

# Groundwater

## Fast Facts

- Natural groundwater recharge hasn't been enough to sustain the groundwater subbasins for more than a century. On average, the amount of groundwater pumped is double or more the amount that nature replenishes.
- Each year, groundwater subbasins yield approximately 150,000 acre-feet of pumped water. (One acre-foot is approximately 325,000 gallons or enough water for two families for one year.)
- The groundwater subbasins can store more than twice as much water as all the county's reservoirs combined. We can store more water beneath our feet than what is used throughout the county in a year.
- The water district's recharge programs use more than 90 miles of local creeks and more than 300 acres of ponds to replenish groundwater.
- The groundwater subbasins filter and transmit more than 150 million gallons per day of water, more than the water district's largest water treatment plant.



Groundwater is water found in aquifers, geological formations below the ground surface. Water seeps through the surface of the earth in much the same way that water saturates a sponge, to fill the cracks and pores of sand and gravel layers beneath our feet. The Santa Clara Valley overlies an aquifer system with two subbasins: the Santa Clara Subbasin in the north and the Llagas Subbasin, which extends from Morgan Hill south to Gilroy.

Local communities have relied on groundwater since the 1850s, when they first drilled wells to supply water to residents, agriculture and businesses. By 1921, with far more water being pumped than naturally replenished, groundwater levels declined and land subsidence, the broad sagging of the land surface over many miles, occurred. Mountain View, Sunnyvale, Santa Clara and north San Jose experienced permanent land subsidence, with the ground surface in downtown San Jose dropping about 13 feet.

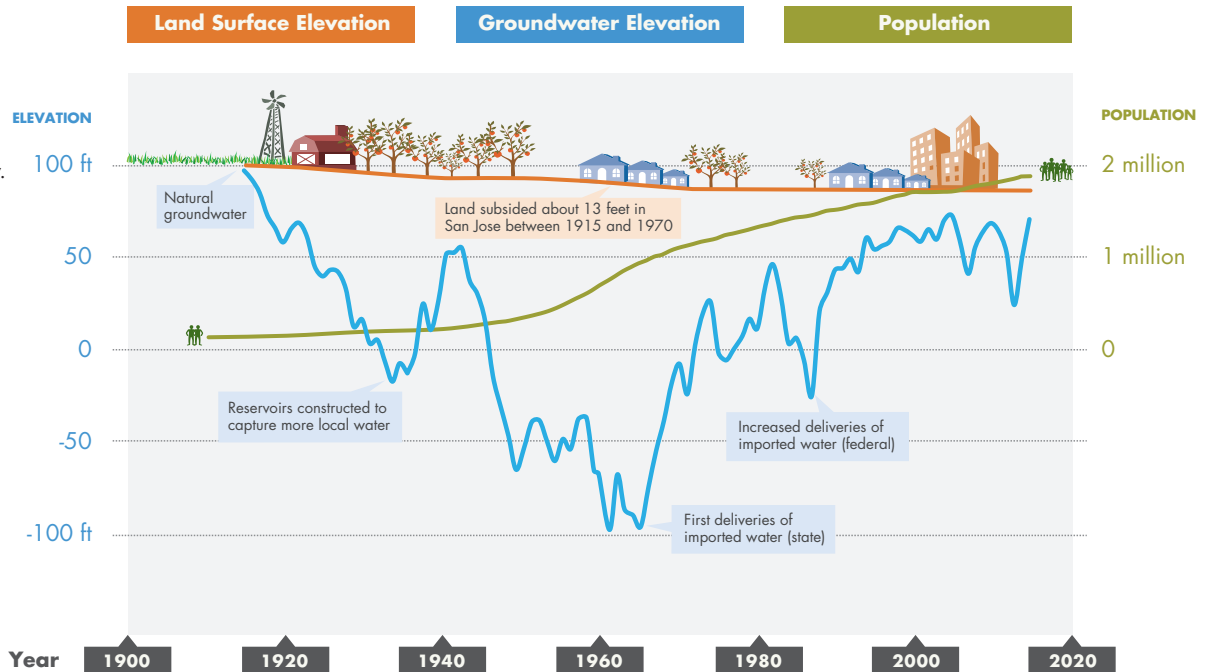
Santa Clara County voters formed the water district in 1929 to recharge the subbasins with water to counterbalance pumping, maintain the supply of groundwater and prevent land subsidence. Because subsidence changes the elevation of the land surface, it can cause serious and costly problems, including flooding, saltwater

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Where does our water come from? **Groundwater**

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This chart illustrates how district recharge programs, imported water deliveries, and treated water programs have all dramatically contributed to a sustainable water supply.



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*A graphic representation not intended as a technical exhibit.*

intrusion and damage to underground utilities such as sewer systems. Subsidence that occurred in the county prior to the 1970s caused millions in damage and highlighted the need for flood protection programs.

The water district actively manages the groundwater subbasins through programs to increase the supply nature provides and to protect them from contamination or other threats that would jeopardize this essential local resource.

Three main sources directly replenish groundwater in Santa Clara County:

1. Deep percolation of local rainfall
2. Water captured and stored in local reservoirs, which the water district releases to creeks and recharge ponds for managed recharge
3. Water imported from the Delta, which the water district also releases to creeks and recharge ponds for managed groundwater recharge

Just as important to the groundwater subbasins are water district programs like treated water deliveries, water recycling and water conservation. They indirectly help keep groundwater elevations from plummeting and the land from subsiding by reducing demands on the subbasins. By meeting needs otherwise met by groundwater, we can consider these programs "in-lieu recharge," as if the groundwater subbasins had been recharged by that amount. These programs are essential to meet the county's water needs now and into the future. The chart above illustrates the water district's dramatic contribution to a sustainable groundwater supply through direct recharge programs, imported water deliveries and treated water programs.

In addition to programs to increase supplies, the water district also has programs to address the numerous threats to groundwater quality. Leaking underground fuel tanks, industrial spills, urban runoff, septic systems, poorly managed agricultural operations and other sources can pollute groundwater, making it costly to treat or even unusable. The restoration of contaminated groundwater can take years, decades or longer. Prevention is key to groundwater protection.