

# CUPSS and Us

Getting Started in Asset  
Management Using



Source: <https://www.epa.gov/dwcapacity/resources-cupss-users>

## Prevent this!



*Guatemala Sewer Pipe Explosion, February 2007*

*Credit: Associated Press*

**And this!**



*Leaking reservoir*

*Credit: Rural Community Assistance Corporation*

**Bad Problem** – Not having a backup plan



**Good Solution** – Asset management



## What is Asset Management?

*“A process for maintaining a desired level of customer service at the best appropriate cost.”*



## How Will it Help?

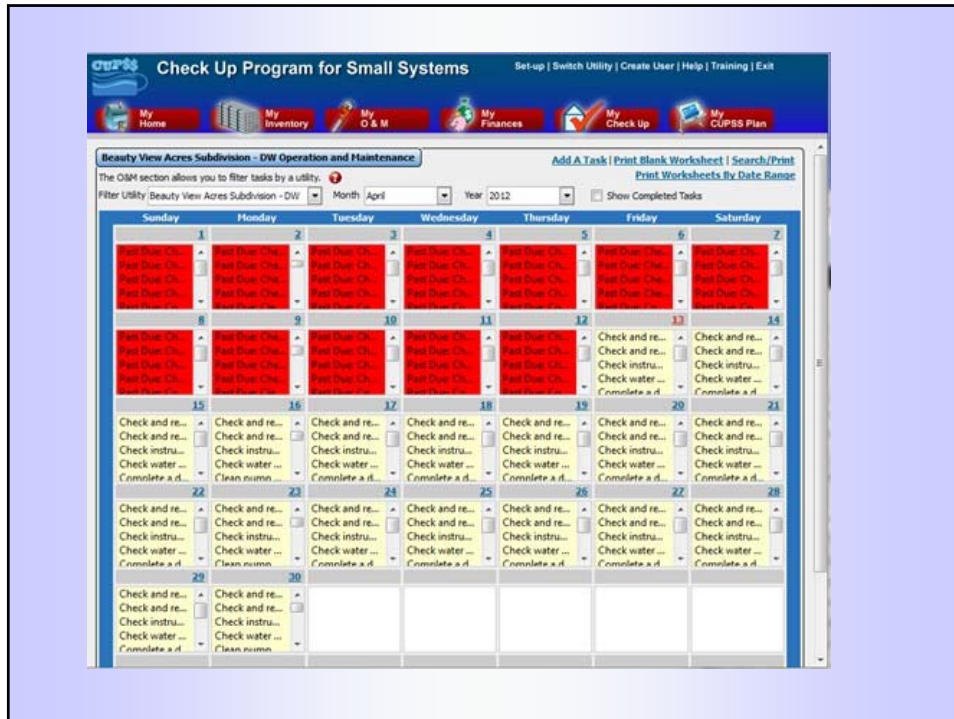
- Asset management has many benefits
  - “Make investment decisions – large and small – based on understanding of life cycle costs and benefits.”
  - “Set Service Levels and make investments needed to meet them – now and into the future.”
  - “Reduce asset risk through capital investments, or changed maintenance practices and response protocols.”

# In Other Words...



Booster station with above ground piping  
Credit: Rural Community Assistance Corporation

- Back up budget talks with solid facts
- Boost utility efficiency
- Save staff time
- Understand that a utility is running a customer service business
- Keep customers happy



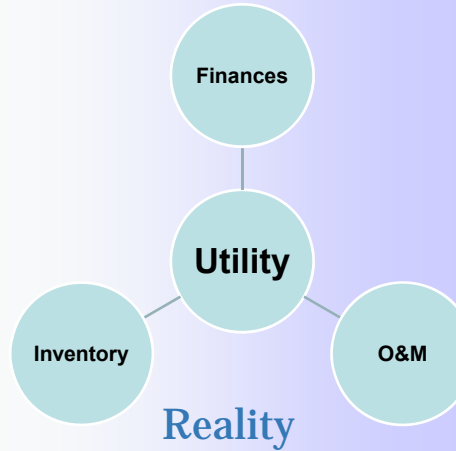
## Other features

- Searchable list of assets in an easy to organize feature (similar to excel pivot table)
- Financial calculator to help manage budget and future costs, as well as unforeseen expenses (i.e. damage from weather event)
- Import/export via excel to merge and manage multiple asset inventories, or to share with others

## Worried that AM is a maze?



Your Fear



Reality

## Check Up Program for Small Systems

- Free, easy-to-use software
- Asset Management 101 for water/wastewater systems
- Prepare an asset management plan in 7 steps



*Credit: City of North Bend, Washington  
WWTP; Sewer Division*

## Why Manage Assets? Remember Aging Infrastructure



NYC pipe explosion, July 2007  
Credit: Mario Tama, Getty Images

NYC pipe explosion, July 2007  
Credit: Robert Stolank, New York Times

## Why Manage Assets? Remember the Condition of Assets



Poorly maintained reservoir  
Credit: Rural Community Assistance Corporation



Rusted iron water pipe  
Credit: Timothy Ford, Montana State University

## Why Manage Assets? Remember Importance of Redundancy

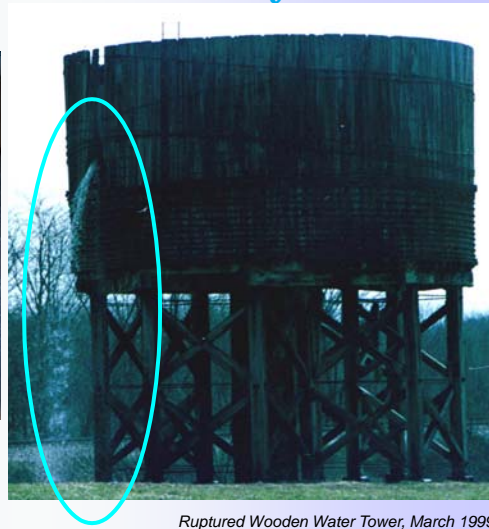


*MN bridge collapse, August 2007  
Credit: Jim Gehrz, Associated Press*

## Why Manage Assets? Remember the Community



*Leaking valve  
Credit: Rural Community Assistance Corporation*



*Ruptured Wooden Water Tower, March 1999  
Credit: Charles Myers, Rolla, MO*



## Why Manage Assets? Remember Surrounding Watersheds



Fuel tank leaking diesel next to wellhead

Credit: Rural Community Assistance Corporation

## Asking the Right Questions

- What is the current *state* of the assets?
- What is the desired “sustainable” *level of service*?
- What assets are *critical* to sustained performance?
- What are the best minimum *life-cycle-costs* and O&M strategies?
- What is the long-term *financing* strategy?



Failed booster pump results in well house flooding

Credit: Rural Community Assistance Corporation

## 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*

## Lessons Learned

### Tracking Fire Hydrants



*Fire at DC's historic Eastern Market*

*Credit: Arthur Delaney, Washington City Paper*



*An out of service fire hydrant in DC*

*Credit: Dave Statter, WUSA9 News*

# Lessons Learned

## Hurricane Katrina Response



*Flooding in Louisiana caused by Hurricane Katrina, August 2005*

*Credit: Wikimedia Commons*



*Fallen water tower in Biloxi, Mississippi caused by Hurricane Katrina, August 2005*

*Credit: Andrew Richards*

## Communities Using Asset Management

- Elkhart County, Indiana
  - Unaccounted for water exceeded 40%.
  - Meters were the problem – adding the proper meter in the proper location showed that they didn't have water loss at all.
  - “By incorporating an asset management program the system was able to locate the problem and correct the problem. By incorporating [maintenance] costs into the annual budget, the utility recoups the most value out of its assets and has the financial resources to rehabilitate and replace assets as needed.”

## How can CUPSS Help?

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

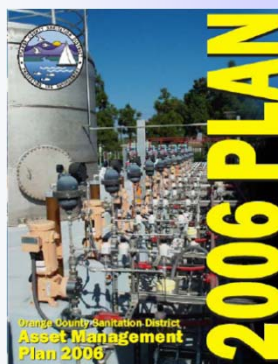


Small system wellhead with hydrotank

Credit: Rural Community Assistance Corporation

## What Will CUPSS Do?

- **Track:**
  - Inventory
  - Tasks
  - Finances
- **Develop a personalized Asset Management Plan!**



**CUPSS Check Up Program for Small Systems** 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

Version 1.3.7 December 22, 2011

EPA U.S. Environmental Protection Agency

**My Calendar**

April 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	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

**My Messages and Alerts**

Popup Messages Are On. Click To Turn Off.

Reminder - Today's Tasks	8
Tasks Currently Past Due	12908
Assets Needing Update	0
Number of High Risk Assets	4

## How Is CUPSS Easy to Use?

- CUPSS is tailored for small systems:
  - Simple interface
  - Less jargon
  - Baby-step approach
  - Features enable easy data entry



Small drinking water treatment plant  
Credit: Village of Forsyth, IL

## How Will We Get Started?

- Organize records
- Form a team
- Reach out to others
- Identify level of service goals



Small wastewater treatment plant

Credit: Rural Community Assistance Corporation

## Support For Users

### CUPSS Supporting Materials

- CUPSS User's Guide
- CUPSS Workbook
- Tutorials/training
- User E-mail List
- CUPSS Web site  
([www.epa.gov/cupss](http://www.epa.gov/cupss))

### Asset Management Supporting Materials

- STEP Guides
- Best Practices Guides
- Web cast training
- AM Web site



## Who is CUPSS For?

- CUPSS is for small drinking water and wastewater utilities that want to:
  - Apply proactive decision making
  - Prevent surprises or worse
  - Establish, reach or maintain Level of Service goals
  - Comply with financial reporting procedures (GASB 34 or FASB) for a good credit rating
  - Implement long range planning



### CUPSS App

- Simplified *data entry* system
- Allows for use of smart phone to enter data, collect GPS location, and take photos of assets.
- Data can be downloaded to PC and then imported into CUPSS



## Contact

[Your CUPSS Contact]

[Phone Number]

[Email Address]

For more information:

[www.epa.gov/cupss](http://www.epa.gov/cupss)

[cupss@epa.gov](mailto:cupss@epa.gov)

## CUPSS Mobile APP

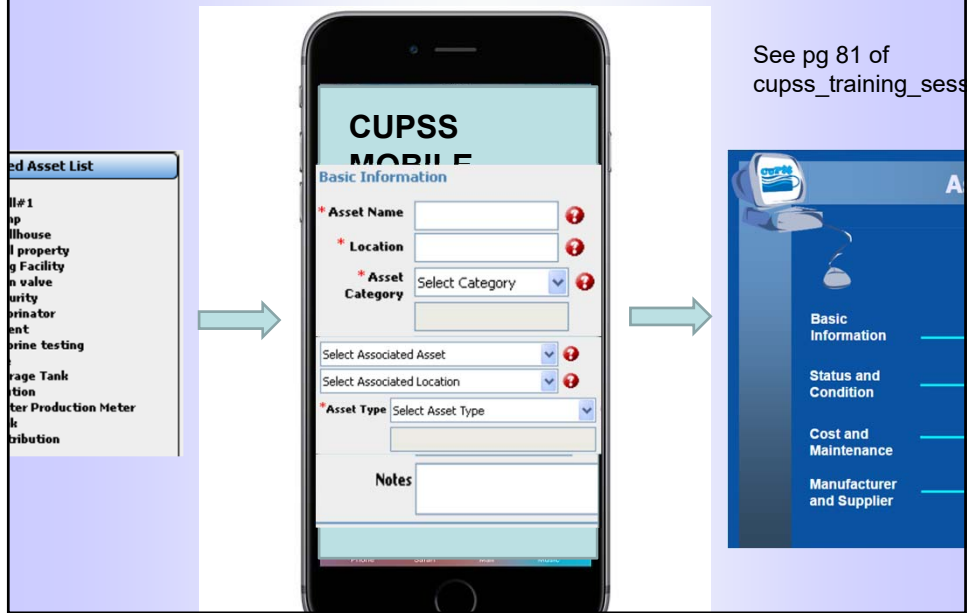
- Developed by



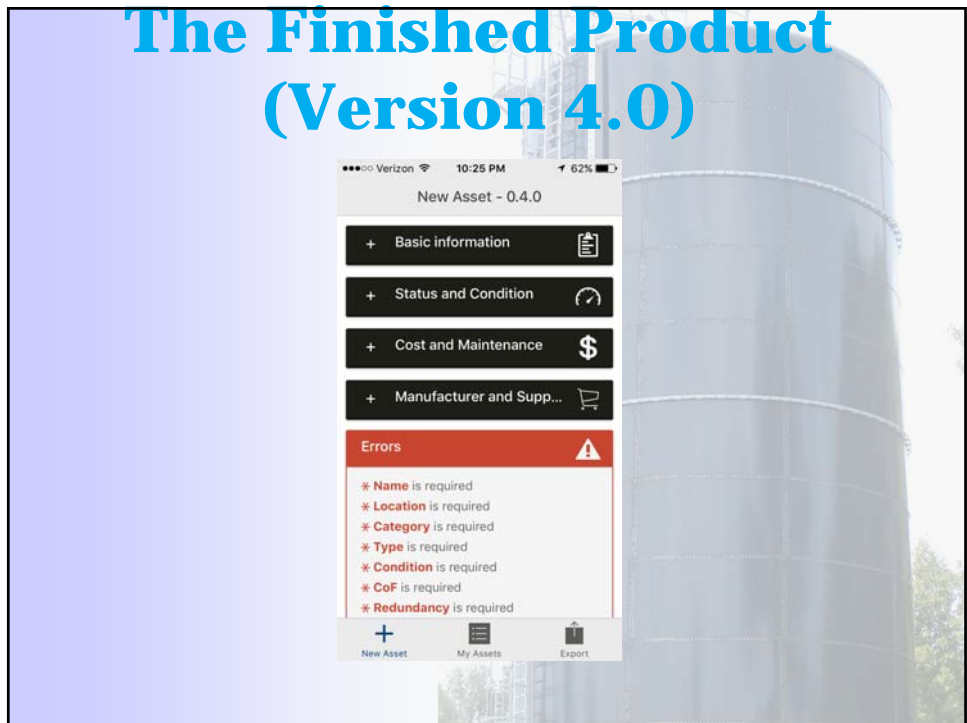
- Utilizes cell phones and tablets to streamline asset management
- User Friendly
- Practical for 2017



# The Concept



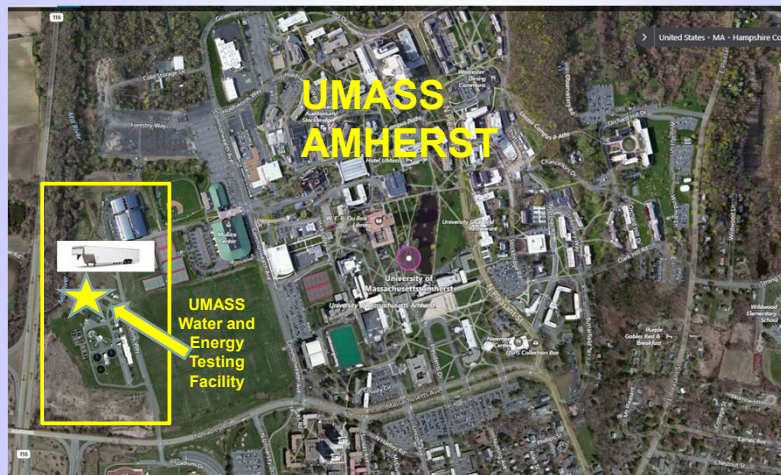
# The Finished Product (Version 4.0)

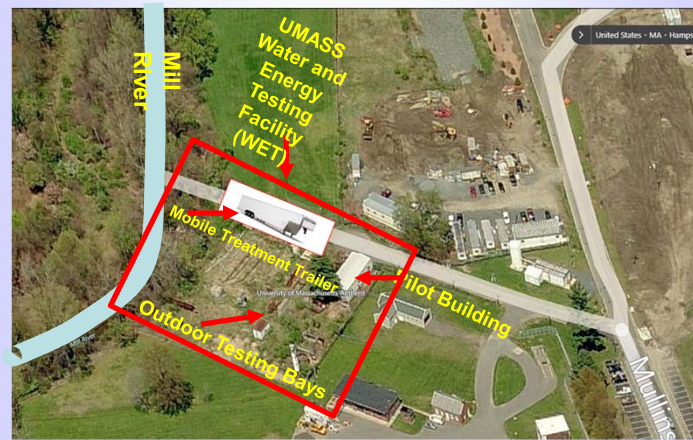


# UMass Case Study Spring, 2017

Independent Study

Performed by undergraduates:  
Robert Acer, Brendan Pickett, Claudia Baptista, & Holly Lancey







1976



2015



2017



2012



2015



2017



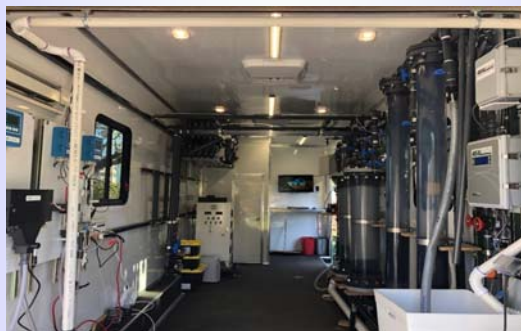
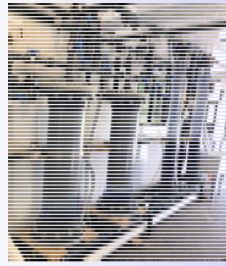
1976



2015



2017



Location	Asset Name
TOA	Gate Valve 1
	Gate Valve 2
	Wastewater Supply Line 1
Pump House	Wastewater Supply Line 2
	Wastewater Supply Line 3
	Pump Manifold 1
	Pump Manifold 2
	Pump Manifold 3
	Drain
	Supply Pump 1
	Supply Pump 2
	Supply Pump 3
	Supply Pump 4
	Distribution Hose 1
	Distribution Hose 2
	Distribution Hose 3
	Distribution Hose 4
	True Union Check Valve
	Distribution Pipes
Pilot Building	Heated Hose
	Pipe Manifold
	True Union Check Valve 2
	Sump Pump
	Waste Holding Tank
Sewer Station	Cast Iron Drain Line
	True Union Check Valve 3
	Final Discharge Line
	Sewer Station Manifold

Table 1- List of Assets

## Results and Improvements

- Three versions of the app tested and improved upon
- Improved user friendliness
  - Streamlined navigation, sensible features added (i.e. copy and paste of assets, home button on each screen)
- Numerous bugs identified and worked out
- Help feature added, this provides instructions for each entry field
- Aesthetics improved greatly
- Ability to add pictures (not available on CUPSS desktop app)