

# **NORTH SAN DIEGO WATER REUSE COALITION**

## ***SUMMARY***

The North San Diego Water Reuse Coalition is just that – a group of North County water and wastewater agencies collaborating to optimize reuse of wastewater. They are replacing individual, separate recycled water systems (purple pipe) with interagency connections to increase the capacity and maximize the use of recycled water. To accomplish this, Coalition members will increase 2035 tertiary treatment capacity by 44.2 million gallons per day (MGD) and build 72 miles of new pipelines. The Coalition plans to adopt a “designer water” concept – treating wastewater to meet the quality needed by specific end users. They also are adding storage to smooth seasonal demand curves for recycled water. Finally, member agencies plan to produce 13 MGD of drinking water (potable reuse).

This is a green project that will reduce wastewater discharges to the Pacific Ocean and offset water imports, thus avoiding the energy costs and greenhouse gas emissions associated with imported water. The project also could add 7,000 jobs over its 20-year life. The 2015/2016 San Diego County Grand Jury commends the Coalition for its voluntary collaboration in helping solve San Diego County’s drinking water supply problems.

The Grand Jury recommends that the Coalition reach out to other North County water agencies and invite them to join, and that the Coalition give more consideration to large-scale rainwater capture. The Grand Jury also recommends the Coalition work with the California Department of Transportation (Caltrans) to reduce that agency’s use of tap water for irrigation along the State Route 78 corridor.

## ***INTRODUCTION***

The Grand Jury investigated water supply issues in the county and, in the process, learned of the North San Diego Water Reuse Coalition (NSDWRC) and its exemplary model of sharing to capture economies of scale while providing a reliable, drought-proof source of water for the region, and reducing wastewater discharges to the ocean.

## ***PROCEDURE***

The Grand Jury interviewed representatives of water and wastewater agency members of the Coalition. The Grand Jury also reviewed Coalition documents, including the project plans and environmental impact reports, as well as water planning documents of the individual members.

## ***DISCUSSION***

Approximately 84 percent of the San Diego region’s tap water is imported and subject to supply disruptions due to drought, natural disaster, and other causes. The region’s water supply challenges clearly cannot be solved by any one agency or single new source (e.g., desalination). This has led northern San Diego County water and wastewater agencies to

collaborate on a plan to interconnect their facilities to provide a reliable, drought-proof increase in local supplies. Their projects will link excess wastewater supplies with customers who could use recycled water for irrigation or industry, regardless of agency boundaries. The projects will also produce new drinking water supplies.<sup>1</sup>

In 1998, four North County water and wastewater agencies – Olivenhain Municipal Water District (MWD), Carlsbad MWD, San Elijo Joint Powers Authority, and the Leucadia Wastewater District – received a U.S. Bureau of Reclamation grant to build recycled water facilities, including some interagency connections. Those projects demonstrated the benefits of a regional approach to recycled water systems. The result was 10,000 acre-feet – over three billion gallons – of recycled water (purple pipe) that is currently delivered to the region’s customers each year.

As a result of that success, a larger group of ten water and wastewater agencies formed NSDWRC (the Coalition). Their purpose is to expand the use of recycled water within north San Diego County, replacing tap water currently used for landscaping, agriculture, and industrial processes. Some treatment plants will take a “designer water” approach to treating wastewater to the precise quality required by individual end-users. And some facilities will use advanced treatment to produce drinking water.

NSDWRC planned its project in two phases: short-term (2025) and long-term (2035). Advanced treatment is part of the short-term project so that plants can begin operating as soon as the State of California agencies give approval. The short-term project is anticipated to increase water reuse in the region by 18,808 acre-feet per year (AFY), or more than 6 billion gallons. The Coalition has only done preliminary work for the long-term project, which could increase water reuse by an additional 16,662 AFY, or more than 5 billion gallons. In total, the project is anticipated to increase water reuse by 35,000 AFY, or more than 11 billion gallons. Table 1 shows the ten partner agencies and their existing and future treatment capacity. Marine Corps Base Camp Pendleton participates in project planning because they and Oceanside are neighbors.

Note that treatment capacity is not equivalent to recycled water supply. Capacity may be underused due to factors such as insufficient or seasonal demand, and pipeline size and location. For example, the City of Escondido’s Hale Avenue Resource Recovery Facility currently has the capacity to produce 8 million gallons per day (MGD) of recycled water but its average daily flow is only 3.6 MGD due to the limited number of customers.

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<sup>1</sup> Wastewater treated to secondary standards is clean enough to discharge into the ocean or other surface water. Tertiary treatment produces water clean enough for landscaping, agriculture, and some industrial processes. Advanced treatment produces water that can enter the regular drinking water treatment process.

**Table 1. NSDWRC Existing and Planned Treatment Capacity**

**S = Secondary treatment    T = Tertiary treatment    A = Advanced treatment (potable reuse)**

Agency	Treatment Plant	Current Treatment Capacity (MGD)		Treatment Capacity By 2025 (MGD)			Treatment Capacity By 2035 (MGD)		
		S	T	S	T	A	S	T	A
Carlsbad MWD	Carlsbad	--	4.0	--	8.0	--	--	12.0	--
Olivenhain MWD	Meadowlark	5.0	5.0	5.0	5.0	1.0	7.0	7.0	2.0
Vallecitos WRF									
Leucadia WWD	Gafner	--	1.0	--	2.5	--	--	3.7	--
City of Escondido	Escondido	--	--	--	--	2.0	--	--	2.0
	Hale Avenue	18.0	8.0	21.0	18.0	0.2	27.5	25.0	0.2
Rincon del Diablo MWD	Harmony Grove	--	--	0.2	0.2	--	0.2	0.2	--
City of Oceanside	San Luis Rey	13.5	0.7	13.5	6.5	2.0	17.4	13.5	5.0
	La Salina	5.5	--	5.5	--	--	5.5	--	--
San Elijo JPA	San Elijo	5.3	3.0	5.3	3.5	2.0	5.3	4.5	3.8
Encina WA	Encina	40.5	--	40.5	--	--	40.5	--	--
Community Service Districts	Rancho Santa Fe	1.0	--	1.0	--	--	1.0	--	--
	Whispering Palms								
	Fairbanks Ranch								
Camp Pendleton	Southern Regional	3.6	3.6	3.6	3.6	--	3.6	3.6	--
<b>Total New Capacity</b>				3.2	22.0	7.2	12.4	22.2	5.8
<b>Total Capacity</b>		92.4	25.3	95.6	47.3	7.2	108.0	69.5	13.0

Source: North San Diego Water Reuse Coalition, *Regional Recycled Water Project Program Environmental Impact Report*, April 2015.

Once the Coalition identified future treatment capacity, they matched supply and demand geographically and to optimize use of available wastewater. The partner agencies projected recycled water demand based on the potential for users of tap water for landscaping to switch to recycled water (e.g., homeowners' associations, schools, parks, golf courses). NSDWRC also considered future development plans (e.g., new housing projects). Existing demand for recycled water in the region is approximately 10,800 AFY. The Coalition projects that future demands for recycled water within the project area will increase by up to 18,800 AFY by 2025, to a total of 29,600 AFY, and by another 16,600 AFY by 2035, for a total of 46,200 AFY. However, their demand analysis fails to recognize one potential customer: Caltrans uses tap water to irrigate landscaping along State Route 78 between Oceanside and eastern Escondido. The Grand Jury recommends NSDWRC work with Caltrans to provide recycled water along this route, instead of potable water.

One issue with recycled water demand is that much of it is seasonal – irrigation demand peaks in the dry season and plummets in wetter winter months. Therefore, the Coalition developed a list of potential sites that could store recycled water. 70 MGD of tertiary treatment capacity is needed to supply 45,000 AFY of recycled water without seasonal storage. To balance supply and demand without adding new capacity to meet summer peaks would require roughly 9,500 acre-feet of seasonal storage. That storage would reduce the treatment capacity needed to approximately 42 MGD.

The supply and demand analysis also revealed that member agencies reuse only 16 percent of the available wastewater. By 2025 and 2035, that improves to 32 percent and 42 percent respectively, but there still would be a significant amount of water not reused. Therefore, the Coalition decided there will be enough wastewater to add advanced treatment facilities to produce drinking water (see Table 1).

The Coalition's estimates total short-term (2025) project costs at \$336 million, which works out to about \$1,300/AFY. This compares favorably with 2016 costs of \$1,060/AFY for imported water, \$1,400/AFY for the City of San Diego's Pure Water program, and \$2,131-2,367/AFY for Carlsbad desalination plant water.

For the purposes of securing grant funds and regulatory approvals, the NSDWRC plan is limited to the agencies and projects described in their Program Environmental Impact Report. When possible, the Coalition should invite additional agencies to join. There are adjacent North County agencies that are not members, including the Fallbrook Public Utility District, Valley Center MWD, Rainbow MWD, and the City of Poway. Interconnections among them and NSDWRC members could further improve efficiencies and economies of scale.

The Coalition did not analyze rainwater as a supply source. The Grand Jury believes that future project planning should evaluate the potential for large-scale rainwater capture. Most water agencies offer rebates for rain barrels to capture runoff from building roofs.<sup>2</sup> On a larger scale, where there are groundwater basins, traditional pavement can be replaced with permeable asphalt or concrete to promote groundwater recharge. In addition, storm water and other urban runoff

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<sup>2</sup> One inch of rain collected from 1,000 ft<sup>2</sup> of roof can yield up to 625 gallons of water for landscaping.

can be harvested by redirecting the flows into the sewer system (known as a combined sewer system). While combined sewers can lead to treatment plant overflow during large storms, storage facilities and advanced Real Time Decision Support Systems<sup>3</sup> (similar in concept to adaptive traffic control systems) can prevent or mitigate the problem.

### ***FACTS AND FINDINGS***

**Fact:** The North San Diego Water Reuse Coalition is a voluntary collaboration of wastewater agencies.

**Fact:** Existing tertiary treatment capacity among the Coalition partners is 25.3 MGD.

**Fact:** The Coalition plans to add 44.2 MGD of tertiary capacity by 2035.

**Fact:** The Coalition plans to add 13 MGD of advanced treatment (potable reuse).

**Finding 01:** The treated water will replace imported drinking water currently used for irrigation and industrial purposes, and will increase regional drinking water supply and reliability.

### ***COMMENDATION***

The 2015/2016 San Diego County Grand Jury commends the North San Diego Water Reuse Coalition and their Regional Recycled Water Project for their voluntary, collaborative and innovative approach to enhancing the reliability and diversity of water supply. Regionalization of facilities will allow recycled water to play an even more significant role in meeting the future water needs in northern San Diego County.

**Fact:** There are water and wastewater agencies in North County that are not Coalition members.

**Finding 02:** Expanding Coalition membership in North County would increase the capacity and connectivity of the recycled water project.

**Fact:** The project does not consider large-scale rainwater capture.

**Finding 03:** Rainwater capture would be a valuable addition to the project's suite of measures to diversify local water supply.

**Fact:** The California Department of Transportation uses tap water for irrigation along the SR 78 corridor between Oceanside and Escondido.

**Fact:** The Coalition does not list Caltrans among their potential future recycled water customers.

**Finding 04:** Coalition sales of recycled water to Caltrans could reduce the use of tap water for irrigation.

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<sup>3</sup> Southeast Michigan Council of Governments. [Investment in Reducing Combined Sewer Overflows Pays Dividends](#). Detroit, MI. September 2008. "[Going Against the Flow: Green Tech, Sensors and Industrial Internet Make Sewer Systems Smart](#)". [Txchnologist](#). undated monograph.

## ***RECOMMENDATIONS***

**The 2015/2016 San Diego County Grand Jury recommends the North San Diego Water Reuse Coalition member agencies:**

- 16-39: Reach out to neighboring non-member agencies to further diversify supply lines.**
- 16-40: Evaluate large-scale rainwater capture as a means of increasing and further diversifying their wastewater supplies.**
- 16-41: Work to increase use of recycled irrigation water on the State Route 78 corridor between Oceanside and Escondido.**

## ***REQUIREMENTS AND INSTRUCTIONS***

The California Penal Code §933(c) requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made *no later than 90 days* after the Grand Jury publishes its report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such comment shall be made *within 60 days* to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code §933.05(a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each grand jury finding, the responding person or entity shall indicate one of the following:
- (1) The respondent agrees with the finding
  - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.
- (b) As to each grand jury recommendation, the responding person or entity shall report one of the following actions:
- (1) The recommendation has been implemented, with a summary regarding the implemented action.
  - (2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
  - (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This time frame shall not exceed six months from the date of publication of the grand jury report.

- (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.
- (c) If a finding or recommendation of the grand jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the grand jury, but the response of the Board of Supervisors shall address only those budgetary or personnel matters over which it has some decision making authority. The response of the elected agency or department head shall address all aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with the Penal Code §933.05 are required from the:

<b><u>Responding Agency</u></b>	<b><u>Recommendations</u></b>	<b><u>Date</u></b>
<b>North San Diego Water Reuse Coalition</b>	<b>16-39 through 16-42</b>	<b>8/30/16</b>