Draft
2025 Urban Water Management Plan

EBMUD

2025 Urban Water Management Plan

The Urban Water Management Plan provides an overview of EBMUD's water supply and demand assessments to a planning horizon of 2050 based on a range of scenarios. The plan describes a diversified and resilient portfolio which includes recycled water and conservation programs and outlines the strategies to respond to uncertainties in the future. The UWMP and the attached Water Shortage Contingency Plan are part of EBMUD’s long-range planning to ensure water service reliability to meet multiple needs, especially during multi-year drought periods.

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Chapter 1 – General Information

1.1 Report Format

The 2025 Urban Water Management Plan (UWMP) summarizes important information and updates on the East Bay Municipal Utility District's (EBMUD) water supply planning, including projects, studies, and recycled water and conservation program activities undertaken since the 2020 UWMP. This report consists of the following chapters which satisfy the provisions of the Urban Water Management Planning Act.

Chapter 1 - General Information

A summary of the UWMP Act and an overview of the organization, watershed, and water supply system.

Chapter 2 - Water Supply System Reliability

An overview of the factors that affect the availability of water supplies.

Chapter 3 - Water Demand

A discussion of past, current, and projected demand.

Chapter 4 – Resilient Water Supply Portfolio

Plans and progress in developing a secondary water supply portfolio.

Chapter 5 - Wastewater & Recycled Water

An overview of the wastewater systems in the service area, current and planned recycled water projects, and other existing non-potable water projects.

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An overview of demand and supply-side conservation programs, current and planned conservation projects, compliance with the Water Conservation Act of 2009 and Urban Water Use Objective Standards.

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Attachment 1

Water Shortage Contigency Plan

EBMUD's Drought Management Program and potential response actions during water shortages.

***To be included for final version of UWMP**

1.2 The Urban Water Management Planning Act

The EBMUD sponsored the Urban Water Management Planning Act (Act), which was added to the California Water Code Sec. 10610 - 10657 through Assembly Bill 797 in 1983. The Act recognizes that water is a limited and renewable resource facing increasing demands and states that efficient use of urban water supplies shall be a guiding criterion for public decisions. The Act promotes the efficient use of available supplies by requiring urban water suppliers to develop long term plans that address both current and future water resource needs. It further strengthens drought preparedness by requiring suppliers to evaluate and update their 20 year water supply reliability assessment every five years. Since 1983, the Act has been amended by various Assembly and Senate bills (see Table 1-1) which expanded the topics that are to be addressed in the UWMP.

1.2.1 EBMUD's Urban Water Management Plan

On November 26, 1985, EBMUD adopted its first UWMP. Since 1985, the plan has been updated and adopted by EBMUD's Board of Directors every five years. The UWMP 2025 is designed to satisfy the requirements of the Act and provides the public with a supply and demand report on EBMUD's long-term planning and water supply sustainability. The UWMP provides an overview and tracks EBMUD's efforts to secure secondary water supply sources to support water supply reliability and progress in implementing water recycling and conservation programs. The UWMP 2025 also contains data on EBMUD's compliance with

Table 1-1 **Urban Water Management Planning Act & Amendments**

Bill	Introduced By	Title	Chaptered
AB 2661	Klehs	Urban Water Management Planning Act	1990
AB 11X	Filante	Urban Water Management Planning Act	1991
AB 1869	Speier	Urban Water Management Planning Act	1991
AB 892	Frazee	Urban Water Management Planning Act	1993
SB 1017	McCorquodale	Groundwater	1994
AB 2853	Cortese	Urban Water Management Planning	1994
AB 1845	Cortese	Water Service Reliability Assessment	1995
SB 1011	Polanco	Urban Water Suppliers	1995
AB 2552	Bates	Urban Water Supply Planning	2000
SB 553	Kelley	Urban Water Management Plans	2000
SB 610	Costa	Water Supply Planning	2001
AB 901	Daucher	Water Supply Planning	2001
SB 672	Machado	California Water Plan	2001
SB 1348	Brulte	Water Conservation	2002
SB 1384	Costa	Governance	2002
SB 1518	Torlakson	Agricultural Land Preservation	2002
AB 105	Wiggins	Agricultural and Water Omnibus Act	2004
SB 318	Alpert	Develop Desalinated Water Component	2004
SB 1087	Florez	Housing Elements	2005
AB 1420	Laird	Water Demand Management Measures	2007
SBx7-7	Steinberg	Water Conservation	2009
AB 2409	Nestande	Water Shortage Contingency Analysis	2010
AB 2067	Weber	Urban Water Management Plans	2014
SB 1420	Wolk	Water Management	2014
SB 1036	Pavley	Urban Water Management Plans	2014
SB 606	Hertzberg	Water Management Planning	2018
AB 1668	Friedman	Water Management Planning	2018
AB 1414	Friedman	Urban Retail Water Suppliers Reporting	2019

Senate Bill (SB) x7-7, the state law mandating urban water agencies to reduce water use and achieve a statewide reduction of 20% by 2020. Section 6.3 discusses emerging State regulations that have a nexus with SBx7-7. The UWMP 2025 complies with all current applicable regulations and statutes. In adopting the UWMP 2025, EBMUD commits to managing water demand efficiently using its water supplies to protect both its customers and its water and natural resources and making every effort to ensure the appropriate level of water service reliability is met given varied water demands during normal, dry, and multiple dry years.

1.2.2 Public Participation and Adoption of Plan

To be completed for final version of UWMP.

1.3 The East Bay Municipal Utility District

1.3.1 Formation

EBMUD, a public utility, was formed under the Municipal Utility District (MUD) Act, passed by the California Legislature in 1921. The MUD Act permits formation of multi-purpose government agencies to provide public services on a regional basis. In accordance with the MUD Act, voters in Alameda and Contra Costa Counties created EBMUD in 1923 to provide water service to nine cities. In 1929, upon completion of construction of Pardee Dam and the first Mokelumne Aqueduct, EBMUD began delivering water from the Sierra Nevada Mountains to customers in the East Bay.

The MUD Act was amended in 1941 to enable formation of special districts for sewage disposal or solid waste resource recovery purposes. In 1944, voters in six East Bay cities elected to form EBMUD's Special District No. 1 to treat wastewater from their jurisdictions prior to its release into the San Francisco Bay. Wastewater treatment for those cities began in 1951 and later expanded to include the Stege Sanitary District, which includes Kensington, El Cerrito, and parts of Richmond.

1.3.2 Board of Directors

EBMUD is governed by a seven-member Board of Directors, publicly elected to four-year terms from wards within EBMUD's service area. The Board determines overall policies which are implemented through the direction of the General Manager. EBMUD is guided by its Mission Statement: "To manage the natural resources with which the EBMUD is entrusted; to provide reliable, high-quality water and wastewater services at fair and reasonable rates for the people of the East Bay; and to preserve and protect the environment for future generations."

1.3.3 Service Area

EBMUD supplies water and provides wastewater treatment for a large part of Alameda and Contra Costa counties. Based on 2020 census data and Association of Bay Area Government's (ABAG) Projections, approximately 1.5 million people are currently served by EBMUD's water system in a 333[1]-square-mile area extending from Crockett on the north, southward to San Lorenzo and portions of Hayward (encompassing the major cities of Oakland and Berkeley), eastward from San Francisco Bay to Walnut Creek, and south through the San Ramon Valley (including Alamo, Danville, and San Ramon). The wastewater system serves approximately 740,000 people in an 88-square-mile area of Alameda and Contra Costa counties along the Bay's east shore, extending from Richmond on the north, southward to the southern border of Oakland. EBMUD water customers include residential, industrial, commercial, institutional, and irrigation water users.

1.3.4 Boundaries

The EBMUD water service area encompasses incorporated and unincorporated areas within Alameda and Contra Costa counties. The current service area, illustrated in Figure 1-1, is the area that was established during EBMUD's formation, as modified by annexation, detachments, or other changes of organization thereafter. The Ultimate Service Boundary (USB) is a boundary established by EBMUD to define its limit of future annexation for extension of water service.

The Local Agency Formation Commissions (LAFCOs) of Alameda and Contra Costa counties have established a Sphere of Influence (SOI) for EBMUD which is illustrated in Figure 1-1. Through the SOI, LAFCOs define the area that EBMUD can serve.

1 326 square-miles with all water bodies within the service area excluded

Figure 1-1 **EBMUD Service Boundary**

1.3.5 Climate and Topography

Within the EBMUD service area there are significant differences in geography, climate, and land use. These characteristics are important because they influence how water is used in various portions of the service area. These characteristics also are factors considered in future water demand projections.

Geographically, the service area is divided by the Oakland/Berkeley Hills that rise to about 1,900 feet above sea level. The area west of the Oakland/Berkeley Hills (referred to as west of hills, or WOH) is characterized by a plain that extends from Richmond to Hayward and from the shore of the Bay inland. The terrain east of the Oakland/Berkeley Hills (referred to as east of hills, or EOH) is characterized by rolling hills as the land descends to about 100 feet above sea level near Walnut Creek. West of hills areas border San Francisco Bay and experience a moderate climate that is tempered by ocean and Bay waters. In contrast, east of hills areas, such as Lafayette, Walnut Creek, and the San Ramon Valley, experience greater extremes in climate

Table 1-2 **EBMUD Service Area Climate Statistics**

Month	West of Hills				East of Hills			
	Rainfall (In)	Maximum Temperature (°F)	Minimum Temperature (°F)	Average Temperature (°F)	Rainfall (In)	Maximum Temperature (°F)	Minimum Temperature (°F)	Average Temperature (°F)
Jan	4.83	60	46	53	5.49	61	38	50
Feb	4.10	62	46	54	4.81	63	39	51
Mar	3.68	64	47	56	4.00	66	41	54
Apr	1.85	67	49	58	1.91	70	44	57
May	0.70	69	52	61	0.7	74	48	61
Jun	0.20	73	55	64	0.14	81	53	67
Jul	0.03	75	57	66	0.02	84	54	69
Aug	0.06	76	58	67	0.05	84	54	69
Sep	0.28	77	57	67	0.24	83	52	68
Oct	1.49	57	55	56	1.37	77	48	63
Nov	3.07	65	50	58	3.09	68	41	55
Dec	4.65	59	45	52	5.00	60	38	49
Annual	24.94	67	51	59	26.81	73	46	59

NOTE:
West-of-Hills rainfall data is based on measurements from the USL Water Treatment Plant Station for CY 1953-2024. West-of-Hills temperature data is based on measurements from the USL Water Treatment Plant Station for CY 2005-2024. East-of-Hills rainfall data is based on measurements from the Lafayette Reservoir station from CY 1953-2024. East-of-Hills temperature data is based on measurements from the Orinda Filter (WTP) Plant Station from CY 2005-2024. Average WOH and EOH temperatures are computed using min/max values and were rounded to the nearest whole number.

and are cooler in the winter and hotter in the summer. Average historical climate characteristics for east of hills and west of hills portions of the EBMUD service area are illustrated in Table 1-2.

1.3.6 Land Uses

Urban land uses in the service area include residential (ranging from low-density single-family lots to high-density multi-family residences), commercial, industrial including petroleum refining, and public facilities such as parks and schools. A majority of the high-density urban growth within the service area occurred along the Bay plain and includes residential, commercial, institutional, and industrial developments. Other urban development areas include Pleasant Hill, the San Ramon Valley, and Walnut Creek. Over the next 20 years, the projected increase in water demand primarily results from expected increased densities in existing developed urban areas, as formerly lower consumption land uses are replaced with more intensive mixed uses and other developments. See Chapter 3 for more discussion of projected demands.

EBMUD owns and manages approximately 29,000 acres of land and water surface in the East Bay, including large portions of the watershed lands that feed EBMUD's local reservoirs. There are numerous land uses on EBMUD-owned lands. The predominant agricultural land use is livestock grazing that reduces the danger of wildfires in the watershed and in the wildland/urban interface. EBMUD also leases its watershed lands for other agricultural uses such as Christmas tree and hay farming.

In 2018, EBMUD updated its East Bay Watershed Master Plan and addressed many contemporary issues that have arisen since the plan was adopted in 1996, such as climate change, invasive mussels, and toxic algae. It also incorporated plans for habitat conservation, grazing, fire protection, and proposed changes to allow limited access to specific watershed trails for cyclists. In addition, changes to the master plan sought to reduce the use of pesticides on the watershed. On May 22, 2018, the EBMUD Board of Directors approved the East Bay Watershed Master Plan Update.

In 2017, EBMUD established the Oursan Ridge Conservation Bank (ORCB) which encompasses 430 acres of pristine watershed lands owned by EBMUD and located approximately 3 miles southeast of Pinole, California. EBMUD is the Bank Sponsor and operator of the ORCB. ORCB was approved by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service to offer habitat credits for the California red-legged frog and the Alameda whipsnake. The sale of conservation credits helps support the

continued protection of those species, both of which are listed under the California Endangered Species Act. The ORCB also preserves East Bay watershed lands for natural resources protection. Through December of 2025, ORCB sold 68 of the bank's approximately 430 total credits.

EBMUD's East Bay watershed provides extensive recreational opportunities for the public at Lafayette, San Pablo, and Chabot Reservoirs. The recreation activities vary at each reservoir, but generally include boating, fishing, hiking, and picnicking. Body contact is prohibited to protect the drinking water supply and public health and safety. A recreational trail system also provides controlled public access to a large portion of the watershed. More information on the watershed trail system can be found at: www.ebmud.com/recreation/east-bay/east-bay-trails

1.3.7 Population Projections

EBMUD's service area spans portions of Alameda and Contra Costa counties. The population forecast is based on published data sets from Department of Finance (DOF), which includes annual city-level population estimates through 2025, as well as estimates for unincorporated county areas. The linear rate of growth was calculated using DOF figures from 2023 through 2025, with 2020 populations from Association of Bay Area Governments/ Metropolitan Transportation Commission serving as the baseline. Because these estimates rely on a limited number of post-COVID-19 data points, the projections should be considered preliminary and are expected to become more reliable as additional data become available. Updated and refined population projections will be incorporated in the 2030 UWMP.

The population projections from 2025 to 2045 are summarized in Table 1-3.

1.4 The Water Supply System

The EBMUD water supply system collects, conveys, treats, and distributes high-quality water from its primary water source, the Mokelumne River, to its customers in the San Francisco East Bay Area (see Figure 1-2). The Mokelumne Aqueducts convey the Mokelumne River supply from Pardee Reservoir, located upstream of Camanche Dam, across the Sacramento-San Joaquin River Delta (Delta) to local storage and treatment facilities in the East Bay. After treatment, water is distributed to the incorporated cities and unincorporated communities in Alameda and Contra Costa counties that EBMUD serves.

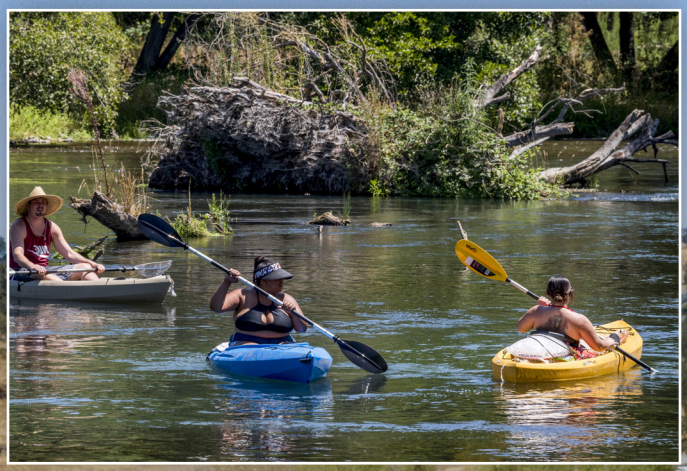
Based on the historical average, approximately 90 percent of the water supplying EBMUD's service area originates in the Mokelumne River watershed, and about 10 percent coming from local runoff in the protected East Bay watershed lands. The Mokelumne River watershed upstream of Camanche Dam is relatively narrow and steep and is located northeast of the Sacramento-San Joaquin River Delta on the western slope of the Sierra Nevada. Above Camanche Dam, the Mokelumne River drains about 621 square miles of mountains and foothills. The elevation in the watershed ranges from 235 feet at Camanche Dam to 10,000 feet in the headwater region.

1.4.1 Mokelumne Watershed Runoff Characteristics

Annual precipitation and stream flow in the Mokelumne River watershed upstream of Camanche Dam are extremely variable from month to month and from year to year. Most

Table 1-3 **Population Projections**

Region	2025	2030	2035	2040	2045	2050
Alameda County Population Within EBMUD Service Area	961,000	972,000	982,000	993,000	1,003,000	1,014,000
Contra Costa County Population Within EBMUD Service Area	540,000	544,000	547,000	550,000	553,000	556,000
EBMUD Service Area	1,501,000	1,516,000	1,529,000	1,543,000	1,556,000	1,570,000
Proportion of EBMUD Service Area Population within Alameda County	58%	59%	59%	60%	61%	61%
Proportion of EBMUD Service Area Population within Contra Costa County	47%	47%	47%	47%	48%	48%



Within the Mokelumne watershed the District offers a wide variety of recreational opportunities.

Recreation sites include Camanche Recreation Area, Pardee Recreation Area, Camanche Hills Hunting Preserve, and Mokelumne River Day Use Area. Regional trails within the District boundary include the John Bull Loop Trail, Cooks Mesa Trail, Patti's Point, Rich Gulch Trail, and Middle Bar through Independence Flat. The trails offer views of the surrounding foothills, Mokelumne River, and local wildlife.

Both Pardee and Camanche Reservoirs offer camping, boating, fishing, and picnic sites. Swimming is also allowed in Camanche Reservoir.

The Mokelumne River Day Use Area is a small day use park located downstream of Camanche Dam. Popular activities include fishing, hiking, bird watching, swimming, and picnicking. The Mokelumne River Day Use Area also provides a good access point for rafting and kayaking.

Camanche Hills Hunting Preserve is an upland game bird hunting and sport shooting facility. Recreationalists pursue upland game birds during the hunting season. Camanche Hills Hunting Preserve also offers several varieties of sport shooting which include sporting clays, skeet, trap, 5-stand, and archery.

precipitation normally falls between November and April and very little falls between late spring and early fall (see Table 1-4). Peak flows in the Mokelumne River normally occur during winter storms and the spring snow melt season from March through June. These flows decrease to a minimum in late summer and fall.

Snow melt from parts of Alpine, Amador, and Calaveras counties contributes to the Mokelumne River runoff. The primary tributaries are the North, Middle and South Forks of the Mokelumne River, with the North Fork tributary draining over 60 percent of the Mokelumne watershed.

Smaller tributaries include Summit Creek, Bear Creek, Cole Creek, Moore Creek, Blue Creek, Tiger Creek, Panther Creek, Forest Creek, and Licking Fork. The Mokelumne River watershed runoff is modified by various diversions and regulated by reservoir storage operations including a network of facilities operated by the Pacific Gas and Electric Company. EBMUD diverts Mokelumne River flow in Pardee and Camanche reservoirs. A portion of the water diverted at Pardee Reservoir is conveyed to the EBMUD service area via the Mokelumne Aqueducts, and a portion of the stored water is released along with water that is passes directly through the reservoirs to meet downstream flow obligations. Jackson Valley Irrigation District obtains its water from the Mokelumne River through the Jackson Creek Spillway and West End Dike outlet located on the north arm of Pardee Reservoir.

Table 1-4 **Mokelumne Basin Runoff & Climate Statistics**

Month	Average Runoff[1] (ft^3/sec)	Average Precip.[2] (In)	Average Temp.[3] (°F)
January	927	8.64	28
February	1037	7.77	27
March	1440	7.28	30
April	2132	4.02	35
May	3133	2.22	41
June	1972	0.76	50
July	474	0.23	58
August	89	0.26	57
September	58	0.79	52
October	113	2.65	42
November	307	5.38	34
December	651	8.05	27
Annual Total	1,028	48.05	40

1 Average True Natural Flow at Mokelumne Hill Gaging Station, CY 1930-2024.
2 EBMUD 4-station average, 1930-2024.
3 Average temperatures from Blue Lakes station (BLK), 2006-2024, CDEC. https://cdec.water.ca.gov/dynamicapp/wsSensorData or see https://cdec.water.ca.gov/dynamicapp/staMeta?station_id=BLK

Mokelumne Watershed

Land Uses

Most of the Mokelumne River watershed upstream of Camanche Dam is protected and undeveloped, consisting of open space and forest land with small concentrations of residential and commercial development along the major highways, and large tracts of designated wilderness. Forest land, located chiefly within the Eldorado and Stanislaus National Forests, accounts for about 75 percent of the watershed land. There are small agriculture areas, mainly orchards, vineyards, cattle grazing, and commercial cannabis cultivation (Calaveras County only), and several areas of recreational developments (including winter sports facilities). There are minor industrial and commercial uses in the watershed, with logging as the major land use activity.

Various forms of recreation such as camping and water-related activities are allowed at Pardee Reservoir (only non-body-contact activities allowed) and Camanche Reservoir (body-contact activities allowed). There also is an extensive system of Mokelumne area trails in the Sierra foothills such as the Coast-to-Crest trail across EBMUD land. More information on the Sierra foothills trail system can be found at: www.ebmud.com/recreation/sierra-foothills/sierra-foothills-trails.

Mokelumne River Commitments

The Mokelumne River serves a variety of uses, including agriculture, fisheries, hydropower, recreation, and municipal and industrial use. EBMUD has water rights that allow for delivery of up to a maximum of 325 million gallons per day (MGD) from the Mokelumne River, subject to the availability of Mokelumne River runoff and numerous flow release obligations. EBMUD's Mokelumne River flow commitments are determined by hydrology, water rights terms and conditions, agreements with state and federal regulatory agencies, California State Water Resources Control Board (SWRCB)

Figure 1-2 **EBMUD Water Supply System**

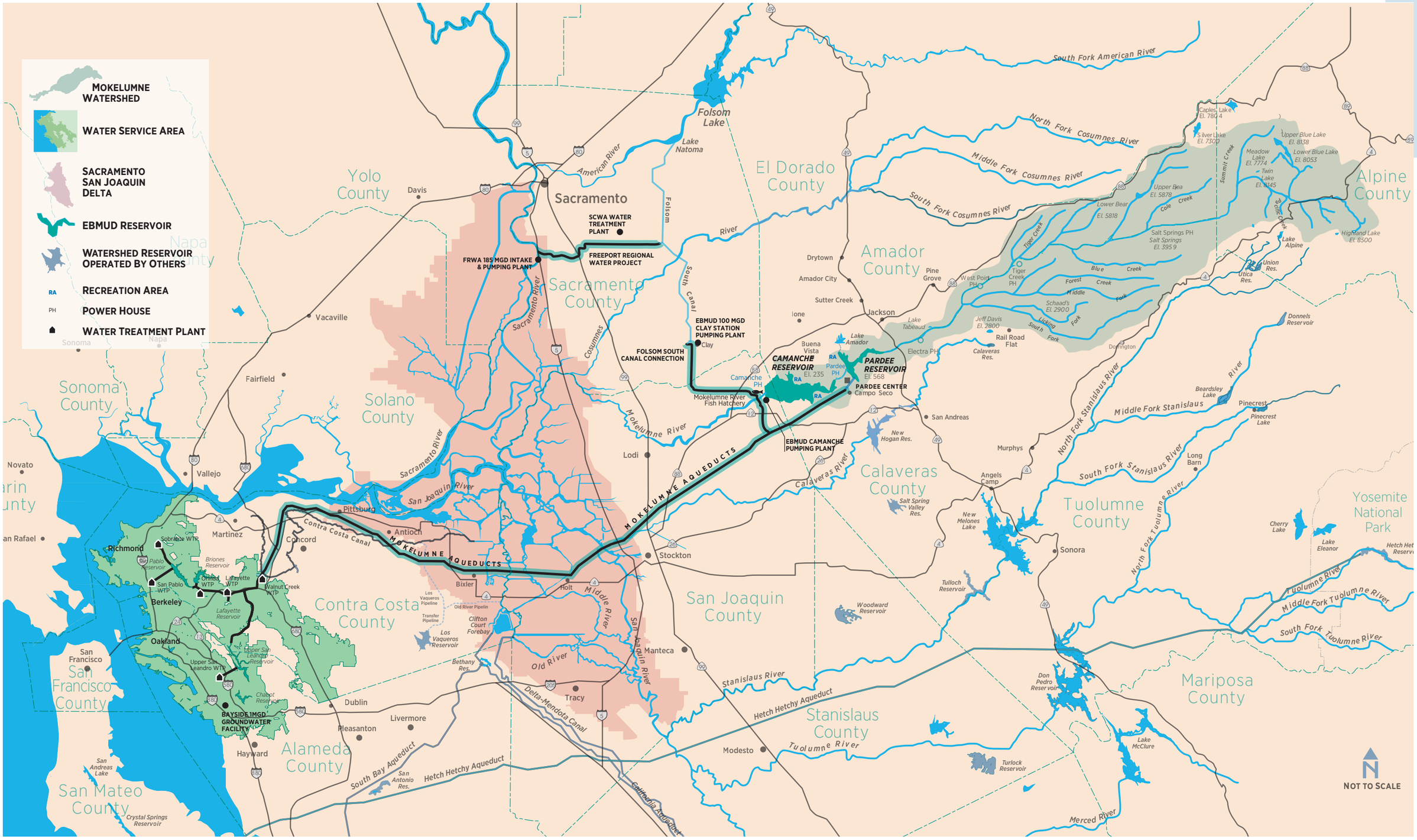
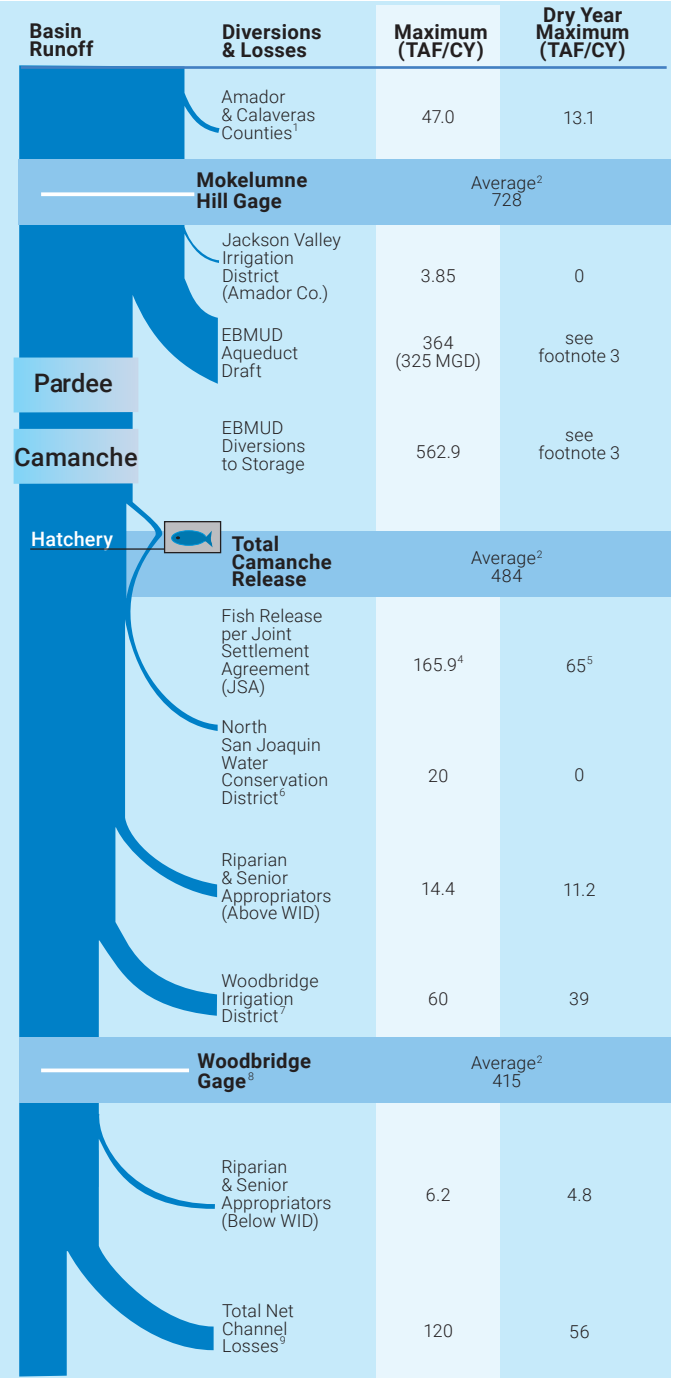


Figure 1-3 **EBMUD Flow Commitments**



1. Amador County has 15 TAF of pre-14 rights, which could be exercised in dry years if there is sufficient runoff.
2. Average data provided for the various periods of historical record.
3. Varies with runoff and storage conditions.
4. Water releases committed by EBMUD to protect fishery per "Normal and Above" water year type under JSA criteria.
5. Water releases committed by EBMUD to protect fishery per "Dry" water year type under JSA criteria. In critically dry years, the minimum releases could be as low as 22.5 TAF.
6. May be "0" if no water is available surplus to EBMUD needs.
7. EBMUD's obligation to release water to the Woodbridge Irrigation District is governed by a series of water rights settlement agreements to a maximum of 60 TAF/yr when inflow to Pardee is greater than 375 TAF.
8. Includes local runoff between Camanche and WID.
9. "Net Channel Loss" is defined as all met additions and losses in a river system. This includes components such as flow to and from adjacent groundwater, overland flow, direct precipitation to and evaporation from the channel, plant transpiration, and seepage losses to underlying groundwater.

orders and decisions, federal directives, court decrees, and numerous agreements between EBMUD and other Mokelumne River users, both upstream and downstream of EBMUD's Mokelumne River facilities.

Figure 1-3 provides information regarding EBMUD's flow commitments, including maximum flows that could be required and flows during a typical dry year. For comparison, the figure also provides information on the average runoff for various periods of historical records, EBMUD's maximum water rights appropriations, and other pertinent information that illustrate the complex nature of agreements and uses on the Mokelumne River.

To comply with the requirements of the 1998 Joint Settlement Agreement (JSA) among EBMUD, U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW), EBMUD continues to meet its flow commitment to protect the lower Mokelumne River by providing in-stream flow releases from EBMUD's Camanche Dam to improve fishery conditions. The Mokelumne River provides important habitat for fall run Chinook salmon and Central Valley Steelhead, which is listed as Threatened under the Federal Endangered Species Act. Chinook salmon migrate from the ocean and reach the Mokelumne in late summer and early fall to spawn. In the spring, the juvenile salmon migrate to the ocean, grow, and ultimately return to the Mokelumne two to four years later to spawn. Salmon spawn in the river below Camanche Dam and many also enter the Mokelumne River Fish Hatchery (MRFH) located at the base of EBMUD's Camanche Dam, where eggs are collected, fertilized, incubated, and raised for release in the spring. Steelheads enter the Mokelumne River in the late-fall and winter, and spawn in the spring. Juvenile steelhead spend over a year in freshwater before returning to the ocean. The MRFH also

Table 1-5 **CVP Deliveries During Past Drought Periods**

Year	CVP Deliveries (Acre-Feet)
2014	18,641
2015	33,250
2021	31,915

spawns steelhead and both the hatchery and natural stocks are part of the listed population.

In collaboration with the CDFW, the USFWS, and the National Marine Fisheries Service, EBMUD uses many strategies to protect and enhance Mokelumne River fisheries resources. These strategies include spawning and rearing habitat restoration, screening riparian diversions, conducting a comprehensive science program, and investing in one of the most modern and productive anadromous fish hatcheries in the Central Valley.

1.4.2 East Bay Area Watershed and Hydrology Runoff Characteristics

EBMUD's secondary water supply source is local runoff from the East Bay area watersheds, which are stored in the terminal reservoirs within EBMUD's service area (Briones, Chabot, Lafayette, San Pablo, and Upper San Leandro Reservoirs). The availability of water from local runoff depends on three factors: hydrologic conditions, terminal reservoir storage capacity, and water right terms and conditions. In normal Water Years, local reservoirs receive on average approximately 30,000 acre-feet of water from local watershed runoff. Much of the local runoff is stored in the East Bay reservoirs for system use. In dry years, evaporation and other reservoir losses can total more than the runoff. Thus, little to no yield occurs from local watersheds in drier years.

Emergency Standby

EBMUD's terminal reservoirs are operated to provide, among other uses, up to a 180-day (6-month) emergency standby storage in the event of outages or failure of one or more of the Mokelumne Aqueducts. The local terminal reservoir system has a total capacity of 150,380 acre-feet (AF).

1.4.3 Secondary Water Supply Sources

USBR Central Valley Project Supply

During multi-year droughts, the Mokelumne River and local runoff alone cannot meet EBMUD's projected customer demands, even with mandatory water use restrictions. Furthermore, EBMUD's Mokelumne River supply is expected to be reduced as demands on the Mokelumne River increase from the growing needs of other diverters with water rights senior to those of EBMUD's in Amador, Calaveras, and San Joaquin counties.

EBMUD's efforts to identify additional sources of supply to meet long-term demand began in the mid-1960s. In 1970, EBMUD executed a contract with the United States Bureau of Reclamation (USBR) for delivery of Central Valley Project (CVP) water from the American River. In 2000, USBR, EBMUD, and Sacramento region parties reached an agreement to modify the contract and develop a joint water supply intake on the Sacramento River, rather than the American River. This agreement led to the construction of the Freeport Project, discussed in Section 1.4.4.

In 2006, EBMUD signed a Long-Term Renewal water service contract with USBR that modified its original contract for CVP supplies. The contract provides for delivery of up to 133,000 AF in a single qualifying dry year, not to exceed a total of 165,000 AF in three consecutive qualifying dry years and is subject to Municipal and Industrial (M&I) Water Shortage Policy which outlines how it will allocate water during years when there is insufficient water to meet all CVP contractor requests. Section 2.2 of the Water Shortage Contingency Plan – Attachment 1 provides more detail on this topic. Qualifying years when EBMUD is entitled to request CVP deliveries under the contract are those in which EBMUD's total stored water supply is forecast as of March 1, updated monthly through May 1, to be below 500 thousand acre-feet (TAF) on September 30 of that year. Because EBMUD relies on CVP deliveries during dry and critically dry periods, the CVP supply constitutes a critical component of EBMUD's water supply reliability. EBMUD exercised its contract during the 2014-2015 and 2020-2022 drought periods; and Table 1-5 lists the CVP deliveries during those drought periods.

On February 28, 2020 the EBMUD signed a contract with US Bureau of Reclamation (USBR) which "converted" its 2006 Long-Term Renewal water service contract to a Permanent Repayment contract pursuant to the 2016 Water Infrastructure Improvements for the Nation (WIIN) Act. The Permanent Repayment contract superseded the 2006 contract and removed the requirement to periodically renew the contract while retaining the other essential water service terms and conditions. Conversion to a permanent repayment contract was intended to protect EBMUD's water supply reliability from the uncertainty of regulatory requirements that may exist in

Figure 1-4

EBMUD and Regulatory Agencies

Pardee Dam & Reservoir

Rainfall and snowmelt from the Sierra Nevada provide about 90 percent of the water supply for EBMUD's East Bay customers. Pardee Dam is the tallest dam in the EBMUD water storage system and collects rain and snow from the Mokelumne River watershed. When it was built in 1929, it was the largest concrete dam in the world. Today, it stands not just as a vital piece of infrastructure, but also as a symbol of the innovative and forward-thinking strategies EBMUD has relied on for a century to provide clean, safe drinking water to its customers and protect the environment.

Curved Concrete Gravity Dam
Crest Elevation: 581.5 ft above local datum (top of upstream parapet wall)
Crest Length: 1,337 ft
Height: 345 ft above stream bed
Width: 16 ft at crest
239 ft at base
Volume: 617,000 cubic yards (concrete)

Camanche Dam & Reservoir

Camanche Dam allows EBMUD to manage water flows to minimize floods and meet downstream water rights and environmental obligations on the lower Mokelumne River. Its reservoir is a cherished body of water for recreation. It also is the site of an historic fossil discovery, indicating that the Mokelumne River watershed has served as a watering hole for millions of years.

Zoned Earth Dam with Impervious Core
Construction Completed: 1964
Crest Elevation: 263 ft
Crest Length: 2,640 ft
Height: 171 ft above stream bed
Width: 34.5 ft at crest
750 ft at base
Volume: 3,700,000 cubic yards (earth fill)

year 2046, when the 2006 Long-Term Renewal water service contract would have expired[2].

Transfer Water

EBMUD seeks to identify and secure other sources of secondary supply that may be purchased in dry years through water transfers. During 2014-2015 and 2021-2022, EBMUD purchased transfer water to supplement Mokelumne, local, and CVP water supplies. Transfer water was delivered to EBMUD's service area via the Freeport Regional Water Project. EBMUD's transfer efforts were directly related to the need to backstop actual and anticipated shortfalls in CVP water supplies as drought conditions persisted during the multi-year droughts. Transfer water is now assumed part of EBMUD's base supply for modeling long-term supply-demand analysis.

Since the 2020 UWMP, EBMUD has made additional progress pursuing three opportunities for long-term water transfer arrangements. These potential long-term water transfer projects are at various stages of development. In the meantime, EBMUD has secured permits and approvals and implemented short-term one-year water transfers from Placer County Water Agency and other sources during past droughts. Chapter 4 provides detailed information on water transfer and agreements.

1.4.4 Water Supply Infrastructure

EBMUD's water system consists of a network of dams, terminal reservoirs, aqueducts (pipelines), water treatment plants (WTP), pumping plants, and other distribution facilities and pipelines that convey Mokelumne River water from Pardee Reservoir to EBMUD customers. EBMUD's facilities and operations are regulated by numerous local, state, and federal agencies, as illustrated in Figure 1-4. Each of these facility types are deemed to be Critical Infrastructure/Key Resource facilities, by the United States Department of Homeland Security. The dams under federal and state jurisdiction are classified as high hazard and extremely high hazard, respectively, due to the potential catastrophic loss of life and property in the event of a dam failure.

Pardee Dam & Reservoir

Pardee Dam and Reservoir are located approximately 26 miles east-northeast of Lodi, California, near the Town of Valley Springs. Pardee Dam, constructed in 1929, is a concrete gravity arch structure rising 345 feet above the riverbed. Pardee Reservoir is created by three structures (Pardee Dam, the Pardee South Spillway, and the Jackson Creek Spillway and West End Dike), has 37 miles of shoreline, a surface area of 2,260 acres, and a capacity of 203,795 AF at spillway crest elevation (permitted quantity is 209,950 AF). The Pardee Powerhouse[3], located at the base of the dam, was placed in service in 1930 and generates an average of approximately 95,000 megawatt-hours (MWh) of electric energy annually based on data from 1983 to 2024. Releases for water supply are made though an outlet tower south of the left abutment of Pardee South Spillway.

Pardee Reservoir is used principally for EBMUD's municipal water. Secondary uses include power generation; source supplies for Jackson Valley Irrigation District; recreation for the public; and protection and enhancement of the lower Mokelumne River ecosystem and fishery resources.

Camanche Dam & Reservoir

Camanche Dam is located on the Mokelumne River, immediately downstream of Pardee Dam, and about 14 miles east-northeast of Lodi, California. Camanche Dam, constructed in 1964, is a zoned earthen structure. Camanche Reservoir has 63 miles of shoreline, a surface area of 7,800 acres, and a capacity of 417,120 AF at spillway crest elevation (permitted quantity is 431,500 AF). The 9.45-MW Camanche Powerhouse (based on generator nameplate capacity), located at the base of the dam, was placed in service in 1983 and generates an average of approximately 30,000 MWh of electric energy annually based on data from 1983 to 2024. Camanche Reservoir also provides a variety of different recreation opportunities.

Pardee and Camanche reservoirs operate in tandem, and at times when Camanche Reservoir

2 The United States Bureau of Reclamation's approval of conversion of several CVP contracts to permanent repayment contracts, including EBMUD's contract, has been challenged in pending litigation.

3 Pardee Powerhouse includes three units for a total installed capacity of 23.6 megawatt. In 2013, Pardee units 1 and 2 received a supplemental nameplate, which changed the total installed capacity for all three units to 28.6 MW.

Table 1-6 EBMUD Water Supply System Characteristics

Aqueduct Data		
	Gravity Flow	Pumped Flow
Maximum Capacity Total[1]	202 MGD	325 MGD
Aqueduct 1 (65-inch)	41 MGD	67 MGD
Aqueduct 2 (67-inch)	54 MGD	87 MGD
Aqueduct 3 (87-inch)	107 MGD	172 MGD

NOTE:
1 Aqueduct capacity is dependent on Pardee elevation. Higher flow rates (up to 325 MGD maximum capacity) require pumping at the Walnut Creek Pumping Plant.
MGD = million gallons per day

Table 1-7 Water Treatment Plant Permitted Capacities

Water Treatment Plant	Permitted Capacity (MGD)[1]
Orinda WTP	175
Walnut Creek WTP	115
Lafayette WTP	35
Sobrante WTP	60
San Pablo WTP	50
Upper San Leandro WTP	60

NOTE:
1 Refers to permitted capacity issued by the State Water Resources Control Board (SWRCB) Division of Drinking Water. However, the actual treatment capacity may vary depending on raw water quality, season and other factors

is full, the waters from Camanche Reservoir back up within 1,500 feet of the downstream toe of Pardee Dam. Camanche Reservoir is operated jointly with Pardee Reservoir to maintain numerous downstream obligations, which include stream flow for fisheries and riparian habitat, flood control, and obligations to downstream diverters.

Mokelumne Aqueduct System

Raw water from Pardee Reservoir is conveyed approximately 90 miles to EBMUD WTPs and terminal reservoirs through the Pardee Tunnel, the Mokelumne Aqueducts, and the Lafayette Aqueducts. Water flowing by gravity from Pardee Reservoir takes 30 to 50 hours to reach EBMUD's service area. The Pardee Tunnel is a 2.2-mile, 8-foot-high horseshoe structure that was constructed in 1929. The Mokelumne Aqueducts (see Table 1-6 for pipeline characteristics) are comprised of three 82-mile-long pipelines that transport water from the end of Pardee Tunnel in Campo Seco to Walnut Creek at the east end of the two Lafayette Aqueducts. The Mokelumne Aqueducts have a total design capacity of approximately 200 MGD by gravity flow and up to 325 MGD with pumping at the three Walnut Creek Raw Water Pumping Plants.

Lafayette Aqueduct System

The Lafayette Aqueduct system is a mix of reinforced concrete cylinder pipe, cast-in-place concrete pipe, steel pipe, and tunnels. Lafayette Aqueduct No. 1 was constructed in 1926 and Lafayette Aqueduct No. 2, a parallel set of pipes and tunnels, was constructed in 1963. The system has undergone repairs and realignments (for example, during the construction of Highway 24) over the years.

Lafayette Aqueduct No. 1 is a 2.9-mile long, 108-inch, cast-in-place, horseshoe-shaped pipe and approximately 4.5 miles of three tunnel reaches (Walnut Creek, Pleasant Hill and Lafayette). It has been in near-continuous service since it was placed in service in 1929.

Lafayette Aqueduct No. 2 is a 2.9-mile long, 108-inch, mortar lined and coated pipeline (MLCP) that was placed in service in 1963. The aqueduct has been in continuous service since 1963. Lafayette Aqueduct No. 2 includes approximately 4.8 miles of seven tunnel reaches along its alignment between Walnut Creek and Orinda Water Treatment Plant (Walnut Creek, Pleasant Hill, Lafayette Tunnels, Brown, Oak Hill, Dolores and Burton).

The Lafayette Aqueducts supply Orinda, Walnut Creek and Lafayette WTPs. All the Mokelumne Aqueduct flows under gravity and pumped conditions can be conveyed by Lafayette No. 2 Aqueduct.

Water Treatment Infrastructure

EBMUD has six WTPs located in its service area. Three of the WTPs are conventional treatment plants that use flocculation, sedimentation, filtration, and disinfection to treat water. Two of these plants, Sobrante and Upper San Leandro, also have ozone and peroxide for taste and odor control. The three inline WTPs have a simpler treatment process consisting of coagulation, filtration, and disinfection. All the WTPs meet and exceed California and federal drinking water regulations.

The three conventional WTPs – Upper San Leandro, San Pablo, and Sobrante – treat water from EBMUD's terminal reservoirs. These three plants serve the northern and

Table 1-8 Total System Storage, Total Operational Storage, and Terminal Reservoir Water Sources

Upcountry Reservoirs		Operational Storage Capacity (Acre-Feet)	Gross Storage Capacity (Acre-Feet)	Spillway[2] Elevation (Feet)
Pardee		188,208	203,795	567.7
Camanche		416,696	417,120	235.5
Terminal Reservoirs	**Water Sources**			
Briones	Mokelumne Aqueducts, Bear Creek	58,941	58,961	576.1
USL	Mokelumne Aqueducts, San Leandro Creek and tributaries	25,421	38,921	460
San Pablo	Mokelumne Aqueducts, San Pablo Creek, Bear Creek, and Briones Reservoir	31,049	37,349	313.7
Chabot	Mokelumne Aqueducts, San Leandro Creek, Upper San Leandro Reservoir, and Miller Creek	7,194	10,370	227.3
Lafayette	Lafayette Creek[1]	4,200	4,250	449.2

NOTE:
1 The raw water line for the Mokelumne Aqueducts was disconnected from the reservoir in 1971.
2 Spillway crest elevations for upcountry reservoirs are based on local datum whereas terminal reservoirs are based on NGVD29.

southern parts of the EBMUD distribution system west of the Oakland-Berkeley Hills.

The three inline WTPs – Walnut Creek , Lafayette, and Orinda receive water directly from Pardee and Briones Reservoir. Walnut Creek WTP and Lafayette WTP serve primarily the area east of Oakland-Berkeley Hills; Orinda WTP serves primarily the central parts of the area west of the Oakland-Berkeley Hills. Orinda WTP can serve all the west-of-hills during the winter months. Figure 1-2 illustrates EBMUD's water supply system.

The San Pablo WTP is typically out of service, except when needed to support construction outages of other facilities or other unusual circumstances. It was last utilized in 2015 to support EBMUD's drought operations. In the past, EBMUD was restricted to treating CVP and transfer water in the conventional Upper San Leandro and Sobrante WTPs. In 2015, EBMUD's drought operations necessitated processing a higher rate of CVP and transfer water, thus in addition to bringing the conventional San Pablo WTP online, EBMUD obtained a one-time approval from the SWRCB Division of Drinking Water to treat CVP and transfer water at the inline WTPs. These dry year secondary supplies were delivered directly to Walnut Creek WTP and to Briones Reservoir. In 2021 and 2022, secondary supplies were also delivered to the San Pablo and Upper San Leandro reservoirs to be treated at the Sobrante and Upper San Leandro WTPs. Table 1-7 provides the permitted capacities of the six WTPs.

East Bay Water Supply Reservoirs

There are five local water supply reservoirs (referred to as the terminal reservoirs): Briones, Chabot, Lafayette, San Pablo, and Upper San Leandro (USL). The terminal reservoirs serve multiple functions including:

- regulating EBMUD's Mokelumne River supply in winter and spring;
- augmenting EBMUD's Mokelumne River water supply with local runoff;
- providing emergency supply during extended drought or in the event of interruption in Mokelumne River supply delivery;

- providing local supply during high turbidity events in Pardee Reservoir;
- providing recreational benefits to East Bay communities; and
- providing some stream flow regulation.

Of the five terminal reservoirs, only Briones, San Pablo, and Upper San Leandro provide water supply throughout the year to EBMUD customers; Chabot and Lafayette are not connected to the potable water distribution system but are available as emergency standby supplies in severe situations. Chabot and Lafayette reservoirs are primarily used for recreation (e.g., fishing, canoeing, hiking, jogging, bicycling, picnicking, walking, and nature observations) while Chabot also provides untreated water supply to two golf courses. Chabot can receive water from USL and local runoff while Lafayette can only be filled with local runoff.

Total System Storage and Total Operational Storage

Total Operational Storage (TOS) is the water supply volume accessible during standard operations. The TOS provides the most accurate reflection of total water supply available to meet the various demands on the system. TOS is a result of taking the Total System Storage (TSS), which is the sum of all reservoir volume capacities, while excluding inaccessible volumes. Inaccessible volumes include dead or inactive storage; storage in reservoirs only to be used in extreme emergencies (i.e., Chabot and Lafayette reservoirs); and storage in reservoirs that is reserved for environmental releases (i.e., JSA requirements, gainsharing water).

Dead or inactive storage refers to a portion of the reservoir storage capacity in which water cannot be drained by gravity through a dam's outlet works, spillway, or treatment plant intake structures. Dead storage may also occur when sedimentation occupies space in a reservoir, thereby decreasing the available reservoir capacity for water. Since dead storage is inaccessible, it is always excluded from the EBMUD TOS.

As noted earlier, both Chabot and Lafayette reservoirs can be used as potential water sources during extreme emergency conditions but only after significant investment of resources; therefore, those storage capacities are inaccessible under current normal operations and as such, are excluded from EBMUD TOS.

Under the 1998 Lower Mokelumne River Joint Settlement Agreement (JSA), EBMUD agreed to increase instream flows beyond what is otherwise required by the JSA by an amount equal to 20 percent of the actual yield of additional water supplies developed by EBMUD from new facilities, up to a maximum of 20 TAF[4]. This additional water supply is referred to as "gainsharing" water which represents flows dedicated solely for the benefit of ecosystem enhancement; releases and schedules of gainsharing water are determined by fishery resources agencies. Since the JSA-required gainsharing water is already earmarked for ecosystem enhancement, the volume of these prescribed flows is not considered accessible to meet water demands in service area and as such is excluded from EBMUD TOS.

The maximum TOS amounts to approximately 720,000 AF. Table 1-8 presents the TOS volumes.

Distribution Facilities

After the water is treated at the WTPs, it is distributed throughout EBMUD's service area, which is divided into 120 pressure zones ranging in elevation from sea level to 1,450 feet. Approximately 60 percent of treated water is distributed to customers purely by gravity. The water distribution network includes over 4,200 miles of pipe, 133 pumping plants, and 170 water distribution reservoirs.

Water distribution reservoirs have a total capacity of 610 million gallons. The reservoirs, which are typically enclosed tanks, are sized to meet the estimated water service requirements of EBMUD's customers, including projected future water demands and fire flows. The tanks are located to provide the most effective water distribution to meet local needs, while simultaneously considering issues related to water quality, geology, seismic risk, land availability, environmental impact on the surrounding

4 Provisions of the JSA require, when supplemental supplies are acquired from 'new facilities, or conjunctive use projects, that 20 percent of the actual yield of additional water supplies, up to 20 TAF, be made available for fisheries flow releases downstream of Camanche Dam once during each drought sequence. Gainsharing water may only be used once during any drought sequence.

community, topography, customer elevation, economics, and conservation of hydraulic energy.

Freeport Regional Water Project

The Freeport Regional Water Authority (FRWA) is a joint powers agency created by EBMUD and the Sacramento County Water Agency (SCWA) in 2002 to implement the development of the Freeport Regional Water Project. The Freeport Project is used by SCWA to deliver water year-round, has been used by EBMUD to deliver water during drought periods, as illustrated in Figure 1-2, and includes the following facilities:

- A 185-MGD water intake and pumping plant (with state-of-the-art fish screens) on the Sacramento River upstream of the town of Freeport;
- A pipeline, sized at various points from 72" to 84", that transports water eastward from the Sacramento River to both the existing Folsom South Canal and to SCWA's Vineyard Water Treatment Plant; and
- Approximately 20 miles of 72-inch diameter pipeline and two inline 100 MGD pumping plants that transport water from the southern end of the Folsom South Canal to EBMUD's Mokelumne Aqueducts.

Chapter 2 – Water Supply System Reliability

2.1 Vulnerabilities in the Water Supply System

EBMUD's water supply and distribution system is vulnerable to a range of environmental, structural, and operational factors:

- Environmental Stressors: Drought, climate variability, and watershed disturbances (e.g., wildfires, storms, landslides) can reduce water availability and impair source water quality, particularly through elevated turbidity.
- Infrastructure Vulnerabilities: The Mokelumne Aqueducts are susceptible to damage from levee failures in the Delta region, especially during seismic or flood events. Golden mussels, first detected in California in 2024, pose a significant threat to EBMUD's water infrastructure and ecosystems, due to its rapid reproduction and ability to clog pipes and pumps.
- Security Risks: Federal agencies have identified terrorism as a potential threat to the integrity of major water systems, including EBMUD's.
- Operational Disruptions: Reliability may be compromised by treatment challenges, contamination events, scheduled maintenance outages, distribution capacity constraints, and widespread power failures.
- Emergency Events: Civil disturbances and other large-scale emergencies such as earthquakes can further disrupt system operations.
- Regulatory Constraints: Changes to state and federal laws, licenses, permits, and contractual agreements when operating EBMUD's water supply system.

These risks highlight the need for comprehensive planning, infrastructure resilience, and adaptive management to ensure continued reliability of water service.

EBMUD has invested in strengthening its infrastructure by installing large and small emergency interties with adjacent water agencies, structurally strengthening key facilities, replacing deteriorating pipes and tanks, creating and maintaining a comprehensive Emergency Operations Plan, and maintaining mutual aid agreements which will support water supply reliability during water system failures.

America's Water Infrastructure Act of 2018

The Safe Drinking Water Act was amended in 2018 with the addition of the America's Water Infrastructure Act of 2018, which required community water systems serving more than 3,300 people to develop risk and resilience assessments (RRAs) and emergency response plans (ERPs), and to update them on a five-year renewal cycle. EBMUD is in compliance with these requirements and completed the most recent updates to its RRA and ERP (EBMUD's Emergency Operations Plan) in 2025, with certification of completion submitted to the Environmental Protection Agency.

The RRA evaluates the vulnerabilities, threats, and consequences from potential "all-hazards" (both malevolent acts and natural hazards) approach to EBMUD's water system. EBMUD used the industry standard J-100 process to conduct the assessment and evaluation of the resilience of the system. The findings of the assessment factors into decisions to assess actions to improve resilience of the system to lessen the impact of the identified potential hazards.

2.1.1 Hydrologic Variability

Northern California's water resources, including EBMUD's, have historically been stressed by periodic drought cycles. During multi-year droughts, supplies of water available to EBMUD's customers have been significantly diminished. Figure 2-1 illustrates the variability in runoff in the Mokelumne watershed since 1929.

Annual snowfall amounts and runoff are naturally variable and that is likely to continue in the future. Natural hydrological variability is hard to predict; hence, there are many sources of uncertainty associated with water supply reliability from year to year. EBMUD has in place policies and procedures to forecast and adaptively manage operations as well as contingency plans to handle water shortage situations. Attachment 1 - Water Shortage Contingency Plan (WSCP) includes the details of EBMUD's drought management program and provides an assessment of the reliability of water service for EBMUD customers during normal years, single dry years, and multiple dry year periods.

2.1.2 Climate Change

EBMUD is undertaking a comprehensive climate change analysis to inform its long-term water resources planning. This effort builds upon the insights from the previous climate assessments conducted for the 2020 UWMP by incorporating a broader range of climate projections and addressing a more comprehensive spectrum of uncertainty. The current initiative aims to advance beyond conventional modeling approaches by applying a risk-based methodology that stress-tests the water system across a wide range of plausible future scenarios.

The goal of the current analysis is to evaluate the vulnerability of EBMUD's water supply system to climate change and identify adaptation strategies that enhance resilience and reliability. The analysis will incorporate advanced climate science, hydrologic modeling, and decision-scaling[1] techniques to assess system performance under varied conditions. Key performance metrics categories such as water supply, water quality, environmental, and flood control will be used to quantify risk and guide planning decisions.

Preliminary analysis is included in this UWMP and findings from the complete analysis will be published in the 2030 UWMP and will inform EBMUD's WSCP. The work will provide EBMUD with a robust framework for climate-informed decision-making and long-term water resource stewardship.

2.1.3 Regulatory Constraints

EBMUD's water supply system operating goals and objectives must conform to state and federal law, to State Water Resources Control Board (SWRCB) Orders and Decisions, Court Decisions, Federal Energy Regulatory Commission (FERC) Licenses and Orders, and various water right licenses, permits, and contractual agreements. EBMUD is obligated to meet multiple operating objectives, including providing municipal water supply, stream flow regulation, fishery/public trust interests, recreation, hydropower generation, flood control, temperature management, and release obligations to downstream diverters.

Water Rights

EBMUD holds two municipal water rights on the Mokelumne River allowing it to divert up to 325 million gallons per day (MGD) for use within its USB. As described in Chapter 1, EBMUD's ability to use its full entitlement of Mokelumne River water is constrained by various regulatory requirements and the terms and conditions set forth in the state-issued water right licenses and permits that grant EBMUD the right to serve its customers from the Mokelumne River. Although EBMUD's water supply system was designed and constructed to deliver 325 MGD, EBMUD's ability to exercise its water rights is affected by other Mokelumne River water users with water entitlements that are senior to those held by EBMUD, as well as EBMUD's ability to store water, and the amount of Mokelumne River runoff.

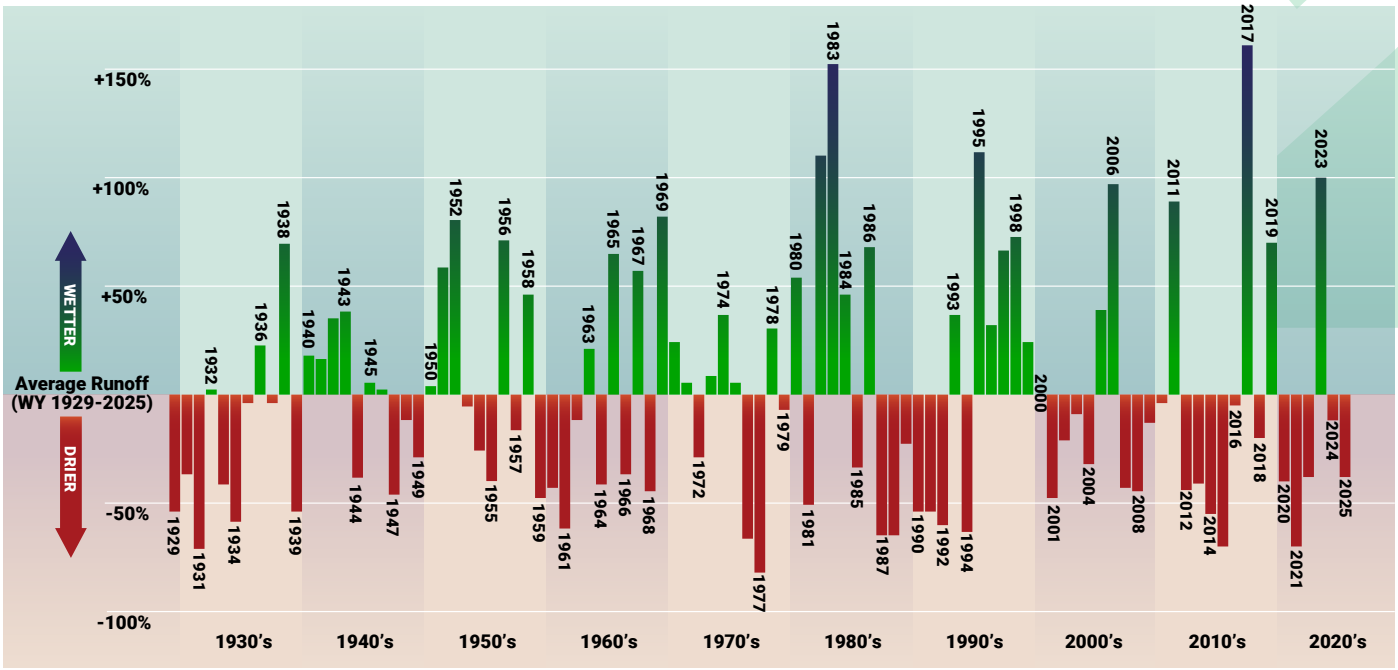
During severe droughts, EBMUD's water rights can also be curtailed by the SWRCB. In the 2012-2015 and 2020-2022 droughts, the SWRCB issued Notices of the Unavailability of Water Supply for diversions based on a water priority date. During these curtailment periods, EBMUD was restricted from diverting or storing the natural river flow during the spring and summer subsequent to the notice, until the curtailment notice was lifted by the SWRCB in late fall. During the curtailment periods, EBMUD relied on water that was previously stored and imported secondary water supplies to maintain water delivery to its service area.

Federal Hydropower License

FERC, which regulates hydroelectric generating facilities, issued a license for the Lower Mokelumne River Project 2916 on March 3, 1981, for 50 years, expiring on March 10, 2031. This license includes provisions, terms, and conditions for Pardee and Camanche reservoirs and dams. The license also includes terms for operations related to dam safety, public safety, recreation use, and environmental protection. Under the FERC license and through an agreement with United States Fish and Wildlife Service and California Department of Fish and Wildlife, referred to as the Joint Settlement Agreement (JSA), EBMUD releases flows to the lower Mokelumne River to

1 Decision scaling, also called a "stress test", is a way to see how a system reacts under different conditions. It works by adjusting external factors or uncertainties to identify which ones or which combinations could cause the system to become unstable. This helps identify vulnerabilities and the points where problems start. From this, can get the scenarios that are important for decision-making and guide any further scientific analysis. *https://websites.umass.edu/hydrosystems/xwhat-is-decision-scaling/*

Figure 2-1 Variability in Mokelumne Watershed Runoff 1929–2025



improve water quality, flow regimes, and local physical habitat for the benefit of the river's fish populations and riparian zones. Additional efforts to improve the health of the river ecosystem have been implemented through the Water Quality and Resource Management Program (WQRMP). The WQRMP includes a comprehensive monitoring and applied research program integrated with a well-coordinated program to adaptively manage water and power supply operations, flood control, hatchery operations, and ecosystem rehabilitation actions.

EBMUD is seeking the renewal of its FERC license to continue operating the hydropower facilities and has initiated relicensing process by filing the Pre-Application Document and the Notice of Intent in October 2025 (https://www.ebmud.com/MokRelicense). At the conclusion of the relicensing process, FERC is expected to issue a license with conditions that continue to balance different beneficial uses such as water supply, flood control, power generation environmental benefits, recreation, and protection of tribal and cultural resources. During relicensing, new license conditions may be imposed to address environmental, recreational, and habitat requirements. These conditions can alter reservoir operations by:

- Changing flow release requirements to support fish and aquatic habitat
- Mandating minimum reservoir levels for recreation or ecological purposes
- Introducing new compliance obligations

The relicensing process typically spans several years and involves significant engagement with interested parties, creating uncertainty in future water availability and operational rules. This uncertainty can complicate long-term planning and investment decisions. Additionally, new license conditions may require capital improvements or operational changes that could affect water supply reliability.

Bay-Delta Water Quality Control Plan

The California SWRCB is responsible for updating the Water Quality Control Plan (WQCP) for the San Francisco Bay and San Joaquin/Sacramento River Delta that identifies and protects beneficial uses of the watershed. The SWRCB began its current update of the Bay-Delta WCQP in 2009, splitting the process into two phases: Phase 1 covered the San Joaquin River and Southern Delta salinity standards, and Phase 2 focused on the Sacramento River and east-side tributaries, including the Mokelumne River.

The Phase 2 amendments propose new water quality objectives and flow requirements. The draft Plan released December 12, 2025 includes two pathways for compliance: a flow only approach based on a 55% unimpaired flow requirement, and an alternative for participants of the Voluntary

Agreements (also known as the "Healthy Rivers and Landscapes Program). The SWRCB's modeling showed that the 55% unimpaired flow requirement would result in substantial and recurring water supply shortfalls for EBMUD. EBMUD is a signatory to the Voluntary Agreements, which includes a combination of flow and non-flow measures such as targeted reservoir releases, habitat restoration, and water purchases to achieve ecological goals while preserving water supply reliability. EBMUD has submitted formal comments and draft legal agreements in support of the Voluntary Agreements and continues to collaborate with other interested parties and state agencies. The SWRCB is expected to release final documents and adopt the Plan for Phase 2 in fall 2026.

2.1.4 Water Supply Quality

EBMUD provides safe, reliable high-quality drinking water to its customers, consistently meeting or surpassing state and federal health standards. Internal water quality goals are more stringent than regulatory requirements, and EBMUD uses these to guide operations to ensure regulatory compliance.

Mokelumne River Water Supply

EBMUD's primary water supply comes from snow and rainfall in the largely undeveloped Upper Mokelumne River Watershed, which has minimal exposure to contaminants such as agricultural runoff, urban stormwater, or municipal wastewater. Raw water in all EBMUD reservoirs meets primary drinking water standards, which are health-based, except for turbidity, microbial constituents, and—occasionally—aluminum (a component of common dirt). The raw water also meets most secondary standards, which address aesthetic qualities, with the only exceptions being seasonal iron and manganese, as well as aluminum (which has both primary and secondary standards). All these constituents are reliably removed at all EBMUD water treatment plants (WTPs).

Algae occur naturally in surface waters. Some species, especially blue-green algae, produce taste- and odor-causing (i.e., taste and odor (T&O)) compounds; others can clog filters and reduce WTP capacity. The terminal reservoirs in the East Bay generally have higher nutrient concentrations than Pardee Reservoir, making them more susceptible to algal blooms. Upper San Leandro (USL) and Sobrante WTPs, which treat water from USL and San Pablo Reservoirs, respectively, are equipped with ozone and peroxide systems that can remove T&O compounds. In rare cases, blue-green algae can produce cyanotoxins that pose public health risks. EBMUD monitors cyanotoxins whenever blue-green algae levels are elevated and has never detected them at the water supply intakes.

To help prevent severe algal blooms, USL Reservoir has long used a hypolimnetic oxygenation system (HOS) to add oxygen to bottom waters, reducing the release of nutrients, manganese, and other compounds from sediments. A new HOS began operating at San Pablo Reservoir in 2024, and an HOS installation is planned within the next decade at Briones Reservoir.

Impact of Climate Change on Water Quality

Increasingly variable weather, with heavier storms and longer droughts, poses growing challenges. The winters of 2017 and 2023 were among the ten wettest on record for the Mokelumne Watershed, each following soon after multi-year droughts. Atmospheric river events during those years washed large amounts of sediment, organic matter, and other contaminants into the Mokelumne River. High turbidity sharply reduced the capacity of inline filtration WTPs, which treat water directly from Pardee Reservoir. In 2017, EBMUD had to shut down the Mokelumne Aqueducts and rely entirely on Briones, USL, and San Pablo Reservoirs for several months; in 2023, USL WTP needed to be brought online mid-construction to supplement water supply for several weeks.

These storms also caused temporary increases in disinfection byproducts (DBPs)—regulated compounds formed when chlorine reacts with natural organic matter. Pardee Reservoir normally has low organic content, but the storm-introduced material was more reactive than usual. Inline filtration WTPs cannot effectively remove dissolved organic matter, leading to short-term DBP increases. No drinking water standards were exceeded, and levels returned to normal within months.

Wildfire remains EBMUD's greatest water quality concern. The Electra Fire in July 2022 and the Butte Fire in September 2015 both burned the same area of the Upper Mokelumne River Watershed, though neither caused major water quality impacts. Still, runoff from a higher-intensity fire could carry ash, debris, and loosened soil with elevated metals, nutrients, and other contaminants into the

Table 2-1 Significant Bay Area Earthquakes

Year	Fault	Richter Magnitude
1836	Hayward	6.75
1838	San Andreas	7.0
1865	San Andreas	6.5
1868	Hayward	7.0
1892	Undetermined	6.5
1898	Undetermined	6.5
1906	San Andreas	8.25
1911	Calaveras	6.5
1989	San Andreas	7.1
2014	West Napa	6.0

reservoir. Details on how EBMUD and its partners are working to improve wildfire resilience in the Upper Mokelumne River Watershed and protect water quality are provided in Section 2.1.7.

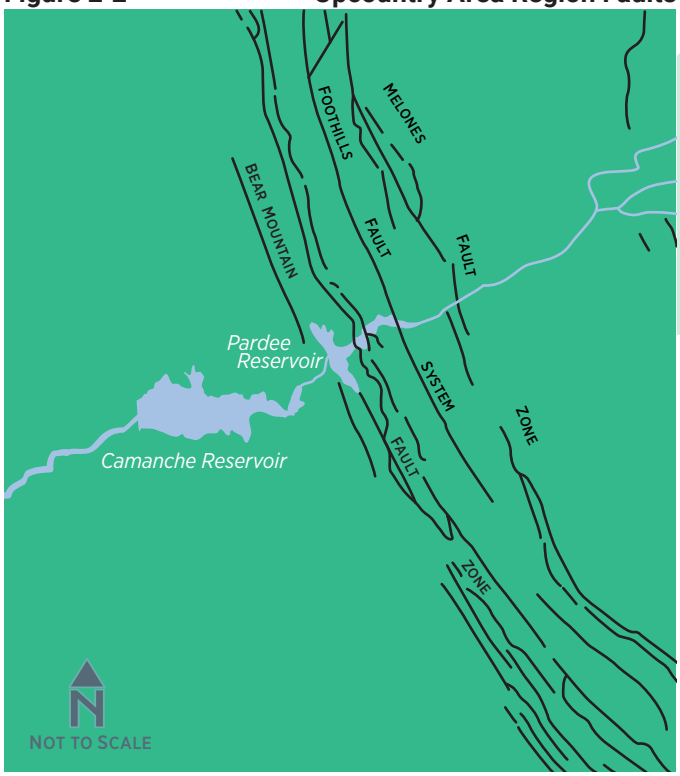
To prepare for potential disruptions to Mokelumne River supplies, East Bay terminal reservoirs are maintained with up to 180 days of standby storage at reduced consumption. Briones Reservoir can supply the inline WTPs, while San Pablo and USL Reservoirs supply the conventional WTPs.

Over the past decade, unplanned events have underscored the need for planning, adaptability, and resilience. EBMUD is upgrading WTPs with improvements designed to withstand future extreme weather and natural disasters. These projects are in various stages of planning, design, and construction, with completion expected within the next 15 years. Additional details on the WTP Improvement Projects are provided in Section 2.2.1.

Sacramento River Water Supply

Sacramento River water quality is highly variable and can require additional treatment compared to water from Pardee Reservoir. Turbidity can be very high, though much of the turbidity settles out as the water travels slowly through the Folsom South Canal (FSC) as part of EBMUD's diversion. Algae can also grow in the FSC, degrading water quality. On average, Sacramento River water has higher concentrations of turbidity, organic carbon, taste and odor causing compounds, nutrients, and various inorganic constituents, compared to Pardee water. Sacramento River water supply also has the potential to introduce invasive species, not present in the Pardee water supply, including vegetation,

Figure 2-2 Upcountry Area Region Faults



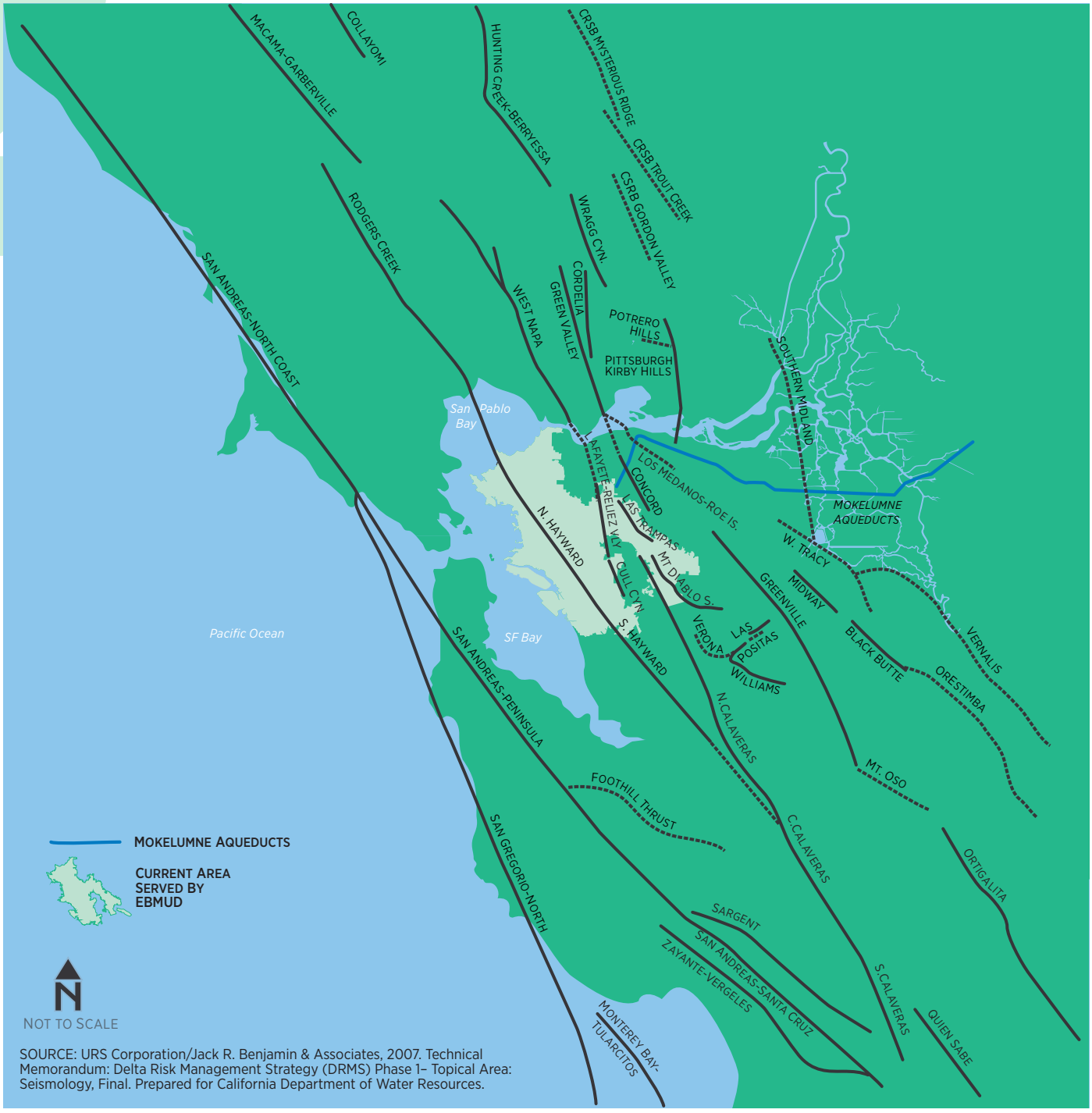
fish and invertebrate species, like Golden mussels, that could pose risks to EBMUD's water supply.

2.1.5 Earthquakes

Seismic events pose a significant threat to the delivery of water in the San Francisco Bay Area. Within or near EBMUD's service area, several faults pose varying degrees of risk to the water distribution system and to the Mokelumne Aqueducts in the Delta area. These faults include the San Andreas, San Gregorio, Rodgers Creek, Hayward, Calaveras, Concord, Antioch, Greenville, Mt. Diablo Thrust, Midland, and others, as depicted in Figure 2-3. The most significant seismic threat comes from the Hayward Fault. See Table 2-1 for a list of significant earthquakes that have occurred in the Bay Area since 1836.

In addition to the faults located in EBMUD's USB and aqueduct rights-of-way, EBMUD's Mokelumne River facilities are also located in a seismically active area. In 2020, EBMUD completed a study that evaluated the surface-fault rupture and seismic hazard posed by faults within the Foothills Fault System near Pardee Dam. Two faults were classified as "inactive" per state criteria (no fault rupture in the past 35,000 years), and five of the faults were classified as either active or conditionally active. However, that

Figure 2-3 **San Francisco Bay Area Region Faults**



SOURCE: URS Corporation/Jack R. Benjamin & Associates, 2007. Technical Memorandum: Delta Risk Management Strategy (DRMS) Phase 1– Topical Area: Seismology, Final. Prepared for California Department of Water Resources.

probabilistic fault rupture hazard analysis concluded that the surface fault rupture displacement hazard to Pardee Dam is very low to negligible. Seismic hazard analysis parameters were developed based on the nearby fault sources within 10 km of Pardee Dam.

However, a seismic study in 2010 did conclude that a major earthquake on the Foothills Fault System could cause liquefaction of the tailings materials under the Camanche Main Dam embankment. The resultant deformation would likely be limited to the downstream toe area and would not affect overall dam stability nor lead to dam failure. It has also been determined that seismic activity could compromise the Mokelumne Aqueducts and their supports as they cross the Delta where the soils are subject to liquefaction, either directly or via levee failure.

2.1.6 Delta Floods

There is a long history of levee failures in the Delta, including the region where the Mokelumne Aqueducts cross the Delta. EBMUD experienced a near-catastrophic event in 1980 when Lower Jones Tract flooded and the railroad embankment adjacent to the Mokelumne Aqueducts subsequently failed, allowing floodwater to flow into Upper Jones Tract. This event nearly undermined the Mokelumne Aqueduct supports in the area.

In June 2004, a structural failure in the levee at the Upper Jones Tract 1.5 miles south of the Mokelumne Aqueducts caused a levee breach. The resulting flood submerged about 5.25 miles of the elevated Mokelumne Aqueducts for several months while the island was being drained. Nevertheless, the Mokelumne Aqueducts remained in full operation the entire time. Subsequent investigation of the damage concluded that the aqueducts and their supports were structurally sound while the exterior coatings of the aqueducts and the maintenance road and drainage system sustained damage. Section 2.2.1 describes improvements EBMUD made on the Delta levees.

2.1.7 Wildfires

The Mokelumne River watershed east of Pardee Dam is approximately 371,000 acres. The majority of the watershed is considered "very high" or "high" risk for wildfire due to overgrowth and historical aggressive replanting of commercial lumber trees after logging activities. EBMUD and its partners in the Upper Mokelumne River Watershed Authority (UMRWA) are implementing forest health projects that improve wildfire resiliency and protect water quality, particularly in areas along roadways where wildfires are most likely to ignite. UMRWA is leading a coalition of partners in planning and implementing projects to restore and enhance disaster resilience to Upper Mokelumne forests. Beginning in early 2022, the coalition began aggressively pursuing the two-phased Mokelumne Amador Calaveras (MAC) Forest Health and Resilience Project (formerly The Forest Projects Plan) initiative. Phase 1 implementation, including selective thinning, mastication, and fuel break construction, began in 2023 and treatment of 11,000 acres of the 26,000 acre project area have been completed. Phase 2 of the plan totals 250,000 acres, of which 144,00 acres will be treated with selective thinning, fuel break construction, and prescribed burning. Environmental documents in support of phase 2 are expected to be approved in early 2026.

On the watershed land around Pardee and Camanche reservoirs, EBMUD maintains fuel breaks and fire access roads, conducts prescribed burns for fuel reduction and range health improvement, and performs seasonal fire fuel reduction at recreation facilities open to the public. EBMUD also leases watershed land to cattle grazing operations to reduce fine fire fuels. EBMUD's wildfire management is guided by the Mokelumne Watershed Fire Management Plan developed in 2011. EBMUD also has a cooperative agreement with Cal Fire to perform fuel reduction work and conduct large scale prescribed burns for fuel reduction on the watershed in Calaveras County.

In the East Bay, EBMUD is an active member of several coalitions to address wildfire issues. These include the Hills Emergency Forum, which was formed in 1992 to provide a coordinated regional approach to urban wildland interface fires. This multi-agency coalition meets monthly to share information on wildfire, build interagency consensus on fire safety standards, develop public education strategies, coordinate multi-jurisdictional training, collaborate on grant funding opportunities, and develop and implement fuel management projects:

- West Contra Costa County Fire Safe Council formed in 2022 established to provide public education, exchange information, and promote wildfire protection and fire safety throughout Contra Costa County;
- East Bay Wildfire Coalition of Governments formed in 2024, EBMUD serves as a regional advisor to the consortium of elected officials committed to safeguarding the communities of the East Bay from wildfire; and
- East Bay Stewardship Network formed in 2025 is a coalition of land management agencies and nonprofit organizations stewarding over 270,000 acres of land in Alameda and Contra Costa counties.

In addition, EBMUD annually maintains fire roads and fuel breaks throughout its East Bay watershed lands.

2.2 Improvements to the Water Supply System

To improve the reliability of its water supply, EBMUD implements infrastructure upgrade programs and projects, maximizes resources

through continuous improvements in the delivery and transmission of available water supplies, and makes investments to ensure the safety and resilience of its existing water supply facilities.

2.2.1 Infrastructure Improvement Projects

EBMUD has developed a number of programs and projects to improve the reliability of its water supply system. These programs span all segments of the water supply system, including transmission, treatment, and distribution. Projects like the Large Diameter Pipeline Master Plan (LDPMP) and the Pipeline Rebuild Program demonstrate EBMUD's commitment to proactively replace aging infrastructure, reduce main breaks, and minimize customer service outages.

Raw Water Master Plan

In 2014, EBMUD completed a Raw Water Master Plan (RWMP) analyzing all elements of the raw water system, including upcountry reservoirs, terminal reservoirs, the Mokelumne and Lafayette Aqueducts, and associated facilities. The RWMP evaluated whether these facilities were operating as designed and identified system enhancements needed to meet future requirements. EBMUD plans to update the RWMP in 2030.

The RWMP evaluated the vulnerability of raw water system components to earthquake events and considered the potential impact of flooding of Delta islands through which the Mokelumne Aqueducts pass. Projects were identified, evaluated, and prioritized with the broad objective of sustaining and improving reliability, robustness, and operability. EBMUD has used results from the RWMP to prioritize potential projects for its capital improvement program. Specific high priority proposed projects identified in the RWMP include cement mortar lining replacement for portions of the Mokelumne Aqueducts; installation of a structural liner in Lafayette Aqueduct No. 1; implementing seismic improvements at Briones Tower; and conducting a comprehensive assessment and developing an upgrade or rehabilitation plan for the Briones Center.

Pardee Dam Powerline and Switchgear Safety Improvements Project

The Project includes improvements to an existing 7.2kV powerline located between Pardee Powerhouse and Pardee Chemical Plant in Calaveras County near Pardee Reservoir. The existing overhead powerline is undersized for the power needs of EBMUD's new Pardee Chemical Plan, and subject to shutoffs from Public Safety Power Shutoff events. Replacement of the aging infrastructure will mitigate wildfire risk and allow continuous operations. Improvements consist of upgrading circuit breakers, switchgear, replacing existing wood poles with above ground conduits that follow existing conduit alignment from the powerhouse to the Dam Gallery, a transition from above ground conduit to underground conduit towards the South Spillway, an overhead pole-mounted powerline spanning across the south spillway, a transition from overhead to underground conduit south of the spillway to Camp Pardee and the Chemical Plant, installing arc-fault protection devices, and improving access behind the powerhouse facility. The project is planned for completion in 2029.

Levee Improvements

EBMUD's Mokelumne Aqueducts are vulnerable to flooding in the Delta. Since the early 1980's, EBMUD has voluntarily contributed a total of about $20 million towards levee repairs and improvements on the five Delta islands that protect the Mokelumne Aqueducts. Levee improvements have included raising the crest at least one foot above the 100-year flood level, widening the crest, reducing levee slopes, and adding riprap to reduce wind-wave erosion.

For several years, EBMUD has worked cooperatively with the reclamation districts responsible for maintaining the levees that protect the Mokelumne Aqueducts. , EBMUD and several reclamation districts applied for and were awarded grants by the California Department of Water Resources (DWR) to assist the reclamation districts with improving the levee systems that protect EBMUD's water supply aqueducts from flood related damage. In 2011, DWR awarded grant funding totaling $35 million (85% of the share) with EBMUD providing $6.1 million (15% of the local share). A subsequent grant was awarded by DWR in 2017, following a similar cost-share structure, DWR funded $13.6 million and EBMUD provided $2.4 million.

Mokelumne Aqueducts Interconnection Project

As previously noted, the Mokelumne Aqueducts are vulnerable to seismic events and Delta

flooding. In 2007 EBMUD completed a risk-based alternative analysis and recommended short- and long-term projects to mitigate risks in the Delta. In 2014 EBMUD completed the recommended short-term mitigation through completion of the Mokelumne Aqueduct Interconnection Project which improves the reliability of EBMUD's water supply by increasing the operational control and flexibility of the raw water supply system in the event of a disaster in the Delta, and by reducing the risk of a prolonged outage. These objectives were accomplished by bypassing segments of the Mokelumne Aqueducts that may be damaged by a levee failure or seismic event. The Mokelumne Aqueducts Interconnection project installed valves, piping, and associated appurtenances on both the east and west sides of the Delta alignment to be able to isolate potentially damaged pipelines within the Delta after a flood or earthquake event.

Mokelumne Aqueducts Resiliency Project

EBMUD's recommended long-term mitigation measure for protecting its raw water supply is to construct a tunnel across the Delta. EBMUD is actively advancing the design of a deep tunnel as part of the Mokelumne Aqueducts Resiliency Project (MARP): in 2014 a feasibility level design study was completed; and in 2018 a comprehensive geotechnical investigation program was developed. In 2025, the Conceptual Engineering Report was completed, presenting the basis of design, 30 percent level design drawings, and draft Project Description. The CEQA Notice of Preparation (NOP) was issued in 2022.

Large Diameter Pipeline Master Plan

EBMUD's water transmission system within the service area includes approximately 332 miles of large diameter pipelines, defined as any pipeline 24 inches or greater in diameter. EBMUD's past approach for selecting which large diameter pipelines to replace was based solely on break history data analyses. To shift to a more proactive replacement program, EBMUD prepared the first LDPMP in 2015 and updated in 2020 to prioritize pipeline replacement or mitigation based upon a risk model. The risk model is a comprehensive, proactive method of selecting large diameter pipeline replacement projects for the Capital Improvement Program.

The LDPMP ranked each large diameter pipeline segment by calculating a risk score based on its likelihood and consequence of failure. To quantify the likelihood of failure, EBMUD evaluated criteria related to the pipeline's age, material, joint type, lining, coating, and leak history. EBMUD also considered whether the pipeline had been exposed to any hazards such as seismic activity, liquefaction, landslides, floods, tsunami, or sea level rise. When considering the consequence of failure, EBMUD's criteria included collateral damage concerns, access issues, customer impacts, and system hydraulic importance.

Water Treatment Plant Improvements

The WTP Improvements projects were developed and selected based on key number of project drivers such as replacing aging infrastructure, improving reliability, maintaining water quality, drought preparedness, and increasing WTP capacity to meet customer demands. The following projects have the highest priority:

Orinda WTP Disinfection Improvements Project

The project will improve disinfection, bring reliability up to 200 MGD, minimize disinfection byproducts (DBPs), and improve chemical dosing. The project is under construction, with planned completion in 2027.

USL WTP Maintenance Reliability Improvements

The project will replace aging infrastructure, reliably produce 60 MGD, and maximize use of Folsom South Canal Connection water during drought. The project is under construction, with planned completion in 2028.

Lafayette Center Reliability Project

The project will replace aging infrastructure, improve disinfection, reliably meet future demands, and reduce DBPs. The project is in design, with construction estimated to begin in 2027.

Walnut Creek WTP Pretreatment Project

The project will improve reliability during periods of poor water quality, increase flexibility to take drought supplies, and improve regional reliability. The project is in design, with construction estimated to begin in 2029.

Water Supply System Reliability

Pipeline Rebuild Program

Pipeline Rebuild is an initiative designed to enhance and modernize EBMUD's pipeline replacement program, ensuring a cost-effective and reliable water distribution system for customers. Launched in Fiscal Year (FY) 2015, Pipeline Rebuild introduced new workflows and innovative practices that have significantly increased EBMUD's pipeline replacement rate from 10 miles per year in FY2015 to 25 miles per year projected in FY2026. The program aims to further expand this rate to 27.5 miles annually by FY2029.

In FY2026, the Pipeline Rebuild Program will continue advancing innovative efforts by evaluating condition assessment technologies for water distribution pipelines and piloting artificial intelligence and machine learning tools to improve the selection and prioritization of future replacement projects.

Dam Safety Program

EBMUD owns and operates 23 dams. The California Department of Water Resources' Division of Safety of Dams (DSOD) provides regulatory oversight of 18 dams, 11 open-cut reservoir dams, two upcountry

Figure 2-4 **Seismic Evaluated and Retrofitted Dams**

dams and five terminal dams. Five EBMUD dams are not regulated by DSOD due to their small size. FERC has joint jurisdiction as well over the two upcountry dams, Pardee and Camanche, as they are hydropower generating facilities.

FERC requires an Owner Dam Safety Program (ODSP) for the dams within their jurisdiction with the objective of ensuring proactive risk management, accountability, and continuous improvement. In 2014, EBMUD formally adopted the Dam Safety Program in the form of Board Policy 9.07 (Appendix J) which incorporates the components of the ODSP. Policy 9.07 outlines the goals of the Dam Safety Program, which are to manage all EBMUD-owned dams in a manner that ensures dam safety, structural integrity, and operational security for the protection of life, property, and the environment.

EBMUD's Dam Safety Steering Committee (DSSC) monitors, reviews, and oversees dam safety practices and activities at all District-owned dams. The DSSC is chaired by the Director of Engineering and Construction. The DSSC's primary members are the Director of Water and Natural Resources, the Director of Operations and Maintenance, the Manager of Water Operations, , and the Manager of Engineering Services.

For consistency, EBMUD updated its existing Dam Safety Program for all of its dams and prepared a Dam Safety Program Guide that provides the framework by which EBMUD implements components of the Dam Safety Program for all of the dams that it owns and maintains. The Dam Safety Program Guide documents specific, detailed roles and responsibilities for key staff, communication protocol during dam related emergencies, and the safety training curriculum.

EBMUD proactively inspects, upgrades, and improves its dams and water supply structures as needed and in consultation with the regulatory agencies. Engineers and hydrographers monitor dams using instruments, monthly visual inspections, annual comprehensive inspections with state and federal dam safety representatives, and periodic dam safety reviews to continually monitor and assess the conditions at the dam facilities.

EBMUD reviews the safety of its dams at least every five years, integrating the latest advances in geotechnical, structural, seismic, hydrologic and hydraulic engineering along with ongoing evaluations of seepage, ground movement, and other potential concerns. EBMUD submits dam safety studies and reports to regulatory agencies, maintains emergency action plans, and performs maintenance or capital improvements as needed. Notably, all EBMUD's dams have been analyzed for seismic safety, including dams that are smaller in size and not regulated by DSOD or FERC. Detailed spillway assessments have also been performed, and EBMUD is implementing further studies and improvements at its spillways. Probable Maximum Precipitation (PMP) and Flood (PMF) studies have also been updated to the current hydrometeorological report (HMR) data for the State for EBMUD's upcountry and terminal reservoirs. However, more refinement is needed given the outdated nature of the HMR. Site specific PMP and PMF studies are planned for Pardee, Camanche, USL, and Chabot Dams to consider site-specific conditions, recent storms, and scientific advances in precipitation modeling over the past two decades since the HMR was published, including the potential impacts of climate change on the PMP.

To comply with FERC's dam safety requirements for Pardee and Camanche dams, EBMUD retains an independent consultant every five years to collaborate with the EBMUD project team in preparing a comprehensive safety inspection report. This consultant also conducts the Potential Failure Mode Analysis (PFMA) to identify, evaluate, and categorize potential failure modes. The initial PFMA for Pardee and Camanche dams was completed in 2008. Following the latest safety inspection and PFMA reports in 2023, the independent consultant confirmed that both facilities are safe for continued operation. The review also recommended refining methods, enhancing monitoring plans, and updating studies based on the latest data to ensure ongoing safe and reliable operation.

In 2022, federal dam safety regulations were updated to shift from deterministic assessments to a more modern, risk-informed framework that incorporates Risk-Informed Decision-Making. Moving forward, independent consultant safety inspections will follow a two-tiered structure, alternating between periodic inspections and comprehensive assessments every ten years, staggered by five years. By 2027, EBMUD plans to conduct a periodic inspection to evaluate the project's performance. A comprehensive assessment will follow in 2031 and 2032, for Camanche Dam and Pardee Dam respectively, involving a more

rigorous and detailed review of the project's design and construction, comparison to modern standards, techniques, and current practices.

Improvements over the last decade include the 2017 seismic upgrade of Chabot Dam, which included improvements to stabilize the dam and retrofit the outlet works. In 2018 EBMUD completed construction on the USL Reservoir Tower to install braces for seismic stability and to replace valves and controls for improved reliability. The seismic upgrades of Briones Tower were completed in 2024 to add reinforcement to the upper portion of the tower, add a debris catcher to protect the reservoir drain valves, and add remote valve operation to improve emergency response time. A seismic safety upgrade of Lafayette Tower and conduits has been designed with construction planned in 2026-2027. The upgrades include lowering the height of the tower, strengthening the outlet conduits, and adding onshore valve operation to improve emergency response time. In 2020 EBMUD issued a report concluding that the Waters Peak Fault at Pardee Dam is inactive according to DSOD criteria, a technical memorandum showing that Pardee Dam meets or exceeds acceptable factors of safety for seismic sliding, and a technical memorandum documenting that liquefaction and localized deformation at the downstream face of Camanche Dam would not lead to uncontrolled reservoir release or limit the District's ability to lower the reservoir using the outlet works. EBMUD performed a site-specific seismic hazard evaluation and a flood and earthquake stability analysis for Pardee and Camanche dams and submitted the results of the studies to DSOD and FERC in 2025 for their review.

2.2.2 Security

Working with law enforcement and utility industry security experts, EBMUD has established a comprehensive security program to protect its water supply. Using assessment tools and best-practices recommendations of the Federal Bureau of Investigation, American Water Works Association, California Office of Emergency Services, and FERC, EBMUD continually reviews and updates emergency response plans and safeguards for its water and wastewater systems. Updated physical security measures have included the addition of specific security assessment-based cameras at integral facilities throughout EBMUD. EBMUD also replaced the industrial control system firewalls to improve our detection capacity.

As required by the Federal "Bioterrorism Preparedness and Response Act," Public Law 107-188, EBMUD submitted its Vulnerability Assessment to the U.S. Environmental Protection Agency in 2003 and established a Security and Emergency Preparedness Section (SEPS) to coordinate its security efforts. Since 2003, SEPS has continued to stay abreast of security developments and has been prepared to respond to security issues that might arise. EBMUD's SEPS has trained and certified EBMUD staff in compliance with all legal requirements.

EBMUD has developed and implemented both physical security and cybersecurity measures for its Pardee and Camanche Dams hydroelectric facilities in accordance with FERC's security program guidelines for hydropower projects. These measures reduce the vulnerability of the physical assets and components of these dams as well as the operational network cyber components of the system to unauthorized access that could result in unintended releases and disruption of power generation.

EBMUD conducted a detailed Security Assessment and has an updated and approved FERC Security Plan for these two dams. EBMUD staff and law enforcement partners in the Security Plan all have copies of the plan and are aware of what is expected of them if and when there are security issues at any of the locations called out in the plan documents. The same type of security guidelines is being implemented for the local dams in the East Bay.

Emergency response guidelines for dams have been part of EBMUD's Emergency Operation Plan but were revised in 2017 and updated in 2019 to follow new formats from the California Governor's Office of Emergency Services (CalOES) for dam emergency plans. Ensuring the safety of public water supplies is EBMUD's top priority. EBMUD uses an all-hazard, multi-barrier approach with physical, chemical, and operational controls to safeguard raw-water supply and the treated drinking water provided to consumers from our extensive water distribution system. This approach is advocated by national industry and homeland security experts. In response to a threat or situation in which the quality of the water supply is potentially affected or compromised, EBMUD follows a systematic approach to assess

the threat or likelihood of potential contamination, to investigate the event, and to respond appropriately to protect the public and the water system. EBMUD is prepared and can readily notify the public if there is a question or concern regarding the safety of its public water supplies. These include security and law enforcement notification, response, investigation, reporting, and networking with industry and law enforcement intelligence agencies.

EBMUD's Emergency Operations Team (EOT) is ready to respond quickly and appropriately to any emergency in coordination with other public safety and first responder agencies. The EOT manages emergency responses and meets, trains, and conducts exercises routinely. EBMUD's EOT uses the California Standardized Emergency Management System that incorporates all National Incident Management System (NIMS) requirements and is integrated with the Contra Costa and Alameda Counties Offices of Emergency Services, and other utilities directly, by agreement, and by CalWARN. See Attachment 1 for details on inter-agency emergency support.

2.3 Energy Accounting

Water Code Section 10631.2 requires UWMPs to include readily available information regarding the estimated amount of energy used for water diversion, conveyance, distribution, treatment, and storage. Information pertaining to the energy data is provided in tabular format in Appendix H.

Chapter 3 – Water Demand

In this chapter EBMUD presents historical and projected water use within EBMUD's service area.

3.1 Past and Current Demand

Demand for water in EBMUD's USB is primarily for municipal and industrial (M&I) uses which include residential, commercial, institutional, industrial, and irrigation. This section describes past, current, and projected water demands. Figure 3-1 shows the trend of historic water use within EBMUD's USB with the number of accounts.

Although the number of water service accounts has steadily increased since 1970, average daily water demand has remained stable outside of drought periods. Water demands dropped significantly due to rationing during drought periods, as in the years 1976-1977, 1987-1994, 2007-2011, 2014-2015, and 2020-2022.

Several factors have helped keep overall water demand from increasing as might otherwise be expected, including:

- EBMUD's water recycling and conservation programs (discussed in detail in Chapters 5 and 6, respectively);
- Droughts and associated customer rationing;
- Shifts in customer usage patterns across customer categories (e.g., slight reduction in amount of water usage in single family residential category)
- Changes in number of accounts within some of the customer categories (e.g., a reduction in industrial and petroleum accounts with increases in single and multi-family residential accounts); and
- Legislative changes, including new State policies, new plumbing efficiency standards, CALGreen model water efficiency landscape ordinances, the 1992 and 2005 Federal Energy Policy Act, Senate Bill 606 and Assembly Bill 1668 (aimed at locking in conservation efforts in the long-term), and Urban Water Use Objectives which are connected to the aforementioned bills to provide a basis for setting water use targets.

Different customer categories exhibit different water use trends. Figure 3-2 shows how EBMUD's total metered water consumption is distributed among different customer categories. The single-family residential category has the largest consumption, followed by multi-family residential, commercial, industrial (which includes petroleum),

Figure 3-1 **EBMUD Water Accounts and Total Demand**

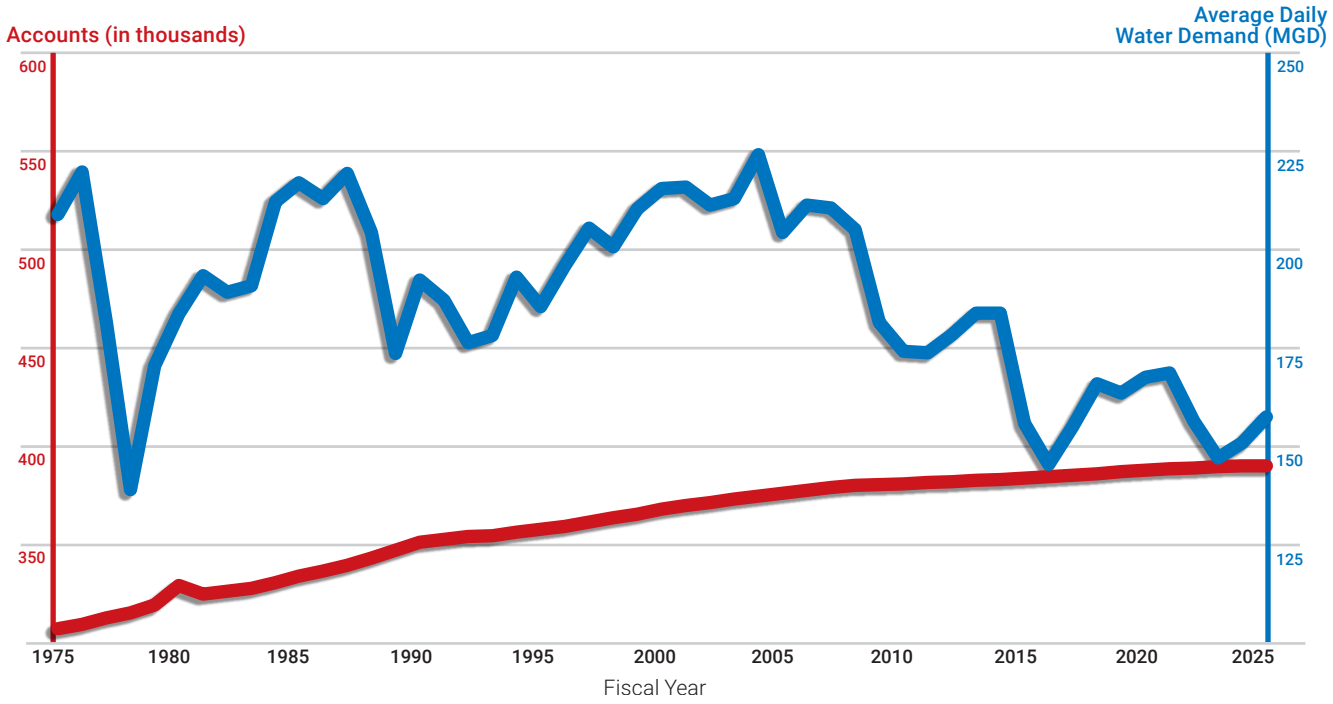
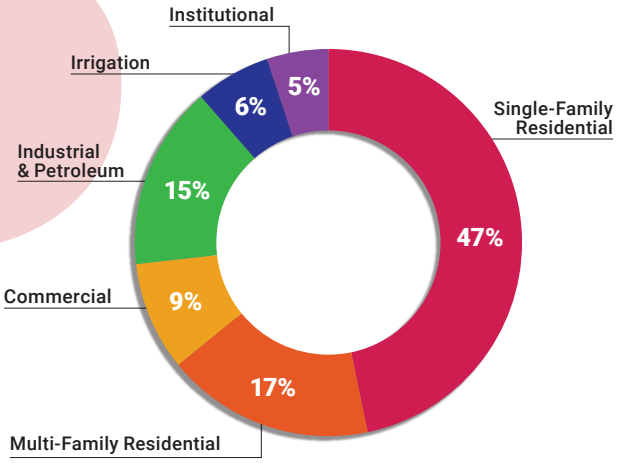


Figure 3-2 Water Use By Customer Category



NOTE:
Based on Calendar Year 2010-2025 metered consumption data.

irrigation, and institutional uses. Historical water use and number of accounts from 1975 to 2025 for each EBMUD customer category are shown in Figure 3-3. Note that these figures only include potable water and not recycled water.

Water consumption varies seasonally, as shown in Figure 3-4. This variation is the result of the West Coast Mediterranean climate which is characterized by dry summers and wet winters. This climate pattern drives increased outdoor water use during the summers for customers and in particular for irrigation.

Historically, summer water consumption was about 125 percent higher than winter consumption. Over the past decade, this differential has decreased to about 79 percent. This decrease is the result of decades of conservation programs at EBMUD as well as state legislation requiring more efficient landscapes.

EBMUD's service area can be broadly divided into two climatic zones relative to the Berkeley-Oakland hills: West-of-Hills and East-of-Hills. The West-of-Hills area experiences a more moderate climate due to the marine influence of San Francisco Bay, while summer air temperatures in the East-of-Hills area can be considerably higher. Figure 3-5 shows the water consumption for each customer category for the West-of-Hills and East-of-Hills.

Figure 3-6 demonstrates characteristics of residential water consumption and shows that outdoor water consumption can be a large fraction of total consumption for single-family customers, whereas it makes up a smaller portion of overall water consumption for multi-family residential customers. In total, outdoor water consumption accounts for approximately 26 percent of total water consumption for residential customers as a whole.

Figure 3-7 illustrates how single-family residential water consumption varies by region relative to the historic average. As shown in the figure, residential customers located in the East-of-Hills area tend to have higher water consumption than customers in the West-of-Hills area.

3.2 Projected Water Demand

3.2.1 2050 Demand Study Mid-Cycle Update

EBMUD performs a comprehensive study of projected demand every ten years; the most recent update, the 2050 Demand Study, was completed in 2020. In 2025, to support the update of the UWMP and WSCP, EBMUD completed the 2050 Demand Study Mid-Cycle Update to review and adjust forecasts, if needed, for known significant changes to projections of housing and employment within EBMUD's USB, conservation and recycled water savings, water consumption for high water users, climate change, and non-revenue water. EBMUD will prepare a comprehensive update of the demand projections for incorporation in the 2030 UWMP.

Both the 2050 Demand Study Mid-Cycle Update and the 2050 Demand Study used a methodology based on long-term planning documents approved and adopted by the local and regional land use agencies together with input from these agencies regarding timing and direction of future development in their respective communities that incorporates forecasts of dwelling units and employment into a water demand model. Growth projections in EBMUD's future water demand reflect planned land-use changes and redevelopment projects forecasted by the local and regional land use agencies.

3.2.2 Water Demand Model

The water demand model forecasted water demand using an econometric (or statistical) model developed specifically for EBMUD's service area and six customer categories (single-family, multi-family, institutional, industrial, commercial, and irrigation). The water demand model forecasts water

demand using predictions of future driver units such as residential housing units, non-residential building area, and parcel area. Depending on the purpose of the forecast, the model can be adjusted based on relationships between historical water demand and climate, drought management, economic conditions, and household size.

Table 3-1 provides the forecasted water demands projections in five-year increments through the year 2050. Cumulative water conservation and recycled water use goals are anticipated to be met and therefore subtracted from the forecasted demand to reach the planning level of demand (PLOD). EBMUD has set goals through 2050 for the water conservation and water recycling programs and developed implementation schedules based on these goals. The goals incorporated into the projected PLOD have been adjusted to include an uncertainty component. The uncertainty component factors include, but are not limited to, how much water conservation savings will increase, anticipated outages, and whether sufficient wastewater flows will be available to implement recycled water projects. The PLOD is used to assess short-term and long-term water supply needs. The PLOD is modeled against historic hydrology to assess the reliability of its water supply against different year types to meet future demands.

Note that the demand projections in Table 3-1 are planning level estimates and may differ from actual demand in any given year due to weather and other variables. As such, the PLOD does not include the short-term reduction and rebound in demand that occur during drought periods. After droughts, a rebound effect occurs over a period of years where demand increases closer to pre-drought levels.

Table 3-2 shows the demand projections broken down into six customer use categories: single-family residential; multi-family residential; commercial; industrial; institutional; and irrigation users. These demand projections account for forecasted water conservation and recycled water use.

3.2.3 Water Demands for Low-Income Housing

California Water Code Section 10631.1 requires that UWMPs include an estimate of projected water demand for lower income single-family and multi-

Table 3-1 Average Annual Water Demand Forecast 2050 Demand Projections (MGD)

	2025	2030	2035	2040	2045	2050
Forecasted Water Demand	247	258	271	276	283	289
Water Conservation[1]	-53	-57	-61	-63	-65	-66
Recycled Water[1]	-3.9	-4.9	-7.3	-7.5	-7.6	-7.6
Raw Water	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Planning Level of Demand (Rounded)	190	196	203	205	210	215

1. See Chapters 6 and 5 for more specific program details on conservation and water recycling, respectively. The goals reflected in this table take into account uncertainty as described in Section 5.2.3 and Section 6.1.3.

Table 3-2 Average Annual Demand Projections by Customer Use Category (MGD)

	2025	2030	2035	2040	2045	2050
Single-Family Residential	118	120	123	124	126	128
Multi-Family Residential	46	52	58	60	61	63
Institutional[1]	18	19	21	22	23	24
Industrial	34	34	34	34	35	35
Commercial	18	20	22	23	25	26
Irrigation[2]	13	13	13	13	13	13
Total	247	258	271	276	283	289
Water Conservation	-53	-57	-61	-63	-65	-66
Non-Potable Water	-4.1	-5.1	-7.5	-7.7	-7.8	-7.8
Planning Level of Demand (Rounded)	190	196	203	205	210	215

1. Includes wash water from applicable District water treatment plants.
2. Includes District customers served with raw water.

family residential housing within EBMUD's USB. The Metropolitan Transportation Commission (MTC) established low-income thresholds in 2016 for Plan Bay Area 2040 to account for the Bay Area's high cost of living. The MTC defined low-income residential households as those identified by the Census Bureau with income below 200 percent of the federal poverty level, which is $25,520 for a single person living alone and $52,400 for a family of four in January 2020 dollars.

MTC collects and reports the percentage of households within each census tract in EBMUD's USB that is below 200 percent of the federal poverty level. The information is periodically updated and the most recent data available was updated August 2020. Low-income thresholds were not further updated under Plan Bay Area 2050. For each census tract, the most recent MTC percentages of low income single-family and multi-family households were applied to single-family and multi-family demand projections from EBMUD's 2050 Demand Study Mid-Cycle Update to estimate the projected lower-income residential demand. Table 3-3 provides EBMUD's estimated demand projections

Figure 3-3 **EBMUD Water Accounts & Consumption**

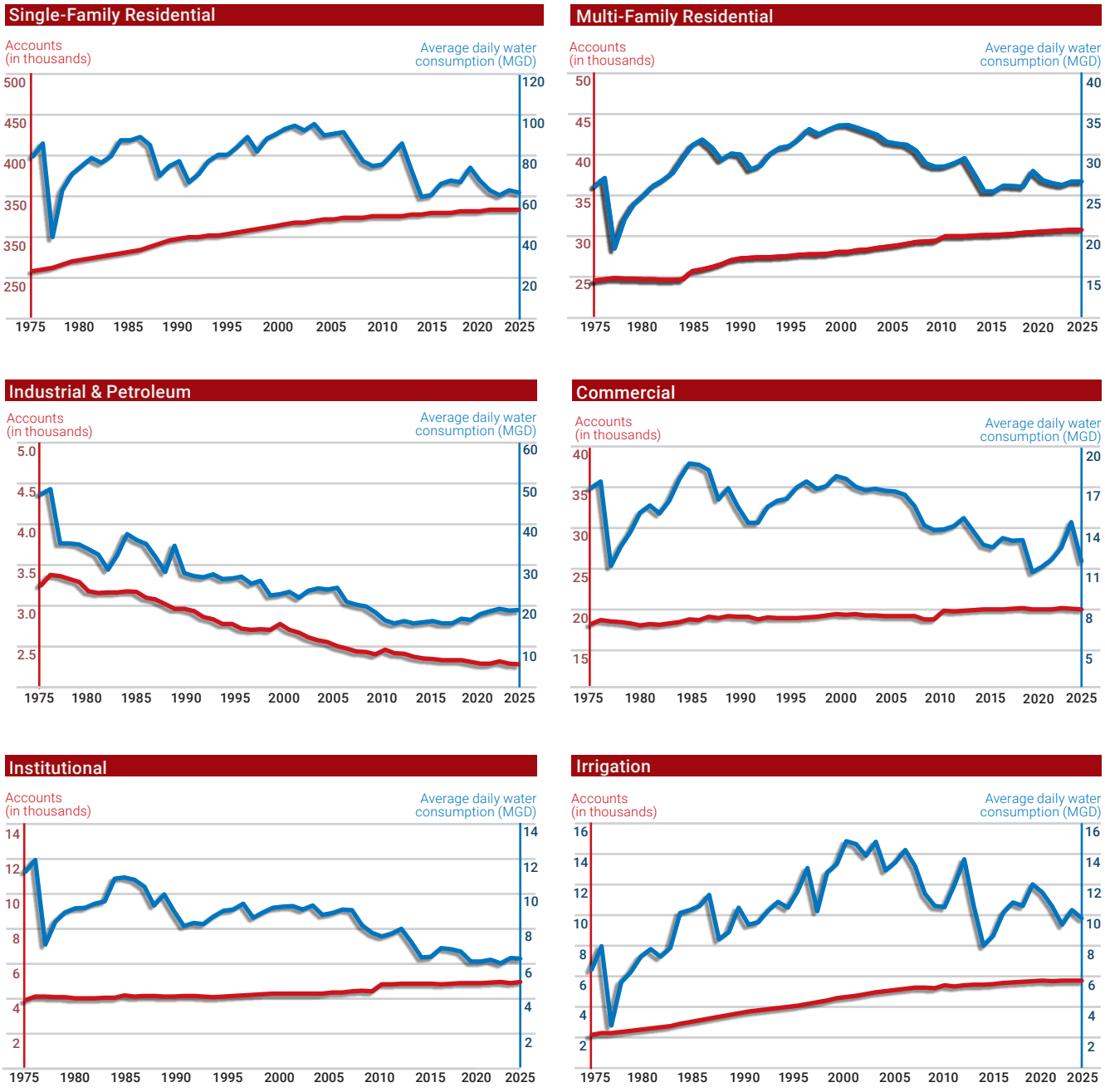


Table 3-3 **Water Demand Estimates for Lower-Income Residential Accounts (MGD)**

		2025	2030	2035	2040	2045	2050
Single-Family	Demand (MGD)	14	14	13	14	14	14
	% of sector	17	17	17	17	16	16
Multi-Family	Demand (MGD)	14	16	18	18	19	19
	% of sector	33	33	33	32	33	33
Total Residential	Demand (MGD)	28	29	31	32	32	33
	% of total	22	23	23	23	23	23

in five-year increments to year 2050 for single-family and multi-family lower income households.

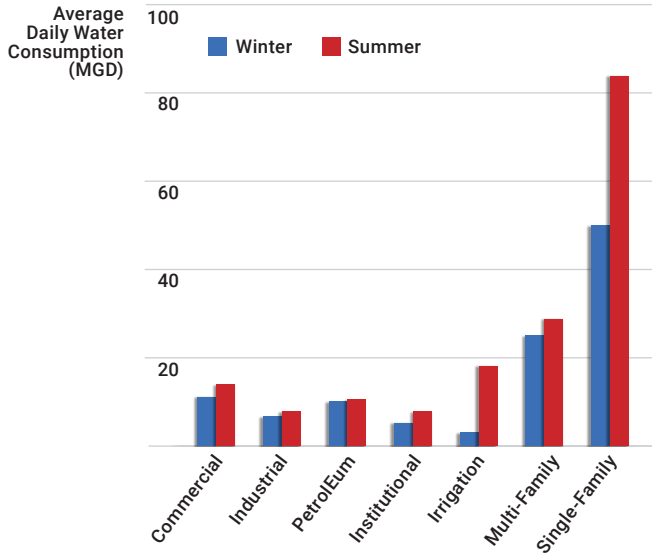
EBMUD's Board of Directors approved Policy 3.07, which ensures that during periods when new water service connections are restricted, priority is given to proposed developments within EBMUD's existing USB that include housing units affordable to lower income households, in accordance with California Government Code 65589.7. Policy 3.07 also states that EBMUD will not deny an application for services to a proposed development that includes affordable housing unless certain specific conditions are met which could include a water shortage emergency condition, or if EBMUD is subject to a compliance order by the Department of Public Health that prohibits new water connections. Based on the requirement to provide priority to developments that include housing units affordable to lower income households, Policy 3.07 assures that the portion of overall water demands for lower-income households, as provided in Table 3-3, can be met.

3.2.4 Demand Projections and Climate Change

Climate change adds significant uncertainty to demand forecasts which are already challenging due to general temporal variability. This uncertainty has been recognized by state legislation with several sections in the revised Water Code relevant to UWMPs emphasizing the need to consider impacts of climate change on projected future use and reliability of water supplies. This section provides an overview of the analysis done for demand projections for the 2050 Demand Study which were not updated as part of the Mid-Cycle Update because recent Global Climate Model (GCM) predictions are consistent with the forecasted changes in air temperature developed as part of the 2050 Demand Study. Attachment 1 - Water Shortage Contingency Plan (WSCP) provides information on climate change in relation to future availability of water supplies.

To evaluate potential climate change impacts, the water demand model considered two climate variables, rainfall and air temperature, to forecast changes in water consumption. Referencing guidance from the California Climate Change Technical Advisory Group (CCTAG), a 14-member scientific advisory group assembled by the California Department of Water Resources, the analysis used an ensemble of ten GCMs[1] that CCTAG determined as closely simulating California climate characteristics.

Figure 3-4 **Winter and Summer Water Use By Customer Category**



NOTES:
1. Based on Calendar Year 2015-2025 consumption data
2. Summer use based on July, August, and September consumption data
3. Winter use based on January, February, and March consumption data

1 GCMs for use for California Water Resources include: ACCESS-1.0, CanESM2, CCSM4, CESM1-BGC, CMCC-CMS, CNRM-CM5, GFDL-CM3, HadGEM2-CC, HadGEM2-ES, MIROC5.

Water Demand

There are four standard sets of climate scenarios known as Representative Concentration Pathways (RCPs) otherwise known as greenhouse gas concentration trajectory. The CCTAG recommended using RCPs 4.5 and 8.5 which corresponded to specific levels of carbon dioxide emission scenarios, Lower Emissions Scenario and Higher Emissions Scenario, respectively, which were then applied to the GCMs.

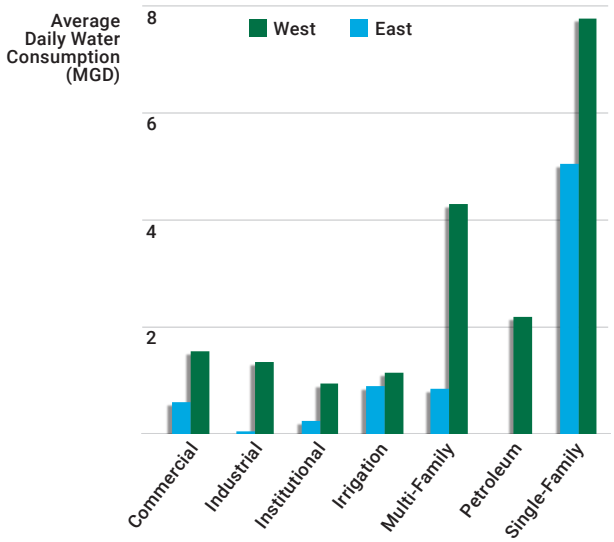
An analysis of rainfall output from the selected GCMs when compared to 30-year average weather conditions showed that less than four percent of the long-term change in water consumption due to long-term changes in climate was associated with rainfall. The small contribution of rainfall to changes in water consumption is relatively low. Furthermore, there is significantly more uncertainty in the GCM rainfall forecasts, which is demonstrated by the extreme model variability. Consequently, rainfall forecasts from GCM models were not included in the 2050 Demand Study due to highly uncertain forecasts and small impact on consumption changes.

A comparison of the historical 30-year air temperature data to the GCMs indicated that the GCM that represented a warmer/dryer climate was closer to the predicted trend. Consequently, the warmer/drier climate GCM recommended by the CCCTAG in combination with the Higher Emissions scenario was used to forecast water demand by taking the forecasted percentage increase in maximum daily air temperature and applying it to the water demand model.

3.3 Supply-Demand Assessment

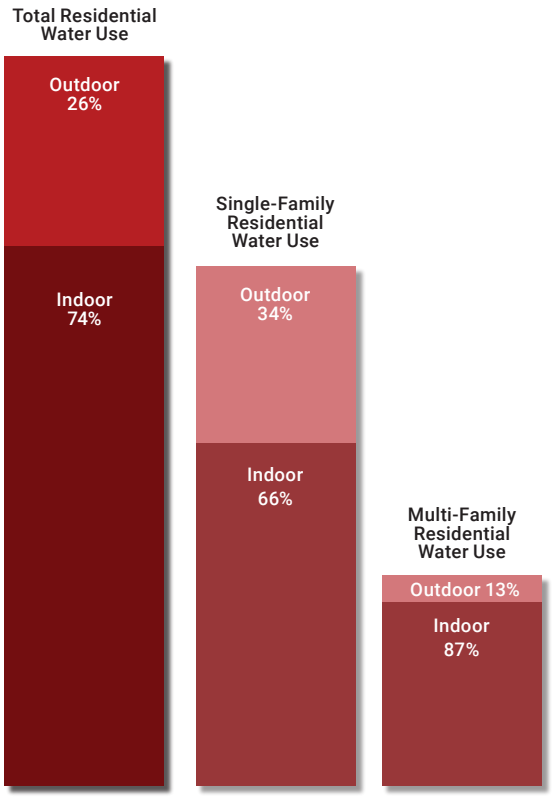
To align with the requirements of the WSCP, the supply assessment discussion has been moved to Attachment 1, which contains EBMUD's WSCP. The water supply-demand assessment compares EBMUD's total available water supply sources against the long-term total projected water uses over the next 30 years, in five-year increments. The analysis considers the following hydrologic conditions: a normal water year, a single dry water year, a three-year design drought, and a drought lasting five consecutive years. Given the uncertainty in long-term forecasting, EBMUD considers a variety of scenarios as part of its planning. The methodology used for the supply-demand assessment, scenario development, and scenario results are detailed in Attachment 1.

Figure 3-5 East-of-Hills and West-of-Hills Water Use By Customer Category



NOTE:
Based on Calendar Year 2015-2025 consumption data.

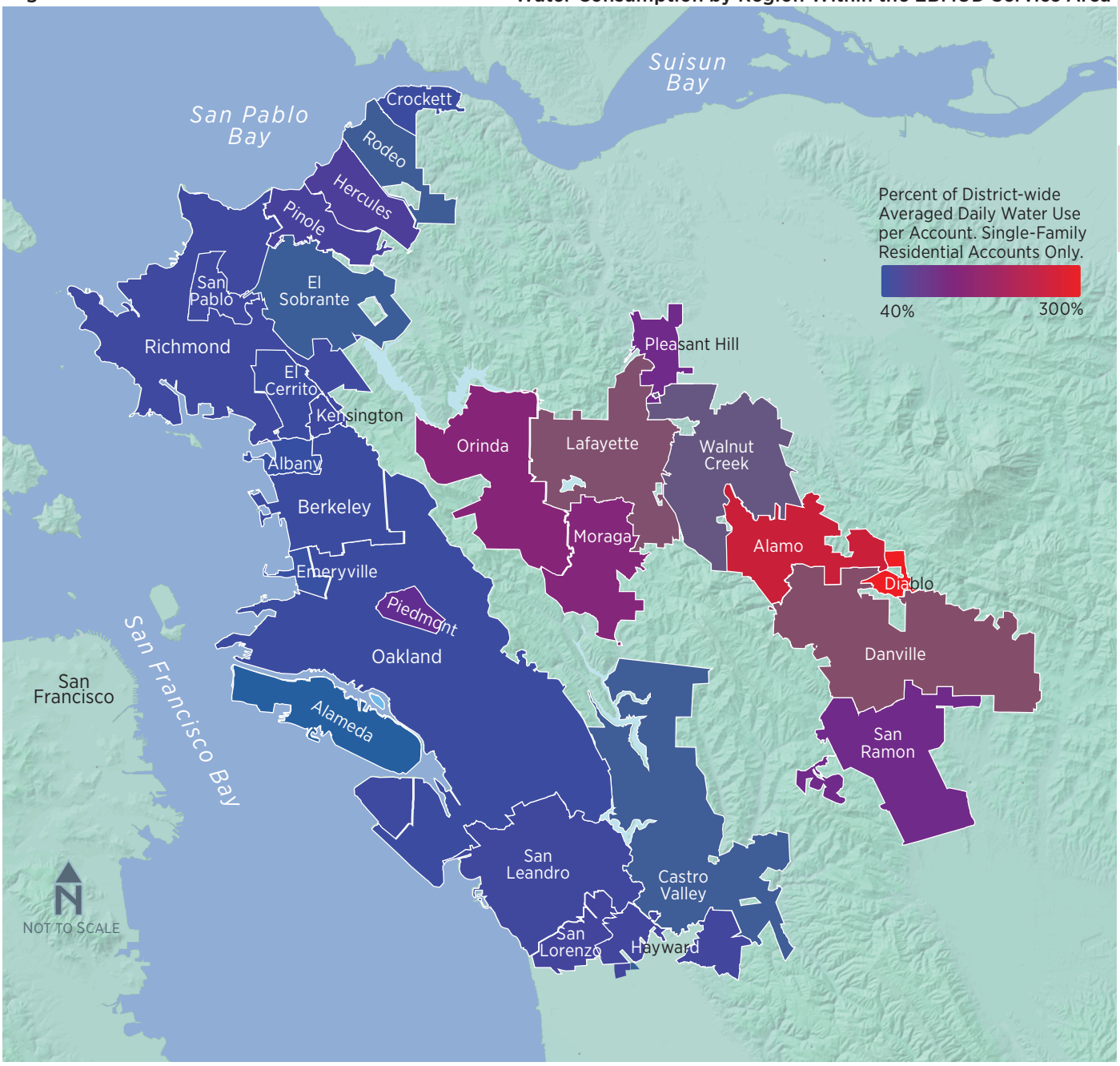
Figure 3-6 Indoor & Outdoor Residential Water Use



NOTE:
Based on Calendar Year 2015-2025 metered consumption data.

Figure 3-7

Historical Single-Family Residential
Water Consumption by Region Within the EBMUD Service Area



Potable water accounts only. Based on historical daily average metered consumption, 1975—2025.
Representation of non-EBMUD boundaries is not necessarily authoritative.

As part of the Recycled Water Strategic Plan 2024 Update, EBMUD explored opportunities to develop locally controlled, drought resilient supplies through recycled water and analyzed more than 40 purified water alternatives. The analysis included all forms of potable reuse and infrastructure needs to convey the purified water from new advanced water purification facilities to the anticipated delivery point. Purified water may become an increasingly attractive option in the next 10 to 20 years, depending on EBMUD's demand for water, availability of existing supplies, and regulations.

Deepening understanding of the flexibility and range of benefits that purified water and non-potable reuse can bring.

1 **Non-potable Reuse:** Recycled water that is not used for drinking but is safe to use for irrigation, industrial uses, or other non-drinking water purposes; currently the only type of reuse practiced by EBMUD.

2 **Indirect Potable Reuse:** Blending purified water with water supply through groundwater recharge or surface water augmentation in a reservoir or groundwater basin that acts as a buffer for retaining and diluting the reuse supply before treating.

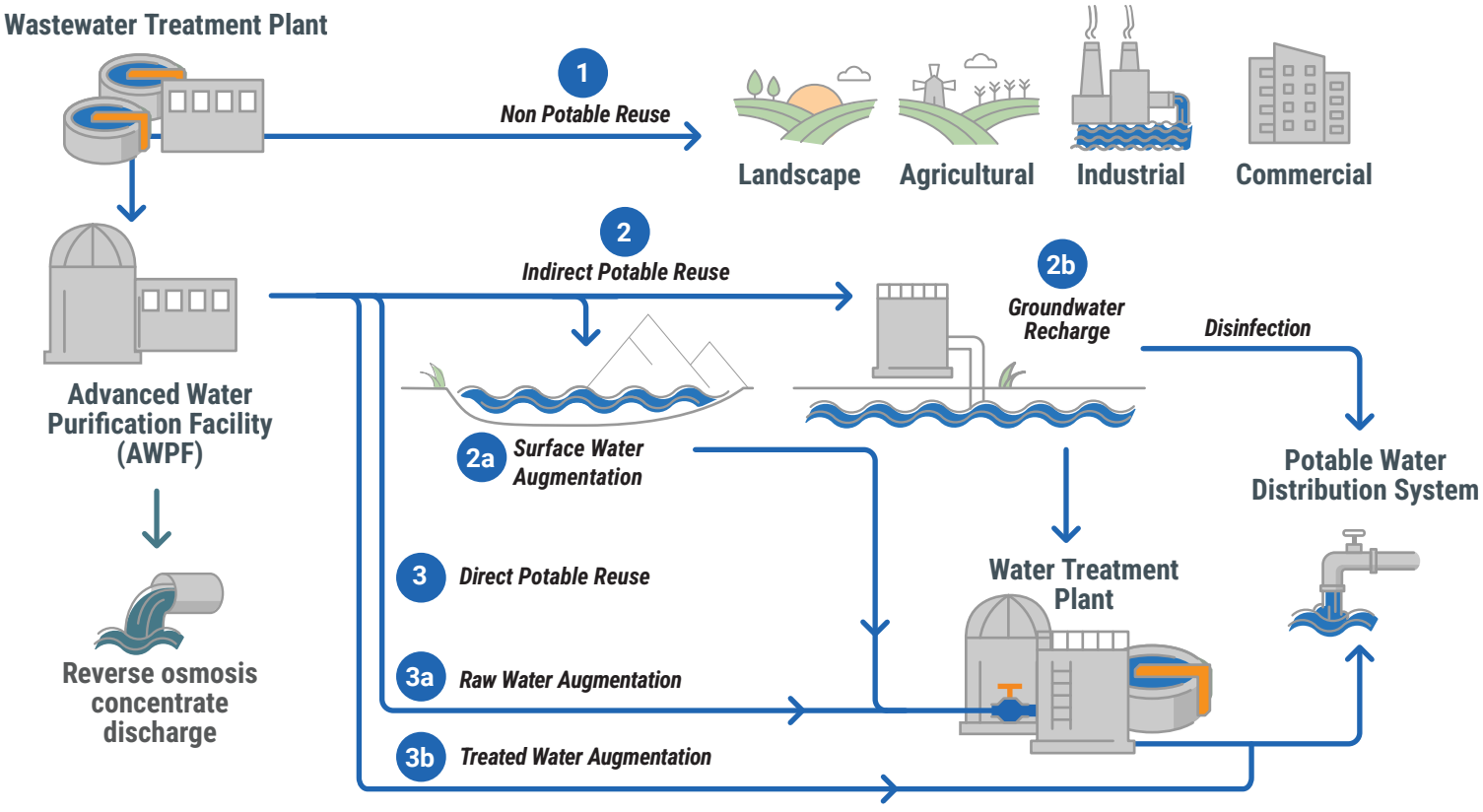
2a **Groundwater Recharge:** Using constructed facilities to increase water supply in a groundwater aquifer (natural underground water storage) that spread water across infiltration basins or percolation ponds (surface spreading) or pump water directly into the subsurface through injection wells (subsurface injection).

2b **Surface Water Augmentation:** Adding purified water to a surface water reservoir to increase water supply.

3 **Direct Potable Reuse:** The treatment and distribution of purified water using engineering controls, without an environmental buffer, in the form of raw or treated water augmentation.

3a **Raw Water Augmentation:** Blending purified water with other supplies immediately upstream of a water treatment plant.

3b **Treated Water Augmentation:** Introducing purified water directly into a potable (drinking) water distribution system downstream of a water treatment plant.



Harnessing the potential of purified water is part of EBMUD's environmental stewardship

Updated regulations provide structure and flexibility for purified water facilities.

Because water reuse regulations are focused on making wastewater safe for public use and consumption, California regulators developed criteria for purified water facilities that are among the most rigorous and robust potable reuse regulations and requirements in the nation. Public health protection criteria include requirements for treatment, monitoring, and effluent water quality for the designated end use, such as surface water augmentation and groundwater recharge. Environmental discharge criteria include water quality requirements to protect surface water and groundwater quality for all designated beneficial uses. These regulations have updated requirements for more rigorous treatment, monitoring, and reporting for purified water facilities.

While containing many prescriptive requirements, the regulations do incorporate opportunities for flexibility. This flexibility helps pursue novel approaches that offer advantages in terms of project size and overall cost.

Why purified water?

Improved Reliability

Potable reuse projects enhance reliability by providing agencies with a locally controlled and drought-resistant source of supply. These projects help limit dependence on traditional potable water resources (rivers, reservoirs, groundwater) that are typically more susceptible to climate variability. Having a locally controlled resource helps agencies better prepare for future uncertainties.

Regulatory Guidance

With the adoption of California-specific direct potable reuse regulations there is clearer vision of the steps and requirements needed to consider and implement direct potable reuse projects. The new regulations encompass a broad range of obligations, including treatment requirements, monitoring protocols, source control, reporting, and more. These regulations help safeguard public health and help guide agencies.

Flexibility

Purified water that adheres to the potable reuse regulations can be used for any potable purpose (i.e., not limited to recycled water uses) and can be adapted to meet the specific demands or needs of the community. This helps maximize the flexibility and reliability compared to the more restricted uses of recycled water. Its flexibility also helps limit the need to construct and maintain dual distribution systems as customers are free to use one kind of water for their needs.

Safe Water Supply

To protect public health, potable reuse systems rely on proven technologies that purify recycled water to make it suitable for human consumption as potable water. Multiple treatment and operational barriers help produce water that meets or exceeds all standards of water quality. The AWPFs that produce the purified water must be operated by highly trained and certified operators.

Economic Resilience

While the up-front capital costs for purified water projects can be high, there are several purified water concepts available to EBMUD with comparable unit costs to the non-potable reuse projects recommended as part of this RWSP Update. Investing in these types of projects can help create new kinds of green jobs in the public and private sectors.

Environmental Benefits

Implementing purified water projects can reduce extraction/depletion of traditional freshwater resources, reduce overall wastewater discharge to natural water bodies, promote recovery of a resource (wastewater) that is otherwise treated as waste, and help meet longterm water resource sustainability goals. Purified water can also help improve sustainability by reducing energy use and mitigating environmental impacts related to conveying imported supplies to the region.

When implemented strategically and mindfully, purified water can provide communities with a wealth of advantages. While purified water systems are new to EBMUD, the technology is tested, proven, and reliable.

Chapter 4 – Resilient Water Supply Portfolio

The uncertainty of future conditions adds complexity when planning for long-term water supplies. Uncertainties can take shape in various forms as discussed in Chapter 2 and include but are not limited to increased demands by EBMUD customers, reduced availability of water supply on the Mokelumne River, increased flows for ecosystem enhancement, and evolving regulatory requirements.

To meet future customers' needs and other obligations, EBMUD needs to be able to adaptively manage and obtain secondary water supplies. EBMUD's long-term water supply goals include improving its water supply reliability and diversifying its water supply portfolio.

Consistent with California's Water Resilience Portfolio, EBMUD is continuing to plan to reduce reliance on any one water source and diversify supplies to enable flexibility as conditions change. As the state indicated, diversification will look different in each region based on available water resources, but it will strengthen water security and reduce pressure on river systems across the state.

Over the last few decades, there have been numerous factors that have contributed to changes in water demand in EBMUD's service area. These factors range from effects of multi-year droughts, recessions, implementation of conservation measures, expansion of recycled water programs, state legislation, and building codes which led to long-term shifts in customer usage patterns. Chapter 2 describes in more detail the factors that affect the availability of a water supply and Chapter 3 discusses uncertainties that exist in analyzing long-term projections. In response to future uncertainties affecting both demand and supply, EBMUD continues to pursue a variety of secondary supply projects to adapt to these changing conditions.

In developing a reliable and robust secondary supply portfolio, EBMUD has not only explored independent projects but also opportunities to partner with other agencies. Partnerships can offer solutions that are environmentally sound, cost-effective, and sustainable. Partnerships include collaborating with agencies on water transfer feasibility studies, long-term agreements for dry-year supply, regional groundwater banking/exchange efforts, and potential surface water storage opportunities.

Figure 4-1 provides a summary of EBMUD's secondary supply portfolio and their components. More detail about each portfolio is described below.

4.1 Conjunctive Use and Groundwater Banking

EBMUD is exploring several conjunctive use and groundwater banking programs. Conjunctive use involves coordinated use of surface water and groundwater supplies. Groundwater banking conjunctive use typically involves recharging surface water supplies into a groundwater basin for future extraction in dry years. Each program is discussed below.

4.1.1 Bayside Groundwater Project

The Bayside Groundwater Project uses a conjunctive water management approach, which involves injecting surplus surface water into the East Bay Plain Subbasin for storage. Water can be extracted from the Subbasin during a drought or emergency. Construction of the Bayside Groundwater Project Phase 1 facilities was completed in 2009 and consisted of an injection/extraction well, a water treatment plant and a distribution pipeline connecting the treatment plant to the well, a subsidence monitoring system, and a network of groundwater monitoring wells.

Historical Operation

Water was extracted from the Bayside Phase 1 well during startup testing in 2009, an aquifer test in 2010, and for groundwater sampling and maintenance operation between 2009 – 2022. The facility has not been used for drought supply, and a drinking water supply permit is required to before extracted groundwater can be delivered into the public water supply system.

From 2017 to 2019, EBMUD injected a total of 18 million gallons (55 AF) of treated surface water into the deep aquifer of the East Bay Plain Subbasin. Injection activities began in 2017 with a pilot test, during which 1.3 million gallons of potable water from EBMUD's distribution system were injected into the aquifer. This was followed by injections of 8.3 million gallons in 2018 and 8.4 million gallons in 2019.

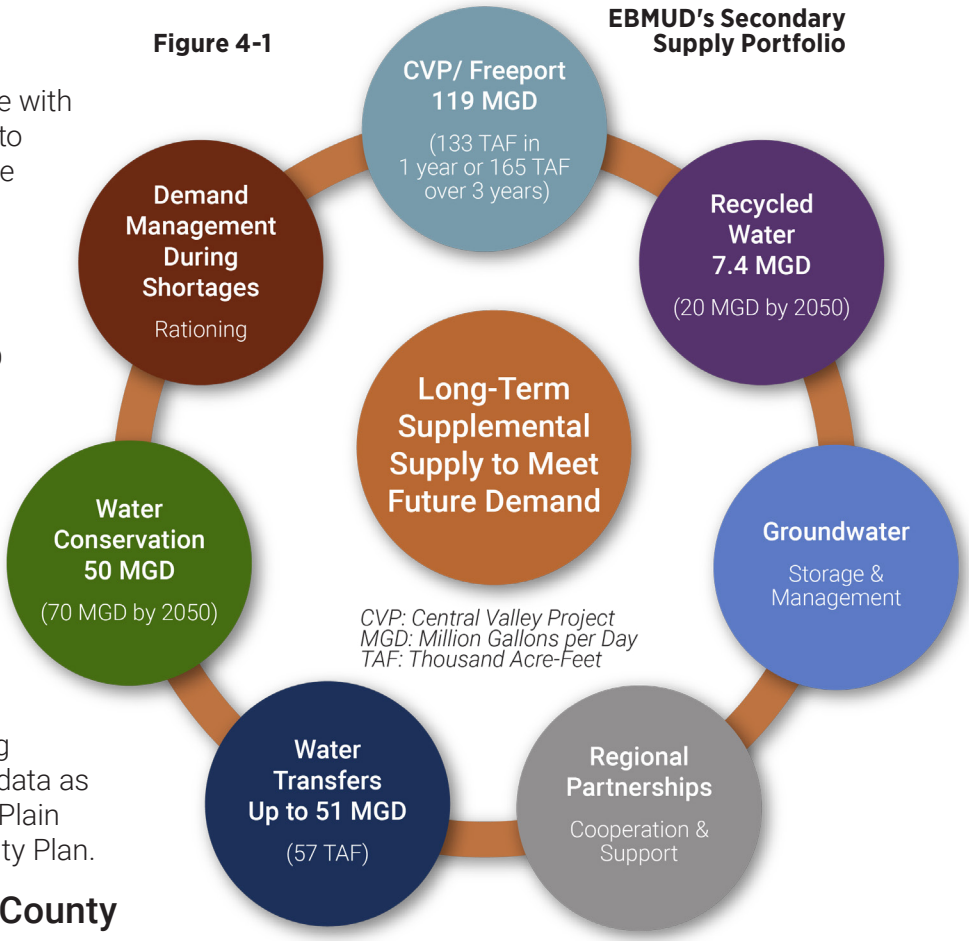
Bayside Well Facilities Demolition and Next Steps

On August 31, 2024, EBMUD's lease with Oro Loma Sanitary District (OLSD) to use OLSD's property for the Bayside Phase 1 well facilities expired with no option for renewal. The facilities are slated to be removed in 2026.

EBMUD currently anticipates that a future phase of Bayside on EBMUD property could be considered in 20 or more years, if needed, for secondary water supply needs. Before EBMUD considers a future phase of Bayside, more data is needed to ensure EBMUD makes science-based decisions that align with keeping the local groundwater basin sustainable and supply needs. In the near term, EBMUD is continuing to collect groundwater monitoring data as part of implementing the East Bay Plain Subbasin Groundwater Sustainability Plan.

Figure 4-1

EBMUD's Secondary Supply Portfolio



4.1.2 Eastern San Joaquin County Groundwater Banking

EBMUD is investigating long-range options for conjunctive use and groundwater banking projects with partners beyond the EBMUD service area. In addition to providing a dry-year supply for EBMUD, these groundwater banking projects can help address the over-drafted groundwater basins in the San Joaquin County (SJC) watershed. Groundwater overdraft can result in the lowering of groundwater levels causing land to subside, water supply wells to go dry, and surface water supplies to diminish when interconnected to groundwater.

DREAM Pilot Project

Conjunctive use, groundwater banking efforts are currently focused on Eastern San Joaquin (ESJ) County where the Demonstration Recharge Extraction and Aquifer Management (DREAM) Pilot Project was completed in April 2024. The DREAM Project began as part of an agreement that was executed in 2014 by Central Delta Water Agency, South Delta Water Agency, Stockton East Water District, SJC, North San Joaquin Water District (NSJWCD), and EBMUD to resolve water rights protest for EBMUD and SJC water rights (the Protest Dismissal Agreement). The DREAM Pilot Project tested operation of groundwater recharge and extraction in the ESJ Subbasin and provided an opportunity to identify challenges and lessons learned that would inform a larger, long-term groundwater banking project.

The DREAM Pilot Project enabled EBMUD to provide NSJWCD with up to 1,000 AF of surface water from the Mokelumne River that participating landowners use for irrigation in-lieu of pumping groundwater from the ESJ Subbasin; thereby, storing groundwater for future use. The Project permitted EBMUD to recover up to half of the banked groundwater for use within its service area.

The DREAM Project provided multiple benefits, including replenishing the critically over-drafted ESJ Subbasin, enhancing supply reliability for local partners, temporarily enhancing instream flows for fish and wildlife, and adding a new temporary dry year secondary water supply for EBMUD.

Permits required for recharge and extraction included the following:

- A DREAM groundwater export permit issued by San Joaquin County in 2017, which allowed up to 500 AF of groundwater to be extracted from a well in the NSJWCD service area and conveyed to EBMUD's Mokelumne Aqueducts for use in EBMUD's service area.
- Temporary water transfer permits from the State Water Resources Control Board (SWRCB) in 2018, 2019, and 2021, which allowed EBMUD to transfer water to NSJWCD for the DREAM Project and provide water for fish and wildlife enhancement in the stretch of the Mokelumne River from Camanche Dam downstream to NSJWCD's South Pump Station.

Over those three years, a total of 696 AF was diverted by NSJWCD, and EBMUD received a credit of 348 AF. In February 2023, during start up and testing of the new pump station, and from January to April of 2024, EBMUD extracted a total of 263 AF of groundwater and conveyed it into the Mokelumne Aqueduct.

EBMUD, NSJWCD, and Stockton East Water District (SEWD) are currently collaborating to develop a larger groundwater banking project in the ESJ Subbasin, while maintaining communication with San Joaquin County and the Eastern Water Alliance, who would provide oversight to future projects in the area. The larger groundwater banking project is contemplated to implement Terms 1, 2, and 3 of the 2014 Protest Dismissal Agreement and provide additional EBMUD Mokelumne River Water for groundwater banking, up to 8 TAF.

4.2 Water Transfers

EBMUD has developed a water transfer program to secure dry-year water supplies to meet customer demands. EBMUD uses the Freeport Project, discussed in Section 1.4.4, to convey the transfer water to EBMUD's service area. In addition to providing much needed water supplies, the resultant yield is subject to the JSA gainshare provision which provides for additional flows in the Lower Mokelumne River. Chapter 1 defines JSA gainsharing water and provides more details.

Figure 4-2 depicts EBMUD's most likely potential sources of transfer water, primarily from senior water rights holders in the American and Sacramento River Watershed. The approval process for transfers varies depending on the specific characteristics of the proposed transfer, including the length of the transfer (i.e., one-year or long-term), origin of the water, method of making water available for transfer, relative priorities and limitations of the water rights involved in or affected by the transfer, and conveyance path of the water.

The following describes the additional progress EBMUD has made pursuing three long-term water transfer opportunities since 2020 UWMP.

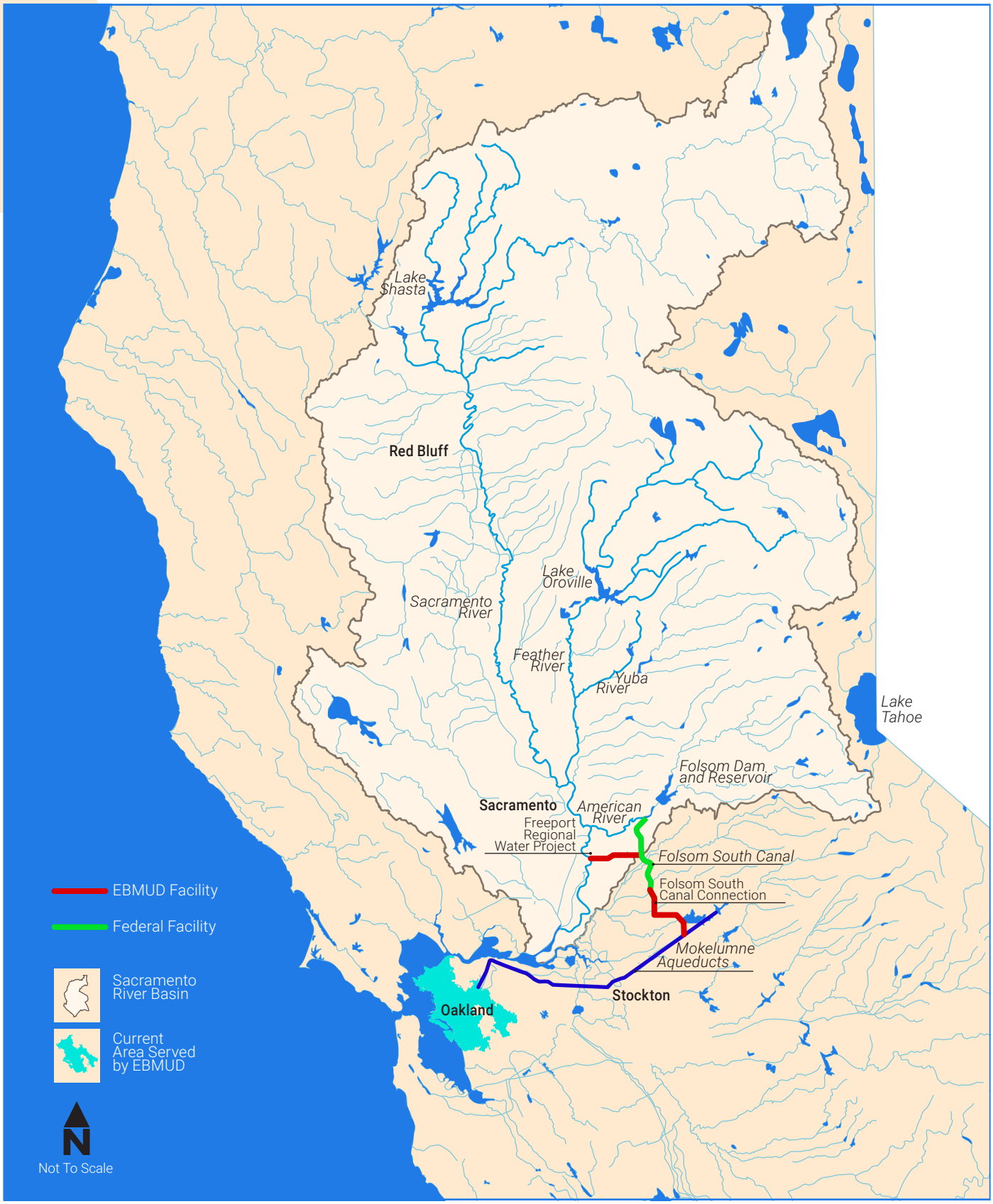
Placer County Water Agency

In 2013, EBMUD executed a Memorandum of Understanding (MOU) to partner with the Placer County Water Agency (PCWA) on development of a long-term transfer agreement and provide EBMUD with an option to purchase interim transfer water in dry years. The proposed project would implement PCWA's long-standing Sacramento Water Forum Agreement (WFA) commitment to release additional flows from PCWA reservoirs in dry years to preserve and protect the natural resources of the lower American River. PCWA's WFA commitment to release additional water is contingent on its ability to transfer the released water to a buyer for use below the lower American River. EBMUD, as the buyer, would purchase between 10 to 47 TAF of transfer water from PCWA in dry years for diversion at the Freeport intake and delivery to EBMUD customers. In 2024, PCWA and EBMUD completed NEPA review with the U.S. Bureau of Reclamation and negotiated and executed a long-term Warren Act Contract for use of storage in Folsom Lake and conveyance in the Folsom South Canal. The long-term Warren Act Contract is for 25 years and can be extended for an additional 15 years. PCWA and EBMUD are seeking to complete the remaining environmental reviews and approvals to implement the proposed long-term project by late 2027.

Yuba Water Agency

Since 2014, EBMUD has been working with the Yuba Water Agency (YWA, formerly Yuba County Water Agency) on opportunities to purchase transfer water made available under the Lower Yuba River Accord (Yuba Accord). The Yuba Accord has been in effect since 2008 and provides in-stream flows for the lower Yuba River and transfer water for the environment and state and federal contractors. The revenue generated from transfer sales is used by YWA to fund local water supply and flood control projects. In 2016, EBMUD secured a one-year option agreement to transfer up to 10 TAF from YWA, in preparation for continued drought conditions.

Figure 4-2 Potential Water Transfer Source Areas and Conveyance



Subsequently, wet weather conditions returned, and reservoir storage recovered and EBMUD ultimately did not exercise the option to transfer the water in 2016. In 2022, EBMUD entered into another option agreement with YWA and Contra Costa Water District which was extended to 2025. EBMUD did not exercise this option due to changing hydrologic conditions. In September 2024, YWA filed the Final Supplemental EIR for the Extension of the Yuba Accord Water Transfer Program to include both EBMUD and Contra Costa Water District as approved purchasers of Yuba Accord transfer water through 2050. YWA petitioned the SWRCB to extend through 2050 adding the Freeport intake and CCWD intakes as points of re-diversion for Yuba Accord transfer water. YWA's SWRCB hearings were completed in August 2025 and Yuba is awaiting a decision from the SWRCB. EBMUD continues to develop the long-term water transfer project with YWA and CCWD.

Sycamore Mutual Water Company

In 2018, EBMUD and Sycamore Mutual Water Company entered into an agreement to jointly develop a framework for potential long-term water transfer through a crop rotation program configured to conserve water and generate environmental benefits. In 2020, staff completed a white paper on the feasibility of a long-term crop idling project up to 6,000 acre-feet of water, where the EBMUD would purchase the water in dry years and another agency would purchase the water in non-dry years. A suitable third-party buyer of wet year water has not yet been identified.

4.3 Bay Area Regional Partnerships

EBMUD participates in the Bay Area Regional Reliability (BARR) Project. Eight of the Bay Area's largest water suppliers – CCWD, EBMUD, San Francisco Public Utilities Commission (SFPUC), Valley Water, the Alameda County Water District, Zone 7 Water Agency, the Marin Municipal Water District, and the Bay Area Water Supply and Conservation Agency – formed the BARR Project to jointly explore projects to improve regional reliability.

In 2015 the BARR Project received partial funding from USBR for completion of a Bay Area Regional Reliability Drought Contingency Plan (DCP). The plan was completed in December 2017, with most efforts following plan completion focused on mitigation measures for developing the Bay Area Shared Water Access Program, (SWAP), the Los Vaqueros Expansion Project, and Walnut Creek Water Treatment Plant (WCWTP) Pretreatment Facility.

SWAP was initiated in summer of 2019, funded by a USBR grant for $400,000. Under SWAP, EBMUD together with six BARR partners identified and defined processes to resolve the institutional, regulatory, and operational issues associated with water sharing among the BARR partner agencies during drought or other shortages. A Strategy Report outlining an implementation plan that will facilitate water transfers to and exchanges within the Bay Area, leveraging existing infrastructure and institutional agreements was completed in March 2023.

The WCWTP Pretreatment Project is described in section 2.2.1 and would allow WCWTP to treat Sacramento River and other sources that could be delivered to neighboring water agencies. The WCWTP Pretreatment Project EIR was approved by EBMUD's Board of Directors on July 9th, 2024.

Chapter 5 – Wastewater and Recycled Water

5.1 Wastewater

EBMUD and several other agencies provide wastewater treatment service within EBMUD's potable water service area. Effective wastewater treatment protects public health and the environment, and it can also augment local water supply in the form of recycled water.

5.1.1 Wastewater in the EBMUD Service Area

Based on 2020 census data, approximately 1.5 million people are served by EBMUD in its water service area. Within this service area, as shown in Figure 5-1, wastewater collection and treatment are handled by several cities and utilities. EBMUD's wastewater service district provides wastewater treatment for approximately half of the population within the EBMUD water service area. The remainder of EBMUD's water service area receives wastewater treatment from the agencies listed in Table 5-1.

EBMUD's wastewater service area (known as Special District No. 1, or SD-1) was established as a separate district within EBMUD's water service area in 1944. EBMUD provides wastewater service to approximately 740,000 people in an 88 square-mile area of Alameda and Contra Costa counties along the east shore of the San Francisco Bay, extending from Richmond in the north to San Leandro in the south. SD-1 is governed by EBMUD's Board of Directors.

SD-1 treats domestic, commercial, and industrial wastewater for the cities of Alameda, Albany, Berkeley, Emeryville, Oakland and Piedmont, and for the Stege Sanitary District, which includes El Cerrito, Kensington and parts of Richmond. These agencies operate sewer collection systems that discharge into one of five EBMUD sewer interceptors (Adeline, Alameda, North, South, and South Foothill) as illustrated in Figure 5-1.

5.1.2 Special District One Wastewater System

EBMUD's wastewater interceptor system includes large diameter pipelines, force main pipelines, and pumping stations. The interceptors consist

Table 5-1 **Wastewater Collected within EBMUD Service Area in 2025 (Million Gallons)**

Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2025	Name of Wastewater Treatment Plant (WWTP)	Is WWTP Located Within UWMP Area?
Central Contra Costa Sanitary District	Metered	6,228	Central Contra Costa SD WWTP	Yes
Dublin San Ramon Services District	Metered	2,099	Dublin San Ramon SD WWTP	Yes
East Bay Municipal Utility District	Metered	18,643	EBMUD WPCP	Yes
Oro Loma and Castro Valley Sanitary Districts	Metered	4,070	Oro Loma/Castro Valley SD WPCP	Yes
City of Pinole	Metered	1,016	City of Pinole WWTP	Yes
City of Richmond and Richmond Municipal Sewer District No. 1	Metered	2,303	Richmond WPCP	Yes
Rodeo Sanitary District	Metered	270	Rodeo Sanitary District WWTP	Yes
City of San Leandro	Metered	1,758	San Leandro WPCP	Yes
West County Wastewater District	Metered	3,030	West County WW District WPCP	Yes
Total Wastewater Received from UWMP Service Area in 2025:		39,417		

Table 5-2 **Wastewater Districts within EBMUD Water Service Boundary (Million Gallons)**

				2025 Outcomes of Treated Wastewater			
				A	B	C	D
Wastewater Treatment Plant Name	Wastewater Treated Outside of UWMP Service Area?	2025 Vol. of Wastewater Rec'd from UWMP Service Area	Total 2025 Volume of Water Treated	Treatment Level / Volume	Treatment Level / Volume	Treatment Level / Volume	Treatment Level / Volume
Central Contra Costa SD WWTP	Yes	6,228	13,250	–	Tertiary / 614	Secondary, Undisinfected / 12,636	–
Dublin San Ramon SD WWTP	Yes	2,099	4,399	Tertiary / 310	Tertiary / 1,086	Secondary, Disinfected / 2,712	–
EBMUD WPCP	No	18,643	18,643	Tertiary / 65	–	Secondary, Disinfected / 18,578	–
Oro Loma/Castro Valley SD WPCP	Yes	4,070	4,070	–	Secondary, Disinfected / 18	Secondary, Disinfected / 4,052	–
City of Pinole WWTP	No	1,016	1,016	–	–	Secondary, Disinfected / 1,016	–
Richmond WPCP	No	2,303	2,303	–	–	Secondary, Disinfected / 2,303	–
Rodeo Sanitary District WWTP	No	270	270	–	–	Secondary, Disinfected / 270	–
San Leandro WPCP	No	1,758	1,758	Secondary, Disinfected / 86	–	Secondary, Disinfected / 1,672	–
West County WW District WPCP	No	3,030	3,030	–	–	Secondary, Disinfected / 803	Secondary, Undisinfected / 2,227
Total:		**39,417**	**48,739**	**461**	**1,718**	**44,042**	**2,227**

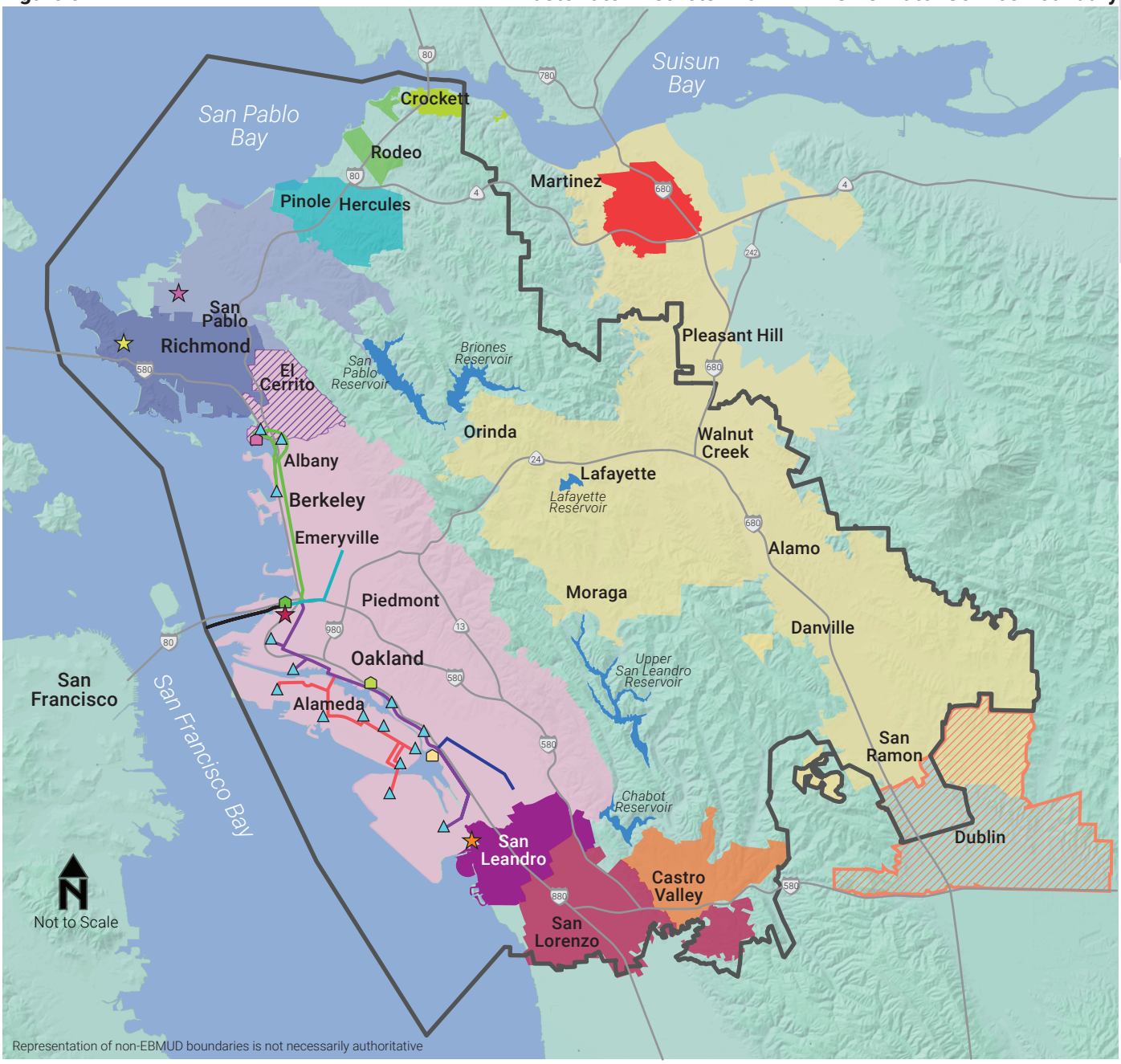
A) Water Recycled Within UWMP Service Area
B) Water Recycled Outside of UWMP Service Area
C) Effluent Discharge that is not a Permitted Recycled Water Use
D) Delivered to Another Entity for Additional Treatment

of 29 miles of reinforced concrete pipes ranging from 12 inches to 9 feet in diameter. They collect wastewater from approximately 1,400 miles of sewers owned and operated by the communities in the SD-1 service area. Eight miles of force main pipelines and fifteen interceptor system pumping stations, ranging in capacity from 0.5 to 54.7 MGD, help to convey flows to EBMUD's Main Wastewater Treatment Plant (MWWTP).

The MWWTP is located in Oakland near the foot of the San Francisco-Oakland Bay Bridge. The MWWTP provides primary treatment for a maximum flow of 320 MGD and secondary treatment for a maximum flow of 168 MGD. The average dry weather flow from 2020 to 2024 was approximately 46 MGD.

Upon entering the MWWTP, wastewater is pre-chlorinated for odor control. Odors at the head of the MWWTP are managed through pre-chlorination and an odor control system at the Influent Pump Station. Initial wastewater treatment includes screening that removes large objects and grit removal. Primary sedimentation then removes floating materials,

Figure 5-1 **Wastewater Districts Within EBMUD's Water Service Boundary**



Wastewater Districts
- SD-1
- Stege Sanitary District
- City of Richmond Sanitary District
- West County Wastewater District
- City of Pinole/Hercules
- Rodeo Sanitary District
- Crockett Community Services District
- Mountain View Sanitary District
- Central Contra Costa Sanitary District
- Dublin -San Ramon Services District
- Castro Valley Sanitary District
- Oro Loma Sanitary District
- City of San Leandro

FACILITIES
- Oakport Wet Weather Facility
- San Antonio Creek Wet Weather Facility
- Main Wastewater Treatment Plant
- Point Isabel Wet Weather Facility
- San Leandro Recycled Water Facility
- East Bayshore REcycled Water Facility
- North Richmond Recycled Water Facility
- RARE Water Project
- EBMUD Pumping Station

EBMUD Ultimate Service Boundary

EBMUD Interceptors
- South
- South Foothill
- Alameda
- Adeline
- North
- Main WWTP

such as oils and greases, and solids heavy enough to settle, such as sand, silt, and organic particles.

Secondary treatment uses a high-purity oxygen activated sludge process to biologically remove most of the remaining organic and chemical constituents that would otherwise deplete oxygen from the receiving waters if discharged and allowed to decompose naturally. The treated effluent is disinfected with sodium hypochlorite (chlorine bleach) to remove bacteria and viruses. Prior to discharge, the disinfected wastewater is de-chlorinated to remove any residual chlorine. The de-chlorinated wastewater is discharged through an outfall 1.2 miles off the East Bay shore into the San Francisco Bay, as shown in Figure 5-1. Solids collected through the treatment process are pumped to digesters for stabilization. Digested solids are then dewatered and hauled offsite. Digesters also produce methane-rich biogas. EBMUD uses biogas to produce renewable energy and operates a resource recovery program to collect high strength trucked wastes for additional biogas and energy production.

EBMUD also owns and operates three wet weather facilities (WWFs): the Point Isabel WWF, the San Antonio Creek WWF, and the Oakport WWF. The WWFs provide a combination of storage and treatment for peak wet weather flows. Treatment at WWFs includes screening, settling, and disinfection.

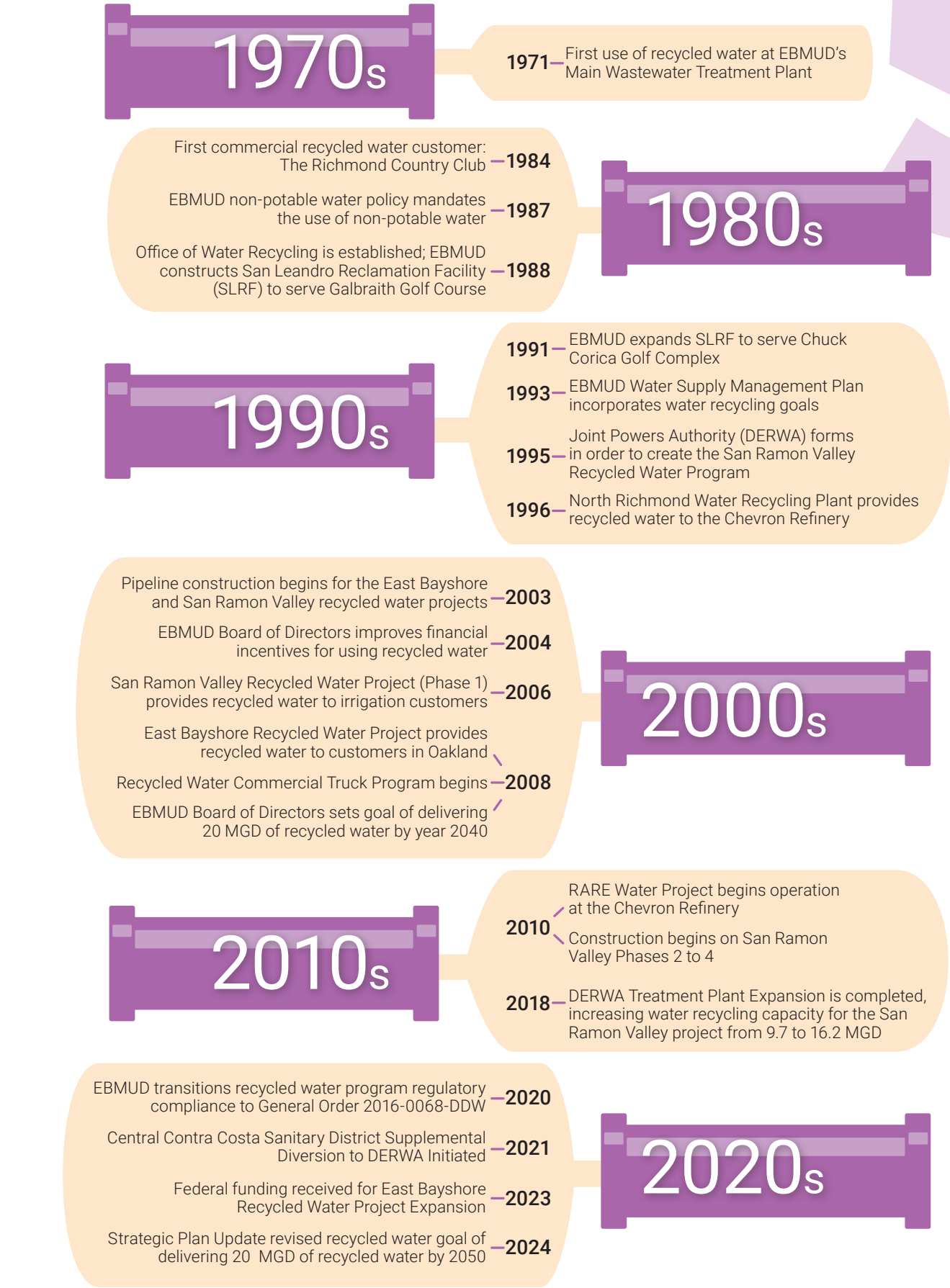
5.1.3 Other Wastewater Treatment Utilities

Table 5-1 lists other wastewater treatment utilities located in EBMUD's water service area and shown on Figure 5-1 with their capacities and average dry weather wastewater flows. Dublin San Ramon Services District (DSRSD) owns and operates the sewers in the Cities of Dublin and San Ramon, and it also treats wastewater collected in the City of Pleasanton under contract. Oro Loma Sanitary District owns and operates sewers in its service area and also provides wastewater treatment services for Castro Valley Sanitary District, San Lorenzo, and designated areas of the cities of San Leandro and Hayward. West County Wastewater collects and treats wastewater in its service area for San Pablo, East Richmond Heights, El Sobrante, Rollingwood, Tara Hills, Bayview, designated sections of Pinole, and most of North Richmond. Crockett Community Services District collects and treats wastewater for the town of Crockett. The cities of San Leandro, Rodeo, Pinole and Hercules own and maintain both the collection systems and the wastewater treatment facilities within their respective utility districts. The City of Richmond owns about half the sewers in city's boundaries and contracts operation and maintenance of sewers and treatment to Veolia Water North America.

Table 5-3 **Calendar Year 2025 EBMUD Recycled Water Production (Million Gallons)**

	EBMUD WWTP		Irrigation Projects		Other	Industrial		Total
Month	#2W	#3W	SRVRWP	EBRWP	RWTP	Chevron (NR)	Chevron (RARE)	(MG)
Jan	19.4	79.9	3.3	1.6	0.2	45.3	99.0	248.6
Feb	20.1	68.2	2.6	1.3	0.1	51.0	70.7	213.9
Mar	19.9	78.9	7.5	2.8	0.1	67.3	81.5	257.9
Apr	20.8	75.5	23.7	5.5	0.3	65.6	84.1	275.5
May	17.3	74.7	36.4	5.9	0.3	74.5	91.8	300.9
Jun	19.0	95.9	52.7	7.9	0.3	68.9	86.7	331.4
Jul	23.0	104.3	53.3	9.4	0.3	65.3	89.5	345.0
Aug	19.4	110.7	50.9	9.6	0.2	44.7	94.8	330.3
Sep	19.2	107.8	39.5	8.0	0.2	31.2	94.6	300.3
Oct	21.0	124.2	15.4	5.3	0.3	59.9	96.4	322.6
Nov	22.5	98.8	7.9	3.8	0.2	40.6	100.0	273.9
Dec	24.0	100.0	2.1	2.0	0.2	51.2	100.1	279.7
Total:	**245.5**	**1118.7**	**295.3**	**63.1**	**2.6**	**665.5**	**1089.2**	**3479.8**

Figure 5-2 **EBMUD's Recycled Water Program Historical Highlights**



Wastewater and Recycled Water

The majority of the treated effluent produced by wastewater treatment plants within the EBMUD water service area is discharged through pipelines or outfalls to San Francisco Bay, Suisun Bay, or San Pablo Bay. A portion of the treated wastewater provides a supply for recycled water programs. Table 5-2 illustrates treatment level and non-recycled flows that are discharged from each wastewater treatment plant within EBMUD's water service area. Many of these treatment plants recycle water for washing down filters and for other in-plant operations. These internal recycles are eventually discharged to the outfall or pipeline.

5.2 Recycled Water

Recycled water is highly treated wastewater effluent that is suitable for a variety of beneficial uses. Recycled water is stringently regulated by Title 22 of the California Code of Regulations, which dictates the level of treatment and use of recycled water in California.

Recycled water use is a critical element of EBMUD's water supply management program and stretches EBMUD's limited drinking water supply, as any demand met with recycled or non-potable water reduces the demand for potable water supply. In addition to increasing water supply reliability and lessening the effect of extreme rationing during droughts, recycled water use delays or eliminates the need for more potable water facilities, sustains the economy with increased water supply resiliency, protects San Francisco Bay by reducing treated wastewater discharges, safeguards community and private investments in parks and landscaping with a drought-proof or drought-resistant water supply, and contributes to a green and healthy environment.

Table 5-4 Recycled Water 2020 UWMP Use Projection Compared to 2025 Actual

Type of Use	2020 UWMP Projection (MGD)	2025 Actual Use[1] (MGD)
Agricultural Irrigation	–	–
Landscape Irrigation (except golf courses)[2]	704	241
Golf Course Irrigation	166	117
Commercial Use	1	3
Industrial Use	2,592	1,755
Geothermal or Energy Production	–	–
Seawater Intrusion Barrier	–	–
Recreational Impoundment	–	–
Wetlands or Wildlife Habitat	–	–
Groundwater Recharge	–	–
Total:	3,463	2,116

1 Recycled water use at EBMUD's MWWTP is not factored into the EBMUD recycled water goal and is not included as a customer recycled water use in the table. Historically, the EBMUD MWWTP had not used potable water for processes or irrigation; consequently, current recycled water use does not offset potable water demand.

5.2.1 Background

EBMUD initiated water recycling programs in the early 1970s, starting with the use of recycled water for landscape irrigation and in-plant processes at its main wastewater treatment plant in 1971. Later, EBMUD supplied recycled water to its first golf course customer in 1984. Highlights of EBMUD's recycled water program are shown in Figure 5-2.

Stressing the importance of recycled water as part of the overall water supply portfolio, EBMUD's Board of Directors initially adopted the Non-Potable Water Policy 9.05 in 1996 (amended June 28, 2022, see Appendix L). The policy requires that EBMUD customers use non-potable water (recycled water and other non-potable water sources) for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to plant life, fish or wildlife. It is EBMUD's current practice to promote recycled water to its customers for appropriate non-potable uses.

In December 2024, EBMUD completed a Recycled Water Strategic Plan (RWSP) Update to guide future projects and priorities with a goal of serving 20 MGD of recycled water by 2050. The 2024 RWSP concluded that non-potable reuse projects alone are not expected to achieve the full 20 MGD goal. The recommended non-potable reuse projects from the 2024 RWSP, combined with EBMUD's existing recycled water program, could increase non-recycled water production capacity to 13 MGD by 2050. The 2024 RWSP identified an additional 7 MGD of potable reuse (i.e. purified water) which, combined with the 13 MGD of non-potable reuse, would satisfy the 20 MGD goal.

The recycled water forecast used in the Mid-Cycle Update to the 2050 Demand Study is a PLOD, which accounts for uncertainty and implementation risk associated with non-potable reuse project. The PLOD does not account for the 7 MGD potable reuse goal because potable reuse is a supply that does not reduce demands. The PLOD reduction in potable demand was determined to be 7.6 MGD to reflect the

current best estimate of reliable non-recycled water use by the year 2050, accounting for uncertainties in the implementation of recycled water for future customers and in the annual use of recycled water for existing customers. These uncertainties include limitations of available wastewater supply, demand for recycled water, and periodic planned and unplanned outages of recycled water treatment plants which required potable water supply.

5.2.2 Current EBMUD Water

Recycling Projects

EBMUD's recycled water program has grown significantly since EBMUD began using recycled water at its MWWTP in 1971. The program now provides recycled water to a diverse array of customers for a variety of uses. EBMUD has also worked to develop partnerships with other wastewater treatment entities to make recycled water available more broadly in its water service area. Innovative programs like the Recycled Water Commercial Truck Program have

Figure 5-3 **EBMUD Recycled and Non-Potable Water Projects**

broadened the recycled water customer base, and EBMUD has led or participated in research studies related to recycled water. Table 5-3 lists characteristics of EBMUD's current projects and the amount of recycled water produced in 2025.

Table 5-4 compares the amount of recycled water delivered by EBMUD in 2025 against the amount predicted in 2020 UWMP. In calendar year 2024, EBMUD provided approximately 7.7 MGD of recycled water to customers for a variety of uses.

Figure 5-3 shows EBMUD's current and planned recycled water projects. Currently EBMUD supplies recycled water produced from the effluent of three different wastewater treatment plants. In addition to treating secondary effluent from its own MWWTP at the East Bayshore Recycled Water Project (EBRWP) facilities, EBMUD partners with other agencies to increase the geographic coverage of recycled water in its service area. EBMUD partners with West County Wastewater (WCW) for the North Richmond Water Recycling Plant (NRWRP) and the Richmond Advanced Recycled Expansion (RARE) Water Project, both of which serve the Chevron Richmond refinery. In summer months, these two facilities can recycle all of WCW's effluent, eliminating WCW's direct discharge to San Francisco Bay. After use in the refinery, some of the recycled water is processed in the refinery's own wastewater treatment system. The refinery wastewater treatment plant discharges into San Pablo Bay and has its own discharge permit. EBMUD also partners with DSRSD to make recycled water available in the eastern portion of its service area via the DSRSD-EBMUD Recycled Water Authority (DERWA). Between 1998 and 2015, EBMUD operated the San Leandro Reclamation Facility to provide customers with recycled water produced by San Leandro's wastewater treatment plant. This project was removed from service due to insufficient recycled water demand, and EBMUD has plans to decommission the existing facility which has reached the end of its useful life.

Water Recycling at EBMUD's Main Wastewater Treatment Plant

In 1971, EBMUD constructed treatment facilities to maximize the use of recycled water for plant processes and landscape irrigation at its MWWTP. In addition, recycled water for use as equipment wash down and construction projects was made available at the plant in the 1970s and during 1987-94 when EBMUD implemented a Drought Management Program. EBMUD continues to use recycled water for in-plant processes and landscape irrigation. In 2024, the average in-plant recycled water use was 1.7 MGD. Recycled water use at the EBMUD MWWTP is not included in the EBMUD recycled water goal of 20 MGD by 2050. Historically, the EBMUD MWWTP had not used potable water for these processes or for irrigation, and as a consequence current recycled water use does not offset any previous potable water demand at the EBMUD MWWTP.

North Richmond Water Recycling Project

The Chevron refinery in Richmond is EBMUD's largest water customer. In 1996, EBMUD started the North Richmond Water Recycling Project (NRWRP) to deliver recycled water to the Chevron refinery in Richmond for use in its cooling towers. The North Richmond plant treats secondary effluent from WCW via reactor clarifiers to remove calcium, phosphorus, and magnesium using caustic soda softening technology. The water is then neutralized with sulfuric acid and passed through a sand filter to remove any remaining particles. The recycled water is disinfected with sodium hypochlorite to meet tertiary treatment levels for use in Chevron's cooling towers. EBMUD and Chevron have worked together to implement improvements to recycled water service to Chevron, and EBMUD has also worked extensively with WCW to improve its effluent water quality. NRWRP has a design capacity of 5.4 MGD but typically produces between 2 and 4 MGD depending on the demand. In 2024, the project delivered an average of 1.8 MGD of recycled water to Chevron.

San Ramon Valley Recycled Water Program

The San Ramon Valley Recycled Water Program (SRVRWP) is a partnership between EBMUD and DSRSD to provide recycled water to both agencies' customers. DSRSD treats wastewater from its main wastewater treatment plant via filtration, ultraviolet disinfection, and chlorine addition to levels that meet Title 22 standards for unrestricted use. Since 2006, the project has provided tertiary treated recycled water to large landscape irrigation customers including municipal parks, golf courses, business parks, greenbelts, and roadways.

The multi-phased project was originally planned to eventually serve up to an annual average of 2.4 MGD of recycled water to EBMUD irrigation customers in

portions of Blackhawk, Danville, and San Ramon. Phases 1 and 2 of the project are complete, serving EBMUD customers at 75 locations. In 2024, the SRVRWP delivered an average of 0.88 MGD of recycled water to EBMUD customers.

East Bayshore Recycled Water Project

The East Bayshore Recycled Water Project (EBRWP) is a multi-phased project that will provide tertiary-treated recycled water from EBMUD's MWWTP to customers in parts of Alameda, Emeryville, and Oakland. Recycled water transmission pipelines and distribution pipelines have been constructed and will continue to be constructed to distribute the recycled water to customers. The first phase, Phase 1A, included the construction of a pump station, microfiltration treatment system, 1.5 million gallons of storage, and more than 10 miles of transmission and distribution pipelines. The first delivery of recycled water occurred in 2008 to customers in Oakland. EBMUD has continued to expand the distribution system and at the end of 2024, there were 51 sites connected. Current customers use the recycled water for irrigation. In 2024, the project provided an average of 0.17 MGD of recycled water to customers in parts of Oakland and Emeryville.

Recycled Water Truck Program

In 2008, as part of its 2008-2010 Drought Management Program, EBMUD developed a recycled water commercial truck program to make recycled water available to commercial truck customers for approved uses. Through this program, EBMUD installed recycled water filling stations at its MWWTP and at the NRWRP. These filling stations provide recycled water to permitted customers for uses like dust control, soil compaction, power washing, landscape irrigation, street washing, and sewer flushing.

Although the 2008-2010 drought was the impetus for creating the recycled water commercial truck program, after the drought ended, EBMUD continued to operate the program and to offer recycled water at the fill stations at no charge.

In May 2016, EBMUD ceased operation of the commercial truck fill station in North Richmond due to plant maintenance, as well as the full utilization of recycled water from the NRWRP for industrial demands at the Chevron Richmond Refinery. EBMUD has continued to run the commercial truck fill station at its MWWTP in West Oakland since 2015. In 2017, EBMUD relocated the fill station to a new location. This location is outside of the main gate of the MWWTP, allowing for easier and safer access for commercial customers. The new fill station features two hydrants instead of one, which are protected by fenced enclosures and accessed by a keypad system, allowing EBMUD to track access by customer.

Recycled water filling station use fluctuates depending on demand and weather conditions. In 2024, the program provided 1 million gallons of recycled water.

Richmond Advanced Recycled Expansion Water Project

Building on the success of the NRWRP, in 2010 EBMUD brought online the Richmond Advanced Recycled Expansion (RARE) Water Project to provide high purity recycled water for boilers at the Chevron Richmond refinery. EBMUD and Chevron collaborated on the design and construction of new project facilities including a new treatment plant located within the refinery. The RARE treatment plant treats secondary effluent from WCW via microfiltration and reverse osmosis to produce the high degree of purity required by the refinery boilers. EBMUD is responsible for the operation and maintenance of the treatment plant and influent pump station. Chevron is responsible for the transmission mains throughout the facility and for the provision of utilities to the treatment plant. Chevron reimburses EBMUD for all capital and operating and maintenance costs for the project.

The initial phase of the RARE Water Project was designed to produce up to 3.5 MGD of recycled water. In 2024, RARE delivered 3.39 MGD of water to Chevron, of which 3.2 MGD was recycled water and 0.18 MGD was potable water supplement due to insufficient recycled water source supply resulting from declining wastewater flows from WCW. As discussed in Section 5.2.3, EBMUD and Chevron have collaborated on studies to evaluate the feasibility of expanding RARE using new alternative wastewater supplies.

Customer Compliance Program

EBMUD's recycled water projects are permitted by the San Francisco Regional Water Quality Control Board. The permit requires recycled water producers to establish permitting, tracking, recordkeeping, monitoring, and inspection procedures for

all water recycling projects. To meet these requirements, EBMUD has established programs to permit and train customers and to track their compliance with self-monitoring requirements.

Before obtaining recycled water, each customer is required to apply for and receive a Water Reuse Permit from EBMUD. The permit defines customer responsibilities for proper recycled water use, monitoring, and inspection. The permit lists the owner, location, and approved use(s) of recycled water. Customers are also responsible for designating a Site Supervisor to oversee recycled water use at the approved site.

EBMUD provides training for the Site Supervisor on the safe and allowed uses of recycled water, appropriate actions to take in an emergency, details of required inspections and monitoring reports, and conditions for recycled water use as specified in the permit. For irrigation customers, the training also touches on appropriate landscape maintenance and management practices related to recycled water.

Customers are required to periodically inspect the recycled water system to verify that the system's operation is consistent with good management practice, and to submit self-monitoring reports regularly. The self-monitoring reports guide the customer through the items that they must check during the site inspection. Customers must check for potential issues like leaks in the irrigation system, confirm proper signage and markings, and ensure there are no visible cross-connections.

5.2.3 Planned Recycled Water Projects

Recycled water is an important component of EBMUD's diverse portfolio for future water supply planning. As described in Section 5.2.1, the 2024 RWSP Update identified a portfolio of both non-potable and potable reuse projects that could be implemented to meet the 20 MGD goal by 2050.

Based on EBMUD's current assumptions about which projects it is likely to implement, Table 5-5 shows the projected quantity of recycled water use by specific type for the years 2025-2050. Projected uses are based on average usage for current projects and potential average uses for planned projects. Non-potable recycled water will be used predominantly for irrigation and industrial use, with some commercial use as well. EBMUD continues to seek innovative applications of recycled water to expand its use. Some of these proposed projects would require the construction of new treatment facilities, while others would involve expanding the distribution systems for existing projects to reach additional customers. As noted previously, there is uncertainty regarding the potential for some of EBMUD's anticipated recycled water projects to fully meet their recycled water supply forecasts. EBMUD will continue to pursue the full development of its 20 MGD recycled water goal, including the potential for potable reuse. Due to uncertainty of the timing and need for potable reuse projects at this time, they have not been included in the projections presented in Table 5-5. The projections in Table 5-5 represent ideal future conditions and do not account for the uncertainty in fully meeting recycled water delivery goals.

The following projects are currently in the planning/study phase:

- RARE Water Project Expansion
- East Bayshore Recycled Water Project Expansion
- San Ramon Valley Recycled Water Project Expansion
- Phillips 66 Rodeo Renewed Recycled Water Project
- Satellite Recycled Water Treatment Plant Projects

RARE Water Project Expansion

The RARE treatment plant has a capacity of up to 3.5 MGD, but the facility was designed to be expandable to 4.0 MGD with the installation of additional microfiltration modules. Expansion to 5.0 MGD would require the construction of additional facilities. Since WCW effluent supply is limited, expansion of RARE will require an additional feed source. Previous studies completed by EBMUD and Chevron identified the potential to use the refinery's own process wastewater effluent as a feed source for RARE. Using Chevron's process effluent would require the construction of new facilities to convey the water to RARE, and additional pre-treatment facilities could be needed depending on water quality. Due to uncertainty of additional supply for the expansion, only the 4.0 MGD expanded project is included in the 20 MGD by 2050 water recycling goal. EBMUD evaluated two other alternative potential feed sources to increase production at RARE: effluent from the City of Richmond's Water Pollution Control Plant (WPCP) and raw wastewater from EBMUD's North Interceptor diverted near Point Isabel. Using effluent from the City of Richmond's WPCP as a feed source for RARE would require construction

Table 5-5 **EBMUD Projections of Recycled Water Service Through 2050**

Project	Recycled Water Deliveries (MGD)				
Existing Projects	**2030**	**2035**	**2040**	**2045**	**2050**
North Richmond Reclamation Plant	3.5	3.5	3.5	3.5	3.5
Richmond Advanced Recycled Water (RARE)	3.4	3.4	3.4	3.4	3.4
East Bayshore Recycled Water Project, Phase 1A	0.2	0.2	0.2	0.2	0.2
San Ramon Valley Recycled Water Project, Phase 1	1	1	1	1	1
Total Existing Recycled Water Use	8.10	8.10	8.10	8.10	8.10
Future Projects	2030	2035	2040	2045	2050
San Ramon Valley Recycled Water Project	0.6	1.4	1.4	1.4	1.4
Phillips 66 Refinery Recycled Water Project	0	1.4	2.8	2.8	2.8
East Bayshore Recycled Water Project, Phase 2	0.2	0.4	0.7	0.7	0.7
Total Future Projections	0.8	3.2	4.9	4.9	4.9
TOTAL Recycled Water Projected Demand:	**8.9**	**11.3**	**13**	**13**	**13**

of new conveyance and treatment facilities. Using raw wastewater from the North Interceptor as a feed source for RARE would also require construction of new facilities. Neither of these two alternatives were considered to be cost effective.

East Bayshore Recycled Water Project Expansion

Future work on the multi-phase EBRWP will involve expanding the distribution system to deliver an additional 0.7 MGD of recycled water to customers in Oakland, Emeryville, and Alameda. Figure 5-4 shows the existing and planned pipeline network for the EBRWP.

The future phase of the EBRWP will include the installation of a new recycled water transmission pipeline under the Oakland-Alameda Estuary and recycled water distribution pipelines to serve users in Alameda. Future redevelopment in this area, including the former Alameda Naval Air Station, is expected to result in increased demand for water for irrigation. In 2023, EBMUD received federal funding for planning and design of the Oakland-Alameda Estuary Crossing Pipeline through the Water Resources Development Act (WRDA). EBMUD is currently investigating the possibility of repurposing a decommissioned potable water pipeline under the Estuary for recycled water.

In 2024, EBMUD completed the EBRWP Water Quality Improvements Pilot Study. The pilot study identified the design and operational parameters needed to improve the EBRWP water quality using reverse osmosis and breakpoint chlorination if EBMUD pursues additional commercial and industrial demands. The pilot study also assessed the characteristics of the raw wastewater streams from EBMUD's interceptors and evaluated if these streams could be used as an alternative source water for EBRWP, instead of using treated effluent from the MWWTP. EBMUD is not pursuing significant water quality improvement projects at EBRWP in the near term due to the high capital costs and reduced customer demands in the EBRWP service area. Future expansion of EBRWP will primarily focus on irrigation demands instead of limited commercial/industrial demands that would require significant treatment upgrades. EBMUD is evaluating corrosion control improvements at the plant for the distribution system.

EBMUD continues to work on identifying and evaluating potential pipeline alignments to expand the EBRWP service area. In 2024, EBMUD updated the East Bayshore distribution system hydraulic model in order to determine the pipeline extension and sizing that will allow for the most recycled water usage. Based on the results of the EBRWP

Water Quality Improvements Pilot Study and the updated hydraulic analysis, EBMUD determined that expansion into Alameda is the most cost-effective alternative to increase production at the EBRWP. Design and construction of recycled water pipelines within Alameda are anticipated to begin in 2027 and 2030, respectively.

San Ramon Valley Recycled Water Project – Future Phases

When complete, the San Ramon Valley Recycled Water Project will include up to 75 miles of transmission and distribution pipelines. Figure 5-5 shows existing and planned project phases. Phases 1and 2 have already been completed and are in service. Portions of the Phase 3 distribution pipelines have been constructed but are not currently operational. Expansion will be dependent upon adequate recycled water supply. Coordination with regional agencies for supplemental supplies is ongoing and long-term agreements are planned to be in place by 2026. In the future, EBMUD will complete Phases 3 and 4 to serve additional customers in San Ramon and Danville. Phase 5 would extend service to customers in the community of Blackhawk. Design and construction of the future phases are anticipated to begin in 2026 and 2028, respectively.

Phillips 66 Rodeo Renewed Recycled Water Project

The Phillips 66 Rodeo Renewed Recycled Water Project could provide up to 2.8 MGD of recycled water to the Phillips 66 Rodeo Renewed Project in Rodeo for use in the refinery boilers and cooling towers. Phillips 66 will evaluate the potential for onsite reuse of refinery effluent in Phase 1. Depending on the results of Phase 1, a new recycled water treatment plant could treat secondary effluent from the Pinole-Hercules and Rodeo wastewater treatment plants as part of Phase 2. Additional studies are needed to confirm recycled water demands, water quality requirements, availability of supply, and funding sources.

Satellite Recycled Water Treatment Plant Projects

Satellite or on-site recycled water treatment plants take raw sewage from a sewer pipeline and treat it to meet the Title 22 standards required for a specific project. These systems can cost-effectively serve large water users that are located far from a centralized wastewater treatment facility. EBMUD has identified several potential satellite recycled water treatment plant projects that could provide recycled water to customers. Satellite recycled water projects are being considered by the University of California Berkeley, Rossmoor Community, Diablo Country Club, and the Sequoyah Country Club. These potential projects would be developed, self-financed, and operated by customers. While not included in EBMUD's water recycling goal, EBMUD continues to support customer implementation of on-site satellite treatment projects. Although EBMUD will not provide financing for construction or operation of these projects, staff will be available to help with programmatic aspects of implementation.

5.3 Recycled Water Optimization Plan

EBMUD plans to implement the most cost-effective projects to meet its overall goal of delivering 20 MGD of recycled water by the year 2050. Following is a discussion of the challenges to expanding the use of recycled water and EBMUD's attempts to address those challenges.

5.3.1 Challenges to Implementation

Although there is growing acceptance of the importance of recycled water in meeting California's water needs, there continue to be challenges to implementing recycled water projects. EBMUD has identified financial and technical challenges and has developed strategies to improve the feasibility of recycled water projects.

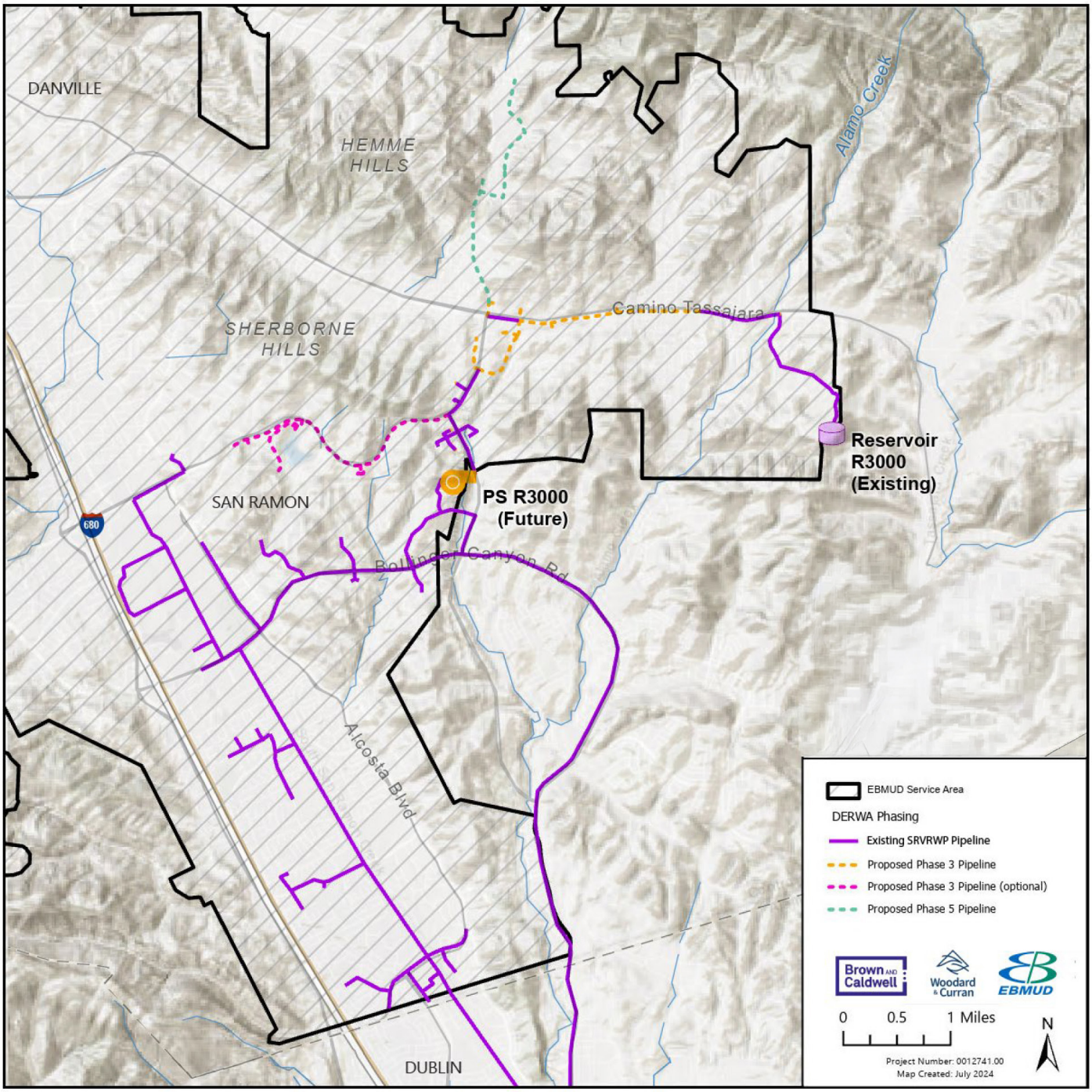
Financial Challenges

One of the main challenges to expanding the recycled water customer base is the cost associated with installing and maintaining a separate distribution system for the recycled water. California regulations set strict guidelines on how pipes, valves, and other appurtenances must be installed to prevent cross-connection or contamination of the potable water system. Installing new recycled water pipelines can be expensive, particularly in dense, urban areas where utility corridors are already packed with utilities.

In addition, the cost of retrofitting customer sites to use recycled water can also be quite high because a separate piping system must be installed for the recycled water. For some customers, installing and testing the new system requires disrupting their normal business operations, which can have

Figure 5-4 **East Bayshore Recycled Water Project**

Figure 5-5 **San Ramon Valley Recycled Water Project**



financial impacts. EBMUD has identified several strategies to improve the financial viability of recycled water projects, which are discussed in Section 5.3.2, "Encouraging Recycled Water Use."

Technical Challenges

One of the principal technical challenges associated with recycled water production is matching water quality to the customer's specific needs. California state law and EBMUD's recycled water permits set requirements for protecting human health and the environment, but some customers have water quality needs that require additional treatment. Industrial customers can have very specific water quality requirements that can be challenging to meet given the wastewater source quality and conventional recycled water treatment technologies.

For example, customers using recycled water for industrial cooling systems may require very low levels of ammonia or hardness. For customers using recycled water for irrigation, the level of salts, as measured by total dissolved solids (TDS), inherent in the wastewater supply can be damaging to some species of plants.

Securing sufficient wastewater effluent supply is another challenge associated with future implementation of EBMUD's recycled water program. Additional wastewater supply will be needed in order to implement new recycled water projects and expand existing projects. Bay Area wastewater treatment plants have experienced declining wastewater flows due in part to increased water conservation efforts. As such, there is a degree of uncertainty regarding EBMUD's forecasted recycled water production.

In addition, reduced customer demands and changes in land use have resulted in less demand for recycled water. There is also uncertainty in refinery industry water demands in the future.

In some cases, EBMUD has invested in advanced treatment technologies to meet customer water quality requirements, such as at the RARE facility. EBMUD also provides training to irrigation customers on the effective use of recycled water for landscaping. At times, EBMUD has also made available to those customers the services of a horticulturalist to help address any concerns related to specific plants or landscaping issues.

5.3.2 Encouraging Recycled Water Use

Given the importance of recycled water as part of EBMUD's overall water supply portfolio, EBMUD has developed numerous strategies and policies for encouraging its use. Grants and loans and long-term contracts help to make recycled water more economical. Public education and regional partnerships help to improve acceptance of recycled water projects. EBMUD also has policies in place to promote the use of recycled water where feasible.

Incentives for Recycled Water Customers

A major incentive for customers to use recycled water is the reliability and availability of the supply during a drought, which is not subject to rationing or surcharges. In addition, EBMUD has provided a number of incentives to encourage customers within EBMUD's service area to use recycled water. EBMUD funds cost-effective site retrofits that accommodate the use of recycled water for existing customers. EBMUD also funds the training of customers' staff in the proper use of recycled water and provides free technical support to customers who receive recycled water.

The FY 2026 recycled water rate is $6.37/CCF. If they were not using recycled water, EBMUD's recycled water customers would pay $8.52/CCF, the FY 2026 rate for "All Other Water Use". As such, using recycled water presently represents approximately 25% savings over potable water use. The recycled water rate and the "All Other Water Use" rates are cost-of-service based rates as detailed in EBMUD's Cost of Service Rate Study[1].

Grants & Loans

To help reduce the overall cost of recycled water projects, EBMUD actively pursues state and federal funding in the form of grants and low-interest loans. Funding sources have included the State Water Bond Bills (Propositions 13 and 84), the Federal Water Resources Development Act (WRDA), the SWRCB Revolving Fund program, and the Water Reuse Financing Authority, and the Department of Water Resources Integrated Regional Water Management Plan (IRWMP) implementation grants.

In 1999, WRDA authorized up to $15 million in grant funds for the San Ramon Valley Recycled Water Project. This authorization is nearly fully appropriated, with funding used to develop the

1 Available at *www.ebmud.com/rates*

SRVRWP distribution system. In 2007, WRDA authorized up to $25 million for EBMUD's recycled water program. In 2023 and 2024, $7 million was appropriated for the East Bayshore Recycled Water Project Oakland-Alameda Pipeline under this authorization. In 2025, Congress increased the WRDA authorization to $45 million for EBMUD's recycled water program.

Grant funds from the SWRCB have been used in the planning, design, and construction phases of the EBRWP and the SRVRWP. The construction of EBMUD's NRWRP was made possible through a low-interest rate loan provided through the SWRCB's low-interest rate loan program.

Additionally, EBMUD's RARE facility received a $2.1 million grant from the California Department of Water Resources, through the Integrated Regional Water Management Program, for the purchase of the microfiltration system.

EBMUD was awarded Proposition 84 grant funding through the IRWMP process to expand the East Bayshore and San Ramon Valley distribution systems. EBMUD was awarded $741,000 in 2013 and $1,000,000 in 2014 for East Bayshore, and $2 million in 2014-2015 for San Ramon Valley.

In 2018, the SWRCB awarded a $2.5 million Green Project Reserve 100% Principal Forgiveness loan for the expansion of the recycled water treatment plant for the SRVRWP.

EBMUD will continue to seek outside funding sources for recycled water projects in order to help reduce the overall cost of recycled water to EBMUD customers.

Long-Term Contracts

The majority of the recycled water distributed by EBMUD is sourced from wastewater treatment plants that are owned and operated by other utilities. It is therefore very important for EBMUD to enter into long-term agreements with the utilities that provide the treated effluent for use by EBMUD to ensure that both the price and the supply of recycled water are stable. EBMUD's Policy 9.05 requires, wherever possible, that agreements with other agencies have a term of twenty years or more. Policy 9.05 also states that the agreements should include provisions governing facilities operation and maintenance responsibilities. EBMUD has entered into long-term agreements for those existing projects that are dependent upon another agency as a source of the recycled water, and EBMUD intends to maintain this policy for all future projects.

In some cases, EBMUD also enters into long-term contracts with customers for specific projects. EBMUD and Chevron executed 25-year agreements for the RARE Water Project in 2008. In 2018, EBMUD and Chevron executed an updated agreement with a 10-year term extension to continue operating the NRWRP. EBMUD, DSRSD, DERWA, and Central Contra Costa Sanitary District (Central San) are working toward executing a 50-year agreement in 2026 to divert a portion of wastewater from Central San to the DSRSD wastewater treatment plant to supplement recycled water supplies to the SRVRWP. These long-term contracts allow EBMUD to invest in the facilities needed to meet specific customer water quality requirements and supply reliability.

Regional Planning

EBMUD participates in a variety of regional and statewide organizations involved in regional planning for recycled water. EBMUD is active in the Bay Area Clean Water Agencies (BACWA) Recycled Water Committee, the WateReuse Association Northern California Chapter, WateReuse California Legislative/Regulatory Committee, WateReuse California Board, and CUWA Water

Table 5-6 **Existing EBMUD Non-Potable/Raw Water Projects**

User	Water Supply Source	Non-Potable/ Raw Water Use	Average Daily 2025 Demand (MGD)	Year Initiated
Water Treatment Plants	Washwater Reclamation	Recycle Filter Backwash [1]	2.50	1970
Lake Chabot Golf Course	Chabot Reservoir	Golf Course Irrigation	0.10	1991
Willow Park Golf Course	Chabot Reservoir	Golf Course Irrigation	0.05	1991

1. Recycled Filter Backwash = Daily average washwater flow from WC + El Sob + Laf + Orinda + USL WTPs for CY 2025

Reuse Committee, among others. Through involvement in these organizations, EBMUD and other agencies share technical information, discuss emerging regulatory and policy trends, and work cooperatively to expand the use of recycled water.

EBMUD also participated in the development of the 2013 Bay Area IRWMP Update. The IRWMP is a nine-county effort to improve water supply reliability, protect water quality, manage flood protection, and protect habitat and watershed resources. EBMUD's water recycling program is included in the IRWMP, and EBMUD has been awarded grant funding for recycled water projects through DWR's Proposition 50 and 84 programs for IRWMP projects.

EBMUD is also participating in the Bay Area One Water Network with other agencies to coordinate on regional messaging and education to support the potable reuse in the future.

Public Education/Information

In order to encourage the increased use of recycled water, EBMUD is committed to educating and informing the public that recycled water is safe for the public and for the environment. EBMUD increases public awareness of the benefits of using recycled water through presentations to community groups and at conferences, coordination of workshops, meetings with potential customers and local planning agencies, and distribution of educational materials. EBMUD also provides information on recycled water in general and on the EBMUD's recycled water program specifically both in print and electronically through EBMUD's website at https://www.ebmud.com/water/recycled-water.

EBMUD staff provides training on recycled water to Site Supervisors at all recycled water sites, as well as regularly to each EBMUD maintenance yard and other relevant EBMUD work groups including customer services, the new business office, and public affairs. EBMUD also presents to local groups including ReScape, which permits businesses and individuals in green landscaping principles.

EBMUD is also developing an education and outreach plan to spread awareness of potable reuse to support future long-term water supply resiliency.

Prohibiting Specific Fresh Water Uses/ Requiring Recycled Water Use

EBMUD's Policy 9.05 (consistent with California Water Code, Section 13550) requires the use of recycled water for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to plant life, fish or wildlife. EBMUD proactively utilized the Water Recycling in Landscaping Act to promote the use of recycled water by new development or redevelopment approved by local cities or counties. EBMUD was able to encourage a number of cities to adopt dual-plumbing ordinances that would require new development or redevelopment to separately plumb for appropriate recycled water uses if it is determined that EBMUD would be able to provide recycled water for these uses.

Research & Studies

EBMUD has provided financial support to the Direct Potable Reuse (DPR) initiative organized by the WateReuse Foundation and the WateReuse Association California which includes 26 research projects that address the technical, regulatory, scientific, and attitudinal issues surrounding direct potable reuse projects in California. The results of the DPR initiative studies helped inform regulators, utilities, and communities as they considered implementation of potable reuse.

5.4 Other Non-Potable Water Use

EBMUD has a number of existing non-potable water projects, whose locations are shown in Figure 5-3. These projects do not use treated wastewater (i.e., recycled water). Instead, they use reclaimed water for filter backwash or raw/non-potable water for irrigation.

Existing raw/non-potable water projects, listed in Table 5-6, reduce demands on EBMUD's potable water supply by almost 3.2 MGD.

5.4.1 Water Filter Plant Washwater Reclamation

Facilities for recycling filter backwash water from most of EBMUD's water filter plants were constructed in the late 1970s to comply with federal discharge requirements. The National Pollutant Discharge Elimination System (NPDES) permit required the majority of suspended solids to be removed from the washwater prior to discharge into a receiving stream. Rather than discharge this wastewater, EBMUD treatment plants instead recycle it as raw water supply for the plants, resulting in potable water savings. The Walnut

Creek, Sobrante, and Upper San Leandro treatment plants operate sedimentation facilities to collect solids from the washwater and recover the clarified overflow, which is then recycled through the potable water treatment process on-site. At the Orinda and Lafayette treatment plants, spent filter backwash water is ultimately treated at EBMUD's downstream treatment plants. The operation of filter plant washwater reclamation facilities saved EBMUD approximately 3 MGD in 2024.

The ability to treat and recycle about 5 MGD of washwater at the Orinda Filter Plant became available in 1988; however, because direct discharge of washwater to the San Pablo Creek replenishes the San Pablo Reservoir and becomes available for use at the Sobrante and San Pablo Filter Plants, no additional water savings are realized.

5.4.2 Raw Water Projects

Lake Chabot Golf Course

Since 1991, EBMUD has provided raw water from Chabot Reservoir to irrigate the City of Oakland's Lake Chabot Golf Course. Since Chabot Reservoir is a standby terminal reservoir not connected to the distribution system, use of this water for irrigation reduces potable demand. In fact, this reduction of potable water demand eliminated the need to construct a proposed new potable water reservoir.

Project facilities include a pump station, 9,500 feet of supply pipeline, and a surge tank/storage reservoir. In 2024, this project supplied an average of 0.11 MGD of raw water to the golf course.

Redwood Canyon Golf Course

Similar to the Lake Chabot Golf Course project, this project uses raw water from the Chabot reservoir to irrigate the Redwood Canyon Golf Course (formerly known as the Willow Park Golf Course) in Castro Valley. Facilities include a submersible pump station and 8,500 feet of distribution pipeline. In 2024, the project supplied an average of 5,300 gallons per day of raw water to Redwood Canyon.

Wastewater and Recycled Water

Chapter 6 – Water Conservation Program

6.1 EBMUD Conservation Background

EBMUD's water conservation programs address both supply-side (distribution system) and demand-side (customer) water use, along with evolving state legislative and regulatory requirements. Demand-side water conservation programs and projects improve customer water use efficiency and include water use surveys, incentives, education and outreach activities, market transformation activities, and regulatory programs. Supply-side water conservation programs and projects, which improve efficiency before water reaches the customer, include distribution-system leak detection and repair programs and investments in metering and advanced technologies.

Since the 1970s, demand management has been an important part of EBMUD's water practices and policies, designed to promote reasonable and efficient use of supplies. A summary of key EBMUD water conservation efforts and actions are chronicled in Figure 6-1. This chapter specifically discusses EBMUD's water conservation efforts following the implementation of its Water Conservation Strategic Plan (WCSP), first adopted in 1994 and last updated in 2021.

6.1.1 Water Conservation Strategic Plan

Since EBMUD completed its first WCSP in 1994, the document has served an important role in guiding and tracking the development of EBMUD's conservation programs. The 2021 update outlines existing and planned efforts to support meeting long-term water conservation planning goals to the year 2050. It presents a phased implementation of conservation programs based on threshold water production and customer demand levels designed to achieve a cumulative 70 million gallons per day (MGD) of water savings by 2050.

In developing its conservation goal, EBMUD evaluated a range of conservation programs and projects suitable to its service area demographics, customer water use patterns, and changing regulations, then selected the projects best suited to provide cost-effective and measurable water savings. When calculating the potential impact of conservation projects, EBMUD assumes that the annual water savings from some projects may decrease over time. As a result, EBMUD builds in more conservative targets and implementation strategies to meet savings milestones. Water savings measurements include both active customer participation in EBMUD conservation programs and projects and natural savings from code adoption and increased market saturation of water-efficient technology. EBMUD evaluates water savings through water usage patterns pre- and post- conservation measure adoption and in comparison to customer control groups.

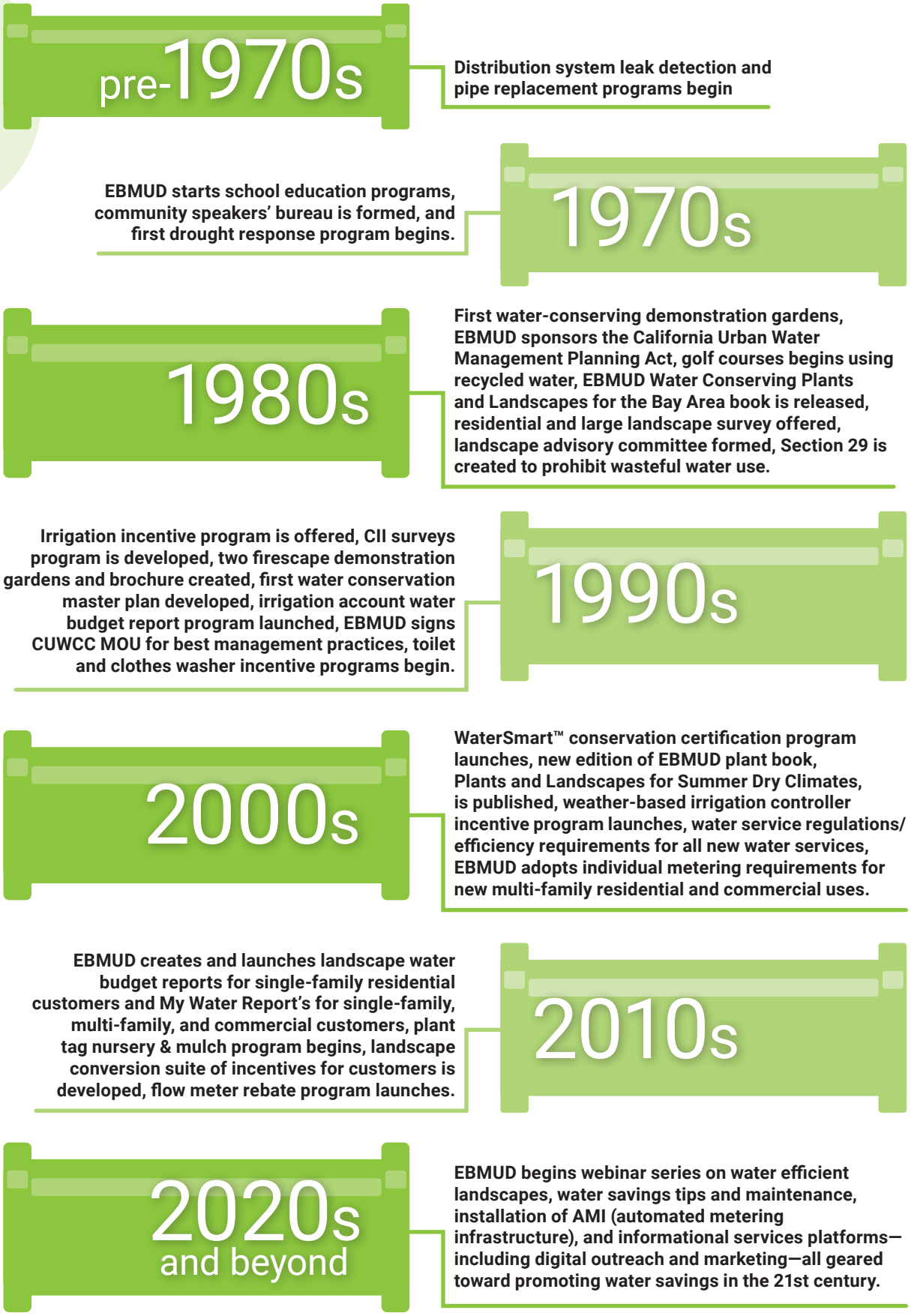
The WCSP 2021 Update detailed water conservation programs, methodologies, and goals that are established in EBMUD's water supply planning and mandated by community-wide regulation or statute. It defined the implementation strategies, objectives, and tactics required to achieve long-term water conservation savings, presenting a ten-year implementation schedule for water conservation programs required to help meet the need for water. The ten-year planning horizon allows EBMUD to emphasize emerging water-efficient technology and recent and anticipated regulatory and legislative code changes. The WCSP 2021 Update showed how EBMUD will work to meet the requirements of existing and emerging State regulations, including the Long-Term Framework legislation passed in 2018 (SB606 and SB1668). The Long-Term Framework, discussed in more detail in Section 6.3.2, sets water use efficiency requirements that utilities must meet in the subsequent years.

6.1.2 Estimated Water Savings and Recent Accomplishments

Since the 1970s EBMUD has invested significantly in customer-targeted water conservation programs. EBMUD estimates that, from when it first began implementing a WCSP in 1995 through 2024, it has achieved 53 MGD of water savings.

Since the 2020 UWMP, EBMUD has continued to expand its conservation activities. From 2021 to 2025, EBMUD responded to more than 3,220 customer inquiries including nearly 1,500 water waste reports, and it also increased conservation education and community outreach efforts through delivery of more than 150 community presentations, events, and workshops. During 2021-2025 there was a continued shift towards electronic education and outreach, especially during the COVID 19 pandemic.

Figure 6-1 **Water Conservation Historical Highlights**



Although the program is shifting away from rebates and incentives, EBMUD maintains a focus on several select rebate programs, such as lawn replacement. From 2021 to 2025, more than 1,442,000 square feet of turf were converted to water-efficient alternatives as a result of EBMUD's lawn rebate program. Key EBMUD water conservation program accomplishments from CY2021-2025 are listed in Table 6-2 and include:

- Over 5,700,000 Water Reports distributed to residential and non-residential customers;
- Over 177,000 leak alerts sent to customers, with over 60 percent of emails opened;
- Over 5,000 rebates totaling more than $2.3 million were distributed to EBMUD customers;
- Over 4,300 free water-saving devices (e.g. showerheads, faucet aerators) were distributed;
- More than 3,600 water use surveys were conducted and more than 11,000 Home Survey Kits were requested by customers;
- 10,500 water conservation digital and print publications were distributed to customers and students; and
- More than 150 community events including conservation workshops, presentations, and festivals were attended by EBMUD water conservation representatives.

6.1.3 Future Program Growth

As part of the 2050 Demand Study, EBMUD charted potential future conservation program growth. High and low estimates of potential conservation were developed by varying participation rates, resulting in a range of 66 to 74 MGD of potential long-term savings in 2050. Figure 6-2 shows the range in EBMUD's forecasted increases in water conservation over time.

Future program development will continue to expand beyond fixture replacement, rebates, and incentives, and be geared toward informational services and behavioral tools that help customers manage their water use more effectively. These include promoting a water conservation culture to foster long-term behavioral and social change. This will be achieved through education and outreach, providing self-help resources such as instructional videos and online guides, and leveraging digital platforms (e.g., social media, mobile apps, and customer portals) to deliver timely water use information and promote efficient practices. This shift complements existing device-based programs by engaging customers directly with technology and information to support long-term efficiency.

To ensure long-term water conservation targets are met, EBMUD plans its conservation program development considering whether water savings from particular projects and measures remain constant or decrease over time. Despite EBMUD's efforts to encourage water-saving behavior, customer conservation behaviors may change; in particular, after a drought has ended customers may revert back to pre-drought behaviors, which can lead to rebounds in demand. In addition, the water savings from hardware replacements can decrease with product wear.

The potential water savings over time for water conservation activities are estimated based on data including demographics, age and size of housing stock, market saturation levels, and calculated water savings. Estimates of water savings for each activity are based on standard industry values, actual account meter readings pre-and post- conservation intervention, previous EBMUD research, pilot studies, follow-up surveys, and general water-consumption monitoring.

6.2 Water Conservation Program Elements

EBMUD's Water Conservation program uses a variety of different strategies to help achieve sustained water savings across customer categories and throughout its service area. Some of these strategies utilize information technology to help customers make informed decisions about water use; others include providing education and outreach, targeted to specific groups, to help effectuate behavior changes. EBMUD continues to invest in rebates and incentives to encourage customers to make water-saving changes to their properties. An industry leader, EBMUD leads and participates in research studies to help develop and understand new water efficiency technologies and is involved in legislative updates regarding water conservation regulations. Lastly, EBMUD invests significantly in supply-side water loss control measures to help conserve water and reduce losses in the distribution system.

Table 6-1 **Water Conservation Program Activities**

Cross-Section of Programs and Measures for EBMUD Customers	
AMI Meter Installation	Water Loss Control
Digital Outreach and Marketing	Section 31 Water Use Efficiency Plan Review
Incentive Programs (i.e. Flowmeter, Lawn Conversion, Landscape Equipment, Irrigation Repair, Landscape Design Assistance, Custom Rebates)	Customer Notifications: Unusual Use, Potential Leaks, On Track for a High Bill, High Use, etc.
Water Budget Program	My Water Reports Program (Water Reports and Online Portal)
Home Survey Kit	WaterSmart Gardener Program (i.e. Landscape Advisory Committee, Speaker Series, Trainings and Events, etc.)
Water Use Site-Visits	Water Waste Response

6.2.1 Water Management Services

Water management services provide customers with the information needed to make informed decisions about their water use. EBMUD leverages technology to provide customers access to historical and current water consumption, interactive tools to evaluate and understand water use patterns, and customized water use recommendations based on each property's unique characteristics. EBMUD has continued to work on expanding key initiatives including customized water consumption reports for households and businesses, landscape water budget reports for all irrigation accounts, and residential parcels, leak notifications, and water use surveys.

"My Water Report" and Online Portal Program

EBMUD's My Water Report Program provides customers with personalized, direct communications on water use, high volume leaks, and water conservation recommendations such as rebates and incentive programs. Water use for single-family customers is contextualized with comparisons to other households, as research indicates that comparative norms can motivate behavior change. For non-residential customers, water use is compared to past trends at that property. Since the program launch in 2014, EBMUD has engaged half of its customers with Water Reports, reaching over 202,000 individual households with 5.5 million Water Reports and 177,000 leak alerts.

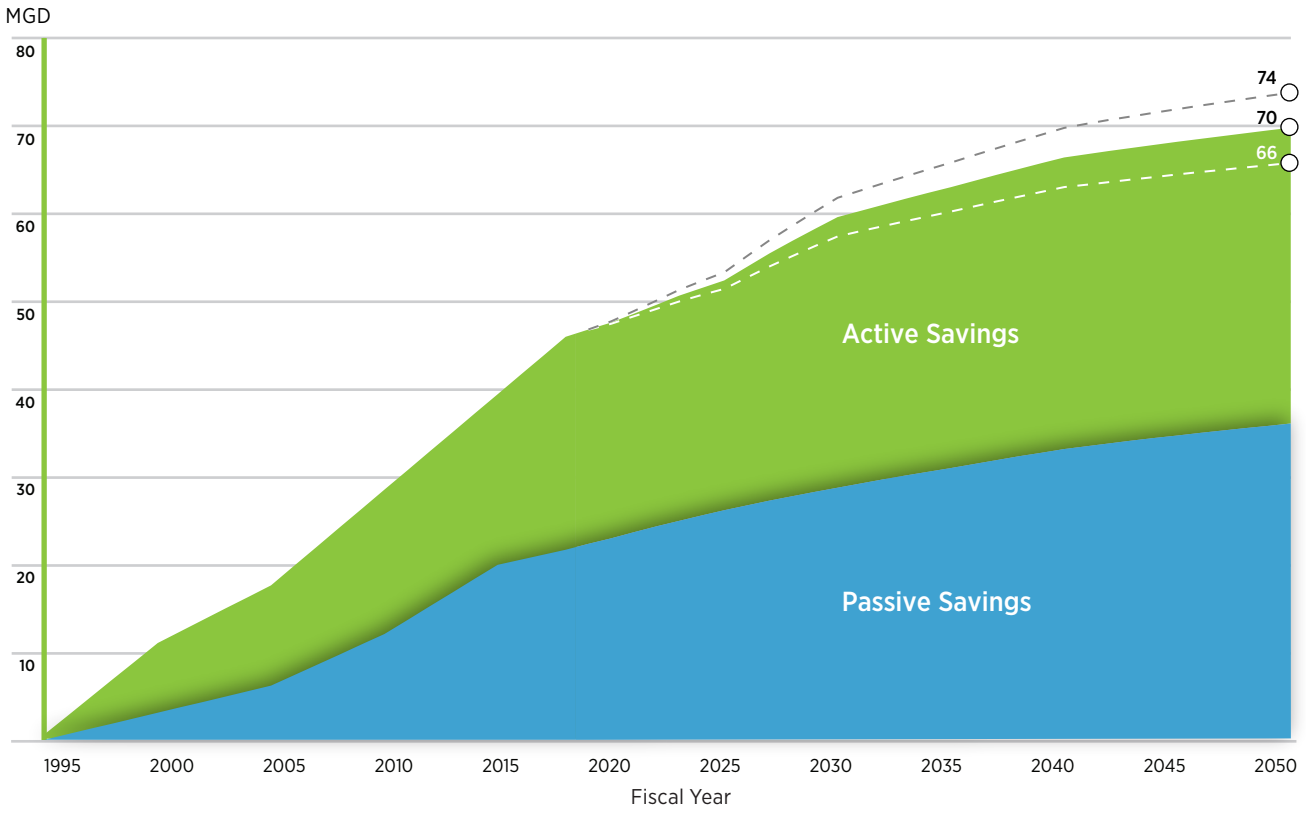
To provide Water Reports, an engagement and data analytics platform is used to generate content, deliver the reports, send automated alerts, and communicate with customers.

Table 6-2 **Water Conservation Program Accomplishments***

Program	Qty.
Water Management Services	
Water Report – Residential	5,354,700
Water Report - Non-residential	350,400
Water Saving Device Distribution (showerheads, aerators, hose nozzles)	4,300
High Water Usage Notifications (i.e. leak alerts)	177,000
Home Survey Kits - residential	11,600
Surveys - residential	560
Surveys - non-residential	3,080
Conservation Incentives	
Rebates - residential	5,020
Rebates - non-residential	230
Education And Outreach	
Educational Materials (Books, Posters, Digital Guidebooks, etc.)	10,540
Community events (i.e. conservation workshops, presentations, and festivals)	150
Regulation And Legislation	
Section 31: Water Use Efficiency Plan Review	1710
Water Waste Response	
Residential	990
Non-residential	490

* Data is from August 2025, not complete data.
Rounding notes: Using round down to not over count.
Numbers over 10k are rounded to the hundreds, otherwise tens.

Figure 6-2 EBMUD Water Conservation Forecast



EBMUD uses the platform to automatically notify customers by email, text, or voice of unusual water use patterns and continuous water use (for Advanced Metering Infrastructure (AMI) customers). Notifications are paired with an interactive leak resolution tool that guides the customer through the steps to investigate the unusual use, highlights common reasons for high water use, and allows the customer to share their findings with staff. Leak alerts and the resolution tool are especially well-received by customers, with about 60 percent of customers opening leak alert emails, and 35 percent engaging with the self-service resolution tool.

The online portal allows customers to access more detailed consumption information, view water-saving recommendations, and indicate which water-saving actions they are considering or have already taken (i.e. updating plumbing fixtures, replacing the lawn, or checking for leaks). Nearly 133,000 EBMUD customers have registered on the online portal.

Customer surveys evaluating the program revealed that participants, when compared to non-participants, were more aware of ways to save water. Additionally, customers were more likely to rely on EBMUD for landscaping resources, reported higher trust and satisfaction in services provided, and considered the program to be a valuable service.

Advanced Metering Infrastructure (AMI)

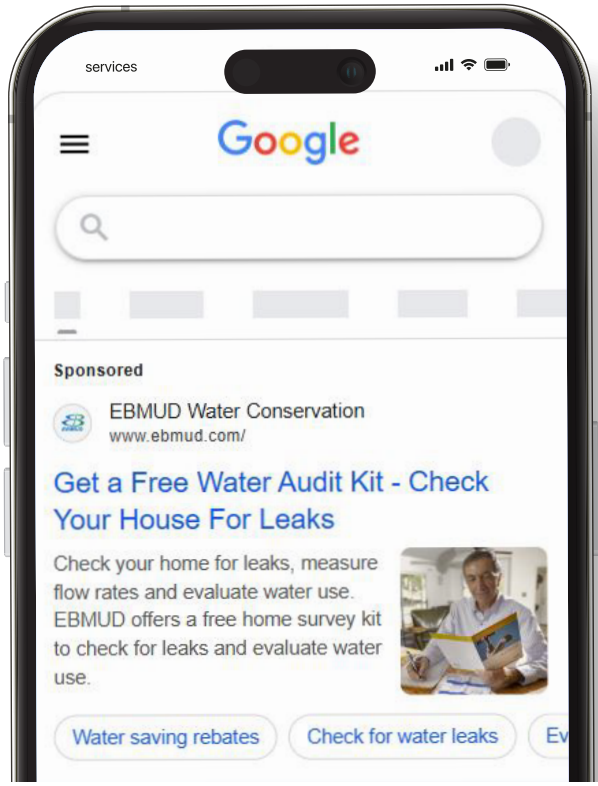
AMI is a system of smart meters, communications networks, and data management tools that enables two-way communication between utilities and customers. In addition to automating meter reading, AMI includes tools to monitor and analyze water consumption and provide real-time leak detection. EBMUD uses AMI technology to improve demand- and supply-side conservation.

Using the existing water consumption portal described above, the roughly 5 percent of customers currently with AMI can view their hourly and daily consumption and receive timely notification of potential leaks, higher than expected daily use, or when a bill is on track to be higher than usual. Using this tool, EBMUD has identified numerous large leaks and worked with customers to reduce water demand. The online portal can identify timed irrigation and likely irrigators, so customers who are still operating their irrigation systems during winter rains can be notified. The portal can also

be used to show the savings after leaks have been fixed and alerts customers if leaks return.

As described in Section 6.2.6 below, EBMUD completed an AMI research project in 2019 to evaluate the water and energy savings achieved by sharing hourly water consumption data with residential customers. EBMUD used this research to help evaluate the water savings from providing residential customers with this information. However, due to complications from COVID-19 and the Shelter-in-Place period, it was not possible to statistically identify the energy saved from water other than the energy saved by reduced pumping from water conservation.

EBMUD has found the largest water savings by working with Commercial, Institutional, and Irrigation customers where leaks up to 80,000 gallons per day have been identified and fixed. Some of these leaks ran for up to 6 years prior to their repair. The AMI system has been invaluable in documenting these savings and helping the customers respond quickly when new leaks appear. The discovery of these leaks has been presented on at national conferences and online webinars. EBMUD now has a team dedicated to reviewing all new potential large leaks that occur and notifies customers to offer assistance in identifying these large leaks.



Water Budgets

A water budget shows customers the amount of water needed to irrigate a landscaped area and compares actual water consumption to the budget goals. EBMUD calculates water budgets for each property using the size of a customer's landscaped area, plant requirements, and local weather data from weather stations maintained by EBMUD. EBMUD's Water Budget Program is a targeted informational service for homeowners associations (HOAs), parks, golf courses, cities, counties, and businesses. In 2024, more than 25,000 landscape water budgets were sent to around 4,200 customers with dedicated irrigation meters. The program continues to add new customers when they start service or when renovated sites upgrade their meter. This has been a valuable tool in providing informational services to our customers to support water conservation targets.

Water Use Surveys

EBMUD offers free water use surveys to help single family residential, multi-family residential, commercial, industrial, institutional, and dedicated irrigation customers improve efficiency indoors and outdoors. Surveys may include evaluation of past and current water use, leak detection, fixture flow rate testing, irrigation system inspections, and customized recommendations to lower consumption and costs. Residential customers can complete self-survey kits, phone consultations, or on-site visits, which focus on plumbing fixtures, irrigation scheduling, and efficient landscape practices. Multi-family surveys expand on these services by requiring a self-survey, sampling units for efficiency, and coordinating large-scale distribution of water-saving devices, when eligible. Commercial, industrial, and institutional surveys address complex facility and process water uses, cooling towers, and distribution systems, and may include free water-efficient devices and flowmeter loans to identify water use characteristics and guide cost-effective upgrades. Self-survey kits have also been successfully used by smaller commercial customers to identify leaks and other water inefficiencies. Irrigation surveys serve HOAs, parks, golf courses, and schools, providing on-site evaluations, sprinkler uniformity testing, and staff training. More than 3,604 surveys were conducted between 2021 and 2025. For commercial, multi-family, and irrigation accounts, EBMUD also conducts non-functional

turf surveys to identify opportunities for turf replacement with water-efficient landscaping. HOAs, which are among the largest water users, are a particular focus of the non-functional turf surveys and irrigation evaluations. All customers who participate in surveys are eligible for EBMUD's rebate programs, which provide financial incentives for water-efficient devices and lawn conversions. Collectively, these surveys are a cornerstone of EBMUD's conservation programs, helping customers manage water wisely while reducing costs and supporting long-term water conservation goals.

6.2.2 Conservation Incentives

EBMUD has a long history of offering rebates and incentives to help customers improve their water use efficiency. While some rebates have been phased out due to market saturation, EBMUD continues to find value in offering rebates and incentives for certain water-saving features.

Landscape Rebate Program

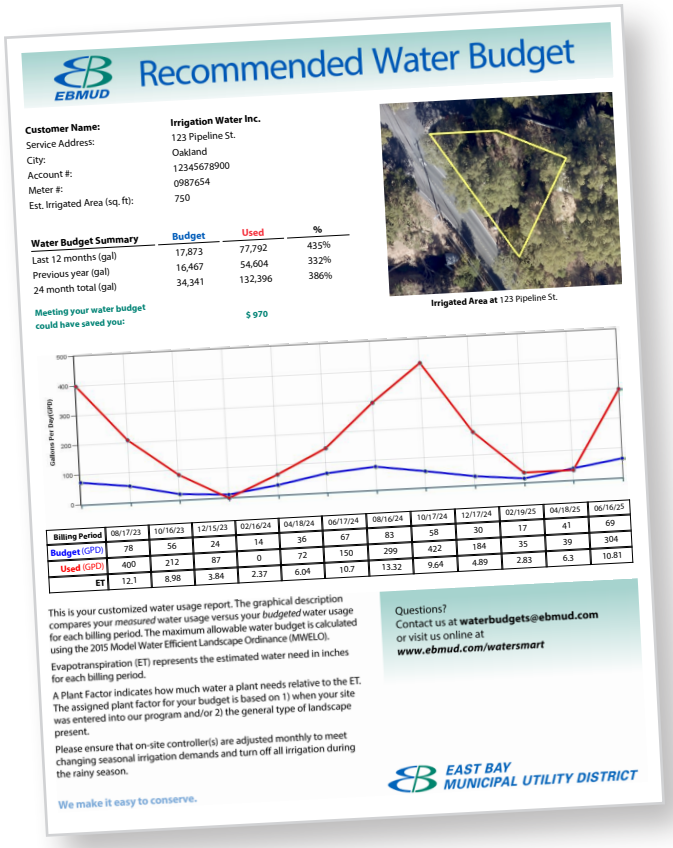
Outdoor water use has the greatest potential for water savings. In a 2002 study, EBMUD assessed baseline saturation rates of water conservation behaviors and attitudes, and at the time, fewer than 40 percent of EBMUD customers were willing to implement outdoor conservation measures. The 2002 study showed that customers would need great motivation to reduce lawn area, change plant materials, and improve irrigation efficiency. To motivate outdoor water conservation, EBMUD continues to offer a comprehensive landscape rebate program that bundles lawn conversions, irrigation equipment upgrades, and design assistance. There is a strong educational component to the program; pre- and post-conversion site visits include virtual or in-person education regarding water conservation, plant choices, water-efficient landscape design, irrigation scheduling, and maintenance practices.

Lawn Conversion Rebate

Customers participating in the lawn conversion rebate are reimbursed per square foot of lawn that is converted to a low water use landscape up to a set maximum. Adhering to sustainable landscaping principles, the soil must be covered by a 3-inch layer of mulch, and 50 percent of the former lawn area must be covered with low water-use plants, with an emphasis on native plants that require little to no supplemental irrigation. The Super Rebate, introduced in 2021, offers double the rebate amount for projects that follow ecological best practices, including sheet mulching instead of physical lawn removal, planting primarily California native plants, and restricting installation to the rainy season (September through February). At the same time, the Median Strip Rebate was launched to help commercial customers convert non-functional lawn areas in median strips to low water-use landscapes. The rebate program continues to show reductions in outdoor water use while encouraging broader adoption of native plants and sustainable landscaping practices across EBMUD.

Landscape Designer Assistance Program

One barrier to lawn conversion is garden design. To assist customers with overcoming this barrier, the EBMUD launched a Landscape Design Assistance Program (LDAP) in 2022. The LDAP consists of a 2-hour session with a professional landscape designer who provides recommendations on plant choice, layout, and/or irrigation ideas for a selected area of landscape. The customer selects an approved designer listed on the EBMUD LDAP webpage, pays the designer a fee at the time of service and is reimbursed by EBMUD



EBMUD

Recommended Water Budget

Customer Name:
Service Address:
City:
Account #:
Meter #:
Est. Irrigated Area (sq. ft):

Irrigation Water Inc.
123 Pipeline St.
Oakland
12345678900
0987654
750

Water Budget Summary	Budget	Used	%
Last 12 months (gal)	17,873	77,792	435%
Previous year (gal)	16,467	54,604	332%
24 month total (gal)	34,341	132,396	386%

Meeting your water budget could have saved you: $ 970

Irrigated Area at 123 Pipeline St.

Gallons Per Day(GPD)

Billing Period	08/17/23	10/16/23	12/15/23	02/16/24	04/18/24	06/17/24	08/16/24	10/17/24	12/17/24	02/19/25	04/18/25	06/16/25
Budget (GPD)	78	56	24	14	36	67	83	58	30	17	41	69
Used (GPD)	400	212	87	0	72	150	299	422	184	35	39	304
ET	12.1	8.98	3.84	2.37	6.04	10.7	13.32	9.64	4.89	2.83	6.3	10.81

This is your customized water usage report. The graphical description compares your *measured* water usage versus your *budgeted* water usage for each billing period. The maximum allowable water budget is calculated using the 2015 Model Water Efficient Landscape Ordinance (MWELO).

Evapotranspiration (ET) represents the estimated water need in inches for each billing period.

A Plant Factor indicates how much water a plant needs relative to the ET. The assigned plant factor for your budget is based on 1) when your site was entered into our program and/or 2) the general type of landscape present.

Please ensure that on-site controller(s) are adjusted monthly to meet changing seasonal irrigation demands and turn off all irrigation during the rainy season.

We make it easy to conserve.

Questions?
Contact us at **waterbudgets@ebmud.com**
or visit us online at
www.ebmud.com/watersmart

EAST BAY MUNICIPAL UTILITY DISTRICT

upon successful completion of the landscape transformation. Since it's inception, over half of the residential lawn conversion rebate customers utilize this program. An orientation is conducted to train new designers on EBMUD landscape rebates and program expectations, and an annual general meeting is provided for all designers. Currently 16 Landscape Architects and Landscape Design professionals are approved for this program, collectively providing assistance District-wide.

Pilot Spring Irrigation Repairs Rebate

Launched in 2024, this pilot program provides a rebate to EBMUD commercial, municipal, and multi-family customers for repairing qualifying broken irrigation equipment and/or leaks identified during a "spring start-up." A "spring start-up" is an annual inspection of all irrigation stations that identifies and repairs broken irrigation equipment, typically occurring before the system is turned on for the season. Proper maintenance of an irrigation increases system efficiency which can help save water. The pilot program was offered again in 2025, from January through end of April, and an analysis on the efficacy of the program will be done with the two years of data early in 2026 to determine continued implementation of the program.

Irrigation Equipment Rebate

This program seeks to minimize customer water consumption and utility costs by introducing customers to new efficient irrigation technology. Rebates include smart irrigation controllers, drip irrigation conversion, high-efficiency nozzles, system-wide pressure regulators, and most recently added, irrigation flow sensors launched in 2023. Technological advances in equipment, specifically weather-based controllers, have allowed management by smartphones and online software. During non-drought years, smart controllers have proven to be the most popular upgrade with 1,032 smart controller rebates issued from CY2021 through 2024.

Graywater Rebate

Graywater is water from indoor sources that is captured and reused. Sources of graywater in the home include the laundry, bathroom faucets, showers, and bathtubs. EBMUD offers a rebate for the purchase of the following equipment essential to a graywater laundry-to-landscape system: brass three-way diverter, air admittance or anti-siphon valve, and PVC conveyance line. Through partnerships with Greywater Action and the Ecology Center, EBMUD offers laundry-to landscape installation workshops and webinars. These efforts have helped more customers understand and adopt graywater systems, leading to wider reuse of household water and greater understanding of their home's water use to support long-term water conservation.

Flowmeter Rebate Program

A flowmeter is an internet-connected or cellular-connected remote flow sensing device that monitors water usage in near real-time. In 2019, EBMUD started a pilot program to offer customers a rebate of up to 50 percent of their total cost of the flow meter purchase. Flowmeters result in water savings by giving customers information about their water use with convenient web portals or mobile applications. Customers can see their water use down to a fraction of a gallon to better understand plumbing fixtures and irrigation and to stay informed of potential leaks. Some flowmeters allow customers to shut off their water remotely in case of leaks. Over 3,200 flowmeter rebates were issued from CY2021 to 2025.

Commercial Clothes Washer Rebate

Replacing conventional clothes washers with high-efficiency washers can cut water and energy use in half, saving money with every load. EBMUD customers are eligible for rebates on qualifying washer for multi-family properties and other businesses. The rebate program has helped customers reduce both water and energy use.

Customized Rebate

EBMUD offers custom financial and technical assistance to businesses that undertake specialized water-efficiency projects. Rebates offset a portion of the initial costs and shorten the payback period for the customer's investment in equipment upgrades. Rebate values are based on estimated water savings and may be given up to 50 percent of the costs of implementing hardware or process changes that demonstrate improved water use efficiency. Customized rebates cover multiple technologies and practices, such as boiler-less food steamers, air-cooled ice machines, and recirculating cooling systems. Each custom project is required to enter into a performance contract with EBMUD

and achieve a project-defined water budget to be eligible for financial assistance from EBMUD.

In 2024, EBMUD developed a Commercial, Industrial and Institutional (CII) strategic plan. The plan includes supportive State Long-Term Framework best management practices to increase Custom Rebate incentive participation through targeted outreach to the top 20 percent water using CII customers in EBMUD's service area. Outreach is supported by proprietary customer relationship management (CRM) software. Additionally, staff continue to explore and develop new CII-specific rebate and incentive programs by working with state-wide utility partners and non-profits, and by conducting research partnerships with targeted CII customer segments. These efforts have helped more CII customers pursue complex water-efficiency upgrades with measurable reductions in industrial and commercial water use.

Device Distribution Program

EBMUD has been distributing conservation devices to customers since the early 1980s. Residential devices include free low-flow showerheads, faucet aerators, and hose nozzles. The devices are distributed to customers primarily through water use surveys, direct mail, and over the counter at EBMUD offices. For non-residential customers, EBMUD distributes free low-flow showerheads, faucet aerators, pre-rinse dishwashing spray valves, high-efficiency hose nozzles. Devices are primarily provided to customers as an outcome of water use surveys. Replacing older, higher flow devices can add up to hundreds to thousands of gallons saved a year.

Table 6-3 Annual Events & Tradeshows

CA Green Building Conference
Sponsored by EBMUD and the U.S. Green Building Council, this annual event in the San Francisco Bay Area provides a forum on the latest ideas and innovations in water conservation for a variety of stakeholders. It includes lectures on water- and energy-efficiency policies, programs, research, and technology.
Community Events
EBMUD participates in Earth Day celebrations, Art and Wine Festivals, Chamber of Commerce events, and other community events. These events provide an opportunity to share information about conservation and EBMUD programs with a wide audience.
Homeowners Associations
EBMUD staff present at the meetings of Homeowners Associations, offering water conservation tips and information on EBMUD programs of specific interest to these groups.
Green Festivals and Expos
EBMUD participates in these events, focused on conservation and sustainability, sponsored by organizations such as UC Berkeley, cities and counties, and non-governmental organizations (NGOs).

6.2.3 Education & Outreach

Education and outreach activities increase customer awareness and adoption of conservation best practices. EBMUD has a long history of providing customers with educational services including online resources, publications, newsletters, school curricula, community workshops and events, and programs to support sustainable gardening. To increase the visibility of conservation programs and services, EBMUD also collaborates with other agencies and organizations for local, regional, and statewide conservation partnerships and educational campaigns.

Digital Outreach

EBMUD maintains a strong presence online with a dedicated website (www.ebmud.com/watersmart) that serves as a hub for up-to-date conservation resources. The EBMUD website provides a centralized location for customers to access information on rebates, conservation tips, and links to resources like plant lists and further information. In recent years, EBMUD has spent significant time improving the website, enhancing navigation, and expanding its video library of "how to" conservation tutorials to help customers easily adopt water-saving practices. The website also includes an online store, where customers can request free conservation devices, self-survey kits, toilet leak dye tablets, and printed resources.

EBMUD has expanded its social media presence and now engages with customers through multiple platforms, including Facebook, Instagram, Nextdoor, YouTube, and LinkedIn. By sharing educational content, videos, and timely updates across platforms, EBMUD reaches a wide and diverse audience to encourage and teach people how to save water. Social media allows EBMUD to disseminate time-sensitive information, promote workshops and events, and engage directly with customers through comments, questions, and sharing. In addition, EBMUD conducts targeted digital advertising campaigns on platforms such

as Meta, Google, and Pandora, as well as in collaboration with local news stations, to extend the reach of water conservation messages.

CII Guidebook

The Commercial Water Efficiency Guidebook, developed to help Commercial, Industrial, and Institutional (CII) water users be more water efficient, provides information on water-saving technologies and best management practices. The 2nd edition, published in 2025, includes new and revised content, including updated regulations and technologies. This guide is also a helpful resource for developers, planning agencies, and partner water utilities. The guidebook is disseminated to CII users and utility partners via webinars, conferences, industry newsletters, EBMUD social media, and in direct outreach to EBMUD's CII customers via email and water efficiency site visits.

The updated CII guidebook and its distribution supports EBMUD in meeting a number of the State's Long Term Framework best management practices (BMPs) for the CII sector, including the "Outreach, Technical Assistance and Education BMP", and "Operational BMPs."

Community Events, Trade Shows, and Presentations

EBMUD sponsors and participates in a variety of community events and trade shows as a means of delivering conservation messages to a broad audience. Events are often on weekends and may include seasonal festivals, Earth Day events, community workshops, and trade shows. Participation in such events is evaluated annually to identify the most effective venues for enhancing public relations and delivering conservation messages. EBMUD also gives specialized presentations to groups such as sustainability committees, landscape irrigation managers and contractors, building owners, and property managers to promote water conservation. Table 6-3 identifies some of the workshops, recurring annual events, and trade shows in which EBMUD participates.

School Programs

Since 1974, school-based education programs have been an important component of EBMUD's overall conservation outreach strategy. EBMUD's ongoing school education program includes water science curricula, classroom materials, and field learning. In 2025, EBMUD developed a 5th grade science notebook focused on water conservation in the classroom and at home. The notebook's school curriculum teaches students how to assess their school for water leaks and measure the flowrate of sinks, and the take home portion guides students on conducting a home . At the end of the notebook, an extension activity gives students the opportunity to create posters with ways other students can help save water.

WaterSmart Gardener Program

EBMUD also operates the WaterSmart Gardener Program to cultivate a long-term water conservation culture for the EBMUD community, businesses, and landscape industry. Through information sharing, skill building, tools, and resources, WaterSmart Gardener aims to reduce outdoor water use, create sustainable landscapes that support a wide variety of ecosystem services, and develop positive attitudes and behaviors towards conservation. This multi-benefit approach encourages residents, community organizations, and businesses to save water and energy, improve stormwater management, reduce water and air pollution, build healthy soil, sequester carbon, increase biodiversity, and reduce the impact of wildfires.

WaterSmart Gardener strives to create socially responsible and equitable programs that lift all populations while paying close attention to those often excluded. EBMUD recently launched an initiative with WaterNow Alliance to better understand the impact of EBMUD water conservation outreach and education efforts.

EBMUD hosts workshops and webinars for home gardeners on topics such as sheet mulching, plant selection, leak detection, water reuse, and tree care. Webinars available in English and Spanish are posted on EBMUD WaterSmart Gardener YouTube playlist. In addition, EBMUD hosts trainings for landscape professionals including the Qualified Water Efficient Landscaper and the California Native Plant Landscaper certification training programs, offered in English and Spanish.

EBMUD partners with local plant nurseries, mulch suppliers, and irrigation centers to provide mulch and compost coupons for customers, distribute materials about water-efficient landscape practices and rebates, host QR code poster displays, and provide store copies of EBMUD's award-winning book Plants and Landscapes for Summer Dry Climates.

Landscape Advisory Committee

The Landscape Advisory Committee (LAC) is a partnership between EBMUD and members of the landscape industry to promote sustainable landscape design, installation, maintenance, and management practices. To address the challenges of the severe drought in the 1980s, the EBMUD Board directed staff to work closely with the landscape industry on improving education and water use efficiency. The LAC was formed as a result of this directive and remains actively involved in offering educational opportunities for professionals.

EBMUD organizes a Sustainable Landscape Speaker Series, covering topics such as California's ban on watering non-functional turf on commercial properties, water budgets, leak detection, and irrigation efficiency. The Sustainable Landscape Speaker Series is approved for continuing education credits with local and national professional landscape organizations. The Sustainable Landscape Speaker Series attracts professionals from around the state and beyond. Webinars can be found on EBMUD Landscape professional YouTube playlist and presentations on the EBMUD Landscape Advisory Committee webpage.

LAC members also serve on project committees to develop new tools and educational resources for professionals and home gardeners such as low water plant lists, design tools, and outdoor water use calculators. LAC members also provide peer review of EBMUD conservation programs. With California's Non-Functional Turf Watering Ban Ordinance (AB1572), LAC has been working closely with UC Cooperative Extension Services and the California Water Efficiency Partnership to develop best practices and resources to support commercial customers.

Water Industry Organizations and Partnerships

Effective partnerships broaden the visibility of conservation programs, create cost-sharing

opportunities and potential economies of scale, and expand customer benefits by addressing multiple conservation areas such as water, wastewater, energy, and solid waste. EBMUD sponsors and staff participate in regional, state, and national water conservation organizations that influence policy, research, standards, and codes, and conservation program implementation. Key organizations in which EBMUD participates include the California Water Efficiency Partnership, Alliance for Water Efficiency, the US.EPA's WaterSense Program, and the California Department of Water Resources Urban Stakeholders Committee and Commercial, Industrial, and Institutional Task Force.

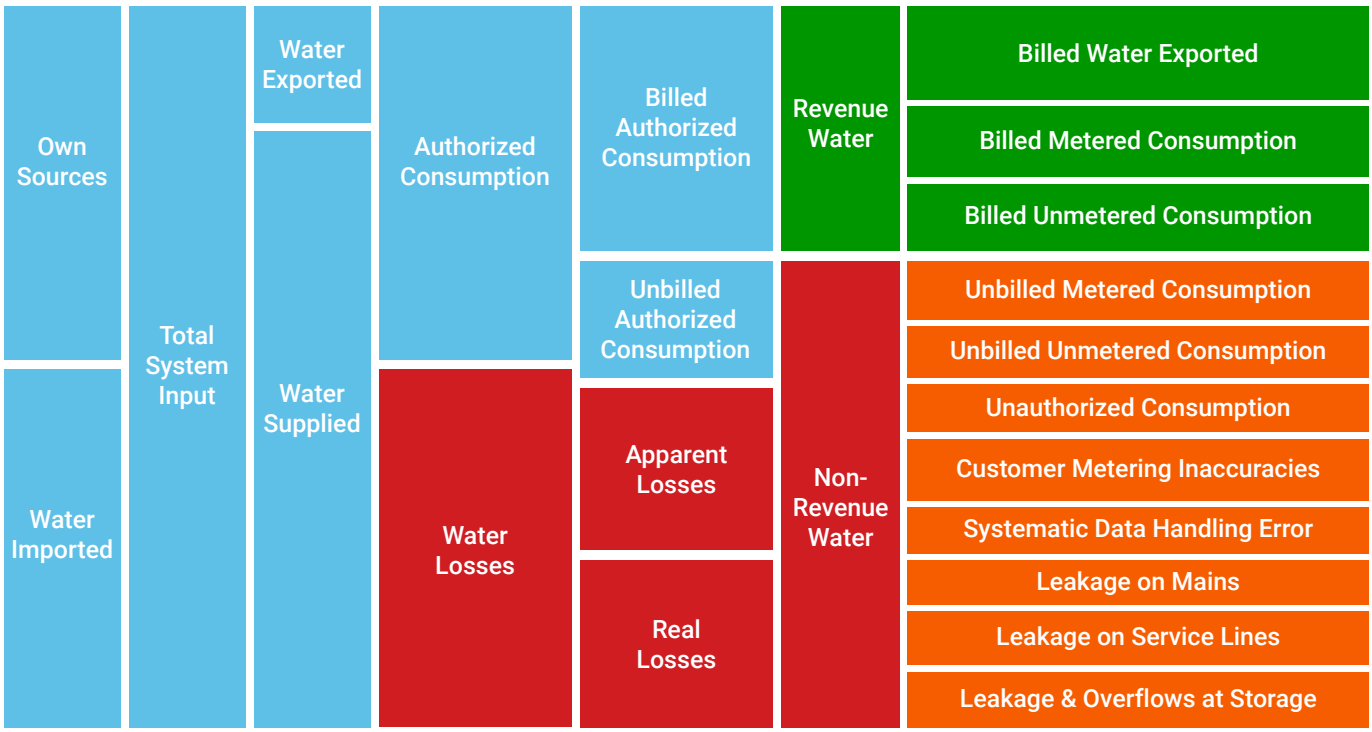
Additional local and state partners include the California Native Plant Society, ReScape California, UC Cooperative Extension, UC Master Gardeners of Contra Costa and Alameda Counties, Demonstration Gardener Managers, StopWaste, and Educational Community for Homeowners (ECHO) to expand conservation resources, tools, and educational opportunities.

6.2.4 Water Service Regulations

EBMUD applies its own water service regulations and supports the adoption, implementation, and enforcement of water-efficiency standards for new development and redevelopment projects with changes in water use. EBMUD also works with cities and counties within its water service area to support local and state landscape ordinances through landscape plan review requirements for all new water services. All customer applicant plans are reviewed for indoor fixtures and outdoor water use efficiency.

In 2007, EBMUD adopted a new water service regulation, Section 31, which identifies indoor and outdoor water efficiency requirements for water service and specifies a procedure for notifying applicants that water efficiency measures are required. Water service is not provided to new developments or expanded services to existing customers unless all the applicable water efficiency measures described in Section 31 are met. Applicants for expanded service may be required to retrofit existing water service facilities or uses to comply with these requirements. Applicants are required to submit plans and maintain design documents, including construction and installation records, and to furnish a copy to EBMUD upon request. EBMUD may inspect the installation of water efficiency measures to verify that the items are installed and performing to the required water use levels. EBMUD updates this regulation as new water use efficiency standards are developed. The most recent update in 2025, requires compliance

Figure 6-3 **Examples of Both Distribution Water Losses and Raw Water Losses**



with the California Green Building Standards Code, limiting the maximum flush volume of toilets to 1.28 gallons per flush. Future updates to Section 31 will continue to reflect updates to the California Green Building Standards and California's Model Water Efficient Landscape Ordinance (MWELO.)

EBMUD also has regulations on metering that are intended to encourage conservation. In compliance with EBMUD and California's SB-7 regulations, Section 2 of EBMUD's Regulations states that each unit in a newly built multi-family or multi-occupancy commercial/industrial premises must be individually metered. In addition, EBMUD also requires a separate irrigation meter for all new nonresidential irrigated landscaping covering an area of 5,000 square feet or more.

6.2.5 Supply-Side Conservation

EBMUD's water distribution system includes approximately 4,200 miles of pipeline. EBMUD implements best practices to manage water losses for the supply-side of the distribution and raw water systems. The supply-side management program is integral to operating and maintaining the water system and is critical to ensuring efficient management of EBMUD's water supply.

Distribution & Raw Water System Loss Accounting

Modeled after the American Water Works Association (AWWA)'s Water Audits standards, EBMUD's Procedures 900, 902, and 904 (See Appendix J) provide a protocol for identifying and assessing treated water, raw water and recycled water losses. These procedures account for all losses in the distribution, raw, and recycled water systems to help EBMUD understand the nature of those water losses so that it can take appropriate action to reduce them. The procedures also identify and make staff accountable for measuring, collecting, assessing, retrieving, validating, and reporting data on EBMUD water supply losses.

Raw water is all water in EBMUD's network of aqueducts, tunnels, supply reservoirs, and transmission pipelines before it enters a water treatment plant to be treated and distributed through the water distribution system. Figure 6-3 summarizes several examples of both distribution water losses and raw water losses.

The difference between the volume of water produced at the water treatment plants (also called Distribution System Input) and the sum of all billed and unbilled authorized consumption (also called Authorized Consumption) is termed Distribution Water Losses. Distribution Water Losses consist of all apparent losses and all real losses in the distribution system. Apparent losses are the total losses of treated water from unauthorized consumption (theft), inaccuracies associated with customer metering, and systematic data handling errors. Real losses are the total physical losses of treated water from storage system overflows or draining, water main and service line breaks, and leakage.

Distribution water losses and raw water losses are part of non-revenue water. The benefits of managing and minimizing non-revenue water include:

- reduced demand on scarce water supplies and minimizing the need to develop an additional supply;
- reduced water and revenue losses;
- improved customer service;
- reduced pumping and treatment costs;
- increased knowledge of the distribution system;
- reduced property damage through improved maintenance;
- environmental protection; and
- reduced maintenance costs by locating leaks when they are smaller.

Senate Bill 555, passed in October 2015, requires the state's urban retail water suppliers to complete an annual water loss audit report on their water distribution system and submit a validated water loss audit report to the California DWR each year, starting in 2017.

In addition, California Water Code mandates the State Water Resources Control Board (SWRCB) to develop water loss performance standards for urban retail water suppliers. Executive Orders B-37-16 and B-40-14 further directed the SWRCB and DWR to minimize water waste from system leaks. The water loss performance standards were established through a formal rule-making process that became effective in 2023. These standards aim to control physical leaks from the distribution system. The compliance timeline to meet water loss objectives starts in 2028.

Urban water suppliers are also required to submit a registry of leaks to the SWRCB every three years.

The first registry, containing three years of data between calendar years 2025 and 2027, is due by January 1, 2029. Urban water suppliers have completed various questionnaires administered by the SWRCB, which were used to gather data and assess different aspects of a water system's operation and water loss control efforts.

EBMUD formed the Water Loss Audit (WLA) Committee in 2017, which coordinates EBMUD's WLA activities, roles, and responsibilities; including a review of each component of the EBMUD's WLA as defined by AWWA and recommends improvements to the process to meet EBMUD and state regulatory requirements. The WLA Committee consists of members from various divisions within EBMUD with primary responsibility for providing data to complete the WLA report.

Beginning in 2017, UWMPs are required to report on distribution system water loss for the most recent 12-month period using the AWWA methodology.

For the UWMP 2025, data on distribution system water loss for the calendar year 2024 is available. For the calendar year 2024, EBMUD supplied approximately 56,124 MG of water. Of this, there was 4,828 MG of water loss, including 3,659 MG of real losses and 1,169 MG of apparent losses. Validated calendar year 2024 data will be available in DWR's Water Use Efficiency data portal (WUEdata portal) on January 1, 2026.

Real Losses: Active Leakage Control

EBMUD's efforts to control real water losses include detecting leaks in the distribution system before they surface using satellite leak detection, automated acoustic leak detection, and manual acoustic leak detection methods. EBMUD was the first utility in North America to implement satellite leak detection commercially. Since 2016, EBMUD has collaborated with its satellite leak detection vendor, Asterra (formerly Utilis), to evaluate the performance of this patented leak detection method. The most recent satellite image of EBMUD's distribution system was taken on June 6, 2025. EBMUD has also piloted the use of existing underground fiber optic lines for leak detection and will continue to evaluate this emerging technology.

As of 2025, EBMUD has an inventory of over 2,500 automated acoustic leak detection devices operated through cellular networks allowing for near real-time monitoring for leaks. Most of these loggers are permanently installed at fixed locations and others are rotated through the service area or used in response to specific suspected leak events such as seismic activity, landslides, and pipeline bursts. In general, automated acoustic leak detection devices are installed on EBMUD's distribution pipelines with potential high consequences of failure. EBMUD is planning to roughly double the coverage of the acoustic leak detection. In addition, EBMUD also utilizes automated acoustic leak detection devices on large diameter pipelines and aqueducts, such as monitoring the Mokelumne Aqueducts for leaks at the Concord Fault crossing.

EBMUD hired four full-time leak detection field personnel in 2023. Field staff use leak detection vehicles equipped with manual acoustic leak detection equipment such as ground microphones, listening devices, and mobile correlators to detect leaks on distribution pipelines.

EBMUD works collaboratively with manufacturers to test and develop new technologies to identify leaks sooner and to identify factors that can predict the formation of leaks. EBMUD also pilots new technologies to determine their performance and appropriateness for implementation in EBMUD's distribution system.

Real Losses: Pressure Management

Pressure management is used to reduce water system pressure to optimal levels and reduce pressure transients. Pressure management extends the life of the existing infrastructure, minimizes the environmental and customer impacts associated with pipeline breaks, and reduces water loss. EBMUD has a network of over 150 pressure transient monitoring devices installed throughout the service area. Other efforts to manage pressure include pressure reduction and pressure stabilization using more advanced pressure regulating valves.

Real Losses: Infrastructure Management

Leaking pipelines can be a source of supply-side water loss. EBMUD manages its infrastructure with the goal of replacing deteriorated infrastructure and extending the life of existing infrastructure. Water loss reduction is one benefit of infrastructure management. EBMUD's efforts include pipeline replacement, infrastructure rehabilitation (such as pipeline slip lining), and corrosion control for pipelines, services, and other distribution facilities. Many conditions affect the rate of deterioration of

pipelines in the distribution system, including pipeline type and size, soil conditions, and ground movement.

EBMUD's average pipeline replacement rate between the late-1990s and the mid-2000s was 8.6 miles per year. In 2015, EBMUD developed a program (Pipeline Rebuild) to increase the pipeline replacement rate. EBMUD is increasing its pipeline replacement in a step-wise manner and is planning to replace at least 27.5 miles per year in fiscal year 2027.

EBMUD utilizes a risk-based prioritization model to identify and select pipelines for replacement, aiming to maximize the value of its infrastructure investments. This model evaluates two key factors: the likelihood of failure – determined by factors such as leak history and pipeline age – and the potential consequences of failure – which are influenced by pipeline diameter, service to critical customers, proximity to major roads, waterways, or railroad crossings, and areas with limited access. Pipeline material and alignment decisions also account for nearby geohazards, including fault lines, landslide zones, and areas prone to liquefaction.

In 2025 and 2026, EBMUD is working to enhance its approach by incorporating an artificial intelligence (AI) model, in partnership with an external consultant. This AI tool will support and complement the existing prioritization process by improving predictions of future pipeline failures and refining the selection of pipelines for replacement.

The installation and upgrading of cathodic protection systems can extend the useful life of pipelines. EBMUD initiated its corrosion control program in the 1930s. The program covering the Mokelumne Aqueducts and raw water pipelines, transmission pipelines, distribution pipelines, and facilities, effectively reduces corrosion-related deterioration of EBMUD's infrastructure, resulting in substantial leak reduction and reduced loss of water.

The Mokelumne Aqueducts have an extensive corrosion control system with 44 individual impressed current cathodic protection stations and approximately 650 test locations to monitor the effectiveness of the corrosion control system. The distribution system pipelines are protected from corrosion by 35 impressed current cathodic protection stations and over 4,300 galvanic anode test stations. These systems are continually monitored to ensure proper operation. This corrosion control system has minimized corrosion-related leaks on dielectric-coated and mortar-coated steel pipelines.

Internal corrosion in mortar-lined pipelines is controlled with lime additions to the water system to raise pH levels. Designs for all structures are carefully reviewed to select proper coatings, materials, and other corrosion control measures to maximize the life of EBMUD facilities and pipelines. In 2019, EBMUD hired a contractor to install nearly 6,000 anodes on the copper laterals that are connected to non-metallic pipelines in Alameda and Richmond. EBMUD's research has indicated that copper laterals on non-metallic mains may be more susceptible to corrosion than those connected to metallic pipelines. EBMUD initiated a pilot study and installed approximately 1,600 anodes on copper laterals since August 2024. Additional installations may be considered based on the results of this pilot study.

Real Losses: Speed and Quality of Repairs

EBMUD's goal is to quickly respond and effectively repair reported and unreported leaks. Ensuring that leaks are repaired quickly and correctly extends the life of the existing infrastructure, minimizes the environmental and customer impacts associated with pipeline breaks, and reduces water loss. Once a leak is identified, interventions must be taken to repair and/or reduce the leakage. The interventions should be timely, reliable, cost-effective, and well-documented.

EBMUD prioritizes leaks from distribution pipelines according to three categories, with Priority 5 (P5) being the highest priority and Priority 3 (P3) being the lowest priority. Leaks within the P5, P4, and P3 categories are targeted for repair within one day, seven days, and 21 days, respectively. EBMUD has been testing a GIS-based software for mobile devices to support field staff. In 2018, EBMUD entered into a multi-year contract with Sedaru to provide water distribution system information for field and office staff. However, in 2024 the Sedaru program was decommissioned by the vendor, so EBMUD developed a new work management system using Field Maps. The Field Maps application provides a fast, real-time, mobile map interface, and provides effective geospatial tools and data for staff. Field Maps allows staff to manage pipeline maps, plan and respond to water outages, and manage leak investigations. The use of the software

is anticipated to improve staff responsiveness and effectively document work completed in the field.

Apparent Losses: Meter Testing

Meter error is the largest component of apparent water loss. While some percentage of meter error is unavoidable, it is important to accurately estimate meter error to properly calculate real water loss and thus cost-effectively target real loss reduction. EBMUD has a program to regularly test and repair meters. In 2019, EBMUD completed a large-scale testing of over 1,700 small and medium meters. Approximately 350 meters are tested annually for the purposes of tracking meter accuracy.

In 2020, EBMUD evaluated the largest customer meters in the system, which includes meters 10-inches and larger. The design of improvements to these meters is being finalized, which will be constructed under the same contract as improvements to the water treatment plant meters. In-field verification testing of the largest customer meters has been initiated and will continue annually in accordance with AWWA Manual for Water Audits and Loss Control Programs (M36) guidance.

Data Quality Improvements

Accurate water supply data is critical to the integrity of water loss audits. In 2020, EBMUD hired a consultant to evaluate the design of EBMUD's water treatment plant flow meters, which measure the quantity of treated source water. Design of improvements to these meters is nearing completion and construction is anticipated to begin in 2026 under the same contract as the largest customer meter improvements. Following construction, EBMUD will implement annual verification testing of the water treatment plant meters as recommended in AWWA M36. These improvements will help ensure more accurate tracking of water production volumes in future audits.

Water Loss Control Master Plan

As described above, EBMUD has implemented several strategies to reduce real and apparent water losses. In 2020, EBMUD expanded this effort by hiring a water loss control consultant to prepare a comprehensive Water Loss Control Master Plan. The Water Loss Control Master Plan was completed in 2023 and includes an assessment of existing water loss control activities, a calculation of EBMUD's economic level of leakage, and recommended strategies to achieve EBMUD's economic level of leakage and comply with SB 555's regulatory water loss limit. Updates to this master plan and evaluations of water loss efforts are underway as of late 2025.

6.2.6 Research and Grants

EBMUD has a long history of leading and participating in research aimed at finding new ways to conserve water, measuring savings from specific conservation activities, and verifying the effectiveness of conservation programs. Research can help to develop, test, and quantify water savings from new water efficiency technologies. In addition to initiating a number of studies on water conservation, EBMUD also participates in studies led by organizations like the Water Research Foundation (WRF), the Alliance for Water Efficiency (AWE), and the California Water Efficiency Partnership (CalWEP), formerly the California Urban Water Conservation Council). EBMUD has also been successful in seeking state and federal grant funding to support these activities.

Historically, EBMUD has participated in research targeting both demand-side and supply-side conservation. On supply-side conservation, research has focused on improving metering technology. Previous pilot studies evaluated the water and energy savings associated with Advanced Metering Infrastructure (AMI) technology. In 2023, EBMUD received a $5 million grant from the USBR to add additional AMI endpoints during meter maintenance.

EBMUD is also currently involved in two end-use studies, one with the Water Research Foundation (WRF) and the other with the Department of Water Resources (DWR). Both focus on residential indoor water use at the national and state levels, respectively, and compare current findings to previous end-use studies. Results from these studies are estimated to be completed in 2026.

Lastly, additional research has been conducted on commercial large landscape customers in partnership with AWE. EBMUD provided water-use data for all large landscape customers that participated in its rebate programs since 2013. Results from this study are forthcoming and will be available by early 2026. Along with partnering with other agencies, EBMUD continues to evaluate its own programs internally while continuing to pursue additional grant opportunities where applicable.

6.3 State Reporting Requirements

6.3.1 Water Conservation Act of 2009

The Water Conservation Act of 2009 (SB X7-7, Steinberg, 2009), often referred to as "20x2020," called for a 20 percent reduction in urban per capita water use statewide by the year 2020. As an urban water agency, EBMUD was required to report its baseline per capita water use and finalize its reduction targets under SB X7-7 as part of the 2015 UWMP. At that time, EBMUD reported that it had met its interim target by the end of the calendar year 2015. EBMUD will continue to report as required by the law.

6.3.2 Long Term Framework

Building on the Water Conservation Act of 2009, the State of California enacted AB 1668 and SB 606 (2018), implemented through State Water Board regulations finalized in 2023. Together, these provide a long-term framework for urban conservation known as the "Making Conservation a California Way of Life" regulation. The framework establishes a budget-based Urban Water Use Objective (UWUO) made up of four components: indoor residential use, outdoor residential use, outdoor Commercial, Industrial, and Institutional (CII) use with dedicated irrigation meters, and water loss. CII indoor use is excluded but subject to mandatory performance measures. The full methodology is in Title 23, Division 3, Chapter 3.5 of the California Code of Regulations and on the State Water Board's website. Below is a simplified overview as it applies to EBMUD.

The Indoor Residential Objective equals the service area population multiplied by an indoor standard in gallons per capita per day (GPCD). The indoor standard is 55 GPCD through 2024, 47 GPCD from 2025–2029, and 42 GPCD from 2030 onward.

The Outdoor Residential and CII Objectives are based on: (1) climate (net reference evapotranspiration), (2) irrigated landscape area, and (3) a Landscape Efficiency Factor (LEF). DWR provides the climate data and initial landscape estimates. The Residential LEF is 0.80 through 2035, 0.63 from 2036–2039, and 0.55 in 2040 and thereafter. The CII LEF follows the same trajectory but drops further to 0.45 in 2040 and thereafter.

The CII Performance Measures address indoor and outdoor use at CII sites. Instead of numeric budgets, suppliers must: (1) classify all CII customers into the required system of 22 categories, (2) plan for converting mixed-use meters to dedicated irrigation meters (or equivalent technologies), and (3) adopt best management practices for large CII users above defined thresholds. These measures are mandatory regardless of UWUO compliance.

The Water Loss Objective equals the number of service connections multiplied by the District's Water Loss Standard of 44 gallons per connection per day, developed using the State Water Board's cost-benefit model and EBMUD's 2017–2020 Real Water Loss data.

Suppliers must calculate and report the UWUO, Actual Water Use (AWU), and CII performance progress annually. Compliance is met by keeping AWU at or below the UWUO, meeting the Water Loss Objective, and implementing the CII performance measures. The Indoor, Outdoor Residential, and Outdoor CII objectives are not enforced individually. Similarly, because the UWUO is an aggregate, District-wide target, it does not apply to individual customers. Annual reporting began in 2024, and compliance begins with the FY 2026 report due January 1, 2027.

Since 2024, EBMUD has submitted annual reports and has met its overall UWUO and all required targets to date. In FY2024, the District's Actual Water Use was 23% below its UWUO and its System Water Loss was 25% below its Water Loss Objective. Given EBMUD's longstanding CII programs, it is on track to meeting all CII performance requirements.

6.4 Water Conservation in the Future

Water conservation is a central component of EBMUD's long-term water supply planning efforts aimed at ensuring the reliability of EBMUD's water supply now and in the future. EBMUD is committed to continued investment in water conservation programs to meet its water conservation goals, to provide a reliable water supply, and to help meet statewide water use reduction goals.

To support these efforts, EBMUD created its first WCSP in 1995. The WSCP has been updated periodically and sets long-term conservation goals measured in MGD of savings. The 2021 WCSP sets a goal of increasing water conservation savings to 70 MGD by the year 2050.

EBMUD's water conservation program has evolved over time. Early programs focused on incentivizing the replacement of plumbing fixtures with efficient

fixtures. Over time, as high efficiency plumbing fixtures became the standard, and with the support of water efficiency regulations, the conservation program has significantly reduced rebate focused programs. In recent years, EBMUD's conservation programs have transitioned toward a information and service-based programs providing tools and resources to help customers manage their water use and find and repair leaks quickly. Subsequently, with this new conservation program direction, and with the reduced number of incentivized plumbing fixtures installed, traditional methods of calculating water savings based on counting rebated devices are no longer applicable.

As a result of no longer being able to count and calculate water savings based on rebated plumbing fixtures, EBMUD adopted an econometric model known as a univariate OLS (ordinary least squares) trend line to measure conservation progress towards meeting conservation water savings goal. This model accounts for variables that influence water use over time, including weather, economic conditions, income levels, and conservation measures, and evaluates their relationship to customer water consumption. Using this methodology allows for tracking water savings over time on an account level for various customer categories such as SFR, MFR, CII, and irrigation customers.

This new modeling-based approach to measure water savings allows EBMUD to more accurately track progress towards saving 70 MGD by 2050, while also monitoring long-term water use trends and the effects of external factors such as drought. In addition, this new methodology aligns more closely with the evolving State reporting requirements associated with the Long-term Framework, providing a consistent and defensible basis for estimating and reporting conservation.

Appendix B

Submittal Tables for Urban Water Management Plan 2025

Submittal Table 2-1 Retail: Public Water Systems			
Has there been a change in the number of affiliated Public Water Systems since the 2020 UWMP? (OPTIONAL)			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (MG)
Add additional rows as needed			
CA0110005	East Bay Municipal Utility District	381,118	55,632
Total		381,118	55,632
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Table 2-3.			
NOTES: Active and non-active service connections are shown.			

Submittal Table 2-2: Plan Identification			
Select One or Both	**Type of Plan**		**Name of Regional Alliance or RUWMP** (Drop Down List)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a SB X7-7 Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesale supplier
☑	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP (Select from the drop down list).	
Unit	MG
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631 (h).
Wholesale Water Supplier Name
Add additional rows as needed
NOTES: Not Applicable to EBMUD.

10631(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	1,501,000	1,516,000	1,529,000	1,543,000	1,556,000	
NOTES:						

CWC 10631(a) describe the current and projected population of the service area including current and projected population…

Submittal Table 4-1 Retail: 2025 Actual Total Uses for Potable and Non-Potable Water Water Code Section 10631(d)(1)			
Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUEdata online submittal tool		Level of Treatment When Delivered (OPTIONAL) Drop down list	Volume (MG)
Add additional rows as needed			
Single Family			22,708
Multi-Family			9,777
Commercial			4,153
Industrial	includes petroleum		6,930
Institutional/Governmental			2,292
Landscape	also known as irrigation		3,578
		Subtotal Potable	0
		Subtotal Non-Potable	0
		Total	49,437
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.			
NOTES:			

CWC 10631(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use…identifying the uses among water use sectors including but not limited to:

Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected Water Code Section 10631(d)(1)							
Use Type	Additional Description (as needed)	**Projected Water Use** (Report To the Extent that Records are Available)					
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		Level of Treatment When Delivered (OPTIONAL) Drop down list	**2030** (MG)	**2035** (MG)	**2040** (MG)	**2045** (MG)	**2050** (opt) (MG)
Add additional rows as needed.							
Other (optional)			71,540	74,095	74,825	76,650	78,475
Subtotal Potable			0	0	0	0	0
Subtotal Non-Potable			0	0	0	0	0
Total			71,540	74,095	74,825	76,650	78,475
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.							
NOTES: Refer to UWMP Chapter 3 Table 3-2 for breakdown of Average Annual Demand Projections by Customer Use Category (MGD). Landscape is equivalent to irrigation.							

CWC 10631(d)(1) For an urban retail water supplier, quantify, to the extent records are available... projected water use...identifying the uses among water use sectors...

Submittal Table 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) **Drop down list (y/n)**	Yes
If "Yes" to above: State the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found. **OPTIONAL** Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Refer to UWMP Chapter 3 Tables 3-1 and 3-2.
Are Lower Income Residential Demands Included In Projections? (Refer to Appendix K of UWMP Guidebook) **Drop down list (y/n)**	Yes
OPTIONAL If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found. (An example is included in Appendix K.)	Refer to UWMP Chapter 3 Tables 3-3 for Water Demand Estimates for Lower-Income. Residential Accounts (MGD)
NOTES:	

CWC10631 (d) (4) (A) Water use projections, where available, shall display and account for water savings estimated to result from adopted codes, standards, ordinances, or transpotation and land use plans identified by the urban water supplier, as applicable to the service area.

CWC 10631 (d) (4) (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 be noted of that fact.
CWC 10631(a) Water use projections required by section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county, in the service area of the supplier .

OPTIONAL Submittal Table 4-4 Retail: Passive Water Savings Projections Water Code Section 10631(d)(4)(A)					
Description (Codes, Standards, Ordinances, or Plans)	Passive savings				
	2030	2035	2040	2045	2050 (opt)
	(MG)	(MG)	(MG)	(MG)	(MG)
Add additional rows as needed					
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.					
NOTES:					

Water Code Section 10631(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.

Submittal Table 4-5 Retail: Water Loss Audit Reporting Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report submittal status for all five years for each Public Water System as available. Add rows as needed		
	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
DWR NOTES: Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
NOTES: EBMUD water loss audit reports are posted on WUEdata portal: https://wuedata.water.ca.gov/awwa_plans		

CWC 10631(d)(3) (A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard
Water Code Section 10631(d)(3)(C)

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit			State Water Board Standard		Most Recent AWWA Water Loss Audit		
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss Drop down list	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit) (MG)	Real Water Loss Per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit) (MG)	Apparent Water Loss Per Unit per Day
Add additional rows as needed.											
CA0110005	Yes	44	Gallons per Service Connection per Day (GPSCD)	380501	3659.546	26.3	16.3	Gallons per Service Connection per Day (GPSCD)	380501	1168.66	8.4

Water Board's Calculated Water Loss Standards

DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss **MUST** remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.

NOTES:

CWC 10631(d)(3)(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress
Water Code Section 10608.40

☐	**Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Proceed to the next table.**					
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target? Drop down list	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	**Only for suppliers that did not meet the Target in 2020 See DWR NOTES below.**	
					Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
No	Individual Target	153	121	Yes		NA

DWR NOTES:
Suppliers calculating a 2025 GPCD will need to complete and submit SB X 7-7 Compliance Tables to verify the use of SB X7-7 Methodologies.
Suppliers that were part of a merger or consolidation since 2020 see Chapter 5 and Appendix P for guidance.
NA=Not Applicable

NOTES:

10608.40 Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631.

Submittal Table 6-1 Retail: Groundwater Volume Pumped Water Code Section 10631(4) and 10631(4)(c)							
☑	Check the box if the Supplier does not pump groundwater. Proceed to the next table.						
☐	Check the box if all or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type **Drop Down List** May use each category multiple times	Water Type (OPTIONAL) **Drop down list**	Location or Basin Name	2021 (MG)	2022 (MG)	2023 (MG)	2024 (MG)	2025 (MG)
Add additional rows as needed							
		Total	0	0	0	0	0
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.							
NOTES							

10631(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2025 Water Code Section 10633(a)				
☐	Check the box if there is no wastewater collection system. Proceed to the next table.			
27%	Percentage of 2025 service area served by wastewater collection system (OPTIONAL)			
50%	Percentage of 2025 service area population served by wastewater collection system (OPTIONAL)			
Wastewater Collection			**Recipient of Collected Wastewater**	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? OPTIONAL **Drop Down List**	Volume of Wastewater Collected from UWMP Service Area 2025 (MG)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number **Drop down list**	Is WWTP Located Within UWMP Area? **Drop Down List**
Add additional rows as needed				
Central Contra Costa Sanitary District	Metered	6,228	Central Contra Costa SD WWTP, Place ID 213875	Yes
Dublin San Ramon Services District	Metered	2,099	Dublin San Ramon SD WWTP, Place ID 220792	Yes
East Bay Municipal Utility District	Metered	18,643	EBMUD WPCP, Place ID 222132	Yes
Oro Loma and Castro Valley Sanitary Districts	Metered	4,070	Oro Loma/Castro Valley SD WPCP, Place ID 246217	Yes
City of Pinole	Metered	1,016	City of Pinole WWTP, Place ID 217831	Yes
City of Richmond and Richmond Municipal Sewer District No. 1	Metered	2,303	Richmond WPCP, Place ID 252657	Yes
Rodeo Sanitary District	Metered	270	Rodeo Sanitary District WWTP, Place ID 253174	Yes
City of San Leandro	Metered	1,758	San Leandro WPCP, Place ID 255368	Yes
West County Wastewater District	Metered	3,030	West County WW District WPCP, Place ID 272082	Yes
Total Wastewater Received from UWMP Service Area in 2025:		39,417		
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3. **Additional Guidance**. See Appendix M, Section M.21 for detailed guidance on this table.				
NOTES: 1) Data obtained through personal communication with staff in each agency/district. 2) City of Pinole data is based on calendar year 2024 information and EBMUD's estimation as the city did not provide an update yet for 2025.				

CWC 10633 (a) (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area in 2025
Water Code Section 10633(a)

☐ **Check the box if no wastewater is treated or disposed of within the UWMP service area.** Proceed to the next table.

Wastewater Treatment Plant Name and Place ID Number **Drop down list**	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) **Drop down list**	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R)	Total 2025 Volume of Water Treated	**2025 Outcomes of Treated Wastewater**									
				Water Recycled Within UWMP Service Area (enter data as applicable)		**Water Recycled Outside of UWMP Service Area** (enter data as applicable)		**Effluent Discharge that is not a Permitted Recycled Water Use** (enter data as applicable)		**Required Discharge for Instream Flow** (enter data as applicable)		**Delivered to Another Entity for Additional Treatment**	
				Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume	Treatment Level **Drop down list**	Volume
		(MG)	(MG)		(MG)		(MG)		(MG)		(MG)		(MG)
Add additional rows as needed													
Central Contra Costa SD WWTP, Place ID 213875	Yes	6,228	13,250			Tertiary	614	Secondary, Disinfected	12,636				
Dublin San Ramon SD WWTP, Place ID 220792	Yes	2,099	4,399	Tertiary	310	Tertiary	1,086	Secondary, Disinfected	2,712				
EBMUD WPCP, Place ID 222132	No	18,643	18,643	Tertiary	65			Secondary, Disinfected	18,578				
Oro Loma/Castro Valley SD WPCP, Place ID 246217	Yes	4,070	4,070			Secondary, Disinfected - 23	18	Secondary, Disinfected	4,052				
City of Pinole WWTP, Place ID 217831	No	1,016	1,016					Secondary, Disinfected	1,016				
Richmond WPCP, Place ID 252657	No	2,303	2,303					Secondary, Disinfected	2,303				
Rodeo Sanitary District WWTP, Place ID 253174	No	270	270					Secondary, Disinfected	270				
San Leandro WPCP, Place ID 255368	No	1,758	1,758	Secondary, Disinfected - 23	86			Secondary, Disinfected	1,672				
West County WW District WPCP, Place ID 272082	No	3,030	3,030					Secondary, Disinfected	803			Secondary, Undisinfected	2227
Total		39,417	48,739		461		1,718		44,042		0		2,227

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.
IPR: Indirect Potable Reuse would have the treatment level of its end use requirement in the Level of Treatment drop-down.
Additional Guidance. See Appendix M, Section M.21 for detailed guidance on this table.

NOTES:
1) The effluent discharge that is not a permitted recycled waer use is in the category of secondary disinfected, though we cannot confirm if it meets Secondary 23 standards since not used for reuse.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier…and shall include all of the following:
(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area
Water Code Section 10633 (c)(e)

☐ Check box if recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.

Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :	EBMUD, DERWA
Name of Supplier Operating the Recycled Water Distribution System (OPTIONAL) :	EBMUD
Supplemental Water Added in 2025 (volume) Include units (OPTIONAL) :	168 MG
Source of 2025 Supplemental Water (OPTIONAL) :	Potable water

Use Type (Drop down list)	Water Type (after treatment if treated) (OPTIONAL) (Drop down list)	Additional Information (as needed)	2025 (MG)	2030 (MG)	2035 (MG)	2040 (MG)	2045 (MG)	2050 (opt) (MG)	Potential Recycled Water Use: Volume	Potential Recycled Water Use: Narrative page number (OPTIONAL)
Add additional rows as needed										
Industrial use	Non-Potable	Refinery cooling tower and boiler makeup water	1,755	2,518	3,029	3,540	3,540	3,540		
Golf course irrigation	Non-Potable	Golf course customers	117	277	415	446	446	446		
Landscape irrigation (exc golf courses)	Non-Potable	East Bayshore/San Ramon Valley irrigation customers	241	468	700	752	752	752		
Commercial use	Non-Potable	Truck program	3	1	1	1	1	1		
		Total	2,116	3,264	4,145	4,739	4,739	4,739	0	0

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.
Additional Guidance. See Appendix M, Section M.21 for detailed guidance on this table.
Potential recycled water use - a description of the feasibility of these uses must be included in the narrative.
Multiple Producers: If you have multiple recycled water producers, submit a separate table for each.

NOTES:

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier... and shall include...
(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use
(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of

Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual
Water Code Section 10633 (e)

☐ Check the box if recycled water was not used in 2025 nor previously projected for use in 2020.
Proceed to the next table.

Use Type (Drop Down list)	2020 Projection for 2025 (MG)	2025 Actual Use (MG)
Add additional rows as needed		
Landscape irrigation (exc golf courses)	704	241
Golf course irrigation	166	117
Industrial use	2,592	1,755
Commercial use	1	3
Total	3,463	2,116

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure reported in Submittal Table 2-3
Additional Guidance. See Appendix M, Section M.21 for detailed guidance on this table.

NOTES:

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following: (e) ...a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision

Submittal Table 6-6 Retail: Methods to Encourage Future Recycled Water Use Water Code Section 10633 (f)			
☐	Check the box if the Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in the UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
			(MG)
Add additional rows as needed			
Expand San Ramon Valley Recycled Water Project	Secure additional wastewater supply; extend distribution infrastructure to serve new customers.	2025-2034	383
Expand East Bayshore Recycled Water Project	Extend distribution infrastructure to serve new customers in Oakland, Emeryville, and Alameda.	2025-2045	256
Construct new recycled water facility to serve Phillips 66/Rodeo Renewed Energy Complex	Construct new recycled water facilities to provide recycled water for boiler feed and/or cooling tower makeup water.	2035-2042	1,022
Consideration of potable reuse/purified water	Implement public education and outreach plan; reevaluate need for potable reuse in future studies.	2025-2050	--
		Total (MG)	1,661
		Unit Conversion to AF	5,097
DWR NOTES: **Units of measure** (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations. **The unit conversion to Acre Feet** addresses the Water Code's requirement that this value be provided in acre-feet.			
NOTES:			

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the serv`ice area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:
(f) a description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre feet of recycled water used per year.

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs Water Code Section 10631 (f)							
☐	Check the box if there are no expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Procees to the next table.						
☐	Check the box if some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.						
	Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL) **Drop Down list**	Planned Implementation Year	Planned for Use in Year Type **Drop Down List**	Expected Increase in Water Supply to Supplier (This may be a range)
	Drop Down List (yes/no)	If Yes, Supplier Name					(MG)
Add additional rows as needed							
San Ramon Valley Recycled Water Project Expansion	Yes	Dublin San Ramon Services District	Secure additional wastewater supply; extend distribution infrastructure to serve new customers.	Non-Potable	2034	All Year Types	383
East Bayshore Recycled Water Project Expansion	No		Extend distribution infrastructure to serve new customers in Oakland, Emeryville, and Alameda.	Non-Potable	2045	All Year Types	256
Phillips 66/Rodeo Renewed Recycled Water Project	No		New recycled water facilities to provide recycled water for boiler feed and/or cooling tower makeup water.	Non-Potable	2042	All Year Types	1,022
DWR NOTES: **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure reported in Submittal Table 2-3.							
NOTES:							

10631 (f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

Submittal Table 6-8 Retail: Water Supplies — 2025 Actual
Water Code Section 10631 (b)

Water Supply	Additional Description (as needed)	2025		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**Water Type** (after treatment if treated) (OPTIONAL) **Drop Down list**	**Actual Volume**	**Total Entitlement** (OPTIONAL) See "DWR Notes" below
			(MG)	(MG)
Add additional rules as needed				
Surface water (not desalinated)	Mokelumne and East Bay watersheds; Pardee, Briones, Upper San Leandro, San Pablo reservoirs	Potable	55,632	
Recycled Water	Total recycled water use *not including SD-1 in-plant use*	Non-Potable	2,116	
		Subtotal Potable	55,632	0
		Subtotal Non-Potable	2,116	0
		Total	57,748	0

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2-3.
Total Entitlement: e.g. Water Right, Groundwater Allocation, Contracted Amount.

NOTES:

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following... (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information...

Submittal Table 6-9 Retail: Water Supplies — Projected
Water Code Section 10631 (b)

Water Supply	Additional Detail on Water Supply	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Projected Water Supply (Report to the Extent Practicable)									
			2030		2035		2040		2045		2050 (opt)	
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool			Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below	Reasonably Available Volume	Total Entitlement (OPTIONAL) See "DWR Notes" below
			(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)	(MG)
Add additional rows as needed												
Surface water (not desalinated)	Mokelumne and East Bay		71,540		74,095		74,825		76,650		78,475	
Recycled Water	Recycled water from various sources	Non-Potable	3,264		4,145		4,738		4,738		4,738	
Subtotal Potable			0	0	0	0	0	0	0	0	0	0
Subtotal Non-Potable			3,264	0	4,145	0	4,738	0	4,738	0	4,738	0
Total			74,804	0	78,240	0	79,563	0	81,388	0	83,213	0

DWR NOTES:
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.
Total Entitlement: e.g. Water Right, Groundwater Allocation, Contracted Amount.

NOTES:

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following... (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following

OPTIONAL Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	**Available Supplies if Year Type Repeats**	
		☑	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. **Location:** UWMP Attachment 1-WSCP Table W-4
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year			100%
Single-Dry Year	1976		
Consecutive Dry Years 1st Year	1976		
Consecutive Dry Years 2nd Year	1977		
Consecutive Dry Years 3rd Year	1978		
Consecutive Dry Years 4th Year			
Consecutive Dry Years 5th Year			

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 R if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 R, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 R are being used and identify the particular water source that is being reported in each submittal table.
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table reports the units of measure reported in Submittal Table 2-3.

NOTES: Refer to UWMP Attachment 1-WSCP Table W-4 for volumes available during dry years. For multi-year droughts, the third year is a modified 1978 hydrology based on the average of 1976 and 1977.

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)					
	2030 (MG)	2035 (MG)	2040 (MG)	2045 (MG)	2050 (Opt) (MG)
Supply totals (autofill from Submittal Table 6-9 R)	74,804	78,240	79,563	81,388	83,213
Use totals (autofill from Submittal Table 4-2 R)	71,540	74,095	74,825	76,650	78,475
Surplus/(shortfall)	3,264	4,145	4,738	4,738	4,738
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment **shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments,** for a **normal**

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison Water Code Section 10635(a)					
	2030 (MG)	2035 (MG)	2040 (MG)	2045 (MG)	2050 (Opt) (MG)
Supply totals	44,384	46,464	47,158	48,545	49,932
Use totals	68,255	70,445	71,175	72,635	74,095
Surplus/(shortfall)	(23,871)	(23,981)	(24,017)	(24,090)	(24,163)
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit	21,535	21,535	21,535	21,535	21,535
WSCP - use reduction savings benefit	2,336	2,446	2,482	2,555	2,628
Revised Surplus/(shortfall)	0	0	0	0	0
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment **shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments,** for a normal water year, a **single dry water year**, and a drought lasting five consecutive water years.

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison Water Code Section 10635(a)						
		2030 (MG)	2035 (MG)	2040 (MG)	2045 (MG)	2050 (Opt) (MG)
First year	Supply totals	44,384	46,464	47,158	48,545	49,932
	Use totals	68,255	70,445	71,175	72,635	74,095
	Surplus/(shortfall)	(23,871)	(23,981)	(24,017)	(24,090)	(24,163)
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit	21,535	21,535	21,535	21,535	21,535
	WSCP - use reduction savings benefit	2,336	2,446	2,482	2,555	2,628
	Revised Surplus/(shortfall)	0	0	0	0	0
Second year	Supply totals	33,507	35,368	36,044	37,230	38,471
	Use totals	60,955	63,145	63,875	65,335	66,795
	Surplus/(shortfall)	(27,448)	(27,777)	(27,831)	(28,105)	(28,324)
	OPTIONAL WSCP Actions					
	WSCP - supply augmentation benefit	21,535	21,535	21,535	21,535	21,535
	WSCP - use reduction savings benefit	5,913	6,242	6,296	6,570	6,789
	Revised Surplus/(shortfall)	0	0	0	0	0
Third year	Supply totals	38,836	40,699	40,953	42,194	43,745
	Use totals	60,955	63,145	63,510	64,970	66,795
	Surplus/(shortfall)	(22,119)	(22,446)	(22,557)	(22,776)	(23,050)
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit	15,330	15,330	15,330	15,330	15,330
	WSCP - use reduction savings benefit	6,789	7,116	7,227	7,446	7,720
	Revised Surplus/(shortfall)	0	0	0	0	0
Fourth year	Supply totals					
	Use totals					
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth year	Supply totals					
	Use totals					
	Surplus/(shortfall)	0	0	0	0	0
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.						
NOTES: EBMUD uses a three year "drought planning sequence" (DPS) to assess the adequacy of its water supply for long-term water resources planning. Model simulation of the first and second years of this DPS uses the actual runoff that occurred in 1976 and 1977, the driest recorded two-year period. The third year is a modified 1978 hydrology. Refer to Attachment 1 - Water Shortage Contingency Plan for detailed information on DPS and modeling methodology.						

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment **shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments,** for a

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)		
2026		**Total**
Total Water Use	(MG)	68,255
Total Supplies	(MG)	45,660
Surplus/Shortfall w/o WSCP Action		(22,595)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit	(MG)	21,900
WSCP - use reduction savings benefit	(MG)	695
Revised Surplus/(shortfall)		0
2027		**Total**
Total Water Use	(MG)	60,225
Total Supplies	(MG)	31,437
Surplus/Shortfall w/o WSCP Action		(28,788)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit	(MG)	24,090
WSCP - use reduction savings benefit	(MG)	4,698
Revised Surplus/(shortfall)		0
2028		**Total**
Total Water Use	(MG)	68,255
Total Supplies	(MG)	67,026
Surplus/Shortfall w/o WSCP Action		(1,229)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit	(MG)	0
WSCP - use reduction savings benefit	(MG)	1,229
Revised Surplus/(shortfall)		0
2029		**Total**
Total Water Use	(MG)	68,620
Total Supplies	(MG)	41,011
Surplus/Shortfall w/o WSCP Action		(27,609)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit	(MG)	21,535
WSCP - use reduction savings benefit	(MG)	6,074
Revised Surplus/(shortfall)		0
2030		**Total**
Total Water Use	(MG)	62,050
Total Supplies	(MG)	36,099
Surplus/Shortfall w/o WSCP Action		(25,951)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit	(MG)	21,535
WSCP - use reduction savings benefit	(MG)	4,416
Revised Surplus/(shortfall)		0
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.		
NOTES:Five year historical dry period was based on hydrologic record and focused on 1987-1991 drought period.		

10635 (b) Every urban water supplier shall include, as part of its urban water management plan, a **drought risk assessment** for its water service... The drought risk assessment shall include each of the following:

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels Water Code Section 10632(a)(3)(B)			
☐	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	**Percent Shortage Range**	**Suppliers Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	EBMUD Stage 1 - Moderate; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	Up to 10
2	Up to 20%	EBMUD Stage 2 - Significant; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	10 to 22
3	Up to 30%	EBMUD Stage 3 - Severe; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	22 to 35
4	Up to 40%	EBMUD Stage 4 - Critical; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	>35
5	Up to 50%	EBMUD Stage 4 - Critical; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	>35
6	>50%	EBMUD Stage 4 - Critical; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-3.	>35
NOTES: Cross-referencing EBMUD's WSCP Shortage Stage with the State's standardized shortage levels is determined starting from the threshold of 500 TAF Total System Storage, which triggers initial response actions, as the baseline used to calculate the percentage shortage ranges. Refer to Attachment 1 - Water Shortage Contingency Plan - Figure W-3 which outlines the shortages used to declare and implement response actions.			

10632 (a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:

(3)(A)Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. **Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use.** Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions Water Code Section 10632(a)(4)(A),(C) and (E)				
No	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (MG)	
Add additional rows as needed				
1	Other Purchases	Volume	0 to 21,500	Assumes Central Valley Project water will be available to compensate for shortages.
2	Other Purchases	Volume	0 to 21,500	Assumes Central Valley Project water will be available to compensate for shortages.
3	Transfers	Volume	0 to 4,700	Assumes transfer water supplies will be available to compensate for shortages.
3	Other Purchases	Volume	0 to 10,600	Assumes Central Valley Project water will be available to compensate for shortages.
4	Transfers	Volume	0 to 4,700	Assumes transfer water supplies will be available to compensate for shortages.
4	Other Purchases	Volume	0 to 10,600	Assumes Central Valley Project water will be available to compensate for shortages.
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES:				

10632(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(C) Locally appropriate operational changes.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B) and (E)					
No	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions **Drop down list** These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? **For Retail Suppliers Only** Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (MG)		
Add additional rows as needed					
0	Landscape - Restrict or prohibit runoff from landscape irrigation	Percentage			
0	CII - Other CII restriction or prohibition	Percentage			
0	Other - Require automatic shut of hoses	Percentage			
0	Other - Prohibit use of potable water for construction and dust control	Percentage			
0	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage			
0	Increase Frequency of Meter Reading	Percentage			
1	Expand Public Information Campaign	Percentage	4.0%-5.0%		
1	Reduce System Water Loss	Percentage	0.01%-0.02%		
1	Provide Rebates on Plumbing Fixtures and Devices	Percentage	0.01%-0.02%		
1	Provide Rebates for Landscape Irrigation Efficiency	Percentage	0.01%-0.02%		
1	Provide Rebates for Turf Replacement	Percentage	0.01%-0.02%		
1	Offer Water Use Surveys	Percentage	0.01%-0.02%		
2	Other	Percentage	4.0%-5.0%	All Demand Actions from prior stages	
2	Expand Public Information Campaign	Percentage	4.0%-5.0%		
2	Implement or Modify Drought Rate Structure or Surcharge	Percentage	0.0%-0.0%	Excessive Use Penalty.	Yes
3	Other	Percentage	8.0%-10.0%	All Demand Actions from prior stages	
3	Expand Public Information Campaign	Percentage	4.0%-5.0%		
3	Implement or Modify Drought Rate Structure or Surcharge	Percentage	0.01%-0.02%	Excessive Use Penalty.	Yes
3	Landscape - Limit landscape irrigation to specific days	Percentage	0.30%-0.50%		
3	Landscape - Limit landscape irrigation to specific times	Percentage	0.30%-0.50%		
3	Landscape - Other landscape restriction or prohibition	Percentage	0.10%-0.20%		
3	Increase Water Waste Patrols	Percentage	0.10%-0.20%		
3	Landscape - Prohibit certain types of landscape irrigation	Percentage	0.01%-0.02%		
3	Pools and Spas - Require covers for pools and spas	Percentage	0.01%-0.02%		
3	Decrease Line Flushing	Percentage	0.01%-0.02%		
3	CII - Lodging establishment must offer opt out of linen service	Percentage	0.00%-0.01%		
3	CII - Restaurants may only serve water upon request	Percentage	0.00%-0.01%		
3	Other water feature or swimming pool restriction	Percentage	0.00%-0.01%		
4	Other	Percentage	4.00%-6.00%	All Demand Actions from prior stages	
4	Expand Public Information Campaign	Percentage	4.00%-5.00%		
4	Implement or Modify Drought Rate Structure or Surcharge	Percentage	0.01%-0.02%	Excessive Use Penalty.	Yes
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES: This uses four EBMUD Drought Stages. Stage 0 represents permanent prohibtions on water use.					

10632(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:
(B) Locally appropriate demand reduction actions to adequately respond to shortages.
(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Add additional rows as needed		
Hayward	Yes	Yes
Fremont	Yes	Yes
Suter Creek	Yes	Yes
San Andreas	Yes	Yes
Castro Valley	Yes	Yes
Martinez	Yes	Yes
Alameda	Yes	Yes
Albany	Yes	Yes
Berkeley	Yes	Yes
El Cerrito	Yes	Yes
Emeryville	Yes	Yes
Hercules	Yes	Yes
Lafayette	Yes	Yes
Oakland	Yes	Yes
Orinda	Yes	Yes
Piedmont	Yes	Yes
Pinole	Yes	Yes
Pleasant Hill	Yes	Yes
Richmond	Yes	Yes
San Leandro	Yes	Yes
San Pablo	Yes	Yes
San Ramon	Yes	Yes
Walnut Creek	Yes	Yes
Concord	Yes	Yes
Crockett	Yes	Yes
Dublin	Yes	Yes
Diablo	Yes	Yes
Oakley	Yes	Yes
Dublin	Yes	Yes
Ione	Yes	Yes
Victor	Yes	Yes
San Lorenzo	Yes	Yes
Rodeo	Yes	Yes
San Francisco	Yes	Yes
Moraga	Yes	Yes
Woodbridge	Yes	Yes
Livermore	Yes	Yes
County Name Drop Down List	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Add additional rows as needed		
Alameda County	Yes	Yes
Contra Costa County	Yes	Yes
NOTES:		

CWC 10621 (b)Notify at least 60 days prior to the public hearing any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.
CWC 10642 The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.

Appendix C

The UWMP Act and its Amendments

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 1. General Declaration and Policy [10610 - 10610.4] *(Chapter 1 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate, and increasing long-term water conservation among Californians, improving water use efficiency within the state's communities and agricultural production, and strengthening local and regional drought planning are critical to California's resilience to drought and climate change.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years now and into the foreseeable future, and every urban water supplier should collaborate closely with local land-use authorities to ensure water demand forecasts are consistent with current land-use planning.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

(Amended by Stats. 2018, Ch. 14, Sec. 18. (SB 606) Effective January 1, 2019.)

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to achieve the efficient use of available supplies and strengthen local drought planning.

(Amended by Stats. 2018, Ch. 14, Sec. 19. (SB 606) Effective January 1, 2019.)

Appendix

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 2. Definitions [10611 - 10618] *(Chapter 2 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10611.3. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

(Added by renumbering Section 10612 by Stats. 2018, Ch. 14, Sec. 20. (SB 606) Effective January 1, 2019.)

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

(Amended by Stats. 1995, Ch. 854, Sec. 3. Effective January 1, 1996.)

10612. "Drought risk assessment" means a method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as described in subdivision (b) of Section 10635.

(Added by Stats. 2018, Ch. 14, Sec. 21. (SB 606) Effective January 1, 2019.)

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

(Amended by Stats. 1995, Ch. 854, Sec. 4. Effective January 1, 1996.)

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10616.5. 'Recycled water" means the reclamation and reuse of wastewater for beneficial use.

(Added by Stats. 1995, Ch. 854, Sec. 5. Effective January 1, 1996.)

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

(Amended by Stats. 1996, Ch. 1023, Sec. 428. Effective September 29, 1996.)

10617.5. "Water shortage contingency plan" means a document that incorporates the provisions detailed in subdivision (a) of Section 10632 and is subsequently adopted by an urban water supplier pursuant to this article.

(Added by Stats. 2018, Ch. 14, Sec. 22. (SB 606) Effective January 1, 2019.)

10618. "Water supply and demand assessment" means a method that looks at current year and one or more dry year supplies and demands for determining water shortage risks, as described in Section 10632.1.

(Added by Stats. 2018, Ch. 14, Sec. 23. (SB 606) Effective January 1, 2019.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 3. Urban Water Management Plans [10620 - 10645] *(Chapter 3 added by Stats. 1983, Ch. 1009, Sec. 1.)*

ARTICLE 1. General Provisions [10620 - 10621] *(Article 1 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation, efficient water use, and improved local drought resilience.

(2) Notwithstanding paragraph (1), each urban water supplier shall develop its own water shortage contingency plan, but an urban water supplier may incorporate, collaborate, and otherwise share information with other urban water suppliers or other governing entities participating in an areawide, regional, watershed, or basinwide urban water management plan, an agricultural management plan, or groundwater sustainability plan development.

(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

(Amended by Stats. 2018, Ch. 14, Sec. 24. (SB 606) Effective January 1, 2019.)

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

(d) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

(e) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

(f) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

(Amended by Stats. 2019, Ch. 239, Sec. 7. (AB 1414) Effective January 1, 2020.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 3. Urban Water Management Plans [10620 - 10645] *(Chapter 3 added by Stats. 1983, Ch. 1009, Sec. 1.)*

ARTICLE 2. Contents of Plans [10630 - 10634] *(Article 2 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

(Amended by Stats. 2018, Ch. 14, Sec. 26. (SB 606) Effective January 1, 2019.)

10630.5. Each plan shall include a simple lay description of how much water the agency has on a reliable basis, how much it needs for the foreseeable future, what the agency's strategy is for meeting its water needs, the challenges facing the agency, and any other information necessary to provide a general understanding of the agency's plan.

(Added by Stats. 2018, Ch. 14, Sec. 27. (SB 606) Effective January 1, 2019.)

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(3) For any planned sources of water supply, a description of the measures that are being undertaken to acquire and develop those water supplies.

(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(D) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(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).

(3) (A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

(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 be noted of that fact.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

(f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

(Amended by Stats. 2019, Ch. 239, Sec. 8. (AB 1414) Effective January 1, 2020.)

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

(Added by Stats. 2005, Ch. 727, Sec. 2. Effective January 1, 2006.)

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

(b) The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

(c) The Legislature finds and declares that energy use is only one factor in water supply planning and shall not be considered independently of other factors.

(Amended by Stats. 2018, Ch. 14, Sec. 29. (SB 606) Effective January 1, 2019.)

10632. (a) Every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its urban water management plan that consists of each of the following elements:

(1) The analysis of water supply reliability conducted pursuant to Section 10635.

(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decisionmaking process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

(3) (A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

(7) (A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

(Repealed and added by Stats. 2018, Ch. 14, Sec. 32. (SB 606) Effective January 1, 2019.)

10632.1. An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

(Amended by Stats. 2019, Ch. 239, Sec. 9. (AB 1414) Effective January 1, 2020.)

10632.2. An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

(Added by Stats. 2018, Ch. 14, Sec. 34. (SB 606) Effective January 1, 2019.)

10632.3. It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

(Added by Stats. 2018, Ch. 14, Sec. 35. (SB 606) Effective January 1, 2019.)

10632.5. (a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

(Added by Stats. 2015, Ch. 681, Sec. 1. (SB 664) Effective January 1, 2016.)

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

(Amended by Stats. 2009, Ch. 534, Sec. 2. (AB 1465) Effective January 1, 2010.)

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

(Added by Stats. 2001, Ch. 644, Sec. 3. Effective January 1, 2002.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 3. Urban Water Management Plans [10620 - 10645] *(Chapter 3 added by Stats. 1983, Ch. 1009, Sec. 1.)*

ARTICLE 2.5. Water Service Reliability [10635- 10635.] *(Article 2.5 added by Stats. 1995, Ch. 854, Sec. 11.)*

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(d) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(e) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

(Amended by Stats. 2018, Ch. 14, Sec. 36. (SB 606) Effective January 1, 2019.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 3. Urban Water Management Plans [10620 - 10645] *(Chapter 3 added by Stats. 1983, Ch. 1009, Sec. 1.)*

ARTICLE 3. Adoption and Implementation of Plans [10640 - 10645] *(Article 3 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10640. (a) Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

(b) Every urban water supplier required to prepare a water shortage contingency plan shall prepare a water shortage contingency plan pursuant to Section 10632. The supplier shall likewise periodically review the water shortage contingency plan as required by paragraph (10) of subdivision (a) of Section 10632 and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

(Amended by Stats. 2018, Ch. 14, Sec. 37. (SB 606) Effective January 1, 2019.)

10641. An urban water supplier required to prepare a plan or a water shortage contingency plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

(Amended by Stats. 2018, Ch. 14, Sec. 38. (SB 606) Effective January 1, 2019.)

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan and the water shortage contingency plan. Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies. Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

(Amended by Stats. 2018, Ch. 14, Sec. 39. (SB 606) Effective January 1, 2019.)

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10644. (a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(2) The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

(b) If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared pursuant to subdivision (a) of Section 10632 no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

(c) (1) (A) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before July 1, in the years ending in seven and two, a report summarizing the status of the plans and water shortage contingency plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans and water shortage contingency plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan and water shortage contingency plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans and water shortage contingency plans submitted pursuant to this part.

(B) The department shall prepare and submit to the board, on or before September 30 of each year, a report summarizing the submitted water supply and demand assessment results along with appropriate reported water shortage conditions and the regional and statewide analysis of water supply conditions developed by the department. As part of the report, the department shall provide a summary and, as appropriate, urban water supplier specific information regarding various shortage response actions implemented as a result of annual supplier-specific water supply and demand assessments performed pursuant to Section 10632.1.

(C) The department shall submit the report to the Legislature for the 2015 plans by July 1, 2017, and the report to the Legislature for the 2020 plans and water shortage contingency plans by July 1, 2022.

(2) A report to be submitted pursuant to subparagraph (A) of paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(d) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

(Amended by Stats. 2018, Ch. 14, Sec. 40. (SB 606) Effective January 1, 2019.)

10645. (a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(Amended by Stats. 2018, Ch. 14, Sec. 41. (SB 606) Effective January 1, 2019.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.6. URBAN WATER MANAGEMENT PLANNING [10610 - 10657] *(Part 2.6 added by Stats. 1983, Ch. 1009, Sec. 1.)*

CHAPTER 4. Miscellaneous Provisions [10650 - 10657] *(Chapter 4 added by Stats. 1983, Ch. 1009, Sec. 1.)*

10650. Any actions or proceedings, other than actions by the board, to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan or a water shortage contingency plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan or water shortage contingency plan, or action taken pursuant to either, does not comply with this part shall be commenced within 90 days after filing of the plan or water shortage contingency plan or an amendment to either pursuant to Section 10644 or the taking of that action.

(Amended by Stats. 2018, Ch. 14, Sec. 42. (SB 606) Effective January 1, 2019.)

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan or a water shortage contingency plan, or an action taken pursuant to either by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

(Amended by Stats. 2018, Ch. 14, Sec. 43. (SB 606) Effective January 1, 2019.)

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

(Amended by Stats. 1995, Ch. 854, Sec. 16. Effective January 1, 1996.)

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the board and the Public Utilities Commission, for the preparation of water management plans, water shortage contingency plans, or conservation plans; provided, that if the board or the Public Utilities Commission requires additional information concerning water conservation, drought response measures, or financial conditions to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan that complies with analogous federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

(Amended by Stats. 2018, Ch. 14, Sec. 44. (SB 606) Effective January 1, 2019.)

10654. An urban water supplier may recover in its rates the costs incurred in preparing its urban water management plan, its drought risk assessment, its water supply and demand assessment, and its water shortage contingency plan and implementing the reasonable water conservation measures included in either of the plans.

(Amended by Stats. 2018, Ch. 14, Sec. 45. (SB 606) Effective January 1, 2019.)

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

(Added by Stats. 1983, Ch. 1009, Sec. 1.)

10656. An urban water supplier is not eligible for a water grant or loan awarded or administered by the state unless the urban water supplier complies with this part.

(Amended by Stats. 2018, Ch. 14, Sec. 46. (SB 606) Effective January 1, 2019.)

10657. The department may adopt regulations regarding the definitions of water, water use, and reporting periods, and may adopt any other regulations deemed necessary or desirable to implement this part. In developing regulations pursuant to this section, the department shall solicit broad public participation from stakeholders and other interested persons.

(Added by Stats. 2018, Ch. 14, Sec. 47. (SB 606) Effective January 1, 2019.)

Appendix F

Information on Demonstration of Consistency with Delta Plan WR P1

Appendix F: Delta Plan Policy WR P1 - Reduced Reliance on the Delta Through Improved Regional Water Self-Reliance

F.1 The Delta Reform Act and the Delta Plan

The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act), per Water Code Section 85000 et seq, established the coequal goals for the Delta of securing a more reliable water supply and protecting, restoring, and enhancing the Delta ecosystem. The Delta Reform Act also includes a state policy to reduce reliance on the Delta in meeting California's future water supply needs through a strategy of investing in improved regional supplies, conservation and water use efficiency. Water demand management measures do help save water and these measures combined with alternative sources of supply help reduce reliance on water from the Delta.

The Delta Reform Act also created the Delta Stewardship Council (DSC), that is responsible for furthering the coequal goals through the development of a Delta Plan.

The Delta Plan, released in 2013 by the DSC, is a comprehensive, long-term resource management plan for the Delta and contains regulatory policies and recommendations for water suppliers to include in their UWMP.

The Delta Plan Policy WR P1 (WR P1) is relevant to a water supplier who is participating in or carrying out a proposed covered action or received Delta water from a proposed covered action[1]. Examples of covered actions include multi-year water transfers, conveyance facilities, or new diversion that involve transferring water through, from, or using water in the Delta.

The California Code of Regulations, Title 23, Section 5003 (c)(1) provides the requirements by which a water supplier can demonstrate compliance with the Delta Plan Policy. This Appendix F to the UWMP 2025 demonstrates EBMUD's consistency with WR P1 by demonstrating reduced reliance on Delta in its long-term water supply planning.

F.2 EBMUD and the Delta

Approximately 90 percent of EBMUD's water supply comes from the Mokelumne River watershed. EBMUD has water rights that allow for the delivery of up to a maximum of 325 million gallons per day (MGD) from the Mokelumne River, subject to the availability of runoff, senior water rights of other users, downstream fishery flow requirements, and other Mokelumne River water uses. A smaller portion of EBMUD's water supply, about ten percent on average, comes from local runoff in the East Bay area watersheds that is stored in EBMUD's terminal reservoirs.

However, during dry years the combination of Mokelumne River water and local runoff may not be sufficient to meet customer demand. Through its Contract with the U.S. Bureau of Reclamation (USBR), EBMUD has the right to take Central Valley Project (CVP) water from the Sacramento River during dry years through its Freeport Facilities[2]. The contract provides for a total of 165,000 acre-feet over three consecutive dry years, and up to 133,000 acre-feet in a single dry year, subject to the availability of supply.

In addition, during dry years EBMUD may seek water transfers to make up for deficiencies in its supply. Transfer supplies can be moved into EBMUD's system via the Freeport Facilities. For example, in 2015 EBMUD executed a transfer with Placer County Water Agency (PCWA) that allowed EBMUD to bring 11,400 acre-feet of water from PCWA into its service area. Since the 2020 UWMP, EBMUD has made additional progress pursuing three opportunities for long-term water transfer arrangements. These potential long-term water transfer projects are at various stages of development. In the meantime, EBMUD has secured permits and approvals and implemented short-term one-year water transfers from PCWA and other sources during past droughts. Chapter 4 provides more information about EBMUD's water transfers program.

The Delta is critical to EBMUD because its primary conveyance system runs through the Delta. All

1 As defined in California Code of Regulations., Title 23, Section 5001, subdivision (j).

2 Chapter 1 Section 1.4.4 of the UWMP describes what Freeport Facilities are comprised of.

EBMUD's water supplies from the Mokelumne and Sacramento River are conveyed to its service area via three large aqueducts that run through the Delta. The 82-mile long Mokelumne Aqueducts have a total capacity of up to 200 MGD by gravity flow or up to 325 MGD with pumping. EBMUD is sensitive to the potential for Delta flooding that could impact its Aqueducts, and EBMUD's emergency preparedness planning includes preparing for events in the Delta that could impact the Mokelumne Aqueducts.

F.3 Programs to Reduce Reliance on the Delta

EBMUD has a variety of programs, planned and implemented, that decrease its need for fresh water. Most significantly, EBMUD's recycled water and conservation programs reduce customer demand for potable water during all years. EBMUD has also begun to develop groundwater banking projects that would reduce the need for imported water during dry years. Also, as discussed above, local runoff into EBMUD's service area is an important component of EBMUD's supply. This section provides information on these programs and water supplies.

Recycled Water Program

The use of recycled water decreases the need for potable water and reduces EBMUD's overall demand for fresh water. Recycled water also has the benefit of being a "local supply," thereby increasing regional self- reliance and resilience. In addition, recycled water availability is less strongly affected by differences in hydrology from year to year, making it a drought-resistant supply.

EBMUD began implementing its recycled water program in the early 1970s, and the program has expanded considerably since then. Currently, EBMUD operates three recycled water treatment plants and partners with a neighboring agency for the operation of one additional treatment plant. EBMUD's program supplies recycled water primarily for landscape irrigation and industrial use.

EBMUD continues to expand its recycled water program. In 2009 EBMUD's Board of Directors set an ambitious goal of increasing recycled water deliveries to 20 million gallons per day (MGD) by the year 2040. To meet that goal, EBMUD plans to implement a variety of projects, including expansions of existing projects and implementation of new ones. In December 2024, EBMUD completed an update to its Recycled Water Master Plan (RWMP) to guide future projects and priorities with a goal of serving 20 MGD of recycled water by 2050 through non-potable reuse and purified water opportunities. Additional details on EBMUD's recycled water program and specific projects can be found in Chapter 5 of the UWMP 2025.

Conservation Program

EBMUD has also made significant investments in conservation, including programs focused on both supply-side (supplier) and demand-side (customer) conservation. During periods of drought, EBMUD also institutes customer rationing and implements programs to help customers make immediate, short-term reductions in water use. Increasing conservation decreases the need for potable water in all years and rationing decreases the demand for potable water during critically dry years.

EBMUD has been investing in demand-side conservation since the 1970s and formalized the program with the implementation of its first Water Conservation Strategic Plan (WCSP) in 1994. In 2021, EBMUD completed its most recent update to the Water Conservation Strategic Plan. Conservation program components include water management services, outreach and education, rebates and incentives, supply side conservation, research and development, and regulatory requirements.

During periods of declared drought, EBMUD has asked customers to meet voluntary or mandatory rationing goals. During these periods, EBMUD increased customer outreach and expanded conservation programs to help customers meet those goals.

Additional details on conservation measures can be found in Chapter 6 of the UWMP 2025 and Attachment I, EBMUD's Water Shortage Contingency Plan (WSCP), provides further details on voluntary and mandatory rationing.

Groundwater Conjunctive Use and Banking/Exchanges

EBMUD is exploring several groundwater conjunctive use and banking/exchange programs. The groundwater conjunctive use program is a coordinated use of surface water and groundwater; the banking/exchange programs is the use of aquifers for storage purposes and coordinating with

other water users on the use of the banked water. In addition to providing a dry-year supply for EBMUD, these groundwater projects can help address over-drafted groundwater basins in regions, such as in San Joaquin County. EBMUD's groundwater projects being investigated and implemented are discussed in Chapter 4 of the UWMP 2025.Local Surface Water

Local runoff into the terminal reservoirs located within EBMUD's service area makes up a portion of EBMUD's water supply each year. Typically, around 10 percent of EBMUD's water supply is made up of local runoff.

Hydrologic conditions determine the amount of runoff that will be available, and in dry years evaporation can exceed runoff, resulting in no net local supply. In addition, EBMUD's ability to capture runoff is limited by the need to keep enough water in the terminal reservoirs to supply customers in case of emergencies. EBMUD policy is to keep enough water in the terminal reservoirs to meet rationed demands for up to six months; thus, the reservoir water level is sometimes not low enough to allow the capture of additional runoff. Chapter 1 of UWMP 2025 provides more information on local surface water.

F.4 Quantifying EBMUD's Reduced Reliance on the Delta

Expansion of the water use efficiency and water recycling programs as well as advancing water technologies, conjunctive use projects, and local and regional water supply and storage projects will continue to help meet demands and reduce the frequency and volume of use of waters of the Delta.

EBMUD's use of non-local supplies varies depending on hydrologic conditions. Although Mokelumne River water is used in all years, EBMUD currently uses CVP water and water transfers during dry years.

Documentation and quantification of supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance are provided to demonstrate consistency with WR P1.

Table F-1 quantifies EBMUD's total water demands during normal years. The data for years 2010, 2015, 2020, and 2025 are the actual metered system demand with water use efficiency having been achieved; the projected demand obtained from the recently published EBMUD's 2050 Demand Study, as described in Chapter 3 of the UWMP, incorporates the conservation program measures to be implemented.

Table F-2 quantifies EBMUD's total water supplies contributing to regional self-reliance. Water conservation, water recycling1, and EBMUD's local supplies all contribute to EBMUD's regional self-reliance. Actual amounts of recycled water delivered by EBMUD are reflected for years 2010-2025; and EBMUD will continue to pursue full development of its 20 MGD recycled water goals, and the recycled water forecast shown in the table reflect the current best estimate of recycled water developments reasonably certain to occur by the year 2050.

Table F-3 quantifies EBMUD's reliance on water supplies from the Delta Watershed. To obtain the projected water supplies, EBMUD used the forecasts from the 2050 Demand Study for the average annual available supply for standard operational use.

EBMUD's primary water supply comes from the Mokelumne River watershed. EBMUD's ability to use its full entitlement of Mokelumne River water is constrained by various regulatory requirements and the terms and conditions set forth in the state-issued water right licenses and permits that grant EBMUD the right to serve its customers from the Mokelumne River. Although EBMUD's water supply system was designed and constructed to deliver

Table F-1

Calculation of Service Area Water Demands Without Water Use Efficiency (Acre-Feet)

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Water Demands with Water Use Efficiency Accounted For	193,936	165,560	189,688	170,730	219,437	226,830	229,966	235,455
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	36,405	44,806	53,767	59,368	64,969	68,329	70,569	75,050
Service Area Water Demands without Water Use Efficiency Accounted For	230,341	210,366	243,455	230,098	284,406	295,159	300,536	310,505

Table F-2 **Calculation of Supplies Contributing to Regional Self-Reliance (Acre-Feet)**

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Use Efficiency	36,405	44,806	53,767	59,368	64,969	68,329	70,569	75,050
Water Recycling	12,411	11,739	13,083	13,643	5,713	8,401	8,625	8,737
Stormwater Capture and Use	-	-	-	-	-	-	-	-
Advanced Water Technologies	-	-	-	-	-	-	-	-
Conjunctive Use Projects	-	-	-	-	-	-	-	-
Local and Regional Water Supply and Storage Projects (start of water year)	-	-	-	-	-	-	-	-
Other Programs and Projects the Contribute to Regional Self-Reliance	-	-	-	-	-	-	-	-
Water Supplies Contributing to Regional Self-Reliance	48,816	56,545	66,850	73,011	70,681	76,730	79,194	83,787
Service Area Water Demands without Water Use Efficiency Accounted For	230,341	210,366	243,455	230,098	284,406	295,159	300,536	310,505
Change in Water Supplies Contributing to Regional Self-Reliance	-	7,729	18,034	24,195	21,865	27,914	30,378	34,971
Percent of Water Supplies Contributing to Regional Self-Reliance	21.2%	26.9%	27.5%	31.7%	24.9%	26.0%	26.4%	27.0%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance	-	5.7%	6.3%	10.5%	3.7%	4.8%	5.2%	5.8%

325 MGD, the extent to which EBMUD's water rights can be exercised, especially in dry years, is further constrained by other Mokelumne River water users with water entitlements that hold water rights that are senior to those held by EBMUD. In addition, under the FERC license and through an agreement with U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife, referred to as the Joint Settlement Agreement (JSA), EBMUD releases flows to the lower Mokelumne River to improve water quality, flow regimes, and local physical habitat for the benefit of the river's fish populations, riparian zones, associated uplands, and recreational angling. Also, as part of the Camanche Permit Extension (Permit 10478) an additional 2,000 AF was dedicated for release from September through February to improve salmonid migration conditions in below normal and dry year-types.

As discussed in WSCP, EBMUD holds a water service contract with the USBR to receive water from the CVP through the Freeport Regional Water Project in dry years. EBMUD also has a water transfer program that seeks to secure dry-year water supply to help meet customer water demand by developing and implementing water transfer and exchange opportunities. In 2014, 2015, 2021 and 2022 EBMUD used the Freeport Project to convey transfer water from the Sacramento and American River watersheds to EBMUD's service area.

F.5 Expanded Reliability Element

This section provides an overview of EBMUD's preparations and plans for responding to a catastrophic event in the Delta that affects Delta supply for up to 6 months, in keeping with recommendation WR R4 in the Delta Plan. For detailed information, references are provided in the various elements discussed below.

F.5.1 EBMUD's Vulnerabilities in the Delta

Most of EBMUD's water supply is from the Mokelumne and not the Delta itself, although that water supply is vulnerable to catastrophic events in the Delta due to the location of EBMUD's aqueducts. EBMUD's three 82-mile long Mokelumne aqueducts convey water from Pardee Reservoir through the Delta to Walnut Creek.

Table F-3

Calculation of Reliance on Water Supplies from the Delta Watershed (Acre-Feet)

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies		33,250	-	-	-	-	-	-
Delta/Delta Tributary Diversions	194,394	108,950	185,599	167,490	197,493	204,147	206,970	211,910
Transfers and Exchanges		25,000	-	-	-	-	-	-
Other Water Supplies from the Delta Watershed								
Total Water Supplies from the Delta Watershed	194,394	167,200	185,599	167,490	197,493	204,147	206,970	211,910
Service Area Water Demands without Water Use Efficiency Accounted For	230,341	210,366	243,455	230,098	284,406	295,159	300,536	310,505
Change in Water Supplies from the Delta Watershed	-	(27,193)	(8,794)	(26,904)	3,100	9,753	12,576	17,516
Percent of Water Supplies from the Delta Watershed	84.4%	79.5%	76.2%	72.8%	69.4%	69.2%	68.9%	68.2%
Change in Percent of Water Supplies from the Delta Watershed		-4.9%	-8.2%	-11.6%	-15.0%	-15.2%	-15.5%	-16.1%

The aqueducts are buried for most of their length. At Delta river and slough crossings, they are buried from 10 to 40 feet below the channel bottoms or levee crests. The remaining above-ground sections are supported on timber, reinforced concrete, or steel bents for approximately ten miles as the aqueducts cross several islands in the Delta.

The Mokelumne Aqueducts are vulnerable to a variety of events in the Delta including earthquakes and flood inducing levee failures. Historically, there have been levee failures that have threatened the Mokelumne Aqueducts, including flooding in the Jones Tract in 1980 and 2004.

As discussed below, EBMUD has made improvements to system reliability and developed plans and agreements to prepare for events in the Delta that threaten the transmission of water from the Mokelumne.

Aqueduct Outage Scenario

EBMUD has developed plans to respond to a catastrophic event in the Delta that severely impacts the ability of the Mokelumne Aqueducts to convey water to EBMUD's service area. The plans are based on a scenario wherein a levee failure, resulting from an extreme flood event or seismic activity, damages the Mokelumne Aqueducts. This scenario is similar to the 1980 Lower Jones Tract flood discussed above.

EBMUD's response plan for this scenario estimates that it would take up to 18 months to resume normal operations. During the first six months that all three aqueducts are out of service, customers would be supplied by water stored in EBMUD's terminal reservoirs; as discussed above, EBMUD policy is to maintain enough water in the terminal reservoirs to meet rationed customer demand for six months. If needed, EBMUD also has intertie agreements with other agencies that could provide short-term emergency water. A customer outreach and communication program would be initiated to inform customers of the situation and timeline and to educate them as to their responsibilities and water use restrictions.

During those six months, EBMUD would prioritize returning Mokelumne Aqueduct No. 3 to service at an approximate rate of 172 MGD under pumped flow, to meet customer demand while EBMUD works to restore Mokelumne Aqueducts No. 1 and 2 to service. Once Aqueducts No. 1 and 2 have been restored, EBMUD would operate the three aqueducts to produce the maximum pumped flow of up to 325 MGD to meet service area demands and refill terminal storage to normal operating levels.

F.5.2 Reliability and Emergency Preparedness

EBMUD has undertaken extensive planning and preparation to allow it to respond to a variety of emergency situations. EBMUD has made capital improvements to increase system reliability and has developed agreements for mutual assistance and emergency supply with other agencies.

Water System Reliability

EBMUD has made numerous significant investments into improving system reliability. In 2005 EBMUD completed the final phase of the Mokelumne Aqueduct Seismic Upgrade project to improve seismic performance of the aqueducts. One goal of the project was to ensure that raw water deliveries could be restored within 180 days after a major earthquake. Chapter 1 provides an in-depth discussion on this project.

EBMUD completed the Mokelumne Aqueduct Interconnection Project to further improve the reliability of its water supply delivered through the Mokelumne Aqueducts. The project includes the addition of interconnections between the aqueducts in two locations in the Delta area and near Walnut Creek.,.. The interconnections in the Delta will allow EBMUD to bypass segments of the Mokelumne Aqueducts that may be damaged following a levee failure or seismic event, and thus, maximize flows through surviving segments of the aqueducts. The interconnection near Walnut Creek will allow for isolation and bypassing at the two tunnels that are at the end of the Mokelumne Aqueducts to improve operational flexibility.

Within its service area, EBMUD is working on several major projects involving reliability and process upgrades for water treatment plants and construction of new transmission facilities for fiscal year 2020 through 2032. These projects will improve EBMUD resiliency, such as the ability to respond to equipment failures, water quality issues due to climate change, and water supply shortage due to droughts, and recovering to operational normalcy from these vulnerabilities. Each project is described in Chapter 4 of the UWMP 2025.

Emergency Preparedness Agreements

EBMUD has also developed agreements and interties with other agencies that would allow the transmission of water into EBMUD's service area during emergency conditions. EBMUD has agreements with San Francisco Public Utilities Commission, City of Hayward, Dublin San Ramon Service District, and Contra Costa Water District for the provision of water during short-term emergencies. In coordination with these entities, EBMUD has invested in a number of interties and pumping facilities to allow water to be moved into its service area. These arrangements are discussed in more detail in Attachment 1, as part of the WSCP. Similarly, EBMUD has also secured mutual assistance in case of emergency. EBMUD has an agreement with Los Angeles Department of Water and Power and Las Vegas Valley Water District to mutually supply as much requested resources as possible in case of a regional disaster that only impacts one of the agencies. EBMUD is also part of the California Water Agency Response Network, which is an omnibus mutual aid/mutual assistance agreement with water agencies throughout the state.

F.6 Climate Change Vulnerability

EBMUD is undertaking a comprehensive climate change analysis to inform its long-term water resources planning. This effort builds upon the insights from the previous climate assessments conducted for the 2020 UWMP by incorporating a broader range of climate projections and addressing a more comprehensive spectrum of uncertainty. The current initiative aims to advance beyond conventional modeling approaches by applying a risk-based methodology that stress-tests the water system across a wide range of plausible future scenarios.

The goal of the current analysis is to evaluate the vulnerability of EBMUD's water supply system to climate change and identify adaptation strategies that enhance resilience and reliability. The analysis will incorporate advanced climate science, hydrologic modeling, and decision-scaling[3] techniques to assess system performance under varied conditions. Key performance metrics

3 Decision scaling, also called a "stress test", is a way to see how a system reacts under different conditions. It works by adjusting external factors or uncertainties to identify which ones or which combinations could cause the system to become unstable. This helps identify vulnerabilities and the points where problems start. From this, can get the scenarios that are important for decision-making and guide any further scientific analysis. *https://websites.umass.edu/hydrosystems/what-is-decision-scaling/*

categories such as water supply, water quality, environmental, and flood control will be used to quantify risk and guide planning decisions.

Preliminary analysis is included in this UWMP and findings from the complete analysis will be published in the 2030 UWMP and will inform EBMUD's WSCP. The work will provide EBMUD with a robust framework for climate-informed decision-making and long-term water resource stewardship.

F.7 EBMUD Drought Rate Structure Assessment

The Delta Plan recommendation WR R4 also suggests including an evaluation of the extent to which the supplier's rate structure promotes and sustains efficient water use. EBMUD customers pay a service charge based on the size of their meter, and a flow charge which is calculated as the amount of water used during the billing period multiplied by the applicable volumetric rate. To determine the appropriate rates and charges needed to recover its costs, EBMUD engages independent rate consultants to perform cost of service (COS) rate studies for the Water System. These studies develop water rates and charges to conform to COS principles to allocate operating and capital costs to ratepayers based on the proportional cost of service consistent with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218). The Water System COS Rate Study is available on ebmud.com/rates.

If the EBMUD Board declares a drought, EBMUD may assess a temporary drought surcharge that is applicable to all potable water customer accounts. The drought surcharge corresponds to increasingly severe stages of drought and is charged on each unit of water used during the billing period. The surcharge is calculated to recover costs of providing secondary water, losses of revenue, and other drought-related costs. A discussion on EBMUD's drought rate structure assessment is available in Attachment I – WSCP.

Appendix G

Local Hazard Mitigation Plan

Local Hazard Mitigation Plan 2023

East Bay Municipal Utility District

Executive Summary

Hazard Mitigation is commonly defined as "sustained action taken to reduce or eliminate long-term risk to human life and property from hazards." A hazard mitigation plan identifies the hazards a community or region faces, assesses their vulnerability to the hazards, and identifies mitigation actions that can be taken to reduce the risk. A hazard mitigation plan is most effective when it is developed before a disaster occurs and formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other regional stakeholders.

The East Bay Municipal Utility District (EBMUD) 2023 Local Hazard Mitigation Plan (2023 LHMP) is an update to its 2018 Local Hazard Mitigation Plan (2018 LHMP) and reflects EBMUD's most current system upgrades, improvements, and mitigation measures to reduce community exposure to hazards and to improve reliability of its services to the public.

The 2023 LHMP is organized as follows:

Chapter 2 – Local Hazard Mitigation Plan Overview – details the process EBMUD used to assess and analyze the hazards to which EBMUD is most vulnerable, including its participation in regional and local meetings and forums for mitigation planning and information sharing. This section identifies how the public and regional stakeholders were involved and includes a detailed summary of the key meetings held with associated outcomes.

Chapter 3 – EBMUD Goals and Objectives – provides a brief profile of EBMUD, including its service area, mission, goals, and priorities.

Chapter 4 – EBMUD Facilities – provides an overview of EBMUD Water Supply and Wastewater Facilities, including dams, reservoir tanks, pumping plants, transmission and distribution pipelines, water and wastewater treatment facilities, regulators, and rate control stations, Mokelumne Aqueduct, and Pardee and Camanche Reservoirs.

Chapter 5 – Capability Assessment – summarizes EBMUD's capabilities that influence hazard mitigation within the categories of planning and regulatory capabilities, administrative and technical capabilities, fiscal capabilities, and education and outreach capabilities.

Chapter 6 – Identified Hazards – builds on available historical data and establishes detailed profiles for each of the primary hazards impacting EBMUD's service area – five related to earthquakes (faulting, shaking, earthquake induced landslides, liquefaction, and tsunami), and five related to weather (flooding, landslides, wildfires, drought, and climate change).

Chapter 7 – Vulnerability Assessment – summarizes the risks to each facility type listed in Chapter 4. It assesses the exposure and vulnerability of the identified hazards summarizing the impact and estimated loss by facility type. The risk assessments collectively contribute to the development, adoption, and implementation of a meaningful and functional mitigation strategy based on accurate background information.

Chapter 8 – 2023 LHMP Maintenance – includes the measures that EBMUD will take to monitor, evaluate, and update the 2023 LHMP to ensure continuous long-term implementation, to regularly evaluate and update the 2023 LHMP to remain a current and meaningful planning document.

Chapter 9 – 2023 LHMP Maintenance – includes the measures that EBMUD will take to monitor, evaluate, and update the 2023 LHMP to ensure continuous long-term implementation, to regularly evaluate and update the 2023 LHMP to remain a current and meaningful planning document.

Chapter 10 – Mitigation Plan Point of Contact – provides EBMUD staff contact information for the 2023 LHMP.

A draft copy of this plan was published on the EBMUD webpage for public comment in advance of the November 8, 2022, EBMUD Board of Directors Planning Committee meeting. Following California Governor's Office of Emergency Services (Cal OES) and Federal Emergency Management Agency (FEMA) approval, the final 2023 LHMP will be adopted by the EBMUD Board of Directors in 2023.

Appendix H

Reporting of Energy Intensity

Appendix H: Reporting of Energy Intensity

Table H-1 provides a breakdown of energy use of the major water supply functions, including pumping for storage, conveyance, water treatment, and distribution. EBMUD maintains a database of all its electric accounts going back to 2006 that includes monthly metered electric use data. This database labels each account as one of fourteen different categories, which allows the categorization of conveyance, treatment, and distribution functions. EBMUD has two water supply reservoirs (Briones and Upper San Leandro) where water storage is supplemented by pumping functions. In FY24 the Briones Pumping Plant did not operate adding no water storage to the Briones Reservoir. Conveyance energy includes pumping and other support activities on EBMUD's Mokelumne Aqueduct and Freeport operations. In FY24 the Walnut Creek Pumping Plant did not operate, which added no energy use for the conveyance of water. EBMUD operates five water treatment plants with an additional one in standby. The two main plants use a direct inline filtration process, which requires relatively low energy use. The three other plants are utilized generally only in higher water demand months, with the two largest using a conventional treatment process with a larger energy use. The water distribution system provides water service through gravity feed and pumping through one or more pumping plants. Approximately 50 percent of EBMUD customers require no pumping while the other customers require pumping through as many as five pump stations. The volume of water entering the distribution process in Table H-1 is the total volume of water that passed through EBMUDs approximately 130 distribution pump stations.

EBMUD has two hydropower plants located at two separate dam structures. The total net production (metered generation exported to the grid) is noted in Table H-1. This value does not include the unmetered generation that is used on site and the adjacent administrative and maintenance facilities.

Table H-2 includes energy use from all water operations activities.

Table H-3 provides a breakdown of energy use by deliverable product. EBMUD mostly provides retail potable water supply and a small amount of retail non-potable as shown in the table.

Table H-4 provides a breakdown of wastewater energy use and recycled water energy use at EBMUD. EBMUD operates one main wastewater treatment plant and the associated interceptor network receiving wastewater from the collection systems of local cities. EBMUDs wastewater treatment facilities also include three wet weather facilities used during periods of high rainfall to treat and store stormwater resulting from infiltration and inflow. The interceptor collection system also utilizes 15 pump stations to move wastewater to the main treatment plant. EBMUD operates three water reclamation plants, one on site at the main wastewater plant for in-house utility water and external landscape customers, and two that receive secondary treated wastewater from a neighboring wastewater treatment plant, which performs additional tertiary treatment, and delivers the recycled water to a single large industrial customer.

Table H-1 **Recommended Energy Intensity — Water Supply Process Approach**

	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (AF)	260	0.18	159,326	174,504	169,393	169,393	994,924	1,164,317
Energy Consumed (kWh)	77,597	44,550	3,058,822	6,897,991	45,904,171	55,983,131	(197,024,510)	(141,041,379)
Energy Intensity (kWh/AF)	915.9	759,552.8	58.9	121.3	831.7	1,014.3	(607.7)	(371.8)

Appendix

Table H-2 **Recommended Energy Intensity — Total Utility Approach**

	Urban Water Supplier Operational Control		
	Sum of All Water Management Processes	Non-Consequential Hydropower	
	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	169,393	994,924	1,164,317
Energy Consumed (kWh)	55,983,131	(197,024,510)	(141,041,379)
Energy Intensity (kWh/ vol. converted to MG)	1,014	(608)	(372)

Table H-3 **Recommended Energy Intensity — Multiple Water Delivery Products**

	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Total Volume of Water Entering Process (AF)	260	0	159,326	174,504	169,393	169,393	994,924	N/A
Retail Potable Deliveries (%)	100%	100%	100%	99.73%	100%	Enter in column of table below	0%	
Retail Non-Potable Deliveries (%)	0%	0%	0%	0.27%	0%		0%	
Wholesale Potable Deliveries(%)	0%	0%	0%	0%	0%		0%	
Wholesale Non-Potable Deliveries (%)	0%	0%	0%	0%	0%		0%	
Agricultural Deliveries (%)	0%	0%	0%	0%	0%		0%	
Environmental Deliveries (%)	0%	0%	0%	0%	0%		0%	
Other (%)	0%	0%	0%	0%	0%		0%	
Total Percentage (must equal 100%)	100%	100%	100%	100%	100%	N/A	0%	N/A
Energy Consumed (kWh)	77,597	44,550	3,058,822	6,897,991	45,904,171	55,983,131	(197,024,510)	(141,041,379)
Energy Intensity (kWh/AF)	915.9	759552.8	58.9	121.3	831.7	N/A	-607.7	N/A

Water Delivery Type	Production Volume (AF)	Total Energy Intensity (kWh/AF)	Net Energy Intensity (kWh/AF)
Retail Potable Deliveries	170,289	328.6	328.6
Retail Non-Potable Deliveries	466	39.5	39.5
Wholesale Potable Deliveries	0	-	-
Wholesale Non-Potable Deliveries	0	-	-
Agricultural Deliveries	0	-	-
Environmental Deliveries	0	-	-
Other	0	-	-
Total of All Products	170755	327.9	327.9

Table H-4 **Recommended Energy Intensity — Wastewater & Recycled Water**

	Urban Water Supplier Operational Control			
	Water Management Process			
	Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Wastewater Entering Process (AF)	64,536	64,536	-	129,072
Wastewater Energy Consumed (kWh)	2,121,632	46,322,640	-	48,444,272
Wastewater Energy Intensity (kWh/AF)	101	2,203	-	1,152
Volume of Recycled Water Entering Process (AF)	-	6,411	-	6,411
Recycled Water Energy Consumed (kWh)	-	2,977,055	-	2,977,055
Recycled Water Energy Intensity (kWh/AF)	-	1,425	-	1,425

Appendix I

2025 Water Supply Availability and Deficiency Report

EBMUD

BOARD ACTION

Agenda Number:	15.	Meeting Date:	April 22, 2025

TITLE **WATER SUPPLY AVAILABILITY AND DEFICIENCY REPORT**

ACTION ☒ Motion: ☐ Resolution: ☐ Ordinance:

RECOMMENDED ACTION

- File the 2025 Water Supply Availability and Deficiency Report in conformance with District Policy 9.03 – Water Supply Availability and Deficiency.
- Declare the District's water supply is sufficient for meeting customer demands in 2025.

SUMMARY

This report provides an assessment of the District's 2025 water supply as outlined in the District's Urban Water Management Plan and Water Shortage Contingency Plan. As of April 14, 2025, total system storage (TSS) is at 655 thousand acre-feet (TAF) and forecasted to be 630 TAF by September 30, 2025 (the end of the water year), under a median 50 percent exceedance condition. Forecasted TSS for the end of September 2025 is above 475 TAF, which is the District's trigger for drought action. Additionally, the California Department of Water Resources' (DWR) April 1 Bulletin 120 forecast of runoff on the Mokelumne River is 570 TAF. The forecasted runoff corresponds to a Below Normal water year type on the lower Mokelumne River under the District's Joint Settlement Agreement (JSA). The District's water supply is sufficient to meet customer demands after all required downstream obligations are met.

DISCUSSION

The purpose of the Water Supply Availability and Deficiency Report (WSADR) is to assess current and forecasted water supply availability, and if necessary, provide guidance for the Board's consideration of potential drought response actions that follow the District's Water Shortage Contingency Plan. In years when water supply is sufficient, the WSADR provides the basis for the Board's determination of additional availability of water for potential use by others.

2025 Water Supply and Demand Assessment

The District's Urban Water Management Plan (UWMP) provides a framework for evaluating and addressing water shortages. The Water Shortage Contingency Plan (WSCP), an attachment to the UWMP, outlines a coordinated response to water shortage situations and guides the District's planning and response.

Water supply availability is determined by forecasting the amount of water that will be stored in District reservoirs on September 30, which marks the end of the water year. The amount of TSS projected on September 30 is calculated by first adding projected runoff amounts to existing storage levels; and then deducting anticipated customer demand, evaporation, and the volume of water that must be released from the District's storage reservoirs to meet

Originating Department: Water and Natural Resources	**Department Director or Manager:** Michael T. Tognolini	**CEP Forms?** N/A	**Board Action Type:** Administrative
Funds Available: N/A	**Budget Coding:** N/A		**Approved:**
Attachment(s): N/A			

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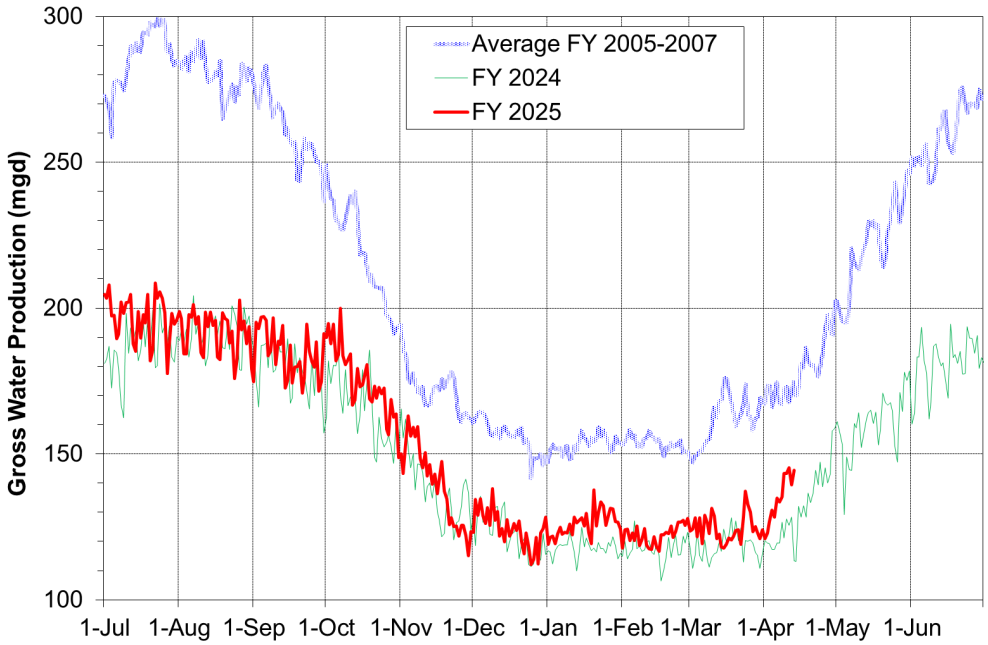
operating criteria and downstream obligations. These criteria and obligations include minimum flows for fishery requirements, use by downstream water rights holders, water requirements by other downstream interests, and water releases from terminal reservoirs to maintain reservoir levels within normal operating ranges.

Using the Drought Management Program guidelines in the WSCP, the resulting projected water supply available at the end of the water year is then compared against thresholds to determine if there is sufficient water to meet demands and all other obligations for the current year or if a water shortage response action is necessary.

Status of District Water Demands

The most recent drought from 2020-2022 together with the previous drought from 2013-2015 have advanced long-term efficient and wise use of water. Changes in customer usage patterns and legislation have also contributed to the District's low water demand. Figure 1 shows the latest water production data. The annual average daily production is projected to be 157 million gallons per day (MGD) for Fiscal Year (FY) 2025.

Figure 1. Gross Water Production as of April 2025



Status of Current Water Supplies

The District's TSS is the volume of water in storage in the District's Mokelumne River reservoirs (Pardee and Camanche) plus the East Bay terminal reservoirs (San Pablo, Briones, Upper San Leandro, Lafayette, Chabot). Table 1 shows the storage as of April 14, 2025. The combined Pardee and Camanche Reservoirs' storage was 518 TAF, which is 83 percent of

capacity and 105 percent of average for the date. The East Bay reservoirs are 104 percent of average for this time of year and at 85 percent of capacity.

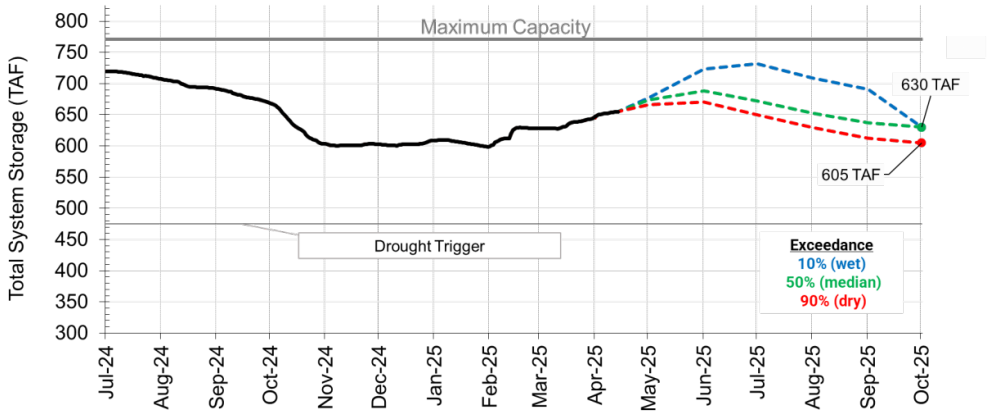
Table 1. Total System Storage as of April 14, 2025

Reservoirs	Current Storage, TAF[(a)]	Percent of Average for this Date	Percent of Capacity
Upcountry	518	105%	83%
Pardee	185	98%	91%
Camanche	333	110%	80%
East Bay	137	99%	91%
Total	655	104%	85%

[(a)]TAF: Thousand Acre-Feet

As of April 14, the District's Mokelumne basin snow survey reference point at Caples Lake had a snow depth of over 63 inches (106 percent of average) and snow water content of 20.0 inches (76 percent of average). The total precipitation through April 14 in the Mokelumne watershed and in the East Bay was 35.0 inches (81 percent of average) and 16.8 inches (68 percent of average), respectively. The District's median unimpaired runoff projection for Water Year 2025 is 490 TAF, which corresponds to a current median projection for TSS at the end of September of 630 TAF (see Figure 1). The 630 TAF is the maximum allowable per the Army Corps of Engineer's Water Control Plan Manual. The projected TSS for a 90 percent exceedance (9 of 10 years are wetter) is 605 TAF.

Figure 2. Total System Storage Forecast for 2025



Title:	Water Supply Availability and Deficiency Report	Meeting Date:	April 22, 2025

Water Flow Obligations in the Lower Mokelumne River

The JSA governs the District's obligation to release flows for instream uses. The water year type determines the amount of water the District must release to meet JSA requirements. Under the JSA, the water year type is classified as "Below Normal," based on DWR's April 1 Bulletin 120 forecast for unimpaired runoff of 570 TAF into Pardee Reservoir. The "Below Normal" condition will determine the requirements for releases from Camanche Reservoir and flow expected below Woodbridge Dam from April 1, 2025, through September 30, 2025, in accordance with the JSA.

The District also makes releases to satisfy obligations to certain downstream water users. Based on runoff projections for the remainder of this year:

- Woodbridge Irrigation District will receive its full regulated base supply of 60,000 AF as provided by the parties' agreement;
- Jackson Valley Irrigation District will receive up to its maximum entitlement of 3,850 AF, but direct diversion may not be available in all months; and
- North San Joaquin Water Conservation District (NSJWCD), which is a junior water right holder and receives water if it is available, will not receive up to their scheduled amount of the 20,000 AF requested on March 14, 2025.

The District's water supplies are sufficient to meet customer demand and downstream flow obligations.

Section F.3 of the JSA provides that the District notify resource agencies of the availability of surplus water. There will be no surplus water based on current projections.

Statewide Water Supply Condition

As of April 14, major reservoir levels in California are 118 percent of average and statewide snowpack levels are about 86 percent of average.

SUSTAINABILITY

Economic
The WSADR provides information necessary for the Board to maintain a reliable water supply for the East Bay.

Social
The WSADR helps inform the Board and the District's customers about the status of water supplies.

Environmental
The WSADR presents updated water supply information to inform District decisions on actions to be implemented. Separately, the water year type and determination of the availability of surplus water inform decisions regarding the flows necessary to meet JSA requirements.

BOARD ACTION

Title:	Water Supply Availability and Deficiency Report	Meeting Date:	April 22, 2025

ALTERNATIVE

Do not file the WSADR. This alternative is not recommended because California Water Code Section 10632.1 requires each urban water supplier to conduct an annual water supply and demand assessment, and District Policy 9.03 requires filing of the WSADR each year.

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Appendix J

EBMUD Regulations and the Rate Structures for Water and Wastewater Service

EBMUD

Policy 3.07

EFFECTIVE 27 SEP 22

SUPERSEDES 27 NOV 18

RESPONSIBILITY TO SERVE WATER CUSTOMERS DURING WATER SHORTAGE

IT IS THE POLICY OF EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Ensure that during times of water shortage, available water supplies are allocated first to all existing customers within the service area, then to new applicants with developments that include housing units affordable to lower-income households, then to other new applicants in the service area.

Discussion

The availability of water to meet EBMUD's customers' demands will vary over time due to various factors including: Mokelumne River flow commitments to senior and riparian water right holders; in-stream flow requirements to protect fish and wildlife; variability in watershed precipitation and runoff; state and federal regulatory agencies' orders and decisions; and the availability of current and future dry year and supplemental supplies.

EBMUD is responsible for planning to meet the needs of their customers through periods of water shortage with minimal disruption by minimizing the need for extreme rationing within the service area.

Water Service Responsibility

EBMUD recognizes that when there is an actual or projected water shortage, EBMUD's responsibility to serve its customers and service area is prioritized as follows:

- First, serve all existing customers within EBMUD's service area.
- Second, serve new applicants within EBMUD's service area if this does not unacceptably impair EBMUD's ability to serve its existing customers.
- Third, consider serving new customers outside of EBMUD's service area, only if this does not impair EBMUD's ability to serve existing and expected new customers within its service area.

In accordance with California Government Code, Section 65589.7, when new service connections are restricted by EBMUD's Board of Directors, priority shall be given to applicants for water service to proposed developments within EBMUD's existing service area that include housing units affordable to lower income households, as defined in applicable provisions of the Health and Safety Code and the California Code of Regulations. Applicants granted such priority shall comply with EBMUD's Regulations Governing Water Service and pay all requisite fees.

EBMUD shall not deny or condition the approval of an application for services to, or reduce the amount of services applied for by, a proposed development that includes housing units affordable to lower income households unless the Board of Directors makes specific written findings that the denial, condition, or reduction is necessary due to the existence of one or more of the following:

- EBMUD is operating under a declared water shortage emergency condition under California Water Code, Section 350, et seq.

- Sufficient water supply is not available to meet the projected demand associated with the proposed development, in addition to existing and planned future uses, based upon a consideration of all factors provided by California Government Code, Section 66473.7.
- EBMUD does not have sufficient water treatment or distribution capacity to serve the needs of proposed development, as demonstrated by a written engineering analysis and report.
- EBMUD is subject to a compliance order by a designated state agency that prohibits new water connections.
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of service generally applicable to development projects seeking water service from EBMUD, including, but not limited to, the requirements of local, state, or federal laws and regulations or payment of applicable fees or charges.

Authority

Resolution No. 32867-94, June 28, 1994
As amended by Resolution No. 33443-04, September 28, 2004
As amended by Resolution No. 33543-06, June 27, 2006
As amended by Resolution No. 33687-08, October 14, 2008
As amended by Resolution No. 33763-10, April 27, 2010
As amended by Resolution No. 33871-12, April 24, 2012
As amended by Resolution No. 33993-14, August 12, 2014
As amended by Resolution No. 34094-16, July 26, 2016
As amended by Resolution No. 35120-18, November 27, 2018
As amended by Resolution No. 35315-22, September 27, 2022

References

California Government Code, Section 66473.7
California Government Code, Section 65589.7 [“sufficient water supply” definition]
California Health and Safety Code, Section 50079.5 and California Code of Regulations, Title 25, Section 6932 [income limit for “lower income households”]
California Health and Safety Code, Sections 50052.5 and 50053 [“affordable housing cost” and “affordable rent” definitions]

Policy 3.01 – Annexations
Policy 7.05 – Sustainability and Resilience
Policy 9.03 – Water Supply Availability and Deficiency
Policy 9.05 – Non-Potable Water
Procedure 109 – Water Mains: Water Service Estimates

EBMUD Urban Water Management Plan, Water Shortage Contingency Plan

EBMUD

Policy 7.03

EFFECTIVE 24 SEP 24

SUPERSEDES 25 JUN 24

EMERGENCY PREPAREDNESS/BUSINESS CONTINUITY

IT IS THE POLICY OF EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Ensure the District can respond to and recover from emergencies. The District will create and maintain an active Emergency Preparedness Program that includes an Emergency Operations Plan (EOP) written and administered to help manage the District's critical operations during any emergency and protect people, property, and the environment. The District will coordinate the emergency planning and response with federal, state, and local agencies and private entities charged with emergency duties. The District will also create and maintain a Business Continuity Program Plan (BCPP) to minimize impacts to critical business functions and enhance its capability to recover operations expediently and successfully following an emergency.

The EOP and BCPP shall include provisions to:

- Make employee and community life safety the highest priority.
- Anticipate, prevent, protect against, and mitigate the greatest risks to the extent practicable.
- Periodically review the plans and incorporate lessons learned from exercises, incidents, and industry.
- Comply with all applicable legal requirements and be consistent with state and federal guidance.

Emergency

An emergency includes actual or threatened existence of conditions of disaster or extreme peril to critical District operations, its infrastructure, and/or the health and safety of staff and/or the public. An emergency may be caused by an earthquake, power outage, cyber security breach, pandemic, dam failure, freeze, water supply contamination, national security incident, storm event, and other conditions that may be beyond the capability of District forces and may require support from other government agencies, non-profit organizations, or the private sector.

Emergency Preparedness Program

The District's Emergency Preparedness Program will include an EOP written and administered in accordance with the guidelines of the National Response Framework (NRF), the National Incident Management System (NIMS), and the California Standardized Emergency Management System (SEMS). In accordance with NIMS and SEMS, the Emergency Preparedness Program will consist of five areas of readiness: prevention, protection, mitigation, response, and recovery. The EOP will describe the District's emergency response organization based on NIMS; include guidelines for identifying and training District staff in NIMS; designate District staff to critical positions identified in the EOP, and designate staff to represent the District in negotiations or consultations with public and private agencies on matters pertaining to response to the emergency and recovery of damaged systems and financial costs. The Regulatory Compliance Office will facilitate progress on the Emergency Preparedness Program.

Authorization of Contracts During District Emergency Response and Reporting of Emergency Contracts

When an emergency condition arises that necessitates immediate action to minimize damage and inconvenience resulting from such condition, the General Manager or his or her designee, in consultation with the President of the Board of Directors (Board) or their designee, may declare a District emergency. The Board may also declare a District emergency under the Municipal Utility District Act (Public Utilities Code) Section 12753. The General Manager or his or her designee is authorized, after a District-declared emergency, to enter into emergency contracts not to exceed $500,000, per contract, without bids or notice during the emergency response period. For emergency contracts higher than $500,000, Board approval is required. The Board shall meet to ratify the declaration of emergency by the General Manager as

soon as possible after the declaration, but no later than the next regularly scheduled Board meeting.

At the next regular or special meeting of the Board of Directors following such emergency, a report shall be made to the Board of Directors summarizing contracts executed in response to said emergency. Periodic reports on the status of response and additional contracts shall be provided to the Board of Directors until the emergency is concluded. The emergency declaration will remain in effect until formal Board action is taken to conclude the emergency.

Note that under federal law (2 CFR § 200.320(c)), for procurements using federal funding or that may be reimbursed by the federal government, a noncompetitive procurement process may be used only when the public emergency will not permit a delay resulting from publicizing a competitive solicitation.

Emergency Operations Director

The District's EOP will identify a District Director or member of the Senior Management Team (SMT) to serve as the Emergency Operations Director (EOD) who will have the authority for developing plans, training staff and managing the District's response to an emergency through the Emergency Operations Team (EOT). The EOT will be structured consistent with the NIMS in sections managed by Section Chiefs. In consultation with the General Manager, the EOD will identify staff to fulfill the planning, response, and recovery duties listed in the EOP. As the need arises, the EOD may direct all staff or material resources of the District to combat the effects of a threatened, declared or actual emergency. In an emergency, the EOD may delegate approval authority to the EOT Section Chiefs up to $80,000 per purchase for material purchases and up to $30,000 for services. These expenses would be included as part of the $500,000 authorization above for the General Manager.

The General Manager or his or her designee may engage EBMUD retirees to provide staffing support for operations and activities deemed critical, necessary, or essential during a District declared emergency, provided such engagement is consistent with the California Public Employees' Pension Reform Act (PEPRA) or any executive order issued by the Governor of the State of California to suspend the requirements of PEPRA.

The EOD or his or her designee is authorized to take all necessary action to apply for incoming state or federal resources and to represent the District in requesting and/or negotiating for needed resources.

Mutual Aid/ Assistance

The General Manager, EOD, and their designees, in accordance with the EOP, may either request mutual aid/assistance from other local government agencies, including public and private water and wastewater utilities, or commit District resources to other agencies requesting aid.

Business Continuity Program Plan

The District provides products and services that support the economic, human, and environmental health of the East Bay. Therefore, the District must have a program that facilitates the performance of essential functions during an emergency situation that disrupts normal operations and/or the timely resumption of normal operations once the emergency has ended. The District will maintain a BCPP consistent with federal, state, and industry guidance that provides the overall framework for the program and outlines the basic priorities for recovery of business functions in

individual Work Group Business Continuity Plans (BCPs). The Regulatory Compliance Office will manage and maintain the BCPP. Individual Work Group BCPs outline the critical functions that must be performed before, during, and after an event; identify the personnel responsible for completing the necessary actions; and list the vital records, equipment, supplies, tools and systems required to accomplish the identified tasks. The Work Groups are responsible for ensuring that their BCPs are maintained, employees trained, plans tested, and their vital records necessary to maintain operations are available. Vital records include all information and records that if lost, would place significant financial, operational, or legal restrictions on the continuation of District services.

Continuity of Management

All of the District's BCPs, including that of the Office of the General Manager, will designate up to three successors to serve as the primary critical staff person in the event there is an activation of the EOT so day-to-day operations may continue. In the event the primary critical staff person is unable to respond to an emergency, the designee, in the order listed, may assume all the duties and powers of the primary critical staff person.

Status Reports

The General Manager will provide periodic Emergency Preparedness Program and Business Continuity Program progress reports to the Board of Directors, as necessary, and the District's response to a declared District emergency, when applicable.

Board of Directors Succession Plan

Each Board Member shall designate a minimum of two and no more than three Standby Officers to serve in their place in the event of the Board Member's unavailability in an emergency, as defined by the California Emergency Services Act (CESA). One of the standby officers must reside within the member's ward, and the other must reside outside the member's ward and may reside outside the District's service area. A Board member may choose, and the Board has the option to appoint, a third Standby Officer. That Standby Officer may reside inside or outside the same ward as the Board member, or outside the District's service area.

The list of Standby Officers shall be approved by Board Resolution and reviewed on an annual basis. The General Manager will determine the availability of the Board Members in an emergency. The Board will endeavor to fill vacancies in accordance with the Municipal Utility District Act and CESA within 60 days of the effective date of the vacancy. Upon appointment by the Board through a Board Resolution, the Standby Officer shall take the oath of office, remain informed of the duties, District business, and be prepared to immediately report for duty during an emergency. Details of this process will be documented in the General Manager's BCP.

Authority

Resolution No. 33014-96, November 12, 1996
As amended by Resolution No. 33027-02, September 24, 2002
As amended by Resolution No. 33460-05, February 8, 2005
As amended by Resolution No. 33564-06, November 14, 2006
As amended by Resolution No. 33703-09, February 24, 2009
As amended by Resolution No. 33793-10, November 23, 2010
As amended by Resolution No. 33904-12, November 27, 2012
As amended by Resolution No. 33941-13, September 24, 2013
As amended by Resolution No. 34052-15, September 22, 2015
As amended by Resolution No. 34094-16, July 26, 2016
As amended by Resolution No. 35037-17, May 23, 2017
As amended by Resolution No. 35098-18, June 26, 2018

Emergency Preparedness/Business Continuity

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As amended by Resolution No. 35156-19, September 24, 2019
As amended by Resolution No. 35168-20, March 24, 2020
As amended by Resolution No. 35355-23, June 27, 2023
As amended by Resolution No. 35409-24, June 25, 2024
As amended by Resolution No. 35418-24, September 24, 2024

References

Business Continuity Program Plan
California Emergency Services Act (CESA), Government Code 8635 *et seq*.
District Emergency Operations Plan
FEMA Procurement Disaster Assistance Team (PDAT) Field Manual
Municipal Utility District Act – Public Utility Code Section 12753
National Incident Management System (NIMS)
National Preparedness Goal
National Response Framework (NRF)
Policy 7.13 – Security
Procedure 415 – Emergency Purchases
Standardized Emergency Management System (SEMS)

EBMUD

Policy 9.03

EFFECTIVE 23 SEP 25

SUPERSEDES 27 JUN 23

WATER SUPPLY AVAILABILITY AND DEFICIENCY

IT IS THE POLICY OF THE EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Evaluate the adequacy of the District's water supplies for the District's service area, based on the District's current and projected water supply and demand, for inclusion in the Water Supply Availability and Deficiency Reports (WSADR) to be filed with the Board of Directors.

Annual WSADR

An assessment for the Preliminary WSADR shall be made by March of each year in which hydrologic conditions may trigger a need for new or modified drought response measures. If a Preliminary WSADR is prepared, it will be in the form of an informational memo submitted to the Board of Directors that will include the following: a preliminary assessment of the current year's water supply and demand, a discussion of any new or ongoing state actions related to water supply, a summary of the results of any drought management programs or acquisition of dry year or other supplemental supplies in the previous year, and, where appropriate, identification of potential supplemental supply options.

A Final WSADR shall be filed in April of each year. The report will inform the Board's determination of the deficiency or sufficiency of the District's water supply for meeting customer demands and downstream obligations. The report's analysis will be based upon a supply and demand assessment for the water year which projects the District's water supply through September 30. The projection incorporates projected runoff data from Department of Water Resources based on its April 1 snow survey, downstream release obligations, and projected customer demand. The projected September 30 water supply is then compared against thresholds stated in the District's Drought Management Program guidelines to determine whether there is sufficient water to meet District demands and obligations without need for water shortage response actions. Based on the outcome of that determination, the WSADR will recommend that the Board find supplies to be either sufficient or deficient. If the WSADR proposes a deficiency finding, it will also include the following: proposed steps to implement the Drought Management Program (DMP) which is included as part of the Water Shortage Contingency Plan (WSCP), an estimate of dry year and/or supplemental water supply need, and, if applicable, adaptive management measures including discussion of gainsharing. If the WSADR proposed a sufficiency finding, the report will discuss the Surplus Water Notification.

Drought Management Program

The DMP, outlined in the WSCP and Urban Water Management Plan (UWMP), guides the District's planning and coordinated response to water shortages through assessment and management of water supply.

The DMP also provides guidance for conditions that warrant termination of each stage of a drought and works in alignment with the WSADR determination. If during a multi-year drought, the final WSADR recommends a sufficiency finding to the Board, then it, supplemented by other Board actions, will provide basis for the Board to consider rescinding the drought declaration by stage. Consideration of statewide drought declarations, executive orders, or emergency regulations shall be included in this determination.

If the Final WSADR recommends a deficiency finding to the Board, then it, supplemented by other Board actions, will identify the various components of the DMP to be considered by the Board for implementation. The components include water-use restrictions (pursuant to District policy or state regulation), use (including timing and availability) of supplemental supplies, and financing for these supplies.

Supplemental Supplies

The District will pursue supplemental supplies when existing supplies are found to be deficient. Supplemental supply options shall be initially identified in the Preliminary WSADR, specifically to align Board decision making on the Central Valley Project (CVP) deliveries with the CVP contract year, which begins March 1. Supplemental supply options will then be further assessed in the Final WSADR to provide a basis for future decision making. Planned supplemental water supply options are described in the District's current UWMP.

Surplus Water Notification

If a determination of sufficient and surplus Mokelumne River water is made, the District will inform Resource Agencies of the availability for sale of surplus Mokelumne River water, in accordance with the 1998 Joint Settlement Agreement (JSA). This notification will occur within two weeks after the filing of the Final WSADR. The District will also notify regulatory and regional partner agencies on the availability of the surplus Mokelumne River water in accordance with applicable agreements.

Release Requirements

The District is obligated to release water from Camanche Dam for downstream water users and for fishery purposes to meet contractual and regulatory obligations. The District periodically sends written notice to Woodbridge Irrigation District, Jackson Valley Irrigation District, and North San Joaquin Water Conservation District, notifying each agency of the quantity of water available to it. The actual water availability and schedule of releases (daily and/or monthly) for each of the specified downstream agencies will be dependent upon the current conditions and in accordance with applicable agreements.

Water Supply Availability and Deficiency

The JSA has an adaptive management provision related to minimum flows. The flow schedule may be changed in collaboration with the Partnership Steering Committee to optimize fishery habitat and other ecosystem values as long as the total quantity of water released in any given year will not be less than the quantity of water provided by the flow requirements for that type of year. When adaptive management changes are proposed for implementation, the State Water Resources Control Board will be notified, and the Federal Energy Regulatory Commission will be informed as a courtesy.

Definitions

Release Requirements – Releases for Woodbridge Irrigation District, Jackson Valley Irrigation District, North San Joaquin Water Conservation District, riparian diverters, senior appropriators, and fishery releases pursuant to the JSA and water rights requirements.

Gainsharing – Increase in instream flows that the District is required to implement as part of its JSA, equal to 20 percent of the actual yield of additional water supplies developed by the District from new facilities until reaching a maximum quantity of 20,000 acre feet.

Partnership Steering Committee – A committee that provides oversight of the implementation of the JSA consisting of staff from the District, United States Fish and Wildlife Service, and California Department of Fish and Wildlife.

Resource Agencies – The United States Fish and Wildlife Service and the California Department of Fish and Wildlife.

Water Year – The term defined as the 12-month period from October 1 through September 30 of the following year. The water year is designated by the calendar year in which it ends.

Authority

Amended by Resolution No. 31,246, May 14, 1985
Amended by Resolution No. 32,204, May 9, 1989
Amended by Resolution No. 33175-99, November 9, 1999
Amended by Resolution No. 33759-10, April 13, 2010
Amended by Resolution No. 33821-11, June 14, 2011
Amended by Resolution No. 33950-13, November 12, 2013
Amended by Resolution No. 34080-16, April 26, 2016
Amended by Resolution No. 35120-18, November 27, 2018
Amended by Resolution No. 35355-23, June 27, 2023
Amended by Resolution No. 35465-25, September 23, 2025

Water Supply Availability and Deficiency

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References

Policy 3.01 – Annexations
Policy 3.05 – Considerations for Extension of Water Beyond the Ultimate Service Boundary
Policy 3.07 – Responsibility to Serve Water Customers during Water Shortage
Procedure 146 – Water Conservation Accounting and Reporting
Procedure 900 – Water Consumption Accounting and Reporting
Procedure 901 – Recycled Water Accounting and Reporting
Procedure 903 – US Bureau of Reclamation Contract for Delivery of Central Valley Project Water
EBMUD's Urban Water Management Plan & Water Shortage Contingency Plan
FERC Project 2916 Lower Mokelumne River – Joint Settlement Agreement
FERC Annual Operations Report
Annual Water Supply and Demand Assessment Submittal to DWR
Relevant Water Rights Permits, Licenses & Agreements - Water Rights & Proceedings: Splashpad

EBMUD

Policy 9.05

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NON-POTABLE WATER

IT IS THE POLICY OF EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Require that customers of the East Bay Municipal Utility District (EBMUD) use non-potable water, including recycled water, for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health and not injurious to plant life, fish and wildlife. When non-potable water satisfying these conditions is made available to the customer, the use of potable water for non-domestic purposes may constitute a waste and unreasonable use of water within the meaning of Section 2 of Article X of the California Constitution and is prohibited.

Findings Related To Use Of Non-potable Water

The Board of Directors of EBMUD has determined that existing potable water supplies alone will not adequately accommodate existing and future demand within the EBMUD's Ultimate Service Boundary. Non-potable water resources, including treated wastewater discharged to the San Francisco Bay from EBMUD and other Bay Area treatment plants, and other alternative water sources that could provide a safe and effective alternative water supply for certain non-potable purposes, increase the availability of the limited water supplies of EBMUD, generally assure non-potable water customers of a more reliable water supply during periods of drought, reduce wastewater discharges to the Bay, and provide EBMUD with greater flexibility to meet instream needs in the Mokelumne River. The State Legislature has determined that the use of potable domestic water for certain non-potable uses may constitute a waste or unreasonable use of water if recycled water is available which meets specified conditions, and meets the appropriate level of treatment (Water Code Section 13550 et seq. and the Water Quality Control Policy for Recycled Water by the State Water Resources Control Board).

Definitions

Non-potable Water - All reclaimed, recycled, reused, untreated, or alternative water supplies that meet the conditions set forth in the California Water Code, Section 13550, and are determined by EBMUD to be suitable for non-domestic purposes and feasible for the particular intended use.

Non-domestic Uses - For purposes of this policy, "non-domestic uses" shall mean all applications except drinking, culinary purposes and the processing of products intended for direct human consumption. Non-domestic uses include irrigation of food crops intended for human consumption, which is an allowable recycled water use with appropriate treatment to meet water quality standards.

Mandated Uses Of Non-potable Water

Customers may be required to use non-potable water consistent with non-potable water service regulations and non-potable/recycled water rate schedule for their non-domestic uses which may include, but are not limited to, the following:

- Irrigation of cemeteries, golf courses, playing fields, parks, residential and nonresidential landscaped areas, and food crops;
- Commercial and industrial process uses including but not limited to cooling towers, vehicle, window, and sidewalk washing, construction activities, and toilet and urinal flushing in nonresidential buildings.

Non-potable Water

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Determination Of Feasibility Of Non-potable Water

In determining whether non-potable water is feasible for a particular non-domestic use, EBMUD shall consider the following factors:

- Whether the non-potable water may be furnished for the intended use at a reasonable cost to the customer and EBMUD.
- Whether the non-potable water is of adequate quality for the intended use.
- Whether the non-potable water is of adequate quantity for the intended use.
- Whether the use of non-potable water is consistent with all applicable federal, state, and local laws and regulations.
- Whether the use of non-potable water will not be detrimental to the public health and will not adversely affect plant life, fish and wildlife.

Regulations Governing Non-potable Service

The regulations and rates governing non-potable water service, including recycled water, shall be determined by the Board of Directors and published in the Regulations Governing Water Service and Schedule of Rates and Charges for Customers of East Bay Municipal Utility District.

Water Reuse Zones

EBMUD designates Water Reuse Zones within EBMUD's service area where non-potable water service has been determined to be reasonably available.

Non-potable Water Service Agreements

Where implementation of this Policy requires agreements, such agreements shall, wherever possible, have a term of 20 or more years and shall include applicable provisions governing responsibilities for planning, design and construction, and facilities operation and maintenance. Upon termination or expiration of an agreement, customers receiving non-potable water service, including recycled water, pursuant to that agreement shall be governed by the non-potable water service regulations and non-potable/recycled water rate schedule, unless a new agreement is established.

Authority

Resolution No. 32981-96, April 9, 1996
As amended by Resolution No. 33443-04, September 28, 2004
As amended by Resolution No. 33564-06, November 14, 2006
As amended by Resolution No. 33919-13, March 26, 2013
As amended by Resolution No. 34052-15, September 22, 2015
As amended by Resolution No. 35168-20, March 24, 2020
As amended by Resolution No. 35299-22, June 28, 2022

References

Regulations Governing Water Service and Schedule of Rates and Charges for Customers of East Bay Municipal Utility District
Policy 7.05 – Sustainability and Resilience

EBMUD

Policy 9.07

EFFECTIVE 23 SEP 25

SUPERSEDES 27 JUN 23

DAM SAFETY PROGRAM

IT IS THE POLICY OF THE EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Manage District-owned dams and associated facilities to ensure dam safety, structural integrity, and operational security for the protection of life, property and the environment.

Overview of the District's Dam Safety Program

The District will:

- Maintain an organizational structure that supports monitoring, reviewing, and overseeing dam safety practices and operational security for all District dams; and designate a Chief Dam Safety Engineer and an alternate Chief Dam Safety Engineer to oversee dam safety activities within the District
- Monitor, inspect, and document operational and structural conditions of dams and associated facilities, including spillways, outlet works, etc., on a regular basis
- Investigate, document, mitigate, and repair unusual conditions at any dam
- Maintain, upgrade, and update dam safety instrumentation and records
- Maintain and update dam drawings, correspondence files, and electronic instrumentation databases
- Maintain a dam safety training program for all designated dam safety project personnel
- Encourage employees to report to supervisors any condition or practice that appears to compromise dam safety currently or in the future
- Require supervisors to record and investigate all reports of unsafe conditions
- Maintain and update Emergency Action Plans (EAPs) and emergency operations procedures for District dams. The EAPs are part of the District's overall Emergency Preparedness Program and are hazard specific annexes to the Emergency Operations Plan (EOP)
- Regularly conduct exercises to familiarize staff with evaluation, notification, and response procedures for an emergency affecting the safety of District dams as outlined in the EAPs and EOP
- Meet or exceed the requirements of dam safety regulatory agencies:
  - California Department of Water Resources, Division of Safety of Dams (DSOD)
  - Federal Energy Regulatory Commission (FERC)
- Meet the dam-related emergency preparedness requirements of FERC and California Governor's Office of Emergency Services (CalOES)
- Communicate dam and reservoir conditions effectively with internal departments, regulatory agencies, local government agencies, emergency management agencies, and the public as necessary

- Uphold transparent and accountable governance of the dam safety program through an annual Dam Safety Program report and periodic communication on dam safety projects to the District's Board of Directors in compliance with FERC regulations on dam safety
- Budget and allocate sufficient funds to investigate and repair known and suspected dam safety problems as part of the Biennial Budget Process
- Prioritize implementation among dam safety related projects according to the degree of risk reduction benefits
- Maintain a proactive program for physical and cyber security at dam facilities to ensure the District can provide safe and reliable water services
- Maintain the Dam Safety Program using annual reviews to confirm its currency and to ensure compliance with regulatory requirements and conduct periodic external audits, as required by regulatory agencies

Dam Safety Regulatory Agencies

The California Department of Water Resources' DSOD is the regulatory agency that monitors the safety of all jurisdictional dams in California. DSOD regulations apply to any dam that is of jurisdictional size. The Engineering and Construction Department is the District contact with DSOD.

The FERC is the federal agency that monitors the safety of dams at FERC-licensed hydropower projects. The Water and Natural Resources Department is the District contact with FERC.

Regulatory requirements for District dams under the jurisdiction of both DSOD and FERC will be internally coordinated to ensure efficient and consistent program implementation.

Authority

Resolution No. 33968-14, March 25, 2014
As amended by Resolution No. 34094-16, July 26, 2016
As amended by Resolution No. 35120-18, November 27, 2018
As amended by Resolution No. 35221-21, April 27, 2021
As amended by Resolution No. 35355-23, June 27, 2023
As amended by Resolution No. 35465-25, September 23, 2025

References

Policy 4.28 - Cybersecurity
Policy 7.03 – Emergency Preparedness/Business Continuity
Policy 7.05 – Sustainability and Resilience
Policy 7.13 – Security
Policy 9.04 – Watershed Management and Use
Procedure 705 – Reporting, Site Control, and Establishing Temporary Service in Emergency and Hazardous Conditions
Procedure 706 – Facilities: Inspection, Maintenance and Repair
EBMUD Dam Safety Program Guide (FERC Owner's Dam Safety Program)
FERC License for the Lower Mokelumne River Project (FERC Project No. 2916)

EBMUD

Procedure 145

WASTEFUL USE OF WATER

EFFECTIVE	07 FEB 24
SUPERSEDES	25 OCT 21
LEAD DEPARTMENT	CCS

PURPOSE – To provide a reporting and response procedure for investigating the unreasonable or wasteful use of water to conserve the public water supply to meet critical needs.

Definitions

Unreasonable and wasteful use of water is prohibited in Section 29 "Prohibiting Wasteful Use of Water" and Section 28, "Water Use During Water Shortage Emergency Condition" of the District's Regulations Governing Water Service to Customers. The term "wasteful use of water" shall be used in this procedure to cover all instances of unreasonable and wasteful use of water as prohibited by District regulations.

Note: This procedure does not apply to the use of water at District facilities or within the District's distribution system.

Investigation Procedure

Wasteful use of water investigations are managed by the Customer and Community Services (C&CS) Department/Water Conservation Division (WCD). Wasteful use of water information is reported through various channels including, but not limited to, the District website, Water Waste Hotline, the Contact Center through a Subject Matter Expert (SME) handoff, email, social media, written correspondence, and employees.

Generally, wasteful use of water reports are processed and investigated by WCD staff. In the event demand is high and additional staff is needed to assist with processing wasteful use of water reports, other staff from C&CS and the Operations and Maintenance Department (OMD) may assist. Wasteful use of water reports, response, and findings will be tracked and logged in Customer Watch. For reports not associated with a District customer of record or a specific service address, a master file will be maintained by WCD.

Processing

<u>First Occurrence – Courtesy Call</u>

Upon receiving the first report of wasteful use of water and if a premise is identified and a valid contact number is available, WCD staff will contact and inform the customer of the report. The customer's water use will be reviewed in Customer Watch and WCD staff will inform the customer of:

1) The District's regulations prohibiting wasteful use of water;
2) The customer's actions which may be in violation of District regulations;
3) Information on how to curtail or correct wasteful use of water; and
4) Potential District enforcement actions for violations of the District regulations and associated fees and charges assessed.

Educational water conservation materials including tips on the efficient use of water, how to read a water meter, and how to check and repair leaks may be delivered to the premise. All contacts and correspondence with the customer will be documented in the Customer Watch account.

Wasteful Use of Water

Note: Attempts to contact the customer during a field inspection at the first occurrence will only be made if a premise can be linked to the wasteful use of water and a valid contact number is available. A courtesy door hanger will be left at the premise with recommendations to correct the wasteful use of water if no field contact is made with the customer.

Second Occurrence – Written Notice Delivered via Certified U.S. Mail

Upon a second report of a wasteful use of water, WCD staff will inform the customer in writing that if continued water waste occurs, enforcement action may be taken, and fees assessed by the District. The report will be noted in the Customer Watch account including any findings or action taken. If not already provided in response to the first reported occurrence, educational water conservation materials on the efficient use of water will be provided to the premise.

Note: Attempts to contact the customer during a field inspection at the second occurrence will only be made if a premise can be linked to the wasteful use of water and a valid contact number is available. A courtesy door hanger will be left at the premise with recommendations to correct the wasteful use of water if no field contact is made with the customer.

Third Occurrence – Field Inspection & Warning Letter (Sent Certified and Regular Mail)

A third report of a wasteful use of water occurrence will trigger WCD staff to issue a field inspection request to Field Services staff. The field inspection will determine whether the continuing use of water is in violation of Section 28 or Section 29 of the District's regulations. If the service is found to be in violation, staff will document the violation(s) and attempt to contact the customer to discuss the violations and the possible future actions that may be taken by the District for continued failure to curtail the water waste.

The account will continue to be monitored to determine and document if the customer has taken corrective action or if a "wasteful use of water charge" should be assessed in accordance with the District's regulations. A warning letter will be sent to both the premise and billing address (when the occupant is not the customer of record) that specifies a date when the wasteful use of water must be curtailed to avoid further enforcement action, along with information about the charges that will be assessed to the customer and the appeal process and the grounds for requesting an exemption. Continued wasteful use of water may result in the installation of a flow restrictor or discontinuation of water service in accordance with District regulations. The Customer Watch account will be documented to reflect the findings of the field inspection and the actions taken, and the account will be charged the applicable fee(s).

If the field inspection determines that the violation(s) of Section 28 or Section 29 have been corrected, no further action will be taken.

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Fourth Occurrence – Final Notice and Intent to Restrict Flow Letter (Sent Certified and Regular Mail) – Final Finding of Violation of District Regulations

Upon a fourth report of wasteful use of water, a field inspection by C&CS staff will occur. The field inspection will determine if the violation(s) to Section 28 or Section 29 of the District's regulations are continuing. If so, C&CS staff will attempt to contact the customer to discuss the continuing violations and the possible future enforcement actions that may be taken by the District for failure to curtail the water waste.

In accordance with Regulations 28 and 29, C&CS staff may order that a special meter reading(s) be made to ascertain whether wasteful use of water is continuing. Charges for such a meter reading or readings or for follow-up visits by District staff will be charged to the customer in accordance with District regulations.

If apparent wasteful water use is occurring at a customer's premise, the Director of Customer and Community Services may, after a written warning to the customer, authorize the installation of a flow-restricting device on the service line for any customer observed by District staff to be willfully violating any of the District's regulations and restrictions on water use.

The Notice of Intent to Restrict Flow will be sent to both the premise and billing address (when the occupant is not the customer of record) where the wasteful use of water is occurring. The notice will specify (a) that a flow restrictor will be installed seven calendar days from the date of the Notice of Intent to Restrict Flow unless the customer immediately curtails the wasteful use of water; (b) the amount of the flow restrictor installation charge that will be charged to the customer as well as other charges and fees that may be assessed in accordance with District regulations; (c) the potential discontinuation of water service in the event of tampering with the restrictor and/or further non-compliance with the District's regulations; (d) the appeals process and the grounds for requesting an exemption; and (e) notification that the District's determination of a wasteful use of water violation is subject to mandatory disclosure requirements of the California Public Records Act, including release of the customer's name, account information, address, violation and enforcement action taken.

After the seven-day period has passed, a field inspection will be conducted to determine if the customer has complied with the mandate to curtail the wasteful use of water by the date specified in the Notice of Intent to Restrict Flow.

If the customer has not complied with the mandate, a flow restrictor will be installed by the Meter Reading and Maintenance Division (MRM) staff in coordination with the Contact Center. A service order will be prepared by C&CS staff for the installation of the flow restrictor.

Note: An account which is wasting water may also be directly charged an excessive use penalty as set forth in the Excessive Water Use Penalty Ordinance #364-15. The District Board of Directors suspended implementation of the Excessive Water Use Penalty Ordinance on March 29, 2023. Before assessing penalties pursuant to the Ordinance, staff must determine whether the Board has reinitiated its implementation.

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Flow Restrictor Installation

Field staff will check the meter number, house number, and the numbers on the service order to ensure that the flow restrictor is installed at the correct premise. Flow restrictors will not be installed on services supplying fire sprinklers. A flow restrictor may be sized to allow use of only one fixture at a time. MRM will install the appropriately sized flow restrictor. The flow restrictor will be installed at least two business days before a weekend or holiday period and left in place for a minimum of fourteen calendar days and, until such time that the customer provides sufficient evidence that the wasteful use of water violation has been sufficiently curtailed or eliminated. The customer will be charged the appropriate wasteful use and flow restriction installation charges in accordance with District regulations.

Flow Restrictor Removal

After the fourteen days have elapsed and there is no evidence of additional occurrences of wasteful use of water, the flow restrictor will be scheduled for removal. The customer will be charged the appropriate service trip charge and flow restriction removal charges in accordance with District's regulations.

If after the flow restrictor is removed and further field inspections confirm that the violation(s) of Section 28 or Section 29 have been corrected, no further enforcement action will be taken.

However, if a further willful violation is observed by District staff, the District may discontinue service in accordance with District regulations.

Violation of Flow Restrictor/ Tampering Discontinue Service

Tampering or Illegal Removal of the Flow Restrictor – Notice to Discontinue Service

Upon illegal tampering and/or removal of the flow restrictor by the customer, 48-hour notice of Intent to Discontinue Water Service will be left at the premise and the customer's service will be turned-off after 48 hours if the violation continues. The customer may also be subject to a water theft penalty, as set forth in Ordinance #368-17 Amending Ordinance #365-15 Entitled Water Theft Penalty , and will be reviewed by the Director of Customer and Community Services and Customer Services Manager. The Customer Watch account will be updated accordingly. Service will be restored upon the receipt of an acceptable agreement from the customer to comply with all District water service regulations as determined by the Director of Customer and Community Services. A service restoration charge per the District regulations will be assessed to the customer to restore service.

Approval of the Director of Customer and Community Services is required prior to issuing a turn-off because of tampering.

Responsibilities

Customer and Community Services Department

- Provide customer outreach, education, and notifications (WCD)
- Track and monitor waste reports (WCD)
- Assess fee(s) (Customer Services)
- Discontinue service and monitor use (Field Services)

Wasteful Use of Water

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Operations and Maintenance Department

- Provide special meter reading services when needed
- Assist with field inspections if necessary
- Supply Flow Restrictor devices and determine specifications concerning pressure and flow
- Install and remove flow restrictor (MRM)

Exemptions

Exemptions to the installation of a Flow Restrictor or Discontinuation of Water Service as a means to enforce a wasteful use of water violation shall exist when (a) the failure to grant the application would cause an unnecessary and undue hardship to the applicant, including but not limited to, adverse economic impacts, such as loss of production or jobs; or (b) there are provable risks to the health, safety, and/or welfare of the water user. An exemption also shall be made for water meters which provide “dual service” for fire protection and premises serving two or more multi-family dwelling units or mixed used, where the water use is provided via a master meter. Written applications for exceptions shall be accepted and may be granted by the Director of Customer and Community Services.

Water leaks from District facilities are not covered under this procedure.

Dispute Resolution/ Appeals

A customer may appeal a warning or notice of violation of the District regulation prohibiting the wasteful use of water by filing a written appeal with the Director of Customer and Community Services within ten business days of the date of the written warning or notice of wasteful use of water from the District. The written request for the appeal must clearly state any factual error in the District’s written warning or notice that may constitute grounds for appeal. Any written appeal submitted later than ten business days from the date of the written warning or notice from which the appeal is taken will be dismissed as untimely and no further appeal will be granted. The Director of Customer and Community Services may grant or deny the appeal based solely on the information provided in the appeal or within the sole discretion of the Director of Customer and Community Services, before making a final decision on the customer’s appeal. The Director of Customer and Community Services’ decision granting or denying the customer’s appeal is final. No further appeal will be granted.

Review

This procedure is to be reviewed biennially or upon a Board declared Water Shortage Emergency condition.

References

Procedure 112, Unauthorized Use of Water
Procedure 466, Personally Identifiable Information (PII) Data Security
Procedure 608, Public Access to District Records
Procedure 900, Water Consumption Accounting and Reporting
Regulations Governing Water Service:
Section 15, Discontinuation of Service
Section 19, Use and Resale of Water
Section 29, Water Use Restrictions

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Rates and Fees Schedules:
Schedule C – Charges for Special Services:
Section E, Prohibited Water Use Charge
Section F, Flow-Restrictor Installation
Section G, Notice of Prohibited Water Use and Flow-Restrictor
Section M, Service Trip Charge
Ordinance No 373-21 Excessive Water Use Penalty Ordinance for Drought Stages 2, 3 and 4, 10-29-2021
Ordinance #368-17 Amending Ordinance #365-15 EntitledWater Theft Penalty

EBMUD

Procedure 900

EFFECTIVE	17 MAY 23
SUPERSEDES	24 MAR 21
LEAD DEPARTMENT	WNR

WATER CONSUMPTION ACCOUNTING AND REPORTING

PURPOSE – To establish a consistent District-wide protocol for storing, retrieving, reporting and publishing consumption data for internal and regulatory purposes.

General Provisions

This procedure applies to all District employees directly or indirectly engaged in measuring, collecting, storing, retrieving, validating, reporting, or publishing District raw water use, treated water production, water consumption, and water demand projections data.

Limitations

This procedure provides only a general overview of water consumption accounting and reporting procedures. Operating manuals developed by departments for their internal use provide details on methodologies; however, they do not constitute District policy or adopted procedures.

Definitions

Customer Account

Account - Accounts can be classified into seven major use types, as defined by Business Classification Code (BCC) Categories[1]. One customer can have multiple accounts. BCC Categories include Single-Family, Multi-Family, Commercial, Industrial, Petroleum, Institutional, and Irrigation. For a complete list of BCC Categories or BCC Types (which is the grouping of BCCs into similar type of end users and it is more granular than the BCC Categories) visit http://waterconsumptiondata/glossary.php.

Account Status - For billing purposes, accounts can have one of the following statuses:

- *Active* - a customer is currently responsible for service at a premise[2].
  - Charged – a price/rate has been applied to an account component, i.e., water flow, wastewater flow, and meter size; the account is "statemented" after being "charged".
  - Billed/Statemented – after the account is "charged", the statement or bill is generated.
- *Closed* - an off order has been completed and the account has been charged; the statement may or may not have been generated at this point. The official closed date is the last day the customer is responsible for service.
- *Inactive* - an order has been created for a customer who will be responsible for service at a premise.
- *Landlord* - Active - customers having Intervening Water Service Agreement become responsible for service when a tenant moves out.
- *Landlord* - Inactive - customers having Intervening Water Service Agreements but the tenant is responsible for service.

[1] BCC Categories are mapped to "Dwelling Description" within Customer Watch. For billing purposes accounts can also be differentiated into Revenue Classes which include Residential, Commercial, Industrial and Public. Note that Revenue Classes do not necessarily correspond to BCC Categories.
[2] A premise is the physical location/address where the water use is taking place.

Account Type[3] - There are six types of water service available:

- Standard (Water) = Standard Water Service including irrigation services; potable (treated) drinking water and does not include Fire Services and Hydrant uses.
- Fire Service[4] = Private Fire Service.
- Hydrant = Hydrant Meter Service; Hydrant meters borrowed by contractors are accounted for in the Water Consumption Data Hub (WCD Hub).
- Wastewater = No Water (Wastewater only).
- Untreated (Water Non-Potable) = Non-Potable Water Service; untreated – raw water used by such accounts as golf courses.
- Water Recycled = Recycled Water Service
  Recycle Secondary
  Recycle Tertiary

Metered Consumption Data: Storage

The District stores metered water consumption data in two databases - Customer Watch and Water Consumption Data Warehouse.

Customer Watch (CW) - A utility billing and customer information application used to manage customer contacts, meter readings, charge calculations, statements and correspondence, equipment inventory, service orders, etc.

Most meters are read bimonthly except meters for large commercial and industrial customers which are read monthly. The majority of meters are read manually and entered into handheld units. The reads are then transferred to CW to calculate the Water Flow Charge.

In CW, the data remain in a billing cycle format. CW stores what was charged to individual customers. Because of cancel rebills or delayed reads, the billing period on a statement could be less or much more than the standard billing cycle.

Managed by the Customer Information System (CIS) Control Group, CW replaced the CIS in 2011, which replaced the Customer Billing System in 1987. Data in CW is only available from September 2011 to the present.

Water Consumption Data Warehouse (WCDW) - The database stores water consumption data in monthly, seasonally adjusted monthly, and billing cycle formats, for accounts that have been charged in CW. Metered accounts, both billed and unbilled, are transferred and/or converted from CW to the WCDW on the second Tuesday of every month.

Monthly Normalized Aggregate

Within the WCDW, the billing data is converted into a monthly format and archived. WCDW contains data from 1975 to present. Due to the differences in timing of the billing cycles, data in WCDW is available about two months prior to the current month. This ensures that the data presented for a given month represents all of the District's active accounts.

Since 1975, the District has utilized an algorithm to redistribute billing cycle data into monthly data - equally distributing the data across each month. The algorithm for the conversion can be found via the WCD Hub's Glossary page (http://waterconsumptiondata/glossary.php).

[3] Intertie meter data are not accounted for in the WCD Hub.
[4] It is not feasible for the District to accurately estimate a potentially significant portion of fire service consumption as fire departments are not required to report their usage to the District.

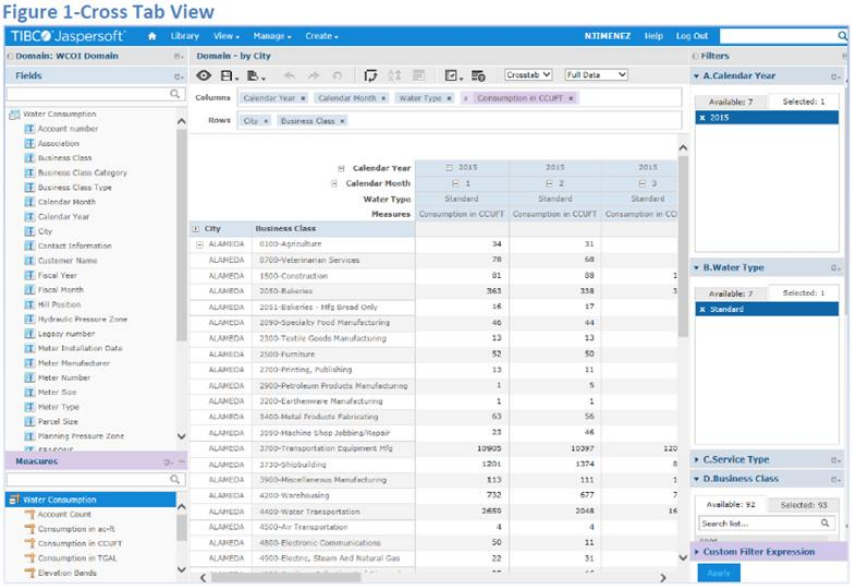
Seasonally Indexed Monthly Format Algorithm

In January 2014, the District began keeping water consumption data based on a seasonally adjusted algorithm. This data is available for calendar year 2013 to the present. For publishing purposes, if the Seasonally Adjusted Monthly Aggregate data is used, that needs to be clearly indicated on any report, chart, or table created.

The seasonally indexed monthly format algorithm refines the monthly format algorithm by accounting for the seasonal nature of water consumption, attributed to irrigation in the warmer months. The refinement improves the accuracy of the monthly consumption calculation by prorating consumption based on historical monthly water consumption trends by BCC Category. The Seasonal Indices (SI) that are used in the algorithm will be assessed approximately every 10 years by Water Resources Planning Division in consultation with Water Distribution Planning Division.

The algorithm for the conversion can be found via the WCD Hub's Glossary page (http://waterconsumptiondata/glossary.php).

Figure 1-Cross Tab View



Metered Consumption Data: Retrieval/ Reporting

Historical and reproducible metered water consumption data can be retrieved and reported using the following:

- Water Consumption Data Hub
  - Jasper Reports
  - Jasper Analytics Tool
  - Data Query Request
- Customer Watch

Water Consumption Data Hub - CW water use data is translated into normalized monthly aggregate consumption values when it is loaded into the WCD hub. This is a portal in which District staff can query and view water consumption data, obtain a reference for standardized consumption related terms, and access relevant policies and procedures in reporting data. The WCD Hub helps to ensure consistent, accurate, reproducible water consumption data is used throughout the District. The WCD Hub can be accessed via http://waterconsumptiondata. Definitions of BCC and corresponding types and categories, and seasonal indices for west and east of hills by BCC category are published on the WCD Hub's Glossary page. These can be accessed at http://waterconsumptiondata/glossary.php.

Metered Consumption Data: QA/ QC

The accuracy and integrity of water consumption data are maintained through a Quality Assurance/ Quality Control (QA/ QC) process in CW.

In CW, to assure correct billing, exceptions reports are produced daily as "Special Handling" when anomalies are noted in the data. Some of the criteria for triggering an exception flag in CW include:

- High/Low - Consumption values calculated from meter reads uploaded by the Meter Reading & Maintenance Division are compared with historical data. Customer Services Support Division, Field Services, Water Conservation Division and Meter Reading & Maintenance Division staff review consumption values that are higher or lower than the historical range, and take appropriate actions such as requesting service order, confirming the read, etc., before the consumption is released for charge calculation.

- High Charge - a type of service (water, wastewater, or fire service) and the corresponding revenue class has a dollar amount assigned to it that triggers a high charge flag. Customer Services Support Division reviews all accounts that exceed the high dollar amount before releasing the account for statement.

Accuracy of the meter reads provided to the CW application is maintained by the Meter Reading & Maintenance Division.

Department and Committee Responsibilities

Departments are responsible for assisting and supporting other groups and committees to assure that reporting of water supply and use information is consistent with this procedure. Attachment A provides a list of standard publications that report the information produced by the District.

Water and Natural Resources Department (WNR)

The Water Resources Planning Division (WRPD) of the WNR is responsible for assessing and reporting District water supplies and use, including historical, current, and future assessments as required by District policy; California State Water Code; water rights, contracts, and agreements; state and regional planning agencies; legislative initiatives; and legal matters. WRPD is also responsible for calculating the water savings estimates for inclusion in the State Water Regional Control Board (SWRCB) Annual Report. WRPD reports/publishes water consumption data in the District's Urban Water Management Plan to meet the State's and Federal regulatory requirements. WRPD oversees the WCD Hub and Procedure 900.

The Office of Water Recycling of the Water Supply Improvements Division, which is located within the WNR, is responsible for assessing recycled water production and use from wastewater sources, as well as potable supplement and customer raw water use. The District recycled water use is reported annually with the potable supplement and other non-potable values to be retrieval through the Hub. The District's recycled water accounting terms and reporting responsibilities are defined in Procedure 901.

Operations and Maintenance Department (OMD)

OMD is responsible for measuring, collecting, retrieving, recording, validating, reporting, and making available metered water supply production and use data from the District's water treatment facilities.

Customer and Community Services Department (CUS)

The Customer Services Support Division of the CUS is responsible for storing metered water readings, calculating usage and charges from metered water readings, as well as accuracy of CW data, as described in the Data QA/QC section of this procedure. The Customer Services Support Division is also under contract to bill for other public agencies.

The Water Conservation Division (WCD) of the CUS is responsible for water conservation service, assessment and reporting current and projected water conservation savings by customer type and land use. The District's water conservation accounting terms and reporting responsibilities are defined in Procedure 902.

Information Systems Department (ISD)

The Applications Division (AD) of the ISD is responsible for developing and maintaining the repositories of the water consumption data. The AD development the WCD Hub that centralizes and meets water consumption query needs of District staff.
AD is also responsible for implementing quality control procedures on the data. To ensure accuracy and consistency, all metered water consumption data to be released to the public should be retrieved via the sources listed in this Procedure. (See Metered Consumption Data: Retrieval/ Reporting section of this procedure).

Finance Department (FIN)

Treasury Operations of the FIN is responsible for tracking billed water use and revenue, including classification by customer and service area region for use in the District's financial planning and reporting. The water use reported by FIN is taken directly from CW and reflects the billed metered water consumption that was printed for customer statements during the reporting period. These consumption reports do not correspond to the monthly water consumption in the WCDW. Treasury Operations develops their short-term water consumption projections data that is reviewed by the Demand Projections Committee (DPC). FIN reports on water consumption and revenue to the Board of Directors on a monthly basis.

The Controller's Office of the FIN gathers information about water production for the District Annual Report "comparative highlights" section.

Wastewater Department (WWD)

The Environmental Services Division of the WWD is responsible for developing and assessing capacity fees, rates, and charges associated with wastewater services. The Environmental Services Division is responsible for determining wastewater flow for billing and verifying wastewater flows for facility planning and billing purposes. The WWD is also responsible for coordinating with the Office of Water Recycling to ensure non-potable water served within the District's recycled water systems is recorded and properly assessed to account for potable water makeup deliveries.

Engineering and Construction Department (ENG)

The Water Distribution Planning Division (WDPD) of the ENG is responsible for preparing the District's Demand Study Updates that forecast water use over a 30-year planning horizon by land use categories and census tracts; and for preparing Water Supply Assessments and Written Verifications of Sufficient Water Supply as required by the State Water Code. The WDPD chairs the DPC that is responsible for reviewing and approving demand projections that are reported by District staff.

Office of the General Manager (OGM)

The Communications Office of the OGM is responsible for ensuring consistent data on current and past water use that is provided to the media and used in publications and at community events attended by the District's Board of Directors, management and staff. Consistent data helps maintain customer and stakeholder confidence in the District; therefore the Communications Office should coordinate with the Project Management Office of the ADD on all metered water consumption data released to the public.

Demand Projections Committee (DPC)

The DPC members are representatives from each Department in the District described above. The DPC is chaired by WDPD. It is an inter-departmental committee that reviews and provides oversight of any short-term or long-term demand projections as well as providing feedback and guidance to Departments that are performing water use analysis.

Water Consumption Accounting and Reporting

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Acronyms

AD – Applications Division
BCC – Business Classification Code
CIS – Customer Information System
CUS – Customer and Community Services Department
CW – Customer Watch
DPC – Demand Projections Committee
EBMUD – East Bay Municipal Utility District
ENG – Engineering and Construction Department
FIN – Finance Department
ISD – Information Systems Department
OGM – Office of the General Manager
OMD – Operations and Maintenance Department
QA/QC – Quality Assurance/ Quality Control
SI – Seasonal Index
SWRCB – State Water Resources Control Board
USBR – United States Bureau of Reclamation
WCD – Water Conservation Division
WCDW – Water Consumption Data Warehouse
WNR – Water and Natural Resources Department
WRPD – Water Resources Planning Division
WWD – Wastewater Department

References

Procedure 146 – Water Conservation Accounting and Reporting
Procedure 708 – Facilities: Metering Water Consumption
Procedure 901 – Recycled Water Accounting and Reporting
EBMUD Urban Water Management Plan (2020)
EBMUD Water Conservation Strategic Plan (2021)
EBMUD Recycled Water Master Plan (2020)

Attachment A
STANDARD REPORTS AND PUBLICATION DATES

Dept	Report	Board Action	External Action	Frequency	Month	FY[1]	CY[2]
WNR	**Water Rights Reports** *Annual reports submitted to the SWRCB summarizing the District's water use characteristics.*		Submitted to SWRCB	Annually	June		•
	Urban Water Management Plan *A comprehensive report of water supply sources, production, usage, wastewater, recycled water and conservation. It is submitted to the California Department of Water Resources (DWR) and the U.S. Bureau of Reclamation.*	Adoption with a Resolution	Submitted to DWR	Every 5 years	July	•	•
	Annual Water Supply and Demand Assessment *The Annual Assessment provides an estimate of the gap between demand for water and actual supplies available each year.*		Submitted to DWR	Annually	July		•
	Monthly Volumes Delivered *As a requirement of the District's CVP Contract, the District shall inform the USBR and the DWR in writing by April 30 of each year of the monthly volume of surface water delivered within the District's service area during the previous contract year (February-March).* *A report that provides current information on the District's service area, supply and usage. It is submitted to the USBR as a requirement of the District's Central Valley Project (CVP) Contract.*		Submitted to USBR	Annually	April	•	
	Municipal & Irrigation Use *As a requirement of the District's CVP Contract the District shall inform USBR on or before the 20th of each month of the quantity of CVP water taken during the previous month.*		Submitted to USBR	Monthly (after CVP water takes only)	All		•
	Monthly Consumption/Production Values *As a requirement of the SWRCB, monthly values are required to be submitted by the 15th of each month for the water use in the prior month. Information on DMP measures implemented are required during drought periods*						

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Dept	Report	Board Action	External Action	Frequency	Month	FY[1]	CY[2]
OMD	**Water Loss Audit Report** *As a requirement of SB-555, the District produces a validated annual report on water use that must be certified by the GM. OMD compiles and produces the report, and WNR submits it.*		Submitted to DWR	Annually	Jan		•
	Water Supply Operations Plan *The Plan describes the actual and projected water supply operations for the water year from October 1 to September 30 for the Mokelumne and the East Bay systems.*			Annually	May		•
	Water Supply Engineering Statistical Report *The Report provides an annual record of operation for the water supply system.*			Annually	Nov	•	
ENG	**Demand Study Update** *A study using a land-use based methodology to forecast water distribution system demand for a 30-year planning horizon.*			Every 5-10 years	Varies		•
FIN	**Financial and Statistical Report** *A Blue Book that provides separate financial statements, flux analyses and water consumption for Water and Wastewater.*			Semi-Annually	Dec		•
	Comprehensive Annual Financial Report *The report represents the District's financial position and results of operations, and demographic and statistical information.*			Annually	Jun	•	
OGM (Public Affairs)	**EBMUD Biennial Report** *External report representing District-wide activities and focus for two fiscal years. The report provides a summary of water programs and projects that are completed and underway.*		Public Distribution	Annually	Dec-Jan	•	
	All About EBMUD *A report describing EBMUD's system.*		Public Distribution	Biennially (last update 2018-2019)	Dec	•	
	Reponses to Media Inquiries *Disseminates fiscal and calendar year information about water use in response to media inquiries, which are sometimes very time-sensitive and require prompt response.*		Public Distribution	Annually	Varies		

[1]/ Fiscal Year
[2]/ Calendar Year

EBMUD

Procedure 904

EFFECTIVE 09 JUL 25
SUPERSEDES 17 MAY 23
LEAD DEPARTMENT WNR

WATER LOSS AUDIT ACCOUNTING AND REPORTING

PURPOSE - To establish procedures for collecting and validating data related to the District's annual water loss audit report and to describe the associated Departmental responsibilities.

Regulatory Requirements

Senate Bill 555 (SB 555), passed in October 2015, requires the state's urban retail water suppliers to complete an annual water loss audit report on their water distribution systems and submit a validated water loss audit report to the California Department of Water Resources (DWR) by January 1st of each year, starting in 2024. SB 555 requires water audits to be conducted according to American Water Works Association (AWWA), Water Audits and Loss Control Programs, M36 Manual (AWWA M36) and AWWA's free Water Audit software which can be accessed via AWWA's website: http://www.awwa.org. (Data source: AWWA).

The water loss audit report must be validated by a certified expert attested by the utility executive and include steps taken to increase data validity, reduce apparent loss volume, and reduce real loss volume. Senate Bill 1420 established that urban water suppliers submit a report that quantifies water system losses with their urban water management plans.

On October 19, 2022 , the State Water Resources Control Board (SWRCB) adopted rules requiring urban retail suppliers to meet performance standards for the volume of real water losses. The District will comply with these rules.

Water Audit Terms and Definitions

<table>
<tr><td rowspan="8">Water Sources</td><td rowspan="8">Distribution System Input (i.e. production)</td><td rowspan="4">Authorized Consumption (e.g. customer demand)</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Water Exported</td><td rowspan="2">Revenue Water</td></tr>
<tr><td>Billed Metered Consumption</td></tr>
<tr><td rowspan="2">UnBilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="6">Non-Revenue Water</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="4">Distribution Water Losses</td><td rowspan="3">Apparent Losses</td><td>Unauthorized Consumption</td></tr>
<tr><td>Customer Metering Inaccuracies</td></tr>
<tr><td>Systematic Data Handling Errors</td></tr>
<tr><td rowspan="3">Real Losses</td><td>Leakage on Mains</td></tr>
<tr><td>Leakage and Overflows at Storages</td></tr>
<tr><td>Leakage on Service Connections up to Customer Metering</td></tr>
</table>

Distribution system Input component terms, adopted from AWWA International Water Association Audit Components, provide an overview of the connection between the components and how they are defined. For specific definitions of each term shown in the table above, a comprehensive list is available through DOCS at https://docs.ebmud.com/doc/2847286.

Water Loss Audit Accounting and Reporting

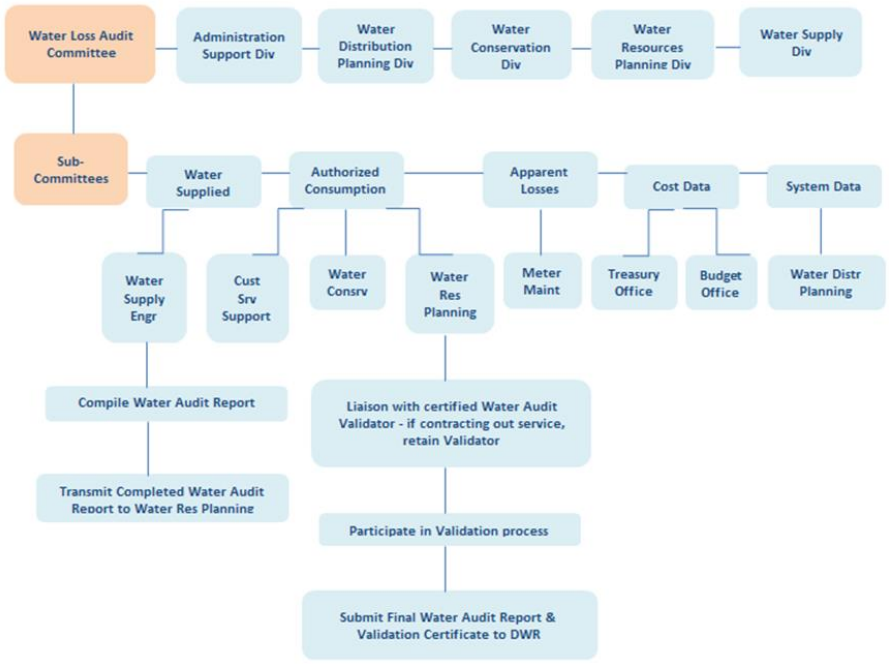
Responsibilities

District divisions with primary responsibility for providing data to complete the water loss audit report are Administration and Support, Water Resources Planning, Water Supply Engineering, Water Conservation, Treasury Office, Budget Office, Water Distribution Planning, Facilities Maintenance and Construction, and Maintenance Support.

The water loss audit report is presented in the form of a worksheet that details the variety of consumption and losses that exist in a public water system. The District is required to enter water system information into the water loss audit worksheet to calculate water balance and determine the apparent and real losses that occurred in the previous calendar year.

Past water loss audit reports are accessible at
Water Supply Engineering - Reports & Graphics - Water Operations and Maintenance

Figure 1 below provides a visual representation of the District's organizational Chart for water audit coordination.



The Water Loss Audit (WLA) Committee coordinates the District WLA activities, roles and responsibilities; including a review of each component of the District's WLA as defined by AWWA, and recommends improvements to the process to meet District and state regulatory requirements.

The subcommittees are comprised of stakeholders that support the WLA Committee to perform tasks related to water loss audit and make contributions based on each subcommittee's subject matter expertise to complete the annual water audit report. The subcommittees were established based on the required Water Loss Audit components as defined in AWWA's guidance (Reference: AWWA Free Water Audit Software v6.0 Definitions).

Water Loss Audit Accounting and Reporting

Water Loss Audit Timeline

- In June, sub-committees began to meet to compile data, discuss new developments and progress of implemented recommendations.
- In mid-September, each sub-committee prepares a memo that contains the water loss audit components' data and submits it to Water Supply Engineering (WSE) work unit. WSE compiles the data and produces the Water Loss Audit Report and transmits it to the Water Resources Planning (WRP) work unit.
- In October, WRP coordinates with internal certified validator (currently residing in Water Distribution Planning Division), or if contracting out service, WRP retains the service of a certified validator to validate the water audit report.
- By December, WRP completes the validation process and submits the validated water audit report together with the validation certificate through the WLA committee to request General Manager's approval and signature on the validation certificate.
- By January 1, WRP uploads the validated water audit report and the signed validation certificate onto DWR's web portal.

References

American Water Works Association Manual 36 - Water Audits and Loss Control Programs (Fourth Edition)
American Water Works Association Free Water Audit Software (Version 6)
EBMUD Urban Water Management Plan (2020)
Procedure 900 – Water Consumption Accounting and Reporting

SECTION 29
WATER USE RESTRICTIONS

A. REGULATIONS AND RESTRICTIONS ON WATER USE

The Board of Directors declares that in order to conserve the District's water supply for the greatest public benefit and to reduce the quantity of water used District customers shall observe the following regulations and restrictions on water use except where necessary to address an immediate health and safety need or to comply with a term or condition in a permit issued by a state or federal agency.

1. The following potable water uses are prohibited:

    a. The application of potable water to outdoor landscapes in a manner that causes more than incidental runoff such that water flows onto adjacent property, non-irrigated areas, or hardscapes (private and public walkways, roadways, parking lots, or structures);

    b. The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;

    c. The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with the irrigation requirements set forth in Section 31 of these Regulations Governing Water Service to Customers or other requirements established by local ordinances and/or state regulations;

    d. The application of potable water to sidewalks and driveways; or applying potable water to other hard surfaces or materials that results in excessive use and runoff;

    e. The use of a hose that dispenses potable water to wash a motor vehicle, boat, trailer, aircraft or other vehicles except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;

    f. The use of potable water in an ornamental fountain or other decorative water feature, except where the water is part of a recirculating system;

    g. Use of potable water for construction, street cleaning, soil compaction and dust control is prohibited if a feasible alternative source of water is available. All water use for construction, soil compaction and dust control will require a permit issued by EBMUD; and

    h. Using potable water for irrigating nonfunctional turf (ornamental lawns) on commercial, industrial, and institutional properties is prohibited per Assembly Bill 1572.

2. All Customers shall:

    a. Reduce other interior or exterior uses of water to minimize or eliminate excessive runoff; and

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WATER USE RESTRICTIONS

b. Repair leaks wherever feasible. Irrigation or plumbing with measurable leaks such that water flows onto adjacent property, non-irrigated areas, or hardscapes (private and public walkways, roadways, parking lots, or structures) shall not be turned on or restored to service until repairs have been completed.

3. Nonresidential Customers shall:

a. Use systems that recycle water where feasible; single pass cooling systems in new connections, and non-recirculating systems in all new conveyer car wash and commercial laundry systems shall be prohibited;

b. Limit sewer flushing or street washing with potable water as much as possible, consistent with public health and safety needs; and

c. Operators of hotels and motels are required to offer patrons the option of not having their towels and linens washed daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

4. Water Savings Guidelines

a. Conserve water indoors. Efficient indoor water use is approximately 45 gallons and super-efficient indoor use is approximately 35 gallons per person daily. Most customers can achieve this by shortening showers and using less bath water, running only full loads of laundry and dishes, and keeping a close eye on faucet use. Additionally, customers are encouraged to reduce the use of kitchen garbage disposals through composting or curbside green waste collection and not to use toilets as wastebaskets. Customers may also consider upgrading to more water-efficient plumbing fixtures and appliances. Customers are also encouraged to check and watch for potential indoor and outdoor leaks.

b. Use covers on swimming pools and home spas (hot tubs) and avoid frequent draining, refilling and topping off.

c. Irrigate less outdoors. Most customers can cut outdoor watering without affecting long-term plant health by irrigating before dawn or at dusk, and not on consecutive days. Customers also may want to consider upgrading to more water-efficient irrigation methods and low-water use plants more appropriate and adaptable to the local summer-dry climate.

d. Gyms, spas and similar facilities should request patrons to conserve water while showering and using wash basins.

e. All food preparation and eating establishments, including restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased

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WATER USE RESTRICTIONS

are encouraged to install and use high-efficiency pre-rinse spray nozzles in their kitchens where applicable.

f. Ensure existing trees remain healthy and do not present a public safety hazard. Trees and other non-turf vegetation within street medians may continue to be watered efficiently.

B. EXCEPTIONS

Consideration of written applications for exceptions regarding the regulations and restrictions on water use set forth in this Section shall be as follows:

1. Written applications for exceptions shall be accepted, and may be granted, by the Manager of Water Conservation.

2. Denials of applications may be appealed in writing to the Manager of the Customer and Community Services Department.

3. Grounds for granting such applications are:

   a. Failure to do so would cause an unnecessary and undue hardship to the applicant, including, but not limited to, adverse economic impacts, such as loss of production or jobs; or

   b. Failure to do so would cause a condition affecting the health, sanitation, fire protection or safety of the applicant or the public.

C. ENFORCEMENT

1. The District may, after one written warning, order that a special meter reading or readings be made in order to ascertain whether use of water in violation of these regulations is occurring. Charges for such a meter reading or readings or for follow-up visits by District staff shall be fixed by the Board from time to time and shall be paid by the customer.

2. In the event that the District observes that water use in violation of these regulations is occurring at a customer's premises, the General Manager or the Manager of Customer and Community Services Department may, after a written warning to the customer, authorize installation of a flow-restricting device on the service line for any customer observed by District personnel to be willfully violating any of the regulations and restrictions on water use set forth in this section.

3. In the event that a further willful violation is observed by District personnel, the District may discontinue service. Charges for the installation of flow-restricting devices or restoring service may be fixed by the Board from time to time.

SECTION 31
WATER EFFICIENCY REQUIREMENTS

These regulations identify the types of water efficiency requirements for water service and the procedure for notification to Applicants that water efficiency measures are required. Applicants shall be subject to the most current and most water-efficient requirements in effect on the date the District receives payment for new or upgraded service, whether specified by EBMUD or other local, state, or federal regulations.

A. DETERMINATION OF FEASIBILITY OF WATER EFFICIENCY MEASURES

The District will review applications for new standard services and determine the applicability of, and compliance with, water-efficiency requirements. Applicants for increased or expanded service shall be required to meet the water-efficiency requirements for all new water service facilities and may be required to retrofit existing water service facilities or uses to comply with all requirements. Applicant shall maintain design documents and construction and installation records and furnish a copy of said documents and records to the District upon request. The District may inspect the installation of indoor and outdoor water efficiency measures to verify that the items are installed and performing to the required water efficiency levels. The Applicant or their representative may be present during any District inspection.

B. WATER EFFICIENCY REQUIREMENTS FOR NEW DEVELOPMENT OR EXPANDED SERVICE

Water service shall not be furnished to any Applicant for new or increased or expanded service, or for any change in customer classification (such as a change from industrial to commercial, residential to commercial, or the like) that includes new or retrofitted water using equipment, unless all the applicable water-efficiency measures hereinafter described in this Section 31 and required by applicable local, state and/or federal law have been reviewed and approved by the District. All the applicable and required water-efficiency measures shall be installed at Applicant's expense.

All applicants applying for new water service for multi-family residential structures or mixed-use residential and commercial structures shall comply with all applicable local and/or state submetering regulations. Submeters shall be equipped with registers with an encoded output to allow for electronic reading of submeters and shall be accessible for maintenance and visual needs. Applicants shall submit site and plumbing plans including location, accessibility, and specifications for submeters. See Sections 2 and 3 of EBMUD Regulations for additional requirements.

C. INDOOR WATER USE

a. All Applicants shall comply with these regulations and those required by applicable local, state and/or federal law including the California Green Building Standards Code (CAL Green).

b. Toilets shall be high-efficiency or dual flush models rated and third party tested at a maximum flush volume of 1.28 gallons per flush (gpf), and be certified as passing a 350 gram or higher flush test as established by the U.S. Environmental Protection Agency

SECTION 31
WATER EFFICIENCY REQUIREMENTS

WaterSense Specification or other District-accepted third-party testing entity. Pressure-assisted type toilets shall be high-efficiency rated at a maximum 1.0 gpf. No flush or conversion devices of any other kind shall be accepted.

c. Wall mounted urinals shall have a maximum rated flow of 0.125 gpf or less, or be zero water consumption urinals.

d. Floor mounted urinals shall have a maximum rated flow of 0.5 gpf or less.

e. Single showerheads shall have a maximum flow rate of 1.8 gallons per minute (gpm) at 80 pounds of pressure per square inch (psi).

f. Multiple showerheads serving a single shower enclosure shall have a combined flow rate of not more than 1.8 gpm at 80 psi or shall be designed to allow only a single showerhead to be operated at one time.

g. Residential lavatory faucets shall have aerators or laminar flow control devices (i.e., orifices) with a maximum rated flow of 1.2 gallons per minute or less.

h. Public lavatory faucets shall have aerators or laminar flow control devices with a maximum rated flow of 0.5 gallons per minute or less.

i. Wash fountains shall have a maximum flow rate of not more than 1.8 gpm per wash station.

j. Metering faucets shall not deliver more than 0.20 gallons per cycle.

k. Kitchen faucets shall have aerators or laminar flow control devices (i.e., orifices) with a maximum rated flow of 1.8 gallons per minute or less with optional temporary flow of 2.2 gpm.

l. Clothes washing machines shall be front loading horizontal axis or top loading models with a water factor rating of 4.5 or less. A water factor rating of 4.5 means a maximum average water use of 4.5 gallons per cubic foot of laundry.

m. Residential dishwashers rated as standard size (i.e. 307 kWh/year) shall use less than or equal to 5.0 gallons/cycle. Dishwashers rated as compact size (i.e., 222 kWh/year) shall use less than or equal to 3.5 gallons/cycle.

n. Cooling towers not utilizing recycled water shall be equipped with recirculating systems and operate at a minimum of five (5) cycles of concentration. Newly constructed cooling towers shall be operated with conductivity controllers, as well as make up and blowdown meters.

o. Food steamers in all food service facilities shall be boiler-less or self-contained models using ≤ 3.0 gallons per hour where applicable.

SECTION 31
WATER EFFICIENCY REQUIREMENTS

p. Ice machines shall be air-cooled and use no more than 20 gallons of water per 100 pounds of ice and shall be equipped with a recirculating cooling unit or water-cooled on a closed loop system.

q. Commercial refrigeration shall be air-cooled or if water-cooled, must have a closed looped system. No once through, single pass systems are permitted.

r. Pre-Rinse dishwashing spray valves shall have a maximum rated flow of 1.28 gpm or less.

s. Food disposers shall modulate the use of water to no more than 1 gpm when the disposer is not in use and shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.

t. Commercial dishwashers or ware washing equipment shall be currently labeled an EnergyStar rated water efficient model meeting the maximum water consumption limits as specified in the table below:

Machine Type	High Temp Requirements	Low Temp Requirements
Under Counter	≤ 0.86 GPR	≤ 1.19 GPR
Stationary Single Tank Door	≤ 0.89 GPR	≤ 1.18 GPR
Pot, Pan, and Utensil	≤ 0.58 GPSF	≤ 0.58 GPSF
Single Tank Conveyor	≤ 0.70 GPR	≤ 0.79 GPR
Multiple Tank Conveyor	≤ 0.54 GPR	≤ 0.54 GPR
Single Tank Flight Type	≤ GPH ≤ 2.975x + 55.00	≤ GPH ≤ 2.975x + 55.00
Multiple Tank Flight Type	≤ GPH ≤ 4.96x + 17.00	≤ GPH ≤ 4.96x + 17.00

*GPR (gallons per rack); GPSF (gallons per square foot); GPH (gallons per hour)

u. Conveyor and in-bay vehicle wash facilities shall reuse a minimum of 60% of water from previous vehicle rinses in subsequent washes.

v. Self-service vehicle wash facilities shall use spray nozzles with a flow rate of 3.0 gpm or less.

w. Swimming pools and spas shall be covered when not in use, unless public health and safety concerns exist.

D. OUTDOOR WATER USE

a. All Applicants shall comply with all District water service regulations and those required by applicable local, state and/or federal law including the Model Water Efficient Landscape Ordinance (MWELO).

SECTION 31
WATER EFFICIENCY REQUIREMENTS

b. Applicants shall submit, at a minimum, a scaled site plan that identifies the property address, parcel boundaries, building footprints, hardscape, softscape, meter location, and location of each hose bib. If an application for service is submitted without a detailed landscape plan for the entire premises, the District will estimate the new irrigable landscape area to determine the potential irrigation demand (default demand) for inclusion in the total domestic water demand calculation. Projects subject to MWELO shall also provide a compliant landscape documentation package as required by the ordinance.

c. All premises with 500 square feet or more of new irrigable landscape area shall install a modular weather-based smart controller with rain or soil moisture sensor, an irrigation connection with a manual shutoff valve, a backflow prevention device, a pressure regulator where pressure exceeds the operating range of system components, and sleeves allowing irrigation to extend to all landscape areas.

d. All non-residential premises with 500 square feet or more of new irrigable landscape shall also install a flow sensor with master shutoff valve.

e. All residential premises with more than 5,000 square feet of new irrigable landscape area shall also install a flow sensor with master shutoff valve.

f. As provided in Sections 1 and 3 of the Regulations, unless determined by the District that a District-dedicated irrigation meter is required, a private dedicated irrigation meter shall be required for residential premises with an irrigable landscape area of 5,000 square feet or more.

g. As provided in Sections 1 and 3 of the Regulations, unless determined by the District that a District-dedicated irrigation meter is required, a private dedicated irrigation meter shall be required for non-residential premises with an irrigable landscape area of more than 1,000 square feet but less than 5,000 square feet.

h. As provided in Sections 1 and 3 of the Regulations, a District dedicated irrigation meter shall be required for non-residential premises with an irrigable landscape area of 5,000 square feet or more.

E. NONCOMPLIANCE

The District will review applications for new and expanded services for water efficiency features as described in this Section. If an application does not meet the water efficiency requirements, the District may require the Applicant to resubmit a revised water service application and water efficiency plan at the Applicant's expense. The District may withhold water meter(s) and account activation until the District determines the application complies with the requirements of this Section.

ORDINANCE NO. 368-17

AN ORDINANCE AMENDING ORDINANCE NO. 365-15 ENTITLED "WATER THEFT PENALTY ORDINANCE"

Introduced by Director Young ; Seconded by Director Linney

WHEREAS, on April 28, 2015, the Board of Directors of the East Bay Municipal Utility District ("District") adopted the Water Theft Penalty Ordinance No. 365-15 ("Ordinance") to provide the District with authority to impose administrative penalties on any individual who attempts or engages in water theft, including the unauthorized use of water from a public fire hydrant to supply water outside of the District service area, and any use of a hydrant meter in violation of the terms and conditions of a hydrant meter permit, as set forth in the Ordinance; and

WHEREAS, water theft is a misdemeanor under the California Penal Code; and

WHEREAS, the purpose of the Ordinance is to further deter water theft by authorizing the District to impose an administrative penalty on customers who engage in water theft; and

WHEREAS, the Ordinance has been effective in reducing water theft, however the District has received extensive feedback that the associated penalties have disproportionately impacted low income customers and made it more difficult for them to maintain or reestablish water service; and

WHEREAS, on June 27, 2017, the Finance/Administration Committee recommended amending the Ordinance to reduce the applicable penalties for water theft via meter tampering to $200, $400, and $800 for the first, second, and third occurrence, respectively, and to retain the existing penalties of $1,000, $2,000 and $3,000 for the first, second, and third occurrence, respectively, for water theft resulting from lateral diversions and unauthorized hydrant use based on the rationale that water theft in the form of meter tampering results in lower costs and lesser water loss to the District than the other forms of water theft; and

WHEREAS, the Ordinance was amended to incorporate the recommendation of the Finance/ Administration Committee; and

WHEREAS, other minor, non-substantive amendments were made to the Ordinance for clean-up and clarification purposes; and

WHEREAS, the Board of Directors considered a first reading of the proposed amendments to the Ordinance at the public meeting on August 8, 2017; and

WHEREAS, the Board of Directors considered a second reading of the proposed amendments to the Ordinance at the public meeting on September 12, 2017, and further reduced the applicable penalties for water theft via meter tampering to $0, $200, and $400 for the first, second, and third occurrence, respectively, and to retain the existing penalties of $1,000, $2,000 and $3,000 for the first, second,

and third occurrence, respectively, for water theft resulting from lateral diversions and unauthorized hydrant use; and

WHEREAS, the Board of Directors held a continued second reading of the proposed amendments to the Ordinance at the public meeting on September 26, 2017;

NOW, THEREFORE, BE IT ENACTED by the Board of Directors of the East Bay Municipal Utility District that Ordinance No. 365-15 entitled "WATER THEFT PENALTY ORDINANCE" is amended as shown in Exhibit A.

The EFFECTIVE DATE of this Ordinance shall become effective and in full force at 12:01 a.m. on the thirty-first day following its passage (October 27, 2017).

Lesa R McIntosh
President

I HEREBY CERTIFY that the foregoing Ordinance was duly and regularly introduced at a regular meeting of EAST BAY MUNICIPAL UTILITY DISTRICT held on April 14, 2015, at the offices of said District, 375 - 11th Street, Oakland, California, and thereupon, after being read, further action was scheduled for the regular meeting of said Board of Directors held at the same place on April 28, 2015, at which time the Ordinance was finally adopted. An amendment to the foregoing Ordinance was duly and regularly introduced at a regular meeting of EAST BAY MUNICIPAL UTILITY DISTRICT on August 8, 2017, and thereupon, after being read, further action was scheduled for the regular meeting of said Board of Directors on September 12, 2017, at which time the Board of Directors requested additional amendments to the Ordinance. Accordingly, a continued second reading was scheduled for the regular meeting of the Board of Directors on September 26, 2017, at which time the Amended Ordinance was finally adopted to be effective on October 27, 2017, by the following vote.

AYES: Directors Katz, Linney, Mellon, Patterson, Young and President Mellon.

NOES: Director Coleman.

ABSENT: None.

ABSTAIN: None.

Rosita S. Cole
Secretary

APPROVED AS TO FORM AND PROCEDURE:

Craig S. Spencer
General Counsel

WATER THEFT PENALTY ORDINANCE

WHEREAS, California Penal Code section 498 prohibits the theft of utility services, including water; and

WHEREAS, California Penal Code section 624 prohibits every person from willfully damaging, tampering with, or digging up water pipes or waterworks; and

WHEREAS, California Penal Code section 625 prohibits every person who, with intent to defraud or injure, opens or causes to be opened, or draws water from any disconnected utility connection after having been notified that the same has been closed or shut for specific cause, by order of competent authority; and

WHEREAS, any person who violates Penal Code sections 498, 624, or 625 is guilty of a misdemeanor; and

WHEREAS, California Civil Code section 1882 *et seq*. authorizes the East Bay Municipal Utility District (the "District") to bring a civil action for damages against any person who commits, authorizes, solicits, aids, abets, or attempts any of the following acts:

a. Diverts, or causes to be diverted, utility services by any means whatsoever.

b. Makes, or causes to be made, any connection or reconnection with property owned or used by the utility to provide utility service without the authorization or consent of the utility.

c. Prevents any utility meter, or other device used in determining the charge for utility services, from accurately performing its measuring function by tampering or by any other means.

d. Tampers with any property owned or used by the utility to provide utility services.

e. Uses or receives the direct benefit of all, or a portion, of the utility service with knowledge of, or reason to believe that, the diversion, tampering, or unauthorized connection existed at the time of the use, or that the use or receipt, was without the authorization or consent of the utility; and

WHEREAS, pursuant to California Civil Code section 1882 *et seq*., the District may bring a civil action for the unauthorized use of District water; and

WHEREAS, the District's "Regulations Governing Water Service to Customers of the East Bay Municipal Utility District" (the "Regulations"), including Sections 7, 15, 19, and 23, establish rules and regulations that govern the use of water and prohibit water theft from District facilities; and

EXHIBIT A

WHEREAS, pursuant to California Government Code section 53069.4, the District may, by ordinance, make the violation of any ordinance enacted by its Board of Directors subject to a civil administrative fine or penalty; and

WHEREAS, because water is a vital resource, the District has determined that it is appropriate to impose civil administrative fines for the theft of water to protect this vital resource; and

WHEREAS, water theft from hydrants and/or the improper use of hydrant meters results in greater water loss to the District than water theft resulting from meter tampering, and may involve a more egregious violation, which includes the reselling of water; and

WHEREAS, water theft in the form of lateral diversion poses significant risks and costs to the District and the community because it may result in compromising water quality, adverse public health impacts, loss of revenues from water sales, and damage to District facilities; and

WHEREAS, those engaging in water theft in the form of unauthorized hydrant use and lateral diversions typically involve individuals who avoid obtaining proper service from the District and paying the associated fees, have a more egregious intent of theft, do not have District water service accounts, and thus impose greater costs to the District in identifying and pursuing them for the purposes of this Ordinance;

BE IT ENACTED by the Board of Directors of the East Bay Municipal Utility District as follows:

Section 1. **Recitals.** The District hereby finds and determines that the above recitals are true and correct and are incorporated herein.

Section 2. **Administrative Penalties.**

a. For the purposes of this Ordinance, "water theft" means and includes all of the following:

1. the use, diversion, receipt or taking of District water by any means from any public fire hydrant, blow-off valve, water main, water service lateral or other District facility or connection to a District facility, to which a District authorized metering device has not been installed or has been removed by the District;

2. the use, diversion, receipt, or taking of District water by any means without paying the full and lawful District fees or charges for such water, or by tampering with District property or facilities, such as by removing a lock or plug that has been placed on a customer's service or meter, or unauthorized use, or by tampering with a service connection or bypassing a meter, or by making an unauthorized connection to any District facilities and any public fire hydrant; and

3. For the purposes of this ordinance, "unauthorized use" includes the use of water from a stationary service connection where lawful water service has been discontinued or

from a public fire hydrant to supply water outside of the District service area, regardless of whether payment is provided to the District for the water drawn from the public fire hydrant, or any use of a hydrant meter in violation of the terms and conditions of a hydrant meter permit.

b. Water theft is prohibited. Each act of water theft constitutes a misdemeanor.

c. The District may report any water theft to the appropriate prosecuting agency and press for prosecution of said activity pursuant to the Penal Code. In addition to pursuing criminal penalties, the District, upon discovering water theft or tampering with District property, may also pursue the following remedies or other remedies available at law or equity:

1. require the immediate removal of any equipment, connections or tools used to accomplish the water theft that is attached to District property;

2. require compliance with District regulations and standards for proper water service; and

3. charge the person committing the water theft an administrative penalty based on type of water theft, as set forth below:

A. Water Theft Via Meter Tampering

i. $0 for the first violation;

ii. $200 for a second violation within a twelve-month period; and

iii. $400 for each violation thereafter within a twelve-month period.

B. All Other Forms of Water Theft

i. $1,000 for the first violation;

ii. $2,000 for a second violation within a twelve-month period; and

iii. $3,000 for each violation thereafter within a twelve-month period.

Section 3. **Other Remedies.** In addition to any other remedies provided in this Ordinance or available under applicable law, the District may alternatively seek injunctive relief in the Superior Court or take enforcement action. All remedies provided herein shall be cumulative and not exclusive. If a District customer or any other person turns on water service without District authorization, tampers with any locked water meter, tampers with a service connection or District facilities, bypasses a meter, otherwise makes an unauthorized connection

to District facilities without District permission, or commits water theft, the District may do any, or a combination of any, of the following:

a. turn off the water service and install a lock;

b. estimate, if necessary, the water taken and charge the customer, offender and/or recipient of the stolen water three times the normal rate of the water taken or estimated to be taken from the District facility;

c. charge the customer, offender and/or recipient of the stolen water for the damage to the District lock, meter or other property;

d. remove the meter and plug the service;

e. terminate and remove the service from its connection to the water main;

f. charge the customer a deposit, as required under Regulation 9 of the District's Regulations Governing Water Service, to reestablish service;

g. require the return of any District hydrant meter; and

h. prohibit any person who has committed three violations of this Ordinance within a twelve-month period from obtaining a District hydrant meter permit for a period of three (3) years from the date of the third violation.

Section 4. **Payment and Appeal Procedures.** The District shall calculate the amount of damages and penalty(ies) to be imposed, and shall send a bill to the customer, or if the offender is not a customer of record or the recipient of stolen water, an invoice for payment of the damages or penalty(ies) may be sent to the offender and/or the recipient of the stolen water.

a. All costs relating to the District's processing and handling of the water theft, investigation and enforcement thereof, and potential charges for reestablishment of service, shall be borne by the party having responsibility for the water account at the time of the water theft, or if there is no customer of record, by the offender or recipient of the stolen water. These charges include, but are not limited to, service call charges, water charges, turnoff of service, charges for damage to District facilities and equipment, and plug and/or termination fees. Before the meter will be replaced and service reestablished, the party requesting service, if in any way involved in or related to, or associated with, parties involved in the water theft, shall provide a deposit as required under Regulation 9 of the District's Regulations Governing Water Service, plus the standard meter reinstallation fee, in addition to all service call charges, and an amount representing any damage to District property.

b. All charges relating to the District's processing and handling of the water theft involving the taking of water from a public fire hydrant shall be borne by the offender and/or the recipient of the stolen water, including, but not limited to, the cost of any water, charges for any damage to District facilities and equipment, and costs of investigation and enforcement.

c. Any person (an "appellant") who wishes to appeal the imposition of an administrative penalty imposed by the District pursuant to this Ordinance, or who wishes to appeal the imposition of a three-year prohibition on a hydrant meter permit pursuant to Section 3(h), shall comply with the following procedures:

1. The appellant shall submit an appeal request form to the District's Customer Service Division no later than fifteen (15) calendar days from the date of the bill or invoice sent to the customer or offender.

2. A response to the appeal request shall be provided by the District within thirty (30) calendar days from receipt of the appeal request form.

3. If an appeal request is denied, the appellant may resubmit the appeal request form no later than fifteen (15) calendar days from the date of the denial for review by the District's Customer Service Manager.

4. If an appeal request is denied, the appellant may resubmit the appeal request form for review by the District's Manager of Customer and Community Services Department, or his or her authorized designee. The request form shall be resubmitted no later than fifteen (15) calendar days from the date of the denial of the appeal by the District's Customer Service Manager. The appellant may request to provide evidence in writing or in person in support of his or her appeal to the District's Manager of Customer and Community Services Department, or his or her authorized designee.

5. The decision by the District's Manager of Customer and Community Service, or authorized designee, shall be final.

6. Within ten (10) days after the denial of the appeal is deemed final, the appellant shall pay any disputed penalty(ies) imposed by the District.

7. The provisions of Section 1094.6 of the Code of Civil Procedure of the State of California shall be applicable to judicial review of the decision.

Section 5. **Conflicting Provisions.** If provisions of this Ordinance are in conflict with each other, other provisions of the District's regulations or policies, any other resolution or ordinance of the District, or any State law or regulation, the more restrictive provisions shall apply.

Section 6. **Severability.** If any provision, section, subsection, sentence, clause or phrase or sections of this Ordinance, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the validity of the remaining portions of this Ordinance shall not be affected, it being the intent of the Board of Directors in adopting this Ordinance that no portions, provisions, or regulations contained herein shall become inoperative, or fail by reason of the unconstitutionality of any other provision hereof, and all provisions of this Ordinance are declared to be severable for that purpose.

Section 7. **Effective Date.** This Ordinance shall become effective and in full force at 12:01 a.m. on the thirty-first day after its passage.

The foregoing Ordinance was duly and regularly introduced at a regular meeting of EAST BAY MUNICIPAL UTILITY DISTRICT held on April 14, 2015, at the offices of said District, 375 - 11th Street, Oakland, California, and thereupon, after being read, further action was scheduled for the regular meeting of said Board of Directors held at the same place on April 28, 2015, at which time the Ordinance was finally adopted. An amendment to the foregoing Ordinance was duly and regularly introduced at a regular meeting of EAST BAY MUNICIPAL UTILITY DISTRICT on August 8, 2017, and thereupon, after being read, further action was scheduled for the regular meeting of said Board of Directors on September 12, 2017, at which time the Board of Directors requested additional amendments to the Ordinance. Accordingly, a continued second reading was scheduled for the regular meeting of the Board of Directors on September 26, 2017, at which time the Amended Ordinance was finally adopted to be effective on October 27, 2017.

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ORDINANCE NO. 373-21

EXCESSIVE WATER USE PENALTY ORDINANCE

Introduced by Director McIntosh ; Seconded by Director Young

WHEREAS, California Constitution article X, section 2 and California Water Code section 100 provide that because of conditions prevailing in the state of California (the "State"), it is the declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable, the waste or unreasonable use or unreasonable method of use of water shall be prevented, and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare; and

WHEREAS, pursuant to California Water Code section 106, it is the declared policy of the State that the use of water for domestic use is the highest use of water and that the next highest use is for irrigation; and

WHEREAS, Chapter 3.3 of Division 1 of the California Water Code ("the Excessive Water Use Law") prohibits excessive water use by a residential customer in a single-family residence or by a customer in a multiunit housing complex in which each unit is individually metered or submetered by the urban retail water supplier during time periods specified in that statute; and

WHEREAS, the Excessive Water Use Law requires the East Bay Municipal Utility District ("District") to establish a method to identify and discourage excessive water use, which method may include establishing or amending an excessive water use ordinance, and further requires that any such ordinance (i) identify excessive water use by those subject to the Excessive Water Use Law's prohibition on excessive water use based on volumetric thresholds to be established by the District in the exercise of its discretion based upon consideration of factors which may include average daily use and rate of evapotranspiration, among others, (ii) penalize persons who use water excessively in violation of such ordinance, and (iii) conform to the requirements of the Excessive Water Use Law in other respects; and

WHEREAS, in compliance with the requirements of the Excessive Water Use Law and because of the declared policy of the State, the District hereby finds and determines that it is necessary and appropriate for the District to adopt, implement, and enforce this Ordinance defining, prohibiting, and penalizing excessive water use to reduce the quantity of discretionary water use within the District to ensure that there is sufficient water for non-discretionary needs; and

WHEREAS, it has been estimated that more than half of residential water use in many parts of California is used to irrigate lawns and outdoor landscaping; and

WHEREAS, the District has determined that during water shortages, the use of outdoor water for irrigating lawns and outdoor landscaping is not essential to public health and safety, and may be an unreasonable use, an unreasonable method of use, or a waste of water; and

WHEREAS, during a water shortage the greatest reductions in water usage may best be achieved by single-family residential customers by reducing the amount of discretionary, nonessential use of potable water to irrigate lawns and landscaping; and

WHEREAS, water use by commercial and industrial customers is generally non-discretionary in that water is almost exclusively used for purposes such as product development, production processes and other market conditions, and as such, penalties are not likely to result in increased conservation; and

WHEREAS, commercial and industrial customers are not as homogenous in their water use as single-family residential customers; rather their water use varies across all business types and industries; and

WHEREAS, water use by commercial customers and multi-family customers without individual meters is not homogeneous or discretionary, and

WHEREAS, irrigation and mixed use customers participate in other programs that have resulted, and continue to result, in reductions in their use of potable water, including, but not limited to the option of using lower-cost recycled water; and

WHEREAS, the current Statewide statutory standard for indoor residential water use is 55 gallons per person per day, equivalent to approximately nine hundred cubic feet per month for a four-person household and said standard is expected to become more stringent over time; and

WHEREAS, outdoor water use accounts for approximately one-third of total single-family residential water use within the District's service area based upon 2010-2019 metered consumption data as described in the District's 2020 Urban Water Management Plan; and

WHEREAS, based on historical average daily use within the District's service area, each volumetric threshold of excessive water use defined in this Ordinance is many times higher than the average volume of water used by single-family customers in the District's service area, only a small percentage of whom would be at risk of violation of this Ordinance; and

WHEREAS, based on the typical rate of evapotranspiration within the warmer inland portions of the service area where single-family customers' irrigation needs tend to be more intensive, each volumetric threshold of excessive water use defined in this Ordinance will provide an adequate supply of water for any single-family customer to meet its reasonable indoor needs and irrigate, at minimum, several thousand square feet of landscaping with minimal plant stress and without risk of violation of this Ordinance; and

WHEREAS, the District's water shortage contingency plan ("Contingency Plan") provides for a staged system of planned water shortage response actions and includes guidelines which recommend mandatory water use reductions during a Stage 2, Stage 3, or Stage 4 drought; and

WHEREAS, the Governor of the State of California may from time to time issue a proclamation of a state of emergency under the California Emergency Services Act based on local drought conditions; and

WHEREAS, because the Excessive Water Use Law applies when either (i) the District has moved to a stage of action under its Contingency Plan that requires mandatory water use reductions, or (ii) the District is affected during a period for which the Governor has issued a proclamation of a state of emergency based on local drought conditions, it is necessary and appropriate that this Ordinance's prohibitions, requirements, and penalties be enforceable when the Board of Directors finds either condition to exist; and

WHEREAS, it is appropriate for this Ordinance to quantify excessive water use thresholds for each drought stage because the District, informed by the Contingency Plan, ordinarily selects a drought stage to implement based on the severity of water supply conditions and therefore it is feasible to predict the conditions likely to prevail during each drought stage and, consequently, the maximum reasonable amount of use for each drought stage in such conditions; and

WHEREAS, it is infeasible to predict the water supply conditions likely to prevail during a State-proclaimed local drought emergency, as such proclamations are not within the District's control and may be made based on factors other than the District's water supply conditions, and accordingly it is appropriate to defer quantification of excessive water use thresholds applicable during such a proclamation until the Board has an opportunity to assess the District's water supply conditions and other relevant information; and

WHEREAS, because it is the District's experience that a customer's first exceedance of an excessive water use threshold sometimes results from a previously undetected leak rather than willfully excessive water use, and because the purposes of this Ordinance are better served by allowing a reasonable opportunity to address leaks rather than penalizing non-willful water use, and to avoid incurring unnecessarily transactional costs to handle potentially meritorious penalty appeals, it is appropriate to deem a single-family residential customer to be in violation of this Ordinance and subject to penalties only upon the second or subsequent exceedance during a drought cycle; and

WHEREAS, for the reasons stated above, the District has not established in this Ordinance any mandatory water use restrictions or associated penalties on any commercial or industrial customers, or multi-family customers without individual meters; and

WHEREAS, to achieve District compliance with the Excessive Water Use Law, and to secure the public's compliance with the excessive water use prohibition imposed by that statute and by this Ordinance, and to assure important public policy objectives are achieved for the reduction of water usage during significant water shortages, the District shall establish and impose thresholds and penalties for excessive water usage by single-family residential customers as provided by this Ordinance when the above-described circumstances exist;

BE IT ENACTED by the Board of Directors of the East Bay Municipal Utility District:

Section 1. **Recitals.** The District hereby finds and determines that the above recitals are true and correct and are incorporated herein.

Section 2. **Findings.** The Board of Directors finds and determines that because of the prevailing conditions in the State, and the declared policy of the State, it is necessary and appropriate for the District to adopt, implement, and enforce mandatory water use restrictions under certain conditions specified herein. The Board further finds and determines that this Ordinance furthers important State and District policies of encouraging water conservation and protecting water resources in the interest of the people and for the public welfare. The Board further finds and determines that during periods of drought, water shortages, and water shortage emergencies, the general welfare requires that the District maximize the beneficial use of its available water resources to the extent that it is capable, and that the waste or unreasonable use, or unreasonable method of use of water shall be prevented and the conservation of water is to be extended with the view to the reasonable and beneficial use thereof in the interests of the people of the District and for the public health, safety, and welfare.

Section 3. **Water Use Restrictions and Regulations.** The Board of Directors hereby adopts and authorizes the following water conservation and water shortage rules and regulations governing the use of water by single-family residential customers:

A. DEFINITIONS

For the purposes of this Ordinance, the following words, terms, and phrases shall have the following meanings:

"Appellant" means the person appealing the imposition of a penalty imposed by the District for a violation of this Ordinance.

"Billing cycle" means the billing period in which a single-family residential customer's water use is measured for purposes of calculating the amount of the water service fees that shall be collected for the water service provided.

"Board" or "Board of Directors" means the Board of Directors of the District.

"CCF" means one hundred cubic feet. The District bills for water use are based on units, with each unit equaling one (1) CCF. Each unit equals 748 gallons.

"Contingency Plan" means the District's water shortage contingency plan, including any supplement or amendment thereto.

"District" means the East Bay Municipal Utility District.

"Drought cycle" means any continuous and uninterrupted time period during which this Ordinance authorizes mandatory water use restrictions to be imposed, whether based on Stage 2, Stage 3, Stage 4, State-mandated local drought, or any combination or sequence thereof.

"Excessive Water Use Law" means Chapter 3.3 of Division 1 of the California Water Code, including any amendments thereto.

"General Manager" means the General Manager of the District or the General Manager's authorized designee.

"Ordinance" means this Excessive Water Use Penalty Ordinance, including any amendments hereto.

"Person" means any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust, organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the District, or the manager, lessee, agent, servant, officer or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

"Potable water" means that water furnished to the single-family residential customer that complies with federal and State drinking water regulations and standards, or any other applicable standards, for human consumption.

"Rules and regulations" means the rules and regulations governing the amount of water that may be used by a single-family residential customer during an applicable water shortage stage, and any terms and conditions respecting restrictions on the use, method of use, and consumption of water in effect during an applicable water shortage stage as set forth in this Ordinance.

"Single-family residential customer" means a person who, according to the District's records, has a single-family residential account or a multi-family residential account with a business classification code 8800, and receives water service or recycled water service to a single-family residence or a multi-family residence that is individually metered or submetered by the District.

"Stage 2" means the stage at which the District has determined that a significant water supply shortage exists and mandatory reductions in water use are required to achieve a reduction in water usage by amounts as set forth herein and declared by the Board of Directors, or as may be established from time-to-time in accordance with the Contingency Plan.

"Stage 3" means the stage at which the District has determined that a severe water supply shortage exists and mandatory reductions in water use are required to achieve a reduction in water usage by amounts as set forth herein and declared by the Board of Directors, or as may be established from time-to-time in accordance with the Contingency Plan.

"Stage 4" means the stage at which the District has determined that a critical water supply shortage exists and mandatory reductions in water use are required to achieve a reduction in water usage by amounts as set forth herein and declared by the Board of Directors, or as may be established from time-to-time in accordance with the Contingency Plan.

"State" means the state of California, including any department or regulatory agency thereof.

"State-proclaimed local drought" means a condition that commences upon occurrence of both of the following events: (i) the Governor of the State has issued a proclamation of a state of emergency under the California Emergency Services Act based on local drought conditions, and (ii) the District's Board has determined the District is affected by the proclaimed emergency. A State-proclaimed local drought may exist regardless of whether a Stage 2, Stage 3, or Stage 4 drought exists. A State-proclaimed local drought will cease to exist upon the first occurring of the following events; (i) the Governor terminates the relevant state of emergency, or (ii) the District's Board determines the District is no longer affected by the proclaimed emergency.

"Water shortage stage" or "stage" means Stage 2, Stage 3, or Stage 4.

B. REDUCTIONS IN WATER SUPPLY

1. **Reductions in Water Supply.** If the rules and regulations set forth in this Ordinance are inadequate to protect the District's potable water supply, the Board of Directors reserves the right to implement further mandatory rules and regulations to reduce the amount of water used within the District. The rules and regulations are necessary to respond to any significant reductions to the District's water supply as a result of drought, natural disasters, regulatory action, and planned or unplanned potable water shortages.

2. **Application.** The provisions of this Ordinance shall apply to all single-family residential customers using potable water within the District.

C. DECLARATION AND NOTICE OF WATER SHORTAGE STAGES

1. **District Water Supply.** The General Manager shall monitor the projected supply and demand for water by the District's customers during periods of a water shortage or drought and shall recommend to the Board of Directors the extent of the conservation measures, including rules and regulations, required through the implementation and/or termination of particular water shortage stages to prudently plan for supplying water to its customers. The General Manager will recommend the appropriate water shortage stage of response to a water shortage based on the best information available at the time.

2. **Declaration of Water Shortage Stages.** The declaration of any water shortage stage and applicable rules and regulations shall be made by the Board of Directors.

a. The declaration shall become effective immediately upon adoption by the Board of Directors.

b. Any penalties authorized to be imposed during the declared water shortage stage may be imposed on any single-family residential customer as authorized by Section 3.F.1 or other applicable legal authority.

3. **Due and Proper Notice.** Upon the adoption of this Ordinance, due and proper notice shall be deemed to have been given each and every single-family residential customer supplied water within the District of the rules and regulations governing the water shortage stages as described herein, the applicable rules and regulations that will be in effect during the specified stages, and any penalties that may be imposed for violations of such rules and regulations.

D. IMPLEMENTATION OF WATER SHORTAGE STAGES

1. **Recommendations by the General Manager.** As water supply conditions change, the General Manager may return to the Board of Directors to recommend, as appropriate, revising or terminating the appropriate water shortage stage, and any applicable rules and regulations.

2. **Order of Stages.** It shall not be necessary to implement any water shortage stage prior to another; the water shortage stages may be implemented in any reasonable order and shall continue to be in effect until the Board makes a determination to terminate the applicable water shortage stage.

3. **Water Supply Conditions.** The District will implement an appropriate water shortage stage and rules and regulations based on current and projected water conditions. Higher stages and/or additional rules and regulations may be implemented as water shortages continue and/or if single-family residential customers' responses to the rules and regulations then in effect do not bring about desired water savings.

4. **Cumulative Impacts.** Rules and regulations, penalties and enforcement will build on each other as water shortage stages advance.

5. **Actions or Restrictions by the State.** If the State, through executive action, emergency legislation or other actions, imposes conditions, requirements, or procedures that are not included in this Ordinance, the General Manager is authorized to implement such rules and regulations as are reasonably required to bring the District's actions in each stage into functional conformity with such conditions, requirements, or procedures.

6. **Public Outreach.** When the Board of Directors declares a water shortage stage, any or all of the following public outreach measures may be implemented:

a. The District may notify the general public, stakeholders, elected officials, and other key decision-makers regarding the water shortage stage, actions to be taken, and customer demand reduction goals.

b. The public at large will be informed of the water shortage stage, customer demand reduction rules and regulations, and other actions the District will be taking to reduce the demand for water within the District. Communications may occur through, but are not limited to, any of the following: billing inserts; special mailings; telephone contact; e-mail; roadway signage; billboards; home water reports; telephone on hold messages; water conservation booths and other communication venues in the community; workshops; community association meetings; newsletters; and education programs, etc. Literature appropriate to the water shortage condition and stage, conservation methods, and water-savings devices may be made available to the public.

c. The use of all forms of media may be employed by the District. This includes public service announcements on radio and cable television, social media and earned media, and advertisements in local newspapers.

d. The District's web site, www.ebmud.com, will be the central location for messaging and communications with single-family residential customers regarding the applicable water shortage stage and the rules and regulations governing the use of water then in effect.

E. RULES AND REGULATIONS

1. **Rules and Regulations are Mandatory.** Any rules and regulations adopted during a water shortage stage are mandatory.

2. **Violations of Rules and Regulations.** Violations of any rules and regulations are subject to civil and administrative penalties and remedies as provided for in this Ordinance.

3. **Stage 2 Mandatory Water Use Restrictions.** After a Stage 2 has been declared, each single-family residential customer who has had a potable water account with the District shall be limited to using potable water as follows:

a. If the customer's billing cycle is fifty-five (55) to sixty-eight (68) days, the customer shall be limited to using one hundred thirty-two (132) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

b. If the customer's billing cycle is twenty-five (25) to thirty-eight (38) days, the customer shall be limited to using sixty-six (66) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

4. **Stage 3 Mandatory Water Use Restrictions.** After a Stage 3 has been declared, each single-family residential customer who has had a potable water account with the District shall be limited to using potable water as follows:

a. If the customer's billing cycle is fifty-five (55) to sixty-eight (68) days, the customer shall be limited to using one hundred eighteen (118) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

b. If the customer's billing cycle is twenty-five (25) to thirty-eight (38) days, the customer shall be limited to using fifty-nine (59) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

5. **Stage 4 Mandatory Water Use Restrictions.** After a Stage 4 has been declared, each single-family residential customer who has had a potable water account with the District shall be limited to using potable water as follows:

a. If the customer's billing cycle is fifty-five (55) to sixty-eight (68) days, the customer shall be limited to using eighty (80) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

b. If the customer's billing cycle is twenty-five (25) to thirty-eight (38) days, the customer shall be limited to using forty (40) CCF of potable water per billing cycle for indoor and outdoor water purposes for the customer's property.

6. **State-Proclaimed Local Drought Mandatory Water Use Restrictions.** If the Governor issues a proclamation of a state of emergency under the California Emergency Services Act based on local drought conditions, the District's Board may, in the reasonable exercise of its discretion, adopt a resolution determining that the District is affected by the proclaimed emergency. If the Board adopts such a resolution, it shall in that resolution establish a definition of excessive water use. The Board may revise the definition from time to time by subsequent resolution. The definition of excessive water use shall be expressed in CCF and may distinguish between longer and shorter billing cycles. The Board may consider any or all relevant facts and circumstances when defining excessive water use, including but not limited to: (i) average daily use, rate of evapotranspiration, and other factors set forth in the Excessive Water Use Law, and (ii) water supply conditions which do or may apply to the District during the State-proclaimed local drought emergency. Each single-family residential customer who has had a potable water account with the District shall be limited to using potable water in the applicable amount set forth in the adopted resolution while the State-proclaimed local drought emergency is in effect.

7. **Exception—Implementation of Alternative Actions.** Notwithstanding any other provision of this Ordinance, the mandatory water use restrictions of Section 3.E.3, 3.E.4, and 3.E.5 shall not apply if the Board of Directors, in connection with a drought stage declaration, implements an alternative action in lieu of requiring mandatory reductions in water use as may be authorized by law.

F. VIOLATIONS, PENALTIES, AND OTHER REMEDIES

1. **Administrative Penalties for Exceeding Mandatory Water Use Restrictions.** Except as provided in Section 3.F.2, any potable water used by a single-family residential customer in excess of the mandatory rules and regulations then in effect during a billing cycle and described in Section 3.E.3, 3.E.4, 3.E.5, or 3.E.6 shall be:

a. deemed a waste of water;

b. a violation of the District's rules and regulations; and

c. subject to a civil administrative penalty of two dollars ($2.00) per CCF, or portion thereof, of water delivered to the property in excess of the mandatory rules and regulations.

2. **Exception—No Violation for First Exceedance During Drought Cycle.**

a. Notwithstanding any other provision of this Ordinance, a customer neither violates this Ordinance nor is subject to penalties hereunder upon the customer's first instance during a drought cycle of exceeding an applicable mandatory water use restriction during a billing cycle. In such event the District shall notify the customer in writing of the exceedance and disclose that further exceedances will violate this Ordinance and subject the customer to penalties.

b. The Board hereby finds and determines that a customer's first exceedance of an applicable mandatory water use restriction during a drought cycle does not constitute a use of water in a manner inconsistent with District water usage policies for the purposes of California Government Code section 6254.16(d).

3. **Payment of Penalties.** Any penalty imposed pursuant to Section 3.F.1 shall be:

a. applicable to all potable water used in excess of the water use restrictions imposed by the mandatory rules and regulations after the declaration of the applicable water shortage stage;

b. collected on the single-family residential customer's water bill;

c. due and payable as part of the water bill charges;

d. the responsibility of the single-family residential customer of record for the property where the violation occurred; and

e. paid in addition to the water service fees the District imposes for the potable water delivered to the property where the violation occurred.

4. **Non-payment of Penalty.** Non-payment of any penalty imposed pursuant to this Ordinance shall be subject to the same remedies available to the District as for non-payment of basic water rates and shall afford the customer the same due process rights.

5. **Notice of Violation.** The receipt of a water bill with any applicable penalty shall serve as notice of violation of the District's rules and regulations herein.

6. **Other Remedies.** In addition to any other remedies provided in this Ordinance or available under applicable law, the District may, to the extent allowed by law, alternatively seek injunctive relief in the Superior Court or take enforcement action, including discontinuing or

appropriately limiting water service to any single-family residential customer, locking a service, or installing a flow restricting device, for violations of this Ordinance and applicable charges. All remedies provided herein shall be cumulative and not exclusive.

7. **Non-liability for Damage.** A single-family residential customer who violates this Ordinance assumes responsibility for injury to the single-family residential customer and/or other residents/occupants receiving service, including emotional distress and/or damage to the single-family residential customer's private water system and/or to other real or personal property owned by the single-family residential customer or by a third party resulting from the installation and operation of a flow restricting device or from termination of service. The single-family residential customer shall thereby be deemed to have:

a. waived any claim for injury or for damage to the single-family residential customer's property which the single-family residential customer may have otherwise have against the District; and

b. agreed to indemnify, defend, and hold the District harmless from claims by third parties for injury or property damage arising or claimed to arise out of the District's installation and/or operation of a flow restricting device or termination of water service.

8. **Suspension.** To the extent allowed by law, the Board may suspend or resume enforcement of this Ordinance, and/or the imposition of penalties hereunder, whenever it determines doing so is in the best interests of the District and its customers.

G. APPEAL PROCEDURES

1. **Filing an Appeal.** Any person who wishes to contest the imposition of an administrative penalty imposed by the District pursuant to this Ordinance shall comply with the following procedures:

a. The appellant shall pay all amounts due and owing on the appellant's water bill, except for any disputed penalty(ies) imposed by the District pursuant to this Ordinance.

b. The appellant shall submit an appeal request form to the designated representative of the District's Customer and Community Services Department no later than fifteen (15) calendar days from the date of the appellant's water bill for the billing cycle in which any penalty(ies) are imposed.

2. **Basis for Granting an Appeal.** As part of the appeal process, the appellant shall be provided with an opportunity to provide evidence that a basis exists to grant the appeal, and the District shall provide documentation demonstrating the excessive water use. An appeal may be granted under the following limited circumstances:

a. The amount of water delivered to the appellant's property did not violate the rules and regulations, as evidenced by a demonstrable malfunction in the meter serving the appellant's property or a billing error by the District.

b. The appellant demonstrates the water use is needed for a medical reason.

c. The appellant demonstrates a water leak occurred at the appellant's property during the billing cycle in which the penalty was imposed, resulting in water loss that did not benefit the appellant.

3. **Additional Documentation.** Additional documentation may be requested at the discretion of the District.

4. **District Response.** A response to the appeal request shall be provided by the District within thirty (30) calendar days from receipt of the appeal request form.

5. **Review or Denial of Appeal Request.** If an appeal request is denied, the appellant may resubmit the appeal request form for review by the District's Manager of Customer and Community Services or the Manager's designee.

a. Any request for further review shall be submitted no later than fifteen (15) calendar days from the denial of the appeal. The appellant may request to provide evidence in writing or in person in support of an appeal.

b. The decision by the District's Manager of Customer and Community Services, or the Manager's authorized designee, shall be final.

c. Within ten (10) days after the denial of an appeal is deemed final, the appellant shall pay any disputed penalty(ies) imposed by the District.

d. The provisions of Section 1094.6 of the Code of Civil Procedure of the State of California shall be applicable to judicial review of the decision.

Section 4. **Repeal of Prior Ordinance.** Ordinance No. 364-15, entitled "Excessive Water Use Penalty Ordinance for Drought Stages 3 and 4," is repealed effective 12:01 a.m. on the thirty-first day after the passage of this Ordinance, and at that time and thereafter it shall be of no further force or effect.

Section 5. **Conflicting Provisions.** If provisions of this Ordinance are in conflict with each other, other provisions of the District's regulations or policies, any other resolution or ordinance of the District, or any State law or regulation, the more restrictive provisions shall apply.

Section 6. **Severability.** If any provision, section, subsection, sentence, clause or phrase or sections of this Ordinance, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the validity of the

remaining portions of this Ordinance shall not be affected, it being the intent of the Board of Directors in adopting this Ordinance that no portions, provisions, or regulations contained herein shall become inoperative, or fail by reason of the unconstitutionality of any other provision hereof, and all provisions of this Ordinance are declared to be severable for that purpose.

Section 7. **Effective Date.** This Ordinance shall become effective and in full force at 12:01 a.m. on the thirty-first day after its passage.

President

I HEREBY CERTIFY that the foregoing Ordinance was duly and regularly introduced at a regular meeting of EAST BAY MUNICIPAL UTILITY DISTRICT held on September 14, 2021, held by webinar and teleconference due to the COVID-19 pandemic and in accordance with Governor's Executive Order N-08-21, and thereupon, after being read, further action was scheduled for the regular meeting of said Board of Directors held at the same place on September 28, 2021, at which time the same was finally adopted by the following vote:

AYES: Directors Katz, McIntosh, Mellon, Patterson, Young and President Linney.

NOES: Director Coleman.

ABSENT: None.

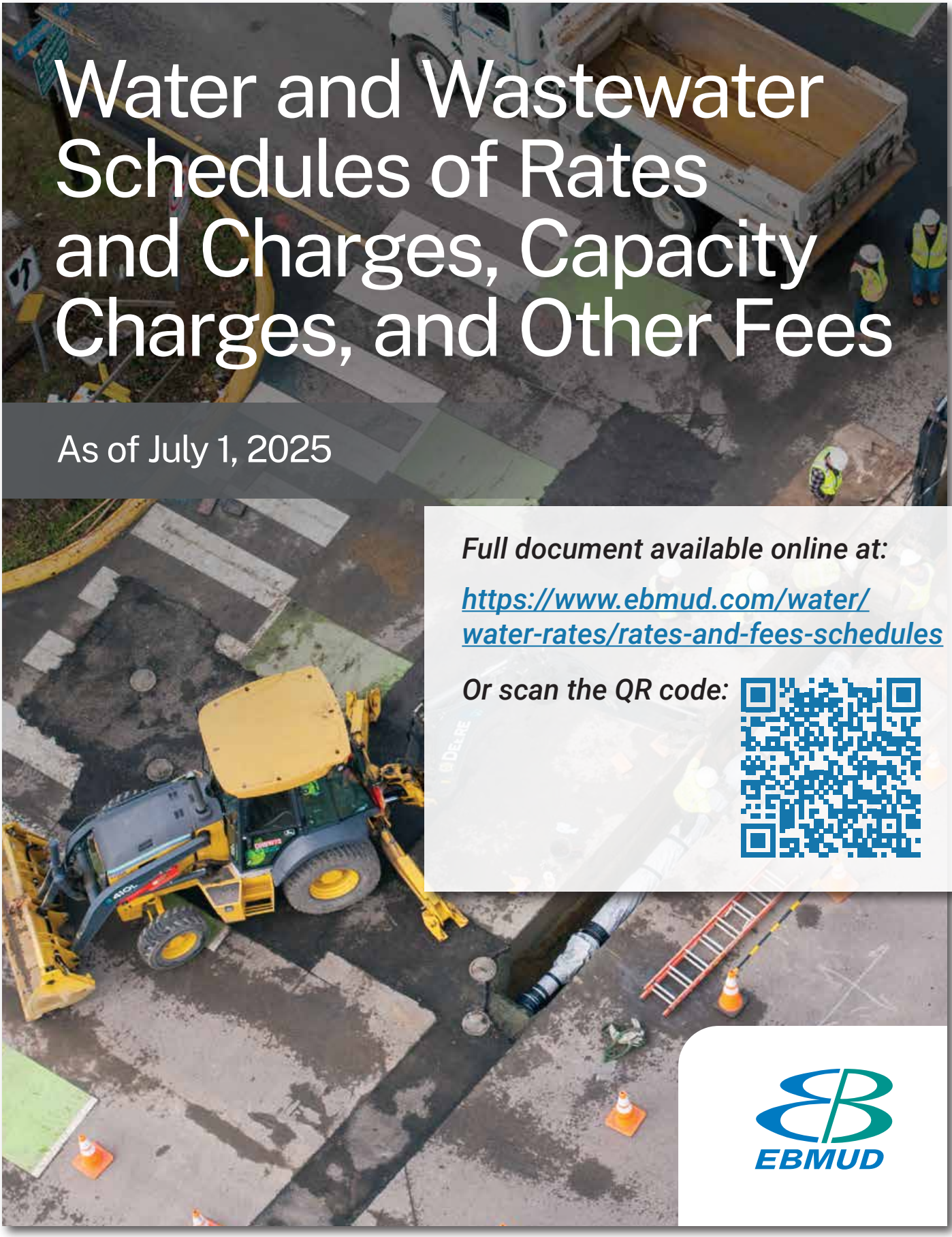
ABSTAIN: None.

ATTEST:

Secretary

APPROVED AS TO FORM AND PROCEDURE:

General Counsel



Water and Wastewater Schedules of Rates and Charges, Capacity Charges, and Other Fees

As of July 1, 2025

Full document available online at:

https://www.ebmud.com/water/water-rates/rates-and-fees-schedules

Or scan the QR code:

EBMUD

Appendix K

Glossary of Terms, Acronyms, & Units

Appendix K: Glossary of Terms, Acronyms, & Units

Selected Defined Terms

Consumption
metered water-use by customers

Demand or Total Demand
quantity of treated water delivered to the distribution system, interchangeable term with system demand

Drought Planning Sequence
three year hydrology sequence representing a worst case drought scenario derived from historical record

East-of-Hills
EBMUD's service area region east of the Oakland-Berkeley hills ridge

EBMUD Sphere of Influence
defines the area that can be served by EBMUD, as defined by the Local Agency Formation Commissions of Alameda and Contra Costa counties

EBMUD Ultimate Service Boundary
a boundary defined by EBMUD to define its limits of future annexation for extension of water service

Planning Level of Demand
the adjusted demand after applying cumulative conservation and cumulative recycled water savings achieved since implementation of the 1994 Water Conservation Master Plan. Planning level of demand also represents projected system demand

Recycled Water
wastewater treated to the secondary or tertiary level that can be used for approved purposes to offset potable water demand

Secondary Supplies
additional sources of water that EBMUD may seek to develop, outsides its primary Mokelumne supply, to help meet projected water demands, particularly during dry years

System Demand
quantity of treated water delivered to the distribution system, interchangeable term with demand or total demand

West-of-Hills
EBMUD's service area region west of the Oakland-Berkeley hills ridge

Acronyms & Units

AFY	Acre-Feet per Year
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
BARR	Bay Area Regional Reliability
CalWARN	California Water/Wastewater Agency Response Network
CAP	Customer Assistance Program
CCCSD	Central Contra Costa Sanitary District
CCF	Hundred Cubic Feet
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CII	Commercial, Industrial, and Institutional
CVP	Central Valley Project
CY	Calendar Year
DCP	Drought Communication Plan
DEM	Digital Elevation Model
DERWA	DSRSD-EBMUD Recycled Water Authority
DMP	Drought Management Program
DPR	Direct Potable Reuse
DPS	Drought Planning Sequence
DREAM	Demonstration Recharge Extraction and Aquifer Management
DSRSD	Dublin San Ramon Services District

Appendix

DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EBMUDSIM	EBMUD's water supply system simulation model
EBRPD	East Bay Regional Park District
EBRWP	East Bayshore Recycled Water Project
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EOT	Emergency Operations Team
FRWA	Freeport Regional Water Authority
FRWP	Freeport Regional Water Project
FY	Fiscal Year
GIS	Geographic Information System
GPCD	Gallons Per Capita Per Day
GPD	Gallons Per Day
GPF	Gallons Per Flush
IRWMP	Integrated Regional Water Management Plan
JSA	Joint Settlement Agreement
LADWP	Los Angeles Department of Water and Power
LAFCO	Local Agency Formation Commissions
LTRC	Long-Term Renewal Contract
LUD	Land-use Unit Demands
LVVWD	Las Vegas Valley Water District
MCDA	Mid-Cycle Demand Assessment
MGD	Million Gallons per Day
M&I	Municipal and Industrial
MOU	Memorandum of Understanding
MW	Megawatt
MWWTP	Main Wastewater Treatment Plant
NIMS	National Incident Management System
NRWRP	North Richmond Water Recycling Plant
NSJWCD	North San Joaquin Water Conservation District
PCWA	Placer County Water Agency
PHS	Public Health and Safety
RARE	Richmond Advanced Recycled Expansion
R-GPCD	Residential Gallons Per Capita Per Day
RWMP	Raw Water Master Plan
RWQCB	Regional Water Quality Control Board
SBx7-7	Senate Bill Number 7 (2009)
SCVWD	Santa Clara Valley Water District
SCWA	Sacramento County Water Agency
SD-1	Special District 1
SEMS	Standardized Emergency Management System
SFPUC	San Francisco Public Utilities Commission
SFR	Single Family Residential
SRVRWP	San Ramon Valley Recycled Water Program
SWRCB	State Water Resources Control Board
TAF	Thousand Acre-Feet
TDS	Total Dissolved Solids
UMRWA	Upper Mokelumne River Watershed Authority
USBR	United States Bureau of Reclamation
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
WCSP	Water Conservation Strategic Plan
WCWD	West County Wastewater District
WSCP	Water Shortage Contingency Plan
WTP	Water Treatment Plant
YBCA	Yuba County Water Agency

Draft
2025 Water Shortage Contingency Plan

EBMUD

Attachment 1 — Water Shortage Contingency Plan 2025

A.1 Water Shortage Contingency Plan Overview

Uncertainty is inherent in any future-oriented planning effort and is a driving factor in long-term water resources planning. Water supplies are constantly subject to uncertainties which directly affect the amount and timing of the sources of water available. The Water Shortage Contingency Plan 2025 (WSCP) provides a framework to help address water shortages that may occur. As noted in Chapter 2 of UWMP 2025, there are many factors that create a high degree of unpredictability on both the supply and demand side, and with that understanding, EBMUD's WSCP considers a range of possible future scenarios considering both aspects of water resources, demand, and supply. This approach is a shift from simply predicting and planning for a singular outcome. The WSCP anticipates a wide range of potential future outcomes, leading to a more resilient portfolio of response actions to manage changing conditions in an uncertain future.

A.1.1 WSCP Purpose

EBMUD is responsible for providing a reliable water supply to approximately 1.5 million people in its service area. As discussed in Chapters 2 and 4, EBMUD has implemented and is planning to implement numerous projects to ensure the reliability of its water supply, including developing supplemental water supply facilities, coordinating and planning with other agencies on potential water purchases, and strengthening the resilience of critical infrastructure.

In addition to these efforts, EBMUD recognizes the need to have plans and procedures in place to respond to water shortages that may occur. Droughts, earthquakes that damage the water infrastructure, Delta floods that impact aqueducts, power outages, fire, and other emergencies could impact EBMUD's ability to supply water to its customers. The purpose of the WSCP is to establish a coordinated response to these situations and to guide EBMUD's planning and operational decisions through careful assessment and management of the water supply.

The WSCP outlines a process for collecting information on water supply availability, assessing conditions, determining fiscal actions, allocating resources, enforcing regulatory water use restrictions, monitoring customer response, and planning and implementing drought communications. The WSCP describes EBMUD's actions to implement and enforce regulations and restrictions for managing a water shortage when it declares a water shortage emergency under the authority of the California Water Code. It also describes EBMUD's planned actions to manage supply and demand before and during a water shortage to ensure a reliable water supply. In an emergency, the primary function of EBMUD's water supply system is to meet essential public health, safety, and emergency needs.

The WSCP describes emergency readiness and responses, including efforts to coordinate with local, county, regional, state, and federal agencies. Section A.2.5 on Emergency Preparedness describes EBMUD's roles and responsibilities to provide mutual assistance and highlights coordination with state agencies. This coordination aligns with the state's strategy to prepare for, respond to, and recover from droughts and water shortages as discussed in the California Water Plan Update 2023 (Update 2023). The priorities of Update 2023 that align with EBMUD's include:

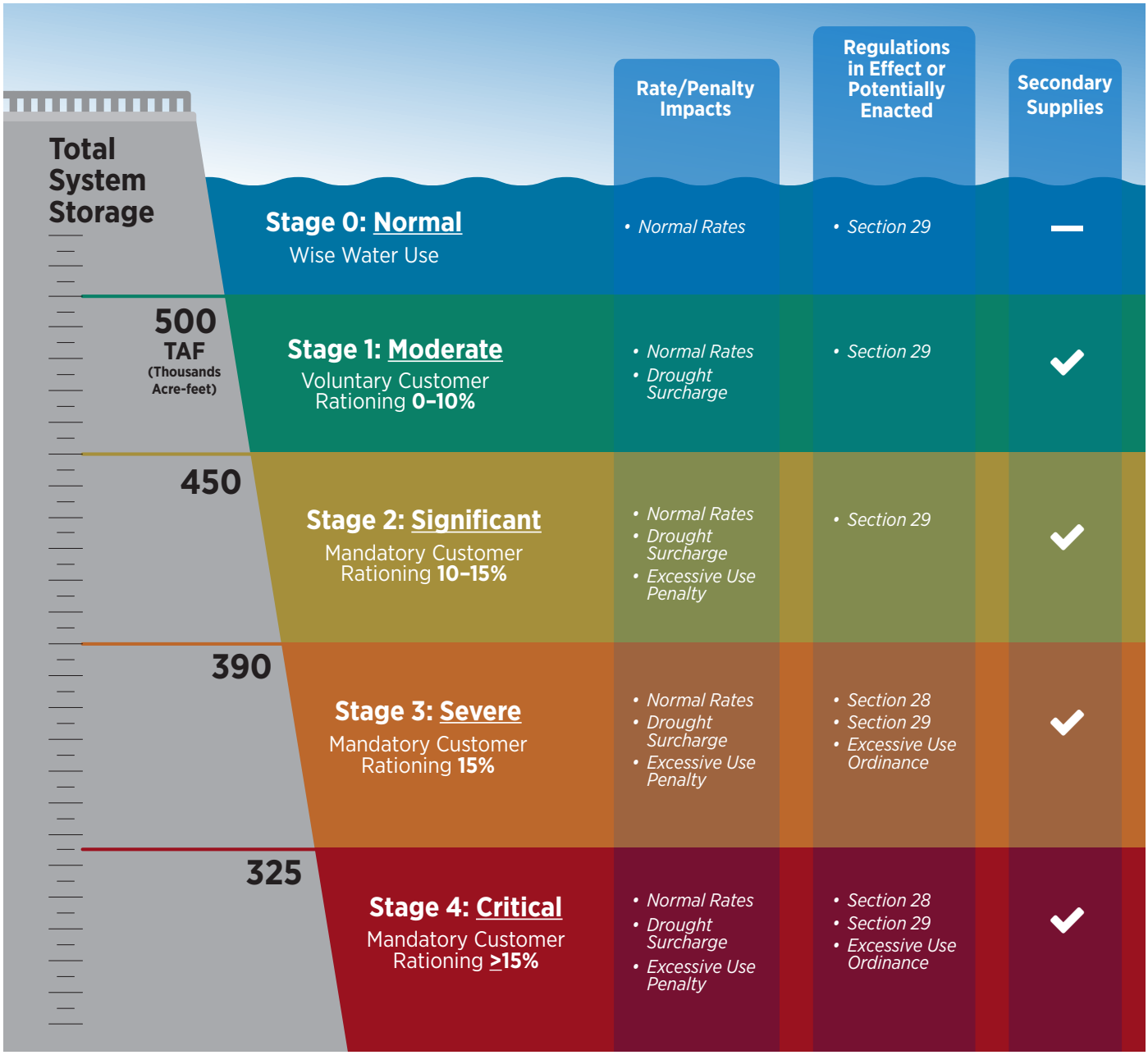
- Improving long-term drought resilience by taking actions such as advancing infrastructure modernization and identifying water storage opportunities;
- Considering climate adaptation where the plan emphasizes the need for climate resilience and adaptation strategies to address the increasing severity of drought conditions;
- Achieving equity in water management by affirming the right to safe, clean, and affordable water and expanding funding to assist customers; and
- Targeting conservation as a long-term practice by developing strategies to meet efficiency targets.

A.1.2 WSCP Requirements

Section 10632 of the California Water Code requires Urban Water Management Plans (UWMPs) to include an urban water shortage contingency analysis. The relevant section of the Code is provided in Appendix C. As required by the Water Code, in 1992 EBMUD adopted its first WSCP, and has continued to refine and modify the WSCP in response to changing conditions. The following key changes have been made over the past 15 years:

- 2010 UWMP - Updated to reflect the 2007-2010 drought period, the completion of the Freeport Regional Water Project (FRWP), and numerous other changes.
- 2015 UWMP - The Drought Management Program (DMP) Guidelines and ordinances on excessive use and water theft were revised to incorporate lessons learned from the 2014-2016 drought.
- 2018 – The water shortage analysis was replaced with several prescribed elements required under new legislation.
- 2020 UWMP – The DMP was modified to integrate the requirements of the 2018

Figure W-1 **Drought Management Program Guidelines**



legislation and incorporate additional lessons learned from the 2014-2016 drought.

No new legislation was introduced during this cycle (2020 to 2025) that would require modifications to the UWMP.

A.2 Water Shortage Stages and Shortage Response Actions

EBMUD's DMP Guidelines provide a framework to manage customer demand and pursue a diversified portfolio to provide 85 percent reliability for EBMUD customers while continuing to meet all instream flow obligations on the lower Mokelumne River. The DMP guided EBMUD in managing demand and supply during both the 2014-16 and 2020-22 drought periods when mandatory and voluntary rationing was imposed and water supplies were limited. During these recent droughts, EBMUD faced unanticipated constraints and updated and implemented measures to assist with demand and supply management.

EBMUD declares different drought stages based upon projected end-of-September Total System Storage (TSS) with the Normal Stage corresponding to a normal water year condition in which no demand or supply management measures need to be implemented. Each stage thereafter is associated with recommendations for requesting or purchasing secondary water supplies that could be obtained as well as level of customer rationing that may be requested.

EBMUD performed modeling to better understand the effects of various actions on operations, in-stream flow requirements, and customer rationing. The results provided a basis to develop revised drought stages and associated response actions as outlined in Figure W-1. The DMP was revised to reflect the need to have flexibility to acquire secondary water supplies earlier in case conditions worsen.

Figure W-1 shows the link between drought stages, rates, penalties, and regulations in effect. Beginning in Stage 1, EBMUD may apply a drought surcharge to help recover costs, as discussed in more detail in the Financial Consequences of WSCP. In Stages 3 and 4, the Excessive Use Penalty Ordinance and Section 28 of EBMUD's Regulations Governing Water Services may also come into effect.

Table W-1 shows the types of programs and actions that EBMUD might undertake at each stage of drought. The triggers to implement water shortage response actions are defined by the TSS.

The availability of water to EBMUD may be impacted depending on the nature of an emergency. In such cases, EBMUD would determine the applicable shortage response actions as outlined in this WSCP.

Water Code Section 10632 requires the WSCP to provide water supply shortage levels at 10, 20, 30, 40, 50, >50 percent thresholds. Urban water suppliers with existing water shortage contingency plans may meet this requirement by cross referencing the water utility's existing water shortage stages to the State's six standard water shortage levels.

In general, EBMUD begins to bring in secondary supply water and requests customers to reduce demand when the total operational storage is reduced by almost one-third.

Table W-2 presents EBMUD's water shortage stages cross-referenced with the State's new standardized water shortage levels.

Quantifying the reduction in the gap between supply and demand due to the implementation of the response actions as outlined in Table W-2 is difficult. Response actions are adjusted based on the achieved level of rationing and to meet EBMUD's policy of providing 85% reliability to its customers. At each shortage stage, EBMUD considers augmenting its supplies as outlined in Figure W-1 with the quantities determined based on antecedent conditions and projected demand. Response actions to close the supply and demand gap as well as quantify the augmented supplies needed that year are outlined in annual water supply availability assessments from Section A.4.

A.2.1 Water Supply Shortage Mitigation

EBMUD has invested extensively in preparations for water supply shortages. In addition to encouraging conservation as discussed in Chapter 6, EBMUD has developed a portfolio of water supply projects to help supplement any shortage in its water supply. These projects, described in Chapter 4, will not only provide customers with relief from frequent and severe water rationing during multi-year droughts, but will also help EBMUD respond to other adverse situations or emergencies that lead to water shortages.

EBMUD has also invested in projects to provide operational flexibility and improve its ability to recover following an emergency. However, during extreme and catastrophic water shortage

Table W-1 **Drought Management Program Elements by Stage for TSS Scenario**

Drought Stage	Drought Program Elements Considered
Stage 1 Moderate Voluntary 0 – 10% Rationing	Establish voluntary water use reduction goals and determine use restrictions
	Initiate a public information campaign to explain the water supply situation and customer responsibilities
	Outreach and education tools may utilize EBMUD's website, social media, media outreach, advertising, workshops and events, bill inserts and bill messaging
	Promote community water waste hotline and online water waste reporting
	Additional messaging through Water Reports, IRIS water budgets, Pipeline, top of bill messages
	Activate proactive leak outreach (e.g., leak alert follow-up calls to residential customers, leak calls to commercial customers)
	Expand water loss control program (e.g., acoustic loggers, leak detection crews)
Stage 2 Significant Mandatory 10 – 15% Rationing	In addition to elements of Stage 1:
	Apply stage 2 surcharge
	Institute excessive use penalty for Single Family Residential customers with use > 66 hundred cubic feet /month
	Continued outreach and education, expand use of webinars, social media content, advertising
	Provide additional online EBMUD store ordering (e.g., restaurant and hotel tent cards, stickers with water conservation messaging)
	Engage with regional and state water agency partners on proactive planning for extended water shortage response
	Send additional notifications to customers about mandatory prohibitions, surcharges and penalties.
Stage 3 Severe Mandatory 15% Rationing	In addition to elements in stage 2:
	Increase participation and outreach to community meetings, events, and various workshops
	Enact Section 28 of Regulations; specific prohibitions on water use.
	Apply stage 3 surcharge
	Advanced Enhanced media outreach / response
	Advanced Enhanced customer outreach & education
	Consider water saving campaigns, challenges
	Additional staff resources for leak alert calls, water waste investigations
	Institute excessive use penalty for Single Family Residential customers with use > 59 hundred cubic feet ccf/month
	Initiate supersaver recognition program
	Engage with DWR and SWRCB on proactive planning for extended water shortage response
	Robocalls or text alerts to customers to alert them to water shortage emergency situation, rationing level, prohibitions
Stage 4 Critical Mandatory ≥15% Rationing	In addition to elements in Stage 3:
	Provide field enforcement of regulations and water use restrictions
	Apply stage 4 surcharge
	Institute excessive use penalty for Single Family Residential customer with use > 40 ccf/month
	Board outreach to city and county officials offering conservation presentations, resources
	Deploy water waste patrol units

Table W-2 **State's Shortage Levels Cross Referenced with EBMUD's Shortage Stages and Ranges**

State's Standard Shortage Levels	State's Percent Shortage Range	Suppliers Shortage Levels	EBMUD's Percent Shortage Range
1	Up to 10%	EBMUD Stage 1 - Moderate; Regulations and restriction on water use are in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	Up to 10%
2	Up to 20%	EBMUD Stage 2 - Significant; Regulations and restriction on water use are in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	10 to 22%
3	Up to 30%	EBMUD Stage 3 - Severe; Regulations and restriction on water use are in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	22 to 35%
4	Up to 40%	EBMUD Stage 4 - Critical; Regulations and restriction on water use are in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	>35%
5	Up to 50%	Stage 4 - Critical; Regulations and restriction on water use is in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	>35%
6	>50%	Stage 4 - Critical; Regulations and restriction on water use are in effect. Refer to UWMP Attachment 1-WSCP Table W-1 and Figure W-1.	>35%

conditions, EBMUD may need to explore short-term, temporary options to augment its supply. Temporary secondary water supply options include:

- Drawing from reserve supplies (terminal reservoir standby storage); and
- Pursuing emergency transfers or exchanges.

A.2.2 Water Reserve Drawdown

EBMUD's terminal reservoir storage generally provides a 180-day (6-month) emergency standby reserve in the event of outages or failure of one or more of the Mokelumne Aqueducts. The local terminal reservoir system has treated and raw water total capacity of 150,380 acre-feet (AF).

EBMUD has interties with the San Francisco Public Utilities Commission (SFPUC), City of Hayward (Hayward), Dublin San Ramon Services District (DSRSD), and Contra Costa Water District (CCWD) that can be used during an emergency to reduce demand on the local reservoirs or following an emergency to help EBMUD's recovery in re-establishing storage levels as described in greater detail below.

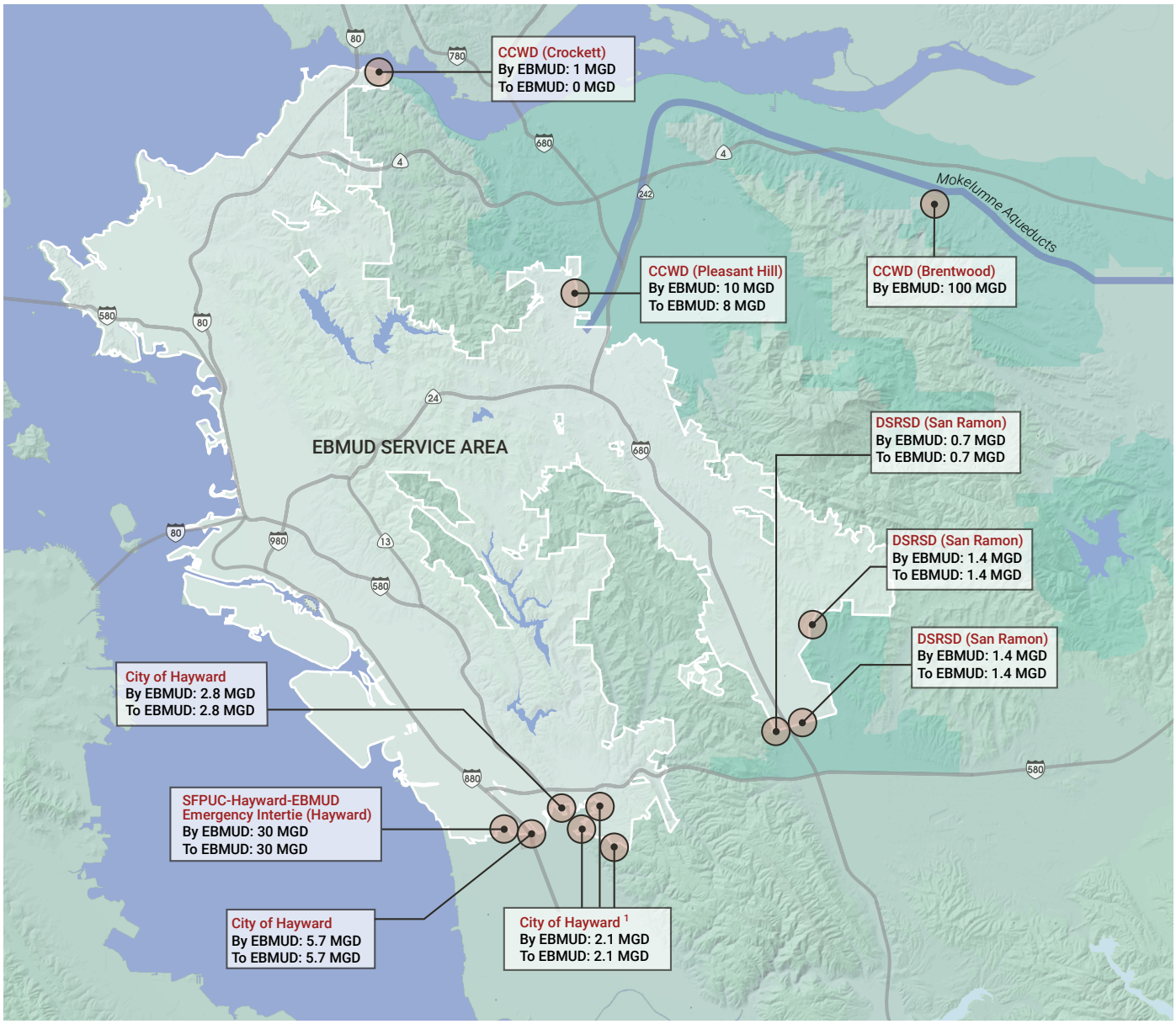
A.2.3 Interties & Agreements for Transfers & Exchanges

EBMUD continues its efforts to formulate and to support mutual actions, including the development of interties that improve water quality and supply reliability for the Bay Area. As a partner agency in providing mutual aid, EBMUD has limited, short-term water sharing agreements for emergencies with several neighboring agencies, including SFPUC, Hayward, DSRSD, and CCWD. Transfers/exchanges under these agreements would be made only for a short-term period of one year or less as these agreements provide an alternate water source during planned facility outages and for emergency mutual aid to the parties, but do not apply to shortages due to high demand or droughts. Figure W-2 presents a map of these emergency interties for transfers/exchanges in EBMUD's service area and lists the agreed upon quantities with each respective water service agency.

Beyond these four local service area agreements, EBMUD, the Freeport Regional Water Authority (FRWA), County of Sacramento, and Sacramento County Water Agency entered into a long-term

Figure W-2

Emergency Interties For Short-Term Transfers & Exchanges
With Maximum Flows



[1] Emergency Water Transfers/Exchanges to City of Hayward are supplied through connections between fire hydrants instead of through dedicated constructed appurtenances.

non-emergency agreement for water delivery with CCWD and separately with Santa Clara Valley Water District (now Valley Water) as part of the negotiated settlement of the FRWP EIR/EIS. These agreements are also discussed in more detail below.

In the future the FRWP may also provide regional reliability benefits, as EBMUD could partner with other Bay Area water agencies to help said agencies receive water that may otherwise be inaccessible given system constraints. To accomplish this, when EBMUD capacity is available, EBMUD could temporarily use the FRWP to deliver water to its own treatment and distribution system in the East Bay, on behalf of other local agencies, who could then use existing interagency interties to deliver the water to its ultimate destination.

SFPUC-Hayward-EBMUD Agreement for Emergency Water Services

In 2002, EBMUD formed a regional partnership with SFPUC and Hayward to construct the SFPUC-Hayward-EBMUD Intertie Project. This project increases water service reliability by allowing EBMUD and SFPUC to obtain a short-term water supply during emergencies or planned outages of

critical facilities. Up to 30 MGD could be provided to either EBMUD or SFPUC and Hayward through the intertie. The project included a new pump station and 1.5 miles of pipeline in Hayward, with minor improvements in EBMUD's and SFPUC's water systems. Construction was completed in 2007.

Agreement for Emergency Water Services with City of Hayward

A 1994 agreement with Hayward identified three fire hydrant locations available for transferring treated water between the two agencies up to 2.1 MGD at each location. A 2000 agreement with Hayward added a fourth intertie of 2.8 MGD and a fifth intertie of 5.7 MGD. Interconnections are made only for a short-term basis by mutual consent and under emergency conditions and are not substitutes for standby or reserve sources of water for normal operations. Hayward's and EBMUD's personnel would connect the systems during a declared emergency in accordance with the conditions outlined in the agreements. Supplied water would be metered and expenses would be billed to each agency as outlined in the agreements.

Agreement for Emergency Services with DSRSD

A 1990 agreement with DSRSD identified two locations available for transferring treated water between the two agencies, up to 1.4 MGD at one location and up to 0.7 MGD at the second location. A 2007 amendment to the 1990 agreement with DSRSD added a third intertie of 1.4 MGD. The three intertie locations are shown in Figure W-2. The process and billing are outlined in an agreement similar to that which EBMUD has with Hayward.

Agreements with CCWD

EBMUD executed an agreement with CCWD for emergency and non-emergency services in 2002 for treated water intertie and raw water interconnection in 2004 . There are three EBMUD-CCWD interties: two treated water interties (Crockett and Pleasant Hill) and one raw water (Brentwood). The Crockett location allows treated water transfer of up to 1 MGD to CCWD. The Pleasant Hill location allows for treated water transfer of up to 10 MGD to CCWD and up to 8 MGD to EBMUD. The Brentwood location allows raw water transfer of up to 100 MGD to CCWD. One agency will provide the other with water quantities that will reasonably meet needs during the emergency without endangering the supplying agency's system and overall supplies.

Agreement with SCVWD/Valley Water

In 2003, FRWA and Valley Water signed a settlement agreement in which EBMUD would make available to Valley Water 6,500 AF of its Central Valley Project (CVP) allocation during the first year of its 3-year consecutive drought cycle. In exchange, Valley Water would return to EBMUD the equivalent amount of water in the second or third consecutive year of drought. To date there is no implementation agreement.

A.2.4 Demand Reduction Method

During water shortage emergencies, many of the programs and projects described in EBMUD's water conservation program (see Chapter 6) are expanded to reduce demand. Implementation of a drought surcharge and excessive use penalties and application of water use restrictions also help EBMUD reduce demand during declared droughts. All of these are discussed in Section A.6, Compliance and Enforcement.

Water Consumption Reduction

EBMUD partners with its customers to proactively cut back water use in significant and sustained ways during water shortage emergencies. EBMUD's system of drought surcharges, combined with the existing tiered-volume rate structure for single family residential customers, provides a financial incentive for reducing water consumption. In past droughts, EBMUD has expanded incentive and rebate programs to encourage greater water use efficiency. EBMUD's website has also become increasingly important for educating customers about methods for conserving and providing tools to assist them in meeting their water savings goals.

Water Use Reduction Targets

EBMUD's DMP recommends specific levels of voluntary or mandatory rationing based on the projected end-of-September TSS. EBMUD's goal is to provide 85 percent reliability to customers.

EBMUD's ability to limit mandatory water use reductions to 15 percent depends upon the extent to which secondary water supply is available in a given year. Transfer water and CVP supplies may not always be available when needed as indicated by past and recent droughts.

In extraordinary circumstances, such as when CVP or other supplies are minimally available or wholly unavailable during an extreme drought, EBMUD may need to increase the rationing level above 15 percent to ensure adequate supplies are available for the current and next year. For example, in 2015, EBMUD's Board declared a mandatory 20 percent water use reduction target to meet the State's imposed water use reduction mandate and due to extraordinary conditions at the time.

A 15 percent reduction overall can be achieved by applying different levels of conservation for each customer category. Table W-3 lists example customer category reduction goals that EBMUD estimates would be required to achieve the district-wide rationing target.

The reduction goals are based on an analysis of the total demand of each customer category, outdoor water use of each category, and potential aggregate economic impact on the service area. Several factors are considered: drought management principles; analysis of historical consumption; and the likelihood that customers in each category can achieve their water use reduction goals through indoor and outdoor demand management. The distribution of rationing varies across customer categories, and the actual savings from each customer category can vary due to several factors, including methods of implementation and enforcement. Key assumptions and data for setting customer water use reduction goals are:

1. **Balancing water use reductions across customer categories is based on four principles:**
   - Emphasizing reductions in non-essential uses of water;
   - Avoiding and limiting impacts on the economy and the environment;
   - Safeguarding water supplies for uses that meet public health and firefighting needs ; and
   - Maintaining equity in water use reduction expectations.
2. **Evaluating each customer category's actual historical consumption:**
   - Determining the percent of total water demand by customer category, and
   - Determining the percentage of indoor and outdoor demand by customer category.
3. **Gauging customer response to water savings measures:**
   - Assessing the likelihood of achieving potential savings from each measure;
   - Assessing research on customer ability and willingness to comply with measures; and
   - Considering previous EBMUD experience in managing and monitoring measures.

A.2.5 Emergency Response Plans

In addition to maintaining its own emergency preparedness program, EBMUD coordinates with local, regional, state, and federal partners to ensure readiness in the event of an emergency. The following details multiple plans and documents EBMUD develops for these emergency coordination efforts.

Consistent with EBMUD Policy 7.03 (Appendix J), EBMUD maintains an active emergency preparedness and business continuity program and coordinates emergency responses with other public and private organizations. EBMUD's Security and Emergency Preparedness Section coordinates and publishes the EBMUD Emergency Operations Plan (EOP), which describes the internal organizational structure used in the response to all emergencies, including regional power outages and earthquakes. EBMUD reviewed and updated the EOP in 2019. An update to the EOP for EBMUD's Federal Energy Regulatory Commission regulated dams was done in early 2020 to include, among other revisions, the FERC Emergency Action Plan Support Team in the EBMUD Emergency Operations Team (EOT). The EOP was also updated to formally designate the Director of Engineering and Construction as the Chief Dam Safety Officer, along with an alternate. EBMUD's EOP ensures effective coordination

Table W-3 Example of Customer Category Reduction Goals

Customer Category	Reduction Goal[1]
Single-Family Residential	19%
Multi-Family Residential	11%
Commercial	12%
Institutional	8%
Industrial	5%
Irrigation	30%
Total Customer Demand Rationing Goal	15%

1 Annual average goals estimated to achieve 15% reduction of year 2050 total demand.

with local and state emergency management agencies in response to emergency conditions.

EBMUD complies with the California Standardized Emergency Management System (SEMS), which includes all National Incident Management System guidance for federal emergency operations plans. EBMUD also prepared business continuity plans for all key departments and functions in coordination with EOP actions. In response to an emergency incident or an event requiring significant planning for a potential emergency, a well-trained team of EBMUD personnel assigned to the EOT will carry out the five SEMS functions (management, operations, planning, logistics, and finance, plus a public communication function).

Operating under the EOP, the Emergency Operations Director and Section Chiefs establish response priorities based on the nature of the emergency, focusing on actions to address life safety concerns first, then incident stabilization, and finally protection of property and restoration of normal operations. The America's Water Infrastructure Act mandates that community drinking water systems develop and maintain risk and resilience assessments (RRAs) and emergency response plans on a five-year renewal cycle. EBMUD completed its initial RRA in September 2020 and completed an update in March 2025. The Emergency Response Plan, also known as EBMUD's EOP, was updated in September 2025.

A.2.6 Mutual Assistance and Coordination with Other, Non-Regional Agencies

Effective coordination with state and local agencies is critical in responding to a catastrophic event that interrupts water supplies. As one of the eight major water suppliers in the San Francisco Bay Area, EBMUD recognizes, as do the other agencies, that in the event of a regional catastrophe, assistance from other local agencies is not guaranteed. To mitigate the risk of limited access to local mutual aid, EBMUD entered into a Multi-Agency Mutual Assistance Agreement with the Los Angeles Department of Water and Power and with the Las Vegas Valley Water District to mutually supply as much of the requested resources as possible to the other agency, if possible, if a disaster impacts only one of the agencies. EBMUD is also a member of the California Water Agency Response Network, which serves as a central point of coordination through the Omnibus Mutual Aid/Assistance Agreement with water agencies throughout the state. The signatories may be called upon during an emergency to provide available resources.

A.2.7 Coordination Among Local, County, Regional, State, and Federal Governments

EBMUD is considered a Special District, thus considered a local government agency, which coordinates resources and manages operations during an emergency and serves as an interface with the local Operational Area Offices of Emergency Services. In California, each county is responsible for maintaining these operational area offices. The California Office of Emergency Services (Cal OES) has three administrative response regions: Inland, Coastal, and Southern based in Sacramento, Fairfield, and Los Alamitos, respectively. Cal OES regions are responsible for carrying out the coordination of information and resources within the region and between the different levels of SEMS to support local response in all phases of emergency management.

A.2.8 Seismic Risk Assessment and Mitigation Plan

Water Code Section 10632.5 requires that UWMPs include a seismic risk assessment of the vulnerability of the water system facilities. Section 10632.5 also allows an urban water supplier to comply with this requirement by submitting a copy of its most recently adopted local hazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390), if that plan addresses seismic risk. In 2018, consistent with the Disaster Mitigation Act of 2000, EBMUD adopted its Local Hazard Mitigation Plan (LHMP). The chapter on Identified Hazards builds on available historical data and establishes detailed profiles for each of the primary hazards impacting EBMUD's service area: five related to earthquakes (faulting, shaking, earthquake induced landslides, liquefaction, and tsunami), and four related to weather (flooding, landslides, wildfires, and drought).

The Vulnerability Assessment chapter summarizes the risks to each facility type. In particular, it assesses the exposure and vulnerability to the identified hazards and summarizes the impact and estimated loss by facility type. These risk assessments collectively contribute to the development, adoption, and implementation of

a meaningful and functional mitigation strategy based on accurate background information.

The Mitigation Goals, Objectives, and Actions chapter describes the specific mitigation actions, capital improvements, and other measures EBMUD has undertaken and/or will undertake to address the identified risks for each facility type.

The 2023 LHMP executive summary is in Appendix G and is available on EBMUD's website at: *ebmud.com/application/files/2916/6638/6837/EBMUD_2023_LHMP_Draft.pdf*

A.3 Water Supply Analysis

As required by Section 10635 of the Water Code, a water supply reliability assessment must compare future water demands and verifiable water supplies under multiple hydrologic conditions as both supply and demand can vary seasonally and changing climate. EBMUD uses a water supply system model to assess the sufficiency and reliability of its long-term water supply by comparing its Mokelumne River and secondary water supplies to projected demands under five potential future scenarios. Consideration of a wide range of scenarios, including design drought assessments, strengthens EBMUD's ability to anticipate and manage water shortages. Although these analyses are based on hydrologic variability, the resulting understanding of system performance, operational flexibility, and supply vulnerabilities also informs preparedness for other types of shortages, such as those caused by seismic events, infrastructure outages, water quality incidents, or regulatory constraints. These non-drought risks are addressed more fully in the preceding section of the WSCP, which outlines the actions and response strategies needed to maintain essential water service during any disruption to normal supplies.

A.3.1 Modeling Methodology

EBMUDSIM-RW is the planning model application developed using the RiverWare software that simulates the EBMUD water supply system, including all regulatory, operational, agreement, and infrastructure constraints. EBMUD uses RiverWare software, equipped with state-of-the-art simulation and accounting algorithms, as its tool to perform water supply mass balance modeling for the supply and demand analyses.

Historic hydrology is used to capture the variability of Mokelumne River water supply in the planning model over the full period-of-record with a key exception described below. For the 2025 UWMP, hydrology from 1921-2020 was available for use in the water supply modeling. The water service reliability analysis assumes that any of the historical hydrologic sequences could recur in the future. In evaluating its water supply, EBMUD incorporates both upstream and downstream diversions by senior water right holders, existing water rights agreements and contractual obligations, flood control flow releases, and other stream flow requirements into the EBMUDSIM-RW model. EBMUD is required to make stream flow releases per the terms of its Joint Settlement Agreement (JSA)[1] with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife. The model also allows for rationing levels, demands, dry year secondary supplies, and potential other state/regional contractual obligations to be varied or added to analyze different scenarios or future projections.

During some historical dry periods when runoff from the Mokelumne River Basin was insufficient to meet service area demands, EBMUD relied on stored water in its reservoirs to meet most of its customers' water needs. The worst hydrologic drought event in EBMUD's written record was the 1976-1977 drought, when runoff was only 25 percent of average and total reservoir storage totaled 39 percent of normal. In September 1977, with an uncertain precipitation and runoff forecast for the following year, EBMUD continued to require its customers to ration water to avoid depleting system storage. Fortunately, a very wet year in 1978 followed the critically dry year of 1977 and contributed to the water system's rapid recovery.

The severity of the 1976–77 drought prompted EBMUD to develop a structured approach to long-term resilience: the three-year Drought Planning Sequence (DPS). This modeling framework is designed to simulate the impacts of a severe, multiyear drought and guide EBMUD's long-term water supply planning. The first and second years of the DPS draw directly on the actual runoff recorded in 1976 and 1977—the driest two-year

1 EBMUD continues to meet its flow commitment to protect the lower Mokelumne River by providing instream flow release from EBMUD's Camanche Dam to improve fishery conditions, per the requirements of the 1998 JSA among EBMUD, US Fish and Wildlife Services, and the California Department of Fish and Wildlife

period in EBMUD's history—while the third year assumes a simulated runoff of 185,000 acre-feet, calculated from hydrologic parameters observed during those years. The model further assumes that such a drought would not extend beyond the third year and that all accessible storage would be depleted by its end. EBMUD is currently reassessing its existing design drought (i.e., the DPS) used in long-term water resources planning in light of potential changes in drought frequency and intensity due to climate change. Preliminary qualitative results are shared in Section A.3.3 of this plan, and the complete analysis, incorporating newly developed climate scenarios with results, will be published in the 2030 UWMP.

Senate Bill 606 also requires the UWMP to include a drought risk assessment that examines water shortage risks for a drought lasting at least five consecutive years. There was a significant drought that occurred from 1987-1992 that affected EBMUD and is included in the assessment.

Computer model simulations provide a framework for evaluating secondary supply needs in each year over the planning horizon. While modeling cannot predict the future, it does provide comparative analysis that can be used to gauge how the water supply system might perform under different scenarios. EBMUD's response to any specific situation will vary depending on the actual water supply and demand conditions and external factors such as regional to state-wide hydrology.

A.3.2 Dry Year Secondary Supplies

In addition to EBMUD's primary source of its water supply from the Mokelumne River watershed, EBMUD's secondary sources of supply during droughts are from the USBR CVP[2] contract and transfer water agreements. These water supplies are diverted from the Sacramento River at Freeport.

USBR Central Valley Project Water Supply

EBMUD has a permanent repayment contract with the USBR to receive water from the CVP through the FRWP in years where a drought is declared consistent with the DMP Guidelines. Specifically, EBMUD's contract allows it to receive CVP water in years when EBMUD's water supply projection on March 1, as updated monthly through May 1, and its October 1 TSS is forecast to be below 500 TAF. The contract enables EBMUD to receive up to 133,000 AF of CVP water in a single qualifying year, not to exceed a total of 165,000 AF over three consecutive qualifying years. When deciding how much CVP water to request, EBMUD considers the following:

- Current projections of customer demand;
- Current projection of end-of-water-year TSS, with reference to EBMUD's DMP;
- The likelihood that USBR will have sufficient water in the following year to allow EBMUD to receive the water under its contractual entitlement; and
- The remaining amount of the 165,000 AF three-year contractual quantity available to EBMUD in the current CVP contract year, based on deliveries taken by EBMUD in the preceding qualifying CVP contract years.

In some dry years, there may not be sufficient water supplies for all CVP contractors to receive their full requested amount, and USBR may limit allocations. In August 2015, USBR released the final version of its M&I Water Shortage Policy (WSP) outlining how it will allocate water during years when there is not enough water to meet all CVP contractor requests. The policy provides for reduced allocations to M&I contractors in comparison to the contractually specified quantity. Whether allocations are reduced, and the extent of any reductions, depends on the quantity of water available to the CVP. The M&I WSP also states that USBR may increase the amount of water that the contractor receives above the reduced allocation to the extent needed to ensure that the contractor has enough supply to maintain a "Public Health and Safety" (PHS) level calculated in the manner described in the M&I WSP Implementation Guidelines and Procedures dated February 1, 2017.

For purposes of EBMUD's analysis in this WSCP, CVP allocations for each hydrologic year are assigned based on model results generated by Department of Water Resources' (DWR) 2023 Delivery Capability Report (DCR)[3] using the CalSim model. DCR results show what the CVP allocation would have been in a particular hydrologic year given future build-out

2 In 1970, EBMUD executed a contract with USBR for delivery of CVP water from the American River. In 2000, USBR, EBMUD, and Sacramento region parties reached an agreement to modify the contract and developed a joint water supply intake on the Sacramento River, rather than the American River. This agreement led to the construction of the Freeport Project, discussed in Chapter 1 of the 2025 UWMP.

3 In December 2025, DWR released the draft DCR, however, this was not in time to support the 2025 UWMP.

demands, regulations, and levels of development on the system. As a result, these allocations may differ from the historic allocations. For example, during a moderately dry year, a DWR CalSim DCR allocation may be lower than the actual, historic allocation as DWR CalSim DCR results are based on a projected higher demand and level of development.

Contractual Agreements for Water Transfers

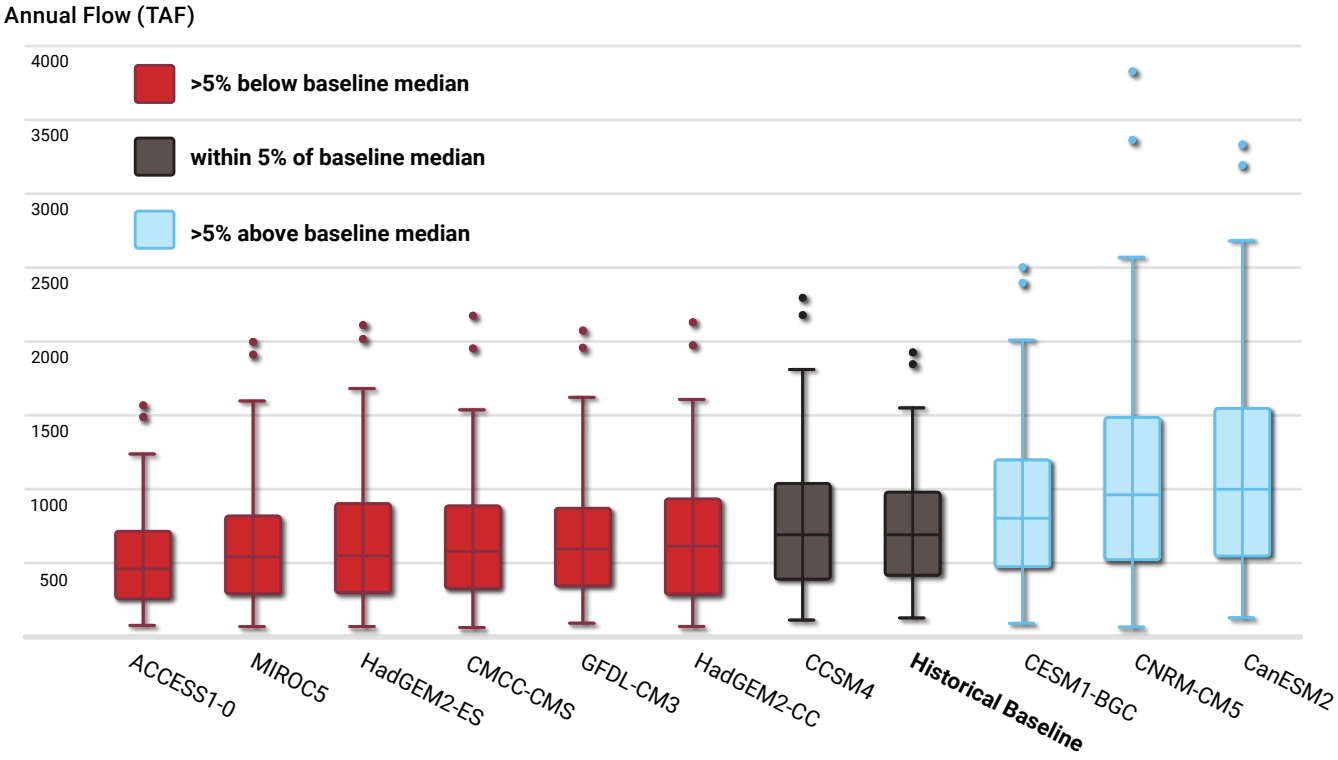
EBMUD has also developed a water transfer program to secure secondary water supplies to meet customer demands in dry years. Since the 2020 UWMP, EBMUD has made additional progress pursuing three opportunities for water transfer arrangements. These potential long-term water transfer projects are at various stages of development. In the meantime, EBMUD has existing agreements with Placer County Water Agency, Yuba County Water Agency, and several other water agencies that allowed EBMUD to purchase from 2,000 to 25,000 AF in the last two droughts and will allow EBMUD to purchase water in future droughts. Chapter 4 provides a more detailed discussion on water transfer projects.

A.3.3 Water Supply Planning and Climate Change

Climate change poses a potential risk to the reliability of EBMUD's water supply, as rising temperatures and shifting precipitation patterns can alter both the timing and quantity of runoff, snowmelt, and streamflow. In response, EBMUD has launched a new study that will analyze a broad range of climate change scenarios and assess long-term risks and vulnerabilities. The study is ongoing but will be completed and incorporated in the 2030 UWMP. In the interim, EBMUD completed a preliminary assessment of the potential for increasing drought risk.

According to California's Fourth Climate Change Assessment (Fourth Assessment), climate change is already altering hydrologic conditions in the Sierra Nevada. Rising temperatures, shrinking

Figure W-3 **Climate Adjusted True Natural Flow Distributions**



Projected annual streamflow distributions for the Mokelumne at Pardee Reservoir based on simulated changes from 10 GCMs. Each box-and-whisker plot displays the distribution of a dataset by showing its median, quartiles, and potential outliers. The line inside the box represents the median, while the edges of the box mark the 25th and 75th quartiles, defining the interquartile range (IQR), which contains the middle 50% of the data. Whiskers extend from the box to the smallest and largest values within 1.5 times the IQR from the quartiles. Any data points beyond these whiskers are considered outliers and are plotted individually. The relative size of the box and the length of the whiskers indicate the spread and possible skewness of the data. Red plots indicate drier conditions (>5% decrease in median). Blue plots indicate wetter conditions (>5% increase in median).

snowpack, and shifts in the timing of streamflow are placing increasing strain on water management systems and community infrastructure (Dettinger et al., 2018). A substantial body of research, modeling, and data were developed to support the Fourth Assessment, including downscaled and bias-corrected climate projections prepared by scientists at Scripps Institution of Oceanography (Scripps; Pierce et al., 2018).

As part of the Fourth Assessment, the Department of Water Resources (DWR) selected climate projections from 10 Global Circulation Models (GCMs) for use in water resources planning (CCTAG 2015). Researchers at Scripps used these climate projections to generate future flow scenarios for major California basins, including the Mokelumne River at Pardee Reservoir. The scenarios were based on two emissions pathways: a high-emissions scenario (RCP8.5) and a moderate-emissions scenario (RCP4.5) (Pierce et al., 2018). In total, 20 streamflow projections were produced using the Variable Infiltration Capacity (VIC) model applied to a statewide river network and bias-corrected using historical unimpaired flow (10 GCMs × 2 RCPs).

For this preliminary review, EBMUD used the streamflow projections developed by Scripps to evaluate how climate change could affect Mokelumne River inflows, which supply on average approximately 90 percent of the EBMUD's water. Specifically, delta change factors for each percentile of the simulated flow distribution were derived from these projections and applied to the to the true natural flows EBMUD uses for planning. This process adjusts (or "perturbs") true natural flows based on the model-predicted changes at the associated percentile. The perturbation was performed using late-century (2050-2099) streamflow data for RCP 8.5 to examine how climate change could affect long-term supply reliability. Climate-adjusted annual streamflow distributions derived from each of the 10 GCM projections are shown in Figure W-3.

Figure W-3 shows the resulting distributions of annual Mokelumne River flows for each of the 10 climate models. Six of the models indicate a significant decrease in the median annual streamflow, while 3 indicate a significant increase, and one model nearly matches the historical median. The wettest model (CanESM2) indicates a 44 percent increase in the median annual flow, while the driest model (Access1-0) indicates a 34 percent decrease. Nine of the 10 models exhibit a higher variance in annual flows, suggesting greater year-to-year variability and potentially more extreme dry/wet years. Even when considering a wet projection (i.e., blue box plots in Figure W-3), the driest years could become drier. The extreme hydrologic variability driven by climate change is expected to increase stress on the water system and heighten the likelihood of shortages.

While the preliminary analysis above offers informative insights, the approach has several limitations (e.g., short historical records, coarse-scale hydrologic modeling). Therefore, EBMUD is undertaking a more rigorous modeling study to evaluate supply reliability under conditions of deep uncertainty (Figure W-4). The modeling efforts will support the following:

- Design Drought Analysis – A comprehensive assessment of potential changes in drought severity and duration across the Mokelumne River basin.
- Climate Vulnerability Assessment – An evaluation of EBMUD's water infrastructure system to identify the climate conditions under which the system may fail to meet its core functions (e.g., delivering water to customers, maintaining reservoir water quality, complying with regulations).

As shown in Figure W-4, the first component of the modeling framework is a stochastic weather generator designed to produce long-term precipitation and temperature time series. These datasets are then adjusted using delta-change factors derived from climate model projections to create a broad set of plausible future climate scenarios. For example, scenarios will incorporate changes in key statistics such as average temperature, average precipitation, and precipitation extremes. This weather generator, originally used in the Fourth Assessment, has been tailored for the Mokelumne River basin to provide improved spatial resolution, higher granularity of delta-change factors, expanded climate variable adjustments, and integration of paleo-reconstructed rainfall indices back to year 1400.

Climate-perturbed temperature and precipitation data will then be used as inputs to run a continuous-simulation HEC-HMS hydrology model to calculate snowmelt, runoff, and natural stream flows over a 600-year period. Hydrologic modeling results then become inputs to the EBMUD's EBMUDSIM-RW

water system planning model, which simulates reservoir operations, diversions, water allocations, and water management decisions. Outputs from both the hydrologic model and the water system model will be used to calculate performance metrics, which are quantitative indicators related to water management decisions that support relevant policies, regulations, and agreements. Key performance metrics fall under four main categories – Hydro-climatology, Water Supply, Flood Control, and Water Quality – and include such things as TSS at the end of the water year, frequency/magnitude of rationing, and the frequency and magnitude of spills at Camanche Reservoir.

Selected performance metrics will be used in stress testing analyses to assess emerging risks and water system vulnerabilities. Potential vulnerabilities will be identified and characterized by examining the conditions that cause the water system to not meet acceptable performance thresholds, a process known as "ex post" scenario analysis. The results of the vulnerability assessment will inform long-term water resources planning and be incorporated into the development of the 2030 UWMP.

A.3.4 Scenario Development

For the 2025 UWMP supply-demand analysis, EBMUD evaluated several scenarios to assess its need for water during the DPS under potential future conditions. The rationale for developing these scenarios is to capture uncertainty in long-term planning. Traditionally, long-term demand forecasts have been and continue to be used for identifying the timing and magnitude of future water supply needs. However, it is widely recognized and understood that factors used in making projections are based on assumptions that may be different in the future. Scenarios were developed based on plausible assumptions in both demand and supply availability. Below is a summary of the five scenarios analyzed:

Base Scenario

- Assess potential water needs by modeling EBMUD's historic hydrology, with secondary supplies of CVP and transfer water, and an activated DPS

Reduced CVP Reliability Scenario

- Assess potential water needs by combining Base Scenario with reduced CVP allocations (i.e., M&I WSP conditions)

Healthy Rivers and Landscape (HRL) Scenario

- Assess potential water needs by combining Base Scenario with EBMUD's proposed commitment to HRL Program

Reduced CVP Reliability and HRL Scenario

- Assess potential water needs by combining reduced CVP allocations and EBMUD's proposed commitment to HRL Program

Five-Year Drought Risk Assessment Scenario

- Assess potential water needs for 1987-1992 drought period

Base Scenario

The Base Scenario represents EBMUD's current operations and assumptions. This scenario uses EBMUD's historic hydrology - with the DPS activated - to assess the historic water supply against each of the future demands projected in the mid-cycle update of the 2050 Demand Study. In addition to the Mokelumne River supply, it is assumed that (1) EBMUD will receive its requested allocation of CVP supply subject to the M&I WSP using the modeled yearly CVP allocations provided by USBR and (2) transfer water is available. For this scenario, secondary supplies began delivery in May of the first year of a declared drought. The triggers to take delivery of secondary supply water and implement rationing are followed as outlined in DMP Guidelines:

- A Normal Water Year is a year that EBMUD does not need to implement any DMP measures.
- A Single Dry Water Year is determined to be a year that EBMUD would implement DMP elements, which includes obtaining dry year secondary water supply deliveries and setting voluntary rationing goal between 0 and 10 percent.
- Year 2, being the second consecutive year of drought, is determined as a year that EBMUD would implement DMP elements, which includes continuing to obtain dry year secondary supply water deliveries and setting a mandatory rationing goal between 10 and 15 percent.
- Year 3, being the third consecutive year of drought, is determined as a year that EBMUD would implement DMP elements, which includes continuing to obtain dry year secondary supply water deliveries and implementing mandatory rationing of 15 percent.

Table W-4 **Supply & Demand Assessment for Base Condition Scenario, 2030-2050**

EBMUD Planning Level of Demand (PLOD)			2030	2035	2040	2045	2050
Normal Year	Mokelumne Supply	(MGD)	>196	>203	>205	>210	>215
	EBMUD PLOD	(MGD)	196	203	205	210	215
	Need for Water	(TAF)	0	0	0	0	0
Single Dry Year	Mokelumne Supply	(MGD)	128	134	136	140	144
	CVP + Transfer Supplies	(MGD)	59	59	59	59	59
	Total Supplies	(MGD)	187	193	195	199	203
	Voluntary Reduction	(%)	5%	5%	5%	5%	5%
	Need for Water	(TAF)	0	0	0	0	0
Second Dry Year	Mokelumne Supply	(MGD)	108	114	115	120	124
	CVP + Transfer Supplies	(MGD)	59	59	59	59	59
	Total Supplies	(MGD)	167	173	175	179	183
	Mandatory Reduction	(%)	15%	15%	15%	15%	15%
	Need for Water	(TAF)	0	0	0	0	0
Third Dry Year	Mokelumne Supply	(MGD)	124	130	132	136	141
	CVP + Transfer Supplies	(MGD)	42	42	42	42	42
	Total Supplies	(MGD)	167	173	174	178	183
	Mandatory Reduction	(%)	15%	15%	15%	15%	15%
	Need for Water	(TAF)	0	0	0	0	0

Reduced CVP Reliability Scenario

This scenario looks at a reduced allocation of CVP supplies 50 percent, 25 percent, and 0 percent of the contract limit in drought Year 1, 2, and 3 of the DPS, respectively to reflect what did occur during the 2014-2016 and 2020-2022 droughts when CVP allocations were reduced. As discussed earlier, EBMUD's CVP contract supply is subject to USBR M&I WSP. USBR indicated in this policy that, depending on CVP water supply conditions and operational constraints, it is possible for M&I deliveries to be reduced to below 50 percent. Therefore, for this scenario, EBMUD takes CVP water when Stage 1 of the DMP is triggered and assumes reduced CVP allocation is available.

Healthy Rivers and Landscapes (HRL) Scenario

This scenario reflects EBMUD's participation in the Bay-Delta update process to demonstrate that any proposed changes affecting the Mokelumne River do not undermine the fisheries' success attained under the existing JSA on the Mokelumne River and does not adversely affect the continued viability of the EBMUD Mokelumne River supply, the primary supply source, that provides vital water to its service area.

Reduced CVP Reliability and HRL Scenario

This scenario is a combination of the reduced CVP allocation and EBMUD's proposed HRL Program.

Five-Year Drought Risk Assessment Scenario

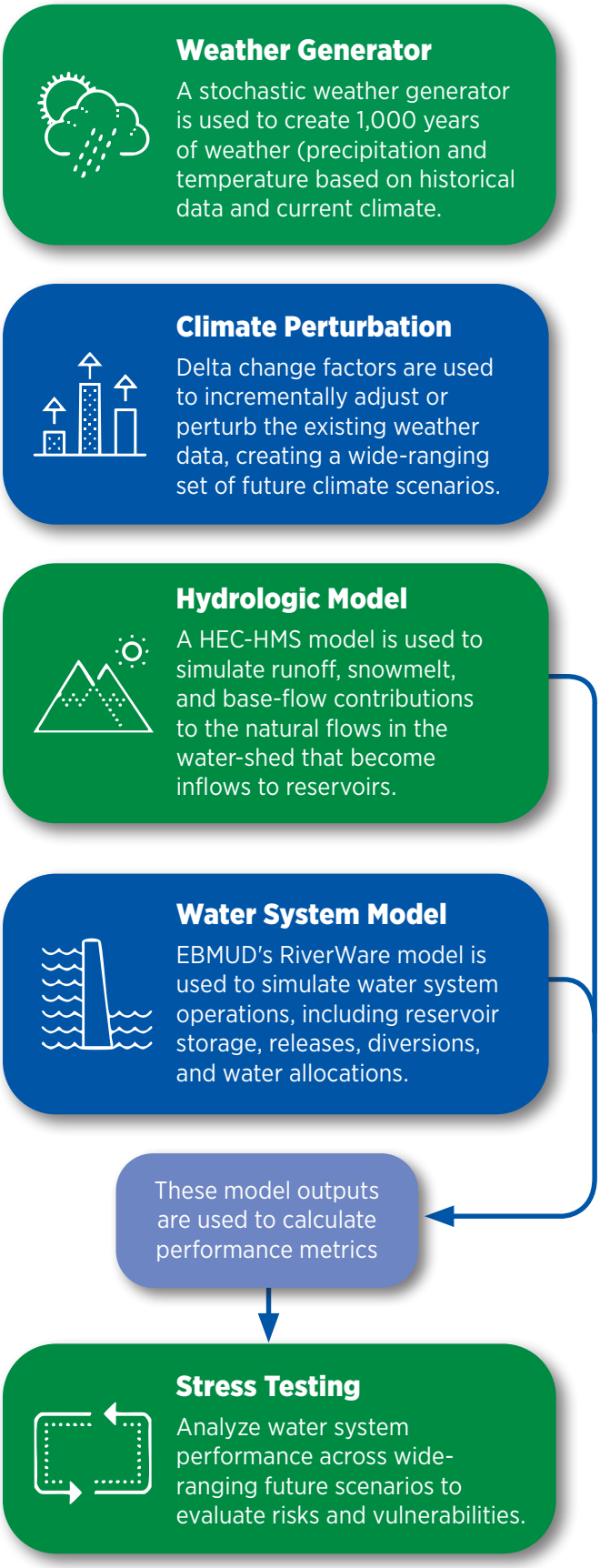
Section 10635 of the Water Code requires water agencies to assess water supply and demand during a drought lasting five consecutive years in the agency's historical period of record. To meet this requirement, EBMUD analyzed modeling results for the historic 1987-1992 drought period.

A.3.5 Scenario Analysis Results

Base Condition Scenario Results

EBMUD modeled its system in the UWMP Base Scenario according to the DMP guidelines presented in Figure W-1. The 2025-2050 demand projections were modeled against EBMUD's historic 1921-2020 hydrology to determine system reliability during normal years, single dry years, the three-year DPS, and the multi-year 1987-1992 drought.

Figure W-4 Modeling Framework Used for the Water System Vulnerability Assessment



The results of this analysis, provided in Table W-4, show that under Base Scenario assumptions, EBMUD can meet customer demand out to 2050 during normal years, single dry years and multi-year droughts. There is no water shortage.

A.3.6 Findings from Other Scenarios

All scenarios show existing supply sources provide a reliable water supply over the future planning horizon except for the Reduced CVP Reliability Scenario and the combined Reduced CVP Reliability with HRL Program. The Reduced CVP Reliability scenario was based on actual events during the last two drought periods, and the results from the analysis show a need for water is approximately 15 TAF under the 2050 level of demand for both. Results like this allow EBMUD to develop adaptive strategies to help ensure water reliability in the long term. Chapter 4 describes EBMUD's future water supply projects that could help offset the 15 TAF supply shortfall. Factors contributing to the lack of supply shortage shown in the other modeled scenarios include reduced water use by upper Mokelumne River watershed agencies, availability of transfer water, and lower demand. Findings from these scenarios are provided in Table W-5. The current scenarios do not incorporate climate-driven changes in hydrology, even though climate change is expected to increase the need for water. The 2030 UWMP will provide detailed assessments of climate change impacts to the water supply system.

In addition, EBMUD made investments spanning over 50 years to diversify and increase water supplies. In 1970, EBMUD executed a contract with the USBR for delivery of CVP water. EBMUD relies on CVP water to be available when EBMUD is eligible based on contractor terms that are triggered during droughts. However, based on past drought experiences, EBMUD received reduced or no CVP allocations during several drought periods. The Reduced CVP Scenario reflects potential supplies available and allocations recently received.

A.4 Annual Water Supply and Demand Assessment Procedures

EBMUD has developed a process and policies for monitoring, assessing, and responding to annual water supply availability. EBMUD's Water Supply Availability and Deficiency Policy 9.03 (Appendix J) describes its process for evaluating the adequacy of its water supplies every year. Since the early 1980s, EBMUD has been performing annual water

Table W-5 **Findings from Other Scenarios, 2025-2050**

Scenario	Purpose	Water Supply Shortage
Base with Reduced CVP Reliability	Assess potential water needs when CVP allocation (50%, 25%, 0%) is subject to M&I water shortage policy	15 TAF (Future level of Demand)
Base + HRL	Assess potential water needs by combining base scenario with EBMUD's proposed commitment to HRL Program which reduces EBMUD water supply increased in-stream flow requirements	No shortage
Reduced CVP + HRL	Assess potential water needs by combining base scenario with reduced CVP allocation and proposed HRL program	15 TAF (Future level of Demand)
Five-Year Historical Dry Period	Assess water supply and demand for 1987-1992 drought period per Section 10635 of the Water Code	No shortage

shortage assessments to help make informed decisions on water supply management.

A.4.1 Water Supply Availability and Deficiency Policy

Under the Policy, EBMUD's Board of Directors may receive a preliminary Water Supply Availability and Deficiency Report (WSADR) by March 1 of each year evaluating the adequacy of that year's water supply, considering the full range of hydrologic conditions from critically dry to wet years. The Board of Directors adopts a final WSADR in April, which updates the water supply projections based on the April 1 snow survey by DWR. These reports inform decisions by EBMUD's Board of Directors regarding whether to declare a water shortage and implement a drought management program, institute mandatory water use reductions, obtain or pursue secondary supplies, or rescind drought measures. The 2025 WSADR is provided as a sample in Appendix I. The WSADR forms the basis for the annual water shortage assessment report submittal to DWR as required by Water Code Section 10632.1. DWR began requiring these submittals in 2022.

A.4.2 Decision-Making Timeline and Process

If water supplies are severely depleted, EBMUD's Board of Directors may declare a water shortage emergency and implement the DMP, which is designed to provide guidance to minimize drought impacts on its customers while continuing to meet stream flow release requirements and obligations

Table W-6 **Historic Rationing Levels**

Date	Rationing Level
05/25/1976	Voluntary conservation, no level set
02/08/1977	25% Mandatory
04/26/1977	35% Mandatory
01/24/1978	Voluntary conservation, no level set
04/14/1987	12% Voluntary
05/09/1989	25% Rationing
09/12/1989	15% Voluntary
02/26/1991	15% Mandatory
04/09/1991	15% Mandatory
04/14/1992	15% Mandatory
03/09/1993	10% Voluntary
04/26/1994	Voluntary conservation, no level set
05/01/1994	15% Voluntary
04/24/2007	15% Voluntary
05/13/2008	15% Mandatory
05/12/2009	10% Voluntary
02/11/2014	10% Voluntary
04/22/2014	10% Voluntary
12/09/2014	15% Voluntary
04/14/2015	20% Mandatory
04/27/2021	10% Voluntary
04/26/2022	10% Mandatory

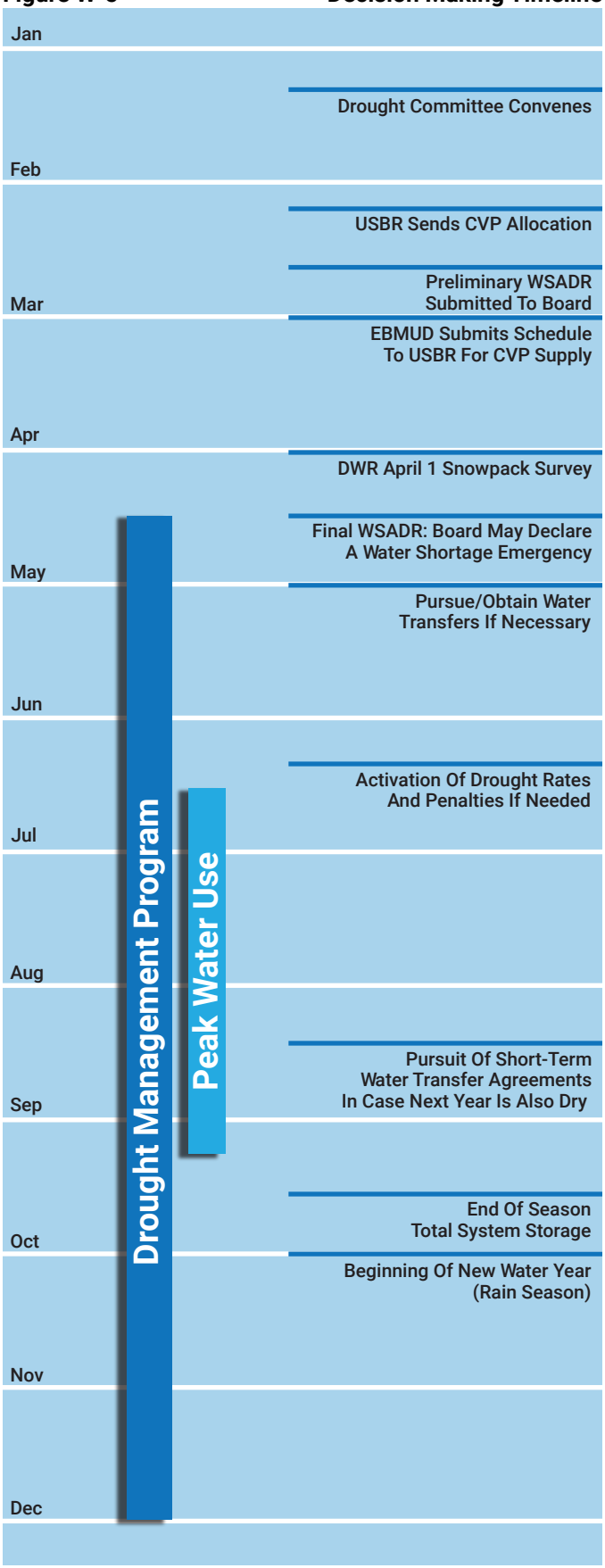
to downstream Mokelumne River water users. Following the declaration of a water shortage emergency, depending on stage, EBMUD's Board of Directors may put into effect certain regulations, ordinances, and surcharges. The Board may also implement the DMP in the absence of a declaration of water shortage emergency if the supplies are moderately depleted or the State mandates water use restrictions. The DMP guided EBMUD in successfully managing water demand during mandatory and voluntary rationing periods in 1976-1978, 1987-1994, 2007-2010, 2014-2016, and 2020-2022 when supplies were limited. Table W-6 shows the rationing levels that EBMUD has historically set, starting with the 1976 drought period. EBMUD has not historically declared a water shortage for non-drought emergencies. Non-drought emergencies such as earthquake impacts, localized pipeline failures, or short-term water quality issues have been handled operationally.

EBMUD begins drought preparations early in the calendar year if there is potential for a water shortage. Figure W-5 shows the timeline of a typical dry year, marking when EBMUD makes key decisions about that year's water supply. As illustrated, EBMUD determines drought actions involving rationing levels, state and federal mandates, and acquiring secondary supplies based on end-of-the-water-year storage projections. Often EBMUD must make these decisions as hydrologic conditions continue to evolve.

EBMUD monitors water supply conditions and projected runoff into EBMUD reservoirs. Beginning in January, EBMUD assesses the potential for shortages and, if warranted, convenes EBMUD's Drought Committee. This committee includes senior staff representing key functions that are affected and involved in customer response to drought.

The WSADR is based on EBMUD's projected end-of-September TSS, which includes water supplies from local, Pardee, and Camanche reservoirs. Based on this report, the Board may declare one of the four stages of drought and activate the DMP depending on the projected end-of-water-year TSS. The adopted stage of drought helps determine the need for dry-year secondary supplies and customer water use reductions. Depending on the projected TSS, the Board may also decide to request CVP supplies from USBR and/or secure water transfers. Section A.3 above, Water Supply Reliability Analysis, discusses EBMUD's CVP supplies and

Figure W-5 **Typical Dry Year Decision Making Timeline**



how these supplies factor into drought planning. In terms of timeline, EBMUD submits an initial schedule of requested CVP deliveries to USBR by March 1. As conditions change, EBMUD may modify the requested quantity or timing of CVP deliveries, up to the maximum quantity allocated by USBR in that particular year or may cancel previously made requests as needed.

Throughout the year, EBMUD continues to monitor water supply and potential impacts to demand of any voluntary or mandatory rationing policy. As warranted by the water supply status and DMP guidelines, the Drought Committee initiates response activities and sets timelines for these activities. The Drought Committee also manages program implementation and monitors and reports on activities and results.

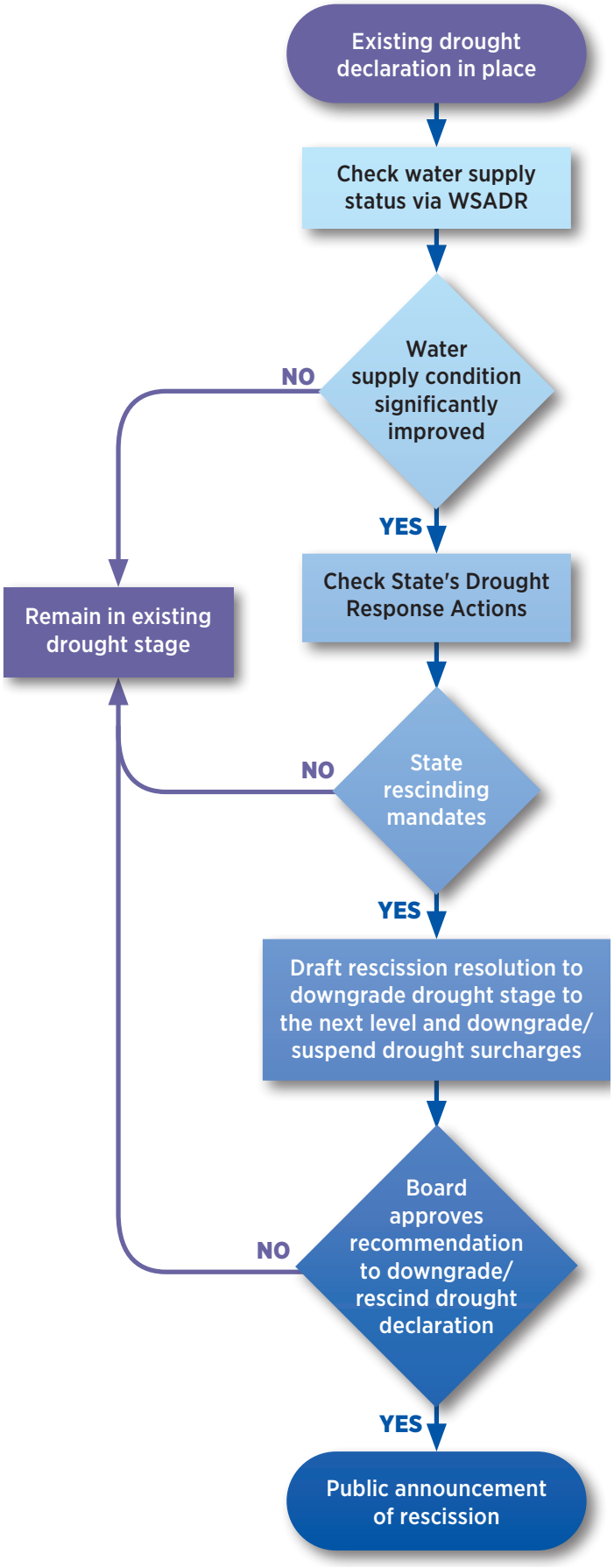
In multi-year droughts, EBMUD begins planning in the fall for the following year's water supply needs in anticipation of continuing dry year conditions. Due to uncertainty regarding the availability of water transfers and the length of time required to secure permitting and regulatory approvals, EBMUD must begin planning to secure water transfers early if EBMUD anticipates there may be a need the next water year. This includes discussions with potential sellers and preparation of necessary environmental reviews that are required to implement water transfers.

Just as EBMUD has a process to prepare for drought declarations, a drought recission declaration usually mirrors the process used to declare one. It is data-driven and legally formalized. A common framework is illustrated in the process diagram shown in Figure W-6.

A.4.3 Data and Methodologies for Short-Term Demand Forecast

EBMUD has developed an annual demand and supply projection methodology that is used for operational planning. New demand projections are initially developed by correlating historical demand patterns/trends with WTPs current water demand data. The annual projection is then partitioned into projected average monthly demands based on historical monthly distributions. In recent years, EBMUD's annual demand projections also accounted for water conservation. Supply availability incorporates runoff projections based on DWR's Bulletin 120 as well as Mokelumne River diversions based on water rights terms/

Figure W-6 Drought Rescission Process Diagram



agreements, instream environmental flow requirements, and expected diversions by riparian and senior water rights holders. The annual assessment, driven by hydrological conditions and analyzed using a probabilistic spreadsheet model, is evaluated against the criteria established in the DMP to make a determination of water availability and, if necessary, implementation of any potential response actions. The results of the assessment and all relevant operational decisions are captured in the annual water operations plan. This plan is a dynamic document as hydrologic conditions and forecasts can change significantly throughout the winter and spring months.

A.4.4 Water Operations During Drought

The 2014-2016 drought was the first time EBMUD delivered water from Freeport facilities, in which valuable water operations lessons were learned. Key findings from the 2016 FRWP operation were: (1) take delivery of secondary supplies as early as possible in the drought sequence to maximize delivery of lower-cost drought supplies, (2) maximize production at the West of Hills WTPs in order to treat secondary water supplies , and (3) manage terminal reservoirs to maximize available space for storage. These lessons were incorporated into the DMP and operational decision-making processes.

Obtaining Secondary Supplies Early

Based on past droughts experiences, EBMUD plans to maximize delivery of lower-cost secondary water supplies at the start of a drought. EBMUD's CVP allocation was reduced by 50 percent in contract year 2014, by 75 percent in contract year 2015 and 2021, and to zero in 2022 as the CVP was faced with increasing demands and reduced supplies as the drought continued. EBMUD made up for the reduced allocation by purchasing transfer water in 2015 and 2022, and by securing options to purchase transfer water in other years if the droughts had continued. Transfer water was consistently more expensive than the CVP water.

Maximize Production at West of Hills (WOH) Water Treatment Plants

The maximum amount of secondary water supplies that can be delivered occurs when the water treatment rate aligns with the delivery rate. When the delivery rate of secondary water supplies surpasses the treatment rate, the excess water is delivered to Upper San Leandro and San Pablo reservoirs, which increases reservoir storage levels. This limits the reservoirs' ability to store local runoff, while increasing the chance of spills.

In previous drought periods, treatment rates at conventional[4] WTPs could not be maximized, which would have allowed for more secondary water supplies to be treated, as the in-line[5] Orinda WTP needed to operate at a lower rate. Ongoing improvements at Orinda WTP will allow more secondary water supplies to be treated at the WOH plants. UWMP Chapter 2 describes EBMUD infrastructure improvement projects in more detail.

Terminal Reservoir Management

At the start of the 2015 FRWP operation, the secondary water supplies could only be delivered to USL and San Pablo reservoirs and treated at those associated conventional WTPs. Because the rate of FRWP delivery exceeded the rate of treatment at those conventional plants, terminal reservoir capacity needed to be made available to maximize delivery rates. This was accomplished by operating the Sobrante and USL WTPs in advance of the FRWP delivery so that San Pablo and USL reservoirs began the FRWP operation at their lower operating range. This practice will be continued in future FRWP operations.

A.5 Communication Protocols

During a water shortage emergency, EBMUD implements a public education program to inform the public and uses various methods and tactics to promote water use reductions and improved efficiencies. The campaign explains the potential impacts of a water shortage, the water supply status, methods to reduce water consumption, potential excessive use penalties, EBMUD actions, and customer responsibilities. The campaign typically highlights specific EBMUD programs and services to help customers reduce their water use.

At the onset of a water shortage emergency, EBMUD develops a detailed Drought Communication Plan (DCP) to provide information to customers,

4 Conventional water treatment plants use rapid mixing, flocculation, sedimentation, filtration, and free chlorine disinfection to treat water.

5 In-line water treatment plans have a simpler treatment process consisting of coagulation, filtration, and disinfection. They do not have sedimentation process and is typically used for high-quality raw water source.

public officials, and other stakeholders. The specific details and messages are tailored to the particular drought situation. Components of an effective DCP include a set of well-defined, focused key messages and an action plan detailing all communication activities. The DCP outlines general and targeted communication methods; general communication methods focus on creating a strong education campaign with broad reach, while targeted communication methods focus on particular customers or sectors. General communication methods include media outreach, creating outdoor and other advertising, expanding stakeholder outreach, providing information on the web, producing bill inserts and messages, sending direct mail to public officials, briefing key community leaders and officials, and providing information through the customer contact center. Targeted communication methods can include direct contact with high-volume water users, proactively offering more support to customers through conservation training and tools, and increasing EBMUD's interactions with customers a about their water use. In some previous, statewide droughts, EBMUD has also benefited from "earned" media when statewide messaging and advertising reached EBMUD customers.

Following are additional details on some of the general and targeted communications methods that EBMUD has employed in previous droughts:

- Advertising campaigns throughout the EBMUD service area broadcast conservation messages on radio and cable television, local newspapers and magazines, outdoor displays at public areas, streaming music services, bus exteriors, transit shelters, and EBMUD billboards. EBMUD has also participated in regional advertising campaigns related to water conservation on radio and television when the messages were consistent with EBMUD's. Campaign messages included appreciation for customer conservation, continued encouragement to save water by fixing leaks and installing efficient outdoor landscape irrigation, and using online tools to understand and curb water use.
- EBMUD invests in resources and tools to support customer contacts and customer billing functions to ensure a continuous level of quality customer service during a water shortage. Drought periods increase the volume of calls to EBMUD's customer Contact Center, Field Services, Water Conservation, Customer Services Support, and Public Affairs divisions. EBMUD ensures adequate staffing to respond to customers' questions and requests for assistance.
- EBMUD's website has become an increasingly important tool for disseminating information to customers and the media during drought periods and EBMUD's social media presence provides another platform to engage with customers about drought.
- EBMUD initiates significantly more direct customer contact and responds to significantly more inquiries from customers during droughts. Water conservation and field services staff distribute drought messages and water-saving devices, encourage water savings, assist customers in changing their water use, inform customers about voluntary program requirements, and enforce mandatory requirements.
- EBMUD has used "out-dial" calls and direct mail to alert customers to the start of the drought program and to request curtailed water use during especially prolonged hot weather.
- EBMUD reaches out to civic, community, non-governmental and business groups, homeowner associations, nurseries, schools, trade organizations, and local officials and also conducts workshops on water conservation topics, as discussed in Chapter 6. This work expands during droughts. EBMUD informs local stakeholder groups and seeks their assistance in communicating with their constituents, which generates a multiplier effect as they share the information with additional customers.

A.6 Customer Compliance and Enforcement

A.6.1 Water Use Restrictions

EBMUD's Regulations Governing Water Service to Customers, included in Appendix J, include various restrictions on water use and prohibitions on the waste of water. Section 29, "Water Use Restrictions," is continuously enforced. Section 28, "Water Use During Water Shortage Emergency Condition," is enacted when the EBMUD Board of Directors declares a Water Shortage Emergency. Section 28 may also be enacted in response to state- mandated water use reductions designed to address short-term statewide water shortages.

Section 29 details ongoing requirements that residential and nonresidential customers must observe. For example, residential customers are required to irrigate their property in a manner that does not result in excessive flooding or runoff, and all customers are required to repair leaks wherever it is feasible to do so. Under normal conditions, EBMUD relies on customer education to ensure that these requirements are met. When customers and field staff report on overwatering or water waste, EBMUD responds by contacting the customer and may send water conservation and field services personnel to apprise the customer of the wasteful conditions and make recommendations on using water more efficiently. If the customer cannot be located, and the water loss is significant, staff may turn off the water at the meter until the customer is contacted or the problem is resolved. The ongoing restrictions in Section 29 are supplemented temporarily with additional restrictions when the Board declares a Water Shortage Emergency and enacts Section 28.

Section 28 sets water use rules and provides guidance to customers about reducing water use during a declared water shortage emergency or when necessary to comply with state mandated water use reductions. Enforcement actions can include extra meter readings, written warnings, installation of flow-restriction devices, and even discontinuance of water service.

Section 28 typically prohibits certain uses of potable water during a water shortage emergency. Section 28 can also impose more detailed restrictions on irrigation. For example, during the 2020-2022 drought, Section 28 stated that irrigating turf and ornamental landscape with potable water was permitted no more than two days each week, not on consecutive days, and only before 9 AM and after 6 PM. Irrigation of turf and ornamental landscape with potable water was also prohibited during and within 48 hours following measurable precipitation.

During a water shortage situation, enforcement of water waste restrictions becomes particularly important and EBMUD may choose to devote additional resources to this effort. EBMUD staff monitors the service area to encourage water savings, help customers change their water use habits, and enforce regulatory requirements and water waste prohibition rules.

During water shortages, EBMUD typically receives a higher volume of water waste reports from members of the community who report the waste via the EBMUD website or by calling the Water Waste Hotline or Contact Center. Customers can also report water waste for EBMUD through the State Water Resources Control Board's online water waste portal. EBMUD staff investigate the reports and take appropriate actions. In most cases, EBMUD only needs to notify the party responsible, who then takes action to address the problem. If necessary, EBMUD can also proceed with enforcement.

EBMUD also adopted two separate ordinances to control water use: an Excessive Water Use Penalty Ordinance (Ordinance No. 363-21) and a Water Theft Penalty Ordinance (Ordinance No. 368-17). The Excessive Water Use Penalty Ordinance only applies during declared water shortage stages to discourage high discretionary usage, whereas the Water Theft Penalty Ordinance provides year-around authority to address unauthorized water use. Copies of these ordinances are provided in Appendix J.

The Excessive Water Use Penalty Ordinance sets penalties for single-family residential (SFR) customers who use large volumes of water during a specific water shortage stage. If the Board declares a Stage 2 water shortage, SFR customers must not consume more than 132 hundred cubic feet (CCF) of water over a two-month billing cycle. Customers using in excess of this amount are charged a per CCF penalty above the Water Flow Charge volumetric rates shown in EBMUD's Schedule A (Rate Schedule for Water Service). During Stage 3 water shortage, the maximum amount of water allowed before incurring a penalty drops to 118 CCF over a two-month billing cycle. During Stage 4 water shortage, the maximum amount of water allowed before incurring a penalty drops to 80 CCF over a two-month billing cycle. The purpose of the ordinance is to prohibit excessive water use when the Board has declared a Stage 2 or greater water shortage and to authorize EBMUD to impose a financial penalty on customers who violate the Ordinance.

The Water Theft Penalty Ordinance prohibits theft or unauthorized use of water. Although this ordinance was established during a drought period, it is enforceable throughout the year and not directly tied to water shortage declarations. This ordinance builds on existing EBMUD regulations related to water theft and gives EBMUD the authority to impose administrative penalties on any person who violates the Ordinance's prohibitions.

Per Water Code Section 10632.2, EBMUD has procedures and ordinances that have exemptions and appeals processes in effect during water shortage emergencies. The Excessive Use Penalty Ordinance appeals process allows for appeals due to meter error medical reasons, or due to leaks. Section 28 of the Regulations, "Water Use During Water Shortage Emergency Conditions," states that customers may apply for an exemption to the water use restrictions in the regulation. EBMUD can grant an exemption to prevent undue hardship or to avoid conditions affecting health, sanitation, fire protection, or safety.

There are also regulations, procedures, and ordinances that are always in effect, not just during water shortages. EBMUD Procedure 145, "Wasteful Use of Water," has exemptions for hardship and potential public health risks. Similarly, the Water Theft Penalty Ordinance has an appeals process and Section 29 of Regulations, "Water Use Restrictions," offers exemptions for undue hardship or to avoid conditions affecting health, sanitation, fire protection or safety.

EBMUD also has policies related to the approval of water connections for new developments during a water shortage. EBMUD Policy 3.07, "Responsibility to Serve Water Customers," sets out the agency's priorities during a water shortage. EBMUD's first priority is to serve existing customers within its existing service area. EBMUD then serves expected new customers within its service area, but only if this does not unacceptably impair its ability to serve existing customers. Lastly, EBMUD will consider customers outside its existing service area only if this does not impair its ability to serve existing and expected new customers within its service area.

A.7 Legal Authorities

This section provides a description of the legal authorities that empower EBMUD to implement and enforce its shortage response actions as discussed in this WSCP.

Municipal Utility District (MUD) Act

Among other things, the MUD Act, California Public Utilities Code Section 11501 et seq., authorizes and empowers EBMUD to fix rates and charges, and make and enforce rules, regulations, and practices in connection with its provision of water service within its service area.

Local Emergencies

California Government Code Section 8558 defines the types of emergencies that can be proclaimed under the California Emergency Services Act. The Act allows for the proclamation of a local emergency based upon the existence of drought conditions. In a Stage 3 or Stage 4 drought, EBMUD will coordinate with cities and counties within its service area regarding the possible proclamation of a local drought or other water shortage emergency.

Water Shortage Emergencies

Water Code Section 350 calls for water agencies like EBMUD to declare a water shortage emergency when the "ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection." EBMUD would declare a water shortage emergency as described under the DMP Guidelines set forth in the WSCP. Among other things, Water Code Sections 351 through 359 require a water agency to hold a properly noticed public hearing prior to declaring a water shortage emergency, to adopt regulations and water use restrictions that will conserve water supplies, and to maintain those regulations and restrictions in full force and effect until the water shortage emergency has ended.

Water Conservation Programs

Water Code Section 375 et seq. allows water agencies like EBMUD to adopt and enforce water conservation programs to reduce the quantity of water used by its customers. Water conservation programs adopted pursuant to section 375 may be enacted by ordinance or resolution and must be published and/or posted according to section 376. Following publication or posting, violation of any requirement of a water conservation program is a misdemeanor, and a violator may be held criminally or civilly liable. (See Water Code Section 377.) In specific DMP stages, EBMUD may choose to adopt a water conservation program pursuant to section 375 et seq.

Excessive Use Penalty Ordinance

Water Code Sections 365-367 require water agencies like EBMUD to identify and discourage excessive residential water use in

times of a drought. EBMUD complies with this requirement through its excessive use penalty ordinance as discussed in Section A.6.1.

CVP Contract

EBMUD executed a permanent repayment contract with the USBR for delivery of CVP water. Chapter 1 of the UWMP provides in-depth discussion of this contract.

A.8 Financial Consequences of WSCP

As discussed in Section A.8.2, the drought surcharge provides funds to cover EBMUD's implementation and compliance with its water shortage program components, including the costs of purchasing and delivering secondary water supplies, increased treatment costs, increased public outreach and messaging, increased customer account management services, and revenue loss due to reductions in water use.

A.8.1 Impact of Reduced Sales on Revenues & Expenditures

Implementation of the DMP entails added costs for EBMUD. Costs include paying for additional temporary personnel and equipment resources, transfer water purchases, increased outreach to customers, expansion of water conservation rebate and device distribution programs, and development and execution of educational and marketing programs.

In previous droughts, EBMUD hired temporary staff to help implement the DMP. These workers provided administrative support to respond to customer and media inquiries, provided field support to perform water use audits, assisted customers in identifying leaks, provided information technology support for bill adjustments, provided community outreach, responded to water waste calls/emails, and assisted with mass media outreach efforts.

Outreach to customers is intensified during a drought. There are costs to create and place ads, resources needed for website updates and tools, costs to develop and print publications, production costs to create informative videos, expenses to place automated "out-dial" phone calls, and special mailings costs. Additional media response also requires added resources to gather and vet information, respond to calls, and set up and conduct onsite interviews. These efforts help to educate customers about the drought, highlight water use prohibitions, and emphasize each customer's role and responsibility in responding to the drought.

As part of the DMP, EBMUD may also intensify some of its conservation programs, such as the distribution of water-saving devices and home water audit kits, which also add costs. Additional costs are also incurred for rebate programs that target improving water efficiency; for example, EBMUD offers rebates to encourage customers to remove turf, to install flow meters, to upgrade irrigation equipment, and to upgrade to water-efficient commercial equipment.

In addition to costs related to implementation of the DMP, EBMUD may face additional costs for the purchase, delivery, and treatment of secondary water supplies. These costs can include the purchase of transfer water, permitting, administrative and environmental work related to transfers, increased treatment costs related to the transfer water, and the operations costs associated with activating and using projects like the FRWP.

Table W-7 Drought Surcharges Corresponding to Drought Stages

Maximum Applicable Drought Surcharge Percentage				
	Stage 1	Stage 2	Stage 3	Stage 4
All potable water flow charges	5%	10%	20%	30%

A.8.2 EBMUD Drought Rate Structure

EBMUD uses drought surcharges to reflect the costs to provide service during drought. As established in EBMUD 2025 Water Cost of Service Rate Study Report, drought surcharges are calculated based on the estimated revenue needs during different stages of drought, including costs to purchase transfer water, additional operating costs to treat and deliver the purchased water, costs for drought outreach, and costs for additional water conservation efforts. The surcharges can also account for revenue loss due to the reduction

in water sales during droughts in response to voluntary or mandatory reduction targets. Drought surcharges are set as maximum surcharges that can be implemented during each drought stage. After a drought is declared by the EBMUD Board of Directors, the Board will determine the magnitude of any actual drought surcharge to be implemented based on the declared drought stage, EBMUD's budget, and necessary financial considerations.

As shown in EBMUD's Schedule L-Drought Surcharge Rate Schedule for Water Service (Appendix J), the rates for the Water Flow Charge shown in EBMUD's Schedule A-Rate Schedule for Water Service (Appendix J) may be increased up to the following maximum percentages during the specified declared drought stage.

Table W-7 shows when the drought surcharge would first be applied and the corresponding percent increases throughout the various drought stages.

The drought surcharge adopted by EBMUD's Board will be applied to the applicable rate of the customer's potable Water Flow Charge from Schedule A. Prior to implementing the drought surcharges, EBMUD will update drought-related costs and develop surcharges based on the updated cost of service. Any surcharges that are imposed will be consistent with EBMUD's staged system of drought surcharges and will not exceed the drought surcharge maximums listed in Schedule L.

A.9 Monitoring and Reporting

During droughts, EBMUD monitors customer demand closely to ensure that its DMP is effective in reducing demand to the required level. Data gathered from monitoring can help EBMUD to make decisions on priorities for customer outreach and conservation programs.

EBMUD evaluates both billed consumption and daily water production data relative to reduction goals. Using this data, staff gauges EBMUD's effectiveness in managing overall demand and customers' responsiveness to requests to conserve. The results are presented to the EBMUD Board of Directors in regular drought management reports. The reporting frequency depends on the level of activity occurring and the severity of the drought.

Customer accounts are metered, providing bi-monthly and monthly (for large water use accounts) consumption data that can be evaluated by customer category characteristics. Water production data tracks treated water input to the distribution system leading to customers' taps. Air temperature variations are also tracked with water production to observe the effects of weather conditions on consumption behavior. Using financial records summarized from customer bills, EBMUD analyzes whether customer groups are reaching their conservation targets based on the distribution of customers affected by drought surcharges and higher drought rates.

EBMUD assesses the effectiveness of its demand management programs on the projected water supply in each report to the Board. This ensures timely action can be taken to recommend improvements to the DMP for Board consideration if results fall short of EBMUD's water use reduction goals.

The success of a DMP depends on customers reducing their water use. Experience shows that providing clear feedback on consumption relative to goals and water use reduction expectations, benchmarking efficient water use among customer sectors, clearly stating the financial penalties for overuse, clearly stating the consequences for violating water use regulations and ordinances, and acknowledging all customers' efforts to save water all reinforce prudent behavior. EBMUD uses Home Water Reports for enrolled customers and uses its Customer Information System to inform all customers of their current and past water uses and routinely updates printed messages on customer water bills. This information helps customers monitor their individual rationing efforts and encourages adjustments to usage.

A.10 WSCP Refinement Procedures

EBMUD prepares internal lessons learned reports from various departments after consecutive drought events; these reports document the challenges and successes to understand causes of difficulties and to make improvements in handling future droughts/water shortages. The benefits of looking back at past experiences include process improvement, risk management, and identifying constraints and uncertainties. This reflection and evaluation contributes to EBMUD's continuous improvement in refining response actions.

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