



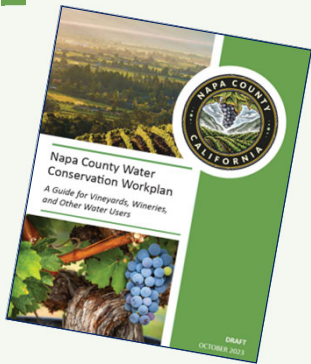
Water Conservation and Groundwater Pumping Reduction Workplans

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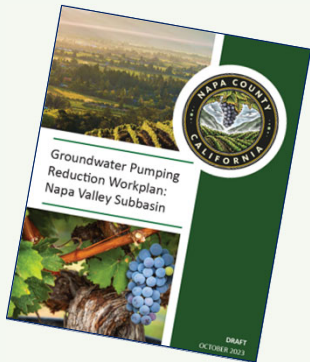


GSP Project and Management Actions



GSP Management Action 1:

Resource for stakeholders to learn about, consider, and expand upon voluntary water conservation measures.



GSP Management Action 2:

- GSP Advisory Committee approved a reduction of groundwater pumping by 10% of historical average.
- Efforts to initiate a reduction in pumping would begin following NCGSA adoption of the GSP (January 11th, 2022).
- The 10% reduction of historical pumping is applied to the Subbasin as a whole, not individual parcels.

Water Conservation (WC) Workplan

“What water conservation options are available for Napa Subbasin water users?”

Designed as a resource for stakeholders to learn about, consider, and expand upon voluntary water conservation measures, including:

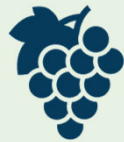
- Background information
- Water conservation practices
- Financial assistance programs
- Training and education
- Engagement opportunities

WC Workplan: Conservation Practices



All Users

- Measurement
- Recycled water
- Benchmarking



Vineyards & Agriculture

- Irrigation system efficiency
- Distribution uniformity
- Plant water and soil moisture monitoring
- Soil management
- Canopy management
- Row orientation
- Rootstock selection



Wineries

- Barrel sanitation
- Processing winery wastewater and reuse
- Turf removal
- Drought-tolerant and native landscaping



Municipal & Residential

- Efficient appliances
- Checking for leaks
- Turf removal
- Drought-tolerant and native landscaping

Groundwater Pumping Reduction (GPR) Workplan

“How do we measure and achieve groundwater conservation in the Subbasin?”

Develops a suite of voluntary programs that cost-effectively result in Subbasin benefits.

Developed based on the following guiding framework:

- Expand on voluntary actions that achieve groundwater benefits for the Subbasin
- Assess the costs and benefits of actions and focus on those that are most cost-effective
- Leverage existing programs and opportunities to generate value from voluntary actions
- Consider new water use data and groundwater and surface water conditions and incorporate into an adaptive management framework

GPR Workplan: Overview



Voluntary Approaches to Reduce Pumping

- Measurement
- Technology & best management practices
- Education & training
- Certification programs
- Benchmarking
- Other practices



Subbasin Use Benchmarking and Tracking

- Remote sensing, metering
- Well permitting
- Groundwater trends



Communications and Engagement

- Outreach and engagement
- Technical Advisory Group
- Education and resources



Steps for Implementation

- Assess effectiveness
- Outline adaptive management
- Consider mandatory measure options

Interviews & Outreach

- California Department of Fish & Wildlife
- California Sustainable Winegrowing Alliance
- Fish Friendly Farming
- Napa County Farm Bureau
- Napa County Resource Conservation District
- Napa County Flood Control District
- Napa County University of California Cooperative Extension
- Napa Green
- Napa Valley Grapegrowers Association
- Napa Valley Vintners Association
- National Marine Fisheries Service
- Save Napa Valley Foundation
- SIP Certified
- University of California Davis – Center for Watershed Sciences
- University of California Berkeley Extension
- Winegrowers of Napa County
- Industry professionals

Initial Implementation Steps

Component 1: Education & Outreach

- Develop educational materials
- Build partnerships with local organizations
- Develop notification/messaging system

Component 2: Voluntary Adoption

- Develop incentive program for adoption of High-Priority Water Conservation Practices
- Pilot a benchmarking program
- Develop a voluntary meter data and reporting program

Component 3: Voluntary Certification

- Define minimum criteria (practices) for a certification program's members to receive a financial incentive
- Develop incentives for certification

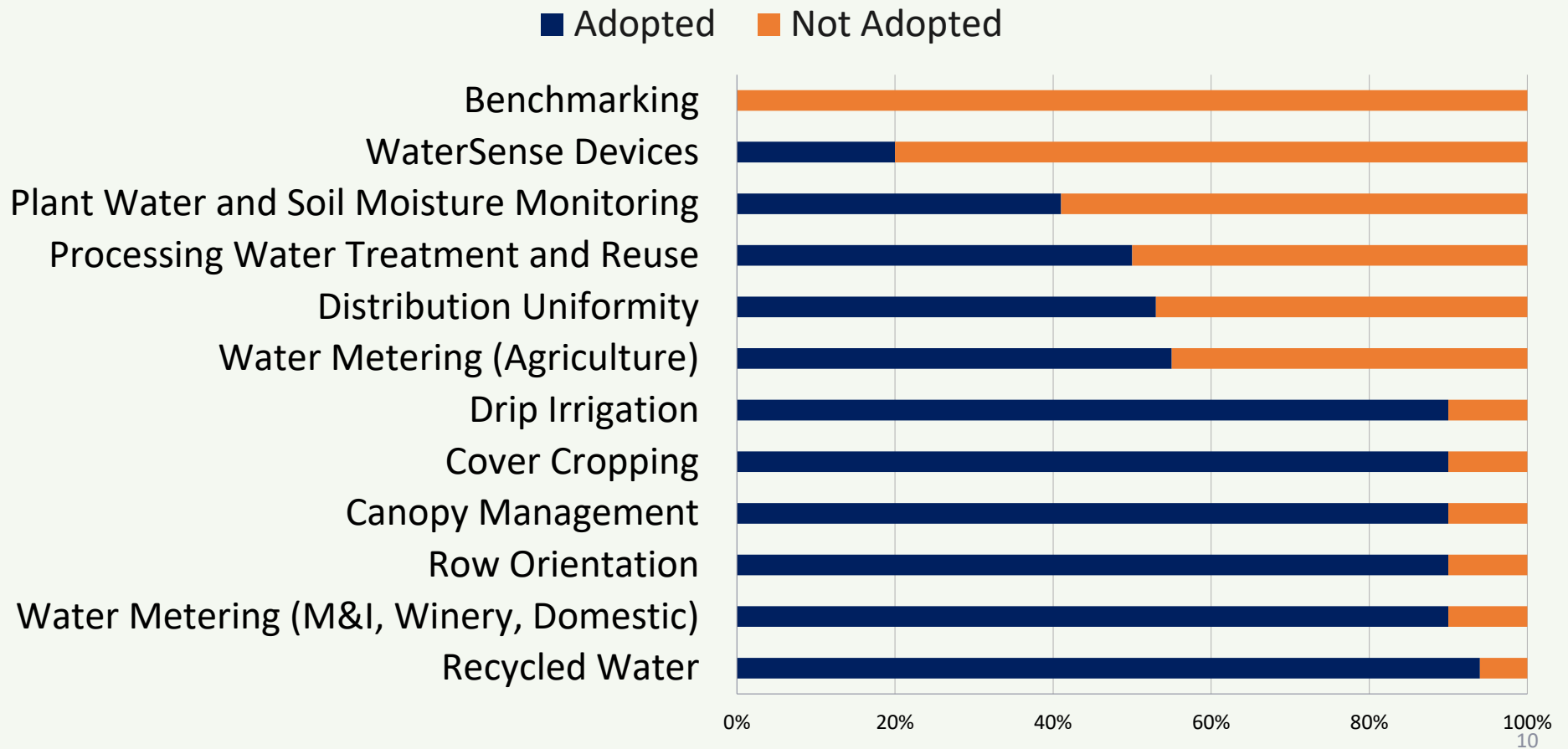
High Priority Water Conservation Practices

- Cost, adoption, water saving potential, and economic analysis of alternatives
 - Summary matrix of alternatives
- Preliminary list of high-priority practices based on Workplan analysis
 - Metering
 - Recycled water
 - Benchmarking
 - Distribution uniformity
 - Plant water and soil moisture monitoring
 - Row orientation
 - WaterSense devices

Table 5-1. Decision Matrix for Adoption of Groundwater Practices				
Practice	Estimated Annualized Cost per AF Conserved	Estimated Potential Water Savings (Basin-Wide)	Adoption Timeline	Overall Feasibility
Unit	\$/AF	AFY	Years	Ranking
Water Practices for All Water Users				
Recycled Water	\$362 - \$720	200 - 300	Medium-Term	High
Benchmarking	\$100 - \$350	300 - 1,100	Medium-Term	High
Vineyard-Specific Water Practices (Established)				
Water Measurement ³	\$250 - \$375	250 - 400	Medium-Term	High
Irrigation System Efficiency ^{2,3}	\$2,800 - \$9,200	75 - 250	Near-Term	Medium
Distribution Uniformity ¹	\$175 - \$450	500 - 2,100	Near-Term	High
Plant and Soil Moisture Monitoring ^{2,3}	\$155 - \$3,340	1,000 - 2,000	Near-Term	High
<i>High Tech, Low Labor (TDR)</i>	\$350 - \$1,450			
<i>Medium Tech and Labor (Neutron Probe)</i>	\$740 - \$3,340			
<i>Low Tech, High Labor (Tensiometers)</i>	\$155 - \$1,170			
Soil Management (Cover Crop) ^{3,4}	\$5,000 - \$18,000	50 - 550	Medium-Term	Low
Canopy Management	\$3,500 - \$5,000	200 - 300	Near-Term	Medium
Vineyard-Specific Water Practices (New Plantings)				
Row Orientation	No additional cost	200 - 325	Long-Term	High
Rootstock Selection	No additional cost	Data Gaps	Long-Term	Data Gaps
Winery-Specific Water Practices				
Water Metering	\$150 - \$250	5 - 15	Medium-Term	High
Waterless Barrel Sanitation	\$1,900 - \$2,800	100 - 165	Near-Term	Low
Processing Water Treatment and Reuse	Data Gaps	275 - 450	Long-Term	Medium
Municipal, Industrial, and Residential				
Water Metering	\$950 - \$2,500	100 - 130	Medium-Term	Low
WaterSense Devices ⁵	\$775 - \$1,200	500 - 575	Near-Term	High

¹ Eligible for cost-share funding or other technical support through the Napa County RCD.
² Eligible for cost-share funding through the State Water Efficiency and Enhancement Program (SWEEP).
³ Eligible for cost-share funding through the Environmental Quality Incentives Program Conservation Incentives Contracts (EQIP-CIC).
⁴ Eligible for cost-share funding through the Healthy Soils Program (HSP).
⁵ Eligible for financial assistance programs in select municipalities in Napa County.

Adoption Rates of Select Practices



GPR Workplan: Potential Mandatory Measures

Some examples of potential options listed in the GPR include:

- Mandatory Measurement and Reporting
- Pumping Allocations
- Mandatory Certification
- Other Ordinances and Land Use Restrictions



Development & Implementation Timeline

Component/Activity	Q1 24	Q2 24	Q3 24	Q4 24	Q1 25	Q2 25
Component 1: Education and Outreach; Feasibility Analysis						
Educational Materials	D	I	I	I	I	I
Partnership Building	D	D	D	D	I	I
Messaging System	D	D	I	I	I	I
Feasibility Analysis	D	D	I	I	I	I
Component 2: Voluntary Adoption						
Incentivize Adoption	D	D	I	I	I	I
Benchmarking Pilot Program	D	D	D	D	I	I
Meter Data and Reporting Program	D	D	D	D	I	I
Component 3: Voluntary Certification						
Incentivize Certification	D	D	D	D	D	I

D = Development, I = Implementation

Public Comment Nov 1., 2023 – Jan. 30, 2024

Comment Theme	Definition / Explanation	General Comments
Editorial	Any noted typos, clarifications, or other revisions that improve readability of the Workplans but do not affect technical content or implementation steps.	
Implementation	Feedback related to program implementation steps. This includes comments related to program design, incentives, and concurrent GSP program implementation.	<ul style="list-style-type: none"> • Voluntary vs. mandatory actions • Supply augmentation options • Adaptive management
Water Conservation Practices	Comments that expand or modify the potential water conservation practices listed in the Workplans. This may include suggestions and references to expand the programs.	<ul style="list-style-type: none"> • Additional M&I practices • Clarifying agricultural practices • Gross vs. net water savings
Technical	Other technical comments that relate to specific water conservation practices or other Workplan data. This broadly includes data sources, analysis, and other program references and documentation.	<ul style="list-style-type: none"> • Additional funding opportunities • Incentives • Clarifying figures and tables