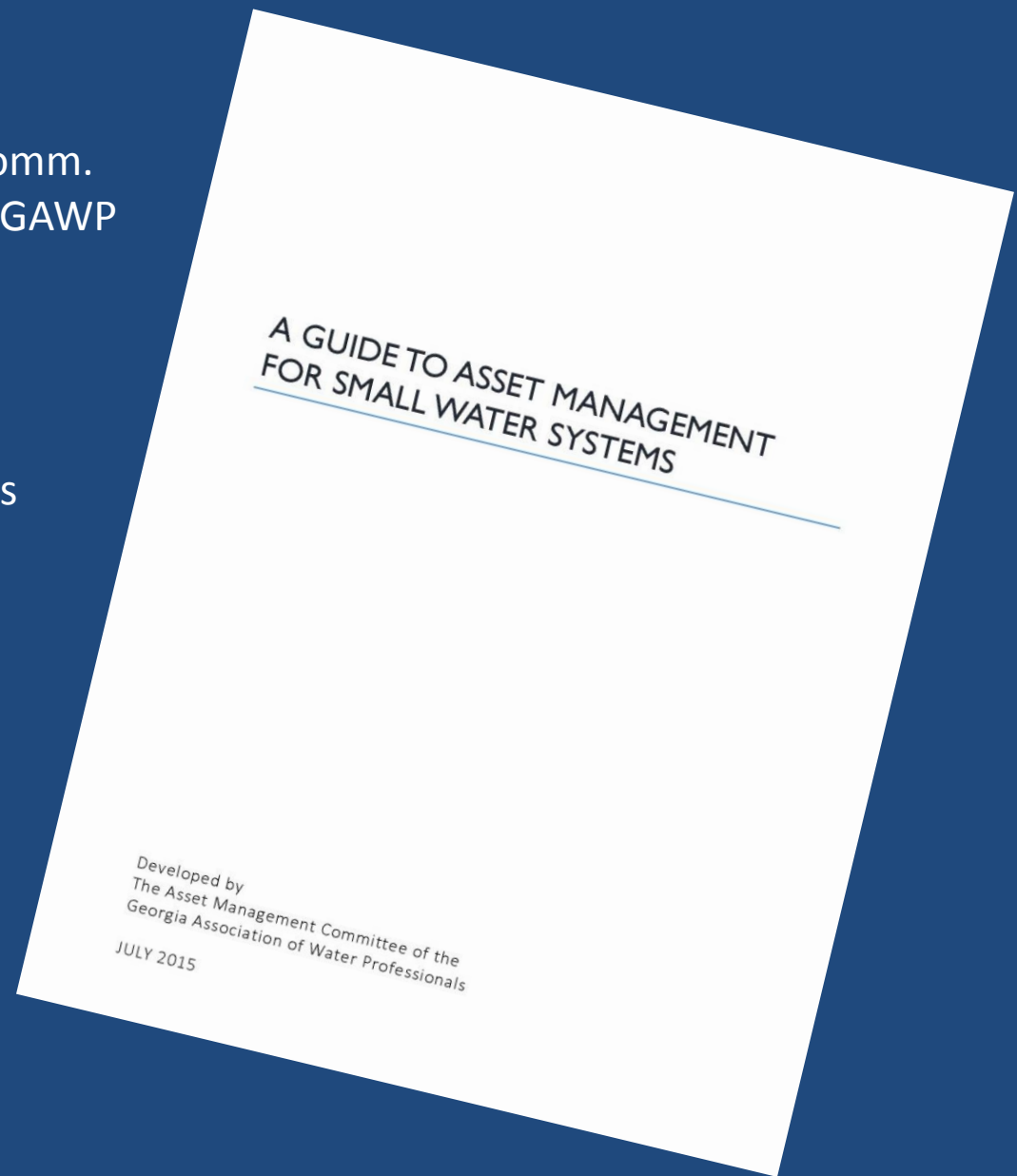


Agenda

- 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****Intent**

To facilitate effective operation and maintenance of the system to minimize water system leakage and to ensure proper functioning.

Points of Integration

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.

Responsible Party

Local Water Provider

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.

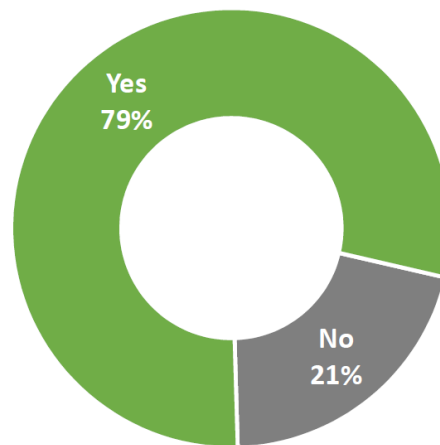


Figure 2. CWSRF agencies that require Fiscal Sustainability Plans (n=43)

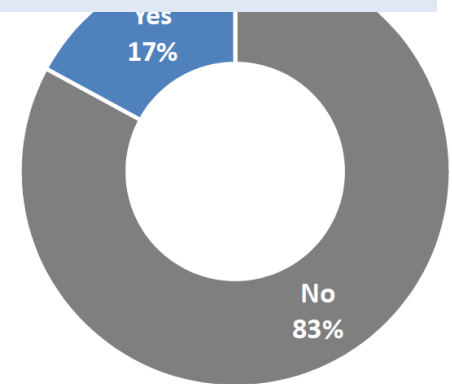


Figure 3. DWSRF agencies that require Fiscal Sustainability Plans (n=41)

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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.

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Small Systems Guidance Document

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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

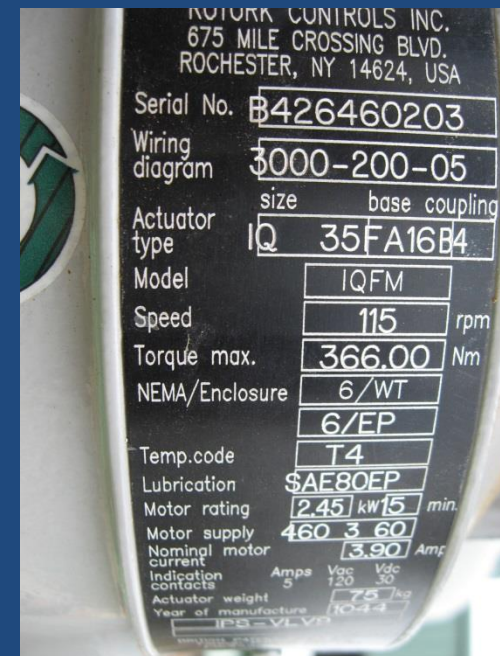
Define the goals.

- 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-APS-ACC-C-001	1	EA	19120006	0100	3152	540	Mingledorff's	Carrier	15	1550100311	CRC IPS ELECTRICAL BUILDING	IPS Electrical Building
14600405	Air Cooled Condenser #1	IN-APS-ACC-C-001	1	EA	19120006	0100	3151	540	Mingledorff's	Carrier	15	15110MS362R001001	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Backflow Preventer 3" R/FZ	WMB-BIFP-C-002	1	EA	19120006	0100	3153	540	Conbraco Inc	Conbraco Inc	15	1519142	CRC POTABLE WM BUILDING	Water Meter Building
14600405	Backflow Preventer 6" R/FZ	WMB-BIFP-C-001	1	EA	19120006	0100	3151	540	Conbraco Inc	Conbraco Inc	15	1519139	CRC POTABLE WM BUILDING	Water Meter Building
14600405	Band Screen #1	NHFW-SCR-C-001	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	10	10106978-1-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Band Screen #2	NHFW-SCR-C-002	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	10	10106978-2-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Band Screen #3	NHFW-SCR-C-003	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	10	10106978-3-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Belt Conveyor Grit / Screenings #1	NHFW-GRT-BCU-C-001	1	EA	19120006	0100	3150	540	Hayward Inc.	Custom Conveyor Company	20	20334110	CRC HEADWORKS BUILDING	Headworks Building
14600405	Belt Conveyor Grit / Screenings #2	NHFW-GRT-BCU-C-002	1	EA	19120006	0100	3150	540	Hayward Inc.	Custom Conveyor Company	20	20334110	CRC HEADWORKS BUILDING	Headworks Building
14600405	Butterfly Valve 4" Flanged DeZurik w/ handwheel operator	NHFW-VSG-BFV-C-001	1	EA	19120006	0100	3150	540	Eco-Tech	DeZurik	25	259466010R007	CRC HEADWORKS BUILDING	Headworks Building
14600405	Butterfly Valve 6" Flanged DeZurik w/ handwheel operator	NHFW-VSG-BFV-C-002	1	EA	19120006	0100	3150	540	Eco-Tech	DeZurik	25	259466009R007	CRC HEADWORKS BUILDING	Headworks Building
14600101	CKC Pump Station	XP-BLD-C-001	1	EA	19120006	0100	3011	540			0	0	IPS / HW Bldg.	IPS / HW Bldg.
14600405	CKC Tanks, Channels, Ditch	AB-BLD-C-001	1	EA	19120006	0100	3014	540			0	0	CRC TANKS, CHANNELS, DITCH	Existing Influent & RAS Flow Structure
14600405	CKC Tanks, Channels, Ditch	AB-BLD-C-001	1	EA	19120006	0100	3014	540			0	0	CRC TANKS, CHANNELS, DITCH	Oxidation Ditch No 1 & 2
14600405	Control Panel Band Screen #1	NHFW-SCR-CNP-C-001	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	20	20106978-6-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Band Screen #2	NHFW-SCR-CNP-C-002	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	20	20106978-6-2	CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Band Screen #3	NHFW-SCR-CNP-C-003	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	20	20106978-6-3	CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Battery Back-up Console	NHFW-VSG-BLD1,4-C-001	1	EA	19120006	0100	3150	540			20		CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Grit / Screenings Belt Conveyor #1	NHFW-GRT-CNP-C-003	1	EA	19120006	0100	3150	540	McKinley Hill	McKinley Hill	20	20106978-3-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Grit / Screenings Belt Conveyor #2	NHFW-GRT-CNP-C-004	1	EA	19120006	0100	3150	540	McKinley Hill	McKinley Hill	20	20106978-3-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Control Panel Macerator #1	IN-APS-CPM-C-001	1	EA	19120006	0100	3151	540	JWC	JWC	20	20106978A-3-1	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Control Panel Macerator #2	IN-APS-CPM-C-002	1	EA	19120006	0100	3151	540	JWC	JWC	20	20106978A-3-2	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Control Panel Macerator #3	IN-APS-CPM-C-003	1	EA	19120006	0100	3151	540	JWC	JWC	20	20106978A-3-3	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Control Panel Macerator #4	IN-APS-CPM-C-004	1	EA	19120006	0100	3151	540	JWC	JWC	20	20106978A-3-4	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Control Panel Raw Wastewater Pump #1, 3, 5 - MAS	IN-APS-CNP-C-005	1	EA	19120006	0100	3152	540	Carotek	Carotek	20	2040-1104-72775	CRC IPS ELECTRICAL BUILDING	IPS Electrical Building
14600405	Control Panel Raw Wastewater Pump #2, 4, 6 - MAS	IN-APS-CNP-C-006	1	EA	19120006	0100	3152	540	Carotek	Carotek	20	2040-1104-72775	CRC IPS ELECTRICAL BUILDING	IPS Electrical Building
14600405	Conveyor Screenings Shuffler Screw #1	NHFW-SCR-SHFL-C-001	1	EA	19120006	0100	3150	540	Hayward Inc.	Custom Conveyor Company	20	2010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Conveyor Screenings Shuffler Screw #2	NHFW-SCR-SHFL-C-002	1	EA	19120006	0100	3150	540	Hayward Inc.	Custom Conveyor Company	20	2010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Distributed Control System (DCS)	ADM-DCS-C-001	1	EA	19120006	0100	3010	540	Inventsys	Foxboro	20		CRC CONTROL OPERATIONS	Administration Building
14600405	Distributed Control System (DCS)	NHFW-DCS-C-001	1	EA	19120006	0100	3150	540			20		CRC HEADWORKS BUILDING	Headworks Building
14600405	Distributed Control System (DCS)	IN-APS-DCS-C-001	1	EA	19120006	0100	3152	540	Inventsys	Inventsys	20	2010102768	CRC IPS ELECTRICAL BUILDING	IPS Electrical Building
14600405	Duct Heater #1 Electric	IN-APS-HTR-C-001	1	EA	19120006	0100	3152	540	Shumate	Thermosec	15	15236780	CRC IPS ELECTRICAL BUILDING	IPS Electrical Building
14600405	Electric Grinder	NHFW-SCR-GRD-C-001	1	EA	19120006	0100	3150	540	Hayward Inc.	JWC Environmental	10	10106978-5-1	CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Duct	NHFW-HTR-C-001	1	EA	19120006	0100	3150	540	Schumate	INDIECO	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #1	NHFW-HTR-C-002	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #2	NHFW-HTR-C-003	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #3	NHFW-HTR-C-004	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #4	NHFW-HTR-C-005	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #5	NHFW-HTR-C-006	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #6	NHFW-HTR-C-007	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Electric Heater Screenings Area Unit #7	NHFW-HTR-C-008	1	EA	19120006	0100	3150	540	Schumate	Markel	15		CRC HEADWORKS BUILDING	Headworks Building
14600101	Electrical	POC-BLD-C-001	1	EA	19120006	0100	3015	540			20		CRC COOR CONTROL BLDG	Coor Control Building
14600405	Exhaust Fan #1	IN-APS-EXH-C-001	1	EA	19120006	0100	3151	540	Shumate	Cook	15	1510505D52678-01/0000701	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Exhaust Fan #1	WMB-FAN-C-001	1	EA	19120006	0100	3151	540	Shumate	Cook	15		CRC POTABLE WM BUILDING	Water Meter Building
14600405	Fan Screenings Area #1 Exhaust	NHFW-EXH-FAN-C-001	1	EA	19120006	0100	3150	540	Shumate	Cook	15	1510505D52678-01/0002502	CRC HEADWORKS BUILDING	Headworks Building
14600405	Fan Screenings Area #2 Exhaust	NHFW-EXH-FAN-C-002	1	EA	19120006	0100	3150	540	Shumate	Cook	15	1510505D52678-02/0002502	CRC HEADWORKS BUILDING	Headworks Building
14600405	Fans Screenings Area #1 Destratification	NHFW-FAN-C-001	1	EA	19120006	0100	3150	540	Shumate	Leading Edge	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Fans Screenings Area #2 Destratification	NHFW-FAN-C-002	1	EA	19120006	0100	3150	540	Shumate	Leading Edge	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Fans Screenings Area #3 Destratification	NHFW-FAN-C-003	1	EA	19120006	0100	3150	540	Shumate	Leading Edge	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Flap Valve 12" Flanged Troy	NHFW-PLD-FPV-C-009	1	EA	19120006	0100	3150	540	Eco-Tech	Troy Valve	25	25177408	CRC HEADWORKS BUILDING	Headworks Building
14600405	Flap Valve 4" Flanged Troy	NHFW-PLD-FPV-C-001	1	EA	19120006	0100	3150	540	Eco-Tech	Troy Valve	25	25177401	CRC HEADWORKS BUILDING	Headworks Building
14600405	Flap Valve 6" Flanged Troy	NHFW-PLD-FPV-C-004	1	EA	19120006	0100	3150	540	Eco-Tech	Troy Valve	25	25177412	CRC HEADWORKS BUILDING	Headworks Building
14600405	Flap Valve 8" Flanged Troy	NHFW-PLD-FPV-C-008	1	EA	19120006	0100	3150	540	Eco-Tech	Troy Valve	25	25177423	CRC HEADWORKS BUILDING	Headworks Building
14600101	Flow Analyzers	AB-BLD-C-003	1	EA	19120006	0100	3014	540	Inventsys	Foxboro	20		CRC TANKS, CHANNELS, DITCH	Existing Influent & RAS Flow Structure
14600405	Gate Valve 1 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-001	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600405	Gate Valve 2 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-002	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600405	Gate Valve 3 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-003	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600405	Gate Valve 4 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-004	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600405	Gate Valve 5 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-005	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600405	Gate Valve 6 - on 6" Utility Water Pipe	NHFW-UTW-GTV-C-006	1	EA	19120006	0100	3150	540	Eco-Tech	AFC	25	25105666	CRC HEADWORKS BUILDING	Headworks Building
14600101	Gravel Filter Denuder	POC-DMC-C-001	1	EA	19120006	0100	3015	540	Ray Products	ACS Industries	15		CRC COOR CONTROL BLDG	Coor Control Building
14600405	Grinder Channel Monitor #1	IN-APS-MCR-C-001	1	EA	19120006	0100	3151	540	Hayward	JWC Environmental	10	10106978A-1-1	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Grinder Channel Monitor #2	IN-APS-MCR-C-002	1	EA	19120006	0100	3151	540	Hayward	JWC Environmental	10	10106978A-1-2	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Grinder Channel Monitor #3	IN-APS-MCR-C-003	1	EA	19120006	0100	3151	540	Hayward	JWC Environmental	10	10106978A-1-3	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Grinder Channel Monitor #4	IN-APS-MCR-C-004	1	EA	19120006	0100	3151	540	Hayward	JWC Environmental	10	10106978A-1-4	CRC INFLUENTS - NEW	Influent Pump Station
14600405	Grit Chamber #1 - Grit Cyclones/Classifiers and Appurtenances	NHFW-VSG-VGC-C-001	1	EA	19120006	0100	3150	540	Eschelman	S&L	20	2010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Grit Chamber #2 - Grit Cyclones/Classifiers and Appurtenances	NHFW-VSG-VGC-C-002	1	EA	19120006	0100	3150	540	Eschelman	S&L	20	2010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Grit Chamber 3 Rails	XP-BLD-C-001	1	EA	19120006	0100	3011	540			40		CRC PUMP STATION	Grit Chamber
14600405	Grit Classifier #1	NHFW-GRT-CLF-C-001	1	EA	19120006	0100	3150	540	S&L	Goodman Hewitt	10	1010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Grit Classifier #2	NHFW-GRT-CLF-C-002	1	EA	19120006	0100	3150	540	S&L	Goodman Hewitt	10	1010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Grit Concentrator #1	NHFW-GRT-CNC-C-001	1	EA	19120006	0100	3150	540	S&L	Goodman Hewitt	10	1010102768	CRC HEADWORKS BUILDING	Headworks Building
14600405	Grit Concentrator #2	NHFW-GRT-CNC-C-002	1	EA	19120006	0100	3150	540	S&L	Goodman Hewitt	10	1010102768	CRC HEADWORKS BUILDING	Headworks Building
14600101	Headworks Building	NHFW-WTH-C-001	1	EA	19120006	0100	3150	540	Hubbell	Hubbell	40	40X1364X	CRC HEADWORKS BUILDING	Headworks Building
14600405	Heat Pump Electrical Room Unit #1A	NHFW-HTP-C-001A	1	EA	19120006	0100	3150	540	Schumate	Carrier	15		CRC HEADWORKS BUILDING	Headworks Building
14600405	Heat Pump Electrical Room Unit #1	NHFW-HTP-C-001	1	EA	19120006	0100	3150	540	Schumate	Carrier	15	151410130264	CRC HEADWORKS BUILDING	Headworks Building
14600405	Heat Pump Electrical Room Unit #2	NHFW-HTP-C-002	1	EA	19120006	0100	3150	540	Schumate	Carrier	15	151410130264	CRC HEADWORKS BUILDING	Headworks Building
14600405	Heat Pump Electrical Room Unit #2A	NHFW-HTP-C-002A	1	EA	19120006	0100	3150	540	Schumate	Carrier	15	151410130264	CRC HEADWORKS BUILDING	Headworks Building

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 risk is occurring?	5	5 Medium	10 High	15 Very high	20 Extreme	25 Extreme
		4	4 Medium	8 Medium	12 High	16 Very high	20 Extreme
		3	3 Low	6 Medium	9 Medium	12 High	15 Very high
		2	2 Very low	4 Low	6 Medium	8 Medium	10 High
		1	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/dcdfiles/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