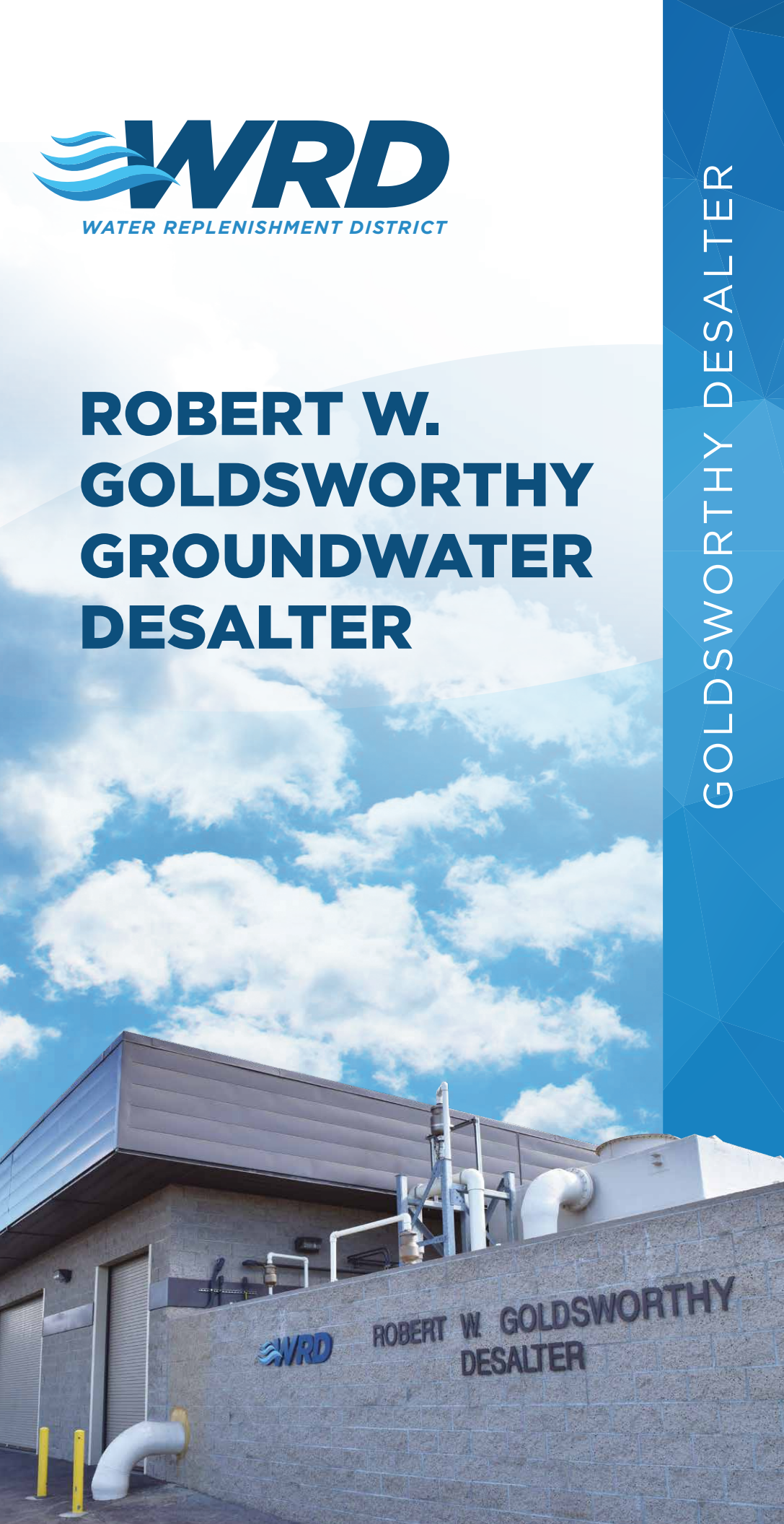
WRD
WATER REPLENISHMENT DISTRICT

ROBERT W. GOLDSWORTHY GROUNDWATER DESALTER

GOLDSWORTHY DESALTER



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ROBERT W. GOLDSWORTHY

The brackish water desalination facility is named for former WRD Director Robert W. Goldsworthy, who served on the Board of Directors between 1988 and 2003. The Board named the facility after Mr. Goldsworthy to honor him for his commitment to improving the quality of life for all Southern Californians.

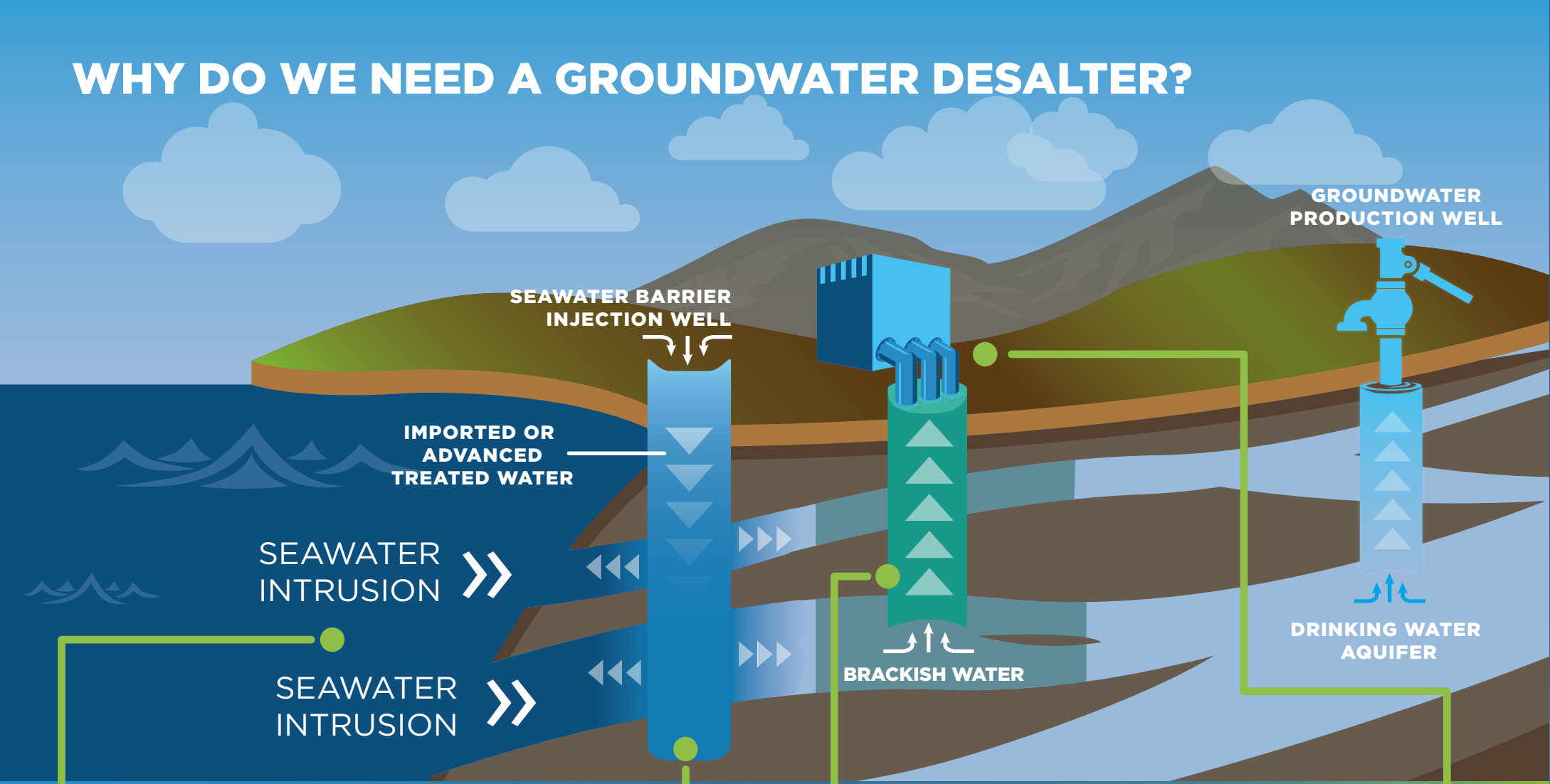
The original facility was commissioned in 2001 and expanded to a 5 million gallon facility in 2018.

WRD'S REGIONAL BRACKISH WATER RECLAMATION PROGRAM

After decades of successful groundwater desalination experience, WRD is prepared to work with local area partners to expand brackish water desalination in the West Coast Basin.

The program will increase local sustainability and resiliency, help to alleviate drought impacts, assist local agencies in meeting long-term water supply needs, and protect groundwater quality for the future.

WHY DO WE NEED A GROUNDWATER DESALTER?



1 SEAWATER INTRUSION

- Groundwater over-pumping lowered groundwater levels to below sea-level along the coast
- Salt water began to flow into or "intrude" into groundwater aquifers
- Fresh groundwater became "brackish" – too salty for drinking

2 SEAWATER BARRIER INJECTION

- Courts legally limited groundwater extraction after wells had to be abandoned due to salt
- Construction began on a water pressure "barrier" consisting of aligned fresh water injection wells along the coast
- The barrier now includes 153 total wells extending from LAX airport to the Palos Verdes Hills

3 AFTER INJECTION

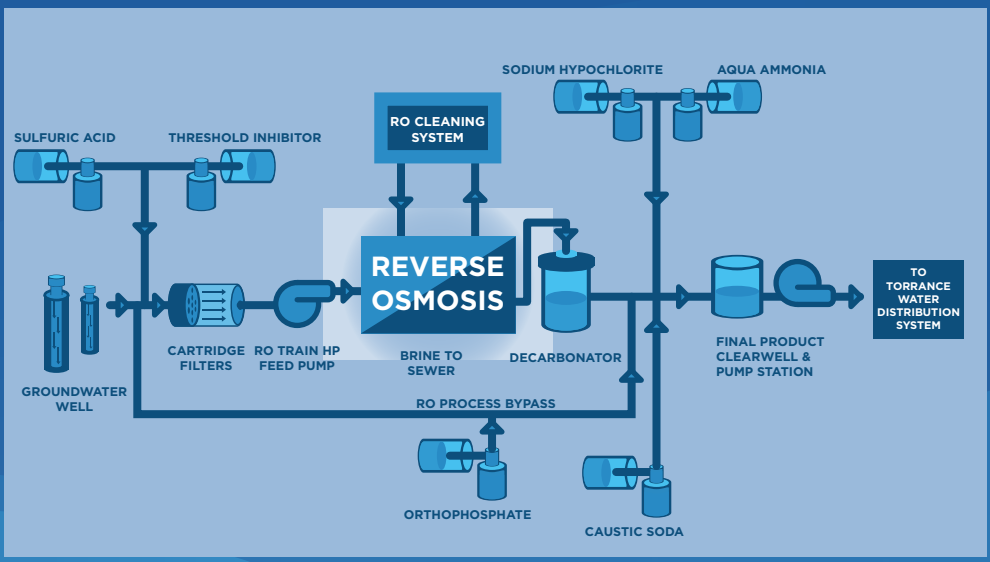
- A large plume of brackish water that had already intruded into the aquifers was trapped inland of the barrier
- This limited groundwater usage as a potable drinking water source in the West Coast Groundwater Basin

4 GOLDSWORTHY DESALTER

- Robert W. Goldsworthy Desalter was commissioned in 2001 and expanded to treat 5 million gallons per day in 2018
- The Desalter purifies water extracted from the plume and provides fresh water for the City of Torrance

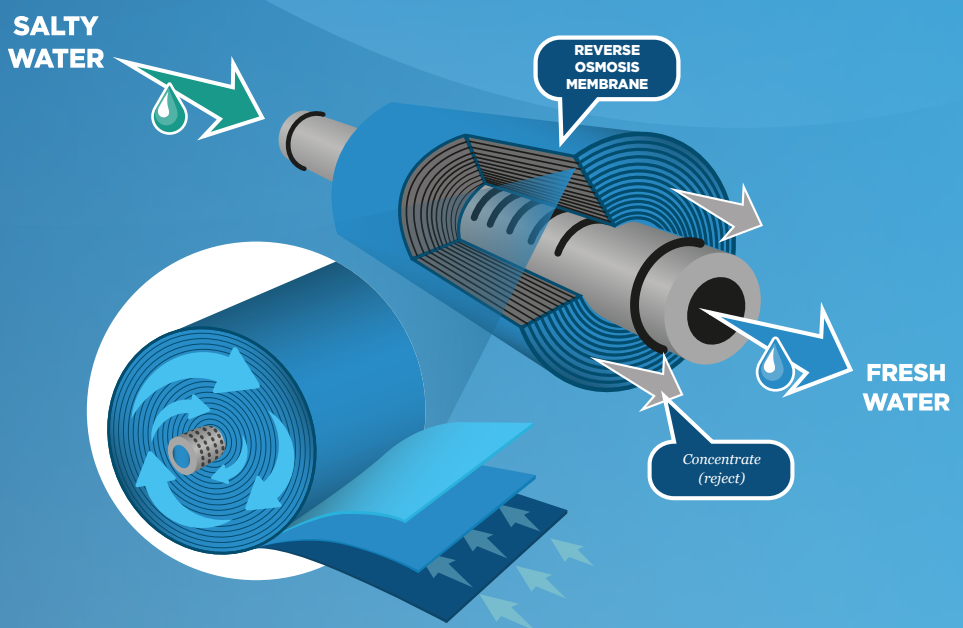
DESALTER TREATMENT TECHNOLOGY

The Goldsworthy Desalter works primarily through the use of reverse osmosis treatment. Salty brackish groundwater extracted from wells is forced through reverse osmosis membranes to remove the salts. The water is then disinfected and the pH level is adjusted to create fresh, potable water.



REVERSE OSMOSIS

Reverse osmosis treatment uses tightly-wound thin membranes to filter out salts and ions and fine particulate matter. Only water molecules can pass through, filtering water at the molecular level.



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ABOUT WRD

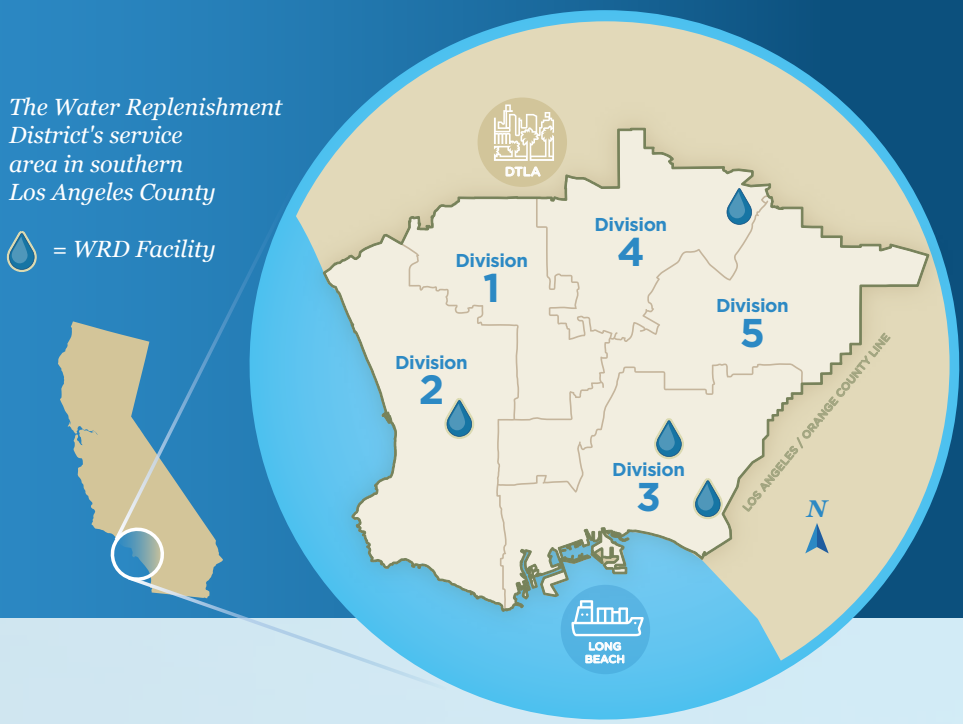
The Water Replenishment District (WRD) was established in 1959 to manage, protect, and replenish the Central and West Coast Groundwater Basins. WRD achieves its mission by:

- Using effective and environmentally sound basin management practices and serving as the Administrative Body of the Watermaster for both basins
- Monitoring and remediating the groundwater basins affected by natural and human-made contaminants
- Owning and managing two advanced water treatment facilities and a groundwater desalter

WRD manages and protects two of the most utilized urban groundwater basins in the nation. Groundwater from these basins provides nearly 50% of the total water supply for the four million residents in WRD's 43-city service area which covers 420 square miles in southern Los Angeles County. WRD ensures that a reliable and locally sustainable supply of high-quality groundwater is available through replenishment with recycled water and stormwater capture.

The Water Replenishment District's service area in southern Los Angeles County

= WRD Facility



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