Date Posted: 4/2/2026

NORTH MARIN WATER DISTRICT

NORTH MARIN WATER DISTRICT
AGENDA - REGULAR MEETING
April 7, 2026 – 4:00 p.m.
District Headquarters
Location: 999 Rush Creek Place
Novato, California

Information about and copies of supporting materials on agenda items are available for public review at the District Office, at the Reception Desk, by calling the District Secretary at (415) 897-4133 or on our website at nmwd.com. A fee may be charged for copies. District facilities and meetings comply with the Americans with Disabilities Act. If special accommodations are needed, please contact the District Secretary as soon as possible, but at least two days prior to the meeting.

Item **Subject**

CALL TO ORDER

1. ***GENERAL MANAGER'S REPORT***

2. ***OPEN TIME: (Please observe a three-minute time limit)***

   This section of the agenda is provided so that the public may express comments on any issues not listed on the agenda that are of interest to the public and within the jurisdiction of the North Marin Water District. When comments are made about matters not on the agenda, Board members can ask questions for clarification, respond to statements or questions from members of the public, refer a matter to staff, or direct staff to place a matter of business on a future agenda. The public may also express comments on agenda items at the time of Board consideration.

3. ***STAFF/DIRECTORS REPORTS***

CONSENT CALENDAR

The General Manager has reviewed the following items. To his knowledge, there is no opposition to the action. The items can be acted on in one consolidated motion as recommended or may be removed from the Consent Calendar and separately considered at the request of any person.

4. ***Consent - Approve***: Minutes from Regular Meeting - March 17, 2026
5. ***Consent - Approve:*** Text for Spring 2026 Novato "*Waterline*", Issue 56
6. ***Consent - Approve:*** Text for Spring 2026 West Marin "*Waterline*", Issue 25

ACTION CALENDAR

7. ***Approve:*** Set Public Hearing to Consider Approval of the 2025 Urban Water Management Plan and Water Shortage Contingency Plan for Novato

INFORMATION ITEMS

8. FY 2025-2026 Mid-Year Report – Operations and Maintenance Department
9. American Water Works Association 2026 *Beyond the Replacement Era* Report
10. ***NEWS AND MISCELLANEOUS REPORTS***

Disbursements – March 19, 2026
Disbursements – March 26, 2026
Auditor-Controller's Monthly Report of Investments for February 2026
ACWA Update on Priority Issues
Final AB 2180 Support
Final SB 1153 Support
News Articles:
Marin IJ – Trump team to break up renowned climate lab
Marin IJ – County advances housing project
Marin IJ – MMWD pursues planning of drought-fighting pipeline
Marin IJ – Funds allotted for bridge sites

The Board of Directors may consider an item at a different time than set forth herein.

Item	Subject
	Marin IJ – New Bay Area radars boost storm-tracking capability Marin IJ – MMWD should push forward with good pipeline plan Marin IJ – Pipeline plan is doable move for Marin now Pt. Reyes Light – Marin Water proposes Nicasio capture
11.	***RECESS*** 5 minutes before Closed Session
12.	***CLOSED SESSION: Conference with Real Property Negotiator*** (California Government Code Section § 54956.8). Property: APNs 160-274-07 and 160-020-15; Agency Negotiators: General Manager, and Assistant GM/Chief Engineer; Negotiating Party: Telecommunications Company; Under Negotiation: Price
13.	***CLOSED SESSION: Conference with Real Property Negotiator*** (California Government Code Section § 54956.8). Property: APN 125-100-13; Agency Negotiators: General Manager and Assistant General Manager/Chief Engineer; Negotiating Party: Local Agency; Under Negotiation: Price
14.	***RECONVENE:*** Reconvene as the Board of Directors
15.	***ADJOURNMENT***

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DRAFT
NORTH MARIN WATER DISTRICT
MINUTES OF REGULAR MEETING
OF THE BOARD OF DIRECTORS
March 17, 2026

CALL TO ORDER

President Eichstaedt called the regular meeting of the Board of Directors of North Marin Water District to order at 4:00 p.m. at the District Headquarters, and the agenda was accepted as presented. Present were Directors Jack Baker, Ken Eichstaedt, Rick Fraites, Michael Joly, and Stephen Petterle. Also, present were General Manager Tony Williams, District Secretary Eileen Mulliner, and AGM/Chief Engineer Eric Miller, and Auditor-Controller Julie Blue.

Staff members Tim Kennedy, Operations and Maintenance Manager, Chris Kehoe, Construction and Maintenance Superintendent, Vincent Verissimmo, and Haylee DeMartini were also in attendance.

GENERAL MANAGER'S REPORT

Tony Williams had a Potter Valley Update. He said he is on a committee representing the TAC on an economic study that Sonoma Water (SW) is leading on behalf of ERPA. He said the committee also includes TAC representatives from Santa Rosa and Rohnert Park, and members of the Mendocino County IWPC. The first meeting was on March 6 and the next meeting is this coming Friday.

Mr. Williams also said that he and President Eichstaedt, along with members of the Water Contractors, as well as Sonoma Water, attended a State Legislative visit in Sacramento on March 11th and gave a presentation on the visit which consisted of photos with legislatures that the team met with. There was some discussion with the Board about the visit. President Eichstaedt said attending was very valuable.

OPEN TIME

President Eichstaedt asked if anyone in the audience wished to bring up an item not on the agenda and there was no response.

STAFF AND DIRECTOR'S REPORTS

Eileen Mulliner reminded the Board to complete their Emergency Contact Forms, and that the State Form 700 as well as the Ethics Training need to be completed by April 1st.

Director Fraites asked about the future development of a 6-story structure in downtown Novato and if the District is able to provide water to the entire building. Eric Miller responded that building will very likely need to have its own pumping system which is not uncommon for taller buildings.

Director Joly mentioned that there was a San Marin Improvement Association meeting recently that Eric Miller and his wife also attended. The topic was Marin Water's Atmospheric River Capture (ARC) project. He said they learned the cost of the project has increased from $168M to $195M with the potential to be as high as $293M and MW has started on the EIR. There was some discussion with the Board.

Director Eichstaedt said that he and Director Fraites, separately, recently met with City of Novato Mayor Farac. He said the ARC project was discussed as well as other topics.

CONSENT CALENDAR

On the motion of Director Joly, seconded by Director Baker, the Board approved the consent item by the following vote:

AYES: Director(s) Baker, Eichstaedt, Fraites, Joly, and Petterle
NOES: None
ABSENT: None
ABSTAIN: None

Approve March 3, 2026 Board Regular Meeting minutes.

ACTION CALENDAR

CONSULTING SERVICES AGREEMENT – WOOD RODGERS, INC.

Eric Miller gave an overview of the memo requesting approval of a Consulting Services Agreement with Wood Rodgers, Inc. for phase 1 of the new Gallagher Well No. 3 project.

On the motion of Director Joly, seconded by Director Petterle, the Board approved the Consulting Services Agreement with Wood Rodgers, Inc. by the following vote:

AYES: Director(s) Baker, Eichstaedt, Fraites, Joly, and Petterle
NOES: None
ABSENT: None
ABSTAIN: None

INFORMATION ITEMS

TAC MEETING AGENDA – MARCH 2, 2026

Tony Williams highlighted a couple of the March 2nd TAC meeting agenda items. He said that TAC had approved the Sonoma Water water transmission budget and it will now be going to the WAC for approval in April.

Mr. Williams also said that Brad Sherwood of SW had asked for input in relation to attending the Legislative Day in Sacramento.

NBWA MEETING AGENDA – MARCH 6, 2026

Director Fraites said he attended the March 6, 2026 NBWA meeting which was held via Zoom. He said that there was a discussion on removing politics from the meetings. He also said

that there won't be a May meeting. He mentioned that there is an NBWA conference on April 9 in Novato at the Indian Valley College campus. He and Director Baker will be attending and encouraged the other Directors to attend if possible.

NEWS AND MISCELLANEOUS REPORTS

The Board received the following miscellaneous items: Disbursements – Dated March 5 and 12, 2026, Monthly Progress Report, March 3, 2026 Sonoma Water 2026-27 Water Transmission Budget and Rates Presentation Clarification, NOAA Monthly Precipitation Outlook – March, 2026, NOAA Monthly Drought Outlook – February, 2026.

The Board received the following news articles: Marin IJ – Sonoma's Rabbitt won't seek fifth term, Pt. Reyes Light – County to transfer Coast Buard parcel to CLAM.

The Board also received the NMWD Web and Social Media Report – February, 2026.

RECESS

The Board recessed from Open Session at 4:47 pm for 8 minutes before entering into Closed Session.

CLOSED SESSION

President Eichstaedt convened the Board into closed session at 4:55 p.m. regarding anticipated litigation regarding a District construction project in accordance with California Government Code Section § 54956.9(d)(2). In addition to Directors Eichstaedt, Joly, Petterle, Baker and Fraites, Tony Williams, GM and Eric Miller Assistant GM/Chief Engineer were present. Kevin Moore of Bold, Polisner, Maddow, Nelson and Judson also joined the meeting via video conference as well.

RECONVENE

Upon returning to regular session at 5:35 p.m., President Eichstaedt stated that no reportable action had been taken during Closed Session.

ADJOURNMENT

President Eichstaedt adjourned the meeting at 5:36 p.m.

Submitted by

Eileen Mulliner
District Secretary

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ITEM #5

NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors April 7, 2026

From: Ryan Grisso, Water Conservation and Communications Manager

Subject: Approve Text for Spring 2026 Novato "*Waterline"*, Issue 56
V:\Memos to Board\General BOD memos\Spring 2026 Novato Waterline Text.doc

RECOMMENDED ACTION: Approve Spring 2026 Novato *"Waterline"* Text

FINANCIAL IMPACT: $12,000 (Included in FY 2025/2026 Budget)

Draft text and design for the Spring 2026 Novato "*Waterline*", Issue 56, is attached for your review. This issue contains important informational updates from the General Manager regarding the recently approved Strategic Plan and Master Plan. The issue also includes a piece on the new Demonstration Garden and contains water conservation program updates, and an announcement of the upcoming water rate increase effective July 1, 2026 that was previously approved by the Board in 2024 as part of a multi-year Prop 218 process. The rate announcement published in this issue results in a savings of an additional ~$10,000 in mailer fees should this have been sent out on its own.

Should any Board member have individual comments please provide them to the General Manager at the Board meeting on April 7, 2026. It is expected the Spring 2026 Novato *"Waterline"* will be mailed in early May 2026. An electronic version of this issue will also be distributed through the WaterSmart group messenger (email) to approximately 14,000 customer/recipients.

RECOMMENDATION

Board authorize General Manager to approve final text and design of Spring 2026 Novato *"Waterline",* Issue 56, and subsequent final version of the electronic Spring 2026 Waterline newsletter.

ATTACHMENT: 1. Draft Novato *Waterline*, Issue 56

ATTACHMENT 1

PRSRT STD
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Marin Municipal Water District Atmospheric River Capture (ARC) Project

The Marin Municipal Water District (Marin Water), which serves central and southern Marin, is working on the preliminary design and environmental review of pipeline and related facilities that would move excess winter Russian River flows to storage reservoirs in Marin, providing critical drought resiliency. This project includes proposed pipeline installations from Redwood Blvd through the San Marin Drive and Novato Blvd, west of San Marin Drive corridors.

Find out more at **marinwater.org/ARCProject**

Low-Income Rate Assistance (LIRA) Program

This program is available to eligible low-income customers and provides a credit on a two-month billing cycle of $30 per bill or $180 per year.

A direct water customer who has a single-family residential account and is eligible for PG&E's income-based CARE program is also eligible for the District's LIRA Program. Once approved, the discount would apply to your next billing cycle.

To request an application or for further information call our billing department at 415-897-4133 or visit the website at nmwd.com/lira

Save up to $180 a year

Visit nmwd.com/lira
or scan the code below.

NORTH MARIN WATER DISTRICT

For more info visit nmwd.com

The Waterline

Novato Service Area Newsletter | Issue 55

NORTH MARIN WATER DISTRICT

Message From Tony Williams, General Manager

Strategic Planning

In October 2025, the North Marin Water District (District) Board of Directors approved the District's 2025-2030 Strategic Plan (Strategic Plan). The approval marked the culmination of a robust plan development process that included customer, staff and Director surveys and interviews, review of peer agencies, stakeholder engagement, review of new and pending state and federal regulations, and synthesis of collected data. The Strategic Plan includes six primary goals: **Strengthen Infrastructure Resilience; Foster Organizational Excellence, Ensure a Resilient Water Supply, Enhance Customer Understanding and Engagement, Optimize Operational Performance Readiness, and Maintain Effective and Transparent Governance.** Each of these clear goals has four to seven practical and attainable actions with target milestones that serve as a principal roadmap for the next five years of District administration and operations. As we make progress on individual actions, staff will clearly indicate progress on the Board of Directors agenda items using a new "Alignment with Strategic Plan" section in staff reports, and I will present annual progress reports each fall.

Read more about our Strategic Plan
nmwd.com/strategic-plan

Water System Master Planning

The District operates and maintains an extensive water distribution system to ensure there is always water available for human consumption and firefighting purposes. The key components of the distribution system include storage tanks, pump stations, 353 miles of water pipelines, and thousands of fire hydrants connected to the water pipes throughout the community. Treated water enters the system through two very different sources: the Stafford Treatment Plant (STP), which treats water from Stafford Lake; and North Marin Aqueduct, which transmits Russian River water purchased from Sonoma County Water Agency (Sonoma Water). To maintain water pressure and move this supply water from the lower elevations to higher elevations, the District operates 26 pump stations. Planning, prioritizing, and implementing repairs, replacement, or improvements is accomplished under the District's Capital Improvement Program (CIP).

In January, the Board of Directors accepted the 2025 Novato Water System Master Plan (Master Plan) after over a year of coordination, planning, and analysis of the water system to establish a long-term CIP strategy. The Master Plan development and planned implementation of capital projects directly address several actions under Strategic Plan Goal 1: **Strengthen Infrastructure Resilience**, including strategic actions 1.1 and 1.2.

Continues overleaf ▶

Message from Tony Williams (Continued)

The 2025 Master Plan was a slight departure from the previous 45+ years of the District's water system master planning in that it included a comprehensive assessment of the water system resilience against natural hazards as well as an overall asset risk and resilience assessment. These assessments identified the "backbone" parts of the system whose absence or unavailability would significantly degrade the District's ability to deliver water to the community.

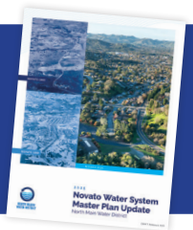
The backbone includes:

- Local and Regional water supply (Stafford Lake and the Russian River), including the North Marin Aqueduct and the Stafford Treatment Plant.
- Nine key water storage tanks.
- The Lynwood and San Marin pump stations.
- The water distribution pipeline network.

The Master Plan demonstrates that the District has been effective with its Capital Improvement program (CIP), but needs to increase the total length of pipeline replacement each year, which translates to additional capital expenditures in the future.

The highlighted plans above were not developed to simply "check a box" or satisfy an obscure federal or state requirement. Both of these Plans establish a meaningful path forward for the District to follow to ensure the best quality services are delivered to our current customers and for future generations. Other critical plans that we expect to complete this calendar year include the District's Emergency Response Plan and the Urban Water Management Plan.

Read more about our Master Plan
nmwd.com/master-plan



Important Information About Your Water Rates

New water rates will go into effect on July 1, 2026. The increases are needed to cover rising operating costs, fund critical infrastructure projects, and include a pass-through from our main supplier, Sonoma Water.

Following a detailed rate study and public review process in 2024, the Board accepted the study's findings as the basis for the rate adjustments through 2026/2027.

Through this process, proposed increases were recommended to ensure continued water reliability, system improvements, and financial stability.

The new rates include a "pass-through" of Sonoma Water's 9.42% rate increase, which applies to the Tier 1 commodity charge. The other water use rates and service charges will increase 6% as approved by the Board in 2024.

Information on Novato Water Rates
nmwd.com/rates2024-2026

North Marin Water District's New Demonstration Garden

The District would like to invite you to visit our new low-water-use Demonstration Garden located at our remodeled administration building (999 Rush Creek Place, Novato).

Created to provide examples of beautiful low-water-use plants that thrive in our Novato climate, we hope it inspires you to choose plants that flourish with less water for your own landscape.

The Demonstration Garden is drip-irrigated, using recycled water and rainwater (when available), and a weather-based irrigation controller automatically adjusts the irrigation schedule based on the current weather. Creating a garden that is both water-smart and beautiful is easier than you may think.

Find the perfect plants for your garden and more information about the plants in this Demonstration Garden, including a self-guided garden map with a detailed plant list.

Get 50% Off*
a pool cover

Find out more at nmwd.com/pool-cover
*Up to $75.

Get 50% Off*
mulch materials

Find out more at nmwd.com/mulch
*Up to $200.

Get $1.50*
per sq ft of lawn area

Find out more at nmwd.com/cash-for-grass
*Up to $1,500.

Pay your bills online, sign up for autopay and paperless billing.

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ITEM #6

NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors April 7, 2026

From: Ryan Grisso, Water Conservation Coordinato

Subject: Approve Text for Spring 2026 West Marin "*Waterline"*, Issue 25
V:\Memos to Board\General BOD memos\Spring 2026 West Marin WaterLine Text.doc

RECOMMENDED ACTION: Approve Spring 2025 West Marin *"Waterline"* Text

FINANCIAL IMPACT: $2,300 (Included in FY 2025/2026 WM Budget)

Draft text and design for the Spring 2026 West Marin "*Waterline*", Issue 25 is attached for your review. Should any Board member have individual comments please provide them to the General Manager at the Board meeting on April 7, 2026. This issue focuses on the future capital improvement projects needed for the service area and includes a rate increase notice and section highlighting the fixed rate charge. There is also a section continuing the push for the Flume device offering for customers in the West Marin Service area. It is expected the Spring 2026 West Marin *"Waterline"* will be mailed in May.

RECOMMENDATION

Board authorize General Manager to approve final text and design of the Spring 2026 West Marin *"Waterline",* Issue 25.

ATTACHMENT: 1. Draft West Marin *Waterline*, Issue 25

ATTACHMENT 1

PRSRT STD
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PERMIT NO. 53

Low Income Rate Assistance (LIRA) Program

Save up to $180 a year

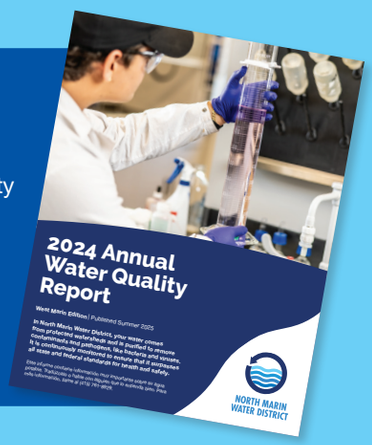
This program is available to eligible low-income customers and provides a credit on a two-month billing cycle of $30 per bill or $180 per year.

A direct water customer who has a single-family residential account and is eligible for PG&E's income-based CARE program is also eligible for the District's LIRA Program. Once approved, the discount will apply to your next billing cycle.

To request an application or for further information call our billing department at 415-897-4133 or visit the website at nmwd.com/lira.

Read Our Annual Water Quality Report

Visit nmwd.com/your-water/water-quality or scan the code below.



For more info visit nmwd.com

NORTH MARIN WATER DISTRICT

The Waterline

West Marin Service Area Newsletter | Issue 25

NORTH MARIN WATER DISTRICT

Carrying Out The Plan

Tony Williams, General Manager

As we approach the new fiscal year beginning July 1, 2026, the North Marin Water District (District) is implementing its long-term Capital Improvement Program (CIP), which was the primary driver behind the water rate changes that took effect on July 1, 2025.
The CIP focuses on projects that include:

- Replacing aging water infrastructure
- Seismic improvements and the temporary relocation of the water main along Highway 1 in conjunction with Caltrans' Highway 1 Bridge replacement
- Supporting new developments in Point Reyes Station
- Improving water supply resiliency

The District's dedicated engineers, operators, and pipeline workers have completed the first phase of the Lagunitas Bridge Pipeline replacement on Highway 1. This work was completed well in advance of the bridge construction to ensure uninterrupted water service for customers during the Caltrans construction period. Additional work is planned to coincide with the bridge construction later this year, including installation of a temporary bypass water main across the creek and removal and replacement of the existing pipeline with seismic joints.

I would like to thank our customers, residents, local workers, and visitors for putting up with the traffic impacts and temporary water outages that necessitated the work performed to date.

District staff is working closely with our Marin County partners and organizations like the Community Land Trust Association of West Marin (CLAM) to evaluate the new water service requirements for various ongoing and planned developments in the Point Reyes Station area, including the Coast Guard Housing Project. While the District does not make decisions on the development of new housing nor does it have the authority to do so, the District's obligation is to provide safe water to all households within the District Service Territory, and to ensure supplies are available for everyone, in line with our policies, regulations, and engineering plans.

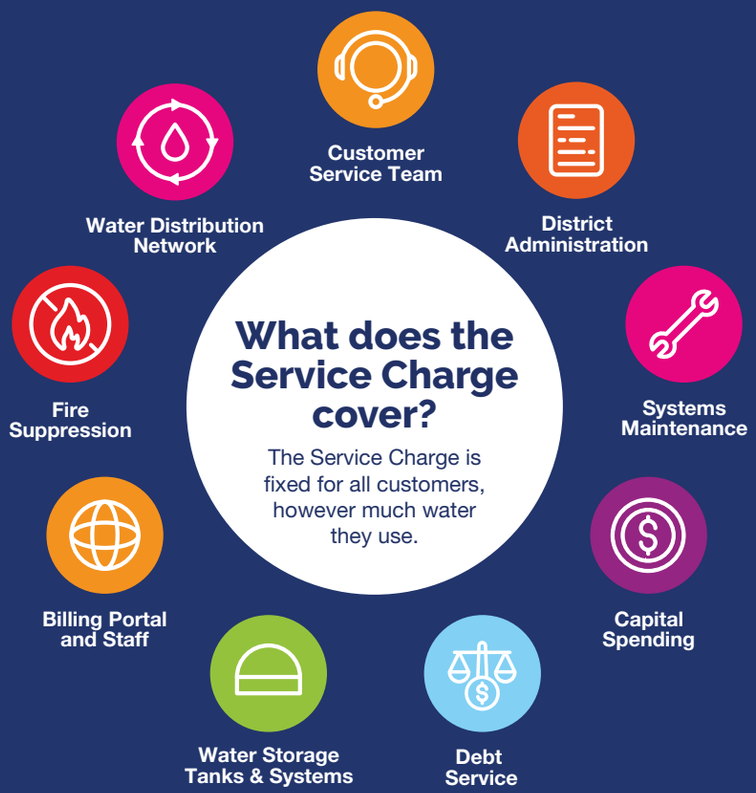
The District relies on the Lagunitas Watershed via various shallow wells adjacent to Lagunitas Creek. The wells are located near the former U.S. Coast Guard Housing Facility in Point Reyes Station and on Gallagher Family Ranch, north of Point Reyes Station. Gallagher Well #2, completed in 2022, is exceeding expected performance. Unfortunately, Well #1 has reached the end of its useful life and needs to be replaced. The West Marin Well project is another current CIP project that will evaluate the feasibility and develop conceptual plans for another supply well within the watershed. Previous high-level analyses revealed limited opportunities for alternative water supply sources such as: interconnection with another water provider; use of surface water, including surface water storage (dam construction), and desalination.

For more information on West Marin Capital Projects, read on.

Do you know what is covered by your Bi-Monthly Fixed Service Charges?

One primary fixed cost on your water bill is the Bi-Monthly Fixed Service Charge, which includes an account charge and a meter charge. The meter charge is based on an industry standard that apportions costs based on meter size and flow capacity.

The service charge pays for the operation of the water distribution system, including storage tanks, to ensure water is delivered to each customer and available at fire hydrants. It also pays for customer service and billing systems, water distribution system maintenance and capital spending, and District administration.



Water use monitoring and leak detection device pilot program

The District is continuing to offer a program for the shared-cost purchase and use of a water monitoring and leak detection device called Flume. These devices attach to your meter and relay real-time water use data and leak alerts through your Wi-Fi.

If you are interested in participating, please email your contact information and service address to waterconserve@nmwd.com and staff can provide you with the website link for the shared cost purchase.

This pilot program is available to West Marin Service Area customers only.

Important Information about your Water Rates

New water rates will go into effect on July 1, 2026. The increases are needed to cover rising operating costs impacted by inflation, electricity costs, and other cost factors, and to fund critical infrastructure projects. Following a detailed rate study and public review process conducted last year, the District Board accepted the study's findings as the basis for the rate adjustments for a 5-year period. Through this process, proposed increases were recommended to ensure continued water reliability, system improvements, and financial stability.

View the West Marin rates and learn more
nmwd.com/wmrates2025

Capital Improvement Programs

The West Marin water system is generally 50 years old, and includes a groundwater treatment plant, water supply wells, pumping stations, water storage tanks, fire hydrants, monitoring stations, and 26 miles of buried pipelines made of various materials.

Some of these water facilities were constructed using methods that were acceptable and common at the time but no longer provide the needed resiliency or performance in regard to natural hazards or climate change, such as wooden storage tanks that should be replaced with steel or concrete ones.

In addition to replacements due to age or material, some critical water pipelines are attached to bridges that cross creeks, and those bridges are scheduled to be replaced by their owners in the coming years, which requires close coordination with the District's capital improvement program.

Find out more about upcoming projects
nmwd.com/wm-future-projects

Pay your bills online, sign up for autopay and paperless billing.

Visit onlinebiller.com/nmwd

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NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors Date: April 7, 2026

From: Eric Miller, Chief Engineer/Assistant GM EM
Ryan Grisso, Water Conservation and Communications Manager RG

Subject: Set Public Hearing to Consider Approval of the 2025 Urban Water Management Plan and Water Shortage Contingency Plan for Novato
\\nmwdfileserver\engineering\Projects\4000s\4050 Urban Water Management Plan\4050.25 2025 UWMP\A. BOD-GM\2026.04.07 Set Public Hearing\4050.25 URMP & WSCP BOD Memo - Set Public Hearing.docx

RECOMMENDED ACTION: Set a Public Hearing for the June 16, 2026 Board Meeting to Consider Approval of the 2025 Urban Water Management Plan and Updated Water Shortage Contingency Plan for Novato

FINANCIAL IMPACT: None

Background

Urban water suppliers are required to prepare Urban Water Management Plans (UWMP) to support their long-term water resource planning and to ensure that adequate water supplies are available to meet existing and future water demands. The District is defined as an urban water supplier due to the fact that we provide more than 3,000 acre-feet of water per year to our customers and have more than 3,000 connections (This only applies to the Novato Service area). This update is required every five years and the next UWMP update is due for submittal to the Department Water Resources by June 30, 2026.

In November 2024, the Board authorized a letter agreement with the City of Santa Rosa to hire EKI Environmental and Water, Inc. (EKI) to update the demand analysis and water conservation measures for the 2025 UWMP for all water contractors in the Sonoma Marin Saving Water Partnership. EKI staff from their Daly City, CA office completed this work on behalf of the District and the final report will be included in the UWMP. The gross water demand estimates are now projected at the year 2050 to total 10,163 acre-feet per year (AFY) (*versus 10,934 AFY projected by 2045 in the 2020 UWMP*).

The District projected a 15% growth rate in population which considers the recent increases in housing development imposed on the City and County. Despite the notable population projection, the overall water demand estimates are approximately 800 AFY lower than they were in the previous UWMP and year-over-year projected demands have a modest increase due to the model's passive conservation estimates. A presentation (Attachment 1) will be given by EKI staff that provides more detail on the results of the Demand and Conservation Analysis Report (Attachment 2).

2025 Urban Water Management Plan

Leveraging the demand analysis and conservation work that EKI performed on behalf of the District, along with their involvement in the UWMP Guidebook development, the General Manager authorized a contract within his authority with EKI, to assist in writing all components of the District's 2025 UWMP, including the final submittal to the California State Department of Water Resources (DWR). Currently, the 2025 UWMP is nearing an initial draft completion. The 2025 UWMP will include all the information and analysis required by DWR. The following outlines the various sections of the Plan:

- Section 1 Introduction
- Section 2 Plan Preparation
- Section 3 Novato System Description
- Section 4 Water Use Characterization
- Section 5 SB X7-7 Baselines, Targets, and 2020 Compliance
- Section 6 Water Supply Characterization
- Section 7 Water Service Reliability and Drought Risk Assessment
- Section 8 Water Shortage Contingency Plan
- Section 9 Water Demand Management Measures
- Section 10 Plan Adoption and Submittal to DWR

The work in Section 8 will result in a stand-alone Water Shortage Contingency Plan (WSCP), which requires separate but simultaneous adoption by the Board, along with the 2025 UWMP adoption. The WSCP is being coordinated with the Sonoma County Water Agency as it relates to triggers and associated actions. The current Novato Service Area WSCP is posted on the District's website: https://nmwd.com/wp-content/uploads/2021/07/WSCP_20210629.pdf

The UWMP is currently on schedule for all the specified deadlines for review and adoption. The 2025 UWMP must be submitted to DWR by July 1, 2026 and a public hearing must be held prior to its adoption. We have properly noticed other water suppliers, wastewater agencies and planning agencies (as required) to provide 60-day notification prior to hearing. Staff are requesting that a public hearing be set for the June 16, 2026 Board meeting to consider approval of the Urban Water Management Plan and updated Water Shortage Contingency Plan. The 2025 UWMP and WSCP will be released to the public for review 2 weeks prior and that milestone is scheduled to be presented to the Board as an informational item at the June 2, 2026 Board meeting.

RECOMMENDATION

That the Board set the June 16, 2026 regular Board meeting as the date and time to hold a public hearing to consider approval of the 2025 Urban Water Management Plan and Updated Water Shortage Contingency Plan for Novato.

ATTACHMENTS:

1. EKI Presentation Slides, dated 7 April 2026
2. 2025 Water Demand Analysis and Water Conservation Measure Update, 22 Dec. 2025

NORTH MARIN WATER DISTRICT

WATER DEMAND ANALYSIS

2025 URBAN WATER MANAGEMENT PLAN

7 April 2026

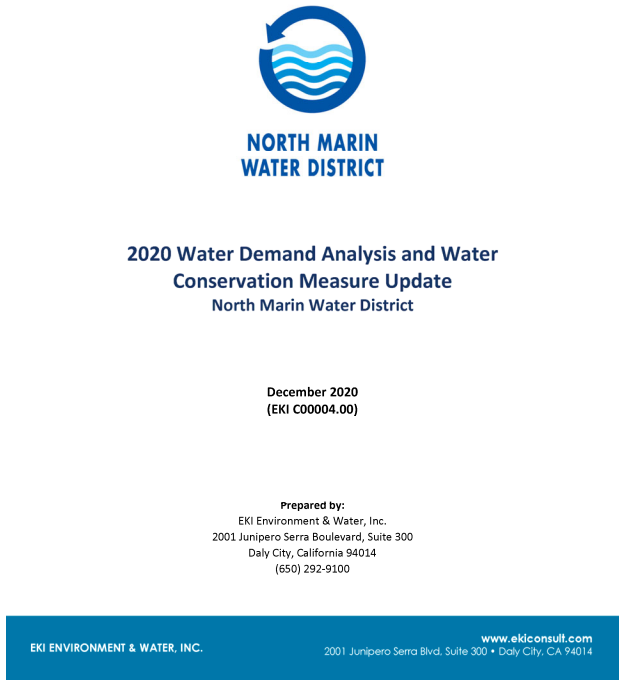
PRESENTER:

DAWN FLORES

eki environment & water

2025 WATER DEMAND ANALYSIS AND WATER CONSERVATION MEASURES UPDATE

- Water Demand & Conservation analysis for 9 agencies, including NMWD
  - Analysis of water use/demand characteristics
  - Population and water demand projections (including passive savings)
  - Conservation program past participation and savings
  - Cost-benefit analysis of future water conservation programs / scenarios


NORTH MARIN WATER DISTRICT

2020 Water Demand Analysis and Water Conservation Measure Update
North Marin Water District

December 2020
(EKI C00004.00)

Prepared by:
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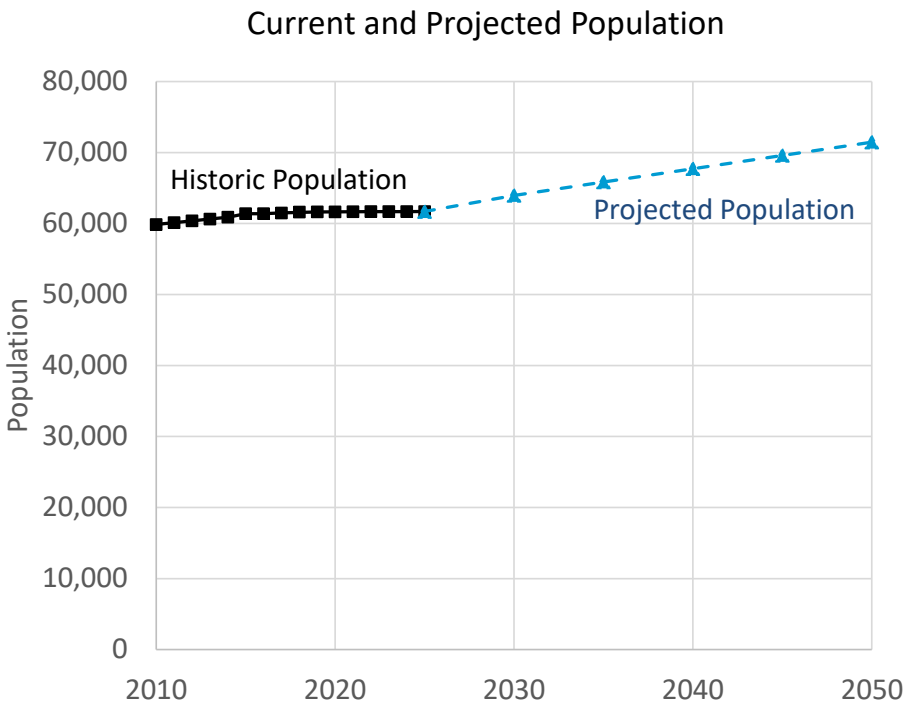
eki

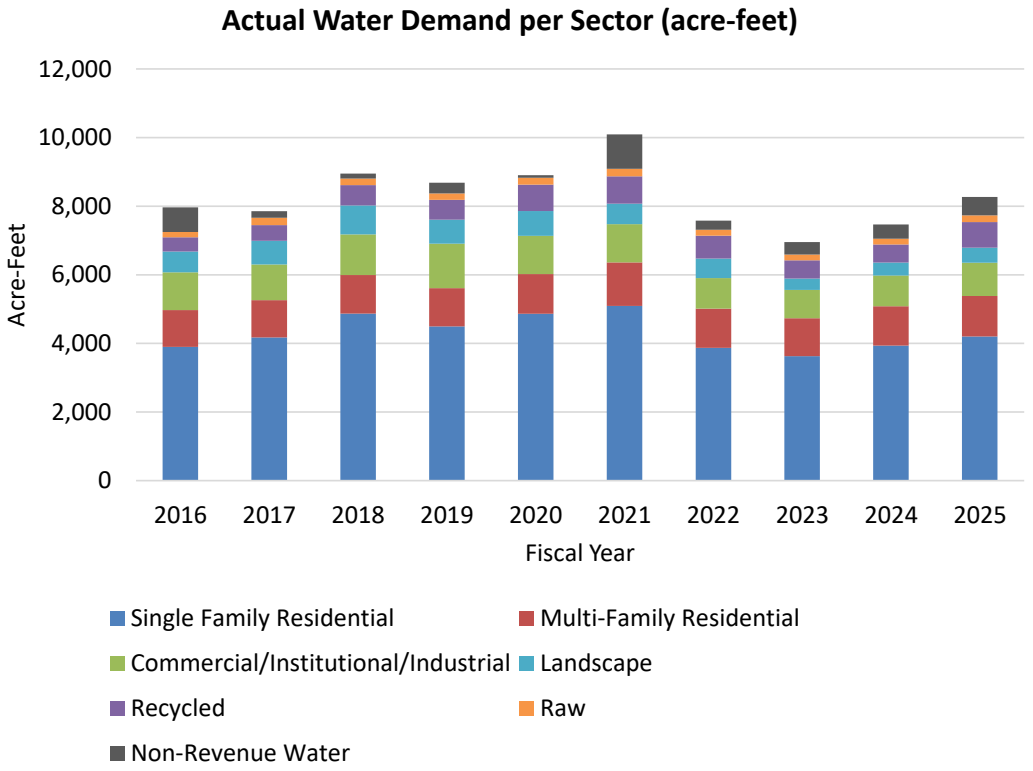
PROJECTED POPULATION

- Population
  - Using ABAG (2021) adjusted for RHNA housing projections
  - Total growth rate: 15% from 2025 to 2050



SYSTEM WATER DEMANDS

- Actual Water Demands
  - Higher residential demands in Fiscal Year (FY) 2020-21 reflect the COVID-19 pandemic stay at home orders
  - Decrease in demand in FY 2020-21 and 2022-23 reflect demand reduction during drought
  - Single family residential - largest sector – increased 9% since FY 2021-22.
  - Commercial/industrial/institutional also increased 9% since FY 2021-22.
  - Landscape irrigation demand fell ~23% since FY 2021-22.



DEMAND FACTOR EVALUATION

- 2017–2019 peak usage was selected as the demand factor baseline, representing the period between two major droughts (2014-2017) and (2021-2023)
- Conservative estimate: lower recent usage, adjusted for pre-2020 demand rebound

Water Use Sector Group	Water Demand Factor	Units	Basis for Demand Factor
Water Consumption			
Single Family	281	GPD/account	Maximum of 2017-2019
Multi-family	258	GPD/account	Maximum of 2017-2019
CII Total (a)	1,230	GPD/account	Maximum of 2017-2019
Irrigation	1,879	GPD/account	Maximum of 2017-2019
Recycled	7,714	GPD/account	Maximum of 2017-2019
Non-Revenue Water			
Apparent Losses	4.0	GPD/connection	CY 2023 Water Loss Audit for Novato System
Real Losses	10.8	GPD/connection	
Unbilled Authorized	0.67	GPD/connection	

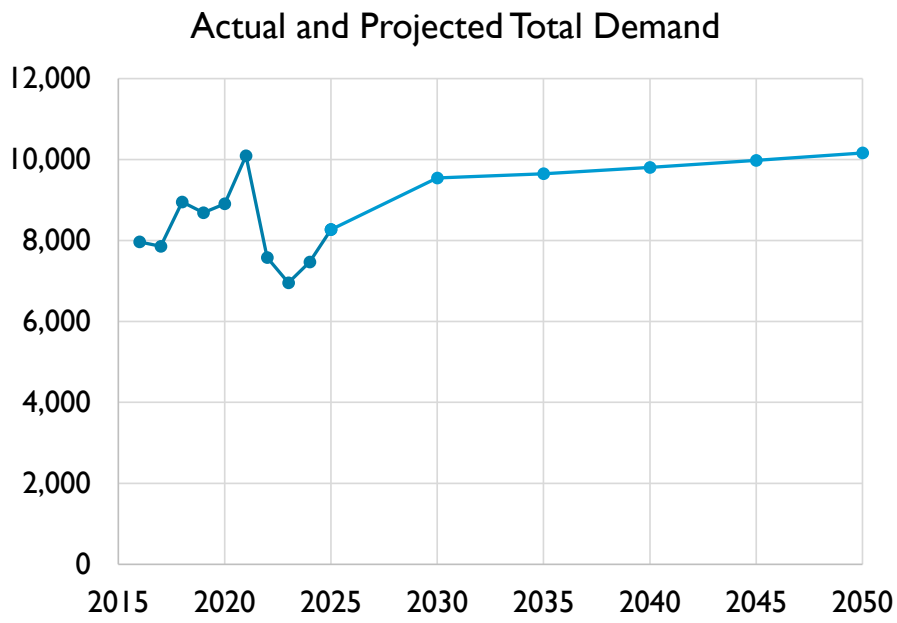
PROJECTED POTABLE WATER DEMANDS

- Incorporates passive conservation savings
- 6.4% increase projected for 2050 over 2024 potable water demand
- Multi-family demand grows the fastest at ~16% through 2050
- 15% increase projected for 2050 over 2024 non-potable water demand

Use Type	Projected Water Demand (acre-feet)				
	2030	2035	2040	2045	2050
Single Family Residential	4,630	4,614	4,656	4,710	4,769
Multi-Family Residential	1,229	1,271	1,305	1,341	1,379
Commercial/Institutional/Industrial (CII)	1,388	1,406	1,427	1,450	1,476
Landscape Irrigation (potable)	890	917	943	969	995
Recycled Demand	824	849	873	897	921
Raw Water Demand	218	218	218	218	218
Non-Revenue Water	366	375	385	395	405
Subtotal Potable	**8,503**	**8,583**	**8,716**	**8,865**	**9,024**
Subtotal Non-Potable	**1,042**	**1,067**	**1,091**	**1,115**	**1,139**
Total	**9,545**	**9,650**	**9,807**	**9,980**	**10,163**

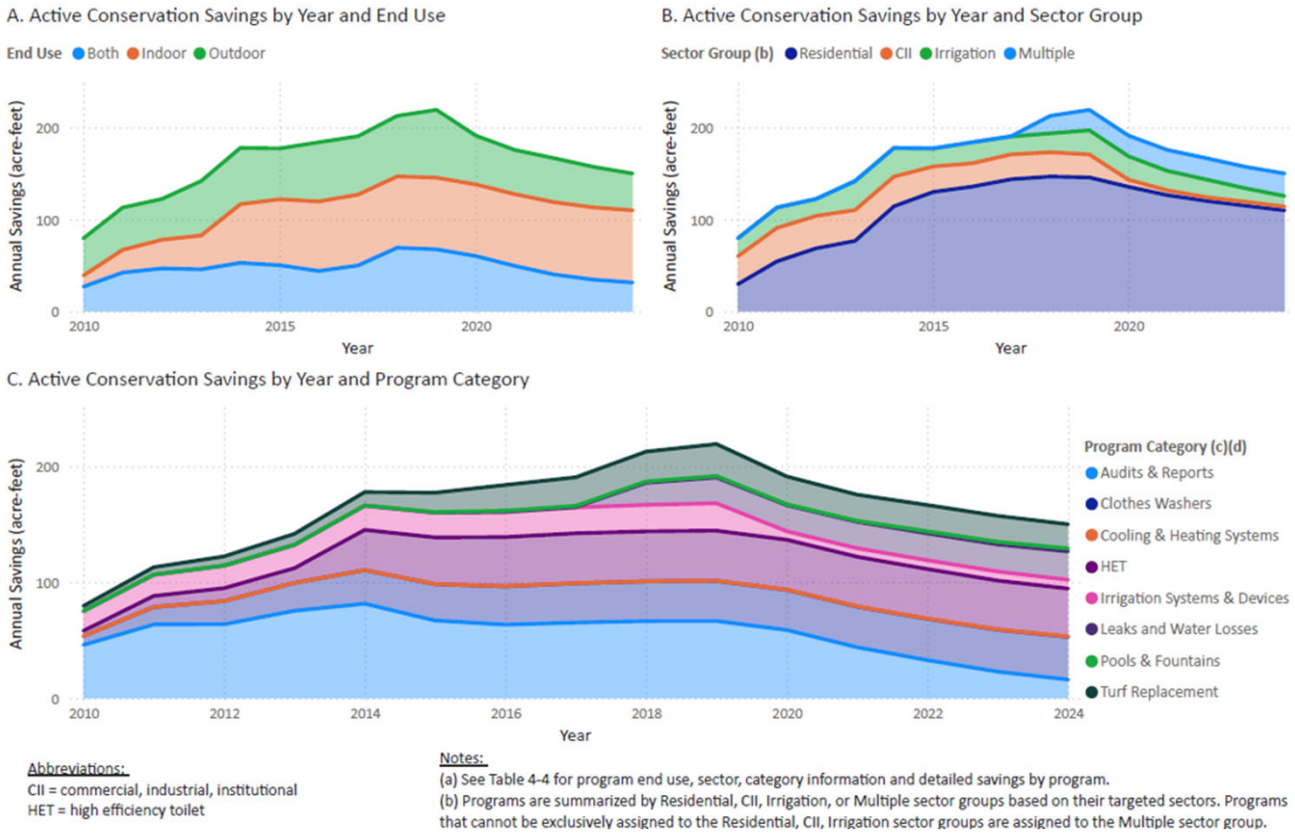
PROJECTED TOTAL WATER DEMANDS

- Total potable demand increases ~23% from 2025 to 2050
- In 2050, projected demand is almost the same as the 2021 historical demand



SAVINGS FROM WATER CONSERVATION PROGRAMS

- Historical active conservation savings estimates using the Alliance for Water Efficiency (AWE) model
- Programs with highest total savings include:
  - Water Smart Home Survey Program
  - High Efficiency Toilets Rebate Program
  - High Efficiency Clothes Washer Rebate Program
  - Cash for Grass Rebate Program
  - Water Smart Landscape Rebates Program



Abbreviations:
CII = commercial, industrial, institutional
HET = high efficiency toilet

Notes:
(a) See Table 4-4 for program end use, sector, category information and detailed savings by program.
(b) Programs are summarized by Residential, CII, Irrigation, or Multiple sector groups based on their targeted sectors. Programs that cannot be exclusively assigned to the Residential, CII, Irrigation sector groups are assigned to the Multiple sector group.

FUTURE CONSERVATION PROGRAMS

Program	Sector	Indoor/ Outdoor	Note	Program Scenario (a)			
				(A) Baseline	(B) Highly-Ranked Local Programs	(C) Highly-Ranked Outdoor Programs	(D) Highly-Ranked CII Programs
AMI Leak Notifications Program	All	Both		X	X		
Water Smart Home Surveys Program	SFR	Both		X	X		
Water Smart Commercial Surveys Program	CII	Both		X	X		X
HET Rebates Program	SFR, MFR, CII	Indoor		X	X		
UHET Distribution Program	SFR	Indoor		X			
HECW Rebates Program	SFR	Indoor		X	X		
Water Smart Landscape Rebates Program	SFR	Outdoor		X	X	X	
Residential WBIC Rebates Program	SFR	Outdoor		X	X	X	
Commercial WBIC Rebates Program	CII	Outdoor		X	X	X	X
Swimming Pool Cover Rebates Program	SFR	Outdoor		X	X	X	
Large Landscape Audits Program	IRR	Outdoor		X	X	X	X
Hot Water Recirculation Rebate Program	SFR	Indoor		X	X		
Cash for Grass Rebates Program	SFR	Outdoor		X	X	X	
Cash for Grass Rebates Program	IRR	Outdoor		X	X	X	X
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	SFR, MFR, CII	Indoor		X	X		
Rain Barrel Rebate	SFR	Outdoor		X	X	X	
Incentivize Gray Water Retrofit for Existing SFR Customers	SFR	Outdoor		X	X	X	
Behavior Based Customer Messaging Platforms	SFR, MFR	Both			X		
Water Savings Incentive Program for CII	CII	Indoor	(b)		X		X

Abbreviations

AMI = Advanced Metering Infrastructure
CII = Commercial, Industrial, and Institutional
HECW = High-efficiency clothes washer
HET= High-efficiency toliet
MFR = multi-family residential
SFR = single-family residential
UHET = ultra-high-efficiency toilet
WBIC = weather-based irrigation controller

FUTURE CONSERVATION PROGRAMS

Scenario (a)	Benefit to Cost Ratio		Water Savings in 2030 (AFY)	Water Utility Cost of Water Saved ($/AF) (b)
	Water Utility	Customers		
(A) Baseline	1.3	1.5	74	$1,103
(B) Highly-Ranked Local Programs	1.4	1.5	90	$872
(C) Highly-Ranked Outdoor Programs	0.6	0.4	34	$2,135
(D) Highly-Ranked CII Programs	2.8	1.7	40	$415

- Future water conservation program savings assessed under four program scenarios using AWE model
- Scenario B found increased savings and benefit to cost ratio of compared to the Baseline – by adding two new programs and removing one
- Scenario C showed low benefit to cost ratio due to high cost and low performance of Cash to Grass Programs
- Scenario D showed high benefit to cost ratio, but low relative savings

STATUS OF URBAN WATER MANAGEMENT PLAN SECTIONS

1.	Introduction	Staff Reviewing
2.	Plan Preparation	Staff Reviewing
3.	System Description	Staff Reviewing
4.	Water Use Characterization	Staff Reviewing
5.	SB X7-7 Baselines, Targets, and 2020 Compliance	Staff Reviewing
6.	Water Supply Characterization	In Progress
7.	Water Service Reliability and Drought Risk Assessment	In Progress
8.	Water Shortage Contingency Plan	In Progress
9.	Demand Management Measures	In Progress
10.	Plan Adoption and Submittal	In Progress

NEXT STEPS

- 2025 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) – Release of Draft, June 1
- Public Review Period – 14 days
- Public Hearing for Approval of UWMP and WSCP – June 16

QUESTIONS?

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ATTACHMENT 2

2025 WATER DEMAND ANALYSIS AND WATER CONSERVATION MEASURE UPDATE

North Marin Water District

22 December 2025

EKI C40180.00

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2025 WATER DEMAND ANALYSIS AND WATER CONSERVATION MEASURE UPDATE

22 December 2025

Prepared for:

North Marin Water District

Prepared by:

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2025 Water Demand Analysis and Water Conservation Measure Update

North Marin Water District

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FIGURES (IN REPORT TEXT)

APPENDICES

ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
AFY	acre-feet per year
AMI	advanced metering infrastructure
AWE	Alliance for Water Efficiency
BMPs	Best Management Practices
CII	Commercial, Industrial, and Institutional
CWC	California Water Code
DIM	dedicated irrigation meter
District	North Marin Water District
DMM	demand management measure
DWR	Department of Water Resources
GPCD	gallons per capita per day
gpf	gallons per flush
HECW	high-efficiency clothes washer
HET	high-efficiency toilet
HEU	high-efficiency urinal
LEF	landscape efficiency factors
MCCWL	Making Conservation a California Way of Life
MFR	multi-family residential
MUMs	mixed-use meters
Objective	Urban Water Use Objective
QWEL	Qualified Water Efficient Landscaper
Report	Water Demand and Conservation Report
SB	Senate Bill
SFR	single-family residential
SMSWP	Sonoma-Marin Saving Water Partnership
State Water Board	State Water Resources Control Board
TM	technical memorandum
UWMP	Urban Water Management Plan
Water Contractors	The nine members of the SMWSP participating in this project.

1 INTRODUCTION

To support the development of the 2025 Urban Water Management Plan (UWMP) updates, nine members of the Sonoma-Marin Saving Water Partnership (SMSWP) coordinated to conduct a joint update of their water demand projections and water conservation planning efforts (i.e., the *2025 Water Demand and Conservation Project*). The participating SMSWP members include the City of Cotati, City of Petaluma, City of Rohnert Park, City of Santa Rosa, City of Sonoma, Marin Municipal Water District, North Marin Water District, Town of Windsor, and Valley of the Moon Water District. These nine participating SMSWP members (referred to as Water Contractors herein) are shown on **Figure 1-1**.

The goals of the *2025 Water Demand and Conservation Project* are to apply a common methodology to conduct the following analysis for each Water Contractor:

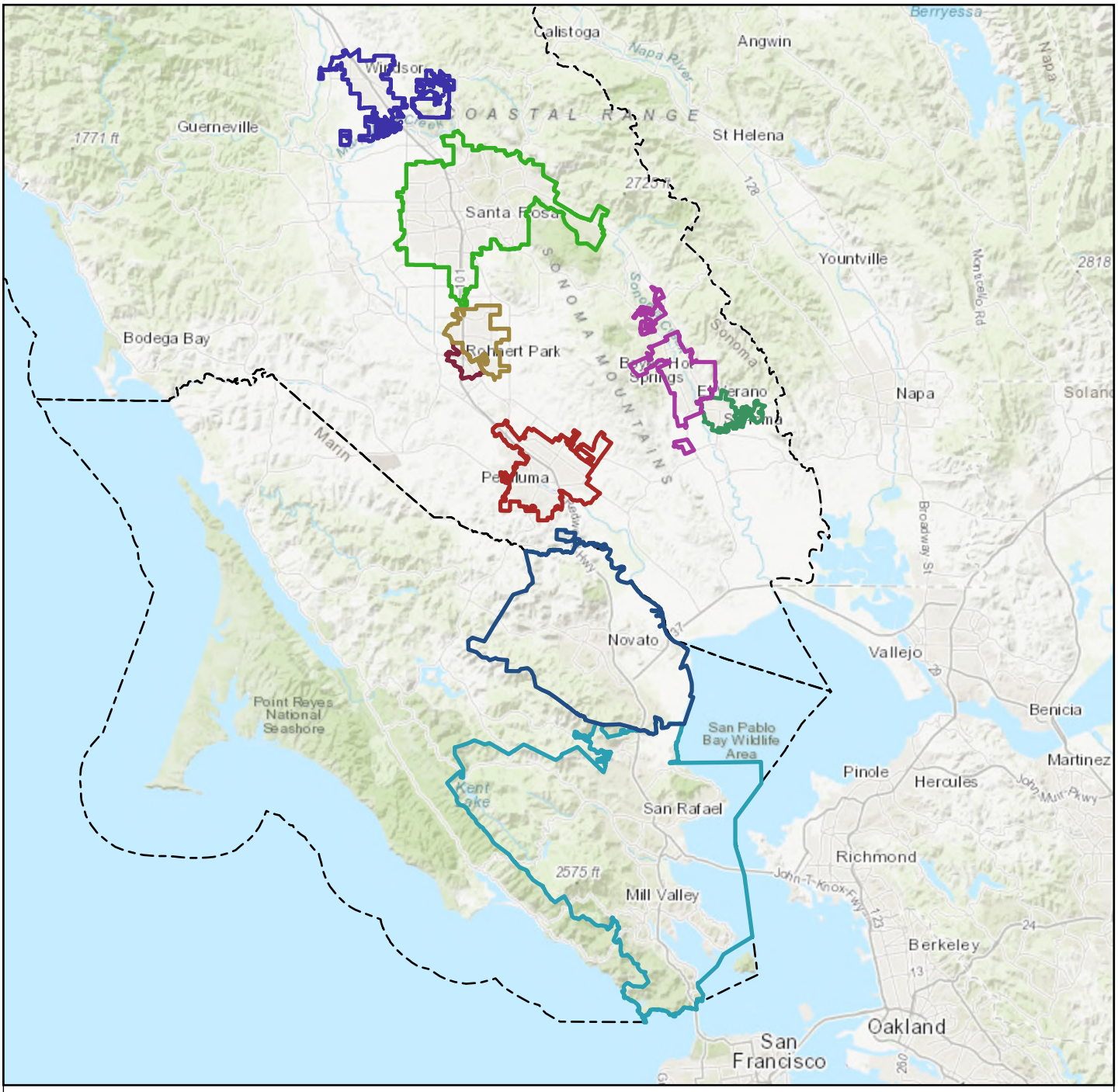
- Evaluate and document recent historical water use characteristics and trends, including population and account growth (in this report, the term "account" indicates "water connection");
- Estimate projected water demands for the years 2030 through 2050 to support both the 2025 UWMP update and coordination and planning efforts with Sonoma Water;
- Update the suite of common regional conservation measures that are being considered for implementation in the future;
- Review and document past participation in water conservation programs; and
- Estimate the potential water savings associated with future water conservation program implementation.

This 2025 Water Demand and Conservation Measure Update presents the results for the North Marin Water District (District), located in Sonoma County, and serving a population of approximately 61,686 people in 2024 (**Figure 1-2**). The District's water supplies include surface water purchased from Sonoma County Water Agency (Sonoma Water), local surface water from Safford Lake, and recycled water produced inside and outside of the District (EKI, 2021). Potable water is supplied to urban customers, and recycled water is served primarily for golf course and urban landscape irrigation customers. Conservation has been achieved through the implementation of water conservation programs, including most administered by the District and some administered through the regional SMSWP.

This 2025 Water Demand and Conservation report is organized as follows:

- **Section 1** identifies the goals and objectives of the Report;
- **Section 2** provides the regulatory context for the demand projections as described in the Report, as well as new requirements related to *Making Conservation a California Way of Life* (MCCWL; Assembly Bill [AB]-1668/ Senate Bill [SB]-606) that impact the water demand and conservation planning components of the 2025 UWMPs;
- **Section 3** describes historical water use patterns and characteristics within the District;

- **Section 4** documents past participation in conservation programs and estimated savings associated with program implementation, and presents the results of a detailed analysis of program participation trends for select conservation programs;
- **Section 5** describes the projected water demands through 2050, including the assumptions and methodology used;
- **Section 6** documents the water conservation measure screening process, identifies individual programs and program scenarios for potential future implementation by the District;
- **Section 7** documents the key findings and conclusions from the analyses presented throughout this report; and
- **Section 8** provides key references and sources.



Legend

- City of Cotati Service Area
- City of Petaluma Service Area
- City of Rohnert Park Service Area
- City of Santa Rosa Service Area
- City of Sonoma Service Area
- Marin Municipal Water District Service Area
- North Marin Water District Service Area
- Town of Windsor Service Area
- Valley of the Moon Water District Service Area
- County Boundaries

Notes

1. All locations are approximate.

Sources

1. Service area boundaries provided by respective agencies.
2. Basemap provided by ESRI.

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0 8 16

(Scale in Miles)

Participating Sonoma-Marin Saving Water Partnership Members

Sonoma Marin Saving Water Partnership
December 2025
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Figure 1-1

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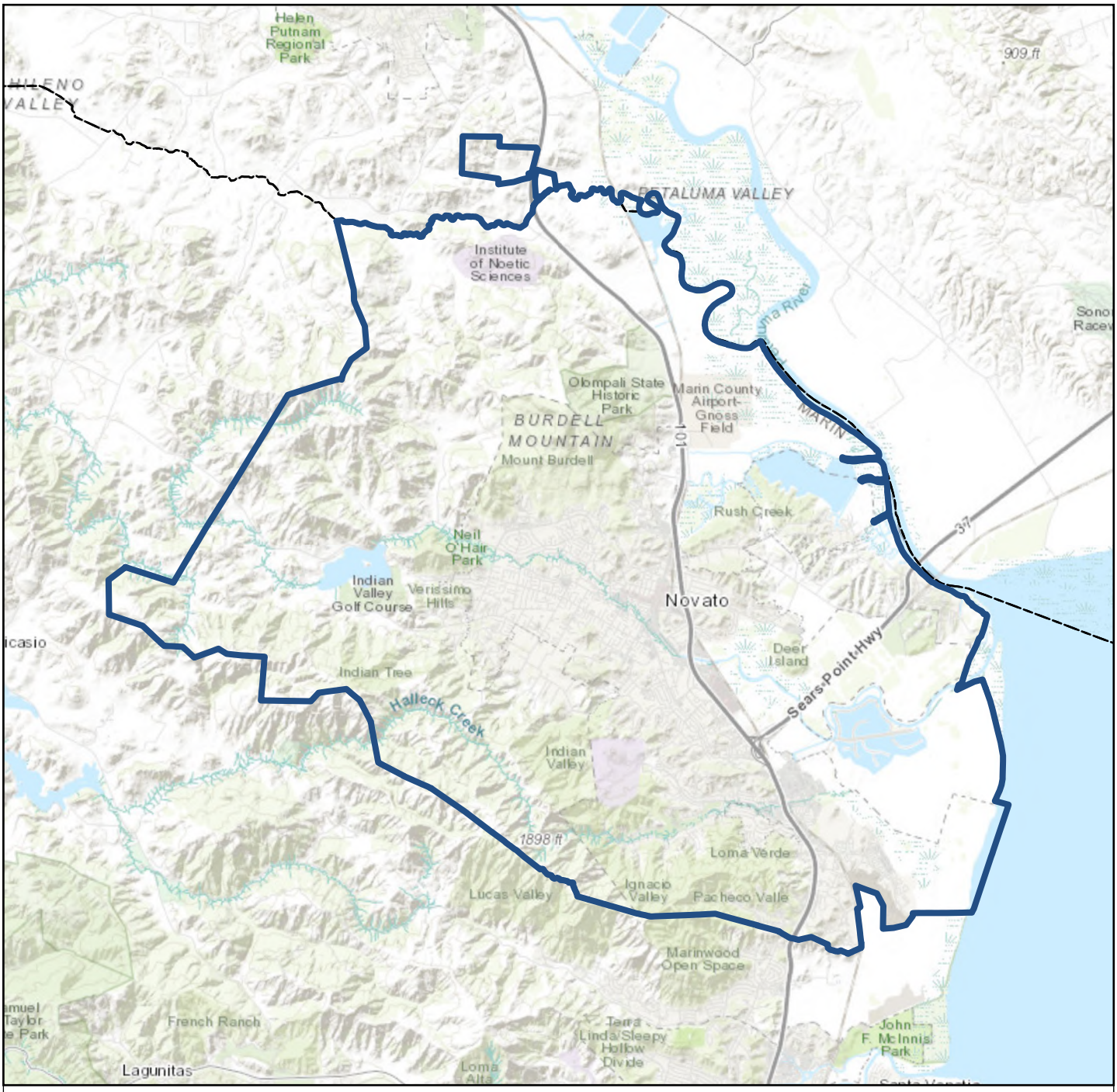

Legend

- North Marin Water District Service Area
- County Boundaries

Sources

1. Service area boundary provided by North Marin Water District.
2. Basemap provided by ESRI.

N

0 2 4

(Scale in Miles)

Notes

1. All locations are approximate.

Service Area Boundary – North Marin Water District

Sonoma Marin Saving Water Partnership
December 2025
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Figure 1-2

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2 REGULATORY CONTEXT

This section provides the regulatory background for the requirements to project future demand in the 2025 UWMP. Although there are no updates to the UWMP regulations since 2020, the MCCWL and other state regulations will impact the 2025 UWMPs, as they will inform the water demand projections and conservation planning components.

2.1 UWMP Demand Projections Requirements

California Water Code (CWC) § 10631, excerpted below, describes the requirements to develop water demand projections that consider water use by customer sector, incorporate distribution system water loss, and account for anticipated water savings. Water demand projections herein were developed for the District using a land-use-based approach that is consistent with these requirements, and can be incorporated into the District's 2025 UWMP.

CWC § 10631

A plan shall be adopted in accordance with this chapter that shall do all of the following:

…

(d) (1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

(J) Distribution system water loss.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

…

(d)(4) (A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall note that fact.

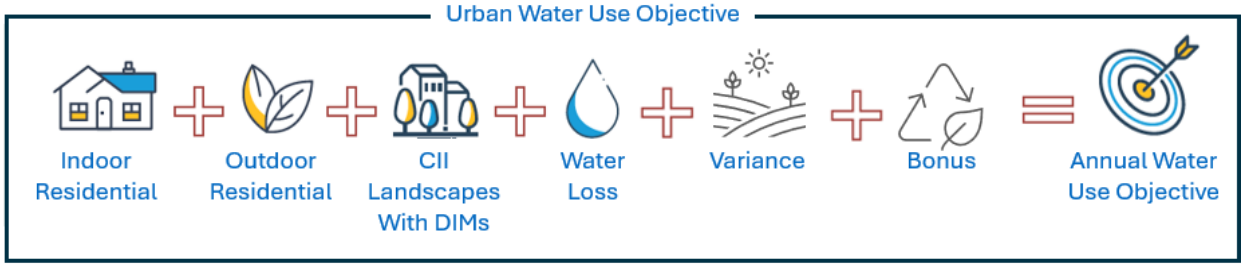
2.2 New Requirements for Water Use Efficiency

2.2.1 Making Conservation a California Way of Life

The State Water Resources Control Board (State Water Board) adopted a new Conservation Framework to implement Senate Bill 606 and Assembly Bill 1668 through the enactment of the MCCWL regulation in July 2024. The Conservation Framework requires each urban water supplier to calculate and comply with an annual Urban Water Use Objective (Objective) and to implement Commercial, Industrial, and Institutional (CII) Performance Measures, both of which must be reported on annually starting January 1, 2024 (although compliance with the Objective is not required until January 1, 2027).

As illustrated on **Figure 2-1** below, the Objective is calculated as the sum of the following components: (1) residential indoor water use standard, (2) residential outdoor water use standard, (3) CII landscape outdoor water use standard (for landscapes with dedicated irrigation meters [DIMs]), (4) water loss standard, (5) allowable variances, and (6) bonus provisions. Per the latest guidelines released by the Department of Water Resources (DWR) and the State Water Board, agencies will need to assess whether they meet their overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective).

Figure 2-1 Components of Urban Water Use Objective



The components of the Objective Water use include the following:

- **Indoor and Outdoor Residential**. Indoor and outdoor residential includes supplier-specific water-use standards for indoor and outdoor single-family and multi-family residential use. The standard for efficient residential indoor water use is expressed in gallons per capita per day (GPCD) and is currently set at 47 GPCD, which took effect January 1, 2025. This standard will be lowered to 42 GPCD beginning January 1, 2030 (**Figure 2-2**). The residential indoor water use budget is calculated by multiplying a supplier's residential service area population by the residential indoor standard and by the number of days in the year. The standard for efficient residential outdoor water use is expressed as the landscape efficiency factor (LEF), a unitless number used to indicate the amount of water a supplier may need to deliver a healthy and efficient landscape in the service area, and represents plant factors and irrigation efficiency (**Figure 2-2**).

The outdoor budget is then calculated by multiplying the relevant outdoor LEF by landscape area, net evapotranspiration, and a unit conversion factor of 0.62;

- **CII Landscapes with Dedicated Irrigation Meters**. The budget for CII water use associated with dedicated irrigation meters (DIMs) is calculated by multiplying the outdoor LEF (**Figure 2-2**) for the CII special landscape area, by area of the large landscape, net evapotranspiration, and a unit conversion of 0.62. However, the CII landscapes with DIMs budgets will not become effective until June 30, 2028; until then, the budget is equal to actual water deliveries to CII DIMs. In the future, urban retail suppliers will have the option of installing DIMs at "large landscapes" that are over 0.5 acres and currently served by mixed-use meters (MUMs) (see discussion of CII Performance Measures below);
- **Water Loss.** Water loss represents "real water losses" or physical water losses from the pressurized potable water system (water mains and customer service connections) and the utility's storage tanks, up to the point of customer consumption. These losses do not include apparent losses such as meter inaccuracies or theft. The water loss component is calculated based on the volumetric standards discussed in Section 2.2.2;
- **Variances.** Variances are an additional volume of water that an urban retail water supplier may request to add to its Objective for a unique use that has a substantial impact on a supplier's Objective. Types of variances include the following: (1) emergency response; (2) recycled water with high levels of total dissolved solids; and (3) other variances, which encompasses water use related to seasonal populations, dust control for horse corrals and animal exercise areas, irrigation of residential agricultural landscapes, water use for sustaining wildlife in ponds and lakes when required by regulation, and irrigation of existing trees. Approved variances can be included in a supplier's budget for up to five years and have documentation demonstrating that the variance does not conflict with permit requirements; and
- **Bonus Incentives.** Bonus incentives apply to potable reuse projects to help suppliers meet the Objective through alternative water sources. The bonus incentive is calculated by multiplying the urban retail water supplier's potable reuse volume, in gallons, depending on where the potable reuse water is obtained (i.e., groundwater basin, reservoir, direct potable reuse project) by the portion of total potable water production delivered to residential and landscape irrigation connections for the reporting year. Suppliers must report and update the bonus incentive calculation annually. Required documentation includes data on potable reuse volumes, loss factors for groundwater recharge and recovery, and verification from relevant regulatory authorities.

The progression of the residential indoor water use standard, residential outdoor LEF, and CII landscape with DIMs outdoor LEF is summarized on **Figure 2-2** below.

In addition, the Conservation Framework includes a number of requirements for CII Performance Measures, which include the following:

- **Implementing a classification system for CII water users**. Requires classification of CII accounts based on customer end use, and suppliers shall annually maintain at least a 95% classification rate of CII end users. CII accounts are to be classified based on customer end use, in accordance with the 18 Energy Star Portfolio Manager's broad categories (e.g.,

banking services, education, office, retail, utility, etc.), including four additional CII categories of laundries, landscapes with DIMs, water recreation, and car washes.

- **Converting MUMs to DIMs for CII customers with large landscapes, or employing in-lieu technologies combined with rolling out Best Management Practices (BMPs)**. Suppliers must install DIMs for CII customers with large landscapes (which include those over half an acre) or employ in-lieu technology (e.g., area median income [AMI]) and offer BMPs to CII customers.
- **Providing BMP programs for CII customers**. Suppliers must identify CII water users that exceed a recommended size, volume of water use, or another threshold. Options include identifying the top water users, identifying the top water users within CII classification categories, or identifying inefficient CII water users with the use of key business activity indicators. For CII customers identified, suppliers must design and implement conservation plans from a list of approved BMP themes.

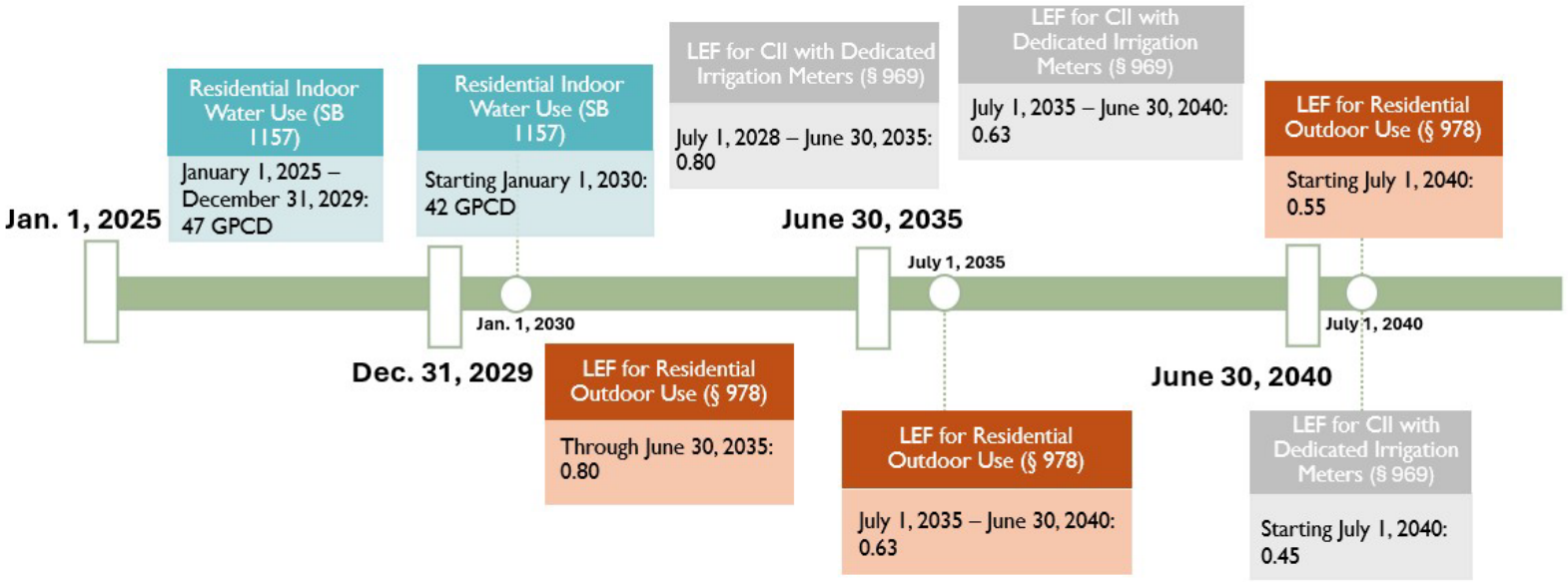
The implementation timeline of the MCCWL regulatory requirements is illustrated on **Figure 2-3**.

2.2.2 Related Regulations with MCCWL Compliance Implications

The following two regulations are separate from those embedded in the compliance requirements of MCCWL and are required to be reported on within annual Objective reporting:

- **Water Loss Control**. Urban water retailers are required to comply with State-assigned volumetric standards for real water loss. Suppliers must calculate system-specific water loss budgets by multiplying their State Board-assigned water loss standard by the number of days in the year and, depending on the units associated with the standard, by either the number of total service connections or the length of the distribution system. Suppliers with multiple systems must calculate an aggregate water loss budget by summing the estimated losses for each system.
- **Nonfunctional Turf Irrigation Ban (AB 1572)**. The nonfunctional turf irrigation ban applies to turf (mowed grass maintained for aesthetic purposes) that does not provide recreational or community benefits, including CII properties, and common areas of homeowner associations. Water suppliers need to identify which landscapes are subject to the ban and implement a plan to comply with the required schedule between 2027 and 2031, depending on the property type.

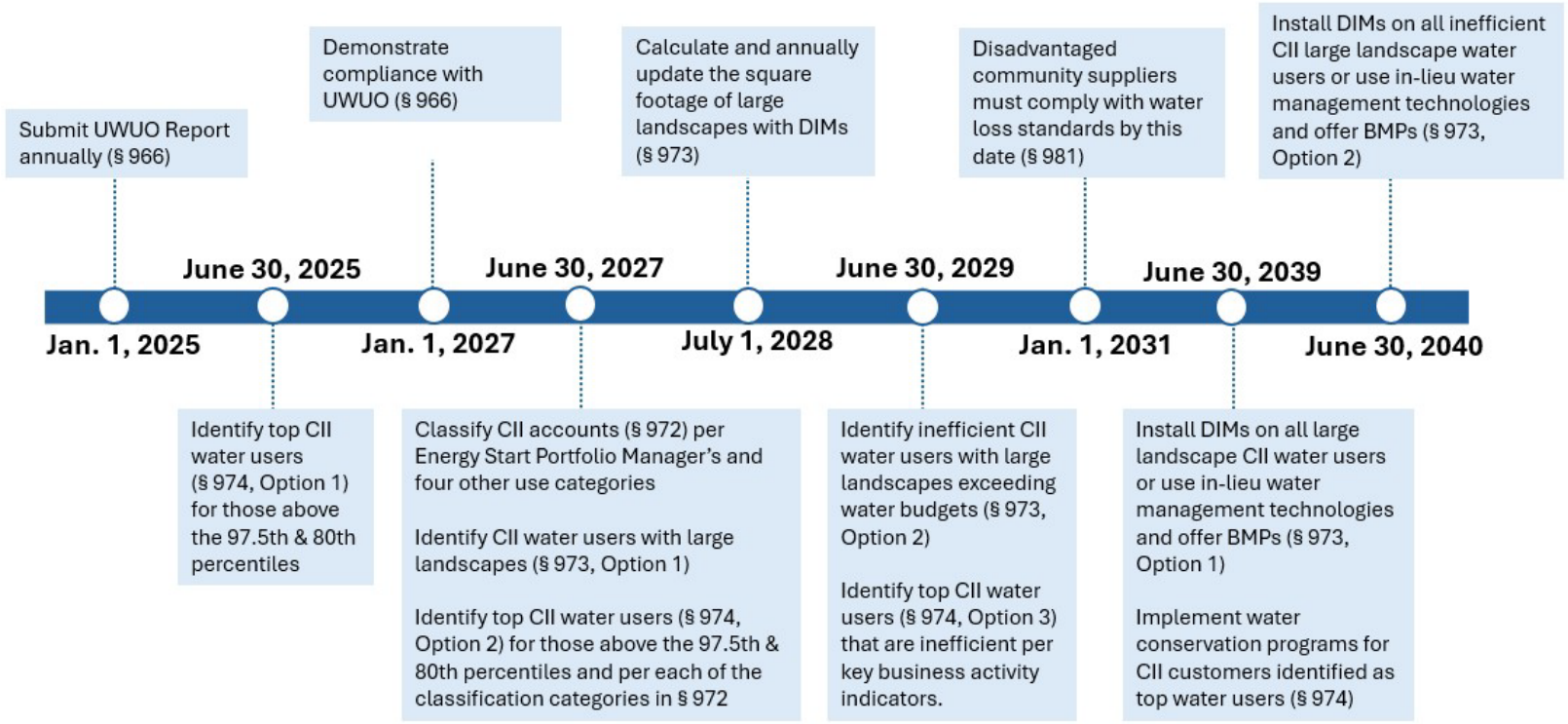
Figure 2-2 Progression of Objectives Indoor and Outdoor Efficiency Standards Through 2040



Abbreviations:

CII = commercial, industrial, and institutional
LEF = landscape efficiency factors
SB = Senate Bill

Figure 2-3 General Timeline of MCCWL Regulatory Requirements



Abbreviations:

BMPs = best management practices
CII = commercial, industrial, and institutional
DIMs = dedicated irrigation meters
UWUO = Urban Water Use Objective

3 WATER USE CHARACTERISTICS

This section describes historical water use by customers within the District including changes in observed water use, changes in average water use per account over time, and estimates of indoor and outdoor water use. This information is used to provide context and background to support the projection of future water demand and estimates of potential conservation program benefits. The terms "water use," "water consumption," and "water demand" are used interchangeably in this document.

3.1 Historical Total and Per Capita Water Use

Table 3-1 and **Figure 3-1** show the potable and recycled water use, total water use, total per capita water use, inclusive of both potable and recycled water[1], and residential per capita water use for the past 15 years, 2010 through 2024.

As shown in **Table 3-1** and on **Figure 3-1**, total water use (including potable and recycled water) peaked in 2013 at 10,489 acre-feet per year (AFY) before declining significantly in response to the historic 2014-2017 drought and the State's water-use reduction mandates. From 2015 to 2020, water use rebounded from 7,429 to 8,765 AFY before declining again due to the 2021-2023 drought. While there was a modest increase following the drought to 7,703 AFY in 2024, total water use remains below historical levels observed in the 2010s.

Total per capita water use (including both potable and recycled water use) has declined over the period, from a high of 154 gallons per capita per day (GPCD) in 2013 to lows of 100 and 96 GPCD in 2022 and 2023, respectively. A similar trend was observed in residential per capita water use. These trends reflect the impact of water efficiency improvements, as well as demand hardening as structural and behavioral changes during droughts result in lasting water use reductions.

Historical water consumption per customer sector is provided in **Table 3-2** and shown by sector groups on **Figure 3-2**[2]. **Figure 3-3** shows the proportional water use by sector group. The single-family residential (SFR) sector comprises the largest proportion of the District's total water consumption (56.7%). By comparison, the proportional water use consumption for the other sectors includes the multi-family residential (MFR) sector at 16.2%; the combined commercial, industrial, and institutional (CII) sector at 12.4%; dedicated irrigation accounts at 5.8%; and recycled water comprises 8.9% of total water consumption. Separately, non-revenue water was estimated to be 6.6% of the District's total water demand (**Table 3-2**).

[1] Per capita water use for purposes of comparing water use to SB X7-7 water conservation targets may be different, due to the prescriptive method by DWR for determining an agencies compliance population and total water use. SB X7-7 compliance will need to be separately addressed by the District's UWMP.
[2] Customer sectors are grouped into categories of SFR, MFR, CII total (mixed-use meters), irrigation (dedicated irrigation meters), and recycled water.

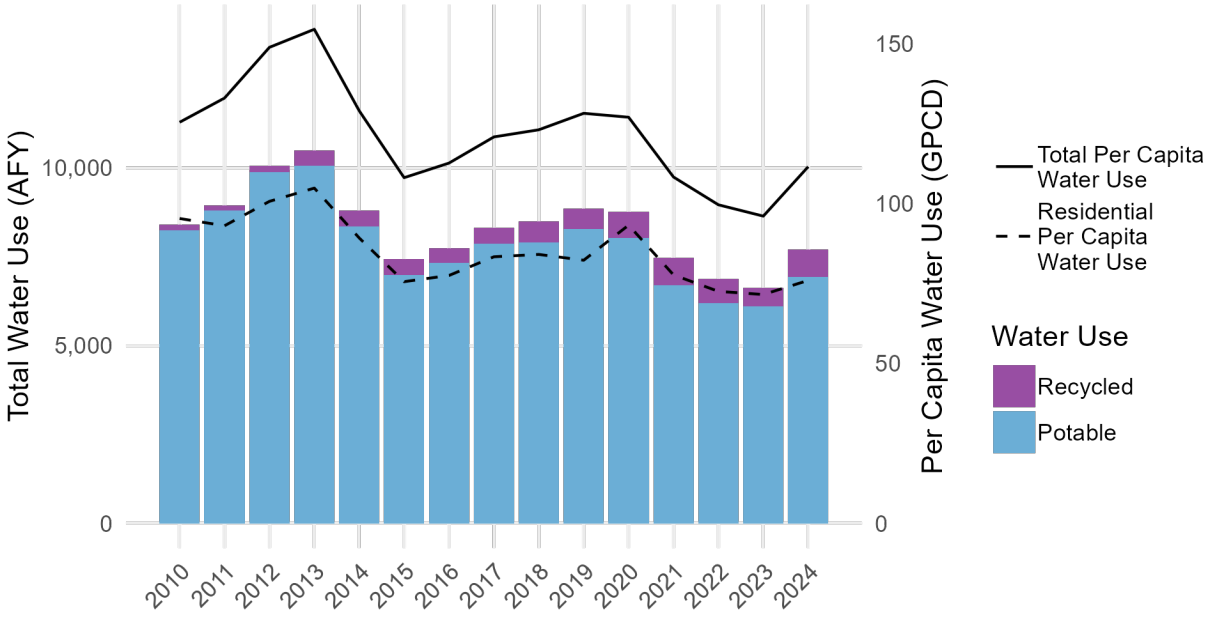
Table 3-1 Total and Per Capita Water Use

Year	Potable Water Use (AFY) (a)	Recycled Water Use (AFY) (a)	Total Water Use (AFY) (b)	Total Per Capita Water Use (GPCD) (c)	Residential Per Capita Water Use (R-GPCD) (d)
2010	8,248	159	8,407	125	95
2011	8,793	159	8,952	133	93
2012	9,879	184	10,063	149	101
2013	10,069	420	10,489	154	105
2014	8,343	453	8,796	129	89
2015	6,977	452	7,429	108	76
2016	7,328	415	7,743	113	77
2017	7,859	458	8,317	121	83
2018	7,898	592	8,491	123	84
2019	8,271	578	8,849	128	82
2020	8,031	733	8,765	127	93
2021	6,696	779	7,476	108	78
2022	6,196	684	6,880	100	73
2023	6,104	531	6,635	96	72
2024	6,923	779	7,703	111	76

Abbreviations:
AFY = acre-feet per year
GPCD = gallons per capita per day
R-GPCD = residential gallons per capita per day

Notes:
(a) Water use data are based on water production data provided by District staff.
(b) Totals may not sum due to rounding.
(c) Total per capita water use is calculated by dividing the annual water use by service area population (see Section 4) and the number of days in a year.
(d) Residential per capita water use is calculated by dividing the annual residential water use by the service area population and the number of days in a year.

Figure 3-1 Total Water Production and Per Capita Water Use



Abbreviations:

AFY = acre-feet per year
GPCD = gallons per capita per day

Table 3-2 Annual Water Use by Customer Sector

Water Use Sector	Water Use (AFY) (a)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Single Family	5,126	4,995	5,528	5,810	4,883	4,090	4,232	4,631	4,677	4,553	5,119	4,209	3,865	3,814	4,081
Multi-family	1,263	1,269	1,278	1,307	1,201	1,104	1,095	1,106	1,124	1,124	1,317	1,154	1,145	1,128	1,165
Commercial	1,240	1,200	1,295	1,316	1,198	1,051	1,046	1,133	1,256	1,199	1,377	937	867	905	890
Irrigation	850	811	981	965	782	678	712	796	716	749	543	620	414	353	416
Recycled	159	159	184	420	453	452	415	458	592	578	772	729	566	521	639
Total Water Consumption (c)	**8,638**	**8,433**	**9,267**	**9,819**	**8,517**	**7,375**	**7,501**	**8,124**	**8,366**	**8,204**	**9,128**	**7,648**	**6,857**	**6,721**	**7,193**
Non-Revenue Water (b)	-231	519	796	670	279	54	242	193	124	645	-363	-173	23	-86	510
	-2.7%	5.8%	7.9%	6.4%	3.2%	0.7%	3.1%	2.3%	1.5%	7.3%	-4.1%	-2.3%	0.3%	-1.3%	6.6%
Total Water Demand (c)	**8,407**	**8,952**	**10,063**	**10,489**	**8,796**	**7,429**	**7,743**	**8,317**	**8,491**	**8,849**	**8,765**	**7,476**	**6,880**	**6,635**	**7,703**

Abbreviations:
AFY = acre-feet per year

Notes:
(a) Water use data are provided by District staff.
(b) Non-revenue water is calculated as the difference between total production and total consumption.
(c) Totals may not sum due to rounding.

Figure 3-2 Annual Water Use by Sector Group

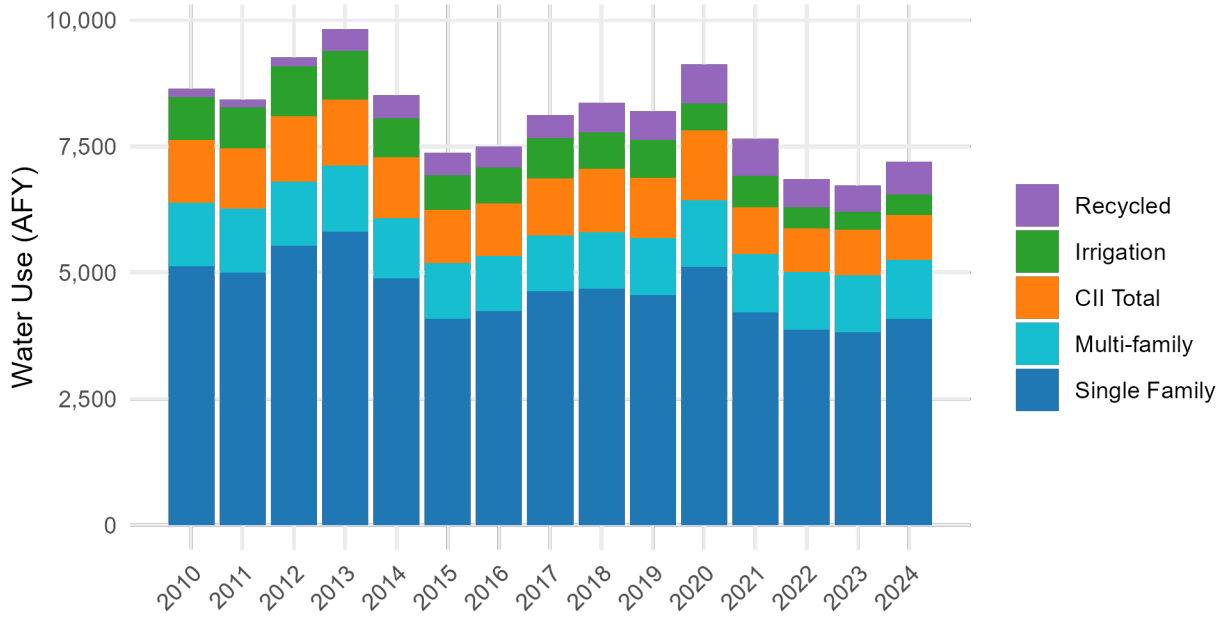
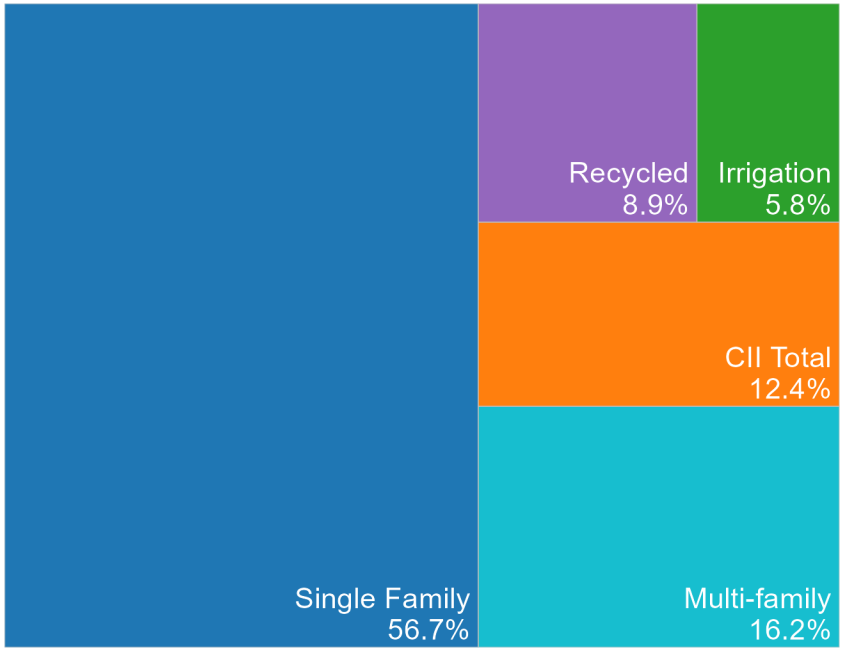


Figure 3-3 Proportional Water Use by Sector Group in 2024



Abbreviations:

AFY = acre-feet per year
CII = commercial, industrial, and institutional

Notes:

The CII Total sector group represents water use across all CII sectors with mixed-use meters.
The irrigation sector group represents water use across all CII dedicated irrigation meters.

3.2 Water Use Trends by Customer Sector

This section discusses long-term trends in both total water use and per-account water use across the SFR, MFR, CII, irrigation, and recycled water sector groups between 2010 and 2024. **Figure 3-4** shows monthly water use with 12-month moving averages. **Figure 3-5** summarizes the average annual water use per account. **Table 3-3** provides water use per customer sector. In total, these results provide insight into how each sector has responded to drought conditions, economic changes, and shifts in demographics.

- **SFR and MFR**: In both sectors, total water use has declined slightly between 2010 and 2024, with notable reductions during drought periods and partial rebounds after the droughts. Water use reductions during the drought periods are accompanied by diminished seasonality (**Figure 3-4**) that reflects likely reductions in outdoor irrigation in response to water use restrictions.

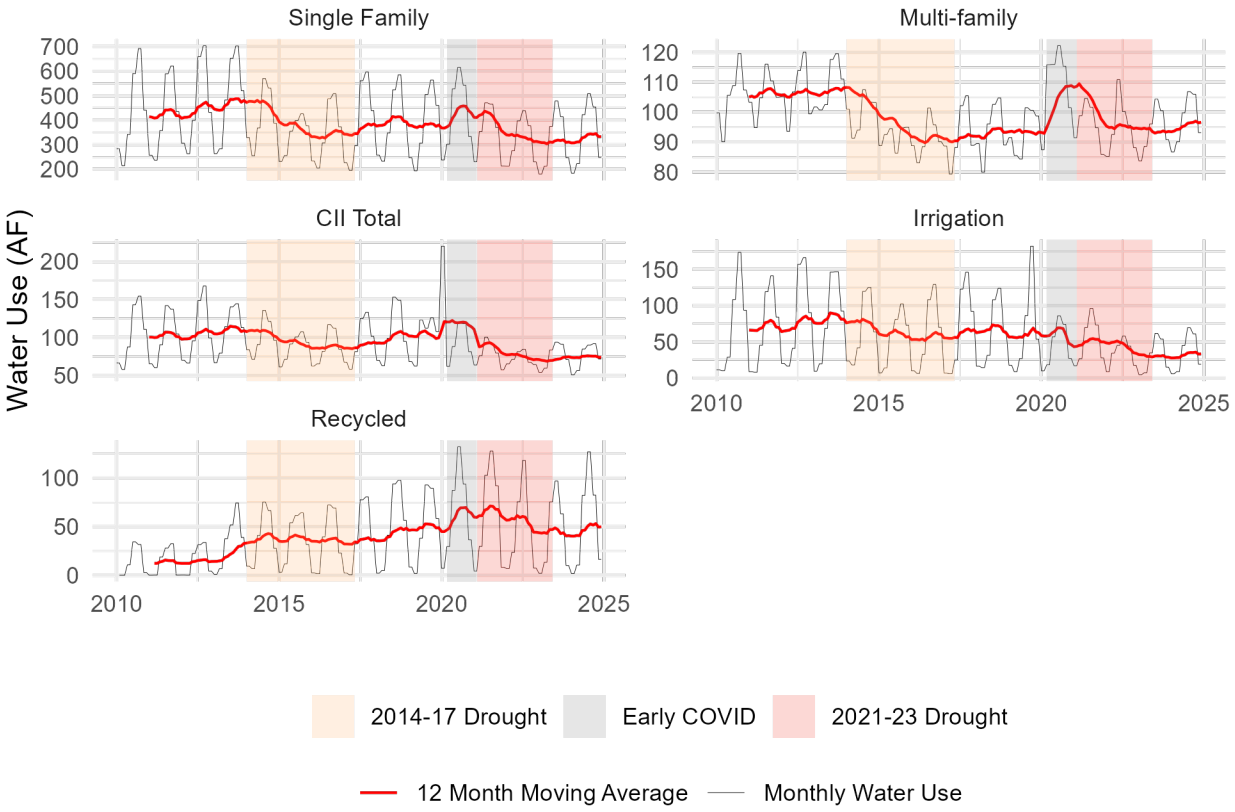
  Average per-account water use was highest in 2013 in both sectors and rose again in 2020; likely due to stay-at-home measures during the beginning of the pandemic (**Figure 3-5**). Per-account use began to rebound in 2023-2024, and current levels are below historical in the SFR sector and comparable to 2017-2019 levels in the MFR sector.

- **CII Total**: The CII sectors exhibited a stronger rebound post-2014-2017 drought but showed declines in both total and per account use following the pandemic in 2020. These shifts may be tied to long-term changes in business activity and employment in the District, with reduced water demand persisting through 2024. Per account use has not begun to rebound and stays stable in 2023-2024 with current levels below historical.

- **Irrigation**: The irrigation sectors showed reductions during drought years and an overall water use decline between 2010 and 2024. Per account water use shows signs of a slight rebound in 2023-2024 but remains lower than historical levels.

- **Recycled water**: Recycled water use has increased in total volume over time, with a peak in 2021 followed by slight declines in response to the 2021-2023 drought. Per-account water use ranged between 5,060 gpd/account and 9,189 gpd/account between 2013 and 2024.

Figure 3-4 Monthly Water Use and 12-Month Moving Average



Abbreviations:

AF = acre-feet
CII = commercial, industrial, institutional

Notes:

The CII Total sector group represents water use across all CII sectors with mixed-use meters.
The irrigation sector group represents water use across all CII dedicated irrigation meters.

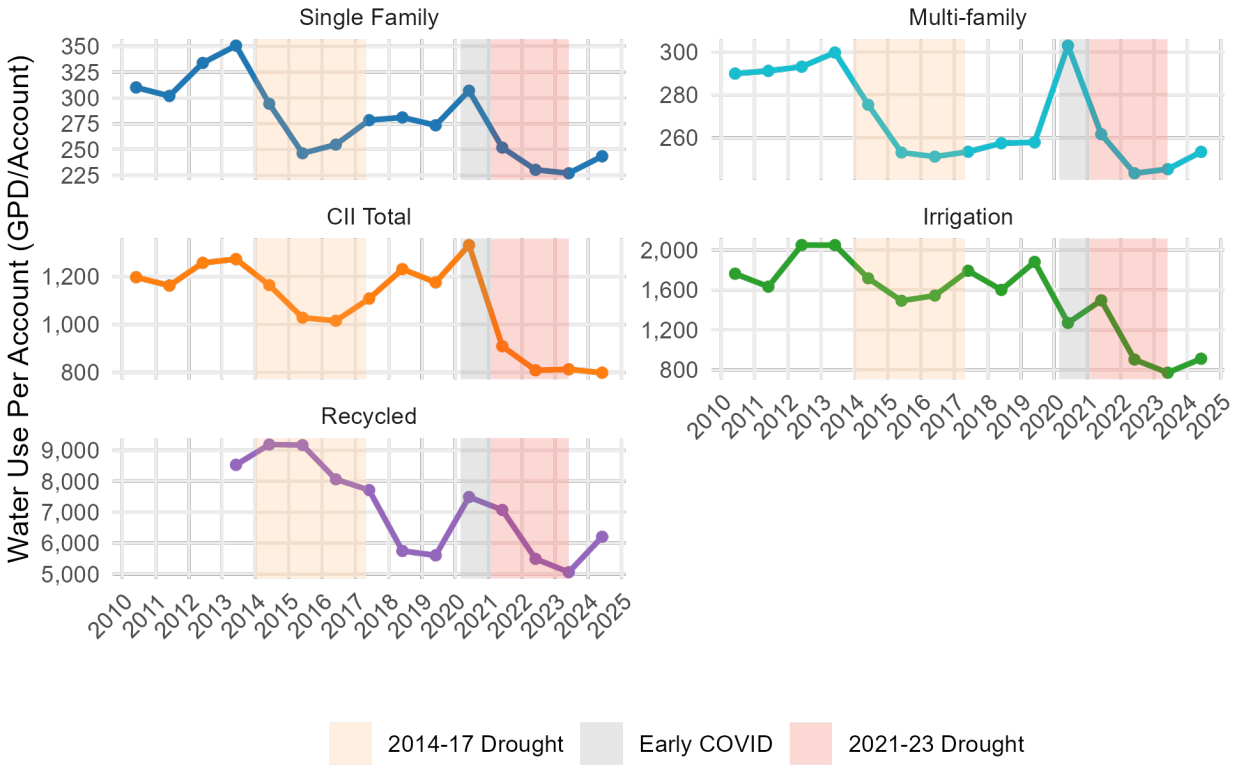
Table 3-3 Average Per Account Water Use by Sector Group

Water Use Sector	Water Use per Account (GPD/Account)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Single-Family Residential	310	302	334	351	294	246	255	278	281	273	307	252	230	227	243
Multi-Family Residential (a)	290	291	293	300	275	253	251	253	257	258	303	262	243	245	253
CII Total (b)	1,196	1,161	1,256	1,272	1,164	1,028	1,015	1,107	1,230	1,175	1,330	909	809	813	799
Irrigation (c)	1,761	1,631	2,047	2,047	1,715	1,491	1,542	1,790	1,599	1,879	1,269	1,495	903	771	911
Recycled Water	(d)	(d)	(d)	8,531	9,189	9,171	8,063	7,714	5,747	5,604	7,492	7,073	5,491	5,060	6,204

Abbreviations:
CII = commercial, industrial, and institutional
GPD = gallons per day

Notes:
(a) The water use per account for multi-family residential customers measures water use at the master meter level, which can serve multiple units or the entire complex. This does not reflect water use per dwelling unit, as many properties are not individually submetered.
(b) Based on the total water use and number of accounts across all CII sectors with mixed-use meters.
(c) Based on the total water use and number of accounts across all sectors with dedicated irrigation meters.
(d) Per account recycled water use during 2010-2012 was significantly higher than in other years and has been excluded from the analysis presented herein due to its anomalous nature.

Figure 3-5 Average Per Account Water Use by Sector Group



Abbreviations:

CII = commercial, industrial, and institutional
GPD = gallons per day

Notes:

(a) The CII Total sector group represents water use across all CII sectors with mixed-use meters. The irrigation sector group represents water use across all CII dedicated irrigation meters.

3.3 Estimated Indoor and Outdoor Water Use

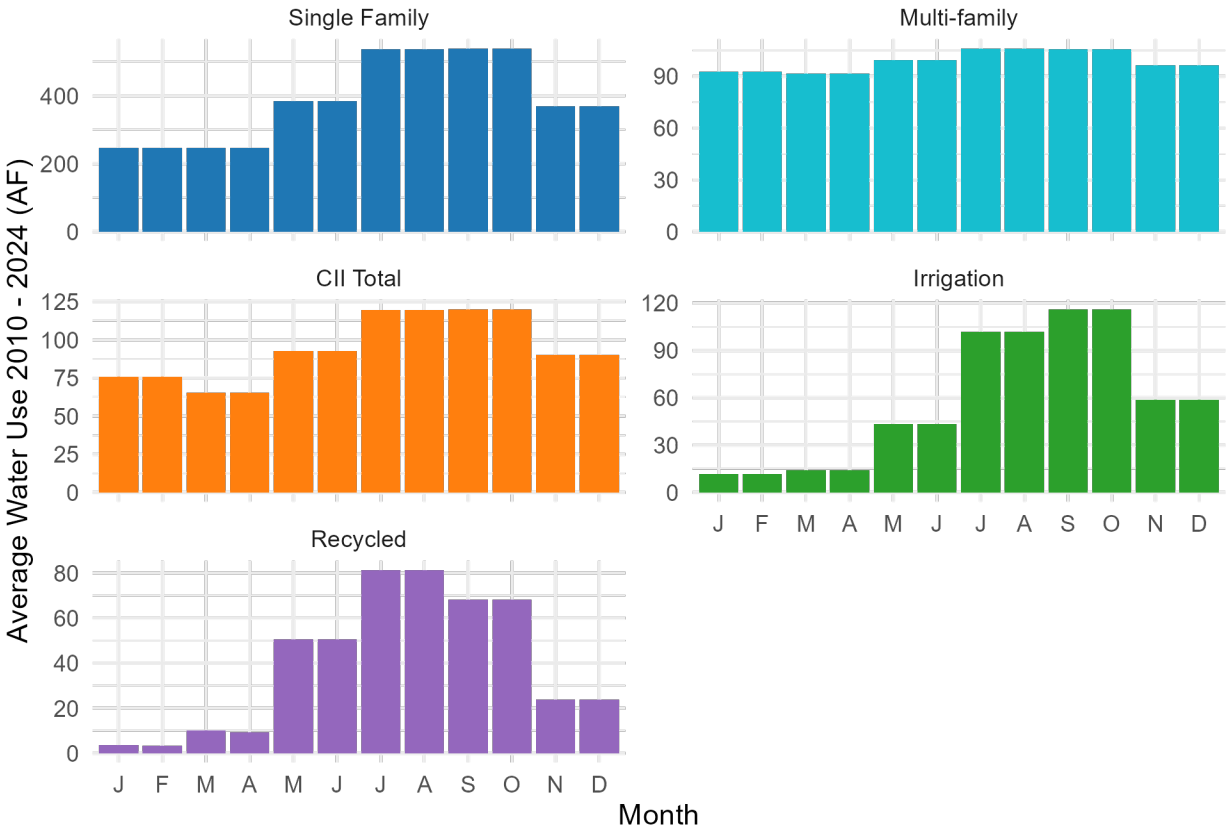
Water use within the District varies seasonally (**Figure 3-6**), primarily driven by increased irrigation needs in the summer compared to the more limited irrigation water use during the wetter and cooler winter months. The most pronounced seasonal fluctuations occur in the irrigation and recycled water sectors, where water use is limited to outdoor irrigation and water use is minimal during the winter.

In contrast, SFR, MFR, and the CII sector include water use from mixed-use meters and record both indoor and outdoor water use. In the SFR and CII sectors, summer water use is approximately double that of winter water use. The MFR sector shows less seasonality, with summer water use about 16% higher than winter water use.

It is important to note that many MFR and CII customers have dedicated irrigation meters that are included in the irrigation sector, not within the MFR and CII mixed-use sectors. As a result, the outdoor water use estimated for MFR and CII sectors herein reflects only the portion of

irrigation that remains on the domestic or mixed-use accounts. Some CII industries, such as restaurants, manufacturing, or facilities with cooling needs, may also experience seasonal variation in indoor water use, contributing to the modest increase in CII summer demands.

Figure 3-6 Average Monthly Water Use, 2010-2024



Abbreviations:

AF = acre-feet
CII = commercial, industrial, and institutional

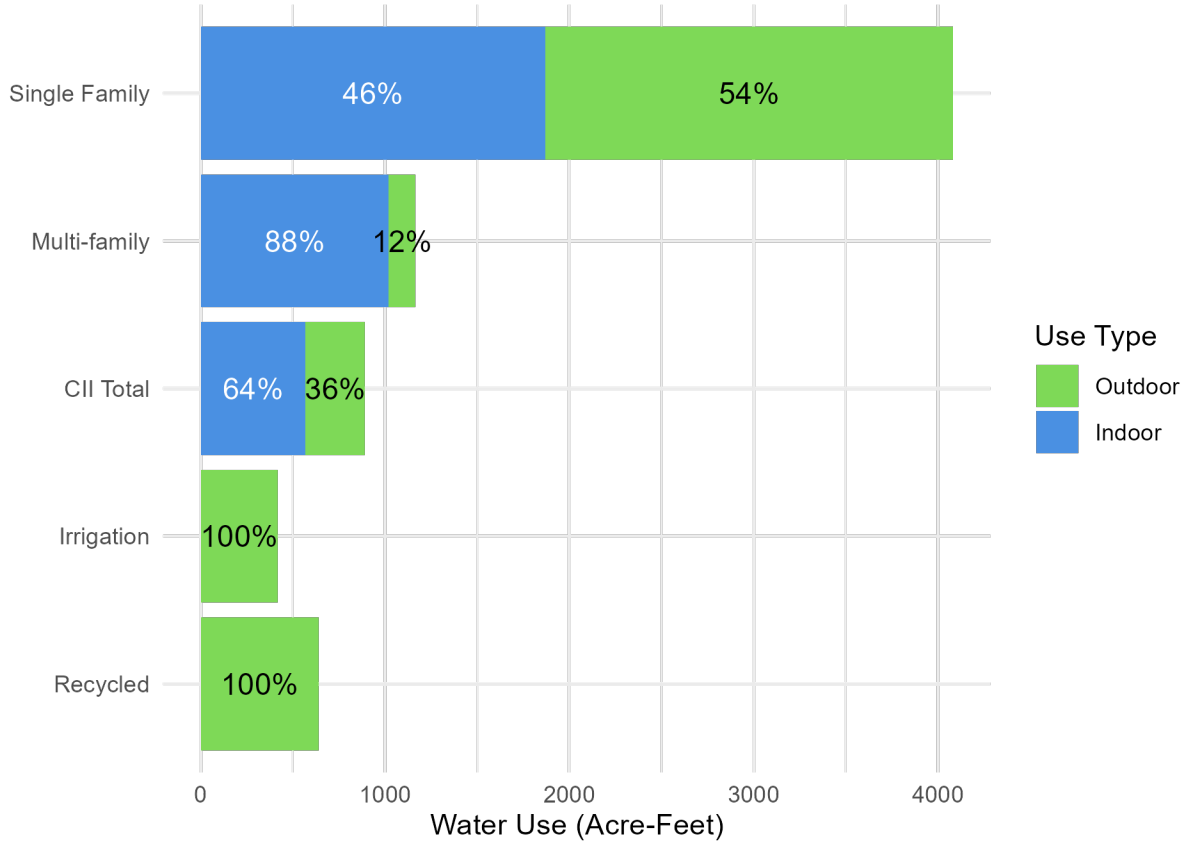
Notes:

(a). The CII Total sector group represents water use across all CII sectors with mixed-use meters. The irrigation sector group represents water use across all CII dedicated irrigation meters.

A Seasonal Adjustment Method was used to estimate the relative proportions of water use that are used indoors versus outdoors in non-irrigation sectors. The methodology is further described in Appendix A. The results of this estimate are shown on **Figure 3-7**.

Aside from the dedicated irrigation and recycled sectors (100% outdoor water use), SFR water use is estimated to have the highest proportion of outdoor water use at 54%, followed by the CII sector of mixed-use accounts at 36%. The MFR sector of mixed-use accounts has an estimated 12% outdoor water use, corresponding to the lesser seasonality observed in this sector. These values should be interpreted with the understanding that a substantial portion of MFR and CII landscape irrigation is already captured in the irrigation sector through dedicated irrigation meters. Given their landscape-only demands, MFR and CII dedicated irrigation accounts represent meaningful opportunities for outdoor conservation programs.

Figure 3-7 Estimated Indoor and Outdoor Water Use, 2024



Abbreviations:

CII = commercial, industrial, and institutional

Notes:

The CII Total sector group represents water use across all CII sectors with mixed-use meters.
The irrigation sector group represents water use across all CII dedicated irrigation meters.

4 CONSERVATION PROGRAM PARTICIPATION

This section evaluates past participation in water conservation programs by District customers, including presenting historic program participation and estimated water savings associated with program participation. The purpose of this section is to document program participation and savings in order to inform future program selection and implementation, and to support the demand management measure (DMM) reporting required in the UWMP under CWC § 10631(e).[3]

4.1 Conservation Programs

The description of water conservation programs, eligible customer classes, and program run dates provided by the District to their customers is summarized in **Table 4-1** below. The District currently implements 16 conservation programs offered directly to customers. While many of these programs have been in operation since 1999, for the purposes of this analysis and report, only participation from 2008 to present was documented.

Table 4-1 Description of Conservation Programs

Program	Description	Eligible Customer Class(es)	Program Run Dates
Water Smart Home Surveys Program	In-depth analysis of the residential customer's indoor and outdoor water use with water-efficient recommendations to implement.	SFR (Both)	2008 – Current
Water Smart Commercial Surveys Program		CII (Both)	2008 – Current
Residential HET Rebates Program	Incentive available for qualifying customers who replace toilet(s) that use more than 1.6 gpf and replace them with a District-approved HET or UHET.	SFR (Indoor)	2008 – Current
Commercial HET Rebates Program		CII (Indoor)	2008 – Current
UHET Distribution Program		SFR (Indoor)	2008 – Current
Retrofit on Resale (Dwellings Certified) Program	All existing plumbing fixtures in existing structures receiving water from the District's water system shall, at the time of change of ownership, be retrofitted, if not already done, exclusively with water-conserving plumbing fixtures per Regulation 15 Section M.	SFR (Indoor)	2008 – Current

[3] The information presented herein supports a portion of the required DMM analysis, focusing on device and education-focused programs. Additional details regarding customer billing rates and structure, conservation staffing levels, customer metering, etc. are required under CWC § 10631(e) but not addressed herein.

Table 4-1 Description of Conservation Programs (Continued)

Program	Description	Eligible Customer Class(es)	Program Run Dates
HECW Rebates Program	District customers are eligible for a rebate, as available from time to time, for approved high-efficiency washing machines in existing residences.	SFR (Indoor)	2008 – Current
Water Smart Landscape Rebates Program	Landscape water-efficient rebates are available to customers who install qualified water-efficient landscape equipment.	SFR (Outdoor)	2009 – Current
Residential WBIC Rebates Program	Incentive available, on a per irrigation valve basis, for the installation of District-approved weather-based irrigation controllers.	SFR (Outdoor)	2008 – Current
Commercial WBIC Rebates Program		CII (Outdoor)	2008 – Current
Swimming Pool Cover Rebates Program	District customers are eligible for rebates for purchasing District-approved swimming pool covers.	SFR (Outdoor)	2008 – Current
Large Landscape Audits Program	Detailed irrigation audits are available to all large landscape dedicated irrigation and mixed-use metered customers. Audit includes (but is not limited to) review of existing practices and provides recommendations for improved water use efficiency.	IRR (Outdoor)	2008 – Current
Lawn Be Gone (Sheet Mulching) Program	Sheet mulching materials (Cardboard, Compost, and Mulch) are available to customers who wish to cover their regularly maintained and irrigated lawn areas.	SFR (Outdoor)	2015 – Current
Hot Water Recirculation Program	An incentive is available to customers who install District-qualified hot water recirculation systems.	SFR (Indoor)	2015 – Current
Cash for Grass Rebates Program for Single-Family Accounts	An incentive is available for customers who remove regularly maintained and irrigated lawn areas and replace them with approved low-water-use plantings on drip irrigation.	SFR (Outdoor)	2008 – Current

Table 4-1 Description of Conservation Programs (Continued)

Abbreviations:

CII = commercial, industrial, institutional
HECW = High Efficiency Clothes Washer
HET = High-Efficiency Toilet
IRR = Irrigation
gpf = gallons per flush
SFR = Single Family Residential
UHET = Ultra High Efficiency Toilet
WBIC = Weather-Based Irrigation Controller

In addition to programs offered by the District, several regional programs are offered through the SMSWP, including: (1) education and outreach to schools, (2) public outreach and educational workshops, (3) Qualified Water Efficient Landscaper (QWEL) Training, and (4) garden tours.

4.2 Historical Conservation Program Participation

Table 4-3 summarizes participation in the District's conservation programs from 2008 through 2024. Darker shading indicates higher participation values. The table shows the total number of participants in each program as a percentage of the total number of accounts in the predominant sector. This percentage serves as a measurement of program saturation (i.e., how extensively the program has been adopted within the target customer base) and whether there remains future potential from the program. **Figure 4-1** further illustrates the data included in **Table 4-3**, showing the participation by end use, sector group, or program categories, and turf replacement square footage over time.

Among the programs offered by the District, the programs that reached the largest number of customers and their respective sector participation rates included:

- Residential HET Rebates Program, 30% in the SFR sector;
- Retrofit on Resale (Dwellings Certified) Program, 27% in the SFR sector; and
- Water Smart Home Surveys Program, 25% in the SFR sector.

In addition, the District installed AMI meters on 100% of its services and provides leak notification to all of its customers.

As shown on **Figure 4-1,** graph A, participation in outdoor programs has remained stable over time, whereas participation in indoor programs and programs that target both end uses has decreased over time. Participation from the residential sector (graph B) has declined over time, while participation from the CII and irrigation sectors remained stable. Through the turf removal programs, over 800,000 square feet of turf have been removed. Per graph C, participation in these programs has fluctuated with peak activity during early implementation and drought years.

Looking at all programs per program category (graph D), most programs have a declining adoption rate over recent years, except participation in Audits and Reports remained relatively steady due to the consistent offering of the Large Landscape Budgets Program.

Table 4-2 summarizes participation in the regional SMWSP water conservation direct instruction school education and outreach programs from the 2020-2021 through 2024-2025 school years. Over this period, 2,656 students were reached by direct instruction. Additional students were

reached through indirect instruction such as assemblies, video and poster contests, and other educational materials.

Table 4-2 Participation in SMSWP School Education Programs, Direct Instruction

Grade Level	Number of Students Reached by School Year				
	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Kindergarten	-	-	-	24	68
1st – 3rd Grade	74	74	142	288	422
4th – 5th Grade	273	52	262	257	357
Middle/High School	-	208	155	-	-
Total	**347**	**334**	**559**	**569**	**847**

4.3 Estimated Savings from Past Conservation Programs

The Alliance for Water Efficiency (AWE) model[4] was used to estimate water savings associated with the implementation of all devices or turf replacement and audit programs identified in **Table** 4-3 for the period of 2010 to 2024. Water savings estimates were based on AWE model default values and other literature values as needed. The specific assumptions used in this assessment are presented in Appendix B**.** The results of this analysis are presented in **Table 4-4** and illustrated on **Figure 4-2**. It is estimated that conservation programs included in this assessment resulted in active savings of 2,452 AF between 2010 and 2024.

As shown on **Figure 4-2,** the most successful program types in terms of estimated savings include the following, listed in order of savings:

- Audits & Reports (Water Smart Surveys Programs, Large Landscape Audits Program, and Large Landscape Budgets Program);
- HET and UHET Programs;
- Clothes Washes (HECW Rebate Program);
- Turf Replacement (Cash for Grass and Lawn Be Gone Rebate Programs); and
- Irrigation System and Devices (Water Smart Landscape Rebates Program and WBIC Rebates Program).

In addition, over this period, it is estimated that 747 AF was saved through passive savings.[5] Thus, total active and passive savings are estimated to be 3,199 AF.

[4] Alliance for Water Efficiency, Water Conservation Tracking Tool Version 4.3.
[5] Passive water savings are water savings associated with the natural replacement of water using fixtures and devices with higher efficiency ones, due to plumbing code and market changes. Passive savings are estimated for the whole service area.

Table 4-3 Summary of Conservation Program Participation
North Marin Water District, Sonoma-Marin Saving Water Partnership

Program Name	End Use		Program Category	Number of Program Participants																		Pct. of Accounts (b)
	Sector (a)	Indoor/ Outdoor		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total	
Water Smart Home Surveys Program	SFR	Both	Audits & Reports	213	305	330	345	283	177	366	364	224	385	301	245	152	0	9	13	17	**3,729**	**24.9%**
Water Smart Commercial Surveys Program	CII	Both	Audits & Reports	28	22	39	20	5	4	5	7	5	10	4	2	3	0	4	4	2	**164**	**11.7%**
Residential HET Rebates Program	SFR	Indoor	HET	368	511	541	568	230	238	348	352	354	211	147	172	125	109	133	71	62	**4,540**	**30.3%**
Commercial HET Rebates Program	CII	Indoor	HET	32	137	13	64	5	9	1	17	4	3	3	3	0	2	2	1	2	**298**	**21.2%**
UHET Distribution Program	SFR	Indoor	ULFT	502	764	0	0	0	0	497	85	10	0	0	0	0	0	0	0	0	**1,858**	**12.4%**
Retrofit on Resale (Dwellings Certified) Program	SFR	Indoor	Policies & Regulations	248	303	322	280	274	315	293	288	236	278	249	174	170	225	169	97	92	**4,013**	**26.8%**
HECW Rebates Program	SFR	Indoor	Clothes Washers	415	543	476	468	312	252	308	155	103	55	24	16	7	26	37	33	44	**3,274**	**21.9%**
Water Smart Landscape Rebates Program	SFR	Outdoor	Irrigation Systems & Devices	-	21	23	15	8	3	9	8	7	8	4	8	10	16	31	20	10	**201**	**1.3%**
Residential WBIC Rebates Program	SFR	Outdoor	Irrigation Systems & Devices	10	10	5	0	2	22	18	8	7	11	15	19	17	28	16	14	6	**208**	**1.4%**
Commercial WBIC Rebates Program	CII	Outdoor	Irrigation Systems & Devices	4	4	20	1	1	0	0	0	0	0	0	0	0	0	3	0	0	**33**	**2.4%**
Swimming Pool Cover Rebates Program	SFR	Outdoor	Pools & Fountains	69	20	2	2	0	0	0	25	27	3	5	5	2	31	50	28	23	**292**	**2.0%**
Large Landscape Audits Program	IRR	Outdoor	Audits & Reports	20	12	19	6	0	16	5	0	8	0	9	10	4	3	2	2	3	**119**	**29.2%**
Lawn Be Gone (Sheet Mulching) Program	SFR	Outdoor	Turf Replacement	-	-	-	-	-	-	-	15	5	2	3	3	0	9	0	2	0	**39**	**0.3%**
Hot Water Recirculation Rebate Program	SFR	Indoor	Cooling & Heating Systems	-	-	-	-	-	-	-	15	5	1	4	2	2	14	4	4	4	**50**	**0.3%**
Total Turf Removed (square feet)																						
Cash for Grass Rebates Program	SFR	Outdoor	Turf Replacement	17,525	49,028	86,129	37,954	28,540	27,207	46,485	114,341	132,226	41,760	17,581	33,392	20,212	11,596	42,601	32,004	17,308	**755,889**	**-**
Cash for Grass Rebates Program for Irrigation Accounts	IRR	Outdoor	Turf Replacement	53,553												-	-	-	-	-	53,553	**-**
Lawn Be Gone (Sheet Mulching) Program	SFR	Outdoor	Turf Replacement	-	-	-	-	-	-	-	10,000	3,500	1,600	2,400	2,400	0	7,200	0	1,600	0	28,700	**-**
Active AMI Meters																						
AMI Leak Notifications Program	All	Both	Leaks and Water Losses	-	-	-	-	-	-	-	-	-	294	16,812	19,216	19,377	19,532	19,806	19,954	20,547	**20,547**	(d)

Abbreviations

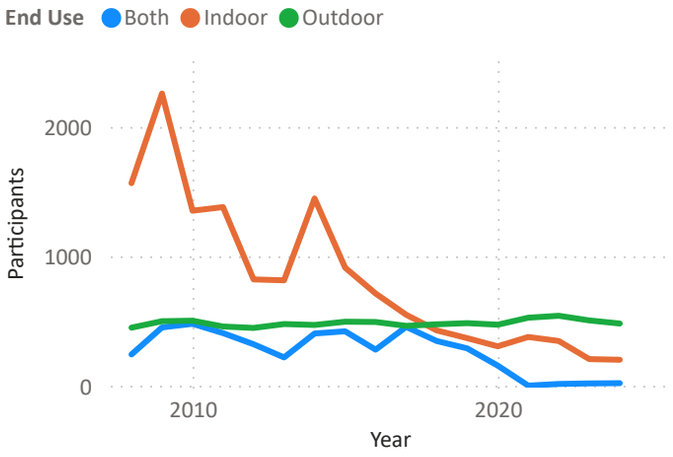
AMI = advanced meter infrastructure
CII = Commercial, Industrial, Institutional
HECW = High Efficiency Clothes Washer
HET = High Efficiency Toilet
IRR = Irrigation
SFR = Single-family residential
WBIC = Weather Based Irrigation Controller

Notes

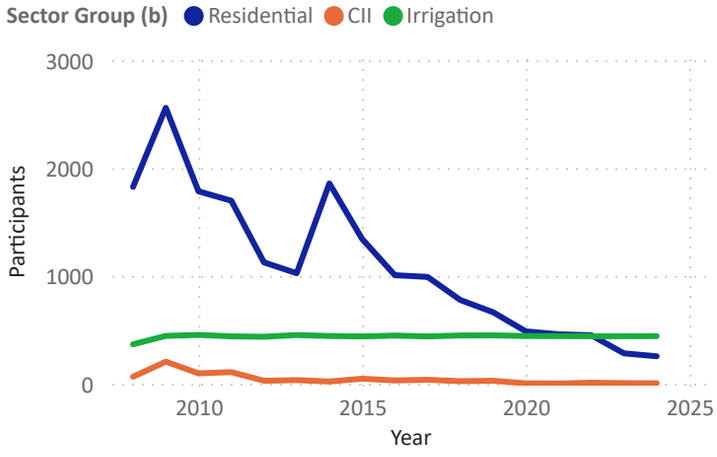
(a) Predominant sector for program participants.
(b) Participation is calculated as a percentage of total accounts of the predominant sector indicated.
(c) Colored shading is added for visualization purposes. Green shading represents higher participation values.
(d) The District offers leak detection and notification to its customers on AMI meters. As such, the data reflects the number of AMI meters installed. The District is fully installed with AMI meters since 2019.

Figure 4-1
Conservation Program Participation
North Marin Water District, Sonoma-Marin Saving Water Partnership

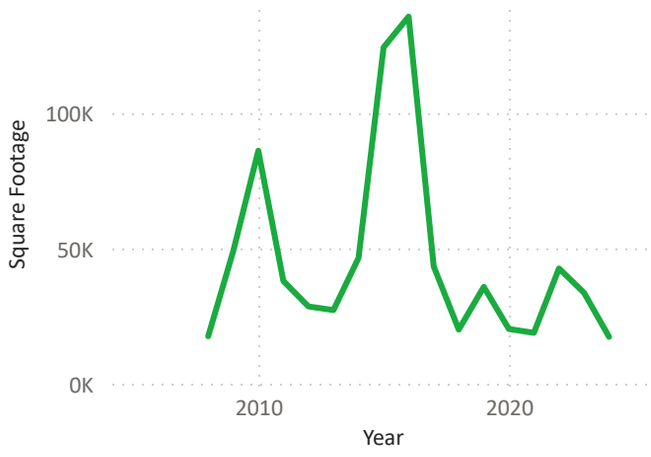
A. Participants by Year and End Use



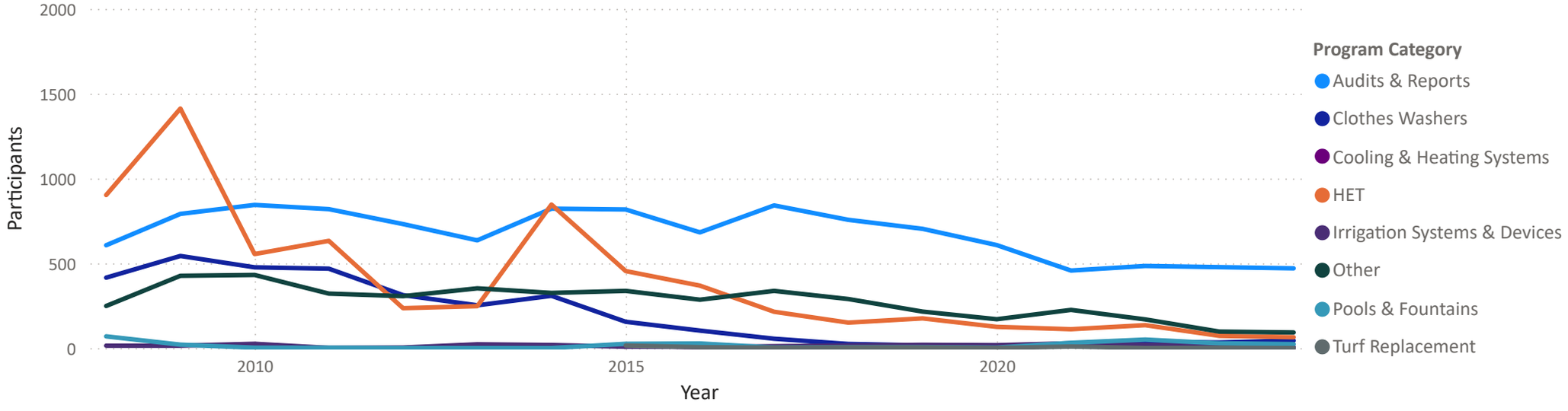
B. Participants by Year and Sector Group



C. Turf Replacement Square Footage



D. Participants by Year and Program Category



Abbreviations:
CII = commercial, industrial, institutional
HET = high efficiency toilet

Notes:
(a) See Table 4-3 for program end use, sector, category information and detailed program participation data.
(b) Programs are summarized by Residential, CII, Irrigation, or Multiple sector groups based on their targeted sectors. Programs that cannot be exclusively assigned to the Residential, CII, Irrigation sector groups are assigned to the Multiple sector group.
(c) Turf replacement includes both turf replacement and mulch rebate programs.
(d) Participation in the AMI Leak Notifications Program (i.e., AMI meters installed) are excluded.

Table 4-4 Estimated Water Savings Achieved by Conservation Programs and Passive Savings

North Marin Water District, Sonoma-Marin Saving Water Partnership

Water Savings Type (a)	End Use		Program Category	Estimated Annual Water Savings (AFY) (c)															Cumulative Water Savings (AF)
	Sector (b)	Indoor/ Outdoor		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Water Smart Home Surveys Program	SFR	Both	Audits & Reports	13	24	30	31	39	42	38	42	43	39	33	23	14	8	4	422
Water Smart Commercial Surveys Program	CII	Both	Audits & Reports	14	18	17	15	14	9	6	8	7	6	5	4	3	3	3	133
HET Rebates Program	SFR	Indoor	HET	4	9	10	12	14	16	19	20	20	21	21	21	21	21	21	249
HET Rebates Program	MFR, CII	Indoor	HET	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13
UHET Distribution Program	SFR	Indoor	HET	0	0	0	0	20	23	23	22	22	22	21	21	21	20	20	234
HECW Rebates Program	SFR	Indoor	Clothes Washers	8	15	20	24	29	31	33	34	34	35	35	35	36	36	37	441
Water Smart Landscape Rebates Program	SFR	Outdoor	Irrigation Systems & Devices	0.6	1.1	1.3	1.4	1.6	1.8	2.0	2.3	2.4	2.6	2.2	2.3	2.9	3.4	3.4	31
WBIC Rebates Program	SFR	Outdoor	Irrigation Systems & Devices	0.1	0.1	0.2	0.8	1.4	1.6	1.8	2.1	2.6	3.1	3.5	4.3	4.7	4.5	4.1	35
WBIC Rebates Program	CII	Outdoor	Irrigation Systems & Devices	16.3	17.1	17.9	17.9	18	18	18	18	18	18	2	1	0	0	0	179
Swimming Pool Cover Rebates Program	SFR	Outdoor	Pools & Fountains	0	0.1	0.1	0.1	0.1	0.5	1.0	1.1	1.2	1.3	0.8	0.9	1.8	2.3	2.6	14
Large Landscape Audits Program	IRR	Outdoor	Audits & Reports	19	21	17	30	29	17	19	16	16	21	21	17	16	12	9	279
Hot Water Recirculation Rebate Program	SFR	Indoor	Cooling & Heating Systems	0	0	0	0	0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	2
Cash for Grass Rebates Program (d)	SFR	Outdoor	Turf Replacement	4	4	5	6	9	16	19	20	21	21	20	18	18	19	16	216
Cash for Grass Rebates Program (d)	IRR	Outdoor	Turf Replacement	0.5	1.0	1.5	2.0	2.5	3.0	3.5	3.9	4.4	4.9	4.4	3.9	3.5	3.0	2.5	44
AMI Leak Notifications Program	All	Both	Leaks and Water Losses	0	0	0	0	0	0	0	0	19	22	22	23	23	23	24	158
Conservation Program Water Savings (Active Savings)				*80*	*112*	*121*	*140*	*178*	*179*	*185*	*190*	*212*	*218*	*192*	*175*	*166*	*157*	*148*	*2,452*
Passive Water Savings (e)				*43*	*45*	*44*	*45*	*51*	*54*	*51*	*49*	*64*	*60*	*55*	*52*	*49*	*45*	*41*	*747*
Total Water Savings				**122**	**156**	**165**	**185**	**229**	**234**	**236**	**239**	**276**	**278**	**247**	**227**	**214**	**201**	**189**	**3,199**

Abbreviations

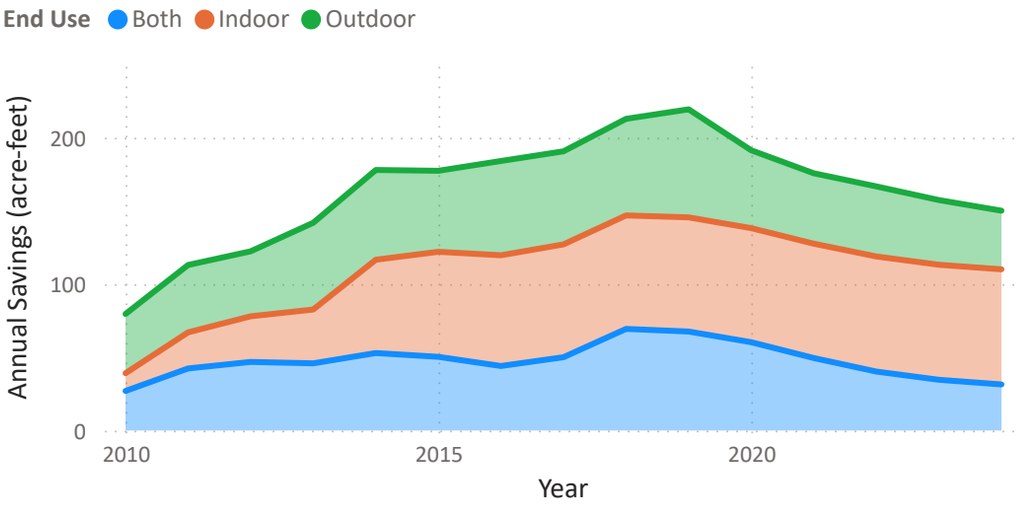
CII = Commercial, Industrial, Institutional
HET = High Efficiency Toilet
HECW = High Efficiency Clothes Washer
IRR = Irrigation
SFR = Single-family residential
UHET = Ultra-High Efficiency Toliet
WBIC = Weather-Based irrigation Controller

Notes

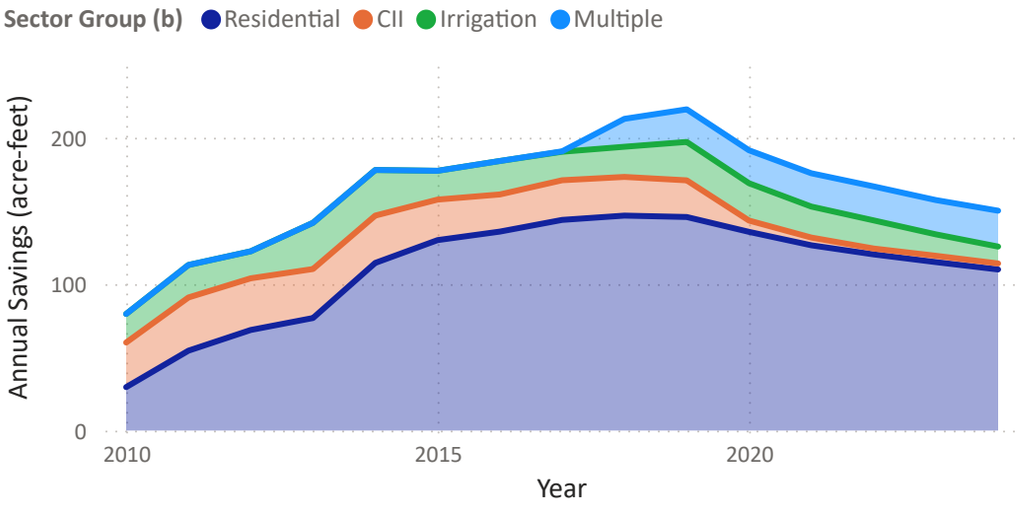
(a)
(b) Predominant sector for program participants.
(c) Water savings are estimated per the AWE model based on program participation data. Program water saving assumptions are included in Appendix B.
(d) The water savings for the cash for grass rebates program and the lawn be gone (sheet mulching) program are combined for purposes of this assessment.
(e) Passive water savings are water savings associated with the natural change out of water using fixtures and devices with higher efficiency ones, due to plumbing code and market changes. Passive savings are estimated for the whole service area.

Figure 4-2
Estimated Annual Water Savings Achieved by Conservation Programs
North Marin Water District, Sonoma-Marin Saving Water Partnership

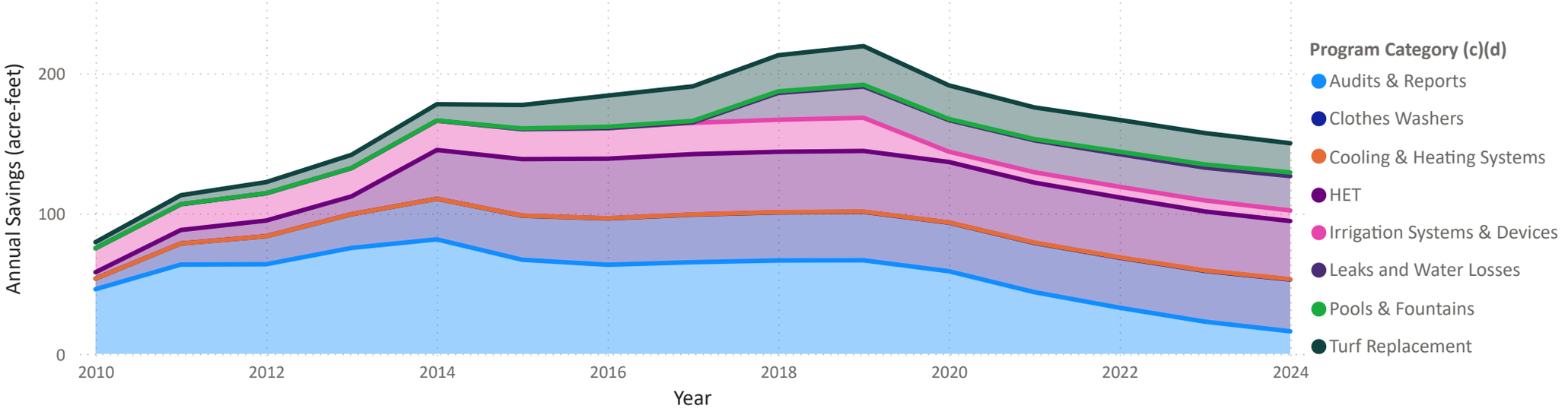
A. Active Conservation Savings by Year and End Use



B. Active Conservation Savings by Year and Sector Group



C. Active Conservation Savings by Year and Program Category



Abbreviations:
CII = commercial, industrial, institutional
HET = high efficiency toilet

Notes:
(a) See Table 4-4 for program end use, sector, category information and detailed savings by program.
(b) Programs are summarized by Residential, CII, Irrigation, or Multiple sector groups based on their targeted sectors. Programs that cannot be exclusively assigned to the Residential, CII, Irrigation sector groups are assigned to the Multiple sector group.
(c) Turf replacement includes both turf replacement and mulch rebate programs.
(d) Program categories with minimal historical savings may not be visible from this figure.

5 WATER DEMAND PROJECTIONS

The purpose of this section is to document the basis, methodology, and resulting projected demands for the District through 2050. As described in more detail below, the future water demands for the District were estimated by:

1. Applying an estimated growth rate to accounts within each water use sector based on projected population and employment growth rates,
2. Evaluating and selecting water demand factors for each water use sector based on a review of recent average per-account water use representing three scenarios,
3. Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
4. Calculating estimated future water demand that incorporates the anticipated account growth, water demand factors, and estimated future passive water savings.

This methodology is consistent with California Water Code (CWC) § 10631(d)(4)(A), which requires that "Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area." The assumptions used as the bases for demand projections were developed in close coordination with the District and reflect a land-use-based approach consistent with the District's community planning.

5.1 Basis for Account Growth Projections

Baseline water demand is estimated by multiplying the number of accounts by the sector-specific demand factors, before applying other adjustment factors. In order to estimate how accounts will grow within the District, recent historical account growth within the District was considered, as well as projected future growth in population and employment. As described below, it was assumed that, depending on the customer sector, the number of accounts would grow at the same rate as the projected population or employment growth.

Table 5-1 identifies the growth projection assumptions applied to each potable water use sector per the District's direction and identifies the average annual growth rate in accounts observed within the District from 2015 to 2024 to provide context for the growth assumptions. Growth for all sectors is based on the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) Plan Bay Area 2050 population projections (ABAG, 2021).

Table 5-2 presents the District's historical population. The District's historical population for 2020 is from the District's 2020 UWMP (EKI, 2021), and the historical population from 2021-2024 is based on a 2.56 persons per dwelling unit factor provided by the District.

Table 5-1 Historical and Projected Account Growth Rate by Customer Sector

Water Use Sector	Basis for Account Growth (b)	Average Annual Growth of Accounts (a)	
		Historical (2015-2024)	Projected Growth Through 2050
Single Family (c)	ABAG Population	0.11%	0.34%
Multifamily (c)	ABAG Population	0.61%	1.29%
Commercial	ABAG Population	1.00%	0.61%
Irrigation	ABAG Population	0.05%	0.61%
Recycled	ABAG Population	12.1%	0.61%

Abbreviations:

ABAG = Association of Bay Area Governments

Notes:

(a) Growth of the number of accounts is presented on an average annual basis over the indicated period. When applied to account growth, the specific growth rate between each 5-year period was applied.

(b) ABAG projections include population, households, and employment values (ABAG, 2021). The ABAG household projections project a growth of 3,435 households in the 10-year period between 2025 and 2035, which aligns with and is inclusive of the 2,607 new households provided by local 2021-2031 Housing Elements over the 8-year period.

(c) To reflect a higher proportion of multi-family development from historical patterns, 50% of new households to be built within the District is allocated to single-family homes, and the remaining 50% is allocated to multi-family homes.

Table 5-2 Population and Employment Growth Projections

North Marin Water District, Sonoma-Marin Saving Water Partnership

Category	Growth Projections											Total Growth Rate 2025-2050	Average Annual Growth Rate 2025-2050
	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050		
Population													
Historical Population Estimates (a)	61,640	61,655	61,693	61,683	61,686	--	--	--	--	--	--	--	--
ABAG Population Projections (b)	--	--	--	--	--	62,064	63,955	65,846	67,715	69,584	71,452	15%	0.61%
Single Family Population (c)	--	--	--	--	--	44,512	44,985	45,514	46,423	47,334	48,246	8%	0.34%
Multifamily Population (c)	--	--	--	--	--	17,552	18,970	20,332	21,292	22,250	23,206	32%	1.29%

Abbreviations:

-- = not available

ABAG = Association of Bay Area Governments

NMWD = North Marin Water District

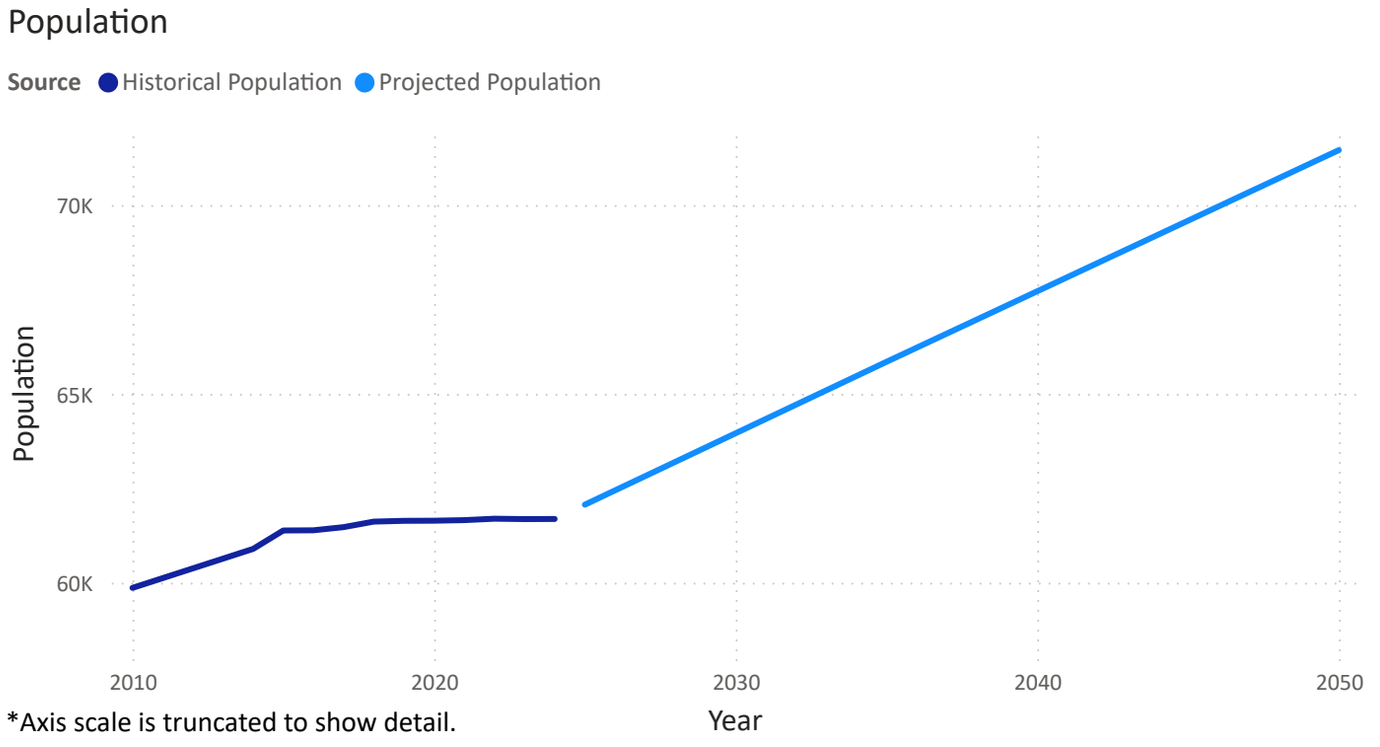
Notes:

(a) Historical population estimates for 2021 - 2024 are calculated by multiplying the total number of active dwelling units by 2.56 persons per dwelling unit, provided by NMWD staff on February 7, 2025. Historical population for 2020 per NMWD, 2021.

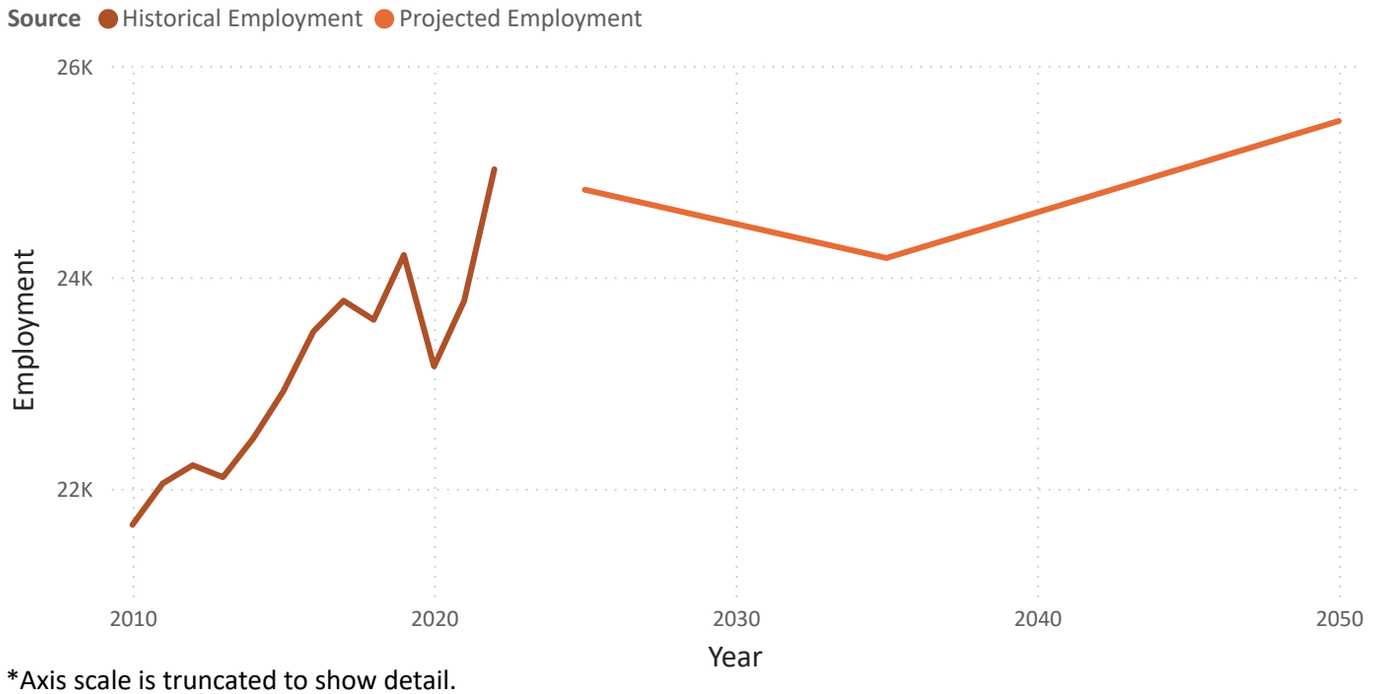
(b) Population projections are based on ABAG, 2021. The ABAG household projections projects a growth of 3,435 households in the 10-year period between 2025 and 2035, which aligns and is inclusive of the 2,607 new households provided by local 2021-2031 Housing Elements over the 8 year period.

(c) Projected single family and multifamily population is estimated based on the assumption that 50% of new households to be built within NMWD will be single family homes and the remaining 50% will be multifamily homes to reflect a higher proportion of multifamily development from historical patterns.

Figure 5-1 Population and Employment Projections
North Marin Water District, Sonoma-Marin Saving Water Partnership



*Axis scale is truncated to show detail.



*Axis scale is truncated to show detail.

5.2 Planned Development Within the Service Area

There are no development projects additional to the growth assumptions identified by District staff.

5.3 Water Demand Factors

Water use rates are influenced by a variety of factors, including weather, economic recession, and state and local regulations, among other drivers. Given this, selecting a "representative" baseline is important to developing the land-use-based water demand factors to estimate baseline water use by existing customers, which can then be extrapolated and applied to future growth within the District. **Table 5-3** shows the water demand factors used to estimate baseline water demand.

Table 5-3 Selected Water Demand Factors

Water Use Sector Group	Water Demand Factor	Units	Basis for Demand Factor
Water Consumption			
Single Family	281	GPD/account	Maximum of 2017-2019
Multi-family	258	GPD/account	Maximum of 2017-2019
CII Total (a)	1,230	GPD/account	Maximum of 2017-2019
Irrigation	1,879	GPD/account	Maximum of 2017-2019
Recycled	7,714	GPD/account	Maximum of 2017-2019
Non-Revenue Water			
Apparent Losses	4.0	GPD/connection	CY 2023 Water Loss Audit for Novato System
Real Losses	10.8	GPD/connection	
Unbilled Authorized	0.67	GPD/connection	

Abbreviations:
CY = calendar year
GPD = gallons per day

Note:
(a) Represents the combined demands of all CII sectors with mixed-use meters. The CII sectors are evaluated as a single group, as the same growth rate is applied uniformly across all CII sectors; therefore, it is mathematically equivalent to projecting each sector individually and summing the results. Final projected demands are then allocated back to each CII sector based on their relative proportions within the CII Total group.

5.3.1 Potable Water

Water demand factors based on historical use within the District were used as the basis of future demand projections for potable water accounts. As discussed in Section 3.2, the District's per-account water use declined over the past 15 years due to improvements in water use efficiency

and showed a significant response to key events such as the 2014-2017 drought, the 2021-2023 drought, and the COVID-19 pandemic. Current (2024) water use is below historical levels. Potable water demand factors are developed based on the maximum per-account annual water use by sector for 2017 through 2019, generally representing the lower levels of recent water use but considering rebound to pre-2020 levels.

5.3.2 Recycled Water

As discussed in Section 3.2, the District's per-account historical water use for recycled water followed similar trends to the District's potable account water use (i.e., 2024 water use is below historical levels). Therefore, the recycled water demand factor is similarly developed based on the maximum per-account annual water use by sector for 2017 through 2019.

5.3.3 Non-Revenue Water and Water Loss

Non-revenue water is water that has been produced but not billed and thus does not generate revenue for the supplier. To more fully capture total water use within the District, non-revenue water is estimated based on a sum of (1) unbilled authorized uses (such as water for fighting fires and flushing mains), (2) apparent water loss due to metering inaccuracies, and (3) real water loss due to distribution system leaks. Rates of non-revenue water in gpd per service connection are based on the District Calendar Year (CY) 2023 water loss report for the Novato System.

5.4 Passive Water Savings Estimate

Passive water savings are the water savings associated with the natural replacement of older toilets, showerheads, clothes washers, and other water-using appliances with newer high-efficiency devices that are available due to both market shifts and increasing efficiency mandated by the building code and other regulatory requirements. The AWE model was used to estimate future passive savings within the District (AWE, 2021). These future water savings are a result of plumbing/energy codes interacting with the natural replacement of toilets, showerheads, and other water-using appliances whose current or future efficiency is dictated by national, state, or local code requirements. The AWE model calculates efficient plumbing fixture saturation rates and takes into account historical and projected replacement of plumbing fixtures by utility programs, as well as natural replacement. The AWE model also considers estimates of historical population, residential building stock, number of accounts, and projected population and account growth to estimate future passive savings.

An adjustment factor of 80% is applied to the AWE model estimates to conservatively cap passive savings at the levels estimated in the 2020 Water Demand and Conservation Measure Report (EKI, 2020). The estimated passive savings are presented in **Table 5-4** and are subtracted from the water demand projected based on the water demand factors described in Section 5.3 above. Passive savings are only applied to potable water use.

Table 5-4 Projected Demand and Passive Conservation

	Projected Demand (AFY) (a)					
	2025	2030	2035	2040	2045	2050
Potable Water						
Baseline Potable Water Demand	8,527	8,752	8,980	9,220	9,460	9,700
Passive Water Conservation (b)	(49)	(249)	(396)	(504)	(595)	(676)
Total Potable Water Demand (c)	**8,478**	**8,503**	**8,583**	**8,716**	**8,865**	**9,023**
Non-Potable Demand						
Recycled Water Demand	800	824	849	873	897	921
Total Non-Potable Demand	**800**	**824**	**849**	**873**	**897**	**921**
Total Demand (c)	**9,278**	**9,327**	**9,432**	**9,589**	**9,762**	**9,944**

Abbreviations:
AFY = acre-feet per year
AWE = Alliance for Water Efficiency

Notes:
(a) Water demand projections are estimated based on growth in accounts shown in **Table 5-1** and the water demand factors identified in **Table 5-3**. Non-revenue water projections are estimated by water loss factors shown in **Table 5-3** and the total growth in number of services from all sectors.
(b) Passive water savings calculated from the AWE Conservation Tracking Tool; however, the savings were conservatively capped at the 2020 Water Demand and Conservation Measure Report estimates.
(c) Totals may not sum due to rounding.

5.5 Projected Water Demand Through 2050

Future potable water demand was projected for each sector based on their respective demand factors, non-revenue water estimated as a proportion of total potable water production, and estimated passive savings, and is shown in **Table 5-4**. Potable water demand is projected to increase to 9,023 AFY in 2050, which is a 30% increase over 2024 water demand, and recycled water demand is projected to increase to 921 AFY in 2050, an 18% increase over 2024 demand.

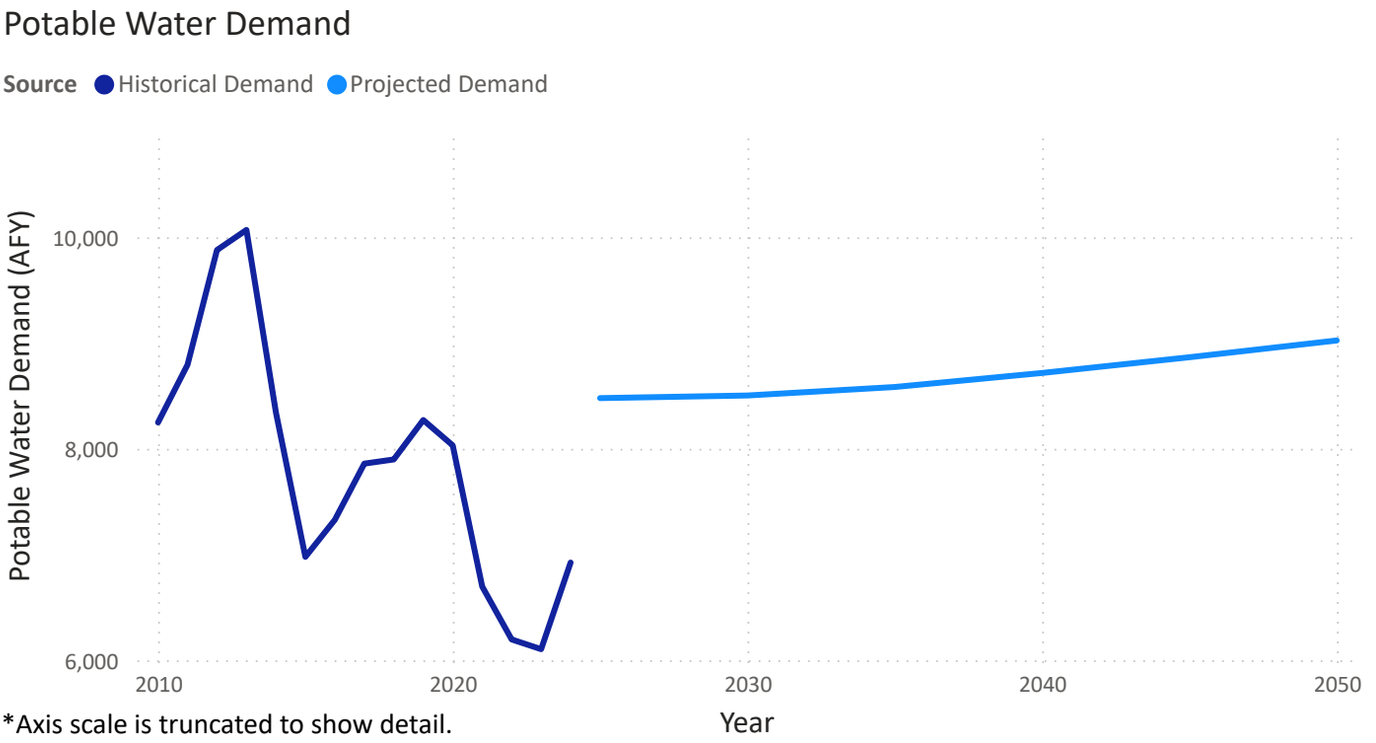
Table 5-5 Projected Water Demand by Sector

Water Use Sector	Projected Demand (AFY) (a)					
	2025	2030	2035	2040	2045	2050
Potable Water						
Single Family Residential	4,692	4,630	4,614	4,656	4,710	4,769
Multifamily Residential	1,193	1,229	1,271	1,305	1,341	1,379
Commercial	1,373	1,388	1,406	1,427	1,450	1,476
Irrigation	864	890	917	943	969	995
Non-Revenue Water	357	366	375	385	395	405
Total Potable Demand (b)(c)	**8,478**	**8,503**	**8,583**	**8,716**	**8,865**	**9,023**
Non-Potable Water						
Recycled Water	800	824	849	873	897	921
Total Non-Potable Water Demand	**800**	**824**	**849**	**873**	**897**	**921**

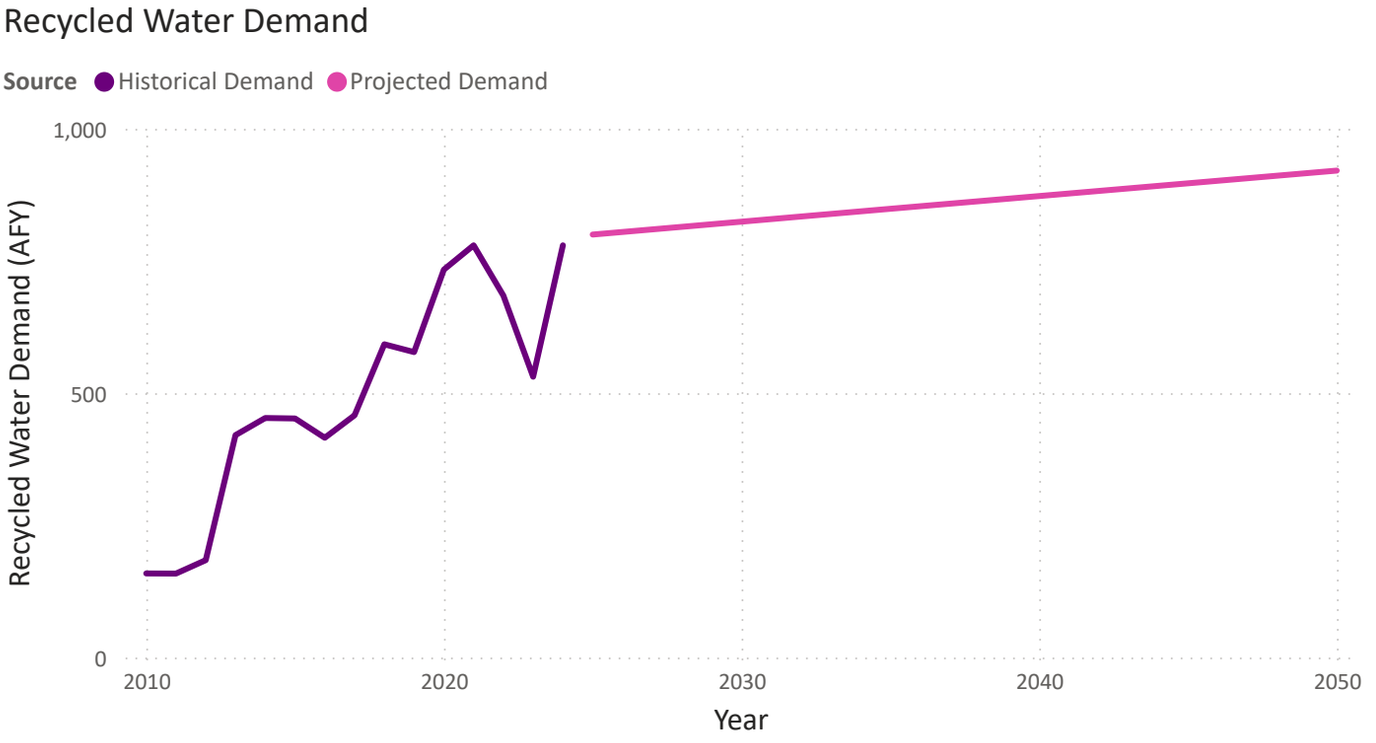
Abbreviation:
AFY = acre-feet per year

Notes:
(a) Water demand projections are estimated based on growth in accounts shown in **Table 5-1** and the water demand factors identified in **Table 5-3**. Non-revenue water projections are estimated by water loss factors shown in **Table 5-3** and the total growth in number of services from all sectors.
(b) Passive savings for each sector calculated from the AWE Conservation Tracking Tool and adjusted to cap savings conservatively at levels estimated in the 2020 Water Demand and Conservation Measure Report.
(c) Totals may not sum due to rounding.

Figure 5-2 Water Demand Projections
North Marin Water District, Sonoma-Marin Saving Water Partnership



*Axis scale is truncated to show detail.



Abbreviations:
AFY = acre-feet per year

5.6 Projected Compliance with UWUOs

To forecast the District's Objective compliance, an analysis was conducted comparing the District's projected water use to its Objectives for 2025, 2030, 2035, and 2040. The projected water demands subjective to the Objectives and the corresponding Objectives are calculated using the following data sources and assumptions:

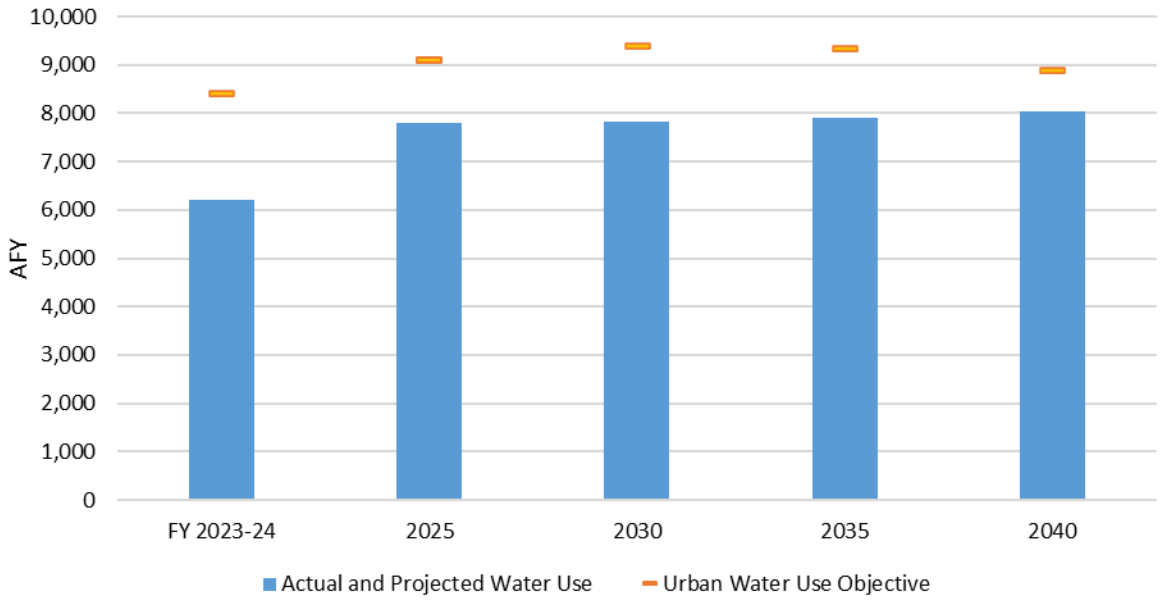
- Projected population, water use components subject to the objectives (e.g., residential water use and dedicated irrigation water use), and real water loss described in Sections 5.1 and 5.5;
- Decreasing Objective water use standards through 2040 as described in Section 2.2.1;
- Residential landscape area based on values reported in the District's FY 2023-24 UWUO Annual Report and increasing proportional to population projections;
- Existing (2024) CII landscape area on DIMs irrigated with potable water estimated from FY 2023-24 water use, assuming a LEF of 0.80;
- Existing (2024) CII landscape area on DIMs irrigated with recycled water estimated from FY 2023-24 water use, assuming a LEF of 1.0;
- Future CII landscape area on DIMs is increasing proportionally with District's irrigation and recycled water accounts.

The results of this analysis show that the District is anticipated to comply with its Objectives through 2040, as shown below in **Table 5-6** and **Figure 5-3. Figure 5-4** compares projected values of each Objective component from 2025 through 2040 to examine relative contributions to Objectives compliance. However, agencies are only assessed against the overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective.

Table 5-6 Actual and Projected Water Use vs. Urban Water Use Objectives

Year	Actual and Projected Water Use Subject to the Objectives (a) (AFY)	UWUO (AFY)
FY 2023-24	6,212	8,422
2025	7,798	9,092
2030	7,829	9,403
2035	7,913	9,350
2040	8,046	8,886

Figure 5-3 Actual and Projected Water Use vs. Urban Water Use Objectives



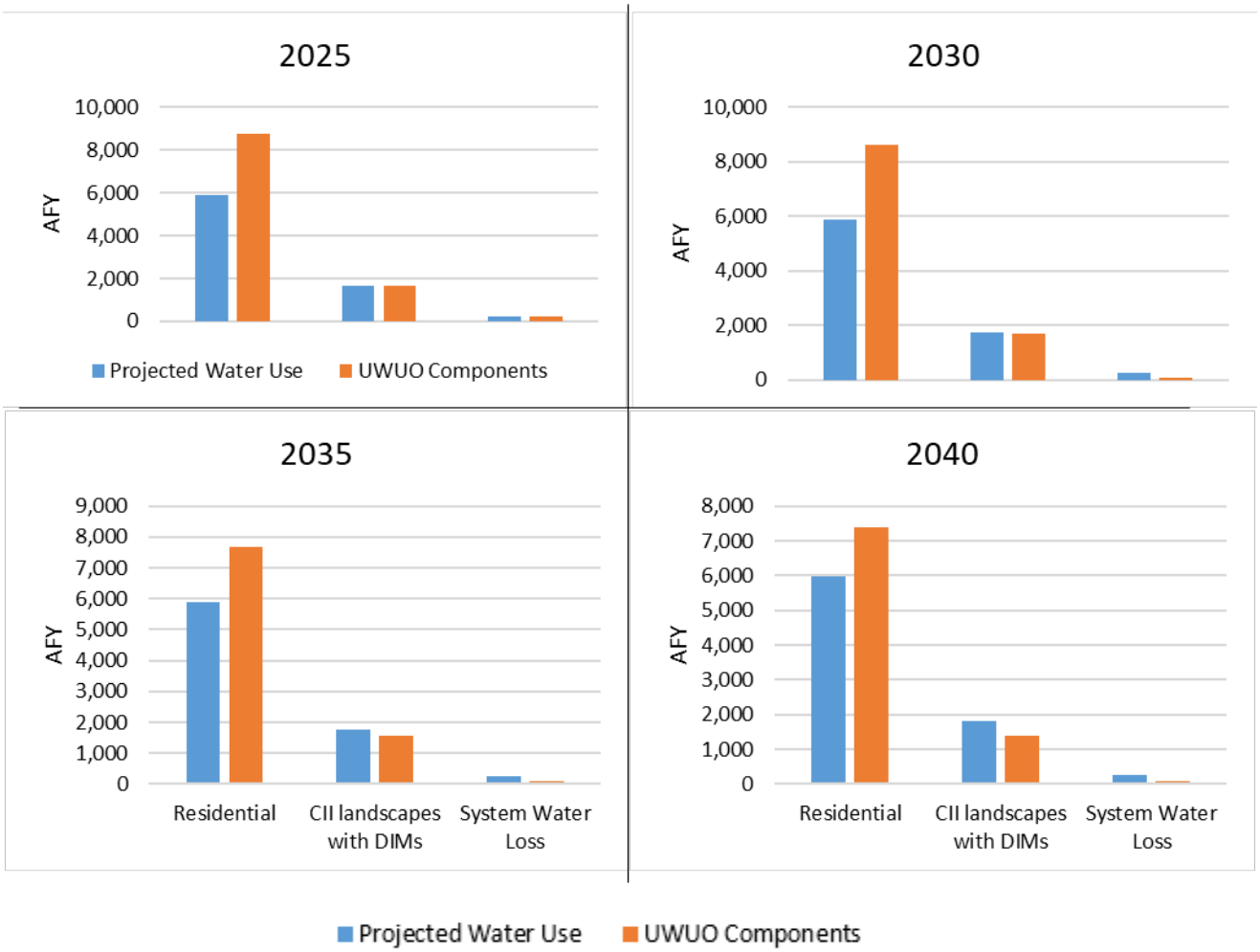
Abbreviations:

AFY = acre-feet
CY = calendar year
FY = fiscal year
UWUO = Urban Water Use Objective

Notes:

(a) Calendar years unless otherwise noted.
(b) Only includes the water use components that are subject to the Objective.

Figure 5-4 Projected Water Use vs. Urban Water Use Objectives by Component



Abbreviations:

AFY = acre-feet per year
CII = commercial, industrial, and institutional
DIM = dedicated irrigation meter

Notes:

This figure provides a comparison for each component to examine its relative contributions to Objectives compliance. However, agencies are only assessed against the overall Objective (i.e., they are not required to comply with the individual water use standards as long as they meet the overall Objective.

6 CONSERVATION MEASURES UPDATE

The following section evaluates current and potential conservation programs and measures for both the District and the SMSWP. The purpose of this section is to compile programs and measures that are prioritized by both the District and by all Water Contractors in the SMSWP collectively, and calculate the potential water savings and economic feasibility of the programs. Section 6.1 discusses the methodology used to prioritize conservation programs and measures. Section 6.2 describes the programs and measures given high priority for regional implementation by the nine Water Contractors collectively, and Section 6.2.3 describes programs and measures given high priority by the District. Next steps will include analyzing the potential water savings and cost-benefit for those programs selected by the District as both individual programs and in select program portfolios. By assessing the feasibility of these programs, the District can make more informed decisions regarding program selection and implementation.

6.1 Methodology for Screening of Potential Water Conservation Measures

A comprehensive ranking list of over 100 conservation programs and measures was developed (Appendix C) to help agencies prioritize future conservation efforts and update the suite of common measures for modeling and future implementation, as required for the 2025 UWMPs. The Water Contractors ranked their priority projects and measures, which will contribute to the broader goals of forecasting demand through 2050, evaluating demand management strategies, and meeting regulatory goals.

The list includes the measures from the prior (2015 and 2020) screenings, minus those that are now obsolete, and new measures and technologies. New measures came from the library of the AWE Conservation Tracking Tool, version 4.0, and other identified measures per literature or implemented by other suppliers, including those that are available to the industry since 2020. The list also included measures currently implemented by the Water Contractors and the priority rankings selected in 2020.

Each of the nine Water Contractors was first asked to review and identify any additional programs to add to the ranking list. Following receipt of feedback from the Water Contractors, each Water Contractor was asked to rank the list and identify:

- Priority (on a scale of one to five, with five being the highest priority) as a program to be implemented regionally through the SMSWP;
- Priority (on a scale of one to five, with five being the highest priority) as a program to be implemented locally through their agency;
- The current implementation status with options of (1) currently administered by their agency, (2) previously administered by their agency, or (3) current regional program through SMSWP.

The list of water conservation measures is organized into four categories, specifically: (1) agency actions and water rates, (2) public outreach and education, (3) device-based and financial incentive programs, and (4) policies and regulations.

6.2 Screening of Conservation Measures for Regional Implementation

The regional results of the water conservation measures prioritization screening are summarized for all Water Contractors combined, representing overall regional priorities and preferences (**Table 6-1**), which shows (1) the average prioritization ranking for all Water Contractors for each program for regional implementation, (2) the percentage of Water Contractors that prefer each program to be implemented at the regional level, and (3) an indication of each measure as a current SMSWP program or not.

Of the 116 measures and programs ranked, the Water Contractors screened these down to 11 high-priority measures that received an average score of three or more and were comprised of two of the four categories, including Public Outreach and Education Based Conservation Programs and Device-Based and Financial Incentive Programs.

6.2.1 Public Outreach and Education-Based Conservation Programs

Of the 14 public outreach and education-based water conservation programs included in the screening, the Water Contractors identified the following eight programs as high priority (average score of three or higher), with a preference for regional implementation through SMSWP:

1) Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation
2) School Education Programs
3) Promote QWEL Training
4) Public Outreach through Print & Electronic Media - Focused on Indoor Conservation
5) Educational Workshops
6) Garden Tour
7) Do-It-Yourself Home Energy and Water Savings Toolkit
8) Garden Sense Consultation

These eight programs are already being implemented by SMWSP.

6.2.2 Device and Financial Incentive-Based Conservation Programs

Of the 60 device- and financial incentive-based water conservation programs included in the screening list, the Water Contractors identified the following three programs as high priority (average score of three or higher), with a preference for regional implementation through SMSWP, through pass-through grant funding:

1) Landscape Conversion or Turf Removal – SFR
2) Landscape Conversion or Turf Removal – MFR and CII
3) High Efficiency Clothes Washer Rebate – Residential

Table 6-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Preference (b)	Sector	Indoor	Outdoor	Primary End Use	Current SMSWP Program
PUBLIC OUTREACH AND EDUCATION							
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4.4	100%	All		X	Irrigation	✓
School Education Programs	4.0	100%	SFR, MFR	X	X	All	✓
Promote QWEL Training (Qualified Water efficient Landscaper)	3.9	89%	All		X	All Outdoor	✓
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	3.7	89%	All	X		All Indoor	✓
Educational Workshops	3.3	78%	All		X	All Outdoor	✓
Garden Tour	3.2	78%	SFR		X	All Outdoor	✓
Garden Sense Consultation	3.1	78%	SFR		X	All Outdoor	✓
Do-It-Yourself Home Energy and Water Savings Toolkit	3.2	78%	SFR	X	X	All	✓
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS							
Landscape Conversion or Turf Removal - SFR	3.3	67%	SFR		X	Irrigation	✗
Landscape Conversion or Turf Removal - MFR and CII	3.2	67%	MFR, CII		X	Irrigation	✗
High Efficiency Clothes Washer Rebate - Residential	3.1	67%	SFR, MFR	X		Clothes Washer	✗

Abbreviations:

AMI = advanced metering infrastructure
CalWEP = California Water Efficiency Partnership
CII = commercial, industrial, institutional
COM = commercial
HEU = High-Efficiency Urinals
IRR = irrigation
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin Saving Water Partnership
UHET = ultra high efficiency toilet

Notes:

(a) Each Water Contractor was asked to rank each conservation program or measure in terms of priority as a regionally-administered program, where 5 indicated highest priority and 1 indicated the lowest priority. Results are presented as an average of the responses of all nine Water Contractors.

(b) Presents the percentage of Water Contractors who indicated a priority of greater or equal to 3 for regional implementation.

6.2.3 Regional Program Screening Findings

During the May 2025 project workshop, the Water Contractors indicated that the three device- and financial incentive-based programs identified under Section 6.2.2 are already being implemented at the local level and expressed a preference for them to continue to be implemented at a local level. The takeaway from this exercise is that the existing SMWSP public and education-based programs should remain regional programs and that there is currently no preference for new regional programs.

6.3 Screening of Conservation Measures for Local Implementation

The local results of the water conservation program prioritization screening were summarized for all Water Contractors individually, representing their local priorities and preferences. Appendix C presents the results for the District and shows (1) the average prioritization ranking for each program for local implementation, (2) the targeted sector, (3) whether the program targets indoor or outdoor savings, (4) the primary end use, and (5) the implementation status as a local program.

6.3.1 Agency Actions and Water Rate Conservation Programs

Twelve (12) agency action and water rate-based conservation programs were identified for the District as high priority (score of three or higher) for potential future implementation. Of these programs, nine are programs or actions that have been implemented at the local level, either currently or in the past. The remaining three potential new programs identified as high priority are:

1) Behavior Based Customer Messaging Platforms
2) Water Budget-Based Billing for All Customers
3) Water Budget-Based Billing for Only Irrigation Customers

6.3.2 Public Outreach and Education Based Conservation Programs

Eight public outreach and education-based programs were identified as high priority (average score of three or higher) for potential future implementation. Of these programs, four would target outdoor water use, one would target indoor water use, and three would target both. All of these programs are currently implemented at the local level except one:

1) Provide Support with Smart Irrigation Controller Setup

6.3.3 Device and Financial Incentive Based Conservation Programs

Twenty-five (25) device- and financial incentive-based water conservation programs were identified as high priority (average score of three or higher) for potential future implementation, including seven that would target indoor water use, 14 that would target outdoor water use, one that would target both, and three that would target cooling towers. Of these programs, 19 are programs or actions that have been implemented at the local level, either currently or in the past, primarily targeting bathroom fixture replacements, irrigation nozzle upgrades, irrigation equipment improvements, and turf conversion. The remaining six potential new programs identified are as follows, all programs receiving a score of three: in general order of priority, with the first program (**bolded**) on the list receiving a score of five:

1) Laminar Flow Restrictor Rebate for Health Care Related Facilities
2) Incentivize Cooling Tower Upgrades
3) Rebates for Conductivity Controllers on Cooling Towers
4) Rotating Sprinkler Nozzle Giveaway
5) Incentivize Submetering for Existing Customers - MFR, CII
6) Incentivize Submetering of Cooling Towers for Existing Customers

6.3.4 Policy and Regulation-Based Conservation Programs

The District identified 17 policy and regulation-based programs as high priority (average score of three or higher), including seven that would target indoor water use, eight that would target outdoor water use, one that would target both, and one that would target cooling towers. Of these programs, ten are programs or actions that have been implemented at the local level, either currently or in the past. The remaining seven potential new programs identified are as follows, in general order of priority, with the first program (**bolded**) receiving a score of five:

1) **Require <1.0 gal/flush Toilets in New Development**
2) Prohibit Once-through Cooling Systems
3) Require Plumbing for Recycled Water in New MFR Development
4) Demand Offset/Water Neutral Policy for Large New Developments
5) Require Cooling Tower Retrofits
6) Require Rain Barrels in New Development
7) Require Submetering of Landscaping for Existing MFR and Commercial Customers

6.4 Evaluation of Future Water Conservation Programs

Based on the conservation screening process described above, a suite of conservation programs to be considered for future implementation was evaluated. These programs were evaluated both individually and as components in four water conservation program scenarios, as shown in **Table 6-2**. The program scenarios each represent a potential approach or strategy for the District's future conservation programs, specifically:

- **Scenario A** represents the District's existing programs as a baseline,
- **Scenario B** represents programs ranked most highly for local implementation by the District,
- **Scenario C** focuses on programs that target outdoor water savings under Scenario B, and
- **Scenario D** focuses on programs that target water savings in CII customers under Scenario B.

Table 6-2 also identifies the customer sectors each program would target, as well as whether the program focuses on indoor or outdoor water use, or both.

The benefits and costs associated with implementation of these programs were evaluated using the AWE model, using a series of assumptions documented in Appendix B. Key assumptions and considerations related to the methodology used by the AWE model and in this analysis are provided below:

- Water savings assumptions were based on a combination of (1) District -specific water savings estimates, (2) information provided by District staff, (3) AWE model default assumptions, and (4) water savings factors developed based on other published literature sources.
- Costs to the utility were based on (1) rebate amounts of existing programs, (2) data used in the 2020 report (EKI, 2020) adjusted to 2025 dollars, or (3) AWE model default assumptions.
- Utility benefit (i.e., avoided cost of water) is assumed to be $1,278/AF, consistent with the FY 2024-2025 cost of purchasing wholesale water from Sonoma Water.
- Financial assumptions related to customer water rates were provided by the District.
- Financial assumptions related to energy costs to the customer were assumed based on typical PG&E rates (PG&E, 2024).
- Assumed rate of program implementation was based on historical participation levels by District customers in similar programs.
- For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030; water savings beyond this period reflect cumulative savings achieved over time from implementation during this five-year period.
- Lost revenue due to reduced water sales is not included as a cost.
- Additional program-specific considerations are provided as notes in the attached tables.

Table 6-3 presents a combination of individual water conservation measures, and identifies the following information for each program:

- **Net present value of costs and benefits** – represents the present value over the 25-year period, discounted to current 2025 dollars.
- **Benefit-to-cost ratio** – calculated as the present value of costs divided by the present value of benefits.
- **Water utility costs** – costs that the District, as a water utility, will incur to operate the program, including administrative costs.
- **Customer costs** – the costs customers will incur to implement a program in the District's service area.
- **Utility benefits** – the avoided cost to the District to produce the volume of water saved.
- **Customer benefits** – the savings from reduced water/sewer utility bills and energy savings resulting from reduced use of hot water.

- **Total water utility costs** – includes costs to the District for program implementation from 2026 to 2030.
- **Water savings in 2030** – one-year estimate of water savings in 2030.
- **Water utility cost of water saved for individual programs** – cost of water saved divided by the lifetime water savings of that program.
- **Water utility cost of water saved for program scenarios** – weighted average of water utility cost of water saved for individual programs by the cumulative savings through 2050.

The analysis estimates active program savings based on the AWE model and does not include additional savings anticipated from passive savings (i.e., water savings associated with the natural replacement of less efficient water-using fixtures and appliances due to both market shifts and increasing efficiency mandated by the building code and other regulatory requirements). Based on this analysis, and the assumptions presented in Appendix B, the benefit-cost ratios for the District range from 0.2 to 11.5. A benefit-cost ratio value greater than one indicates that the cost of implementing the program would be cheaper than purchasing supplies from Sonoma Water.

Table 6-4 presents the results of the analysis of the four conservation program scenarios identified in **Table 6-3**, and includes a summary of costs and benefits to the District and customers, estimated cumulative water savings through 2050 (based on assumed program implementation from 2026-2030), and the estimated cost of water saved to the District. Based on this, the District's preferred water conservation measures for local implementation (i.e., Scenario B) have a benefit-to-cost ratio of 1.4, slightly above its existing programs (i.e., Scenario A) at 1.3. The benefit-to-cost ratio of outdoor programs (i.e., Scenario C) is 0.6, and CII programs (i.e., Scenario D) is 2.8. The projected cumulative water savings associated with implementation of locally preferred measures (i.e., Scenario B) is 1,088 AF by 2030 and 1,549 by 2050, at a cost of approximately $949 /AF. The figure in **Table 6-4** shows active savings in 2030 associated with each scenario, as well as anticipated passive savings.

Table 6-2 Conservation Program Scenarios

North Marin Water District, Sonoma-Marin Water Saving Partnership

Program	Sector	Indoor/ Outdoor	Note	Program Scenario (a)			
				(A) Baseline	(B) Highly-Ranked Local Programs	(C) Highly-Ranked Outdoor Programs	(D) Highly-Ranked CII Programs
AMI Leak Notifications Program	All	Both		X	X		
Water Smart Home Surveys Program	SFR	Both		X	X		
Water Smart Commercial Surveys Program	CII	Both		X	X		X
HET Rebates Program	SFR, MFR, CII	Indoor		X	X		
UHET Distribution Program	SFR	Indoor		X			
HECW Rebates Program	SFR	Indoor		X	X		
Water Smart Landscape Rebates Program	SFR	Outdoor		X	X	X	
Residential WBIC Rebates Program	SFR	Outdoor		X	X	X	
Commercial WBIC Rebates Program	CII	Outdoor		X	X	X	X
Swimming Pool Cover Rebates Program	SFR	Outdoor		X	X	X	
Large Landscape Audits Program	IRR	Outdoor		X	X	X	X
Hot Water Recirculation Rebate Program	SFR	Indoor		X	X		
Cash for Grass Rebates Program	SFR	Outdoor		X	X	X	
Cash for Grass Rebates Program	IRR	Outdoor		X	X	X	X
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	SFR, MFR, CII	Indoor		X	X		
Rain Barrel Rebate	SFR	Outdoor		X	X	X	
Incentivize Gray Water Retrofit for Existing SFR Customers	SFR	Outdoor		X	X	X	
Behavior Based Customer Messaging Platforms	SFR, MFR	Both			X		
Water Savings Incentive Program for CII	CII	Indoor	(b)		X		X

Abbreviations

AMI = Advanced Metering Infrastructure
CII = Commercial, Industrial, and Institutional
HECW = High-efficiency clothes washer
HET= High-efficiency toliet
MFR = multi-family residential
SFR = single-family residential
UHET = ultra-high-efficiency toilet
WBIC = weather-based irrigation controller

Notes

(a) The program scenarios represent four potential approaches to program selection. Scenario 1 represents existing programs as a baseline, Scenario 2 represents programs prioritized for local implementation, Scenario 3 focuses on outdoor water savings, and Scenario 4 focuses on CII programs.
(b) Preference for various CII devices are combined into a custom incentive program where a rebate is given per unit of water saved.

Table 6-3 Costs and Savings of Potential Conservation Programs

North Marin Water District, Sonoma-Marin Water Saving Partnership

Program (a)	Sector	Indoor/ Outdoor	Net Present Value of Benefits		Net Present Value of Cost		Benefit to Cost Ratio		Water Utility Costs 2026-2030 (b)	Water Savings in 2030 (AFY)	Water Utility Cost of Water Saved ($/AF)
			Water Utility	Customers	Water Utility	Customers	Water Utility	Customers			
AMI Leak Notifications Program	All	Both	$143,722	$335,579	$94,841	$521,628	1.5	0.6	$103,558	24.8	$843
Water Smart Home Surveys Program	SFR	Both	$28,271	$139,705	$33,892	$10,168	0.8	13.7	$38,200	5.1	$1,512
Water Smart Commercial Surveys Program	CII	Both	$13,635	$66,840	$28,835	$35,755	0.5	1.9	$32,500	2.4	$2,666
HET Rebates Program	SFR, MFR, CII	Indoor	$55,978	$130,704	$39,438	$0	1.4	-	$75,000	3.7	$1,217
UHET Distribution Program	SFR	Indoor	$387,912	$905,741	$73,317	$14,100	5.3	64.2	$252,200	21.9	$571
HECW Rebates Program	SFR	Indoor	$33,694	$211,748	$11,488	$87,920	2.9	2.4	$14,406	2.3	$410
Water Smart Landscape Rebates Program	SFR	Outdoor	$24,489	$57,180	$18,490	$14,223	1.3	4.0	$22,100	2.4	$928
Residential WBIC Rebates Program	SFR	Outdoor	$24,356	$56,868	$8,810	$3,388	2.8	16.8	$10,530	2.4	$445
Commercial WBIC Rebates Program	CII	Outdoor	$25,126	$58,668	$3,514	$1,506	7.2	39.0	$4,200	2.4	$172
Swimming Pool Cover Rebates Program	SFR	Outdoor	$14,456	$33,754	$15,316	$17,673	0.9	1.9	$17,420	2.6	$1,331
Large Landscape Audits Program	IRR	Outdoor	$52,662	$122,960	$31,053	$38,506	1.7	3.2	$35,000	9.4	$743
Hot Water Recirculation Rebate Program	SFR	Indoor	$1,428	$31,523	$2,502	$13,470	0.6	2.3	$2,990	0.1	$2,154
Cash for Grass Rebates Program	SFR	Outdoor	$46,861	$109,415	$207,024	$1,242,144	0.2	0.1	$247,442	4.6	$5,431
Cash for Grass Rebates Program	IRR	Outdoor	$27,649	$64,557	$40,728	$244,371	0.7	0.3	$48,680	2.7	$1,811
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	SFR, MFR, CII	Indoor	$55,794	$857,462	$4,869	$0	11.5	-	$15,450	3.7	$250

Table 6-3 Costs and Savings of Potential Conservation Programs

North Marin Water District, Sonoma-Marin Water Saving Partnership

Program (a)	Sector	Indoor/ Outdoor	Net Present Value of Benefits		Net Present Value of Cost		Benefit to Cost Ratio		Water Utility Costs 2026-2030 (b)	Water Savings in 2030 (AFY)	Water Utility Cost of Water Saved ($/AF)
			Water Utility	Customers	Water Utility	Customers	Water Utility	Customers			
Rain Barrel Rebate	SFR	Outdoor	$20,574	$48,039	$121,334	$273,002	0.2	0.2	$138,000	3.7	$7,407
Incentivize Gray Water Retrofit for Existing SFR Customers	SFR	Outdoor	$43,323	$101,156	$36,081	$21,648	1.2	4.7	$43,125	4.2	$1,024
Behavior Based Customer Messaging Platforms	SFR, MFR	Both	$103,589	$511,891	$49,177	$0	2.1	-	$53,690	17.7	$607
Water Savings Incentive Program for CII	CII	Indoor	$449,008	$1,048,394	$97,304	$472,617	4.6	2.2	$141,400	22.6	$272

Abbreviations

AFY = acre-feet per year
CII = Commercial, Industrial, and Institutional
MFR = multi-family residential
SFR = Single-family residential
sq ft = square feet
$/AF = dollars per acre-foot

Notes

(a) Estimated water savings, benefits, and costs are calculated using the AWE model. Program savings, cost, and implementation rate assumptions used are presented in Appendix
(b) For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030.

Table 6-4 Comparison of Program Scenarios – Costs and Savings
North Marin Water District, Sonoma-Marin Water Saving Partnership

Scenario (a)	Present Value of Benefits		Present Value of Cost		Benefit to Cost Ratio		Water Savings in 2030 (AFY)	Cumulative Active Water Savings (AF)					Water Utility Cost of Water Saved ($/AF) (b)
	Water Utility	Customers	Water Utility	Customers	Water Utility	Customers		2025	2030	2035	2040	2045	
(A) Baseline	$ 856,208	$ 2,996,320	$ 676,693	$ 2,017,874	1.3	1.5	74	230	511	657	800	904	$1,103
(B) Highly-Ranked Local Programs	$ 1,006,437	$ 3,617,111	$ 734,540	$ 2,458,719	1.4	1.5	90	312	597	756	926	1,059	$872
(C) Highly-Ranked Outdoor Programs	$ 279,496	$ 652,598	$ 482,351	$ 1,856,461	0.6	0.4	34	107	228	265	265	265	$2,135
(D) Highly-Ranked CII Programs	$ 568,080	$ 1,361,419	$ 201,434	$ 792,755	2.8	1.7	40	124	281	382	518	631	$415

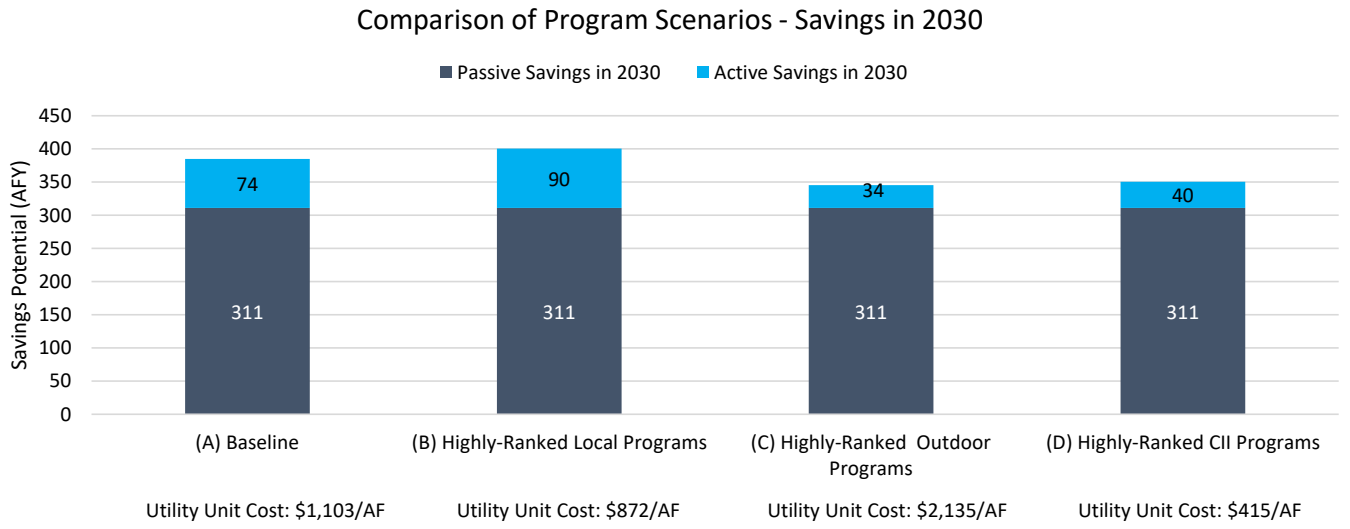
Abbreviations

AF = acre-feet $/AF = dollars per acre-foot

Notes

(a) For purposes of near-term conservation program analysis, it is assumed that all programs are active from 2026 through 2030. Cumulative water savings achieved beyond 2030 reflect the ongoing benefit of program implementation.

(b) The water utility cost is based on the cumulative savings achieved through 2050 cumulative water savings.



7 CONCLUSIONS

Although there have been no updates to the UWMP regulations since 2020, the MCCWL framework and related regulations will influence the 2025 UWMPs, as they will inform the water demand and conservation planning components. This project forecasted water demand through 2050 in accordance with CWC requirements and evaluated both historical and anticipated implementation of conservation programs.

7.1 Historical, Current, and Projected Water Demand

Water demand projections are developed consistent with CWC § 10631(d)(4)(A), which requires that "Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area." The assumptions used as the bases for demand projections were developed in close coordination with the District and reflect a land-use-based approach consistent with ABAG and MTC's Plan Bay Area 2050. It should be noted that all demand and conservation projections have limitations and should be considered estimates that require revisiting as factors that affect demand arise, such as economic or population shifts, extreme hydrological conditions, etc.

The methodology used to develop demand projections herein is also consistent with the CWC §10635(b)(4) requirement to consider climate change on projected demands.[6] The District's per-account water use declined significantly over the past 15 years as a result of the District's conservation efforts and showed significant response to key events such as the 2014-2017 drought, the 2021-2023 drought, and the COVID-19 pandemic. The demand factors evaluated herein are based on water use during the 2017-2019 period, which assumes a rebound in demand following the recent drought and represents a higher level of demand compared to current levels. Thus, the periods used to develop the demand projections reflect conditions representative of the hotter, drier weather expected as a result of climate change.

Although MCCWL Objective water use standards are expected to become more stringent over time, the District is projected to remain in compliance with its Objectives through 2040 based on forecasted population and baseline water use, prior to accounting for active conservation savings.

7.2 Conservation Measures Participation, Savings, and Update

Participation data indicate that several of the District's conservation programs, particularly the Water Smart Surveys Programs, Residential HET Rebates Program, HECW Rebates Program, Cash for Grass and Lawn Be Gone Rebate Programs, have been widely adopted and/or successful in achieving water savings between 2010 and 2024. Most programs have had a lower adoption

[6] CWC §10635(b)(4) requires that suppliers consider plausible changes on projected supplies and demands under climate change conditions specific to their five-year drought risk assessments. Section 4.5 of the draft 2020 UWMP Guidebook more generally recommends that consideration of climate change be incorporated into all demand projections.

rate over the recent five years compared to historical rates, with higher popularity observed during drought periods.

A benefit-cost analysis of future program scenarios shows that all options yield a benefit-to-cost ratio at or greater than one, meaning program implementation is more cost-effective than purchasing additional water supplies from Sonoma Water. Because the District already implements an extensive set of mature and cost-effective programs, new measures generally target remaining, harder-to-reach savings at a higher incremental cost. The preferred program portfolio achieves an estimated benefit-to-cost ratio of 1.3, while its existing programs are at 1.2.

8 REFERENCES

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APPENDIX A

Methodology for Estimating Indoor and Outdoor Water Use

Methodology for Estimating Indoor and Outdoor Water Use

This appendix documents the methodology used in Section 3.3 of the *2025 Water Demand and Conservation Measure Update* for the nine participating members of the Sonoma-Marin Saving Water Partnership (Water Contractors) prepared by EKI Environment & Water (EKI).

For customer accounts without dedicated irrigation meters, the amount of water used indoors versus outdoors is not directly measured and must be estimated. Traditionally, indoor and outdoor water use has been estimated using the "minimum winter month" method, which assumes that water use during the lowest-demand winter month is entirely attributable to indoor consumption. However, winter irrigation is common in California and this assumption tends to overestimate indoor water use.

EKI has developed the method below to estimate water use for meters with mixed indoor and outdoor water use (i.e. mixed-use meters, or MUMs) using an annual irrigation scaling factor developed based on data collected from dedicated irrigation meters. This method is consistent with the "Seasonal Adjustment Method" utilized in the Department of Water Resources' residential indoor water use study to inform water use efficiency standards as part of the *Making Conservation a California Way of Life* Legislation (DWR, 2021).

1 DATA SOURCES

The analysis is based on potable water consumption data covering calendar year 2024. While multi-year water consumption data are available, indoor and outdoor use estimates were derived from the most recent complete calendar year (2024) to reflect current usage and seasonal patterns.

The dataset was parsed for the analysis herein and includes the following fields:

- **Year and Month** – Derived from service period or billing date.
- **Sector Group** – Consolidated customer sectors, including Single Family, Multi-family, Commercial/Industrial/Institutional (CII Total), and Irrigation.
- **Consumption** – Monthly water use converted to acre-feet.
- **Water Type** – Only potable water use was included in the analysis.

Potable irrigation accounts were used to infer the seasonal profile of outdoor water use. Estimates of indoor and outdoor use were produced for sector groups where both types of use are present (e.g., Single Family, Multi-family, CII Total).

2 METHODOLOGY

This section describes the method used to estimate the indoor and outdoor components of total annual water use for each sector group.

2.1 Step 1: Identify Analysis Year

The most recent year with complete monthly data (2024) was selected to represent current conditions and ensure seasonal variation is captured accurately.

2.2 Step 2: Calculate Seasonal Scaling Factor

Potable dedicated irrigation meters (DIMs) were assumed to represent purely outdoor water use. Monthly water use in the most recent year (2024) was aggregated for all irrigation accounts (i.e. accounts on DIMs), and a seasonal scaling factor (SF) was calculated as:

$$Scaling\ Factor\ (SF) = \frac{Max\ (monthly\ use)}{Min\ (monthly\ use)}$$

This metric reflects the ratio between peak summer irrigation and baseline winter irrigation, which is assumed to persist year-round at a reduced level. The metric also reflects the local conditions and climatic conditions during 2024. As shown on Figure 2-1, the variations in monthly water use from DIMs generally follow a consistent pattern: highest water use in the summer months and early fall (July through September), lowest water use in the winter month and early spring (January through March).

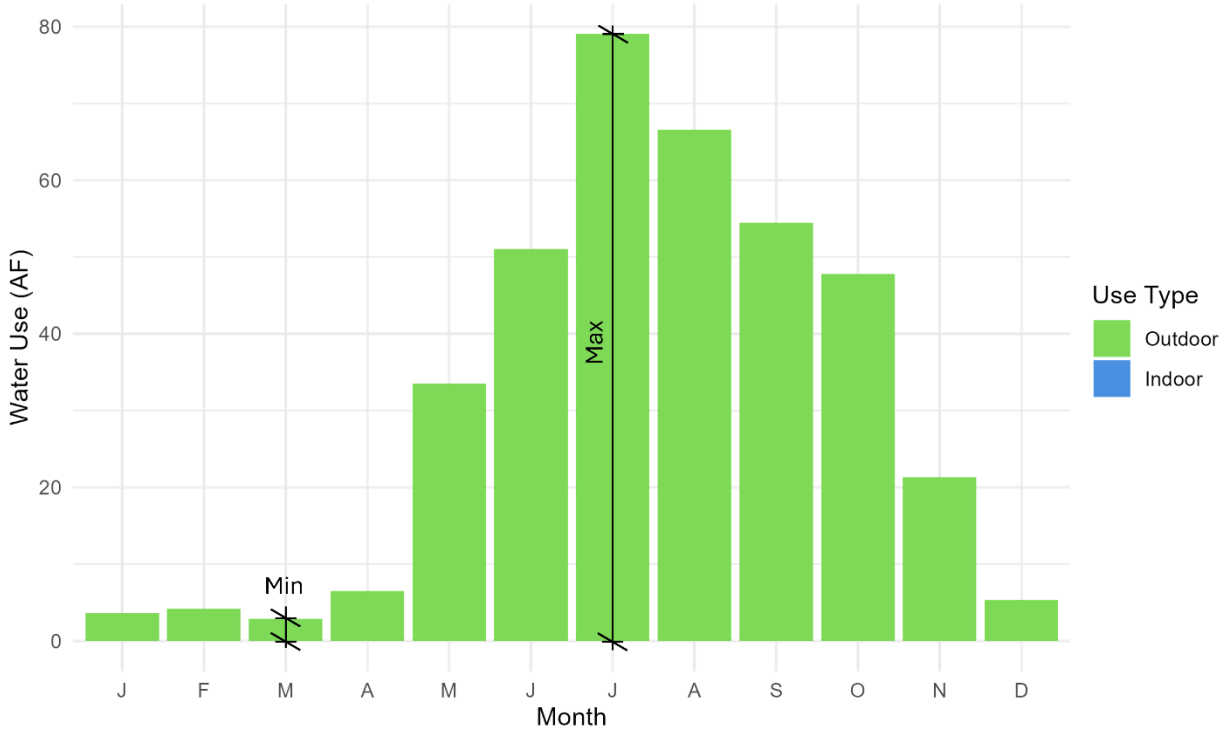


Figure 2-1 Example Irrigation Outdoor Use by DIMs Used to Calculate Scaling Factor

2.3 Step 3: Filter Target Sector Groups

The analysis focuses on three sector groups on MUMs expected to include both indoor and outdoor use:

- Single Family
- Multi-family
- CII Total

Only potable water demand from MUMs is considered.

2.4 Step 4: Extract Seasonal and Annual Demand

Monthly potable water demand by MUMs was aggregated by sector group. The representative low-irrigation month (winter) is selected by finding the minimum water use across the months of January, February, and March. Similarly, the high-irrigation month (summer) is selected by finding the maximum

water use from the months of July, August, and September. Total annual demand was also computed for each sector group.

2.5 Step 5: Estimate Indoor and Outdoor Use

The SF calculated under Step 2 are used to estimate the proportion of water used for irrigation purposes by MUMs. This method assumes that indoor water use is generally consistent over the course of the year and that customers within the Water Contractor's service area experience similar irrigation patterns. This assumption tends to hold more strongly for residential customers. However, for CII customers, although some use water through MUMs for outdoor irrigation, they may also have seasonally variable indoor demands, such as cooling towers. As a result, this method may underestimate indoor use and overestimate outdoor use in service areas with significant CII cooling demands.

Figure 2-2 illustrates the annual water use pattern and the components of the equations below used to derive estimated indoor and outdoor water use for sectors with MUMs.

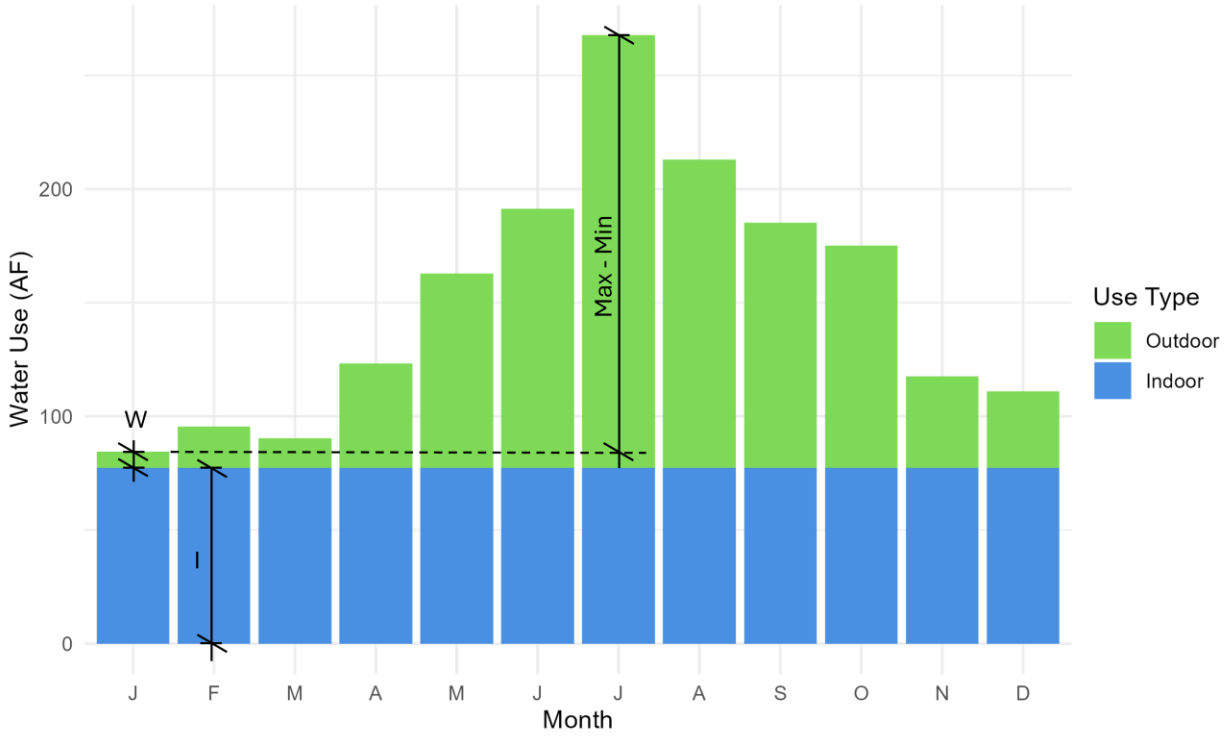


Figure 2-2 Indoor and Outdoor Separation Methodology for Water Use on MUMs

Indoor use was estimated as the month with the least water use in January, February, or March, adjusted to remove residual winter irrigation using the SF.

Winter irrigation is estimated as:

$$SF = \frac{W + (Max - Min)}{W}$$
$$= 1 + \frac{Max - Min}{W}$$
$$\Rightarrow W = \frac{Max - Min}{SF - 1}$$

Where:

- W = Outdoor winter irrigation during the lowest water use month
- Max = Max monthly use in one of July, August, or September
- Min = Min monthly use in January, February, or March
- SF = Scaling factor

Indoor monthly use is then:

$$I = Min - W$$

Indoor annual use is computed as:

$$I \times 12$$

Outdoor annual use is then the residual between total annual use and indoor annual use:

$$Outdoor\ Annual\ Use = Total\ Annual\ Use - Indoor\ Annual\ Use$$

3 ASSUMPTIONS AND LIMITATIONS

- DIMs reflect purely outdoor use, with consistent year-round patterns across groups.
- Low point of outdoor irrigation happens in one of January, February, or March; similarly peak summer irrigation happens in one of July, August, or September.
- Indoor water use is assumed to be consistent throughout the year.
- Customers within each sector group are assumed to exhibit similar usage patterns.
- The scaling factor derived from DIMs is representative of outdoor demand across all MUMs, which is a stronger assumption for residential customers but less so for CII customers due to seasonal cooling demands.

4 REFERENCES

DWR, 2021. *Recommendations for urban water use efficiency standards, variances, performance measures, and annual water use reporting* (Report No. WUES-DWR-2021-01A). California Department of Water Resources. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Performance-Measures/UWUE_STD_VAR_PM_REPORT_WUES-DWR-2021-01A_COMPLETE.pdf

APPENDIX B

Conservation Program Saving Assumptions

Table B-1 Conservation Program Savings Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Savings Assumption (gpd/unit)	Life of Savings (Years)	Decay Rate (%/Yr)	Free Riders (% activity)	Source(s)
Water Smart Home Surveys Program	Household	35.1	5	20%	0%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report.
Water Smart Commercial Surveys Program	Site	321.1	5	20%	0%	Calculated based on the potential water savings from CII audits per Reference 3 and typical CII water usage in the service area.
HET Rebates Program	Toilet	9.4	25	0%	23%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report.
UHET Distribution Program	Toilet	21	25	0%	0%	AWE Tool Conservation Program Library.
HECW Rebates Program	Washer	14.2	15	0%	0%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report.
Water Smart Landscape Rebates Program	Household	25	10	0%	0%	AWE Tool Conservation Program Library
Residential WBIC Rebates Program	Controller	26.1	10	0%	0%	AWE Tool Conservation Program Library.
Commercial WBIC Rebates Program	Controller	727.0	10	0%	0%	AWE Tool Conservation Program Library.
Swimming Pool Cover Rebates Program	Household	17.4	5	0%	0%	(a)
Large Landscape Audits Program	Site	893.0	5	20%	0%	AWE Tool Conservation Program Library.
Hot Water Recirculation Rebate Program	Household	5.4	10	0%	0%	Calculated based on the hot water recirculation system savings and system useful life in References 1 and 2.
Cash for Grass Rebates Program	Square Feet	0.03	10	0%	0%	Per detailed conservation savings analysis performed for 2020 Demand/Cons Report.
Cash for Grass Rebates Program for Irrigation Accounts	Square Feet	0.1	10	0%	0%	AWE Tool Conservation Program Library.
AMI Leak Notifications Program (SFR)	AMI Meter	0.7	1	0%	0%	AWE Tool Conservation Program Library.
AMI Leak Notifications Program (MFR, CII, IRR)	AMI Meter	2.0	1	0%	0%	AWE Tool Conservation Program Library.
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	Showerhead	2.4	10	0%	0%	AWE Tool Conservation Program Library.
Rain Barrel Rebate	Household	9.6	5	0%	0%	AWE Tool Conservation Program Library for an average cisterm at approximately 1,000 gallons per household.
Incentivize Gray Water Retrofit for Existing SFR Customers	Household	10.9	10	0%	0%	AWE Tool Conservation Program Library.
Behavior Based Customer Messaging Platforms	Household	10.3	1	0%	0%	AWE Tool Conservation Program Library for Home Water Report.
Water Savings Incentive Program for CII	gpd	1	25	0%	0%	Inputs based on per gpd reduced

Table B-1 Conservation Program Savings Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Abbreviations

AMI = advanced metering infrastructure
AWE = Alliance for Water Efficiency Water Conservation Tracking Tool
CII = commercial, industrial, institutional
gpd = gallons per day
HET = high-efficiency toilet
HECW = high-efficiency clothes washer
IRR = irrigation
MFR = multi-family residential
SFR = single-family residential
UHET = ultra-high-efficiency toilet
WBIC = weather-based irrigation controller

Notes

(a) Calculated assuming a 500 square foot pool; 95% reduction in evaporation based in Reference 1; the cover is being used properly 50% of the time; and an annual evaporation rate of 45 inches.

References

1. NM OSE, 1999. Water conservation guide for commercial, institutional, and industrial users. New Mexico Office of the State Engineer.
2. ORNL, 2002. A case study of five homes in Palo Alto, California: Potential for savings using on-demand hot-water recirculation systems (ORNL/TM-2002/245). Oak Ridge National Library.
3. USDOE, 2001. Pump lifecycle costs: A Guide to LLC Analysis for Pumping Systems. U.S. Department of Energy, January 2001.
4. AWE, 2021. Water Conservation Tracking Tool. Version 4.0. Alliance for Water Efficiency.
5. EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update North Marin Water District. EKI Environment & Water, Inc., December 2020.

Table B-2 Conservation Program Cost Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Utility Cost per Unit (a)	Customer Cost per Unit	Source(s)
Water Smart Home Surveys Program	Household	$200	$60	Consistent with 2020 Demand/Cons Report and adjusted to 2025 dollars.
Water Smart Commercial Surveys Program	Site	$2,500	$3,100	Consistent with 2020 Demand/Cons Report and adjusted to 2025 dollars.
HET Replacement Program	Toilet	$130	$150	Utility cost based on District's rebate amount. Assumes a total HET cost of $250.
UHET Distribution Program	Toilet	$260	$50	Utility cost based on District's rebate amount. Assumes a total UHET cost of $250.
HECW Rebates Program	Washer	$98	$750	Utility cost based on District's rebate amount. Customer cost based on cost of a low-end ENERGY STAR residential washer model
Water Smart Landscape Rebates Program	Household	$260	$200	Utility cost and customer cost based on District's rebate amount and that NMWD rebates up to 50% of approve items.
Residential WBIC Rebates Program	Controller	$130	$50	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes a total cost of $150 for a single family controller.
Commercial WBIC Rebates Program	Controller	$1,400	$600	Utility cost based on District's rebate amount. Assumes a total cost of $1,700 for a typical large landscape controller with 24 stations.
Swimming Pool Cover Rebates Program	Household	$130	$150	Utility cost based on District's rebate amount. Assumes a total cost of $250 for a typical pool cover.
Large Landscape Audits Program	Site	$2,500	$3,100	Similar to Water Smart Commercial Surveys Program
Hot Water Recirculation Rebate Program	Household	$130	$700	Utility cost based on District's rebate amount. Assumes a total cost of $800 for installation.
Cash for Grass Rebates Program	Square Feet	$2	$12	Utility cost based on District's rebate amount. Customer cost from Marin Municipal Water District's SWSA modeling.
Cash for Grass Rebates Program for Irrigation Accounts	Square Feet	$2	$12	Utility cost based on District's rebate amount. Customer cost from Marin Municipal Water District's SWSA modeling.
AMI Leak Notifications Program (SFR)	AMI Meter	$1	$5.5	Utility cost from AWE Tool Conservation Program Library. Customer costs based on Note (b).
AMI Leak Notifications Program (MFR, CII, IRR)	AMI Meter	$1	$5.5	Similar to SFR AMI Leak Notifications Program.
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	Showerhead	$10	$0.0	Utility cost from AWE Tool Conservation Program Library. Assumes no customer cost.
Rain Barrel Rebate	Household	$400	$900	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes a total cost of $1200 for a 1,000 gallon rain barrel

Table B-2 Conservation Program Cost Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Utility Cost per Unit (a)	Customer Cost per Unit	Source(s)
Incentivize Gray Water Retrofit for Existing SFR Customers	Household	$125	$75	Utility cost based on District's rebate amount. Assumes a total cost of $200 for purchase of a Laundry-to-Landscape kit.
Behavior Based Customer Messaging Platforms	Household	$7	$0	Utility cost based on AWE Tool Conservation Program Library adjusted to 2025 dollars. Assumes no cost to customers.
Water Savings Incentive Program for CII	GPD Reduced	$7	$34	(c)

Abbreviations

AMI = advanced metering infrastructure
AWE = Alliance for Water Efficiency Water Conservation Tracking Tool
CII = commercial, industrial, institutional
gpd = gallons per day
HET = high-efficiency toilet
HECW = high-efficiency clothes washer
IRR = irrigation
MFR = multi-family residential
SFR = single-family residential
SWSA = Strategic Water Supply Assessment
UHET = ultra-high-efficiency toilet
WBIC = weather-based irrigation controller

Notes

(a) Utility cost for rebate programs includes a 30% administrative cost in addition to the District's rebate amount.
(b) An average household leak is estimated to be 180 gallons per week per Reference 3. It is assumed that fixing such leak costs $200, averaged across the entire
(c) Utility cost for each gpd reduced calculated from the average of Santa Rosa's Sustained Reduction program and Marin Municipal's Custom Rebate program. Customer cost assumed to be five times the District's rebate amount.

References

1. AWE, 2021. Water Conservation Tracking Tool. Version 4.0. Alliance for Water Efficiency.
2. EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update North Marin Water District. EKI Environment & Water, Inc., December 2020.
3. USEPA, 2025. Water Sense Statistics and Facts. United States Environmental Protection Agency, accessed October 14, 2025.
https://www.epa.gov/watersense/statistics-and-facts

Table B-3 Conservation Program Implementation Rate Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Implementation Rate	Unit	Source(s)
Water Smart Home Surveys Program	Household	38	Household / Year	Based on past program participation rates from 2020–2024.
Water Smart Commercial Surveys Program	Site	2.6	Site / Year	Based on past program participation rates from 2020–2024.
HET Rebates Program	Toilet	100	Toilet / Year	Based on past program participation rates from 2020–2024.
UHET Distribution Program	Toilet	194	Toilet / Year	Based on past program participation rates from 2013-2015 as no participation was reported for 2020-2024.
HECW Rebates Program	Washer	29	Washer / Year	Based on past program participation rates from 2020-2024.
Water Smart Landscape Rebates Program	Household	17	Household / Year	Based on past program participation rates from 2020–2024.
Residential WBIC Rebates Program	Controller	16	Controller / Year	Based on past program participation rates from 2020–2024.
Commercial WBIC Rebates Program	Controller	0.6	Controller / Year	Based on past program participation rates from 2020–2024.
Swimming Pool Cover Rebates Program	Household	27	Household / Year	Based on past program participation rates from 2020–2024.
Large Landscape Audits Program	Site	2.8	Site / Year	Based on past program participation rates from 2020–2024.
Large Landscape Budgets Program	Site	44	Site / Year	Assumes all irrigation accounts will participate.
Hot Water Recirculation Rebate Program	Household	4.6	Household / Year	Based on past program participation rates from 2020–2024.
Cash for Grass Rebates Program	Square Feet	24,744	Square Feet / Year	Based on past program participation rates from 2020–2024.
Cash for Grass Rebates Program for Irrigation Accounts	Square Feet	4,868	Square Feet / Year	Based on past program participation rates from 2008-2019..
AMI Leak Notifications Program (SFR)	AMI Meter	14,607	AMI Meter / Year	Based on past program participation rates from 2020–2024.
AMI Leak Notifications Program (MFR, CII, IRR)	AMI Meter	5,381	AMI Meter / Year	Based on past program participation rates from 2020–2024.

Table B-3 Conservation Program Implementation Rate Assumptions

North Marin Water District, Sonoma-Marin Saving Water Partnership

Agency Program Name	Units	Implementation Rate	Unit	Source(s)
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	Showerhead	309	Showerhead / Year	Assume 1% of SFR customers will participate. Assumes 2 showerheads per account.
Rain Barrel Rebate	Household	69	Household / Year	Assume 0.6% of SFR customers will participate.
Incentivize Gray Water Retrofit for Existing SFR Customers	Household	69	Household / Year	Assume 0.6% of SFR customers will participate.
Behavior Based Customer Messaging Platforms	Household	1,534	Household / Year	Assume 8% of residential customers will participate.
Water Savings Incentive Program for CII	GPD Reduced	4,040	GPD Reduced / Year	Based on 2010-2024 program participation from the City of Santa Rosa.

Abbreviations

AMI = advanced metering infrastructure
AWE = Alliance for Water Efficiency Water Conservation Tracking Tool
CII = commercial, industrial, institutional
HET = high-efficiency toilet
HECW = high-efficiency clothes washer
IRR = Irrigation
MFR = multi-family residential
SFR = single-family residential
UHET = ultra-high-efficiency toilet
WBIC = weather-based irrigation controller
WEMP = Water Efficiency Master Plan

APPENDIX C

Prioritization and Screening of Future Water Conservation Measures

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
AGENCY ACTIONS AND WATER RATES					
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement	1.5	1.6	25%	25%	✗
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	1.7	2.4	33%	56%	✗
Increase Enforcement of State Water Waste Regulations	2.0	2.6	38%	63%	✗
Rate Structure Evaluation	2.0	2.0	25%	50%	✗
Regional UHET and/or Urinal Bulk Purchase Program	1.3	1.	11%	0%	✗
Water Budgeting/Monitoring for Large Landscape Accounts	1.8	2.9	33%	67%	✗
Establish Separate Pricing Structure for Irrigation Accounts	1.4	2.7	13%	50%	✗
Implementation or Modification of Tiered Water Rates (Conservation Pricing)	2.4	3.3	38%	75%	✗
Water Budget Based Billing for All Customers	1.3	1.9	11%	33%	✗
Water Budget Based Billing for Only Irrigation Customers	1.7	2.9	22%	56%	✗
Install AMI for Existing Accounts	2.6	4.3	25%	88%	✗
Install AMI for High Water Users and Large Landscape Accounts	2.8	4.4	50%	88%	✗
Install AMI in New Development	2.4	4.3	38%	88%	✗
End Point Leak Detection and Flow Monitoring	2.1	3.0	25%	50%	✗
CalWEP District Distribution Program	1.8	2.3	33%	33%	✗
Behavior Based Customer Messaging Platforms	1.9	2.9	25%	63%	✗
Average by Program Type	1.9	2.8			
PUBLIC OUTREACH AND EDUCATION					
Water Use Surveys/Audits - CII	2.3	2.9	44%	56%	✓
Water Use Surveys/Audits - MFR	2.7	3.1	67%	67%	✓
Water Use Surveys/Audits - SFR	2.6	3.0	67%	67%	✗
Garden Sense Consultation	3.1	2.3	78%	56%	✓
Educational Workshops	3.3	2.7	78%	56%	✓

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Garden Tour	3.2	1.6	78%	11%	✓
SFR Home Water Report	2.0	2.8	44%	67%	✗
Promote Green Building and Certification	2.4	1.3	56%	11%	✗
Provide Support with Smart Irrigation Controller Setup	2.7	2.6	67%	56%	✗
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	3.7	3.4	89%	89%	✓
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	4.4	4.1	100%	89%	✓
Promote QWEL Training (Qualified Water efficient Landscaper)	3.9	2.6	89%	33%	✓
School Education Programs	4.0	2.6	100%	67%	✓
Do-It-Yourself Home Energy and Water Savings Toolkit	3.2	2.2	78%	44%	✓
Average by Program Type	3.1	2.7			
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS					
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	2.4	3.1	44%	56%	✗
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	2.7	4.0	56%	89%	✗
Toilet Flapper Giveaway - Residential and CII	2.2	3.0	44%	67%	✗
UHET Direct Installation - Residential and CII	1.7	2.2	33%	33%	✗
Urinal Direct Installation - CII	1.7	2.0	44%	33%	✗
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	1.7	1.8	33%	33%	✗
HET (<1.28 gal/flush) Replacement Rebates	2.3	2.6	44%	44%	✗
High Efficiency Urinal (<0.25 gal/flush) Replacement Rebates - CII	2.1	2.6	44%	44%	✗
Plumber Initiated UHET and / or HEU Retrofit Program	1.7	2.0	22%	22%	✗
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	1.9	2.4	33%	44%	✗
Direct Install of Efficient Indoor Fixtures - Government Buildings	2.1	2.4	44%	44%	✗
Direct Install of Efficient Indoor Fixtures - Low Income Residential	2.3	2.9	44%	56%	✗
Direct Install of Efficient Indoor Fixtures - Residential	2.3	2.7	44%	44%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
High Efficiency Clothes Washer Install - Low Income Residential Customers	1.6	1.1	22%	11%	✗
High Efficiency Clothes Washer Rebate - Residential	3.1	3.1	67%	67%	✗
High Efficiency Clothes Washer Rebate Program - CII	2.0	2.8	44%	78%	✗
Efficient Dishwasher Rebates	1.9	1.9	44%	44%	✗
Indoor Fixture Program For Hotels & Motels	2.0	2.8	44%	67%	✗
Indoor Fixture Program For Schools	2.1	2.0	44%	33%	✗
Water Savings Incentive Program for CII	1.8	2.9	33%	78%	✗
Nonresidential Incentive for Self-closing or Metering Faucets	1.9	2.6	22%	44%	✗
Laminar Flow Restrictor Rebate for Health Care Related Facilities	1.9	2.8	22%	67%	✗
Autoclave (Steam-Sterilizer) Retrofit Rebates	1.3	1.4	11%	22%	✗
Air Cooled Ice Machine Rebates	1.7	1.9	22%	44%	✗
Connectionless Food Steamer Rebates	2.0	1.9	33%	44%	✗
Commercial Kitchen High Efficiency Dishwasher Rebate	1.3	1.8	11%	33%	✗
Dipper Well Rebates	2.2	2.3	44%	67%	✗
Hot Water on Demand Pump System Rebate/ Hot Water Recircling System	1.7	2.2	33%	56%	✗
Dry Vacuum Pumps	1.3	1.9	11%	44%	✗
Ozone Laundry Washer Rebate - CII	1.6	2.1	22%	56%	✗
Plumbing Flow Control Valve - CII (Faucets and Showerheads)	1.9	2.7	22%	56%	✗
Incentivize Cooling Tower Upgrades	1.3	2.1	11%	56%	✗
Rebates for Conductivity Controllers on Cooling Towers	1.6	2.1	22%	56%	✗
Sustained Reduction, or rebates for any CII project which demonstrates water savings	1.6	2.0	22%	33%	✗
Landscape Conversion or Turf Removal - MFR and CII	3.2	4.7	67%	100%	✗
Landscape Conversion or Turf Removal - SFR	3.3	4.8	67%	100%	✗
Mulch Rebate	2.4	3.4	44%	67%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Incentivize Irrigation Equipment Upgrades - SFR	2.0	3.4	33%	67%	✗
Commerical Landscape Irrigation Improvement Program (CLIIP) Rebates	2.4	3.5	50%	75%	✗
Rotating Sprinkler Nozzle Giveaway	2.4	2.8	56%	56%	✗
Nozzle Replacement Irrigation - Residential	1.9	2.9	33%	44%	✗
Nozzle Replacement Irrigation CII - Large Landscape	1.9	3.0	33%	56%	✗
In-Stem Flow Regulators	1.9	2.1	33%	33%	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	1.9	2.3	44%	44%	✗
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	1.9	2.7	44%	44%	✗
Soil Moisture Sensor Giveaway	2.0	2.1	44%	22%	✗
Soil Moisture Sensor Rebate	1.9	2.0	44%	22%	✗
Pilot Spring Irrigation Repairs Rebate	2.0	2.2	44%	33%	✗
Rain Barrel Rebate	2.2	3.1	44%	67%	✗
Rain Barrel Rebate - MFR & Large Landscapes	2.0	2.9	33%	56%	✗
Incentivize Gray Water Retrofit for Existing SFR Customers	1.9	2.7	22%	56%	✗
Incentivize Gray Water Systems for New CII Development	1.8	1.9	22%	33%	✗
Incentivize Submetering for Existing Customers - MFR, CII	1.7	2.4	33%	56%	✗
Incentivize Submetering of Cooling Towers for Existing Customers	1.1	1.9	0%	33%	✗
Flow Sensor Rebate Irrigation System	1.7	2.3	33%	44%	✗
SFR Wireless Flow Monitor	1.7	2.0	33%	33%	✗
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	1.4	1.7	11%	22%	✗
Pool Removal Rebates	1.8	2.6	22%	44%	✗
Swimming Pool and Hot Tub Cover Rebates	1.6	2.7	33%	56%	✗
Tiered Water Rate Exemption Assitance Program	1.0	1.4	0%	11%	✗
Average by Program Type	1.9	2.5			

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
POLICIES AND REGULATIONS					
Demand Offset/Water Neutral Policy for Large New Developments	2.7	3.7	44%	78%	✗
Prohibit Once through Cooling Systems	2.7	3.9	44%	78%	✗
Require <0.25 gal/flush Urinals in New Development	1.6	1.9	22%	33%	✗
Require <1.0 gal/flush Toilets in New Development	2.1	3.1	33%	56%	✗
Require Cooling Tower Retrofits	2.2	2.6	44%	56%	✗
Require High Efficiency Clothes Washers in New Development	1.7	2.6	22%	44%	✗
Require Hot Water on Demand / Structured Plumbing in New Residential Development	2.0	2.4	44%	56%	✗
Require Irrigation Designers / Installers be Certified (QWEL)	1.6	1.9	22%	33%	✗
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	1.8	1.9	33%	33%	✗
Require Plumbing for Gray Water in New SFR Development	2.2	1.9	33%	33%	✗
Require Plumbing for Recycled Water in New CII Development	1.6	3.0	11%	56%	✗
Require Plumbing for Recycled Water in New MFR Development	1.8	2.3	33%	33%	✗
Require Rain Barrels in New Development	1.8	2.0	33%	44%	✗
Require Submetering by Unit for Existing Commercial Customers	1.8	2.1	33%	44%	✗
Require Submetering by Unit for New Commercial Developments	1.6	2.8	22%	67%	✗
Require Submetering for New MFR Developments	2.1	2.4	44%	44%	✗
Require Submetering for New Mobile Home Park Developments	2.2	2.1	33%	44%	✗
Require Submetering of Cooling Towers for Existing Customers	1.8	2.3	22%	33%	✗
Require Submetering of Cooling Towers for New Development	1.1	2.1	0%	33%	✗
Require Submetering of Existing MFR (and Mobile Home Park) Customers	1.3	1.7	11%	22%	✗
Require Submetering of Landscaping for Existing MFR and Commercial Customers	1.3	2.0	11%	33%	✗
Require Submetering of Landscaping for New MFR and Commercial Developments	1.8	2.8	11%	44%	✗
Require Swimming Pool and Hot Tub Covers	1.6	2.4	11%	33%	✗

Table C-1 Regional Prioritization of Conservation Measures and Programs

Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)		Preference (b)		Current SMSWP Program
	Regional	Local	Regional	Local	
Require Water Efficiency Plan Reviews for New CII Development	1.8	2.8	22%	56%	✗
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	1.8	3.1	22%	56%	✗
Restrict Landscape Irrigation to Designated Days/Times	1.3	2.1	11%	33%	✗
Water Conserving Landscape and Irrigation Codes, More Stringent than MWELO	2.2	3.6	33%	67%	✗
Water Waste Ordinance	2.7	4.2	33%	78%	✗
Average by Program Type	1.9	2.6			

Abbreviations:

AMI = advanced metering infrastructure
CalWEP = California Water Efficiency Partnership
CII = commercial, industrial, institutional
COM = commercial
HEU = High-Efficiency Urinals
IRR = irrigation
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin Saving Water Partnership
UHET = ultra high efficiency toilet

Notes:

(a) Each Water Contractor was asked to rank each conservation program or measure in terms of priority as a regionally-administered program, and as a locally administered program, where 5 indicated highest priority and 1 indicated the lowest priority. Results are presented as an average of the responses of all nine Water Contractors.

(b) Presents the percentage of Water Contractors who indicated a priority of greater or equal to 3 for regional or local implementation.

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
AGENCY ACTIONS AND WATER RATES						
Increase Enforcement of Customer Pressure Reducing Valve (PRV) Requirement	2	All	X	X	Water loss; Irrigation	No
Install AMI for Existing Accounts	5	All	X	X	Water loss; Irrigation	Yes, currently
Install AMI for High Water Users and Large Landscape Accounts	5	All		X	Water loss; Irrigation	Yes, currently
Install AMI in New Development	5	All	X	X	Water loss; Irrigation	Yes, currently
Regional UHET and/or Urinal Bulk Purchase Program	2	All	X		Toilet / Urinal	Yes, previously
Increase Enforcement of State Water Waste Regulations	4	All	X		Irrigation	Yes, currently
Establish Separate Pricing Structure for Irrigation Accounts	2	IRR		X	Irrigation	Yes, currently
Behavior Based Customer Messaging Platforms	4	All	X	X	All	No
Rate Structure Evaluation	3	All	X	X	All	Yes, currently
Water Budgeting/Monitoring for Large Landscape Accounts	3	IRR	X	X	Irrigation	Yes, previously
Implementation or Modification of Tiered Water Rates (Conservation Pricing)	3	All	X	X	All	Yes, currently
Water Budget Based Billing for All Customers	3	All	X	X	All	No
Water Budget Based Billing for Only Irrigation Customers	3	CII, IRR		X	Irrigation	No
End Point Leak Detection and Flow Monitoring	3	All	X	X	Water loss; Irrigation	Yes, currently
CalWEP District Distribution Program	2	SFR, MFR, COM	X	X	All	No
Increase Enforcement of Indoor Fixture Retrofit at Time of Sale	5	All	X	X	Faucet, Showerhead	Yes, currently
PUBLIC OUTREACH AND EDUCATION						
Public Outreach through Print & Electronic Media - Focused on Indoor Conservation	5	All	X		All Indoor	Yes, currently
Public Outreach through Print & Electronic Media - Focused on Outdoor Irrigation	5	All		X	Irrigation	Yes, currently
Water Use Surveys/Audits - CII	4	CII	X	X	All	Yes, currently
Water Use Surveys/Audits - MFR	4	MFR	X		All	Yes, currently

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Water Use Surveys/Audits - SFR	4	SFR	X	X	All	Yes, currently
Garden Tour	2	SFR		X	All Outdoor	Yes, currently
SFR Home Water Report	1	SFR	X	X	All	No
Promote Green Building and Certification	1	CII	X	X	All	No
Garden Sense Consultation	3	SFR		X	All Outdoor	Yes, currently
Educational Workshops	3	All		X	All Outdoor	Yes, currently
Provide Support with Smart Irrigation Controller Setup	3	All		X	Irrigation	No
Promote QWEL Training (Qualified Water efficient Landscaper)	1	All		X	All Outdoor	Yes, currently
School Education Programs	1	SFR, MFR	X	X	All	Yes, currently
DEVICE-BASED AND FINANCIAL INCENTIVE PROGRAMS						
High Efficiency Faucet Aerator / Showerhead Giveaway - CII Customers	2	CII	X		Faucet, Showerhead	Yes, currently
High Efficiency Clothes Washer Rebate - Residential	5	SFR, MFR	X		Clothes Washer	No
Toilet Flapper Giveaway - Residential and CII	2	All	X		Toilet	Yes, currently
UHET Direct Installation - Residential and CII	1	CII	X		Toilet	No
Urinal Direct Installation - CII	1	CII	X		Urinal	No
Thermostatic Shut-Off Valve Showerheads/Tub Spouts Rebates	1	SFR, MFR, CII	X		Shower	No
Landscape Conversion or Turf Removal - MFR and CII	5	MFR, CII		X	Irrigation	Yes, currently
High Efficiency Urinal (<0.25 gal/flush) Replacement Rebates - CII	2	CII	X		Urinal	Yes, currently
Plumber Initiated UHET and / or HEU Retrofit Program	1	All	X		Toilet / Urinal	No
Direct Install of Efficient Indoor Fixtures - Commercial and Industrial	1	CII	X		Faucet, Showerhead	No
Direct Install of Efficient Indoor Fixtures - Government Buildings	1	CII	X		Faucet, Showerhead	No
Direct Install of Efficient Indoor Fixtures - Low Income Residential	1	SFR, MFR	X		Toilet, Faucet, Showerhead	No

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Direct Install of Efficient Indoor Fixtures - Residential	1	SFR, MFR	X		Toilet, Faucet, Showerhead	No
Landscape Conversion or Turf Removal - SFR	5	SFR		X	Irrigation	Yes, currently
High Efficiency Clothes Washer Install - Low Income Residential Customers	1	SFR, MFR	X		Clothes Washer	No
Mulch Rebate	5	SFR		X	Irrigation	Yes, currently
High Efficiency Clothes Washer Rebate Program - CII	1	CII	X		Clothes Washer	Yes, currently
Efficient Dishwasher Rebates	1	SFR	X		Dishwashers	No
Indoor Fixture Program For Hotels & Motels	2	CII	X		All Indoor	No
Indoor Fixture Program For Schools	1	CII	X		All Indoor	No
Water Savings Incentive Program for CII	1	CII	X		All Indoor	No
Nonresidential Incentive for Self-closing or Metering Faucets	1	CII	X		Faucet	No
Incentivize Irrigation Equipment Upgrades - SFR	5	SFR		X	Irrigation	Yes, currently
Autoclave (Steam-Sterilizer) Retrofit Rebates	1	CII	X		CII Equipment	No
Air Cooled Ice Machine Rebates	1	CII	X		CII Equipment	Yes, previously
Connectionless Food Steamer Rebates	1	CII	X		CII Equipment	No
Commercial Kitchen High Efficiency Dishwasher Rebate	1	Commercial	X		Dishwashers	No
Dipper Well Rebates	1	CII	X		CII Equipment	No
Commerical Landscape Irrigation Improvement Program (CLIIP) Rebates	5	Commercial		X	Irrigation	Yes, currently
Dry Vacuum Pumps	1	CII	X		CII Equipment	No
Ozone Laundry Washer Rebate - CII	1	CII	X		Clothes Washer	No
Plumbing Flow Control Valve - CII (Faucets and Showerheads)	1	Commercial	X		Faucet	No
Nozzle Replacement Irrigation - Residential	5	SFR, MFR		X	Irrigation	Yes, currently
Nozzle Replacement Irrigation CII - Large Landscape	5	CII		X	Irrigation	Yes, currently

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Sustained Reduction, or rebates for any CII project which demonstrates water savings	1	CII	X	X	All	No
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - SFR	5	SFR		X	Irrigation	Yes, currently
Rain Barrel Rebate	5	SFR		X	Irrigation	Yes, currently
Rain Barrel Rebate - MFR & Large Landscapes	5	MFR, CII		X	Irrigation	Yes, currently
Pool Removal Rebates	5	SFR, MFR		X	Pool/Hot Tub	Yes, currently
Swimming Pool and Hot Tub Cover Rebates	5	SFR, MFR		X	Pool/Hot Tub	Yes, currently
HET (<1.28 gal/flush) Replacement Rebates	4	SFR, MFR	X		Toliet	Yes, currently
Do-It-Yourself Home Energy and Water Savings Toolkit	4	SFR	X	X	All	Yes, currently
Hot Water on Demand Pump System Rebate/ Hot Water Recircling System	4	SFR, MFR	X		Hot Water	Yes, currently
In-Stem Flow Regulators	1	Commercial		X	Irrigation	No
Smart Irrigation Controller (Weather-Based Irrigation Controller) Giveaway - Large Landscape	4	MFR, CII		X	Irrigation	Yes, currently
Incentivize Gray Water Retrofit for Existing SFR Customers	4	SFR		X	Irrigation / Gray Water	Yes, currently
Soil Moisture Sensor Giveaway	2	All		X	Irrigation	No
Soil Moisture Sensor Rebate	2	All		X	Irrigation	No
Pilot Spring Irrigation Repairs Rebate	1	MFR, COM, IRR		X	Irrigation	No
High Efficiency Faucet Aerator / Showerhead Giveaway - Residential Customers	3	SFR, MFR	X		Faucet, Showerhead	Yes, currently
Laminar Flow Restrictor Rebate for Health Care Related Facilities	3	Institutional	X		Faucet	No
Incentivize Cooling Tower Upgrades	3	CII	X		Cooling Towers	No
Incentivize Gray Water Systems for New CII Development	1	CII		X	Irrigation / Gray Water	No
Rebates for Conductivity Controllers on Cooling Towers	3	CII	X		Cooling Towers	No
Rotating Sprinkler Nozzle Giveaway	3	All		X	Irrigation	No
Flow Sensor Rebate Irrigation System	1	SFR, MFR		X	Irrigation	No

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
SFR Wireless Flow Monitor	1	SFR	X	X	Water Loss	No
Incentivize Replacement of Pressure Reducing Valves (PRVs) with 60-70 psi PRVs	1	All	X	X	Water loss; Irrigation	No
Incentivize Submetering for Existing Customers - MFR, CII	3	MFR, COM, IRR		X	All Indoor	No
Incentivize Submetering of Cooling Towers for Existing Customers	3	CII	X		Cooling Towers	No
Tiered Water Rate Exemption Assitance Program	1	SFR	X	X	Showerhead, Clothes Washer, Irrigation	No
POLICIES AND REGULATIONS						
Require <1.0 gal/flush Toilets in New Development	5	All	X		Toilet	No
Require High Efficiency Clothes Washers in New Development	5	SFR, MFR	X		Clothes Washer	Yes, currently
Require Weather Adjusting Smart Irrigation Controllers, Rain Sensors, and/or Soil Moisture Sensors in New Development	5	All		X	Irrigation	Yes, currently
Water Conserving Landscape and Irrigation Codes, More Stringent than MWELO	5	All		X	Irrigation	Yes, currently
Water Waste Ordinance	5	All		X	All Outdoor	Yes, currently
Prohibit Once through Cooling Systems	4	CII	X	X	CII Equipment	No
Require Hot Water on Demand / Structured Plumbing in New Residential Development	2	SFR, MFR	X		Shower/Sink	No
Require Irrigation Designers / Installers be Certified (QWEL)	2	All		X	Irrigation	No
Require On-Site Water Reuse Systems (Grey Water or Black Water) for Large CII Developments	2	CII		X	Irrigation / Recycled Water	No
Require Plumbing for Gray Water in New SFR Development	2	SFR		X	Irrigation / Gray Water	Yes, currently
Require <0.25 gal/flush Urinals in New Development	4	CII	X		Urinal	Yes, currently
Require Plumbing for Recycled Water in New CII Development	4	CII		X	Irrigation / Recycled Water	Yes, currently
Require Plumbing for Recycled Water in New MFR Development	4	MFR		X	Irrigation / Recycled Water	No
Require Submetering by Unit for Existing Commercial Customers	2	CII	X		All Indoor	No
Require Submetering by Unit for New Commercial Developments	2	CII	X		All Indoor	No

Table C-2 Prioritization of Conservation Measures and Programs

North Marin Water District, Sonoma-Marin Saving Water Partnership

Conservation Measure/Program	Prioritization (a)	Sector	Indoor	Outdoor	Primary End Use	Local Program
Require Submetering for New MFR Developments	2	MFR	X		All Indoor	No
Require Submetering for New Mobile Home Park Developments	2	MFR	X		All Indoor	No
Require Submetering of Cooling Towers for Existing Customers	2	CII	X		Cooling Towers	No
Require Submetering of Cooling Towers for New Development	2	CII	X		Cooling Towers	No
Require Submetering of Existing MFR (and Mobile Home Park) Customers	2	MFR	X		All Indoor	No
Require Submetering of Landscaping for New MFR and Commercial Developments	4	CII		X	Irrigation	Yes, currently
Require Water Efficiency Plan Reviews for New CII Development	4	CII	X	X	All Indoor	Yes, currently
Restrict Landscape Irrigation to Designated Days/Times	4	All		X	Irrigation	Yes, previously
Demand Offset/Water Neutral Policy for Large New Developments	3	All	X	X	All	No
Require Cooling Tower Retrofits	3	CII	X		Cooling Towers	No
Require Rain Barrels in New Development	3	SFR		X	Irrigation	No
Require Submetering of Landscaping for Existing MFR and Commercial Customers	3	MFR, CII		X	Irrigation	No
Require Swimming Pool and Hot Tub Covers	3	SFR,MFR		X	Pool/Hot Tub	Yes, previously

Abbreviations

AMI = advanced metering infrastructure
CalWEP = California Water Efficiency Partnership
CII = commercial, industrial, institutional
COM = commercial
HEU = High-Efficiency Urinals
IRR = irrigation
MFR = multi-family residential
MWELO = Model Water Efficient Landscape Ordinance
PRV = pressure reducing valve
SFR = single-family residential
SMSWP = Sonoma-Marin Saving Water Partnership
UHET = ultra high efficiency toilet

Notes

(a) Each Water Contractor was asked to rank conservation programs and measures in terms of priority as a locally-administered program, where 5 indicated highest priority and 1 indicated the lowest priority.

8

NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors Date: April 7, 2026

From: Tim Kennedy, Operations and Maintenance Manager TK

Subject: FY 2025-2026 Mid-Year Report - Operations and Maintenance Department
X:\MAINT TK\Operations Maintenance Mid-Year Report FY2025-2026.docx

RECOMMENDED ACTION: Information Only

FINANCIAL IMPACT: None

PRODUCTION:

The following is a breakdown of supply, production, and demand data pertaining to the District's different service areas between July 1, 2025 and December 31, 2025.

Novato Water Service

- Stafford Treatment Plant (STP) produced 358 million gallons (MG) between July 1st and November 14th.
- Stafford Lake elevation was at 191.4' on July 1st and dropped to a low of 182.8' on November 14th, before December rains began filling the lake. The corresponding storage volumes for these elevations are 1,074 million gallons (MG) and 585.6 MG, respectively.
- Novato average daily demand was 6.6 million gallons per day (MGD) between July 1st and December 31st.
- Novato peak day demand was 10.12 MGD, on August 21st.
- Purchased recycled water totaled 155 MG.

Attachment 1 is provided showing the total water use for the Novato Water Service Area.

West Marin Water Service

- West Marin average daily production was 218,313 gallons per day (gpd).
- West Marin peak day demand was 382,920 gallons on September 2nd.

Oceana Marin Wastewater Service

- Force main pump flow average was 13,158 gpd.
- Force main pump peak day demand was 55,300 gallons on Christmas Day.

WORK FORCE STATISTICS:

The following is a breakdown of all departmental labor costs, for each work group, pertaining to the different areas between July 1, 2025 and December 31, 2025.

Novato Water Service

- Operations: 86% of all labor costs, 71% of overtime costs.
- Maintenance: 92% of all labor costs, 73% of overtime costs.

West Marin Water Service

- Operations: 9% of all labor costs, 25% of overtime costs.
- Maintenance: 5% of regular pay hours, 16% of overtime costs.

Ocean Marin Wastewater Service

- Operations: 5% of all labor costs, 4% of overtime costs.
- Maintenance: 3% of all labor costs, 11% of overtime costs.

Attachment 2 is provided showing the breakdown of labor costs per service area.

PROJECTS:

The Operations and Maintenance groups worked with Core Industries Inc. to implement Starlink backup Supervisory Control and Data Acquisition (SCADA) communication at Oceana Marin, STP, the Gallagher Wells, and the Corporation Yard. Staff are in the process of installing Starlink communication at Point Reyes Treatment Plant (PRTP). The primary AT&T U-verse communication at Gallager Wells and PRTP will become obsolete and no longer supported in the next few months, making Starlink communication the sole communication for both Gallagher Wells and PRTP. The Operations group worked with a diving contractor to inspect the Stafford Lake Intake Tower gate valves and replaced the anodes on the valves. The contractor also inspected the conduit housing for the hydraulic lines that operate the gate valves. The Operations group replaced a portion of the anthracite media on all three Actifloc filters at STP. The Operations group replaced and upgraded one set of sand pumps for the Actifloc Filter Unit #3 at STP.

The Maintenance group partnered with Cla-Val to replace the regulators at the Robinhood Drive Regulator Station at Cherry Hill Pump Station. Staff worked with an outside contractor to install EV chargers in the public parking lot, the employee parking lot, and the corporation yard at 999 Rush Creek Place. Staff coordinated with outside contractors to install a standby generator that will power the Administration and Laboratory building, and also facilitated the installation a new propane tankfor the standby generator at the Oceana Marin Lift Station. The Maintenance group worked with an outside contractor to replace the Pump 1 assembly at Oceana Marin Lift Station.

The Operations and Maintenance groups coordinated with the Construction Department to replace a leaky check valve at Bahia Hydropneumatic Pump Station, reducing the pump run times by half. Staff collaborated with the Construction Department and Engineering Departments

to install regulators at Olema Pump Station and Inverness Pump Station, as well as relief valve on Bear Valley Road to keep customers in water during two of the three shutdowns for the Highway 1 Bridge Project.

MAINTENANCE – ASSET MANAGEMENT

The Operations group completed 203 routing routine work orders documented through the District's asset management program, NEXGEN: 192 of those work orders were preventative maintenance work orders; 6 were inspection work orders; and 5 were corrective maintenance work orders.

The Maintenance group completed 115 routine work orders documented through NEXGEN: 55 of those work orders were preventative maintenance work orders; 45 were corrective maintenance work orders; 8 were unassigned as to the type of work order, and 7 work orders were assigned as projects.

As of today, there are approximately 1,061 assets that are input into NEXGEN and fall under the responsibility of the Operations and Maintenance groups: 131 of those assets are at 999 Rush Creek Place, in the Admin building and corporation yard; 78 are fleet assets; 446 are at STP; 182 are in the Novato Water Distribution System; 119 are in the Oceana Marin service area; and 105 of those assets are in the West Marin service area. Staff will be working to populate those remaining assets with pertinent equipment data and build preventative and predictive maintenance programs where they don't already exist.

Attachment 3 illustrates the NEXGEN Operations and Maintenance Department Asset Statistics.

SAFETY AND EMERGENCY MANAGEMENT:

In this six-month reporting period, there were three injuries that occurred that resulted from three separate incidents. Those injuries resulted in 38 lost days.

There were two regulatory inspections that took place during the six-month reporting period. The first was an EPA inspection of our previous Risk and Resiliency Assessment (RRA) and our current Emergency Response Plan (ERP) that are required under the 2018 amendments Safe Drinking Water Act (SDWA)[1]. The EPA determined at the time that the RRA didn't assess specific elements of the SDWA, specifically the risk to the system from malevolent acts and natural hazards. We have worked with a consultant to finish and submit the updated RRA on December 16th, which satisfied the EPA's required elements from the inspection. We are also in

[1] Under SDWA 1433, community water systems (CWSs) serving ≥3,300 customers must conduct a risk and resilience assessment (RRA) and prepare or revise an emergency response plan (ERP) once every five years.

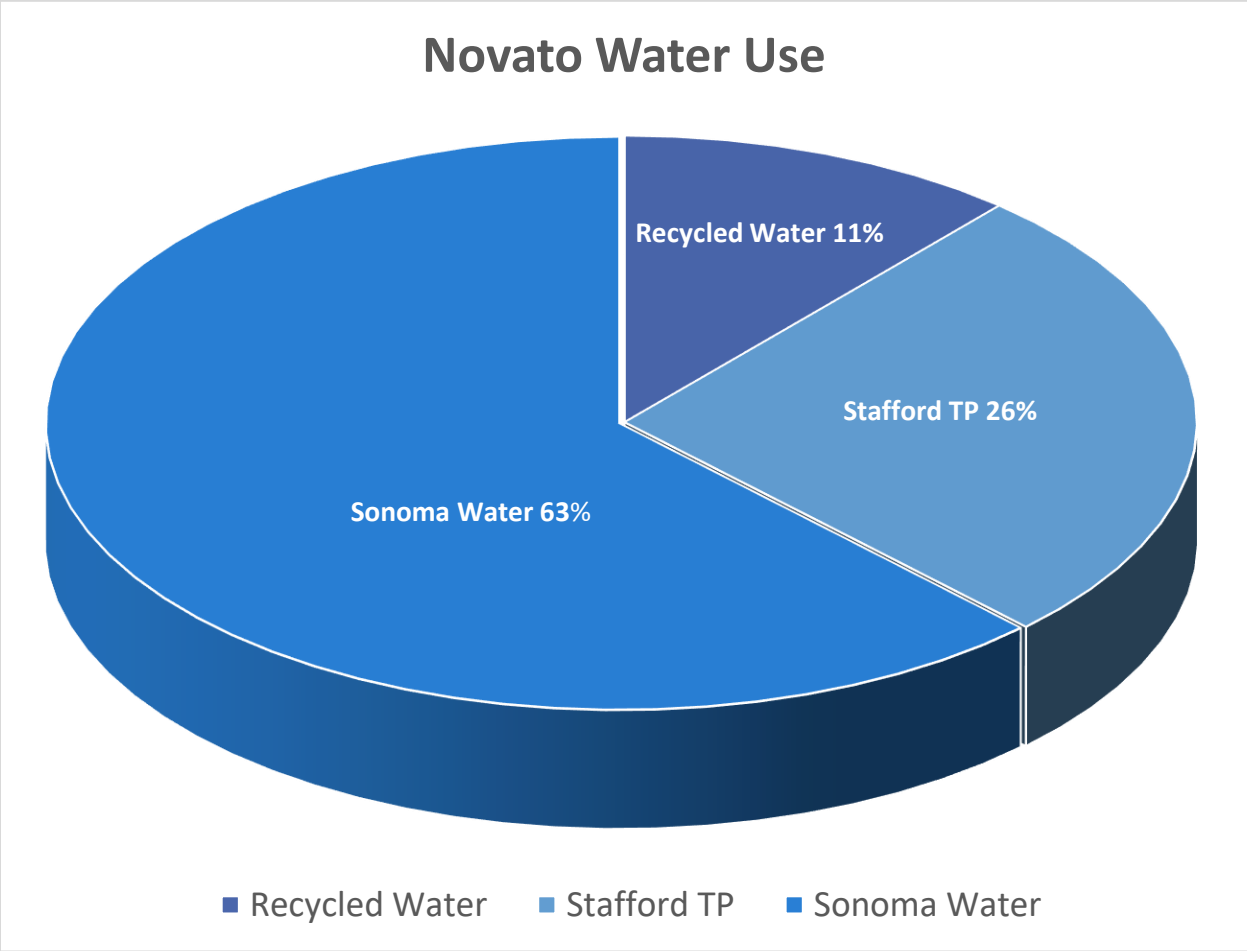
the process of working with the same consultant to complete the updated ERP, which will address the missing elements that the EPA pointed out, specifically the existence of alternative source water options. The new ERP is due to be submitted to the EPA in June 2026.

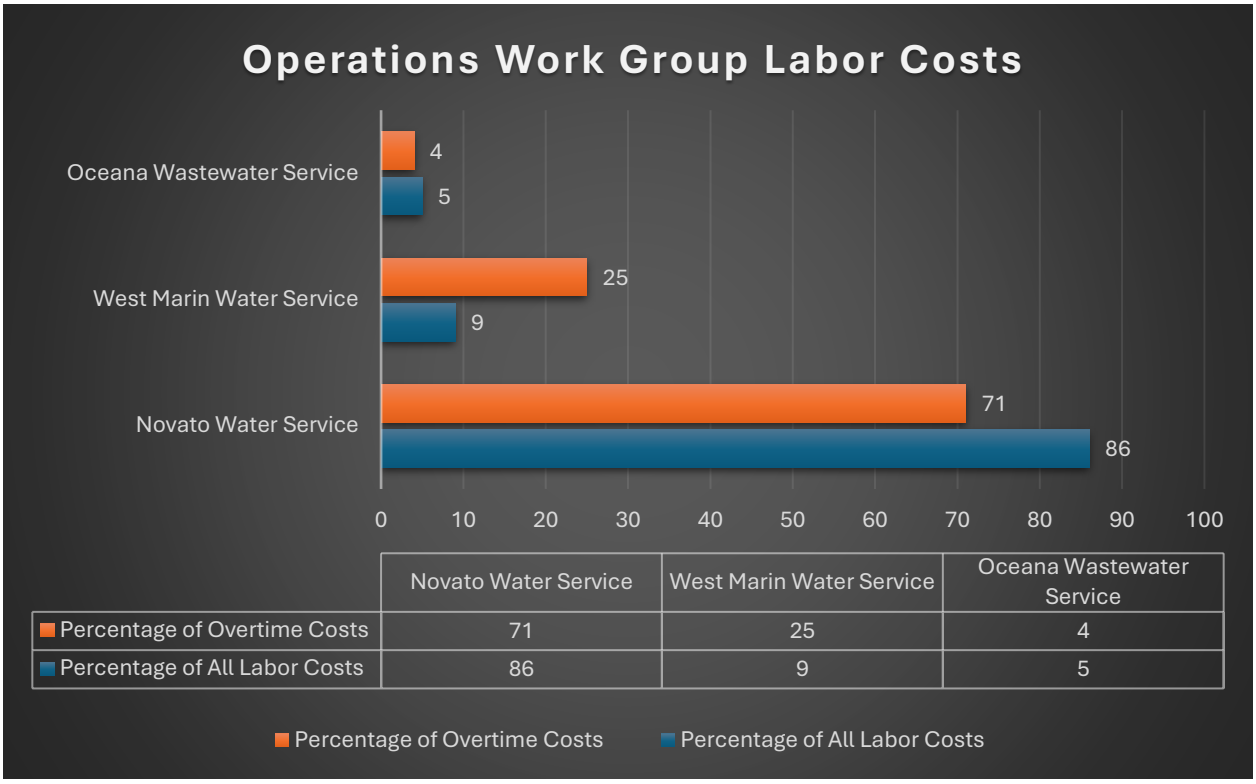
The second inspection was by the California Division of Safety and Health (known as CalOSHA) regarding the process safety management and our Chlorine Risk Management Program at STP. The onsite inspection at STP took place on October 1st. The inspection was completed on December 16th and it was determined that no violation of any standard, rule, order, or regulation set forth in Title 8, California Code of Regulations and Division 5 of the California Labor Code has been found as a result of this inspection. Operations staff worked with a consultant to update the Stafford Lake Water Treatment Plant Chlorine Risk Management Plan (RMP). The RMP was subsequently submitted to the EPA in January of this year.

Operations and Maintenance staff completed an assessment of all distribution system tanks and pump stations, and STP, following the 4.3 magnitude earthquake on September 22nd. Operations staff attended the Sonoma County Water Agency's (SCWA) 2025 Earthquake Planning & Infrastructure Coordination Workshop. Operations staff attended the Winter Readiness Tabletop Exercise and Operational Area Briefing at the Marin County Office of Emergency Management's Emergency Operations Center. Staff also attended the Emergency Operation Center 101 Training, which is an introduction to how the Marin County Office of Emergency Management responds when disaster strikes.

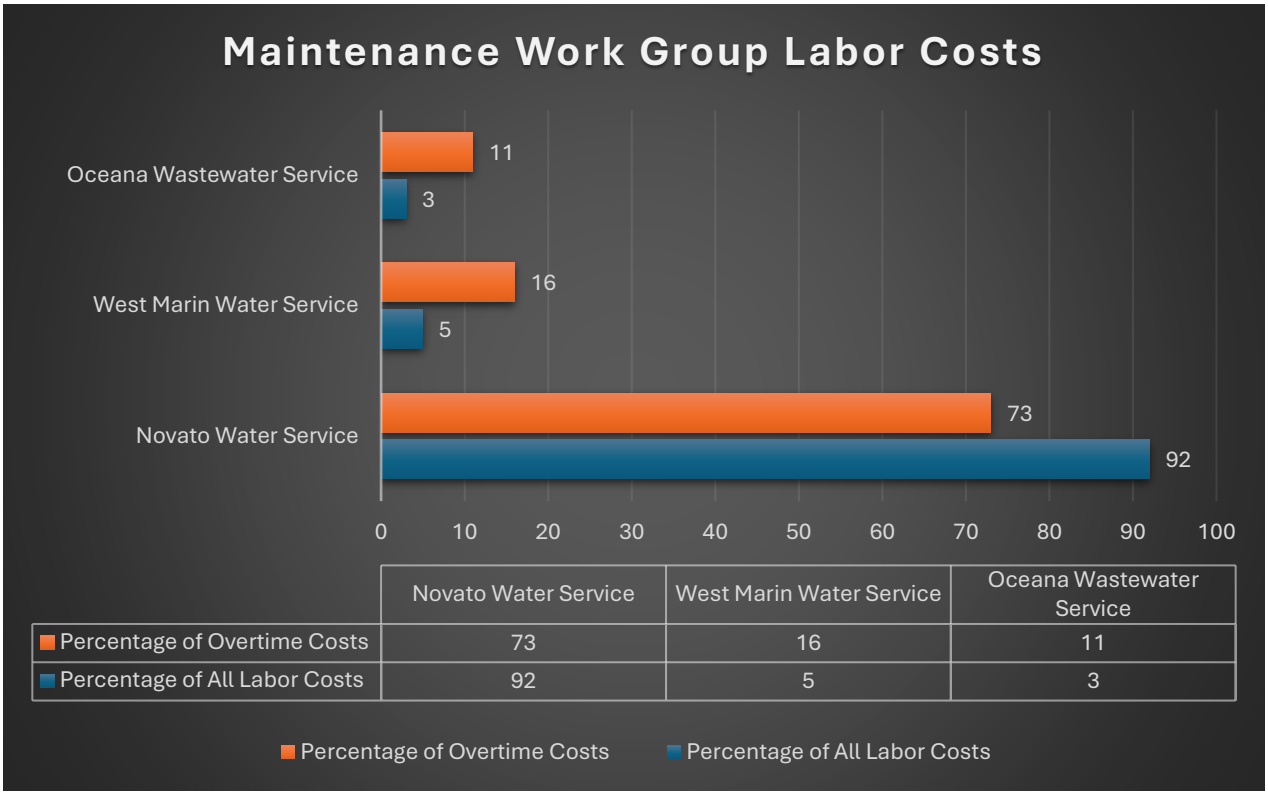
ATTACHMENTS:

1. Water Production Pie Chart
2. Work Force Statistics Bar Chart
3. NEXGEN O&M Asset Column Chart

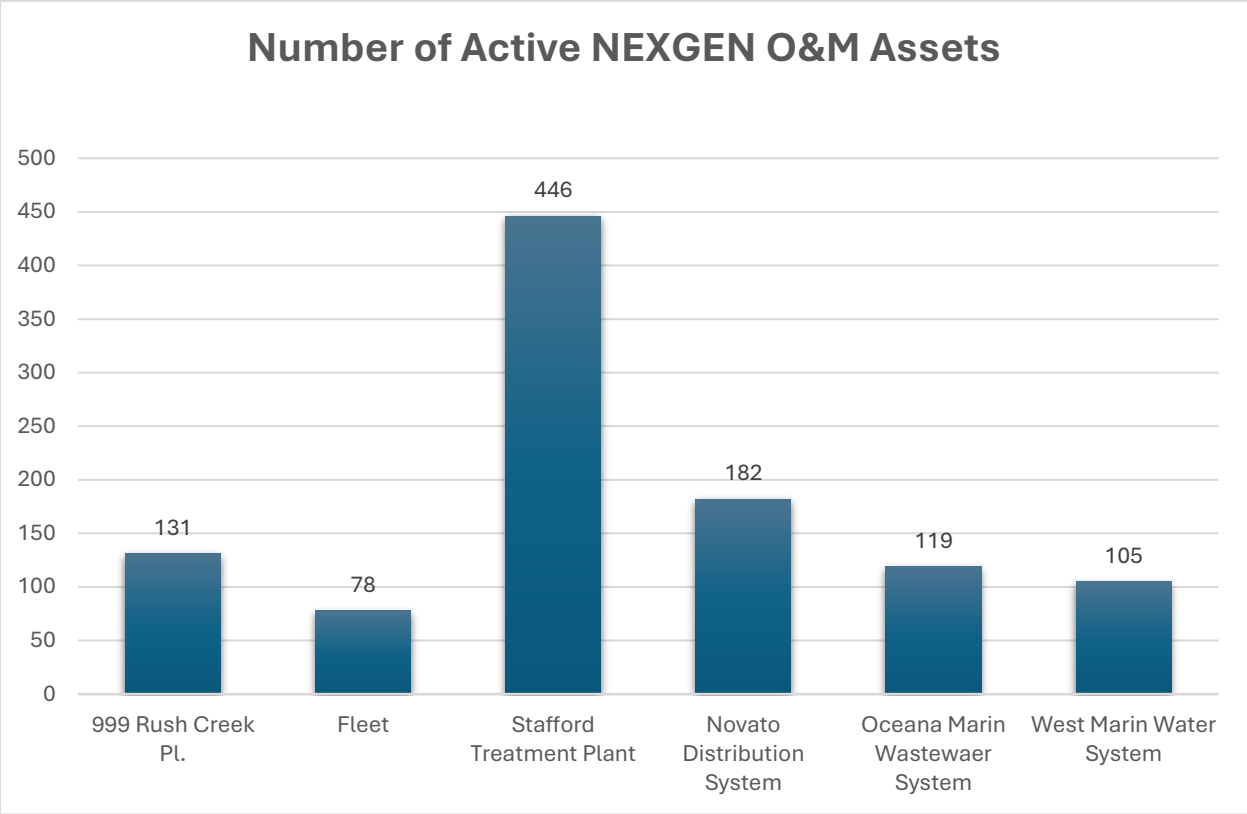

Novato Water Use
Recycled Water 11%
Stafford TP 26%
Sonoma Water 63%
Recycled Water
Stafford TP
Sonoma Water



	Novato Water Service	West Marin Water Service	Oceana Wastewater Service
Percentage of Overtime Costs	71	25	4
Percentage of All Labor Costs	86	9	5



	Novato Water Service	West Marin Water Service	Oceana Wastewater Service
Percentage of Overtime Costs	73	16	11
Percentage of All Labor Costs	92	5	3


Number of Active NEXGEN O&M Assets
500
450
400
350
300
250
200
150
100
50
0
131
78
446
182
119
105
999 Rush Creek Pl.
Fleet
Stafford Treatment Plant
Novato Distribution System
Oceana Marin Wastewaer System
West Marin Water System

9

NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors Date: April 7, 2026

From: Tony Williams, General Manager
Eric Miller Assistant General Manager

Subject: American Water Works Association 2026 *Beyond the Replacement Era* Report
t:\gm\awwa\bod memos\4-7-26 bod memo awwa study.docx

RECOMMENDED ACTION: Information Only

FINANCIAL IMPACT: None at this time

The American Water Works Association (AWWA) released an infrastructure and affordability report on March 26, 2026. The report, titled *Beyond the Replacement Era*, is timely in light of the District's recently adopted Novato Water System Master Plan and the 2025-2030 Strategic Plan. The key takeaways from the report include:

- Drinking water utilities not only face infrastructure replacement challenges but additional compounding cost drivers such as regulatory compliance, climate resilience and cybersecurity.
- The is a large gap in current funding levels for water infrastructure, especially via the federal government.
- The resulting burden on water customers will continue to increase and bills will likely double and disproportionately affect low-income households.

An excerpt of the report consisting of the introduction and executive summary are provided as Attachment 1. If any Director would like to read the full report, an electronic version can be provided.

ATTACHMENTS

1. Excerpt of the AWWA Beyond the Replacement Era report

ATTACHMENT 1

American Water Works Association

EXCERPTS FROM THIS REPORT

Beyond the Replacement Era:

Balancing Compounding Infrastructure Needs With Household Affordability

ONEWATER ECON

RAFTELIS

FOREWORD

Beyond the Replacement Era

Strong, reliable drinking water infrastructure underpins the health and economic vitality of our communities—but the cost of sustaining it is rising rapidly and straining household affordability. Over the past quarter-century, the American Water Works Association (AWWA) has actively raised the conversation about buried water infrastructure above ground, defining the challenge, informing policymakers, and advancing solutions to assist communities and address affordability. Still, respondents to AWWA's 2026 State of the Water Industry survey name water infrastructure renewal and replacement as the top concern in the sector – as they do most every year -- followed closely behind by how to finance those improvements.

This new report verifies their deep-seated concerns. *Beyond the Replacement Era* provides an unprecedented assessment of the headwinds facing communities as they seek to provide robust, sustainable water services through the year 2050.

Key Takeaways from *Beyond the Replacement Era* include:

1. The Water Sector Has Entered a New Cost Era

Drinking water utilities are no longer facing just an asset-replacement challenge; they are confronting a compounding set of cost drivers that include regulatory compliance, climate resilience, cybersecurity, and treating more complex sources. Over the next 25 years (2026–2050), total drinking water infrastructure needs are projected at $2.1–$2.4 trillion (2025 dollars), far exceeding earlier estimates tied solely to buried infrastructure. These pressures signal a structural shift in the cost of providing safe drinking water, not a temporary spike.

2. There Is a Persistent and Growing Funding Gap

Current capital spending by drinking water utilities averages about $33.6 billion per year, while the annual investment needed to meet projected requirements is approximately $90.2 billion. This leaves an annual funding gap of roughly $56.6 billion, requiring a 168% increase in capital investment to close it. With a few exceptions (such as the Infrastructure Investment & Jobs Act (IIJA)), federal contributions have been limited — about 3.9% of total public infrastructure sector spending is on all water sector utilities, far below levels provided to other infrastructure sectors.

3. Household Drinking Water Bills Are Likely to More Than Double

If communities rely exclusively on revenue from water bills to close the funding gap, average annual household drinking water bills would rise from $429 in 2025 to $969 by 2050 (2025 dollars) — more than doubling in real terms. Even under a baseline spending scenario, bills are projected to increase to $685, reflecting rising operating and maintenance costs.

4. Affordability is at a Tipping Point

If the funding gap is addressed entirely through increases in household water rates, an estimated 30.4 million households (21.5%) would spend more than 2.5% of their income on drinking water, and 53.5 million households (37.8%) would exceed a 1.5% income threshold. The report estimates that $13.6 billion per year in assistance by 2050 would be needed to keep water bills below commonly cited affordability benchmarks. These impacts would disproportionately affect low-income households and small-system communities.

5. Core Federal Infrastructure Loan Programs are Critical

The IIJA provided a historic and much needed infusion of funding that expires after FY2026. However, it cannot fully solve the long-term gap. With total annual capital and O&M needs projected to reach $200.3 billion by 2050, temporary programs will not fully stabilize the sector. Core funding programs like the State Revolving Loan Funds (SRF) and the Water Infrastructure Finance and Innovation Act (WIFIA) remain critical, helping water utilities access low-cost loans with extended repayment periods and customizable terms. Reductions in financing costs can moderate rate increases and help keep water affordable.

AWWA's Infrastructure and Affordability Work in the 21st Century

Beyond the Replacement Era extends a series of AWWA reports that have characterized the U.S. water infrastructure challenge over the past 25 years. *Dawn of the Replacement Era* in 2001 introduced the reality that buried infrastructure, primarily the millions of miles of water mains across the United States, was entering a time where increased investment would be critical. Many of the findings from that report ring true today:

- Pipes are expensive, but invisible
- Pipes are hearty, but ultimately mortal
- Increased expenditure is needed to climb the ramp and avoid a gap
- Addressing affordability is at the heart of the challenge

In 2006, AWWA published *Water Infrastructure at a Turning Point*, which encouraged utilities to adopt asset management strategies to drive the systematic renewal of our water infrastructure. Using the metaphor of a well-maintained car to explain the need for proactive investment, the guide explained that utilities face a choice — the turning point—to either to adopt strategies that will lead to the systematic renewal of our water infrastructure or accept the erosion over time of reliable water service, public health, and environmental quality.

Buried No Longer: Confronting America's Water Infrastructure Challenge (2012) explored the drinking water infrastructure challenge in unprecedented depth, revealing the timing of water main installation and life expectancy, materials used, replacement costs and shifting demographics. It found investment needs for buried drinking water infrastructure alone would total more than $1 trillion nationwide over the 25 years (between 2011 and 2035). It determined needs would exceed $1.7 trillion through 2050, split roughly between replacement and expansion. The report noted the cost of these investments would be borne mostly by consumers through higher water rates.

Concurrently, AWWA advocated for a new federal loan program, culminating in 2014 with the passage of WIFIA. WIFIA has since served as an important complement to the critical SRF loans, which help water systems reduce the cost of infrastructure projects and moderate rate increases for consumers.

The Ides of Affordability

Throughout the infrastructure conversation, affordability concerns have steadily risen. In 2004, AWWA published the first of three editions of *Thinking Outside the Bill*, elevating the fact that water and wastewater rates in many communities were rising faster than inflation and low-income wages, leading households to spend an increasing percentage of their income on water and wastewater bills. The third edition (2022) provided new metrics for assessing affordability and an actionable guide to walk utility leaders through diagnosing the problem and identifying solutions.

As affordability concerns swelled, AWWA advocated for increased federal support through the Low-Income Water Assistance Program (LIHWAP). At the same time, it partnered with the National Association of Clean Water Agencies (NACWA) and the Water Environment Federation (WEF) on *Developing a Water and Wastewater Utility Assistance Program* to help utilities design comprehensive assistance programs for households struggling to meet essential needs.

Recognizing the potential for a significant affordability challenge related to federal regulations, AWWA organized an expert panel that created a report in 2021 titled *Improving the Evaluation of Household-Level Affordability in SDWA Rulemaking: New Approaches.* The project aimed to help regulators better understand affordability at a household level. As communities work to replace lead service lines and address PFAS contamination under new regulations, rising water rates will further stress households with lower incomes.

A Water 2050 Challenge

Beyond the Replacement Era for the first time captures the scope of the drinking water infrastructure alongside other critical pressure points impacting affordability. Its reckonings extend to the year 2050, providing a timely challenge for AWWA's Water 2050 visioning initiative. The Water 2050 vision strives for a secure, sustainable, affordable, resilient, and innovative water future.

One of the core principles of Water 2050 is that just waiting for change is not a strategy. *Beyond the Replacement Era* lays out the realities confronting our water systems, and it also makes clear that the future is not predetermined. If we move forward collaboratively and with clear intent, we can transform today's realities into a stronger, more resilient water future.

Sincerely,

Heather Collins

President
American Water Works Association

David B. LaFrance

CEO
American Water Works Association

Acknowledgements

Many people were involved in the development of this report. In addition to the Raftelis and One Water Econ teams named in the main text, the following members and staff provided substantial contributions to its development.

Project steering committee

Colleen Arnold, Aqua America
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Communications, editing, and graphics support

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Greg Kail, AWWA
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Top inset image: PeopleImages/Shutterstock.com
Middle inset image: Beaver Water District
Bottom inset image: Orange County Water District

Prepared for

The American Water Works Association

by

J. Mastracchio, CFA, Z. Green, B. Kirsch, B. Vatter, P. Purdy
Raftelis

J. Clements and Claire Sheridan
One Water Econ

March 2026

Executive Summary

The American Water Works Association ("AWWA") has repeatedly highlighted the critical need for investment in drinking water system infrastructure, with prior assessments estimating more than $1 trillion nationwide over 25 years (2011-2035) to replace and expand aging drinking water systems.[1] Yet, these needs continue to escalate nationally as significant challenges and obligations on drinking water utilities compound. Beyond the ongoing costs to replace, repair, and expand infrastructure, drinking water utilities now face additional cost drivers associated with compliance with major federal regulations, the treatment of complex water sources, and essential resilience measures to protect against natural hazards and other threats. The research team evaluated projected capital and operating costs required to meet new regulatory requirements and to maintain and expand the nation's drinking water infrastructure.

This assessment examined existing data sources and recent regulatory impact analyses which contained cost data associated with these stressors and compared these against the current drinking water utility funding levels and household income trends. Based on this analysis, several key findings emerged regarding the drinking water utility funding gap and resulting affordability implications.

Infrastructure Investment Needs and Costs are Growing

The total cost to address the need for investment in drinking water infrastructure over the next 25 years (2026–2050) is estimated to be between $2.1 trillion and $2.4 trillion (in 2025 dollars). Replacement and rehabilitation of existing assets account for a significant portion of this total, but new cost drivers add hundreds of billions of dollars to the national tab of drinking water utility investment needs. These drivers include regulatory compliance for perfluoroalkyl and polyfluoroalkyl substances ("PFAS") treatment, lead service line replacement, and hardening systems against natural hazards. Still other drivers, such as the need to address cybersecurity and to develop alternative water supplies to improve resiliency and accommodate growth are known but do not currently have data to fully quantify.

Water Utility Capital Infrastructure Needs – 25-Year Costs

Cost Driver	25-Year Cost (in 2025 $ Billions)
Infrastructure Replacement, Rehabilitation, and Expansion	$1,728.4 - $1,757.1
Regulatory Compliance (PFAS and Lead Service Lines)	$94.1 - $105.8
Risk and Resilience	$263.6 - $561.1
Total	**$2,086.1 - $2,424.0**

[1]American Water Works Association, *Buried No Longer: Confronting America's Water Infrastructure Challenge*, Denver, CO, 2012; https://www.awwa.org/wp-content/uploads/Buried-No-Longer-Report.pdf.

Infrastructure Funding Gap

Current capital spending by drinking water utilities averages approximately $33.6 billion annually whereas the identified need averages $90.2 billion per year. To meet the identified needs, capital investment must increase by approximately 168%, corresponding to an annual infrastructure funding gap of $56.6 billion. Under current funding models, the federal government provides approximately 3.9% of total public spending on drinking water utilities, a significantly lower federal contribution than those to other infrastructure sectors such as highways (22.5%). Furthermore, while the Infrastructure Investment and Jobs Act ("IIJA") provided a temporary influx of capital funding support, these funds are scheduled to expire after FY2026 and prior appropriations will be expended over a few years, while drinking water utility operations and maintenance ("O&M") costs continue to rise at a rate exceeding inflation.

Projected Impact on Household Costs

If the identified funding gap is addressed entirely through increases in local household water rates, the financial burden on households will increase substantially. Under a baseline scenario, comprised of continued historical national spending trends, the average annual household drinking water bill is projected to rise from $429 in 2025 to $685 by 2050 (in 2025 dollars). However, if the entire funding gap is met by increasing local utility rates the average annual bill would then be projected to reach $969 by 2050. This represents an increase of roughly 126% - more than doubling the average household bill - over current levels (in 2025 dollars).

Affordability Analysis

The projected increase in water service costs significantly expands the segment of the population facing water affordability challenges. If the identified funding gap is closed entirely by increases in utility rates:

- Approximately 30.4 million households (21.5% of the U.S. total) would spend more than 2.5% of their income on drinking water services.
- Approximately 53.5 million households (37.8% of the U.S. total) would spend more than 1.5% of their income on drinking water services.

An estimated $13.6 billion in annual assistance from federal, state, or other sources (in 2025 dollars) would be required by 2050 to support these households to ensure water bills remain below the 2.5% affordability threshold. Recognizing that 2.5% of household income is not a perfect threshold for gauging affordability, its use allows us to quantify the scope of the affordability challenge. These projected impacts on affordability pertain only to drinking water. In many cases, the same water utility ratepayer will also need to absorb the escalating cost of other water sector utilities, such as wastewater and stormwater.

Conclusion

The investment needs for drinking water infrastructure are estimated to exceed $2.1-2.4 trillion for 2026-2050. If drinking water infrastructure needs are met through local rates alone, drinking water bills will more than double by 2050, posing much greater water affordability challenges and impacting many more households than today. Recognizing the need for utilities and the local communities they serve to do their part to invest towards addressing these challenges, the size of the challenge to close the infrastructure gap while maintaining affordability, will also require a significant, sustained federal investment in infrastructure and affordability.

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DISBURSEMENTS - DATED MARCH 19, 2026

Date Prepared 3/16/26

The following demands made against the District are listed for approval and authorization for payment in accordance with Section 31302 of the California Water Code, being a part of the California Water District Law:

Seq	Payable To	For	Amount
1	Alameda Electrical Distributors	Electrical Supplies	$690.02
2	Alpha Analytical Labs	Lab Testing	3,220.00
3		Retiree Exp Reimb (Mar Health Ins)	1,667.84
4	Autoworld	Service Parts ('18 Dodge Ram)	345.93
5	Backflow Distributors	Backflow Freeze Bags (20)	1,626.35
6	Bank of Marin	Bank of Marin Loan (Pymt 173 of 240) Aqueduct Energy Efficiency Project	46,066.67
7	Boucher Law, PC	September HR Legal Fees	64.58
8	Building Supply Center	Miscellaneous Tools & Supplies	184.51
9		Retiree Exp Reimb (Mar Health Ins)	650.36
10	California Water Service	March Water Service (OM)	40.45
11	Caltest Analytical Laboratory	Lab Testing (OM)	125.30
12		Retiree Exp Reimb (Mar Health Ins)	674.31
13		Retiree Exp Reimb (Mar Health Ins)	674.31
14	Cla-Val	Security Locks for Landing Way Regulator Project (3)	901.31
15	Comcast	March Internet (1250 Lynwood Dr)	232.39
16	Comcast	March Internet (999 Rush Creek Place)	1,628.72
17	Consolidated CM	Prog Pymt#57: Construction Management for Admin & Lab Upgrade Project (Balance Remaining on Contract $13,626)	2,233.00
18	Core Utilities, Inc	February IT Support ($6,000), SCADA & PLC Support ($1,300), & Ops and Maintenance IT Support ($650)	7,950.00

*Prepaid

Seq	Payable To	For	Amount
19	Crane Tech Inc	Annual Crane Inspection & Service	1,620.00
20	CSW/Stuber-Stroeh Engineering	Prog Pymt#10: San Mateo Tank Transmission Project (Balance Remaining on as needed Contract $21,445)	2,165.00
21	D&H Water Systems, Inc.	PVC Injector (STP)	188.49
22	Joshua P. Dils	Refund Excess Advance Over Actual Job Cost	846.77
23	EKI Environment & Water, Inc.	Prog Pymt#2: 2025 Urban Water Management Plan (Balance Remaining on Contract $44,563)	6,678.10
24	Electrical Equipment Co	Miscellaneous Electrical Supplies (Maintenance)	918.53
25	Enterprise FM Trust	Monthly Leases for Nissan Rogue (2), Nissan Frontier, F-150's (6), F-250's (4), Ford Rangers (6), Chevy Bolts (2) & Nissan Leaf	11,696.07
26	Environmental Science Assoc	Prog Pymt#12: Construction Compliance Support for San Mateo Tank Project (Balance Remaining on Contract $53,349)	1,317.75
27	Freyer & Laureta, Inc.	Prog Pymt#26 ($28,142) & Final Payment ($2,694) Master Plan Update	30,835.76
28	Frontier Communications	March Internet (STP)	640.00
29	Carol Clark Garcia	Refund Excess Advance Over Actual Job Cost	2,337.78
30	GHD Inc.	Prog Pymt#31:GIS Conversion to ESRI & Mapping Support (Balance Remaining on Contract $4,175)	559.42
31	Grainger	Hydraulic Power Unit for Valve Turning Truck ($5,825) & Miscellaneous Tools & Supplies	5,993.25
32	Home Ground Habitats	Seed Packets (Water Conservation)	240.00
33	Kane, Shawn	Exp Reimb: Food for CPR/First Aid Classes 3/10-3/11/26	138.75
34		Retiree Exp Reimb (Mar Health Ins)	674.31
35		Retiree Exp Reimb (Mar Health Ins)	1,667.84
36	Tim Magee	Novato Cash for Grass Rebate Program	944.00
37	Mallory Safety and Supply LLC	Oxygen Sensor (STP)	349.95

Seq	Payable To	For	Amount
38	Meadows Townhomes Investors	Return Payment-Not Our Customer	2,840.45
39	Fast Care, Inc	Fit Testing for STP Operators (7)	1,680.00
40	Novato Sanitary District	December 2025-RW Operating Expense	3,090.19
41	ODP Business Solutions, LLC	Miscellaneous Office Supplies	607.59
42	Orkin Commercial Services	Monthly Pest Control Services	144.00
43	Pace Supply	Zinc Anodes (50) ($5,637) & Nipples (80) ($2,612)	8,248.83
44	Pape Machinery	Bucket Control Lever Grip ('15 JD Skip Loader)	917.83
45	Paso Robles Tank, Inc.	Site Visit to Dickson Tank	1,000.00
46	Peterson Trucks	Service Parts ('15 Int'l)	249.65
47	PG&E	Power: Bldgs/Yard ($10,642), Other ($499), Pumping ($51,665), Rect/Cont ($927) & TP ($169)	63,901.62
48	Pollard Water	Pipe Cutter	1,329.31
49		Retiree Exp Reimb (Mar Health Ins)	674.31
50	Safety Compliance Management	Travel Reimbursement for 2 Day Hazardous Waste Operations Training	192.99
51	Sonoma County Water Agency	Conservation Support Program (10/1/25-12/31/25)	903.45
52	Sonoma-Marin Arborists Inc	Tree Trimming Services (Pt. Reyes Tank Site)	4,950.00
53	SPG Solar Facility XII, LLC	February Energy Delivered Under Solar Services Agreement	8,095.50
54		Retiree Exp Reimb (Mar Health Ins)	1,667.84
55	Target Solutions Learning, LLC	Annual Renewal of Learning Management System (3/31/26-3/30/27)	10,383.30
56	Team Ghilotti Inc.	Release of Retention for San Mateo Tank Transmission Project	69,509.75
57	United Parcel Service	Delivery Services: Sent STP Gas Monitors & Chlorine Scrubbers for Testing	80.58
58	Univar	Sodium Hypochlorite (432 gal - O.M.)	1,771.20

*Prepaid

Seq	Payable To	For	Amount
59	US Postal Service	Meter Postage	1,500.00
60	Vanguard Cleaning Systems	Janitorial Supplies ($648) & Extra Cleaning-Restroom ($300)	947.88
61	VWR International LLC	Pump Tubing (12) ($144) & Filter Capsules (Lab)	210.95
62	Waste Management	Waste Disposal	400.09
63	ZORO	Motor for Lab Hood ($386) & Maintenance and Operations Supplies	820.31
		TOTAL DISBURSEMENTS	**$324,905.44**

The foregoing payroll and accounts payable vouchers totaling $324,905.44 are hereby approved and authorized for payment.

Julie Blue 03/17/26

Auditor-Controller Date

3/17/26

General Manager Date

DISBURSEMENTS - DATED MARCH 26, 2026

Date Prepared 3/23/26

The following demands made against the District are listed for approval and authorization for payment in accordance with Section 31302 of the California Water Code, being a part of the California Water District Law:

Seq	Payable To	For	Amount
P/R*	Employees	Net Payroll PPE 3/15/26	$202,734.09
91015*	Internal Revenue Service	Federal & FICA Taxes PPE 3/15/26	92,962.11
91016*	State of California	State Taxes & SDI PPE 3/15/26	22,436.73
91017*	CalPERS	Pension Contribution PPE 3/15/26	60,893.58
91018*	Nationwide	Deferred Compensation-457 PPE 3/15/26	16,370.06
91019*	Nationwide	Deferred Compensation 3/15/26-401A Match	3,043.20
EFT*	US Bank	February Bank Analysis Charge (Lockbox $1,347 & Other $501 Less Interest $93)	1,754.96
91014*	US Bank Card	Microsoft Monthly Subscriptions, Internet PRTP & Gallagher Well #2, Zoom Subscription, Starlink Internet, First Aid Kits (60) ($1,798), Safety Incentives (6) ($300), CSMFO Conf. Exp ($1,161), AWWA Conf Reg ($650), City of Novato Encroachment Permits (2) ($2,235), IT Expenses ($775), ACWA Conf Reg ($595), Crane Cable Weight ($275) & NBWA Conf Reg ($150)	9,423.41
91020*	Amazon	Kitchen Supplies ($301), Office Supplies ($230), Computer Supplies ($2,028), Blood Pressure Monitor, Pipe Brackets, Coupling, Automotive Supplies ($602)	3,450.69
1	All Star Rents	Propane (5 gal)	22.07
2	Alpha Analytical Labs	Lab Testing (W.M.-$858 & Novato-$3,385)	4,243.00
3	American Family Life Ins	AFLAC March 2026 Employee Paid Benefit	4,374.35
4	Ammons Backflow Cert. Testing	Backflow Testing (78)	5,031.00
5	Automation Direct	Electrical Noise Filter (Water Treatment)	310.27
6	Backflow Distributors	Test Fittings (9)	213.35

*Prepaid

Seq	Payable To	For	Amount
7	Bay Area Air Quality Mgmt Dist	Annual Permit Fees (Generators-STP) (5/1/26-5/1/27)	623.00
8	Bay Alarm Company	Quarterly Fire Alarm Monitoring Fee (4/1/26-6/30/26) (STP)	518.19
9	Calcon Systems	Service & Parts on PLC'S (2) @ STP (Balance Remaining on Contract $130,208)	55,803.30
10	Caltest Analytical Laboratory	Lab Testing (O.M.)	125.30
11	Centrisys Corporation	Site Service on Centrifuge Replacement ($4,800) & Control Unit Power Supply ($9,276) (STP)	14,075.31
12	The Chlorine Institute	Annual Dues (1/26-12/26) (Kennedy)	915.00
13	Corda, Jeff	Exp Reimb: Safety Boots	327.75
14	Core & Main	Conduit Repair Kits (2) ($399) & Adapters (12) ($122)	520.14
15	Dell Marketing L.P.	PC for Construction Training	1,139.16
16	Ferguson Waterworks	5/8" (100) ($23,631) & 1" Meter Registers (20) ($4,818)	28,448.71
17	Freyer & Laureta, Inc.	Prog Pymt#2: Bahia Hydropneumatic System Replacement (Balance Remaining on Contract $71,167)	9,774.75
18	Grainger	First Aid Kits (2) ($363), Bench Chain Vise ($338), Submersible Sump Pump ($388) & Miscellaneous Tools & Supplies	2,152.25
19	Home Depot Credit Services	Rapid Set Concrete (50-60 lb bags) ($871), Door Closer ($132), Storage Shelving ($186) & Miscellaneous Supplies	1,216.70
20	InSource Software Solutions Inc.	Service Contract for Distribution & STP SCADA Software (3/26-3/27)	10,253.40
21	Kiosk Creative LLC	February Marketing Communication & Outreach Services (Balance Remaining on Contract $46,386)	7,770.62
22	Lincoln Life Employer Serv	Deferred Compensation PPE 3/15/26	6,672.35
23	Metrohm USA, Inc.	'O' Ring & Washer	53.81

Seq	Payable To	For	Amount
24	Mutual of Omaha	April 2026-Mutual of Omaha Group Life/ADD	2,392.61
25	Parkinson Accounting Systems	Accounting Software Support	292.50
26	Point Reyes Light	Digital Subscription Renewal (5/26-5/27)	78.00
27	Preferred Alliance, Inc.	Pre-Employment Tests (2 Employees)	120.00
28	Red Wing Business Advantage	Safety Boots (Simpson & Marin)	587.22
29	The Jeannette Schneider Irrevocable Trust	Refund Overpayment on Closed Account	78.32
30	Scott Technology Group	March Monthly Maintenance on Engineering & Admin Copiers	480.76
31	Soiland Co., Inc.	Rock (17 yds)	551.90
32	Sonoma County Water Agency	February Contract Water	500,335.59
33	Sunbelt Supply Co.	Electro-Pneumatic Positioners (3) (STP)	6,644.08
34	Survival AED, LLC	CPR & First Aid Classes (3/10-3/11/26) (53 Employees)	5,194.00
35	Thomas Scientific	Standards (11) ($751) & Lauryl Tryptose Broth ($157)	907.87
36	Underground Rep. Water Works	Parts for Lynwood Pump Rebuild Project	4,517.49
37	Vincent Verissimo	Exp Reimb: Mileage, Food & Parking CalPERS Classes in Walnut Creek 2/24-2/25/26	183.53
38	VertexOne Software LLC	VertexOne (WaterSmart) Software Renewal ($27,846) & February Service Fee	27,893.36
39	Williams, Anthony	Exp Reimb: Mileage & Parking for State Legislation Day in Sacramento	147.49

Seq	Payable To	For	Amount
40	ZORO	Disposable Shop Towels ($142), Power Backup Systems (4) ($390) & AED Signs (2)	569.44
		TOTAL DISBURSEMENTS	**$1,118,626.77**

The foregoing payroll and accounts payable vouchers totaling $1,118,626.77 are hereby approved and authorized for payment.

Julie Blue 03/24/26

Auditor-Controller Date

3/24/2026

General Manager Date

NORTH MARIN WATER DISTRICT

MEMORANDUM

To: Board of Directors April 7, 2026

From: Julie Blue, Auditor-Controller
Nancy Williamson, Accounting Supervisor

Subj: Auditor-Controller's Monthly Report of Investments for February 2026
t:\ac\word\invest\26\investment report 0226.doc

RECOMMENDED ACTION: Information

FINANCIAL IMPACT: None

At month end the District's Investment Portfolio had an amortized cost value (i.e., cash balance) of $19,603,432 and a market value of $19,629,077. During February the cash balance decreased by $1,864,118. The market value of securities held decreased $1,867,608 during the month. The total unrestricted cash balance at month end was $556,388, 61% of the Target Reserves are funded and 87% of the Minimum Reserves are funded.

At February 28, 2026, 60% of the District's Portfolio was invested in California's Local Agency Investment Fund (LAIF), 30% in Time Certificates of Deposit, 6% in the Marin County Treasury, and 4% retained locally for operating purposes. The weighted average maturity of the portfolio was 112 days, compared to 93 days at the end of January. The LAIF interest rate for the month was 3.87%, compared to 3.93% the previous month. The weighted average Portfolio rate was 3.65%, compared to 3.68% for the prior month.

Investment Transactions for the month of February are listed below:

2/18/2026	LAIF	US Bank	$1,100,000	Trsf from LAIF account
2/23/2026	Bank of America	US Bank Investment Account	$244,000	CD Maturity
2/23/2026	Eaglemark Savings	US Bank Investment Account	$244,000	CD Maturity
2/25/2026	US Bank Investment Account	UBS Bank USA	$249,000	Purchase 3.8% TCD due 2/25/28 - Monthly Pay
2/26/2026	LAIF	US Bank	$500,000	Trsf from LAIF account
2/27/2026	US Bank Investment Account	Anderson Bros	$249,000	Purchase 3.65% TCD due 2/28/28 - Monthly Pay

ATTACHMENTS:
1. Monthly Report of Investments – February 2026

ATTACHMENT 1

NORTH MARIN WATER DISTRICT
AUDITOR-CONTROLLER'S MONTHLY REPORT OF INVESTMENTS
February 28, 2026

Type	Description	S&P Rating	Purchase Date	Maturity Date	Cost Basis[1]	2/28/2026 Market Value	Yield[2]	% of Portfolio
LAIF	State of CA Treasury	AA-	Various	Open	$11,755,888	$11,781,533	3.87% [3]	**60%**
Time Certificate of Deposit								
TCD	Pacific Premier	n/a	3/15/24	3/16/26	244,000	244,000	4.75%	1%
TCD	Valley National Bank	n/a	4/9/24	4/9/26	244,000	244,000	4.70%	1%
TCD	Wells Fargo Nat'l Bank	n/a	6/11/24	6/11/26	248,000	248,000	5.10%	1%
TCD	First Merchant Bank	n/a	6/28/24	6/29/26	244,000	244,000	4.80%	1%
TCD	BMW Bank NA	n/a	7/9/24	7/13/26	244,000	244,000	4.70%	1%
TCD	Israel Disc Bk Ny	n/a	9/13/24	9/14/26	245,000	245,000	4.00%	1%
TCD	Ally Bank Sandy Utah	n/a	10/3/24	9/28/26	245,000	245,000	3.80%	1%
TCD	Utah First Fec CR UN Salt Lake	n/a	10/18/24	10/19/26	249,000	249,000	4.00%	1%
TCD	American Express Nat'l Bank	n/a	11/7/24	11/6/26	245,000	245,000	4.00%	1%
TCD	Bank of Hapoalim NY	n/a	11/26/24	11/23/26	245,000	245,000	4.10%	1%
TCD	Dr Bank Darien	n/a	12/20/24	12/21/26	249,000	249,000	4.10%	1%
TCD	Goldman Sachs Bk USA	n/a	1/28/25	1/28/27	244,000	244,000	4.15%	1%
TCD	Oregon Community CU	n/a	2/24/25	2/24/27	249,000	249,000	4.30%	1%
TCD	Security First Bk	n/a	3/21/25	3/22/27	245,000	245,000	4.00%	1%
TCD	Toyota Fncl Svgs BK NV	n/a	4/10/25	4/12/27	245,000	245,000	4.00%	1%
TCD	Transportation Alliance Bk	n/a	5/12/25	5/12/27	249,000	249,000	3.95%	1%
TCD	B1 Bank Baton Rouge La	n/a	6/30/25	6/30/27	249,000	249,000	4.00%	1%
TCD	Bny Melon	n/a	8/13/25	8/13/27	245,000	245,000	3.80%	1%
TCD	Institution Svgs Newbury	n/a	10/28/25	10/28/27	249,000	249,000	3.60%	1%
TCD	Morgan Stanley Bk NA	n/a	11/12/25	11/12/27	245,000	245,000	3.65%	1%
TCD	Austin Telco	n/a	12/19/25	12/20/27	249,000	249,000	3.80%	1%
TCD	Morgan Stanley Private Bk NA	n/a	1/21/26	1/21/28	245,000	245,000	3.70%	1%
TCD	UBS Bank USA	n/a	2/25/26	2/25/28	249,000	249,000	3.80%	1%
TCD	Anderson Bros Bk	n/a	2/27/26	2/28/28	249,000	249,000	3.65%	1%
					$5,914,000	**$5,914,000**	**4.10%**	**30%**
MM	US Bank Mmda Global Fund		Various	Open	**$52,743**	**$52,743**	**4.11%**	**0%**
Other								
Agency	Marin Co Treasury	AAA	Various	Open	$1,059,794	$1,059,794	1.41%	6%
Other	Various	n/a	Various	Open	821,007	$821,007	0.05%	4%
			TOTAL IN PORTFOLIO		**$19,603,432**	**$19,629,077**	**3.65%**	**100%**

Weighted Average Maturity = **112 Days**

LAIF: State of California Local Agency Investment Fund.

TCD: Time Certificate of Deposit.

Treas: US Treasury Notes with maturity of 5 years or less.

Agency: STP State Revolving Fund Loan Reserve.

Other: Comprised of 5 accounts used for operating purposes. US Bank Operating Account, US Bank STP SRF Loan Account, US Bank FSA Payments Account, Bank of Marin AEEP Checking Account & NMWD Petty Cash Fund.

1 Original cost less repayment of principal and amortization of premium or discount.

2 Yield defined to be annualized interest earnings to maturity as a percentage of invested funds.

3 Earnings are calculated daily - this represents the average yield for the month ending February 28, 2026.

Interest Bearing Loans	Loan Date	Maturity Date	Original Loan Amount	Principal Outstanding	Interest Rate
Marin Country Club Loan	1/1/18	11/1/47	$1,265,295	$957,515	1.00%
Marin Municipal Water - AEEP	7/1/14	7/1/32	$3,600,000	$1,293,114	2.71%
Employee Housing Loan	Various	Various	$1,150,000	$1,150,000	Contingent
TOTAL INTEREST BEARING LOANS			**$6,015,295**	**$3,400,629**	

The District has the ability to meet the next six months of cash flow requirements.

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ACWA UPDATE ON PRIORITY ISSUES

A high-level look at recent ACWA activity and initiatives.

MARCH 2026

AB 2180 – Proposition 218 Rate Setting Bill

ACWA-sponsored AB 2180, authored by Assemblymember Chris Ward (D-San Diego), would clarify how water agencies comply with Proposition 218 when setting water rates. This clarification will provide predictability for agencies, support California's water-use conservation goals and help minimize unnecessary legal disputes over water rates. The bill would codify the framework established in *Dreher v. Los Angeles Department of Water and Power* and affirm that water system costs may be allocated using reasonable methodologies and available data without determining exact costs for each parcel. The bill will be heard in the Assembly Local Government Committee. More details and a link to join ACWA's coalition are available in an Alert distributed to members last month at acwa.com/notifications.

STAFF CONTACT

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Join the Coalition

SB 1153 – Water Systems and Wildfire Preparedness Bill

ACWA-sponsored SB 1153, authored by Senator Anna Caballero (D-Merced), would clarify the limited role of public water systems during wildfires while strengthening emergency preparedness in high-risk areas. The bill would establish that limitations in water supply or pressure during a wildfire are not a substantial cause of damages, clarify that wildfire spread is not an inherent risk of public water system design or operation and require certain urban water suppliers to include wildfire response procedures in their emergency response plans. SB 1153 will be heard in the Senate Emergency Management Committee and the Senate Natural Resources and Water Committee. More information and a link to join ACWA's coalition are available in an Alert distributed last month at acwa.com/notifications.

STAFF CONTACT

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State Relations Advocate

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Join the Coalition

Administrative Procedure Act Exemption Bills

Gov. Gavin Newsom on Feb. 19 signed into law ACWA-supported AB 107 (Gabriel) that will shorten timelines for grant solicitations funded by Proposition 4. Funding in the 2025-'26 state budget can now be deployed more quickly and efficiently, ensuring that administrative processes do not hold up vital projects. Specifically, the new law exempts Proposition 4 funds allocated in the 2025 Budget Act from the Administrative Procedures Act (APA). However, an APA exemption is still needed for any future allocations.

AB 35 (Alvarez), introduced earlier this year, would exempt all Proposition 4 grant solicitations from the APA moving forward, which ACWA has supported. An exemption from the APA would not eliminate transparency, consultation or public engagement, but would instead streamline implementation, maintain consistency across programs and avoid creating barriers to delivering critical funding where it is most needed. AB 35 passed the Assembly and is currently in the Senate. ACWA staff will continue to advocate in support of the bill and ACWA members can help support AB 35 by joining ACWA's coalition.

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Join the Coalition

Farm Bill

STAFF CONTACT

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This month, the House Agriculture Committee passed the Farm, Food, and National Security Act of 2026 (H.R. 7567) by a vote of 34–17. This Farm Bill includes agriculture, conservation, rural development and infrastructure resources for farmers and ranchers, as well as important resources for water providers like ACWA members. Among the provisions in the bill are reauthorizations and investments in rural water infrastructure programs, including U.S. Department of Agriculture Rural Development water and wastewater facility grants and circuit rider technical assistance. The bill also continues support for conservation programs that address water quality and quantity through tools like EQIP and watershed assistance. Title VIII of the Farm Bill also includes headwaters priorities supported by ACWA, such as the expansion of Good Neighbor Authority, long-term stewardship contracting and expanded use of categorical exclusions to treat critical forested areas.

Federal Drinking Water Standards – Perchlorate

STAFF CONTACT

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Federal Relations Representative
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In January, EPA published a draft National Primary Drinking Water Regulation for perchlorate. EPA proposed a perchlorate Maximum Contaminant Level (MCL) at 20 ppb, 40 ppb, or 80 ppb and a Maximum Contaminant Level Goal (MCLG) of 20 ppb. EPA also proposed requirements for water systems to conduct monitoring for perchlorate in drinking water, take mitigation actions if the level exceeds the MCL, provide information about perchlorate to their consumers through public notification and consumer confidence reports and report to their respective primacy agency. California currently regulates perchlorate at an MCL of 6 ppb. ACWA submitted a comment letter to EPA this month in support of a federal MCL and MCLG for perchlorate at 20 ppb. The letter also urges EPA to utilize the best available science and provide practical implementation strategies. The full letter is available at acwa.com/resources.

Vision for Our Water Future

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ACWA's Vision for Our Water Future initiative continues progressing steadily. This effort is designed to elevate water as a top statewide priority during the gubernatorial race and ensure ACWA's unified member priorities help shape the agenda of the next administration. ACWA hosted four regional briefings to update members and gather vital input to be incorporated into a Vision document that will be presented to the Board of Directors for approval on March 20. In addition, ACWA has hired a public affairs firm to support the effort. More information is available online at acwa.com/vision.

Upcoming Events – Visit www.acwa.com/events for more

- **April 16** – Virtual CLE Workshop Series
- **May 5-7** – 2026 Spring Conference

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March 19, 2026

The Honorable Juan Carrillo
Chair, Assembly Committee on Local Government
State Capitol, Room 447
Sacramento, CA 95814

RE: AB 2180 (Ward) – SUPPORT

Dear Chair Carrillo:

On behalf of the Association of California Water Agencies (ACWA) and undersigned organizations, I am writing to respectfully express our strong support for AB 2180, which would clarify how water agencies comply with Proposition 218 when setting water rates. This clarification would provide much needed predictability for water agencies, support California's water-use conservation goals, and minimize unnecessary legal disputes over water rates. ACWA is pleased to sponsor this legislation and appreciates Assemblymember Ward's leadership in advancing this critical issue.

Since the passage of Proposition 218 in 1996, water agencies have been required to ensure that rates do not exceed the proportional cost of service attributable to each parcel. To meet this constitutional standard, water agencies typically engage independent experts and rely on rigorous cost-of-service studies. However, despite these efforts, high-volume water users have continued to challenge the constitutionality of water agencies' rate structures in court. Recent appellate court decisions on this matter have resulted in differing, and in some cases, conflicting, views, creating uncertainty for water agencies about how proportionality must be demonstrated. Because of this conflict, it is now both necessary and appropriate for the Legislature to clarify how the courts and water agencies should interpret the Constitution.

AB 2180 would create clear, consistent standards for water agencies statewide, helping them to confidently develop constitutionally-sound rates and continue to deliver safe and reliable water to their communities. Recent appellate court decisions, like those in *Coziahr v. Otay Water District* (2024) and *Patz v. City of San Diego* (2025), impose rigid interpretations of Proposition 218 that require unfeasible levels of precision at the expense of practical administration of water rates. For example, under these court decisions, water agencies could be forced to trace the flow of water from each source of supply to each parcel, molecule by molecule, even when water supplies are commingled in the distribution system.

Conversely, the court's December 8, 2025 decision in *Dreher v. City of Los Angeles Department of Water and Power* (2025) supports a framework that is consistent with Proposition 218 and aligns with longstanding industry practice. AB 2180 respects the wishes of voters by maintaining a rigorous standard of justifying water rates while giving water agencies the flexibility to set rates in a way that reflects the true cost of service and ensures that high-volume water users pay for the infrastructure necessary to provide reliable water supplies during droughts and times of high demand.

Public water and sewer agencies provide essential government services for the benefit of communities, agriculture, industries, and the environment. Collectively, these agencies are

responsible for ensuring a consistent and reliable water supply, safeguarding the quality of drinking water, planning, constructing, and maintaining critical infrastructure, and much more. With climate change presenting unprecedented challenges, these agencies also must adapt and enhance aging infrastructure to mitigate the impacts of increasingly frequent and severe climate-related events. Public agencies throughout California are making generational investments to build 21st Century infrastructure for a 21st Century climate while making every effort to keep water affordable.

Without legislative clarification, water agencies and ratepayers will both continue to face costly and unnecessary legal disputes. The revenue necessary for water agencies to fulfill their essential government functions comes almost entirely from service rates and assessments subject to Proposition 218. The recent rise in litigation has made it increasingly difficult for water agencies to have the financial stability they need to provide reliable, safe, and affordable water to Californians.

For these reasons, ACWA and the undersigned organizations strongly support AB 2180 and respectfully request your "AYE" vote when the bill is heard in the Assembly Local Government Committee. If you have any questions about our position or this bill, please contact Soren Nelson at SorenN@acwa.com.

Sincerely,

Soren Nelson
Senior Policy Advocate
Association of California Water Agencies

Adam Larsen
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General Manager
Santa Fe Irrigation District

Andrea Abergel
Director of Water
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Kings River Conservation District

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Coachella Valley Water District

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James Peifer
Executive Director
Regional Water Authority

Jed Smith
President, Board of Directors
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Union Public Utility District

Joe Mouawad, P.E.
General Manager
Eastern Municipal Water District

John Thiel
General Manager
West Valley Water District

Jose Martinez
General Manager
Otay Water District

Justin Hopkins
General Manager
Stockton East Water District

Justin Scott-Coe
General Manager/Chief Executive Officer
Monte Vista Water District

Keith Van Der Maaten
General Manager
Laguna Beach County Water District

Kevin Phillips
District Manager
Paradise Irrigation District

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General Manager
Olivenhain Municipal Water District

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Mayor
City of Roseville

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General Manager/Chief Executive Officer
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Executive Director
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Rio Linda Elverta Community Water District

Tom Coleman
General Manager
Rowland Water District

Tony Williams
General Manager
North Marin Water District

March 17, 2026

The Honorable Henry Stern
Chair, Senate Emergency Management Committee
1020 N Street, Room 549
Sacramento, CA 95814

RE: SB 1153 (Caballero) – Support

Dear Chair Stern:

On behalf of the Association of California Water Agencies (ACWA) and the undersigned organizations, we are writing to express our support for SB 1153, which would require urban retail water suppliers serving high-risk areas to include wildfire response procedures within their emergency response plans to bolster wildfire planning efforts. The bill would also clarify the role of public water systems in wildfire response, including the limitations of water systems.

Over the last decade, California has faced some of the largest and most destructive wildfires in history, placing extraordinary demands on public water systems and customers. Despite these demands, public water systems are investing and taking actions to prepare for future wildfire events through emergency preparedness and planning actions, which vary based on the needs of the system and area of the state. Emergency preparedness and planning actions include infrastructure investments; drills and tabletop exercises with local government, fire departments, and other stakeholders to test communications and response systems ahead of wildfires; and emergency communication plans to notify customers about service impacts, water quality, advisories, and safety guidance during wildfire emergencies.

SB 1153 would build upon existing emergency planning requirements and strengthen wildfire preparedness by requiring all urban retail water suppliers serving a high or very high fire hazard severity zone to incorporate a specific planning element regarding wildfire preparedness and response into their disaster preparedness and emergency response plans. The bill would require these plans to include

mitigation actions, procedures, and equipment that can obviate or significantly lessen the impacts of wildfires on water infrastructure and the supply of drinking water. This bill would allow water suppliers, the experts on their systems, to develop preparedness strategies that reflect local conditions and operational needs. Water suppliers would have until January 1, 2028, to develop and incorporate wildfire response procedures within their plans, which would result in water agencies in high-risk areas developing their plans at the same time, therefore creating more opportunities for coordination and collaboration.

In January of this year, the University of California, Los Angeles (UCLA) Luskin Center for Innovation published a report which synthesizes insights from a workshop of 42 experts representing water agencies, fire services, regulators, researchers, and technical assistance providers. The report stated that, "Participants reached a strong consensus that water systems have a limited and inherently constrained role in wildfire suppression. Hydrants, storage, and pipe networks are neither required nor engineered to deliver the sustained flows and pressures required to stop fastmoving, multi-block fires. Yet public perception, misinformation, and fragmented communication have created unrealistic expectations and, at times, misplaced blame. Workshop discussions emphasized the need for clearer communication with policymakers and the public; improved coordination among water systems, fire agencies, and emergency response entities; and careful evaluation of trade-offs in proposed infrastructure or operational interventions."

As wildfires become more frequent and destructive across California, misunderstandings of public water systems have led to unrealistic public expectations and have resulted in the public perception that water systems may have underperformed during a wildfire event. Following major wildfire events, public water systems have increasingly faced claims and lawsuits for wildfire damages. The financial burden of litigation is ultimately borne by customers, impacting water rates and affordability.

In alignment with UCLA's findings, SB 1153 would include legislative findings and declarations which illustrate that while public water systems are designed to aid in firefighting, they are not intentionally designed or constructed for wildfire defense or suppression and that doing so would be physically impracticable, financially infeasible, and may compromise the quality and affordability of water. The bill would also establish that the inability of a public water system to maintain water supply or water pressure during a wildfire shall not be considered a substantial cause of the damages resulting from a wildfire and that the spread of wildfire is not an inherent risk presented by the deliberate design, construction, or maintenance of a public water system. This bill would correct misconceptions about the capabilities of water systems during wildfire events, reducing exposure to costly litigation and providing greater financial certainty so public water systems can continue investing in water reliability and resilience projects.

SB 1153 improves wildfire preparedness while recognizing operational realities. California must acknowledge the limited role of our public water systems, support their efforts to adapt to climate change, and prepare for future long-term investments in disaster response. For these reasons, ACWA and the undersigned organizations support SB 1153 and respectfully request your "AYE" vote when the bill is heard in the Senate Emergency Management Committee. If you have any questions about our position, please contact Kylie Wright at KylieW@acwa.com.

Sincerely,

Kylie Wright
Policy Advocate
Association of California Water Agencies

Jennifer Capitolo
Executive Director
California Water Association

Andrea Abergel
Director of Water
California Municipal Utilities Association

Kristopher Anderson
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Lisa Yamashita-Lopez
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John Thiel
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Tanya Moniz-Witten
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Justin Hopkins
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Deanna Jackson
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Dennis D. LaMoreaux
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Michael Minkler
General Manager
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Trump team to break up renowned climate lab

The National Center for Atmospheric Research in Boulder, Colo. The Trump administration is reviewing proposals to break up one of the world's leading climate and weather laboratories. Caine Delacy — The New York Times

BY ERIC NIILER

THE NEW YORK TIMES

The Trump administration is reviewing proposals to break up one of the world's leading climate and weather laboratories, transfer its work to universities and private companies, take away its aircraft, and sell its property in Boulder, Colorado.

The laboratory, the National Center for Atmospheric Research, has been targeted for months by the Trump administration. In a social media post in December, Russell Vought, the White House budget director, called the Colorado center "one of the largest sources of

climate alarmism in the country."

The center, founded in 1960, is responsible for many of the biggest scientific advances in understanding of weather and climate. Its research aircraft and sophisticated computer models of the Earth's atmosphere and oceans are widely used in forecasting weather events and disasters.

Scientists say the move to dismantle the center would weaken research that is crucial to understanding the atmosphere, space and oceans, air pollution and climate change. It would leave emergency officials and planners less prepared for extreme weather events, critics said.

The center's staff includes about 830 employees working under the University Corporation for Atmospheric Research, a nonprofit consortium of colleges and universities that oversees the center for the federal government.The center also operates a massive supercomputer, known as Derecho, in Cheyenne, Wyoming, that scientists use to predict the behavior of wildfires, space weather, hurricanes and other complex weather patterns.

Proposals are due Friday to the National Science Foundation from institutions that want to take over management of the center's research portfolio and various facilities; comments from the public about the center's future are also due then.

Michael England, a spokesperson for NSF, which oversees the center, said the proposals and comments from interested parties would not be made public. He would not say when the officials would make a final decision about the fate of the center.

"I don't have anything on that for you," England said.

Colorado's elected officials have been fighting to preserve the center. Putting it on the chopping block would also be an economic blow to the state. President Donald Trump has feuded with Gov. Jared Polis, a Democrat, over Trump's pardoning of a former Colorado election official who was convicted of multiple state felonies after she gave Trump's supporters unauthorized access to voting machines after the 2020 presidential election.

"Breaking up the institution would have detrimental impacts," Polis said in a statement Thursday. "People evacuate more quickly and safely from fires because of NCAR."

The center's data, Polis said, "improve forecasting of severe weather events like fires and floods, support safer aviation and transportation, and help businesses and communities make informed decisions."

In a letter to the NSF's acting director, Brian Stone, Reps. Joe Neguse, a Democrat, and Jeff Hurd, a Republican, wrote that dismantling the center would increase costs and "erode critical research capacity, disrupt long-standing partnerships, and diminish our ability to

understand, anticipate and respond to extreme weather-related risks."

Neguse said the proposals and comments should be made public, and he intended to press the NSF should it refrain from doing so.

He has asked the NSF inspector general to review allegations from a whistleblower that Trump administration officials began negotiating the transfer of the center's space weather program to a private company in January, before the review had been completed.

According to Neguse's letter to the inspector general, the whistleblower confirmed the report with an employee of an unnamed for-profit company during a January meeting of the American Meteorological Society in Houston.

"I remain deeply concerned about any attempts to improperly transfer public assets to private companies," Neguse wrote.

Scott Rayder, the CEO of Lynker, a firm in Leesburg, Virginia, that provides space weather forecasts for the U.S. military and other federal agencies, said he was submitting a proposal to the NSF to take over management of the center's High Altitude Observatory, whose scientists study solar flares, space radiation and other atmospheric phenomena.

"Our thinking here was that this is important and we need to save it," Rayder said about the observatory. "These are critical functions. If you are going to break them up, don't let them go. They need to be kept together."

Rayder said in an interview that his firm had not been negotiating with officials from the Trump administration. Scott McIntosh, Lynker's vice president for space operations, was the deputy director at the center until 2024 and also ran the observatory.

The University of Oklahoma is making a proposal to the NSF "on how the nation can best preserve that legacy and organize our atmospheric science capabilities to meet current and future needs," said Matthew Wade Hulver, the university's vice president for research and partnerships.

The University of Wyoming has begun negotiations with NSF officials about taking over management of the Derecho supercomputer, according to Chad Baldwin, a university spokesperson.

Baldwin said it was too early to know who would set the research priorities for the supercomputer. But some scientists say the university's goals may not match the priorities of the larger U.S. scientific research community.

"How much will be focused on climate versus weather versus other disciplines?" said Carlos Javier Martinez, chief climate scientist at the Union of Concerned Scientists, an advocacy group, and a former postdoctoral researcher at the center.

“It feels rushed,” Martinez said about the NSF process. “I question whether the public comment period is of good faith.”

Also unclear is the fate of the center’s Mesa Laboratory, which was founded in 1960, designed by famed architect I.M. Pei, and used as the setting for the 1973 Woody Allen sci-fi comedy film “Sleeper.”

In a January letter, the NSF said it wanted proposals to sell the buildings and transfer the center’s two high-flying research aircraft to another federal agency.

County advances housing project

54-home plan for Point Reyes Station

BY RICHARD HALSTEAD

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Marin County supervisors have advanced a housing project in Point Reyes Station by approving a land transfer and committing to funding for wastewater treatment.

The transfer of a former Coast Guard property to a development partnership is the latest milestone in an effort to create 54 homes for low-income and extremely low-income households.

The new owner is Tamalko Homes Limited Partners, a collaboration of Eden Housing and the Community Land Trust of West Marin. The supervisors approved the transfer on March 10.

But the agreement comes at a cost to the county. It has agreed to assume responsibility for at least five years for the maintenance, monitoring and operation of a wastewater treatment center that is to be built by Tamalko.Jarrod Russell, director of the Community Land Trust of West Marin, said the treatment facility is expected to cost about $2.5 million. The federal government built the Coast Guard site without a wastewater treatment center.

While Tamalko has agreed to chip in $60,000 a year to cover the operational costs, the county estimates the total costs will amount to $250,000, leaving $190,000 annually for the county to pay.

At the end of five years, the agreement calls for Tamalko to “meet and confer in good faith” about revising the cost-sharing structure. According to a staff report, however, “Any modification to the county’s funding obligation shall require a written amendment approved by both parties.”

The staff report notes that the county’s commitment to funding the treatment facility will be a “significant investment and on-going liability for the county.”

Another community in rural Marin has sought financial support for a wastewater treatment project without much success. Several Woodacre residents attended the supervisors’ budget workshop on Feb. 23 to ask for funding for an environmental impact report for their wastewater treatment project.

Rich Lohman recounted having his property flooded with wastewater shortly after moving into his house in the flats in 2005.

“We had water in the streets, water in the gutters,” Lohman said, “and according to the report that you will have in front of you, the county did tests on our creeks and found that they had human pathogens in the creeks.”

Residents who live in the low-lying floor of San Geronimo Valley often contend with failing private septic systems during wet weather because of high groundwater levels.

“We need a full environmental impact report now to move forward with this project, which is really urgent for the health, for the environment and the economic stability of our community,” said Elizabeth Imholz, another Woodacre resident. “We’ve worked on this literally for decades now.”

So far the Woodacre residents have received no commitment from the county.

In an email, Supervisor Dennis Rodoni, whose district includes Point Reyes Station and Woodacre, said the Coast Guard wastewater treatment project will be a “state-of-the art system” with “unique operational and oversight requirements.”

“Given that permitting agencies prefer a public entity to operate systems of this complexity,” the county has decided to support operations there, Rodoni said.

“We will also be meeting with the Woodacre community to better understand the need,” Rodoni wrote, “and determine the appropriate level of county support moving forward.”

Sarah Jones, director of the Marin County Community Development Agency, said the Coast Guard wastewater system will be near Lagunitas Creek and two North Marin Water District wells.

“There is a need for ongoing monitoring and testing, as well as an advanced treatment system to ensure that there are no impacts to human health or to the environment,” she said.

Russell said that both the transfer of ownership to Tamalko and the agreement for the county to operate the wastewater system will make the project more competitive in its bid next month for federal low-income housing tax credits.

Russell said that if Tamalko gets the tax credits it is seeking — more than $20 million worth — the project will be fully funded.

The project is estimated to cost $55.4 million. A year ago, the county allocated $9.4 million in local housing trust and Measure W community housing funds to support the project and increase its competitiveness for other funding sources.

Because the project was awarded more than $11 million through the state Joe Serna Jr. Farmworker Housing Grant Program, Tamalko will be able to reserve 15 of the 54 dwellings for agricultural workers.

County planning officials have said that the developers will conduct “affirmative marketing” to applicants who have historically faced housing discrimination.

MMWD pursues planning of drought-fighting pipeline

Costs rise for project that could replenish reservoirs

The Russian River flows south just below flood stage through Alexander Valley. The Marin Municipal Water District is moving forward with an environmental review on a major drought resiliency project. Kent Porter — The Press Democrat, file

The Nicasio Reservoir in rural Marin County. Alan Dep — Marin Independent Journal, file

The sunrise shines on Black Mountain near the Nicasio Reservoir in Nicasio. The Marin Municipal Water District is moving forward with an environmental review on a major drought resiliency project. Alan Dep — Marin Independent Journal

BY ADRIAN RODRIGUEZ

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The Marin Municipal Water District is moving forward with an environmental review on a major drought resiliency project as the scope expands and costs rise.

The “atmospheric river capture” project, which was approved one year ago, involves a proposed pipeline that would replenish Marin reservoirs with Sonoma County rainwater during droughts.

On Tuesday, the district committed to plan for two pump stations to serve the pipeline, increasing the design and engineering contract with Carollo Engineers by $1.45 million to $11.15 million. There was always an option for a second pump station, but it was not included in the initial design contracts or project estimate.

The board also approved a $179,829 increase for an environmental analysis for a new contract total of $1.42 million with Panorama Environmental Inc.

Because of the addition of the second pump station, the total project estimate has climbed from $168 million to $214 million.

“We could make the project work with one pump station to be clear,” said Paul Sellier, water resources director. “But we really think that there are some strategic advantages for us to think about the second pump station and include it in our design at this point.”

One advantage is that a second pump station will relieve stress on the system. Having one would require a high-pressure pipe, valves and fittings, Sellier said.

Also, it would set up the district to pursue a second phase of the pipeline project that could provide even greater water yields for the county during dry years.

“This is going to be the largest investment in water infrastructure supplywise the district’s made since the mid ’80s,” board member Matt Samson said.

He said the proposal would “future-proof” the district. “So I appreciate the two pump stations. I’d like to move forward with it.”

The planned 13-mile, 36-inch pipe would tap into an aqueduct system that runs along Highway 101, carrying water from the Russian River into Marin.

The pipe would follow San Marin Drive west, take a right turn at Novato Boulevard, pass Stafford Lake and turn left at Point Reyes-Petaluma Road to the Nicasio Reservoir.

The project is designed to capture rainwater during droughts to replenish the reservoir with up to about 3,800 acre-feet of water a year. An acre-foot is about 326,000 gallons.

As proposed, the connection point would be near Highway 101 at San Marin Drive in Novato.

MMWD staff began looking for sites near that connection point to construct a pump station that would be needed to push the water westward. That’s when they pursued a 4.5-acre property on Wood Hollow Drive at Redwood Boulevard.

The site was set to become an 87-room hotel, but the project was delayed by the pandemic and then never built, according to a city staff report.

In December, the district signed an agreement to purchase the lot to serve as its primary pump station. The $4.8 million deal is contingent upon clearance of the environmental impact report, an analysis mandated under the California Environmental Quality Act that is now underway.

The second pump station is planned near Stafford Lake. If constructed, it could open the door for a future phase of the pipeline that could increase replenishment of stored water to up to 8,100 acre-feet, staff said.

Board member Larry Russell said he is concerned about costs.

“I don’t know where that number is yet of the max that can be afforded by the district, but it seems to me we’re flirting with that,” Russell said.

“We have tried a lot of things that we thought would be easy and they were not,” board member Diana Maier said. “If this doesn’t work, I don’t really know where we go from here.”

Maier shared the concern about escalating costs and urged her colleagues to scrutinize the project.

Board member Jed Smith said the project is the result of “really thoughtful planning.”

“Before we got on the board, there was obviously an enormous amount of pressure from the community for Marin Water to step up, both on demand management and supply of water and water resiliency,” he said. “We’ve had some consulting work. We’ve had all sorts of options and plans. This one continues to show significant positive potential for us.”

The district is planning two “scoping sessions” to solicit public comments for the environmental review process. One session is set for 6 p.m. Wednesday at the Downtown Recreation Center at 950 Seventh St. in Novato. The other is 5:30 p.m. Thursday in the San Ramon Elementary School multipurpose room at 45 San Ramon Way in Novato.

Comments can also be emailed to arcproject@marinwater.org with the subject line “ARC Project public comment.”

Comments can be mailed to Marin Water, Attention: ARC Project, 220 Nellen Ave., Corte Madera, CA 94925.

The public comment period is open until noon April 13. More information is at bit.ly/4lDilS5.

The draft environmental impact report is expected to be released in the fall for public review. The final report is scheduled to be considered for approval in early 2027.

IN YOUR TOWN

ROADS

FUNDS ALLOTTED FOR BRIDGE SITES

The California Transportation Commission has allocated nearly $1.4 million for vegetation planting at two project sites in Marin County.

One expenditure is $700,000 for work at the Lagunitas Creek Bridge on Highway 1 near Point Reyes Station. The other is $680,000 for work at the San Antonio Creek Bridge on Highway 101 at the Marin border with Sonoma County.

The funding was among $848 million in outlays the commission announced Wednesday.

New Bay Area radars boost storm-tracking capability

Equipment upgrades include station in West Marin

A worker helps assemble radar equipment on Rocky Ridge in western Contra Costa County, California on Dec. 8, 2022. It is part of a system intended to improve prediction of heavy rainfall and runoff in the Bay Area. Contra Costa County Public Works Department

An X-band radar site stands in January 2026 on Sawyer Ridge west of Hillsborough and Crystal Springs Reservoir in San Mateo County. The radar is part of a new regional network of state-of-the-art radar systems. Photo: SFPUC

A crew installs a short-range radar facility on Rocky Ridge in western Contra Costa County on Dec. 8, 2022. It is part of a system intended to improve prediction of heavy rainfall and runoff in the Bay Area. Contra Costa County Public Works Department

BY PAUL ROGERS

BAY AREA NEWS GROUP

Hoping to collect more information about the biggest, wettest storms that soak California each year — filling reservoirs and also causing damaging floods — a coalition of Bay Area agencies has unveiled a new $19.7 million system of high-tech radar stations that stretches from Sonoma County to Santa Cruz.

The network includes six radar installations in Contra Costa, San Mateo, Santa Clara, Santa Cruz, Marin and Sonoma counties that can track storms with faster and higher-resolution updates than the National Weather Service radar stations.

In a typical year, California receives about a dozen big “atmospheric river” storms — huge conveyor belts of moisture that account for roughly 50% of the state’s annual precipitation.

Also called “pineapple express” storms, they sometimes deliver localized bursts of extreme weather and rainfall that can cause landslides, flooding and other mayhem.

The old radar systems, which scan above 5,000 feet, can miss these intense local bursts that often occur closer to the ground, experts said. But the new radar facilities can track them, providing more accurate, timely information to forecasters and local emergency officials.

“Storms that hit the Bay Area come in off the ocean, where there is not much data,” said Marty Ralph, director of the Center for Western Weather and Water Extremes at the University of San Diego. “They hit mountains and urban areas, and it makes for a lot of complications in finding out where and when the heaviest rain will fall.”

The new network— known as Advanced Quantitative Precipitation Information, or AQPI — has been under development, construction and testing since 2018, and is the first of its kind in the state.

“This radar can monitor the details of storms in ways that have never been done before,” Ralph said. “It will provide information hours ahead to help people who manage water, transportation and wastewater.”

Funding for the project came from the state Department of Water Resources.

Five of the radar stations are called “X-band” radar. They offer more precise, detailed images than the “S-band” systems the National Weather Service has atop Mount Umunhum south of San Jose and in Sacramento.

The new radar stations also provide updated images every one to two minutes, instead of every five to seven minutes. Most importantly, they are able to measure storms that are below 5,000 feet, when the S-band radar mostly tracks weather systems above that.

“You get a much more granular picture of where rain is hitting, when it is going to hit, for how long, and the intensity,” said Grant Davis, general manager of the Sonoma County Water Agency, which provides water to about 600,000 people in the North Bay.

“There are low-lying areas across the Bay Area in which flooding is likely to occur,” Davis said. “Emergency officials need to make a decision many hours ahead. This radar network helps them plan.”

The system has been put together one station at a time over the past eight years by a partnership between Colorado State University, the University of California at San Diego and the National Oceanic and Atmospheric Administration.

Davis noted that it was used to track a tornado that touched down in December 2024 in Scotts Valley, near Santa Cruz, and to help monitor storms in the flood-prone Russian River area in Sonoma County.

The five X-band radar stations are each about the size of a small shed. They include a radar dish protected by a large, round protective cover.

They are located at the Charles M. Schulz-Sonoma County Airport; Sawyer Ridge in San Mateo County west of Crystal Springs Reservoir; the Santa Clara Valley Water District’s Penitencia Water Treatment Plant in San Jose; Rocky Ridge in Contra Costa County; and the Santa Cruz County Government Center. Each of them came online at different times in recent years.

The sixth radar facility, a larger C-band system, is on Mount Barnabe in Marin, about 3 miles east of Point Reyes National Seashore. It received an FCC license at the beginning of this month. The station will help track storms as they approach the coast and complements the X-band radars by providing a broader view of incoming systems before they move inland, experts said Thursday.

“We are essentially filling gaps in coverage with these radars,” said John Rutz, an atmospheric scientist with the Center for Western Weather and Water Extremes. “It’s like putting glasses on and being able to see in much more detail.”

The new radar system also can track smoke from wildfires and provide more detailed information about typical rainstorms, improving the accuracy of forecasts.

Understanding more about how much water each storm system is delivering can also help water managers operate reservoirs. If they know a large storm is coming, they can release more water to make space in a full reservoir, reducing flood risk. If the storm is going to miss the area, they can release less, saving more water for dry times. That is particularly important as climate change makes droughts more severe and can also increase the amount of moisture in atmospheric river storms.

“We have to get the most out of each storm that comes across California,” said Mike Anderson, a climatologist with the California Department of Water Resources. “Having the right information at the right time enables the opportunity to maximize benefit while mitigating hazard.”

The water agencies that are participating in the project include the Alameda County Flood Control District; the Alameda County Water District; the Contra Costa County Flood Control District; the East Bay Dischargers Authority; the East Bay Municipal Utility District; the Marin County Department of Public Works; the San Francisco Public Utilities Commission; the Santa Clara Valley Water District; the Sonoma County Water Agency; and the Zone 7 Water Agency in Livermore.

MMWD should push forward with good pipeline plan

Marin, like much of America, tends to let its public issues fester for decades. Then out of frustration, we see newly elected leaders backed by an active citizenry finally address that quandary. The issue of water resilience has festered for years at Marin Municipal Water District. There's been much talk but little action. That's changing.

MMWD, which supplies water for southern and central Marin homes, businesses, government facilities and for fire flow, serves 191,000 customers. In dry years, there is insufficient water storage capacity to satisfy the public's reasonable needs. Under a stronger, goal-oriented board and soon-to-retired General Manager Ben Horenstein, that lack of water resilience will end.

The approved plan, "the atmospheric river capture project," will tap a wasted resource.

Excess winter water from the Russian River flows into the Pacific Ocean at Jenner on the Sonoma Coast.

Records show that for the past hundred years (even during the infamous 1970s drought, with Sonoma County booming and the impacts of climate change), there's been sufficient water each year pouring from the vast Russian River watershed to allow an increased winter diversion to Marin with few environmental impacts.

Connecting the river with Nicasio Reservoir, where the winter water will be stored until it is needed in dry summer months, requires construction of a new pipeline from the end of the existing Sonoma aqueduct running from the river to northern Marin. MMWD's plan calls for two pump facilities located in Petaluma and a new one in Novato. An additional 3,800-acre-feet of water will be delivered, but only during water shortage emergencies. Each acre-foot is 326,000 gallons.

It's not cheap. The estimated cost is $214 million. It's worth every penny to Marin customers if, as MMWD Director Matt Samson told the IJ, the project will "future proof" needs with ample water even during drought years.

According to the plan, no rate increase is needed to finance the atmospheric river project. The agency has prudently included those costs in its current rate structure. Horenstein says, "The cost is generally baked into our rates." There's a caveat. "Interest rates are a key variable that could require a bit higher debt service than we had anticipated." Given that, in 2026, nothing in the world of American finance is ever certain, that's a reasonable risk.

It's been questioned if the plan really needs two multimillion-dollar pump stations and that one might be enough in the short term. Now is not the time to quibble on details.

It's time to do the job right and get on with the project. A second pump station will be useful today and then, if years from now state mandated growth spurs increased water demand, MMWD will be ready and ahead of the game.

In past years, the water agency successfully pursued an aggressive effort to conserve water and foster environmentally conscious practices by property owners. The push clearly decreased water demand. That's been helpful but conservation isn't a one-shot magic trick to address all water needs for the average Marin homeowner, renter or business. The only true route to long-term water resiliency is a combination of conservation and new infrastructure.

The same "can do" approach is needed by Marin's 11 incorporated municipalities, the county and special district governments to resolve other long-standing dilemmas.

Last November, Marin County conducted a professional opinion poll to determine the priorities of residents called the "2025 Marin County Strategic Planning Voter Survey."

I plan to dive into it in more detail in the future. Local voters' top three priorities are housing at 31%, homelessness at 17% and, tied at about 11%, are the issues of traffic congestion, infrastructure, roads and streets maintenance. These issues continue to smolder. The challenge is to determine if it's even possible for Marin to address those tough long-term issues. If so, how?

Columnist Dick Spotswood of Mill Valley writes on local issues Sundays and Wednesdays. Email him at spotswood@comcast.net.

EDITORIAL

Pipeline plan is doable move for Marin now

Nearly four years ago, Marin Municipal Water District voters overhauled its board of directors, electing three new directors with a promise to bolster the local water supply.

Those voters were focused on the 2021 alarming warning that the drought-parched MMWD was within months of running out of water. The district's primary strategy of conservation helped, but would not solve the district's dilemma.

The election put the new board on a vigorous mission of growing its supply and capacity.

Conservation remains a significantly important part of MMWD's strategy.

But the close call of 2022 was a clear sign that more needed to be done — and soon.

There's no such promise that we aren't going to see another "historic" drought.

The board's marching orders has brought MMWD to push forward with plans to build a new pipeline that would import more water from Lake Sonoma.

District officials estimate the project could cost $214 million. That price tag has grown significantly from earlier estimates.

The board's support is a sign of its strong commitment to bringing greater resiliency to MMWD's water supply.

Other options have been pursued and shelved, mostly due to cost and difficulties getting necessary approvals.

The pipeline is one that appears doable, both in terms of cost and construction.

"This is going to be the largest investment in water infrastructure, supplywise, the district's made since the mid '80s," said board member Matt Samson, who was elected in the 2022 vote.

Fellow board member Jed Smith says the project "continues to show significant positive potential for us."

The goal is for MMWD to grow its supply and holding capacity to keep up with local growth and avoid a return to that perilous point

The pipeline would be 13 miles long and tap into the existing system that runs along Highway 101 and brings water from Lake Sonoma to Marin, both to MMWD and North Marin Water District.

The new pipeline would connect to the system near San Marin Drive, then follow Novato Boulevard to Point Reyes-Petaluma Road which would lead it to Nicasio Reservoir.

MMWD estimates that 25% of its supply comes from Lake Sonoma. Three-quarters of its supply is from captured rainwater held in its network of mountain reservoirs. That rainfall returned with a fury at the end of 2021 to refill MMWD's depleted reservoirs.

But it was too close a call for voters, whose decisions in that November's elections were a call for change.

The new pipeline would expand MMWD's potential to import more water when it is needed. In recent years, it has brought in far less water than is available under its contract with the Sonoma County Water Agency. The new pipeline would address the physical limitations of its current import system.

The plan is on the front of the district's drawing board and directors recently approved contracts for engineering and environmental review to move it ahead.

Those approvals reflect the MMWD board's commitment to fulfilling the promise of the 2022 election.

The 2021 warning still resonates and even though MMWD's reservoirs are at above 98% capacity, MMWD officials and those who rely on its water, know that supply is potentially vulnerable to another prolonged drought.

Ratepayers do their part in not wasting water, but as 2021 taught us, conservation is not enough.

The pipeline project still has some approval milestones it has to pass before construction can begin.

Likely, that $214 million price tag is not going to get any cheaper.

It is, however, a long-term investment in the resiliency of MMWD's water supply, which has been tested before and will be tested again.

Marin Water proposes Nicasio capture

By Ben Stocking

The last time Marin Water came up with a plan for increasing water resiliency in times of drought, Nicasio residents rose up in protest. Now the water district has a new plan for boosting its water supply, and locals are worried again.

The Atmospheric River Capture, or ARC, project involves constructing a 13-mile-long, 36-inch-wide pipeline that would carry rainwater from the Russian River watershed to the Nicasio Reservoir. The anticipated cost surged from $168 million to $214 million last month, after the district board decided to plan for a second pump station for the project, which originally called for one.

The new pipe would connect to the existing North Marin Aqueduct, which runs along Highway 101. It would follow San Marin Drive to Novato Boulevard, pass Stafford Lake and take a left at the Point Reyes-Petaluma Road before connecting to the reservoir.

Because the Russian River watershed is many times larger than the Lagunitas Creek watershed that feeds Nicasio, it can produce excess flows even in drought years, but much of that water empties into the Pacific Ocean at Jenner.

The ARC pipeline would transport water during winter when three conditions occur at once: the reservoir level is low, Marin is in an extended dry period with little or no rain in the forecast, and storms have saturated the Russian River watershed.

Some residents worry that the plan could exacerbate flooding along Halleck and Nicasio Creeks, where clogged channels force stormwater into roads and yards at homes and the school. Last year, residents had similar concerns about the plan to increase the reservoir's storage capacity by raising the height of the spillway over the Seeger Dam. The district abandoned that idea after residents raised their voices and dug up historical records that showed a previous effort to raise the spillway had been abandoned.

Martha Davis, a Nicasio resident and retired water policy strategist, said there are many operational questions about the ARC project. What if major storms strike both Napa and Marin at the same time?

"This is a huge operation, and it would put water into Nicasio with a question mark on the other end," she said. "Can Nicasio take that water? That's what the community of Nicasio is worried about: Does this add flooding potential to us?"

Although the tiny community is located next to the reservoir, Marin Water doesn't serve its residents, who rely on well water. The district serves the San Geronimo Valley, but most of its 191,000 customers live in southern Marin.

The district estimates that the ARC project would add about 3,800 acre-feet of water a year to the reservoir, or about 17 percent.

Ms. Davis wonders if Sonoma would produce enough water to help Marin, as both counties are typically dry at the same time. "I'm concerned there's something fundamentally wrong with the math," she said.

To address flooding concerns, the district applied for emergency permits late last year to remove woody debris from Nicasio Creek and improve flows to the reservoir. The San Francisco Bay Water Quality Control Board approved the permits but ordered the district to develop a long-term maintenance plan that includes removing sediment from the creek.

"Over the last three decades, huge amounts of sediment have built up—six to eight to 10 feet within the creek itself—plus all of the vegetation that has encroached on it," Ms. Davis said. "We're very grateful to the regional board for requiring the plan."

The comment period for the ARC project ends April 13. *More information is at https://tinyurl.com/ARCwaterproject*

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CLOSED SESSION ITEM

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CLOSED SESSION ITEM