



### Speakers Bureau

EMWD has an active speakers bureau program, where district representatives visit community organizations, civic groups, environmental and multicultural organizations, and more to provide updates on activities and programs. For information about speakers, tours, or presentations, please contact EMWD's Education team at (951) 928-3777, ext. 4350.



### Water Leaders Academy

The Water Leaders Academy is open to current and emerging civic leaders in EMWD's service area that desire to learn more about critical state and regional water issues. EMWD engages and sustains a diverse network of influential individuals from across the region willing to serve as outreach ambassadors. Contact (951) 928-3777 ext. 4206 to get involved.



### Industry Involvement

EMWD staff have been featured speakers at industry conferences throughout the United States, including for the WaterReuse Association, the American Water Works Association, California Special Districts Association, the Association of California Water Agencies, and more. Presenters include engineers, water resource specialists, public affairs experts, etc. These individuals have emerged as thought leaders on water supply planning, community engagement and development of innovative water and wastewater projects.



### Careers

If you would enjoy working in a dynamic environment and are looking for an opportunity to become part of a stellar team of professionals, you are invited to apply to work at EMWD. More information and the online applications are available at [www.emwd.org/joinemwd](http://www.emwd.org/joinemwd).



Eastern Municipal Water District | 2270 Trumble Road | Perris, CA 92570

[EMWD.org](http://EMWD.org)



## GROUNDWATER RELIABILITY PLUS

Securing Our Water Future

INFORMATIONAL BOOKLET





# Introduction

Eastern Municipal Water District (EMWD) is the water, wastewater and recycled water services provider to nearly one million people living and working within a 555-square mile area in western Riverside County.

## Mission Statement:



To deliver value to our diverse customers and the communities we serve by providing safe, reliable, economical and environmentally sustainable water, wastewater and recycled water services.

## EMWD At A Glance:

ESTABLISHED IN **1950**

SERVES: WATER / WASTEWATER / RECYCLED

POPULATION NEARLY: **1,000,000**

**555** SQUARE MILE SERVICE AREA

WHOLESALE & RETAIL

ALMOST **38%** CURRENTLY BUILT OUT

26 member agencies of The Metropolitan Water District of Southern California

ONE OF THE

MORE THAN **2,400** MILES OF WATER TRANSMISSION AND DISTRIBUTION PIPELINES

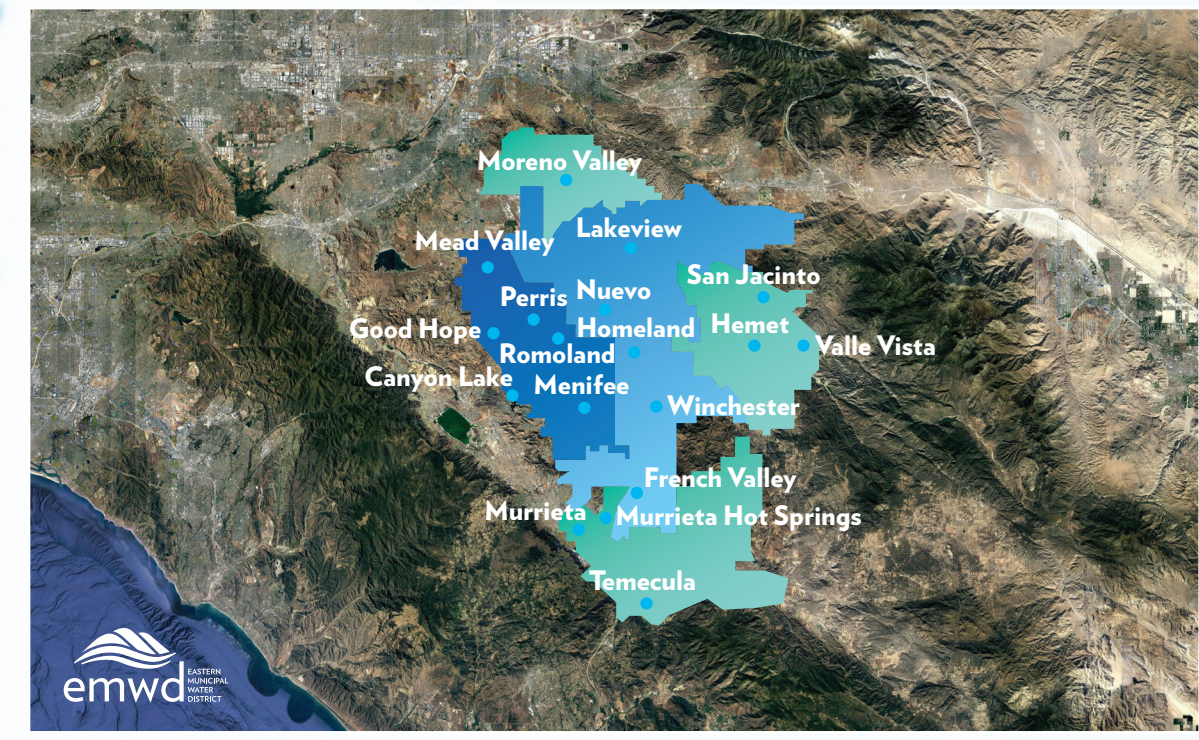
**4** OPERATING REGIONAL WATER RECLAMATION FACILITIES

**2** POTABLE (DRINKING) WATER FILTRATION PLANTS

MORE THAN **1,800** MILES OF WASTEWATER COLLECTION PIPELINE

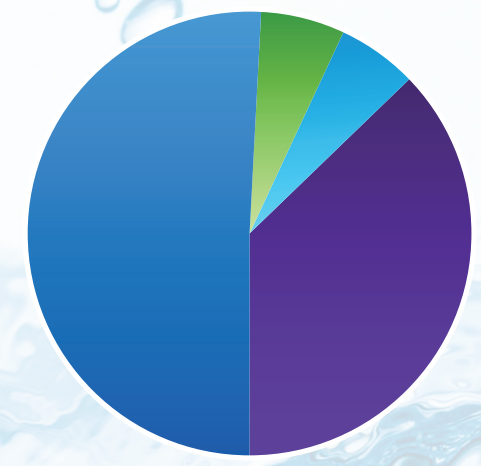
**3** GROUNDWATER BRACKISH (REVERSE OSMOSIS) PLANTS

THE 3RD IS UNDER CONSTRUCTION IN 2021



EMWD provides services to retail customers located within the cities of Hemet, Menifee, Moreno Valley, Murrieta, Perris, San Jacinto, Temecula, and portions of Canyon Lake and Riverside, as well as the unincorporated areas of French Valley, Good Hope, Homeland, Lakeview, Mead Valley, Murrieta Hot Springs, Nuevo, Romoland, Valle Vista and Winchester.

EMWD also supplies water on a wholesale basis to the Cities of Hemet, San Jacinto and Perris; Lake Hemet Municipal Water District; Nuevo Water Company; Rancho California Water District; and Western Municipal Water District.



Where Does EMWD's Water Come From?

- Groundwater
- Imported Water
- Recycled Water
- Groundwater Desalination



The majority of EMWD's potable (drinking) water demand is supplied by imported water from The Metropolitan Water District of Southern California through its Colorado River Aqueduct and its connections to the State Water Project.





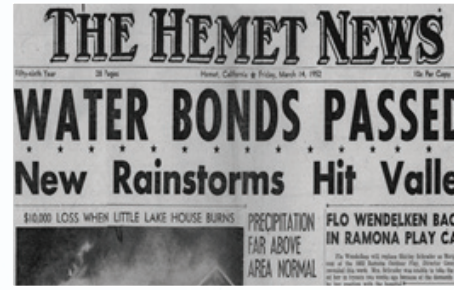
## EMWD Past...



1950 - EMWD organized under the California Municipal Water Code



1951 - Becomes a member agency of Metropolitan Water District



1952 - EMWD's first \$4.3 million bond issue allowed for the construction of a District-wide supply system



1953 - Installing the supply line under the bed of the San Jacinto River



1953 - Colorado River water being turned on at the EMWD ranch



1953 - The City of Perris receives the first water from the Colorado River



1962 - EMWD provides wastewater collection & treatment services



1970s - Filling Lake Perris to bring northern California water to the region.



1973 - EMWD receives the first water drops from the State Water Project

EMWD was organized as a municipal water district in 1950 for the primary purpose of importing Colorado River water to its service area to augment local water supplies. Since its formation, EMWD has grown from a small, primarily agricultural-serving agency, to one whose major demands come from domestic customers.

## EMWD Present...

EMWD is now one of California's largest water agencies. EMWD's forward-thinking leadership has resulted in a diverse water supply portfolio, which also includes local groundwater supplies, recycled water and desalination efforts.

EMWD is governed by a five-member board of directors and has an executive office with three branches: administrative; operations and maintenance; and planning, engineering and construction.



## EMWD Future...

### Education Program

EMWD seeks to foster an understanding of important water and wastewater issues among the young future leaders in its community, while promoting wise water use. To accomplish this goal, the district supports an extensive education program designed to provide a useful academic experience at all grade levels (K-12).

Educational resources are provided in the form of fields trips, curriculum supplies, videos and much more to students at more than 125 school throughout EMWD's service area.



### Long-term Planning

EMWD does careful infrastructure and financial planning to meet the long-term needs of customers. Developing new projects and initiatives, while still keeping rates as low as possible for customers, is how EMWD will continue to deliver value into the future.

### Our Guiding Principles:



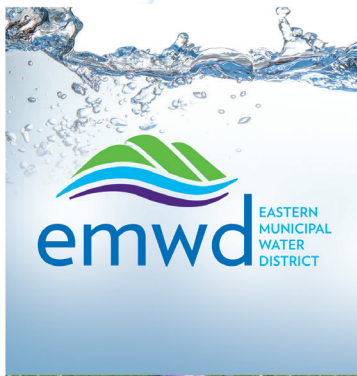















### Vision:

To provide an exceptional level of customer and community service, exceeding the performance of any other public or private entity.




# Groundwater Reliability Plus

EMWD's Groundwater Reliability Plus (GWR Plus) initiative encompasses EMWD's actions and investments to improve the quality and quantity of water in our local groundwater basins. EMWD's groundwater supply management has included enhancing water supplies through its recycled water program, desalination program, water use efficiency programs and, most recently, its healthy sewers program. GWR Plus now includes a Water Banking project and a future proposed Purified Water Replenishment project that combines advanced water purification and natural filtration.


	 <h2>Groundwater Reliability Plus</h2>		 <h2>Groundwater</h2> <p>The supply of fresh water found beneath the Earth's surface, which in EMWD's case is stored in aquifers. EMWD manages its groundwater supplies through the other programs that are part of Groundwater Reliability Plus.</p>
	 <h2>Recycled Water</h2> <p>Recycled water is wastewater that has been cleaned to be reused for irrigation and agricultural purposes. EMWD consistently uses 100 percent of its recycled water supply for beneficial purposes within its 555-square mile service area.</p>		 <h2>Desalination</h2> <p>EMWD's groundwater supplies are often brackish, which means that while the water is not as salty as ocean water, it is too salty for a water filtration plant. The desalination program removes the salt and makes the water usable for drinking.</p>
	 <h2>Water Use Efficiency</h2> <p>Efficient water use means using water wisely whenever possible. This program encourages all customers to save water in all parts of their lives.</p>		 <h2>Healthy Sewers</h2> <p>This program helps reduce the number of products that are harmful to wastewater collection systems (such as fats, oils and grease, personal hygiene products and medications) by informing the community of the ways to be "sewer smart."</p>
	 <h2>Water Banking</h2> <p>This program puts water into local groundwater basins when water is plentiful, in the same way you might put money in the bank to save for times when you need it. Basins will be replenished with water during wet or average years for use during that same year or to store for the future.</p>		 <h2>Purified Water Replenishment</h2> <p>This program is under development to blend advanced treated recycled water (purified water) with tertiary treated recycled water. After an additional natural filtration and blending process, it would eventually become part of our groundwater that is used for our local drinking water supply.</p>

In order to meet the water needs of our service area, EMWD is actively investing in programs that center on sustainability and planning for the future. By investing in our local water supplies now, future generations will also be able to enjoy an abundance of high quality, local water when they need it.

## Spotlight: Groundwater Desalination



Approximately 20 percent of EMWD's water is supplied by EMWD groundwater wells. The majority of the groundwater produced by EMWD comes from its wells in the Hemet and San Jacinto area. EMWD also has wells in the Moreno Valley, Perris Valley and Murrieta areas.

### Desalination

After completion of EMWD's third desalination facility, Perris II, the groundwater desalination program will remove up to 50,000 tons of salt from local groundwater basins each year and generate enough water to supply up to 30,000 households. The addition of this new desalter to the two existing groundwater desalination facilities (Perris I and Menifee) means EMWD will cumulatively produce 14 million gallons a day of drinking water from brackish groundwater basins in Perris and Menifee. Groundwater desalination provides a cost-effective water supply in EMWD's service area that is competitive with the cost of imported supplies.

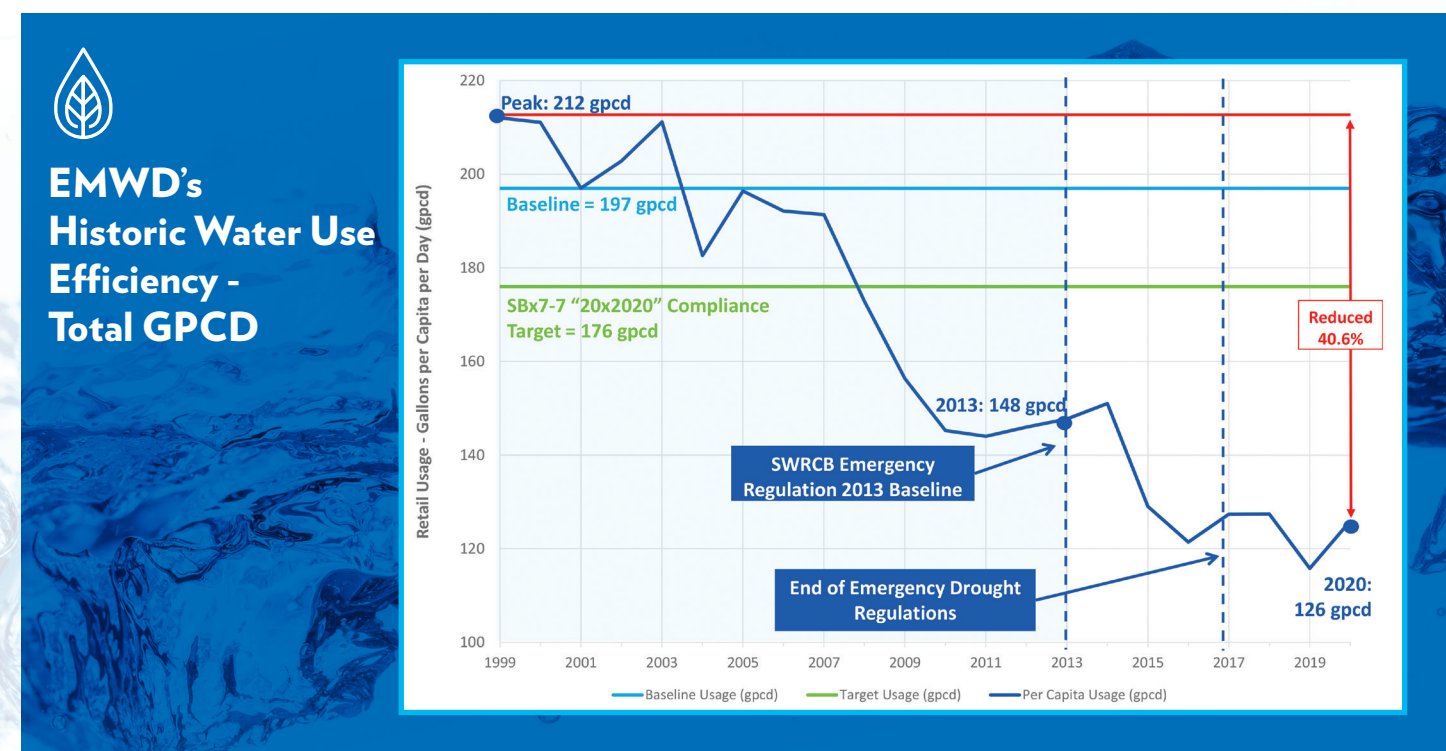


## Spotlight: Water Use Efficiency & Healthy Sewers

### Water Use Efficiency

EMWD provides a number of resources to help its customers use water wisely and efficiently, including a water wise landscape toolbox and regional indoor and outdoor rebate opportunities.

As the chart below shows, customers have responded to the call to be more water wise: the gallons per capita per day (GPCD), in other words, how much water each person is using on average in a typical day, has decreased significantly in the last two decades in EMWD's service area.



### Healthy Sewers

As part of our Healthy Sewers program, EMWD provides education to encourage the community not to rinse certain household items like grease or medications down the toilet. Keeping sewers healthy makes sure that we are also protecting our groundwater supplies. There are three important ways to keep sewers safe: properly dispose of fats, oils and grease (FOG) and personal hygiene products in the trash; dispose of hazardous materials like chemicals and paint at a collection facility or event; and use a pharmaceutical or homemade disposal pouch for getting rid of medications.

To encourage students to be sewer smart and to only flush essential things down the toilet, EMWD has introduced a mascot, Patrick the Poo. Watch a video about Patrick at [www.emwd.org/sewersmart](http://www.emwd.org/sewersmart).

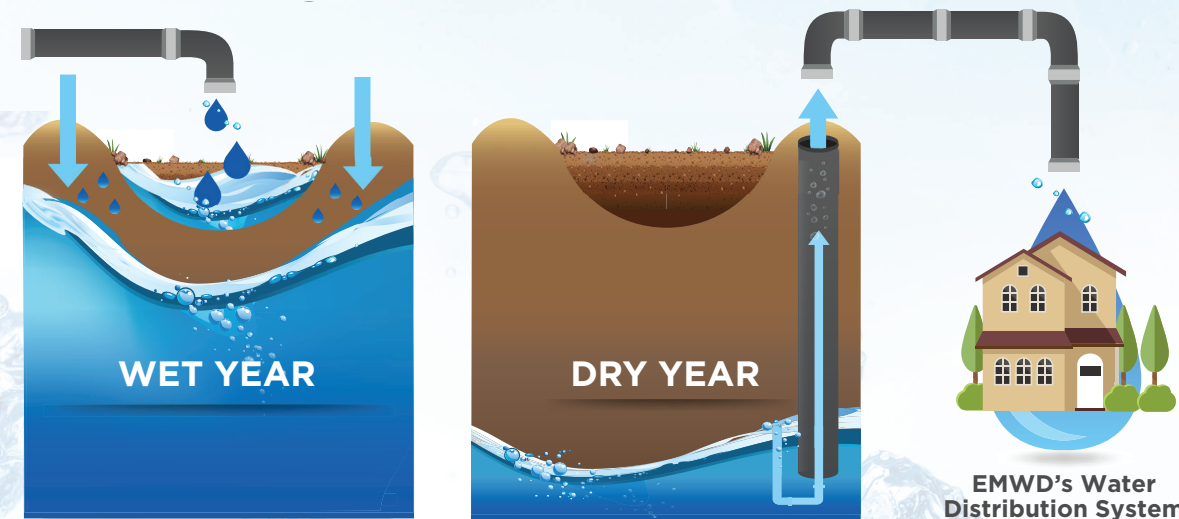


## Spotlight: Water Banking

### Water Banking

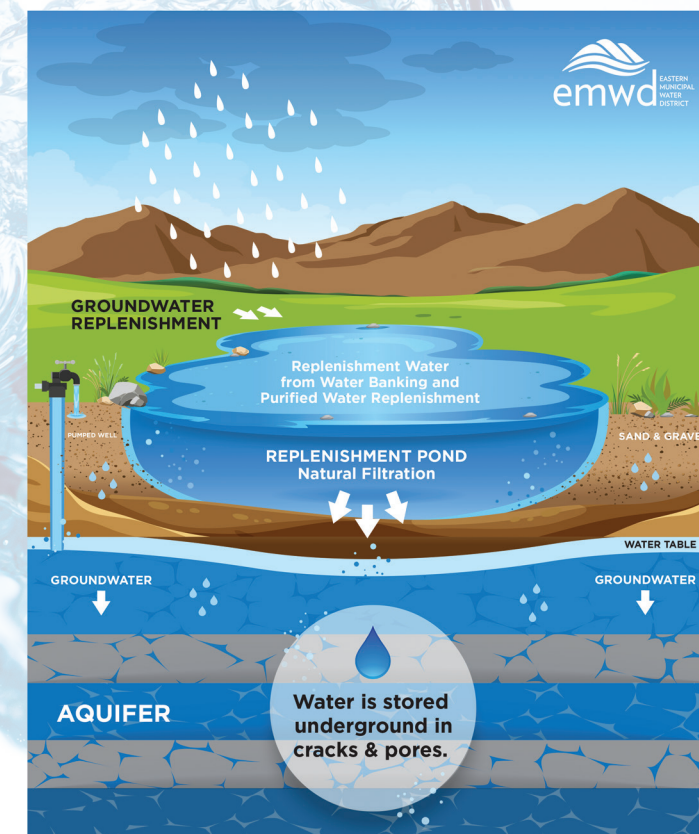
This project includes new facilities in the San Jacinto Basin, which will replenish the basin with water imported from the State Water Project during wet or average years for use during that same year or to store for the future. The groundwater banking facilities include percolation basins, pipelines and three production wells.

It is estimated that the basin can hold an additional 200,000 to 400,000 acre feet of water on top of its current storage levels. The Water Banking project is estimated to add 20,000 to 30,000 acre feet of water to the basin during a wet year.



### Replenishment Ponds

EMWD stores water in its groundwater aquifers and replenishment ponds. Here is a look at how water percolates through them.





# Spotlight: Recycled Water & Purified Water Replenishment

## Recycled Water

EMWD is widely viewed as an industry leader in recycled water, which is wastewater that has been cleaned so it can be used again for beneficial purposes. EMWD is one of the largest by-volume recyclers in the nation and one of the few agencies that achieves 100 percent beneficial reuse, a strategic objective established by its Board of Directors. EMWD has the ability to store more than two billion gallons of recycled water, which is equal to three to four months' worth of supply.

### DID YOU KNOW?

EMWD has been treating wastewater within its service area since the 1960s. Originally, used water from the sewer system that had been cleaned to release back into the environment—also called effluent—was disposed of through on-site percolation/evaporation ponds. As flows increased, EMWD began marketing recycled water within its service area, delivering recycled water to local farmers for the irrigation of feed and fodder crops and began extending transmission facilities to deliver this recycled water to new customers.



EMWD's recycled water system currently receives and cleans approximately 45 million gallons of wastewater each day at its four operating regional treatment plants. The cleaned water is then distributed throughout the service area, through more than 225 miles of pipeline.



The Trumble Ponds are the largest recycled water storage facility in EMWD's service area, with a capacity of 586 million gallons (1,800 acre feet). EMWD also has recycled water storage ponds in Perris, San Jacinto, Moreno Valley, and Temecula.



## Recycled Water Uses

Recycled water is in great demand. EMWD provides recycled water to several schools, parks, cities and county streetscaping, HOA landscape areas, golf courses and wetlands habitat areas. Among the crops that can use recycled water are potatoes, lettuce, carrots, tomatoes, strawberries, sugar beets, grain crops, citrus, avocado, grapes, sod farms, fiber, fodder, seed crops and ornamental nursery stock.

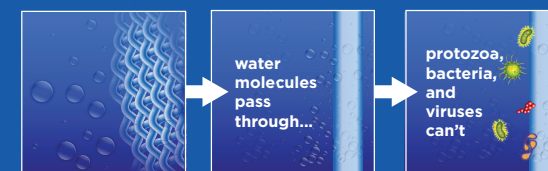


## Looking to the Future

With significant urban development anticipated in the coming decade, EMWD is prepared to manage the corresponding increase in recycled water production. In addition to offering new development the use of recycled water to irrigate common areas and public landscaping, EMWD is securing the region's water future through Groundwater Reliability Plus, which reduces water salinity and pumping costs, helps replenish groundwater aquifers, increases the amount of available local groundwater, and could ultimately provide a drought-proof local drinking water source.

## Purified Water Replenishment

### Step 1: Microfiltration



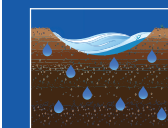
Recycled water is pumped through tubes filled with tiny membranes made up of hollow fibers and perforated with holes 1/300th the width of a human hair. Solids and bacteria are caught in the fibers and removed.

### Step 3: Replenishment Ponds



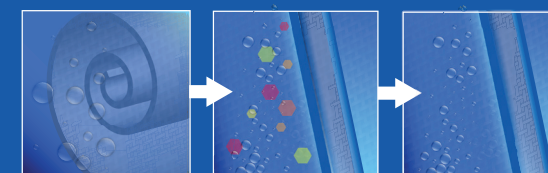
The purified water is blended with additional tertiary treated water and pumped into ponds, allowing it to slowly soak into the ground.

### Step 4: Natural Purification Process



The water is further purified by physical and biological processes that occur naturally in soil.

### Step 2: Reverse Osmosis



High-pressure pumps force water through a semi-permeable membrane that transmits water but stops dissolved salts and other constituents.

### Step 5: Final Purification



A last cleaning step before water is piped to homes and businesses.

Purified Water Replenishment is the next phase of EMWD's Groundwater Reliability Plus initiative.

The program will blend advanced treated recycled water (purified water) with the tertiary treated recycled water currently used to irrigate food crops and landscaping throughout EMWD's service area. This water would then be pumped to replenishment basins in San Jacinto where it will undergo additional filtration that occurs as the water naturally seeps into the ground and blends with existing groundwater. After traveling through the soil for a minimum of six months, the water would be pumped out of the ground through EMWD's network of groundwater wells and go through one final cleaning step before it is sent to homes and businesses.