



# Desalination Plant

## Benefits

**Drought-Proof.** The supply of water to be treated is inexhaustible.

**Water Production Potential.** The plant would be designed to permit a future capacity upgrade to 15 million gallons a day.

## Disadvantages and Challenges

**Cost.** A plant would be costly to construct and to operate year-round. Though at a reduced production rate, the desalination plant must continuously run even in non-drought years to keep the plant at a high state of readiness. Initial capital costs have been estimated at \$350-\$520M and operating cost estimates are at about \$20M per year on average, making this project's economic factors less attractive than they might be in other circumstances.

**Reduced Operational Flexibility.** Running the plant, whether in drought or non-drought years, creates operational challenges particularly in winter months when running the desalination plant would require major changes to the operations of other Marin Water facilities.

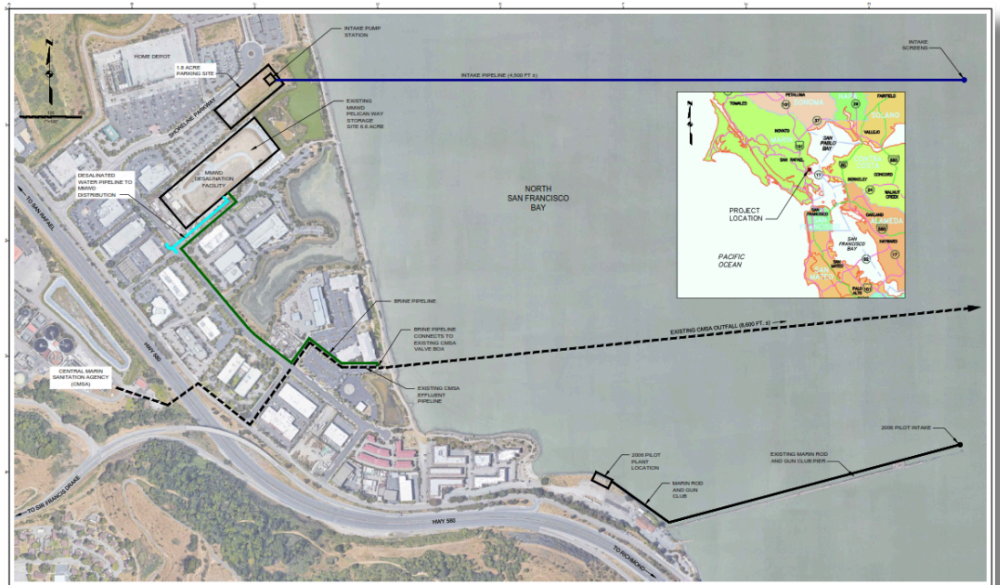
**Implementation.** The project requires several major regulatory permits and a substantial environmental analysis, pushing the plants in-service date out at least five to seven years, and likely longer.

**Water Quality.** The treated water, while complying with all regulations, comes from a different source than the water currently provided by Marin Water potentially creating concerns for inequity, as the desalinated water would be provided to some customers only.

A treatment plant would be constructed along the Bayshore in San Rafael to purify bay water for use within the District's system, delivering up to 10,000 acre-feet of water in a drought year or about 25% of potable demand including environmental releases.

The project would require significant storage pipelines and pumping to assist with integrating the treated water into Marin Water's pipelines to allow the plant to deliver up to its maximum rate of 10 million gallons per day.

The desalination process would produce brine as a byproduct of the treatment process; that brine would be added to the existing Central Marin Sewer Agency outfall, thereby reducing the need to build a dedicated outfall.



*The desalination plant would be located on property already owned by Marin Water on Pelican Way in San Rafael.*

## What is desalination?

Desalination is the process of removing salts from bay or ocean water to create freshwater suitable for drinking through the use of specialized treatment systems/facilities. Treatment of the saltwater uses a process called reverse osmosis where the water is pushed through a membrane (a barrier with tiny holes) with the salts and other minerals left in the brine solution.

