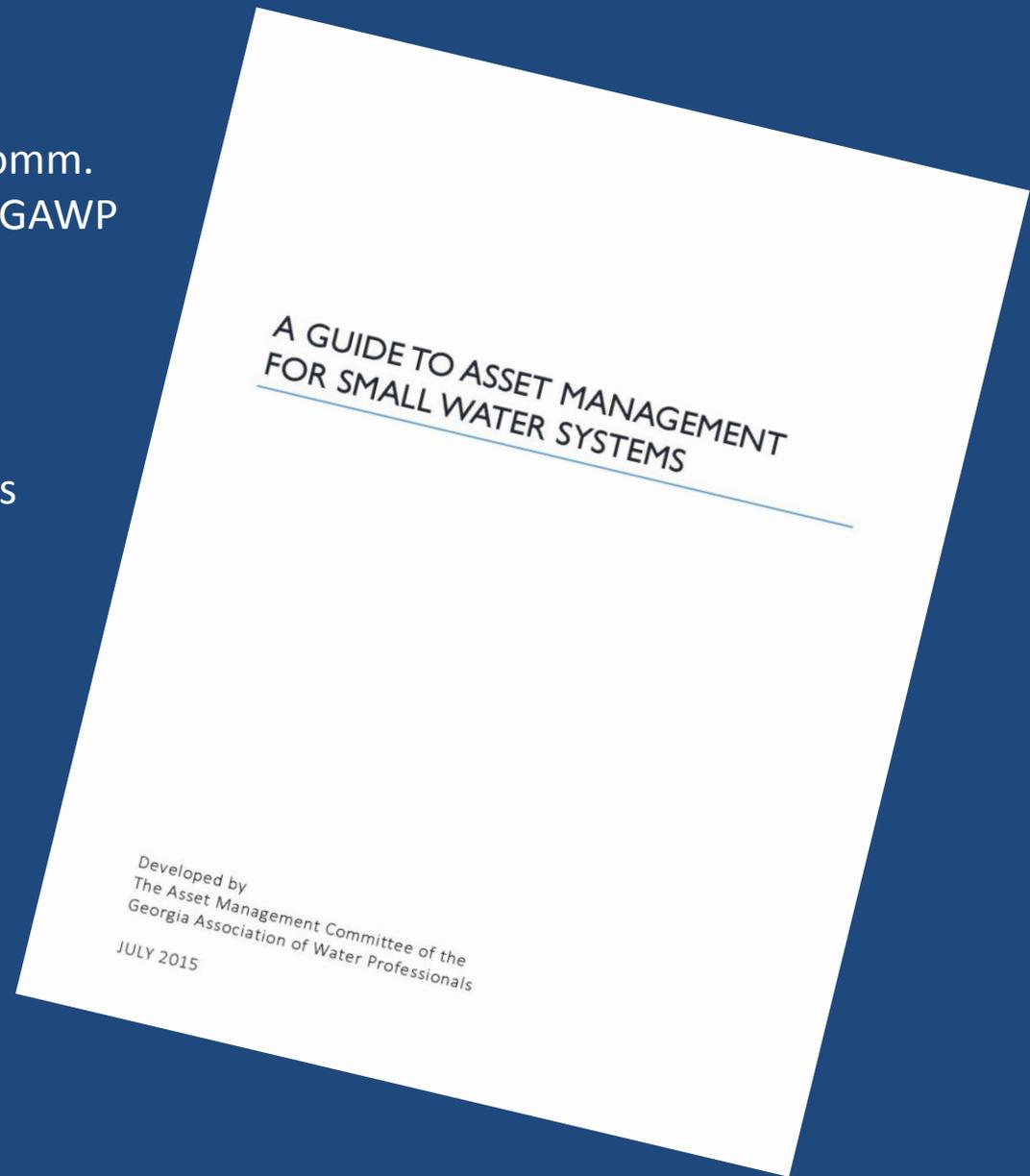


Agenda

- Introductions
 - Dan Shaw, chair of GAWP AM Comm.
 - Jennifer Suttles, former chair of GAWP AM Comm.
 - Alejandro Quintana
- Drivers for the Documents
- Location of the Documents
- Overview of the Guidance Documents
 1. 10 Questions
 2. Main guidance document
 3. GIS Guidance
- Open Discussion with Panel



A GUIDE TO ASSET MANAGEMENT FOR SMALL WATER SYSTEMS

From the Coosa-North Georgia
Regional Water Plan (Draft March
2017)

In 2014, the Partnership entered into a Memorandum of Understanding (MOU) with the Georgia Association of Water Professionals (GAWP) to allow for collaboration and development of educational and resource materials to facilitate implementation of the Regional Water Plan. Through this partnership, the following resource documents were identified, and can be accessed through the GAWP website, www.gawp.org.

- Best Practice Master Planning Guidance and Resource Document
- A Guide to Asset Management for Small Water Systems
- Stormwater Program Guidance Manual for Small Local Governments

ACTION ITEM**WSWC-14: WATER SYSTEM ASSET MANAGEMENT**

| | |
|---|---|
| <p>Intent</p> <p>To facilitate effective operation and maintenance of the system to minimize water system leakage and to ensure proper functioning.</p> <p>Points of Integration</p> <p>This Action Item improves the management and efficiency of the water system. Watershed, wastewater and water distribution personnel can work together, with cross-training, to identify infrastructure problems in the field.</p> | <p>Responsible Party</p> <p>Local Water Provider</p> |
|---|---|

GEMENT
1S

Action Item: Develop an asset management program that ensures proper management of the water system.

Resources:

- GAWP, Asset Management Committee, A Guide to Asset Management for Small Water Systems, July 2015 [http://c.ymcdn.com/sites/www.gawp.org/resource/collection/244A5665-6A99-4A34-BD64-AAC465A2DB88/Small Water Systems Guide 2015.docx](http://c.ymcdn.com/sites/www.gawp.org/resource/collection/244A5665-6A99-4A34-BD64-AAC465A2DB88/Small%20Water%20Systems%20Guide%202015.docx)
- GAWP, 2015 Pamphlet, 10 Questions A Small System Should be Asking About Asset Management Planning, [http://c.ymcdn.com/sites/www.gawp.org/resource/collection/244A5665-6A99-4A34-BD64-AAC465A2DB88/2015 Pamphlet for Small Water Systems.pdf](http://c.ymcdn.com/sites/www.gawp.org/resource/collection/244A5665-6A99-4A34-BD64-AAC465A2DB88/2015%20Pamphlet%20for%20Small%20Water%20Systems.pdf)

A GUIDE TO ASSET MANAGEMENT
FOR SMALL...

In 2014, Congress passed the Water Resources Reform and Development Act (WRRDA). Among other provisions, WRRDA established requirements for the development of Fiscal Sustainability Plans (FSP's) by utilities seeking to obtain loans from state-administered Clean Water State Revolving Fund (CWSRF) agencies. The requirements of the FSP's include components of asset management, plus evaluation of energy and water efficiency.

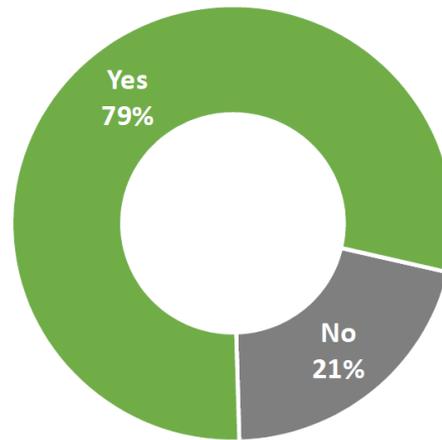


Figure 2. CWSRF agencies that require Fiscal Sustainability Plans (n=43)

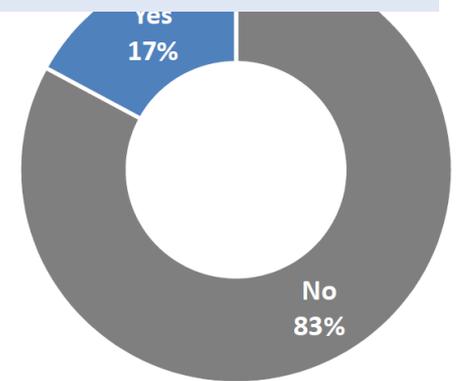


Figure 3. DWSRF agencies that require Fiscal Sustainability Plans (n=41)



Many Waters...One Source for Answers

Committees/Special Interest Groups: Asset Management

Group Pages + Directory & Features Options

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Welcome to GAWP Groups, a powerful tool to help you connect to other water professionals. We encourage exchange of knowledge, experience and ideas. All comments posted to this website should be done in a professional manner. Please be aware that promotion and/or defamation of products, services or companies are strictly prohibited. Please report any misuse of this site to [Susana Lanier](#).

Asset Management (AM) is a business model for water, wastewater, and stormwater utilities that is a transition from building and operating assets to managing their life cycle. With an AM Program, a utility can develop, maintain and manage utility assets at minimal costs while delivering the service levels customers desire. GAWP's Asset Management Committee envisions a broad spectrum of appeal including operating, engineering, financial, legal, manufacturing and consulting disciplines.

[Meeting Agenda and Minutes](#)

[Presentations](#)



[Small Systems Guidance Document](#)

[GIS Subcommittee Agenda & Documents](#)

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Committee Chair
[Daniel D. Shaw](#)

Staff Liaison
[Lisa Celeste](#)

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| Item Name | Posted By | Date Posted |
|---|-----------|-------------|
| 2015 Pamplet - Small Systems Asset Management Q&A PDF (158.74 KB) | L. Hunt | 1/20/2016 |
| 2015 Small Systems Asset Management Guide DOCX (159.18 KB) | L. Hunt | 1/20/2016 |
| Guide Document Part 2 - GIS - 2015-07-07 DOCX (38.76 KB) | L. Hunt | 7/12/2015 |

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2017 FALL CONFERENCE. LABORATORY

A GUIDE TO ASSET MANAGEMENT FOR SMALL WATER SYSTEMS

- Meant as a Primer
- Includes Checklist to Follow
- Included References to other Documents

Basic Asset Management Planning Checklist

Identify Sustainable Leadership. Assign an asset management champion / team to represent the interests of the stakeholders. Ideally, form a steering committee from key areas of the utility.

- Customer Service
- Operations and Maintenance Crew
- Asset Repair and Renewal Crew
- Information Technology
- Finance
- GIS
- Planning and Development

Questions You Should be Asking

1. What is an Asset Management Plan?

Asset Management (AM) is a deliberate way of managing your assets to achieve a defined level of service, in the most cost-effective manner. An Asset Management (AM) Plan articulates the vision and lays a path forward for achieving this goal. An AM Plan should take a proactive approach in planning for the maintenance, rehabilitation and replacement of assets, and should include an estimate of the life of each asset, anticipated replacement year, and associated cost. This includes developing a budget and calculating required reserves. Although AM Plans often yield Capital Improvement Plans (CIP), the process for development is more strategic than the historical CIP process.

Questions You Should be Asking

2. Who requires me to have an Asset Management Plan?

- a. New requirement for grant and loan funding by Clean Water State Revolving Fund (CWSRF)
- b. Your stakeholders including, governing authorities, rate payers, and credit rating agencies will increasingly require justification for capital or operational expenses. A solid AM Plan will provide the foundation for effectively communicating your utility's needs to the public.
- c. Evidence of sound financial stewardship, through a strategic AM Plan, will impact bond ratings and associated interest rates from financial institutions.

Questions You Should be Asking

3. Why can't I do what I have always done with our system assets?

Two factors are at play that will drive the need for increased use of Asset Management best practices. In much of Georgia, distribution, conveyance and treatment systems are nearing the end of their useful life. While economic development, along with allocations associated with the Clean Water Act, funded much of this original infrastructure, the replacement or rehabilitation of this existing infrastructure will likely be borne by ratepayers. Thus, a strategic approach to managing assets is required to maintain a utility's defined level of service, while still maintaining acceptable water and sewer rates. Second, operators and technicians, who have maintained institutional knowledge over the past 40 years, are retiring at an alarming pace. Having a plan in place for managing information, such as the locations and history of a utility's assets, will allow the utility to continue to make informed decisions, long after long-term employees have retired.

Questions You Should be Asking

4. How do I pay for It?

The cost and complexity of an AM Plan can be relative to the size of the utility and its associated resources. Small utilities do not need a significant amount of funding to develop an AM Plan. Use existing staff and delegate responsibilities for specific tasks associated with developing an AM Plan. Minimize cost of information systems to support your AM Plan by using simple Excel based spreadsheets instead of specific software applications like Computerized Maintenance Systems (CMMS), Customer Information Systems (CIS), Financial Information Systems (FIS) and Geographic Information Systems (GIS).

A well-executed Asset Management Program will often pay for itself. Try to identify “quick wins,” or “low hanging fruit” early. This will not only result in cost savings, it will win support from staff and other stakeholders in adopting and continuing an AM Program. Although data collection is important, it does not have to be extensive and complete in order to find efficiencies. Work with the information that you have, make decisions based on existing information if possible, and then improve system knowledge as time and budgets permit.

Questions You Should be Asking

5. Is it a waste of time and money?

The cost and complexity of an AM Plan can be relative to the size of the utility and its associated resources. Small utilities do not need a significant amount of funding to develop an AM Plan. Use existing staff and delegate responsibilities for specific tasks associated with developing an AM Plan. Minimize cost of information systems to support your AM Plan by using simple Excel based spreadsheets instead of specific software applications like Computerized Maintenance Systems (CMMS), Customer Information Systems (CIS), Financial Information Systems (FIS) and Geographic Information Systems (GIS).

Questions You Should be Asking

6. Will we need to buy expensive software?

While the software packages on the market today are powerful, you can develop a good Plan and Program without the purchase of a CMMS, CIS, FIS, GIS, etc. A good AM Plan can be created that uses a simple Excel spreadsheet. In addition, free software tools, such as US EPA's CUPSS (Check Up Program for Small Systems) are available for Asset Management.

Questions You Should be Asking

- 7. What will Asset Management do for me and my system's ratepayers?**
 - a. Reduce the occurrences of unplanned maintenance;
 - b. Increase opportunities for government loans and funding by showing clear evidence for the need for funding;
 - c. Facilitate compliance with other regulations including CMOM, GASB34;
 - d. Provide a clear, concise, quantitative way to communicate system's needs to its rate payers and local governing bodies;
 - e. Reduce the risk of system failure and thereby increase reliability; and
 - f. Allow information sharing amongst multiple departments and allow coordinated planning and decision making.

Questions You Should be Asking

- 8. I have limited or no staff to accomplish an AM plan. How am I expected to produce one?**
 - a. Start by reviewing guidelines prepared for use by small utilities including EPA's "Asset Management: A Handbook for Small Water Systems".
 - b. Start with the oldest and most critical of your assets first when developing your AM Plan. Additional non-critical assets can be added later to the AM Plan as more resources become available.
 - c. Identify other small utilities who may be working on developing their AM Plan and ask that you network with their team and use their AM Plan as a template for developing yours.
 - d. Work with Universities who may have students working on research on AM and offer to use your utility as a test site for developing a simple AM Plan.
 - e. Offer internships to college students during the summer to help with collecting the data to support the development of an AM Plan.

Questions You Should be Asking

9. I have very limited documented records of our system. At this point, isn't this an impossible task?

As daunting as it may seem, developing an Asset Management Plan is achievable for any utility. As stated throughout this document, it's important to work with what you have, and improve as resources allow. Start simple, with realistic goals, so that buy-in is achieved. Remember that even the most sophisticated utility in the world never completes their Asset Management Plan; it is a living document, constantly being reevaluated and improved.

Questions You Should be Asking

10. When do I need an AM plan?

The time is now to start your Asset Management journey. Take the time you need to develop a clear vision of what the Plan should achieve, and set a path forward.

Basic Asset Management Planning Checklist

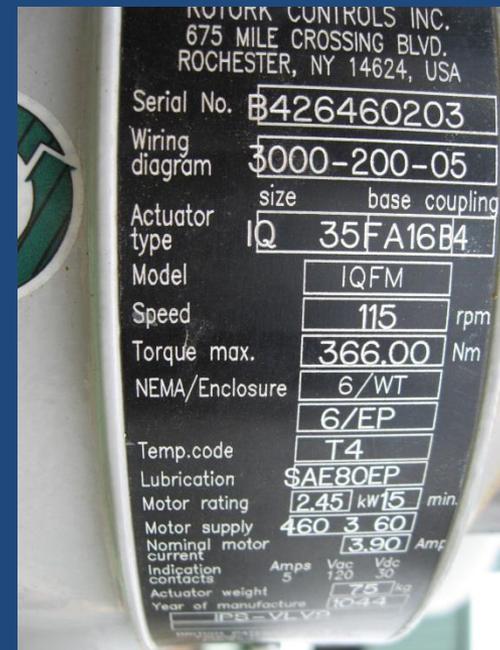
Define the goals.

- Describe the SAMP benefits and what it will encompass.
- What concerns need to be addressed?
- What budget is available?
- What level of sophistication is attainable?

Basic Asset Management Planning Checklist

Develop an inventory of assets. (include manufacturer's information, replacement cost, life expectancy) Focus on the critical assets!

Data Plate Information



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Asset Inventory

| Asset Class | Description | Inventory Number | Quantity | Unit of Measure | Cost Center | Plant | Location | Fund | Vendor | Manufacturer | Useful Life | Serial Number | Location Name | Structure Title |
|-------------|---|----------------------|----------|-----------------|-------------|-------|----------|------|---------------|-------------------------|-------------|------------------------|-----------------------------|--|
| 14600405 | Air Conditioning Unit #1 | IN-SP-ACC-C-001 | 1EA | | 19120006 | 0100 | 3152 | 540 | Mingledorff's | Carrier | 15 | 15501000311 | CKE IPS ELECTRICAL BUILDING | IPS Electrical Building |
| 14600405 | Air Cooled Condenser #1 | IN-SP-ACC-C-001 | 1EA | | 19120006 | 0100 | 3151 | 540 | Mingledorff's | Carrier | 15 | 1510MS3628001001 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Backflow Preventer 3" RPZ | WMB-BFP-C-002 | 1EA | | 19120006 | 0100 | 3153 | 540 | Conbraco Inc | Conbraco Inc | 15 | 1519142 | CKE POTABLE WM BUILDING | Water Meter Building |
| 14600405 | Backflow Preventer 6" RPZ | WMB-BFP-C-001 | 1EA | | 19120006 | 0100 | 3153 | 540 | Conbraco Inc | Conbraco Inc | 15 | 1519139 | CKE POTABLE WM BUILDING | Water Meter Building |
| 14600405 | Band Screen #1 | NHW-SCR-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 10106978-1-1 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Band Screen #2 | NHW-SCR-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 10106978-2-1 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Band Screen #3 | NHW-SCR-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 10106978-3-1 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Belt Conveyor Grit / Screenings #1 | NHW-GRT-BCU-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | Custom Conveyor Company | 20 | 1344110 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Belt Conveyor Grit / Screenings #2 | NHW-GRT-BCU-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | Custom Conveyor Company | 20 | 1344110 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Butterfly Valve 4" Flanged DeZurik w/ handwheel operator | NHW-VSG-BFV-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | DeZURIK | 25 | 2594660108007 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | CEK Pump Station | XP-RID-C-001 | 1EA | | 19120006 | 0100 | 3011 | 540 | | | 20 | | CKE PUMP STATION | IPS / HW Bldg |
| 14600405 | CEK Tanks Channels, Ditch | AB-RID-C-001 | 1EA | | 19120006 | 0100 | 3014 | 540 | | | 0 | | CKE TANKS, CHANNELS, DITCH | Existing Influent & Raw Flow Structure |
| 14600405 | CEK Tanks Channels, Ditch | AB-RID-C-001 | 1EA | | 19120006 | 0100 | 3014 | 540 | | | 0 | | CKE TANKS, CHANNELS, DITCH | Oxidation Ditch No 1 & 2 |
| 14600405 | Control Panel Band Screen #1 | NHW-SCR-CNP-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 1066978-6-1 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Band Screen #2 | NHW-SCR-CNP-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 1066978-6-2 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Band Screen #3 | NHW-SCR-CNP-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 1066978-6-3 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Battery Back-up Console | NHW-VGR-SLD1.4-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | | | 20 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Grit / Screenings Belt Conveyor #1 | NHW-GRT-CNP-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | McKinley Hill | | 20 | 20182-591736 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Grit / Screenings Belt Conveyor #2 | NHW-GRT-CNP-C-004 | 1EA | | 19120006 | 0100 | 3150 | 540 | McKinley Hill | | 20 | 20182-591738 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Control Panel Macerator #1 | IN-SP-CNP-C-001 | 1EA | | 19120006 | 0100 | 3151 | 540 | JWC | JWC | 20 | 1066978A-3-1 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Control Panel Macerator #2 | IN-SP-CNP-C-002 | 1EA | | 19120006 | 0100 | 3151 | 540 | JWC | JWC | 20 | 1066978A-3-2 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Control Panel Macerator #3 | IN-SP-CNP-C-003 | 1EA | | 19120006 | 0100 | 3151 | 540 | JWC | JWC | 20 | 1066978A-3-3 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Control Panel Macerator #4 | IN-SP-CNP-C-004 | 1EA | | 19120006 | 0100 | 3151 | 540 | JWC | JWC | 20 | 1066978A-3-4 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Control Panel Raw Wastewater Pump #1, 3, 5 - MAS | IN-SP-CNP-C-005 | 1EA | | 19120006 | 0100 | 3152 | 540 | Carotek | Carotek | 20 | 40-4108-7275 | CKE IPS ELECTRICAL BUILDING | IPS Electrical Building |
| 14600405 | Control Panel Raw Wastewater Pump #2, 4, 6 - MAS | IN-SP-CNP-C-006 | 1EA | | 19120006 | 0100 | 3152 | 540 | Carotek | Carotek | 20 | 40-1108-7275 | CKE IPS ELECTRICAL BUILDING | IPS Electrical Building |
| 14600405 | Conveyor Screenings Shaftless Screw #1 | NHW-SCR-S-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | Custom Conveyor Company | 20 | 10103-02368 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Conveyor Screenings Shaftless Screw #2 | NHW-SCR-S-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | Custom Conveyor Company | 20 | 10103-02369 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600403 | Distributed Control System (DCS) | ADM-DCS-C-001 | 1EA | | 19120006 | 0100 | 3010 | 540 | Invensys | Fodorso | 20 | | CKE CONTROL OPERATIONS | Administration Building |
| 14600403 | Distributed Control System (DCS) | NHW-DCS-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | | | 20 | | CKE CONTROL OPERATIONS | Headworks Building |
| 14600403 | Distributed Control System (DCS) | IN-SP-DCS-C-001 | 1EA | | 19120006 | 0100 | 3152 | 540 | Invensys | Invensys | 20 | IN-SP-001 | CKE IPS ELECTRICAL BUILDING | IPS Electrical Building |
| 14600405 | Duct Heater #1 Electric | IN-SP-HTR-C-001 | 1EA | | 19120006 | 0100 | 3152 | 540 | Shamate | Thermocel | 15 | 15236780 | CKE IPS ELECTRICAL BUILDING | IPS Electrical Building |
| 14600405 | Electric Grinder | NHW-SCR-GRD-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hayward Inc | JWC Environmental | 20 | 10106978-5-1 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Duct | NHW-HTR-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | INDLECO | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #1 | NHW-HTR-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #2 | NHW-HTR-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #3 | NHW-HTR-C-004 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #4 | NHW-HTR-C-005 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #5 | NHW-HTR-C-006 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #6 | NHW-HTR-C-007 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Electric Heater Screenings Area Unit #7 | NHW-HTR-C-008 | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Market | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600011 | Electrical | POC-RID-C-001 | 1EA | | 19120006 | 0100 | 3015 | 540 | | | 20 | | CKE ODOOR CONTROL BLDG | Odeur Control Building |
| 14600405 | Exhaust Fan #1 | IN-SP-EXH-C-001 | 1EA | | 19120006 | 0100 | 3151 | 540 | Shamate | Cook | 15 | 1510505D267801/0000701 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Exhaust Fan #1 | WMB-FAN-C-001 | 1EA | | 19120006 | 0100 | 3153 | 540 | Shamate | Cook | 15 | | CKE POTABLE WM BUILDING | Water Meter Building |
| 14600405 | Fan Screenings Area #1 Exhaust | NHW-EXH-FAN-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Shamate | Cook | 15 | 1510505D267801/0002502 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Fan Screenings Area #2 Exhaust | NHW-EXH-FAN-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Shamate | Cook | 15 | 1510505D267802/0002502 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Fans Screenings Area #1 Deaerification | NHW-FAN-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Shamate | Leading Edge | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Fans Screenings Area #2 Deaerification | NHW-FAN-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Shamate | Leading Edge | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Fans Screenings Area #3 Deaerification | NHW-FAN-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | Shamate | Leading Edge | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Flap Valve 12" Flanged Troy | NHW-PLD-FPV-C-009 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | Troy Valve | 25 | 2517408 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Flap Valve 4" Flanged Troy | NHW-PLD-FPV-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | Troy Valve | 25 | 2517401 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Flap Valve 6" Flanged Troy | NHW-PLD-FPV-C-004 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | Troy Valve | 25 | 2517412 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Flap Valve 8" Flanged Troy | NHW-PLD-FPV-C-008 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | Troy Valve | 25 | 2517423 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600011 | Flow Analyzers | AB-RID-C-001 | 1EA | | 19120006 | 0100 | 3014 | 540 | Invensys | Fodorso | 20 | | CKE TANKS, CHANNELS, DITCH | Existing Influent & Raw Flow Structure |
| 14600405 | Gate Valve 1 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Gate Valve 2 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Gate Valve 3 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-003 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Gate Valve 4 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-004 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Gate Valve 5 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-005 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Gate Valve 6 - on 6" Utility Water Pipe | NHW-UTW-GTV-C-006 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eco-Tech | AFC | 25 | 25105666 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grease Filter Demister | POC-DM-C-001 | 1EA | | 19120006 | 0100 | 3015 | 540 | Ray Products | ACS Industries | 15 | | CKE ODOOR CONTROL BLDG | Odeur Control Building |
| 14600405 | Grinder Channel Monitor #1 | IN-SP-MCR-C-001 | 1EA | | 19120006 | 0100 | 3151 | 540 | Hayward | JWC Environmental | 20 | 1066978A-1-1 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Grinder Channel Monitor #2 | IN-SP-MCR-C-002 | 1EA | | 19120006 | 0100 | 3151 | 540 | Hayward | JWC Environmental | 20 | 1066978A-1-2 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Grinder Channel Monitor #3 | IN-SP-MCR-C-003 | 1EA | | 19120006 | 0100 | 3151 | 540 | Hayward | JWC Environmental | 20 | 1066978A-1-3 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Grinder Channel Monitor #4 | IN-SP-MCR-C-004 | 1EA | | 19120006 | 0100 | 3151 | 540 | Hayward | JWC Environmental | 20 | 1066978A-1-4 | CKE INFLEUENTS - NEW | Influent Pump Station |
| 14600405 | Grit Chamber #1 - Grit Cyclones/Classifiers and Appendances | NHW-VGR-VGC-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eschelman | S&L | 20 | 01-02368 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grit Chamber #2 - Grit Cyclones/Classifiers and Appendances | NHW-VGR-VGC-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | Eschelman | S&L | 20 | 01-02369 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grit Chamber 3 Rails | XP-RID-C-001 | 1EA | | 19120006 | 0100 | 3011 | 540 | | | 20 | | CKE PUMP STATION | Grit Chamber |
| 14600405 | Grit Classifier #1 | NHW-GRT-CLF-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | S&L | Goodman Hewitt | 10 | 10103-02368 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grit Classifier #2 | NHW-GRT-CLF-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | S&L | Goodman Hewitt | 10 | 10103-02369 | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grit Concentrator #1 | NHW-GRT-CNC-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | S&L | S&L | 10 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Grit Concentrator #2 | NHW-GRT-CNC-C-002 | 1EA | | 19120006 | 0100 | 3150 | 540 | S&L | S&L | 10 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600011 | Headworks Building | NHW-WTH-C-001 | 1EA | | 19120006 | 0100 | 3150 | 540 | Hubbell | 40 X1364X | | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Heat Pump Electrical Room Unit # 1A | NHW-HTP-C-001A | 1EA | | 19120006 | 0100 | 3150 | 540 | Schumate | Carrier | 15 | | CKE HEADWORKS BUILDING | Headworks Building |
| 14600405 | Heat Pump Electrical Room Unit #1 | NHW-HTP-C-001 | 1EA | | 19120006 | 010 | | | | | | | | |

Asset Inventory

| Asset Class | Description | Inventory Number | Quantity | Unit of Measure | Cost Center | Plant | Location | Fund |
|-------------|---------------------------|------------------|----------|-----------------|-------------|-------|----------|------|
| 14600405 | Air Conditioning Unit #1 | IN-IPS-ACU-C-001 | 1 | EA | 19120006 | 0100 | 3152 | 540 |
| 14600405 | Air Cooled Condenser #1 | IN-IPS-ACC-C-001 | 1 | EA | 19120006 | 0100 | 3151 | 540 |
| 14600405 | Backflow Preventer 3" RPZ | WMB-BFP-C-002 | 1 | EA | 19120006 | 0100 | 3153 | 540 |
| 14600405 | Backflow Preventer 6" RPZ | WMB-BFP-C-001 | 1 | EA | 19120006 | 0100 | 3153 | 540 |
| 14600405 | Band Screen #1 | NHW-SCR-C-001 | 1 | EA | 19120006 | 0100 | 3150 | 540 |
| 14600405 | Band Screen #2 | NHW-SCR-C-002 | 1 | EA | 19120006 | 0100 | 3150 | 540 |
| 14600405 | Band Screen #3 | NHW-SCR-C-003 | 1 | EA | 19120006 | 0100 | 3150 | 540 |

Asset Inventory

| Vendor | Manufacturer | Useful Life | Serial Number | Location Name | StructureTitle |
|---------------|-------------------|-------------|-----------------|-----------------------------|-------------------------|
| Mingledorff's | Carrier | 15 | 5010V00311 | CKC IPS ELECTRICAL BUILDING | IPS Electrical Building |
| Mingledorff's | Carrier | 15 | E10M53628001001 | CKC INFLUENTS - NEW | Influent Pump Station |
| | Conbraco Inc | 15 | 19142 | CKC POTABLE WM BUILDING | Water Meter Building |
| | Conbraco Inc | 15 | 19319 | CKC POTABLE WM BUILDING | Water Meter Building |
| Hayward Inc | JWC Environmental | 10 | 106978-1-1 | CKC HEADWORKS BUILDING | Headworks Building |
| Hayward Inc | JWC Environmental | 10 | 106978-2-1 | CKC HEADWORKS BUILDING | Headworks Building |
| Hayward Inc | JWC Environmental | 10 | 106978-3-1 | CKC HEADWORKS BUILDING | Headworks Building |

Basic Asset Management Planning Checklist

Condition & Criticality Assessment. Assign scores (1 to 5) for both Likelihood of Failure and Consequence of Failure (where 5 is highest level of likelihood and highest level of consequence).

Basic Asset Management Planning Checklist

Risk Assessment. Calculate Risk Value (Likelihood of Failure X Consequence of Failure). Rank by Risk Value.

| | | Consequence | | | | |
|---|---------------------|--|---------------|-----------------|-----------------|-----------------|
| | | How severe could the outcomes be if the risk event occurred? | | | | |
| | | 1 | 2 | 3 | 4 | 5 |
| | | Insignificant | Minor | Significant | Major | Severe |
| Likelihood ↑ What's the chance the of the risk occurring? | 5 Almost Certain | 5 Medium | 10 High | 15 Very high | 20 Extreme | 25 Extreme |
| | 4 Likely | 4 Medium | 8 Medium | 12 High | 16 Very high | 20 Extreme |
| | 3 Moderate | 3 Low | 6 Medium | 9 Medium | 12 High | 15 Very high |
| | 2 Unlikely | 2 Very low | 4 Low | 6 Medium | 8 Medium | 10 High |
| | 1 Rare | 1 Very low | 2 Very low | 3 Low | 4 Medium | 5 Medium |

Basic Asset Management Planning Checklist

Prioritized Strategic Asset Management Plan.
Develop both a Near-Term and Long-Term Plan for asset replacement and renewal based on the risk score ranking.

Basic Asset Management Planning Checklist

Choose suitable technology to fit goals and budgets established.

- Database software for documenting asset inventory.
- Geospatial Mapping software / hardware to locate assets.
- Maintenance Tracking System for asset condition & repairs.

Basic Asset Management Planning Checklist

Track progress. Document that the plan is meeting established goals – make changes as required.

Basic Asset Management Planning Checklist

Develop Long-Term Asset Management Plan

- Identify budgets, resources, time-frame, etc.
- Update the plan often. At least one a year.

References and Web Links

6: References & Web Links

EPA Publications:

- Asset Management: A Handbook for Small Water Systems
http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_asset_mgmt.pdf
- Taking Stock of Your Water System: A Simple Asset Inventory for Very small Drinking Water Systems
http://www.epa.gov/ogwdw/smallsystems/pdfs/final_asset_inventory_for_small_systems.pdf
- **Asset Management for Local Officials:**
http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_assetmanagement_localofficials.pdf
- Getting Started with CUPSS (Check Up Program for Small Systems), A Workbook for Users:
http://epa.gov/cupss/pdf/workbook_cupss_getstarted.pdf
- Asset Management: A Guide for Water & Wastewater Systems:
<http://www.nmenv.state.nm.us/dwb/assistance/documents/AssetManagementGuide.pdf>
- Strategic Planning: A Handbook for Small Water Systems (STEP Guide Series):
http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_stratplan.pdf

ESRI Publication:

- GIS Supports Sustainable and Effective Water Utility Practices
<http://www.esri.com/library/>

WERF:

- WERF Sustainable Infrastructure Management Program Learning Environment
<http://simple.werf.org/>
 - AMKAN Materials, <http://amkan-asset-management-manual.software.informer.com/>

- Guide to Water & Wastewater Asset Management, Benjamin Media, 2008 (excellent, but not a free resource) <http://bmi.gostorego.com/guide-to-water-wastewater-asset-management.html>

AWWA:

- Defining Public Asset Management for Municipal Water Utilities
AWWA Journal - May,2011
<http://www.awwa.org/publications/journal-awwa/abstract/articleid/27497/issueid/33572188.aspx?getFile=/documents/dcf/27497/waternet.0073765.pdf>

NESC:

- A Guide to Asset Management for Small Systems
http://www.nesc.wvu.edu/pdf/train/products/asset_management_guide.pdf

Water Research Foundation:

- Project #4187 - Key Asset Data for Drinking Water and Wastewater Utilities
http://www.waterrf.org/ExecutiveSummaryLibrary/4187_ProjectSummary.pdf

MISC:

- Association of State Drinking Water Administrators (ASDWA)
<http://capcertconnections.asdwa.org/2013/11/06/free-webinars-on-asset-management-for-small-water-systems/>
- San Diego County Water Authority Asset Management Plan
<http://www.sd.cwa.org/asset-management>
- Table 1. Taken from the EPA manual, *Asset Management: A Handbook for Small Water Systems*
http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_asset_mgmt.pdf