New Conservation Coordinator Training

Utility Operations

Lisa Maddaus, Maddaus Water Management Sue Mosburg, CA-NV AWWA







• Feel free to turn on your camera.

• Stay muted until it is your turn to talk.

• Have a question or comment? Type it into the chat box or wait until it's discussion time to use your microphone!











Agenda



History of BMPs and Purpose of Guides

Overview of the Guides

Tour of Utility Operations Guides



Spotlight: AWWA California Nevada Section

Tips and Tricks

Discussion



From California Urban Water Conservation Council BMPs to CalWEP Implementation Guides





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The Guides





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Inside Utility Ops



Big Picture Viewpoints Lisa Maddaus, P.E. Maddaus Water Management, Inc.

MADDAUS WATER MANAGEMENT

Creating a Plan/Strategy



Home MyCaWEP All Resources Logiout





Renewing to Creating a Water Conversation of Mater Efficiency Park

Types of Local Unity Consertation (or Water Efficiency Plagram Planning

tramber Skample Program

Reasons for Why You Warts to Onune a Plan

State Centernation Planning and Reporting Hedra: Concernation Planning

Oraught Flanting

integrated Water Repurch and Capital Infrastructure Pranting

AVEL Leaderboard for Arrive G480 Standard

Steps for Developing a Plan

Cutiva for Sample Utility Conservation Program Plan

Tools for Developing a Flatt

Quidance and References

Renewing or Creating a Water Conservation or Water Efficiency Plan

Creating a plan provides a inten for your program. Preparing or renewing a plan that is adopted by your governing authority as outlined in toms their Technistery Environment, will lead to securing the funding and, staffing needed to meet local expectations along with applicable local, state and/or federal requirements.

The American Water Works Association manual MS2 Weter Conservation Programs - A Planning Manual has is a robust discussion of the needs and drivers for creating a Water Efficiency or Conservation Program Plan. The chapters within this reference cover everything from why water conservation is important and recruiting public input to setting goals as well as developing and implementing a formal water conservation plan.

A detailed description of additional gardance documents is provided below under Planning Galdance Manuals and Mandbooks.

Types of Local Utility Conservation (or Water Efficiency) Program Planning

Some of the different types of efforts connected to Water Conservation Program planning, are as follows:

- Where Conservation Strongs: Plan outlines conservation program goals and is longer range or contains
 more broad aware saving goals, overall budgets, categories of water use and conservation measures with
 the intent to be adaptive and managed over time. For example, a Strategic Plan outlines the goals and
 measures being pursued with the intent to meet the 2018 "Making Water Conservation a California Way
 of UN" legislation. Usually updated every 3-5 years, a Strategic Plan includes a benefit-cost analysis that
 contains quantifiable water saving compared to costs to implement the conservation measures included
 in the Studegic Plan.
- Itteler Conservation Master Plan outlines concervation program goals, detailed water saving goals.
- budgets, ratiggates of water use and specifics on romansation melesures. A Master Plan includes roteet

Additional features inspire action

Why good leaders make you feel safe 11.0M views

3 questions to ask yourself about everything you do 3.3M views

Why the secret to success is setting the right goals 4.7M views







Start with the "Why"

TED Talk – Simon Sinek – How Leaders Inspire Action: 46 million views https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action?language=en



Common Definitions

Water Efficiency – minimization of water used to accomplish a task

Water Conservation - elimination/minimization of water loss, waste or use



Demand Management – change or reduction in water demand, though not necessarily water savings

Water Productivity – the goods, products, or services produced per unit of water used

Alternative Water Sources (AWS) – rainwater, stormwater, condensate, cooling blowdown

Graywater (domestic/residential) – *onsite* treated or untreated domestic effluent (excluding toilet and some other wastewater) for nonpotable reuse (toilet flushing, landscape irrigation)

Water Reuse (commercial/industrial/institutional) – onsite wastewater that is captured and reused

Reclaimed Water (also "recycled" and "reuse") – *municipal* treated wastewater effluent (nonpotable)

Understand Your Utility



Typical Water Use Profile by Sector

Southern Nevada Water Use by Sector



User Classification System

- Single Family Residential
- Multi-family Residential
- Commercial
- Industrial
- Institutional
- Irrigation



Understanding "The Big Picture Why"





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Features of a Successful Program Appropriate **Budget and Goals Proven Program** Design **Public Process** ୍ 88 Interdisciplinary 88 Quantify gal Team savings per 88 dollars spent. **Clear, Measurable** رگر Documented Goals ÀÀ water savings. Benchmark Implementation against new Stakeholder task **Mandate for** rates. water supply groups, advisors Action project. Investment in Water utility staff Share Pilot and Consultants Look for information, Research. Stakeholders funding and progress updates, Quantifiable Goals Customers cost share. and decision Long-term Vision Innovation CII points with the Cost Code public and media Policy Regulatory **Decision Makers**













AWWA Publications









Overview of the AWWA Manual M52







M52 Water Conservation Programs A Planning Manual



Published

AWWA conservation handbooks

- 1981
- 1986

First Edition

- Published in 2006
- 149 pages

Second Edition

- Published in 2017
- 239 pages

Examples

Provides details on how to:

- Screen conservation measures
- Steps to create a conservation plan

Water Conservation

 Often the quickest and most cost-effective option to meet new demands



Poll Question

Do you have a copy of the AWWA Conservation Planning M52 manual?

- 1. Yes
- 2. No
- 3. Not Sure (maybe my agency does)



Manual M52 Contents

- Chapter 1 Introduction
- Chapter 2 Understanding Conservation and Setting Goals
- Chapter 3 Analysis of Water Use and Water Savings
- Chapter 4 Evaluation of Benefits and Costs
- Chapter 5 Creating a Formal Water Conservation Program Plan
- Chapter 6 Stakeholder Involvement, Rate Setting, and Getting the Plan Adopted
- Chapter 7 Plan Implementation, Managing Revenue Impacts, Evaluating Performance
- Appendix A Case Studies
- Appendix B Stakeholder Approaches
- Appendix C Data Collection



10 Steps to a Conservation Analysis

July 31, 2020



Prepared by:

- 1. Review detailed demand forecast
- 2. Review existing water system profile and descriptions of planned facilities
- 3. Evaluate the effectiveness of existing conservation measures
- 4. Define conservation potential
- 5. Identify conservation measures
- 6. Determine feasible measures
- 7. Perform benefit-cost evaluations
- 8. Select and package conservation measures
- 9. Combine overall estimated savings
- 10. Optimize demand forecasts



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Where can I find the information?

	M52	M60*	M36	M50	M71
10 Change to Develop a Michael Concentration Disc	Conservation		Water	Integrated	Climate
10 Steps to Develop a Water Conservation Plan	Planning	Drought	Loss	Planning	Change
1. Review detailed demand forecast	Ch 3	Step 2		Ch 5	Ch 3, 7
2. Review existing water system profile and descriptions of					Ch 3, 4,
planned facilities	Ch 3	Step 2		Ch 4	7
3. Evaluate the effectiveness of existing conservation					
measures	Ch 3	Step 3	Ch 3, 8		Ch 5, 7
1 Define concernation notential		Steps 2, 3,			
	Ch 3	4			Ch 5, 7
5. Identify conservation measures	Ch 3	Steps 3, 5	Ch 3		Ch 5, 7
6. Determine feasible measures	Ch 3	Steps 3, 5	Ch 6, 7		Ch 5, 7
7. Perform benefit-cost evaluations	Ch 4		Ch 7		Ch 5, 7
8. Select and package conservation measures	Ch 4	Step 5	Ch 7		Ch 5, 7
9. Combine overall estimated savings	Ch 4	Steps 5, 7			Ch 7
10. Optimize demand forecasts	Ch 4	Step 7		Ch 8	Ch 7

*Note: M60 manual is structured as Steps rather than Chapters.



Additional Resources

AWWA Small- and Medium-Sized Utilities Handbook,









published 2010 utilities under 100,000 people

International Water Association



Preparing Urban Water Use Efficiency Plans

A BEST PRACTICE GUIDI

Use Maddaus, William Maddaus and Michelle Maddaus, Maddaus Water Planagement, Inc.



published 2013 25 case studies (metric units)



Poll Question





- 1. Water demand analysis including conservation savings
- 2. Case studies and ideas of conservation measures
- 3. Support for approval of program funding/activities
- 4. Reference for conservation questions/staff training
- 5. I don't have a copy of the manual



Spotlight: AWWA California Nevada Section Sue Mosburg Executive Director



American Water Works Association

- 50,000 members of which over 5,000 are members of the California-Nevada Section
- Almost 45,000 individuals in the Section's database representing over 1,700 organizations
 - Public and private water systems
 - Consulting firms
 - Manufacturers
 - Academia and researcher organizations
 - NGO's & other professional organizations
- Publish Technical References: AWWA Standards and Manuals of Practice, monthly publications, educational videos, whitepapers, Utility Alerts
- Educational Events & Professional Certifications





- Water Loss Control Program
 - AWWA's Water Loss Technical Assistance Program (TAP) Program
- Building a Team with a Conservation Coordinator
 - AWWA's Water Use Efficiency Practitioner Exam



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Inside Water Loss





Poll Question

What would you consider your level of water loss control knowledge?

- What is a water loss audit?
- I'm a beginner I've attended water loss control training in the past 5
 -7 years. I'm still learning terms & acronyms.
- I have a solid understanding of the basics I've compiled water loss audits, and/or interacted with water loss data.
- I'm deep into the details. Compiling the annual water loss audit is simple, it's the data behind the summary data that I collect, analyze and am working to improve



Why Have Water Loss Control Programs?

- Can't Manage What You Don't Measure
 - Careful accounting of where the water goes in a "water balance" approach
 - Water is a Use or a Loss
- International Water Association and American Water Works Association
 - Best Management Practices
 - AWWA M36 Guidebook & associated Free Water Audit Software
- Large volumes of water can be "lost" in pressurized water systems MGD
 - Some larger systems can lose enough water to serve city size populations.
- Non-revenue water can be recovered on the order of \$100,000s to \$ Millions





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The Water Balance

SYSTEM INPUT VOLUME	AUTHORIZED CONSUMPTION	BILLED AUTHORIZED	BILLED METERED CONSUMPTION	REVENUE WATER	
		CONSUMPTION	BILLED UNMETERED CONSUMPTION		
		UNBILLED	UNBILLED METERED CONSUMPTION		
		CONSUMPTION	UNBILLED UNMETERED CONSUMPTION	\$ \$ \$	
	WATER LOSSES	\$ \$ \$ APPARENT LOSSES	CUSTOMER METER INACCURACIES	NONREVENUE WATER	
			UNAUTHORIZED CONSUMPTION	•	
		\$\$\$	DATA HANDLING ERRORS		
		🔶 🛛 REAL L			









- Rules & technical standards (January 2017 ... March 2018)
- State assistance to urban water providers
- Validated water loss audits (October 1, 2017 & annually thereafter) including steps taken to:
 - increase data validity
 - reduce loss volumes
- Audits to be posted to website
- Water loss performance standard by 2020

(formal rulemaking late summer... Fall 2021)





- Rebuild the team to understand who owns what data
- Validate legacy software/calculations (assumptions, metering lag time adjustments, SCADA setpoints)
- Train staff in the water audit methodology & validation methods
- Locate new opportunities to capture data LCA, field data
- Implement meter testing programs
- Consider AMI/AMR & meter rightsizing projects
- Increase metering of own water uses
- Consider pressure management projects, and district metered areas
- Participate in leak detection technology pilot projects
- Engage in State rulemaking and stakeholder processes share your story



- 2020 audits must be submitted to DWR in Version 5 of the Free Water Audit software (compile in V6, then complete V5)
- Must be validated by a CA-NV AWWA Water Audit Validator (WAV) certificate holder (no exceptions)

Per California's Validated Water Loss Audit Reporting Regulations (<u>Title 23, Division 2, Chapter 7 Water Loss Audits and Water Loss</u> <u>Control Reporting</u>): § 638.4. Technical Qualifications for a Water Audit Validator.

- To submit modified input data for the economic model as part of the water loss regulation, guidelines from SWB staff:
 - Suppliers can submit modifications to the economic model default inputs now and through the end of the first 45-day comment period via email (<u>orpp-waterconservation@waterboards.ca.gov</u>). In the email, suppliers should include the modified version of the excel model and any supporting documentation for modified inputs, as available. The questionnaires do not need to be submitted at this time.
 - Suppliers can also submit modifications after the formal rulemaking process from March 1, 2023 to July 1, 2023. However, modifications submitted during this timeframe will be more formally reviewed according to the (TBD) review criteria outlined in the adopted/approved regulation.



Get Involved

Other Water Loss Activities –

DWR holds monthly water loss webcasts CA-NV AWWA Water Loss Committee meets monthly ACWA Water Management Committee/Water Loss CMUA Water Loss Committee Water Research Foundation Projects UC Davis economic model

Formal Rulemaking Advocacy –

Water Loss Collaboration between CalWEP/AWWA/ACWA/CMUA Performance Standards Alternative Compliance Economic Model comments and data modeling



Inside Building a Team with a **Conservation Coordinator**



- Building a Team with a Conservation Coordinator
- Conservation Coordinator Roles and Responsibilities
- Connecting with Internal and External Stakeholders







Assess what you have

The G480 Standard includes the following voluntary requirements:

- •Dedicated staff for conservation initiatives (point of contact)
- Conservation and efficiency planning
- Integrated resources planning
- •Water shortage or drought planning
- •Public information and education program
- •Water waste ordinance
- •Universal metering practices
- Source water metering
- •Nonpromotional water rate structure
- •Monthly or bimonthly billing based on metered use
- •Landscape efficiency program
- •Validated water audit and water loss control program
- •Coordinated building code and land use planning



G480 Water Conservation Standard Checklist Utility Name:

This checklist is intended to help you determine if your utility is meeting the G480 standard. The Requirements column includes a description of the elements of the standard and their relevant section. Review the requirements and provide an explanation in the Documentation column as to how you are meeting the requirement (being specific about source and page numbers may be helpful to you later). Text in **bold** notes verification requirements included in the standard for documents that should be made available to the public to help show how the utility is meeting the standard. Notes on work that still needs to be done before you meet the requirement can be described in the To Do column. Note the date you have met the specific requirement in the Date Completed column.

Section	Requirement	Documentation	To Do	Date Completed
4.1 Regulatory	Requirements			
4.1.1	Demonstrate meet or exceed applicable regulatory requirements for jurisdiction	Note how met.		
4.2 Top Level C	Organizational Functions			
4.2.1 Staff for a	conservation initiatives			
4.2.1	Assign dedicated water conservation coordinator	Provide job description of staff person assigned duties (5.1.1)		
4.2.2 Water co	nservation planning			
	Create, implement, and maintain a water conservation plan	Provide water conservation plan (5.1.2)		
4.2.2	Plan guided by AWWA M52 – AWWA Water Conservation Programs – a Planning Manual or some other guidance	Note guidance informing plan development		
	Plan must:	Note if covered in		- T







Alliance for Water Efficiency AWWA G480 Leaderboard



Source: <u>https://www.allianceforwaterefficiency.org/resources/topic/g480-standard-and-awe-leaderboard</u>



Poll Question

Has your agency assessed your program against the G480?

- 1. Yes
- 2. No
- 3. Not Sure (maybe my agency has)





Dedicated Conservation Staff

- 1. Review regulatory requirements
- 2. Establish job duties and alignment with other positions (e.g., conservation, billing, maintenance and operations, etc.)
- 3. Ensure upper management and Board/Council support
- 4. Develop budget
- 5. Adopt job description
- 6. Recruit and fill position(s)
- 7. Send the contact information to CalWEP and note if primary contact
- 8. Provide training & cross-training with other relevant departments and duties (g., customer service, operations, and legal/policy)
- 9. Seek certification through the Cal-Nevada AWWA Water Efficiency Practitioner





WATER USE EFFICIENCY PRACTITIONER CERTIFICATION PROGRAM

Level 1

Domain / Content Area	% Range
Commercial, Industrial, and Institutional Uses and Measures	5-12%
Landscape Uses and Outdoor Measures	20-28%
Residential Uses and Measures	22-30%
Utility Water Demand Characteristics, Operations, and Measures	12-22%
Water Supply and Demand	18-25%

Level 2

Domain / Content Area	% Range
Commercial, Industrial, and Institutional Uses and Measures	12-20%
Implement Water Conservation	15-22%
Landscape Uses and Outdoor Measures	18-25%
Monitor Water Conservation	10-16%
Water Rates	10-16%
Water Resources Plan	10-20%

Levels 1-3

Included concepts, terms and definitions associated with specific ranges of subjects

Computer based or traditional pencil/scantron



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Tips and Tricks

- Partnerships and collaboration are key
- Start with the assumption someone has created something similar already
- There's value in 'bulking up' (volume discounts and processing efficiencies)
- Connect with internal and external stakeholders early and often
- Water efficiency isn't exclusively an art or a science – but rather a blend
- Embrace the wet/dry cycle (wet years are great for training, planning, analysis and pilots) to keep momentum and support needed to survive the dry years)











AWWA is here to support you

Upcoming Water Loss Training –

View a complete schedule of upcoming course & workshops at: <u>www.ca-nv-awwa.org/schedule</u>

- Audit Software V6 Water Loss Auditing 101
- From Audit to Target: Essentials of Real Loss Reduction (includes State's Economic Model)
- Leakage Component Analysis
- Water Loss Program element
 - Leak Detection
 - Meter Testing
 - Pressure Monitoring & Management
 - AMI Technology Software

Water Audit Validator (WAV)

All WAV certificates due to expire in 2021 have been automatically extended through 2022.

- WRF project 5057 Level 1 Water Audit Validation Guidance Manual v2
- WAV V6 training summer 2021

Water Use Efficiency Practitioner

Water Use Efficiency 8/3-5/2021 (12 hours)





Virtual Event Partnership for Safe Water 25th Anniversary Optimization Conference July 27-29, 2021



Virtual Event <u>Water Education Seminar</u> August 18, 2021



Virtual Event – accepting abstracts Annual Fall Conference October 18-21, 2021



https://www.awwa.org/Events-Education/Water-Loss

American Water Works Association California-Nevada Section







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Engaging with the Implementation Guides

Adding your example programs and asking questions



Implementation Guides Tips and Tricks!

Easy navigation

Leave a comment







These guides are living documents; we're constantly updating them!







- Does your agency currently have a well-defined Plan/Strategy? Would you
 post it on this website welcome to post an online link in the chat
- 2. How has your water loss control program changed over time?
- 3. What planning of conservation programs have your agency done successfully?
- 4. Any conservation program activities that your agency is struggling with?
- 5. Are there any pilot programs your agency is looking to launch?
- 6. How are you looking to innovate your program?
- 7. What else would you like to see in the Utility Operations Implementation Guide?









Even More Poll Questions!

- 1. As a conservation coordinator, where would you like to expand your training/knowledge?
 - Utility operations
 - Residential programs
 - Landscape programs
 - Education and Outreach
 - Commercial programs





Even More Poll Questions!

- 2. How would you like any future trainings be conducted?
 - All day training, touching on all topics
 - Half day training, touching on all topics
 - Recorded case study spotlights (utility examples by topic)
 - Short video online training
 - Half day training on individual topics







Thank You!

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