Celebrating UDC 20 Years

Response to Request for Proposal

Greenville Utilities Commission

Esri Utility Network Design Services Vendor Selection

May 13, 2025

UDC™ Services for the Digital Utility®

May 13, 2025

Cleve Haddock, Lifetime CLGPO
Procurement Manager
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RE: Greenville Utilities Commission Esri Utility Network Design Services Vendor Selection

Dear Cleve,

Thank you for the opportunity to provide Greenville Utilities Commission (GUC) with the attached proposal for Esri Utility Network Design Services.

For the last 20 years, UDC has successfully grown to be the largest product-independent provider of services in relation to spatially based asset management and system integration. Our service offerings include a full range of services that match the project and program lifecycle needs of our utility customers.

Our experience encompasses many of the most complex electric and gas project assignments in the industry, as well as Water/Wastewater and Fiber Management. Many of these projects have pioneered new territory and we have gained extensive industry knowledge and understanding from peer utility investments that we can bring to your project.

As a privately owned, software independent, GIS centric systems integrator, UDC has always and will always be able to focus on our client's success as our first and primary objective. UDC brings years of experience in the utility sector to ensure that the systems and software being used by our clients incorporate a sustainable, long-term approach. Our industry professionals will work together with GUC every step of the way to ensure that the enterprise system being incorporated meets the needs of your organization for years to come.

If you should have any questions or concerns, please contact me directly using the information below. Thank you and we look forward to the opportunity to work with Greenville Utilities Commission in the future.

Sincerely,

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Account Manager
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727.505.4824

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Company Background and Relevant Experience

Company Overview

UDC offers a full range of services that match the project and program lifecycle needs of our customers. As a privately held company, we focus first and foremost on our customers' success, satisfaction and providing the best customer service. UDC employees bring hands-on experience spanning all phases of the implementation lifecycle including full project management: from strategy, planning, and design to procurement, deployment, and benefits realization.

Official Registered Name
Utility Data Contractors, LLC
D.B.A. UDC

Corporate/D.B.A./Partnership/etc.
Limited Liability Company

Founded
May 5, 2005

Dun & Bradstreet Number
36 436 7768

Primary SIC number
7379

Headquarters
82 Inverness Drive East Suite #A1
Englewood, CO 80112

Main Telephone Number
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UDC provides full lifecycle project and program support for gas, electric, and water utilities.

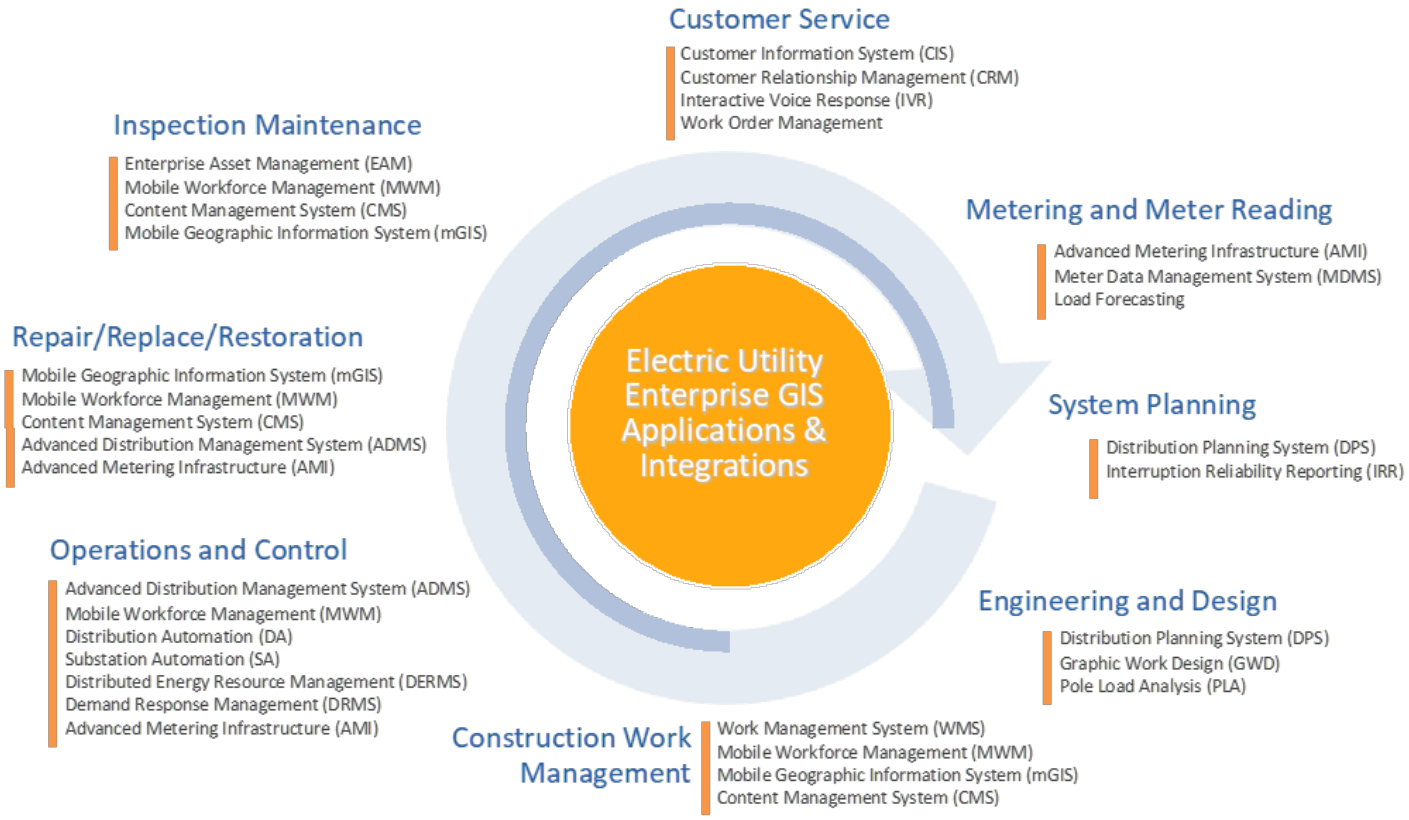
We specialize in all aspects of the utility business: from customer service, metering, and billing to transmission and distribution system planning, network management, asset management, system operations, and outage management.

UDC has offices located in Colorado (headquarters), California (Oakland), Wisconsin (Waukesha), and Florida (Tampa), as well as onsite presence at many utilities and an exclusive offshore team in Parwanoo, Chandigarh, and Hyderabad, India. These locations give UDC access to a diverse talent pool in which to recruit, engage, and retain the best resources for our projects. UDC has successfully grown over the years to employ over 600 utility industry professionals and continues to successfully recruit the highest quality talent in the industry, building a top performing, project tested team with capabilities to support your full utility project and program lifecycle.

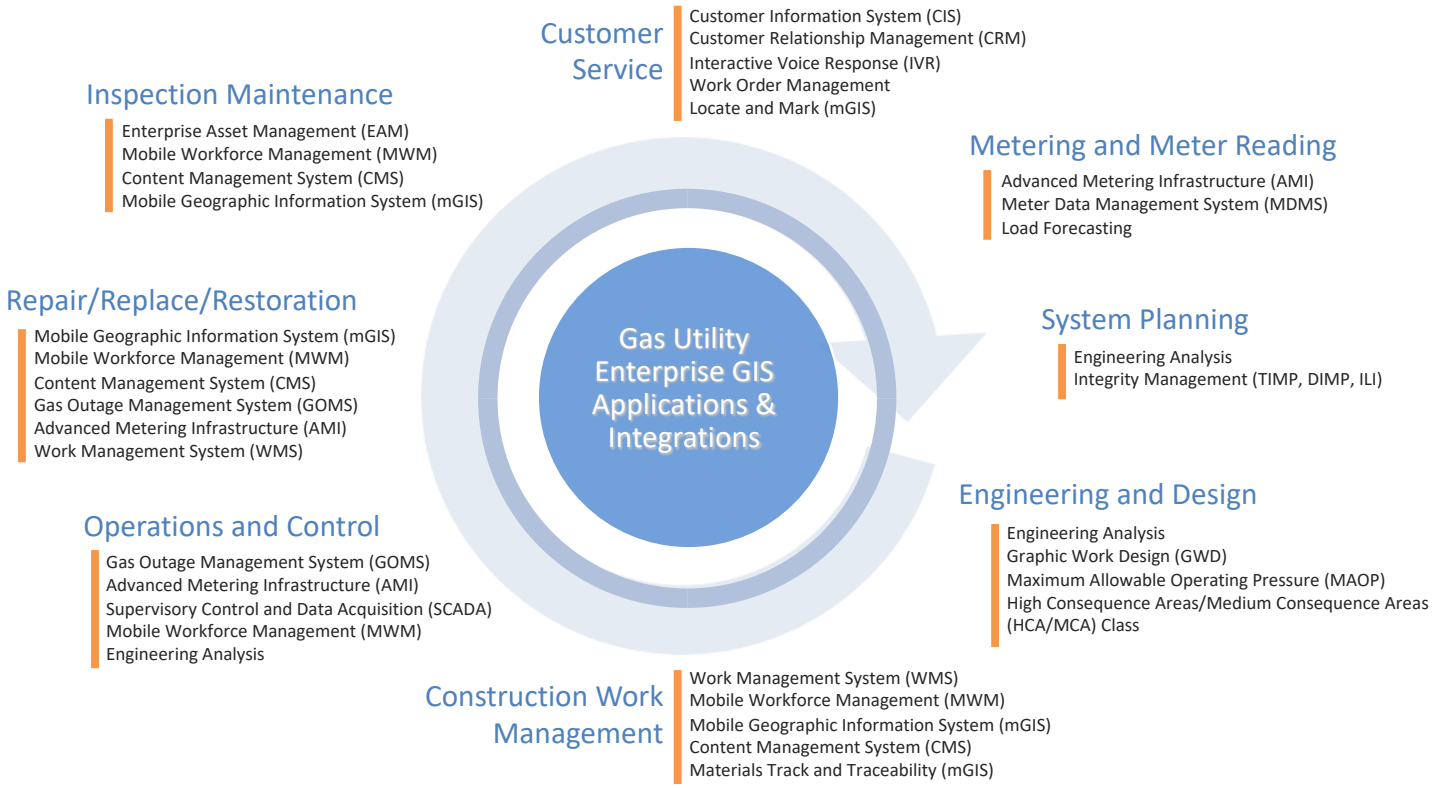
Focused on energy utilities, we offer a range of services to enable and support your project challenges. UDC offers a suite of award-winning tools and frameworks to jump start, expedite, and support our client's projects and operational needs, including Data Management, Analytics Dashboards, Compliance Management, Gas Outage Management, Reliability Management, Secondary Network Enablement, and Utility Network Migration. An overview of our tools can be found at https://www.udcus.com/solutions.

UDC's hands-on experience spans all phases of the implementation lifecycle including full project management from strategy, planning, and design, to procurement, deployment, and benefits realization. We specialize in all aspects of the utility business: from customer service, metering, and billing to transmission and distribution system planning, network management, asset management, system operations, and outage management.

Electric GIS Utilization of Enterprise Solutions



Gas GIS Utilization of Enterprise Solutions



UDC is proud of our history of project success, meeting or exceeding customer expectations for delivery. We have an enviable track record for delivering on schedule, within budget and in compliance with business and technical requirements. Our focus is on quality of service, fulfillment of customer goals, and support of customer success; our team demonstrates this commitment.

Ownership Structure

Like GUC, UDC's primary focus is on serving our customers. We have a track record of success, consistently meeting customer expectations while delivering some of the most complex gas and electric projects in the industry. To support our customers through ever-changing times, UDC has evolved from a traditional services company to a technology-driven company delivering innovative services and solutions in the industries we serve.

Unlike today's other established market players, UDC is not for sale and has no plans to seek such a transaction in the foreseeable future. This is in stark contrast to many of our direct competitors. For our customers, this means that promises we make today will be promises that we keep in the years to come.

UDC has a successful history of partnering with our customers. Many have been actively engaged with UDC for over a decade. Our philosophy is, first and foremost, a focus on customer satisfaction. We think of our customers as partners and through this approach, we have developed a loyal customer base. This may mean challenging the process, proactively solving problems as they emerge, and collaborating as a team. UDC is committed to working side by side with GUC to ensure you maximize your full Esri ArcGIS investment.

Partnerships

Through numerous project partnerships, UDC has developed strong working relationships with several leading business partner organizations, including:

AspenTech

Aspen Technology (AspenTech) is based in Bedford, Massachusetts, with over 60 locations across the globe. A prominent industrial software company, AspenTech provides products and solutions aimed at helping organizations optimize their asset management operations. As an Implementation Services Provider for AspenTech's Digital Grid Management area, UDC assists with maintenance and upgrades, including from AspenTech OSI Maven software to AspenTech OSI Leitmotif – the latest AspenTech OSI GIS extractor software.

Deloitte

Deloitte has expanded its portfolio to bring proven GIS systems integration capabilities and experience including project management, change management, system integration, and configuration support. With approximately 312,000 people in 150 countries and territories, over the past 10 years, Deloitte has worked directly or with UDC on some of the largest and most complex GIS implementation projects in North America, advising and leading utilities on the implementation of their critical GIS-focused systems and operations, including application development support related to GIS and ADMS implementations.

Esri

UDC has a long-standing relationship with Esri, the leading supplier of geospatial technologies. Since UDC's founding in 2005, UDC has advanced through the Esri Partner Network (EPN) program – from Silver in 2006 to Gold in 2018 and Platinum in 2022.

GeoSpatial Innovations

Based in Pennsylvania, GeoSpatial Innovations (GSI) offers services and software to electric and natural gas utilities throughout North America, with the goals of enhancing design productivity and streamlining the design process. GSI's Distribution Design Studio (DDS) software platform enables designers to efficiently build designs in the field and back-office for various projects, including overhead and underground line extensions, subdivisions, reliability improvement jobs, roadway relocations, third-party attachments, and system hardening. As a GeoSpatial Innovations DDS Implementation Partner, UDC assists with implementing the software for GSI's utility clients.

IBM

Since 2005, IBM professional services has solicited UDC's GIS expertise to provide extensive implementation programs across several Tier 1 energy utilities (e.g., Sempra and PG&E).

Locusview

Locusview enables Esri electric and gas utilities to digitally document work in the field, validate designs, and update the system of record. Its tracking and traceability solution saves construction crews 20% work time by streamlining data collection activities required for compliance. As a strategic implementation partner, UDC integrates Locusview solutions to simplify the complex construction process and empower an end-to-end digital workflow. Leveraging Locusview technology and the Esri platform, UDC helps to facilitate the scaling of utility capital projects by closing the gap between design, company policies, regulations, and the system of record.

OSIsoft

OSIsoft, maker of the PI System, is a global leader in operational intelligence delivering a premier infrastructure for utility operations. Their PI suite of products empowers companies to leverage streaming data to optimize and enrich their businesses. UDC is a certified OSIsoft Pi System Integration Partner for the company's North American Market. Together with OSIsoft, we are working to extend the capabilities of PI System Users.

Safe Software

Safe Software, the maker of FME and a leader in spatial data transformation technology, identifies partners through a comprehensive application process. In 2017 UDC was accepted as an Associate Partner with Safe Software receiving official recognition for our FME technical expertise.

SAP

UDC is part of the Specialized SAP PartnerEdge Open Ecosystem Program. UDC has provided SAP integration services for electric and gas distribution and transmission customers including Avangrid, Cleco Power, Dominion Energy, and PG&E. These integration related services include roadmap consulting for SAP PM and SAP HANA; integration of GIS asset data and customer service information to SAP; interfaces between SAP and GIS map-based gas leak applications; integration of the Esri Utility Network with SAP; integration of Schneider ArcFM Designer, GIS, and SAP work management as part of the Esri ArcGIS Enterprise; and aligned existing and future integrated gas distribution and gas transmission assets between the GIS / PODS and SAP systems.

SBS

Headquartered in Littleton, Colorado, SBS aids utilities and telecom companies in leveraging investments regarding utility networks, GIS, CAD, and enterprise systems. SBS has improved productivity for hundreds of organizations through providing consulting and industry expertise in the area of critical, networked infrastructure. Their Automated Utility Design (AUD) tool uses AutoCAD to improve design accuracy, enhance performance and reliability, and provide better documentation and analysis through integration with utility enterprises. SBS has designated UDC as a preferred AUD implementation partner.

Schneider Electric

UDC has worked closely with Schneider Electric's GIS team located in Fort Collins, CO. Originally Miner & Miner, the company developed the ArcFM application suite that enabled Esri to become a viable software provider at utility verticals in the 1990s. As a Schneider Electric business partner, UDC is experienced in the configuration and deployment of ArcFM and Designer solutions, including ArcFM Editor, Conduit Manager/Underground Facilities Manager, Session Manager, Fiber Manager, Wavepoint, and Feeder Manager. UDC is also becoming an implementation partner for Schneider Electric's ADMS with our first implementation project planned to begin in Q1 2024. Over 75% of UDC's GIS implementations are ArcFM based.

West Monroe Partners

UDC has worked closely with West Monroe Partners, most recently on a large ADMS consolidation project and a large GIS consolidation project merging six utilities' sets of SCADA, OMS, and DMS; an enterprise GIS electric distribution strategic roadmap to migrate four utilities to one GIS; an enterprise GIS gas strategic roadmap to support taking over a gas utility; and the longer term roadmap for all gas companies to migrate to a common enterprise GIS.

Relevant Project Experience

UDC is proud of our history of project success, meeting or exceeding customer expectations for delivery. We have an enviable track record for delivering on schedule, within budget, and in compliance with business and technical requirements. Our focus is on quality of service, fulfillment of customer goals, and support for customer success; our record demonstrates this commitment.

The following project summaries are representative of this experience and demonstrate our record of project success.

1 | NorthWestern Energy Utility Network Data Assessment

NorthWestern Energy (headquarters in Sioux Falls, SD) provides electric and natural gas to 750,000+ customers in MT, SD, and NE, which includes providing electric services to Yellowstone National Park.

Beginning in 2023, UDC worked with NorthWestern Energy (NWE) in support of the utility's Electric Transmission (ET) network data migration to Esri's ArcGIS Utility Network. This project included a Utility Network Data Assessment and Utility Network Migration components.

System Architecture Design. UDC reviewed existing documentation and conducted workshops for architecture and infrastructure evaluation to define key properties of the new GIS platform.

Discovery. UDC worked with NWE to establish a common understanding of the current state of GIS, current and future business requirements, and future needs, and to ensure that NWE understood the impacts of the transformation. As part of the discovery process, UDC performed a full migration of ET data to Utility Network using UDC's HEIDE (High-fidelity Export Import Data Exchange), standing up the core Esri app in parallel to HEIDE migration in a Discovery environment. This approach enabled the team to conducted future-state workshops with NWE to review use cases using core Esri tools and finalize requirements. UDC led a workshop to review each integrated system, analyzing business object flow

between systems, integration patterns employed, interfaces and payloads to/from GIS, data flows, and protocols used in each scenario. UDC then created the requirements for data, apps, and integrations.

After walking through current state workflows with the project team, UDC configured the identified core Esri apps (editing, integrations, advanced functionality) in the Discovery environment (ArcGIS Enterprise, ArcGIS Pro Create Pro), applying core Esri symbology and map documents from Utility Network, enabling core attribute rules in Utility Network, and configuring advanced functionality using demo Esri templates.

Data Assessment. Following Discovery, UDC provided data assessment and migration services that included source data analysis using HEIDE to identify and confirm data sources, object classes, and attributes that would be migrated and determined how they would fit in Utility Network model. Through a preliminary data mapping exercise, UDC determined data model mappings from the existing source data to the target model. UDC then loaded the asset package into Utility Network, evaluated results, and updated the data modeling document (Schema Mapper) to reflect all changes made during the assessment.

Testing. Following the data analysis, UDC built and configured an upgraded GIS test environment, installing and configuring core apps, configuring extensions, and completing the design and development necessary to ensure that the extracts from the new GIS use the new data model and app. UDC also documented system test cases (including preliminary integration testing) and created a multi-phase test plan for functional, integration, and user acceptance testing procedures. UDC promoted the data to the QA environment and then published and mapped feature service layers as required to support any GIS-facing map and service interfaces to integrated systems, publishing geoprocessing services as required to support spatial analysis features and other advanced processing.

Deployment. Following the QA activities, UDC promoted the data to the Production environment, conducted knowledge transfer activities, and provided remote support for 60 days. The project was completed in April 2025.

2 | AVANGRID: Southern Connecticut Gas (SCG) and Berkshire Gas Company (BGC) GIS Implementation

This Geographical Information System Implementation project transitioned AVANGRID gas companies, Southern Connecticut Gas (SCG) and Berkshire Gas Company (BGC), from CAD to ArcGIS Pro / Utility Network GIS leveraging the existing investment in infrastructure through two phases beginning in June 2020 and completed January 2023.

This project built a comprehensive, distribution-level GIS with roads, center lines, and building footprints, which will show the spatial locations of gas mains, main valves, service lines, regulator stations, and city gate stations, as well as customer information. This project included:

- Establishing the platform, business process, and functionality to support core mapping functions and implementation to Esri Utility Network / Utility and Network Data Model (UPDM),
- Digitizing and migrating key asset data into the new GIS platform,
- Implementing web-based viewing capability in the ArcGIS Enterprise Platform that is foundational to subsequent deliveries for mobile users, Leak Survey, Cathodic Protection (CP) Survey, and basic outage functionality,

- Implementing value added processes for improved leak management and leak trend analysis,
- Deploying data and applications to test and prod environments, training, and knowledge transfer,
- Delivering Synergi integration, a gas OMS, a corrosion control management system, and DIMP reporting, and
- Creating roadmaps for a Graphic Work Design tool, SAP Plant Maintenance and SCADA systems, SAP HANA, and migrating other Avangrid Gas companies.

The new data model created in this project may serve to standardize all Avangrid gas companies in the future.

See also: GIS Implementation and Conversion at AVANGRID

3 | Ameren – Electric Transmission Utility Network Migration Assessments and Graphical Work Design Upgrade

Headquartered in St. Louis, MO, Ameren provides electric and natural gas services to clients throughout Illinois and Missouri. Throughout its 64,000 sq mi service territory, with 7,500 transmission circuit miles, Ameren serves 2.4M electric customers and 900,000+ natural gas customers.

Since 2019, UDC has supported Ameren's Electric and Gas GIS Replacement projects. Ameren migrated its gas and electric commodities from a dated and heavily customized Intergraph G/Technology solution to a more modern Esri-based solution. UDC provided the services list below in support of these implementations and continues to provide on-going production support and enhancement services to this day.

- Program governance
- Solution architecture and design
- Application and integration design
- Data Modeling
- Data Acceptance Testing
- Build, Test and Deployment support
- Stand up of ArcGIS Enterprise/Portal/mobile, Esri's gas utility tools; enhance the gas data editors and web browsers
- Electric Data Migration
- Graphic Work Design
- UDC ArcFM In-memory trace utility Services (for electric and gas GIS deployments)
- Electric ArcFM and Designer, including activities required to configure and deploy ArcFM Editor, ArcFM Conduit Manager / Underground Facilities Manager, ArcFM Session Manager, ArcFM Feeder Manager, and ArcFM Designer
- Electric Web, including activities to configure and deploy ArcGIS Enterprise/Portal/Mobile
- Electric Integrations

- On-going post-implementation support and enhancements for electric and gas including break/fix and enhancements

Data Model Development and Integration. Beginning in 2022, Ameren partnered with UDC for it's Electric Transmission Utility Network migration, an essential step in Ameren's overall digital strategy of creating a more modern, smart energy grid. This project enabled Ameren to go from a disconnected geometric network to a connected Utility Network.

This first phase of Ameren's Electric Transmission Utility Network Implementation initiative consisted of creating a new Utility Network data model, migrating existing data, configuring the Utility Network model, and integrating the model with existing systems. UDC performed the following activities and services:

- Created and configured the Utility Network data model using provided schema of feature classes and relate tables
- Developed an FME Workspace to migrate existing data to the Utility Network model; performed migration
- Developed a comprehensive migration process supported by automated tools for data transformation and data validation/remediation
- Integrated the Utility Network model with existing systems
- Built new integrations based on provided data mappings

UDC was able to use Ameren's structure data to set subnetwork controllers and used junction to junction associations to support connectivity for network tracing. Esri worked closely with the team to address Ameren's unique data considerations related to non-spatial elements such as dampers and splices, quickly adding the needed items to new releases.

- Used a collaborative approach between Ameren, UDC, and Esri to achieve data and process improvements
- Developed data model based on Esri's Electric Asset package
- Reviewed existing software and hardware (GIS infrastructure, servers, ArcGIS Enterprise software installations) to verify Utility Network requirements and recommend changes
- Configured Utility Network servers, created Utility Network services, and set up versioning; used proprietary add-ins in ArcGIS Pro to assist in Utility Network creation and post-processing
- Used UDC's HEIDE to migrate ET GIS data to Utility Network; assisted Ameren with running tool, assessing results, making corrections
- Provided Subnetwork configuration
- Provided junction/junction associations
- Conducted assessment checks: Utility Network data analysis, HEIDE, UDC Toolkit for ArcGIS Pro
- Provided guidance on best practices to upgrade apps, tools, and scripts to use the Utility Network; implemented new Utility Network functionality (tracing and containment) into apps
- Developed new Electric Transmission Viewer (web app) on the Esri Experience Builder platform
- Updated GIS-OPPM integration using FME
- Updated GIS-Maximo integration

- Designed test scenarios and made corrections as needed
- Assisted Ameren in the promotion of migrated Electric Transmission data and integration code to Ameren's enterprise environment
- Provided integration and hypercare support for 60 days post go-live

Through this initiative, UDC helped incorporate Ameren's needs into the Esri base model to achieve desired benefits including:

- Easier, more structured data editing
- Architecture redesign using federated services (all managed in one place and federated to ArcGIS Portal)
- System improvements (e.g., Experience Builder)
- Security management transparency
- Higher data quality and completeness
- Future scalability
- Best practices alignment
- Informed migration decision making

Graphic Work Design upgrade. UDC is upgrading Ameren's Schneider Electric Designer 10.x solution to Designer 11 (XI). The solution will be configured to support designs exported to Ameren's current ArcFM configuration that uses the Geometric Network. This initiative began in January 2025 and is scheduled for completion at the end of the year. UDC is the first Schneider Electric partner to deliver the DXI solution.

See also: Pioneering the Electric Transmission UN Model at Ameren; Q&A from the Esri UC on Implementing Advanced Network Modeling in Electric Transmission at Ameren; Ameren Enhances Transmission Operations Management with Experience Builder; Ameren Electric GIS Replacement Go-Live; Implementing the Advanced Network Management – AVANGRID

4 | Grey Forest Utilities – Enterprise Architecture Review and Consulting

Grey Forest Utilities provides natural gas distribution services for over 18,000 customers located in a 600 square mile service area in northwest metropolitan San Antonio, Texas.

UDC provided Enterprise Architecture services to Grey Forest Utilities through a system design engagement as well as a project manager for project administration and schedule management.

Requirements Gathering. To deliver the System Design, UDC worked with key utility personnel to gather non-functional requirements, review the current-state architecture, determine future-state architecture requirements, provide capacity planning, and identify an appropriate future-state deployment pattern that effectively meets availability, sizing, and configuration needs.

Enterprise Architecture Discovery. UDC conducted discovery workshop sessions to better understand the current-state system, led conversations and recorded vital information and key decisions resulting from the discovery discussions, and identified the non-functional requirements (NFR) based on discovery workshop decisions. UDC then provided Grey Forest Utilities with a Requirements Traceability Matrix (RTM).

Future-state Solution. Utilizing Esri's Utility Network standard reference architectures as the foundation for the future-state system, UDC worked with Grey Forest Utilities to envision the future-state Enterprise Architecture by way of a technical specification, confirming that the design and sizing meet the requirements, and formally recommending the solution.

See also: https://www.udcus.com/services/enterprise-architecture/system-architecture/success-stories and https://www.udcus.com/news/2025/01/21/udc-launches-enterprise-architecture-practice

5 | City of Pasadena / Pasadena Water and Power GIS Upgrade

A community-owned utility that has provided customers with reliable service for over a century, Pasadena Water and Power (PWP) supply electric to customers within Pasadena and service household and business water accounts throughout Pasadena and the surrounding communities in the San Gabriel Valley.

UDC has been continually under contract with PWP on an assortment of engagements related to their GIS data for over 15 years. UDC has provided the following broad category of services.

- Application and systems integration
- Database management and performance
- Configuration management
- System administration
- Data conversion management
- Planning for Strategic IT Investments and Asset and As-built Maintenance

In 2017, UDC completed an upgrade project for Pasadena Water and Power that involved upgrading ArcGIS platform from v10 SP5 to v10.2.1, upgrading ArcFM suite of applications and database from v10.0.3 SP1 to v10.2.1c, and migrating PWP's existing GIS database from Oracle 10g to SQL 2012 R2.

UDC assisted PWP by providing a Roadmap for distribution automation and enhanced integration across several systems with an emphasis on GIS. A key component for the project was the development of a currency plan of action for updates from the field and as-built maintenance.

GIS Upgrades

At the end of 2019, PWP retained UDC's services to upgrade PWP's existing Esri/ArcFM 10.2.1 system (core Esri and ArcFM upgrades that include an electric dataset, a water dataset, and Conduit Manager) to 10.6.1. As a unique challenge, PWP had their electric and water datasets, including a map library dataset, in a SQL Server database based on ArcSDE.

To address this, UDC upgraded the software and database to 10.6.1 in the development (DEV) environment based upon standard Esri and Schneider Electric recommendations, assessed the various custom tools, and prepared a methodology to upgrade these custom tools. Once everything was tested and validated in the DEV environment, UDC then upgraded the production (PROD) environment.

Esri ArcGIS Software Upgrade. UDC upgraded PWP's ArcGIS Desktop (software installation) as well. UDC installed ArcGIS 10.6.1 along with the required patches on a DEV machine, verifying that the Esri recommended system requirements were in place before uninstalling the previous version.

ArcGIS ArcSDE Upgrade. PWP provided the required software media/file location for the .msi installers, including the license file location, while UDC performed the geodatabase upgrade.

Schneider Electric ArcFM Upgrade (core ArcFM and Conduit Manager). The upgrade to the Schneider Electric software version 10.6.1a involved a two-step process. First, the existing ArcFM Software was upgraded to ArcFM 10.6.1, which involved reconfiguring many of the existing configurations. After that, UDC was able to upgrade from ArcFM 10.6.1 to ArcFM 10.6.1a.

Move to Production (Esri and ArcFM core with Conduit Manager). Once PWP had validated the installation and configuration in DEV, the UDC team worked together with PWP to perform the following "Move to PROD" activities:

- Esri software upgrade
- ArcSDE upgrade
- ArcFM Configurations
- Testing and validation/Go-Live

UDC provided PWP with documented Test Cases and as-built configurations with the upgrade steps.

Transition from Esri's Geometric Network to Utility Network

With an in-depth understanding of both the existing Geometric Network GIS data model and the successor Utility Network GIS data model, UDC developed advanced programs that were delivered to PWP and employed to analyze their existing GIS data and provided:

- Automated solutions for some of the most time-consuming portions of the Geometric Network to Utility Network migration process that significantly simplified migration for end users
- Advanced network tracing functionality
- Subnetwork Modeling functionality and support for secondary mesh networks, spot networks, and loops
- Enhanced business product creation including Network Diagrams such as Schematics, One-line, Diagrams and Feeder Maps
- Modeling of Non-geometric Associations
- Definition and creation of Utility Network Containers for use in modeling substation internals, switchgear internals, vaults, manholes, and moles
- UDC's industry-leading tool, High-fidelity Export Import Data Exchange (HEIDE), that leveraged this automation of the Geometric Network to Utility Network data migration/transition. Supporting more than merely a simple feature class to feature class migration, HEIDE created subtypes and asset types, and included the structure network, connectivity, and implementation of the City's business rules

Through supplemental consulting activities, UDC guided PWP on how to take advantage of the full list of Utility Network functionality. This approach allowed PWP's GIS data migration to take place in an iterative fashion, providing the ability for users to quickly and easily see any gaps in the data mapping and determine any data issues (from connectivity to geometry). Consequently, it allowed PWP to begin to evaluate Utility Network functionality without a massive migration project.

See also: https://www.udcus.com/news/2021/10/20/pasadena-water-power-and-udc-set-continue-gis-partnership and https://www.udcus.com/news/2019/12/11/udc-implements-fiber-manager-and-wavepoint-city-pasadena

Project References

UDC's references for three of the projects described above are provided in the following table.

Reference Project	Contact
1 / NorthWestern Energy Utility Network Data Assessment	Stephanie Norman Manager, Dev Ops and Database Support 3010 W 69th St, Sioux Falls, SD 57108-5613 406-497-3879 stephanie.norman@northwestern.com
2 / AVANGRID / Southern Connecticut Gas and Berkshire Gas Company GIS Implementation	Brian M. Horgan Senior Director Gas Projects 60 Marsh Hill Rd, Orange, CT 06477 203.427.5901 brian.horgan@uinet.com
3 / Ameren Electric Transmission Utility Network Migration	Paul Reichart Manager, Software Engineering 1901 Chouteau Ave, St. Louis, MO 63103 314.861.4682 preichart@ameren.com

Approach and Solution Design

System Design

Our approach to designing Utility Network systems for multi-utility environments is informed by our data assessment discovery process described in our **Work Plan, Discover Requirements** section below.

Our discovery workshops will produce a gap analysis that identifies any gaps in the current systems, services, scripts, or integrations related to the transition to the Utility Network. The gaps in capability or functionality related to the implementation of the Utility Network will drive the data model, future design and development efforts. During this phase, the data model selection will be discussed and documented extensively during workshops to ensure GUC's future success and consider the editing tools selected.

Change Detection

UDC proposes a systematic Geometric Network (GN) to Utility Network synchronization process using our established Change Detection application integrated with HEIDE. Our approach prioritizes data integrity and operational efficiency. While the RFP suggested a Utility Network to GN sync, we caution against it due to potential data loss and increased time and costs. Instead, we are proposing a phased approach to maintain the Utility Network's currency while continuing to edit in the GN and while gradually transitioning other integrations. Leveraging our extensive experience, our senior software developers will lead integration efforts and create an as-built document for handover.

The Geometric Network to Utility Network Sync build will align with the Test Migrations phase, commencing during Test Iteration 1. During this phase, we will initiate, compile, and enhance unit test coverage while ensuring compatibility with the GUC's dataset. In Test Iteration 2, we will embark on comprehensive testing with GUC's data.

For each GN database, a dedicated source change detection will be created, along with a corresponding target change detection. If necessary, we may employ scripts for pre-processing enhancements as guided by the Discovery Phase. Our nightly source and target change detection processes draw from our prior experience, providing a reliable foundation. We will develop the solution once and deploy it across all environments using an application installer, emphasizing robust unit testing to ensure dependability.

Integration Strategy

With the implementation of Esri Utility Network and the replacement of the entire GIS, the UDC team will work closely with the GUC team to determine a course of action for the integrations that touch and interact with the GIS.

Integration Approach

UDC's approach is to use out of the box, vendor compliant integration techniques with trusted vendors that have a track record of successful implentations. As utilities increasingly adopt Esri's Utility Network for its advanced modeling, analytics, and service-based architecture, the long-term viability of OMS and planning and design systems that are not Utility Network-compliant become increasingly limited. These legacy systems may struggle to integrate with modern GIS environments, resulting in data silos, manual

workarounds, and reduced operational efficiency. To ensure future compatibility and operational resilience, utilities should consider transitioning to UN-compliant solutions such as Schneider Electric's ArcFM suite, OSI's compliant OMS solution or other vendors ArcGIS-compliant OMS and design tools, all of which UDC has abundant experience implementing.

A unified data model, institutional knowledge of these systems, and an automated integration architecture help ensure that changes in one system—like updated asset statuses from field crews or planned network modifications—are reflected consistently across all platforms. Implementing real-time or near-real-time data sync through enterprise service buses (ESBs), APIs, or middleware ensures data integrity and minimizes latency. Additionally, establishing bidirectional workflows between GIS and operational systems allows for dynamic feedback loops, enabling, for example, asset condition updates from the field to immediately inform planning and outage analysis. This interoperability supports better decision-making, reduces errors, and enhances responsiveness across the utility's full operational lifecycle.

UDC understands and is well-versed in dealing with edge applications—such as certain custom field tools, legacy SCADA interfaces, or lightweight mobile inspection apps that may not be fully compatible with Esri's Utility Network due to its complex data model, service-based architecture, or dependency on feature services. These applications often require fast, offline, or simplified access to network data that the Utility Network may not easily provide. In such cases, UDC recommends evaluating alternative solutions, like maintaining a simplified, read-only replica of the network in a traditional geometric network or flat feature class format for specific edge workflows.

Another option is to leverage Esri's Field Maps with offline support and smart forms or use partner solutions such as Utility Network compliant vendors utility field apps that are designed to integrate with the Utility Network while supporting edge-specific requirements. Aligning edge use cases with supported APIs or exploring hybrid architectures can ensure data integrity without sacrificing usability in the field.

Considerations include:

- Licensing costs
- Training requirements
- Vendor stability
- Product maturity

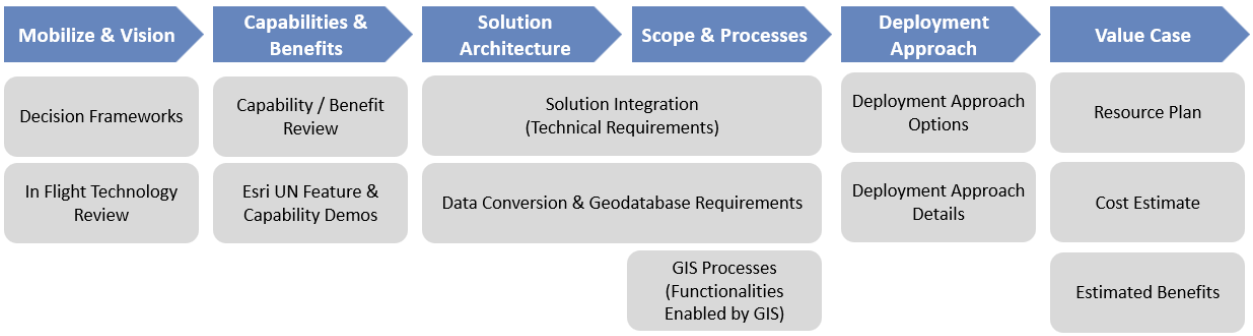
Integration Design

As part of the Integration discovery workshops outlined in the **Work Plan**, UDC will lead a workshop to review each of the integrated systems. The workshops will evaluate business object flow between systems, integration patterns employed, interfaces and payloads to/from GIS, data flows, and protocols used in each scenario. The results will produce a gap analysis that identifies any gaps in the current systems, services, scripts, or integrations related to the transition to the Utility Network. The gaps in capability or functionality related to the implementation of the Utility Network will drive the data model, future design and development efforts. The following are objectives for integration discussions:

- Investigate the existing business releases to ensure all integrations up to and including Asset Management are covered

- Discuss existing and available integration tools, for both cloud and on-prem
- Deep dive into payloads per integration paradigm
- Deep dive into related integration dependencies
- Discuss frequency and response times
- Review in-flight projects and technology implementations
- Review availability of data from integrated systems
- Error logging, system health monitoring tool integration requirements
- Discuss preliminary integration design specifications
- Discuss defining archetypes for integration and application design for end-to-end workflows, such as, service driven, point to point, ETL, and 3rd party proprietary
- Demos of any integration points, and if possible, discuss roadmap of integrated vendors
- Need for bridging integrations with similar infrastructure adaptors
- Scalability, performance and availability
- Complexity of integrations – can we size them High, Medium, Low

Sample Integration Roadmap Framework



Integration Experience

UDC takes great pride in being a GIS System Integrator. UDC has a strong track record achieving seamless synchronization of data across multiple systems such as Schneider Electric's and OSI's Outage Management Systems (OMS), operational control platforms, planning and design tools, and asset management systems.

UDC performs strategic roadmaps, implementation plans, and business cases for utilities that want to invest in or already employ critical utility systems such as outage management system (OMS), advanced distribution management system (ADMS), supervisory control and data acquisition (SCADA), advanced metering infrastructure (AMI) / meter data management system (MDMS), distributed energy resource management system (DERMS), demand response management system (DRMS), peer-to-peer distribution automation (DA), and substation automation (SA) technologies.

UDC provides the business analysis to solicit and configure OMS and ADMS product modules and to solicit and implement all enterprise application integrations with operational technologies. This hands-on experience is critical for understanding the implications of a Utility Network implementation in an inter-connected system. UDC's experience implementing Utility Network roadmaps and/or Implementations for clients that also required systems integration is shown in the following table.

Gas and Electric Utility Clients	Utility Network		Business Systems Implemented / Integrated					
	Strategy / Roadmap	Implementation	Graphic Work Design	Digital Construction Management	ADMS/DMS/ OMS	EAM	Document Management System	Power Analysis
Ameren		•	•		•	•		
Avista		•			•	•		
Avangrid	•	•				•		
CORE Electric Cooperative	•	•	•	•	•		•	
Dominion Energy East (Ohio) and Dominion Energy Virginia	•	•	•	•		•		
Dominion Energy East (Ohio) and West (Wyoming, Utah and Idaho)		•				•		
DTE Energy	•			•		•	•	
ENMAX	•		•		•			
Eversource	•		•	•	•	•	•	•
Gainesville Regional Utilities (ADMS upgrade to work with UN)					•			
NorthWestern Energy	•	•		•	•	•	•	
ONE Gas		•	•		•	•	•	
Pacific Gas and Electric Company	•		•	•	•	•	•	•

For additional in-depth descriptions of project-specific examples of UDC's successful multi-platform integrations, please refer to the reference projects listed in the **Relevant Project Experience** section above, in particular, AVANGRID: Southern Connecticut Gas (SCG) and Berkshire Gas Company (BGC) GIS Implementation; Ameren – Electric Transmission Utility Network Migration Assessments and Graphical Work Design Upgrade; and City of Pasadena / Pasadena Water and Power GIS Upgrade.

Work Plan

Conduct Project Initiation and Management

The UDC Project Manager will be the point of leadership, communication, and accountability for the project. UDC Project Managers are quality and customer-service minded, risk and issue management specialists, experienced in planning and work management, and have effective communication skills.

The UDC Project Manager will use standard tools, techniques, and best practices throughout the project, from initiation to completion, to deliver against project goals, monitor and manage activities, track, and report project status, and manage schedule and budget in accordance with the agreed plan. The project manager will lead the team to achieve the project goals and ensure timely project completion. The total cost outlined in our proposal includes all Project Manager expenses.

The UDC Project Manager will collaborate with their GUC counterpart to tailor a combination of tools from the table below to best fit this engagement.

Tool / Technique	Description	Best Practice
Project Kickoff Meeting	Project team initiation Introduce stakeholders Establish working relationships and lines of communication Review scope and project goals and objectives Establish individual and group responsibilities and accountabilities	Team building Cross-team communication and awareness Promoting shared expectations
Project Status Meetings	Review and verify progress to date Review risk and issue status Typically held weekly or may be ad hoc	Information gathering and sharing Conduct "two-week look-ahead" to review short-term goals and assignments Project performance assessment Risk and issue review Action plan development
Project Status Reports	Share information about project performance, progress against plan, and highlight variances and any major risks or issues Typically prepared weekly	Stakeholder communication Project records
Meeting Minutes	Capture meeting conclusions and decisions Record and communicate information for awareness, verification, and future reference	Information sharing and verification Project records
Risk List	A centralized inventory of project risks including description, impact(s) on the project, probability,	Risk management Single, master source of reference

Tool / Technique	Description	Best Practice
	level of impact (such as high, medium, low), mitigation plan, owner, status Monitored and updated over the life of the project	
Issue List	A centralized inventory of project issues including description, owner, corrective action(s), targeted resolution date, status	Issue management Single, master source of reference
Rolling Wave Planning	A form of progressive project plan and schedule elaboration which involves defining short-term work in detail and further-out work at a high level	Schedule (time) management Detailed planning
Milestone Schedule	High-level schedule with targeted and actual start and/or end dates for key and/or critical project activities to address each milestone.	Communication Early planning
Critical Path Task and Dependencies Identification	An assessment and identification of mandatory activities or milestones that have no slack (thus if impacted will have a ripple effect on the project schedule)	Risk management Resource management Early planning
Requirements Analysis Meetings	Joint review of customer standards and procedures for managing network infrastructure data, engineering design and as-built source documents and files, projection and scaling requirements, symbology standards, data mapping placement, and other business rules	Collaboration Consensus building Risk and Issue identification
Daily Stand-up Meetings	Brief touch-base meetings held to exchange status updates among team members High frequency allows participants to promptly know about potential challenges as well as to coordinate efforts to resolve difficult, time-consuming, or high-risk situations, or critical issues	Collaboration Risk and issue management
Impact Analysis Meetings	An assessment of a change and the impact it will have on project scope, schedule, or budget Typically conducted with a team of subject matter experts and those who will be impacted by the change	Risk identification and assessment Change planning Identify measurable benefits achieved through the implementation of new ways to work and supporting technology to make it happen
Change Control Meetings	A meeting of project stakeholders authorized to make decisions on whether proposed changes to the project should or should not be made	Change management. Bridge the gap between technology and business processes. Perform a thorough assessment of the user interfaces, the competency levels, and degree of trust. These systemic sources must be understood and incorporated in the Change Management approach.
Release Checklists	Detailed list of tasks, assignments, order of events, and timeframes to be followed to complete deliveries	Change management. Analyze the change / itemize the change / deliver change / embed the change.

Tool / Technique	Description	Best Practice
	Checklists used by team members participating in delivery during a planned production maintenance window Typically include contact information for all participants and escalation and rollback procedures	
Lessons Learned Reviews	An information exchange between team members to review what worked well, what did not work well, and what adjustments to make going forward	Continuous improvement Risk mitigation, issue prevention

Conduct Project Kickoff

Once a project begins, the UDC Project Manager is designated to the project team for the project's entirety, ensuring effective coordination from the outset. Following this designation, there is a short mobilization period to ensure alignment between the GUC and UDC teams. During this period, UDC will collect essential project information and initiate onboarding procedures where applicable, culminating in a scheduled project kickoff meeting.

The UDC project team will participate in a Project Kickoff Meeting with the GUC project team and key stakeholders. To prepare for these discussions, UDC will review the necessary methodology and adoption topics to ensure a cohesive and streamlined approach. For more details about UDC's project management approach, see the Conduct Project Initiation and Management section above. During the meeting, UDC will present the Project Plan and set expectations for the project, including deliverables, schedules, roles, and responsibilities. The Project Kickoff Meeting is an opportunity for the teams to review and finalize key aspects of the project, including but not limited to:

- Project team roles, responsibilities, and expectations for both UDC and GUC teams
- The Project Plan with services to be performed and associated deliverables
- Task assumptions and dependencies
- Project schedule
- Communications such as workshop scheduling coordination, project status reporting, key points of contact, issue tracking, action item management, and project governance framework
- Risk and issue reporting methodology including any known risks and mitigation plans, respectively
- Identification and adoption of any additional work products into the agreed upon list of deliverables

Workshops - Conduct Project Initiation & Management

- Project Kickoff

Deliverables - Conduct Project Initiation & Management

- Project Management Documentation

Discover Requirements

Conduct Current Workflow and Data Review

UDC believes collaborative workshops focused on reviewing major business processes, current workflows, data, and the GIS infrastructure and solutions are a vital approach for this project. The workshops bring together GUC stakeholders, experts, and technical teams to comprehensively assess the existing systems. By promoting collaboration, these workshops provide a clear baseline for the workflow and migration efforts. Additionally, by involving key stakeholders, UDC ensures the project outcomes align with GUC organizational needs and prepares UDC for future requirements. In essence, these UDC-led workshops are pivotal for enhancing efficiency, data quality, and the overall success of the project.

For integration points, UDC will lead a workshop to review each of the integrated systems. The workshops will evaluate business object flow between systems, integration patterns employed, interfaces and payloads to/from GIS, data flows, and protocols used in each scenario. The results will produce a gap analysis that identifies any gaps in the current systems, services, scripts, or integrations related to the transition to the Utility Network. The gaps in capability or functionality related to the implementation of the Utility Network will drive the data model, future design and development efforts.

Workshops - Current Workflow and Data Review

- Editing Workflow Assessment Workshops
  - Current Electric Editing Workflows
  - Current Gas Editing Workflows
- Workflow Assessment Workshops
  - Review Current Electric Integration Points
  - Review Current Gas Integration Points
  - Review Current Electric Data Models
  - Review Current Gas Data Models

Conduct Data Assessment(s)

UDC will perform two data assessments, one for the electric dataset and one for the gas dataset. Upon completion of the assessment and data analysis activities, findings and recommendations will be itemized in a Data Remediation document. Additionally, UDC will provide the preliminary utility network data model mappings in the form of a Schema Mapper. UDC will present the assessment conclusions and deliverables to GUC for each commodity. As proof of concept, UDC will provide a file geodatabase Utility Network with GUC's data migrated for the entire service territory, including a subset of sample subnetworks.

UDC plans to collaborate with GUC throughout the project. Additionally, the UDC team will establish an ongoing Meeting Series GUC called Current Data Model Questions, which will run parallel to UDC's Assess Current State Data activities. This series aims to address and resolve any current data model questions. This approach is applied to each electric and gas source commodities, as shown in the schedule.

Perform Electric/Gas Proof of Concept Migration

UDC's Migration approach is unique, in that we offer an initial migration of each database using our High-fidelity Export/Import Data Exchange (HEIDE) tool.

Assess Current State Data

- **Perform Data Preparation.** Our systematic workflow, from data preparation and analysis to mapping, modeling, and evaluation, guarantees a thorough and organized process. By fostering transparency through documentation and collaborative meetings with the Greenville Utilities Commission (GUC), we ensure alignment with GUC expectations and early issue resolution. The use of Laurel Hill's Geodata Sentry, combined with the use of HEIDE for error evaluation, enhances data quality and efficiency. This approach not only minimizes risks but also maximizes data integrity, making it a reliable and adaptable solution for a successful migration across all databases.

  By incorporating UDC's HEIDE tool, our approach involves performing suitability evaluations of the existing GIS data for each database. This proof-of-concept migration provides real-world results to highlight data migration issues and helps identify potential roadblocks. This enables a rapid approach to work with the business and discuss key issues for resolution.

- **Preliminary Data Mapping.** UDC will work with the GUC to create the target data model. Through a collaborative approach, the team will work through data mapping and leverage the ongoing data modeling meeting series with the GUC to ask questions, gain understanding, and produce a useful target model. Electric discussions will be scheduled independently of the Gas discussions.

- **Conduct Target Data Analysis.** UDC's evaluation of source data issues involve two distinct processes: Automated Evaluation and Manual Evaluation, each specifically tailored to ensure compatibility with the Utility Network.

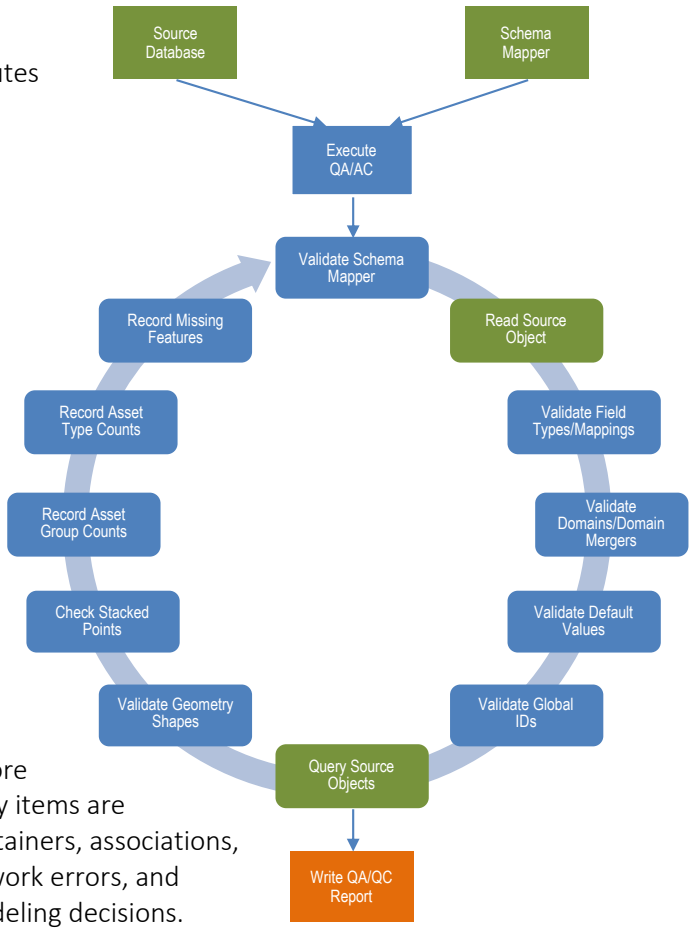
  Automated Evaluation. HEIDE's automated processes will evaluate the Electric and Gas data through its QA/QC tool and report the following issues to a Microsoft Excel format:

Validate

- Field Types/Mapping of Attributes
- Domains/Domain Mergers
- Default Values
- Global IDs
- Geometry Shapes
- Coincident Geometry

Document

- Asset Group Counts
- Asset Type Counts
- Missing Features



Manual Evaluation. The manual review of the Greenville Utilities Commission's (GUC) existing GIS Electric and Gas data will evaluate whether the data supports the Utility Network configuration with an emphasis on the configuration and implementation of Subnetworks in the core defined tiers for each Utility Network. Key items are terminal configurations, modeling of containers, associations, business rules, snapping, and Utility Network errors, and downstream or upstream impacts of modeling decisions.

This step is vital, as the Utility Network provides the most value when the underlying rules are comprehensive. This strong framework of rules requires the supporting data to be correspondingly clean.

UDC will align the GUC current database schemas with the features and characteristics of the Esri Utility Network Electric and Gas Models.

Following the proof-of-concept migration, the team will use the data and associated analysis to drive discussions around data errors and mitigation.

- **Create and Configure ArcGIS Pro Projects.** Within the development environment, the UDC team will create and configure a core ArcGIS Pro Project for data editing for each Electric and Gas, respectively. This includes incorporating essential data sources and applying core symbology and core attribute rules to enable efficient data editing and maintenance. This ArcGIS Pro Project will utilize Esri's Utility Network Foundation Solutions for electric and gas.
- **Review Data Assessment Results.** The UDC team will facilitate separate workshops for Electric and Gas to review the data assessment results. In these workshops, we will review data issues found and the recommended mitigation for resolution. The UDC team will document missing data elements and data quality issues that must be resolved prior to migration in the Database Readiness Assessment Report. Additionally, the team will recommend and document pre-migration data enhancements to streamline future data workflows and optimize performance.

Review Data Remediation Options

Prior to deployment, UDC will provide a data remediation report at the end of the data assessment that will provide more in-depth details, prioritization, and remediation options for the issues that need to be addressed before deployment to ensure smooth transition into the Utility Network environment. The remediation options will include a level of effort classification, and where appropriate, potential pros and cons for a given option.

Possible mitigation options include:

- Manual edits in the source data
- Manual edits in the target data
- Use of UDC add-ins or scripts in the target data
- Use of scripts in the source data

UDC will outline strategies and best practices for data mitigation to effectively assist GUC in making decisions and explore mitigation options prior to migration.

Future Workflow Reviews

In tandem with the proof-of-concept migration activity, the UDC team will conduct Future Workflow Review workshops. This simultaneous approach aims to streamline project progress, optimize solutions, ensure alignment with evolving needs, and adhere to effective timelines. Real-time feedback from the GUC workshops and participants will inform the finalization of workflow requirements, identification of gaps, and exploration of opportunities.

Workshops - Future Workflow and Data Topics

- Future Electric Editing Workflows
- Future Gas Editing Workflows
- Review Future Electric Integration Points
- Review Future Gas Integration Points
- Review Future Electric Data Models
- Review Future Gas Data Models

Create Requirements

Following the Discover Requirements activities—Review Current Workflow and Data, Perform Proof of Concept Migration, and Review Future Workflow and Data—UDC will prepare a comprehensive set of requirements documentation. UDC will review these documents with the GUC team and update the documentation as mutually agreed upon. The requirements documentation will include the following:

- Review and document current GIS data management practices and workflows, including data editing, processing, publishing, and sharing
- Recommend approach for migrating and editing workflows from ArcMap with Attribute Assistant to ArcGIS Pro with Attribute/Topology Rules

- Provide recommendations for software and processes required for ongoing data quality assurance and quality control
- Recommend initial and future Utility Network data management practices including:
  - Web services for editing, publishing, viewing, and sharing Utility Network data
  - Database administration
  - Nightly scheduled automated data processing workflows, backups, and synchronization

Our team is committed to ensuring that these requirements are addressed within the project documentation, providing clear guidance and direction for the successful implementation of the project objectives. For a complete list of requirements deliverables, please refer to the list below.

Workshops - Discover Requirements

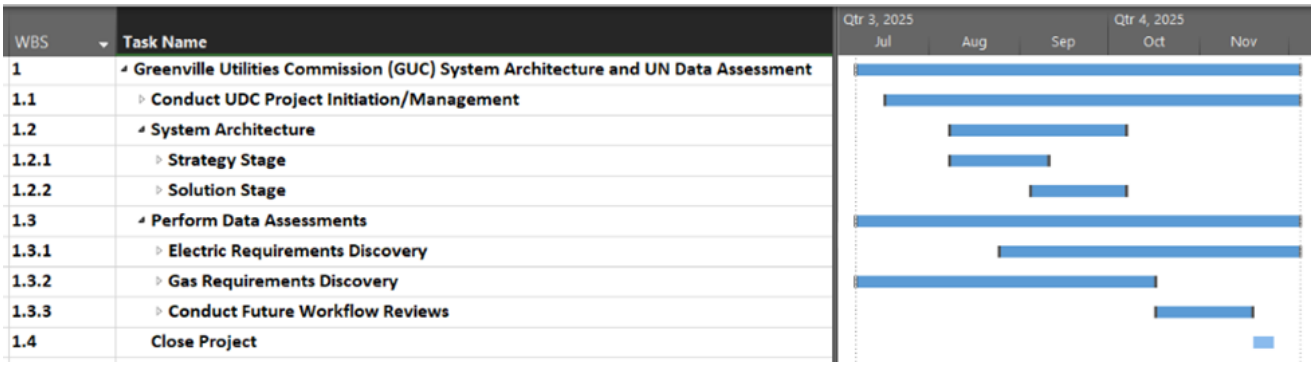
- Review Current Electric Editing Workflows
- Review Current Gas Editing Workflows
- Review Current Integration Points
- Review Current Data Models
- Meeting Series: Current Electric Data Model Questions (Concurrent with Review)
- Review Electric Data Assessment Results with GUC
- Meeting Series: Current Gas Data Model Questions (Concurrent with Review)
- Review Gas Data Assessment Results
- Review Future Electric Editing Workflows
- Review Future Gas Editing Workflows
- Review Future Integration Points
- Review Data Models

Deliverables - Discover Requirements

- Configured Electric ArcGIS Pro Project and Attribute Rules
- Electric Data Documentation from Development Migration
- Preliminary Electric Asset Package and Utility Network Database
- Configured Gas ArcGIS Pro Project and Attribute Rules
- Gas Data Documentation from Development Migration
- Preliminary Gas Asset Package and Utility Network Database
- Workflow & Editing Solution Requirements Documentation
- Application Requirements Documentation
- Updated Data Models (Schema Mapper)

Sample Project Plan

Please see below for a high-level, sample project plan. This plan is informed by previous successful Utility Network Data and System Architecture Assessments. Additionally, we have provided a more detailed project plan specific to this engagement in **Appendix A, Sample Project Plan**. We have also provided proposed resource resumes in **Appendix B, UDC Resource Resumes**.



Transition Management

The results of the data assessment described in the Work Plan will inform the transition plan from Geometric Network to the Utility Network. Considerations include source data quality, network connectivity, and source to target data modeling. UDC is proposing our Change Detection application that is integrated with HEIDE to maintain the Utility Network's currency while continuing to edit in the GN and while gradually transitioning other integrations. This is outlined in the **System Design, Change Detection** section above.

During the course of the full migration, the UDC team would work collaboratively to build a full utility network implementation strategy which would be revised throughout the project. UDC and GUC's team would create a Preliminary Data Cutover Plan for each commodity. This plan would involve a thorough review of the Production data migration tasks and dependencies to ensure all items have been addressed. Key considerations for the plan include:

- Detailed Data Migration Steps
- Identification of responsible parties for Production data migration
- Timing
- Dependencies

System Architecture

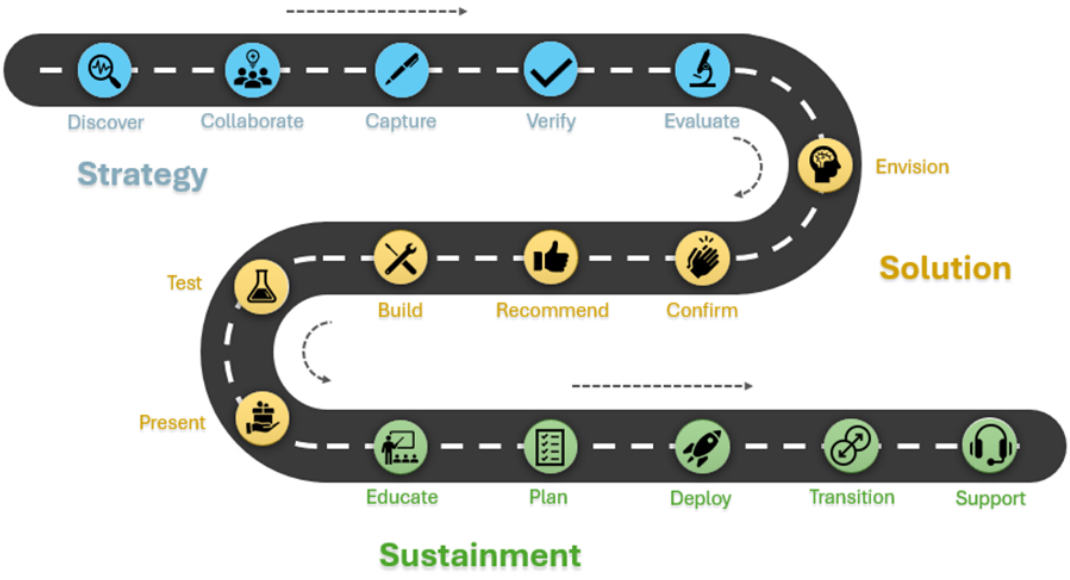
UDC will provide system architecture services to GUC through a system design and planning engagement. System design and planning involves gathering non-functional requirements (NFRs), reviewing current workflows and business processes, analyzing all tiers of the existing enterprise GIS, assessing organization policies and standards, determining availability needs, forecasting capacity, and defining an architecture with appropriate sizing and deployment pattern to effectively meet requirements.

Framework

UDC is a market leader in establishing secure, reliable, scalable, and modern system architectures for customers while following industry best practices. To successfully conduct system architecture project work, UDC leverages its Enterprise GIS Architecture Framework (EGAF), which is an adaptation of The Open Group Architecture Framework (TOGAF) growing in popularity because of its flexibility to be customized by organizations of any industry. At its core, EGAF typically encompasses three sequential stages: Strategy, Solution, and Sustainment.

The following diagram illustrates the relationship between the nine TOGAF stages (underlying gray circles) and the three EGAF stages (superimposed blue, green, and gold circles):

The Strategy Stage occurs first and consists of discovery activities such as requirements workshops, documentation, and verification. The Solution Stage occurs second and entails design, future planning, and recommendations. Each stage includes multiple steps, some of which may be iterative. These steps are illustrated in the following graphic and described throughout the subsections further below, grouped together by common stage.



In response to GUC's current need for system architecture design and planning, UDC is exclusively proposing the Strategy and Solutions stages. The Sustainment Stage will become relevant when GUC requests implementation services.

Strategy

The system architecture aspects of the project work begin with establishing a strategy once the project kickoff meeting has occurred. As part of this strategy, UDC will work with GUC to discover current state conditions through workshops, capture future state requirements, and verify these details to gain alignment.

Discover

At the onset of discovery, UDC will request current state documentation pertaining to architecture diagrams and system usage metrics. Reviewing this information early will help shape the questions that UDC will ask of GUC throughout discovery. Once UDC reviews the requested current state documentation, UDC will provide a workshop itinerary and list of required GUC attendees. GUC will coordinate internally and with UDC to schedule the appropriate people, locations, and equipment in support of the workshops. Next, UDC will prepare the required workshop materials.

Collaborate

Next, UDC will facilitate a series of collaborative system architecture workshops. The purpose of conducting the workshops is twofold:

- To better understand the current-state GIS from multiple perspectives
- To foster healthy discussion about requirements for the future state vision

The workshops will organize system architecture topics into eight different types as prescribed by the EGAF. As can be expected, these eight types of architecture are all interwoven with one another (like puzzle pieces), several of which can be subdivided into additional types of architecture. The diagram below provides a summary and visualization of the eight types of system architecture to be discussed throughout the workshops:

Prior to the workshops, UDC will prepare the questionnaire and materials needed to facilitate discussions around each relevant type of system architecture. During the workshops, UDC will lead the discussions as well as record vital information and key decisions resulting from those discussions. Some workshop topics may be combined or revisited based on a variety of factors.

The goal of the workshops is to cover a wide range of topics related to current-state and future-state GIS.

Workshops - Collaborate

- Architecture Discovery Workshop: Business and Information (4 to 8 hours)
- Architecture Discovery Workshop: Application and Integration (4 to 8 hours)
- Architecture Discovery Workshop: Technology and Cloud (4 to 8 hours)
- Architecture Discovery Workshop: Availability and Security (4 to 8 hours)
- Initial Cloud vs. On-Premise Meeting: Pros and Cons (1 to 2 hours)
- Follow-Up Cloud vs. On-Premise Meeting: Pros and Cons (1 to 2 hours)
- Big Rock Decision and Drivers Meeting (2 to 4 hours)

As part of the Strategy Stage, UDC will also provide Cloud Decision Support consulting to GUC. This consulting offers detailed discussion around cloud options for GIS, including advantages and disadvantages, big-rock decisions and drivers, and cost considerations that may help GUC with building a business case for migrating to the cloud.

Draft Iteration Deliverables – Collaborate

- Strawman Architecture Sizing and Configuration (DOCX)
- Big Rock Decisions and Drivers Presentation Slides (PPTX)
- Cloud and On-Premise Estimates (XLSX)

Revised Deliverables – Collaborate

- Strawman Architecture Sizing and Configuration (DOCX)
- Big Rock Decisions and Drivers Presentation Slides (PPTX)
- Cloud and On-Premise Estimates (XLSX)

Capture

After compiling and consolidating notes from each workshop discussion, UDC will create a draft Requirements Traceability Matrix (RTM) based on the future state requirements. The purpose of creating the RTM is to formally capture GUC's requirements, seek common alignment, and expose unanticipated gaps. The RTM will be a Microsoft Excel spreadsheet that contains NFRs specific to system architecture. UDC will provide detailed information for each NFR as part of the RTM, including the following:

- Unique requirement identifier
- Title
- Description
- Source
- Related architecture types
- Corresponding use cases (justifications)
- Scope inclusion or exclusion

UDC will submit the draft RTM to GUC via email or share it through file upload to GUC's preferred repository. Once received, GUC will review the draft RTM and prepare consolidated feedback for discussion with UDC.

Draft Iteration Deliverable – Capture

- Requirements Traceability Matrix (Excel Spreadsheet)

Verify

UDC will conduct a Draft RTM review meeting with GUC to verify requirements and discuss feedback. Based on feedback and the outcome of the review meeting, UDC will revise the NFRs appropriately and submit the final deliverable via email or share it through file upload to GUC's preferred repository. Once received, GUC will review the final RTM and provide subsequent agreement.

Final Iteration Deliverable – Verify

- Requirements Traceability Matrix (Excel Spreadsheet)

Workshop – Verify

- Draft RTM Review Meeting (1 to 2 hours)

Evaluate

The last step in the Strategy Stage involves reviewing the Final RTM and seeking approval from GUC. UDC will conduct a Final RTM review meeting with GUC to close out any remaining topics. GUC will then approve the Final RTM so UDC can begin design work.

Workshop – Evaluate

- Final RTM Review Meeting (0.5 to 1 hours)

Solution

The system architecture aspects of the project work continue with determining the best solution. As part of the solution, UDC will work with GUC to envision the future state system architecture by way of a technical specification, confirm that the design and sizing meet requirements, and formally recommend the solution to gain agreement.

Envision

Based on all information learned during the workshops and the in-scope requirements identified by the RTM, UDC will begin the process of envisioning the future-state system architecture. To achieve this, UDC will create a set of nine draft future-state system architecture design diagrams (also known as system views). These diagrams, also known as system views, illustrate the system from different perspectives and with varying levels of granularity, some of which will differ by environment. Below are the details incorporated into each of the diagrams with respect to the future-state system architecture:

Software View: Depicts the software components and their hierarchal interrelationships. Includes the following details:

- Software stacks and major platforms (logical collections of software components)
- Software product names and versions
- Categorization of foundational, core, supplemental, supporting, and integration software components
- Classification of Commercial-Off-the-Shelf (COTS) software and custom solutions

Integration View: Visualizes how the Geographic Information System (GIS) will interact with integrating business systems. Includes the following details:

- System names and vendors of integrations and middleware component
- Categorization of on-premise, cloud-hosted SaaS (Software as a Service) integrations, and cloud-hosted non-Saas

- Classification of Point-to-Point (P2P), Enterprise Service Bus (ESB), Hub and Spoke (H&S), and Extract, Transform, and Load (ETL) integrations
- Identification of unidirectional or bidirectional integration data flow
- Indication of push or pull integration mechanisms (to GIS or from GIS)

Network View: Describes the network configuration for ingress, egress, and inter-component network traffic. Includes the following details:

- Datacenters, cloud network services (for hybrid or fully-cloud deployments), and end-user locations along with their Local Area Network (LAN) and Wide Area Network (WAN) connectivity
- Communication protocols (but not corresponding ports
- Subnet and Virtual Local Area Network (VLAN) configuration, along with any relevant static routes
- Representation of any applicable Demilitarized Zones (DMZ) or other perimeter networks
- Classless Inter-Domain Routing (CIDR) allocation for Internet Protocol (IP) address ranges
- Routers, switches, load balancers and other reverse proxies, forward proxies, and other network appliances which are relevant to the GIS
- Domain Service Name (DNS) network aliases and solutions relevant to the GIS
- Other relevant network traffic information pertaining to Open Systems Interconnection (OSI) model layers 1 through 7

Data View: Shows the physical and logical structure of the enterprise geodatabases and the major data sources with content relevant to the GIS and integrating business systems, along with the exchange of data between them. Includes the following details:

- Databases, data marts, lakes, warehouses, stores, file shares, and other storage repositories where content and configurations reside
- Replication mechanisms at relevant system tiers (i.e., database, storage, application)
- Major data flows involving read-only and read-write processes
- Identification of data considered to be a System of Record (SoR) or System of Engagement (SoE)
- Cloud database resource sizing, if applicable
- Basic network information that maps the enterprise geodatabases, and other relevant data sources, to key portions of the network

Infrastructure View: Illustrates the on-premise, cloud, or hybrid deployment pattern of physical hardware and virtualization technologies within the datacenter as well as resources and services throughout the cloud. Includes the following details:

- Physical and virtual servers as well as relevant cloud compute resources, including host names (where allowed), software details (i.e., OS, ArcGIS), and server sizing specifications (CPU, RAM, volumes, GPU)
- Representation of client devices including local workstations (desktops and laptops), mobile devices (iPhone and Android), as well as Virtual Desktop Infrastructure (VDI) and virtualized applications

- Physical and virtual storage components as well as relevant cloud compute services
- Indication of which infrastructure is new procurement versus available for reuse
- Basic network information that maps infrastructure to key portions of the network
- Basic software information that maps the future-state software to the infrastructure
- Basic integration information that maps the future-state integration COTS and custom components to the infrastructure

Security View: Portrays security mechanisms such as in-transit and at-rest encryption, firewalls, identify verification, authentication, and authorization validation. Includes the following details:

- Security groups, Access Control Lists (ACL), and other permissions-driven controls
- Inbound and outbound firewall rules for ports and protocols
- Other relevant application configurations, infrastructure, cloud services, and technologies or components focused on enhancing security posture
- Basic network information that maps security components to key portions of the network

Availability View: Demonstrates the redundancy and rollback capabilities that support business continuity through high availability, disaster recovery, and restoration, highlighting any single points of failure where no automated failover, switchover, or point-in-time recovery exists. Includes the following details:

- Clusters, load balancers, secondary servers, additional cloud regions and availability zones, and other redundancy capabilities of the architecture
- Backups, restoration, rollback, and other recovery mechanisms of the architecture at relevant system tiers (i.e., database, storage, application)
- Any aspects of the architecture where manual processes are required to achieve restoration or failover

Next, UDC will generate draft system sizing details based on system load estimates. The system sizing will be generated with the future production environment in mind. From there, UDC will work with GUC to understand lower environment expectations and any limitations prior to determining appropriate system sizing for the development and test environments.

Based on the Final RTM, the draft architecture diagrams and system sizing details will then be incorporated into a draft System Architecture Design Specification (SADS). The purpose of creating the SADS is to formally document and officially communicate the future-state system architecture. The SADS will be a Microsoft Word document that demonstrates how the future-state system architecture will meet requirements, and it will contain system sizing and deployment pattern details pertaining to hardware, software, integrating systems, and business processes.

As part of the Envision Approach step, UDC will submit the following draft architecture diagrams and SADS (with system sizing) to GUC via email or share them through file upload to GUC's preferred repository. Once received, GUC will review the draft architecture diagrams and SADS, and then GUC will prepare consolidated feedback for discussion with UDC.

Draft Iteration Deliverables – Envision

- System Architecture Diagram: Software View (PDF)
- System Architecture Diagram: Integration View (PDF)
- System Architecture Diagram: Network View (PDF)
- System Architecture Diagram: Data View (PDF)
- System Architecture Diagram: Infrastructure View (PDF)
- System Architecture Diagram: Security View (PDF)
- System Architecture Diagram: Availability View (PDF)
- System Architecture Design Specification (DOCX)

Confirm

UDC will conduct a Draft SADS review meeting with GUC to confirm the design (including the architecture diagrams and system sizing) and discuss feedback. This meeting will be technical in nature and will therefore require significant input from GUC technical stakeholders. Based on feedback and the outcome of the review meeting, UDC will revise the architecture diagrams, system sizing, and SADS appropriately and then submit the final deliverables via email or share them through file upload to GUC's preferred repository. Once received, GUC will review the deliverables and prepare final consolidated feedback for discussion with UDC.

Final Iteration Deliverables – Confirm

- System Architecture Diagram: Software View (PDF)
- System Architecture Diagram: Integration View (PDF)
- System Architecture Diagram: Network View (PDF)
- System Architecture Diagram: Data View (PDF)
- System Architecture Diagram: Infrastructure View (PDF)
- System Architecture Diagram: Security View (PDF)
- System Architecture Diagram: Availability View (PDF)
- System Architecture Design Specification (DOCX)

Workshop – Confirm

- Draft SADS Review Meeting (0.5 to 1 hour)

Recommend

UDC will conduct a system design review meeting with GUC to discuss final deliverable feedback and recommend the path forward in terms of future-state system architecture. This meeting will cover system architecture topics at a high level and will not require significant input from GUC technical stakeholders. Based on the outcome of the review meeting and the approach defined by the final deliverables, GUC will provide subsequent agreement.

Workshop – Recommend

- Final SADS Review Meeting (0.5 to 1 hour)

Assumptions

- The scope of the proposed system architecture services is limited to activities and deliverables pertaining to system architecture design and planning for eventual migration to the Esri Utility Network Management (UNM) solution. Additional services related to system monitoring, performance assessment and tuning, or any other topics outside the realm of system architecture design and planning are out of scope.
- GUC will support the discovery workshops by providing subject matter experts who are knowledgeable in cloud technologies and the current-state GIS as well as familiar with future-state GIS requirements.
- GUC will not withhold information vital to the success of conceptual architecture activities or the accuracy of conceptual architecture deliverables. Moreover, UDC will not divulge sensitive conceptual architecture information to organizations outside the project or without GUC authorization.
- All work will be performed remotely unless all parties agree to travel. All costs associated travel are not included in the total cost of this scope and will therefore be invoiced separately at cost.
- Email transmittal is sufficient for document deliverable submission.
- Only core Esri attribute rules and symbology will be used for this migration. Any additions to scope can be handled through the project governance process.
- All work will be completed in the proof-of-concept environment.
- GUC will provide UDC with access to the necessary GUC environments and data required to perform the work without performance issues.
- GUC will allow UDC to install its HEIDE tool on the GUC desktop environment.
- GUC will be responsible for all licensing and hardware necessary to support the work.
- GUC will help identify and coordinate key stakeholders for project initiation meetings and ensure that required project stakeholders attend scheduled workshops and meetings.
- GUC will provide UDC with existing documentation as necessary.
- Implementing third-party applications is outside the current scope. Any additions to scope can be handled through the project governance process.
- GUC will support the Discovery workshops by providing subject matter experts who are knowledgeable in the current GIS and familiar with future-state GIS requirements.
- GUC will review deliverables, as well as provide related feedback and approvals, within the time durations prescribed by the proposed project schedule.
- GUC will work with their Esri Customer Service Representative to determine eligibility and quantities needed for licensing and user roles as well as identifying software purchases and future ongoing costs.

Project Management Strategy

Project Plan

Please see **Appendix A, Sample Project Plan**, for a detailed project plan with potential resources for UDC's proposed work with GUC. Additionally, we have provided a proposed project team in **Appendix B, UDC Resource Resumes**.

Costs

System Architecture		
Milestones	Milestone Date	Payments
Strategy Stage		
Discover	Jun-25	$4,654
Collaborate	Jul-25	$54,444
Capture	Jun-25	$9,536
Verify	Jun-25	$2,148
Evaluate	Jun-25	$179
Solution Stage		
Envision	Jul-25	$41,507
Confirm	Jul-25	$8,325
Recommend	Jul-25	$396
	Sub Total	$121,189

Utility Network Assessment and Requirements		
Milestones	Milestone Date	Payments
Conduct UDC Project Initiation/Management	Jun-25	$31,136
Electric Requirements Discovery		
Review Current Workflow and Data	Aug-25	$2,041
Conduct Electric Data Assessment	Aug-25	$5,102
Assess Current State Data	Sep-25	$25,510
Conduct Target Data Analysis	Oct-25	$21,429
Create and Configure Electric ArcGIS Pro Projects	Oct-25	$10,204
Conduct Electric Migration Planning	Nov-25	$21,429

Utility Network Assessment and Requirements		
Milestones	Milestone Date	Payments
Gas Requirements Discovery		
Review Current Workflow and Data	Jul-25	$2,041
Conduct Gas Data Assessment	Jul-25	$5,102
Assess Current State Data	Aug-25	$25,510
Conduct Target Data Analysis	Sep-25	$21,429
Create and Configure Gas ArcGIS Pro Projects	Sep-25	$10,204
Conduct Gas Migration Planning	Oct-25	$21,429
Conduct Future Workflow Reviews		
Conduct Reviews in Development Environment	Oct-25	$2,041
Create Requirements	Nov-25	$20,142
Close Project	**25-Nov**	$6,562
	Sub Total	$231,311
	Total	$352,500

Data Security and Compliance Strategy

Security Framework and Protocols

UDC recognizes the critical importance of securing corporate data and network assets. To ensure a trusted and secure environment, UDC has implemented a comprehensive security framework encompassing encryption standards, access controls, device authentication, and intrusion detection measures.

Encryption Standards: UDC uses robust encryption technologies to protect data at rest and in transit. File transfers are secured via Secure File Transfer Protocol (SFTP-SSH2). All company-issued laptops are encrypted using AES-256, ensuring data security on mobile endpoints. SSL/TLS certificates are used to encrypt internal wireless communications and both internal- and external-facing web services. Encrypted SSL connections are also used for mobile data backups.

Access Control: Access to company resources is tightly managed through Azure Active Directory with multifactor authentication (MFA) enabled for all users. Employees authenticate using Active Directory credentials across Microsoft Office 365, the Cisco AnyConnect VPN, and internal systems. Access to UDC's wireless network is enforced via 802.1X authentication and system-level certificates. Strict policies are also in place to restrict the use of removable media, further mitigating unauthorized data access and transfer.

Device Authentication: All endpoints, including laptops, desktops, servers, and field tablets, undergo authentication via system certificates and Active Directory credentials. Devices connecting to corporate wireless must present valid system certificates and pass 802.1X checks, ensuring only authorized hardware gains network access.

Intrusion Detection and Malware Protection: UDC employs real-time antivirus and anti-malware scanning across all devices. These systems are updated daily with the latest definitions. Email traffic is scanned for threats upon sending and receiving. Additionally, employee security training on recognizing phishing and social engineering threats is provided. While not explicitly named, these measures align with host-based intrusion detection, helping identify and block malicious activity at the endpoint level. The secure Tier III colocation facility also supports physical intrusion prevention through restricted access, surveillance, and environmental controls.

Infrastructure and Data Resilience: UDC's backend infrastructure is hosted in a Tier III colocation facility with controlled physical access, redundant power, and climate management. Data is protected through regular full and incremental backups, conducted over secure channels to ensure integrity and recoverability.

Required Forms and Adherence to GUC Policy and Other Requirements

The required RFP forms and certificate of insurance are included on the following pages.

RFP Acknowledgement and Signature Form

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: All Addenda, including Terms and Conditions, E-Verify

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: Utility Data Contractors, LLC

Address: 82 Inverness Drive E, #A1, Englewood, CO 80112

Telephone: 720-733-8862 Fax: 262-436-1797

Email: udcproposalteam@udcus.com Cell Number: N/A

Contractor License # (if applicable): _____ Expiration Date: _____

Federal Tax Identification Number: 20-2978937

Authorized Signature: _____ Date: 5/9/2025

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: _____

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E-Verify Form

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: _____

Utility Data Contractors, LLC (Company Name)

By: Chelsea Nietzel (Typed Name)

Chelsea Nietzel (Authorized Signatory)

HR Manager (Title)

4/24/2025 (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: Utility Data Contractors, LLC Phone: (720) 733-8862

Address: 82 Inverness Drive E, #A1

City Englewood State CO Zip Code 80112

Fax (262) 436-1797 E-mail udcproposalteam@udcus.com

Authorized Official Don Vanker Title Account Manager
Typed Name

Date 5/12/2025

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

Certificate of Insurance

UDCINC0-01 SSMITH

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 6/25/2024

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	CONTACT NAME: Shari Smith
Robertson Ryan - Milwaukee 330 East Kilbourn Avenue, Suite 850 Milwaukee, WI 53202	PHONE (A/C, No, Ext): (414) 221-0362 362 FAX (A/C, No): (414) 271-0196 E-MAIL ADDRESS: ssmith@robertsonryan.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : The Travelers Property Casualty Insurance Company of America	25674
INSURER B : The Travelers Indemnity Company of Connecticut	25682
INSURER C : Travelers Casualty & Surety	19038
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

Utility Data Contractors LLC
82 Inverness Dr. E#A1
Englewood, CO 80112

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

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 X PRO-JECT X LOC OTHER:			ZLP81N81270	6/1/2024	6/1/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY X $1,000 Comp Deductib / X $1,000 Collision Ded			BA2S652604	6/1/2024	6/1/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			CUP2S677414	6/1/2024	6/1/2025	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		UB2R78202A	6/1/2024	6/1/2025	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
C	Employee Dishonesty			106119042	6/15/2024	6/15/2025		500,000
C	Computer Funds-Trans			106119042	6/15/2024	6/15/2025	Fraud	150,000

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

CERTIFICATE HOLDER

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

ACORD 25 (2016/03)

Appendix A / Sample Project Plan

WBS	Task Name	Duration	Work	Start	Finish	Resource Names
1	**Greenville Utilities Commission (GUC) UN Data Assessment & System Architecture**	**129 days**	**4,526 hrs**	**Thu 7/17/25**	**Tue 1/13/26**	
1.1	**Conduct UDC Project Initiation/Management**	**125 days**	**598 hrs**	**Thu 7/17/25**	**Wed 1/7/26**	
1.1.1	Trigger: Execute Contract	0 days	0 hrs	Thu 7/17/25	Thu 7/17/25	
1.1.2	Internal PM Assigned	5 days	0 hrs	Thu 7/17/25	Wed 7/23/25	
1.1.3	Review Project Documentation	5 days	38 hrs	Thu 7/24/25	Wed 7/30/25	SI Project Manager,Analyst[25%],Senior Consultant
1.1.4	Conduct Internal Project Kickoff	1 day	14 hrs	Thu 7/31/25	Thu 7/31/25	SI Project Manager,Analyst,Senior Consultant[25%]
1.1.5	Manage Project	114 days	456 hrs	Fri 8/1/25	Wed 1/7/26	SI Project Manager[50%]
1.1.6	**Conduct Client Kickoff**	**5 days**	**90 hrs**	**Fri 8/1/25**	**Thu 8/7/25**	
1.2	**System Architecture**	**42 days**	**735 hrs**	**Thu 8/7/25**	**Mon 10/6/25**	
1.2.1	**Strategy Stage**	**23.75 days**	**423 hrs**	**Thu 8/7/25**	**Wed 9/10/25**	**System Architect SME[25%],Cloud Architect SME[15%]**
1.2.1.1	**Discover**	**8 days**	**26 hrs**	**Thu 8/7/25**	**Tue 8/19/25**	
1.2.1.2	**Collaborate**	**21 days**	**260 hrs**	**Tue 8/12/25**	**Wed 9/10/25**	
1.2.1.3	**Capture**	**3 days**	**48 hrs**	**Mon 8/25/25**	**Wed 8/27/25**	
1.2.1.4	**Verify**	**4.75 days**	**12 hrs**	**Thu 8/28/25**	**Wed 9/3/25**	
1.2.1.5	**Evaluate**	**1.25 days**	**1 hr**	**Wed 9/3/25**	**Thu 9/4/25**	
1.2.2	**Solution Stage**	**22.5 days**	**312 hrs**	**Thu 9/4/25**	**Mon 10/6/25**	**System Architect SME[25%],Cloud Architect SME[15%]**
1.2.2.1	**Envision**	**13 days**	**196 hrs**	**Thu 9/4/25**	**Tue 9/23/25**	
1.2.2.2	**Confirm**	**12.25 days**	**42 hrs**	**Tue 9/16/25**	**Thu 10/2/25**	
1.2.2.3	**Recommend**	**2.25 days**	**2 hrs**	**Thu 10/2/25**	**Mon 10/6/25**	
1.3	**Perform Data Assessments**	**97 days**	**3,163 hrs**	**Mon 8/25/25**	**Tue 1/6/26**	
1.3.1	**Electric Requirements Discovery**	**74 days**	**1,512 hrs**	**Mon 8/25/25**	**Thu 12/4/25**	
1.3.1.1	**Review Current Workflow and Data**	**2 days**	**36 hrs**	**Mon 8/25/25**	**Tue 8/26/25**	
1.3.1.2	**Conduct Electric Data Assessment**	**5 days**	**90 hrs**	**Wed 8/27/25**	**Tue 9/2/25**	
1.3.1.3	**Assess Current State Data**	**25 days**	**450 hrs**	**Tue 8/26/25**	**Tue 9/30/25**	
1.3.1.3.1	Trigger: Receive Data and/or Environment	0 days	0 hrs	Tue 8/26/25	Tue 8/26/25	
1.3.1.3.2	Trigger: Receive Existing Workflow Documentation	0 days	0 hrs	Tue 8/26/25	Tue 8/26/25	
1.3.1.3.3	**Perform Electric Data Preparation**	**25 days**	**450 hrs**	**Wed 8/27/25**	**Tue 9/30/25**	
1.3.1.4	**Conduct Target Data Analysis**	**21 days**	**378 hrs**	**Wed 10/1/25**	**Wed 10/29/25**	
1.3.1.5	**Create and Configure Electric ArcGIS Pro Projects**	**10 days**	**180 hrs**	**Thu 10/30/25**	**Wed 11/12/25**	
1.3.1.6	**Conduct Electric Migration Planning**	**16 days**	**378 hrs**	**Thu 11/13/25**	**Thu 12/4/25**	
1.3.2	**Gas Requirements Discovery**	**74 days**	**1,512 hrs**	**Mon 8/25/25**	**Thu 12/4/25**	
1.3.2.1	**Review Current Workflow and Data**	**2 days**	**36 hrs**	**Mon 8/25/25**	**Tue 8/26/25**	
1.3.2.2	**Conduct Gas Data Assessment**	**5 days**	**90 hrs**	**Wed 8/27/25**	**Tue 9/2/25**	
1.3.2.3	**Assess Current State Data**	**25 days**	**450 hrs**	**Tue 8/26/25**	**Tue 9/30/25**	
1.3.2.3.1	Trigger: Receive Data and/or Environment	0 days	0 hrs	Tue 8/26/25	Tue 8/26/25	
1.3.2.3.2	Trigger: Receive Existing Workflow Documentation	0 days	0 hrs	Tue 8/26/25	Tue 8/26/25	
1.3.2.3.3	**Perform Gas Data Preparation**	**25 days**	**450 hrs**	**Wed 8/27/25**	**Tue 9/30/25**	
1.3.2.4	**Conduct Target Data Analysis**	**21 days**	**378 hrs**	**Wed 10/1/25**	**Wed 10/29/25**	
1.3.2.5	**Create and Configure Gas ArcGIS Pro Projects**	**10 days**	**180 hrs**	**Thu 10/30/25**	**Wed 11/12/25**	
1.3.2.6	**Conduct Gas Migration Planning**	**16 days**	**378 hrs**	**Thu 11/13/25**	**Thu 12/4/25**	
1.3.3	**Conduct Future Workflow Reviews**	**23 days**	**139 hrs**	**Fri 12/5/25**	**Tue 1/6/26**	
1.3.3.1	**Conduct Reviews in Development Environment**	**2 days**	**36 hrs**	**Fri 12/5/25**	**Mon 12/8/25**	
1.3.3.2	**Create Requirements**	**21 days**	**103 hrs**	**Tue 12/9/25**	**Tue 1/6/26**	
1.4	Close Project	5 days	30 hrs	Wed 1/7/26	Tue 1/13/26	Analyst[25%],Senior Consultant[25%],SI Project Manager[25%]

Appendix B / UDC Resource Resumes

The key personnel UDC has presented for this initiative are representative of UDC's potential project team capabilities, expertise, and experience in the roles that will be required to perform the work. Once selected and a project timeline is defined, UDC will identify a qualified team that will be available to best support Greenville Utilities Commission's project. As part of the project initiation, UDC will introduce the team members and provide the necessary contact information. Until that point, we take care to keep our resources focused on tasks in process to provide the optimum attention to our client's needs. This also helps to ensure security and privacy for our clients and staff in an environment in which workforces are widely distributed and work in a virtual landscape. Once the project has started, UDC will work with Greenville Utilities Commission to request approval of any required UDC personnel changes and any related amendments to the contract.

UDC Resource	Page
Terri Sewell, PMP, Senior IT Project Manager	B-2
Chris Wolz, Senior GIS Analyst	B-9
Nathaniel Simmons, Senior Consultant	B-11
Manjo Rana, Senior Analyst, Offshore	B-14
Suresh Kumar Kanuru, GIS Analyst, Offshore	B-16
Bill Craft, Cloud Subject Matter Expert	B-18
Aditya Peri, Solution Architect (Cloud)	B-20
Sid Meskimen, Director, Data Protection and Cybersecurity	B-25
Michael Adornetto, Database Administrator	B-27
Roxanna Roberts, System Architect	B-30
Sateesh Karri, PMP, GISP, Solution Architect, System Architecture Subject Matter Expert	B-33

Terri E. Sewell, PMP

Senior IT Project Manager

Years of Experience

25 – Program / Project Management

Education

BS, Decision Information Science, University of Maryland, College Park, Maryland

Key Competencies

Program Management / Governance / Project Management / Team Leadership and Development

Cross-function Collaboration / Customer Relationship Management / Vendor Management / Risk Management

Waterfall and Agile Project Management Methodology

Business Process Strategy

Certifications

ITIL Foundations v2

Project Management Professional Certification, PMP #57554

Previous CCNP (CSCO10140546)

Professional Summary

Terri Sewell is a PMP-certified Senior IT Project Manager with 25 years of experience in program and project management including leading a large Project Management Organization in successful delivery of Power Management Software to customers worldwide. Experienced in multiple technologies, Terri has successfully delivered and implemented technical service offerings in a global multi-vendor environment. A highly skilled leader with a strong background in network engineering, Terri excels at building strategy to deliver solutions that exceed business initiatives and objectives, as well as leading value proposition presentations to help transform customers' technology strategies.

Work History

UDC, August 2023 – Present, Senior IT Project Manager

TEK Systems/Accident Fund Group, Lansing MI, May 2023 – August 2023, Portfolio Delivery Manager

Schneider Electric Digital Energy, April 2019 – September 2022
Digital Energy Program Manager; Senior Manager, PMO

Force 3, LLC, Crofton MD, April 2018 – April 2019
Director of Delivery, Client Solutions

Cisco Systems, Inc., November 2007 – December 2017
Services Delivery Director/Customer Success; Customer Solutions Manager/Program Manager; IT Consultant, Project Manager

Bank of America, Charlotte, NC, December 2004 – November 2007, Program Manager

The Signature Group, Inc., Vienna, Virginia, November 1999 – November 2004, Project Manager, Engineer

Clients Served

Amazon Web Services / Google / Meta/ Microsoft / NAVFAC / NorthWestern Energy

Specific Project Experience

Terri E. Sewell / Senior IT Project Manager

Senior IT Project Manager	

NorthWestern Energy
Senior Project Manager/Team Lead
	Supported NorthWestern Energy to migrate disparate systems into an Esri Enterprise ArcGIS Utility Network solution for Electric Transmission, Implementation of Esri Indoors for Building Room Management and a Data Assessment of GTech and Legacy Esri GIS in Gas Transmission, Gas Distribution and Electric Distribution to migrate to Utility Network.
	• Utility Network Transformation: Data Assessment, Data Migration, Implementation, and Integration project with the following phases:
	  - Design
	  - Implementation
	  - Support Production Release
	  - Training
	• Esri ArcGIS Indoors
	  - Design
	  - Implementation
	  - Support Production Release
	  - Knowledge Transfer
	• Utility Network Data Assessment
	  - Data Discovery
	  - Proof of Concept

Program Manager / Senior Manager, Project Management Office	
Tek Systems Accident Fund Group Portfolio Delivery Manager	As a Portfolio Delivery Manager with Accident Fund Group, Terri was responsible for the successful leadership and delivery of programs to meet business goals, drive continuous improvement, development of roadmap and execution strategies while adhering to SAFe Transformation process. • Provided strategic guidance and delivery of key business and technology objectives • Delivered IT programs following acquisitions of other businesses to integrate and consolidate functions and applications to drive a unified organization • Provided portfolio management and support from ideation and execution through realization • Managed change by leveraging Agile principles and practices • Managed cross-functional delivery of programs with budget ownership, real-time reporting, change management, and program management

Program Manager / Senior Manager, Project Management Office	
	• Provided cross-functional coordination of team members including architects, engineers, developers and product owners to ensure program successful delivery
WebGiant Digital Energy Global Program Manager	As a Digital Energy Global Program Manager for Schneider Electric client WebGiant, Terri had ownership of Customer Success globally for the delivery of the Digital Energy portfolio valued over $100M annually. In this role, Terri ensured the successful execution and delivery of Power and Building Management solutions throughout NAM, EMEA, APAC, and SAM through the build of new Data Centers worldwide, leading teams in each of these regions to drive regional program setup for execution from supply chain management to solution support and maintenance. Terri's responsibilities and achievements in this role included: • Matrix managed a team of 100+ resources throughout the globe to ensure successful execution and delivery as well as manage their performance, growth and development; responsible for hiring, onboarding, and terminating team members as required • Enforced use of pre-implementation testing of solutions to identify and document procedures and mitigate challenges in production • With P&L ownership, provided monthly financial forecast of margin, revenue recognition, and orders, and reported to leadership on the overall financial health of the program • Developed an efficient process to manage the supply chain crisis through identification of future need of resources and materials globally, manufacturing lead time and understanding of pipeline extended for two years • Drove high customer satisfaction with the Power and Building management solutions through regular feedback, quarterly reviews, presentation of achieved KPIs and management of escalations • Aligned closely with program sales leaders to drive consistency in messaging and delivery; works with sales to continually review proposal setup to analyze current projects to identify areas of efficiency gains and determine best way to mutually benefit the customer and Schneider Electric • Anticipated future investments for the Program; proposed execution scenarios for future investment to be ready, when necessary, in expected regions through the review of pipeline and analysis of bid activity • Drove alignment of operational processes across the teams and competencies to ensure efficient execution • Led lessons learned of past successes and failures and make sure best practices are implemented in all new projects

Program Manager / Senior Manager, Project Management Office

Schneider Electric Digital Power
Project Management

As Senior Manager, Project Management Office, for Schneider Electric Digital Power, Terri led a remarkable transformation of PMO with leadership of a team of forty-five including Project Managers and supervisors, ensuring the successful delivery of systems and software projects through Waterfall and Agile methods within the constraints of time, quality and budget. Leveraging a strong ability to hold difficult conversations and make challenging decisions based on performance and headcount needs, Terri provided development and leadership of the team through bi-monthly conversations, annual team summits and annual performance reviews; and continual conversations regarding professional development, areas of improvement, questions and concerns to be addressed by leadership, and conflict management ,as well as adherence to all HR and Safety training.

- Enforced adherence to change, risk, financial, resource, and cost management through training and compliance with processes and procedures
- Handled difficult conversations and made challenging decisions based on performance and headcount needs
- Successfully collaborated on the creation of a Customer Success model building the job description for Customer Success Managers and reviewing of candidates for the position
- Participated on interview panels for extended team members across organization as well as providing performance feedback for individuals to their direct management
- Transformed the organization to focus on Customer Alignment and Consistency, driving a better customer experience and efficiency in ongoing project work as the single point of contact for Project Management
- Maintained headcount information for Digital Power Operations organization to ensure appropriate resources while ensuring profitability, presenting headcount, utilization, and control number conversations with executive leadership
- Drove accurate financial performance for ~$100M+ in annual backlog and maintaining a +/- 10% forecast accuracy to ensure financial targets are met and exceeded revenue targets
- Increased revenue generation and profitability through change order development and continuous project review; 2020 Change Order revenue generated is $7M against a $5M target; Y/Y increase in project profitability of 11%
- Improved onboarding process and drove professional development of entire through continuous training as well as cross business unit collaboration
- Initiated and maintained effective relationships with internal stakeholders at peer and senior levels

Program Manager / Senior Manager, Project Management Office	
	• Contributed and collaborated on the development of standards and framework relating to the Project Management Office • Acted as a reference point for queries and information and an advocate for best practices in project and program management and as point of contact for escalations or concerns regarding project delivery holding frequent conversations with customers regarding expectation and performance • Increased the team's professional certification from 45% to 70%; increased team gender diversity from 16% to 28%, overall team diversity 56% • Partnered with engineering to ensure collaboration to drive successful completion of projects • Selected as a member of a cross-organization team of six people to develop opportunities for new and enhanced solutions to drive Schneider Electric Digital Energy's annuity business • Led the Employee Advisory Board for the organization to help drive employee satisfaction and engagement, and acted as a mentor to Schneider Electric high performers to help identify career opportunities for those individuals

Director of Delivery	
Force 3 Client Solutions Delivery	As Director of Delivery of Client Solutions for Force 3, Terri was responsible for the delivery of Collaboration and Security Services as well as Residency Services through multiple solutions for Federal Government customers both DoD and Civilian managing a team of 22 resources. • Built and maintained an efficient delivery organization that is scalable to meet the demands of the customers • Worked closely with PMO to deliver projects within +/- 10% of triple constraint baselines using Force 3 Five Phase delivery framework • Led the effort to drive consistency in the PMO delivery methodology and physical deliverables • Provided training, guidance, mentoring, and leadership to the service delivery project managers and engineers to build an efficient and highly productive delivery team; was responsible for the hiring and termination of resources as required. • Ensured that all team members adhered to HR and Safety standards • Partnered with pre-sales to ensure proper scoping of all work and successful delivery to the customer • Contributed to overall company growth and success through participation in business development activities and continued work to identify new

Director of Delivery	
	opportunities within existing customer accounts and emerging trends and technologies • Utilized Salesforce for the management of opportunities, resources, and project status reporting
Cisco Systems, Inc. Service Delivery	As Service Delivery Director for Cisco Systems, Inc., Terri set strategic direction and execution of services delivery and growth for large transformational accounts across many verticals for solutions including Voice, Storage, Wireless, IoT, Business Analytics, Security Solutions, Converged Infrastructure, and Cloud Managed Solutions. • Integral in completing sale of services that increased revenue 100% and margin 15% • Instrumental in closing $75M services renewal contract over three years from #1 insurance company, aligning with Sales to develop creative and innovative solutions to address customer budget and business objectives • Directly aligned with Sales in developing business strategy to address competitive threats through Proof of Concept labs and services investments to close $1.5M in product sales and $234K services for POC with continued subscription services valued at ~$30M annually • Led a cross-functional team of 100+ Cisco and contract resources across multiple organizations and two accounts, driving a “One Team” philosophy and promoting a customer focus across organizations • Responsible for growth and development of entire matrixed team, as well as hiring, onboarding, and terminating team members as required • Initiated collaborative effort to build a customer-specific test lab worth up to $5M/year to strategically address the redesign of the Voice Infrastructure virtual environment to replace HP as well as managed services for Voice • Used Salesforce for the management of opportunities, projects and resources

Project Manager/Program Manager	
CISCO SYSTEMS, INC. Program Manager	As a Program Manager for Cisco Systems, Inc., Terri developed and delivered a 1000 endpoint Cisco Voice/Contact Center pilot deployment for largest Insurance company in preparation for the Enterprise deployment. • Managed over 20 resources, including Cisco, contractor ,and customer, in the Cisco-led Telephony migration project through project charter, design, implementation, and operation

Project Manager/Program Manager	
	• Led design development, network readiness assessments, remediation, and end-user training • Led project deliverables and activities for 200,000 endpoints, $250M Cisco Voice deployment for State Farm including design work, and infrastructure build activities • Managed project financials leading a team of over 100 Cisco resources across Advanced Services, Advisory, Account Team, and Cisco contractors
Cisco Critical Account Program (CAP) customers Project Manager	As a Project Manager for Cisco Systems, Inc., Terri managed the replacement of an existing ROLM solution with implementation and deployment of a Unified Contact Center solution offering improved functionality, scalability, and reporting for Cisco Critical Account Program (CAP) customers (healthcare and transportation verticals). • Managed team of ~10 resources to deliver projects in traditional (waterfall) SDLC methodology including project charter, scoping, and solution design • Led design reviews, network readiness assessments, remediation, and end-user training • Developed change control process for project implementation that tracked signoff for system and scope updates as well as integrated risk assessment and escalation plans for acceptance • Led project deliverables and milestones with a nation-wide cross-functional project team and coordinated integration points (SIT, QA, and Production) with partners • Provided solutions for defects and issues throughout software development lifecycle
Bank of America and MBNA Network / Infrastructure Integration	As Project Manager for delivery of a $100 million project integrating legacy network infrastructure for Bank of America and MBNA merger driving consistency in network systems, converting new partner platforms throughout project lifecycle; Terri managed matrixed team of all vendors throughout program; approved all infrastructure equipment and hardware devices orders for MBNA, LaSalle, US Trust, Countrywide, and Merrill Lynch; and communicated and managed end-user issues and open tasks.
The Signature Group, Inc. Unified Contact Center solution	As Project Manager for the implementation and deployment of a Unified Contact Center solution to replace an existing ROLM solution, improving the network infrastructure, telephony, and LAN/WAN projects for this large financial services firm. Terri led a team that gathered business requirements from key stakeholders to develop complex project plans for this large-scale infrastructure rollout (60,000+ seats). Terri also served as Network Engineer responsible for network design and configuration for companies such as Bank of America, Royal Caribbean, Georgia Pacific, and Verizon Wireless.

Chris Wolz

GIS Analyst

YEARS OF EXPERIENCE

10 – GIS
7 – Systems Integration
7 – Utilities

EDUCATION

MS Geo-Information Science, Salem State University, MA, 2014.

KEY COMPETENCIES

Esri ArcGIS Desktop / ArcGIS Pro
ArcGIS Server / ArcGIS Online
ArcGIS Enterprise (Portal: Services, Web Maps, Web Apps)

Analysis in Python and SQL

QGIS / ERDAS/IDRISI

Functional Testing in Development Environments/Opening, Tracking and Debugging ESRI Bugs

Post Go-live ArcGIS Pro/Enterprise UPDM Support

Professional Summary

Chris Wolz is a GIS Analyst with over eight years of GIS experience in the utility sector as well as in the remote sensing and natural hazard sectors. Chris works with the ArcGIS Enterprise Platform and internal Mobile teams to configure and maintain changes to the ArcGIS Pro Projects, Web Services, Web Maps and Web Applications across multiple jurisdictions in Portal and ArcGIS Server. His experience includes creating offline basemap Tile Packages to be brought into a mobile platform for the field as runtime geodatabases and leading the Enterprise Platform team for a custom GIS release.

Work History

UDC, Englewood, CO, 05/2022 – Present
GIS Analyst

Locana, Greenwood Village, CO, 04/2018 – 05/2022
GIS Associate Analyst

Geovantage/KeyW, North Andover, MA, 08/2016 – 08/2018
GIS Data Analyst

FM Global, Norwood, MA, 02/2015 – 08/2016
GIS Data Analyst

Clients Served

Dominion Energy

Specific Project Experience

Chris Wolz / GIS Analyst

GIS Analyst	
Dominion Energy/Enbridge Full Migration 10/22 – Present	As a GIS Analyst working with the Development team and clients developing ArcGIS Pro Projects, Web Services, Web Maps, and Web Applications and collaborating with the client to gather and implement all the configurations to the front-end platform, Chris helped develop the Data Model built into UPDM from migration from SAMS, led testing prior to user acceptance testing, developed training and user workflows to test the model through a series of Data Mocks, helped gathered client requirements and created documentation to develop project scope both from the SAMS and the Esri end. Chris role has also included: • Testing and applying Attribute rules and contingent values to keep data integrity • Troubleshooting bugs both for the project and with Esri • Developing workaround and solutions to allow us to still meet our Go Live deadlines • Providing live support
UDC Internal R&D	As a GIS Analyst, Chris has provided internal debugging and testing of UDC tools (Librarian, HEIDI); and developed skills in Utility Network HEIDI Migration/Implementation, Attribute Rules, and APR Testing.
Dominion Energy Discovery Project **05/2022-10/2022**	As a GIS Analyst, Chris has provided testing and documentation in the development environment of Attribute Rules, and APR implementation.
Locana Platform/Mobile GIS	Worked with the Esri ArcGIS Enterprise platform and internal Mobile teams to configure and maintain changes to the ArcGIS Pro projects, Web Services, Web Maps and Web Applications across multiple jurisdictions in Portal and ArcGIS Server; and created offline basemap tile packages (TPKs) to be brought into a mobile platform for the field as runtime geodatabases; Led the Enterprise Platform team for a custom GIS release.
GeoVantage/KeyW GIS Processing and QC	Processed and provided quality control for high resolution multispectral images; provided orthographic imagery and created projects from raw raster data sets for other team members within the processing/GIS department; and provided processing using multiple in-house and commercial GIS/Digital Image software technologies.
FM Global Natural Hazard Risk Modeling	Georeferenced, digitized, edited, and created Esri shapefiles for natural hazard risk modeling. Chris provided quality control of large data sets including shapefiles and table data; and created Python scripts and custom tools in ArcGIS for extracting shapefiles from rasters, creating mosaics, and file conversion.

Nathaniel Simmons, GISP

Senior Consultant

Years of Experience

11 – GIS

Education

Master of Geospatial Information Science and Technology, North Carolina State University, Raleigh, North Carolina, 2017.

Bachelor of Geography, Youngstown State University, Youngstown, Ohio. 2015.

Key Competencies

Esri ArcGIS Utility Network
ArcGIS Pro
ArcGIS Enterprise (administration, publishing)

Python (including ArcPy)
FME (Form, Flow)
SQL
SAP HANA
AutoCAD
Automated Utility Design (AUD)

Professional Affiliations

GIS Professional (GISP)

Professional Summary

Nathaniel Simmons, GISP is a Senior Consultant with over 11 years of experience in GIS specializing in leading data migrations to ArcGIS Utility Network, driving efficiency, and achieving client desired results. Nathaniel offers valuable expertise for configuring and deploying the Utility Network, resolving topology errors for gas and electric utilities, and implementing QA/QC automations to ensure data integrity. Nathaniel is proficient in developing and executing ETL translations using FME, automating workflows with Python scripting, and conducting data analysis with SQL.

Work History

UDC, May 2024 – Present
Senior Consultant

Locana, a TRC Company, April 2021 – April 2024
Senior GIS Analyst, GIS Analyst

Mecklenburg County, Charlotte, NC, October 2019 – April 2021, GIS Analyst

Kissimmee Utility Authority, Kissimmee, FL, August 2017 – October 2019, GIS Technician

North Carolina State University, Aug 2015 – May 2017
Graduate Teaching Assistant

Columbiana County Development Department, 2015
GIS Intern

Eastgate Regional Council of Governments, 2014
GIS Intern

Clients Served

Pacific Gas and Electric Company / Sempra – San Diego Gas and Electric

Specific Project Experience

Nathaniel Simmons, GISP / Senior Consultant

Senior Consultant	
Sempra – San Diego Gas and Electric (SDG&E) Utility Network Strategy Project Phase II	UDC is providing GIS application system architecture services as part of a broader set of services to SDG&E around upgrading current GIS application and infrastructure. Additionally, UDC is working with SDG&E to configure and build out subnetworks for the electric transmission, substation, and distribution tiers of their preliminary Utility Network. Nathaniel is providing strategic input and guidance for the subnetwork build out initiative.
Pacific Gas and Electric Company Elevate Project	UDC supported PG&E on their GIS Elevate Project, a Utility Network Transformation, which began with road mapping and data readiness activities for GD, GT, Gas Substation, ED, Electric Substation, and ET; and then moved to other LOBs, such as Landbase, Fiber (other IT assets), Corporate, and Power Generation. This work involved the entirety of PG&E's territory. As a Senior Consultant, Nathaniel provided valuable subject matter expertise as a Landbase/Hydro Consultant.

Senior GIS Analyst / GIS Analyst / GIS Technician	
Locana, a TRC Company GIS Projects	While working for Locana (now TRC) as a Senior GIS Analyst and previously a GIS Analyst, Nathaniel: • Built electric and gas schema mapping documents, and led data migration efforts into ArcGIS Utility Network • Streamlined data migration processes and Utility Network error remediation efforts by building and executing ETL translations via FME Form and FME Flow • Developed Python scripts to automate workflows to save time and enhance productivity • Utilized SQL to perform in-depth data analysis and create spatial views, providing valuable insights for decision-making • Published web map and web feature services to ArcGIS Enterprise • Created ArcGIS dashboards to effectively communicate data analysis findings and topology errors • Built QA/QC automations to validate data integrity, ensuring accuracy and reliability of spatial data • Served as a Utility Network specialist on current projects • Facilitated client meetings and provide technical project demonstrations • Configured SBS' s Utility DataHub (UDH) for implementation of Automated Utility Design (AUD)

Specific Project Experience

Nathaniel Simmons, GISP / Senior Consultant

Senior GIS Analyst / GIS Analyst / GIS Technician	
Mecklenburg County Charlotte, North Carolina GIS Program	While working for Mecklenburg County as a GIS Analyst, Nathaniel: • Built, maintained, and updated python script tools, including the residential impervious script tool • Designed, maintained, and provided support for ArcGIS Online web maps, web apps, and dashboards • Created impervious area maps for customers and for the engineering technician/field inspector • Provided solutions and recommendations for impervious stormwater billing accuracy • Managed and engaged on various projects, including the storm drain inventory project • Improved current processes and procedures to increase efficiency and reliability of data
Kissimmee Utility Authority Kissimmee, Florida GIS Program	While working for Kissimmee Utility Authority as a GIS Technician, Nathaniel: • Updated electrical GIS maps and system to reflect as-built jobs completed • Performed field checks to ensure GIS is an accurate representation of electric utility lines and facilities • Ensured GIS reflected the correct geometric network ArcFM connectivity for electric distribution • Created and modified AutoCAD drawings, including substation and fiber optic drawings • Created python scripts and ArcGIS script tools to limit/eliminate tedious tasks • Documented new procedures for the GIS team to follow • Assisted coworkers in learning and acquiring new GIS skills • Published services and created web maps and web apps to be used by GIS Division and internal clients

Manjot Rana

GIS Analyst / Project Lead

Years of Experience

13 – GIS

Education

Bsc.IT Degree, Kuvempu University

GNIIT Diploma in Computer Science (Software Engineering)

Key Competencies

Data Creation / Migration / Conversion

Esri ArcGIS 10.2, 10, 9.3.2 / ArcGIS Pro / ArcGIS Utility Network / ArcSDE 9.3 / ArcCatalog

Schneider Electric ArcFM

Q.GIS / Query Builder / PLTS 9.1, 9.2

Data Reviewer / Prism 2.59 / Auto Cad / MapInfo 10 / Citrix / Maximo

SQL RDBMS / Windows OS (all versions)

Professional Summary

Manjot Rana leverages 13 years of experience in data related utility projects including electric and water utility and land base projects. Experienced in utility GIS project implementation based on Esri ArcGIS and Schneider Electric ArcFM platform, Manjot brings valuable knowledge of data creation, conversion, and migration from different formats to the ArcGIS data model and managing versions and sessions in ArcSDE environment. With key expertise for requirements analysis, team development, and providing technical support to team members, and experience Manjot manages data analysis and processing activities involving analyzing, studying, and summarizing data for extracting information useful in strategic decision making and planning.

Work History

UDC, Parwanoo, Himachal Pradesh, India, 2016 – Present, GIS Analyst / Project Lead

RAMTeCH Software Solutions Pvt. Ltd., 2014 – 2016

Gulf Computers LLC, 2013 – 2014

NIIT GIS Ltd., 2011 – 2013

Clients Served

Govt. Of Karnataka and Punjab (Ministry of Power) India / Municipality of Abu Dhabi / National Grid / Pacific Gas and Electric Company / Portland General Electric / Saudi Electric Company / Southern Maryland Electric Cooperative

Specific Project Experience

Manjot Rana, GIS Analyst

GIS Analyst / Project Lead / QA	
National Grid (NGRID) Long Island GIS Update	Manjot has been supporting the NGRID GIS project to update the GIS, which includes updating gas data in the GIS from source maps, reporting any discrepancies in the source data; placement of distribution mains and service pipes per strip maps and service cards; attribute population based on the gas distribution data source matrix (DSM); verification of service completeness; data reconciliation; and update of the database tracker.
Pacific Gas and Electric Company (PG&E) Electric Distribution DC15 Work Order As-built Finalization	Manjot was the Project Lead/QA for the PG&E Electric Distribution DC15 Work Order As-built Finalization project that involved updating replace-in-place features including relocating, rerouting, or transferring features/abandoning features. The DC15 work order maintenance project focused on maintaining a GIS that is representative of the real world. GIS data be accurately updated to represent the structures, Conductors, and devices as constructed in the field.
Portland General Electric Service and Non-design As-built	Manjot was the Project Lead/QA for these Portland General Electric projects. The objective of the non-Design project was to support damage, outage, inspection, and corrective/preventive maintenance work orders in the GIS. The objective of the Service project was to maintain services and service points in the GIS.
PG&E Gas Distribution Cross Bore Records Review	For PG&E's Gas Distribution Cross Bore Records Review Project, Manjot served as Project Lead/QA for data capturing based on PG&E-provided Gas Service Records (GSR) which contain service information (i.e., construction method, Installation date, Customer house address).
Portland General Electric Underground / Overhead Service Cleanup	Manjot was Project Lead/QA for Portland General Electric's Underground/Overhead Service Cleanup Project undertaken to delete calculated underground secondary conductors from the database and to move the attached service points to available as-built underground secondary lines; update the Service Type and the Service Class attributes for certain service points within the grids; and update the Operating Voltage attribute on the as-built lines that the service points are moved to or calculated lines that are spatially adjusted.

Suresh Kumar

GIS Analyst

Years of Experience

15 – GIS

Education

Bachelor of Commerce (Computers), Hyderabad, 2016.

DME, T.M.A.E.S Polytechnic College/Gulbarga University, 2001.

SSC, Board of Secondary Education, A.P., 1996.

Key Competencies

GIS Tools:
Esri ArcGIS Desktop, ArcSDE, ArcGIS Pro 3.1 / Schneider Electric ArcFM / AutoCAD Map / MicroStation / FME

Operating Systems:
Windows 7, 10, 11

Professional Summary

Suresh Kumar is a GIS Analyst with over 15 year of experience in GIS providing technical support, as well as production and Quality Control (QC). Suresh's expertise includes planning, designing, testing, and process flow of data conversion procedures along with corresponding checklist preparation.

Work History

UDC, Hyderabad, India, 2023 – Present
GIS Analyst, Data Analyst

Avineon India PVT LTD, 2006 – 2023
Analyst, Technological Group / Team Leader, Geospatial Services

Clients Served

Bay State Gas / Columbia Gas / MOF, Belgium / New Jersey Natural Gas / Northern Ireland Electric / Pacific Gas and Electric Company / Pasadena Water and Power / Pepco / Rochester Public Utilities / Sempra / SDGE

Specific Project Experience

Suresh Kumar / GIS Analyst

GIS Analyst / Data Analyst	
City of Pasadena – Pasadena Water and Power (PWP) Electric Data Assessment for Utility Network Implementation	As a GIS Analyst, Suresh is supporting PWP's Utility Network implementation. The objective of this project is to enable the water and power departments to utilize the latest Esri technologies such as ArcGIS Pro and Utility Network, ArcGIS Portal, and the latest web technologies to disseminate apps and tools to PWP users. The project began with review of the current geometric network data to provide an assessment report on the readiness of the data to be migrated to Utility Network. Suresh's role includes: • Analyzing the source data and create geodatabase analysis sheet • Creating Asset Group and Asset Type mappings between source data (ArcFM) and Target data (Utility Network) • Reviewing and updating the Asset Group and Asset Type mappings in the schema Mapper *Technologies used:* ArcGIS Desktop, ArcGIS Pro, HEIDE
Northern Ireland Electric (NIEN) Electric Data Assessment for Utility Network Implementation	As a GIS Analyst, Suresh is supporting NIEN's data migration from G-Tech to Esri's Utility Network, beginning with an examination of the existing electric data to provide an evaluation report on data preparedness for migration to the Utility Network and to fill in gaps found. Suresh's role includes: • Analyzing the source data and create geodatabase analysis sheet • Creating Asset Group and Asset Type mappings between source data (G-Tech) and Target data (Utility Network) • Reviewing and updating the Asset Group and Asset Type mappings in the schema Mapper *Technologies used:* ArcGIS Desktop, ArcGIS Pro, HEIDE (FME)
Rochester Public Utilities (RPU) Electric Data Assessment Program	As a GIS Analyst, Suresh supported RPU's Utility Network implementation to enable the Power departments utilize the latest Esri technologies such as ArcGIS Pro and Utility Network, ArcGIS portal, and the latest web technologies to disseminate apps and tools to RPU users. The project began with reviewing RPU's geometric network data and provided an assessment report on the readiness of the data to be migrated to Utility Network. Suresh's role included: • Analyzing the source data and creating geodatabase analysis sheet • Creating Asset Group and Asset Type mappings between source data (ArcFM) and Target data (Utility Network) • Reviewing and updating the Asset Group and Asset Type mappings in the schema Mapper *Technologies used:* ArcGIS Desktop, ArcGIS Pro, HEIDE

William Craft, GISP

Vice President, Enterprise Architecture

Years of Experience

18 – GIS
15 – Project Management
11 – Utilities

Education

MS, GIS, St. Cloud State University, 2008.

BA, Geography, University of Delaware, 2003.

Key Competencies

Utility GIS solution architecture
Project management / Requirements gathering / Process improvement / Performance management / Solution design / Infrastructure provisioning performing monitoring and tuning / Database administration / Failover and high availability / Capacity planning and sizing / Break-fix troubleshooting / Automation scripting / Requirements gathering / ETL data processing / Virtualization / Security configuration

Certifications

Geographic Information Systems Professional (GISP), 2011
GIS Certification Institute #64508

Training

Configuring Utility Networks in ArcGIS
Architecting on AWS / Leadership Essentials, CNP University / Esri System Architecture Design Planning
Oracle Database 11g: Performance Tuning / Managing HP 3PAR StoreServ I & II / HP StoreVirtual 4000 Storage Administration & Configuration
ArcGIS Server Enterprise: Configuration and Tuning for Oracle
ArcGIS for Server 10.1: Site Configuration & Administration
Oracle Database Administration

Professional Summary

William Craft is a GIS Professional with over 18 years of GIS experience. As Vice President of Enterprise Architecture, William brings key expertise in implementing geospatial technologies for Tier 1, 2, and 3 utilities including IT/GIS system design and administration, database management, and solution architecture/engineering for large, multi-user, 24x7, complex enterprise deployments of GIS. William leverages hands-on experience with implementing, configuring and maintaining Esri-based enterprisewide GIS, as well as with AWS and Azure cloud technologies, understanding how they augment an organization's technology needs to support high availability, disaster recovery, and business continuity.

Work History

UDC, February 2024 – Present, VP, Enterprise Architecture

UDC, November 2022 – February 2024, Solution Architect

SSP Innovations, August 2019 – November 2022
Team Lead, GIS Solution Architect, GIS Architect & Engineer

Marathon Oil Corporation, April 2018 – August 2019
GIS Architect & Team Lead

CenterPoint Energy, Dec. 2012 – April 2018
Lead, GIS System Administration, GIS System Administrator

PenBay Solutions, Dec. 2010 – Dec. 2012, GIS Project Manager

Oakland County, Michigan, August 2009 – Dec. 2010
GIS Senior Business Analyst

HNTB Federal, May 2008 – August 2009, GIS Project Manager

United States Air Force / Earth Tech, Sept. 2007 – May 2008
GeoBase Coordinator

Geographic Technologies Group, Dec. 2006 – Sept. 2007
GIS Solutions Provider

GeoComm, July 2006 – Dec. 2006, GIS Specialist

Clients Served

Ameren / Chugach Electric / Dominion Energy
NorthWestern Energy / New Jersey Natural Gas / Pacific Gas and Electric Company / Until / VT Transco

Specific Project Experience

William Craft, GISP / VP Enterprise Architecture

Solution Architect	
Pacific Gas and Electric Company (PG&E) Utilities Facility Management GIS	William is providing enterprise architecture expertise for PG&E and the UDC project team as part of a Phase 0 discovery engagement in advance of implementing the Utility Network. William led multiple upfront discovery workshops to better understand the current-state GIS architecture. He also created a high-level future-state GIS architecture design and used it as a cost model input to support PG&E's decision to deploy an on-premise or cloud solution.
NorthWestern Energy Utilities Facility Management GIS	William served as the project's Solution Architect and overall Technical Lead, providing guidance for the project team's daily as well as overall project leadership. William designed and implemented Esri's ArcGIS Indoors solution along with several customizations to support the Facilities Management Department's interior space planning, workspace reservation, and occupancy requirements. The project team included approximately 5 remote and onshore UDC staff members.
New Jersey Natural Gas Gas Distribution & Transmission GIS	William served as the project's Solution Architect and overall Technical Lead, contributing in a hands-on fashion toward daily work and also as a project leader. William designed and implemented the bidirectional integration between GIS and Maximo Spatial, which involved development of ArcFM and ArcGIS customizations as well as FME processing and enrichment of GIS asset and location data. The project team included approximately 10 remote and onshore UDC staff members, 30 key contributors across multiple third-party consulting firms, and 20 primary client stakeholders.
Ameren Electric Transmission GIS	William served as the project's Solution Architect, providing guidance to data analysts and developers in support of the migration to the Utility Network, which involved re-architecting the Electric Transmission web application and its custom widgets from Web App Builder to Experience Builder, as well as re-developing a series of FME workbenches and Python scripts for ETL and integration purposes. The project team included approximately five remote and onshore UDC staff members and three primary client stakeholders.
VT Transco Electric Transmission GIS	William served as the project's Solution Architect, having provided design and configuration support to the implementation team during setup, deployment of, and cutover to a new and upgraded ArcGIS Enterprise environment. The project team included approximately three remote and onshore UDC staff members and two primary client stakeholders.

Aditya A. Peri

Solution Architect

Years of Experience

20+

Education

MBA, Darla Moore School of Business, University of South Carolina Columbia, SC, 2017.

Master of Community & Regional Planning, University of Nebraska, Lincoln, NE, May 2004.

Key Competencies

Enterprise GIS and Spatial Data Management Solutions: ArcGIS Enterprise Architecture / Enterprise Geodatabase Administration / Utility Network Implementation

Geospatial Analytics: ArcGIS Pro / ArcGIS Online / ArcGIS Insights / ArcGIS Dashboards / Web AppBuilder / Experience Builder / ArcGIS Hub / Survey123

Business Intelligence: Location Intelligence / Spatial Analytics / Power BI / Arcade / ArcGIS Maps for Power BI / Tableau

Certifications

Esri Enterprise System Design Professional

TOFAF 10 (Foundations and Practitioner)

AWS Certified AI Practitioner

AWS Certified Cloud Practitioner

Certificate of Local Government Management, University of Georgia Atlanta, GA, 2021.

Post-Baccalaureate Certificate in Business Analytics, University of South Carolina, Columbia, SC, 2017.

Certified GIS Professional (GISP), GIS Certification Institute, 2015.

Professional Summary

Aditya Peri is a TOGAF Certified Solution Architect with over 20 years of experience in Enterprise GIS Architecture and Geospatial Analytics. His expertise spans Esri ArcGIS Enterprise Administration, Enterprise Geodatabase Design and Implementation, and Location Intelligence solutions. He specializes in architecting and managing enterprise-wide GIS solutions, with deep experience in Esri stack, and advanced spatial analytics and visualization platforms.

Recognized for delivering enterprise-scale GIS architectures and technical documentation, Aditya drives organizational excellence through effective team leadership and strategic implementation. He excels in guiding cross-functional teams to implement efficient, scalable GIS solutions that align with business objectives.

Work History

UDC, October 2023 – Present, Solution Architect

Gwinnett County, Georgia, November 2022 – November 2023**,** Geospatial Solutions Supervisor

Deloitte, Atlanta, GA, November 2021 – November 2022 Advisory Senior - GIS / Cyber Risk

City of Lawrenceville, Georgia, January 2020 – November 2021, GIS Manager

City of Raleigh (NC) Public Utilities, May 2018 – January 2020, Senior GIS Data Analyst

Equifax Workforce Solutions, Greenville, SC, June 2007 – July 2019, GIS Manager, Tax Credits & Incentives Division / Senior GIS Analyst

Nebraska Game & Parks Commission, June 2004 – May 2007, GIS Analyst / Heritage Data Manager

Clients Served

Arizona Public Service / Dominion Energy Virginia / Northwestern Energy

Specific Project Experience

Aditya A. Peri / Solution Architect

Solution Architect

Northwestern Energy
Butte, MT
Dominion Energy
Richmond, VA
Enterprise GIS (Design/Admin) Utility Network Migration

As a Geospatial Solution Architect, Aditya specializes in Enterprise GIS architecture and Utility Network migration for major utilities. He designs and implements scalable geospatial solutions using enterprise architecture principles, including enterprise geodatabase configurations and system integrations. His expertise encompasses leading architecture workshops, conducting infrastructure assessments using industry standard frameworks, and delivering strategic recommendations for Utility Network migrations. Aditya creates detailed technical specifications (diagrams/documents), manages complex GIS implementations, and ensures seamless integration of spatial data systems while optimizing workflows for departmental use cases.

Geospatial Solutions Supervisor / GIS Manager / Senior GIS Data Analyst / GIS Analysts

Gwinnett County, Georgia
Cadastral Mapping Data Creation, Geospatial Data Management, and Maintenance

As a Geospatial Solutions Supervisor, Aditya led a team of specialists who specialize in Cadastral Mapping Data Creation, Geospatial Data Management, maintenance, and Geospatial data sharing to internal and external stakeholders. In addition, Aditya oversaw major digital transformation initiatives and geospatial data migration projects while also driving workflow and process improvements to enhance team efficiency and data accuracy. Aditya's knowledge and experience with Enterprise Geodatabases, Esri's Enterprise GIS, Mapping Design, Geodatabase maintenance processes, and Analytics toolkits were essential in ensuring the team's success. Aditya's key responsibilities were to:

- Manage a team of GIS Admins and Analysts, overseeing Cadastral Mapping Data Creation, Geospatial Data Management, and maintenance processes to ensure data accuracy and completeness.
- Implement geospatial data sharing processes with internal and external stakeholders, ensuring data security and compliance.
- Work with cross-functional teams to ensure a smooth transition of data to new platforms and lead major data migration projects like Utility Network Model migration, Enterprise Cloud implementation planning, Enterprise Geodatabase migration from Oracle to SQL Server.
- Identify workflow and process improvement opportunities and implement changes to increase efficiency and accuracy of data management processes.
- Apply knowledge of Enterprise Geodatabases, Esri's Enterprise GIS, Mapping Design, Geodatabase maintenance processes, and Analytics toolkits to identify data insights and trends; use Business Analytics toolkits like ArcGIS Insights/PowerBI/Tableau to create reports and visualizations that provide meaningful insights to stakeholders.

Geospatial Solutions Supervisor / GIS Manager / Senior GIS Data Analyst / GIS Analysts	
	• Stay up to date with industry trends and emerging technologies in Geospatial Solutions and recommend adoption of new technologies where applicable.
Deloitte Atlanta, GA GIS / Cyber Risk	As a Senior Consultant, Aditya led a team collaborating with Project Managers, Consultants, Data Engineers, and Infrastructure teams to design and implement a centralized Location Intelligence platform that streamlined the desktop site selection process, enabling efficient access and analysis of spatial and tabular data, while also serving as a foundation for future application development tailored to different user groups and supporting the lifecycle of selected sites. A key contributor, Aditya: • Conducted GIS Needs Assessments, System Design, and Implemented Proof of Concept (POC) for a Location Intelligence platform (LSIM), including producing technical documentation for the client • Consulted with stakeholders to define the requirements for business intelligence applications and provide guidance on application design for Front-end consumption on Web GIS • Developed analytics models and methods to establish demographic analysis workflows, migrate complex statistical index calculation methodologies to geodatabases for accuracy, and introduce automation to facilitate migration of a site-selection desktop application to the Location Intelligence platform • Managed and helped negotiate external software vendor contracts on required GIS technology components for the Location intelligence platform • Assisted Partners and Senior Managers in overseeing Cyber Risk GIS practice, performance, and cultivating and growing customer relationships by providing insights into geospatial strategies in the client's business processes • Involved in pursuing new Utility Provider accounts, assisting in producing RFPs for business development, project pursuits, and project planning
City of Lawrenceville, Georgia GIS Program	As a GIS Manager in a Senior Technical and Management role at the City of Lawrenceville, Aditya was responsible for planning and administering quality and completeness of the GIS assets for the city departments (Gas, Electric, and Planning) along with enabling information access to Citizens. Aditya provided leadership in development of data management and distribution strategy, identification and prioritization of projects, administration of departmental resources for GIS data collection, and continuous improvement of GIS processes and standards, along with employee performance management. Aditya held a key role in accomplishing the City's vision to accomplish digital transformation and data management objectives with GIS at its core in pursuit to become a Smart City in the region. Among others a major accomplishment included in introducing the City's ArcGIS Hub. Aditya's contributions included:

Geospatial Solutions Supervisor / GIS Manager / Senior GIS Data Analyst / GIS Analysts	
	• Conducted GIS needs assessments, system designs, and GIS Strategic Plan implementations for the City • Enabled GIS application integrations with enterprise business applications specific to Utilities, Public Safety and Planning, and Community Relations • Coordinated and implemented multi-department data management projects to break down data silos • Designed and executed ArcGIS Enterprise Server and web GIS server architecture, system migration, and operating system upgrades, consistent data collection, data integration, and editing for the IT and Utilities departments • Worked closely with the Public Works department to develop data models using Esri's ArcGIS Utility Network Model for Electric, Gas, and Stormwater and Water utilities for migration from traditional Geometric Networks • Effectively coordinated with staff to brief, assign, and oversee project tasks, thus ensuring deliverables are of high quality and meet project deadlines • Customized and delivered on all the 3 GIS enterprise Tiers (Database, Application Tier, and Web sharing) accommodating departmental needs
City of Raleigh (NC) Public Utilities GIS Program	A Senior GIS Data Analyst for Raleigh Public Utilities, Aditya was Lead Data Analyst responsible for development of custom tools and data models to support high-end spatial and data analysis, data analytics, and visualizations. Aditya's selected contributions included: • Performed high-end analysis, design reviews, development, implementation, and supported custom geoprocessing tools/data models necessary to address complex reporting needs for the Public Utilities domain • Was responsible for spearheading the development of data modeling and transformation techniques for predictive analytics on the assets and improving quality control of GIS workflows within the Department • Developed custom data viewers and visualization dashboards to aid live metric tracking and decision-making for Department Managers and Executive staff • Was responsible for leading the team to assess data quality, accuracy, and completeness, define migration goals, and identify business processes and workflows that rely on the traditional geometric networks for migration of existing Water datasets to Utility Network Model • Engaged key stakeholders throughout the planning process for their buy-in for smooth transition of the Water datasets to Utility Network Model

Geospatial Solutions Supervisor / GIS Manager / Senior GIS Data Analyst / GIS Analysts	
Equifax Workforce Solutions Greenville, SC Zone Research	As GIS Manager and Senior GIS Analyst for Equifax's Tax Credits & Incentives Division, Aditya managed a Zone Research team and provided expertise for developing GIS processes tools and procedures aligned to corporate goals, with a primary focus on identifying location-based incentives for clients. Aditya oversaw day-to-day operations of the Zone Research team on Location Based Incentives (LBI) research, providing Leadership and Strategic Planning for using spatial data to support ongoing LBI production operations for the Tax Credits and Incentives (TCI) Business Unit, a unique domain for implementing spatial technology; and managing the Zone Research Team responsible for creating and maintaining the geospatial dataset and geoprocessing tasks.
Nebraska Game & Parks Commission Data Management	As a GIS Analyst for the Nebraska Game & Parks Commission, Aditya had a key role in the collection of information to assist in the study and protection of endangered wildlife throughout Nebraska, including the status, distribution, and ecology of natural habitats. Aditya provided critical Spatial and Attribute data used by conservation professionals and organizations to promote and protect the state's natural heritage. In this role, Aditya: • Effectively managed spatial and tabular database along with WebGIS (ArcIMS) used to document species of concern, ecology communities, and conservation areas • Generated reports, maps and provided information that met organizational missions, including development of a Comprehensive Plan (Nebraska Natural Legacy Project) • Maintained the Natural Heritage Program server and Oracle databases, and assisted with data positional, dimensional, and documentation quality control and integrity • Trained field personnel in the use of GIS applications, including GIS desktop clients and Mobile GIS units

Sid Meskimen

Director, Data Protection and Cybersecurity

Years of Experience

28 – Information Technology
24 – GIS

Education

BS, Electrical & Electronic Engineering Tech., Montana State University, Bozeman, MT, 1987.

Certifications and Training

Past Certifications (expired): Install, Configure, and Administer Microsoft Windows 2000 Professional, 2003 / Configuring and Administering Microsoft Windows 2000 Server, 2003 Implementing and Supporting Microsoft Windows NT Server 4.0, 1997

Training:
Deploying Portal for Esri ArcGIS, 2016

Windows Server 2012, System Center 2012 SP1, and Azure, 2014

Oracle Enterprise DBA Part 1A: Architecture and Administration, 2001

Updating Support Skills from Windows NT 4.0 to Windows 2000, 2001

Designing a Windows Active Directory Structure, 2001

Introduction to Oracle SQL and PL/SQL, 2000

Oracle Database Operator for Windows NT, 1999

Esri ArcSDE Administration for SQL Server, 2000

Microsoft (1997): Exchange 5.0 / Internet Information Server 3.0 / Windows NT Networking Essentials / Windows NT 4.0 Workstation / Core Technologies / Enterprise Technologies

Professional Summary

Sid Meskimen has 28 years of progressive experience in the IT industry, including in-depth expertise in architecting and managing enterprise-wide solutions for the utility business sector. As UDC's Director, Data Protection and Cybersecurity, Sid provides leadership to security technology professionals across UDC's Data Protection and Cybersecurity (DPC) team in support of internal IT processes and Geographic Information Systems (GIS) projects. Responsible for all aspects of security and compliance for UDC, Sid develops internal and external documentation for data privacy, cybersecurity, and compliance purposes, and performs security configurations, installations, upgrades, testing, support, and other implementation-related tasks.

Work History

UDC, 2016 – Present, Director, Data Protection and Cybersecurity, IT Director

Black & Veatch, Greenwood Village, CO, 2010 – 2016
Senior Systems Analyst

Enspiria Solutions, Inc., Greenwood Village, CO, 2007 – 2010, IT Manager

Atos Origin, Greenwood Village, CO, 2004
Senior Consultant – Project System Engineer

SchlumbergerSema/Convergent Group, Greenwood Village, CO, 2000 – 2004, Senior Consultant

Convergent Group, Englewood, CO, 1998 – 2000,
Senior Software Engineer

PlanGraphics, Golden, CO, 1997 – 1998, Network Systems Analyst

Dynamic Solutions International, Englewood, CO, 1987 – 1997, System Engineer

Clients Served

Hawaii Electric / Allegheny Power / Austin Energy / Citizens Utilities / Northeast Utilities / NSTAR / Louisville Gas and Electric / Ontario Hydro / Piedmont Natural Gas / Yankee Energy

Specific Project Experience

Sid Meskimen / Director, Data Protection and Cybersecurity

IT Consultant	
UDC Digital Utility® Cloud Solution Architecture	As IT Director, Sid architected UDC's virtual private cloud solution for hosting UDC's Digital Utility®. He is responsible for security, backup, and disaster recovery planning of UDC's infrastructure. He also provides training and implementation of ArcGIS Enterprise solutions. Technologies used included Windows 2012, 2016, VMware ESX 6.0, MS SQL server 2014, Oracle RDBMS 12, ArcGIS 10.3 – 10.5.
Louisville Gas and Electric GIS Upgrade	Responsible for Black & Veach's / Enspiria Solutions' system administration and maintenance for utility clients, Sid supported the LGE GIS Upgrade project including a work integration/design tool and Oracle database technologies.
Piedmont Natural Gas GIS Program	Providing system administration and maintenance for Black & Veach's / Enspiria Solutions' clients, Sid supported GIS maintenance and data migration projects at Piedmont Natural Gas.
NSTAR GIS Solution	Providing system administration and maintenance for Black & Veach's / Enspiria Solutions' utility clients, Sid supported NSTAR data migration, GIS, and Oracle initiatives.
Black and Veatch / Enspiria Solutions Product Development ESIntial SAS Hosting Solution	As Senior Systems Analyst, Sid architected and implemented the hardware, operating systems, and network equipment of the company's ESIntial SaaS hosting solution and created a disaster recovery plan for the ESIntial product. Technologies used included Windows 2012, VMware ESX 5.5, Amazon Web Services, Dell servers and storage, MS SharePoint 2010, MS SQL Server 2010, Oracle RDBMS 11, Esri ArcGIS 10, MS Forefront Security Gateway 2010, MS Exchange 2010, Cisco ASA 5510, Apple OS 10, Dell LiteSpeed for SQL Server. In addition to supporting the ESIntial solution development described above, Sid provided company IT Management and was responsible for all aspects of IT infrastructure, systems, and communication facilities; managed contractors and vendors as-needed; and architected and maintained a backup and recovery solution based on ArcServe. Technologies used included Microsoft products – Windows XP, Windows 7, Server 2003, Server 2008, Microsoft Exchange 2003/2007, SQL Server 2005, Project Server 2003, SharePoint 2007; Citrix Metaframe, Virtualization environments include Microsoft Hyper V and VMware ESX 3.5, 4.0 and 4.1; Cisco ASA firewall and wireless access points.
Allegheny Power Austin Energy Citizens Utilities LG&E Northeast Utilities NSTAR Ontario Hydro Piedmont Natural Gas Yankee Energy	As a Senior Consultant and Project System Engineer at Convergent Group, Sid provided project-focused system administration for systems integration initiatives including system design, specification, acquisition, hardware/software installation, configuration, backups, security, and documentation. With responsibility for as many as five external client projects at any one time, his responsibilities included installing, maintaining, and configuring Microsoft Windows NT / 2000 / XP on Intel-based platforms. He was also responsible for administering GE Smallworld Spatial Technology, Esri ArcSDE and other Esri Products, Microsoft SQL server, Oracle RDBMS, and other products as required by the projects (e.g., ArcServe, Veritas, IIS, MS Office, Excede, Storms, Citrix Server, Visual Source Safe, DDTS, PowerOn). In addition, Sid provided specification and coordination of domains, WINS, DNS, LAN, WAN, and firewall for development, test, and training.

Michael Adornetto

Technical Architect / Database Administrator

Years of Experience

28 – GIS

Education

BA, Geography and
Certificate of Cartography
Kent State University, 1994.

Key Competencies

Esri ArcGIS Enterprise implementation and administration

Programing/Scripting: C# / .Net / Python / SQL

Database: Oracle / SQL Server

Certifications

Esri-certified Enterprise Geodata Management Professional

Professional Summary

Michael Adornetto is a Technical Architect with over 28 years of GIS experience focused on Esri software. A proven implementer and administrator of ArcGIS Enterprise and an Esri-certified Enterprise Geodata Management Professional, Michael brings valuable expertise to UDC implementation projects for utilities, with specific experience in natural gas and water utility GIS environments.

Work History

UDC, September 2023 – Present
Technical Architect / Database Administrator

Magnolia River Services, May 2016 – September 2023
GIS Project Manager / Consultant

Geofac Systems Inc., August 2013 – May 2016
GIS Developer

CH2M Hill / Critigen, October 2004 – August 2013
GIS Developer / Consultant

Miner & Miner Consulting Engineers, June 1999 – October 2004
Programmer Analyst

Geotrac, June 1995 – May 1999
GIS Specialist

Clients Served

CenterPoint Energy / New Jersey Resources Service Corporation (New Jersey Natural Gas)

Specific Project Experience

Michael Adornetto / Technical Architect

Technical Architect / GIS Project Manager / Consultant / Developer /	
CenterPoint Energy (CNP) Houston, TX As-builting Digitalization Strategy	Michael is providing valuable expertise in support of UDC's consulting services for CNP's initiative to move from a paper-based asset collection process to a digital design and construction workflow, which includes assessing the requirements for this data acquisition adoption regarding project workflow changes, technology/equipment, and training and rollout hurdles/risks for CNP and third-party work crews, and producing a comprehensive, executable Gas Digital As-builting strategy that can be leveraged across CNP's natural gas footprint.
New Jersey Resources Service Corporation (NJRSC) / New Jersey Natural Gas (NJNG), Wall, NJ Maximo, GIS, and JDE Integration Phase 2	Following the completion of Phase 1 (Discovery Phase) of this initiative, Michael served as Technical Architect working closely with other client partners such as PWC and IFS to design and build a GIS/Maximo integration for NJNG, providing integration services and data remediation around NJNG's Maximo, GIS, and JDE Synchronization.
NJRSC / NJNG Wall, NJ Maximo, GIS, and JDE Synchronization	Michael worked with UDC's team collaborating closely with other client partners, such as PWC and IFS, to design and build a GIS/Maximo integration for NJNG. Through two phases, UDC defined the requirements for and integrated NJNG's Maximo and GIS. Building on the work from the Discovery Phase, UDC completed the detailed mappings and integration technical design and development required by NJNG to complete the GIS loads and define/build.
Magnolia River Services GIS Projects	As a GIS Project Manager / Consultant for Magnolia River Services in the implementation, upgrade, and configuration of ArcGIS Enterprise for natural gas and water utilities clients, Michael: • Migrated GIS databases from legacy data models to current Esri data models • Implemented ArcGIS online solution for small gas utilities • Integrated GIS with asset management, workorder management, and customer information system (CIS) technologies • Implemented and configured Magnolia River's mobile compliance software product for gas utility clients Key technologies used included ArcGIS Enterprise, ArcGIS Online, Python, ArcPy, ArcGIS Api for Python, Safe Software FME

Technical Architect / GIS Project Manager / Consultant / Developer	
Geofac Systems Inc. Enterprise GIS Projects	As a GIS Developer for Geofac Systems Inc., Michael was responsible for the design, development, implementation, and ongoing support of various enterprise geographic information systems in the petroleum and utility sectors. Michael worked directly with clients to define requirements and directed junior developers to deliver solutions within project parameters. Key Project work included: • *Lead Developer, ArcFM Upgrade.* Upgraded multiple customized ArcFM components from an ArcFM 10.0, Visual Basic 6, COM environment to an ArcFM 10.2.x, C#, .Net environment • *Lead Developer, ArcFM / SAP integration.* Worked with client to define requirements and design SAP to GIS integration plan; developed Python services to update GIS features with updated SAP asset information as part of a multi-phase integration plan • *Developer, GSI Pipeline Editing Tools.* Worked in team developing and implementing ArcGIS-based toolset for pipeline dataset management and editing, an ArcMap Add-In using C#, .Net, and ArcObjects and worked directly with clients resolving issues and defining new functionality
CH2M Hill / Critigen (now Locana) GIS Projects	As a GIS Developer / Consultant for CH2M Hill / Critigen, Michael was responsible for the design, development, implementation, and ongoing support of various enterprise geographic information systems in the utility, pipeline, government, and insurance sectors. Key technologies used included Microsoft .Net and C# programming, Python programming, Oracle, SQL Server, ArcGIS, and ArcGIS Server.
Miner & Miner Consulting Engineers (now Schneider Electric) Quality Assurance	As a Programmer Analyst for Miner & Miner Consulting Engineers responsible for the quality assurance of Miner and Miner's ArcFM Product line and APIs, Michael: • Performed manual testing, created testing scripts, and developed associated documentation • Configured and maintained multiple Oracle and SQL Server ArcSDE geodatabase instances to support product development and quality assurance testing • Implemented and customized core company software products for clients in the electric distribution sector using AML, PL/SQL, and UNIX scripting

Roxanna Roberts

Senior Systems Architect

Years of Experience

33 – GIS, Systems Analysis, Design, Integration, Management

Education

BS, Information Systems Management / Engineering, University of Maryland Baltimore County

Computer Aided Design / Engineering Transfer Program, Essex Community College, ECC

Key Competencies

Desktop and Web application development / administration

GIS architecture / design / analysis / integration / management / database design / administration

Esri ArcGIS Desktop, Pro, Enterprise, Server, Online, Portal, Explorer, Survey 123, Collector, Field Maps, ArcCAD / Schneider Electric ArcFM

AutoCAD / CAD Overlay / MicroStation / MapInfo / Maptitude / Google Earth

RDBMS: ArcSDE / SQL Server / Oracle / Oracle Spatial / PostgreSQL / Access / BRIO / COGNOS / Micro Strategy Suite / SQL / PL/SQL

Development Languages: Visual Studio / VS Code / C#.NET / VB.NET / ArcObjects / Python / ArcPy / Model Builder / AML / Avenue / KML / ArcXML / JSON / GeoJSON / JavaScript / ArcGIS JavaScript API / XML / ArcXML / HTML / CSS

Certifications

Certified Esri ArcView Instructor

Professional Summary

Roxanna Roberts is a Senior Systems Architect with over 30 years of experience in GIS including architecture, analysis, design, integration, and management. Roxanna has applied most aspects of GIS related technologies to a cadre of disciplines and business sectors including: Civil, Architectural, and Radio Frequency Engineering; Utility Transmission and Vegetation Management; Local, State, and Federal Governments; and the US Military and Intelligence.

Work History

UDC, 2025 – Present
Senior Systems Architect

Federal Consulting Company, 1999 – 2024
Senior GIS Architect / Analyst / Developer / GeoDBA

Spatial Systems Associates, 1997 – 1999
GIS Analyst / Developer

OAO Corporation, 1994 – 1997
GIS Analyst

RKK Engineering, 1992 – 1994
GIS Technician

Clients Served

Baltimore Department of Public Works / First Energy / Prince George's County, MD / Southern California Electric

Federal Agencies: GSA, DOT, FAA, FCC, DOJ, DOC, NOAA, FEMA, EPA, USDA, DOI, DOD, NGB

Specific Project Experience

Roxanna Roberts / Senior Systems Architect

Senior GIS Architect / GIS Analyst / GIS Developer / GIS Technician	
Multiple Federal Agencies GIS Architecture, Analysis and Development	As a Senior GIS Architect for this Federal Consulting Company, Roxanna provided GIS Architecture, analysis, and development for multiple projects for Federal Agencies including: GSA, DOT, FAA, FCC, DOJ, DOC, NOAA, FEMA, EPA, USDA, DOI, DOD, NGB. These projects included: • Enterprise GIS, architecture, design, analysis, development, integration, and management • GIS database management and administration • GIS desktop and web application development and administration
FEMA, HUD, and Baltimore Department of Public Works GIS Projects	As a GIS Analyst/Developer for Spatial Systems Associates, Roxanna managed and created diverse GIS projects including instruction and utilization of ArcView and ArcInfo. A certified Esri ArcView Instructor, Roxanna also taught courses in Local, State, and Federal applications of GIS. • For FEMA, Roxanna conducted hurricane weather pattern analysis utilizing various NWS datasets, including data capture and overlay analysis of FIRM data in ArcView and ArcInfo environments; and utilized information captured from FIRMs for overlay analysis with DEM, DOQQ, Satellite Imagery, and Cadastral datasets in both vector and raster formats. • For HUD, Roxanna supported brownfield remediation pilot projects incorporating aerial and cadastral image registration and rectification, geocoding, and address matching of related business tables. • For the Baltimore City Department of Public Works' generation of citywide utility services coverage, Roxanna assisted in AML, Avenue, coding of various applications utilized to optimize and automate digitization, data capture, and QA/QC.
Prince George's County, MD Department of Public Works & Department of Environmental Resources GIS Development	As a GIS Analyst for OAO Corporation, Roxanna conducted the analysis of, and generated technical documents stating the need, functionality, and conceptual design, of automated ArcInfo AML, QA/QC programs, for use on photogrammetric scale aerial orthophotos, and derived planimetric and topographic datasets. And for the Department of Public Works, Roxanna conducted network configuration and application development feasibility analysis, prioritizing application development implementation. As GIS Analyst/Programmer, Roxanna served as analyst to the Department of Environmental Resources, conducting analysis for a data capture conversion effort and ArcInfo AML application development. Data capture and database design included, storm drain network and hydrologic centerline layers designed to be utilized in conjunction with the NPDES project and as input to

Senior GIS Architect / GIS Analyst / GIS Developer / GIS Technician	
	hydrologic modeling applications programmed in ArcInfo AML. In addition, as a GIS Instructor, Roxanna taught introduction to ArcInfo and ArcView courses.
Rkk Engineering GIS Projects	As a GIS Technician for RKK Engineering, Roxanna utilized an array of GIS/CAD technologies in the creation of geospatial databases in support of various projects including: • Maryland Office of Planning, and Department of Assessment and Taxation, statewide data capture and conversion of cadastral mapping to GIS datasets, designed and created for use in statewide GIS applications • Charlottesville, VA, registration, rectification, and digitization of citywide sewer services • Rocky Mount, NC, registration, rectification, and digitization of citywide sewer, gas, and water services • USACE, US Army Corp of Engineers, contour mapping utilizing CAD and GIS, CADoverlay, ArcCAD, AutoCAD

Sateesh Karri, PMP, GISP

Solution Architect

Years of Experience

21 – GIS

Education

Masters in Geographic Information Systems, University of Nebraska, Lincoln, NE, 2005.

Bachelor of Architecture, Andhra University, College of Engineering, Visakhapatnam, AP, India, May 2001.

Key Competencies

Project Management:
Jira / Trello / Confluence / Microsoft Office (Word, Excel, PowerPoint, Visio) / Lucid Charts

Cloud Platforms:
AWS Services – EC2 / Athena / Amazon Timestream / Redshift / AWS Glue / Dynamo DB / RDS / CloudWatch / etc.

GIS and Data Management:
Esri ArcGIS Enterprise / Apigee / Python / R / Postgres / SQL

Business Analytics:
Tableau / Power BI

Certifications

Project Management Professional

AWS Solution Architect – Associate

Azure Superpowers Certification

GIS Professional, GIS Certification Institute, Chicago, Illinois

Esri Enterprise Administration Associate 10.5 (EEAA105)

Esri ArcGIS Desktop Associate 10.3 (EADA103)

Professional Summary

Sateesh Karri is a GIS Professional and Solution Architect with over 19 years of professional experience applying vision, technical skills, problem-solving and process improvements to enhance organizational performance and information delivery. Sateesh brings valuable expertise in the delivery of Cloud-based asset data management solutions for electric and gas utilities utilizing Esri ArcGIS technologies. Leveraging strong analytical skills that enable the creation, management, and reporting of large amounts of asset data; Sateesh identifies, analyzes, develops, coordinates, and implements geographic information systems, applications, and databases built and served on Cloud platforms.

Work History

UDC, June 2023 – Present, Solution Architect

Emids, Cumming, GA, 2021 – 2023, Project Manager

CoreLogic, Fortitude Valley, AU, 2019 – 2021
Technical Product Manager

Esri Australia, Brisbane, AU, 2015 – 2019
Senior Consultant (Professional Services)

Department of Land Affairs, Saudi Aramco, Saudi Arabia, 2014 – 2015, Senior Project Consultant

RISE Pvt Ltd, Vizag, India, 2012 – 2013, GIS Project Manager

Dewberry – FEMA, Phoenix, AZ, 2007 – 2011, Technical Lead

ERT (Earth Resource Technology) – Dept of Commerce NWS, Silver Springs, MD, Mar 2007–Nov 2007, Senior Consultant

SCG (Systems Consulting Group) – Dept of Commerce, NOAA, Silver Springs, MD, 2006 – 2007, Consultant

Union Pacific Railroad, Lincoln, NE, Jan 2006 – May 2006, Analyst

Department of Natural Resources, Lincoln, NE, 2003 – 2005, Analyst

Clients Served

CORE Electric Cooperative / ONE Gas

Specific Project Experience

Sateesh Karri / Solution Architect

Solution Architect / Project Management Professional / GIS Professional / Analyst	
ONE Gas Graphic Work design (GWD) Project / Esri ArcGIS Utility Network Implementation	Sateesh is serving as a Solution Architect focused on the GWD/Utility Network integration as part of the effort to upgrade the ONE Gas Esri environment from 10.6.1 to a compliant version (10.9.1/10.81) while preparing the Utility for the implementation of UN/UPDM. The project involves ensuring TSA compliance with the supported versions Esri Software while preparing for the implementation of the newest Esri platform. The project scope currently includes implementation of a Graphic Work Design Tool, Linear Referencing Tool, and replacement of the existing integrations.
CORE Electric Cooperative Electric Asset Data Assessment	Sateesh is a Solution Architect on UDC's team supporting the CORE Electric Cooperative's Electric Asset Data Assessment project to assess the current state of CORE's GIS and prepare the utility for migration from ArcMap to ArcGIS Pro and Utility Network, which includes evaluating the system architecture and infrastructure, performing the data assessment, and migrating all electric distribution data to ArcGIS Pro.
Emids Cumming, GA Enterprise GIS Project Management	As Project Manager, Sateesh managed the Esri ArcGIS Enterprise (ArcGIS Server, Portal for ArcGIS, ArcGIS Datastore) needs assessments, system design, and implementation strategic planning to design and develop GIS solutions (web and mobile) specific to Public Health. Sateesh would liaise as required with clients and stakeholders in this initiative to transform the data and automate pipeline for integration of geospatial data from various Client sources and develop GIS solutions (mobile, web, desktop). His contributions include: • Conducted design and developed the integration architecture for GIS with other enterprise systems and technologies • Effectively coordinated with staff to brief, assign, and oversee project tasks, thus ensuring that deliverables were of high quality and meet project deadlines • Implemented CI/CD pipeline process using Gitlab for continuous integration, deployment, and delivery • Involved in Agile project management practices, including SCRUM
CoreLogic Fortitude Valley, AU Enterprise GIS Development	As Technical Product Manager, Sateesh managed teams and provided expertise developing GIS solutions and procedures aligned to CoreLogic's corporate goals, with a primary focus on building GIS-based real estate applications for clients. His contributions include: • Designed and executed ArcGIS Enterprise and web GIS server architecture, system migration, operating system upgrades, consistent

Solution Architect / Project Management Professional / GIS Professional / Analyst	
	data collection, data integration, and editing for Valuation and Real Estate departments • Designed and developed multiple API proxies-RESTful services to integrate with Esri Enterprise and third-party clients • Designed and developed integration architecture for GIS with other enterprise systems and technologies • Designed GIS application architecture and workflow patterns (mobile, web, desktop) • Developed presentations for C-level suite and stakeholders to communicate goals and deliverables • Gathered business and technical requirements to product specifications and translated these into high-level technical design solutions • Leveraged Confluence to document process maps, user stories, data flow diagrams and used Jira and Kanban to track and prioritize the features • Provided geospatial expertise, recommendations, and services in relation to CoreLogic's geospatial datasets (Postgres, SQL, S3, DynamoDB), delivery platforms (AWS/GCP), Apigee (GCP), UI/UX (React JS), workflow processes, systems, and methodologies • Liaised as required with clients, partners, and CoreLogic staff in relation to the development, implementation, support, and maintenance of the project delivery Oversaw a team onshore and offshore of developers, testers, and UI/UX designers
Esri Australia Brisbane, AU Enterprise GIS Consulting/ Development	As a Senior Consultant for Esri Australia Professional Services, Sateesh provided business value with advice and expertise on the latest technology to transform location analytics capabilities. His contributions include: • Design and enhancement of the existing GIS Enterprise Architecture vision for the client organizations and develop the blueprint describing the future GIS Architecture (conceptual, logical, and physical) across domains of Business, Application, Technology, Security, and Information • Design and development the GIS roadmaps describing the current as-is and future to-be architecture, and the transitions required to enable the client organization to deliver its future GIS capabilities • Design and development of data models using Esri ArcGIS Utility Network Model for Electric, Gas, and Water utilities

Solution Architect / Project Management Professional / GIS Professional / Analyst	
	• Design and development of GIS system architecture and components with capacity planning (Cloud, On-premises, or Hybrid) • Design and development of integration architecture for GIS with other enterprise systems and technologies • Design of GIS application architecture and workflow patterns (mobile, web, desktop) • Design of strategies and solutions to upgrade and migrate legacy GIS systems into the latest Esri GIS technologies and provide GIS system health check services • Assessment of training needs based upon organizational and business unit goals and prescribing appropriate learning solutions using a variety of delivery methods involved in Agile project management practices, including SCRUM
Department of Land Affairs / Saudi Aramco GIS Consulting / Development	Working for the Department of Land Affairs of Saudi Arabia / Saudi Aramco as a Senior Project Consultant upgrading the Microsoft Touch Table GIS application for Land Affairs Department, Sateesh conducted workshops with the Client, to understand the existing solution and gather requirements for finalizing the scope of work. He utilized the standard Microsoft API for MS touch table 2.0 to upgrade the existing application with more attractive Graphical User Interface (GUI) than the existing one and developed and implemented an easy-to-use NUI interface for custom search and locate (zoom) functions. Sateesh was also responsible for preparing User, Maintenance, and Application Support guides, and conducting knowledge transfer workshops and presentations to the Client, as well as updating the client with weekly status reports and monthly time reports and working closely with the client to monitor all phases of the project for successful completion.
Department of Land Affairs / Saudi Aramco Saudi Arabia GIS Consulting / Development	Working for the Department of Land Affairs of Saudi Arabia / Saudi Aramco as a Senior Project Consultant upgrading the Microsoft Touch Table GIS application for Land Affairs Department, Sateesh conducted workshops with the Client, to understand the existing solution and gather requirements for finalizing the scope of work. He utilized the standard Microsoft API for MS touch table 2.0 to upgrade the existing application with more attractive Graphical User Interface (GUI) than the existing one and developed and implemented an easy-to-use NUI interface for custom search and locate (zoom) functions. Sateesh was also responsible for preparing User, Maintenance, and Application Support guides, and conducting knowledge transfer workshops and presentations to the Client, as well as updating the client with weekly status reports and monthly time reports and working closely with the client to monitor all phases of the project for successful completion.

Solution Architect / Project Management Professional / GIS Professional / Analyst	
RISE Pvt Ltd Vizag, India GIS / Mobile Workforce Application Development	As GIS Project Manager for RISE, Sateesh managed the development team building the COOPS mobile application for a health care product to collect field data. Sateesh worked with survey teams in the field to develop data collection and processing methods; presented a project roadmap rough order of magnitude (ROM) and definitive timelines, budget (US staff versus India staff) status, and schedules; and provided monthly metrics showing resources versus utilization and performance metrics.
FEMA Phoenix, AZ Digital Flood Insurance Rate Maps	Sateesh was a Technical Lead managing teams completing DFIRM (Digital Flood Insurance Rate Maps) products for various counties in FEMA Region IX States and mapping statistical modeled flood zones for the National Flood Insurance Program. Sateesh performed QA/QC for graphical, technical accuracy of Flood Insurance Study texts and maps. And he coordinated with the project team, clients, local communities, and other flood insurance study contractors to compile all data and information necessary to process the most accurate and up-to-date products.
ERT (Earth Resource Technology) – Department of Commerce NWS Silver Springs, MD Process Automation	As a Senior Consultant, Sateesh managed teams building VB scripts for the automation process of transmitter coverage and alerting communities. He developed customized user interfaces using ArcObjects and Visual Basic, updated NWR transmitters regularly using Avenue Scripts, customized and maintained the ArcIMS website to serve GIS data to the intranet and internet users, and assisted with ArcSDE/Oracle Administration and monitoring to address issues like number of SDE connections or data layers and fine-tuning the database for improved performance.