TIMMONS GROUP

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COMPLETE DEPLOYMENT OF ARCGIS ENTERPRISE, UTILITY NETWORK, CITYWORKS - REQUEST FOR PROPOSAL

Mission Springs Water District

Due: 5:00 PM, Thursday, January 11, 2024

Contact: Lou Garcia | Principal

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December 11, 2024

Kurt Kettenacker, IT Manager
Mission Springs Water District
66575 2nd Street
Desert Hot Springs, CA 92240

RE: Complete Deployment of ArcGIS Enterprise, Utility Network, Cityworks

To Kurt Kettenacker and the Selection Committee:

Mission Springs Water District is seeking a partner to configure a turn-key cloud-hosted ArcGIS Enterprise environment and migrate its GIS data into the Esri Utility Network while also implementing Trimble's Cityworks AMS.

For more than 20 years, Timmons Group has provided a wide variety of Enterprise Cloud based GIS and Asset Management solutions, including and award-winning services to local government DOTs, utilities, municipal, federal, and private clients. Our team encompasses vast experience and expertise from Timmons Group employees in all facets desired for your project to move to an Esri Utility Network based deployment of Cityworks AMS all in a cloud-based solution. We have the necessary expertise, and require no teaming partners, to meet your required certifications and successfully deploy your desired solution. Indeed, we have performed a project with nearly this exact scope of work with your neighbor, Indio Water, as well as many other similar projects across North America.

Our team will provide MSWD an unsurpassed ability to deliver sound solutions to all phases of your program through:

Key team members dedicated to your project offer an impressive level of professional experience and knowledge for delivering services to your full range of associated services. Team members have worked together on multiple successful projects and are empowered to do what it takes to make sure your projects are successful for you and your stakeholders.

Familiarity with local regulations, practices, and regional specific requirements, as the Esri Utility Network and Cityworks implementers of choice. We are a Esri Gold Partner, are Esri Utility Network Certified and a Cityworks Platinum Implementation Partner and Strategic Development Partner with intimate experience in deploying this solution set of tools. We have already moved legacy data from disparate systems to this solution set as well as integrated several of your desired integrations to Cityworks, including Granite.Net.

The leveraging of experience from implementing Esri's Utility Network with 15 clients and Cityworks with more than 135 clients that have faced the challenges you currently face, including many within your local area.

A full understanding of your program requirements and a project team committed to exceeding your highest expectations by developing sound and innovative technical solutions. We will apply our lessons learned on recently completed similar projects to your full advantage.

A dedicated Client Support Program ensuring our clients are continually capitalizing on their investment in Esri's GIS and Cityworks.

Timmons Group intends to perform the services and confirms that all elements of the RFP have been reviewed and understood.

A partnership with Timmons Group offers MSWD a significant number of benefits. From initial system planning and design activities all the way through implementation and deployment, you will have direct access to industry-leading engineering, planning, GIS, and information technology professionals CMMS enterprise asset management services. Timmons Group is confident our team represents the best overall value to MSWD. If you have any questions or require any additional information during the RFP review process, please contact Lou Garcia at 443.904.3897, as he is your primary contact and has binding authority.

Respectfully yours,

Ronald R. Butcher Jr., MBA
Principal in Charge

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Lou Garcia
Principal & Project Director

louis.garcia@timmons.com

STATEMENT OF UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

MSWD desires to engage a consultant to configure a turn-key cloud-hosted ArcGIS Enterprise environment that adheres to Esri's best practices and security standards. After this is accomplished, the consultant will migrate MSWD's GIS data into Esri's Utility Network data model and implement Trimble's Cityworks AMS. Existing MSWD CMMS/EAM system functions will also need to be migrated into the configuration of Cityworks AMS and MSWD staff will need to be fully trained. Timmons Group will also provide on-going staff augmentation services, support, and managed services for the cloud-based environment.

Cityworks AMS can replace, integrate to, or enhance MSWD's current disparate grouping of solutions. The Cityworks solution platform is built to easily integrate to other best-of-breed solutions so that an effective enterprise system can be built. Our approach will leverage your existing investment in your GIS data, software, workflows, business rules and hardware, and other systems.

By using an iterative approach with an intuitive solution, MSWD staff will have the means to adopt best practices, streamline processes, manage costs, and promote transparent access to work activity information. This effort will support MSWD as it strives to provide an exceptional level of service to a growing population.

MSWD faces a critical turning point under the pressure of aging infrastructure, deprived maintenance routines, and financial pressures. Staff must manage its assets, collect, and analyze information, and provide long-term value to the public. Under this project you can leverage data and technology in new ways and use processes and asset analytic techniques. Beyond the immediate process efficiency gains, your Asset Management program can help affect real cultural change within the organization. Positions once dedicated to reactive maintenance can evolve into positions focused on preventative maintenance, analytics and structuring controlled experiments in a quest for more capital investment. Truly, you have an exciting opportunity.

Establish	**Consolidate**	**Identify**
ASSET CRITICALITY AND RISK FRAMEWORK	ASSET MANAGEMENT FUNCTIONALITY IN A BUSINESS SOLUTION	PRIORITIZED CAPITAL IMPROVEMENT AND INVESTMENT RETURN
MSWD service goals must consistently align with its most critical assets to support infrastructure maintenance needs and track operational efficiency of services delivered to the public.	Streamline your approach and leverage Cityworks AMS & Esri ArcGIS for assets thus negating legacy customization or non-integrated systems.	Identify prioritized capital needs and return on investment analysis by using data-driven AM planning through collecting the right amount of quality data to inform investment decisions.

Based on our experience in leading GIS-based Asset Management transformations and the related implementation of a cloud-based Esri GIS and Cityworks AMS, we believe you need a very specific type of partner. You need a team of advisors who are familiar with core cloud technologies, Esri technology, Cityworks AMS knowledge, and asset management processes and workflows; yet can translate business requirements into technology specifications. You need seasoned professionals with a **bias for action and pragmatism** as opposed to academic purity. You need organizational change experts who know how to connect with the front line as well as the executive suite, to ensure there is top-down support and real momentum for the journey. We suggest that you also need partners who think holistically, from maintenance operations to technology to the supporting areas of MSWD to ensure that your cloud-based Esri tools and data and Cityworks AMS are configured for long-term success.

MSWD has identified the need to implement a new cloud-based architecture for Esri's GIS, migrate existing data to Esri's Utility Network data model, and implement Cityworks AMS. Cityworks AMS can perform the District's technical requirements. However, simply purchasing and installing Cityworks does not mean you will be performing asset management to your desired level or more effectively performing the various tasks associated with the desired level of CMMS, asset

management, and citizen management. When Timmons Group works with our clients to address their Asset Management needs, we prefer to use the ISO 55000 definition which states:

"*Asset Management capabilities include* **processes**, **resources**, **competences**, *and* **technologies** *to enable the effective and efficient development and delivery of asset management plans and asset life activities and their continual improvement.*" - as defined by ISO 55000

Cityworks AMS meets MSWD's technical requirements and Timmons Group will use industry standards and best practices including ISO 55000 guidelines as we develop and deliver a plan to address the related processes, resources, and competences. This plan becomes the key to how we ensure that your GIS, the Esri Utility Network and Cityworks AMS are designed and implemented to collect the necessary data to enable MSWD to report on and analyze this data for critical decision making at the operational and management levels.

Timmons Group proposes to work with MSWD to refine or create new workflows, following existing business rules and other criteria so that MSWD can leverage Cityworks to meet your requirements. A primary objective of this task is for our implementation team to review and understand how MSWD conducts business and manages its assets, how data, specifically GIS data, is used and moves through MSWD. The goal is to provide knowledge to support and enable our implementation team to properly address the technological impacts of the software deployment and MSWD to understand the technological impacts and the non-technological impacts related to business processes and workflows. It will be our intent to use these processes and to "tweak" them as necessary to include best practices, ISO 55000 guidelines, a Best Management Practice framework, Workflows and Standard Operating Procedures, ASCE, APWA, & AWWA guidelines, and to use the full capabilities of our solution software effectively.

Realizing your vision, however, can be challenging. It will require change – new behaviors and new skills. It will also require a solid foundation of well-defined business processes and solution requirements. But before any supporting IT/GIS tools can be configured, there must be clarity on the organization's core processes: the workflows for key steps and sub-steps, and what data must be collected at which points to inform which decisions. By analyzing business processes in a structured way, one streamlines the technology and data needs and, perhaps more importantly, one can identify tangible improvement areas for quick wins.

Partnering with Timmons Group on this project will yield the results you demand. Years of lessons learned will be available to you and your stakeholders throughout the life of your program. Regarding group specific consulting, Timmons Group brings not only geospatial and information technology professionals to assist with the cloud-based implementation of the Esri's GIS, Esri's Utility Network and Cityworks AMS solution, but also subject matter experts in the fields of cloud-based solutions, utilities, civil engineering, planning, asset operation and maintenance in multiple asset classifications. You will have the opportunity to work with our planning, engineering, geospatial, system architects and technology subject matter experts who will share over a century of combined ideas and solutions with you in support of your greater mission. These resources will be available to the project team to assist with best practices as your GIS and Cityworks AMS are configured uniquely to each Functional Group and your GIS and Cityworks AMS are configured around each Functional Groups business processes and workflows. These subject matter experts will review the proposed configuration workflows for best practices and address the "do they make sense" questions, prior to Timmons Group submitting the proposed workflows for MSWD approval.

### *Importance of KPI and Level-of-Service Measures in Implementing a CMMS*
The shortfall afflicting many Asset Management programs is the disconnect between the theory and "the act of doing" (i.e., the day-to-day application of the AM practices). In our experience, the key to bridging this gap is defining insightful Key Performance Indicators (KPIs) that are linked to key decisions. A well-designed relationship between KPIs and Service Delivery Areas (for example) can provide clarity to your CMMS and Asset Management Plan. This up-front planning informs the core data collection needs (how does the Esri Utility Network datamodel get designed and used), requirements, and implementation configuration for Cityworks AMS. Without this framework, ArcGIS and/or Cityworks AMS could be configured to collect too much "nice to have" data which burdens crews and consumes screen real estate on field tablets. As part of our consulting services, we will rationalize the GIS & Cityworks data collection requirements to better align with your defined KPIs, thus informing process efficiency and outcomes.

Timmons Group, through our well-honed implementation methodology, successfully used at multiple municipalities and utilities across the US, will provide a proven approach to reviewing existing business processes, helping to revise them to effectively exploit not only your GIS and Cityworks AMS but also your existing data and resources, all while adhering to existing business or regulatory rules and policies. The result will be an end-user-driven configuration of your GIS and Cityworks implementations. This will ensure that your staff members embrace the new technical platforms and have access to the critical data required to perform analyses, run reports, and support data-driven decisions. Additionally, we

intend leave you fully self-sufficient in the operation of, future configuration changes of, and use of the data analysis tools your GIS and Cityworks AMS provides, through our proposed role-based training and knowledge transfer throughout the project. We will also provide on-going support and staff augmentation as necessary, including managed services for your cloud hosting.

The graphic below details the software and integrations we are proposing for each requirement and their relationships. Cityworks AMS is based on Esri's ArcGIS and will therefore leverage your existing investment. Cityworks (a GIS-centric solution) will serve as the platform or "best of breed" solution for Enterprise Asset Management & Computerized Maintenance Management.
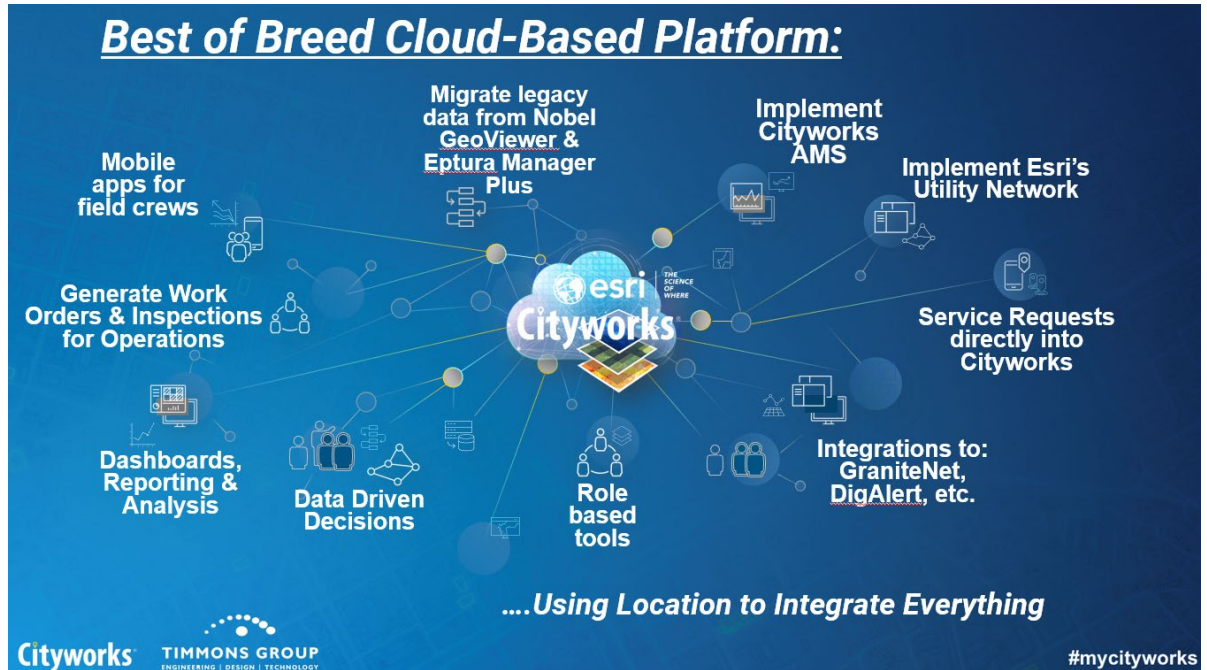
We are not just implementing Cityworks AMS. Rather we are meeting all the requirements you have outlined, and are needed, to have a toolset that allows you to manage, operate, analyze, and make informed decisions about your assets from a holistic perspective. This toolset facilitates data sharing among solutions, allowing MSWD to manage and analyze data in the native applications or in other tools such as MS Power BI, Tableau, and others. This capability empowers MSWD to make data-driven decisions across the organization, analyzing various factors such as billing, consumption, financials, asset depreciation, lifecycle costs, risk, consequence of failure, probability of failure, socio-economic factors, environmental impact, and resource requirements collectively, moving away from traditional siloed practices.

For the best outcome and to ensure its most effective use, an organization should not simply install software without the help of an experienced professional services team to help guide you through the workflows, business requirements, and day-to-day activities. Through our well-honed implementation methodology, successfully used at multiple local governments and utilities across North America, we will review existing business processes, helping to revise them to effectively exploit not only Cityworks but also your existing data and resources, all while adhering to existing business or regulatory rules and policies.

As MSWD implements new solutions, you will be well served to address change management. After all, if the system is not used to its full potential, the project will not succeed. Our approach includes change management on multiple levels, as described in our proposed scope of services. Our use of best practices and strong consulting experience ensure that the cloud-based Esri ArcGIS, Utility Network, and Cityworks AMS solution fits properly within your organization and differentiates Timmons Group from other system implementers. We are a Platinum level business partner with Cityworks and a Gold level partner with Esri, as well as Utility Network Certified and a trusted partner with Amazon Web Services, for a reason.

As you review our proposal, keep in mind the following key points that differentiate our team:

- We require no teaming partners to achieve your desired result
- We have performed what is basically this same project with other clients across North America in the recent past, including your neighbor, Indio Water
- Our team will have one project manager, Lauren Sullivan, PMP, a southern California native who is residing in Portland, OR. She and other team members will guide you through project components as they are implemented,

provide on-going support and staff augmentation for the cloud-based managed services, GIS deployment and maintenance expertise, and Utility Network and Cityworks AMS implementations

- Ally Reynolds and Drew Purzycki are two of only a handful of experienced GIS professionals who have been certified by Esri in the ArcGIS Utility Network
- Timmons Group is one of only a few firms that is both Esri Utility Network certified and a Trimble Cityworks Platinum level implementation partner
- Timmons Group has 135+ successful Cityworks implementation across North America
- Timmons Group has 15 Utility Network projects across North America, including Indio Water Authority
- We won a UN implementation award at the IMGIS conference in Palm Springs in 2023. This is as much an award for Timmons Group as it was for Indio Water Authority
- Timmons Group is currently hosting and providing managed services for multiple enterprise Esri ArcGIS & Cityworks deployments across North America.

To ease your review and to provide organization, we have divided the project into five high-level components detailed individually. However, we will manage, design, and deploy as one project with the realization they are part of one cohesive solution to MSWD. These components are:
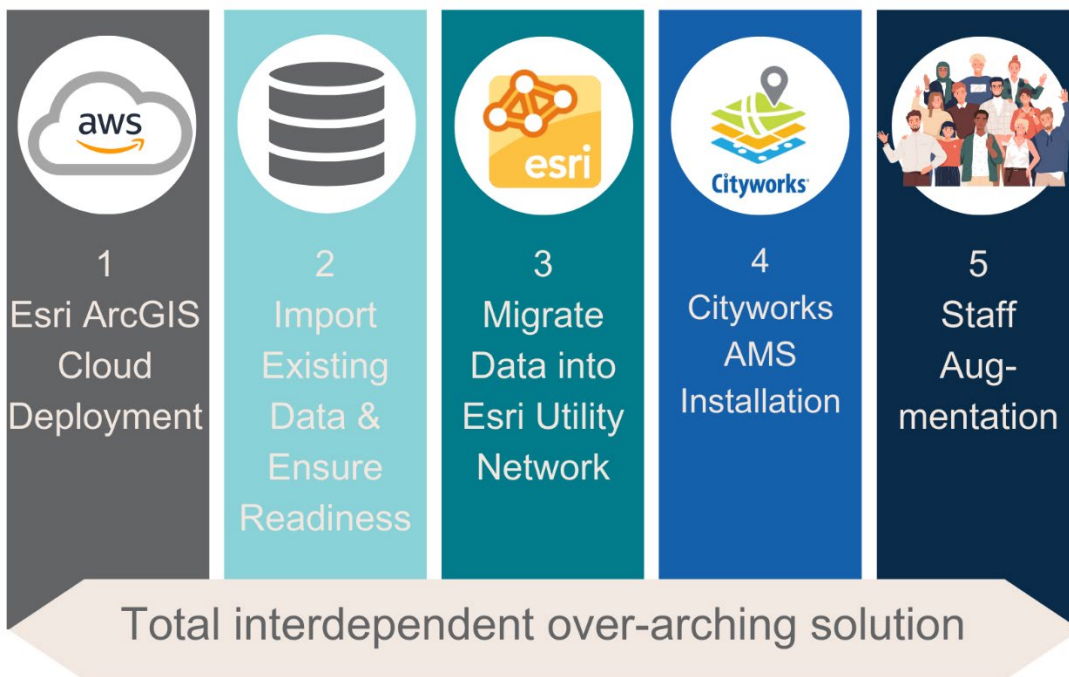
SCHEDULE

For planning purposes, we have included a preliminary schedule. Our initial proposed schedule is based on extensive experience with similar projects, but we will work with MSWD to adjust the schedule as necessary. A more detailed and interactive Gantt chart is available here: https://app.smartsheet.com/b/publish?EQBCT=80a98ff143414fc9a93f6a6a79751878.

	Task Name	Durati...	Start	Finish
1	ArcGIS Enterprise, Cloud, Utility Network, and Cityworks Implementation	413d	02/26/24	10/22/25
2	Notice to Proceed	1d	02/26/24	02/26/24
3	Project Initiation	26d	02/27/24	04/02/24
9	Project Component 1: ArcGIS Enterprise Cloud Deployment	326d	03/06/24	06/30/25
10	Discovery	19d	03/06/24	04/01/24
16	Technical Design	19d	04/02/24	04/26/24
23	Build Cloud Infrastructure	14d	04/29/24	05/16/24
29	Configure Software	15d	05/17/24	06/07/24
34	Testing and Launch ArcGIS Enterprise Environment on AWS	259d	06/10/24	06/30/25
37	Project Component 2: Import Existing Data and Ensure Readiness	387d	04/02/24	10/22/25
41	Project Component 3: Migrate Data into ESRI Utility Network	342d	03/12/24	07/29/25
42	GIS Discovery	15d	03/12/24	04/01/24
44	UN Data Model Design & Editing Tools	84d	04/02/24	07/31/24
60	UN Migration	65d	08/01/24	11/01/24
66	UN Testing, Training, & Go-Live	188d	10/21/24	07/29/25
67	Testing and Training	84d	10/21/24	02/28/25
75	UN Go-Live	11d	07/15/25	07/29/25
82	Project Component 4: Cityworks Implementation	355d	03/12/24	08/15/25
83	Cityworks Asset Readiness	47d	03/12/24	05/15/24
91	Cityworks Environment Preparation & Setup	22d	09/20/24	10/22/24
101	Core System Implementation	111d	10/23/24	04/10/25
122	Cityworks Systems Integrations	91d	10/01/24	02/20/25
143	Cityworks Data Migrations	163d	10/17/24	06/18/25
165	Cityworks User Acceptance Testing	85d	02/20/25	06/20/25
179	Cityworks Training	58d	04/21/25	07/14/25
185	Cityworks Go-Live	82d	04/21/25	08/15/25
192	Project Component 5: Staff Augmentation	0	04/02/24	04/02/24
193	Managed Services	259d	07/01/25	06/30/26
194	(Optional) Cityworks Support Services	260d	08/18/25	08/17/26

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APPROACH

Project Initiation & Project Management

Successful implementation of the tools required for a project of this type requires a thorough understanding of the individual processes and information management applications used throughout the organization. An appropriate level of planning and strategizing is required to ensure the end-users' needs are identified, understood, and designed for prior to implementation of any solution. Timmons Group is committed to providing MSWD with the resources needed to achieve your goals and the priority to complete each task on schedule and within budget. Our dedicated staff will provide you with consistent, responsive service. We have established a strong team, based on similar projects, client success and certification status. All Project Team members selected for this engagement have recent significant experience in the planning, design, and implementation of multiple enterprise cloud-based Esri ArcGIS, Esri Utility Network and Cityworks projects of varying depths and complexities. However, in our experience, these competencies alone do not automatically translate into successful projects. Rather, the key to project success is the proper use of available resources within the framework of a well-managed project plan that completely addresses each of the following processes:

> Successful program management requires a high degree of commitment to both operational and fiscal results; an acceptance of accountability for conformance to project requirements; and the people skills to forge a synergistic chemistry between diverse stakeholders.

- Initiation – project authorizations and expectations
- Planning – project definitions, objectives, deliverables, and analysis of alternatives
- Execution – coordination of resources, quality control, delivery of products and services
- Controlling – monitoring and measuring to identify variances and initiate corrective actions
- Closing – acceptance of project results and deliverables

As previously stated, the success or failure of the components required for the success of this project is most often not attributable to the technology components, but rather to managing the implementation of the cloud-based platform and software solutions and the organization's ability/inability to effectively achieve the change associated with the implementation. We will partner with MSWD in developing a strong body of users throughout the implementation process. The widespread adoption that is often anticipated by the project stakeholders during the planning and development of enterprise systems can quickly wane shortly after implementation if the change process is not effectively managed. With our Project Manager serving as the hub of our team, and the conduit of communications between our subject matter experts and the MSWD core team, we propose to use the following management tools to manage the proposed project programmatically and proactively to a successful end. The following implementation and support functions will be addressed in the project plan with designations for each implementation/deployment phase recommended:

- Project Planning/Execution
- Communications Planning/Execution
- Cloud Design, Implementation and Testing
- Business Review and GAP Analysis
- System/Application Configuration and Validation
- Data Analysis, Design and Development
- Customization/Interface Analysis, Design and Development
- Testing (System, Performance and User Acceptance Testing)
- Training and Documentation
- Implementation
- Operations, Maintenance and Support

The project components and their associated tasks detailed below are designed to meet the full requirements of the RFP from the perspective of providing the required professional services to meet the full requirements as detailed within the RFP. Project Initiation sets the stage for downstream activities and tasks. This is the time to better define the overall goal of the project and what stakeholders hope to ultimately gain from the effort. During initiation, it is important to define who will be working on the project and their respective roles, as well as who will make business decisions and establish priorities for what ends up in the application. Project initiation tasks are typically not time-intensive but are very important to the success of the project. By having clearly defined roles, the project team can minimize inefficiencies and streamline the requirements gathering and decision-making process. On notice to proceed, we will convene at an internal Timmons Group team meeting to ensure the entire project team understands the overall goals of MSWD's project and what the project schedule is. Our Project Manager will be in contact with the MSWD Project Manager to discuss the kick-off

meeting agenda and project schedule. Timmons Group will draft a kick-off meeting agenda for MSWD to review and edit. Our Project Manager will also provide a detailed project management plan to include phases, tasks, task dependencies, and task durations prior to the kick-off meeting.

Our Approach to Project Management

Timmons Group specializes in delivering enterprise GIS & Asset Management solutions for our clients. We have accumulated years of experience and lessons-learned that have shaped our project management and implementation approach. Our project manager will be responsible for:

- Facilitating meetings between the Timmons Group team and MSWD project stakeholders
- Preparing for, and conducting, all on-site and on-line meetings
- Reporting risks and impediments to the team as issues arise and maintaining a risk registry on our web-based project portal (Teamwork)
- Maintaining the project work plan and project schedule
- Managing change
- Monitoring and reporting project performance

Project Management Plan (PMP)

The PMP integrates and consolidates all the subsidiary management plans from the planning process, including:

- Scope management plan (including the change management process)
- Schedule management plan
- Cost management plan
- Quality management plan

- Human resource plan
- Communications management plan
- Risk management plan
- Procurement management plan

Mutually agreed-on project baselines are established for schedule, cost, and scope. These baselines are combined into a performance measurement baseline against which integrated performance can be measured throughout project execution. Our Project Manager will develop and deliver a PMP outlining the tasks, schedule, deliverables/milestones, communication plan and the associated resources (internal/external) necessary for the project to be successful.

Kick-off Meeting

The Project Manager will organize the kick-off meeting, which will include participation from key project stakeholders and client staff. This meeting will focus on:

- Team Introductions
- Overall Project Goals/Objectives
- Project Roles and Responsibilities
- Status Meeting Cadence and Status Report Content
- Team Collaboration Site

- Project Work Plan and Milestones
- Change Management Process
- Invoicing Process
- Summary of Deliverables
- Action Items and Next Steps

Our Project Manager will provide the kick-off meeting summary notes to MSWD for review and comment before finalizing them. Additionally, the following will be created, modified, and then finalized:

Project Repository – Timmons Group will maintain procedures throughout the project for tracking and reporting progress. We will establish a dedicated, secure online project portal (Teamwork) that provides centralized, on-demand access to project documents and status. Our approach to project management is very "hands-on" and will support constant communication to minimize project risk, remove impediments to progress, and to ensure that we are delivering the best possible solution. Standard project management documents that will be posted to the project portal include: status reports (MS Word), current and past versions of the project work plan (Smartsheet), key project decision log, risk register and a task/action item log. Monthly we will provide MSWD with a project status report that documents the activities performed during the previous month. At a minimum the report shall address the following:

- Status of all tasks
- Deliverable status
- Configuration status
- Forecasted Deliverable status for the next reporting period
- Resource status for the project, including staff utilization
- Schedule status for the project including task status, milestones completed, phases completed, schedule trends and schedule summary

- Comparison of actual percent complete versus scheduled for the work breakdown structure
- Issues, risks, and resource constraints which are affecting or could affect progress including proposed or actual resolution
- Proposed changes to the project work plan, reasons for the changes, and approval/disapproval determination for any proposed changes
- Updated detailed project work plan with approved changes highlighted
- Key decisions (technical and administrative)
- Open action items
- Schedule update
- Financial update
- Project performance measurements

Project Management Plan – After the kick-off meeting, we will make any necessary adjustments to the project management plan. This may include the identification of new tasks, changed dependencies, or changed task durations. In addition to the formal processes, tools, and documents detailed above, Timmons Group also has several other processes and documents to manage a project, including:

- Scope Management Plan
- Communication Plan
- What is being communicated
- To whom it is to be communicated
- How it is to be communicated (e.g., in-person, email, call)
- When it is to be communicated
- Schedule Management Plan
- Risk Management
- Quality Management
- Quality Assurance Plan
- Acceptance Procedures
- Status Report Template
- Ongoing Project Management

Project Component 1: ArcGIS Enterprise Cloud Deployment

ArcGIS Enterprise Discovery and Technical Design

Timmons Group has developed a proposed approach and schedule to optimize delivery to MSWD in a cost-efficient manner. Timmons Group is flexible in the approach and schedule for MSWD's ArcGIS Enterprise cloud deployment. Our approach summarized below is a systematic process we have refined over decades of experience with ArcGIS for hundreds of clients with a broad range of requirements. We start with a Discovery to build shared understanding of detailed requirements and desired outcomes and the steps that follow Discovery are flexible based on what we learn and what MSWD needs. From a schedule perspective we started with deploying a lower development environment for ArcGIS Enterprise to support components 2-4. Starting with a single environment provides MSWD cost savings by holding off on deploying and operating the production ArcGIS Enterprise environment until the necessary capabilities and data are ready to support MSWD's day to day activities. Based on MSWD's preferences and requirements the ArcGIS Enterprise production deployment can occur at any point in the overall project duration once the development environment is validated to meet the to be defined parameters for Go-Live.

Discovery

The purpose of Discovery is to document every relevant component of the current GIS so that all capabilities and functionality are accounted for in the cloud deployment. The GIS software, including extensions and add-ins, will be documented along with the licensing currently available to MSWD. Our team will document custom processes like database triggers, geoprocessing tools, stored procedures, views, or scheduled tasks running via Python or other tools as well.

ARCHITECTURE REVIEW AND VALIDATION

Timmons Group will work with MSWD to review the current system architecture. This will include the servers currently in place and the various software configurations in place for these servers. The goal is to ensure that Timmons Group, to the best extent possible, captures the current system configuration and dependencies of MSWD's GIS prior to finalizing the technical design and implementing a new GIS infrastructure.

CATALOG EXISTING DATA AND SERVICES

The current database(s)'s properties and data, users be documented for consideration during the migration. Users, roles, and schemas will be documented along with any versioning methods, if applicable.

CATALOG GDBS AND AGS SERVICES

Timmons Group will spend time working with MSWD to review the current GIS databases supporting the GIS architecture. This will include enterprise geodatabases (SDE), non-enterprise geodatabases, and other GIS data sources necessary to support the current GIS system. The goal here is to ensure that Timmons Group to the best extent possible captures the current system configuration and dependencies of MSWD's GIS prior to finalizing the technical design and implementing a new GIS infrastructure on AWS.

COLLECT AND DOCUMENT SECURITY REQUIREMENTS

Timmons Group will facilitate a workshop with MSWD IT staff to capture and record security requirements for the new GIS environment. These requirements will focus on security controls, identity access and management, network security and security logging.

COLLECT AND DOCUMENT SYSTEM INTEGRATION REQUIREMENTS

Integrations are a critical component of a successful enterprise implementation and before integrations can be implemented, networking must be designed and configured to facilitate communication between the various systems. Timmons Group will work with MSWD to review the current desired integrations with the enterprise GIS including Cityworks/ Cityworks Online. This will include the details and dependencies of integrations with third party systems including the networking ports and protocols required. The goal here is to ensure that Timmons Group to the best extent possible captures the current system configuration and dependencies of MSWD's GIS prior to finalizing the technical design and implementing a new GIS infrastructure on AWS.

Technical Design

DESIGN ARCHITECTURE

Timmons Group will create a system architecture design document with MSWD to ensure system specifications will meet the performance and security needs of MSWD. Timmons Group intends to review system architecture design documents for the new AWS Cloud environment with MSWD to ensure system specifications will adequately meet documented technical requirements.

DESIGN USER IDENTITY AND MANAGEMENT STRATEGY

Depending on the final technical design and other MSWD IT resources, we may leverage the following components to properly authenticate and authorize ArcGIS Portal users. If available from MSWD, Enterprise logins via HTTPS/SAML or OpenID Connect will use MSWD's Federated Identity Management platform. A typical security pattern for Timmons Group is summarized below:

Summary System Security	
Security Control	**Description**
Authentication	Single Sign-On (SSO) via SAML integration with Enterprise Identity Management System
User Store	Enterprise Identity Management System
Role Store	Built-in
User Provisioning	Enterprise Identity Management System
GIS Services Access	Federated security to GIS Portal groups
GIS Portal Access	Portal for ArcGIS: Domain Accounts and RBAC via group membership

DEVELOP TEST PLAN

Our team will develop a test plan to validate the new GIS environments are functioning properly. The test plan will cover high level testing to ensure capabilities, data, services and security configuration are implemented as designed.

DESIGN AND DEVELOP BACKUP AND DISASTER RECOVERY PLAN

Timmons Group will work with MSWD to follow our proven disaster recovery (DR) framework composed of two phases, preparation and recovery. Leveraging our DR framework, we will work to understand MSWD's needs and business risks to define recovery objectives. Two components of recovery objectives are recovery time objective (RTO), defined as the time it takes after a disruption to restore a business process to its service level, and recovery point objective (RPO), which is defined as the acceptable amount of data loss measured in time. With clearly defined recovery objectives in place, we evaluate and select the best strategy; e.g. traditional backup and restore, pilot light for quick recovery, warm standby, high availability multi-region deployment. We follow our framework for preparation to design and implement the strategy using automated processes including testing, monitoring, and alerting. Following the Preparation Phase of the DR framework, we exercise the Recovery Phase frequently to provide assurances these processes operate as designed and measuring RPO and RTO to ensure these objectives are successfully met.

DEVELOP OPERATIONS PLAN

Timmons Group will develop a cloud operations plan for the new GIS environment. The operations plan will document operational roles and responsibilities, service level objectives, monitoring and alerting, incident response plan, scaling and resource management policies, security measures implemented, cost optimization, and change management processes.

REVIEW SYSTEM ARCHITECTURE

Timmons Group intends to review system architecture design documents for the new AWS Cloud environment with MSWD to ensure system specifications will adequately meet documented technical requirements.

Build Cloud Infrastructure

Timmons Group will establish a new AWS Account under the Timmons Group main AWS account to provide separation for accurate billing each month. Within the dedicated AWS account Timmons Group will deploy AWS Virtual Private Cloud (VPC), networking and security services to support and protect the environments as well as isolate MSWD's development environment from production. The remaining steps of this stage will first be performed to deploy the development environment and once validated infrastructure for production will be deployed. Our team will provision EC2 instances to support the ArcGIS Enterprise deployment model chosen and the requirements defined in Discovery. Next our team will build the data and storage tier. The final step for infrastructure will be to implement the backup and disaster recovery plan; testing disaster recovery will happen post software installation and configuration.

Configure Software

ArcGIS Enterprise workflows and functionality are enabled by four software components. This configuration is the base ArcGIS Enterprise deployment. Each component performs critical functions that support the requirements of the ArcGIS Enterprise deployment. Components are individually installed and configured to function together. This base deployment is the foundation for the ArcGIS Enterprise implementation. Where possible, our team will leverage automation to configure the ArcGIS Enterprise components.

CONFIGURE ARCGIS PORTAL

At the heart of the new environment, ArcGIS Portal will be deployed in a base and distributed configuration. Our team will build the necessary ArcGIS Portal instance(s) required for the new environment. We will target the GIS platform 11.1.1 (or higher ".1 release," if desired by MSWD and recommend Esri LTS versions for production workloads) and follow the System Design Architecture artifact from the design phase that includes Esri's best practices to be followed in the implementation and configuration. Our team will follow Esri's best practices for secure ArcGIS Portal configuration as documented here: https://enterprise.arcgis.com/en/portal/latest/administer/windows/security-best-practices.htm

CONFIGURE ARCGIS SERVER

Our team will build the necessary ArcGIS Server Instances required for the AWS cloud environment. ArcGIS Server instances will be federated with Portal. With federated ArcGIS Servers, the portal's security store controls all access to the ArcGIS Server instance. This provides a convenient sign-on experience but also impacts how access and administration of the federated server(s) are controlled. Our team will follow Esri's best practices for secure ArcGIS Server configuration as documented here: https://enterprise.arcgis.com/en/server/latest/administer/windows/best-practices-for-configuring-a-secure-environment.htm

CONFIGURE ARCGIS DATA STORE

Our team will configure ArcGIS Data Store to support the base Enterprise deployment. Data stores can include relational data store, tile cache data store, graph data store and or object data store for the hosted GIS environment.

CONFIGURE ARCGIS WEB ADAPTOR

Our team will configure ArcGIS Web Adapter in accordance with the technical design to support the appropriate deployment scenario to provide the appropriate access and restrictions at the web tier for the GIS implementation.

DEVELOP ARCGIS ENTERPRISE ADMINISTRATOR GUIDE

Our team will develop documentation for ArcGIS Enterprise administration including user and role management.

DEVELOP USER GUIDE FOR ARCGIS ENTERPRISE

Our team will develop a user guide for ArcGIS Enterprise for GIS staff to connect and use the new ArcGIS Enterprise environment leveraging ArcPro and ArcGIS Portal for daily tasks.

Testing and Launch ArcGIS Enterprise Environment on AWS

TEST ENVIRONMENTS PER TEST PLAN

Our team will follow the test plan to review and validate the new ArcGIS Enterprise deployment is configured as designed. Our team will resolve any issues uncovered and retest until all issues are resolved and provide MSWD with documented test results.

DEPLOY AWS ENVIRONMENT AS PRODUCTION ENVIRONMENT

In this stage, the new ArcGIS Enterprise environment will be deployed and released to users and GIS staff for production use. Since MSWD doesn't currently have an existing ArcGIS Server or Enterprise environment the sequencing and timing of this event should be flexible though does need to be completed before the UN migration and Cityworks implementation can be finalized in the following project components.

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Project Component 2: Import Existing Data and Ensure Readiness

System Migration Discovery & Planning

Early in the project, we will hold holistic discovery and planning sessions to ensure that all the component projects will be implemented in a way, and on a schedule, that makes sense and reduces both downtime and any need for duplicative editing. This will ensure that data gets migrated efficiently and at the time that makes the most sense so the new AGE, UN, and Cityworks are functional. This task might result in changes to the overall and component schedules to ensure we meet MSWD's business needs.

Migrate LandBase Data

Timmons Group will migrate MSWD's Landbase and other non-utility layers to the new enterprise geodatabases in Dev and Prod. Timmons Group does not recommend migrating the utility data to the enterprise geodatabases prior to the UN implementation. This will merely result in their replacement during the next Project Component.

UN Data Readiness Assessment

Timmons Group usually includes a "UN Data Readiness Assessment" as an early phase of our UN migration projects. However, due to the lack of resourcing and current GIS management practices (mdb and shapefile), we recommend forgoing this phase for MSWD. We will deploy the UN without prior data cleaning which will result in an inability to build subnetworks (and therefore run certain kinds of traces), but data cleaning can be automated as part of our migration processes with FME. In addition, data corrections can be more efficient in ArcGIS Pro/the UN because the errors will be exposed by the UN's validation workflow. Once the data has been cleaned, post-implementation, subnetworks and tracing will be fully functional.

Data Clean-up

After the UN is deployed to Production, Timmons Group will provide GIS editors to clean the data within the UN so that subnetworks can be successfully built. This will require access to source documents like As-builts to ensure edits can be completed correctly. This task will be completed using a time & materials rate.

Project Component 3: Migrate Data into Esri Utility Network

GIS Discovery

Timmons Group will work with MSWD to review the current GIS data. This will include the GIS databases, .mdb files, shapefiles, and other GIS data sources necessary to support the current and future GIS. The goal is to ensure that Timmons Group, to the best extent possible, captures the current system configuration and dependencies of MSWD's GIS prior to finalizing the technical design and implementing a new GIS.

UN Data Model Design & Editing Tools

DATA MODEL DESIGN

Per MSWD's request, the data models provided by Esri's solution will be used. However, there are customizations that Timmons Group have already done to these "base" data models to increase compatibility with Cityworks. These customizations will be used to ensure the success of the Cityworks component of this project. Per Cityworks discovery sessions, additional fields will be added to the data models, as required by MSWD's business requirements (for example, adding a WarrantyDate field).

EDITING TOOLS

Timmons Group will configure the UN databases and editing environment to ensure the highest possible data quality and to streamline editing workflows. Our team will configure Calculation and Validation Attribute Rules (AR) to ensure data quality; for example, Attribute Rules will generate the unique IDs that Cityworks requires. We will use a list of common rules and work with MSWD to ensure it meets business needs. Group editing templates will be configured per needs discussed during the workshops. This often involves items like hydrant and meter/service connection editing templates to streamline editing. These templates will be designed and documented at this stage but not built until the UN is deployed in the DEV environment. We recommend holding off on UN Diagrams until after the UN is in use and everyone at MSWD is comfortable with it.

UN Migration

DATA MIGRATION

Timmons Group will use Safe Software's FME product to migrate the data from the current data sources to the UN database from the previous phase. We will generate a Data Migration Matrix that show how each data source will be migrated to the UN data model, down to the field level (or domain values, as available).

The migration process can enhance and enrich the data mid-migration; for example, if a feature needs an attribute created based on a feature that it intersects, that can be created by the migration tool. We can also snap features together, within reasonable tolerances (e.g., hydrant to the end of a nearby lateral), and populate UN-specific data like subnetwork controllers. This is an iterative process; MSWD will have multiple chances to provide feedback both at the Migration Matrix stage and the actual data migration stage.

MIGRATION TO DEV ENTERPRISE ENVIRONMENT

Following migration approval, Timmons Group will move the draft migrations from file geodatabase into the DEV enterprise geodatabases in MSWD's environment and enable global IDs, editor tracking, branch versioning, and replica tracking. The mxd files will be migrated to ArcGIS Pro and re-built as necessary for the UN data model.

PROVIDE DOCUMENTATION AND THIRD-PARTY SOFTWARE

Timmons Group will share the created FME Workbenches to migrate the data and an updated Data Migration Matrix with MSWD.

Systems Integration

CITYWORKS

Following the identification of the Asset Types for Cityworks, Timmons Group will publish a feature service from Dev for Cityworks' Development environment to use. This will use definition queries to provide the relevant features for each Cityworks Asset Type.

CUES GRANITENET

If needed, a Map Package will be created for offline use by GraniteNet.

UN Testing, Training, and Go-Live

TIMMONS GROUP TESTING

Timmons Group will create a comprehensive testing plan that will:

- Identify team members and their roles and testing responsibilities
- Clearly delineate what is in-scope based on business needs

- Identify test criteria, environment, assumptions, and phases
- Create test scripts to ensure relevant functionality is addressed

Testing will be conducted on the DEV environment to ensure the UN data model and ArcGIS configurations are functional. We will also ensure the infrastructure is configured for good editing and viewing performance. Timmons Group will conduct system testing and functional testing prior to user acceptance testing (UAT) to ensure the system is ready for use. Changes to the data model, the data, the ArcGIS Pro configurations, or the test scripts are all possible. Once Timmons Group has passed the agreed-on test scripts, MSWD will receive training to prepare staff members to conduct their testing.

TRAINING
Once the migration is deployed to the DEV environment and tested by Timmons Group, we will provide four days of training: two days focused on office editing, one for field/mobile editors, and one day focused on administration. These focused training days align with the Workflow Guide documents that Timmons Group will provide. Following these trainings, the MSWD team will be empowered to use the Test Scripts to ensure full functionality of the implementation in the DEV environment so that the solution can be approved for Go-Live.

MSWD TESTING
MSWD will conduct testing following the test scripts that Timmons Group provided. It is possible that MSWD will have additional tests to perform, per IT requirements. Once MSWD passes the tests, Go-live approval should proceed.

UN GO-LIVE
Following successful UAT on DEV and with go-live nearing for Cityworks, an editing freeze will occur in the current production environment. The data will be extracted from the current production database and used in the final iteration of the migration tool. We will then load the UN data to the production environment, with configurations (e.g., attribute rules, editor tracking) applied. Feature services will be published and editing maps re-sourced to the production environment. Test scripts will be followed to ensure that functionality is still present and stable in this final environment. Integrations will be updated to ensure all functionality works as expected. This Go-Live process and regression testing is expected to take about a week. Timmons Group will work through the weekends to minimize downtime.

Project Component 4: Cityworks Implementation

Timmons Group has developed a phased and collaborative project approach that will provide the best overall solution to MSWD. (The methodology description is highly summarized to respect the required page limitations of our proposal). Our approach for each major Stage and Task is centered on four major program components:

- Project Management
- Core Software Configuration
- Department (Functional Group) Specific Implementations & replacement/integration of/to various existing/future systems
- Data analysis, reporting, and dashboards

Cityworks Asset Readiness

CITYWORKS ASSET HIERARCHY DESIGN & GAP ANALYSIS

In line with the work Timmons Group is completing as part of Project Component 3, Timmons Group will work with MSWD to establish an Asset Hierarchy for the new data model. Timmons Group will first host an overview of how assets are defined and used in Cityworks, then host one or more workshop(s) to review the defined assets and GIS with stakeholders. The outcome of these workshops are twofold: the Asset Hierarchy and the GIS Gap Analysis, which will serve as the backbone of the Cityworks implementation and should include all assets MSWD wishes to maintain in Cityworks, including vertical assets.

Task Group Deliverables

- Asset Hierarchy workshops, 4 hours total duration
- Asset Hierarchy spreadsheet (database design basics)
- GIS Gap Analysis & review meeting, 2 hours total duration

Cityworks Environment Preparation & Set-up

CITYWORKS KICK-OFF

Project team members and participating MSWD staff will participate in a Cityworks Phase Kick-off held to introduce project participants, establish roles and responsibilities of project participants, validate goals and objectives, establish the lines of communication for use throughout the project, and to answer any questions the staff may have. The kick-off meeting will include a Cityworks software demonstration.

CWOL OVERVIEW & INTEGRATING SYSTEMS DISCUSSION

We will meet with the Project core team to conduct a review of current and planned system architecture to address:

- Overview of Cityworks Online, including upgrades post Go-Live
- Review of Cityworks licensing
- Review mobile options for Field users, including devices and the current MDM solution in use
- A review of existing architecture and licensing per scoped system integrations.

LEGACY DATA/SYSTEM REVIEW

Timmons Group will host a walkthrough of a typical workflow completed by the agency in the current asset management system. The agency will share an existing workflow diagram (if existing), talk through the current business process and drivers, and demonstrate steps in the existing software system(s).

STAND UP CITYWORKS ONLINE

Timmons Group will liaise with Trimble Cityworks to stand up Cityworks Online (CWOL) and set up an administrative account to begin the configuration process.

CORE SYSTEM DATA MAPPING

The implementation team will define core configuration data in Cityworks and meet with MSWD to review the data mapping spreadsheets. The Cityworks core data mapping forms a portion of the Cityworks System Design Document. With our implementation team's assistance, MSWD will provide data to populate portions of the software prior to the Configuration Workshops. Any information MSWD can deliver prior to the workshops will be used by the implementation team to design, configure and implement the initial Cityworks configuration. The Cityworks Core System Data consists of the following:

- Employees – A list of all employees with titles, email addresses, contact information, labor rates, rate types
- Materials – A list of materials/parts that are used by your organization to complete work
- Equipment – A list of vehicles and heavy equipment used by your organization to complete work
- Contractors – Details about contractors used for work activities.

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- Customer Accounts – Details about customers used as a lookup for service request creation.
- System Codes – Priority, status, categories and other fields on service requests, work orders and inspections

Task Group Deliverables
- Project Kick-off presentation & meeting minutes
- CWOL Overview & Integrating Systems meeting
- Cityworks Online environment stood up
- Legacy Data/System review meeting
- Cityworks AMS Core System Data meeting
- Cityworks AMS Core System Data spreadsheet
- System Design Document draft for assets and core configuration data

Core System Implementation

CITYWORKS CONFIGURATION SPRINTS
The Timmons Group Project Manager will work with the MSWD Core Team to develop a scheduled cadence of the configuration to meet the requirements provided by the team.

- Configuration sprints will typically last three weeks
- Configuration sprints will include workshops to cover configuration workflows for each Functional Group that will cover discussion of asset categories, configuration of work order and inspection workflows, relevant interfaces, reports used, and data migration considerations.
- After configuration workshops, the MSWD Core Team completes any remaining areas in the worksheet not covered during workshops.
- Once returned, Timmons Group will use the worksheets to configure the system for the Functional Group.

Configuration sprints will culminate in a review meeting with the pertinent members of the Project team where MSWD will have the opportunity to provide feedback for any necessary remediation. Services for this task will include, but are not limited to:

- Work activity templates
- Work activity default roles and responsibilities where they exist
- Identification of data elements that are necessary to capture with any activity type
- Inventory (material) types and requirements as they exist in relation to work activity
- Equipment types and requirements as they exist in relation to work activity
- Existing datasets used or slated to be used in the proposed work activity processes
- Work activity printout forms or print templates where necessary
- Reporting or data tracking needs or requirements as they relate to work activity processes
- Identification of any touchpoint for integrated software(s) as they relate to Cityworks work activities

REPORT & DASHBOARD DEVELOPMENT
During discovery workshops and review meetings with each Functional Group, we will identify the reports and dashboards that are critical to MSWD's operations and leverage existing reports when it makes sense or create new reports and dashboards as necessary. This process of report and dashboard development will include the following:

- Catalog required reports/dashboards – The implementation team will first host a Prioritization Workshop, then work with Functional Groups to identify and catalog any existing reports that are required for continued use with Cityworks. The team will also work to identify any new reports/dashboards that Functional Groups determine helpful or necessary for their asset management needs.
- Create identified reports and dashboards – The implementation team will develop reports and dashboards and test them against the development Cityworks environment. Dashboards may be built in a variety of reporting tools, from data visualization software to dashboards in Cityworks.
- Review and remediation of reports being developed – The implementation team will meet with Functional Groups to review developed reports and make any adjustments or alterations to those files as necessary.

SYSTEM DESIGN DOCUMENT
Once all required information regarding the current work order management, service request, and inspection processes are collected and organized, our implementation team will work together to analyze and document the configuration in the System Design Document. This document serves as a reference of configuration decisions, reports, business processes and other information compiled during the implementation effort.

Task Group Deliverables

- Workflow Diagrams (To-Be)
- Configuration Worksheet
- System Design Document updates to include business requirements and business processes
- Report /Dashboard Catalog
- Development of Reports/Dashboards
- Modification and QC of Reports/Dashboards

Cityworks System Integrations

ENTERPRISE INTEGRATIONS OVERVIEW

The concept of the enterprise system is to create interface points for solutions to share appropriate information with other software systems. Our team has extensive experience both configuring software and systems leveraging Cityworks APIs that include Service Request, Work Order, Inspections and metrics, the Cityworks Software Development Kit (SDK), and existing interfaces or modules for numerous customer billing, SCADA, Financial, Fleet Management, Billing, AVL, UDF, leak detection, fuel, playground equipment, and other systems. For the integrations requested, firstly, MSWD has identified Esri ArcGIS to be integrated with Cityworks. Understand that due to the architecture of Cityworks the integration to Esri ArcGIS requires no effort, it is built into the solution proposed (Note: Cityworks leverages Esri ArcGIS for Active Directory integration; MSWD likely has the requisite licensing but may require Esri system architecture changes).

The integration with Granite.NET is identified in the response to questions posed by Cyient and released on January 8, 2024 as being unnecessary for this phase of the project. This integration is therefore an option to pursue after Go-Live of the Cityworks AMS implementation.

The second integration identified by MSWD is with DigAlert, Timmons Group will use a modified Agile methodology to write an integration between the integrating system and Cityworks. We find this methodology strikes the appropriate balance between developing an integration that is well designed, considers the best technology for achieving the implementation, and is fair regarding the level of effort to both our clients and to ourselves. For each custom integration (DigAlert), the project team will work to:

1) Define the functional requirements of the integration
2) Build the proposed workflows, business rules and identify the system of action and ownership (record) for each task identified by the workflow design
3) Understand the level of effort required to build the integration
4) Understand the level of effort required to configure Cityworks PLL to successfully use/perform the integration

INTEGRATION WORKSHOPS

Our team will kick off the integration effort by hosting a discovery & design workshop. The goal is to meet with Functional Group(s) and verify critical information relevant to how the integration should work to best meet user business needs. Discussion during workshops will include:

- Integration workflows
- Frequency of updates from integrating system
- Functional requirements of integration in the form of User Stories
- API call limitations
- Location of integration console application

INTEGRATION REQUIREMENTS REFINEMENT AND GENERATION OF ACCEPTANCE CRITERIA

The Timmons Group Solutions Architect and development team will compile the final requirements of the integration. The Timmons Group Solutions Architect will work with MSWD to define acceptance criteria for each requirement. These requirements will include which data will pass between systems, how frequently data updates will occur, and the methodology by which data will be transmitted.

FINAL INTEGRATION DESIGN DOCUMENT

Timmons Group will develop a final document during this task, the Integration Design Document. This document includes:

1) Functional & technical requirements for the integration, including:
   a. Integration direction (1-way or 2-way), frequency, and triggers
   b. Final location of integration code or application
   c. Methodology/APIs used
   d. Error logging practices

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2) Out-of-Scope items
3) Assumptions
4) Questions & Responses

INTEGRATION USER ACCEPTANCE TESTING & TEST SCRIPTS

The user acceptance testing phase of the implementation project will offer staff the opportunity to review the integration and complete end-to-end testing. Timmons Group will identify the necessary steps to complete end-to-end testing, and staff will complete and confirm testing results. Feedback will be incorporated into a revision process that will guide modifications to the scripts and processes that initially drove the integration. Feedback will be submitted using the same methodology as the overall project UAT, and the integration testing acceptance will be folded into User Acceptance Testing sign-off.

INTEGRATION DEPLOYMENT

On completion of the testing process and acceptance by MSWD, the project team will prepare for final cutover, which will coincide with the release of the new systems on the Go-Live date. Timmons Group will deploy the integration in the Production environment.

Task Group Deliverables

- Integration Requirements documentation
- Integration testing and acceptance by MSWD

Cityworks Data Migrations

DATA MIGRATION/CONVERSION

One of the key objectives of MSWD is to migrate any desired legacy data to Cityworks from various systems. Inherent to that process is establishing a strategy to deal with the data that is being managed in what will become a legacy system. This task specifically addresses the datasets and systems that are slated for conversion into the proposed Cityworks solution. While the legacy datasets and systems targeted for conversion (ManagerPlus, Nobel Geoviewer) will span multiple database schemas, database versions and even database formats, the fundamental approach to successfully migrating data from one system to the other is, in fact, the same.

MIGRATION WORKSHOPS

The implementation team will work together to understand the data migration requirements. A series of discovery workshop meetings will be held to review current systems and their data schemas, as well as the review of requirements for the data migration effort. It will need to be understood by all team members what data needs to be moved from the legacy system to the Cityworks environment. MSWD should be prepared to determine what the state of the legacy system will be moving forward: understanding the accessibility of legacy systems may have an impact on what data is required to be migrated to the new Cityworks system. The team will also need to discuss and determine what defines 'success criteria' for the data migration. After reviewing and understanding the nature of the data in the existing system as well as the requirements for data to be moved to the Cityworks system, an agreed on percentage of records migrated is necessary. Timmons Group will document the outcomes of these discovery workshop meetings.
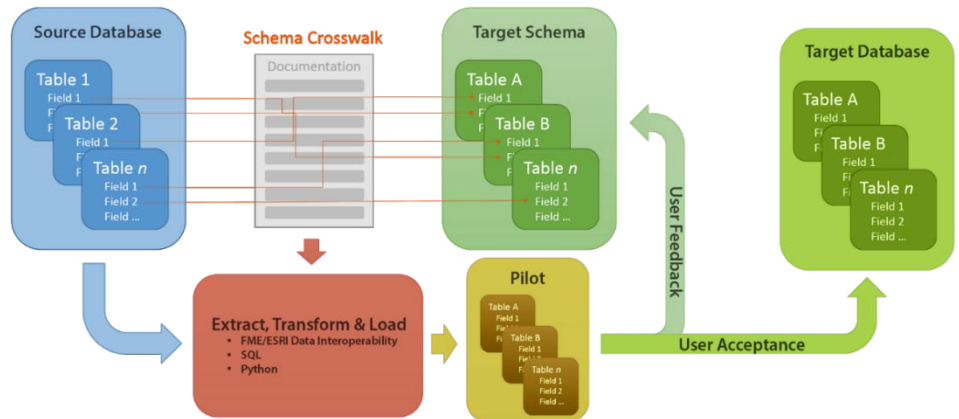
SCRIPT DEVELOPMENT

The project team will develop a series of processes to facilitate the actual migration of the source system data into Cityworks. Depending on the complexity and volume of the source data, the process may be a mix of manual and a scripted solution but will be established in a manner to ensure repeatability. The scripted solutions will be tailored to each specific data conversion effort and may range from native SQL Server scripts to third party migration tools but will ultimately follow a pattern referred to as extract, transform and load (ETL). The ETL process will be designed as a one-time process that will result in data migrated into a development Cityworks database.

DATA MIGRATION SPRINTS

Once the scripts are developed, the project team will test the converted data. This process is designed so that after the first data migration sprint (Draft) a review meeting will be held to note any issues or errors, make necessary adjustments to the scripts, and then repeat the process. A summary of the migration sprints will be provided to the client as well. This will be an opportunity to review the results versus the previously defined success criteria threshold.

DATA MIGRATION USER ACCEPTANCE TESTING

The user acceptance testing phase of the implementation project will offer staff the opportunity to review the migration data within the context of the proposed Cityworks system in contrast with the information contained in the source systems. The acceptance testing places more emphasis on the front-end testing, wherein users will interact with, interrogate and visualize data through the Cityworks interface. Feedback will be incorporated into a revision process that will guide modifications to the scripts and processes that initially drove the conversion. On completion of the testing process and acceptance by MSWD, the project team will prepare for the production conversion, which will coincide with the release of the proposed system and the retirement of the legacy solutions.

Task Group Deliverables
- Data Mapping Crosswalk
- Migration Run Summary
- Migration Acceptance

Cityworks User Acceptance Testing

DEVELOP TESTING AND ACCEPTANCE PLAN AND TEST CASES

The implementation team will work with MSWD to develop and administer a Testing and Acceptance Plan that addresses User Acceptance Testing (UAT). The Testing and Acceptance Plan will address how MSWD will test Cityworks software functionality and database configuration, including testing across the Cityworks platform (Respond and Mobile app) and tracking configuration defects for remediation. Data conversion and integration efforts will include their own discrete testing period. Timmons Group implementation team will also develop a series of testing scripts to guide testing users through the testing workflows. These scripts provide structure for testing users to follow during the execution of User Acceptance Testing. On completion of development of the Testing and Acceptance Plan, the Team shall submit said plan to MSWD for review and approval.

ACCEPTANCE TESTING

Prior to Go-Live there will be an acceptance testing period. During this period MSWD will test the Cityworks implementation to identify and resolve issues. The Testing and Acceptance Plan will frame and guide staff through the testing process, and users will follow the Test Cases to determine testing outcomes. User Acceptance Testing is kicked off by Tester Training, wherein Timmons Group implementation staff will host remote web meetings to train testers on the key components of the software. These training sessions are focused on the functions specific to testing. Timmons Group instructors will also provide support during the UAT period for users as needed. Users will follow the process outlined in the Testing and Acceptance Plan to submit defects to Timmons Group for remediation. At the end of the acceptance testing period, the client Project Manager will sign off on User Acceptance Testing to formally move the project into the Training phase.

Task Group Deliverables
- Testing and Acceptance Plan
- Testing scripts
- Tester Training
- Defect handling results and remediation.
- UAT Sign-Off

Training

TRAINING OVERVIEW

During each onsite meeting (e.g., kick-off, workshops, configuration review) our implementation team will consistently expose MSWD staff to Cityworks and basic workflows within the software. By the time the implementation project has reached Training, the focus of the task is system-wide adoption of the product and many staff will already be familiar with the Cityworks software.

TRAINING PLAN & PREPARATION

Our implementation team, in conjunction with the MSWD Project Manager and key stakeholders, will devise a training plan specific to your environment. Training is across the Cityworks platform as necessary per workflows/roles. The approach to developing this plan is detailed below. The training plan will include:

- Product training curriculum descriptions and instructors
- Training Materials
- Client responsibilities
- Schedule

This training plan will be used as a guide but may be modified when necessary to support the goals and techniques of staff resources. Additionally, Timmons Group technical staff will develop documentation and prepare the Cityworks environment for training.

CITYWORKS ONSITE TRAINING

Cityworks training is modular. Students attend those sections that are relevant to the type of work that they are performing. All courses include relevant materials and sample data. MSWD will identify who will be trained based on the criteria and needs that will have been identified during configuration workshops.

Task Group Deliverables

- Training Plan and Training Documentation
- Conduct Administrator Training
- Conduct End-user Training, classes per Training Plan

Cityworks Go-Live

CUTOVER, GO-LIVE, AND FINAL ACCEPTANCE OVERVIEW

The period between the end of Training and Go-Live Day is called Cutover. This period, typically over a weekend, follows a strict timeline to take MSWD live in Cityworks as quickly as possible after users have completed training. Preparation for Cutover begins prior to User Acceptance Testing to allow ample time to prepare the environment.

GO-LIVE CHECKLIST

Timmons Group will prepare a Go-Live Checklist to guide all key members of the project implementation team through the Cutover process. The Go-Live Checklist is a detailed task plan, including resource assignments, to support moving the Cityworks software from test to production environments over the course of the scheduled Cutover period.

GO-LIVE

Per the Go-Live Checklist, the implementation team will execute the tasks during the cutover period to take the production environment to "Live" status. Timmons Group will provide on-call or onsite Go-Live Support during the first days of Go-Live.

SYSTEM DEPLOYMENT SUPPORT & FINAL ACCEPTANCE

Timmons Group will provide support for the period between Go-Live and Final Acceptance while users begin adopting and the system stabilizes. Timmons Group will tie up loose ends, correct any new issues found, assist users in troubleshooting, host ad-hoc web meetings to aid users who need additional help after training, and guide Cityworks Administrators through the first steps administering the system.

FINAL ACCEPTANCE

Targeted around thirty days Post Go-Live, the system should be stable enough for Final Acceptance. Timmons Group will begin the transition to our Customer Success Manager, step through project closeout tasks, and host the final project meetings. MSWD will sign off on Final Acceptance.

Task Group Deliverables

- Go-Live Checklist
- On-call or Onsite Go-Live Support
- Final Acceptance Sign-Off
- Support transition meeting between project manager, support manager, and client representatives

Optional Post Go-Live
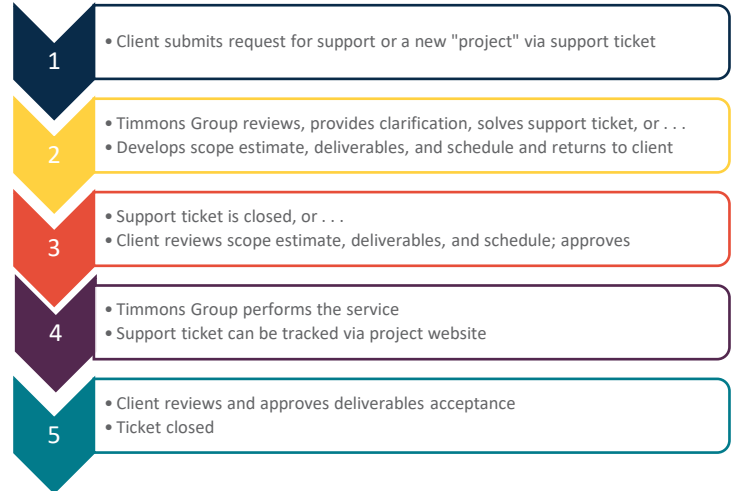
OPTIONAL POST GO-LIVE SUPPORT

Once Project Closeout is complete, our team will optionally provide 40 hours of ad-hoc support to address any configuration, implementation, or software installation opportunities that may arise. The client will have one year to use the optional remote support by department or functional group for the services provided. The contract can be renewed on an

annual basis and additional hours can be added. Time will be billed on a not-to-exceed, time and materials basis. Any required travel will be billed at cost. Unique amongst Cityworks business partners, Timmons Group has a formalized Client Support program led by a dedicated Client Support Manager. Our Client Support Manager is singularly focused on ensuring our clients are capitalizing on their investment in Cityworks. The CSM will maintain regular communication with you to ensure the software and any customizations are functioning properly and your goals are being met. Once the implementation is complete, the Client Support Manager will become your primary point of contact for any support tasks that will arise. Key team members involved in implementation will also be involved ensuring the institutional knowledge gained during the implementation remains on board.

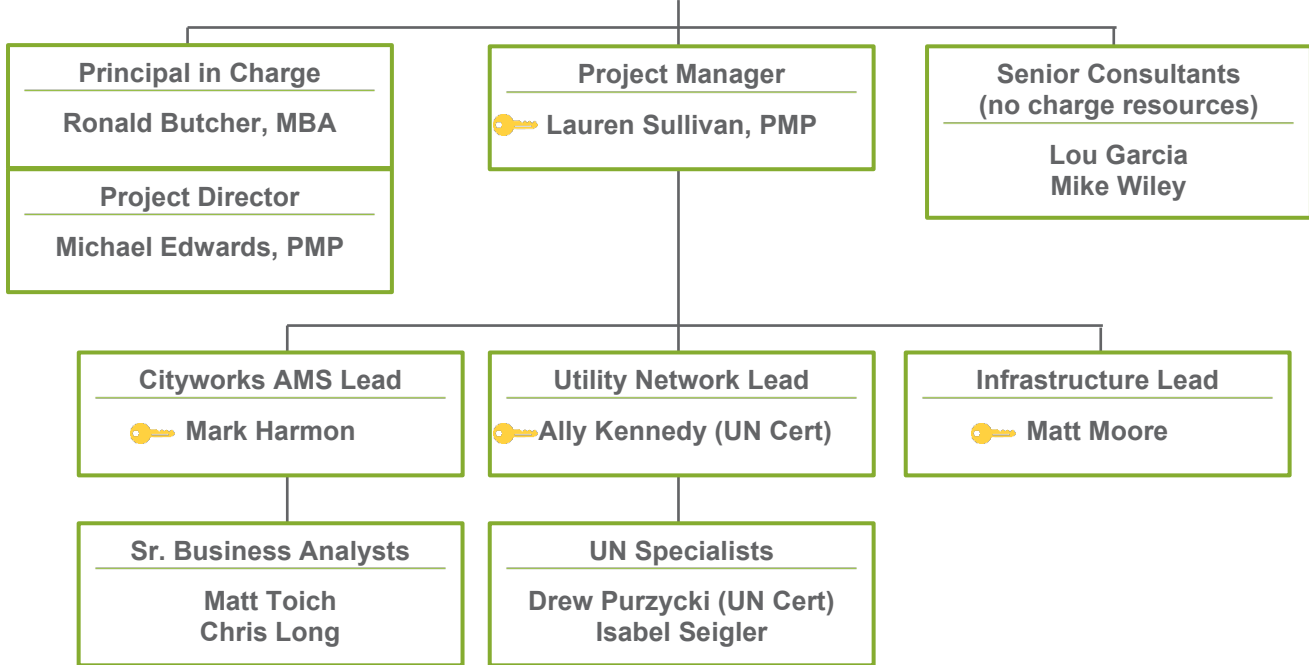|	
1	• Client submits request for support or a new "project" via support ticket
2	• Timmons Group reviews, provides clarification, solves support ticket, or . . . • Develops scope estimate, deliverables, and schedule and returns to client
3	• Support ticket is closed, or . . . • Client reviews scope estimate, deliverables, and schedule; approves
4	• Timmons Group performs the service • Support ticket can be tracked via project website
5	• Client reviews and approves deliverables acceptance • Ticket closed

Component 4 Assumptions

- MSWD will review and comment on all documentation, plans, and requirements within 10 business days or a mutually agreed on timeframe.
- MSWD will provide data as identified in the Gap Analysis Document and Asset Hierarchy spreadsheets.
- MSWD will provide Timmons Group with a copy of the Cityworks AMS & CWOL Software license agreement
- MSWD will be present and participate in all meetings
- MSWD will provide any necessary documentation for current (As-is) business processes, including standard operating procedures, work forms, and/or reports where they exist
- MSWD will have necessary report/dashboard software licensing acquired for report file development and will give Timmons Group sufficient access to that software
- MSWD will prepare a map service for each Functional Group within the new GIS environment to support the Cityworks configuration prior to each sprint
- MSWD will identify and communicate to Timmons Group the detailed acceptance criteria for each functional requirement.
- MSWD will have necessary personnel available to review the integration during user acceptance testing
- Timmons Group will only integrate systems with Cityworks insofar as possible via Cityworks APIs. MSWD is responsible for obtaining licensing for APIs and modules used.
- MSWD will provide all necessary access to any system involved in the data migration process
- MSWD will have necessary personnel available to review data migration during user acceptance testing
- Timmons Group will not be performing data generation or data cleanup.
- MSWD is responsible for all testing of core system configuration according to the Testing Plan
- MSWD is responsible for identifying User Acceptance Testers and assigning associated testing scripts
- Class sizes will be limited to 15 students.
- MSWD will sign off on Final Acceptance on completion of services rendered

Project Component 5: Staff Augmentation

MSWD is also seeking staff augmentation services to maximize its investment in GIS technology and expand its usefulness. The vision from the RFP was that these services, since they were to be ad-hoc, would be based on hourly rates. Timmons Group has provided hourly rates for staff that could be leveraged through this type of engagement. We also wanted to make MSWD aware that we provide these types of services on a fixed-fee basis. We typically, use hourly consulting for emergency requests and we use short task-orders tasks that are desired to be on a fixed-fee basis. We will leave both options available to MSWD.

ORGANIZATION

MSWD
Mission Springs Water District

Principal in Charge	Project Manager	Senior Consultants (no charge resources)
Ronald Butcher, MBA	🔑 Lauren Sullivan, PMP	Lou Garcia Mike Wiley

Project Director
Michael Edwards, PMP

Cityworks AMS Lead	Utility Network Lead	Infrastructure Lead
🔑 Mark Harmon	🔑 Ally Kennedy (UN Cert)	🔑 Matt Moore

Sr. Business Analysts	UN Specialists
Matt Toich Chris Long	Drew Purzycki (UN Cert) Isabel Seigler

STAFFING – MSWD SKILLS DESIRED/REQUIRED:

Staff	Enterprise GIS	Enterprise Asset Management	Cloud Services	ArcGIS Utility Netwprk	Data Conversion	Cityworks AMS	Cityworks Online (CWOL)	Granite.Net integrations	811 system integrations	Client long-term support	Staff Augmentation
Ronald Butcher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Michael Edwards	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lauren Sullivan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lou Garcia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mike Wiley	✓		✓	✓	✓					✓	✓
Mark Harmon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ally Kennedy	✓		✓	✓	✓					✓	✓

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Staff	Enterprise GIS	Enterprise Asset Management	Cloud Services	ArcGIS Utility Netwprk	Data Conversion	Cityworks AMS	Cityworks Online (CWOL)	Granite.Net integrations	811 system integrations	Client long-term support	Staff Augmentation
Matt Moore	✓	✓	✓	✓	✓	✓	✓			✓	✓
Matt Toich	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Chris Long	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Drew Purzycki	✓		✓	✓	✓	✓				✓	✓
Isabel Seigler	✓		✓	✓	✓	✓				✓	✓
Greg Stephenson	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CONSULTANT INFORMATION

CONTACT PERSON INFORMATION

Lou Garcia
Principal
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
louis.garcia@timmons.com
443.904.3897

BRANCH OFFICE INFORMATION

Corporate Headquarters
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Suite 300
Richmond, VA 23225
804.200.6500

Downtown Richmond
117 S. 14th Street
Suite 303
Richmond, VA 23219
804.521.1065

Chesterfield, VA
430 Southlake Boulevard
Suites 14 & 15B
Richmond, VA 23236
804.200.6500

Northern Virginia, VA
20110 Ashbrook Place
Suite 100
Ashburn, VA 20147
703.554.6700

Tri-Cities, VA
4701 Owens Way
Suite 900
Prince George, VA 23875
804.541.6600

Staunton, VA
28 Imperial Drive
Staunton, VA 24401
540.885.0920

Newport News, VA
11832 Rock Landing Drive
Suite 306
Newport News, VA 23606
757.782.3041

Virginia Beach, VA
2901 South Lynnhaven Road
Suite 200
Virginia Beach, VA 23452
757.213.6679

Greensboro, NC
8642 W. Market Street
Suite 136
Greensboro, NC 27409
336.662.0411

Charlotte, NC
2030 South Tryon Street
Suite 3C
Charlotte, NC 28203
704.602.8600

Elizabeth City, NC
1805 West City Drive
Unit E
Elizabeth City, NC 27909
252.621.5028

Dallas, TX
7501 Lone Star Drive
Suite B250
Plano, TX 75024
469.810.0230

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Washington, DC
2300 N St. NW
Suite 410B
Washington, DC 20037
800.588.7341

Charlottesville, VA
608 Preston Avenue
Suite 200
Charlottesville, VA 22902
434.295.5624

Baltimore, MD
3300 North Ridge Road
Suite 110
Ellicott City, MD 21043
410.461.7666

Raleigh, NC
5410 Trinity Road
Suite 112
Raleigh, NC 27607
434.295.5624

Wilmington, NC
430 Eastwood Road
Suite 100
Wilmington, NC 28403
919.746.1144

TYPE OF ORGANIZATIONAL ENTITY

Timmons Group is a C Corporation.

LITIGATION, MEDIATION, ARBITRATION, AND BANKRUPTCY

Litigation History

Timmons Group is known by its peers and clients as a fair and ethical firm, and this is exemplified in our daily business activities. Fulfilling our professional and financial obligations is a priority. We acknowledge that within the last five years Timmons Group has no judgments or outstanding litigations.

Mediation

Timmons Group has no Mediation.

Arbitration

Timmons Group has no Arbitration.

Bankruptcy

Timmons Group has not filed for bankruptcy in the past 5 years.

CONSULTANT PERSONNEL

PROFESSIONAL TEAM

Senior Consultant and Contact – Lou Garcia | 443.904.3897 | Louis.Garcia@timmons.com

Project Manager – Lauren Sullivan | 858.254.3873 | Lauren.Sullivan@timmons.com

Principal in Charge – Ronald Butcher | 804.200.6971 | Ron.Butcher@timmons.com

Senior Consultant – Mike Wiley | 917.848.6504 | Mike.Wiley@timmons.com

RESUMES

Lauren Sullivan, PMP

Project Manager

Lauren is currently a Senior Project Manager for Timmons Group. She has over a decade of experience with all facets of software integration services and enterprise system design with diverse clientele across government agencies and private industry. She specializes in aligning technologies with client needs to facilitate a smooth transition to new solutions. Her career roots in GIS systems and business process analysis allow her to effectively manage implementation teams. Her background also includes GIS-related development, geospatial product management, and asset management for utilities.

SELECT PROJECT EXPERIENCE

- Utility Network Migration, EPCOR, AZ
- Cityworks Roadmap, Rogers Water Utilities, AR
- Cityworks AMS PLL Implementation and Upgrade, Township of Upper St Clair, PA
- Cityworks AMS/PLL Implementation, City of Morro Bay, CA
- Asset Management Roadmap, City of Yakima, WA
- AMS/PLL Cityworks Implementation, Upper St Clair, PA
- GIS & Cityworks Upgrade, Skagit Public Utility District, WA
- Cityworks Assessment/Gap Analysis, Otay Water District, CA
- Cityworks AMS Implementation, Napa Sanitation District, CA
- Cityworks PLL Implementation & Citizen Engagement System Integration, City of Escondido, CA
- Cityworks AMS Implementation, City of Bellingham, WA
- Cityworks AMS Implementation, Sammamish Plateau Water & Sewer District, WA
- Cityworks PLL Implementation, City of Edmond, OK
- Cityworks Implementation, City of Bonney Lake, WA
- Cityworks Asset Reading Custom, City of Bonney Lake, WA
- Support Maintenance, City of Sammamish, WA
- Cityworks AMS Parks Implementation, City of Renton, WA
- Cityworks AMS Jumpstart, City of Yelm, WA
- Cityworks AMS, Washington County, OR
- Cityworks Implementation, Green Valley Water, AZ
- Cityworks AMS, City of Elk Grove, CA
- Cityworks Interface, San Diego County, CA
- Cityworks AMS, City of Everett, WA
- AMS Implementation, City of Centennial, CO
- PLL Implementation, City of Burien, WA
- AMS Implementation, City of Antioch, CA
- Cityworks AMS, City of Salem, OR
- AMS Implementation, Cosumnes Community Services District, CA
- Consulting Services, City of SeaTac, WA
- Cityworks AMS Implementation, Midpeninsula Regional Open Space District, Los Altos, CA
- Cityworks AMS Implementation, Lake Stevens Sewer District, WA
- GIS Process Rationalization, King County, WA
- AMS Jump Start, Carpinteria Valley Water District, CA
- Cityworks PLL Implementation, City of Auburn, AL
- Cityworks AMS Jump Start, Las Gallinas Valley Sanitary District, CA

EDUCATION
Bachelor of Arts, Geography/Environmental Studies, UCLA

EXPERIENCE
12 Years

CERTIFICATIONS
Project Management Professional Certificate (PMP)

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Mark Harmon

AMS Lead

Mark offers considerable experience in Cityworks consulting and enterprise system design gained through work with water utilities, State and local governments and private industry. His capabilities include: GIS systems planning and design, specification design and development, project implementation coordination, GIS training and end user support. Mark will support your efforts by ensuring our utility geodatabase design and development efforts are compatible with your existing GIS/IT architecture.

SELECT PROJECT EXPERIENCE

- Cityworks Business Process Workflows/Consulting, Indio Water, CA
- Cityworks Enterprise Asset Management System Implementation, Alpharetta, GA
- Cityworks AMS Implementation, Otay Water District, CA
- Cityworks AMS Implementation, Harrisonburg, VA
- Cityworks AMS Implementation, Madison, WI
- Cityworks Enterprise Asset Management System Implementation, Skagit County Public Utilities District, WA
- Cityworks AMS Implementation, American States Utility Services, NC
- Cityworks PLL & AMS Implementation, Winston-Salem, NC
- Cityworks Workorder Management System Implementation, MetroConnects, SC
- Cityworks Enterprise Asset Management System Master Planning, Richmond, VA
- Cityworks AMS and PLL Implementation, Fayetteville, NC
- Cityworks AMS Implementation, Weston, FL
- Cityworks AMS Implementation, Albemarle County Service Authority, VA
- Cityworks Asset Management System Implementation, Garland, TX
- Cityworks AMS Implementation, Forsyth County, GA
- Cityworks AMS Implementation, Henderson Water Utility, KY
- Fire Hydrant Inspection Program, Richmond, VA
- Cityworks Enterprise Asset Management System Implementation, Grey Forest Utilities, TX
- Cityworks AMS Implementation, Sammamish, WA
- Cityworks AMS Implementation, Douglasville-Douglas County Water and Sewer Authority, GA
- Cityworks AMS Implementation, Fayetteville, NC
- Cityworks Upgrade, Skagit County Public Utility District, WA
- Cityworks AMS Implementation, City of Bellingham, WA
- Enterprise Asset Management Consulting, Fairfax County Department of Public Works and Environmental Services, VA
- Cityworks AMS Implementation, North Miami Beach, FL
- Cityworks AMS Implementation, Naperville, IL
- Cityworks AMS/Cayenta Integration Implementation Approach, Macon Water Authority, GA
- Cityworks AMS Implementation for Sewer, Auburn, AL
- Cityworks AMS Implementation, Goochland County, VA
- Cityworks AMS Implementation, Grand Rapids, MN
- Cityworks AMS Utilities, Petersburg, VA
- CW Asset Reading Customization, Bonney Lake, WA
- Cityworks AMS Public Works, Auburn, AL
- Cityworks AMS Upgrade, Winston-Salem, NC

EDUCATION
Bachelor of Science, Geographic Science, James Madison University, 2003

EXPERIENCE
19 Years

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Ally Kennedy

Utility Network Lead

Ally is a highly skilled GIS Analyst with expertise in various aspects of geospatial data management and analysis. With a focus on Esri's Utility Network, she has successfully led and managed multiple projects, providing valuable insights and technical guidance to clients. Ally is certified as an FME Professional and ArcGIS Desktop-certified, demonstrating her proficiency in industry-standard tools and technologies. In addition to her technical expertise, Ally is adept at managing teams and overseeing GIS professionals. She has effectively coordinated with subconsultants, facilitated discovery workshops, and provided training to clients on using and managing the Utility Network. Overall, Ally's comprehensive skillset, leadership abilities, and extensive project experience make her valuable in delivering successful GIS solutions and driving digital transformation.

KEY EXPERTISE

- ✓ Leads Timmons Group's Utility Network projects – **ArcGIS Utility Network Certified**
- ✓ **Certified FME Professional**
- ✓ Manages and consults on numerous utility mapping, addressing, Next Generation 911, and tax parcel mapping projects
- ✓ Writes Arcade script to configure Attribute Rules and pop-ups
- ✓ Manages multiple GIS professionals
- ✓ Oversees local government data maintenance projects

SELECT PROJECT EXPERIENCE

- Utility Network Migration Plan, EPCOR, Phoenix, AZ.
- ArcGIS Pro & Utility Network Implementation, EPCOR, Phoenix, AZ.
- Utility Network Implementation and Cityworks AMS Reconfiguration, Indio Water Authority, Indio, Riverside, CA.
- Schema Consolidation and Utility Network Migration Planning, Anchorage Water and Wastewater Utility (AWWU), Anchorage, AK.
- Cityworks Services and Utility Network Implementation, Rogers Water Utilities, Rogers, AR.
- Cityworks & GIS Implementation, Alderwood Water and Wastewater District (AWWD), Snohomish County, WA.
- Utility Network Data Migration, Pennichuck Water Works (PWW), NH.
- Utility Network Migration Preparation, St. Johns County (SJC), FL.
- Utility Network Migration Services, City of Lynchburg, VA.
- Utility Network Data Readiness and Migration Strategic Plan, Orange Water and Sewer Authority (OWASA), Carrboro, NC.
- Utility Network Implementation, Walt Disney Parks and Resorts US, Disneyland, CA.
- Utility Network Migration, Salt Lake City, UT.

EDUCATION
BA, Biology with Minor in Spanish, University of North Carolina, 2015

EXPERIENCE
8 Years

TECHNICAL SKILLS
ArcGIS Desktop
ArcGIS Pro
ArcGIS Online
ArcPy
Portal for ArcGIS
FME Desktop & Server
ArcGIS Utility Network
ArcGIS Data Reviewer

CERTIFICATIONS
Certified ArcGIS Desktop Associate

Esri ArcGIS Utility Network Certified

FME Certified Professional

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Matt Moore

Infrastructure Lead

Matt performs tasks related to systems management/administration, web administration, database administration and development, and applications development. Matt has worked on many systems architecture design, development, and implementation projects for federal, state, and local governments throughout the US. He is well versed in implementing Enterprise systems and has worked on projects using both custom and COTS applications.

KEY EXPERTISE

- ✓ Consults clients on managed services and cloud service offerings
- ✓ Consults on numerous custom application development projects
- ✓ Delivers consulting services via project discoveries and needs assessments
- ✓ Provides GIS industry best practices for local, state, and federal governments, and NGOs.
- ✓ Provides consulting and recommendations on using technology to solve business process / workflow challenges
- ✓ Plans and manages integration of GIS with other information technology systems
- ✓ Implements technical solutions and designs for enterprise GIS systems
- ✓ Deploys and manages server infrastructure in Cloud environments
- ✓ Develops scripts as needed to automate GIS workflows
- ✓ Manages Relational Database Management Systems (SQL Server/Postgres/PaaS offerings)
- ✓ Manages Active Directory as needed for Cloud environments
- ✓ Builds and manages web servers in Apache and Microsoft IIS

SELECT PROJECT EXPERIENCE

- Schema Consolidation and Utility Network Migration Planning, Anchorage Water and Wastewater Utility (AWWU), Anchorage, AK
- Utility Network Migration Plan, EPCOR, Phoenix, AZ.
- ArcGIS Pro & UN Implementation, EPCOR, Phoenix, AZ
- Utility Network Implementation and Cityworks AMS Reconfiguration, Indio Water Authority, Riverside, CA
- Cityworks Services and Utility Network Implementation, Rogers Water Utilities, Rogers, AR
- Utility Network Data Readiness and Migration Strategic Plan, Orange Water and Sewer Authority (OWASA), Carrboro, NC
- ArcGIS Enterprise and Configuration, City of Minot, ND
- ArcGIS Enterprise Migration, Pennsylvania Game Commission (PGC), Harrisburg, PA
- UN Migration Plan, AWWU, Anchorage, AK
- GIS Managed Services and Cloud Migration, Philadelphia Gas Works (PGW), Philadelphia, PA
- Enterprise GIS Implementation and Data Management, Caltrans, Sacramento, CA
- Cityworks AMS Implementation, Napa Sanitation, Napa County, CA
- Cityworks Roadmap, City of Danville, Danville, VA

EDUCATION
Bachelor of Science, Geography, Information Technology focus, Old Dominion University, 2004

EXPERIENCE
20 Years

TECHNICAL SKILLS
Esri Enterprise System Design, AWS Services, ArcGIS Online, Python, SQL Server / Oracle, IIS 10x, 8.x, 7.x, 6.x, Apache Tomcat 2.2, 2.4, PHP, HTML, JSON, SSL & PKI Deployment, Adobe Flex Builder, XML, Action Script, Deployment of .NET and JavaScript web applications

CERTIFICATIONS
AWS Certified Cloud Practitioner
Esri Certified Enterprise System Design Associate
Esri Enterprise Geodata Management Professional

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

QUALIFICATIONS, EXPERIENCE, AND REFERENCES

REFERENCES

Indio Water Authority (IWA) | Utility Network Implementation and Cityworks AMS Reconfiguration

Contact: Christian Hernandez | 760.391.4038 | cchernandez@indio.org

Project Dates: April 2022 – September 2023

IWA selected Timmons Group for the migration of its Water Distribution geodatabase from Geometric Network to the Esri Utility Network model. Moving to the Utility Network platform positioned IWA to effectively manage its water distribution assets into the future. In addition, we were tasked with reconfiguring IWA's Cityworks AMS solution to use Utility Network, including modifying Cityworks business processes to further create a more effective and efficient workflow.

This project also included the evaluation and update of automation scripts to ensure the continued integration of several other software solutions. This included integration to My Geo Tab, Navaline (Customer Billing), ELM, and Dig Alert, as well as scripts to automate update of an ArcGIS Online Dashboard. The Cityworks installation was also upgraded to the most recent version and updated to ensure Cityworks database, customizations, and workflows that were identified as potentially impacted by the migration to the Utility Network data model remained functional.

Pennichuck Water Works (PWW) | Utility Network Data Migration and Cityworks AMS Implementation

Contact: Dawn Lavacchia | 603.913.2342 | dawn.lavacchia@pennichuck.com

Project Dates: January 2020 - Ongoing

PWW was established in 1852 and serves the City of Nashua, NH and 10 surrounding municipalities. PWW serves more than 33,000 customers in more than 30 communities and has more than 100 employees. PWW was using Oracle Work Order and Asset Management to maintain their asset records. Timmons Group implemented Cityworks AMS (Cityworks), which includes Cityworks AMS (Office and Tablet), Mobile Native Apps, Respond, and Storeroom.

Timmons Group was selected to migrate PWW's water network data from Esri's Geometric Network data model into the new Utility Network data model to enable new data management and analysis capabilities and keep its Esri implementation current. The Utility Network implementation must support existing business workflows and applications, including work tracking with Cityworks CMMS and reading customer information from Munis.

Timmons Group designed integrations to several third-party applications, including Wex (fuel/mileage readings), Macola (inventory), and Munis (customer accounts). We are providing full implementation services, including configuration, user acceptance testing, training, and post go-live support.

Rogers Water Utilities | Cityworks Roadmap, PLL, and Utility Network Implementation

Contact: Brian Sartain | 479.640.8970 | BrianSartain@rwu.org

Project Dates: September 2021 – Ongoing

Timmons Group worked with Rogers Water to implement Cityworks AMS & PLL. As a first Phase of the project, a plan was needed that would result in a short/long-term strategic plan for the implementation as it affected system architecture as well as a multitude of other existing City systems and planned software purchases. Timmons Group developed a strategic RoadMap based around maintenance work management, asset management, and community development activities. During the development of this strategic plan, our team reviewed the existing GIS, and Rogers Water decided to rebuild its GIS data model on the new Esri Utility Network data model. Part of this included the migration of legacy data into the new utility network data model. Subsequent phases of the project are ongoing, including the deployment of the enterprise GIS and the implementation of Cityworks AMS & PLL, the integration of several third-party applications to streamline business processes, and development of public facing applications for enhanced customer service.

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

EXPERIENCE

Timmons Group has worked with hundreds of municipalities and utility authorities across the US. Projects have included strategic planning, Cityworks implementations, Utility Network implementations, cloud services, Esri solution configuration, and custom application development. The map below shows a subset of our municipal/utility clients, and the purple dots represent Utility Network clients.
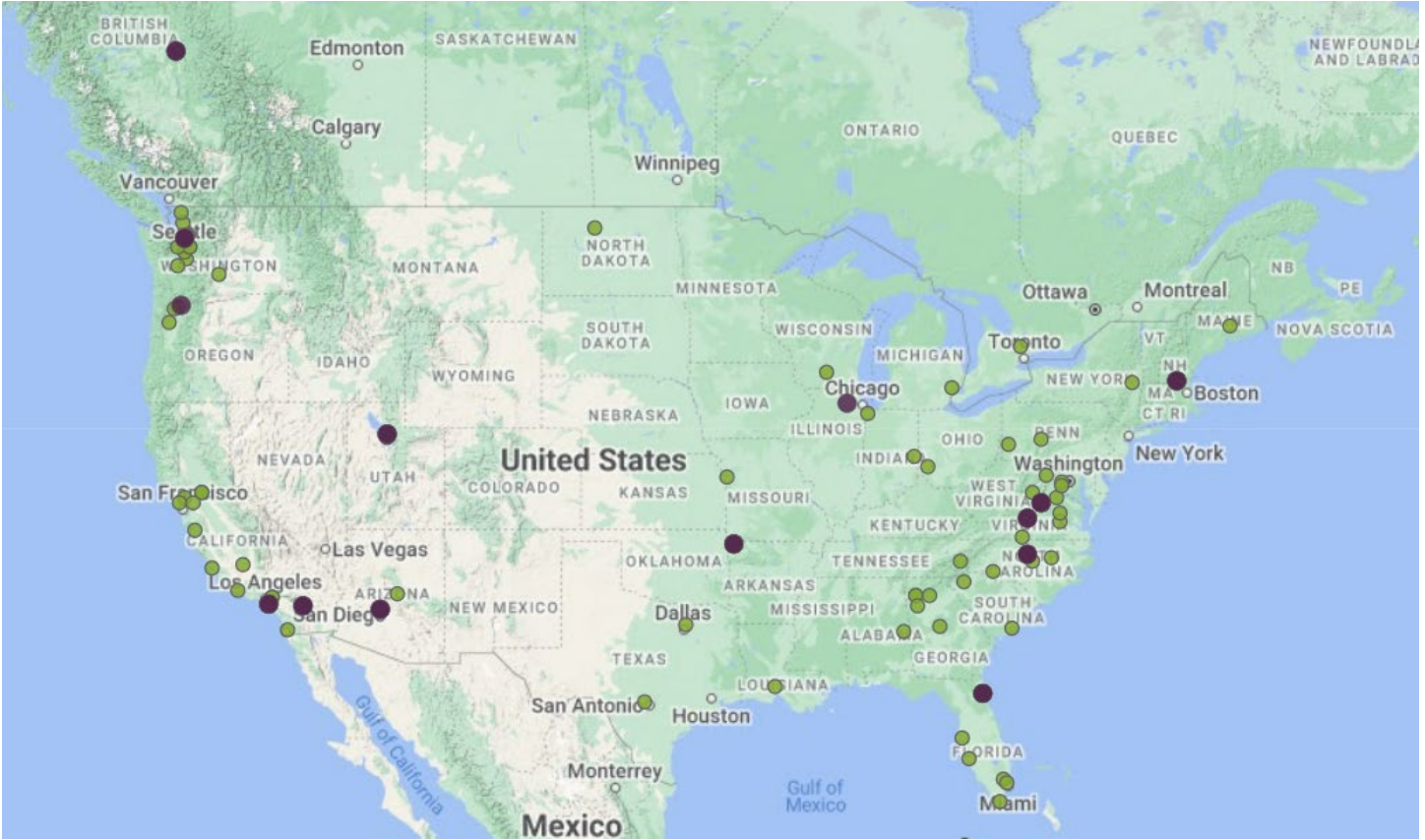

Figure 1: Timmons Group has worked with numerous Municipal Utility Clients (green) and performed multiple Utility Network Projects (purple) across North America.

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

1. Garland, TX
2. Otay Water District, CA
3. Alpharetta, GA
4. Naperville, IL
5. Fayetteville, NC
6. Hamilton County, TN
7. Skagit County PUD #1, WA
8. Auburn, AL
9. Lafayette Consolidated Govt, LA
10. Herndon, VA
11. Richmond, VA
12. Alexandria, VA
13. Jackson, MS
14. DDOT/EQUANS
15. Colonie, NY
16. Newport News, VA
17. Montgomery County, OH
18. Waterford Charter Township, MI
19. Altoona City Authority, PA
20. Raleigh, NC
21. Allegheny County, PA
22. Chicago, IL
23. City of Winston-Salem, NC
24. Watsonville, CA
25. Morro Bay, CA
26. Carpinteria Valley Water District, CA
27. Shafter, CA

28. Alcoa, TN
29. Goochland County, VA
30. Petersburg, VA
31. Henderson, KY
32. SeaTac, WA
33. Sammamish, WA
34. Weston, FL
35. Seattle, WA
36. Grand Rapids, MN
37. Upper St. Clair, PA
38. Tallahassee, FL
39. Sugarland, TX
40. Bartow County, GA
41. North Miami Beach, FL
42. Grey Forest Utilities, TX
43. Herriman, UT
44. Milwaukie, OR
45. Harrisonburg, VA
46. Lebanon, OH
47. MetroConnects, SC
48. Las Gallinas Valley Sanitary District, CA
49. Macon Water, GA
50. Mid Peninsula Regional Open Space, CA
51. American States Utility Service
52. Asheville, NC
53. Brookhaven, GA

54. Frederick Water, VA
55. Montgomery County, MD
56. Manatee County, FL
57. Florida Keys Aqueduct Authority, FL
58. St. Johns County, FL
59. Madison, WI
60. Bonney Lake, WA
61. Renton, WA
62. Forsyth County, GA
63. Yelm, WA
64. Tigard, OR
65. Napa Sanitation District, CA
66. Regional Municipality of York, Canada
67. Escondido, CA
68. Spotsylvania County, VA
69. Independence, MO
70. Bellingham, WA
71. Charleston Water, SC
72. Fairfax County, VA
73. West Valley City, UT
74. Charlotte Water, NC
75. Sammamish Plateau Water District, WA
76. Edmond, OK
77. Lake Stevens, WA
78. Elk Grove, CA
79. Yakima, WA

80. Douglasville/Douglass County, GA
81. Salem, VA
82. North Gila County Sanitation District, AZ
83. Tampa, FL
84. Baltimore County, MD
85. Nashville, TN
86. Pennichuck Water, NH
87. Consumes CSD
88. Albemarle County Service Authority, VA
89. Holly Springs, NC
90. Isle of Wight County, VA
91. O' Fallon, IL
92. Toledo, OH
93. Charlotte County, FL
94. Minot, ND
95. Washington County, OR
96. City of Centennial, CO
97. Prince William Service Authority
98. Danville, VA
99. Raytown, MO
100. Hobart, IN
101. Bartow County Water, GA
102. EPCOR, Phoenix, AZ
103. Everett, WA
104. Fairfax County, VA
105. Wilson, NC

106. Antioch, CA
107. Warren, MI
108. Rogers Water/City of Rogers, AR
109. Burien, WA
110. Erie, PA
111. Los Angeles County, CA
112. Alderwood, WA
113. Salem, OR
114. Round Rock, TX
115. Charlottesville, VA
116. Bangor, ME
117. Brampton, Ontario (Canada)
118. Golden State Water, CA
119. Indio Water Authority, CA
120. Richmond, IN
121. Bremerton, WA
122. Sandy, UT
123. Woodburn, OR
124. Gerald R Ford International Airport
125. Erie Water Works, PA
126. Lowell, AR
127. Santa Clara Valley Water District,
128. Corvallis, OR
129. Gastonia, NC
130. Henrico, VA
131. Kileen, TX

Figure 2: Timmons Group has worked with more than 135 clients to implement Cityworks software.

TIMMONS GROUP
GEOSPATIAL SOLUTIONS

Timmons Group Utility Network Projects							
Client	Services						
	Data Readiness	UN Planning	Data Cleanup	ArcGIS Enterprise	UN Implementation	Systems Integration	Training
EPCOR	2021	2021		2022	2022-2023	2023	2023
Indio Water Authority	2022	2022		2022	2022-2023	2023	2023
Anchorage Water & Wastewater Utility	2022	2022		2023	TBD	TBD	TBD
Rogers Water Utility	2022	2022	2022	2022	2022	2022	2022
Alderwood Water & Wastewater District	2022	2022		2022	2022-2023	2022-2023	2023
Pennichuck Water Works	2022	2022		2022	2022-2023	2023	2023
St. Johns County Utility	2022	2022	2023		2023-2024	2024	2024
City of Lynchburg	2012	2022		2022	2022-2023	2023	2023
Orange Water and Sewer Authority	2022	2022		2022	2023-2024	2024	2024
Disneyland	2022	2022	2023	2022	2022-2023		2023
Salk Lake City Public Utilities		2023		2023	2023-2024	2024	2024
Albemarle County Service Authority	2023	2023	2024	TBD	TBD	TBD	TBD
Prince George, Canada	2023	2023	2024	TBD	TBD	TBD	TBD
City of St Charles, IL	2023	2023	2023/4		2024		2024
Gresham, OR	2024	2024	2024	2024	2024	2024	2024

Table 1: Timmons Group is experienced in delivering Utility Network projects at numerous other agencies. Tasks by client and completion year.

TIMMONS GROUP
GEOSPATIAL SOLUTIONS