



Woodard
& Curran

May 24
2022

A Goldilocks Question

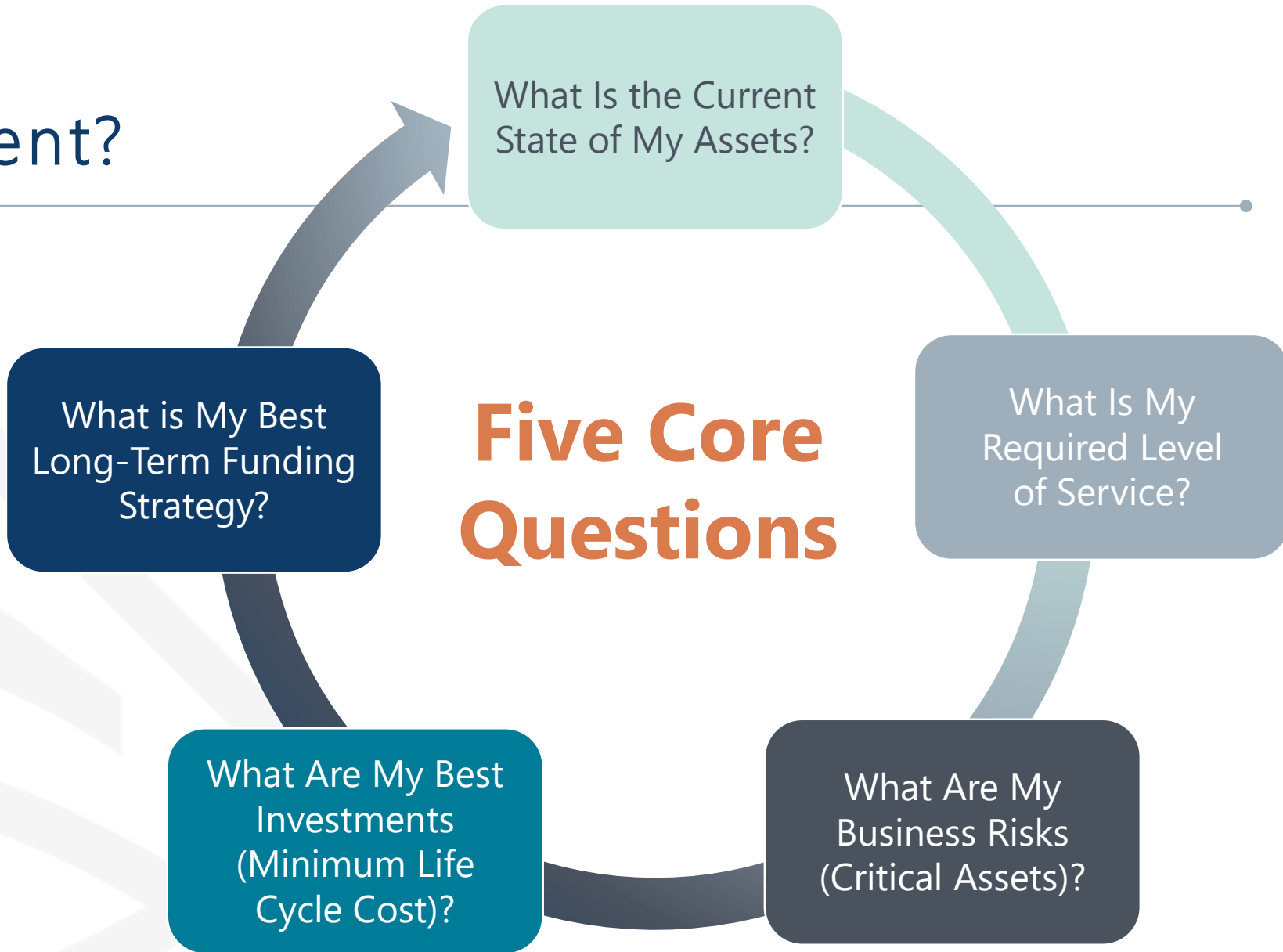
Finding The Right Asset Management Software

PRESENTED BY

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What is Asset Management?



Why Asset Management?



2022 Junk Value: \$7,500



2022 Mint Condition: \$78,000

- ✓ Minimize lifecycle cost
- ✓ Maximize useful life
- ✓ Proactive vs. reactive
- ✓ Repair vs. replacement
- ✓ "Data" supports decision-making

Technology is Key

What is My Best Long-Term Funding Strategy?

What Is the Current State of My Assets?

What Is My Required Level of Service?

What Are My Best Investments (Minimum Life Cycle Cost)?

What Are My Business Risks (Critical Assets)?

ASSET MANAGEMENT ENABLERS:

- LEADERSHIP
- ORGANIZATIONAL ALIGNMENT
- KNOWLEDGE MANAGEMENT
- **TECHNOLOGY**
- TRAINING

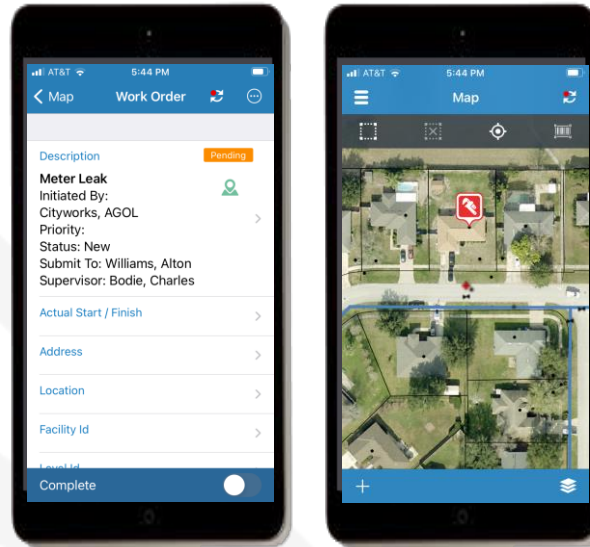
Why Technology?

PROBLEM



Drowning in outdated paper documents?
Having difficulty retaining institutional knowledge?

SOLUTION



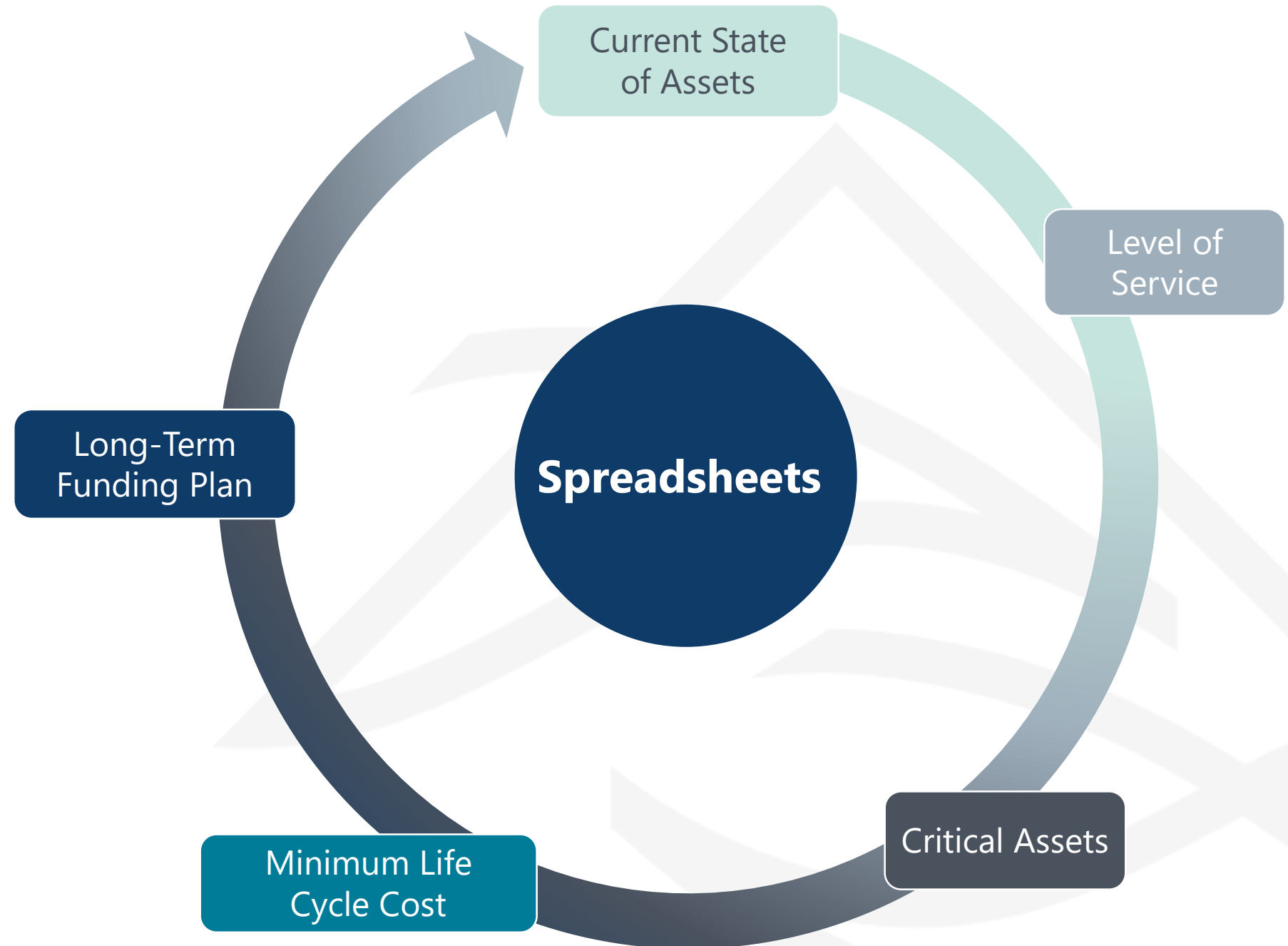
- Easily update and backup data
- Build data sets to report on problem areas
- Enable cross-department work order management procedures

OUTCOME

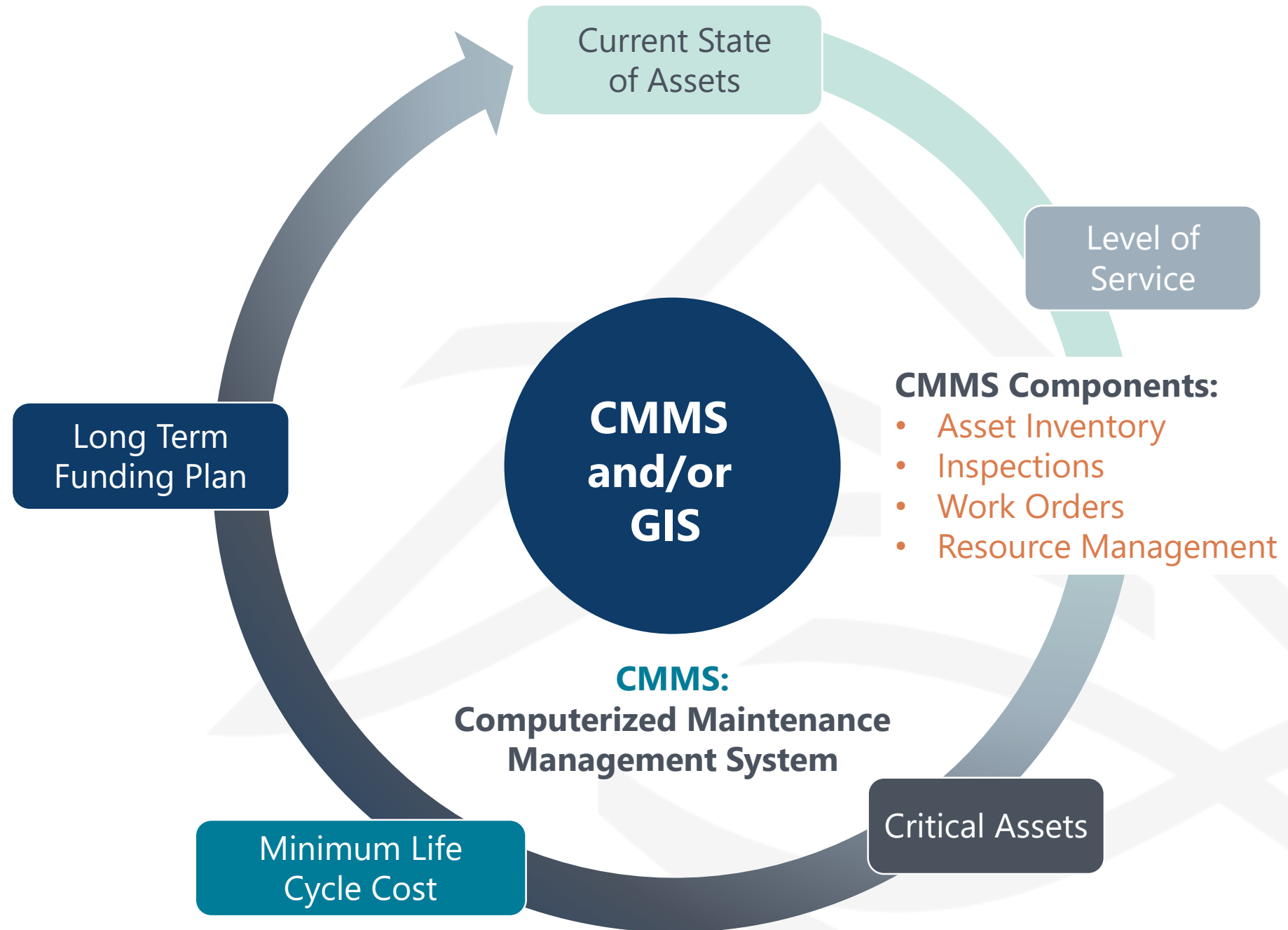


- Easily compile and share system data
- Enable cross-department work order management procedures

Asset
Management
Technology
Systems
Basic Level

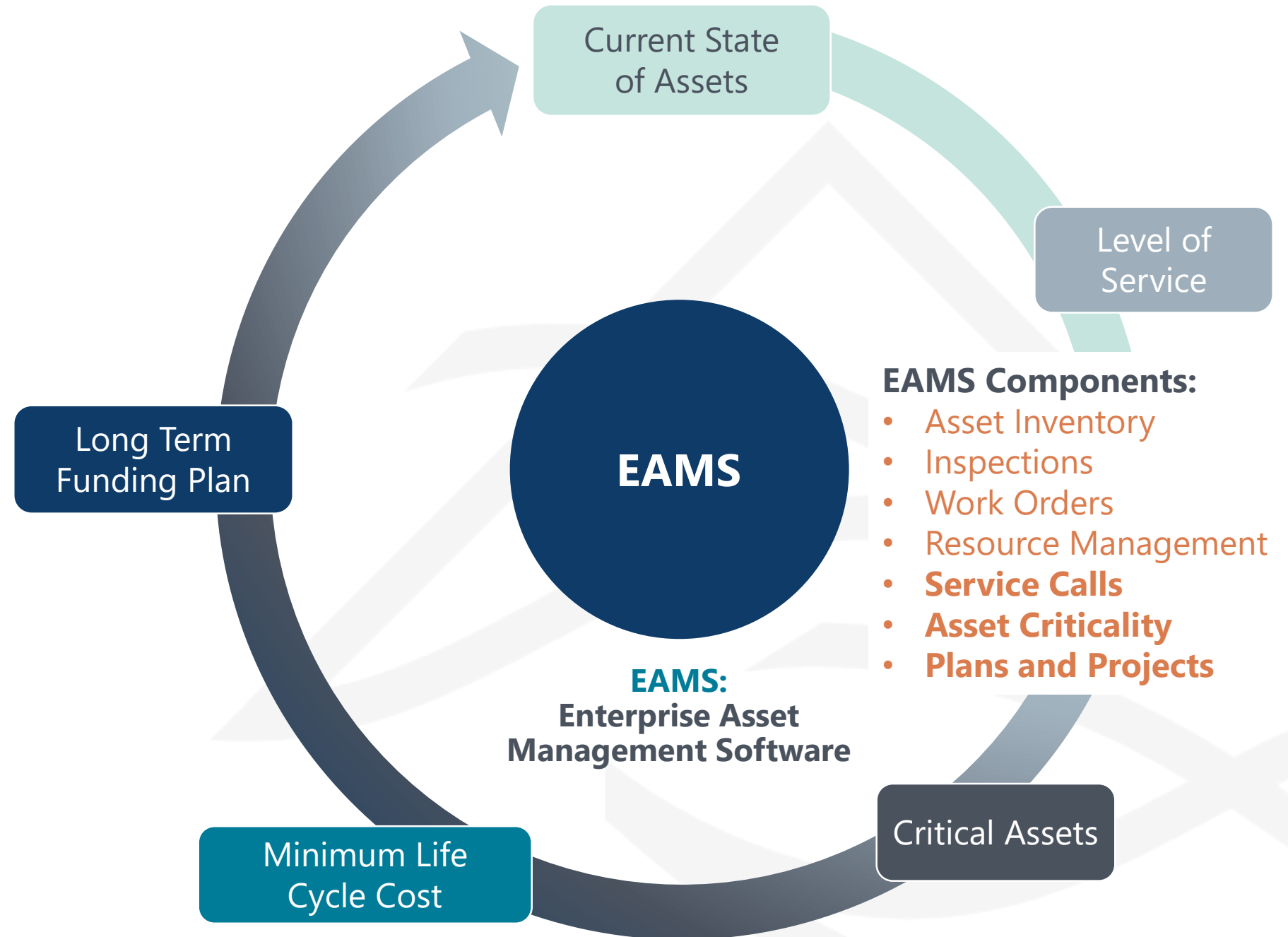


Asset
Management
Technology
Systems
**Intermediate
Level**



Asset Management Technology Systems

Advanced Level



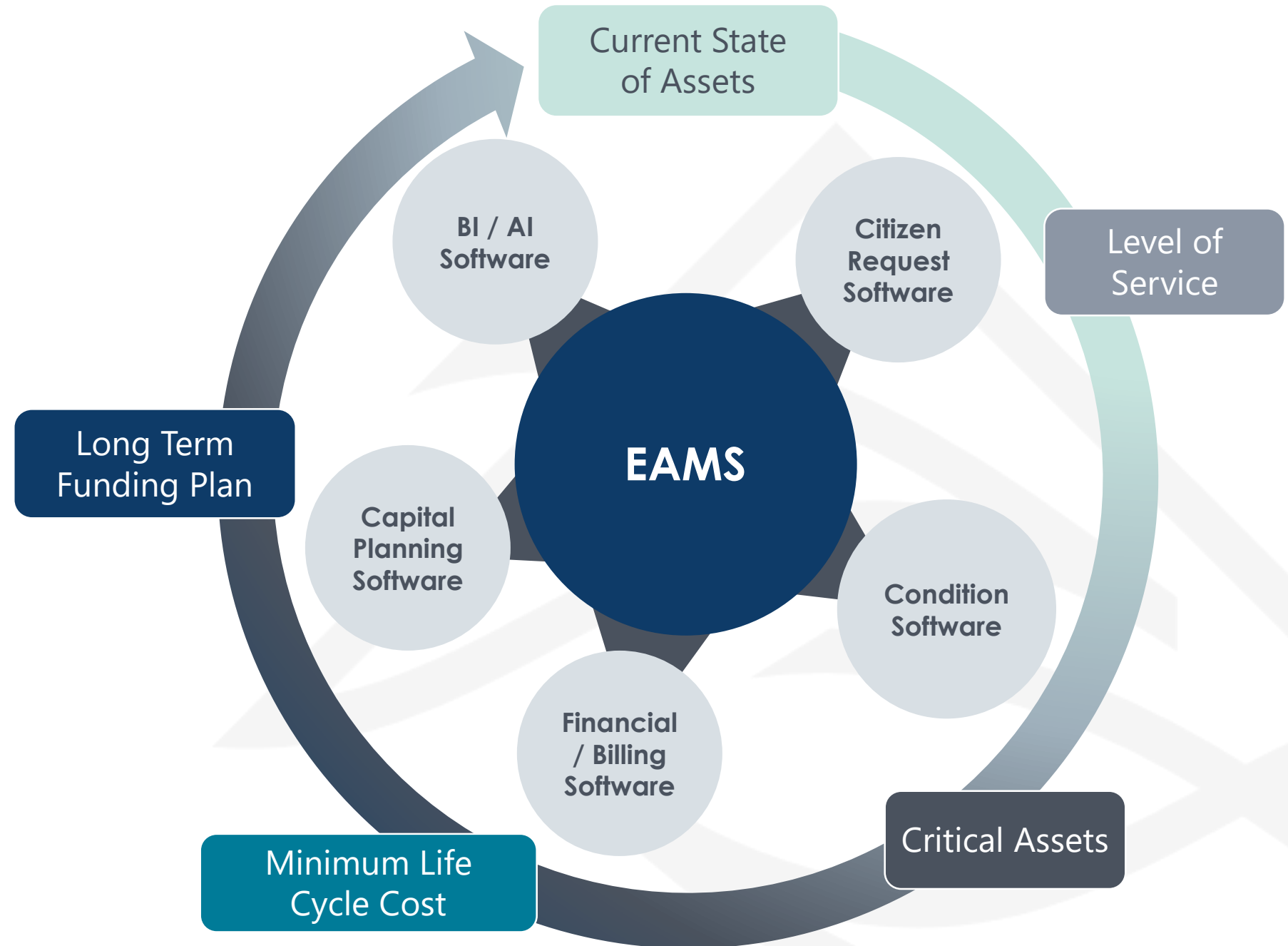
Asset Management Technology Systems

Advanced Level with Integrations

EAMS: Enterprise Asset Management Software

BI: Business Intelligence

AI: Artificial Intelligence



Why Evaluate Software Options?

Investing time upfront to evaluate CMMS/EAMS options can save money in the long run and:

- Align with long-term vision and planning
- Address specific needs and requirements
- Identify staff and time impacts
- Ensure compatibility with existing software
- Expedite procurement
- Engage staff early in the process to gain input and buy-in



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Too hot? Too cold? Just Right...

What Path Should You Take?



Case Studies – all SRF Funded!

CMMS/ EAMS Evaluation



Tavares, FL
Utilities Department

EAMS Procurement & Implementation



Haverhill, MA
Water & Wastewater

Evaluation, Procurement & Implementation



Ipswich, MA
Water & Wastewater



Tavares Utilities Department Case Study



Tavares Utilities Department

→ Population 18,000 and growing fast

→ Assets

- ▶ Water Distribution and Treatment
- ▶ Sewer Collection and Treatment
- ▶ Stormwater, ROW and Reuse

→ SRF Funding

- ▶ FDEP SRF requires an FSAM program
- ▶ FWRA & FDEP - FSAM program for small water utilities
- ▶ FDEP partnered with Tavares and W&C – FSAM program for midsize water utilities
- ▶ \$110,000 SRF Grant



Project Timeline

Year 1

**CMMS / EAMS
Evaluation**



SRF Grant

Year 2

EAMS Implementation

*Tavares went live with
Cityworks on December 7, 2021!*

Cityworks[®]
Partner Network

Year 3

**Dashboards &
Reporting**



Assessing Key Functional Requirements

→ Client Feedback Questionnaire

→ Requirements Meeting

- ▶ AM goals and objectives
- ▶ Discuss key CMMS functional areas and examples
- ▶ Identify required criteria
- ▶ List existing CMMS/EAMS and other utility software
- ▶ Determine necessary data migrations and integrations

Are inventory costs tracked as part of a work order?

NOT ALWAYS CASE BY CASE

Is work order data analyzed to determine costs of performing work and to identify trends?

SOME WHAT.

Do you want to be able to access your work orders from the field? What asset information would you want to have available in the field? What activities would you like to automate from the field?

NOT A PRIORITY

Rank the following criteria/ functionality for CMMS:

Maintenance Procedures	Not Essential	Nice To Have	Required
Create, assign and track Work Orders			X
PM Scheduling/ Calendar	X		
Assign SOPs to PM Activities/ Task List Option		X	
Mobile Abilities		X	
Labor Management	X	X	
Equipment Management	X	X	
Inventory Management		X	
Prioritization Capability	X		
Custom & Required Fields		X	

What condition assessments have you performed for your assets? How do you manage this information currently?

USE A CODE SYSTEM SIMILAR TO NASSCO RECOMMENDATIONS.

WE HAVE OUR CMMS WE CAN QUERY ON STRUCTURES + PIPELINES
WE HAVE ADDED AN PUMP EVALUATION FORM IN CMMS TO MONITOR
PUMP CONDITIONS.

Do you have existing inspection methods/ standard inspection forms for certain assets that you would like to be incorporated into the asset management program?

WE USE GRANITE PIPELINE SYSTEM FROM GES FOR CCTV INSPECTION
OF OUR PIPELINES. WE HAVE ADDED AN PUMP INVENTORY SHEET
IN CMMS WITH EVALUATION CODES.

What is the current process used to meet level of service goals and any regulatory requirements? Are you currently tracking any measurable level of service goals?

IN HOUSE SERVICE GOALS ARE TRACKED + RECORDED -

Scoring Criteria

→ Integrations

- ▶ Esri GIS
- ▶ GraniteNET
- ▶ SeeClickFix
- ▶ NaviLine

→ Full Work Order Functionality

→ Horizontal & Vertical Assets

→ Ease of Use

→ Impacts on Staff Time



Criteria/Software	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10
Required Features										
Service Requests		X		X	X	X	X	X	X	X
Asset Tracking- V/H	X	X	X	X	X	X	X	X	X	X
Work Orders w Inventory	X	X		X	X	X	X	X	X	X
Query & Reporting	X	X		X	X	X	X	X	X	X
Capital Planning	X		X	X	X	X	X	X	X	X
Overall Usability		X		X	X	X	X	X	X	X
Service Requests										
Internal Service Request Management	n/a	3	1	3	3	3	3	3	2	3
Automatic Work Order Generation	n/a	3	n/a	3	3	3	3	3	3	3
Ability to Cluster Related Complaints	n/a	1	n/a	3	2	3	3	n/a	n/a	n/a
Customer Notification Process	n/a	1	n/a	3	3	3	3	3	2	3
Prioritization Capability	n/a	3	n/a	3	3	3	3	3	3	3
Public Portal- Web Based	n/a	3	n/a	2	2	3	2	3	2	1
Asset Inventory										
Vertical Assets	3	2	n/a	3	3	3	3	3	3	3
Horizontal Assets	1	2	2	3	3	3	3	2	2	3
Integrated Map in Interface	n/a	2	3	3	3	3	2	2	3	2
Specific Asset Information- custom fields	n/a	3	3	3	3	3	3	3	3	3
Condition Assessments/ Inspections with Ranking	1	2	n/a	3	3	3	3	3	3	2
Work Orders										
Create, assign and track Work Orders	2	3	2	3	3	3	3	3	3	3
PM Scheduling	2	3	1	3	3	3	3	3	3	2
Calendar/ Work Scheduling	2	2	2	3	3	2	3	2	3	2
Assign SOPs to PM/ Task List Option	2	2	n/a	3	3	3	3	3	3	3
Mobile Abilities	1	1	2	3	3	3	3	3	3	3
Labor Management	3	2	n/a	3	3	3	3	3	3	1
Equipment Management	3	2	n/a	3	3	3	3	3	3	1
Inventory Management	3	2	n/a	3	3	3	3	3	3	1
Prioritization Capability	3	3	n/a	3	3	3	3	3	3	3
Custom & Required Fields	1	3	1	3	3	3	3	3	3	3
Workflow Automation/ Notifications	1	3	n/a	3	3	2	3	3	3	3
Query & Reporting										
Ability to Query Assets and Work	2	3	1	3	3	3	3	3	3	3
Customizable Reports	3	3	n/a	3	3	3	3	3	2	2
Repeatable Reports	3	3	n/a	3	3	3	3	3	3	2
Dashboard Functionality	n/a	3	n/a	3	3	3	3	3	3	1
Advanced AM										
Risk Management	1	1	n/a	1	1	1	1	1	1	1
Capital Planning	1	1	2	2	2	2	2	1	1	1
Valuation/Budgeting	1	1	2	2	2	2	2	1	1	1
Decision Tools	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Scenario Modeling	n/a	n/a	n/a	1	2	2	n/a	1	2	n/a
Project Cost Tracking	n/a	2	n/a	3	3	3	3	3	3	n/a
Useability										
Cloud Based	1	3	3	3	3	3	3	3	3	3
Roles, Users & Security	3	3	1	3	3	3	3	3	3	3
Document Management	2	2	2	3	3	3	3	3	3	3
Esri Integration	1	1	n/a	3	3	3	3	2	2	1
Easy to Use	2	2	3	3	3	3	2	3	3	3
Configuration Potential	2	2	1	3	3	3	3	3	3	2
Customization Potential	2	2	n/a	3	2	2	2	2	2	2
Open Architecture/ Data Conversion/ APIs	n/a	3	n/a	3	3	2	3	2	3	3
Data Integrations	1	2	1	3	2	2	2	2	2	1

Scoring

Software Options		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10
Functional Area Average Score	Service Requests	0.0	2.3	0.2	2.8	2.7	3.0	2.8	2.5	2.0	2.2
	Asset Inventory	1.0	2.2	1.6	3.0	3.0	3.0	2.8	2.6	2.8	2.6
	Work Orders	2.1	2.4	0.7	3.0	3.0	2.8	3.0	2.9	3.0	2.3
	Query & Reporting	2.0	3.0	0.3	3.0	3.0	3.0	3.0	3.0	2.8	2.0
	Advanced AM	0.5	0.8	0.7	1.7	1.7	1.7	1.3	1.2	1.3	0.5
	Overall Usability	1.6	2.2	1.2	3.0	2.8	2.7	2.7	2.6	2.7	2.3

0 = software package includes the feature indicated

1 = software has some functionality or has the ability to integrate

2 = software fully performs feature, less user friendly and customizable or provides direct third-party integration

3 = software is very effective for this feature and user friendly

Lessons Learned

- Selection Process – Staff Buy In!
- Software Impacts on Staff Time
 - During implementation
 - Daily use
- Implementation Approach
 - Phased
 - Weekly check ins to ensure buy in
- Champions – Internal & Consultant
- Integrations and Software Partnerships
- Year 2 - Implementation complete
 - Meeting SRF FSAM Requirements





Haverhill, MA Case Study



Haverhill, MA

- Population 67,000
- Assets
 - ▶ Water Distribution and Treatment
 - ▶ Sewer Collection and Treatment
 - ▶ Stormwater
- SRF Funding
 - ▶ \$250,000 Asset Management Grant
 - ▶ EAMS Procurement assistance
 - ▶ EAMS Implementation



Procurement

- No Grant Funds for Procurement
- EAMS Selection Process
 - ▶ 10 software evaluated
 - ▶ Clear selection and thorough memo
 - ▶ Still needed to go to RFP!
- RFP Process
 - ▶ Clear Evaluation Criteria
 - ▶ Functionality checklist
 - ▶ Cityworks Scores highest!



Implementation

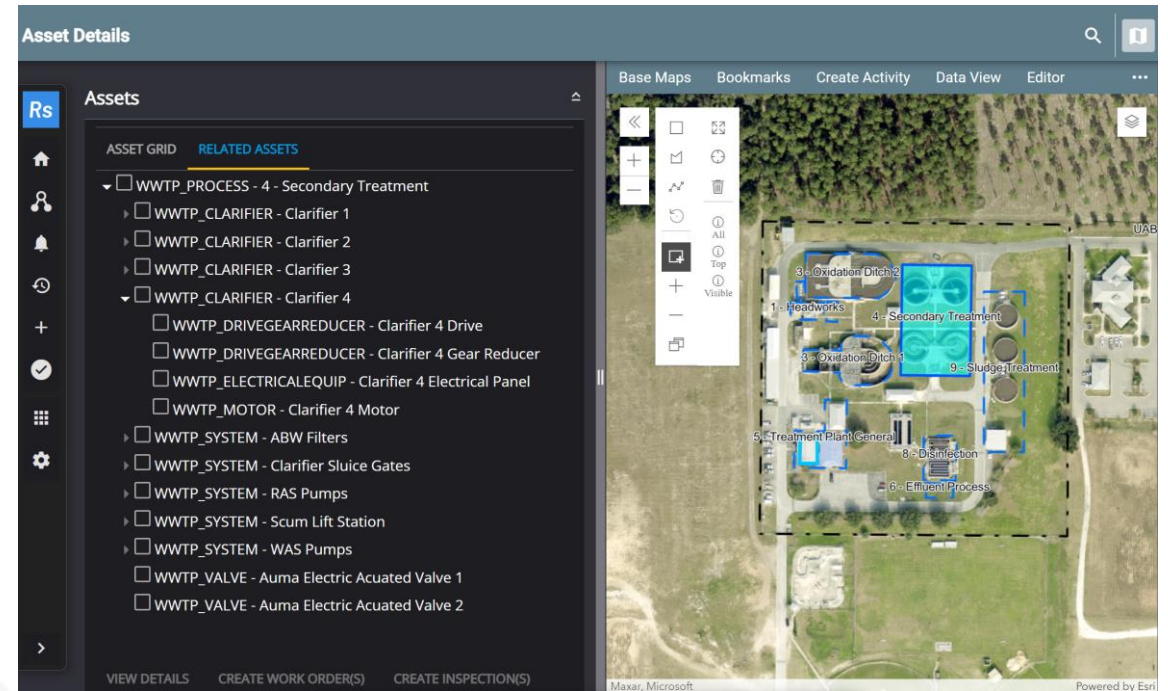


**Additional Projects:
Vertical Asset Configuration**

*WWTP went live with
Cityworks early May 2021!*

Asset Inventory

- Cityworks Integrates with Esri ArcGIS Online
 - Single sign on
- Developed Vertical Asset Hierarchy and Published to ArcGIS Online
- Integrated with City's GIS Server
- GIS Becomes System of Record for all Assets



Service Requests / Citizen Engagement



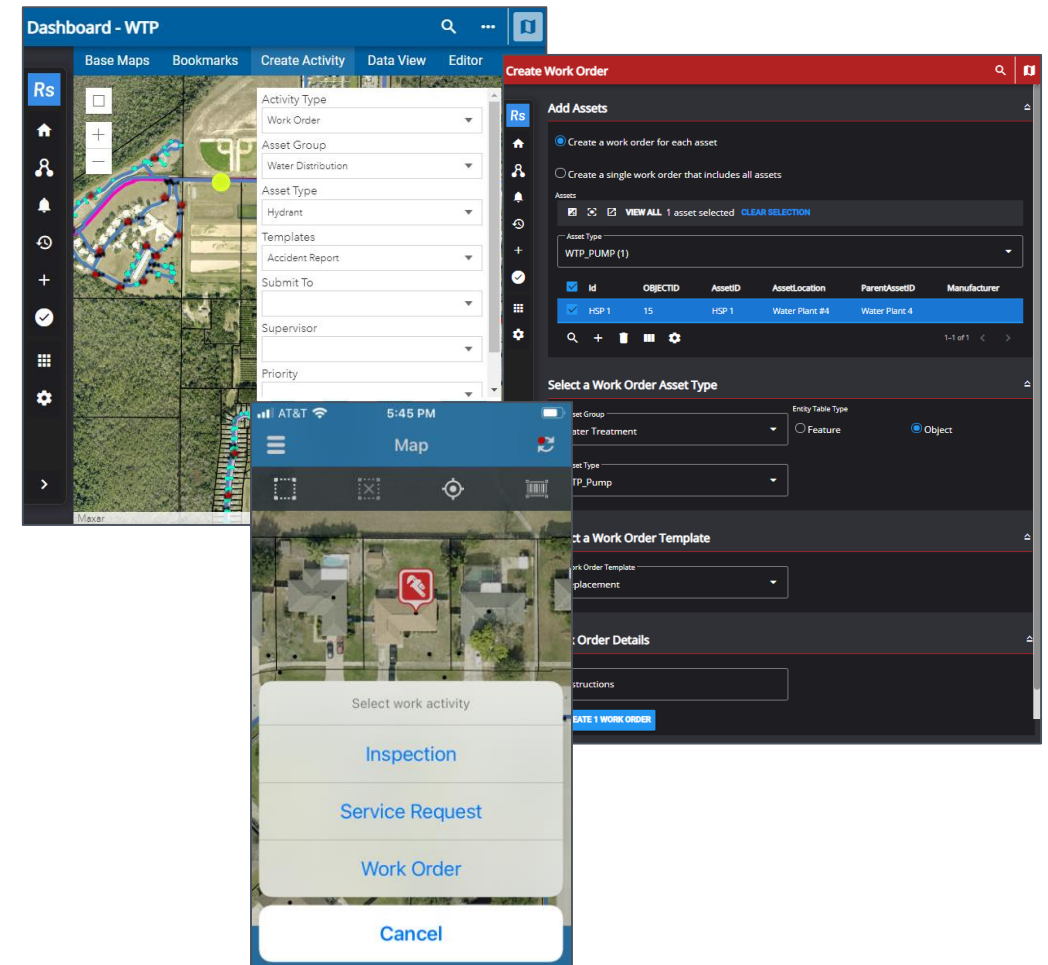
- Two-way Integration with QAlert
 - ▶ Integration is in testing phase!
- Simple Process for Customer Calls Based on Address search
- Process Automation
 - ▶ Generates work orders
 - ▶ Notifies customers with updates through QAlert

A screenshot of the Cityworks "Create Service Request" web interface. The form is dark-themed and organized into several sections. At the top, the "Request Type" is set to "Water Quality Issue". Below this is a "Questions" section. The "Caller Information" section includes fields for Address (340 JUNIPER WAY), Apartment Number, City (TAVARES), State (FLORIDA), Zip Code (32778), First Name (JOHN D & CAROL A), Last Name (JOHNSON), Caller Time, Caller Type, Day Phone, Work Phone, Cell Phone, and Email. There are checkboxes for "Owner?" and "Follow-up Call?". The "Incident Information" section has radio buttons for "Create New Service Request" (selected) and "Add to Existing Service Request", along with "COPY ADDRESS FROM CALLER" and "COPY ADDRESS TO CALLER" options. It also includes fields for Address (340 Juniper Way, Tavares, Florida, 32778), Apartment Number, City (Tavares), State (Florida), Zip Code (32778), a "GEOCODE" button, a "Location" field, "Submit To" and "Dispatch To" dropdowns, and a "Details" section. At the bottom, there is a "Comments" section with a rich text editor and a "CREATE SERVICE REQUEST" button. The bottom right corner shows coordinates: X: -9101215.620832674 and Y: 3350815.6862966144.

Work Order Management & Inspections

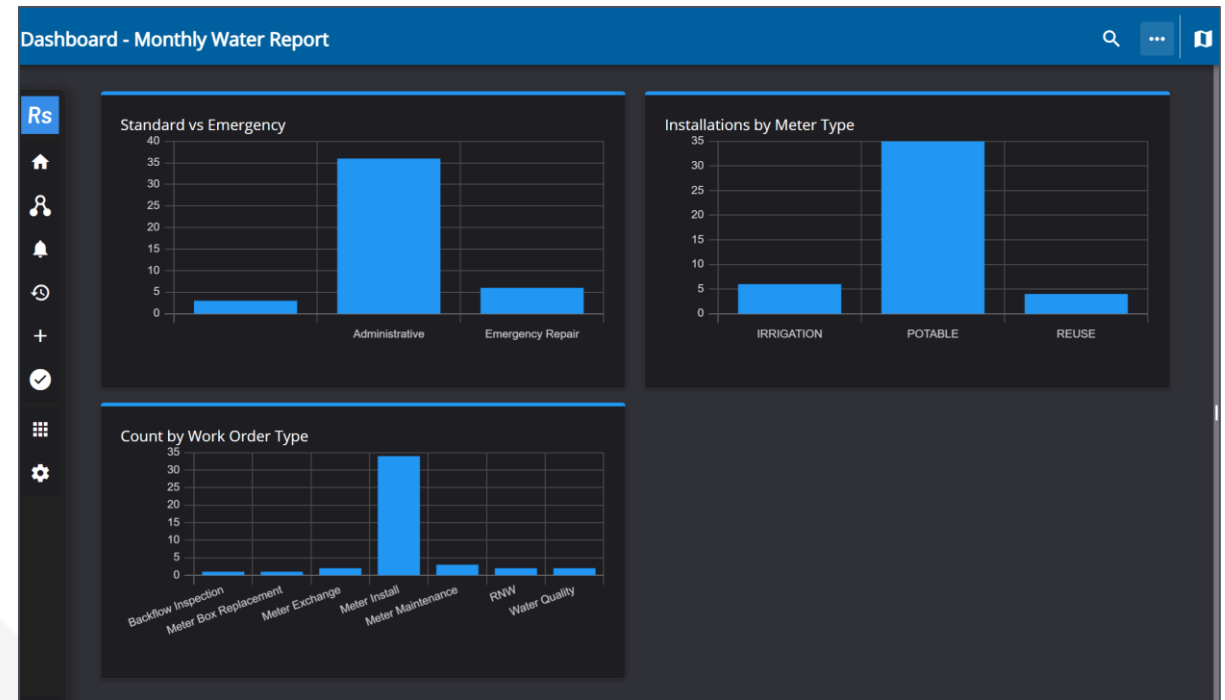


- Replaced Maintstar and UtilityCloud
- Established Work Order Categories
- 20+ Custom Work Order forms
- 10+ Custom Inspection forms
- Streamlined Interface through Respond
 - Simplified WO templates for quick data entry
- Simple Mobile Experience
- CCTV Interface



Dashboards & Reporting

- Saved Searches/Queries by Department
- Dashboards in Respond
 - ▶ Work order management by department
 - ▶ Summary graphs
- Reports in Progress
 - ▶ Custom Reports
 - » IDDE, FOG, SSO
 - ▶ Monthly reporting



Implementation Successes

- Asset Manager and Champions trained
- Going Live!
 - WWTP is Live
 - WTP and Sewer Collection
- Mobile Workforce
- Integration with Esri GIS & QAlert
- Monthly Reports and Dashboards





Ipswich, MA Case Study



Ipswich, MA

- Population 14,000
- Assets
 - Water Distribution and Treatment
 - Sewer Collection and Treatment
- SRF Funding
 - \$250,000 Asset Management Grant
 - EAMS Selection
 - EAMS Procurement funds!
 - EAMS Implementation



Implementation Successes

→ EAMS Selection

- ▶ 10 Software reviewed
- ▶ Selected Cartegraph

→ EAMS Procurement

- ▶ Funds in Grant, FAST!

→ EAMS Implementation

- ▶ Partially funded by Grant
- ▶ Water and Wastewater are live
- ▶ From napkins to EAMS!



Lessons Learned – All Case Studies

- SRF Asset Management Funding
 - Funding for AM Technology Implementation
- Selection Process
 - Get early buy in!
 - Find the right fit
- Procurement
 - SRF funding for 1st year can expedite
- Implementation
 - Phased Implementation
 - Champions





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Thank You!

