

# 13. EAST BAY MUNICIPAL UTILITY DISTRICT

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East Bay Municipal Utility District (EBMUD) operates recreation areas on watershed lands in Amador County that are owned by the District. EBMUD provides water and wastewater service to visitors and residents of its recreation areas at Pardee (PARA) and Camanche North Shore (CANS) in Amador County, and at Camanche South Shore (CASS) in Calaveras County. The District generates electricity at Pardee and Camanche Dams. EBMUD is a multi-county district with territory in both Alameda and Contra Costa counties, where it provides water treatment, conveyance and retail services, water recycling, and wastewater treatment and disposal services. MSR and MSR determinations are prepared and adopted for EBMUD by Alameda LAFCO in the District's principal county.

## AGENCY OVERVIEW

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### Background

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EBMUD was formed on May 8, 1923 as an independent special district. The District was created to provide water service; in 1944 it began providing wastewater treatment to a portion of its service area in Alameda County.

The principal act governing the District is the Municipal Utility District Act.<sup>282</sup> Municipal utility districts may potentially provide a wide array of utility services, including light, water, power, heat, transportation, telephone service, or other means of communication, or means for the collection, treatment, or disposition of garbage, sewage, or refuse matter. They are required to gain LAFCO approval to provide those services permitted by the principal act but not performed by the end of 2000 (i.e., latent powers).<sup>283</sup>

### Boundary

EBMUD's boundary area is within Alameda and Contra Costa counties, and contains no territory in Amador County. The District serves recreation areas at its reservoirs in Amador, Calaveras and San Joaquin counties outside its bounds.

The District's Alameda County boundary area includes the cities of Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, and San Leandro and portions of Hayward. Unincorporated areas in the District's bounds include Ashland, Cherryland, Castro Valley, Fairview, San Lorenzo, and the watershed lands east of Oakland. The District's territory in Contra Costa County includes the cities of Richmond, San Pablo, El Cerrito, Pinole, Hercules, Orinda, Lafayette, Moraga, Danville, San Ramon, and parts of Walnut Creek and Pleasant Hill, as well as unincorporated areas, including Alamo, Blackhawk, Crockett, Diablo, El Sobrante, Kensington, North Richmond, Oleum, and Rodeo.

The District's boundary area is 332 square miles.

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<sup>282</sup> California Public Utilities Code section 11501 et seq.

<sup>283</sup> Government Code §56824.10.

Sphere of Influence

The District’s SOI was established on April 21, 1983 and included only the City of San Leandro and the unincorporated areas of Ashland, Cherryland, Castro Valley, Fairview and San Lorenzo. The cities of Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont, where EBMUD provides water and sewer service, were added to the District’s SOI in 2006 by Alameda LAFCO after adoption of an MSR for the District. The District’s SOI contains no territory in Amador County.

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**Local Accountability and Governance**

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EBMUD is governed by a seven-member Board of Directors elected from wards to serve four-year terms. The Directors must be residents of the ward they represent.

The Board of Directors meets twice a month on the second and fourth Tuesday. The meetings are not broadcast live on local television. The District posts board notices, agendas and meeting summaries on the District’s website, and these are also emailed to anyone who signs up for the service.

**Figure 13-1: EBMUD Governing Body**

| <b>EBMUD</b>                |   |          |               |
|-----------------------------|---|----------|---------------|
| <b>Governing Body</b>       |   |          |               |
|                             | Name  | Position | Term Ends     |
| <i>Members</i>              | John A. Coleman   | Ward 2   | December 2014 |
|                             | Katy Foulkes  | Ward 3   | December 2014 |
|                             | Andy Katz   | Ward 4   | December 2014 |
|                             | Doug Linney   | Ward 5   | December 2016 |
|                             | Lesa R. McIntosh  | Ward 1   | December 2016 |
|                             | Frank Mellon  | Ward 7   | December 2014 |
|                             | William "Bill" Patterson  | Ward 6   | December 2016 |
| <i>Manner of Selection</i>  | Election by ward.   |          |               |
| <i>Length of Term</i>       | 4 years.  |          |               |
| <i>Meetings</i>             | Second and fourth Tuesday of each month at 1:15pm at EBMUD Road Room in Oakland.                            |          |               |
| <i>Agenda Distribution</i>  | Online, posted.   |          |               |
| <i>Minutes Distribution</i> | Online, posted.   |          |               |
| <b>Contact</b>              |   |          |               |
| <i>Contact</i>              | Alexander R. Coate  |          |               |
| <i>Mailing Address</i>      | P.O. Box 24055, Oakland, CA 94623   |          |               |
| <i>Phone</i>                | 1-866-EBMUD   |          |               |
| <i>Email/Website</i>        | <a href="http://www.ebmud.com">www.ebmud.com</a> , <a href="mailto:custsvc@ebmud.com">custsvc@ebmud.com</a> |          |               |

To keep citizens informed of district activities, EBMUD participates in community events, distributes a newsletter, fact sheets and reports, and maintains a website with updates on current projects and press releases. The District also discloses plans, finances and other public documents on the web. The District offers media activities and audiovisual presentations, with audiences that include the general community, stakeholder groups, school groups, community leaders, civic groups, and ratepayers.

Customer complaints are received by phone, fax, and email. The District's customer service and water quality staff routinely handle complaints. Complaint resolution occurs in one to five business days. Customers can also attend regular board meetings and present complaints to the Board. The District's annual complaint volume is typically 6,300, which includes complaints about high rates, water quality, water pressure, noise, and leaks, as well as information requests.

The District demonstrated accountability in its disclosure of information and cooperation with LAFCO during the MSR process.

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## Management

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EBMUD employed approximately 1,800 people at the end of FY 2012, out of which about 1,756 were full-time employees. A general manager and executive team manage EBMUD's workforce.

The District evaluates its performance through annual personnel performance evaluations, annual financial audits, and financial trend reports. The District also generates semi-annual and annual budget performance reports. Service operations are routinely evaluated, including water operations, treatment and distribution, customer service and response, wastewater treatment and distribution, and construction of pipeline projects.

EBMUD has developed performance indicators to monitor workload for specific areas as well as district-wide planning and goal setting. The performance indicators track productivity and error rates for the various types of work performed. Performance measures for core services include water supply, treatment and distribution as well as design and construction costs.

District management practices include annual financial audits and benchmarking. The District does not conduct performance-based budgeting.

The District has adopted a strategic plan and a mission statement. In addition there is an Upcountry Utility Infrastructure Master Plan adopted in October 2009, Sewer System Management Plan adopted in August 2010, Urban Water Management Plan adopted in 2010, Watershed Management Plan revised in 1999, and Water Supply Management Program 2040 Plan adopted in 2012. The scope of planning efforts includes system capacity, service demand, costs, water quality and supply. The District collaborated with local water and wastewater providers in developing the updated Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan, which was completed in early 2013. EBMUD adopted a Mokelumne Watershed Master Plan (MWMP) in 2008, which has not been updated since.

Management practices include risk management.

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## Service Demand and Growth

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Existing land uses in the District's boundary are diverse. On District-owned lands in the Mokelumne watershed, a major use is water, composing approximately 10,000 acres. The approximately 18,000 remaining acres are primarily watershed management areas and natural preserves; secondary uses include recreation areas and mobile home parks. Watershed management areas are rangelands managed for the primary goal of protection

of water quality, fire control, and ecological integrity. Natural preserves are areas managed for the creation, restoration, and protection of natural systems (aquatic, riparian, and upland habitats) surrounding Pardee and Camanche reservoirs and their tributaries.<sup>284</sup> There are 130 mobile home park sites, 220 camp sites and on the north shore of Camanche Reservoir there are 100 campsites, 77 seasonal recreational vehicle (RV) sites for stays up to nine months and 12 short-term RV sites at Pardee Reservoir.

In 2012, there were approximately 1,350,000 residents in the District.<sup>285</sup> There were about 713,000 and 377,00 jobs in Alameda and Contra Costa counties respectively.<sup>286</sup>

EBMUD served a total of 378,123 water accounts at the end of FY 12.<sup>287</sup> In recent years the District's water service demand has remained lower than the planning level of demand as a result of residual effects from the 2007-2010 drought, depressed economy, and unusually cool temperatures. In FY 12, EBMUD's daily average system demand was 178 million gallons per day (mgd). From 2015 through 2030, water demand is projected to grow by three percent, according to EBMUD's UWMP 2010. By comparison, the service area (including boundary area and territory served outside of the boundaries) population<sup>288</sup> is expected to grow by 12 percent, and the job base<sup>289</sup> in Alameda and Contra Costa counties are expected to grow by 22 and 21 percent, respectively. The District's existing water supplies are insufficient to meet current and future customer demand during droughts, despite implementation of conservation and water recycling programs. The District plans to not annex additional territory as a growth constraint strategy, due to the aforementioned water supply constraints.

At the end of FY 12, the District served 174,232 wastewater accounts. At the end of the same fiscal year, the average daily wastewater flow was 62 mgd.<sup>290</sup>

In the Mokelumne watershed, the largest concentration of development is adjacent to the District's Camanche Hills Hunting Preserve and to the entrance of the Camanche North Shore Recreation Area. Additional residential growth anticipated in this northern area in the next several years will fall outside of EBMUD-owned lands and largely outside the Mokelumne drainage. With approval from the respective counties, subdivisions and other uses could be developed in the rural areas around the Mokelumne Watershed. The District reported that additional growth would not affect service demand in Amador County.

On EBMUD property, there are temporary accommodations at camping sites, cottages and motel rooms. There are 141 campsites at Pardee, including 12 recreational vehicle sites with electric, water and sewer connections. At Camanche North Shore, there are cottages, motel units and 150 camping sites. Campsite amenities include barbecues, tables, water, hot showers, restrooms and laundry facilities. About 200 mobile homes are located

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<sup>284</sup> EBMUD, *Mokelumne Watershed Master Plan Program Environmental Impact Report*, April 2008, p. 8.

<sup>285</sup> EBMUD, CAFR FY 2012, p. 90.

<sup>286</sup> ABAG Projections, 2009.

<sup>287</sup> EBMUD, CAFR FY 2012, p. 93.

<sup>288</sup> EBMUD, *UWMP 2010*, P. 1-5.

<sup>289</sup> ABAG Projections, 2009.

<sup>290</sup> EBMUD, CAFR FY 2012, p. 93.

on the Camanche Lake's north and south shores at EBMUD recreation areas; the mobile home parks were established in the late 1960s.

On its property within the Mokelumne watershed, the EBMUD Board, by four-fifths vote, may render a local zoning ordinance inapplicable to other proposed uses of its property. EBMUD policies on its watershed lands are that any new recreational development (or redevelopment) will occur in or immediately adjacent to existing developed areas, with a strong preference for sites within developed areas. No new areas will be opened to development unless it is neither feasible nor practical to locate the facility within a developed area, or because of the facility's utility to the District.<sup>291</sup>

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## Financing

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During the past three fiscal years, EBMUD faced a tough financial market, severe reduction in local growth and development, and rising costs including health care, retirement costs and energy. The slow housing market (fewer connection fees for new homes) and reduced water use by EBMUD customers—in response to the drought management program in place from May 2008 to June 2009—have reduced revenues to the District. To keep the budget balanced, EBMUD has reduced more than \$85 million in anticipated capital spending over the FY 11 and FY 12 two-year budget period. Cost-cutting programs in FY 12 included a hiring freeze, delaying capital projects, and reducing discretionary spending, which ensured that projected expenses matched revenues. As a result, EBMUD maintained its stable fiscal position and continued to meet its financial goals. The District reported that its current financing levels were adequate for the continued delivery of services.

The District tracks its finances through two enterprise funds, one for its water and another for its wastewater operation.

Total revenue in FY 12 was \$442 million.<sup>292</sup> EBMUD's revenue sources included water rates, sewer rates, power rates, wet weather facilities charges, investment income, taxes, and other income. The District receives a portion of the one percent property tax within district boundaries.

The EBMUD Board of Directors approved a water system rate increase of six percent for both FY 12 and FY 13, and a wastewater system rate increase of six percent for both FY 12 and FY 13.

Total expenditures for FY 12 were \$517 million.

The District finances capital projects with service charges, connection fees, reserves and bonded debt. The FY 16 Capital Improvement Program (CIP) includes funding for improving water and wastewater treatment processes, replacing, upgrading and maintaining aging infrastructure, preparing for seismic events, protecting natural resources, and ensuring the District's future water supply. Over the next five years, the District anticipates spending almost \$400 million to maintain the District's pipelines, aqueducts, pumping plants, reservoirs and other infrastructure.

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<sup>291</sup> EBMUD, *Mokelumne Watershed Master Plan: Final Program Environmental Impact Report*, 2008, p. 11.

<sup>292</sup> EBMUD, *Comprehensive Annual Financial Report*, FY 11-12.

Over the next five years, the District anticipates spending over \$25 million on a newly required infiltration/inflow control program for the District's wet weather facilities, which requires extensive flow monitoring and modeling, inspection of the entire EBMUD interceptor system, and a regional private sewer lateral ordinance and incentive program. Other projects include \$18 million to upgrade the digesters and \$27 million to rehabilitate two sewer interceptors.

The District had \$3.1 billion in long-term debt at the end of FY 12, which was composed mostly of general obligation and revenue bonds. The District received a “very strong” (Aa1) underlying rating from Moody’s for its water enterprise bonds and a “very strong” (Aa2) underlying rating from Moody’s for its sewer enterprise bonds.

By way of financial reserves, the District had unrestricted net assets of \$274 million at the end of FY 12. The reserves amounted to 53 percent of the District’s expenses in FY 12; the District maintained approximately 6.4 months of working capital.

The District is involved in joint financing arrangements through various Joint Powers Authorities. The District is a 50 percent participant in the Dublin San Ramon Sanitary District/EBMUD Recycled Water Authority. EBMUD, along with the Sacramento County Water Agency and the City of Sacramento, have partnered on the Freeport Regional Water Project, which provides supplemental water to EBMUD during dry years. The District has formed a partnership with Alpine, Amador and Calaveras counties to conduct a study of the upper Mokelumne watershed. The District has partnered with a number of agencies to form the Bay Area Water Agencies Coalition, which is devoted to improving water quality and reliability in the Bay Area.

## WATER SERVICES

This section describes the nature, extent and location of the water services provided as well as key infrastructure and water sources.

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### Nature and Extent

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The District's water system collects, transmits, treats, and distributes water to approximately 60 percent of the developed area within Alameda and Contra Costa counties. The water is supplied to users of industrial, commercial, residential, and public authority in service area extending from Crockett in the north, southward to San Lorenzo (encompassing Oakland, Berkeley and Alameda), eastward from San Francisco Bay to Walnut Creek, and east through the San Ramon Valley.

In FY 12, EBMUD met its performance targets of fewer than ten unplanned interruptions lasting no more than four hours per 1,000 customer accounts, less than 20 pipeline breaks per 100 miles of pipes, and at least 90 percent of wastewater equipment and facilities in operation around the clock.

EBMUD's primary water source is the Mokelumne River, fed by melted snow, from Amador, Alpine and Calaveras counties. The District owns 28,149 acres in the watershed, of which approximately 10,000 acres are flooded by Pardee and Camanche reservoirs and 18,000 acres are upland draining to the reservoirs. Raw or untreated water from Pardee Reservoir is transported more than 90 miles west via three parallel aqueducts to East Bay water treatment plants or terminal reservoirs. Completed in 2010, the Freeport Regional Water Project can convey up to 100 million gallons per day of Sacramento River water to protect EBMUD's customers from the potential devastation of a severe drought.

EBMUD operates reservoirs and aqueducts to export water from the watershed to its primary service area in the East Bay, and also uses the river for hydroelectric development. EBMUD serves groundwater from three wells to residents and visitors to its Camanche North Shore area, and serves other recreation areas through surface water supplies. The District does not produce or use recycled water in the watershed area. The three recreation areas and hunt club are operated by concessionaires, although water treatment facilities and capital replacement and maintenance are the responsibility of the District.

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### Location

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EBMUD's water system serves approximately 1.35 million people in a 332-square mile area in Alameda and Contra Costa counties near San Francisco. EBMUD also provides water services to its recreation areas at Pardee and Camanche North Shore in Amador County and Camanche South Shore in Calaveras County, which are located outside district bounds on lands adjacent to the reservoirs and owned by the District. An annual average for 2011-2012 of 45 million gallons of potable water was used in the watershed, with 57 percent of it delivered to the district recreational areas in Amador County.

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### Infrastructure

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EBMUD's key water system infrastructure includes 13 treatment plants, 140 pumping plants, 170 reservoirs, 91.5 miles of aqueducts, and 4,100 miles of pipeline.

EBMUD's primary water source is Mokelumne River flows; minor sources include East Bay runoff and drought supplies from the Central Valley Project and Bayside Groundwater Project, Phase 1.

The Mokelumne River water originates in Amador, Alpine and Calaveras counties. With a watershed encompassing approximately 600 square miles, an average year yields 745 thousand acre feet of runoff, with the majority of flow derived from Sierra snowmelt. The Mokelumne River supplies an annual total of 672 mgd on average; in 1977, the lowest year on record, it supplied 115 mgd. The District has rights to 325 mgd (approximately 364,072 af) annually, subject to prior water rights.<sup>293</sup> EBMUD's position in the hierarchy of Mokelumne water users is determined by a variety of agreements between Mokelumne water rights holders. By various agreements with the District, on average, 98.7 mgd (or 107,000 AF in average and wet years) of the supply is distributed to three Sierra foothill counties—Amador, Calaveras and San Joaquin. In combination with its pre-1914 rights, Amador County water users (primarily AWA and JVID) hold 20,000 af in water rights senior to the District's 1949 permit. Similarly, Calaveras County users hold 27,000 af and San Joaquin County users hold 60,000 af in water rights senior to the District's 1949 permit in average and wet years. EBMUD's water rights permit requires minimum releases from Camanche Reservoir to protect downstream fisheries. The supply from this source is generally high quality.

EBMUD expects its Mokelumne River supply source to decrease in the future, as consumption by senior water rights increases and increased downstream releases are required to protect fish, wildlife and riparian habitat. EBMUD's Mokelumne River water supply is not sufficient to meet its long-term customer demands during a drought. The conditions that restrict the District's ability to use its Mokelumne River entitlement include upstream water use by prior right holders, downstream water use by riparian and senior appropriators and other downstream obligations, as well as drought and other climatic variations.

EBMUD's Mokelumne River supply facilities include Pardee Dam and Reservoir, located near Valley Springs, and Camanche Dam and Reservoir, located approximately 10 miles downstream. EBMUD diverts its water supply at Pardee Reservoir, moving stored water into the Pardee Tunnel, Mokelumne Aqueducts, and Lafayette Aqueducts and on to its primary users in the East Bay.

EBMUD's Pardee Reservoir has a capacity of 197,950 af and is operated as a water supply reservoir. The reservoir was built in 1929. EBMUD operates a 27.8-mega watt (MW) Pardee Powerhouse, located at the base of the dam, which was placed in service in 1930 and expanded in 1983. Water is conveyed from Pardee by the Mokelumne Aqueducts to the EBMUD service area approximately 91 miles away. Remaining water flows 10 miles downstream to Camanche Dam and Reservoir.

Camanche Reservoir has a capacity of 417,120 af, and was built in 1964. Camanche Reservoir is operated jointly with Pardee Reservoir to provide water supply benefits while maintaining numerous downstream obligations, including stream-flow regulation, water for fisheries and riparian habitat, flood control, and obligations to downstream diverters. It

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<sup>293</sup> EBMUD's rights include a license with a priority date of 1924 to divert up to 200 mgd, and a permit with a 1949 priority to divert up to 125 mgd.



also provides power generation and recreation opportunities. Water supplies from the Mokelumne River are withdrawn for North San Joaquin Water Conservation District at Camanche Reservoir, depending on EBMUD supply requirements. EBMUD operates the 11.25-MW Camanche Powerhouse located at the base of the dam, which was placed in service in 1983.

Both, Pardee and Camanche facilities are regulated by the Federal Energy Regulatory Commission and California's Division of Safety of Dams.

EBMUD serves groundwater from two wells to residents and visitors to its Camanche North Shore area; a third well is currently not used and on standby status. The groundwater treatment facility was last upgraded in 2005. There have been no health or monitoring violations at the groundwater system, according to EPA data; however, the groundwater sources are vulnerable to contamination from gas stations and sewer collection systems in the area.

Because of growth in the area and concerns with groundwater quality and basin overdraft, the Lake Camanche Village area is planning to phase out the use of groundwater. There are plans for a joint surface water treatment plant project between EBMUD, AWA, and CCWD to supply surface water to this area beginning as early as 2015.<sup>294</sup> It is expected to involve a surface water treatment plant on the south shore, with a pipeline conveying treated water to the north shore.

EBMUD built a hatchery immediately downstream of Camanche Reservoir, which the California Department of Fish and Wildlife operates.

EBMUD, PG&E, and AWA agreed to jointly contribute to the replacement of the Amador Canal with a pipeline that is anticipated to eliminate 3,000-6,000 afa in seepage losses from the prior earthen ditch canal. Until AWA needs its full 15,000 acre-feet of entitlement, which is currently estimated to be approximately 2030, the conserved water will be available to PG&E and EBMUD for additional hydropower generation and as additional inflow to Pardee Reservoir.<sup>295</sup> The water conserved by this project will be available to EBMUD in most years for diversion into the Mokelumne Aqueduct or through the Pardee and Camanche power plants.

Within the Pardee recreation area, in 2012 the District served a population of 237 people with 93 connections (12 residential and 81 commercial). During the same year there were six service connection breaks and leaks and two main breaks and leaks.

Within the Camanche North Shore recreation area, in 2012 the District served a population of 781 people with 211 connections (155 residential and 56 commercial). During the same year there were six service connection breaks.

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<sup>294</sup> RMC Water and Environment, *Mokelumne, Amador and Calaveras IRWMP*, October 2006, p. 3-17.

<sup>295</sup> EBMUD, *Summary Financial Information Statement*, FY 2007, p. 14.

## WASTEWATER SERVICES

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### Nature and Extent

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The wastewater system intercepts and treats wastewater from residences and industries. It serves 650,000 customers in an 88-square-mile area of Alameda and Contra Costa counties along the Bay's east shore, extending from Richmond in the north to San Leandro in the south.

EBMUD operates wastewater collection, treatment and disposal services at its Camanche and Pardee recreation areas in Amador County.

EBMUD considers itself a "green company" generating 90 percent of the electricity needed to power its main wastewater plant by creating renewable energy using waste from food, wineries, fats, oils and greases. This reduced green-house gas emissions and avoided the need to haul these wastes long distances for composting or to landfills where they release methane—a potent greenhouse gas. This resource recovery project also provides substantial revenue, helping keep wastewater rates low.

EBMUD provides secondary treatment for a maximum flow of 168 million gallons per day (mgd). Primary treatment is provided for up to 320 mgd. Storage basins provide plant capacity for a short-term hydraulic peak of 415 mgd. On average, about 63 million gallons of wastewater is treated every day.

The Upcountry Wastewater Systems Master Plan assessed and evaluated the infiltration and inflow (I/I) in the CASS, CANS, and PARA wastewater collection systems. Line segments that had a greater than 20 percent return ratio were considered to have rain derived I/I issues. If the rain derived I/I return ratio was less than 20 percent but greater than 10 percent, it was considered to have limited I/I. None of the monitoring sites in the study experienced an average rain derived I/I ratio greater than 15 percent. EBMUD conducts routine maintenance and preventive maintenance activities by EBMUD wastewater maintenance staff for its sewer collection systems. The sewer lines are video inspected to look for breaks, obstacles, and defects that could lead to I/I issues. The sewer collection system piping that has not been recently repaired or rehabilitated is inspected, cleaned and repaired to improve existing operations and to further reduce system I/I.

EBMUD has addressed I/I issues by completing a cured-in-place lining project that reduced I/I flows in the collection system by 50 percent in the completed pipelines. EBMUD installed meters in the mobile home parks in 2006 and 2007. These installations and monitoring of the residences water use has reduced I/I flows.

One sanitary sewer overflow occurred in December 2013 in the Amador wastewater systems.

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### Location

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EBMUD has two wastewater treatment plants in the Mokelumne watershed that serve recreation area visitors and residents in Amador County. An annual average of 26 mg of wastewater is generated in the watershed, 98 percent of this is used in the recreational areas.

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## Infrastructure

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EBMUD operates two wastewater facilities that serve the Camanche North Shore Recreation Area and Pardee Recreation Area in Amador County, as well as a treatment facility at the Camanche South Shore Recreation Area in Calaveras County. The sewer system at CANS consists of 5.4 miles of gravity sewers, 0.5 miles of force main, 159 sewer laterals (1.3 miles) and five sewer lift stations. The sewer system at PARA consists of 1.5 miles of gravity sewers and 132 sewer laterals (0.4 miles). The sewer system at CASS consists of 7.4 miles of gravity sewers, 1.6 miles of force main, 342 sewer laterals (3.5 miles) and seven sewer lift stations. The sewer main lines range from four to eight inches in diameter. The sewer laterals are four inches in diameter, and the force mains are three or four inches in diameter.

The Camanche North Shore plant is a three-pond treatment system with two overflow backup ponds, and a sixth storage pond. Three of the treatment ponds are mechanically aerated, effluent is stored in the fourth, fifth and sixth ponds and then sprayed during irrigation season in a five-acre land disposal area. The disposal area drains to Lake Camanche, according to RWQCB;<sup>296</sup> however, EBMUD reported it operated the sprayfields to direct drainage back to a pond and to avoid ponding in the sprayfields. There are six lift stations. In 2013, the plant processed average daily dry weather flow (ADDWF) of 14,300 gallons per day during open season, lowest 30 day average influent flow of 12,200 gallons per day during closed season, peak day dry season of 45,000 gallons per day, and daily average influent flow of 17,200 gallons per day for the entire calendar year.

At the Pardee recreation area, there is a small wastewater treatment facility with storage ponds and a one-acre land-discharge site. The Pardee design flow is 11,500 gpd during dry months of May through September, according to the permit; whereas, the maximum dry weather flow is estimated at 21,000 gpd in the District's master plan. Actual flows in 2013 were average daily dry weather flow (ADDWF) of 1,500 gallons per day during open season, lowest 30 day average influent flow of 200 gallons per day during closed season, peak day dry season of 9,000 gallons per day, and daily average influent flow of 1,900 gallons per day for the entire calendar year.

A third facility on EBMUD-owned land is the Camanche Hills Hunting Preserve, which operates an 8,000 gallon underground storage tank to store wastewater from bird cleaning and processing operations. The operation generates approximately 36,850 gallons of wastewater annually. The wastewater is hauled offsite for disposal.

EBMUD has discussed development of a regional wastewater treatment facility with local jurisdictions, but indicates that the need for such a facility is unrelated to any increase in development on EBMUD property.<sup>297</sup> The proposed facility would treat wastewater from the Camanche North Shore and communities in Amador County.

Existing sewage collection and transmission systems at the recreation areas are old, were not constructed to current engineering standards, are generally inaccessible, and have high infiltration and inflow rates. Some of the pipes and manholes are made of

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<sup>296</sup> California Regional Water Quality Control Board, *Order No. 95-175*, 1995.

<sup>297</sup> EBMUD, *Mokelumne Watershed Master Plan: Final Program Environmental Impact Report*, 2008, p. 24.

substandard plastic conduit. Major portions of the existing sewage collection and transmission systems were replaced by EBMUD at a cost of \$1.2 million in 2012.

There are multiple other capital improvement projects that were planned by EBMUD to upgrade existing infrastructure; however these projects are planned for the main wastewater treatment plant serving Alameda County.

## **PARK AND RECREATION SERVICES**

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### **Nature and Extent**

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EBMUD maintains the Middle Bar Take-out and Mokelumne Day Use areas. Concessionaires hold multi-year contracts to operate the Pardee and Camanche recreation areas on district property. Recreation offered at Pardee Reservoir includes fishing, boating and camping. At Camanche Reservoir, recreation options include camping, swimming, wind surfing, water skiing, fishing, and picnicking.

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### **Location**

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EBMUD recreation areas in the Mokelumne River watershed are:

- ❖ Middle Bar Boat Take-out Area (on the river between SR 49 and Pardee Reservoir),
- ❖ Pardee Recreation Area (at the northwest end of Pardee Reservoir)
- ❖ Camanche North Shore (on the north shore of Camanche Reservoir)
- ❖ Camanche South Shore (on the south shore of Camanche Reservoir in Calaveras County)
- ❖ Camanche Hills Hunting Preserve (west of Camanche North Shore)
- ❖ Mokelumne River Day Use Area (immediately below Camanche Dam)

There are District-maintained trails in the recreation areas and parts of the undeveloped areas.

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### **Infrastructure**

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Marinas on the Camanche North and South shores offer boat rentals, slips, fuel, bait, tackle and supplies. More than 30 miles of trails run through the EBMUD Mokelumne watershed