System-Wide Pump Station Assessment

For Effective Prioritization and CIP Development In Newton, MA

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SONY
PlayStation
PlayStation.Classic
PlayStation
BLOCKBUSTER
Sign On
AOL Instant Messenger
Forgot your password? Click here.
ScreenName:
Password:
Sign on at launch
Preferences
Sign On
People weekly
KATHIE LEE signs off
BRAD & JENNIFER'S WEDDING!
The guests, the rings, the vows, the menu—all about how the happy couple got hitched!
FREE MEMBERSHIP
RENTA GRATIS
NSYNC
NO STRINGS ATTACHED
OPEN
Harry Potter
A BETTER WAY TO BUY DVDs!

Presentation Agenda

- Newton, MA and System Overview
- Why Perform A System-Wide Assessment
- Assessment Methodology Overview
- Condition and Performance
- Consequence of Failure
- Prioritizing and Packaging
- Important Takeaways
- Questions

Newton, MA

11 Sanitary Pump Stations

2 Stormwater Pump Stations

3 Potable Water Pump Stations

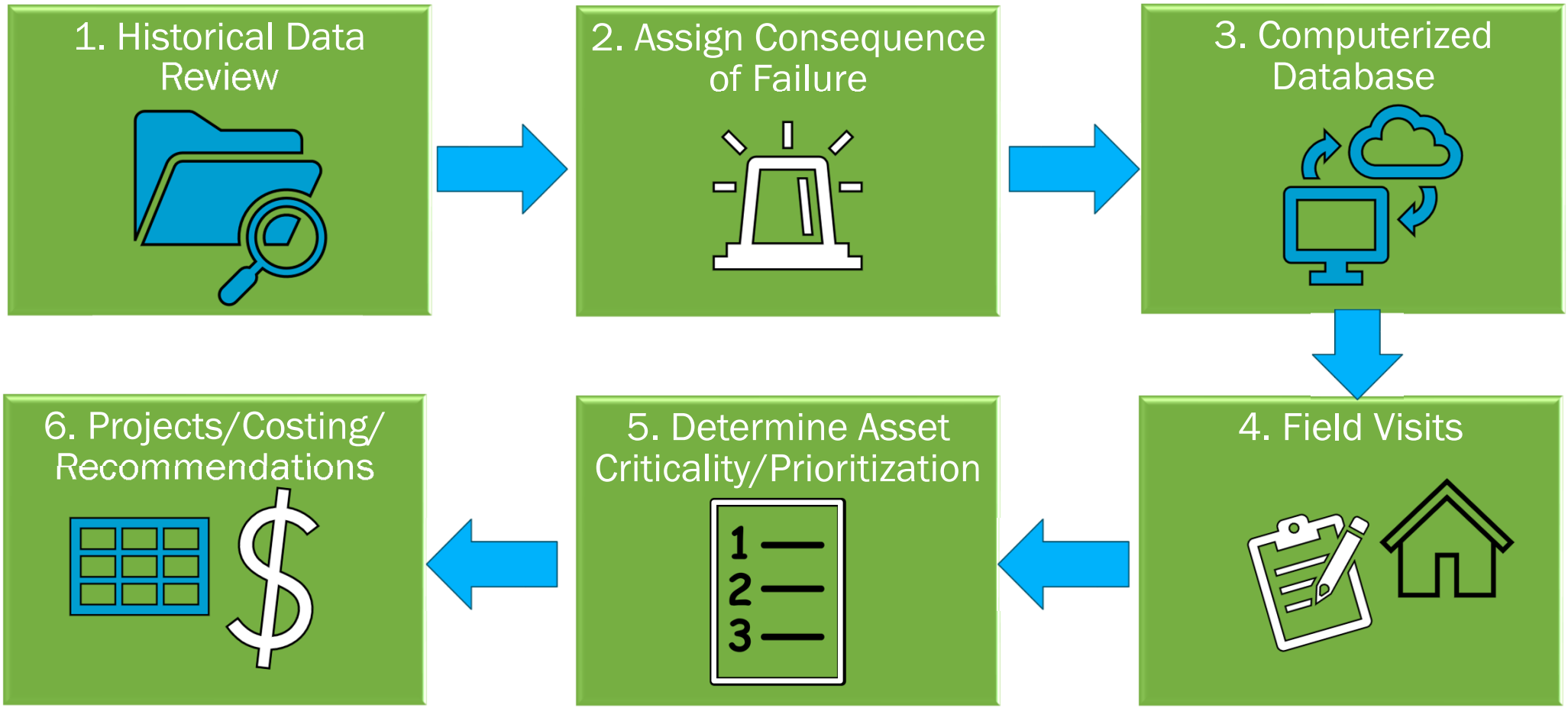
Why Perform a System-Wide Assessment?

- System-Wide Prioritization
- Comprehensive Capital Planning
- Programmatic Approach
- Best Value

Overall Project Objectives

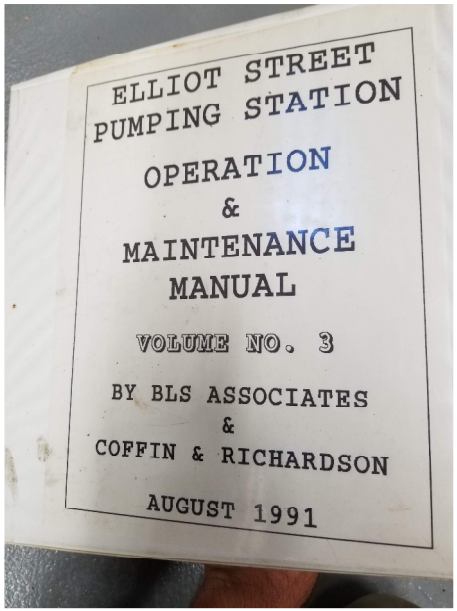
- Perform a condition assessment of all pump station assets and identify issues present
- Provide recommendations and prioritized list of projects to meet regulatory standards and best practices
- Develop budgetary costs for each project to assist in capital planning

Assessment Methodology



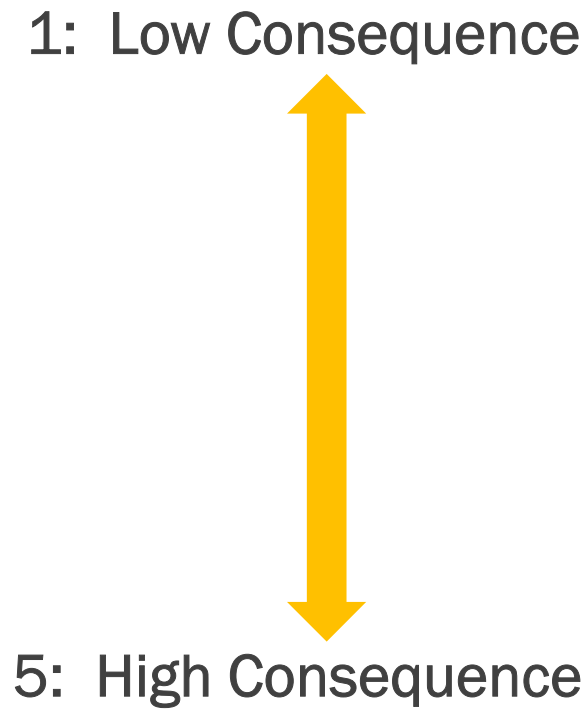
Historical Data Review

1. CMMS or Asset Lists
2. As-Built Drawings
3. Pump Information
4. SCADA Data
5. Operation and Maintenance Logs
6. Control Strategies
7. Engineering Reports

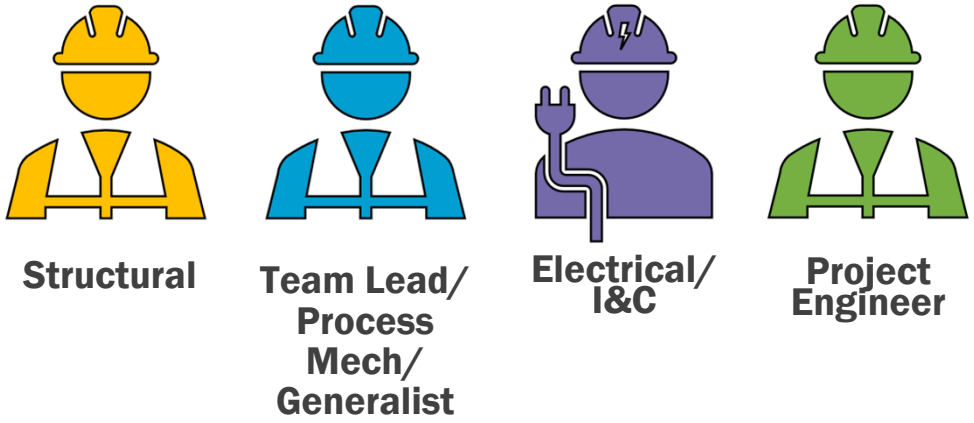


Asset Consequence of Failure

	Score
Civil/Site Assets:	1
Buildings and Structures:	3
SCADA:	3
Standby Power Systems:	3
Instrumentation and Control Systems:	3
Piping and Valves:	4
HVAC:	5
Electrical Systems, VFDs:	5
Pump, Motors, and Equipment:	5

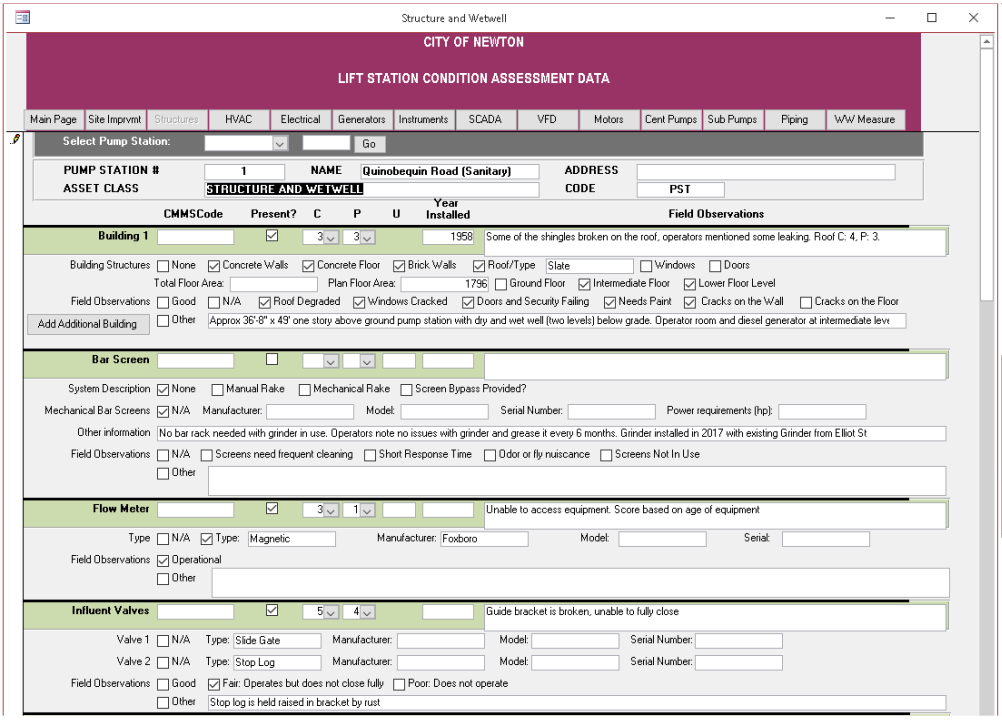


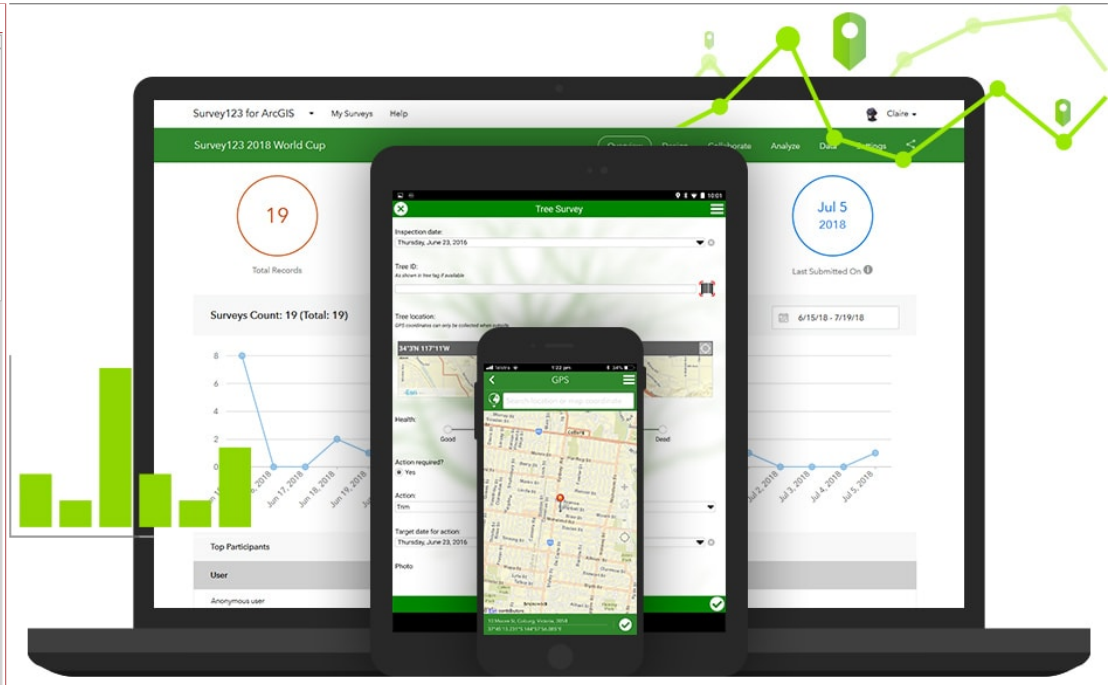
The Field Team



REMOTE MULTI-DISCIPLINE RESOURCES

Assessment Forms





Field Assessment

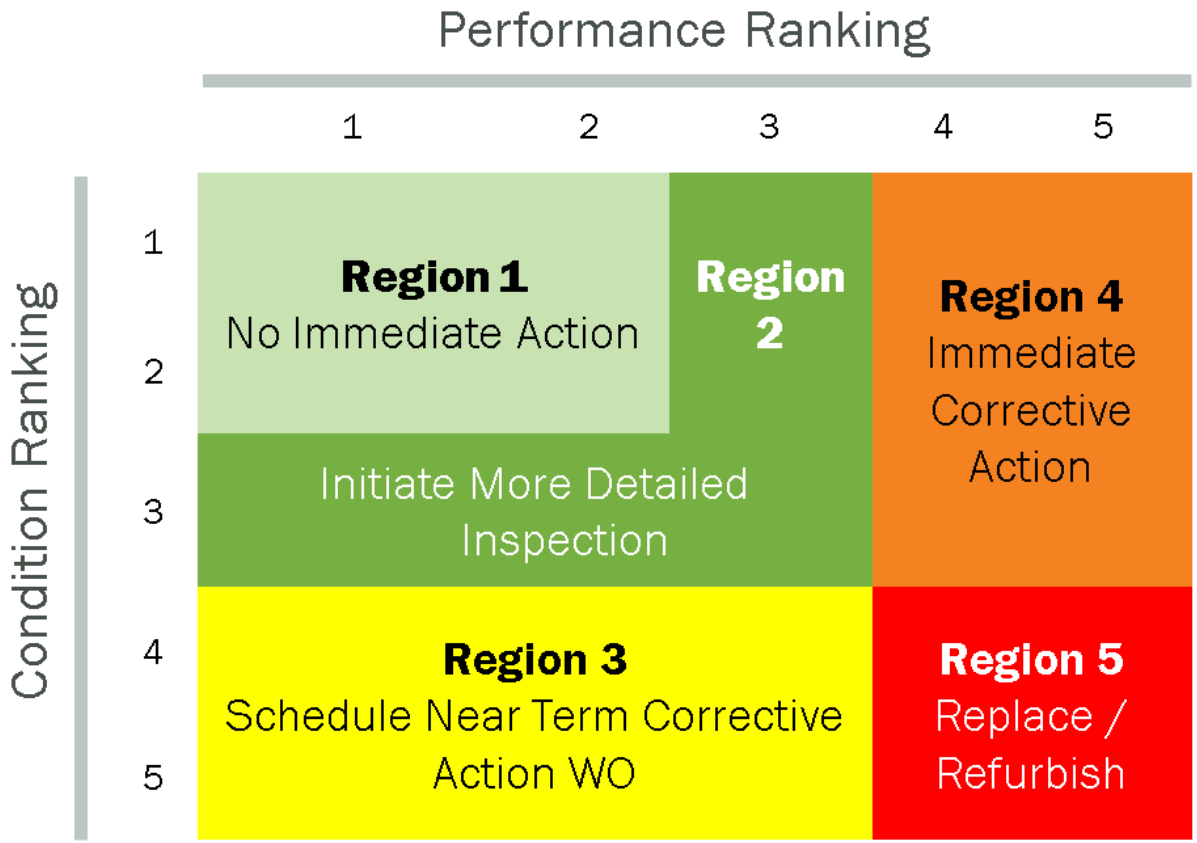
Condition

1. Excellent
2. Slight visible degradation
3. Visible degradation
4. Integrity of component moderately compromised
5. Integrity of component severely compromised

Performance

1. Component functioning as intended
2. In-service, but higher than expected O&M
3. In-service, but function is impaired
4. In-service, but function is highly impaired
5. Component is not functioning as intended

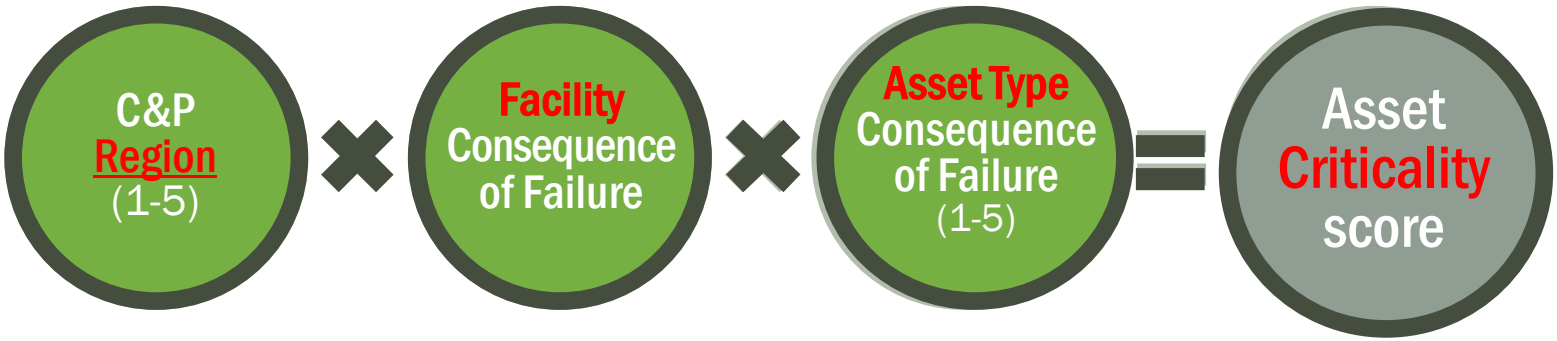
Urgency Regions



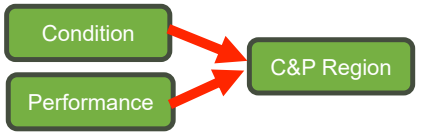
Facility Consequence of Failure

Station Name	Parameter 1	Parameter 2	Parameter 3	Parameter 4	Parameter 5	Parameter 6	Parameter 7	Parameter 8	Total Station Score
	Station Inflow	Critical Customers	Proximity to Sensitive Waters	Anticipated Difficulty of Repair	Growth Areas	Service Requirements: Response Time Allowed	Safety	Emergency Bypass	
	(Weight 0.6)	(Weight 1.0)	(Weight 0.8)	(Weight 0.4)	(Weight 0.3)	(Weight 0.8)	(Weight 1.0)	(Weight 0.8)	
Quinobequin Road	10	10	10	3	10	10	10	10	54.2

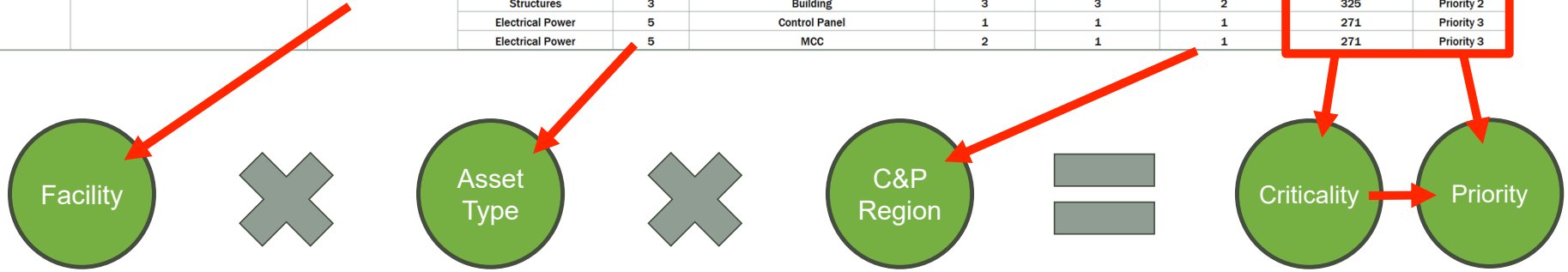
Criticality Score



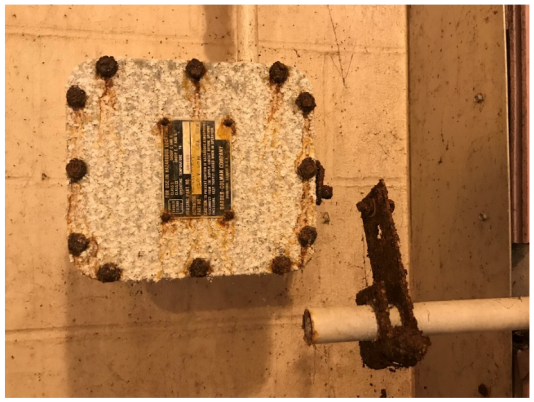
Criticality Prioritization



Appendix D. Summary of Assets Condition Assessment by Pump Station											
Asset Review No.	Pump Station No.	Pump Station Name	Pump Station Score	Asset Type	Asset Type Score	Asset Name	Asset Condition Score (1-5)	Asset Performance Score (1-5)	Asset C&P Region (1-5)	Asset Overall Score	Costing Priority
1				Electrical Power	5	Main Switch	3	4	4	1084	Priority 1
2				HVAC	5	HVAC Dry Well	3	5	4	1084	Priority 1
3				Structures (Wet Well)	4	Influent Valve	5	4	5	1084	Priority 1
4				Centrifugal Pumps	5	Pump 4	4	3	3	813	Priority 1
5				Structures (Wet Well)	4	Wet Well	4	3	3	650	Priority 1
6				Centrifugal Pumps	5	Pump 1	3	3	2	542	Priority 1
7				Centrifugal Pumps	5	Pump 2	3	3	2	542	Priority 1
8				Centrifugal Pumps	5	Pump 3	3	3	2	542	Priority 1
9				Electrical Power	5	Junction Box	3	3	2	542	Priority 1
10				HVAC	5	HVAC Wetwell	3	1	2	542	Priority 1
11				Motors	5	Motor 1	3	1	2	542	Priority 1
12				Motors	5	Motor 2	3	1	2	542	Priority 1
13				Motors	5	Motor 3	3	1	2	542	Priority 1
14				Motors	5	Motor 4	3	1	2	542	Priority 1
15				VFD	5	VFD	3	1	2	542	Priority 1
16				Piping and Valves	4	Discharge Valve 1	3	1	2	434	Priority 2
17				Piping and Valves	4	Discharge Valve 2	3	1	2	434	Priority 2
18				Piping and Valves	4	Discharge Valve 3	3	1	2	434	Priority 2
19				Piping and Valves	4	Discharge Valve 4	3	1	2	434	Priority 2
20				Piping and Valves	4	Suction Valve 1	3	1	2	434	Priority 2
21				Piping and Valves	4	Suction Valve 2	3	1	2	434	Priority 2
22				Piping and Valves	4	Suction Valve 3	3	1	2	434	Priority 2
23				Piping and Valves	4	Suction Valve 4	3	1	2	434	Priority 2
24	1	Quinobequin Road	54	Structures (Wet Well)	4	Flow Meter	3	1	2	434	Priority 2
25				Generators	3	Emergency Generator	3	1	2	325	Priority 2
26				Structures	3	Building	3	3	2	325	Priority 2
27				Electrical Power	5	Control Panel	1	1	1	271	Priority 3
28				Electrical Power	5	MCC	2	1	1	271	Priority 3



Assessment Results



Developing a CIP that is Practical

CIP PROJECT 1 ENGINEERING ACTIVITIES

CIP PROJECT 1 CONSTRUCTION

MOST CRITICAL ISSUES ARE ADDRESSED

NON-REACTIVE STATE ACHIEVED

REHAB VALVE REPLACEMENT

PUMP REPLACEMENT

ENGINEERING AND CONSTRUCTION

ELECTRICAL REPLACEMENT

BUILDING REHAB

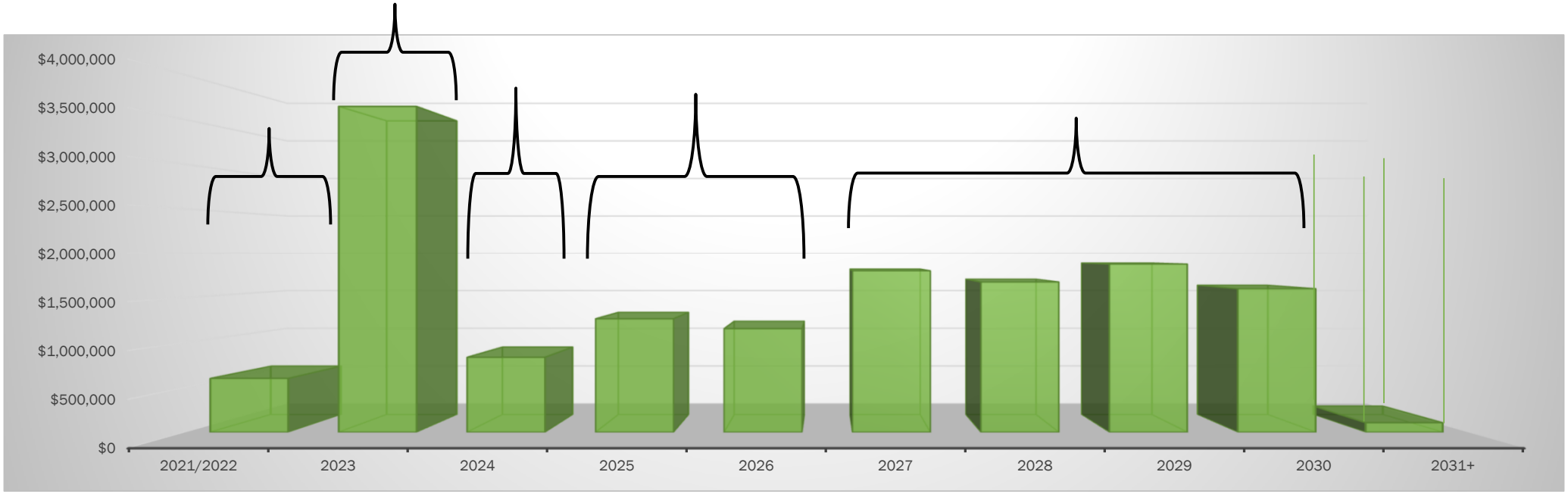
ADDITIONAL PUMP REPLACEMENTS

ENGINEERING AND CONSTRUCTION

REPLACEMENT OF PUMPS AT LARGEST PUMP STATIONS

2029 AND BEYOND

REASSESS FACILITIES. BEGIN SYSTEMATIC ELECTRICAL AND INSTRUEMENTATION REPLACEMENTS.



Important Takeaways

- Collect and organize historical data early, identify operations staff to champion
- Ensure a competent consistent field team performs field assessments
- Understand the scoring system
- Communicate your goals and budgetary constraints
- Perform review of preliminary assessment results
- Provide continuous presence throughout the project

Questions