Advanced Metering Infrastructure Solutions

RFP #2025-002

North Central Texas Council of Governments (NCTCOG)

10 January 2025

→ **The Power of Commitment**

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1. Certificate of Offeror and Statement of Understanding

1.1 Cover Page

As people increasingly transform the way they use water—reducing, reusing, and storing a resource whose value is only growing—the water industry must respond urgently and comprehensively. To satisfy the changing expectations of the Member Cities' customers, all while addressing the disruption ongoing within the water sector, Cities requires a consultant capable of conceiving an Advanced Meter Infrastructure (AMI) or Automated Meter Reading (AMR) roadmap through a feasibility study to drive the installation and integration phases of a City's AMI/AMR program which will serve as the backbone for a utility of the future. The GHD team presented in this proposal will bring the appropriate experience, approach, regional familiarity, and responsive, local presence to guide Cities in reimagining AMI/AMR as not just the implementation of new technology, but as an investment in transformation across the whole business, dramatically enhancing how customers manage their water use.

AMI/AMR Solutions to Meet Today's and Tomorrow's Needs	AMI/AMR Knowledge and Insight	AMI/AMR Solutions to Meet Today's and Tomorrow's Needs
The GHD Team will work closely with the NCTCOG and its member cities to implement a next-generation AMI/AMR systems that go beyond efficient meter reading and billing—enabling cities to embrace new customer services and business models as a smart water utility. Our approach to AMI/AMR projects is to leverage a City's successful water efficiency and conservation efforts as a way to shift the operating paradigm to hyper proactive, and improve the efficiency of the water distribution system, especially from an operator's perspective providing greater visibility and near real-time control to City staff for the management of pressure, leaks, water quality, and focus on empowering customers to manage their behaviors versus simply engaging them via a portal.	Our team will be led by Freddie Guerra, who has helped medium to large utilities achieve successful water meter changeout/AMI/AMR implementation project, including feasibility studies, obtaining financing, procurement services, and project management developing an intimate understanding of the current state of the utility to realizing the future state. He has led major AMI/AMR projects for the cities of Houston, and Fort Worth, and has supported other AMI efforts that include the City of Philadelphia, City of Dallas, City of Toronto, and Miami-Dade County. Mr. Guerra has been instrumental in leveraging AMI/AMI systems as the foundation for intelligent water systems and utilities of the future. This experience and knowledge are complemented by our partner's - Utili-Assist – knowledge and involvement in the water, gas and electric AMI industry.	Years of lessons learned and successful projects, GHD has developed a set of best management practices (BMPs) to ensure the successful development, implementation, and operation of an AMI/AMR system. These BMPs are utilized by our staff, which possess a broad range of technical experience and capability. GHD has experienced personnel all over the state, able to leverage local knowledge with expertise all over the world with over 11,000 employees. With this degree of responsiveness, our team can address virtually any size, type, or complexity of AMI.AMR-related tasks while being complemented by our team's core strengths in water, advisory (asset management), and environment.

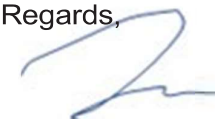
GHD has assembled an experienced team that has both installed, managed, and provided owner's representation for the implementation of millions of AMI/AMR meters for numerous utilities across North America. Our team has provided a range of services from initial benefit-cost assessment to strategy and road-mapping, procurement services such as RFP development and vendor evaluation, to project support during integration and implementation, to public outreach and awareness campaigns.

We will tailor an approach to best meet the Member City's needs and requirements based on our extensive experience and "lessons learned." In addition, we understand that there are only a few ways to do an AMI program right, and many ways to do it wrong – and it begins with a holistic strategy.

GHD looks forward to having the opportunity to work with the NCTCOG and its member cities, as we value the relationships and synergies created through our existing and previous work with some of the Member Cities. Should you have any questions please do not hesitate to contact Freddie Guerra, Project Manager.

We acknowledge receipt of Addendum #1, dated December 17, 2024, and have reflected those changes in this proposal.

Regards,



Freddie Guerra

Digital Water Solutions
Leader - North America
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1.2 Understanding of the Work to Performed

TXShare, a cooperative purchasing program supporting municipalities, utilities, and governmental entities nationwide, has issued a comprehensive Request for Proposals (RFP #2025-002) to modernize water metering systems. This initiative is designed to replace outdated systems with advanced metering infrastructure (AMI) solutions that are adaptable, scalable, and capable of meeting the diverse needs of TXShare members. These members include small towns, large cities, school districts, and other public agencies across North Texas, all of which face unique challenges in water management and system integration.

The program encompasses not only AMI technology but also automated meter reading (AMR) capabilities, ensuring that both existing needs and future scalability are addressed. Services include meter change-outs, repair parts, and associated professional services such as installation, technical support, and training. By leveraging economies of scale, TXShare aims to provide its members with innovative solutions that enhance water management, data accuracy, customer engagement, and operational efficiency.

The GHD Team is submitting this Request for Proposal to provide services for: Service Category #3: Professional Services, and Service Category #4: Ancillary Goods and/or Services. In addition, our Team provides consulting services for electric and gas AMI systems – if needed.

1.3 Understanding Deliverables Requested

TXShare seeks solutions to modernize water metering systems through advanced metering infrastructure (AMI) and automated meter reading (AMR) capabilities. Vendors and consultants are expected to deliver versatile, scalable systems compatible with diverse environments, including varying pipe materials, installation conditions, and regulatory standards. The solutions must provide real-time, secure data management that integrates seamlessly with existing billing and customer service platforms. Additionally, the deliverables include robust customer engagement tools, such as portals and mobile apps, offering features like usage monitoring, alerts for members with cutting-edge solutions that optimize water resource management and elevate customer satisfaction.

1.4 Additional Deliverables and Key Requirements

Vendors must also address critical operational needs, including phased implementation plans to accommodate different financial capacities and a comprehensive support framework for maintenance, repairs, and meter replacements. Deliverables should include a training program for smooth system adoption, proactive maintenance schedules, and efficient issue-reporting processes to minimize disruptions. Furthermore, proposals must demonstrate scalability to handle future growth, advanced analytics for actionable insights, and disaster recovery strategies to ensure continuity during emergencies. Pilot testing of proposed solutions is essential to validate system performance in real-world conditions before full deployment. Vendors are encouraged to specify geographic service areas and tailor solutions to meet the unique needs of TXShare's members under a master agreement framework.

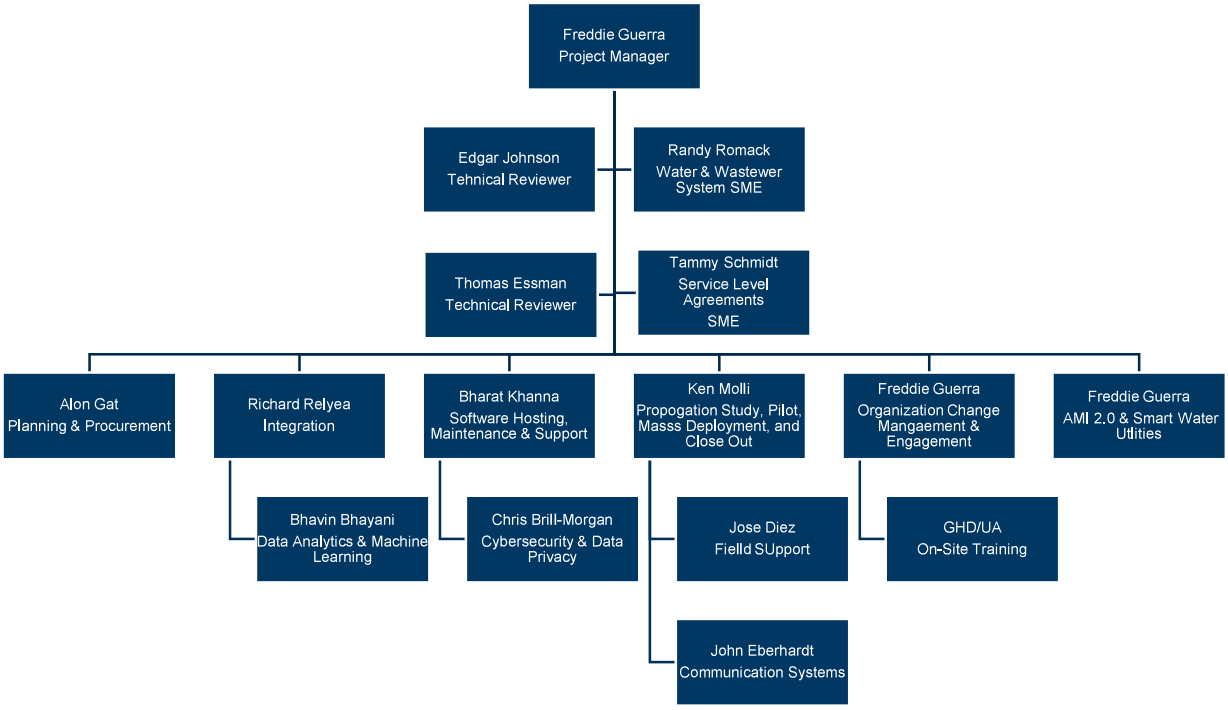
2. Key Personnel

2.1 Selection of Key Personnel

Personnel were selected based on their subject matter expertise and their ability to manage specialized teams for the different phases of the project, as well as resolve issues. The task leads selected for this project have AMI experience – water, electric, and/or gas – and can bridge the functional and technical aspects of AMI – ensuring that the technical design of the AMI system supports business objectives while maintaining flexibility, compliance, and operational efficiency, and minimizing impacts to customers as well as complaints. All the GHD Team members excel in the combination of technical expertise, project management, industry knowledge, vendor relationships, and interpersonal skills. Below are some key qualities that contribute to their effectiveness:

- Deep technical depth – the team has an average of 15 years of AMR/ AMI experience.
- Industry experience with a variety of software and hardware solutions ranging from VertexOne to Oracle CCB; Landis+Gyr to Alcara; and Sensus to Neptune.
- Project management skills to ensure the project remains on budget and schedule. The project manager and task leads have successfully managed over 100 projects with less than 3% change orders.
- Strategic thinking and analytics to go beyond AMI – key personnel have assisted utilities like the City of Toronto, Miami-Dade County, and the City of Houston to integrate smart city initiatives and technologies that expanded visibility and control of systems. and have worked with utilities such as Gainesville Regional Utilities to extend their AMI with a customer portal.
- Well-versed in stakeholder engagement and change management (under electric and water operations) – supporting utilities with centralizing meter operations and automating business processes.

2.2 Organizational Chart & Key Staff



Freddie Guerra

Project Manager and Task Lead – Organization Change Management & Engagement, and AMI 2.0 & Smart Water Utilities

Years of Experience 34

Education
- Master of Science, Environmental Science, Baylor University

Number of AMI Projects 33

Current AMI Projects
1. City of Toronto, Ontario (+500K Water), 2023, Water Meter Program Strategy
2. Miami-Dade County, FL (+500K Water), 2024, Oversight of AMI Implementation
3. City of Peoria, AZ (68K Water), 2023, AMI Feasibility Study

Why Freddie?

Freddie has managed the majority of GHD's AMI projects in North America. He is experienced with GHD's quality control processes and standards. In addition, he has supported AMI projects for Cities of Dallas, Fort Worth, Houston, Wylie, Woodlands Water Agency, and more. He is local based in GHD's Dallas Office and has a long work history with some of NCTCOG's member cities.

Freddie has served as the Owner's Advisor and subject matter expert on over 30 AMI projects, ranging from 25,000 to 500,000+ meter connections. As a proponent of AMI 2.0, he champions its ability to enhance utility management through advanced two-way communication, real-time data insights, and smart grid integration. Freddie's expertise supports the transition toward smart cities, leveraging interconnected devices and data analytics to improve decision-making, service reliability, and sustainability. With experience as a Principal-in-Charge, account executive, project manager, and subject matter expert, he has worked with clients as an engineering consultant, vendor (Xylem), performance contractor (Johnson Controls), and smart city consultant (Hitachi Consulting). Freddie has supported numerous Texas cities with their AMR/AMI projects.

Project Manager. He will play a pivotal role in overseeing the successful execution of the project from inception to completion. He will be responsible for developing and managing detailed project schedules, tracking milestones, and ensuring timely delivery of all components.

Key responsibilities:

- Project planning
- Vendor and contractor management
- Project execution and management
- Team leadership and coordination

Task Lead – Organization Change Management and Engagement. Freddie will be responsible for managing and executing change management (CM) strategies to ensure all stakeholders smoothly transition through changes within the organization.

Key responsibilities:

- Develop CM strategy
- Stakeholder engagement and communication
- Change impact assessment
- Training and development
- Change adoption and resistance management
- Change sustainability

Task Lead – AMI 2.0 & Smart Water Utilities. In role, Freddie will ensure the seamless integration of technology, data, and processes to enhance city operations, improve resource management, and deliver customer-centric solutions.

Key responsibilities:
- Provide project leadership for AMI 2.9 initiatives
- Oversee installation, integration, and operation of AMI systems and smart water technologies
- Ensure seamless communication between meters, networks, and data management systems
- Leverage AMI data for optimizing water management, including leak detection and usage analysis
- Stay informed on emerging technologies and industry best practices
- Recommend system enhancements for improved performance and efficiency

Rick Relyea

Task Lead – AMI Integration

Years of Experience 22

Education
- Bachelor of Science, Mechanical Engineering, California State University

Number of AMI Projects 20

Current AMI Projects
1. City of Toronto, Ontario, Canada (+500K), 2023, Water Meter Program Strategy
2. Miami-Dade County, FL (+500K), 2024, Oversight of AMI Implementation
3. Western Municipal Water District, CA (20K), 2021, AMI Feasibility Study/Meter Replacement Project/ AMI Implementation
4. City of Peoria, AZ (68K Water), 2023, AMI Feasibility Study

Why Rick?

Rick has streamlined the integration process by anticipating potential challenges, proposing effective solutions, and minimizing downtime. He has a mix of technical expertise, project management skills, and a deep understanding of both city operations and customer needs. Rick can identify and resolve integration issues across diverse systems.

In his 22 years of serving water districts, municipalities, and purveyors in North America, Rick has gained recognition for system planning, design engineering, and construction management of public water and wastewater infrastructure projects. He is recognized as subject matter expert (SME) in AMI integration which involves possessing deep expertise in the deployment, operation, and optimization of AMI systems. Rick possesses a comprehensive understanding of hardware, software, and communication technologies that underpin smart metering solutions. As an SME, he provides strategic guidance on system integration, data analytics, and interoperability, ensuring seamless collaboration between cities, vendors, and stakeholders. Additionally, his expertise enables the identification of potential challenges, development of efficient solutions, and alignment of AMI implementations with organizational goals. By staying updated on industry trends and technological advancements, Rick plays a critical role in enhancing operational efficiency, improving customer service, and driving innovation within the utility sector.

Key responsibilities:

- Develop integration strategy
- Stakeholder collaboration
- System and data integration
- Testing and validation
- Data migration and synchronization
- Real-time data processing
- Outage and system planning
- Transition from CIS to AMI
- Customer impact and communication
- Training and support
- Regulatory compliance and security

Ken Molli, MPA

Task Lead – AMI Pilot, Mass Deployment & Close Out

Years of Experience 45

Education
- Master of Public Administration, City Management and Fiscal Administration, The Ohio State University
- Bachelor of Arts, Economics and Government, Ohio University

Number of AMI Projects 33

AMI Projects During Current Position
1. City of Toronto, ONT (+500K Water), 2023, Water Meter Program Strategy
2. Miami-Dade County, FL (+500K Water), 2024, Oversight of AMI Implementation
3. City of Anaheim Public Utilities Dept., Water Services Division (65K Water), 2024, Owner's Advisor Services for AMI Project

Why Ken?

Ken has established PMOs supporting large deployments of AMI systems. He makes timely, well-informed decisions under pressure, especially when addressing deployment challenges or tight deadlines. Ken has expertise in tailoring strategies for the pilot, mass deployment, and close-out phases, ensuring smooth transitions and adherence to timelines.

Ken has led programs in the areas of smart water networks, advanced metering, energy efficiency, IT and OT convergence, application transformation, technology strategy, and implementations. His approach involves leveraging the experience of utility team members and enhancing their capabilities to sustain improvements and tackle future challenges.

Ken holds a lifetime membership in the American Water Works Association (AWWA) and has been a longstanding member of AWWA's Meter Standards Committee and Customer Metering Practices Committee.

Key responsibilities:
- Project planning and setup
- Stakeholder engagement
- Technology assessment
- Data collection and monitoring
- Risk mitigation
- Reporting and recommendations
- Deployment planning
- Vendor and contractor management
- System installation and integration
- Quality assurance
- Final performance evaluation
- Handover of operations
- Compliance and regulatory closure

Alon Gat

Task Lead – Planning and Procurement

Years of Experience 16

Education
- Bachelor of Science, York University

Number of AMI Projects 8

AMI Projects During Current Position
1. Thames Water – Water AMI Project, United Kingdom
2. SoCal Gas – Gas AMI Smart Meter Operations Center (SMOC), Monterey Park, California
3. Hydro Quebec – Electric AMI, Qusolution Architecture and SMOC, Quebec, Canada

Why Alon?

Alon has proven organizational skills, procurement expertise, and a forward-thinking mindset. He has laid the groundwork for successful AMI projects. Alon ensures resources are optimally allocated, costs are controlled, and project objectives are met seamlessly. He possesses an eye of detail, and leverages data-driven decision making to mitigate supply chains issues.

Alon has been a senior advisor and delivery executive to utilities and infrastructure organizations for 20 years. He was a senior principal at Capgemini where, as the overall program lead, he architected and delivered a smart meter deployment and operations center for Thames Water Utilities in the United Kingdom. Focused on delivering a successful deployment strategy and coordinated capability, operational asset and data lifecycle management, end-to-end traceability, and case management, he helped Thames Water successfully deliver one of the most ambitious water infrastructure transformations in its entire history and in all the UK.

Prior to that, Alon served as the Capgemini Global Utilities Smart Energy Services Operations Lead. He led and delivered several energy, gas, and water AMI deployment, transformation, and operations initiatives globally.

Alon Gat will lead planning and procurement, ensuring that all procurement activities are well-coordinated, strategically planned, and executed efficiently to support the goals of the AMI project and the City. His position involves collaboration with project managers, suppliers, finance, and legal teams to ensure the procurement process is smooth, timely, and cost-effective, while meeting the required quality standards.

Key responsibilities:

- Procurement strategy development
- Needs assessment and planning
- Vendor sourcing and selection
- Contract negotiation and management
- Budget management and cost control
- Risk management
- Compliance and regulatory adherence
- Vendor relationship management
- Validation and quality assurance

Tammy Schmidt

Service Level Agreements SME

Years of Experience 25

Education

- Bachelor of Science, Florida International University

Number of AMI Projects: 12

AMI Projects During Current Position

1. Alectra Utilities – AMI 2.0 procurement
2. Hydro One – AMI 2.0 procurement and implementation
3. Tampa Electric – AMI 2.0 implementation and project support
4. Gainesville Regional Utilities – AMI procurement, deployment, and systems integration
5. Lakeland Power – AMI procurement and implementation

Why Tammy?

One of Util-Assist's most senior consultants, Tammy has been working with utilities on smart metering projects since 2006. She has worked closely with large utilities in the procurement and deployment of next-generation AMI systems in an upgrade scenario, making her one of only a handful of people who have experience in replacing an existing AMI.

Tammy is a software professional with over 25 years' experience in systems implementation, project management, training and support, and has over 15 years of experience in the utility industry with a specialized focus on advanced metering projects. She has spent years managing procurement processes for utilities covering a wide range of systems and services such as AMI, MDM, GIS, WFM, meter installation, submetering, systems integration, ADMS, AMI network security audits, data conversion, etc.

Key responsibilities:

- Develop of SLAs
- Vendor and Contract Management
- Performance monitoring and reporting
- Issues resolution and escalation

3. References

GHD and Util-Assist are leaders in providing comprehensive consulting services for city infrastructure and technology modernization, including Advanced Metering Infrastructure (AMI) solutions. Together, we bring unmatched expertise in engineering, project management, AMI implementation, and managed services, ensuring clients receive end-to-end support for seamless project execution. Over the last three years, we have successfully delivered similar services to public agencies and utilities, providing tailored solutions that address their unique challenges while ensuring long-term scalability and operational efficiency. Below are four recent references demonstrating our experience and capability to deliver high-quality outcomes:

Table 1 References

Reference #1	**City of Toronto Water Meter Program Strategy**
Organization/Agency:	City of Toronto, Toronto, Canada
Contact Person:	Kirill Cheiko, P.Eng., M.Eng.
Telephone:	416.688.0742
Email:	Kirill.Cheiko@toronto.ca
Relevant Team Members:	Freddie Guerra, Bharat Khana, Richard Relyea, Ken Molli, Jose Diaz
Reference #2	**Owner's Advisor for City of Anaheim AMI Project**
Organization/Agency:	City of Anaheim, Anaheim, CA
Contact Person:	Jake Hester
Telephone:	714.713.1058
Email:	jhester@anaheim.net
Relevant Team Members:	Freddie Guerra, Richard Relyea, Ken Molli, Jose Diaz
Reference #3	**Rochester Public Utilities AMI Project**
Organization/Agency:	Rochester Public Utilities, Rochester MN
Contact Person:	Lawrence Scheel AMI Operations Supervisor
Telephone:	507.316.4247
Email:	Lscheel@rpu.org
Relevant Team Members:	Thomas Essman
Reference #4	**Gainesville Regional Utilities AMI Project**
Organization/Agency:	Gainesville Regional Utilities, Gainesville FL
Contact Person:	Doug Hoffman AMI Operations Manager
Telephone:	Office: 352.393.7022 Cell: 352.681.3027
Email:	hoffmandj@gru.com
Relevant Team Members:	Thomas Essman, Tammy Schmidt

4. Project Related Experience & Qualifications

4.1 Ability to Address Project Goals

Our Team's approach to AMI and AMR projects is built on a foundation of flexibility, scalability, and innovation. We recognize the diverse needs of TXShare's member entities and have developed a comprehensive strategy to address project goals effectively.

Versatile Metering Solutions
We leverage extensive expertise in infrastructure challenges to deliver adaptable metering solutions tailored to diverse environments. By utilizing existing meters and infrastructure wherever possible, we reduce costs, minimize disruptions, and enhance compatibility with current systems, ensuring seamless integration and maximizing the value of prior investments.

Our solutions are compatible with various pipe materials, configurations, and installation conditions, from underground residential systems to complex industrial metering vaults. This approach streamlines implementation, shortens lead times, and reduces financial burdens on TXShare members.

We address critical challenges such as regulatory requirements, temperature fluctuations, and environmental constraints, ensuring reliable operation across TXShare's diverse membership. Flexible configurations—including fixed-network, cellular, and hybrid systems—allow members to choose options that fit their operational needs while leveraging existing infrastructure.

This combination of adaptability, resilience, and integration supports TXShare's goals for operational efficiency and water resource management. Our cost-effective, scalable, and future-ready solutions provide long-term reliability and performance.

Expert Integration and Advanced Analytics
Our team's expertise ensures seamless AMI integration, enabling TXShare members to transition efficiently to advanced metering systems. Backed by over 600 digital practitioners and data scientists, we deliver tailored solutions in system architecture, integration, and analytics, ensuring compatibility with diverse billing, customer service, and data management platforms while minimizing disruptions and optimizing performance.

Our robust solutions provide real-time data access, enabling members to monitor water consumption, detect leaks, and forecast demand trends. Leveraging AI and machine learning, we offer predictive maintenance and performance enhancements, reducing downtime and repair costs.

By integrating secure data protocols such as blockchain and end-to-end encryption, we enhance reliability and ensure compliance with regulations. Advanced analytics features include automated alerts, seasonal trend analysis, and interactive dashboards for informed decision-making and strategic planning.

For cities transitioning to smart systems, we incorporate digital twins to simulate scenarios, optimize performance, and improve resource allocation. Additionally, Smart SCADA systems extend traditional capabilities with IoT, remote monitoring, and machine learning, enabling real-time anomaly detection, pressure management, and leak control.

Our smart water platforms unify data from AMI, SCADA, and IoT sources, offering insights on demand forecasting, water quality, and compliance tracking. These centralized solutions support data-driven decisions and enhance customer satisfaction.

By integrating digital twins, Smart SCADA, and advanced analytics, we deliver future-ready solutions that ensure operational efficiency, cost reduction, and system resilience while maintaining secure data management.

Scalability and Phased Implementation
Our approach ensures seamless integration and continuous system evolution, enabling TXShare members to transition smoothly to advanced water metering solutions tailored to current and future needs. By focusing on flexibility, strategic growth, and operational resilience, we deliver solutions that adapt to diverse requirements.

Phased implementation begins with assessments to identify infrastructure needs, followed by tailored plans that minimize disruptions. Pilot testing in limited areas refines configurations, while incremental rollouts prioritize high-need areas, allowing for phased scaling. Continuous feedback refines strategies to address challenges in future phases.

Scalability is achieved through a modular system architecture that supports seamless expansion and integrates with fixed networks, cellular platforms, and hybrid technologies. Future-proof designs incorporate IoT devices, AI analytics, and flexible capacity planning to ensure long-term adaptability. Continuous data integration, including weather data and leak detection, enhances resource management with AI-driven insights, while upgraded portals provide advanced reporting, personalized tips, and multilingual access.

Core capabilities include predictive maintenance, demand monitoring, and water quality analytics, enabling proactive system management. Integration with broader utility networks fosters unified resource management and sustainability through features like water conservation and non-revenue water loss reduction.

Our approach ensures adaptability, cost efficiency, future readiness, and operational resilience, empowering TXShare members to optimize water management and achieve long-term success.

Cost-Effective Financial Model
We deliver cost-effective AMI solutions through tailored financial models that ensure TXShare members of all sizes can access advanced metering technologies without financial strain.

Performance Contracting ties project costs to measurable outcomes, such as reduced water loss, improved efficiency, or enhanced customer satisfaction, ensuring value creation while minimizing financial risk.

Flexible "As-a-Service" Models transform capital expenses into predictable operational costs:

- **Network-as-a-Service (NaaS)**: We manage AMI communication infrastructure deployment, maintenance, and upgrades, minimizing upfront costs while ensuring uninterrupted service.
- **Software-as-a-Service (SaaS)**: Cloud-based data management platforms provide robust tools on a subscription basis, eliminating hardware investments and delivering regular updates.
- **Metering-as-a-Service (MaaS)**: Usage-based fees cover AMI hardware, installation, maintenance, and upgrades, lowering entry barriers for smaller entities.

Phased Rollout Pricing aligns costs with project milestones, enabling incremental scaling and budget predictability. Customized financing options, such as tiered pricing, deferred payments, and group purchasing discounts, enhance affordability.

By combining performance-based models and as-a-service options, we offer scalable, sustainable, and cost-effective solutions that empower TXShare members to implement AMI systems with long-term benefits for their communities.

Comprehensive Installation, Training, and Support:
Our combined resources – GHD and UA – ensure seamless installation, training, and ongoing support across TXShare's member entities. We provide detailed training programs tailored to the specific operational requirements of each member, empowering staff to operate and maintain the systems effectively. Additionally, our dedicated support teams are available to address technical issues promptly, ensuring minimal service disruptions and a consistent, reliable experience for all stakeholders.

Through this multifaceted approach, we are confident in our ability to meet TXShare's project goals. By combining infrastructure expertise, cutting-edge AMI technologies, and a focus on scalability and cost efficiency, we deliver solutions that enhance water management, operational efficiency, and customer satisfaction across TXShare's diverse membership.

4.2 Addressing Key Challenges

The implementation of Advanced Metering Infrastructure (AMI) systems presents a range of challenges that require innovative solutions, technical expertise, and tailored approaches to meet the diverse needs of utility providers. From ensuring compatibility across varied environments to integrating advanced technologies seamlessly, each challenge must be addressed strategically to ensure successful deployment and long-term operational excellence.

This table outlines the key challenges associated with AMI projects, provides detailed insights into their impact, and highlights how the GHD and Util-Assist team's expertise and resources effectively address each issue. By leveraging cutting-edge technologies, scalable financial models, and industry-leading best practices, we deliver solutions that empower TXShare members to enhance efficiency, improve customer satisfaction, and achieve sustainable water management outcomes.

Challenge	Detail	Addressing Challenge
Procuring AMI Technology	– Selecting the right AMI technology requires evaluating meter types, network design, and vendor product roadmaps for long-term compatibility and lifecycle support, along with determining software requirements such as meter data management systems (MDMS) and customer portals to ensure seamless integration and effective operation.	– We define clear functional and technical requirements for AMI devices, systems, and networks to ensure compatibility, performance, and security for current as well as future needs. Competitive and defensible vendor selection processes, including weighted scorecards and service level agreements (SLAs), align technologies with program goals and cost efficiency, while field trials validate performance under real-world conditions. Ongoing collaboration with vendors and understanding of the latest technology ensures strong warranties, lifecycle support, and alignment with emerging technologies.
Addressing Multi-Environment Compatibility	– AMI systems must perform across diverse installation conditions, including varying pipe materials, meters, and locations in urban, rural, and industrial environments.	– GHD's infrastructure expertise ensures that AMI systems are compatible with a wide range of materials, configurations, and environmental conditions, from underground residential systems to complex industrial metering vaults. – We conduct detailed site assessments to customize solutions that meet specific local requirements while complying with regulatory standards. – The team leverages predictive analytics and machine learning tools to understand current and future performance, ensuring reliability across diverse environments.
Integrating Data and Standardizing	– Seamless integration of AMI systems with existing billing, customer service, and data platforms is critical for operational efficiency.	– We utilize their extensive experience in system architecture and integration to ensure AMI systems and RFP requirements are compatible with a wide variety of platforms, reducing the risk of disruptions. We employ API-driven frameworks and open standards to streamline the integration process and allow for future scalability.

Challenge	Detail	Addressing Challenge
		– Near real-time data management capabilities provided by smart SCADA and smart water platforms enable standardized data collection and secure transmission, enhancing system interoperability and functionality.
Implementing Phases and Scalability	– Rolling out AMI systems across entities with varying readiness levels and budgets requires a phased approach that accommodates scalability.	– Our phased implementation strategy includes pilot testing to identify potential issues and optimize configurations before full-scale deployment. – The team designs modular system architectures that allow for incremental upgrades, enabling members to expand their AMI capabilities at their own pace. – By leveraging performance contracting and as-a-service models (NaaS, SaaS, and MaaS), we offer flexible financing options to support phased rollouts.
Ensuring Cost Efficiency	– High upfront costs and operational expenses can be prohibitive for many entities.	– We capitalize on economies of scale to minimize costs while maintaining high-quality standards. – Our tailored financial models, including MaaS and SaaS, transform capital expenditures into predictable operational costs, making AMI systems accessible to entities of all sizes. – Data-driven insights from predictive analytics and digital twins help reduce maintenance costs and optimize resource allocation, ensuring long-term financial sustainability.
Optimizing Predictive Maintenance and System Reliability	– Ensuring continuous system functionality while minimizing downtime and repair costs.	– We deploy AI-driven predictive maintenance tools to analyze historical and real-time data, identifying potential issues before they lead to system failures. – Advanced analytics platforms enhance operational insights, enabling proactive decision-making and resource management. – Comprehensive training and technical support ensure TXShare members are well-equipped to address operational challenges and maintain system reliability.
Maintaining Customer Engagement and Satisfaction	– Engaging customers with tools that provide clear, actionable information about their water usage and costs.	– We enhance intuitive customer portals and mobile apps with features like real-time usage monitoring, alerts for leaks or high consumption, and personalized conservation tips. – By leveraging our expertise in user-centric design, we enhance the accessibility and effectiveness of customer-facing tools, improving user satisfaction and engagement.
Redesigning Business Processes to Leverage AMI Data	– Leveraging near-real-time AMI data requires transforming legacy processes, including meter reading, billing, customer service, and field operations, to maximize efficiency, improve decision-making, and enhance operational effectiveness.	– We revise major business processes to fully utilize AMI data, automating operations such as high bill reviews, final billing, and leak detection. Collaborative workshops identify operational challenges and define future-state processes, ensuring alignment between roles and technology needs. – Employees are trained to effectively use AMI data for decision-making, customer support, and policy enforcement. Comprehensive documentation and training programs ensure new processes are clearly communicated, consistently implemented, and seamlessly integrated into daily operations.

Challenge	Detail	Addressing Challenge
Complying with Regulatory and Security Requirements	– Ensuring that AMI systems adhere to regional and national regulations while maintaining data security.	– Our solutions integrate secure data handling protocols with end-to-end encryption and compliance monitoring tools to safeguard sensitive customer and operational data. – Our Team's regulatory expertise ensures that all components of the AMI system meet or exceed regional and national standards, including cybersecurity requirements.
Managing AMI Deployment	– AMI deployment requires careful coordination across teams, vendors, and technology systems, with pilots, quality control, and customer service playing a critical role in ensuring smooth deployment and customer acceptance.	– Detailed deployment planning aligns meter replacements with billing cycles, ensuring proactive coordination across departments. AMI pilots facilitate testing, issue resolution, and readiness assessment to mitigate risks and streamline mass deployment. – Streamlined reporting tracks deployment progress, while quality control checks validate installations and escalation processes address customer service issues efficiently. Comprehensive training for staff and contractors ensures professionalism and consistent communication with customers throughout the deployment process.
Realizing the Full Benefits of AMI	– Achieve near-total AMI saturation by addressing infrastructure issues and non-transmitting meters, ensuring customer engagement with AMI tools like portals and alerts, and leveraging AMI data for advanced analytics to drive operational efficiency and financial gains.	– We address remaining non-AMI meters by resolving weak signals, broken valves, and opt-out scenarios through targeted repairs and upgrades while continuously monitoring AMI devices to ensure proper maintenance, minimize non-transmitting meters, and maintain data reliability. – Comprehensive outreach campaigns and incentives drive customer registration on AMI portals, fostering proactive conservation. Advanced analytics optimize water resource management, identify leaks, improve billing accuracy, and enforce conservation goals, supported by robust SLAs and a center of excellence for AMI data governance and continuous improvement.

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Addressing Key Challenges through Key Questions

Our approach to AMI projects is designed to address the diverse challenges utilities face by asking and answering targeted key questions. These challenges range from multi-environment compatibility and data integration to customer engagement and long-term operational sustainability. By focusing on precise questions, we can identify critical needs, streamline processes, and ensure the seamless integration of AMI technology. This method allows us to proactively address risks, align solutions with organizational goals, and deliver a future-ready AMI system that maximizes operational efficiency, customer satisfaction, and financial sustainability. The questions are identified in the Section 5 Technical Approach.

4.3 Meeting Solution Requirements

The Team will ensure the proposed solution meets TXShare's diverse membership requirements through the following strategies:

Requirement	Strategy
Compatibility	– Evaluate and recommend solutions that support multiple communication technologies (e.g., AMI, AMR, fixed, cellular) to adapt to varying infrastructure conditions. – Conduct an assessment of TXShare members' current systems to ensure seamless integration and interoperability.
Pricing Structure	– Develop tiered pricing models offering cooperative percentage discounts tailored to member size and project scope. – Provide flexible financing options and business models to support phased implementations, aligning with members' financial capacities.
Data System and Security	– Implement robust data security measures, including AES encryption and compliance with multi-jurisdictional regulations, ensuring secure data transmission and consumer protection. – Regularly audit data systems to maintain security standards.
Maintenance and Support	– Provide a structured maintenance program, including system monitoring, software updates, hardware repairs, technical support, and performance reporting. – Establish SLAs for uptime, response time, and service quality.
Performance Guarantee and Warranty	– Lobby for comprehensive warranties covering all AMI components, ensuring long-term reliability and system accuracy. – Include performance guarantees tied to measurable outcomes (e.g., read success rates, data accuracy).
Customer Engagement	– Ensure the delivery of a customer portal with features like daily and historical water usage views, alerts for leaks/high consumption, and account management. – Enhance engagement through tools like mobile apps, SMS notifications, and personalized usage reports.
Training	– Develop a detailed training plan for staff, including system operation, troubleshooting, and data interpretation. – Offer ongoing support to ensure smooth implementation and continuous improvement.
Scalability	– Design solutions with modular architecture to support future growth in meter count and data volume. – Use scalable hardware and cloud-based software to accommodate expanding system needs.
Data Analytics and Reporting	– Provide advanced analytics tools for actionable insights, including demand forecasting, load management, and usage pattern analysis. – Customize reporting dashboards to suit the needs of different TXShare members.
Disaster Recovery and Business Continuity	– Implement disaster recovery plans with backup systems and redundancy to ensure continuous operation during emergencies. – Develop business continuity strategies to minimize downtime and protect critical data.
Pilot Testing	– Conduct pilot programs in controlled environments to validate system performance, identify issues, and refine configurations before full deployment. – Collect feedback during pilot testing to adjust the implementation for broader rollout success.

Through these strategies, the GHD Team has delivered solutions that are compatible, secure, scalable, and customer focused. We need to apply the same for TXShare's operational and strategic objectives, and its member cities.

Project 1	**Water Meter Program Strategy, Options for Failures of Meter Transmitting Units, and MTU & Meter Standards** | Toronto, Ontario, CAN
Project Description	Toronto Water, responsible for providing clean water to residents and businesses, generates most of its revenue from accurate water meter readings, which ensure fair billing. From 2010 through 2015, Toronto implemented an automated meter reading (AMR) system using Meter Transmission Units (MTUs) to enhance efficiency and accuracy by transmitting data from water meters to a central system. However, during the last few years over 30% of these MTUs have failed prematurely, starting around year 13, despite an expected lifespan of 20 years. Toronto Water has been experiencing approximately 5,000–8,000 failures monthly and this rate of failure does not appear to be abating. These failures have caused billing inaccuracies and operational challenges, exacerbated by global supply chain delays in obtaining replacement units. As a result, many customers receive estimated bills, potentially leading to incorrect charges and dissatisfaction, necessitating immediate intervention to restore reliable data and ensure fair billing practices. GHD has been retained to evaluate the replacement strategy for MTUs, establish MTU and meter standards, create a water meter program strategy, and roadmap for aligning MTU replacements, AMI 2.0 deployment of nearly 500,000 connections, and integration of an off-the-shelf billing system while aligning with Toronto Water's smart water system initiative. This initiative includes the deployment of over 5,000 smart sensors in the distribution system and a smart water platform to create a digital twin. **Challenges addressed by GHD include:** GHD is undertaking a strategic review of the water meter program to explore options for modernizing the existing infrastructure, integrating advanced technologies, and enhancing the program's alignment with future water management goals. Challenges include the following: – **Infrastructure and deployment**. Deploying AMI in a dense urban environment like Toronto presents logistical challenges, such as installing meters in difficult-to-access locations like basements and ensuring reliable communication in areas with signal interference. – **System integration and interoperability**. Integrating AMI 2.0 with existing systems, such as billing (40+-year-old, in-house solution), customer service, and asset management to minimize disruptions. – **Data management and analytics**. Integrating a meter data management system to optimize disparate/segregated data sets to leverage analytics to optimize operations. – **Failing meter transmission units (MTUs)**. Potential delays to the deployment of AMI 2.0 due to addressing the immediate needs of mitigating MTU failures. – **Mechanical vs. static meters in basements.** Changing mindset of static meters to withstand freezing conditions and potentially harsh basement environments (i.e., high humidity) along with concerns of useful life due to batteries.
Client:	City of Toronto, CAN – Toronto Water
Technologies Used:	Aclara Communication Network; Neptune and Sensus Meters; and In-house Billing System
Results:	Recommendation of replacement of failed MTUs to focus on targeted customer like ICI accounts and high-risk residential accounts, and integration of AMI 2.0 of a fully deployed system in 2030 will restore accurate water meter readings, reducing reliance on estimated bills. The modern billing system will align seamlessly with AMI 2.0, improving billing workflows and reducing errors. The near real-time insights from the digital twin and AMI 2.0 will allow for predictive maintenance, leak detection, and demand management.
Relevant Team Members:	Freddie Guerra, Rick Relyea, Ken Molli, Bhavin Bhayani, Edgar Johnson, and Jose Diaz

Project 2	Owner's Representative for AMI Project | Anaheim, CA
Project Description	The City of Anaheim has over 65,000 water meters across the City, generating substantial annual revenue and enhancing the accuracy of water billing. GHD is supporting the City through the validation of the business process needs and business case to prepare specifications for an AMI 2.0, along with overseeing the pilot program and mass deployment. GHD prepared an AMI Feasibility Study, solicitation documents, and assisting with vendor negotiations. The Team will oversee the deployment of meters over a 3 year period. **Challenges addressed by GHD include**: – **Infrastructure and deployment**. Deploying AMI in a dense urban area with potential constraints from the nearby Disneyland Resort. – **System integration and interoperability**. Integrating AMI 2.0 with existing systems, such as billing, customer service, and asset management to minimize disruptions. – **Data management and analytics**. Integrating data into an existing electric meter data management system to optimize disparate/segregated data sets and leverage analytics to optimize operations and empower employees and customers.
Client:	City of Anaheim, CA – Public Utilities Department, Water Services Division
Technologies Used:	Aclara Communication Network; Badger, Neptune, and Sensus; Siemens; and eMeter Energy IP
Results:	Customers will gain access to real-time water usage data, enabling them to make smarter water decisions and reduce waste. Unified data management that integrates water and electric meter data, reducing silos and improving analytics for decision-making. Analytics tools will enable staff to make informed decisions, improving planning, engineering, and maintenance processes.
Relevant Team Members:	Freddie Guerra, Rick Relyea, Ken Molli, Bhavin Bhayani, Edgar Johnson, and Jose Diaz
Project 3	**AMI and CIS Projects**
Project Description	Gainesville Regional Utilities (GRU) is a multi-service utility offering water, wastewater, electric, telecommunications, and gas services to approximately 93,000 homes and businesses in the City of Gainesville and surrounding area. The fifth-largest municipal utility in Florida, GRU has approximately 73,000 water customers, 93,000 electric customers, and 13,000 gas customers. GRU pursued two significant IT projects simultaneously: the deployment of smart metering, beginning in 2022, and the implementation of a new customer information system (CIS). Util- Assist acted as the project's AMI consultant, providing subject matter expertise and representing GRU's interests as it interacted with the various vendors that provided and configured the new IT systems. Services provided by UA included: – **AMI, MDM, and installation vendor procurement support for gas, water, and electric**. Util-Assist managed the procurement of the AMI solution, MDM, and meter installation services for gas, water, and electric. This included developing and validating requirements and establishing evaluation criteria. Util-Assist further supported the GRU evaluation team by creating evaluation templates, responding to questions from evaluators, reviewing the vendors' responses, and facilitating consensus scoring. Once a shortlist was determined, Util-Assist coordinated vendor demonstrations and created demo scripts to ensure critical functionality was covered. – **Contract Negotiation Support**. Util-Assist advised GRU throughout the development of the master service agreements and statements of work. – **Systems Integration and Program Management**. Util-Assist provided services to develop and test the interfaces between the new systems and the existing utility infrastructure. – **Deployment Support and Program Management.** Util-Assist supported GRU through the planning stage and initial startup of the AMI deployment.

Client:	Gainesville Regional Utilities
Technologies Used:	Itron Gen5 Riva platform (head-end system, network, and meters), SAP customer information system
Results:	Transformed Gainesville's metering operations with the goal of enhancing customer service and operational efficiency. Providing a platform for future analytics and advanced capabilities for the citizens of Gainesville. The unified AMI for all commodities delivers economies of scale and enables streamlined processes.
Relevant Team Members:	Thomas Essman, Tammy Schmidt

4.4 Overview of GHD

GHD recognizes and understands the world is constantly changing. Since 1928, we are committed to solving the world's biggest challenges in the areas of water, energy, and urbanization.

GHD Digital. GHD has over 600 digital practitioners who gather data and generate insights to help water infrastructure assets last longer, work smarter, perform better, and use less energy. GHD Digital helps clients predict how assets will behave to optimize capital programs and identify opportunities to operate more sustainably. Leveraging the Internet of Things (IoT), SCADA, and AMI, GHD can enhance off-the-shelf products or build customized applications to improve reliability, support advance warning systems, and reduce costly unplanned shutdowns. In addition, GHD's digital twin capabilities can drive decisions with data for highly efficient, reliable assets and systems.

As part of our digital offering, GHD cybersecurity services are designed to help organizations understand their current cybersecurity posture and address regulatory obligations. For instance, GHD Digital's Cyber and Risk Centre of Excellence (CoE) assists clients in building vigilant, resilient, and secure operations by providing a holistic and proactive approach that combines technology, human expertise, and collaboration.

Our digital practitioners are leveraged on AMI projects to enhance data-driven decisions, operational efficiency, data accuracy, and customer engagement.

GHD Water. GHD has extensive expertise in water and wastewater engineering and planning. Our capabilities include integrated water resource management, stormwater management, flood modeling and mitigation, storage, treatment, distribution, and collection system design. We offer services in water supply planning, hydraulic modeling, and advanced treatment technologies for drinking water and wastewater systems.

GHD's approach emphasizes sustainable and innovative solutions, leveraging cutting-edge technologies like GIS and smart infrastructure systems. We support clients with asset management, regulatory compliance, and climate resilience planning, ensuring long-term operational efficiency and adaptability to changing environmental and community need.

Our water engineers can play a critical role in AMI projects, contributing their expertise in system design (i.e., treatment, storage, distribution, and collection systems), data management, and operational improvements to bring AMI infrastructure, data, and insights into the other systems. Their involvement may span several stages of the project, ensuring the successful implementation, operation, and maintenance of AMI systems.

GHD AMI. Over the past two decades, AMI has changed the face of the utility industry – eliminating or reducing manual meter readings, improving interval data capabilities, and enabling two-way communication between water and electricity providers and consumers. While these capabilities were groundbreaking at the time of deployment, many first-generation components now lack the digital and technological maturity needed to adequately address the challenges of the current business landscape.

In response to these evolving challenges, GHD created a specialized AMI Consulting Services offering to help municipalities and utilities design, build, and integrate an advanced metering system enabling AMI refresh and initial deployments. The offering incorporates smart metering, smart analytics, and smart grid capabilities to drive organizational efficiency, enable new services, and address a wide range of complex regulatory, environmental, and security challenges.

The AMI Consulting Services team integrates water and digital specialists from across GHD's global footprint to collaborate on projects and provide thought leadership to the water industry. GHD leverages proven approaches and processes to minimize impact on customers, as well as complaints.

GHD Advisory. Built assets are essential to our lives – from the transportation we use, the buildings we work in, the treatment plants and networks delivering drinking water, collecting wastewater and stormwater, and the grids delivering power to us. These assets need to be properly maintained to deliver uninterrupted service to customers.

Due to many factors, our world is putting increased pressure on these assets, and failure or underperformance is often the result. Effective asset management is crucial to manage risks, ensuring long-term performance and value of our clients' assets. We combine our technical experience, depth of asset knowledge, advisory skills, and leading digital capabilities to bring a unique integrated proposition to the water sector.

Our consultants play a key role in AMI projects by providing strategic guidance, change management, and operational support to ensure the project's success. Their expertise is critical in navigating the complexities of largescale implementations, aligning stakeholders, and maximizing the return on investment.

Subconsultant | Utili-Assit.

GHD will be support by our partner – Utili-Assist. This partnership allows both companies to present a unique, integrated value proposition that differentiates us in the competitive utility AMI consulting market. By offering a holistic suite of engineering, environmental, and digital solutions, we can position ourselves as leaders in AMI consulting and implementation.

Established in 2005, and now a leading consulting and managed services company specializing in technology and data-driven solutions for electric, water, and gas utilities across North America. The company has been at the forefront of the smart grid movement, assisting over 90 utilities in procuring, deploying, and integrating Advanced Metering Infrastructure (AMI) and associated solutions.

Util-Assist's offerings encompass professional services such as strategic planning, project management, systems integration, and AI-powered predictive analytics. Their managed services include PowerAssist, a 24/7 contact center, CustomerAssist, a managed billing and back-office services offering for water utilities, and SecureAssist, providing intelligent critical asset surveillance. By merging technology with strategy, Util-Assist aims to streamline processes, boost productivity, enable data-driven decision-making, and enhance customer experiences, thereby transforming city operations and delivering greater value to customers.

5. Technical Proposal

Many NCTCOG member cities implemented automated meter reading (AMR) systems 15 years ago. This technology is quickly approaching the end of its useful life—utilities are seeing an increasing rate of battery failures, and vendors are investing fewer research and development dollars in this space. For cities that rely on manual meter reading, labor costs continue to increase, and the manual process of reading meters and entering data is error-prone – which can result in inaccurate bills being sent to customers.

Cites are increasingly deploying advanced metering infrastructure (AMI), which transmits hourly water consumption data. This information is helpful to customers because it can help them conserve water and manage the size of their bill. It's also helpful to the City, as it can help them proactively notify customers of leaks, reduce operational costs of meter reading, and enforce conservation goals or mandates.

The Team has developed and refined a proven approach for water AMI deployments. This methodology positions water utilities for a successful program from initial AMI viability assessment through mass deployment and benefit realization.

5.1 Defining the Strategy and High-Level Plan for AMI

Cities implement AMI for reasons such as failing AMR systems, conservation, high bill mitigation, inaccurate meter readings, regulatory mandates, or staff turnover. Once the need for AMI is established, detailed program planning begins.

AMI programs impact nearly all functions, from meter installation to customer billing, requiring coordination across vendors, internal teams, and new software. A steering committee with executive-level representation (field services, engineering, technology, billing, customer service, and public affairs) is essential for decision-making, risk management, and accountability.

The GHD Team will develop a comprehensive deployment plan outlining tasks, responsibilities, timelines, and dependencies. After approval from the steering committee, this plan will guide deployment activities and ensure accountability.

5.1.1 Activities

- Establish an AMI steering committee to oversee the program.
- Define success criteria, identify risks, and outline responsibilities.
- Develop a detailed deployment plan, including workstreams, timelines, and dependencies.
- Create and implement a detailed customer communications plan in conjunction with utility to get customer buy-in for the investment and cooperation in the deployment field services and utilization of the technology.
- Create a geographic deployment plan, prioritizing by meter reading routes, infrastructure conditions, and safety considerations.
- Review and manage the technology deployment plan, mitigating risks.
- Track progress, report status, and manage accountability through the AMI project plan.
- Address job impacts proactively, including reclassifications and training.

5.1.2 Addressing Challenges Through Key Questions

- What goals drive the AMI program, and how does it support City operations?
- Who will be on the steering committee, and how often will they meet?
- How will AMI devices be procured and installed (in-house or vendor)?
- How will meter access for indoor and commercial meters be managed?
- What is the software integration and testing process?
- How will staff be trained to install and maintain AMI devices and use AMI data?

5.2 Assessing Meter Types, AMI Compatibility, and Infrastructure Conditions

To estimate the fieldwork and equipment required for AMI deployment, the team will gather detailed information on existing assets, including meters, boxes, lids, and valves. In cities with manual meter reading, asset conditions are generally known. However, in AMR cities, meters may not have been touched for years, leading to issues such as unknown locations, buried boxes, and broken lids that must be addressed during AMI implementation.

5.2.1 Activities

- Conduct an infrastructure survey to document meter types, age, and the condition of boxes, lids, and valves.
- Select and survey a random sample of commercial and residential meters to identify required repairs.
- Assess meter compatibility with AMI and determine whether register replacements or full meter replacements are needed based on size and condition.
- Aggregate survey data to extrapolate findings to the overall meter population and estimate the volume of work needed.
- Perform field trials to time infrastructure upgrades and incorporate costs into program planning.
- Provide accurate sub-meter GPS coordinates during installation to enhance data integrity and prevent loss of institutional knowledge.

5.2.2 Addressing Challenges Through Key Questions

- What meter types are installed, and how many need replacement or upgrades?
- Are meters nearing end-of-life or under-registering, and should they be replaced early?
- Are meter boxes, lids, and valves in good condition, standardized, and accessible?
- Will AMI endpoints communicate effectively through lids, or will modifications be required?
- Are service-side and customer-side valves in place, and are safety considerations like traffic control necessary?

5.3 Calculating AMI Costs and Savings

AMI costs are front-loaded during deployment and include hardware (meters, radios, towers, data collectors), software (meter data management, analytics, customer portals), labor, and project management. Long-term costs include replacements, warranties, leased tower space, technology maintenance, and personnel to manage the system.

Savings begin post-deployment and include reductions in labor (meter reading, field investigations, truck rolls), water loss, printing/postage for high bills, and call handling costs. Cities utilizing remote disconnect capabilities can achieve further savings, though these meters are more expensive and have operational constraints.
Activities

5.3.1 Activities

- Obtain cost and lifecycle estimates for hardware and software, updating them during vendor selection.
- Determine deployment timeframes and labor requirements (in-house vs. contractor).
- Estimate costs for infrastructure repairs and new roles to support AMI operations.
- Quantify savings from reduced labor, vehicle use, and improved operational efficiency.
- Validate costs and savings with stakeholders.
- Highlight customer benefits, including billing accuracy, leak alerts, and self-service tools.

5.3.2 Addressing Challenges with Key Questions

- What are the useful life and warranty terms for AMI devices and networks?
- How long will deployment take, and when will savings be fully realized?
- What failure rates are expected for devices?
- How will customer communications and call volumes impact costs?
- What activities will be handled in-house versus outsourced?
- What labor, vehicle, and greenhouse gas savings will AMI achieve?
- Will the city adopt a maintenance model (e.g., NaaS) or perform maintenance in-house?

5.4 Evaluating Telecommunication Networks

The telecommunications network connects meters or data collectors to the city, using either mesh networks (data hops between nodes to reach a collector) or point-to-multipoint networks (direct transmission from meter to collector). The ideal network architecture depends on a City's service area, customer density, topography, battery life requirements, and future network needs (e.g., smart city applications). Cities have a variety of telecommunications network design and ownership options, including:

- Private: Built, owned, and operated by the city
- Shared/piggyback: Leverages the network of a regional gas/electric provider
- NaaS: Owned by the city, operated and maintained by the AMI solution vendor
- Cellular: Leverages the network of an existing cellular provider, such as Verizon or AT&T
- LoRa/LoRaWAN (Long Range or Long-Range Wide Area Network) and similar Internet of Things (IoT) technologies: Operated by the city on an open, vendor-agnostic network

Privately-owned networks are the most common across the electric, gas, and water industries. Regulatory agencies and city councils recently have encouraged their utilities to evaluate shared/piggyback networks, with the goal of preventing the construction of redundant telecommunications networks across the same geography. Shared networks are great in concept, particularly for water utilities that have smaller operations or do not want the responsibility of maintaining a telecommunications network. Shared networks, however, have not been proven on a wide scale, and the economics of pricing a shared network competitively are challenging because the telecommunications infrastructure is only a small fraction of total AMI program costs.

Cities are increasingly opting for NaaS agreements as they maintain ownership of the AMI infrastructure and fully leverage the vendor's expertise in maintaining optimal network health without developing extensive in-house proficiencies in telecommunications. Pricing of NaaS agreements has become more competitive, and vendors typically provide service levels that meet or exceed what a city would be capable of in-house.

5.4.1 Activities

- Assess existing telecommunications assets (e.g., SCADA, video surveillance, cellular backhaul, tank/tower sites).
- Conduct a high-level propagation study to evaluate topography, city-owned assets, and customer density, refining findings during the vendor bid process.
- Explore potential for shared networks with local gas/electric utilities using preferred technologies.
- Evaluate emerging technologies like cellular and LoRa based on city needs and interest in innovation.
- Analyze pros and cons of each network type and establish knockout criteria.
- Match service territory characteristics with preferred AMI vendors and telecom solutions.

5.4.2 Addressing Challenges with Key Questions

- What is the city's preferred network architecture (mesh or point-to-multipoint)?
- What assets does the city own or control that will assist with the build-out of a communications network?
- Will AMI cover all areas, or are some remote terrains unsuitable?
- What network options support the preferred AMI technology in the region?

- What spectrum frequency will be used, and how will it impact interference, battery life, and transmit power?
- How quickly can devices be deployed, and what design/testing is required?
- What is the longevity of each network design, and how does it impact program costs, savings, and vendor warranties?
- How will data transfer to the meter data management system be handled?
- What is the process for firmware upgrades, and how will it affect battery life?
- Can the network support additional services like video surveillance or system monitoring?
- Will the entire service territory be covered, and by a single provider?
- How can the network maximize redundancy?
- What service-level agreements will ensure timely, quality data relay for non-private networks?
- How viable are emerging networks and their vendors?

5.5 Procuring AMI Technology

Three key factors differentiate AMI vendors: the types of meters they support, their network architecture design, and their product roadmaps. Some vendors provide an all-in-one AMI meter in which the AMI radio is integrated with the meter body. Others provide an external radio/antenna that is mounted within a meter pit or drilled through the pit lid. The best vendor roadmaps include commitment to ongoing research and development, plans for ancillary offerings (e.g., sensors, smart city solutions, alarms), and support AMI products through 15- to 20-year lifecycles with strong warranty commitments.

In addition to AMI hardware, supporting software will be necessary, including a network management system (also known as a headend system), meter data management system (MDMS), and customer portal. The network management system tracks the status of AMI radios and data collectors in the field, and will identify which devices are not communicating, or have other events/alarms such as a low battery. The MDMS is a repository for incoming interval meter reads, which the customer information system will reference to obtain reads for billing. The customer portal is a front-end system that customers can log into and view their consumption, subscribe to high usage alerts, and manage their account.

5.5.1 Activities

- Define AMI functional requirements (e.g., automated reads with 99.5% success rate, battery-health alarms, reverse flow indicators).
- Specify technical requirements (e.g., AES 256 encryption, device authentication, ban lists).
- Identify requirements for supporting systems (e.g., network management, meter data management, customer portal).
- Issue an RFP to confirm compliance with requirements and obtain pricing for devices, software, and services.
- Use a weighted scorecard to select vendors based on requirements and pricing.
- Define service-level agreements (e.g., read success rates, vendor commitments) during the bidding process.

5.5.2 Addressing Challenges with Key Questions

- What is the City's preferred AMI design for residential and commercial/industrial meters?
- How often will meter reads be pulled, and what read-success rate is required? Will on-demand reads be available, and how will this impact battery life?
- What battery warranty is required (e.g., 13, 15, or 20 years)? Will it cover full replacement or prorated credit?
- What events and alarms are needed, and when should low-battery alarms be sent (e.g., 3 or 6 months)?
- What credits will vendors provide for failing to meet service-level agreements?
- Does the city prefer on-premises software or SaaS solutions?
- How many concurrent users must the software support?

- What analytics and reports are required from the meter data management system (MDMS)?
- How will customers be alerted to high or continuous consumption, and what thresholds/configurations can they set?

5.6 Seeking Council or Regulatory Approval

Even in cases where water AMI programs do not produce a net positive financial benefit, many Cities and regulatory bodies view AMI as a worthwhile investment. When estimating the impact of a City's AMI program and communicating with regulators, call attention to the improved customer service provided with AMI, proactive high/continuous usage alerts, improved safety in the field, enhanced metering/billing accuracy, reduction in greenhouse gases, and better water conservation afforded by AMI.

5.6.1 Activities

- Develop an AMI education document highlighting benefits for the city, customers, and society, and communicate proactively.
- Facilitate meetings with external stakeholders (e.g., council members, regulators) to review the strategy and address concerns.
- Share the tentative strategy with union leadership early to plan for job impacts.
- Prepare a comprehensive report summarizing evaluation, costs, and key details for council or commission applications.

5.6.2 Addressing Challenges with Key Questions

5.7 Redesigning Business Processes to Leverage AMI Data

To realize the benefits of AMI, Cities must change the way they operate. AMI impacts almost every area of the City: the contact center, billing, meter reading, field services, and technology. Starting with a City's major processes (e.g., reading meters and billing) and the City's most painful processes, the Team will discuss how AMI can be used to make operations more efficient. Now that the City has access to nearly real-time reads, they can review high bills in the office rather than dispatching a truck, proactively notify customers of continuous or high consumption, process final bills using actual reads (rather than estimated), leave water service on between customer move in/outs, enforce conservation mandates, and modify rate design. New and changed processes will also require changes to technology such as revising the upload process to incorporate AMI reads and annotating outbound leak alerts within the customer information system.

5.7.1 Activities

- Form an AMI working team with management and front-line representatives from each department.
- Identify business processes impacted by AMI and opportunities for efficiency improvements.
- Design future-state processes using AMI data, defining roles and technology changes.
- Document and communicate new processes and required technology updates.
- Train employees on updated workflows and tools.
- Request necessary technology enhancements (e.g., reports) to support AMI.
- Evaluate role impacts (e.g., meter reading) and reassign responsibilities, such as AMI device maintenance or network monitoring.

5.7.2 Addressing Challenges with Key Questions

- How will AMI devices be monitored, maintained, and troubleshooted after installation?
- How will AMI reads integrate into the billing system?
- How will customer service and billing use AMI data to handle inquiries and high bill exceptions?
- What will the move-in/out process look like with AMI, and will water be turned off between customers?
- How will customer service processes differ between AMI and non-AMI accounts during deployment?

- How will employees be trained to identify leaks, and how will adjustment policies change with proactive alerts?
- How will AMI data address inactive accounts with consumption?
- How will AMI data support conservation goals? How will AMI devices be monitored and maintained after installation? Who will troubleshoot and reprogram devices?

5.8 Managing Customer Service Impacts

AMI programs are highly public and prone to customer scrutiny. By proactively educating customers about the benefits of AMI, sharing case studies and customer testimonials, and communicating with customers both pre-and post-installation, cities can gain support from their customers, community, and local elected officials. Cities begin seeing savings and operational improvements from AMI almost immediately. They can prompt near-immediate customer benefits as well through granular insights into customer bills and, when possible, leak alert push notifications. Customers can maximize their realized benefits by registering on the customer portal, interacting with and understanding their consumption data, and subscribing to high consumption/continuous usage alerts.

Cities with the highest level of AMI customer engagement conduct extensive education and outreach to register customers on the portal (e.g., asking to help register customers on every call, incentivizing registration with a one-time bill credit). Customers with portal access will receive nearly real-time usage alerts and can review their hourly water consumption and conservation goals.

5.8.1 Activities

- Develop an AMI outreach and communication strategy with fact sheets and FAQs available online and in public spaces.
- Update phone recordings to highlight AMI benefits and educate local officials and community groups.
- Collect and validate customer email addresses and send pre-AMI letters 30 days before installation.
- Create an opt-out policy with associated fees and update the customer information system accordingly.
- Post door hangers notifying customers of installation status and send welcome emails/postcards with portal registration details.
- Log all outbound communications in the customer information system for customer service reference.

5.8.2 Addressing Challenges with Key Questions

- Which local officials and community groups should be educated about AMI, and who will handle outreach?
- What opt-out options will be available, and how will opt-out meters be read (manual or AMR)?
- How will opt-out customers be tracked in the system, and what fees will apply for manual readings?
- What notification channels (email, text, push, robocall) will be available for high/continuous usage, and what outreach will be done for high consumption?
- How can customers be encouraged/incentivized to register for the portal?
- How will non-portal users be notified of high/continuous usage?

5.9 Managing AMI Deployment

Almost every meter will be touched during AMI deployment, making it an opportunity to deliver excellent customer service through proper planning and training. Field staff and contractors will receive training on professionalism, customer interactions, answering AMI questions, and escalating issues to ensure consistent, positive experiences. Detailed route planning will prevent disruptions to billing schedules, and clear processes for notifying, scheduling, and following up on installations will be established.

Deploying and integrating new software is a significant challenge, as AMI generates far more data than manual or AMR systems. New tools are needed for data storage, validation, reporting, and sharing to manage this increased volume.

Coordination across technology teams, field staff, customer service, elected officials, and customers is crucial. A pilot program will identify and address issues, refine processes, and establish criteria for

transitioning to mass deployment. A working session will follow the pilot to resolve issues and prepare for full deployment.

Streamlined reporting is essential to track key activities, including data collector installations, AMI endpoints, customer appointments, unresponsive devices, success rates, and customer service calls. This ensures clear oversight and effective deployment management.

5.9.1 Activities

- Procure permits or lease space for vertical assets and data collectors as needed.
- Establish processes for network maintenance and disaster recovery, including moving data collectors for routine tasks.
- Track deployment activities with daily/weekly/monthly reports and build or lease the AMI fixed network.
- Plan meter replacements to avoid billing disruptions and align with network activation.
- Deploy and integrate AMI technology (meter data management, network management, customer portal).
- Train field staff and contractors on professionalism, customer service, and AMI operations, and develop standard operating procedures for common and atypical field conditions.
- Create procedures for identifying and addressing post-installation issues (e.g., high/low usage, meter mismatch).
- Use an audit checklist to ensure proper installations, safety, and customer service standards.
- Conduct a pilot program with a few hundred devices to test systems, hardware, and processes, followed by a lessons-learned review to refine full deployment.
- Transition to mass deployment with geographic sequencing, conducting quality control checks on 10% of installations.
- Regularly communicate updates, risks, and speaking points to employees and the call center to address customer inquiries effectively.

5.9.2 Addressing Challenges with Key Questions

- What permits are needed for mounting data collectors, and how will ongoing access for maintenance be provided?
- How will network coverage be impacted by tank cleaning/painting, and can temporary poles or trailers be used?
- What disaster recovery measures are needed to address network disruptions (e.g., fires, hurricanes)?
- How will device installations and deployment progress be tracked, and what reports are required?
- How will technology functionality and system integration be tested?
- What training will vendors provide versus in-house training?
- What quality control will ensure proper installations, and what penalties will vendors face for errors?
- How will the city address unsuccessful installations (e.g., valve issues, unsafe conditions)?
- How will emergency and non-emergency breaks be handled during deployment?
- What size and scope will the AMI pilot cover, and what criteria will confirm readiness for mass deployment?
- How will AMI endpoint deployments align with network activation?
- How will vendor contracts and customer service escalations be monitored and managed?

5.10 Realizing the Benefits of AMI

As AMI programs come to a close, Cities oftentimes struggle with the last 2% of meters. These are usually the difficult meters that were skipped during deployment due to infrastructure issues or accessibility. To fully realize the benefits of AMI, Cities want the highest saturation of AMI possible, as non-AMI meters still must be manually read, and meter reading becomes costly and inefficient when randomly scattered throughout the service territory. Before closing out the AMI program, work to get every possible meter equipped with AMI, and confirm that all AMI devices are transmitting reads. Maintaining AMI devices (e.g., replacing batteries, reprogramming, fixing antennas) is an ongoing process, and field service representatives should be trained in these areas before program closeout. AMI vendor contracts should also be reviewed prior to closing out the AMI program to confirm that vendor service level agreements are being achieved.

These activities help the City operate efficiently using AMI but do little to benefit the customer. For customers to realize the benefits of AMI, they must be subscribed to high/continuous usage alerts and/or have a mobile application. By issuing targeted follow-up with customers, utilities can increase customer engagement with AMI and help customers derive value from this new technology.

Following successful deployment of AMI, Cities should transition from deployment management to steady-state ownership. Long-term network management will require dedication to the people, process, and technology changes established during program planning. They can support customer service goals and increase operational efficiency by leveraging the near-real time data available through their AMI network. Advanced analytics may include customer-facing alerts (e.g., vacation usage, high or consecutive consumption) and optimized operations (e.g., district metered areas (DMAs), acoustic leak detection, meter rightsizing).

5.10.1 Activities

- Identify non-AMI meters and reasons for exclusion (e.g., weak signal, broken valves, opt-out).
- Complete infrastructure repairs and install AMI on eligible meters.
- Address non-transmitting devices or alarms and clarify maintenance responsibilities.
- Train staff on vendor warranty claims and ensure service-level agreements (e.g., read success rates) are met.
- Create outreach plans for customers not registered for alerts, using calls, letters, or emails.
- Run a marketing campaign highlighting AMI benefits through testimonials and conservation savings.
- Update call center scripts to encourage portal and alert subscriptions.
- Ensure adherence to new business processes (e.g., no truck rolls for high bill issues) and measure AMI benefits.
- Track key performance indicators for system, vendor, and personnel performance.
- Establish an analytics center and data governance plan to maximize system benefits. Identify all remaining non-AMI meters and determine why AMI has not been installed (e.g., weak telecom signal, broken valves, opt-out)

5.10.2 Addressing Challenges with Key Questions

- What installation issues prevent 100% AMI coverage, and how can they be resolved?
- How many devices are not transmitting reads, and who will handle ongoing maintenance?
- What is the read success rate (hourly, daily, monthly)? Is the data ready for billing?
- Have software or infrastructure outages occurred, and are up-time commitments being met?
- Are warranties being utilized for covered issues, and do staff know how to collect them?
- What additional reports are needed to identify issues and improve efficiency?
- What percentage of customers are registered for usage alerts, and how can this be increased?
- Are vendor analytics packages being fully utilized? What internal analytics can enhance operations?

6. Pricing

See Exhibit 1: Categories Offered and Pricing Proposal.

7. HUB Bonus

Neither GHD nor Utili-Assist is a Historically Underutilized Business (HUB), Minority, Women-Owned or Disadvantaged Business Enterprise.

Category 1 - Equipment, Products, and Supplies

Description	% Discount off Catalog	Notes/Comments
Water Utility Meters and Controllers		
Water Utility Meter Software Management and Electronic Monitoring		
Automated Water Meter Reading Systems		
Interactive Customer Engagement Portal		
Other (please specify):		

Category 2 - Installation and Repair Services

Description	% Discount off Catalog	Notes/Comments
Hourly Labor Rate for Installation/Repair Service of Water Utlity Meter and Products		
Other (please specify):		

Category 3 - Professional Services

Description	% Discount Catalog	Notes/Comments
Billing System Integration	25%	Please note the comments in GHD catalog
Onsite Training	25%	Please note the comments in GHD catalog
Project Management	25%	Please note the comments in GHD catalog
Propagation Study	25%	Please note the comments in GHD catalog
Software Hosting, Maintenance, and Support	25%	Please note the comments in GHD catalog
Technical Support	25%	Please note the comments in GHD catalog
Other (please specify):	25%	
AMI Specialist	25%	Please note the comments in GHD catalog
IT Architecture	25%	Please note the comments in GHD catalog
Data Privacy & Security	25%	Please note the comments in GHD catalog
Field Services (Meter Inspection)	25%	Please note the comments in GHD catalog

Category 4 - Ancillary Goods and/or Services

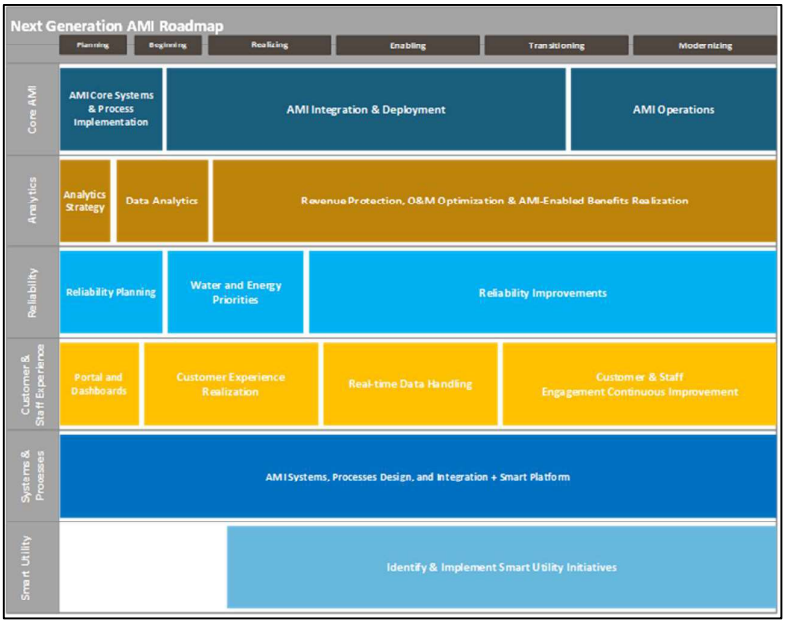
Description	% Discount Catalog	Notes/Comments
AMI Business Case Support	15%	Please note the comments in GHD catalog
AMI Procurement Services	15%	Please note the comments in GHD catalog
AMI Contract Negotiation Services	15%	Please note the comments in GHD catalog

Category 3 - Professional Services		
Description	**Hourly Rate**	**Notes/Comments**
Billing System Integration	$465	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Onsite Training	$385	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Project Management	$395	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Propagation Study	$410	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Software Hosting, Maintenance, and Support	$435	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Technical Support	$350	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Other (please specify):		
AMI Specialist	$475	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
IT Architecture	$450	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Data Privacy & Security	$425	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
Field Services (Meter Inspection)	$325	Total effort/hours will be estimated based on the Scope of Services to be provided. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility

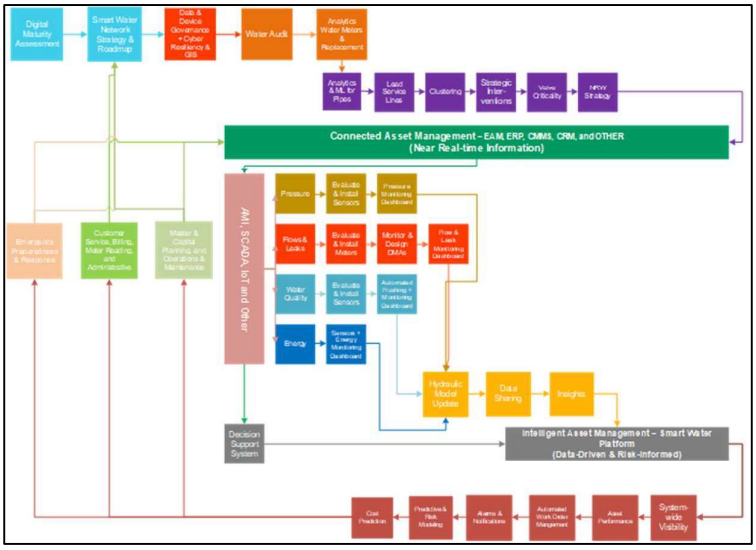
Category 4 - Ancillary Goods and/or Services		
Description	**Price Range**	**Notes/Comments**
AMI Business Case Support	$60 to $100K	Pricing may vary based on the Scope of Services provided. The pricing provided is for high-level budgetary purposes only. The variance in the size and commodity mix of the NCTCOG members makes it impossible to provide a firm price without working directly with individual utilities to clarify requirements. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
AMI Procurement Services	$90 to $150K	Pricing may vary based on the Scope of Services provided. The pricing provided is for high-level budgetary purposes only. The variance in the size and commodity mix of the NCTCOG members makes it impossible to provide a firm price without working directly with individual utilities to clarify requirements. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility
AMI Contract Negotiation Services	$50K to $90K	Pricing may vary based on the Scope of Services provided. The pricing provided is for high-level budgetary purposes only. The variance in the size and commodity mix of the NCTCOG members makes it impossible to provide a firm price without working directly with individual utilities to clarify requirements. A firm price will only be offered upon completion of a scoping/discovery exercise with an individual utility

8. Proposed Value-Add

Developing an Evolving AMI Roadmap. The Team will provide a 5-year evolution of AMI from the initial planning stage to the fully AMI-enabled operational utility. The AMI Roadmap illustrates the progression of each of the core AMI capabilities through this journey and represents a yearly theme for the overall AMI program. This roadmap ensures that City will focuses on planning establishing effective governance; ramping operational excellence by beginning AMI pilot and deployment; realizing the incremental benefits of AMI investment through engaged customers and staff; enabling customers and staff to leverage more data to identify other benefits and savings; transitioning from a reactive to proactive business model, and modernizing by identifying new services while continuous improving reliability of the system using the full capabilities of the AMI system.

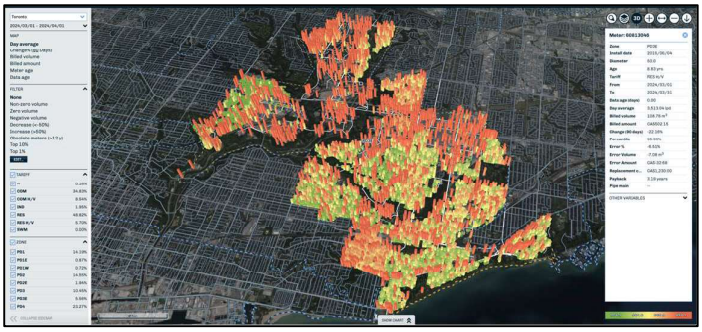


Integrating Smart Utility Initiatives. AMI is more than a standalone system – it is the cornerstone of a connected and intelligent utility ecosystem. By enabling advanced data collection and analytics, AMI creates a foundation for broader utility modernization and smart city initiatives. The GHD Team focuses on designing interoperable solutions that integrate seamlessly with other smart technologies, from IoT devices and SCADA systems to distributed energy resources and water management platforms. This holistic approach ensures that AMI is not just a metering solution but a key enabler for innovation and efficiency.



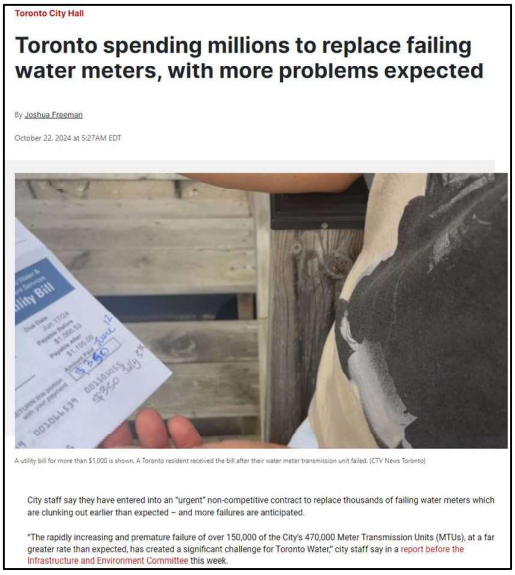
GHD understands that AMI creates a foundation for broader utility modernization and smart city initiatives. The GHD Team focuses on designing interoperable solutions that integrate seamlessly with other smart technologies, from IoT devices and SCADA systems to distributed energy resources and water management platforms. This holistic approach ensures that AMI is not just a metering solution but a key enabler for innovation and efficiency.

Leveraging Water Meter Analytics. To assist with the cost analysis and implementation plan for the water AMI system, the GHD Team will conduct metering analytics to improve the outputs of the assessment of the current state and the business case. This meter analysis allows the City to better understand exact replacement needs for each meter across each segment of the geographic service area, revealing which segment of the meter population still has useful life remaining, and which meters do not need immediate replacement as part of the AMI upgrade program. Retrofitting existing meters, especially at certain sizes, can be much less costly but yield similar performance compared to a new meter setup. In fact, the cost of a new meter setup could be deferred for 5 to 10 years—or more—for many thousands of locations, which could significantly reduce the upfront budget required to implement a full AMI system.



The meter analysis will also identify the worst-performing meters based upon their age, size, and consumption; focused replacement of those meters early in the program could result in earlier enhancements to revenue. It also includes optimal routing for field crews, depending on the action identified—replacement, retrofitting, or field testing for accuracy. Finally, the analysis can serve as the foundation for an outreach plan that allows the City to focus quickly on customers that may be dramatically impacted by the new smart meter and AMI system while reducing potential complaints from potentially impacted customers. The figure denotes a metering analytic for a large utility in Canada.

Integrating Analytics and Lessons Learned to Address Battery Life Issues. The recognizes the critical importance of effective battery life management for Meter Transmission Units (MTUs) and static water meters to ensure long-term performance and reliability in water AMI systems. Our approach prioritizes the integration of advanced battery technologies, optimized communication protocols, and proactive monitoring solutions to maximize battery lifespan. By leveraging data analytics, we predict and address potential battery performance issues before they impact system functionality. Additionally, we collaborate with vendors to select MTUs and meters with proven low-power consumption and design robust maintenance schedules to minimize service disruptions. Through these measures, the Team ensures a cost-effective, sustainable, and resilient AMI network that supports uninterrupted water management operations.



Toronto City Hall

Toronto spending millions to replace failing water meters, with more problems expected

By Joshua Freeman

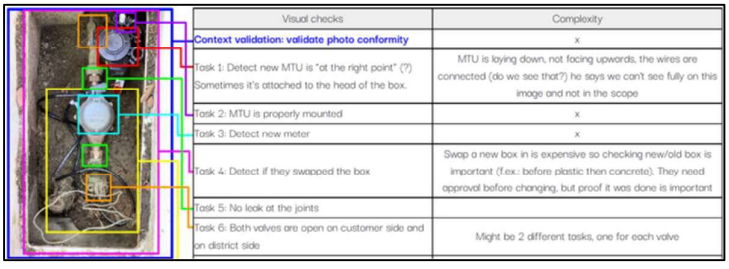
October 22, 2024 at 5:27AM EDT

A utility bill for more than $1,000 is shown. A Toronto resident received the bill after their water meter transmission unit failed. (CTV News Toronto)

City staff say they have entered into an "urgent" non-competitive contract to replace thousands of failing water meters which are clunking out earlier than expected – and more failures are anticipated.

"The rapidly increasing and premature failure of over 150,000 of the City's 470,000 Meter Transmission Units (MTUs), at a far greater rate than expected, has created a significant challenge for Toronto Water," city staff say in a report before the Infrastructure and Environment Committee this week.

Ensuring Meter Installation Are Done Right, the First Time. The Team will pilot a computer vision platform to automate quality control (QC) inspection tasks, making it ideal for the QC of electric and water meters. The platform uses machine learning models trained on images or videos to identify defects, ensure correct installations, and validate meter readings. The technology is currently being utilized by some utilities in Europe. By automating tasks like defect detection, installation verification, and reading validation, utilities can improve their operational efficiency, reduce costs, and ensure a flawless AMI deployment.



Visual checks	Complexity
Context validation: validate photo conformity	x
Task 1: Detect new MTU is "at the right point" (?) Sometimes it's attached to the head of the box.	MTU is laying down, not facing upwards, the wires are connected (do we see that?) he says we can't see fully on this image and not in the scope
Task 2: MTU is properly mounted	x
Task 3: Detect new meter	x
Task 4: Detect if they swapped the box	Swap a new box in is expensive so checking new/old box is important (f.ex.: before plastic then concrete). They need approval before changing, but proof it was done is important
Task 5: No leak at the joints	
Task 6: Both valves are open on customer side and on district side	Might be 2 different tasks, one for each valve

CustomerAssist for Water Utilities. Util-Assist's CustomerAssist solution offers a complete range of back-office support, from full turnkey services to hosted-only IT solutions. Each solution is customized to meet your needs, and we can offer as much or as little support as you require. It delivers billing solutions for water, sewer, storm sewer and any other miscellaneous billings. The solution offers a suite of powerful customer service tools that provide customers with 24/7 access to their billing information. By leveraging our customer web portal, and mobile, social media and IVR applications, customers can perform transactions when it is convenient for them:

- Pay and print bills
- Review bill, payment, consumption and meter reading history
- Submit meter readings
- Enter move-in/out requests and service requests

9. Required Attachments

TXShare
Your Public Sector Solutions Center

REQUEST FOR PROPOSALS
For
Advanced Metering Infrastructure (AMI) Solutions
RFP # 2025-002

Sealed proposals will be accepted until 2:00 PM CT, **January 10, 2025,** and then publicly opened and read aloud thereafter.

GHD
Legal Name of Proposing Firm

Freddie Guerra — Digital Water Solutions Leader, North America/Project Manager
Contact Person for This Proposal — Title

214 907 8138 — Freddie.Guerra@ghd.com
Contact Person Telephone Number

1755 Wittington Place, Suite 500 — Dallas, TX — 75234
Street Address of Principal Place of Business — City/State — Zip

1755 Wittington Place, Suite 500 — Dallas, TX — 75234
Mailing Address of Principal Place of Business — City/State — Zip

Freddie Guerra — Digital Water Solutions Leader – North America
Point of Contact for Contract Negotiations — Title

214 907 8138 — Freddie.Guerra@ghd.com
Point of Contact Telephone Number — Point of Contact Person E-Mail Address

Acknowledgment of Addenda (initial): #1 X #2 _____ #3 _____ #4 _____ #5 _____

NOTE: Any confidential/proprietary information must be clearly labeled as "confidential/proprietary". All proposals are subject to the Texas Public Information Act.

COVER SHEET

REQUIRED ATTACHMENT CHECKLIST

Please utilize this checklist to ensure that all required attachments are included with your proposal. IF AN ATTACHMENT DOES NOT APPLY, PLEASE MARK AS "**NOT APPLICABLE**" AND SUBMIT WITH THE PROPOSAL. FAILURE TO SUBMIT **ALL REQUIRED DOCUMENTS** MAY NEGATIVELY IMPACT YOUR EVALUATION SCORE.

- ☑ Page 1 - Cover Sheet
- ☑ Page 21 - Attachment I: Instructions for Proposals Compliance and Submittal
- ☑ Page 22 - Attachment II: Certification of Offeror
- ☑ Page 23 - Attachment III: Certification Regarding Debarment
- ☑ Page 24 - Attachment IV: Restrictions on Lobbying
- ☑ Page 26 - Attachment V: Drug-Free Workplace Certification
- ☑ Page 27 - Attachment VI: Certification Regarding Disclosure of Conflict of Interest
- ☑ Page 30 - Attachment VII: Certification of Fair Business Practices
- ☑ Page 31 - Attachment VIII: Certification of Good Standing Texas Corporate Franchise Tax Certification
- ☑ Page 32 - Attachment IX: Historically Underutilized Businesses
- ☑ Page 33 - Attachment X: Federal and State of Texas Required Procurement Provisions
- ☑ Page 36 - Exhibit 1: Pricing Proposal
- ☑ Page 38 - Exhibit 2: Sample Market Basket Form
- ☑ Page 39 – Exhibit 3: Service Area Designation Forms

Respondent recognizes that all proposals must be submitted electronically through Public Purchase by the RFP due date and time. All other forms of submissions will be deemed nonresponsive and will not be opened or considered.

ATTACHMENT I: INSTRUCTIONS
FOR PROPOSALS COMPLIANCE AND SUBMITTAL

Compliance with the Solicitation

Submissions must be in strict compliance with this solicitation. Failure to comply with all provisions of the solicitation may result in disqualification.

Compliance with the NCTCOG Standard Terms and Conditions

By signing its submission, Offeror acknowledges that it has read, understands and agrees to comply with the NCTCOG standard terms and conditions.

Acknowledgment of Insurance Requirements

By signing its submission, Offeror acknowledges that it has read and understands the insurance requirements for the submission. Offeror also understands that the evidence of required insurance must be submitted within ten (10) working days following notification of its offer being accepted; otherwise, NCTCOG may rescind its acceptance of the Offeror's proposals. The insurance requirements are outlined in the NCTCOG Procurement Standard Terms and Conditions.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:

Date: 01.10.2025

ATTACHMENT II: CERTIFICATIONS OF OFFEROR

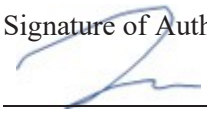
I hereby certify that the information contained in this proposal and any attachments is true and correct and may be viewed as an accurate representation of proposed services to be provided by this organization. I certify that no employee, board member, or agent of the North Central Texas Council of Governments has assisted in the preparation of this proposal. I acknowledge that I have read and understand the requirements and provisions of the solicitation and that the organization will comply with the regulations and other applicable local, state, and federal regulations and directives in the implementation of this contract.

I also certify that I have read and understood all sections of this solicitation and will comply with all the terms and conditions as stated; and furthermore that I, Freddie Guerra (typed or printed name) certify that I am the Digital Water Solutions Leader, NA (title) of the corporation, partnership, or sole proprietorship, or other eligible entity named as offeror and respondent herein and that I am legally authorized to sign this offer and to submit it to the North Central Texas Council of Governments, on behalf of said offeror by authority of its governing body.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:



Date: 01.10.2025

ATTACHMENT III: CERTIFICATION
REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

This certification is required by the Federal Regulations Implementing Executive Order 12549, Debarment and Suspension, 45 CFR Part 93, Government-wide Debarment and Suspension, for the Department of Agriculture (7 CFR Part 3017), Department of Labor (29 CFR Part 98), Department of Education (34 CFR Parts 85, 668, 682), Department of Health and Human Services (45 CFR Part 76).

The undersigned certifies, to the best of his or her knowledge and belief, that both it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency;

2. Have not within a three-year period preceding this contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction, violation of federal or State antitrust statues or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false Proposals, or receiving stolen property;

3. Are not presently indicated for or otherwise criminally or civilly charged by a government entity with commission of any of the offense enumerated in Paragraph (2) of this certification; and,

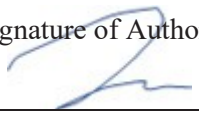
4. Have not within a three-year period preceding this contract had one or more public transactions terminated for cause or default.

Where the prospective recipient of federal assistance funds is unable to certify to any of the qualifications in this certification, such prospective recipient shall attach an explanation to this certification form.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:



Date: 01/10/2025

ATTACHMENT IV: RESTRICTIONS ON LOBBYING

Section 319 of Public Law 101-121 prohibits recipients of federal contracts, grants, and loans exceeding $100,000 at any tier under a federal contract from using appropriated funds for lobbying the Executive or Legislative Branches of the federal government in connection with a specific contract, grant, or loan. Section 319 also requires each person who requests or receives a federal contract or grant in excess of $100,000 to disclose lobbying.

No appropriated funds may be expended by the recipient of a federal contract, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any federal executive department or agency as well as any independent regulatory commission or government corporation, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered federal actions: the awarding of any federal contract, the making of any federal grant, the making of any federal loan the entering into of any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

As a recipient of a federal grant exceeding $100,000, NCTCOG requires its subcontractors of that grant to file a certification, set forth in Appendix B.1, that neither the agency nor its employees have made, or will make, any payment prohibited by the preceding paragraph.

Subcontractors are also required to file with NCTCOG a disclosure form, set forth in Appendix B.2, if the subcontractor or its employees have made or have agreed to make any payment using nonappropriated funds (to include profits from any federal action), which would be prohibited if paid for with appropriated funds.

LOBBYING CERTIFICATION
FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS

The undersigned certifies, to the best of his or her knowledge or belief, that:

1. No federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an officer or employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal loan, the entering into of any cooperative Contract, and the extension, continuation, renewal, amendment, or modification or any federal contract, grant, loan, or cooperative contract; and

2. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, and or cooperative contract, the undersigned shall complete and submit Standard Form – LLL, "Disclosure Form to Report Lobbying", in accordance with the instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers and that all sub-recipients shall certify accordingly.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:

Date: 01.10.2025

ATTACHMENT V: DRUG-FREE WORKPLACE CERTIFICATION

The GHD (company name) will provide a Drug Free Work Place in compliance with the Drug Free Work Place Act of 1988. The unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited on the premises of the GHD (company name) or any of its facilities. Any employee who violates this prohibition will be subject to disciplinary action up to and including termination. All employees, as a condition of employment, will comply with this policy.

CERTIFICATION REGARDING DRUG-FREE WORKPLACE

This certification is required by the Federal Regulations Implementing Sections 5151-5160 of the Drug-Free Workplace Act, 41 U.S.C. 701, for the Department of Agriculture (7 CFR Part 3017), Department of Labor (29 CFR Part 98), Department of Education (34 CFR Parts 85, 668 and 682), Department of Health and Human Services (45 CFR Part 76).

The undersigned subcontractor certifies it will provide a drug-free workplace by:

Publishing a policy Proposal notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the consequences of any such action by an employee;

Establishing an ongoing drug-free awareness program to inform employees of the dangers of drug abuse in the workplace, the subcontractor's policy of maintaining a drug-free workplace, the availability of counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed on employees for drug violations in the workplace;

Providing each employee with a copy of the subcontractor's policy Proposal;

Notifying the employees in the subcontractor's policy Proposal that as a condition of employment under this subcontract, employees shall abide by the terms of the policy Proposal and notifying the subcontractor in writing within five days after any conviction for a violation by the employee of a criminal drug abuse statue in the workplace;

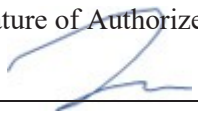
Notifying the Board within ten (10) days of the subcontractor's receipt of a notice of a conviction of any employee; and,

Taking appropriate personnel action against an employee convicted of violating a criminal drug statue or requires such employee to participate in a drug abuse assistance or rehabilitation program.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:



Date: 01.10.2025

ATTACHMENT VI: DISCLOSURE OF CONFLICT OF INTEREST
CERTIFICATION REGARDING DISCLOSURE OF CONFLICT OF INTEREST

The undersigned certifies that, to the best of his or her knowledge or belief, that:

"No employee of the contractor, no member of the contractor's governing board or body, and no person who exercises any functions or responsibilities in the review or approval of the undertaking or carrying out of this contract shall participate in any decision relating to this contract which affects his/her personal pecuniary interest.

Executives and employees of contractor shall be particularly aware of the varying degrees of influence that can be exerted by personal friends and associates and, in administering the contract, shall exercise due diligence to avoid situations which give rise to an assertion that favorable treatment is being granted to friends and associates. When it is in the public interest for the contractor to conduct business with a friend or associate of an executive or employee of the contractor, an elected official in the area or a member of the North Central Texas Council of Governments, a permanent record of the transaction shall be retained.

Any executive or employee of the contractor, an elected official in the area or a member of the NCTCOG, shall not solicit or accept money or any other consideration from a third person, for the performance of an act reimbursed in whole or part by contractor or Department. Supplies, tools, materials, equipment or services purchased with contract funds shall be used solely for purposes allowed under this contract. No member of the NCTCOG shall cast a vote on the provision of services by that member (or any organization which that member represents) or vote on any matter which would provide a direct or indirect financial benefit to the member or any business or organization which the member directly represents".

No officer, employee or paid consultant of the contractor is a member of the NCTCOG.

No officer, manager or paid consultant of the contractor is married to a member of the NCTCOG.

No member of NCTCOG directly owns, controls or has interest in the contractor.

The contractor has disclosed any interest, fact, or circumstance that does or may present a potential conflict of interest.

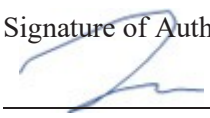
No member of the NCTCOG receives compensation from the contractor for lobbying activities as defined in Chapter 305 of the Texas Government Code.

Should the contractor fail to abide by the foregoing covenants and affirmations regarding conflict of interest, the contractor shall not be entitled to the recovery of any costs or expenses incurred in relation to the contract and shall immediately refund to the North Central Texas Council of Governments any fees or expenses that may have been paid under this contract and shall further be liable for any other costs incurred or damages sustained by the NCTCOG as it relates to this contract.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:



Date: 01.10.2025

Not Applicable

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____
Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____
Signature of vendor doing business with the governmental entity Date

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 1/1/2021

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

ATTACHMENT VII: CERTIFICATION OF FAIR BUSINESS PRACTICES

That the submitter has not been found guilty of unfair business practices in a judicial or state agency administrative proceeding during the preceding year. The submitter further affirms that no officer of the submitter has served as an officer of any company found guilty of unfair business practices in a judicial or state agency administrative during the preceding year.

Name of Organization/Contractor(s):

GHD

Signature of Authorized Representative:

Date: 01.10.2025

ATTACHMENT VIII: CERTIFICATION OF GOOD STANDING
TEXAS CORPORATE FRANCHISE TAX CERTIFICATION

Pursuant to Article 2.45, Texas Business Corporation Act, state agencies may not contract with for profit corporations that are delinquent in making state franchise tax payments. The following certification that the corporation entering into this offer is current in its franchise taxes must be signed by the individual authorized on Form 2031, Corporate Board of Directors Resolution, to sign the contract for the corporation.

The undersigned authorized representative of the corporation making the offer herein certified that the following indicated Proposal is true and correct and that the undersigned understands that making a false Proposal is a material breach of contract and is grounds for contract cancellation.

Indicate the certification that applies to your corporation:

☑ The Corporation is a for-profit corporation and certifies that it is not delinquent in its franchise tax payments to the State of Texas.

☐ The Corporation is a non-profit corporation or is otherwise not subject to payment of franchise taxes to the State of Texas.

Type of Business (**if not corporation**):

☐ Sole Proprietor

☐ Partnership

☑ Other

Pursuant to Article 2.45, Texas Business Corporation Act, the North Central Texas Council of Governments reserves the right to request information regarding state franchise tax payments.

Freddie Guerra, Project Manager

(Printed/Typed Name and Title of Authorized l

Signature

Date: 1/10/20

ATTACHMENT IX: HISTORICALLY UNDERUTILIZED BUSINESSES, MINORITY OR WOMEN-OWNED OR DISADVANTAGED BUSINESS ENTERPRISES

Historically Underutilized Businesses (HUBs), minority or women-owned or disadvantaged businesses enterprises (M/W/DBE) are encouraged to participate in the solicitation process.

NCTCOG recognizes the certifications of most agencies. HUB vendors must submit a copy of their certification for consideration during the evaluation of their proposal. Please attach the copy to this form. This applies only to the Offeror and not a subcontractor.

Texas vendors who are not currently certified are encouraged to contact either the Texas United Certification Program, State of Texas HUB Program, or the North Central Texas Regional Certification Agency, among others. Contact:

State of Texas HUB Program
Texas Comptroller of Public Accounts
Lyndon B. Johnson State Office Building
111 East 17th Street
Austin, Texas 78774
(512) 463-6958
http://www.window.state.tx.us/procurement/prog/hub/

North Central Texas Regional Certification Agency
624 Six Flags Drive, Suite 100
Arlington, TX 76011
(817) 640-0606
http://www.nctrca.org/certification.html

Texas United Certification Program
USDOT website at
https://www.transportation.gov/DBE

You must include a copy of your certification document as part of this solicitation to receive points in the evaluation.

Vendor to Sign Below to Attest to Validity of Certification:

_____
Vendor Name

_____
Authorized Signature

_____ _____
Typed Name Date

☑ **Not applicable.**

ATTACHMENT X: NCTCOG FEDERAL AND STATE OF TEXAS REQUIRED PROCUREMENT PROVISIONS

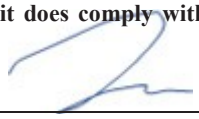
The following provisions are mandated by Federal and/or State of Texas law. Failure to certify to the following will result in disqualification of consideration for contract. Entities or agencies that are not able to comply with the following will be ineligible for consideration of contract award.

PROHIBITED TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT CERTIFICATION

This Contract is subject to the Public Law 115-232, Section 889, and 2 Code of Federal Regulations (CFR) Part 200, including §200.216 and §200.471, for prohibition on certain telecommunications and video surveillance or equipment. Public Law 115-232, Section 889, identifies that restricted telecommunications and video surveillance equipment or services (e.g., phones, internet, video surveillance, cloud servers) include the following:

A) Telecommunications equipment that is produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliates of such entities).
B) Video surveillance and telecommunications equipment produced by Hytera Communications Corporations, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliates of such entities).
C) Telecommunications or video surveillance services used by such entities or using such equipment.
D) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, Director of the National Intelligence, or the Director of the Federal Bureau of Investigation reasonably believes to be an entity owned or controlled by the government of a covered foreign country. The entity identified below, through its authorized representative, hereby certifies that no funds under this Contract will be obligated or expended to procure or obtain telecommunication or video surveillance services or equipment or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as a critical technology as part of any system prohibited by 2 CFR §200.216 and §200.471, or applicable provisions in Public Law 115-232 Section 889.

☑ **The Contractor or Subrecipient hereby certifies that it does comply with the requirements of 2 CFR §200.216 and §200.471, or applicable regulations in Public Law 115-232 Section 889.**

SIGNATURE OF AUTHORIZED PERSON: 

NAME OF AUTHORIZED PERSON: Freddie Guerra

NAME OF COMPANY: GHD

DATE: 1/10/20

-OR-

☐ **The Contractor or Subrecipient hereby certifies that it cannot comply with the requirements of 2 CFR §200.216 and §200.471, or applicable regulations in Public Law 115-232 Section 889.**

SIGNATURE OF AUTHORIZED PERSON: _____

NAME OF AUTHORIZED PERSON: _____

NAME OF COMPANY: _____

DATE: _____

DISCRIMINATION AGAINST FIREARMS ENTITIES OR FIREARMS TRADE ASSOCIATIONS

This contract is subject to the Texas Local Government Code chapter 2274, Subtitle F, Title 10, prohibiting contracts with companies who discriminate against firearm and ammunition industries.
TLGC chapter 2274, Subtitle F, Title 10, identifies that "discrimination against a firearm entity or firearm trade association" includes the following:

A) means, with respect to the entity or association, to:
   I. refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association; and
   II. refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or
   III. terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association.

B) An exception to this provision excludes the following:
   I. contracts with a sole-source provider; or
   II. the government entity does not receive bids from companies who can provide written verification.

The entity identified below, through its authorized representative, hereby certifies that they have no practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association; and that they will not discriminate during the term of the contract against a firearm entity or firearm trade association as prohibited by Chapter 2274, Subtitle F, Title 10 of the Texas Local Government Code.

☑ **The Contractor or Subrecipient hereby certifies that it does comply with the requirements of Chapter 2274, Subtitle F, Title 10.**

SIGNATURE OF AUTHORIZED PERSON: 

NAME OF AUTHORIZED PERSON: Freddie Guerra

NAME OF COMPANY: GHD

DATE: 1/10/25

-OR-

☐ **The Contractor or Subrecipient hereby certifies that it cannot comply with the requirements of Chapter 2274, Subtitle F, Title 10.**

SIGNATURE OF AUTHORIZED PERSON: _____

NAME OF AUTHORIZED PERSON: _____

NAME OF COMPANY: _____

DATE: _____

BOYCOTTING OF CERTAIN ENERGY COMPANIES

This contract is subject to the Texas Local Government Code chapter 809, Subtitle A, Title 8, prohibiting contracts with companies who boycott certain energy companies.

TLGC chapter Code chapter 809, Subtitle A, Title 8, identifies that "boycott energy company" means, without an ordinary business purpose, refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company:

I. engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; and
II. does business with a company described by paragraph (I).

The entity identified below, through its authorized representative, hereby certifies that they do not boycott energy companies, and that they will not boycott energy companies during the term of the contract as prohibited by Chapter 809, Subtitle A, Title 8 of the Texas Local Government Code.

☑ The Contractor or Subrecipient hereby certifies that it does comply with the requirements of Chapter 809, Subtitle A, Title 8.

SIGNATURE OF AUTHORIZED PERSON: 

NAME OF AUTHORIZED PERSON: Freddie Guerra

NAME OF COMPANY: GHD

DATE: 1/10/25

-OR-

☐ The Contractor or Subrecipient hereby certifies that it cannot comply with the requirements of Chapter 809, Subtitle A, Title 8.

SIGNATURE OF AUTHORIZED PERSON: _____

NAME OF AUTHORIZED PERSON: _____

NAME OF COMPANY: _____

DATE: _____

EXHIBIT 1: CATEGORIES OFFERED AND PRICING PROPOSAL

Place a checkmark next to each category you are offering in your proposal:

☐ **Service Category #1: Water Utility Equipment, Products, and Supplies**

☐ **Service Category #2: Installation and Repair Services**

☑ **Service Category #3: Professional Services**

☑ **Service Category #4: Ancillary Goods and/or Services (List Below)**

_____

_____

_____

Pricing Proposal
Respondents are required to submit a comprehensive pricing proposal that outlines their approach to addressing the project goals, key challenges, and minimum solution requirements outlined below. The proposal should not only reflect the costs associated with the proposed water metering solutions but also demonstrate flexibility and innovation in addressing the diverse needs of TXShare's member entities.
Project Goals and Desired Outcomes:
The water meter replacement project is designed to achieve the following key goals shared by TXShare members. Vendors are encouraged to propose solutions that effectively tackle these goals:
1. Versatile Water Metering Solution: Propose a customizable metering system compatible with various environments and infrastructure types across TXShare's member entities.
2. Advanced Data Management and Integration: Provide a system that supports real-time data access and integrates seamlessly with various billing and customer service platforms, including AMR and AMI capabilities. Please include the names of the billing and customer service platforms your system is compatible with.
3. Cost-Effective and Scalable Implementation: Present a pricing model that supports phased implementation, allowing flexibility for entities of different sizes and financial capacities.
Key Challenges to Address:
Respondents should directly address the following challenges in their proposals: **1. Multi-Environment Compatibility:** Detail how your proposed solution will function across diverse installation conditions, ensuring compliance with regional standards. **2. Standardized Yet Customizable Data Integration:** Describe how your data management system will provide standard functionalities while allowing for the unique integration needs of each member entity. **3. Phased Implementation for Cooperative Scalability:** Outline a flexible implementation plan that facilitates phased rollouts, minimizes disruption, and includes strategies for communication and onboarding.

4. Cost Efficiency and Shared Resource Management:
Explain your cooperative pricing discount and financing model, emphasizing cost savings and tiered pricing for varying implementation scales.

5. AI-Driven Analytics and Predictive Insights:
Discuss the capabilities of your AI-based analytics platform in enhancing decision-making, identifying anomalies, and improving customer engagement.

Minimum Solution Requirements:

Proposals must also meet the following minimum requirements:

1. Compatibility: Support various communication technologies to accommodate different technical conditions across TXShare members.

2. Pricing Structure: Offer a cooperative discount pricing model with tiered pricing and flexible financing options tailored to implementation phases.

3. Data System and Security: Ensure robust security measures for data protection and compliance across jurisdictions.

4. Maintenance and Support: Provide comprehensive maintenance and support services, including system monitoring and technical support.

5. Performance Guarantee and Warranty: Offer warranties that cover all major components of the AMI system for long-term reliability.

6. Customer Engagement: Include a customer portal with tools for usage monitoring, alerts, and engagement features.

7. Training: Present a training and support plan for smooth implementation and ongoing operation.

8. Scalability: Ensure the solution can scale for future growth in meters and data volume.

9. Data Analytics and Reporting: Incorporate advanced analytics capabilities for actionable insights.

10. Disaster Recovery and Business Continuity: Include robust plans to maintain operational continuity during emergencies.

Catalog Pricing for Products & Services:

Responding Offerors are requested to submit a proposal that will contain a schedule of products and / or service lines that would qualify under Section 5.0 of these specifications. This schedule is commonly referred to as a "catalog".

Catalogs contain a range of items that are published in either an electronic or hard copy form and are modified from time to time to reflect internal and external changes in the vendor's marketplace. It is at the vendor's discretion to propose any limitations of the goods or services offered. A good or service offered must be listed in the catalog to be eligible for sale through the awarded contract.

Catalogs are to be submitted with the proposal and may be provided electronically using either a PDF document or web link. Use a spreadsheet or a searchable document containing the pricing information. A physically delivered hard copy of the catalog is NOT acceptable.

Catalogs may be priced with a percentage discount or a fixed unit price. Pricing may be one or multiple tiers of varying discounts based on purchase quantity. The discount should be applicable to both the initial purchase and any subsequent orders under the terms of this agreement.

The Respondent should clearly outline:
1. The percentage discount off the catalog list price for each category of products and / or services.
2. Any pricing tiers or volume-based discount thresholds.

Refer to Exhibit 1 – Proposal Price Excel Worksheet Attachment for completion.

EXHIBIT 2: SAMPLE MARKET BASKET FORM

This form will be utilized to assess each Respondent's ‘best value’ beyond simple percentage discounts and will play a key role in scoring your proposed pricing.

Please refer to Exhibit 2: Sample Market Basket Form Attachment for completion.

EXHIBIT 3: SERVICE DESIGNATION AREAS

	Texas Service Area Designation or Identification		
Proposing Firm Name:	GHD		
Notes:	**Indicate in the appropriate box whether you are proposing to service the entire state of Texas**		
	Will service the entire state of Texas	Will not service the entire state of Texas	
	☑	☐	
	If you are not proposing to service the entire state of Texas, designate on the form below the regions that you are proposing to provide goods and/or services to. By designating a region or regions, you are certifying that you are willing and able to provide the proposed goods and services.		
Item	**Region**	**Metropolitan Statistical Areas**	**Designated Service Area**
1.	North Central Texas	16 counties in the Dallas-Fort Worth Metropolitan area	
2.	High Plains	Amarillo Lubbock	
3.	Northwest	Abilene Wichita Falls	
4.	Upper East	Longview Texarkana, TX-AR Metro Area Tyler	
5.	Southeast	Beaumont-Port Arthur	
6.	Gulf Coast	Houston-The Woodlands-Sugar Land	
7.	Central Texas	College Station-Bryan Killeen-Temple Waco	
8.	Capital Texas	Austin-Round Rock	
9.	Alamo	San Antonio-New Braunfels Victoria	
10.	South Texas	Brownsville-Harlingen Corpus Christi Laredo McAllen-Edinburg-Mission	
11.	West Texas	Midland Odessa San Angelo	
12.	Upper Rio Grande	El Paso	

(Exhibit 3 continued on next page)

(Exhibit 3 continued)

	Nationwide Service Area Designation or Identification Form		
Proposing Firm Name:	GHD		
Notes:	**Indicate in the appropriate box whether you are proposing to provide service to all Fifty (50) States.**		
	Will service all fifty (50) states	Will not service fifty (50) states	
	☑	☐	
	If you are not proposing to service to all fifty (50) states, then designate on the form below the states that you will provide service to. By designating a state or states, you are certifying that you are willing and able to provide the proposed goods and services in those states. **If you are only proposing to service a specific region, metropolitan statistical area (MSA), or City in a State, then indicate as such in the appropriate column box.**		

Item	**State**	**Region/MSA/City (write "ALL" if proposing to service entire state)**	**Designated as a Service Area**
1.	Alabama		
2.	Alaska		
3.	Arizona		
4.	Arkansas		
5.	California		
6.	Colorado		
7.	Connecticut		
8.	Delaware		
9.	Florida		
10.	Georgia		
11.	Hawaii		
12.	Idaho		
13.	Illinois		
14.	Indiana		
15.	Iowa		
16.	Kansas		
17.	Kentucky		
18.	Louisiana		
19.	Maine		
20.	Maryland		

21.	Massachusetts		
22.	Michigan		
23.	Minnesota		
24.	Mississippi		
25.	Missouri		
26.	Montana		
27.	Nebraska		
28.	Nevada		
29.	New Hampshire		
30.	New Jersey		
31.	New Mexico		
32.	New York		
33.	North Carolina		
34.	North Dakota		
35.	Ohio		
36.	Oregon		
37.	Oklahoma		
38.	Pennsylvania		
39.	Rhode Island		
40.	South Carolina		
41.	South Dakota		
42.	Tennessee		
43.	Texas		
44.	Utah		
45.	Vermont		
46.	Virginia		
47.	Washington		
48.	West Virginia		
49.	Wisconsin		
50.	Wyoming		

End of Exhibit 3

[Website]

→ The Power of Commitment