Supplier list.

Reason: _____

_____

_____

Company: _____ Address: _____

Name: _____ Signature: _____ Date: _____

E-Verify Form

Letter of Compliance to E-Verify for Greenville Utilities Commission. Please complete the form below.

1. 1.I have submitted a bid for contract or desire to enter into a contract with the Greenville Utilities Commission;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
3. ✓ After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
4. ____ I employ less than twenty-five (25) employees in the State of North Carolina.
5. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this bid and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
6. ____ After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or
7. ____ Employ less than twenty-five (25) employees in the State of North Carolina.

Specify subcontractor: _____

1898 & Co.® a part of Burns & McDonnell North Carolina, Inc. (Company Name)

By: Brian Hiller (Typed Name)

_____ (Authorized Signatory)

Senior Managing Director, 1898 & Co. (Title)

5 / 12 / 2025 (Date)

It is certified that this proposal is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this proposal is made in good faith and without collusion or connection with any GUC employee(s).

Certified check or cash for N/A or bid bond for N/A attached.

Firm Name: 1898 & Co.® a part of Burns & McDonnell North Carolina, Inc. Phone: (816) 652-2820

Address: 9400 Ward Parkway

City Kansas City State MO Zip Code 64114

Fax (____)_____ E-mail brian.hiller@1898andco.com

Authorized Official Brian Hiller Title Senior Managing Director, 1898 & Co.

Typed Name

Date 05 / 12 / 2025

Your Proposal should be received no later than Mayl 13, 2025, 3:00PM (EDT)

CERTIFICATE OF LIABILITY INSURANCE

12/1/2025

DATE (MM/DD/YYYY) 11/20/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies, LLC 444 W. 47th St., Ste. 900 Kansas City MO 64112-1906 (816) 960-9000 kcasu@lockton.com	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED 1334942 BURNS & MCDONNELL EGS, P.C PO BOX 419173 KANSAS CITY MO 64141-6173 HANKEL, LEANN	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Liberty Mutual Fire Insurance Company — 23035 INSURER B : Steadfast Insurance Company — 26387 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES CERTIFICATE NUMBER: 17187302 REVISION NUMBER: XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:	N	N	TB2-641-432888-474	12/1/2024	12/1/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000 $
A	AUTOMOBILE LIABILITY X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY	N	N	AS2-641-432888-044	12/1/2024	12/1/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 2,000,000 $ XXXXXXX $ XXXXXXX $ XXXXXXX $ XXXXXXX
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $			NOT APPLICABLE			EACH OCCURRENCE AGGREGATE 	$ XXXXXXX $ XXXXXXX $ XXXXXXX
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	N	WC2-641-432888-014	12/1/2024	12/1/2025	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
B	PROFESSIONAL LIABILITY	N	N	EOC 7042179-04	12/1/2024	12/1/2025	$1,000,000 PER CLAIM; $1,000,000 AGGREGATE	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

17187302
SAMPLE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Joseph M Agnello

APPENDIX B RESUMES

EDUCATION

Masters, Business Administration

Bachelors, Geography

CERTIFICATIONS

Esri ArcGIS Utility Network Specialty

Certified GIS Professional

Prosci Certified Change Manager

EXPERIENCE

19 years of relevant experience

Brian Hiller, UN Specialty, MBA, PCCM

Project Executive / GIS Director

Brian is the Geospatial Technologies Manager at 1898 & Co. He holds multiple technical certifications with Esri's ArcGIS Platform and has experience managing and working on a range of IT/GIS projects. Brian is heavily involved in the implementation of GIS technology across industries. He is a Prosci Certified Change Management Practitioner and works with organizations to help them realize a greater Return On their Investment in technology solutions. Prior to joining 1898 & Co., Brian worked for Esri; a global leader in enterprise GIS software helping organizations leverage the ArcGIS platform.

PROJECT EXPERIENCE

Utility Network Model Migration | Fairfax County Water Authority

Principal-in-Charge | 1898 & Co. is migrating Fairfax Waters GIS asset network into the water distribution ArcGIS Utility Network model. We are conducting a full production deployment in an 11.1 ArcGIS Enterprise cloud environment. 1898 & Co. is conducting an organization-wide stakeholder assessment and requirements gathering report, system architecture design & documentation, and a 3rd party software impact assessment prior to initiating a data readiness assessment. Following a collaborative data model design process, we will deploy the Utility Network into a staging environment and then a pilot project instance. Following sufficient testing, data cleanup, application migration and dirty area resolution, the Utility Network will be migrated into production. Migrated Fairfax Water's ArcGIS Enterprise environment into an Azure managed cloud. Additionally, we will provide Fairfax Water with Change Management services and hydraulic modeling consulting services.

KC Water ArcGIS Utility Network Assessment | Kansas City, Missouri

Technical lead | 1898 & Co. assisted KC Water with an ArcGIS Utility Network readiness assessment and pilot project. The goal of the project was to help KC Water take the first steps toward migrating their existing Sewer, Water, and Stormwater GIS databases to the ArcGIS Utility Network. 1898 & Co. staff performed a variety of tasks to help KC Water prepare to migrate to the ArcGIS Utility Network including: Review of the existing GIS data schema and mapping it to the Utility

Network data models for wastewater and stormwater. Creation of an asset package that includes KC Water specific requirements including combined sewer asset types. Sewer data quality review using the ArcGIS Data Reviewer. Data cleanup to assist with resolving sewer system type issues identified during the data quality review. Third-party software integration assessment to determine the level of impact migration to the ArcGIS Utility Network would have on KC Waters Infor Public Sector CMMS, Innovyze hydraulic modeling and asset management analytics, as well as the organizations Wincan CCTV management system. A preliminary data migration from the Geometric Network to the Utility Network. The sewer database was migrated to the newly created KC Water sewer asset database. Development of a test environment that KC Water can work with and test the ArcGIS Utility Network Setup of a toolset that synchronizes content from the Geometric Network to the Utility Network.

Smart Sewer Program Management Fy22 | Kansas City, Missouri

Project team | Led an integrated team of design and construction managers throughout the project delivery cycle. Activities included review and recommendation for approval to KC Water management staff of design professionals contract scope of work and fee, amendments, optional services requests and construction contract documents, and general contractor change orders; review and primary approval of construction issue resolution by facilitating collaborative resolution of technical issues during construction working closely with the design professional of record contracted directly with City, including work change directives, change orders, claims, defective work, and punch list resolution. Also provided review and primary approval of issuance of Achievement of Full Operation, and Final Completion on behalf of KC Water. Work included oversight of Design Manager, Construction Managers, Project Managers and Field Operations Managers in identifying potential risks related to delivery of design and construction projects and identify viable risk mitigation strategies. Project risks were monitored and mitigated through the development and maintenance of risk register and associated cost contingencies for design and construction risk exposures.

ArcGIS Utility Network Services | Confidential Client

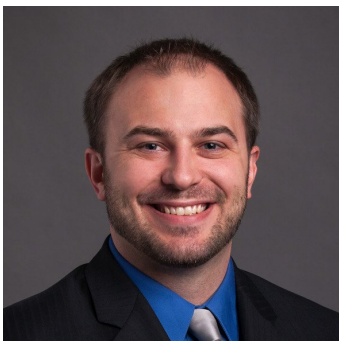
Project Manager | Developed CADD to GIS automated ETL solution with FME Server to update ArcGIS Utilities datasets from CADD (.dwg,. dgn) data sources stored in Project Wise. Brian is project manager for a GIS implementation project with a large defense contractor that owns and operates hundreds of buildings on campuses throughout the United States and around the world. The project involves ArcGIS system implementation and configuration, ArcGIS Enterprise Geodatabase (SDE) design, CAD (MicroStation and AutoCAD) to GIS conversion using the Safe Software FME platform, integration with facility management data from IBM Tririga, systems integration, development of an Unmanned Aerial Vehicle (UAV) program to perform inspections using high resolution traditional imagery and thermal imagery, and an ArcGIS Utility Network pilot.

Clean Water Program Management and Consulting | Shreveport, Louisiana

GIS and Asset Management Lead | As part of the City's Clean Water Shreveport Program, Burns & McDonnell along with its local fair share partners, implemented a Quick Start Approach to address the federal Consent Decree estimated to cost $350 million. Burns & McDonnell is supporting the City in negotiations with regulatory agencies about the Citys consent decree with the goal of right-sizing its program and long-term regulatory obligations. To date, the team has closed over 30 design and construction projects and 20 critical infrastructure projects. Brian is the GIS and Asset Management lead for the Clean Water Shreveport Consent Decree program. Brian leads a team of GIS professionals that setup, manage, and maintain GIS and asset management applications to support the Clean Water Shreveport program. Support includes management of Citizen engagement applications, mobile workforce solutions, program dashboards, and various web-based mapping applications. Tools used on the program include Zoho CRM, ArcGIS Online, Cityworks, Survey123 for ArcGIS, PowerBi, and ArcGIS Dashboards.

Utility Network Readiness Assessment | Omaha, Nebraska

Project Manager | 1898 & Co. performed an ArcGIS Utility Network readiness assessment for the City of Omaha Public Works department. The goal of the project was to help the City determine how ready the organization was to implement the ArcGIS Utility Network and what tasks needed to be accomplished as the organization migrates their existing GIS to the Utility Network. In the project 1898 & Co. staff performed a variety of tasks to help the City of Omaha prepare to migrate to the ArcGIS Utility Network including Review of the existing GIS data schema and mapping it to the Utility Network data models for wastewater and stormwater. Third-party software integration assessment to determine the level of impact migration to the ArcGIS Utility Network would have on Cityworks and GraniteXP Reviewed existing ArcGIS Attribute Assistant GIS editing tools and outlined which tools would and would not be able to be replicated out of the box with ArcGIS Pro Attribute Rules and Dynamic Values. A pilot area data migration from the Geometric Network to the Utility Network. The pilot area was then exported and delivered to the customer as an Asset Package. Setup of a sandbox environment in Microsoft Azure so the City could work with and test the ArcGIS Utility Network with their data. Brian was the project manager for an ArcGIS Utility Network Readiness Assessment with the City of Omaha Public Works department. Brian led a team that helped assess the City's existing GIS environment to determine how ready the organization was to implement the ArcGIS Utility Network and what tasks needed to be accomplished as the organization migrates their existing GIS to the Utility Network.



EDUCATION
Bachelors, Geography

CERTIFICATIONS
Certified GIS Professional

Esri Certification - Desktop

EXPERIENCE
18 years of relevant experience

Ben Stafford, GISP
Project Manager

Ben has 18 years of experience as Project Manager and Senior Geospatial Consultant specializing in projects related to Utility Network, geospatial database design & integrations, Cityworks/AMS configurations & implementations, design & construction program management, siting studies, and EV charging spatial analysis. Ben is responsible for defining Spatial Platform Modernization offerings, growing and managing the technical teams responsible for successful delivery, and developing technical requirements for the service offerings. He is responsible for project management tasks including scoping, budgeting, scheduling, client communications, invoicing, and project delivery. Ben has recent experience managing complex geospatial model development and implementation for utilities. He has extensively performed data collection, conversion, management and deployment of web and mobile GIS systems. He has performed tasks related to digitizing, spatial analysis, and 3D analysis. Ben also has experience in application development and requirements testing for mobile and web-based solutions. He is certified in both Esri ArcGIS and as a GIS Professional.

PROJECT EXPERIENCE

Utility Network Model Migration | Fairfax County Water Authority | Fairfax, Virginia

Project Manager | 1898 & Co. is migrating Fairfax Waters GIS asset network into the water distribution ArcGIS Utility Network model. We conducted a full production deployment in an 11.3 ArcGIS Enterprise cloud environment. 1898 & Co. conducted an organization-wide stakeholder assessment and requirements gathering report, system architecture design & documentation, and a 3rd party software impact assessment prior to initiating a data readiness assessment. Following a collaborative data model design process, we deployed the Utility Network into a staging environment and then a pilot project instance. Following sufficient testing, data cleanup, application migration and dirty area resolution, the Utility Network was migrated into production. Migrated Fairfax Water's ArcGIS Enterprise environment into an Azure managed cloud. Additionally, we will provide Fairfax Water with Change Management services and hydraulic modeling consulting services.

KC Water ArcGIS Utility Network Assessment & Pilot | Kansas City, Missouri | Kansas City, Missouri

Project Manager | 1898 & Co. assisted KC Water with an ArcGIS Utility Network readiness assessment and pilot project. The goal of the project was to help KC Water take the first steps toward migrating their existing Sewer, Water, and Stormwater GIS databases to the ArcGIS Utility Network. 1898 & Co. staff performed a variety of tasks to help KC Water prepare to migrate to the ArcGIS Utility Network including: Review of the existing GIS data schema and mapping it to the Utility Network data models for wastewater and stormwater. Creation of an asset package that includes KC Water specific requirements including combined sewer asset types. Sewer data quality review using the ArcGIS Data Reviewer Data cleanup to assist with resolving sewer system type issues identified during the data quality review Third-party software integration assessment to determine the level of impact migration to the ArcGIS Utility Network would have on KC Waters Infor Public Sector CMMS, Innovyze hydraulic modeling and asset management analytics, as well as the organizations Wincan CCTV management system. A preliminary data migration from the Geometric Network to the Utility Network. The sewer database was migrated to the newly created KC Water sewer asset database.

Ben provided project Management and GIS consulting services to the KC Water Department's initiative of converting their existing Esri Geometric Network-based combined sewer GIS to the new Esri Utility Network model. Actively engaged the client in data workshops to evaluate existing wastewater and stormwater GIS data, Hansen Asset Management System (AMS) data, and integrations with other external business systems, in order to provide strategic recommendations on how the data should be loaded to the Esri UN. Authored AM/CMMS Risk Register and documentation. Actively built out a database schema that uses Esri's Sewer UN model as a base, and incorporated elements from the Stormwater UN model to address the combined sewer infrastructure in a single cohesive model. Managed subconsultants that performed data cleanup tasks. Established development UN and sandbox UN in client environment with GN to UN syncing configuration. Authored a Closeout & Next Steps document recommending a path to full deployment.

ArcGIS Utility Network Readiness Assessment & Roadmap | Unified Government of Wyandotte Co. KCK | Kansas City, Kansas

Project Manager | 1898 & Co. completed an ArcGIS Utility Network Readiness Assessment & Roadmap with the Unified Government of Kansas City Kansas and Wyandotte County. During the assessment staff performed a review of the existing data schema and mapped it to the ArcGIS Utility Network data models for wastewater and stormwater. 1898 & Co. reviewed existing GIS editing extensions and outlined which tools would and would not be able to be replicated out of the box with ArcGIS Pro Attribute Rules and Dynamic Values. Staff reviewed third-party software integrations to determine the level of impact migration to the ArcGIS Utility Network would have on the third-party systems integrated with the GIS, including any schema requirements for Lucity integration. 1898 & Co. performed a pilot area data migration from the Geometric Network to the Utility Network. The pilot area was then exported and delivered to the client as an Asset Package. Ben served as project manager for an ArcGIS Utility Network Readiness Assessment & Roadmap with the Unified Government of Kansas City Kansas and Wyandotte County. During the assessment staff performed a review of the existing data schema and mapped it to the ArcGIS Utility Network data models for wastewater and stormwater. 1898 & Co. reviewed existing GIS editing extensions and outlined which tools would and would not be able to be replicated out of the box with ArcGIS Pro Attribute Rules and Dynamic Values.

Staff reviewed third-party software integrations to determine the level of impact migration to the ArcGIS Utility Network would have on the third-party systems integrated with the GIS, including any schema requirements for Lucity integration. 1898 & Co. performed a pilot area data migration from the Geometric Network to the Utility Network. The pilot area was then exported and delivered to the client as an Asset Package.

Asset Management/GIS UN Data Model Project | Golden State Water Company | San Dimas, California

Project Manager | 1898 & Co. assisted with defining asset management standards, an assessment of the organization's existing GIS, and with assistance developing and migrating to an interim GIS data model to support the implementation of Cityworks and the overall asset management program. Facilitated client stakeholder engagement sessions to obtain user personas, drive client engagement, and perform requirements gathering. The project team developed an interim data model in ArcGIS, uniquely for both horizontal and vertical assets, that would both be readily usable in Cityworks and prepare for full adoption of the ArcGIS Utility Network. Client horizontal asset data structure and assets were loaded into the Water Utility Network database structure. Prior to the project vertical assets did not exist within GIS or a CMMS system, so our project team extracted vertical assets from the client's financial system. A vertical asset schema was developed, loaded into the interim data model and associated with GIS facilities. All assets were published as web services and stood up in 1898 & Co.'s Cityworks development system for model and system validation.

Smart Sewer Program Management | City Of Kansas City, Missouri | Kansas City, Missouri

GIS Specialist | Ben supported the GIS and data management services for the $4 billion federal consent decree program to eliminate CSOs and reduce SSOs from KC Water's sewer system. Providing overall GIS and data management support for the following initiatives: Large Main Inspection Program Development. The GIS team InfoAsset planner to identify large sewer mains (48” and greater), which needed inspection as part of the department’s annual sewer rehabilitation program. Manhole Inspection Application Development and Support. Using ArcGIS Field Maps and Survey123 to set up applications to perform Manhole inspections and GPS surveys to help improve the accuracy and completeness of KC Water’s GIS database.

Ben provided field survey team support as data collection occurs and helped setup dashboards in ArcGIS to track the status of field data collection efforts. Air Release Valve Inspection Application Development and Support. Using ArcGIS Field Maps and Survey123 to set up applications to perform Air Release Valve, Air Release Manhole and Force Main inspections and GPS surveys to help improve the accuracy and completeness of KC Water’s GIS database.

EDUCATION

Masters, Power Systems Engineering

Bachelors, Electrical Engineering

CERTIFICATIONS

Professional Engineer (TN)

EXPERIENCE

30 years of experience

Lee King PE

Client Engagement

Lee is a technology executive focused on the utilities industry. His experience spans generation, transmission, and distribution engineering; software implementation; and system integration. Lee is an experienced solution architect and delivery lead for large transformational programs related to T&D operations, smart metering, and customer care. Lee is a licensed Professional Engineer and has been working in the power industry for over 30 years.

PROJECT EXPERIENCE

Esri Utility Network Discovery | American Transmission Company

Engagement Lead | Current-state assessment and future-state design of their GIS usage within the organization. Led a client engagement to evaluate the current state of the client's GIS and other connected applications & databases. Developed a roadmap along with a budgetary estimate for implementation.

Senior Manager | Accenture

Senior Engineer | Roles included a mix of business development, proposals, and deal shaping followed by project delivery.

Served as Delivery Lead and Advisor for a utility's grid modernization program encompassing smart meters, distribution automation, and integrated volt-var control. Led multiple teams on critical initiatives, including the implementation of a single GIS connectivity model to replace legacy systems for ADMS integration, and the definition of business requirements for 17 Field Area Network processes with a corresponding change management strategy. Oversaw the evaluation of mobile GIS vendor technologies to support field construction activities and established the Program Management Office for a utility's AMI program—developing a seven-year roadmap, integrated workplan, and governance structure while facilitating architectural decisions and stakeholder consensus. As Program Lead for a Smart Energy initiative, managed a team of 40 Accenture personnel alongside 50+ utility and third-party staff in a multi-vendor environment, coordinating business readiness efforts with operational departments to ensure a smooth rollout with minimal disruption.

Held key leadership roles across a range of utility transformation programs. Served as Project Lead for a meter data management system assessment, delivering business and technical requirements, updated processes, solution architecture, and a delivery strategy supported by a business case. Developed a Partnership Model to guide alliance formation and evaluation, enabling proactive engagement with potential industry partners. Acted as IT Program Manager for a Generation and Transmission transformation initiative supporting a utility's RTO market entry, leading a 20-person team. As Consumer Behavior Pilot Lead, defined technical requirements for AMI and Demand Response systems and led RFP development, evaluation, and negotiations. Additionally, served as PMO Lead for a smart meter program and as a Strategy Advisor on beyond-the-meter services as part of a utility's broader smart grid efforts.

Project Manager | EPRI

Project Manager | Distribution lead in the IntelliGrid program, coordinating strategic and tactical research projects for smart distribution systems. Orchestrated research focused on enterprise application integration for distribution management systems, including the use and improvement of the Common Information Model (CIM) to enable and enhance advanced applications. Worked with utilities to develop a process to identify key smart grid technologies and application requirements to create a solution framework.

Senior Power Systems Engineer | Electrotek Concepts

Senior Power Systems Engineer | Designed and implemented software solutions for the electric power industry including engineering analysis tools, web-based data integration projects, power quality data management systems, engineering studies for distributed energy resources, and SCADA/EMS consulting, including assisting utilities with crafting RFPs for SCADA solutions.

Project Manager | Advanced Control Systems

Project Manager | Managed all aspects of SCADA/EMS/DMS projects, both domestic and international, from marketing & sales through staging & delivery. This included responding to RFPs and teaming with vendor partners to provide comprehensive solutions for grid monitoring and control.

Senior Power Systems Engineer | Harris Corporation

Senior Power Systems Engineer |Designed and implemented both core and custom software applications for Energy Management Systems including Generation Dispatch & Control (AGC), Interchange Scheduling, Power Network Analysis, Unit Commitment, and Dispatcher Training Simulator.

EDUCATION
General Studies, 2001

CERTIFICATIONS
UN Specialty

EXPERIENCE
23 years of relevant experience

Cristin Holmgren
Lead Utility Network Consultant

Cristin is a GIS professional well versed in spatial analysis, linear referencing, modeling, database design & database configuration. She started her GIS career in the Oil and Gas industry where she was responsible for designing geospatial databases and implementing GIS solutions for several of the largest pipeline industry companies. She has expanded her geospatial expertise to include the energy, telecom, wastewater and water industries. She can analyze, organize, and process internal and external client data and has worked in renewable energy, electric transmission, water, wastewater/stormwater, electric reconductoring, site/route selection, database design, fiber design & management, and 3D analysis projects. She has knowledge of Esri's Enterprise environment and the administration of the ArcGIS Online environment as well as experience in the implementation of Esri's Utility Network Solution. Cristin is also Esri Utility Network Certified.

PROJECT EXPERIENCE

Utility Network Migration | Fairfax County Water Authority | Fairfax, Virginia

GIS UN Consultant | 1898 & Co. is migrating Fairfax Waters GIS asset network into the water distribution ArcGIS Utility Network model. We are conducting a full production deployment in an 11.1 ArcGIS Enterprise cloud environment. 1898 & Co. is conducting an organization-wide stakeholder assessment and requirements gathering report, system architecture design & documentation, and a 3rd party software impact assessment prior to initiating a data readiness assessment. Following a collaborative data model design process, we will deploy the Utility Network into a staging environment and then a pilot project instance. Following sufficient testing, data cleanup, application migration and dirty area resolution, the Utility Network will be migrated into production. We also leveraged a partner to migrate Fairfax Waters ArcGIS Enterprise environment into an Azure managed cloud. Additionally, we will provide Fairfax Water with Change Management services and hydraulic modeling consulting services. Cristin assisted Fairfax Water with an ArcGIS Utility Network readiness assessment and implementation.

The goal of the project was to help Fairfax Water migrate their existing On-Prem Water Network to the ArcGIS Utility Network in the cloud.

1898 & Co. staff performed the following tasks to help the client prepare for migration: Review of the existing GIS data schema and leading collaborative workshops to facilitate mapping to the Water Distribution Utility Network Foundation Solution. Creation of an asset package that includes Fairfax Water specific requirements including field additions for hydraulic modeling and other internal stakeholders. Water data quality review using the ArcGIS Data Reviewer in both ArcMap and ArcPro. Data cleanup of errors identified during the data quality review for Pilot Area. Third-party software integration discussions were held to determine the level of impact a migration to the ArcGIS Utility Network would have on Fairfax Water's internally linked systems. A preliminary data migration from the current state to the Utility Network. Deployed Utility Network to a new Managed Cloud Solution test environment. 1898 & Co also helped with staff training on how to edit/manage/deploy the Utility Network. Cristin led the technical side of the effort in the creation and implementation of the Water Utility Network developed in this project. She also created and implemented new rules to support Fairfax Water's use case. She created and updated the data dictionary. Cristin also stood up and implemented the production UN in the cloud environment.

Esri Utility Network Discovery | American Transmission Company | Waukesha, Wisconsin

GIS UN Consultant | Provided a current-state assessment and future-state design of their GIS usage within the organization as well as an implementation roadmap and budgetary estimate for the client, who desired to improve their data governance as it related to transmission line information in PLS-CADD, Esri GIS, and other applications relevant to engineering design, ratings calculations, and equipment inspections. We also provided data and model validation services and leave-behind artifacts for their reference. In addition, we also delivered a change management "primer" to emphasize the need for effective change management for a successful Utility Network implementation and deployment of the updated processes and technologies.

Asset Management/GIS UN Data Model Project | Golden State Water Company | San Dimas, California

Project Team | 1898 & Co. will assist with defining asset management standards, an assessment of the organization's existing GIS, and with assistance developing and migrating to an interim GIS data model to support the implementation of Cityworks and the overall asset management program. Cristin provided database mapping and data translation models from the client's current GIS schema to the Water Utility Network. After stakeholder meetings were completed she modeled the client's vertical assets to align both with the Utility Network and CityWorks.

She included fields to link back to the Power Plan financials to help result in a comprehensive way to link their internal systems after the implementation of the UN and CityWorks. Cristin utilized Esri's UN data mapping modules to convert existing GIS schemas to the Water Utility Network schema. She published the UN as services to be consumed in 1898's CityWorks sandbox, allowing the client to view future state after full implementation.

KC Water ArcGIS Utility Network Assessment | Kansas City, Missouri | Kansas City, Missouri

GIS Analyst | 1898 & Co. assisted KC Water with an ArcGIS Utility Network readiness assessment and pilot project. The goal of the project was to help KC Water take the first steps toward migrating their existing Sewer, Water, and Stormwater GIS databases to the ArcGIS Utility Network. 1898 & Co. staff performed a variety of tasks to help KC Water prepare to migrate to the ArcGIS Utility Network including: Review of the existing GIS data schema and mapping it to the Utility Network data models for wastewater and stormwater. Creation of an asset package that includes KC Water specific requirements including combined sewer asset types. Sewer data quality review using the ArcGIS Data Reviewer. Data cleanup to assist with resolving sewer system type issues identified during the data quality review. Third-party software integration assessment to determine the level of impact migration to the ArcGIS Utility Network would have on KC Waters Infor Public Sector CMMS, Innovyze hydraulic modeling and asset management analytics, as well as the organizations Wincan CCTV management system. A preliminary data migration from the Geometric Network to the Utility Network.

The sewer database was migrated to the newly created KC Water sewer asset database. Development of a test environment that KC Water can work with and test the ArcGIS Utility Network Setup of a toolset that synchronizes content from the Geometric Network to the ArcGIS Utility Network Cristin provided general support in the creation and implementation of the Sewer and Stormwater Utility Network developed in this project. She also combined and implemented all base rules from Sewer and Storm UNs, adding in new for the combined sewer data. She created and updated the data dictionary, highlighting modifications away from the base UN schemas. Cristin also worked to get the new UN generated on the fly using SSP sync. She stood up and implemented the aforementioned UN in the client-side dev and sandbox environments.

EDUCATION
Engineering

LICENSES/ CERTIFICATIONS

Certified GIS Professional
ArcGIS Enterprise: Administration Workflows, 2022; ArcGIS Enterprise: Configuring a Base Deployment, 2022; Configuring Utility Networks in ArcGIS, 2022; Administering Content Using ArcGIS API for Python, 2022; Configuring and Administering an ArcGIS Online Organization, 2022; Introduction to ArcGIS API for Python, 2022; Performing ArcGIS Online Administrator Tasks, 2022; Preparing to Implement ArcGIS Online, 2022; Working with Utility Networks in ArcGIS, 2022

EXPERIENCE
25 years of relevant experience

Darris Friend, GISP
Utility Network Consultant

Darris is a senior GIS specialist with 25 years of experience using, supporting and administering Esri's ArcGIS Enterprise platform for the fifth largest municipal utility in Florida. Darris has managed an annual software budget of $450K and has been the project leader for multi-year GIS initiatives valued at $1.2 million. He's been recognized by Esri as an Electric GIS Hero in 2021 and is a member of Panasonic Utility & Energy Advisory Council. He has presented on Utility GIS related topics at TC Technology PAG, Esri GeoConX, SSP Innovations Illuminate, FMEA 2022 Hurricane Preparedness, Cityworks Innovate 2022, Esri User Conference 2023, Spatial Business Systems' PUG 2023 and the Central Florida GIS Workshop 2023. Darris harbors the ability to communicate and present complex information to technical and non-technical audiences with experience presenting to City Commissioners, Utility Advisory Board, Executives, Managers, technical staff, End Users and at GIS conferences.

PROJECT EXPERIENCE

Esri Utility Network Discovery | American Transmission Company | Waukesha, Wisconsin

Project team | Current-state assessment and future-state design of their GIS usage within the organization. Assisted with a current-state assessment and future-state design of their GIS workflow within the organization. Also assisted with a Utility Network implementation roadmap to improve their data governance as it related to transmission line information in PLS-CADD, Esri GIS

GIS Data Governance | NextEra Energy Resources | Maitland, Florida

Senior GIS Consultant | 1898 & Co. supported NextEra Renewables (NEER) in the assessment of governance and utilization of geospatial data as it applied in key business processes spanning multiple departments across the organization. After initial assessment of internal processes, workflows and outputs, our team provided NEER with process and organizational recommendations designed to improve process standardization and outcome quality.

Geospatial deliverables for the client included a prioritization of their internal datasets, recommendations on organization and a Proof-of-Concept Geospatial Project Viewer with 1898's recommendations in practice. Assisted with developing a GIS data governance roadmap.

Strategic Asset Management Advisor and Pilot | Port Of Corpus Christi Authority | Corpus Christi, Texas

Project team | Technical lead to implement a pilot Enterprise Asset Management (EAM) system for Port Corpus Christi that is aligned with ISO 55001 which that complies with, and supports, the Port's Strategic Asset Management Plan. Configure Trimble's Cityworks asset and work management system based on the Port's defined business processes. Configure work activities such as service requests, inspections, and work orders to collect equipment, labor, material and condition of the asset when work activities are completed.

Develop dashboards to display information about the maintenance costs and condition of Port's assets to inform capital planning and risk management analysis. Document standard operating procedures for various Cityworks roles such as office staff, field personnel and Cityworks Administrators. Train end-users and administrators on the use of Cityworks.

GIS SUPPORT | City of Alachua, FL | Alachua, Florida

Project team | 1898 & Co. is providing onsite and remote backup support to the City of Alachua IT/GIS team in the administration of ArcGIS, map digitization, and GIS data cleanup. Technical Lead for client's GIS data cleanup effort. Upgrading client's ArcGIS Enterprise to latest version. Upgrading Trimble Cityworks Asset Management Solution. Configuring ArcGIS Field Map App for as-built workflow. Developing a 3-year GIS strategy roadmap. Technical Lead for client's GIS data cleanup effort. Upgrading client's ArcGIS Enterprise to latest version. Upgrading Trimble Cityworks Asset Management Solution. Configuring ArcGIS Field Map App for as-built workflow. Developing a 3-year GIS strategy roadmap.

ARCFM/GIS | Beaches Energy Services | Jacksonville Beach, Florida

Senior GIS specialist | Technical Lead installing and configuring ArcGIS Enterprise and implementing ArcFM Mobile. Both platforms will support various workflows including as-built designs created with Spatial Business Systems' Automated Utility Design.

Work and Asset Management Best Practices | New Smyrna Beach Utilities Commission | New Smyrna Beach, Florida

Senior GIS specialist | 1898 & Co. initially worked with NSBU to define the technical and functional requirements for a new Work and Asset Management digital platform. After assessment of business and technical needs, our team supported the development of a solicitation and evaluation of responses. After a successful vendor selections process, 1898 & Co. is continuing support of this digital transformation effort by refining work management business process definition and asset management strategy. Assisted with implementation of a work and asset management system to develop future state best practice methodology.

GIS Roadmap | Pattern Energy Group | Houston, Texas

Project team | Develop strategic GIS roadmap for a Transmission company. Evaluate current Esri ArcGIS licensing and recommend licensing to support the GIS roadmap initiative.

EDUCATION

Masters, Agricultural Engineering

Bachelors, Agricultural Engineering, Soil and Water Emphasis

CERTIFICATIONS

Professional Engineer, Civil, State of Nevada

EXPERIENCE

20 years of relevant experience

Matt Seidl, PE

System Integration Consultant

Matt is a utility industry and engineering professional with over 20 years of experience leading change and modernizing utility technologies and processes. Matt has enjoyed leading teams for the past 17 years and has developed a great track record of providing vision and leadership as an implementer of enterprise processes and technology solutions. His broad career experience includes leading both business and IT applications teams, building Utility of the Future vision and strategy, managing the geographic information systems department, managing enterprise projects, selecting solutions, creating businesses cases, and marketing projects internally. Matt is excited to leverage the latest technologies and data to insure employees have the right information at the right time to make great decisions.

PROJECT EXPERIENCE

Black Hills Energy | Fairfax County Water Authority | Fairfax, Virginia

Director of Utility Technology Systems / Director of Enterprise Data and Analytics / Director of IT Business Applications / Strategy Lead / Manager | From 2007 to 2025, Matt held a series of increasingly senior leadership roles at Black Hills Energy, culminating in his position as Director of Utility Technology Systems. In this role (2020–2025), he led a team of 49 employees and managed a $12 million annual budget supporting GIS, field service, and work management technologies. He successfully delivered a $20 million enterprise-wide Field Service Management program serving more than 1,400 employees within 2% of budget and with 99.5% of requirements met. Under his leadership, the GIS team reduced gas and electric distribution backlogs from years to 30 days and received national recognition from the AGA. He also directed the company's $10 million annual data improvement program.

Prior to that, Matt served as Director of Enterprise Data and Analytics (2019–2020), where he centralized analytics functions, authored the company’s first ED&A strategy, and supported major enterprise initiatives with data-driven tools. As Director of IT Business Applications (2016–2019), he oversaw a team of more than 70 IT professionals with a $14 million budget, supporting core platforms including CIS, ERP, GIS,

OMS, and mobile systems. Earlier roles included leading BHE's "Utility of the Future" strategy and managing major enterprise software implementations as GIS Support Manager, where they introduced key efficiencies and technical integrations across field and mapping systems.

CAD Analysis | Las Vegas Valley Water District | Las Vegas, Nevada

CAD Analyst |

As a CAD Analyst at Las Vegas Valley Water District, implemented Autodesk Topobase to integrate GIS and CAD systems, using custom VB.NET and Oracle PL/SQL scripting to streamline data workflows and improve operational efficiency. Provided software support and troubleshooting for a 14-member CAD and GIS team, developing custom automation tools to reduce manual tasks. Additionally, initiated and led a monthly lunch-and-learn training program to expand staff capabilities in areas such as PL/SQL querying, VBA programming, and advanced drafting techniques—enhancing team productivity and technical proficiency.

General Engineering Support | The Louis Berger Group, Inc.

Project Engineer | As a Project Engineer, contributed to the design of major flood control infrastructure including the Flamingo Wash Flood Control Channel, Las Vegas Wash Middle Branch Storm Drain, Upper Diversion Weir, and the US 50 Storm Drain. Developed hydrologic and hydraulic models integrated with GIS spatial datasets to support design decisions and ensure accurate drainage analysis. Prepared comprehensive technical drainage studies and mapping deliverables for local and international projects. Additionally, conducted hydrologic analysis for the Khandahar-Herat road in Afghanistan using GIS data to support infrastructure development in challenging environments.

General Engineering Management and Support | USDA-Natural Resources Conservation Service

Civil Engineer | As a Civil Engineer, designed earthen dams for floodwater control by performing detailed hydrologic and hydraulic analyses using AutoCAD and EaglePoint. Prepared comprehensive contract documents, including cost estimates and construction specifications. Created time-saving AutoCAD macros and ArcView GIS tools to streamline design workflows. Conducted flood analysis using GPS survey data, HEC-RAS, and hydrologic models, presenting findings and mitigation strategies at community meetings. Developed a GIS database application to support field data collection and analysis of aging dam infrastructure, contributing to the evaluation of approximately 100 structures in collaboration with a multidisciplinary team.

APPENDIX C – PROJECT PLAN EXAMPLES

UTILITY NETWORK TIMELINE AND SAMP ALIGNMENT

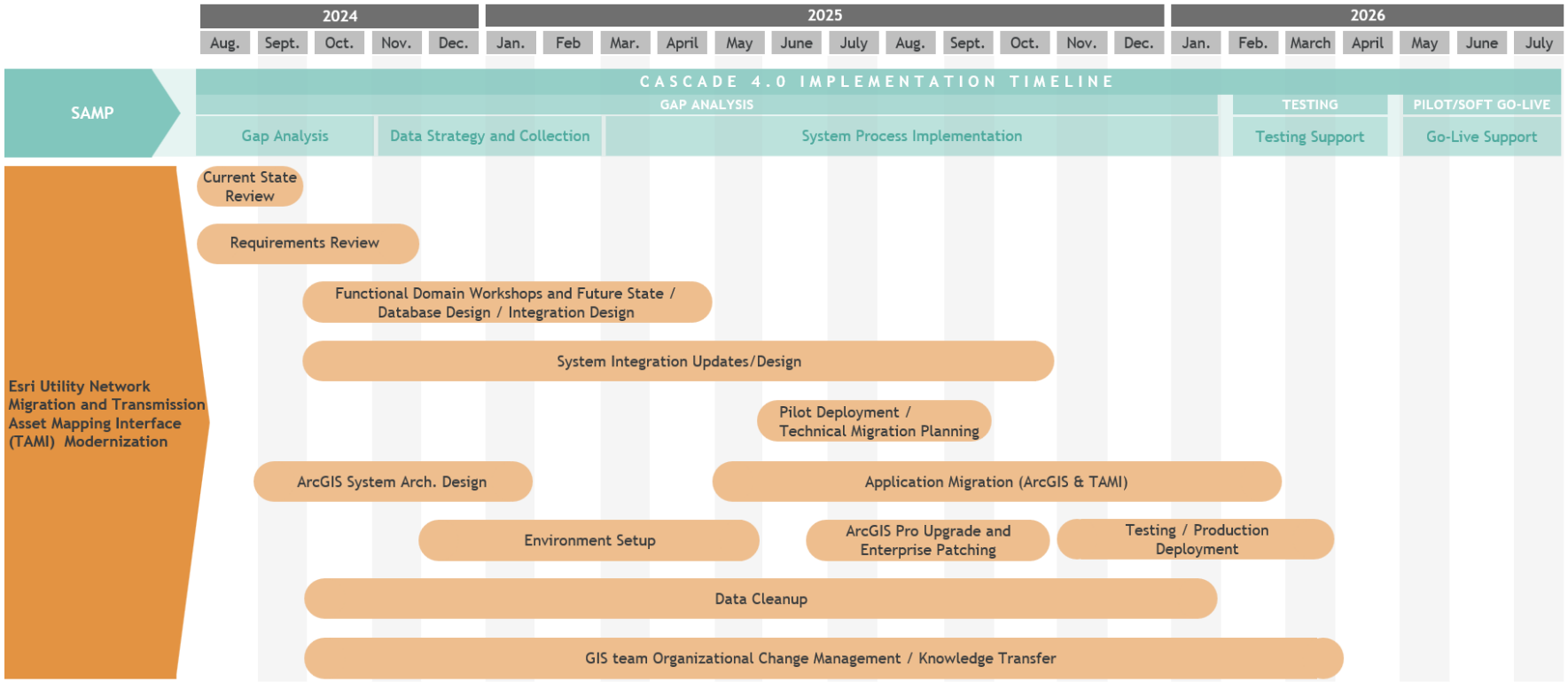


Figure 1. This sample project plan provides an overview of an Esri Utility Network Migration and Transmission Asset Mapping Interface (TAMI) modernization.

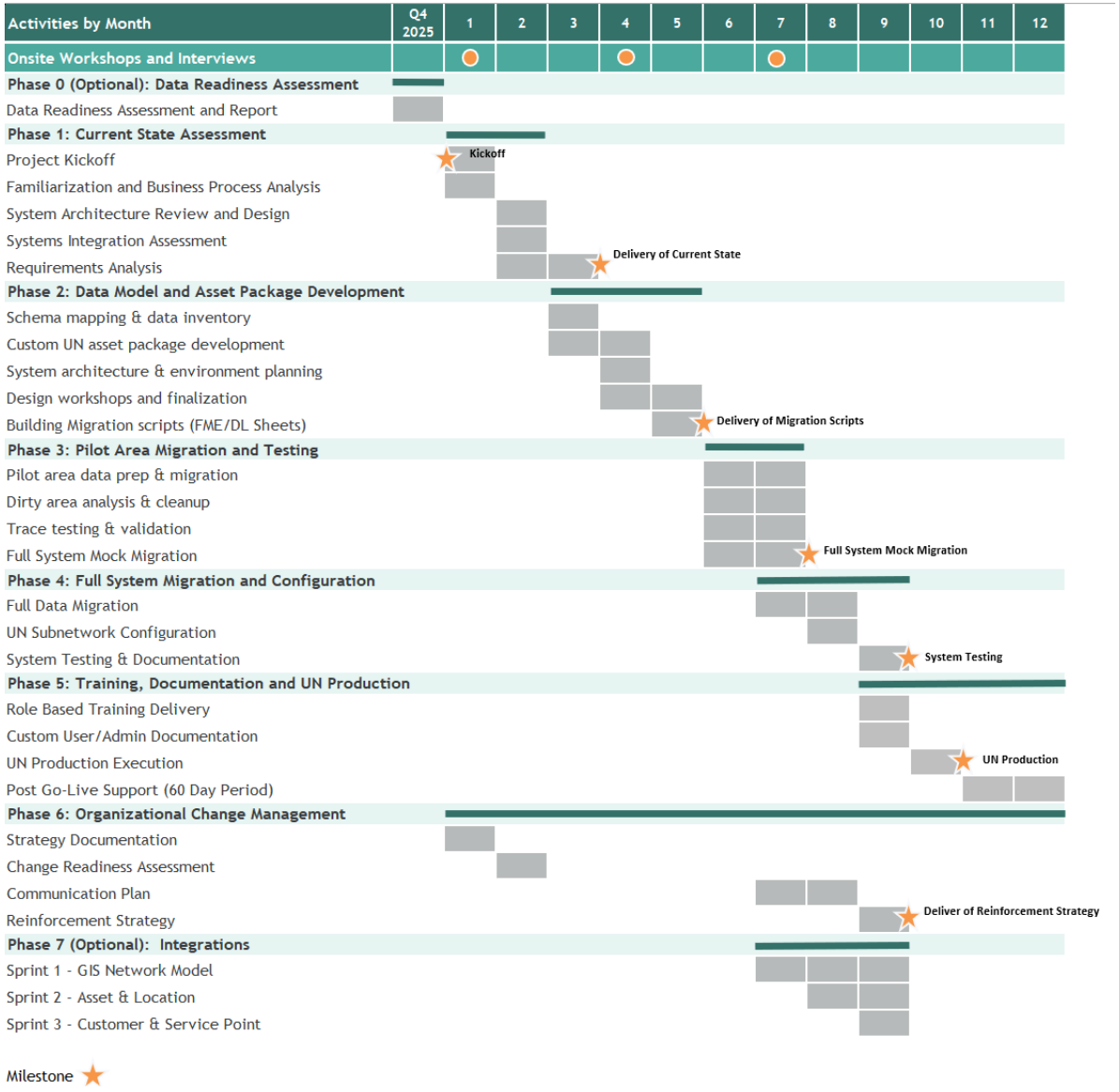


Figure 2. This sample project plan provides an overview of an Esri Utility Migration.

1898andco.com