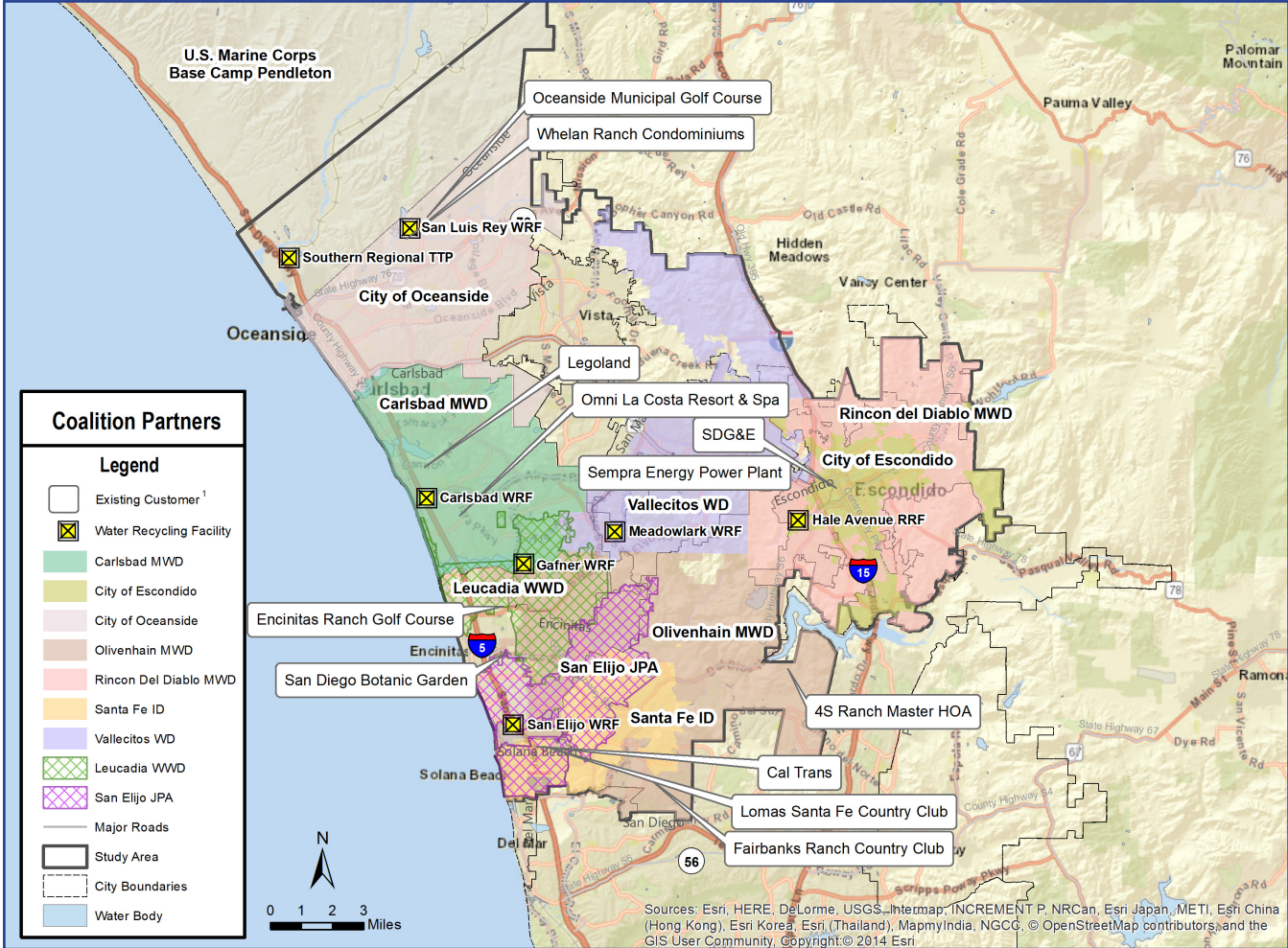


Examples of Sites Using Recycled Water



1. Existing customers shown on map are a sampling of the extensive existing customers list.

Question & Answer

Q: What time can I irrigate with recycled water?

A: Irrigate with automatic systems during periods of minimal public exposure, typically from 10:00 p.m. to 6:00 a.m. A site may only irrigate during public use periods when supervised. One benefit of recycled water is the ability to irrigate seven days per week.

Q: Is recycled water use impacted by drought conditions?

A: Recycled water use is not currently subject to drought restrictions.

Q: Is recycled water safe for contact?

A: If you come in contact with recycled water, please wash your hands with soap and potable water before eating. Recycled water is safe for contact with animals.

Q: How do we address salt levels due to higher TDS in recycled water?

A: TDS is the amount of mineral and salinity in the water. Sensitivity to salinity varies among plant types. Ornamental plants and conifers may be more sensitive than turf or deciduous plants.

Many regional landscape architects and landscape firms can provide guidance. Maintenance of soil salinity is also crucial to plant development. Adding gypsum and improving drainage can help improve soil conditions. Additionally, drip irrigation can use recycled water more efficiently and may assist with keeping salinity spray off sensitive plant leaves.¹

Q: How much will converting to recycled water cost me?

A: Upfront capital and service costs will vary based upon each site's conditions. In general, 1 gallon of recycled water is approximately 15% cheaper than potable water. Metropolitan Water District offers an Onsite Retrofit Program (ORP) rebate to convert existing irrigation to recycled water. Visit www.bewaterwise.com to learn more about the ORP and other rebate programs. Please contact your local water retail agency to learn more about rates and potential loan programs.

¹ For more information on gypsum application, please refer to the following article: <http://archive.lib.msu.edu/tic/tgtre/article/2000sep9.pdf>.

Landscaping Irrigation with Recycled Water



Benefits of Recycled Water Use

We know you have questions and concerns about using recycled water for landscape irrigation – this brochure includes information to help you successfully convert and maintain your system.

Together as the North San Diego County Water Reuse Coalition, nine agencies in northern San Diego County (see map on back page) are demonstrating a commitment to provide a reliable, drought-resilient source of water for the region. The time is now for this cost-effective, environmentally responsible approach to water supply planning.

www.nsdwrc.org

Interested in learning how your community can benefit from utilizing recycled water for landscape irrigation?

Please contact your local water retail agency to determine if recycled water infrastructure is available.

- Carlsbad Municipal Water District 760-438-2722
- Rincon del Diablo Municipal Water District 760-745-5522
- City of Escondido 760-839-4657
- City of Oceanside 760-435-5800
- Santa Fe Irrigation District 858-756-2424
- Olivenhain Municipal Water District 760-753-6466

In this brochure:

- Benefits of Recycled Water
- Irrigation Tips & Best Management Practices With Recycled Water
- Recycled Water Quality
- Use Requirements
- Landscape Care
- Examples of Sites Using Recycled Water
- Question & Answer



Omni La Costa Resort & Spa is a recycled water customer served by Carlsbad Municipal Water District.

September 2018

Benefits of Recycled Water

Though the drought is over, water conservation measures implemented by local governments throughout California are here to stay. This strategy will help to ensure communities across the state are better prepared for future droughts. The landscaping industry is critically dependent on reliable water sources and can support these conservation efforts, while also complying with new regulations and maintaining healthy landscape, by utilizing recycled water.

The regional economy and the growing population in San Diego County are dependent upon a reliable and resilient supply of water. Developing local supplies that are managed by our region’s water and wastewater providers can reduce the risk of water shortages associated with imported water. Expanding our water recycling efforts will ensure drought-resilient supplies are available in the future. The premise is simple: we match supply with your demand. This transforms a continuous supply of wastewater into a reliable source of

recycled water to meet the region’s growing demands for irrigation and other non-potable uses.

Leveraging recycled water for landscaping makes economic sense and protects your landscape investment from drought restrictions. Not only does recycled water already include **key nutrients for plant health**, reducing the need for additional fertilizer, it can be **more cost-effective than potable water**. Many agencies typically sell recycled water at a reduced rate, as compared to potable water, in order to incentivize its use for landscaping in golf courses, parks, and other outdoor facilities. In addition, use of efficient irrigation practices, which is required for recycled water use, can further reduce the cost of irrigation.

Water reuse is a tried-and-true, cost-effective strategy for increasing the amount of reliable and drought-resilient water supply to northern San Diego County.

Irrigation Tips & Best Management Practices With Recycled Water

- An efficient, properly maintained, and calibrated irrigation system should follow an irrigation schedule based on seasonal water needs with separate irrigation zones for different plant types.
- Avoid spray-wetting of salt-sensitive plant foliage. Drip irrigation, rather than overhead irrigation, will minimize foliar injury.
- Aerate areas that have poor drainage.
- Apply gypsum as a soil amendment to improve soil structure and water infiltration.
- Avoid excessive run-off and overspray.

Recycled Water Quality

Recycled water quality is comparable to potable water and meets most of the state requirements for Maximum Containment Levels (MCLs) of drinking water, making recycled water ideal for non-potable uses such as landscape irrigation. A snap-shot summary table comparing your current potable water quality to recycled water quality is shown below.

Chlorine is added by the recycled water supplier as a disinfectant to comply with state requirements. Chlorine levels are monitored and reported at the utility’s treatment plant with an average chlorine residual for disinfection of less than

10 mg/L leaving the plant. Once in the distribution system, utility agencies strive to maintain a chlorine residual of less than 1.0 mg/L but not more than 5.0 mg/L at customer sites.

Total Dissolved Solids (TDS) includes salt loading (conductivity). High quantities of TDS can be toxic to most plant species, stunting plant growth and causing leaves to brown. The average TDS loading of recycled water in Northern San Diego is less than 1,000 ppm which is within the drinking water limits. TDS can be managed through proper soil drainage and application (see Question & Answer on Page 4).

					Boron (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Nitrate as N (mg/L)	pH (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Turbidity (mg/L)
POTABLE WATER	California Drinking Water Standards (MCL)				NL=1	500	2	10	NA	500	1000	NA	5
	San Diego County Water Authority		Range	Min.	0.13	102	0.5	ND	7.4	229	615	NA	0.01
			Max.	0.14	110	0.9	0.9	8.6	240	650	NA	0.09	
RECYCLED WATER	Northern San Diego		Range	Min.	0.3	180	0.2	22	6.58	87	600	0.1	0.12
			Max.	0.5	410	1.0	49	7.9	320	1236	4.4	5.0	


Footnote: Specific water recycling facility data is available upon request. Data provided by:


Carlsbad Municipal Water District Water Quality Report (2017)
Vallecitos Water District Water Quality Report (2017)
Hale Avenue Resource Recovery Facility Water Quality Data (2017)
Encina Wastewater Authority Lab Data Results (2017)


City of Oceanside Water Quality Data (2013)
San Elijo Joint Powers Authority Tertiary Effluent Data (2017, 2018)
NSDWRC Facilities Plan (2017)

NL: notification level
ND: non detect
NA: not applicable
mg/L: Milligrams per liter
ppm: parts per million (ppm)

Use Requirements

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Contact your local water retail agency for specific use requirements. All sites must have plans developed and submitted through the San Diego County Department of Environmental Health (DEH) for review and approval. Prior to receiving recycled water, a coverage and cross connection test must be completed with DEH.
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Recycled water should be limited to the areas designated and approved for recycled water. Ensure no runoff or overspray from the irrigation system. Drinking fountains and designated outdoor eating areas, including chairs and benches, must be clear from water spray, mist, or runoff. All irrigation valves and outlets must be tagged as recycled water to notify the public and employees that the water is not intended for drinking. Use purple colored piping and appurtenances, or materials distinctively wrapped with purple tape, for repairs, retrofits, and new installations. Use only quick couplers that are unique to the recycled water system on portions of the recycled water piping system that is accessible to the public. Recycled water piping system shall not include any hose bibs. Ensure that no physical connection exists between any recycled water system and any separate system conveying potable water. All spray heads must indicate recycled water use.
- 

Designate a trained Recycled Water Site Supervisor. Site Supervisor training is offered monthly by the City of San Diego and may be offered by your local water agency. A nominal registration fee includes learning materials and a site supervisor identification card. www.sandiego.gov/water/recycled/switching/workshop.

Landscape Care


Recycled water contains the specific nutrients that can be used by plants and can likely replace some fertilizer needs. Using recycled water to effectively nourish landscaping will depend on proper irrigation practices and nutrient levels. Fertilization plans must be adjusted to account for the seasonal variation in plant needs. The total amount of nutrients supplied when irrigating with recycled water is not necessarily the amount that all plants can use. The amount plants use depends on the nutrient uptake efficiency, which depends on water uptake efficiency and timing and amount of nutrient applications. Below is an explanation of recycled water considerations for landscape care:

Recycled water contains some of the same elements as your basic lawn fertilizer. Recycled water will contribute approximately 10% of your fertilizer requirements.

N Nitrogen helps promote overall grass shoot growth and color

P Phosphorus (phosphate) helps promote strong root growth

K Potassium (potash) helps grass withstand stress from drought or disease



Basic recommendation for turf grass application of nitrogen per the US Department of Agriculture (USDA) and the Institute of Food and Agriculture Sciences (IFAS) (AE479) is 0.5 to 1.0 lbs in spring and 1.5 to 2.5 lbs in fall per 1,000 square feet (sf); 2.0 to 3.5 lbs per year. For every 1,000 sf of lawn, 623 gallons of water is needed to provide 1-inch of coverage.

		Nitrogen	Phosphorus	Potassium
Standard Fertilizer Application for Turf Grass ¹	Ratio	20	10	20
	lbs/1,000 sf	1.0	0.11	1.0
Recycled Water Contribution per Application	mg/L	26	0.72 ²	0.06 ²
	lbs/1,000 sf	0.14	0.004	0.06
		10%	3%	11%

1. Based on a standard fertilizer for turf grass: 20-10-20: 20 parts nitrogen – 10 parts phosphorous – 20 parts potassium

2. Phosphorus and potassium levels based on similar averages for area

Note: Supplemental fertilization may still be required.

Note: The amount of nitrogen and potassium supplied by recycled water is not necessarily the amount that will be best utilized by plants due to variations in growing seasons. Recycled water will offset some fertilization and help promote green grass even through drought conditions. Soils often contain ample phosphorus to begin with and soil data should be sampled. Excessive phosphorus can cause iron and zinc deficiencies in plants, resulting in yellowing of the leaves and bleaching of tissue.