

Moulton Niguel Water District

Not using less, wasting less

Project at a Glance

Utility Overview

- Utility: Moulton Niguel Water District
- Location: South Orange County, California
- Population served: 172,000
- Service area: 37 square miles

Challenges

- Recurring drought
- Limited local supply
- More extreme weather

Solution

- Integrated water management using a One Water approach that includes robust consumer efficiency rebates, increased non-potable reuse for outdoor irrigation, nuanced water demand data analysis, and multifaceted public education programs.

Costs and Funding Sources

- Efficiency Programs
 - Budget: \$2.5 million annually
 - Funding sources: Dedicated rates from budget-based rate structure
- Reuse Programs
 - Budget: \$10 million annually
 - Funding sources: annual operating revenue and capital improvement budget

Efficiency Rebates & Rates Structure Benefits

 Total of 26,000 acre-feet of water saved since 2011

 Removed 5 million sq ft of turf saving 1,534 acre-feet of water since 2012

 Meets 25% of demand with local supplies

Water Reuse Benefits

 Saves \$6 million annually in imported water costs

 Demand forecasting tool saved \$20 million in avoided costs

BACKGROUND

Moulton Niguel Water District (MNWD or Moulton), governed by a seven member elected board, is a special district providing drinking water, recycled water, and wastewater treatment services to 172,000 people in South Orange County, California, roughly 45 miles southeast of Los Angeles. It includes the City of Laguna Niguel and parts of Aliso Viejo, Laguna Hills, Mission Viejo, San Juan Capistrano, and Dana Point.

Moulton has **no access** to either local groundwater or surface water supplies.



MNWD has heavily invested in **water use efficiency** and **reuse** as alternative sources of supply.

CHALLENGE

MNWD is almost entirely reliant on imported water from outside of its service area, which it purchases from the Municipal Water District of Orange County, the regional wholesaler of the Metropolitan Water District of Southern California. Annual precipitation averages approximately 14 inches, with most rainfall coming in the winter months and close to zero precipitation in the dry summer months. Moulton has no access to either local groundwater or surface water supplies.

SOLUTION

To reduce its reliance on imported water, MNWD has heavily invested in water use efficiency and reuse as alternative sources of supply.

Water Use Efficiency

Since 2011, MNWD has incentivized residential and commercial customers to install water efficient devices and replace water-intensive turf with native landscaping through its rebate programs. Moulton's programs are somewhat more ambitious than typical water efficiency rebates; for example, MNWD's average residential turf rebate is more than \$3,000. Rebates are offered for toilets, clothes washers, rotating sprinkler nozzles, rain barrels and cisterns, weather-based irrigation controllers, soil moisture-based irrigation controllers, and turf replacement and turf-to-native garden conversion. MNWD also offers commercial-only rebates for drip irrigation systems and plumbing flow controls valves, connectionless food steamers, air-cooled ice machines, dry vacuum pumps, and laminar flow restrictors.

Moulton's initiatives also stand out for the creative and comprehensive consumer outreach and education strategies grounded in the belief that achieving efficient use of water often requires a change in consumer interaction with and mindset about water. Key to achieving this change is MNWD's shrewd ability to develop messaging that resonates locally. Moulton's consumer outreach stresses that "efficiency is not about using less; it's about wasting less."

“every drop of recycled water that is used is a drop of drinking water that **doesn’t have to be imported** from hundreds of miles away.”



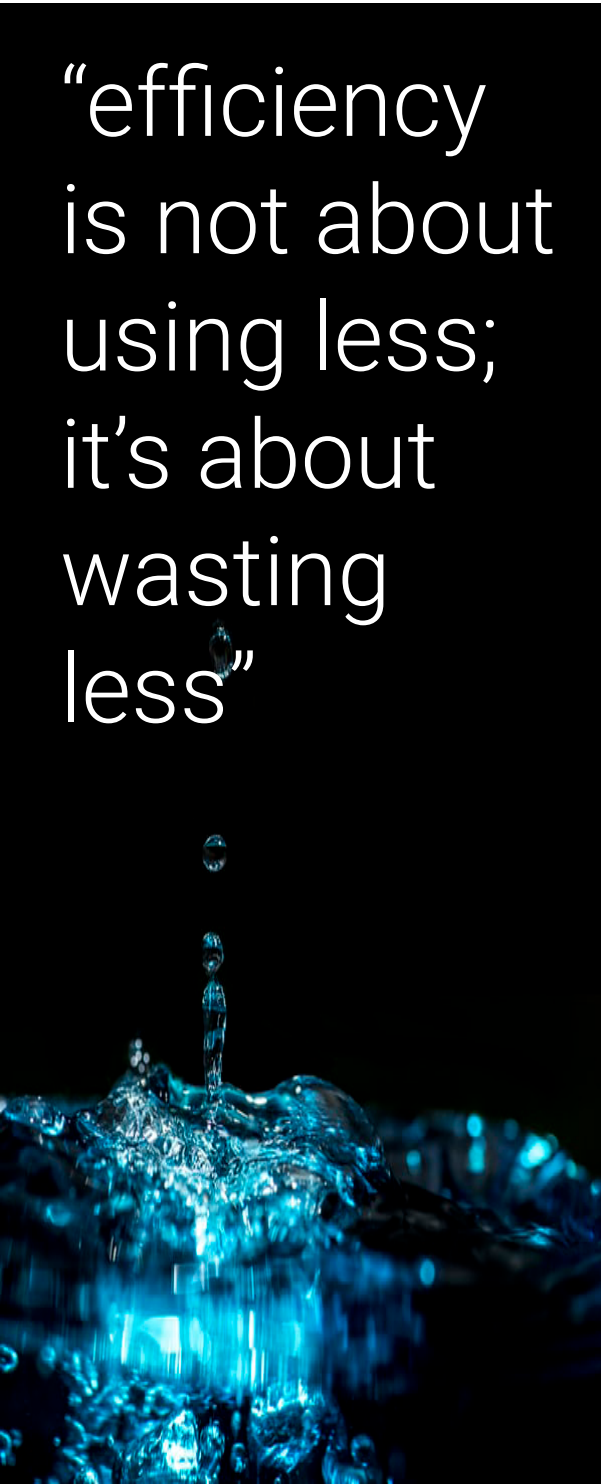
MNWD’s success is also predicated on its commitment to partnering with a range of regional agencies and nonprofits, and a focused approach to changing consumer behavior. Recognizing that landscape change out programs can be daunting for residential customers, MNWD encourages them to begin with “easy” projects. A study with UC Riverside found that customers were more likely to take additional water efficient actions after taking one initial step. In response, Moulton created a direct install program to help customers put in smart timers which it later built into a more comprehensive NatureScape direct install turf removal program.

Reuse

Moulton has also invested in recycled water “to reduce dependence on imported water and maximize the reuse of available resources.” For the past 50 years, MNWD has identified recycled water as its highest priority alternative water supply, with the recognition that “every drop of recycled water that is used is a drop of drinking water that doesn’t have to be imported from hundreds of miles away.” MNWD uses an innovative water demand forecasting tool to more accurately predict additional demand for recycled water and better inform the level of infrastructure investment needed.

To encourage its customers to reuse water, MNWD offers recycled water retrofit rebates. Customers that convert their existing irrigation systems to recycled water receive \$1,250 per irrigated acre or up to 50% of the total project cost. MNWD has also experimented with providing loans for non-profits and public agencies to finance the cost of onsite recycled water retrofits— as of 2017, 53 loans had been issued totaling nearly \$540,000.

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RESULTS

MNWD maintains that its efficiency and water reuse programs have benefited the utility and its customers in many ways.

Water resources benefits

The combination of Moulton’s budget-based rate structure, outreach and consumer rebate programs have resulted in an average savings of 4,000 acre-feet per year. MNWD can claim significant success particularly with its turf replacement program which has led to the removal of over 5 million square feet of turf.

Moulton’s recycled water program currently provides about 7,500-acre feet annually, or about 25% of overall water demand within its service area.

Energy benefits

MNWD estimates that non-potable recycled water saves considerable electricity, about 1,500 kWh per acre-foot less than imported potable water. As of 2019, Moulton is evaluating the energy benefits of its efficiency programs, which also help reduce energy use and greenhouse gas emissions.

Economic benefits

Since 2011, MNWD customers have cumulatively saved over \$24 million from reduced water usage. And the District maintains the lowest average bill in South Orange County. These results demonstrate that efficiency can be an extremely economical approach to water supply reliability.

MNWD estimates that every acre-foot of recycled water results in a cost saving of over \$1,000 per acre-foot (in avoided costs for imported water).

Sources

[MNWD: About](#)
[MNWD: Rebates](#)
[MNWD: NatureScape Program](#)
[MNWD: Water Budget-Based Rates](#)
[MNWD: Recycled Water Retrofit Rebates](#)
December 3, 2018, WaterNow Interview with MNWD Staff
December 14, 2018, WaterNow Interview with MNWD Staff