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# **San Francisco Groundwater Supply Project**

**May 9, 2018**  
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# Today's Presentation

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San Francisco Regional Water System

San Francisco's Local Water Supply Program

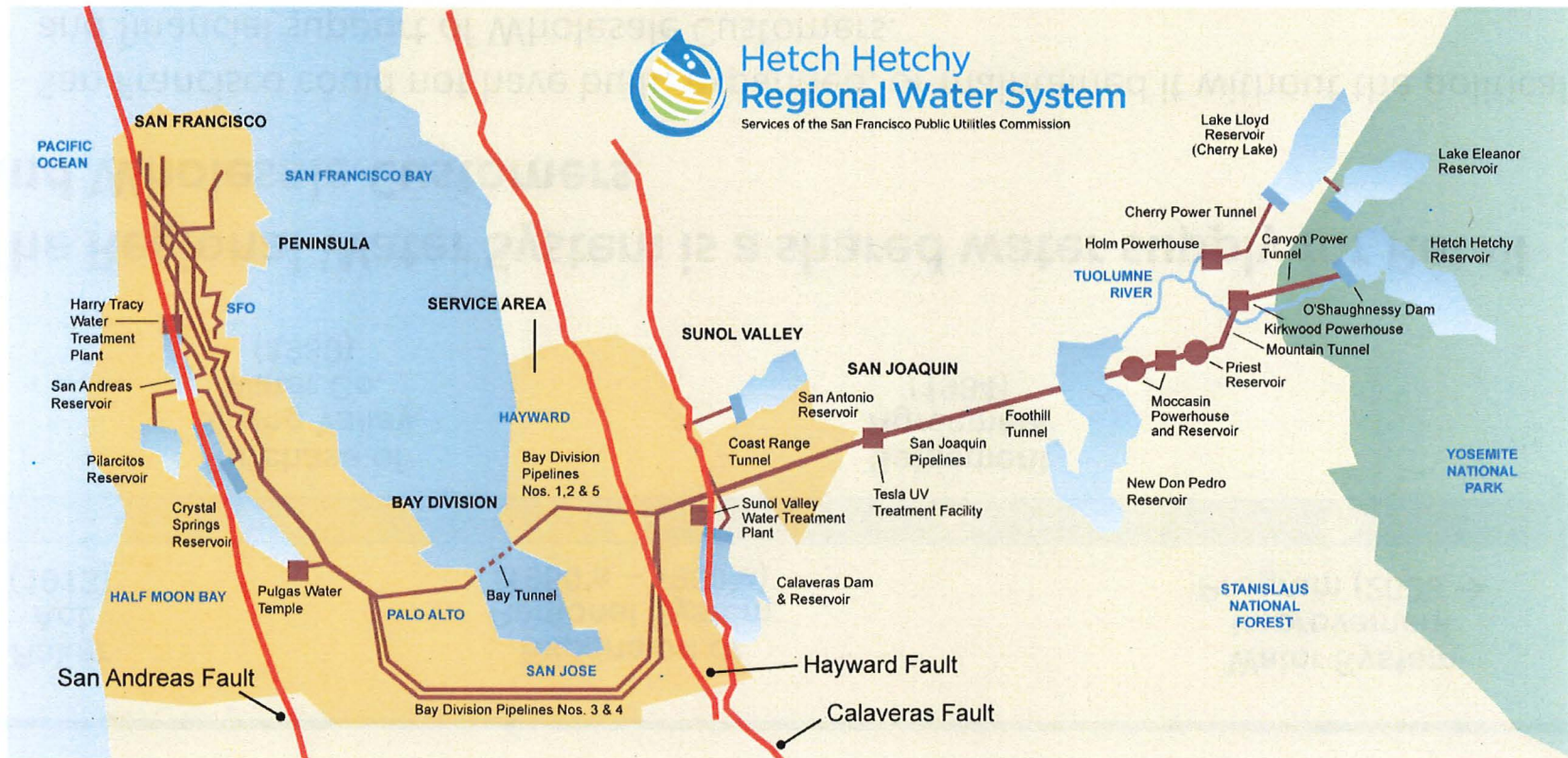
Groundwater in San Francisco

Status Update on the San Francisco Groundwater  
Supply Project

Regional Groundwater Storage and Recovery Project

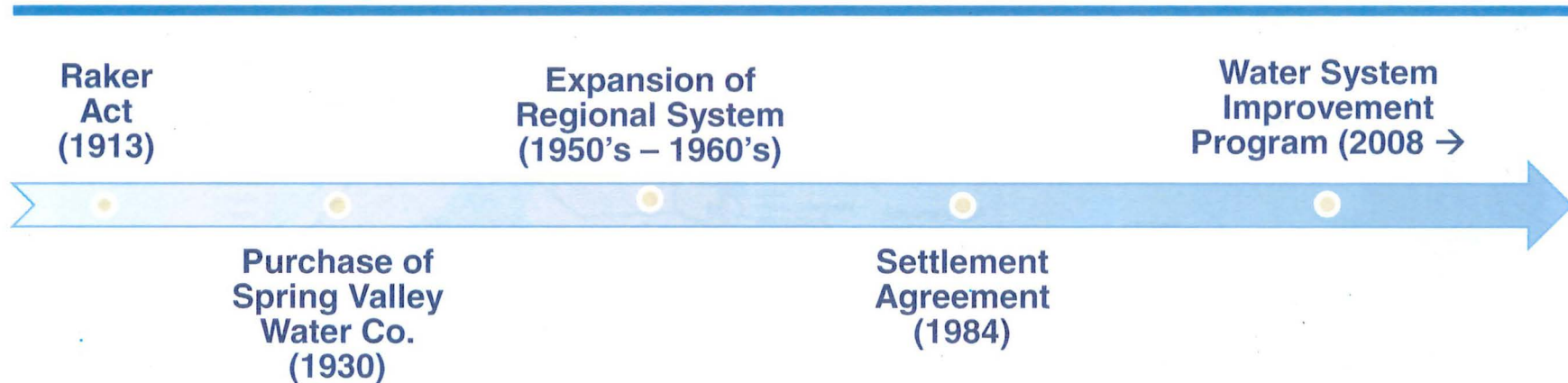
# SFPUC Regional Water System

The Regional Water System delivers water from Hetch Hetchy and five Bay Area reservoirs to 2.7 million customers.



San Franciscans drink a **blend of this supply** and have been for decades.

# A Shared Water Supply



## The Regional Water System is a shared water supply for Retail and Wholesale Customers

- San Francisco could not have built, expanded, or maintained it without the political and financial support of Wholesale Customers.
- San Francisco has a contractual obligation to serve up to 184 mgd to its 26 Wholesale Customers in perpetuity.
- Costs for the Regional Water System are shared by Wholesale Customers (2/3) and Retail Customers (1/3).



## Risks to Our Regional Water System Supply

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**Drought**, which reduces the amount of water available in the Hetch Hetchy and Bay Area reservoirs

**Earthquakes**, which can disrupt water delivered to us from far away

**New regulations**, which may require us to leave more water in rivers for habitat and use less for drinking

**Climate change**, which affects the amount of water we can get from snowfall up in Hetch Hetchy

**Population and employment growth**, which increase the demand for water



## Local Water Program

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Our Local Water Program includes:

- Conservation
- Recycled Water
- Groundwater

Our Non-Potable Program mandates that all *new developments* produce their own water for toilet flushing and irrigation.

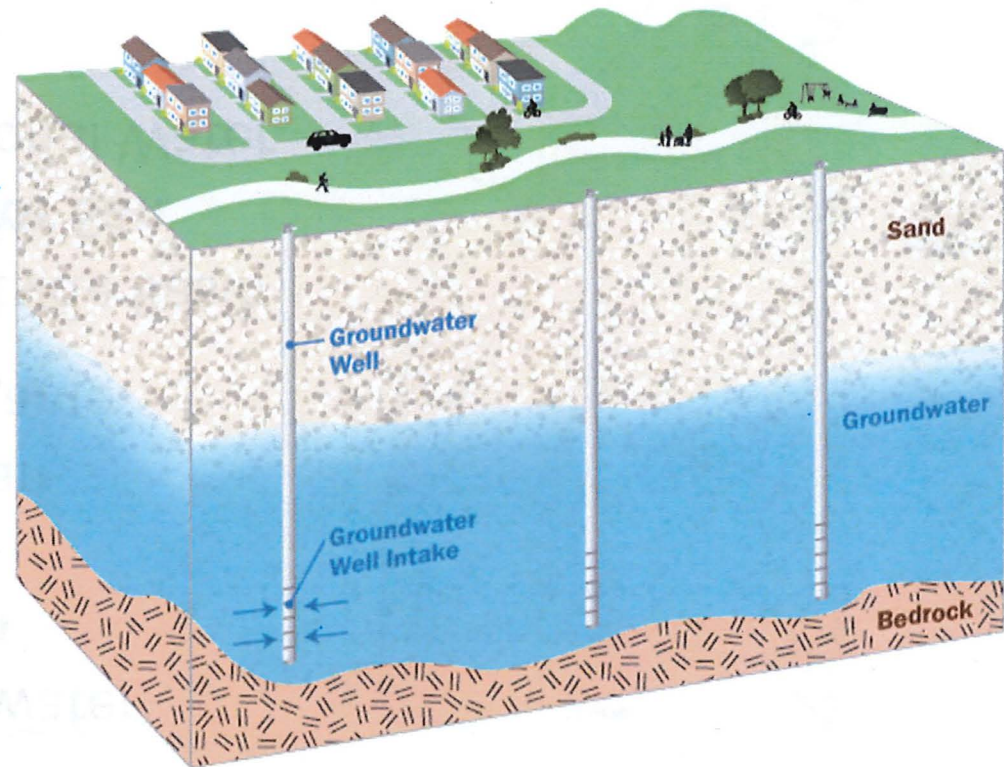
We are also exploring water transfers, purified water and desalination.

# What is Groundwater?

Groundwater is water that comes from the ground (also known as *well water*).

Groundwater is stored in underground reservoirs (*aquifers*).

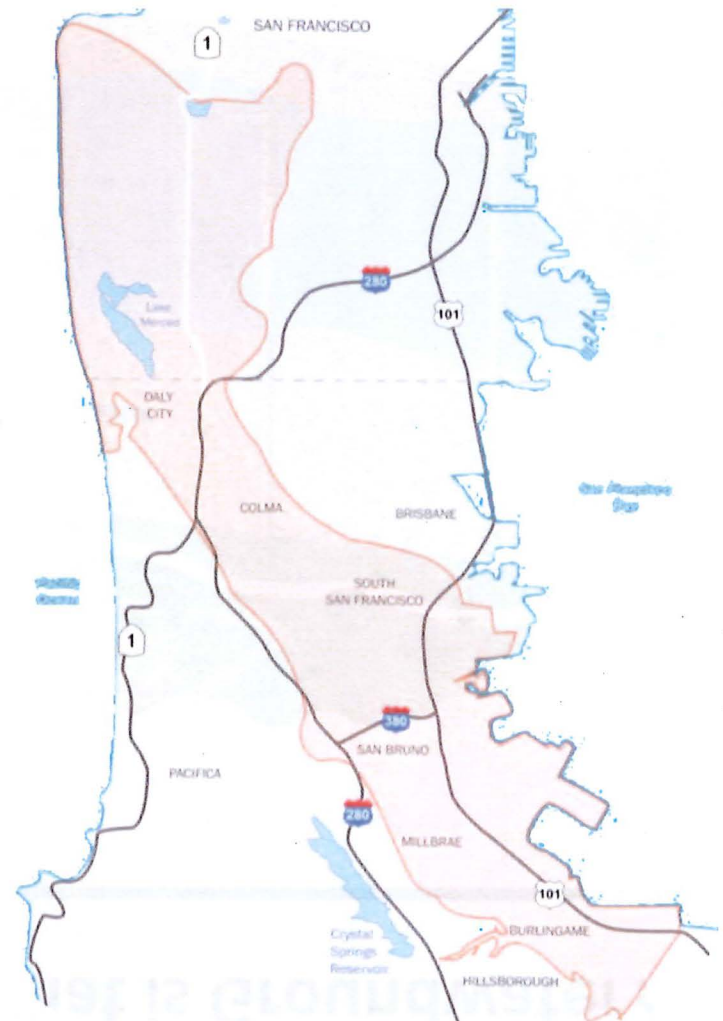
**80% of Californians rely on groundwater for their drinking water supply.**



## Our Local Groundwater Source

San Francisco's local groundwater source is the **Westside Basin**

- The Basin extends from San Francisco south to Burlingame.
- From 1930-1935 the Westside Basin provided **drinking water for San Francisco** before the Regional Water System was completed.
- It has provided drinking water to Daly City, South San Francisco, and San Bruno **for over 100 years.**







## Why Groundwater? Why Now?

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- To reduce our vulnerability to risks we face with our current supply, such as earthquakes and climate change
- To help reliably meet the long term supply needs of the City
- To be ready in advance of the need, not afterward: it takes a decade or more to develop new water supply projects

**Groundwater: It's local, it's accessible and it's high quality.**

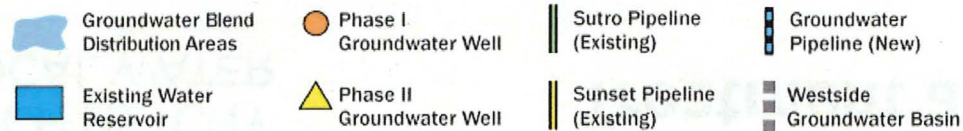
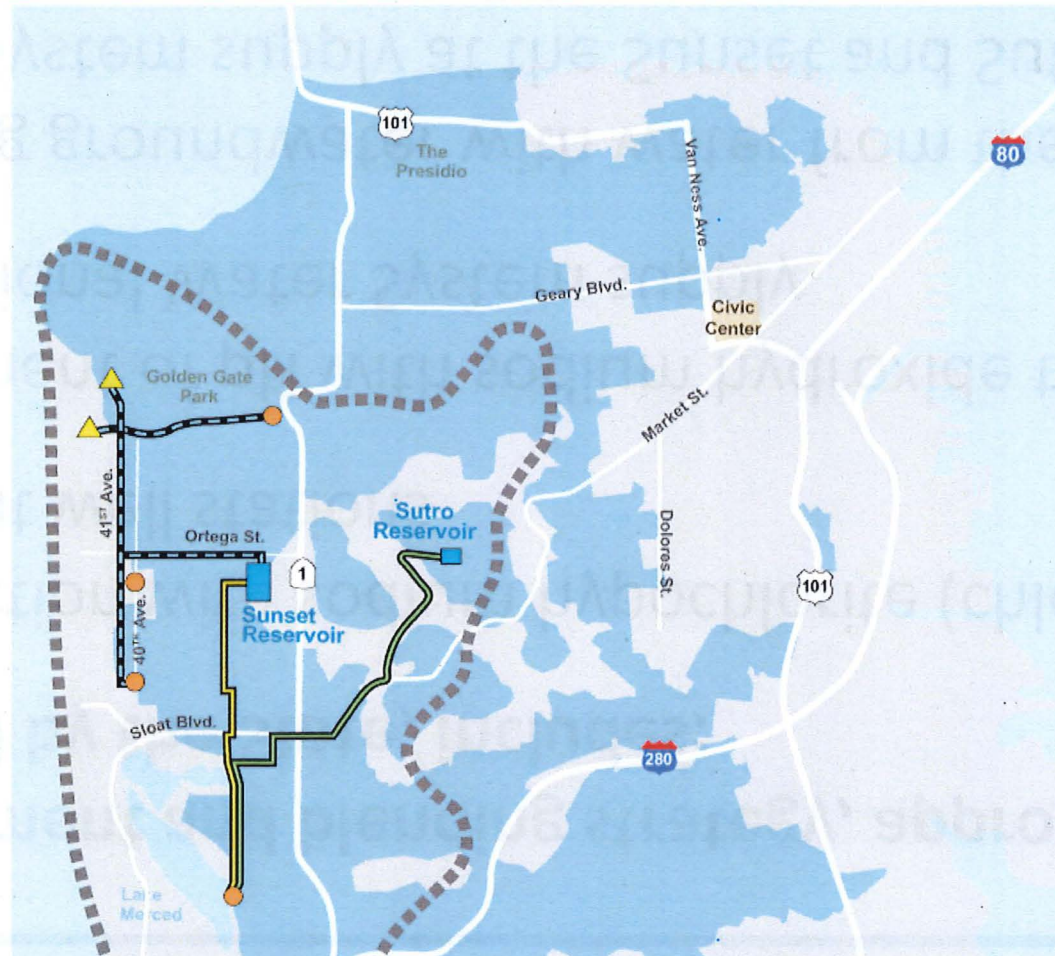


## How the San Francisco Project Works

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- The Project pumps groundwater from wells that are 270 to 460 feet below the surface.
- The groundwater is blended with the Regional Water System supply at the Sutro and Sunset Reservoirs.
- The blended supply is distributed to half the City via the existing water distribution system.

# Distribution of Groundwater Blend



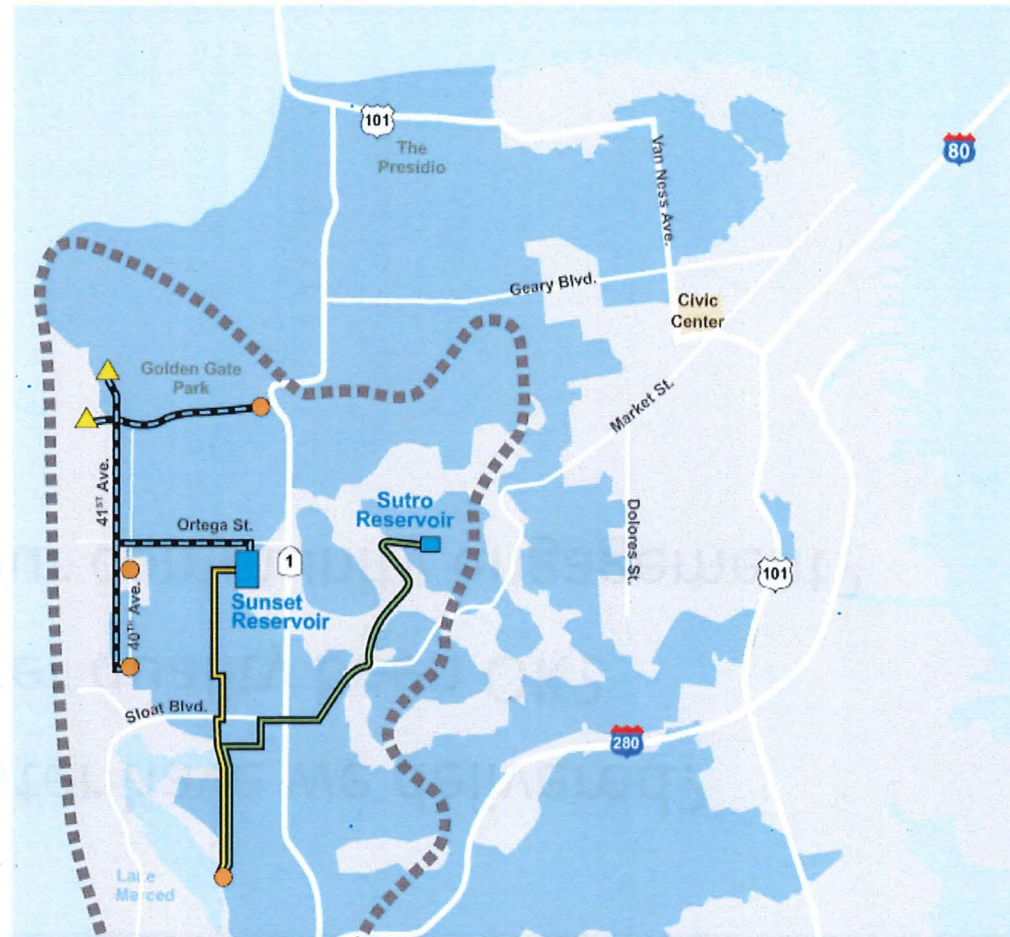
## **Our treatment and blending strategy, approved and permitted by the State, includes:**

- Disinfection with sodium hypochlorite (chlorine) added at well stations
- Adjustment of pH with sodium hydroxide to match the Regional Water System supply
- Blending groundwater with water from the Regional Water System supply at the Sunset and Sutro Reservoirs before distribution to our customers

# Pumping and Blending Underway

The wells at Lake Merced, West Sunset Playground, South Sunset Playground and Central Golden Gate Park have been constructed and tested and approved.

These 4 wells have been incrementally coming on line and adding a small amount of groundwater to the Regional Water System supply beginning in April 2017.



- How much groundwater have we delivered?
- Has the resulting water quality been OK?
- Have we continued our community engagement?

- We're pumping groundwater and delivering it as planned:
  - From April through December 2017 we pumped a total of 5.4 million gallons of groundwater to blend with Regional Water System supply
  - From January through April 2018 we pumped over 30 million gallons of groundwater to blend with Regional Water System supply
- Our short-term goal is to deliver an average of 1 million gallons per day for the first full year of operation.
- We are continuing to monitor and test, and the results meet standards approved by the State.

- As wells have been put into service, we completed robust water quality monitoring and testing as required by the State Water Board.
- We continue this robust monitoring and testing as our wells continue to blend groundwater with our Regional Water System supply.
- The San Francisco Groundwater Project has SCADA systems, alarms, and automatic shutoffs built into the project that ensure the blended water always meets all State and Federal water quality standards for health and safety.





# Water Quality Data

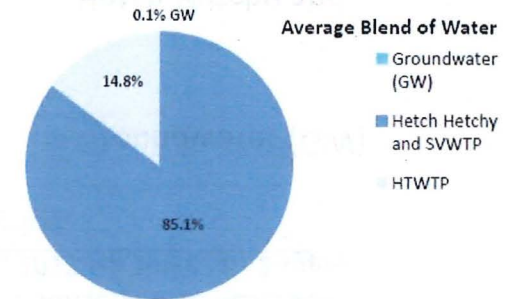
Updated Regularly & Posted at:  
<http://sfwater.org/sfgroundwater>

**San Francisco Groundwater Supply Project**  
**SFPUC Surface Water - Groundwater Blend Report [4/16/18 - 4/29/18]**  
(Posted on 5/4/18)

During the period of 4/16 - 4/29, Sunset and Sutro Reservoirs received a combination of surface water from Bay Area reservoirs, Hetch Hetchy reservoir and local groundwater. Table 1 below summarizes the water quality characteristics of the blended water in the reservoirs.

**Table 1: Blended Water Characteristics**

Parameter	California Title 22 Regulatory Standard	Unit	2016 Maximum Value <sup>3</sup>	2016 Minimum Value <sup>3</sup>	Latest Data from Sunset Reservoir Outlet
Alkalinity	Other <sup>1</sup>	mg/L (as CaCO <sub>3</sub> )	112	7	39
Chloride	250 <sup>2</sup>	mg/L	16	<3	9
Hardness	Other <sup>1</sup>	mg/L (as CaCO <sub>3</sub> )	76	8	40
Total Dissolved Solids	500 <sup>2</sup>	mg/L	95	<20	75
Specific Conductance	900 <sup>2</sup>	µS/cm	218	31	146



The blended water is routinely sampled to ensure the quality of deliveries and safety of drinking water supplied to our customers. **Over one hundred parameters are sampled**, in accordance with the California Code of Regulations (CCR), Title 22 Drinking Water Regulations. Table 2 below summarizes water quality parameters for which blending is required. While the levels of these parameters may vary slightly from week to week, they will not exceed the drinking water standards set by the California State Water Resources Control Board (SWRCB) Division of Drinking Water and the United States Environmental Protection Agency (USEPA).

**Table 2: Water Quality Data for Groundwater Parameters that Require Blending - Sunset Reservoir**

Parameter	California Title 22 Regulatory Standard	Unit	Current Sampling Frequency <sup>5</sup>	Number of Samples to Date	Date of Latest Sample	Water Quality Monitoring Results in Sunset Reservoir			
						Blending Results			
						Latest <sup>6</sup>	High <sup>7</sup>	Low <sup>7</sup>	Average <sup>7</sup>
Chromium VI	0.01 <sup>4</sup>	mg/L	Weekly	157	4/17/2018	0.00018	0.00062	0.000034	0.00017
Manganese (Mn)	0.05	mg/L	Weekly	142	4/17/2018	<0.002	0.0084	<0.002	0.0021
Nitrate	10	mg/L (as N)	Weekly	157	4/17/2018	0.11	0.33	<0.07	0.073

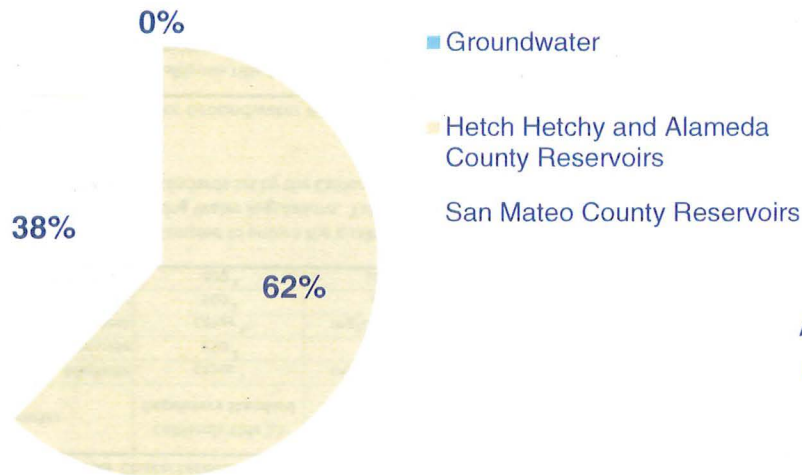
While groundwater serving the Sutro Reservoir only comes from the Lake Merced Well, which does not require blending, Table 3 provides the most recent data of blended water quality.

**Table 3: Water Quality Data for Sutro Reservoir**

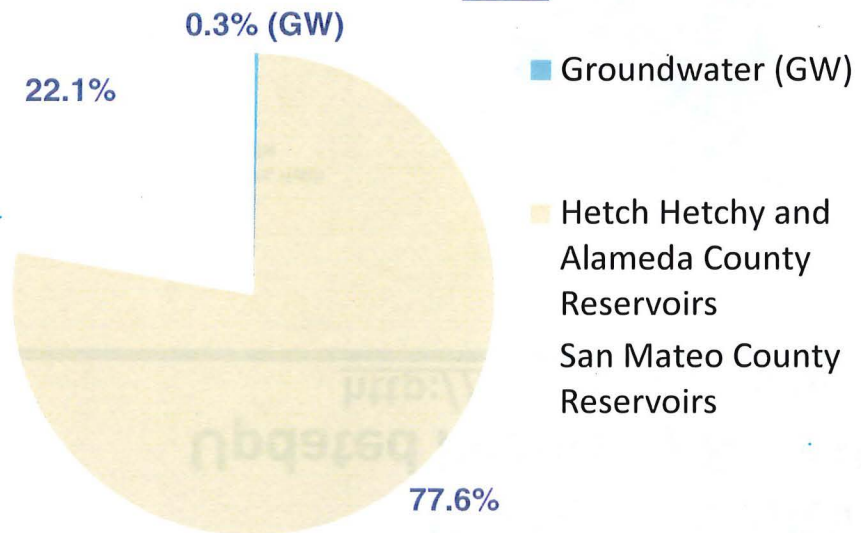
Parameter	Unit	Number of Samples to Date	Date of Latest Sample	Blending Results			
				Latest <sup>6</sup>	High <sup>7</sup>	Low <sup>7</sup>	Average <sup>7</sup>
Chromium VI	mg/L	52	4/17/2018	0.000049	0.00021	0.000032	0.000081
Manganese (Mn)	mg/L	43	4/17/2018	0.0027	0.023	<0.002	0.0031
Nitrate	mg/L (as N)	52	4/17/2018	<0.07	0.11	<0.07	<0.07

# San Francisco's Water Supply Blend Changes Over Time

**Average Blend of Water at Sunset/Sutro Reservoir –posted on September 20, 2017 for the prior 2-week period**

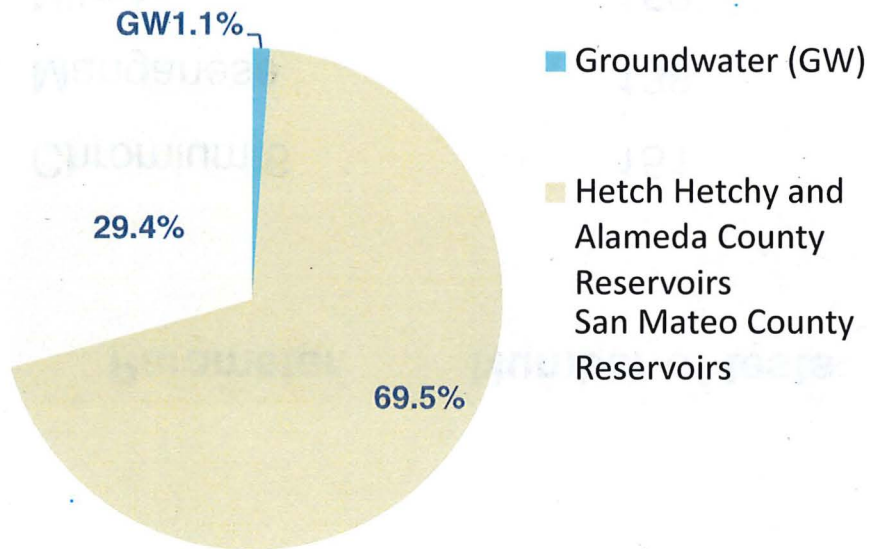


**Average Blend of Water at Sunset/Sutro Reservoir –posted on December 31, 2017 for the prior 2-week period**

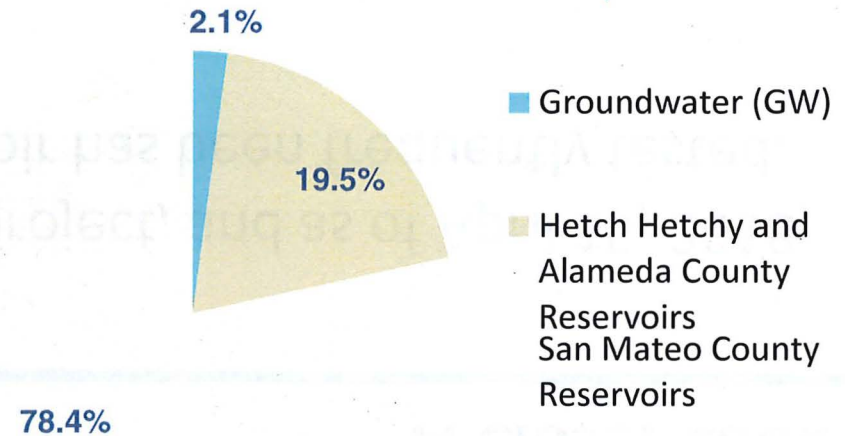


# San Francisco's Water Supply Blend Changes Over Time

**Average Blend of Water at Sunset/Sutro Reservoir –  
posted on March 22, 2018 for the prior 2-week period**



**Average Blend of Water at Sunset/Sutro Reservoir –  
posted on April 1, 2018 for the prior 2-week period**



## Water Quality Data: A Closer Look

During the start up phase of the project, and as of April 15, 2018, water served from Sunset Reservoir has been frequently tested.

Parameter	Number of tests	Maximum Contaminant Level (mg/L)	Average concentration (mg/L)
Chromium 6	151	0.01	0.00017
Manganese	138	0.05	0.0022
Nitrate	153	10	0.072



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## San Francisco Groundwater Water Quality Summary

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With the addition of San Francisco Groundwater, we meet all State and Federal water quality standards for health and safety.

There has been no change in taste and odor as a result of introducing groundwater into our supply.

# Outreach From 2007-2017

## 10 Years of Outreach

- Various community events with over 700 participants
- Sampling of groundwater blend
- Focus groups

## Media Coverage

(print/TV/radio stories)

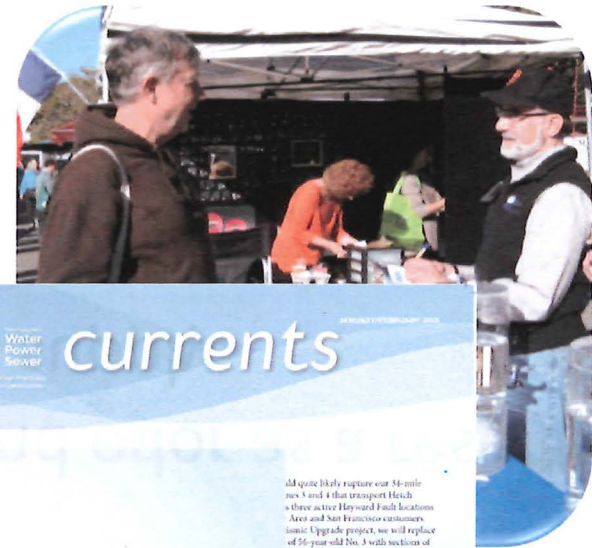
## Currents / Digital Currents

(utility bill inserts/newsletter)

## Planning Dept. mailings

## Fact Sheets

## Digital Wall



2017 Local Water Update

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Groundwater • Recycled Water • Conservation

Programs to conserve water and develop new supplies in the Bay Area

### Local Water:

- + Allows us to stretch our water supplies
- + Makes our water supply more reliable should a drought or disaster interrupt our regional water sources.
- + Gives us greater flexibility to meet the diverse needs of our customers.

Groundwater

Recycled

- Digital Currents Newsletter – 152,800 subscribers
- Groundwater water quality data updates on [www.sfwater.org](http://www.sfwater.org) - 3115 unique visits since July 1, 2017
- Social media since July 1, 2017 – 18,870 Impressions
- Fact Sheet updates – distributed during presentations and posted on [sfwater.org](http://sfwater.org)
- Community Outreach – proactive and responsive in providing presentations, answering questions, responding to emails and phone inquiries

**These efforts mean that we have reached hundreds of thousands of San Francisco residents since July 2017.**

# The Regional Groundwater Storage and Recovery Project

- Will provide groundwater during droughts for San Francisco and its Wholesale Customers
- Partnership with Daly City, San Bruno, and CalWater that provides additional, local water storage equal to Crystal Springs Reservoir
- Increases water supply reliability and provides us with a local drought/emergency water source





# Project Schedule

- We will complete construction of 13 Groundwater Storage and Recovery Project wells in 2018.
- Startup testing of wells connecting to the Regional Water System will begin this summer.
- Groundwater will be delivered to Wholesale Customers and San Francisco during testing.



# What This Project Means For San Francisco

- Protection against drought!
- Groundwater from the South Westside Basin will be blended with our Regional Water System supplies for delivery to San Francisco and to our Wholesale customers.
- San Francisco could receive on average 4 mgd of groundwater when the Project system is fully operational.





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**Find Out More**

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## **We want you to know about our Groundwater Supply Projects and our Local Water Program!**

For information on:

- Water quality data
- Westside Basin groundwater monitoring
- Frequently asked questions
- Environmental documents
- Project glossary and other resources

**Visit our website:** [www.sfwater.org/localwater](http://www.sfwater.org/localwater)

**Questions?**