Meet the Marin Municipal Water District
Fast Facts

SERVICE AREA
Square miles ......................................................... 147
Population ............................................................ 186,000
Service connections ............................................. 61,391

WATER SUPPLY
Watershed lands (acres) ....................................... 21,635
Number of storage reservoirs .............................. 7
Total reservoir storage capacity
  Acre-feet\(^1\) ......................................................... 79,566
  Millions of gallons ............................................ 29,927
Average yearly rainfall in inches
  at Lake Lagunitas ............................................. 52

WATER PRODUCTION 2012
Water treatment plants
  Acre-feet ........................................................... 20,649
Imported Russian River water

Acre-feet ........................................................... 5,943

Total water production

Acre-feet ........................................................... 26,592

**DRINKING WATER FACILITIES**

Miles of pipeline ................................................. 888

Number of storage tanks ................................. 125

Total tank storage capacity

  Millions of gallons ........................................ 82

Number of pump stations ................................. 90

Number of potable water treatment plants .......... 3

**RECYCLED WATER FACILITIES**

Miles of pipeline ................................................... 24

Number of storage tanks ................................. 3

Total tank storage capacity

  Millions of gallons ........................................ 1.9

Number of pump stations ................................. 5

Number of recycled water treatment plants .......... 1

**WATERSHED FACILITIES**

Miles of watershed roads .................................. 92

Miles of watershed trails .................................. 59

Number of picnic grounds ................................ 8

Acres of wildfire protection fuel breaks ........... 1,077

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1 One acre-foot is equivalent to 325,851 gallons, enough water to cover one acre (about the size of a football field) to a depth of one foot or to supply three families for one year.
It’s easy to take drinking water for granted—you see it come out of the tap every time you turn it on, day or night. But there’s a lot more to the story of water at Marin Municipal Water District, from maintaining and upgrading our complex water delivery system, to ensuring the highest quality water through sophisticated treatment and testing, to promoting water conservation and protecting our watershed lands. That’s why we’d like to share with you some information about our district. We hope this overview will help you understand better what we do and why.

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On April 25, 1912, the Marin Municipal Water District (MMWD) received its charter as the first municipal water district in California. Before that, water in central and southern Marin was provided by a number of small, private companies, many of them subsidiaries of real estate developers. To ensure a reliable water supply, the citizens of Marin came together to create a publicly owned and managed water system.

Over the years, our customer base has expanded through the acquisition of 26 small, private water companies. Today MMWD provides high-quality drinking water to 186,000 people in a 147-square-mile area of south and central Marin County. Our service area includes ten towns and cities as well as unincorporated areas in the county.

**Our Mission:** To manage our natural resources in a sustainable manner and to provide our customers with reliable, high-quality water at a reasonable price.
MMWD’s water supply is provided by three integrated water sources: district reservoirs, imported water and recycled water. Having a diverse water supply greatly improves the reliability of the district’s water system.

**MMWD reservoirs**

On average about 75 percent of our water supply comes from rainfall collected in the district’s seven reservoirs located on Mt. Tam and in west Marin. The water supply provided by five of these reservoirs—Kent, Alpine, Bon Tempe, Lagunitas and Nicasio—is used annually. Water supply from the other two reservoirs—Phoenix and Soulajule—is held in reserve for use only during drought conditions because of the high cost of pumping water.

**WATER WORDS**

**Acre-foot:** An acre-foot equals 325,851 gallons, enough water to cover one acre (about the size of a football field) to a depth of one foot. One acre-foot can supply three families with water for one year.
from these sources. Water from the district’s reservoirs is conveyed to the district’s San Geronimo Water Treatment Plant or Bon Tempe Water Treatment Plant for treatment before entering the distribution system.

**Where we store our water**

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Reservoir capacity (acre-feet)(^1)</th>
<th>Percent of total capacity</th>
<th>Year built</th>
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<tr>
<td>Lagunitas</td>
<td>350</td>
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<td>1872</td>
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<td>Phoenix</td>
<td>411</td>
<td>0.5</td>
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<tr>
<td>Alpine</td>
<td>8,891</td>
<td>11.2</td>
<td>1919(^2)</td>
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<td>Bon Tempe</td>
<td>4,017</td>
<td>5.1</td>
<td>1948</td>
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<tr>
<td>Kent</td>
<td>32,895</td>
<td>41.3</td>
<td>1953(^3)</td>
</tr>
<tr>
<td>Nicasio</td>
<td>22,430</td>
<td>28.2</td>
<td>1960</td>
</tr>
<tr>
<td>Soulajule</td>
<td>10,572</td>
<td>13.3</td>
<td>1979</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>79,566</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) One acre-foot is 325,851 gallons.
\(^2\) Enlarged in 1924 and 1941 to current capacity.
\(^3\) Enlarged in 1982 to current capacity.
Water imported from the Russian River

On average about 25 percent of the district’s water supply is purchased from the Sonoma County Water Agency. The agency’s Russian River water system originates from watersheds that are tributary to Lake Mendocino and Lake Sonoma. Lakes Mendocino and Sonoma combined can store 357,500 acre-feet of water to meet the needs of the agency’s customers, including MMWD.

Recycled water

Like bottles, cans and paper, water can be recycled, too. Since the early 1980s, we have pioneered the use of recycled water for non-agricultural purposes in northern California. Up to two million gallons a day are recycled and distributed via a separate pipeline system to more than 350 customers in northern San Rafael during the warmer months. Recycled water is used for irrigation, toilet flushing and other non-drinking purposes. MMWD was the first water supplier in California to use recycled water for car washes, air-conditioning cooling towers and commercial laundries.

The water we recycle is wastewater that has been treated by the Las Gallinas Valley Sanitary District in north San Rafael. To recycle it, we filter it and treat it at our recycled water treatment plant, meeting the most stringent recycled water standards in the United States. Our finished recycled water is crystal clear, odorless, free of harmful bacteria and similar in quality to swimming pool water.
Water Consumption

How much water do we use?
5-Year Water Consumption Comparison

Who uses our water?
5-Year Average Annual Water Consumption by Use

1 In billions of gallons
Ensuring High Quality Water

High water quality begins with pure source water from a protected watershed, but modern treatment technology and a comprehensive water quality program ensure the delivery of extremely high-quality water throughout the district. All water delivered to our customers meets or surpasses state and federal standards for drinking water.

**Water quality testing**

Every year we conduct more than 120,000 water quality tests from the watershed to your faucet. We monitor water quality continuously at our treatment plants, and we draw water samples weekly from throughout our service area on a rotating basis. Additional tests are performed on samples drawn from our reservoirs and tributary streams.

Testing is performed in our state-certified laboratory using high-tech analytical equipment that can detect contaminants as low as one-half part per billion—equivalent to less than a drop of water in an Olympic-sized swimming pool.

Each spring we produce an annual water quality report, which is available on our website. You also can call us at (415) 945-1550 to request a copy.
Water treatment

The surface water from our Mt. Tam watershed is protected naturally from many kinds of contamination. Even so, this water still requires treatment to remove viruses, bacteria and other naturally occurring pathogens. Water treatment starts in the reservoirs, where we aerate the water to maintain a proper oxygen balance. Next, the water goes to either the Bon Tempe Treatment Plant on Mt. Tam or the San Geronimo Treatment Plant in Woodacre for further processing. Suspended matter is removed in clarifiers; microscopic particles are removed in deep-bed, multimedia filters; and bacteria and pathogens are inactivated by disinfectants. The water is then treated to control corrosion. Since passage of a voter referendum in 1972, fluoride has been added to reduce tooth decay. It is now required by state law.

The water we import from the Russian River is naturally filtered in the deep sand and gravel below the river bed and requires no further clarification. This water enters the MMWD system at our Ignacio treatment facility in Novato, where water quality is monitored continually. Final treatment is similar to that used at our two reservoir water treatment plants.
Rainfall at Lake Lagunitas varies substantially, with annual figures ranging from 19 to 112 inches. The rainfall year runs from July 1 to June 30. MMWD customers have endured three droughts since rainfall records began: 1929-34, 1976-77 and 1987-92.
1872: Lagunitas Dam built
1905: Phoenix Dam built
1906: San Francisco earthquake & fire
1912: MMWD founded in San Rafael by voters
1916: MMWD’s first bond issue
1919: Alpine Dam built
1924: Alpine Dam enlarged
1923: 40,000 acre fire from Novato to Alpine Dam
1929: 3,000 acres Blithedale Canyon fire
1941: Alpine Dam enlarged again
1945: 20,000 acre Old Sawmill fire
1948: Bon Tempe Dam built
1953: Kent Dam built
1960: Nicasio Dam built
1962: MMWD headquarters moved to Corte Madera
1976: First began importing Russian River water
1979: Soulajule Dam built
1982: Kent Lake capacity doubled
1992: Bond measure passed to improve water supply reliability
1996: Fire Flow program approved
2007: Conservation Master Plan adopted
2012: Fire Flow Program extended

Average Annual Rainfall: 52"
Since people use water every hour of the day, we operate around the clock. On average, it takes 24 hours for water to go from a reservoir through the treatment plant and then through miles of underground pipes to your faucet. Control of our water-distribution system is by computer, enabling our operators to coordinate more than 200 district facilities and direct the flow of water through 900 miles of pipe, all from a central location.

**Water distribution**

With three treatment plants for drinking water and one treatment plant for recycled water, we can process up to 61 million gallons per day. Water may be piped directly to you or into a tank until needed. Because of Marin’s hilly terrain, about 90 percent of the water must be pumped at least once before it reaches the tap. Some water is pumped up to six times.

Our pipes range in size from the 5/8-inch pipe that connects a residential water meter to our main to the 37-inch transmission pipes that carry source water to the treatment plants. The pipes are made of various materials, depending on when and where they were installed. Since the late 1970s, however, we’ve installed only welded steel and polyvinyl chloride mains due to their typically long life spans.
Since the 1960s, we’ve preserved pipeline life by using techniques to control corrosion. These measures will ensure newer pipelines do not deteriorate before the end of their useful life (about 100 years). We continually replace pipeline, with priority based mostly on condition, age and leak history. Currently we replace about 25,000 feet of pipeline per year on average.

**More water for fighting fires**

MMWD is implementing a Fire Flow Master Plan (FFMP) to improve the fire-fighting capability of our water system. Funded by an annual $75 parcel fee paid by property owners in MMWD’s service area, the program has supported the investment of approximately $70 million since 1997 for the replacement of more than 60 miles of undersized pipelines, the installation of 750 hydrants, and seismic retrofits of the water treatment facilities, critical storage tanks and pump stations. With the support of local fire officials, in 2012 MMWD’s Board of Directors approved extending the original 15-year program for another 19 years (through 2031) to fund an additional 52 miles of pipe replacement and seismic retrofits of district facilities.

**WATER WORDS**

**Fire flow:** The term firefighters use to describe how much water can be delivered by a water system through one or more hydrants to fight fires at a specific location. It’s determined by a pipe’s size, water pressure and condition. To meet fire-flow standards, a water distribution system must deliver large amounts of water in a short period of time, whereas for daily use, water systems provide small amounts of water on a continuing basis.
Our Watershed

The watershed lands we own and protect stretch over 21,635 acres, including more than 18,900 on Mt. Tamalpais and 2,700 adjacent to Nicasio and Soulajule reservoirs in west Marin. An additional 35,000 acres of privately owned watershed drains into those two reservoirs.

In addition to being a valuable source of water for our customers, the Mt. Tamalpais Watershed is a natural wildland of great biological diversity and a popular recreational destination. We have a staff of rangers, natural resource specialists and maintenance workers who take care of the watershed. Their responsibilities include protecting resources, managing fire risks, monitoring plant

**WATER WORDS**

Watershed: An area of land from which rainfall drains into a body of water. During the rainy season, water runs off the surface of the ground (or “sheds”) into creeks and reservoirs once it can no longer be absorbed by the earth.
and animal populations, restoring natural habitats, maintaining access roads and trails, assisting visitors and providing nature education programs for school children and adults.

**Natural resource management**

The Mt. Tamalpais Watershed is home to over 400 species of animals and 900 species of plants, including many rare, threatened and endangered species. The watershed comprises less than 0.2 percent of the area of California and five percent of Marin County, yet 15 percent of the state’s native plant species and 50 percent of the county’s can be found there. We are committed to sustaining, and restoring where needed, the ecological health of these lands. One of our primary efforts is to contain the spread of invasive pest plants to reduce the risk of wildfire and to promote biodiversity. We also have ongoing programs to monitor special-status plant and animal species such as songbirds, northern spotted owl, osprey, bats, yellow-legged frog and western pond turtle.

**Lagunitas Creek**

Lagunitas Creek begins above district reservoirs near the peak of Mt. Tamalpais on land owned by MMWD. Downstream of the reservoirs, the creek is a spawning and rearing ground for endangered coho salmon and steelhead
trout. Lagunitas Creek supports one of the best populations of coho salmon in California. Under an agreement with the state, we release water throughout the year to maintain adequate flows for the fishery. To mitigate the effects of the reservoirs, we also are implementing a comprehensive, long-term effort to improve creek habitat.

**Visiting the watershed**

The Mt. Tamalpais Watershed offers incomparable opportunities to enjoy nature including hiking, biking, fishing, horseback riding, wildlife viewing and picnicking. Visitors will find scenic vistas, oak woodlands, redwood groves, meadows, lakes, waterfalls and 150 miles of hiking trails and unpaved roads. The watershed is open from sunrise to sunset, but may be closed during extreme fire-hazard conditions. Camping, swimming and boating are prohibited. For current visitor information, call (415) 945-1195.

MMWD’s volunteer program gives the public an opportunity to help preserve Mt. Tam’s natural resources. See “Community Involvement” on page 22 to learn more.
Because water is a limited natural resource in Marin and throughout California, it’s important to use it efficiently all the time, not just during dry periods. We also save money by using water wisely, because it reduces our demand for costly new water supply sources. In addition, we improve our water supply reliability during low-rainfall years. Ways to help save water at your home or business range from the installation of water-efficient toilets, faucets and showerheads to “smart” irrigation controllers and low-water-use landscaping.

**Water conservation programs**

We offer a variety of programs to help you save water indoors and out, including free on-site water-use assessments for your home or business, professional training opportunities, a free weekly watering schedule during irrigation season and more. We also offer rebates to help you replace old toilets, clothes washers and irrigation controllers with new high-efficiency models.

Our conservation program offerings change regularly as different water use issues and new water-saving opportunities arise. Our conservation staff will be glad to discuss which programs can help you reduce your water use and your water bill. Call (415) 945-1520.
Governance, Management and Finances

As an independent special district, we operate as a separate local government agency. A five-member board of directors governs our district, with each director elected to represent one of five geographic areas. The board appoints a general manager to supervise all operations.

Our water district is unusual in that MMWD customers bear the entire financial cost of our operations. Many other water providers obtain their water from state or federally subsidized sources, or they share water supply and related costs with neighboring water agencies. We are funded primarily from the sale of water, which provides 85 percent of our revenue.

About 83 cents of each ratepayer dollar goes directly toward the cost of our water system—that is, the collection, treatment and distribution of water; and the maintenance and replacement of our facilities. The remaining 17 cents goes toward protecting our watershed lands, conservation programs and customer services.

MMWD is working to keep rates reasonable, even as the cost of providing water goes up. Compared to other Northern California water agencies, our rates are about average. When you pay your water bill, you are getting...
Where does each dollar come from?¹

- 2¢ Watershed Revenue
- 3¢ Connection Fees
- 4¢ Other Revenue and Capital Grants
- 15¢ Service Charge
- 76¢ Water Sales

Where does each dollar go?²

- 4¢ Water Conservation
- 5¢ Customer Service
- 8¢ Watershed
- 18¢ Pipeline & Facility Maintenance
- 65¢ Water Treatment, Distribution, & System Replacement

¹ Fiscal year 2012-13 revenue budget (not including fire flow fee)
² Fiscal year 2012-13 budget by program

more than just the water you use. You are also getting a 24-hour-a-day service of people and facilities—from reservoirs to pipelines—needed to supply clean, reliable water. Despite all that goes into its treatment and delivery, our water is still a bargain at about a half penny per gallon. The average MMWD customer pays less than $1.70 a day for all of their household water use.
Community Involvement

We believe it’s vitally important to participate actively in the communities we serve and to encourage our customers to participate in the activities of MMWD. Here are ways you can be more involved.

Public meetings

All of our board and committee meetings are public. We invite you to come to one of our meetings and find out more about the issues facing your board members and other citizens. Whether your interest is conservation, water quality or the environment, we like to know what you think and welcome your input.

School programs

We are pleased to offer free, fun-filled and informative environmental education programs for schools in our service area, including field trips to the Mt. Tamalpais Watershed, classroom presentations and more. Visit marinwater.org for current offerings.

Volunteer programs

Volunteers play a critical role in maintaining the scenic beauty and biological richness of the Mt. Tamalpais Watershed. From improving trails, restoring habitat and protecting threatened animals, MMWD has a variety of volunteer opportunities available to match your skills, interests and available time. Contact the Volunteer Coordinator for more information at (415) 945-1128.
## For More Information

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<th>Function</th>
<th>Contact</th>
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