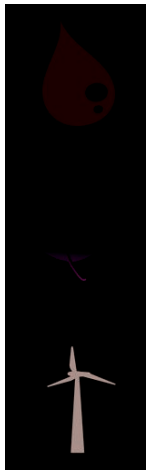


Exploring Asset Management: Key Concepts and Resources (e.g. CUPSS)

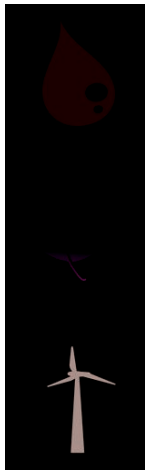
June, 2011
Troy, NY



Environmental Finance Center

- EPA Region 2: New York, New Jersey, Puerto Rico and US Virgin Islands
- Two offices: Syracuse, New York City
- What we do...





Presentation Overview

- What's the big idea?
- What is Asset Management
- Liquid Assets
- Asset Management Tools
 - Check Up Program for Small Systems (CUPSS)

“You cannot have a first rate community
with a third rate infrastructure.”

Steve Allbee, EPA

Water and Sewer System Numbers



- 850 billion gallons of untreated wastewater discharged annually
- 32 years average useful life of water treatment equipment
- \$390 billion to replace and build new wastewater systems over next 20 years



The Cost of Aging Infrastructure

- “State and federal studies indicate that thousands of water and sewer systems may be too old to function properly. “
- “People pay more for their cell phones and cable television than for water. You can go a day without a phone or TV, you can’t go a day without water.”



Sustainability:

“Meeting present needs without compromising the ability of future generations to meet their needs”

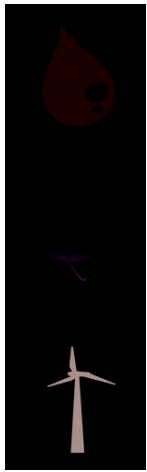
- Brundtland Report

Local government decisions impact sustainability of the community

Liquid Assets Video

- Has anyone seen this video?
- Use as an educational **tool**
- Increase public **awareness**
- Find it at: <http://liquidassets.psu.edu/>





What is Asset Management?

EPA definition:

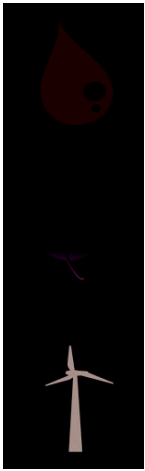
“Asset management is a process for maintaining a desired level of customer service at the best appropriate cost.”

“A planning process to ensure maximum value from each asset and the financial resources to rehabilitate and replace it when necessary”

Long term *Sustainability*

Desired Level of Service = What utilities want their assets to provide

Best Appropriate Cost = Lowest lifecycle cost (total cost of system)



Why Manage Assets?

Remember Aging Infrastructure



NYC pipe explosion, July 2007
Credit: Elio Tania, Getty Images

NYC pipe explosion, July 2007
Credit: Robert D'Amico, New York Times

Identifying Areas of Improvement



Leaking reservoir wall

Credit: Rural Community Assistance Corporation



Spring Box with open access

Credit: Rural Community Assistance Corporation



Wellhead that needs to be replaced

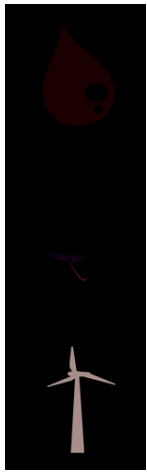
Credit: Rural Community Assistance Corporation



Why do we care? Funding Incentives

- NYSEFC:
 - CWSRF → Talking about incorporating into their scoring system to be qualified for funding
 - GPR-GIGP Listed in evaluation criteria
- USDA-RD → Lookin good!

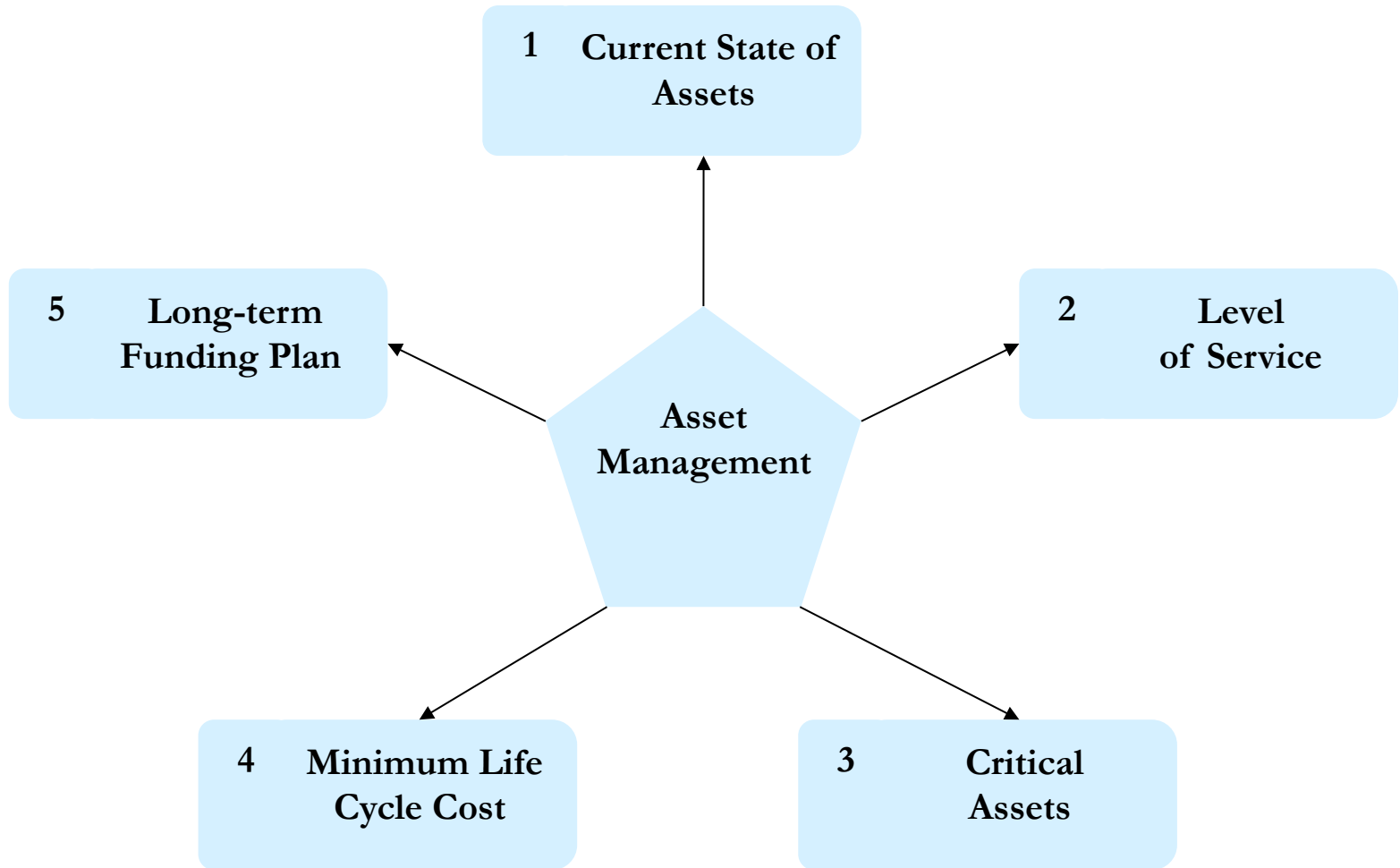




Five Core Questions

- Current State Of The Utility's Assets?
- Required Sustained Level Of Service?
- Critical To Sustained Performance?
- Best "Minimum Life-Cycle-Cost" CIP And O&M Strategies?
- Best Long-term Financing Strategy?

Asset Management Core Questions



Check Up Program for Small Systems (CUPSS)

What is CUPSS?

- CUPSS is a free, easy-to-use, AM 101 tool for small DW and WW utilities (< 3,300 persons) and medium-sized systems new to asset management.
- Input data (track inventory, tasks, and finances) to:
 - Manage Assets
 - DW/WW Asset report and financial report
 - Develop a personalized AM plan!

How can I get a copy of CUPSS?

- CUPSS is available as a free download from the EPA website.
- Alternatively, you can order a copy of the CUPSS application on CD by contacting the National Service Center for Environmental Publications (NSCEP).
- For more information on obtaining CUPSS, see epa.gov/cupss



CUPSS - Continued

How can CUPSS Help?

- Communicate effectively with decision makers!
- Decisions will be predictive, not reactive!
- Ensure funds are spent in the most appropriate manner!



Small system wellhead with hydro tank
Credit: Rural Community Assistance Corporation

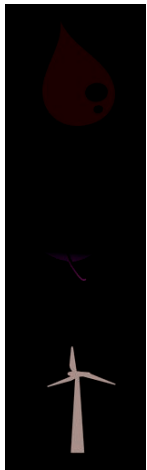
00
set



Think about the Asset Management Plan

Setting up CUPSS is the first step toward generating a customized asset management plan. This set up process allows a utility to identify key tasks and team members to keep the utility on track.





Assemble Your Team

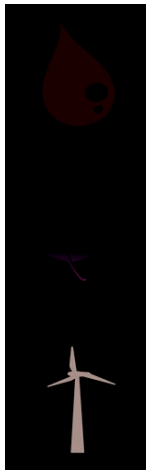
Your team may include the following people:

Benefits to My Utility

CUPSS can help you save your team member contacts in one easy to find place. These team members will later help you prepare and implement your Asset Management Plan.

- Water system operators
- Engineers
- Local and elected officials
- Accounting staff
- Information technology staff
- Treasurer
- Other infrastructure managers and staff from other utilities
- Representatives from environmental groups
- Representatives from neighboring water districts
- Members of the community
- And anyone else you work with in your day-to-day operations.





Get Started Using CUPSS

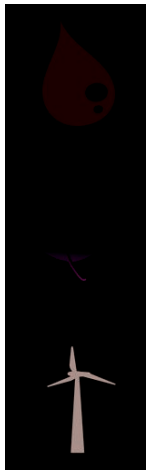
There are five steps in the Getting Started module:



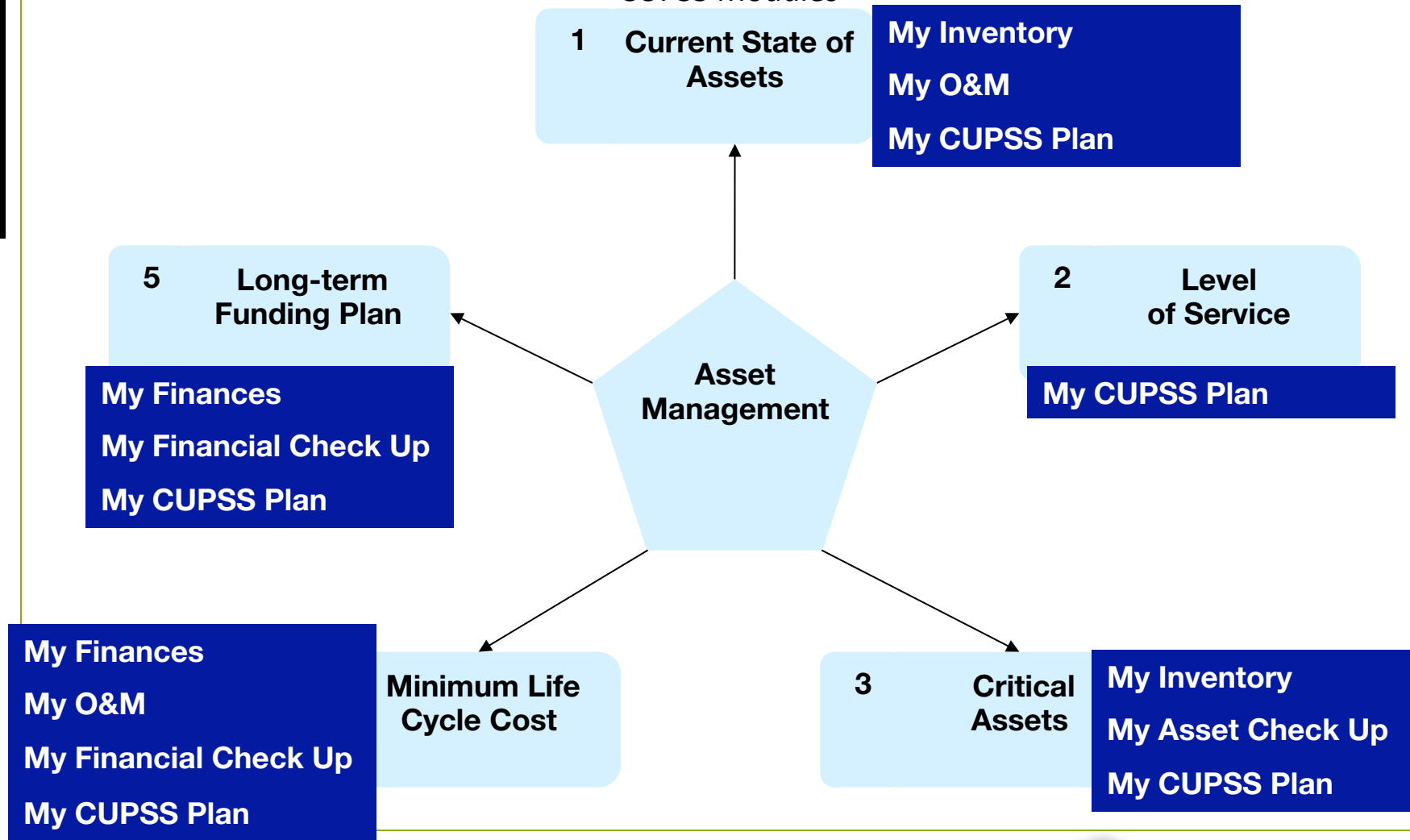
1. Enter utility information
2. Enter user information
3. Schedule operations and maintenance tasks
4. Enter information about your project team
5. Review and save data

CUPSS User's Guide – Section 3





Asset Management Core Questions
CUPSS Modules



Show me CUPSS!



CUPSS Homepage

Welcome Back Helen, Beauty View Acres Subdivision - DW

What would you like to do today?

- Do Some Training
- Create or Update My
- Create or Update My
- Print My Check Up Report

Task Notification

Right Click on Items to Edit

Task Name	Task Due Date	Task Status
Check and record chlorine c...	4/15/2008	TODAY'S TASK
Check and record water lev...	4/15/2008	TODAY'S TASK
Check instrumentation for p...	4/15/2008	TODAY'S TASK
Check water meter reading...	4/15/2008	TODAY'S TASK
Complete a daily security ch...	4/15/2008	TODAY'S TASK
Inspect heater operation d...	4/15/2008	TODAY'S TASK
Inspect well pumps, motors...	4/15/2008	TODAY'S TASK
Investigate customer compl...	4/15/2008	TODAY'S TASK
Check and record chlorine c...	4/14/2008	PAST DUE TASK
Check and record water lev...	4/14/2008	PAST DUE TASK
Check instrumentation for p...	4/14/2008	PAST DUE TASK

Click

My Calendar

April 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					4	5
					11	12
				18	19	
				25	26	
	2	3				
	9	10				

To Turn Off

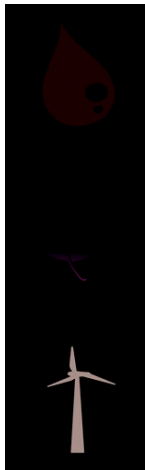
Number of High Risk Assets: 2

CUPSS User's Guide – Section 4

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Navigate Through CUPSS



Navigation Area

Activity Windows

CUPSS User's Guide – Section 4

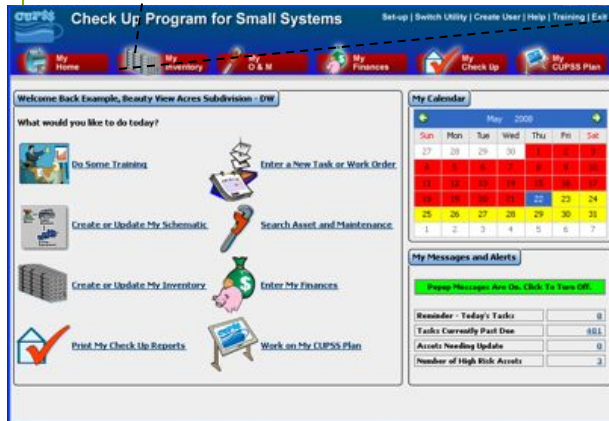


Navigation Area

Administration Menu



CUPSS Module Buttons



Activity Windows

Main Window

My Calendar Window

Welcome Back Helen, Beauty View Acres Subdivision - (DW)

What would you like to do today?

The Main Window displays a central area with icons and links for various tasks: 'Do Some Training' (person at computer), 'Create or Update My Schematic' (schematic diagram), 'Create or Update My Inventory' (stack of boxes), 'Print My Check Up Reports' (house with checkmark), 'Enter a New Task or Work Order' (notepad and pencil), 'Search Asset and Maintenance' (wrench), 'Enter My Finances' (piggy bank and money bag), and 'Work on My CUPSS Plan' (computer monitor).

My Calendar

April 2000

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

My Messages and Alerts

Popup Messages Are On. Click To Turn Off.

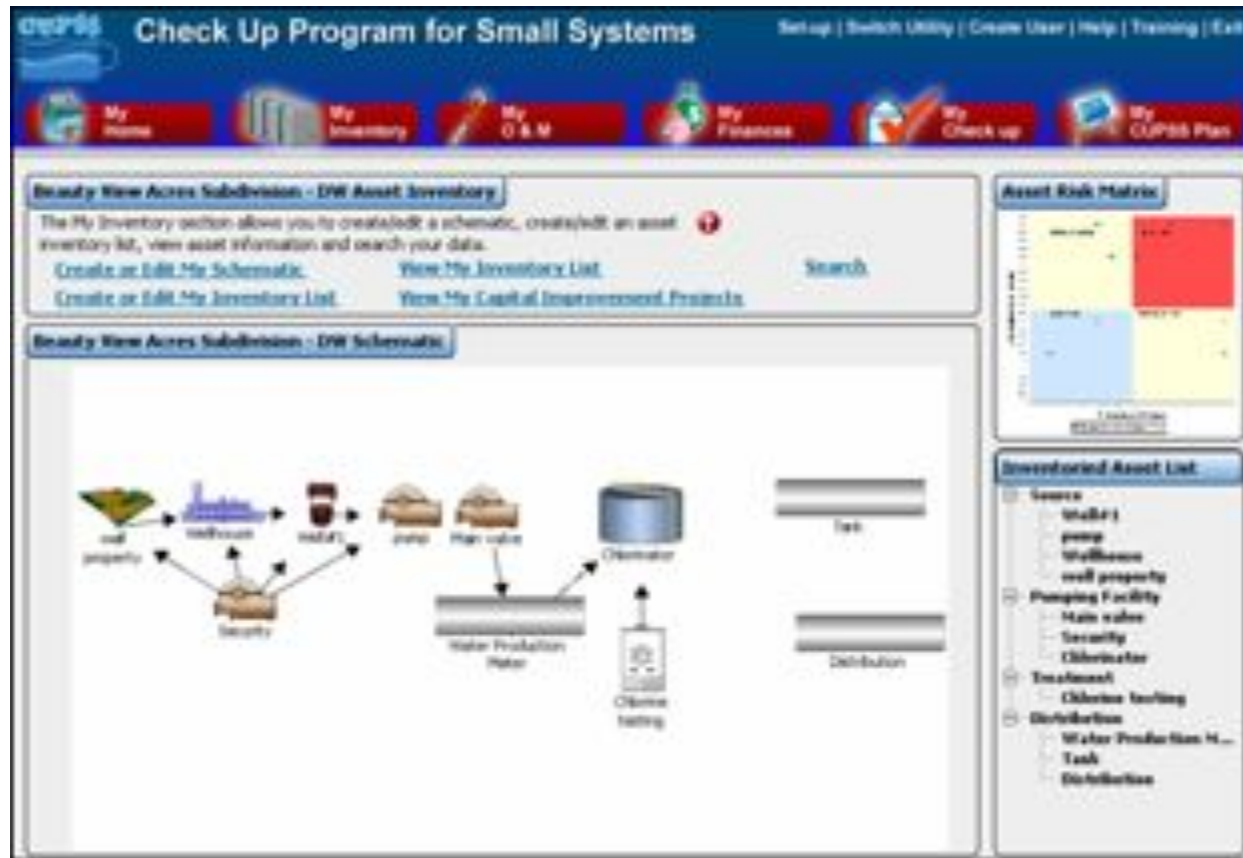
Reminder - Today's Tasks	0
Tasks Currently Past Due	160
Assets Needing Update	0
Number of High Risk Assets	2

My Messages and Alerts Window

CUPSS User's Guide – Section 4

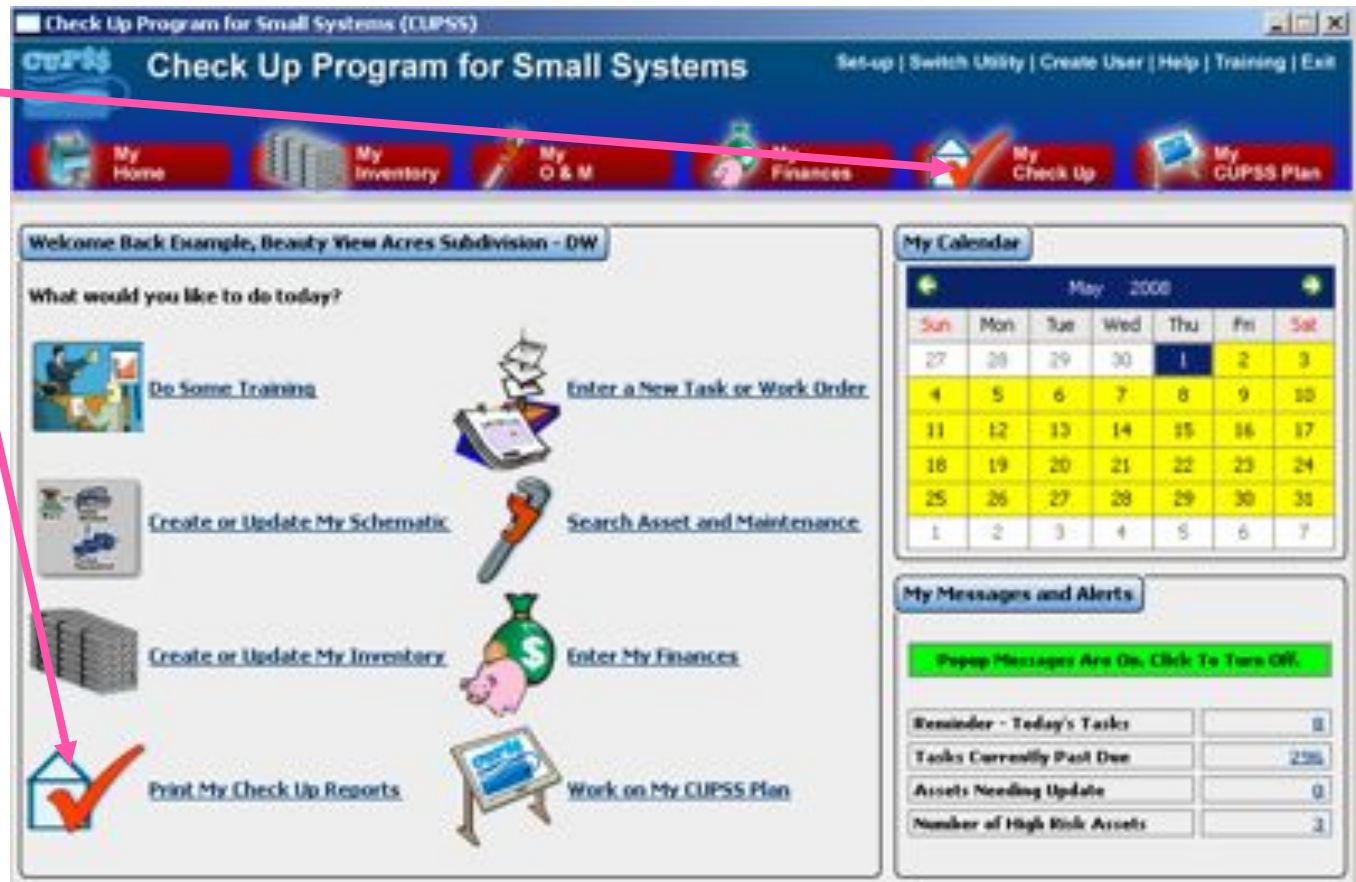


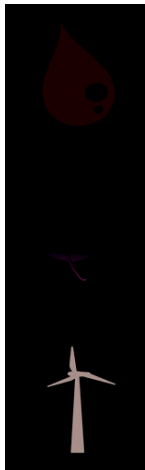
My Inventory Home



CUPSS User's Guide – Section 5

Navigate to My Asset Check Up





Task Form

Task

* Task Name:

* Task Type:

Task Details/notes:

Cost of the Task:

* Staff Name:

- Asset Information - Asset Associated Tasks Only

Select Existing Asset:

OR

Asset Category:

Asset Type:

- Monitoring or Chemical Added

Chemical:

Amount:

Chemical	Amount
----------	--------

- Schedule

* Task Start/End Date: -

Completion Date: ☒ Pop-up Reminder

Frequency:

* Recurrence End Date:

* Select Recurrence

☐ Every day(s)

☐ Every week(s) on

☐ Day of every month(s)

☐ The Select Day every month(s)

☐ Every month

☐ The Select Day of

Optional Parts Information

Manufacturer/Supplier:

OR

Parts Name:

Parts Number:

Parts Cost:

Labor Maint Cost:

Man/Sup	Name	Number	Cost	Labor
---------	------	--------	------	-------

Task

Asset Information

Monitoring or
Chemical Added

Schedule

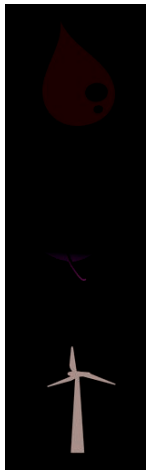
Optional Parts
Information



Benefits to My Utility

CUPSS allows you to complete and print your work orders. By keeping all of your work orders in one place you can track all tasks through completion easily and quickly.





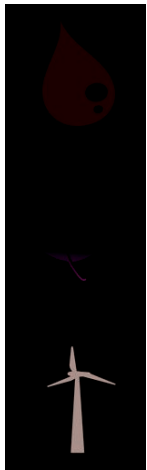
Using CUPSS to Manage My Finances



My Finances:

- How to track annual revenues and expenses
- How to plan for the future by looking at the utility's past financial history

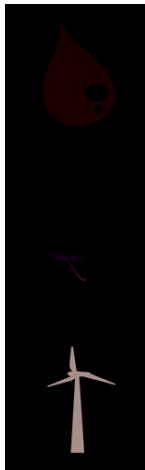
CUPSS User's Guide – Section 7



Why Manage Finances?



- See where the utility's money is going
- Identify the utility's priorities for this year and what can wait
- Determine the full costs of doing business



Navigate to My Finances

Check Up Program for Small Systems (CUPSS)

Set-up | Switch Utility | Create User | Help | Training | Exit

My Home | My Inventory | My O & M | **My Finances** | My Check Up | My CUPSS Plan

Welcome Back, Example, Beauty View Acres Subdivision - DW

What would you like to do today?

- Do Some Training
- Create or Update My Schematic
- Create or Update My Inventory
- Print My Check Up Reports
- Enter a New Task or Work Order
- Search Asset and Maintenance
- Enter My Finances**
- Work on My CUPSS Plan

My Calendar

May 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

My Messages and Alerts

Pop-up Messages Are On. Click To Turn Off.

Reminder - Today's Tasks	11
Tasks Currently Past Due	25%
Assets Needing Update	0
Number of High Risk Assets	3

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My Check Up Page



CUPSS User's Guide – Section 8

Generate My Financial Check Up Report



Financial Check Up Report

Prepared for:

BEAUTY VIEW ACRES SUBDIVISION - DW
GRAY SUMMIT, MISSOURI

Prepared by:

EXAMPLE USER
FACILITY MANAGER

Prepared using:



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Who Is Responsible for Creating the Plan?

Everyone:

- Operators
- Engineers
- Town Leadership (Board, Supervisor, Mayor, etc.)
- Constituents

Hint:

Once you have identified the steps to creating an AM plan, break up the work early

E.g. have all employees commit to 2 hours a week to completing the inventory

Step 1: Utility Profile

Beauty View Acres Subdivision - DW Utility Profile

1. UTILITY PROFILE

2. MISSION AND LOS AGREEMENT

3. CRITICAL ASSETS

4. O&M STRATEGY

5. CIP

6. FINANCIAL MANAGEMENT STRATEGY

7. FINALIZE PLAN

1.0 Introduction

This Asset Management Plan is for the Beauty View Acres Subdivision - DW and describes how the utility(ies) will manage the infrastructure assets. Customer service demands and regulations require drinking water and/or wastewater assets to be actively managed through careful maintenance, repair and replacement decisions. This plan is an effective tool for combining technical, management and financial practices to ensure that the level of service required by the community is provided at the appropriate cost.

The plan has the following purposes:

2.0 Utility Overview

The Beauty View Acres Subdivision - DW consists of Source, Pumping Facility, Treatment, Storage, Distribution, Other assets serving [insert community names]. The utility delivers [xxx] million gallons per day of water to 33 of connections. The utility [is/is not] interconnected or shared with other drinking utilities. [if interconnected, indicate name of utilities interconnected with, points of interconnection, average and peak flows, and legal arrangements]. Maps of the utility are maintained by the utility at [insert location].

The following is a breakdown of customer categories:

Figure 1.1. Beauty View Acres Subdivision - DW Utility Schematic

2.1 Asset Management Team

Management Plan: for example, the training coordinator and town mayor are involved with this or other projects, the asset management team is responsible for coordinating such involvement in the developing and implementing this plan. More specific roles and responsibilities are listed in Table 2-1 and Table 2-2.

The following describes the role and responsibilities of each asset management team member listed in Table 2-1 and Table 2-2:

1. [Enter Team Member - Responsibility]

Table 2.1. Beauty View Acres Subdivision - DW Asset Management Team

Name	Title/Organization	Role
Helen Howard	Treasure/Secretary/Beauty View Acres Landowners Assn	Board Member
Robert Dunlevy	Environmental Engineer/USEPA	EPA Contact
Steve Wyatt	Engineer/Missouri Department of Natural	State Contact
Dan Daugherty	Water Specialist/Missouri Department of Natural Resources	State Contact
John Headland	Administrator/Missouri Rural Water Association	Technical Assistance Provider

<< Previous

Save and Generate Plan

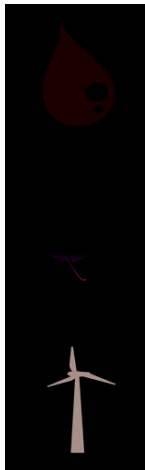
Save and Continue >>

Introduction

Utility
Overview

Asset
Management
Team





Step 2: Mission and LOS Agreement

Beauty View Acres Subdivision - DW Mission and LOS Agreement

1. UTILITY PROFILE **2. MISSION AND LOS AGREEMENT** 3. CRITICAL ASSETS 4. O&M STRATEGY 5. CIP 6. FINANCIAL MANAGEMENT STRATEGY 7. FINALIZE PLAN

3.0 Mission Statement ⓘ

The mission statement defines the goals of the Beauty View Acres Subdivision - DW and is the guide for level of service agreements discussed in the next section. The Beauty View Acres Subdivision - DW mission statement is as follows:
We commit to improving the performance of our drinking water/wastewater plant and distribution/collection utility assets, while minimizing the long-term cost of operating those assets. We strive to make the most cost-effective renewal and replacement investments and provide the highest-quality customer service possible.

4.0 Level of Service Agreement ⓘ

The goal of the Beauty View Acres Subdivision - DW is to deliver safe water by providing services that meet or exceed customer expectations and comply with federal regulations. The level of service describes the characteristics of utility's performance such as "how much," "of what nature," and "how frequently" about the service. The utility's progress toward meeting those goals will be reported [time interval]. The levels of service determine the amount of funding that is required to maintain, renew and upgrade the water infrastructure to provide the customers with the levels of service specified. Changes to the levels of service will have an impact on funding requirements.

Achieved:

Table 4.1. Level Of Service Goals Add another LOS Goal

Mission Statement

Level of Service Agreement

Level of Service Goals Achieved

4.1 System Growth ⓘ

[Town name] [expects/does not expect] customer growth [of X% or number] over the next [number] years. [if growth to utility expansion is expected, the town management is to add the information here] Therefore, the utility(ies) [discuss what the growth or future utility requirements will be refer to CIP and Finance Strategy for information].

<< Previous Save and Generate Plan Save and Continue >>

System Growth

Step 3: Critical Assets

Beauty View Acres Subdivision - DW Critical Assets

1. UTILITY PROFILE

2. MISSION AND LOS AGREEMENT

3. CRITICAL ASSETS

4. O&M STRATEGY

5. CIP

6. FINANCIAL MANAGEMENT STRATEGY

7. FINALIZE PLAN

5.0 Critical Assets ?

Some assets are more important than others in making sure that customers receive safe drinking water and/or making sure that wastewater is treated effectively. Therefore, the utility(ies) used the CUPSS software (developed by the U.S. Environmental Protection Agency) to identify and prioritize critical assets and to improve practices used for routine operation and maintenance. This process includes reviewing all assets and recording the conditions (likelihood of failure), criticality to the utility (consequence of failure) and redundancy (the number of back-up assets to help support each asset) of each. This will ensure that the utility(ies) delivers the level of service described in the previous section. The Beauty View Acres Subdivision - DW asset management team [has completed / is in the process of completing] the critical asset assessment.

Table 5-1 and 5-2 lists assets critical to maintain the performance of the utility. [Refer to the My Check-up Asset Inventory Report for additional information on assets.]

Table 5.1. Beauty View Acres Subdivision - DW Critical Asset Inventory

Asset	Asset Type	Condition	CoF	Risk	Replacement Date
Well#1	Wells and Springs	Poor	Catastrophic	High Risk – Immediate Attention	2008-02-01
pump	Pumping Equipment	Fair (Average)	Catastrophic	High Risk – Immediate Attention	2011-02-01
Main valve	Pumping Equipment	Fair (Average)	Major	Medium Risk – Aggressive Monitoring	2008-02-01
Wellhouse	Buildings	Good	Minor	Medium Risk – Aggressive Monitoring	2008-02-01
Security	Pumping Equipment	Good	Minor	Medium Risk – Aggressive Monitoring	2008-02-01
Distribution	Distribution Pipes	Good	Major	Medium Risk – Aggressive Monitoring	2032-02-01
Tank	Distribution Pipes	Fair (Average)	Catastrophic	Medium Risk – Aggressive Monitoring	2035-02-01

<< Previous

Save and Generate Plan

Save and Continue >>

Step 4: O&M Strategy

Beauty View Acres Subdivision - DW O&M Strategy

1. UTILITY PROFILE

2. MISSION AND LOS AGREEMENT

3. CRITICAL ASSETS

4. O&M STRATEGY

5. CIP

6. FINANCIAL MANAGEMENT STRATEGY

7. FINALIZE PLAN

6.0 Operation and Maintenance

O&M consists of routine, preventive and emergency/reactive maintenance. In this section, the strategy for O&M varies by the asset, criticality, condition and operating history. The risk matrix in My Check-up Asset Inventory Report provides the utility(ies) assets and identifies the risk value for each asset. This risk matrix and section 5.0 of this document were used as the basis for establishing the maintenance program as a way to make sure that the utility(ies) address the highest risk assets. In addition, the maintenance program addresses the level of service performance objectives to ensure that the utility is running at a level acceptable to the customer.

Unexpected incidents could require changing the maintenance schedule for some assets. This is because corrective action must be taken in response to unexpected incidents, including those found during routine inspections and O&M activities. Utility staff will record condition assessments when maintenance is performed, at established intervals, or during scheduled inspections. Assets rated at the top of the priority ranking are presented below with the maintenance strategies. As an asset is repaired or replaced, its condition will improve and therefore can reduce the overall risk of the asset failing. The maintenance strategy will be revisited every [Enter Frequency].

6.1 Operation and Maintenance Strategy

Routine maintenance

Routine maintenance is the day-to-day work necessary to keep assets operating properly, which includes the following:

1. Regular and ongoing annual tasks necessary to keep the assets at their required service level;
2. Day-to-day and/or general up-keep designed to keep the assets operating at the required levels of service;
3. Tasks that provide for the normal care and attention of the asset including repairs and minor replacements;
4. [Complete routine maintenance tasks here as bullet summary points, describe your methods and rationale for the methods]

Preventive Maintenance

Preventive maintenance is carried out because of a planned maintenance program (such as regularly scheduled asset repairs) and historically problematic operations (such as blockages and root infestation).

1. [Complete preventive maintenance tasks here as bullet summary points, describe your methods and rationale for the methods]

<< Previous

Save and Generate Plan

Save and Continue >>

Step 5 – Capital Improvement Plan (CIP)

Beauty View Acres Subdivision - DW CIP

1. UTILITY PROFILE 2. MISSION AND LOS AGREEMENT 3. CRITICAL ASSETS 4. O&M STRATEGY **5. CIP** 6. FINANCIAL MANAGEMENT STRATEGY 7. FINALIZE PLAN

7.0 Capital Improvement Program ?

The Beauty View Acres Subdivision - DW capital improvement program (CIP) plan is the description of future capital projects. Capital improvement projects generally create a new asset that previously did not exist or they upgrade and improve an existing capacity. These projects can result from growth or environmental needs, such as the following:

1. Expenditure that purchases or creates a new asset or in any way improves an asset beyond its original design capacity
2. Upgrades that increase the capacity of the asset
3. Construction designed to produce an improvement in the standard operation of the asset beyond its present capacity
4. [Enter Additional Criteria]

In addition to capital improvement projects, the utility has reviewed and is establishing a renewal (or rehabilitation) strategy. Renewal expenditure is anything that does not increase the asset's design capacity but restores an existing asset to its original capacity. Any improvement projects that require more than simply restoring an asset to its original capacity are deemed to be a renewal project, such as the following:

Table 7.1. Beauty View Acres Subdivision - DW Capital Improvement Projects

	Cost										
Capital Improvements	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Well#1	80000	-	-	-	-	-	-	-	-	-	-
pump	875	875	875	875	-	-	-	-	-	-	-
Security	400	-	-	-	-	-	-	-	-	-	-
Wellhouse	20000	-	-	-	-	-	-	-	-	-	-
Maintenance	2000	-	-	-	-	-	-	-	-	-	-

<< Previous Save and Generate Plan Save and Continue >>

Benefits of an Asset Management Plan

- Increased knowledge of the location of the assets and which assets are most critical to the utility and which ones aren't
- Greater ability to plan and pay for future repairs and replacements
- Management and financial decisions through efficient and focused operations and maintenance
- Setting rates based on sound operational and financial planning
- Increased acceptance of rates
- Meeting consumer demands and service expectations, as well as regulatory requirements with a focus on system sustainability
- Improving security and safety of assets

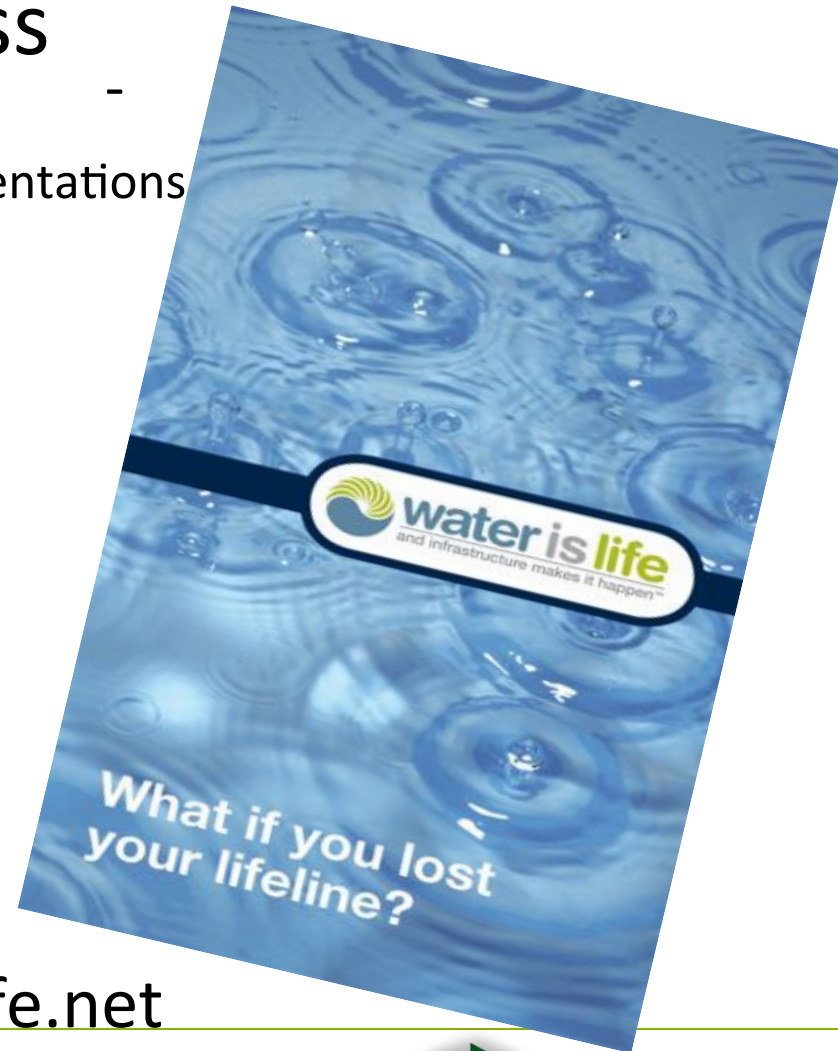


Engaging Your Constituents in the AM Process

WEF's Water Is Life Campaign

- Talking points and PowerPoint presentations
- Media kits
 - Sample press releases
 - Sample opinion articles & editorials
 - Bill stuffers
 - Sample display ads / PSAs
 - Topic brochures
 - Case studies
 - Bookmarks & buttons

"How-to" guide

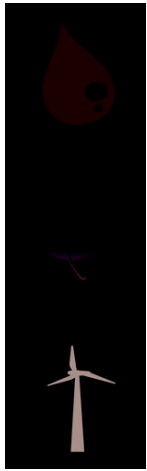


WaterIsLife.net

efc.syracusecoe.org

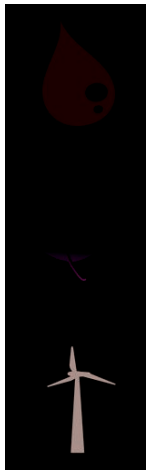


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Asset Management Resources

- [EPA: http://water.epa.gov/infrastructure/drinkingwater/pws/cupss/training.cfm](http://water.epa.gov/infrastructure/drinkingwater/pws/cupss/training.cfm)
- [Water Environment Federation](#): Public education pamphlets, trainings, education and events
- [CUPSS](#): Check Up Program for Small Systems
- [TEAMS](#): Maryland Center for Environmental Training
- [EFC Financial Dashboard](#): A web-based rate-setting tool.
- [NYS Environmental Facilities Corporation](#): Community Assistance Program: Fred.Testa@efc.ny.org
- [NYWEA](#): Trainings, Education and Conference
- [NYS Rural Water](#): Trainings, education and Technical Assistance
- [RCAP](#): Trainings, education and Technical Assistance: Chris Nill, cnill@rcapsolutions.org



Thank You!

Melissa Young
Program Manager
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315-443-8488