

OKLAHOMA CITY WATER UTILITIES TRUST

Sole Source Agreement – Innovyze

APPROVED by the Trustees and **SIGNED** by the Chairman of the Oklahoma City Water Utilities Trust this 13th day of April 2021.

ATTEST:

Amy K Simpson
SECRETARY

 **SEAL**

Jim D. Cook
CHAIRMAN

CONCURRED by the Council and **SIGNED** by the Mayor of The City of Oklahoma City this 27th day of April 2021.

ATTEST:

Amy K Simpson
CITY CLERK

 **SEAL OF THE CITY OF OKLAHOMA**

David Holt
MAYOR

REVIEWED for form and legality.

Craig B Keith
Assistant Municipal Counselor

S
S
2
1
-
C
2
1
9
0
3
1

System Pressure Management (SPM)

Statement of Work

November 25, 2020

Innovyze

Document history and status

Revisio	Date	Description	Author	Checked	Reviewed	Approved
R0	9/16/20	First draft	Henke			
R1	11/19/20	Final Draft	Henke			
R2	11/25/2020	Published Draft	Baldie			
R3	03/26/2021	Addendum #1	Baldie			

Distribution of copies

Revisio n	Issue approved	Date issued	Issued to	Comments

SS21-C219031

Contents

1.	SYSTEM Implementation Services	4
1.1	Project Definition (Phase 1)	4
1.1.1	Project Kick-off	4
1.1.2	Project Management Plan	4
1.2	Blueprinting (Phase 2)	4
1.2.1	Requirements Management Plan	5
1.2.1.1	General SYSTEM Functional Requirements	5
1.2.1.2	System Users	5
1.2.1.3	Hardware Requirements	6
1.2.2	Project Schedule	6
1.2.3	Communication Plan	6
1.2.4	Business Process Mapping Workshops	8
1.2.5	Configuration Specifications	8
1.2.6	Data Security Specifications	16
1.2.7	System Integration Specifications	17
1.2.7.1	System Hardware Interfaces	17
1.2.7.2	System Software Interfaces	17
1.2.7.3	System Communications Interfaces	19
1.2.8	Data and Model Migration Specifications	20
1.2.8.1	InfoWater Pro Conversion	20
1.2.8.2	InfoWorks ICM Sewer Edition Migration	20
1.3	Realization Phase (Phase 3)	20
1.3.1	Implementation and Configuration Team Formed	21
1.3.2	Change Management Approach	22
1.3.3	Sprint Planning & Configuration	23
1.3.4	Requirements Traceability Sign-off	24
1.3.5	Master Testing Plan	24
1.3.6	Training Plan	27
1.4	Go Live (Phase 4)	33
1.5	Live Stabilization (Phase 5)	33
1.5.1	OCWUT Staff and IT Responsibilities	33
2.	Description of Software Subscription Services	35

Appendix A. Form C Software requirements

Background

Oklahoma City Water Utilities Trust (OCWUT) currently uses a single, fixed license for InfoWater by Innovyze for hydraulic analyses of their distribution system. The InfoWater software is currently installed on a single laptop. InfoWater runs as an application in ArcMap and uses EPANet as the hydraulic engine. The model the Utilities maintains has two primary demand scenarios (summer and winter) and is used to answer general operational, isolation, and service availability questions. The Scope of Services for this project includes the implementation, configuration and training for a System Pressure Management (SPM or SYSTEM) delivered in Info360 by Innovyze. The Scope of services also includes converting the existing InfoWater model to InfoWater Pro and migrating the existing Sewer model to virtual a platform and reimplement to accommodate network changes. To support the application of the hydraulic models by Utilities staff, the modeling software shall be installed and configured on a virtual machine (VM) for use by Utilities staff.

The SPM solution will integrate with existing business systems and allow for improved capabilities to perform “what-if” scenario analyses for the monitoring and control of the water distribution system. This integration will provide real-time pressure monitoring and guide automatic operational adjustments that reduce main breaks, improve water quality, and sustain fire protection.

The SPM solution will support the high-level business process workflow shown in Exhibit 2: System Pressure Management Business Process and deliver detailed functional requirements as provided in Appendix A, Table A-1 Detailed Functional Requirements, as well as other business processes further defined as part of the blueprinting phase of implementation.

S
S
2
1
-
C
2
1
9
0
3
1

1. SYSTEM Implementation Services

The following sections of the detailed Scope of Services shall outline the methods, expectations and deliverables to satisfy the services.

Innovyze shall complete the Scope of Services in five phases:

- 1) Project Definition
- 2) Blueprinting
- 3) Realization
- 4) Go Live
- 5) Live Stabilization

1.1 Project Definition (Phase 1)

1.1.1 Project Kick-off

Innovyze shall facilitate a project kick-off meeting within 10 days of receipt of a PO to review and orient the project team to the scope of work, milestones, project management plan (PMP) and responsibility matrix. Innovyze shall provide a detailed meeting summary within seven days of the meeting.

1.1.2 Project Management Plan

Innovyze shall follow Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK®) methodologies. Innovyze shall provide a detailed Project Management Plan (PMP) including Oklahoma City staffing levels and describing all responsibilities and expectations to be performed by City. The PMP shall address the PMBOK knowledge areas:

- Work execution
- Project status monitoring and reporting
- Issue management
- Schedule management
- Cost management
- Quality management
- Staffing management
- Communication – Responsibility Decision Matrix
- Risk management Plan

The project will be managed by Innovyze with assistance from City staff, and the City's SPM consultant.

1.2 Blueprinting (Phase 2)

The Blueprinting phase begins after the project kick-off meeting and after the PMP has been approved by OCWUT. During this phase, Innovyze shall work with OCWUT staff to document existing and to-be business processes, define functional specifications and system configuration to deliver scope defined in the statement of work. Phase 2 deliverables are described in the following tasks and include:

- Requirements Management Plan
- Project Schedule
- Team Charter & Communication Plan

- Business Process Documentation
- Configuration Specification Documents
- Data Security Plan
- System Integration Specifications
- Data Migration Specifications

1.2.1 Requirements Management Plan

Purpose of the Requirements Management Plan (RMP) is to establish an approach to managing business and system requirements throughout the lifecycle of this project. The intended audience of this document is the project core team and project sponsors. The RMP ensures the project team identifies, builds, tests, and documents the business requirements for OCWUT SPM Implementation project.

The intended result is to meet OCWUT's expectations, communication requirements, and manage change throughout the lifecycle of this project.

The RMP will include a requirement traceability matrix which will uniquely identify each of the system requirement and different tasks during remaining project implementation phases will link to requirement matrix items.

1.2.1.1 General SYSTEM Functional Requirements

Innovyze shall implement and configure Innovyze Info360 to deliver the following functions:

- 1) **Dashboard View of Distribution System Status** – Provides operations staff with an overview of system performance and flags pressure performance out of target parameters.
- 2) **Integration of SCADA Information** – Integrates SCADA data for setting initial operating and demand conditions for the hydraulic model and overall performance assessment.
- 3) **Hydraulic Model Upgrade** -Upgrade of the existing hydraulic model and software for integration into Info360.
- 4) **Integration of Cityworks Data** – Provide spatial interface and dashboard for reporting asset information.
- 5) **Integration of Telog Data** – View of real time trend data of Telog pressure data loggers into the dashboard and hydraulic analysis for decision making.
- 6) **Integration of Enterprise GIS Data**- Provide view of system assets to identify options for hydraulic modeling what-if scenarios and customer contacts.
- 7) **What-If Operational Scenario Development and Assessment** – Analysis to identify potential negative impacts of operational changes prior to change being made by operations staff.
- 8) **Tracking of Selected Operational Scenario** -Tracking system to have feedback on success of operational change or if system response did not follow simulated response from the What-If scenario.

1.2.1.2 System Users

Info360 will support City and OCWUT SYSTEM user roles as summarized in Table below.

Table 1: System Pressure Management Users

Role	Utilities	IT	Total
Management	5		5
Team Member	15		15

Role	Utilities	IT	Total
Administrator	2	3	5
	22	3	25

1.2.1.3 Hardware Requirements

OCWUT must provide its users with computers, tablets, or mobile devices so that they may access Info360. The devices must be able to connect to the internet.

1.2.2 Project Schedule

Innovyze shall submit a detailed System Implementation Plan that includes a schedule using Microsoft Project which will be reviewed by OCWUT and upon approval, the schedule will become Baseline Project Schedule.

The schedule, at a minimum, shall track all tasks listed below:

- Project planning
- Hydraulic Model Assessment and Upgrade
- Software installation
- Requirements Mapping and Conceptual Design (aka Gap Analysis)
- Software Configuration
- Data Migration
- Unit Testing (interfaces, Enhancements)
- Training
- Acceptance Testing
- System Cut-over and “Go-live”
- Post-implementation support

The System Implementation Schedule shall include MILESTONES and logical breakpoints during which OCWUT and the Innovyze shall assess the progress to date and prepare for each task/phase of the project. The System Implementation Plan should provide as much detail (work breakdown structure) as possible and highlight all major MILESTONES for each task/phase of the project. The first MILESTONE of the System Implementation Plan should be contract signing. All key assumptions made in developing System Implementation Plan, as well as any dependencies and constraints of which the Innovyze is aware of should be clearly shown in the plan.

Innovyze will update the schedule on a periodic basis (at least monthly) as agreed during kick-off meeting and will provide updated schedule to OCWUT as part of performance reporting.

1.2.3 Communication Plan

Project Team Chartering

Project team charter provides common understanding of project objectives which enhances overall success of the project. It establishes team values, agreements and operating guideline for the team. A team charter may include:

- Project goal and objectives
- Communication guidelines

- Project governance (see section below)
- Conflict resolution process
- Meeting guidelines and
- Team agreements

A team chartering meeting will be held early in the project with project team members as recommended under Section 2.3.1 Implementation team.

Project Governance

The purpose of this governance model is to create the foundation for operational and administrative processes for governance of the contractual relationship between Innovyze and OCWUT. The governance model also sets forth the framework by which key decisions will be made, providing a forum for project team members to discuss and make key decisions.

This governance model is transparent to all stakeholders associated with the project to understand how and when decisions will be made on the project, and their role in the governance process. This governance model is designed to ensure issues are raised and addressed quickly with no negative impact to the project.

The model is governed by the following guiding principles:

- Strong Executive Support – provide clear direction on priorities and empower team members to make decisions quickly
- Timely Decision Making, Issue Escalation and Risk Management – quickly remove any roadblocks to project effectiveness, adhering to project governance practices
- Collaborate with and inform key stakeholders and business end-users – use the governance structure to support collaboration and provide for the sharing of information within and outside of the Implementation project team
- Frequent Communication – facilitate and encourage project team members to regularly communicate with the ultimate goal of installing an agency-wide system that is aligned with OCWUT's goals, mission and objectives

The project governance describes how the leadership committees and project team interrelate and communicate with others. Please refer the Stakeholder management and Communication management section for more details.

Key Decision Management

Key Decision Management is a structured process for identifying, documenting, and tracking key decisions as they occur throughout the lifecycle of a project. Key Decisions are decisions which impact the Implementation project including scope, processes, policies, and configurations. If key decisions are not made in a timely manner, it may require escalation via "Decision Matrix Escalation Process" as listed in the Communication Management Plan.

Decision Management Process

- Decisions can be raised via action items, risks, issues or parking lot items.
- Key decisions are required to be discussed in the applicable level of decision-making meeting (project status meeting, steering committee meeting, etc.)
- Final decisions are logged and tracked in the Decision log in the Project site.

Decision Matrix Escalation Process

As issues or complications arise with regards to project communications or decisions, it may become necessary to escalate the issue if a resolution cannot be achieved within the Project team while escalations are a normal part of project management, there must be a documented process which defines how those escalations will take place.

Efficient and timely communication is the key to successful project completion. To ensure the project stays on schedule and issues are resolved, the Project team will use the “Decision matrix Escalation Process” to provide a framework for escalating communication issues. Please refer to the “Communication Management Plan” for details on decision management.

1.2.4 Business Process Mapping Workshops

The diagram shown in Exhibit 1 shows high level business process for the System Pressure Management solution. The business process included in the Operations Staff block encompasses the System Pressure Management solution described in this document.

Innovyze will work with OCWUT staff during Blueprinting phase to use the high-level process and requirements in Appendix A to refine a detailed set of business processes and develop detailed specifications for them. The business processes for the System Pressure Management solution shall integrate data from multiple platforms into a business intelligence (BI) tool for monitoring and acting on observed distribution system pressure (System Pressure Management). The data flow in the business process shows where source data are housed and how they are used in various applications to assess the system performance, make operational decisions, and then implement those decisions.

1.2.5 Configuration Specifications

The Info360 configuration will meet OCWUT system requirements for performance, availability, capacity, security, encryption, archive, backup and restore, version control, audit, database replication, business continuity, disaster recovery and software quality.

System Performance and Availability

Info360 will provide an uptime Service Level of at least 99.5 percent and provide three (3) seconds response time for all search and rendering results based on application and database performance (not network performance).

Info360 shall handle up to 300 assets and 7 data streams without performance degradation for approximately 5 concurrent unique users to meet current business need. Info360 will be scalable to for additional deployment to support up to 12 potential users.

Innovyze shall provide the performance characteristics (response time, benchmarked transaction capabilities, etc.) of Info360. Info360 performance standards are part of the contract(s), and such standards will become an element of acceptance criteria for a successful implementation.

Info360 shall meet TIER 1 Service requirements of OCWUT which requires:

- Uptime – 99.5%
- Data Loss – Database services: 99% - 1 hour; 1% - 24 hours; File services: 100% - 24 hours
- Disk services may be associated with SAN, Direct Attached Storage or iSCSI storage. Data is replicated.
- A four-hour maintenance contract will be in place with the hardware vendor for hardware associated with these services, or a stock of parts will be maintained for these systems.
- Backups will occur nightly with a retention period of six months.
- All data will have a backup copy stored offsite on a daily basis for a four week period

- Redundant standby hardware will be located at an alternate data center and recovery should be within one business day in the event of a Site disaster.
- Server Logs on Tier 1 servers will be monitored daily and any instances of warnings or errors will be grouped together and logged in Infra as a Service Request. Errors or warnings will be logged as an Incident when any capability is perceived to be impacted.
- Validation of restoral processes will be performed upon request by the Production team up to one per week

OCWUT's users will be able to access info360 anytime they need to assess operations and performance of the water distribution system.

Capacity Management

OCWUT will be provided 2TB of disk space as part of their Annual Subscription Fees. During the Blueprinting phase of the implementation project, Innovyze's Business Analyst will determine OCWUT's initial storage needs with assistance from one of Innovyze's Cloud Ops Specialists. If it becomes apparent that 2TB will not be enough disk storage, the Innovyze's Business Analyst will meet with the designated OCWUT SMEs and together they will explore alternatives. The alternatives may include limiting the amount of data being uploaded into Info360, moving stored files to another storage location, or increasing OCWUT's storage capacity. There will be a marginal additional yearly fee if OCWUT's storage capacity is increased above 2TB.

Innovyze's Cloud Ops team will monitor the storage usage and when OCWUT's allocated disk space appears to be running out, the Innovyze's Customer Success Manager assigned to OCWUT will contact OCWUT and together they will determine how much additional storage is needed and determine the next steps.

Security Requirements

Info360 will adhere to City IT security standards and ensure City data are not available to any other entity. Info360 will have the ability to encrypt data at rest and in transit for ArcGIS, SCADA, Telog, Cityworks, and other interface points. Info360 shall allow communications to mobile devices using current industry best practices and technology, including but not limited to, HTTP Secure Connections and/or VPN. Innovyze shall identify the CITY IT RESPONSIBILITIES in meeting the security requirements and how those responsibilities align with the Innovyze's SERVICE MODEL.

Info360 shall comply with the following parameters:

- Security strategy – Innovyze is SSAE 16 SOC Type II Certified and SYSTEM is hosted on Amazon Web Services.
- Single sign-on between solution components – Innovyze SYSTEM is self-contained and requires only one username/password combination per user to access the entirety of the system.
- Security architecture – Info360 is coded to protect the system from session hijacking and Cross Site Scripting (XSS). Innovyze employs data and file encryption at rest, including industry standard Advanced Encryption Standard (AES) and performs SSAE 16 SOC 2 audits annually.
- Sensitive information like passwords and communication paths shall be encrypted. SSL 256-bit encryption with high strength ciphers.
- PPSI information shall not captured on the system.
- No other sensitive information shall be captured or saved anywhere in the system.
- Approach to managing Personally Identifiable Information (PII) – Info360 shall not store or process PII. A user's sensitive information is not required to use SYSTEM.

- Security procedures and protocols – Feeds from the software agents mentioned above and from AWS' CloudTrail are used to alert on-call Innovyze staff in case of a security incident. Innovyze staff is also alerted if a virus is found and a document is quarantined.

Data Encryption

Innovyze shall provide the proprietary product suite named Info360 as a Software as a Service (SaaS) deployment. Apart from the application login, there are limited connections to Innovyze's information assets from information systems outside of the authorization boundary. Information system and data access to information assets are:

- From organizational resources via proper authorization over an encrypted VPN channel
- Given to authorized application users over encrypted SSL/TLS connections
- Given to SFTP sites hosted in Innovyze's network by allowing connection only from the set of IP locations specified by the customer over industry- standard SFTP ports
- Given SFTP connectivity authorization to customers following a standard authorization matrix defined internally in the customer's support unit against a justified business requirement
- Innovyze shall encrypt all non-public data and files in transit and at rest. Innovyze shall maintain cybersecurity liability insurance coverage for any loss resulting from a data breach.
- Innovyze Info360 Cloud shall be configured to send all data over port XXX using the HTTPS protocol.
- OCWUT's data will be protected behind firewalls, and the documents OCWUT uploads into Info360 will be encrypted at rest.
- All systems handling restricted and/or highly restricted data will employ approved authentication credentials-based access control systems and encryption for data in transit.
- Info360 application access: Access to the Info360 application is available for all internet-capable devices. Only the Info360 landing/welcome page is accessible initially where the user must provide their login credentials. Only authorized users within OCWUT with valid credentials can access the rest of SYSTEM functionality.
- API access: Innovyze gives API endpoint connectivity to customer External Information Systems. The following security features are implemented for API endpoints:
 - Transport Confidentiality
 - Server Authentication
 - User Authentication
 - Transport Encoding
 - Message Integrity using TLS v1.2
 - Message Confidentiality (encryption on transit)
 - Authorization
 - Endpoint Security Profile
 - Virus Protection
 - Message Size
- All connections to external systems comply with the industry-standard policies for the security of data and information systems. External connections are granted least access privileges. Business needs for connectivity are consistently monitored and justified to avoid misuse.

Data Archival

Innovyze will work with OCWUT to understand OCWUT's archival/restoration process requirements. Goals for the data archival will be to track operational changes made to facility operation by Operators based upon What-If Scenario Analysis and if the resulting change met operational needs. Innovyze team will explore these other possibilities with OCWUT during the Blueprinting phase of the implementation project.

Backup and Restore

Innovyze managed information systems will be backed up at a frequency that is consistent with the pre-defined Recovery Time Objective (RTO) and Recovery Point Objective (RPO). Backups are taken at two levels from an application point of view.

- Instance Level: At an instance level (machine level), every instance hosting a mission-critical application component (OpenVPN server, SMTP server, SFTP server, Web server, File witness servers, and Database server) are backed up daily by creating Amazon Machine Images (AMIs). This includes snapshots of all the disks (backing up its data), OS level files, configurations, and launch information.
 - An AMI acts as a ready-to-use package of the machine, containing a complete snapshot of the machine at the time of backup and can be used for a point in time restore.
 - Restore of machines from AMI requires a simple launch of a new instance from the AMI backup after discarding (terminating) the existing instance.
 - Backups are scheduled during low traffic hours to avoid degradation of performance.
 - AMI backups are incremental and subsequent backups store the differences.
 - AMI backs up:
 - Operating System files and configurations.
 - Software and features installed in the instance to fulfill its functionality.
 - User-level files stored in user login directories.
 - Manual application backups stored in the machine.
 - Backups are also taken before making any major configuration changes, patching or updates.
- Database Level: At the database level, keeping the RPO and RTO in mind, there are additional backup infrastructure and configurations in place which are scheduled and executed using SQL Agent.
 - Full backups are taken weekly (On every Sunday).
 - Differential backups are taken daily (on low load hours of the day).
 - Transactional log backups are taken hourly.
 - Backups are taken against the secondary database in the SQL High Availability structure to avoid degradation of performance.
 - Restore of a database to a point in time would require:
 - Restoring the nearest available full backup (overwrite an existing DB)
 - Restoring the differential backup closer to the point in time.
 - Restoring transactional logs till the time of unavailability.
- Backup Storage: Innovyze protects the confidentiality and integrity of the backup information at the storage location. Backup storage is outside of the machine and is independent of machine failure.

- Backups that are taken at the instance level and Database level, are stored in Amazon S3 (Simple Storage Service) which is a highly available and durable object store with unlimited capacity.
- Objects in S3 (under standard storage option) are:
 - physically stored in a separate server, outside of the instance being backed up.
 - replicated within the storage server(s) and across availability zones (physically isolated independent data centers in a geographic region).
- The integrity of backups:
 - AMI backups:
 - AMI snapshots are automatically stored into S3 as an architecture built into the AWS platform.
 - The integrity of snapshots is managed by AWS. Snapshots are incremental and every new snapshot covers the differential data from the previous snapshot. But each snapshot is independent and complete by design and doesn't depend on the previous snapshot while restoring. The deletion of snapshots within the sequence doesn't affect the integrity of the subsequent snapshots.
 - Database backup
 - Backups are carried out by a scheduled SQL Agent job and then the same is copied over to AWS S3 storage.
 - Backups have checksum enabled in the SQL agent. This prevents tampering with the backup, and it is verified by the SQL server during restore. This helps in restoration back to the desired state.
- Confidentiality of backups is maintained by user access restrictions to the backup locations.
- Database backups in S3:
 - Access to the S3 objects is controlled by bucket and object policies defined in the AWS platform, which is used to customize access to any object.
 - By default, objects in S3 are private and accessible only to owner accounts of the objects.
 - Innovyze's access to DB buckets and backups (objects) is restricted to administrators (Innovyze Cloud Ops team) and designated Database Administrators.
- AMI backups:
 - AMI is an AWS managed service and backups are internally stored in S3 storage. But users don't have any access to modify the same in the AWS S3 platform.
 - Only authenticated AWS account users with an Identity and Access Management (IAM) users with AMI: Describe image permissions can access the AMI backups.
 - AMI backups are private by default and restricted to the source AWS account.
 - AMI's can be shared with other AWS accounts or made public. Innovyze Cloud Ops team is responsible for configuring and maintaining the correct access configurations for the AMIs.
 - Innovyze users of the AWS portal, other than administrators (Innovyze Cloud Ops team), do not have access to AMIs.

Version Control

All version upgrades made to the base Innovyze Info360 Cloud platform or any of its products will include any customizations to meet OCWUT's requirements. Customizations in this context will include all software modifications to the application interfaces and standard reports. Upgrades are generally performed after hours or on weekends. When access will be affected, Innovyze's Customer Success representative will work with OCWUT's IT department to schedule a time when the update or upgrade will have the least impact on OCWUT. If an update is required to fix a bug or an ongoing issue, Innovyze will provide OCWUT with as much notice as possible. Usually, OCWUT will get at least five (5) calendar days' notice before a required update or upgrade must take place. Innovyze generally has one major release and three minor releases of SYSTEM once each year.

Innovyze is committed to develop, upgrade, patch, and support platform including database functionality and mobile applications for at least five (5) years, as included in the base per user or enterprise licensing.

Database Replication and Disaster Recovery

Info360 is hosted on Amazon Web Services (AWS) servers, and the core architecture is designed across availability zones to provide redundancy and support disaster recovery efforts. In the event of a disaster or the sudden unavailability of a data center, users will automatically be redirected to the redundant data center within a few seconds.

Info360 is SSAE 16 Type II certified and is in full compliance with NIST 800-53 standards. Innovyze follows all the NIST 800-53 standards for backup/recovery, data retention, and disaster recovery.

Business Continuity and Disaster Recovery

Innovyze's Business Continuity and Disaster Recovery (BC/DR) plans anticipate the impact of a disaster affecting OCWUT and Innovyze. It is a planned response designed to both meet OCWUT's requirements and ensure continuity of Innovyze's primary business functions.

Innovyze collects confidential information from OCWUT required for the implementation of the BC/DR processes. That information, along with the BC/DR plan, will comprise the event management plan for OCWUT. This information includes:

- Contact Information
- Specific Support Requirements
- Service Level Agreements
- Critical Information Technology Systems

The plan addresses services provided by Innovyze, Inc. and is based on the following assumptions:

- The continuity event impacts customers located in North America
- An adequate number of Innovyze personnel are available after the event who are able and qualified to perform the required tasks, as defined in the BC/DR plan
- Not all critical information systems may be available during or immediately after a continuity event

The following Continuity Event Management procedures have been enacted in preparation for recovery of services:

- Communication and Contact Procedures
 - Contact information will be collected and maintained to enable initial event notification and status updates. This includes:
 - Primary and Secondary contact names and methods
 - Core and Non-Core contact procedures

- Incoming Support Procedures and Contact Information
 - Customers who forward a support telephone number to Innovyze may plan to redirect these lines internally in the event of an outage. Information needed to facilitate the redirection of incoming calls will be collected and maintained for these customers. This information includes:
 - Telecom contact information
 - Line redirection information
 - Alternate site contact information
- Continuity Event Customer Support Procedures
 - Support calls will be redirected in conjunction with the escalation procedure outlined in the BC/DR plan. For events anticipated to exceed four hours in duration, Innovyze team members will be assigned to individual customers.
- Recovery Hot-site Contracts
 - Recovery contracts are maintained with Innovyze's Business Continuity and Recovery Services (BCRS) vendors, covering *the following Innovyze systems/processes*:
 - Primary Data Center – BCRS vendors cover Workstations, Servers, Phones, Voicemail boxes, Incoming call routing, internal network connectivity with Data Center Recovery Facility, VPN and Internet Access. Recovery exercises are performed with BCRS vendors on a semi-annual basis. In a regional disaster, BCRS contacts provide the ability for Innovyze to relocate its recovery activities to a second Data Center facility.
 - Secondary Data Center – The SLA for the availability of systems at each facility is 24 hours from a disaster declaration.
- Direct Inward Dial (DID) Telephone Rerouting Plans
 - The following plans are maintained as part of the Innovyze BC/DR plan. Copies of these plans are maintained by our telecom provider for activation in a disaster. Innovyze employs VOIP PBX's that easily support the rerouting of phone service when required. The plans below describe the VOIP reconfiguration required to switch phone service to our backup site:
 - DR Primary DID Routing Plan
 - DR Secondary DID Routing Plan
 - DR Test Routing Plan

Disaster Recovery Standards

Immediate response will be enacted for any continuity event. This portion of the recovery plan can be executed separately, based on the individual event, but will also serve as the initial response in a short or long-term continuity event.

- **Immediate Response**
In the case of an event, Innovyze will initiate its DR plan. This section of the DR overview provides information on the immediate actions that will be taken by designated Innovyze personnel.
- **Situation Assessment** – An initial determination will be made of the event impact. Assessment will include:
 - The extent of impact - Staff, facilities, systems, services
 - Severity of impact
 - Probable event duration and resolution

- **Customer Communications** - Innovyze will employ the following communication guidelines in the event of a declared disaster:
 - Within a one-half hour of the event occurrence, Innovyze will alert customers of the event. In addition to the initial communication, customers will receive regular status updates during the duration of the event and recovery and advance notice of additional Recovery Plan Activations
 - Status updates will occur every hour after the initial notification unless otherwise defined
- **The decision to Activate Short or Long-term Response Plan.**

The decision to activate the short or long-term plan can be made at this point or may be delayed while additional event information is collected and analyzed. The decision to activate a recovery plan will be based on a variety of information, including the following items:

 - The extent of physical damage, if any
 - Impact to end-user services and SLAs
 - Specific systems and services impacted

Only the Innovyze Executive Team has the authority to declare a disaster and thereby activate the short or long-term plans detailed below.

 - Alert BCRS vendors of any continuity event
 - Redirect incoming customer support lines
 - Dispatch/reallocate on-site support
- **Short-term Recovery Plan Activation**

For events anticipated to last between 24 and 48 hours, Innovyze will activate the Short-term Recovery Plan. This plan can serve as the first phase of the long-term plan activation. The decision for plan activation will be based on the specific systems affected and the extent of the impact. Plan activation includes the following steps:

 - Notification to vendors of a disaster event and their subsequent preparation
 - Notification of customers
 - DID Rerouting Plan will be activated with our telecom provider
 - Innovyze staff will travel to the BCRS End-user Systems Recovery facility if necessary
 - Incoming support calls will be received through the BC/DR call distribution system

During this stage of recovery, Innovyze related information systems may not be available. The Innovyze staff will document customer interactions, if necessary.

 - Information will be entered into Support and Innovyze Portals when the required systems become available
 - Any escalation for priority calls during this time will be handled per the applicable SLAs
 - Specific contacts and methods of support event communication will be detailed in the BC/DR Plan
- **Long-term Recovery Plan Activation**

For events anticipated to exceed 48 hours in duration, Innovyze will activate the Long-term Recovery Plan. Plan activation includes the steps listed in the Short-term Recovery Plan Activation and adds the following:

 - Update BCRS vendors of the current status
 - Notify all second-tier vendors of event and disaster declaration
 - The recovery team will travel to the BCRS End-user Systems Recovery facility

- Data Center systems recovery will be initiated upon arrival or as soon as facilities are available (reference BCRS's 24-hr SLA)
- Within 24 hours of long-term plan activation, Support, Portal and related applications will be accessible at End-user Systems Recovery Facility.
- **Testing the DR Plan**

To ensure that the DR plan can be executed seamlessly, Innovyze tests its DR recovery procedures a minimum of once per year. Some of the tests are performed more frequently, as required. The following tests are performed:

 - A hard failover of the live site
 - Telephone rerouting to the backup support center.
 - Data Recovery from the most recent full backup
 - Hard failure of the primary database server
 - Security Procedures for each office facility, and hosting facility

To ensure that the DR and business continuity plan remains accurate and up to date, every time the testing procedures are run, the DR plan business continuity plan is updated to reflect the findings during the testing practices. Also, as new parts of the business are instantiated, the DR and business continuity plans are updated to reflect the new needs.
- **Disaster Site Procedures**

The Disaster Recovery (DR) site is an active live installation of the Innovyze SYSTEM solution and is immediately available in the case of service failure on the primary site. This ensures that the service is always running, and that minimal downtime is experienced in the case of any primary site failure, including a declared disaster. With that statement in mind, the DR site procedures are fundamentally like the primary site procedures described in this response, with the following exceptions:

 - The DR site is not backed up regularly.
 - The DR site's database is not restored in the case of a disaster.
 - The DR site's database server is the slave in the replication strategy.
 - In the case of a disaster requiring a data restore, the restored database is from the most recent database backup of the primary site (because the DR site is always active and is set to have full replication, the need to recover from backup should never happen).

Software Quality Attributes

Info360 is compatible with the latest versions of Google Chrome and Microsoft Edge in the Windows 10 environment as well as iOS and Android devices through either a native application or the respective web browser.

- Innovyze Info360 is a SaaS solution. Access to Info360 is through standard browsers on PCs and tablets, and the SYSTEM Mobile application on mobile devices like smartphones. Innovyze supports Microsoft Edge and Google Chrome or greater on PCs and tablet systems.
- Innovyze also supports current versions, plus one previous version, of Apple Safari, Google Chrome, and Mozilla Firefox on PCs and tablets. The SYSTEM Mobile app shall run on iOS, Android, and Windows mobile devices.

1.2.6 Data Security Specifications

Innovyze shall submit a Data Security Plan to ensure that OCWUT and City data or software systems will not be compromised during the implementation or ongoing support of Info360

1.2.7 System Integration Specifications

1.2.7.1 System Hardware Interfaces

The interface between the Info360 application and the hardware components of Info360 will be office equipment and devices for data entry and computing.

- PCs and laptops running Microsoft Windows version 10 or later.
- Mobile devices
 - Tablets running the latest versions of iOS, Android, and MS Windows plus one previous version.
 - Mobile devices (smartphones) running the latest versions of iOS and Android plus one previous version.
- Printers/Plotters that are managed directly by the Windows operating system or by third-party applications on tablets and mobile device which directly manage the printer/plotter interface.

1.2.7.2 System Software Interfaces

Info360 shall be used by several departments within the City including but not limited to Utilities and IT and others which may require interfaces to different systems (see Figure 1).

All interfaces will be real-time interfaces and not be batched or scheduled unless otherwise agreed upon by OCWUT during Blueprinting phase of the program. Innovyze is responsible for INTEGRATION and CONFIGURATION MANAGEMENT so that all components of the SYSTEM are functional and aligned with SYSTEM requirements.

INTEGRATIONS between Info360 and OCWUT systems (discussed below) will occur in a secure, reliable, real-time manner. Security requirements shall meet OCWUT's enterprise IT security policies and will be defined during blueprinting phase of the project.

The following INTEGRATIONS shall occur in a secure, reliable, and real-time manner:

- User Account Management – Info360 shall be integrated with the City's Microsoft Active Directory and not require users to utilize separate credentials from other City resources.
- INTEGRATIONS and Data Management – Functions in the INTEGRATIONS and data management functional area provide the ability to integrate with other enterprise applications. The following specific functions are required:
 - Distribution System SCADA Data
 - Telog Pressure Data
 - Cityworks Asset Data
 - ArcGIS
 - SAP
 - InfoWater Pro

Distribution System SCADA Data– Integration of SCADA data provides real time operational data for assessing system performance. The SCADA data shall be linked to the hydraulic model to provide initial conditions for performing what-if simulations, and data shall be compiled for Dashboard reporting requirements as defined during the Blueprinting with OCWUT.

Telog Pressure Data– Integration of Telog pressure data shall provide real time pressure feedback data in a dashboard format that is backed by spatial data for efficient identification of pressure concerns in the distribution system. Telog Pressure Data shall be compiled for Dashboard reporting of trends and variances from target pressures and be used to generate alerts for action.

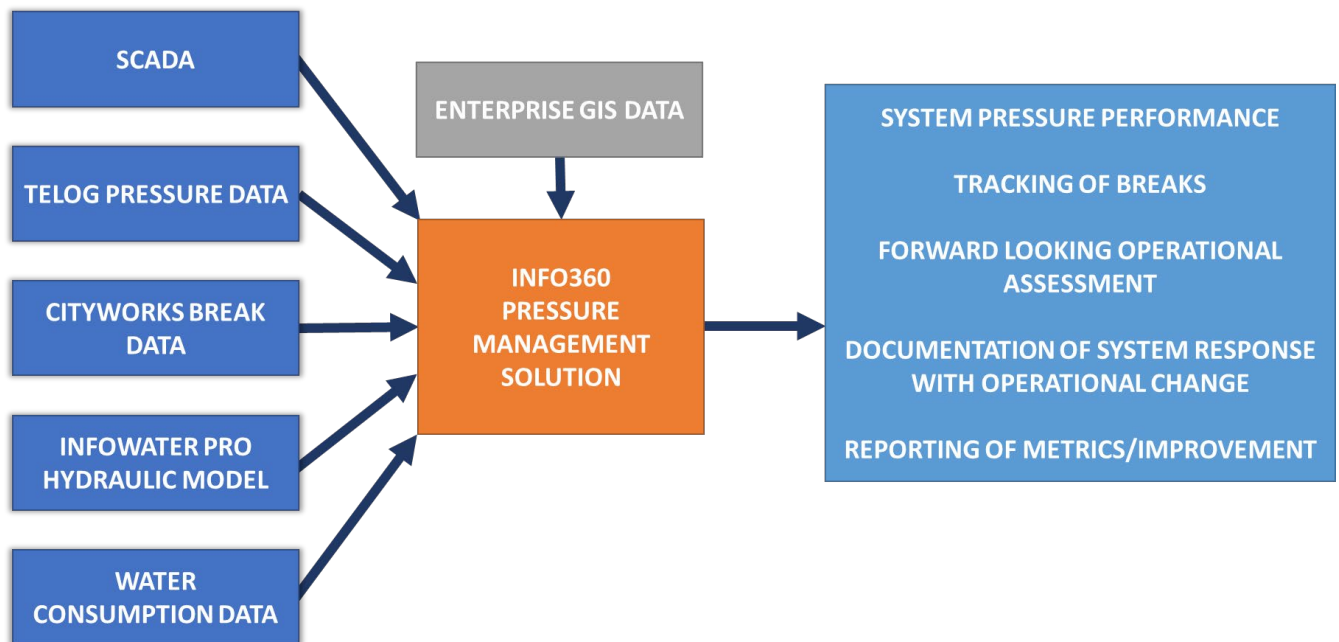
Cityworks Asset Data– Data from Cityworks shall be used to identify trends of breaks and leaks highlight areas of concern for leaks and breaks with integration of spatial pressure data from the Telogs and from simulations by the hydraulic model.

ArcGIS-Integration with ArcGIS data shall provide spatial and asset information on distribution system assets for use in assessing operational what-if scenarios and locating features within the distribution system. This integration with ArcGIS for Info360 shall not include an automatic update of hydraulic model infrastructure or assets.

SAP-Integration with SAP shall provide access to historical water consumption data to use in conjunction with SCADA data. SAP data shall also be configured to link with meter points in the GIS. The meter points and linked SAP data shall be used for future updates to water demands in the InfoWater Pro hydraulic model.

InfoWater Pro-Integration with the hydraulic model will provide what-if operational scenario analysis and tracking within the same interface where SCADA information and Telog pressure data is compiled and reported on the Dashboard.

INTEGRATION and data exchange functional requirements provide the ability to integrate with other enterprise applications as shown below in the graphic and associated table. Existing and potential future interfaces are indicated in **Figure 1**.



2

Figure 1: SPM Interfaces

Table 2: SPM Interface Data Exchange

Interface	Data Exchange	
	To Info360	From Info360
SCADA	Asset On/Off status Asset Status (Level, Flow, Pressure, Quality, Pump Speed)	System operational change recommendations (indirectly; Info360 will not push information directly)

Interface	Data Exchange	
	To Info360	From Info360
Telog Pressure	Pressure	
GIS	Infrastructure feature class data and attributes	System operational predictions to a designated layer
Cityworks	Asset historical performance Asset criticality	
Hydraulic Model	Simulation capability Simulation results	Scenario performance results and resulting system response
Water Consumption and Billing System	Customer consumption data that can be compiled spatially	

1.2.7.3 System Communications Interfaces

All communication security or encryption practices, data transfer rates, and synchronization mechanisms will be defined by Info360 provider and must follow City IT policy.

Browser

Access to Info360 is through standard browsers and the Info360 Mobile application. Info360 will support Microsoft Edge and Google Chrome on PCs and tablet systems. Info360 will also support current versions, plus one previous version, of Apple Safari, Google Chrome, and Mozilla Firefox.

Innovyze will work with OCWUT to understand the functionalities provided by their existing systems, determine integration points, and then deliver the most appropriate integration solution to meet their needs. This will result in an enterprise solution where data entered in any of the integrated applications is always available throughout the enterprise rather than being locked away and stored in files or information silos.

Distribution System SCADA Data

Info360 comes with integration capabilities with various SCADA systems and interfaces. Innovyze will work with OCWUT to configure the integration with OCWUT's SCADA system based on the touchpoints (SCADA Tags) identified by OCWUT during the Blueprinting phase of the integration project.

Telog Pressure Data

Innovyze will work with OCWUT to configure APIs to integrate the Telog Pressure Data with Info360. Touchpoints and existing interface capability of the current Telog system will be discussed during the Blueprinting phase of the integration project.

Cityworks Asset Data

Innovyze will work with OCWUT to configure APIs to integrate the Cityworks Data with Info360. The desired information to incorporate from Cityworks shall focus on assets within the water distribution network (pipes, valves, meters, pumps, tanks). The specific information to incorporate and the dashboard and spatial display needs will be discussed during the Blueprinting phase of the integration project.

SAP Water Consumption Data

Innovyze will work with OCWUT and the SAP Implementation Lead (HCL) to configure APIs to integrate the SAP water consumption data with Info360. The specific level of detail (monthly systemwide data, data by zone, data by customer) will be discussed during the Blueprinting phase of the integration project. Other Integrations

Innovyze has extensive experience integrating its InfoWater hydraulic modeling package, ArcGIS, and Cityworks data into Info360. For other systems that are identified as potential future integrations with Info360 and as hydraulic model updates are made, Innovyze will work with OCWUT to configure the integration with the systems based on the touchpoints identified by OCWUT during the Blueprinting phase of the integration project.

1.2.8 Data and Model Migration Specifications

Innovyze shall convert the InfoWater model and migrate the InfoWorks ICM sewer model platform as part of this scope. Innovyze shall support IT staff with the install and configuration of the modeling software on a virtual machine provided by IT.

1.2.8.1 InfoWater Pro Conversion

Innovyze shall convert the existing InfoWater model to InfoWater Pro as needed for the Info360 deployment. Innovyze shall assess the model extent and operational controls in the existing InfoWater model and update the controls as needed based upon discussions with OCWUT Operations staff. The operational controls in the existing hydraulic model shall be updated to represent up to four operational scenarios as defined during the Blueprinting phase. The operational scenarios will align with a range of demand conditions and will provide the starting point for operational modifications that may be assessed during the “what-if” scenarios in Info360. Innovyze shall coordinate with the PMO and the OCWUT core team during the model validation and updates to allow for review and confirmation of the hydraulic model performance. The model shall reside on the VM for periodic access by Innovyze as needed for the Info360 integration.

Historic data migration from Telog or SCADA is not anticipated as part of the Info360 deployment. Incorporating historic data from these applications shall be discussed and confirmed during the Blueprinting phase.

1.2.8.2 InfoWorks ICM Sewer Edition Migration

Innovyze shall migrate the existing InfoWorks ICM model to a virtual platform. When OCWUT has migrated the ArcGIS geometric network to a Utility Network, Innovyze shall reimplement InfoWorks ICM with the new network. No updates to the facilities, physical network, controls, load data, or wet weather data are anticipated as part of the migration.

1.3 Realization Phase (Phase 3)

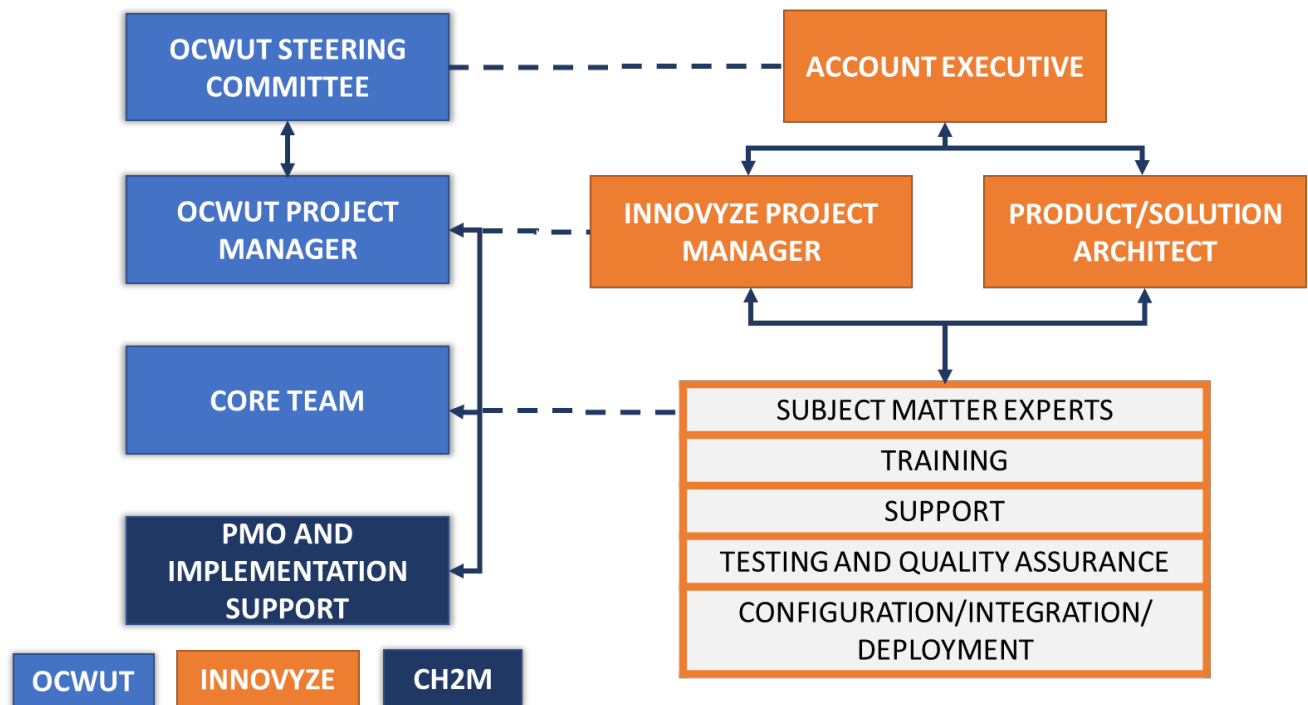
The Realization phase will configure system based on the approved requirement documents from the Blueprinting phase. The key deliverables for this phase will include:

- Implementation and Configuration Team Formed
- Change Management Approach
- Sprint Planning
- Sprint 1,2,3 implementation
- Requirements Traceability sign-off
- Master Testing Plan
- Go-live Plan
- Training Plan

- End User Training
- Systems Training

1.3.1 Implementation and Configuration Team Formed

The following graphic depicts an organization chart identifying the proposed project team positions and reporting relationships. The project team organization lays a foundation for better communication, reporting, and escalation during implementation.



Through the project organization structure described above, Innovyze will be able to provide effective lines of communication to all OCWUT stakeholders, as well as clear paths for escalation of both delivery and commercial issues. These types of communication channels will be instrumental for the successful delivery of this project by the agreed deadlines.

The personnel detailed below will be needed for the successful implementation of the solution for OCWUT. Innovyze will need continuous access to the personnel below to deliver the project successfully. OCWUT is responsible for scheduling and providing access to key personnel throughout the life of the project.

OCWUT will need to contribute one or more of the following resources for oversight and decision-making:

- Executive Sponsor
- Project Sponsor
- Business Owner

OCWUT will need to provide the following resources for day-to-day input into the design, business usage, and technical interfaces:

- Project Manager
- Core Design Team – OCWUT's subject matter experts ("SMEs")
- Technical application deployment and external system interface support (IT)

OCWUT will have primary responsibility for the availability of each OCWUT resource during project delivery when required. Also, Innovyze will need OCWUT staff assistance to address one or more of these additional responsibilities listed below:

- Provide access to key business stakeholders when appropriate
- Manage the availability, assignment, and participation of all relevant OCWUT resources, per the project schedule and the project plan
- Ensure scheduling of the relevant implementation workshops
- Provide a productive work environment for the project team, including meeting room facilities for all relevant meetings and workshops

1.3.2 Change Management Approach

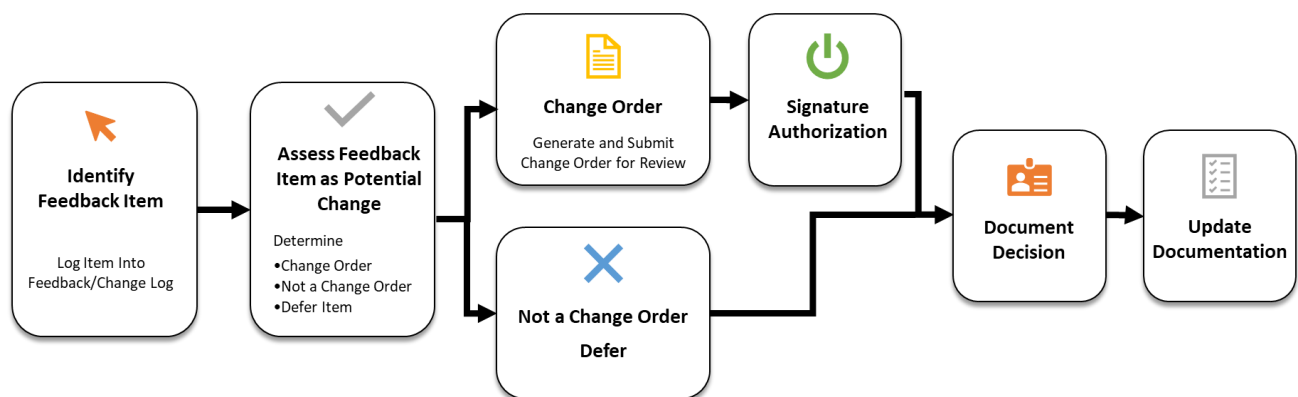
As changes to scope, schedule or budget arise during project execution, it is important to follow a disciplined change control process to ensure agreement on the following:

- Required adjustments to schedule and/or cost
- Business / Project impact
- Adherence to contractual requirements

The purpose of change control process is to proactively manage changes to project scope, schedule, and the cost as defined in the Project Management Plan (PMP). Change Control does not mean eliminate changes, but instead to ensure the actions needed are considered and agreed upon.

Change Control Process

Any request for any change in services must be in writing; this includes requests for changes in project plans, scope, specifications, schedule, designs, requirements, service deliverables, software environment or any other aspect of this project. The approach for managing, controlling, and documenting change for the project is shown in the graphic below.



Innovyze is not obligated to perform tasks related to changes in time, scope, cost, or contractual obligations until OCWUT and Innovyze agree in writing to the proposed change request.

The process for initiating, reviewing and approving a Change Request is outlined in the below:

- Potential need for change is escalated to the Project Managers and entered into the Feedback Log.
- Project Managers (OCWUT and Innovyze) collaboratively review and determine if the change request is valid.
 - If Yes, the change request item is ready for impact assessment.
 - If No, then the status is changed to “Deferred” with comments.

- Project core team completes impact assessment for the valid change request items along with the effort estimates associated with that item.
- Impact Assessment, Effort Estimates and all required information for the valid Change Request Items are completed prior to Change Control Board (CCB) review.
 - Valid Change Request Items status is set to “Ready for Review”.
 - CCB reviews the “Ready to Review” change request items and then decides.
- The decisions from CCB are as below:
 - Approved – set status of the change request item to “Approved” in Feedback Log. Project Managers create a formal Change Order that needs to be signed by the Project Sponsor.
 - Rejected – set status of the change request item to “Rejected” in Feedback Log. Update worklog section with appropriate comments for record keeping purposes.
- Approved change request items (i.e. approved requirements) are added to the “Requirements Traceability Matrix” and the signed change order document number is added for reference.
- Any impacted project documents (project schedule, payment milestones, etc.) need to be updated based on the signed change order.

Note: Emergency change requests requiring immediate processing will follow the same process. However, this process will be expedited by the Project Managers of the OCWUT SPM project.

1.3.3 Sprint Planning & Configuration

Innovyze will follow the Agile methodology to enhance quality and overall delivery timeline of the SPM implementation. Consequently, the SPM functional requirements will be logically organized into groups of logical requirements for development called sprints.

1.3.3.1 Sprint 1

Install and configure InfoWater on a virtual computer with ArcMap 10.4.1 installed provided by Utilities and City IT. Perform field mapping of the Water Distribution Network and build a new InfoWater hydraulic model and/or provide technical consultation to that end. Provide technical consultation to correct deficiencies and/or discrepancies that impede proper hydraulic model function including deficiencies within the geometric network. Provide technical consultation for accessing the new InfoWater hydraulic model on separate computer via network. Provide technical consultation to access old/previous hydraulic model.

1.3.3.2 Sprint 2

Install and configure InfoWater Pro on a virtual computer with ArcGIS Pro installed provided by Utilities and City IT. Perform procedures necessary to access Water Distribution Network within ArcGIS Pro. Perform field mapping of the Water Distribution Network and build a new InfoWater Pro hydraulic model and/or provide technical consultation to that end. Provide technical consultation to correct deficiencies and/or discrepancies that impede proper hydraulic model function including deficiencies within the Utility Network. Provide technical consultation for accessing InfoWater Pro hydraulic model on separate computer via network.

1.3.3.3 Sprint 3

Upon completion of migration from Water Distribution geometric network to ArcGIS Utility Network, perform procedures necessary to build a new InfoWater Pro hydraulic water model based on the new ArcGIS Utility Network. Provide technical consultation to correct deficiencies and/or discrepancies that impede proper hydraulic model function including deficiencies within the Utility Network. Provide technical consultation for accessing the new InfoWater hydraulic model on separate computer.

1.3.3.4 Sprint 4

Install and configure InfoWorks ICM on a virtual computer provided by Utilities and City IT. Perform procedures necessary to migrate existing InfoWorks ICM sewer model from it's current computer to the new virtual environment. Provide technical consultation to correct deficiencies and/or discrepancies that impede proper hydraulic model function including deficiencies within the geometric network. Provide technical consultation for accessing InfoWater Pro hydraulic model on separate computer via network.

1.3.3.5 Sprint 5

Upon completion of migration from sewer geometric network to ArcGIS Utility Network, perform procedures to remap fields to the new Utility Network and provide technical consultation to correct deficiencies and/or discrepancies that impede proper hydraulic model function including deficiencies within the Utility Network. Provide technical consultation for accessing InfoWater Pro hydraulic model on separate computer via network.

1.3.4 Requirements Traceability Sign-off

All requirements which are shown in the requirements traceability matrix have been confirmed as completed and signed off.

1.3.5 Master Testing Plan

The solution testing phase is an integral part of any successful project. It is created to ensure the functional and business requirements established for the project are met prior to a production mode. The Master Testing Plan lays out the scope, testing approach, different types of testing, testing deliverables, acceptance criteria, testing schedule and testing resources needed for solution testing phase of this project. The testing shall employ an Integration Test Plan approach as described below and follow a Regression Test Plan if active systems require changes.

- **Integration Test Plan:** Includes a description of how Info360 shall be tested. It must contain a checklist of all functions and their desired results. In any available case, test data shall be described with the desired result, so that testing can verify that calculations and data manipulations are producing the desired results. This list shall be used for function testing of Info360 by OCWUT.
- **Regression Test Plan:** The test plan shall be used if the project requires there to be modifications to any system already in-use by OCWUT. Regression testing must ensure that the changes to any affected systems do not impact the daily work of the users. The regression test plan must be well defined, and Innovyze must reach out to any user group that interacts with the modified systems.

Info360 will go through multiple rounds of testing as part of quality assurance and quality control before moving into production. Testing will include:

- Developer Unit Testing
- Sprint Quality Testing
- Full System Regression Testing
- Smoke Testing
- System Integration Testing (SIT)
- User Acceptance Testing (UAT)
- Load and Stress Testing (LAST)
- Penetration Security Testing

Testing Approach

This section describes the approach and objective of the various testing identified in the testing scope section. Testing approach should accomplish at minimum Unit testing, System Integration Testing, User Acceptance Testing, Load and Performance testing.

Build Test

Reviewing the development code before it moves to QA environment and to ensure that the entire build is migrated to QA environment and available for the testers to perform the testing. The objective is to determine the development code is defect free and if further testing is possible.

Regression Test

Regression testing is to ensure that the earlier functionality of the application is not hampered due to the new enhancement. If the test fails, then defects for the failures has to be recorded in feedback log and fixed.

Defect Re-Test

When the defects are fixed then ensure that the defect are re-tested with a new data sample and close the defect if the functionality is working as desired else re-open the defect and assign to the implementation team.

Smoke Test

All the components should be tested at a high level to ensure that there are no application breakages so that full end to end testing can be performed. This testing also determines if further testing is possible.

System Integration Test (SIT)

System integration testing ensures the overall functionality testing and it provides point to point testing of every component and interface that has been developed as part of the sprint delivery. The system test scenarios that will be run are geared to testing data boundaries, conversion, validation rules, etc. OCWUT will need to provide access to their applicable business system test environments so that integrations between Info360 and other business system(s), in scope for integrations, can be tested as well.

Performance Testing (Load and Stress Test - LAST)

The load and stress test is used to test the system from a performance and scalability perspective. It ensures that all integrations and configurations function at predicted user loads, with predicted data sets. This testing is critical to ensure that the system will operate normally in a production environment with a full user load accessing the system.

User Acceptance Testing (UAT)

User acceptance testing is to ensure that OCWUT will review all solution deliverables submitted by Innovyze. This testing provides an end-to-end business scenario testing from an end user perspective. The goal of UAT is to verify that all functional and non-functional requirements have been met and configured to OCWUT's approved specifications. Innovyze will work with OCWUT to support User acceptance testing.

Penetration Security Testing

Penetration testing ensures the system is not vulnerable to attacks by third parties. Innovyze regularly runs penetration testing on its platform, but the solution testing phase of the project ensures that the delivered solution has no known open security holes. During this sub testing phase, Innovyze performs tests that conform to the OWASP top 10 security flaws for web-based applications.

Testing Frequency and Acceptance Criteria

The table below describes the frequency and acceptance criteria for the various testing cycles described above during the project delivery.

Test Type	Frequency	Acceptance Criteria
Unit Testing	Every Sprint	Innovyze will conduct unit testing for all the developed code in every sprint to ensure code is defect free and certified to be moved to QA system
Quality Testing	Every Sprint	Innovyze will conduct functionality testing in every sprint to ensure completeness in QA system and the code is certified to be moved to SIT system
Sprint Testing	Every Sprint	OCWUT will conduct functionality testing in every sprint to ensure functionality completeness and acceptance in SIT system
System Integration Testing	Once at the completion of all sprints	Innovyze and OCWUT will conduct SIT to ensure functionality testing, data migration and system integration testing completeness and acceptance by OCWUT in SIT system
User Acceptance Testing	Once after SIT is complete	OCWUT will conduct UAT to ensure functionality testing, data migration and system integration testing completeness and acceptance by OCWUT in UAT system
Performance & Security Testing	Before SIT, UAT, Training and Production	Innovyze will conduct this testing with or without external vendor to ensure the performance and security of SIT, UAT, Training and Production systems are at the desired level

Test Environments

This table below describes all the test environments that will be used to perform the actual testing activities.

Environment	Environment URL	Description
System Integration Testing	https://OCWUTsit.SYSTEMlive.com	Sprint delivery and testing, System Integration testing
User Acceptance Testing	https://OCWUTuat.SYSTEMlive.com	User acceptance testing
Training	https://OCWUTtraining.SYSTEMlive.com	Training end users and admin users
Pre-Production	https://OCWUTpreprod.SYSTEMlive.com	Replica of production, testing any production items
Production	https://OCWUT.SYSTEMlive.com	Production (Live system)

Test Material

This section describes the various testing materials and documentation that will be provided to OCWUT as part of the overall solution delivery.

The approach to developing all testing materials will be by leveraging the existing Innovyze standard testing materials which will be updated to match the solution configured for OCWUT. While Innovyze owns development of the content, OCWUT and PMO SMEs will participate in the timely review, feedback and approval of all materials. OCWUT SMEs will also participate and own development of content for systems that OCWUT Info360 solution integrates with, as applicable.

Testing Materials that will be provided to OCWUT comprises Test Instructions and Release Notes. Innovyze will also provide presentation slide decks to support SIT and UAT.

Material Print/Hard Copies – Innovyze will provide softcopies of all the testing materials. OCWUT will be responsible to print required hard copies and distribute to participants.

Testing Logistics

Facilities, classrooms, equipment, computers, and network connectivity for classroom testing will be provided by OCWUT. OCWUT will be fully responsible for the planning, coordination and delivery of OCWUT testing sessions, with support from Innovyze as requested by OCWUT PM.

OCWUT must ensure all classrooms have the following equipment:

- Table/desk and chair for Instructor and all participants
- Projector (connected to instructor's computer) and large screen
- Power strips to plug-in multiple devices
- Network connectivity
- Workstations/laptops (Recommend OCWUT provide the workstation/laptops, so there is a standard setup)
- White board or flipchart with stand and markers, sticky notes
- Video/Audio conference capability

Testing Schedule

Innovyze will work with OCWUT to align the schedule of all the solution testing activities with the overall project schedule. The solution testing tasks will be updated and tracked in the OCWUT Info360 Implementation project schedule.

The Innovyze must certify, in writing, to OCWUT that the software is installed and ready for testing (Go-Live). OCWUT shall have 90 days to notify the awarded Innovyze of any specific deficiencies or issues with the Info360 and the awarded Innovyze shall have 30 days to resolve such issues. The Master Test Plan must include the Integration Test Plan and the Regression Test Plan as detailed below:

1.3.6 Training Plan

The Innovyze must provide a training plan for Info360 and define the staffing required for support of the Info360. This will include on-going training as part of BASE SUPPORT services and the requirements, as well as value added recommendations, for sustainable SERVICE DELIVERY MANAGEMENT. The training plan must show the involvement of staff from the initial installation of the software and continue through configuration and implementation.

The plan must include user group levels, course duration, course description, and any course prerequisites. Proposed training costs must include the cost of onsite training with a maximum class size of eight (8) students for hands-on classes. Innovyze must provide "End User" and "Systems Training". All training must be conducted onsite at a City facility. Training must be conducted for the users identified in Section 1.2 of the Scope of Work.

OCWUT may record the training sessions or ask Innovyze to provide recordings of the sessions.

Innovyze will demonstrate how the training plan will be used to educate OCWUT and City staff in their role, the required OCWUT RESPONSIBILITIES, and expectations in their support of the SERVICE LEVEL OBJECTIVE(S) of Info360. This will include defining the necessary skills and staff needed to support Info360 and the OKLAHOMA CITY ESTIMATED STAFFING LEVELS, the required OCWUT RESPONSIBILITIES, and OKC-IT staffing commitments required to meet the support of the SERVICE LEVEL OBJECTIVE(S) and to service Info360.

OCWUT is requiring TIER 1 STANDARD services from the SERVICE PROVIDER. The training plan must show how the roles for the various OCWUT staff and SERVICE PROVIDER staff are aligned.

The Training Plan will address the following:

- Training approach for the Program Management Information System Users such as Management, Finance users, Project managers, project team members and Administrators of OCWUT for using the SPM system implemented using Info360
- Description of the training personnel, equipment, tools and facilities that Innovyze anticipates OCWUT must provide to support the proposed training approach
- Description of the trainings delivered by Innovyze to OCWUT personnel

This will be a living document through the project life cycle and will include references and/or links to training related documents that will be maintained outside of this document. The training plan will be updated periodically to reflect the refined requirements, strategy, and other details of the Info360 Implementation training program. All training related activities for OCWUT SPM Implementation project will be conducted as outlined in the approved training plan.

Training Scope

This section identifies the scope of training services and activities.

The scope of the overall training program for OCWUT SPM Implementation project includes Training Materials and Documentation and Training Delivery for Innovyze-led trainings.

Training Materials and Documentation

Develop user training materials and user manuals, leveraging pre-existing materials, where appropriate. The training material and documentation section of this document will elaborate this in detail.

Training Delivery for Innovyze-led trainings

Deliver following training programs:

- Instructor led End Users Training
- Instructor led System Administration Training

Innovyze personnel will deliver instructor-led classroom trainings to OCWUT personnel. The coverage of training is limited to the functionality configured in the OCWUT SPM Implementation project. The training scope does not include training OCWUT personnel on any other systems with which the OCWUT Info360 solution is integrated.

Training Approach

This section describes the approach and strategy for the various training programs identified in the Training scope section.

Instructed Led End Users Training

Innovyze will deliver End Users Training on the OCWUT Info360 configured solution functionality to OCWUT staff.

- This training will be delivered with Innovyze teaching a maximum of up to 8 OCWUT staff and 3 PMO staff. OCWUT staff attending the training can then teach the remaining OCWUT end users.
- Scope of training is determined by the scope of the OCWUT Info360 functionality delivered in this project.
- The training is intended to train OCWUT staff on the system functionality to enable them to deliver utility-wide end users training.
- Training will be delivered in an instructor-led classroom environment with hands-on practice activities to adequately prepare OCWUT staff.
- Innovyze will use training materials such as MS PowerPoint slides, Participant guides and a Training Environment.

- In addition, an Instructor Guide will be available to OCWUT staff with brief overview of the various materials and how trainers will leverage each of the materials such as MS PowerPoint slides, Participant guide (hands-on activities) and the training environments, which will enable them in delivering end user training effectively.
- The participants will build learner competency by following functional demonstrations and performing hands-on practice activities within the training environment.
- Training will be delivered by an Innovyze Info360 expert/trainer.
- Training delivered by Innovyze will be limited to the functionality covered in Info360 and InfoWater and will not involve training OCWUT personnel on any other systems that integrates with Info360. The training relevant to integrations will be limited to calling out the business rules and triggers for the integration with Info360.
- OCWUT staff will deliver any training/overview as required for the systems integrated with Info360 to ensure completeness and context to the training courses. OCWUT will be responsible for developing the content for other integrated systems as required to support this activity.
- OCWUT Business Owner and/or SME's support will be required during the training classes to address any functional or business-related queries.
- Instructor led trainings will be provided at OCWUT's headquarters in Oklahoma City. Remote staff from OCWUT shall be able to join the training sessions via teams and/or dial in. OCWUT and Innovyze project team will work together to facilitate the combination of in-person and remote attendees.

System Administration Training

Innovyze will deliver the System Administrator Training to OCWUT system administrators and technical staff on system administration activities.

- This training will be provided one time for up to 5 OCWUT Technical staff and system administrators.
- The training is intended to enable OCWUT technical and system administration staff to successfully manage system administration functions, such as user and role management, library management, permissions, and other configurations.
- Training will be delivered in an instructor-led classroom environment with hands-on practice activities to adequately prepare OCWUT technical and administrative staff.
- Innovyze will use training materials such as MS PowerPoint slides, System Administration manual and a Training Environment.
- The participants will build learner competency by following functional demonstrations and performing hands-on practice activities within the Training Environment
- Training will be delivered by an Innovyze Info360 expert/trainer.
- Training will be provided at OCWUT's headquarters in Oklahoma City. Remote staff from OCWUT shall be able to join the training sessions via teams and/or dial in. OCWUT and Innovyze project team will work together to facilitate the combination of in-person and remote attendee.

Support for OCWUT-led Trainings

Innovyze will provide technical support for OCWUT-led end user training.

- OCWUT will be responsible to plan and deliver the end user training to select OCWUT staff for this project.
- OCWUT will identify the participants and schedule for end user training sessions conducted after the Innovyze-led training classes. OCWUT will share the end user training schedule with Innovyze to allow Innovyze to plan the support for OCWUT trainers.

- Innovyze will provide technical support to OCWUT trainers:
 - Setup and maintain a Training Environment for the duration of end user training.
 - Support OCWUT trainers by resolving environment issues and clarifying training-related questions.
 - Technical support for OCWUT-led trainings must be consumed within 4 months of Go-Live.

Training Delivery Methodology

This section describes the delivery methodology for the various training programs identified in the scope of training. The primary method/mode of training delivery will be in classroom instructor-led training for the courses identified below.

The use of the virtual instructor-led or recording of an instructor-led training session made available for distribution will be considered on a need basis.

Training Material & Documentation

This section describes the various training materials and documentation that will be provided to OCWUT as part of the overall training program.

The approach to developing all material will be by leveraging the existing Innovyze standard training materials which will be updated to match the solution configured for OCWUT. The training material development schedule will be aligned with the overall training schedule for OCWUT SPM Implementation project and it will be tracked in the project schedule.

While Innovyze owns development of the content, OCWUT trainers and SMEs will participate in the timely review, feedback and approval of all material. OCWUT trainers and SMEs will also participate and own development of content for systems that Info360 integrates with in the OCWUT environment that OCWUT sees the need requiring to be included in the end user course.

Training Materials that will be provided comprises presentation slide decks, Quick Reference Guide or Participant Guide, and Instructor Guide. Innovyze will also provide system documentation/user procedures in the form of an Online Help catering to all aspects of the system functionality comprising End User Manual and System Administration Manual. Additional detail on the Training Materials and Documentation requirements is summarized below:

Training Presentation Slide Decks: used in end user training and System Administration Training

- Overview of the key features within Info360
- Demonstrations (where trainer or a volunteer demonstrates tasks)
- Guided Practice session (where learners complete hands-on activities within Info360 Training environment)
- Knowledge checks will be added through-out the training slides for learning retention and re-enforcement

Quick Start Guide / Participant Guide: Used in End user training and System Administration Training

- End-to-end process step action descriptions that support Demonstrations and Guided Practice sessions
- Note: The System Administration manual will be leveraged as the participant guide during System Administration Training.

Instructor Guide: – Used in End user training to support instructors

- The Instructor Guide provides an overview on delivery approach and it partners with the Presentation Slide Decks for detailed instructions to the trainers in note area

- Instructions and notes to the instructor to deliver the end user training
- Instructions for use of Training Materials and Training Environment

End User Manual: available as Online Help in the production environment

- End user documentation with user procedures covering the full system functionality configured in OCWUT SPM Implementation project will be available as an Online Help directly accessible from the Info360 system (production environment only)

System Administration Manual available as on-line help in the system

- System Administration documentation with user procedures covering the System Administration functionality configured in OCWUT SPM Implementation project will be available as on Online Help directly accessible from Info360 (production environment only).
- Note: The System Administration manual will be leveraged as the participant guide during System Administration Training.

Material Print/Hard Copies:

- Innovyze will provide softcopies of all the training materials. OCWUT will be responsible to print required hard copies and distribute to participants.

Training Logistics

This section describes the training logistics such as the facility requirements, equipment requirements and other requirements.

Facilities, classrooms, equipment, computers, and network connectivity for instructor-led classroom training will be provided by OCWUT. OCWUT must identify and provide to Innovyze a list of training locations with classroom details including classroom capacity, dates reserved, and equipment available for End user training and System Administrator Training, which will be delivered by Innovyze.

OCWUT will be responsible for coordination, communication and tracking attendance for all Innovyze-led training sessions. OCWUT will be fully responsible for the planning, coordination and delivery of OCWUT led end user training sessions, with support from Innovyze as identified in this training plan.

Facility Requirements

All instructor led training sessions will be delivered from OCWUT facilities or designated training facilities in Oklahoma City.

For the Innovyze led End user training and System Administration Training:

OCWUT will be responsible for:

- All training logistics and coordination with OCWUT personnel and Innovyze Training Team
- Coordination and invitations to participants for all training classes
- Arranging for training rooms in a lab environment (workstations or laptops), with sufficient network connectivity to support users (Innovyze recommends 8-15 learners in a room for efficiency and user material absorption)
- Testing user/learner equipment and network access
- Innovyze Training Team will support:
 - By testing the instructor's equipment, such as laptop, projector, and access
 - Testing the data refresh process and confirm operational status in the Training Environment

For OCWUT led End user training, OCWUT will be responsible for:

- All training logistics and coordination with OCWUT personnel

- Coordination and invitations to participants for all trainings
- Arranging for training rooms in a lab environment (workstations or laptops), with sufficient network connectivity to support users (Innovyze recommends 8-15 learners in a room for efficiency and user material absorption)
- Testing trainer and user/learner equipment and network access
- Innovyze Training Team will support:
- Technical support to OCWUT trainers
- Testing the data refresh process and confirm operational status in the Training Environment

Equipment Requirements

OCWUT must ensure all classrooms have the following equipment:

- Table/desk and chair for Instructor and all participants
- Projector (connected to instructor's computer) and large screen
- Power strips to plug-in multiple devices
- Network connectivity
- Workstations/laptops (Recommend OCWUT provide the workstation/laptops, so there is a standard setup)
- White board or flipchart with stand and markers, sticky notes
- Video/Audio conference capability

Training Schedule

Innovyze will work with OCWUT to align the schedule of all the training activities with the overall project schedule. The training tasks will be updated and tracked in the OCWUT SPM Implementation project schedule.

Training Transition Plan

This section describes the approach for transitioning training course materials and documentation from Innovyze to OCWUT in preparation for final acceptance of OCWUT SPM Implementation project.

Response to System Release:

The Info360 application is a software with occasional product releases where functionality or screen images may be added or altered.

In the event of a product release impacting currently approved Training and Documentation materials:

- Innovyze will identify updates needed and proposed schedule for making the updates.
- Innovyze will update the impacted materials and publish to the OCWUT team.

Transition to the OCWUT Training Team:

- Innovyze will release all approved (or updated after approval) Training Materials to OCWUT before final acceptance.
- OCWUT will be responsible for updating or maintaining the training materials and providing relevant training after final acceptance.

1.4 Go Live (Phase 4)

Go Live will only be scheduled when all LEVEL 1 and LEVEL 2 defects are closed. Innovyze will have 90 days post “go-live” to close all remaining defects, as well as any defects that are found during that time. Final MILESTONE payment of System Implementation Services will be held until all defects identified during System Implementation Services are closed. Info360 SUPPORT will be fully functional and begin at Go-live. Final acceptance will not occur until the resolution of all open recorded systems issues (defects), including design logic (LEVEL 3) errors is complete.

It is anticipated that Info360 SUPPORT and Info360 IMPLEMENTATION will occur simultaneously for the period beginning at Go-live and ending with final system acceptance. The ceasing of assignment of the dedicated Info360 IMPLEMENTATION staff to the project will be agreed upon by the OCWUT Project Manager, the Info360 IMPLEMENTATION manager, and the Info360 SUPPORT manager, and will be timed in a manner that ensures proper knowledge transfer, defect management, and seamless transition to Info360 SUPPORT. Innovyze shall submit a transition plan identifying how this transition will occur.

- The term “LEVEL 1 (Error)” designates a component of the Solution is unusable or inoperable. This error is a loss of the capability to perform a function. A workaround does not exist, production processing cannot be performed. In addition, testing cannot be performed until the problem has been corrected.
- The term “LEVEL 2 (Error)” designates a component of the Solution has significant limitation or does not conform to the documented capabilities of the Solution. A significant limitation stops the user from performing the normal use of the solution although a work around exists which allows the user to temporarily perform the intended function.
- The term “LEVEL 3 (Error)” means all other errors in the Solution not identified as a Level 1 or Level 2 error for which Info360 SUPPORT PROVIDER shall resolve timely based upon a mutually agreed schedule.

Deliverables: All Level 1, 2, and 3 defects closed

1.5 Live Stabilization (Phase 5)

Deliverables:

- Service Model and Approach
- Availability Management
- Service Governance Model
- SLA
- All open defects closed (Level 3)

1.5.1 OCWUT Staff and IT Responsibilities

Personnel from OCWUT's IT Department and/or Helpdesk will need to complete Innovyze's System Administrator Training so that they will know how to manage user access to Info360.

System Administrator training will also provide OCWUT personnel with the knowledge needed to manage forms, workflows, and reports in the system. OCWUT's IT Department and/or Helpdesk is expected to take all calls from OCWUT's end users. The System Administrator Training should give the IT Department and/or Helpdesk the knowledge needed to resolve most support calls received from end-users (i.e., new user setup, password reset, connection problems, etc.).

Innovyze Customer Success team will directly support OCWUT's IT Department and/or Helpdesk. Customer Success will help the IT Department and/or Helpdesk with any unresolved Tier 1 issue, along with all Tier 2 and Tier 3 calls. Customer Success will not directly support OCWUT's end users and will only be involved in calls with end users if the IT Department and/or Helpdesk are also involved in the calls.

The Innovyze project implementation team will be responsible for supporting OCWUT during the implementation project. The Innovyze Project Manager will be the primary point of contact for any support issues identified during the implementation project. The Innovyze Project Manager will work directly with his/her counterpart on OCWUT team to resolve support issues during the project. The SPM Implementation Project Management Plan in Section 10 will outline each team's responsibilities during the project and will indicate how OCWUT's team will be supporting the implementation project.

As it concerns support staffing levels for OCWUT, Innovyze recommends at least three to four people from OCWUT's IT Department and/or Helpdesk attend the System Administrator training offered by Innovyze. These people will be the on-site System Administrators who will directly support OCWUT's end users. Innovyze's trainers can train up to 10 people in a System Administrator training session. So, it would be in OCWUT's best interest to fill up the System Administrator training session with other people such as SMEs.

OCWUT's support personnel will be expected to support OCWUT's end users when it comes to hardware support. Innovyze Info360 Cloud only requires that end-user have client devices that can connect to the internet. Innovyze will maintain OCWUT's solution and data in the cloud. No additional OCWUT personnel will be required for database, server, or network support.

S
S
2
1
-
C
2
1
9
0
3
1

2. Description of Software Subscription Services

A summary of the software subscription services for the Info360 SPM is provided in the software agreement with Innovyze.

S
S
2
1
-
C
2
1
9
0
3
1

Appendix A. Form C Software requirements

Innovyze to input their response table here.

Table A-1: Detailed Functional Requirements

Priority is indicated as follows:

- BC - Business Critical
- RC - Regulatory Compliance
- FS - Future Strategic
- MP – Medium Priority
- LP – Low Priority

Requirement Response is indicated as follows:

- 5 = Fully Meets** - Description: Info360 can fully meet the requirement out-of-the-box with no customization or configuration required.
- 4 = Meets with Configuration** - Description: Info360 meets the requirement with a configuration change (configurable by user, no effect on future upgrades, etc.).
- 3 = Meets with Custom** - Description: Info360 can meet requirement with a customization (modification to program code, may impair future upgrades, etc.).
- 2 = Meets with Third Party** - Description: Info360 can meet requirement using a 3rd party product supplied and supported by the Innovyze using a standard interface (Please identify the 3rd party within the comments section).
- 1 = Does Not Meet** - Description: Info360 cannot meet the requirement (Please identify alternative options as to how this requirement could be met within the comments section).

S
S
2
1
-
C
2
1
9
0
3
1

ADDENDUM I

THIS ADDENDUM I ("Addendum I") to the Statement of Work, by and between Innovyze Inc. ("Innovyze") and Oklahoma City Water Utilities Trust ("OCWUT") referenced as System Pressure Management SOW and dated November 25, 2020 ("SOW") is subject to future documents to be mutually agreed to in writing, signed by Innovyze and OCWUT (individually, a "Party" and collectively the "Parties").

As identified in the preamble of Addendum I, the documents referenced may include, but not be limited to, required credentials such as a revised and finalized Statement of Work associated with Innovyze's Info360 platform, corresponding platform documents inclusive of technical functionality that may differ in content, context and technical support structures than what is contained in the SOW, a software as a service agreement ("SaaS Agreement") and a professional services agreement ("PSA") (individually and collectively shall be referred to as "Documents").

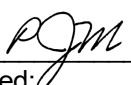
The Parties acknowledge, by signature below, that Documents will be mutually agreed to, will supersede any term, condition and obligation set forth by either Party in the SOW and shall only be valid upon the full execution of each, as Documents shall collectively provide OCWUT with Innovyze's platform solution of Info360. If the Documents are not mutually agreed to, as negotiated in good faith between the Parties, then the SOW shall may terminated by either Party on the receipt of written notice.

S
S
2
1
-
C
2
1
9
0
3
1

ACCEPTANCE:

Both parties agree to the terms outlined within this Statement of Work.

Innovyze

By: 

Printed: Peter McIntosh

Title: Product Manager

Date: 03/25/2021

City of Oklahoma City/OCWUT

By: See Attached

Printed: Signature Page

Title: _____

Date: _____

Innovyze

By: 

Printed: T. Spring

Title: SVP Sales Operations

Date: 03.26.2021

S
S
2
1
-
C
2
1
9
0
3
1