



# Bayside Facility

## Bayside Community Group

June 6, 2023

*Bayside Operations Building*

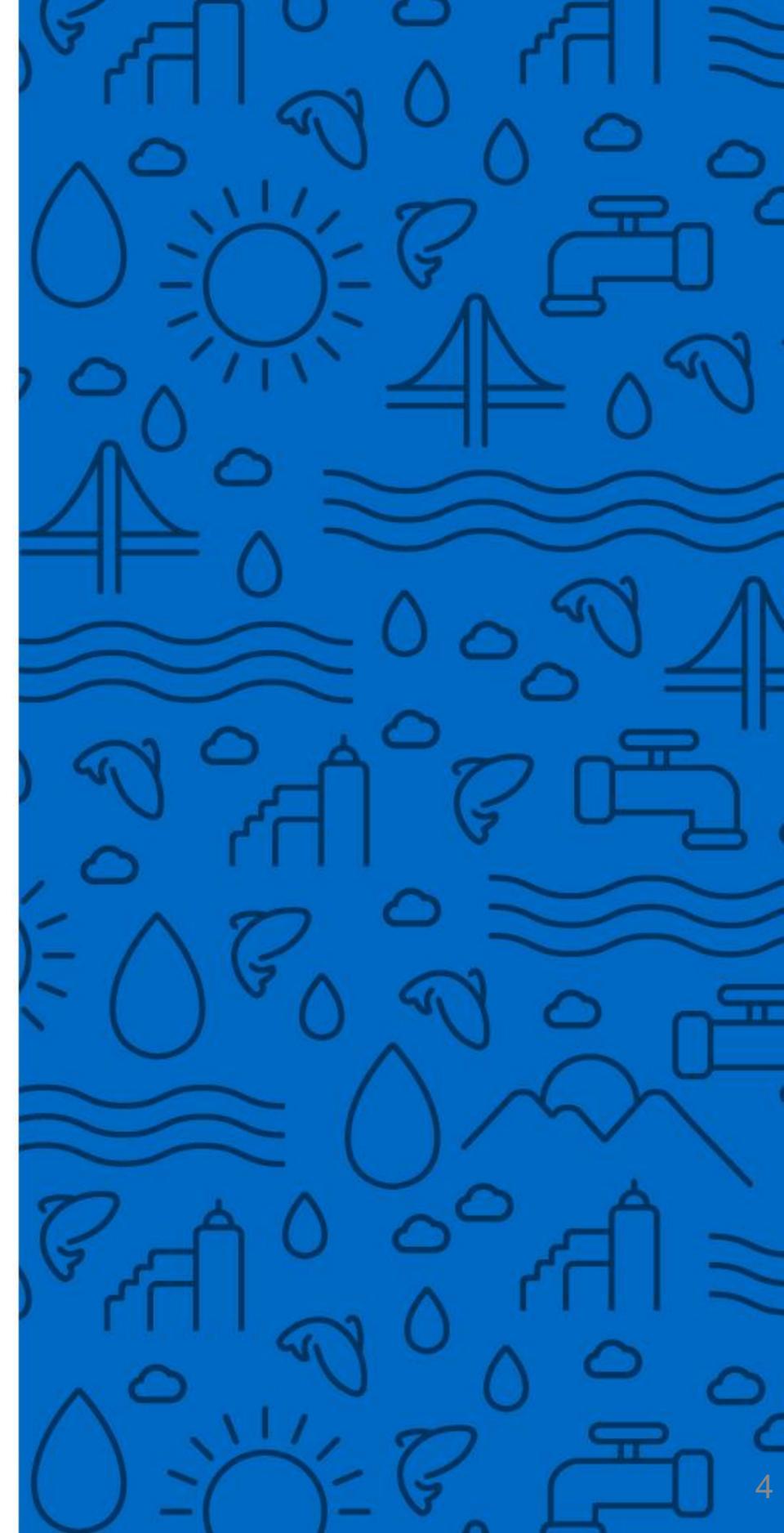
# Agenda

- Meeting Goals and Objectives
- EBMUD Water Supply
- Bayside Facility
- Next Steps
- Questions

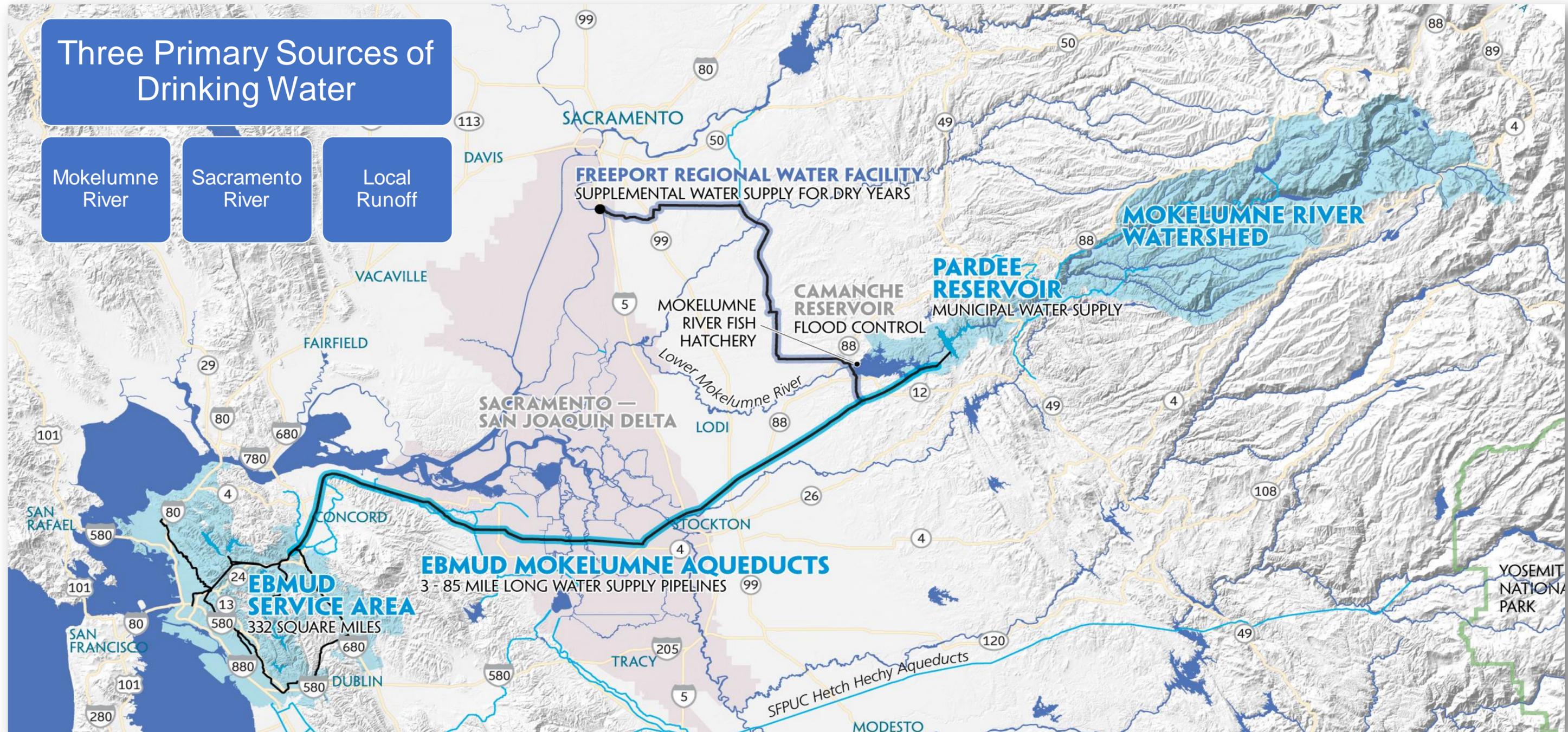
# Meeting Goals and Objectives

- EBMUD made a commitment to start a new Bayside Community Group
- Provide facts about the Bayside Facility
- Listen to and address questions and concerns

# EBMUD Water Supply



# EBMUD Water Supply



# Water Supply Challenges

**Climate Change**



**Extreme Drought**



**Extreme Rainfall**



**Earthquakes**



**New Laws & Regulation**



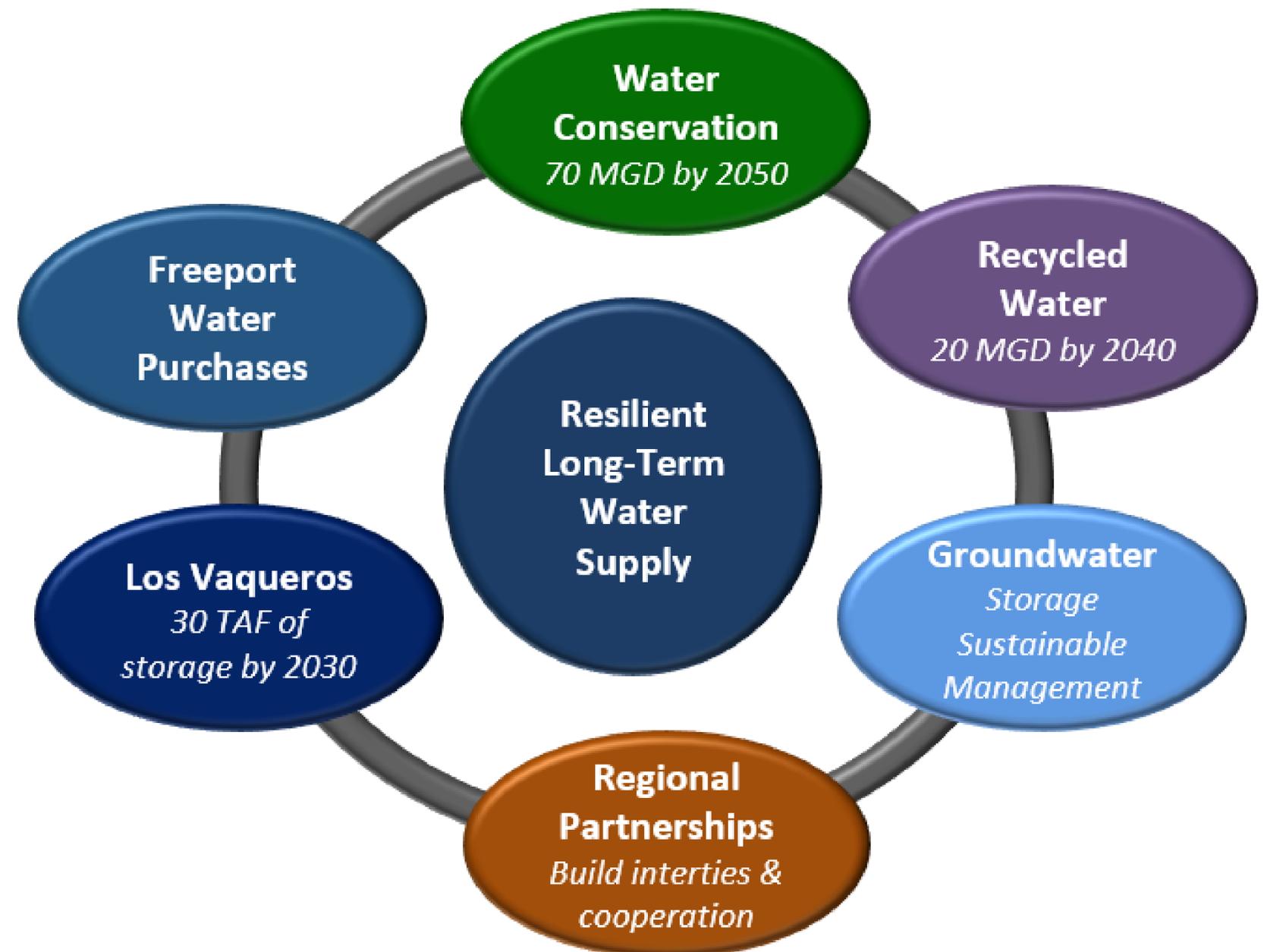
**More Wildfire**



# EBMUD Supplemental Water Supply Strategy

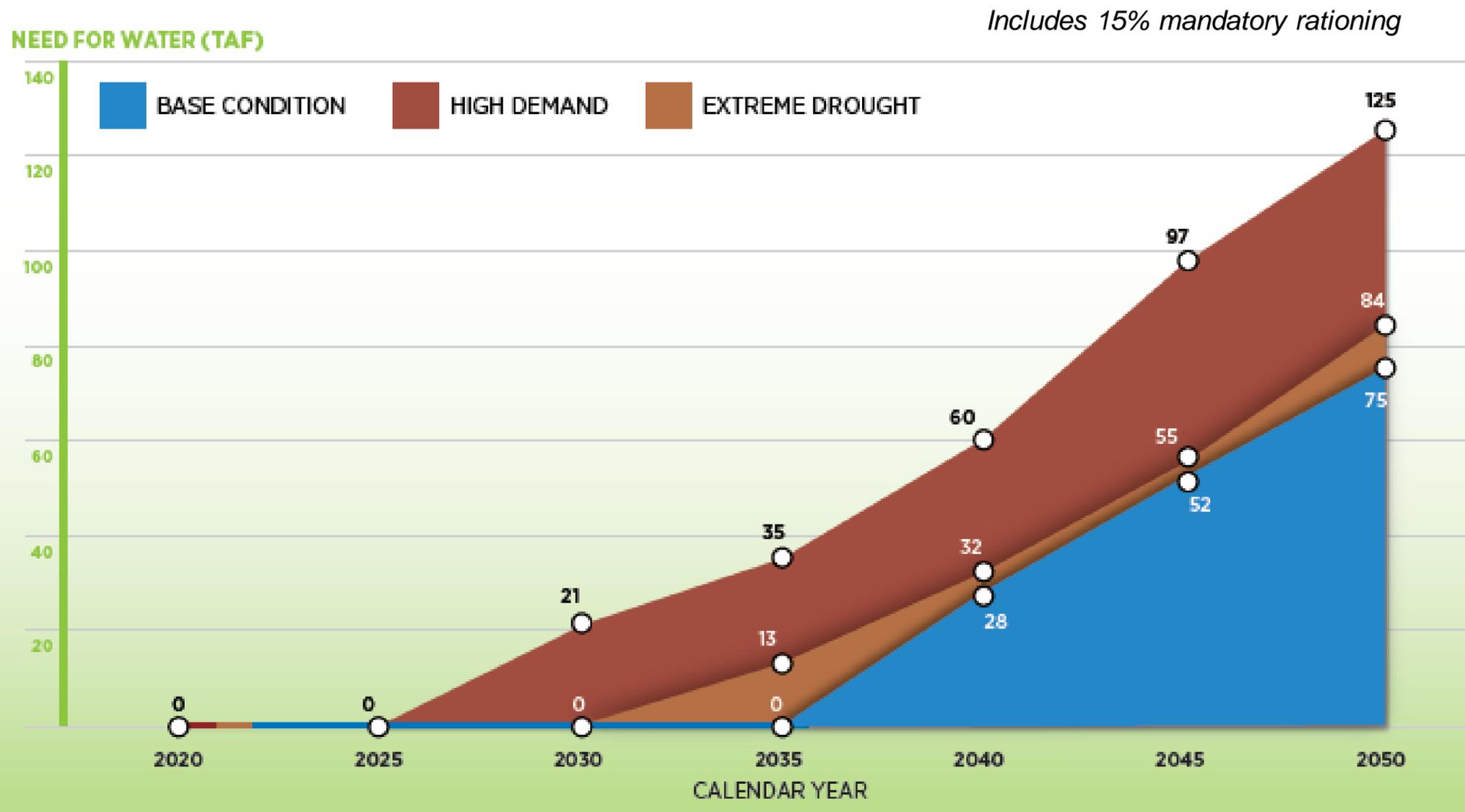
## Strategy

“Continue building a resilient and sustainable water supply through diversifying the water supply portfolio”



MGD: million gallons per day  
TAF: thousand acre-feet

# EBMUD Need for Water in Third Year of Drought



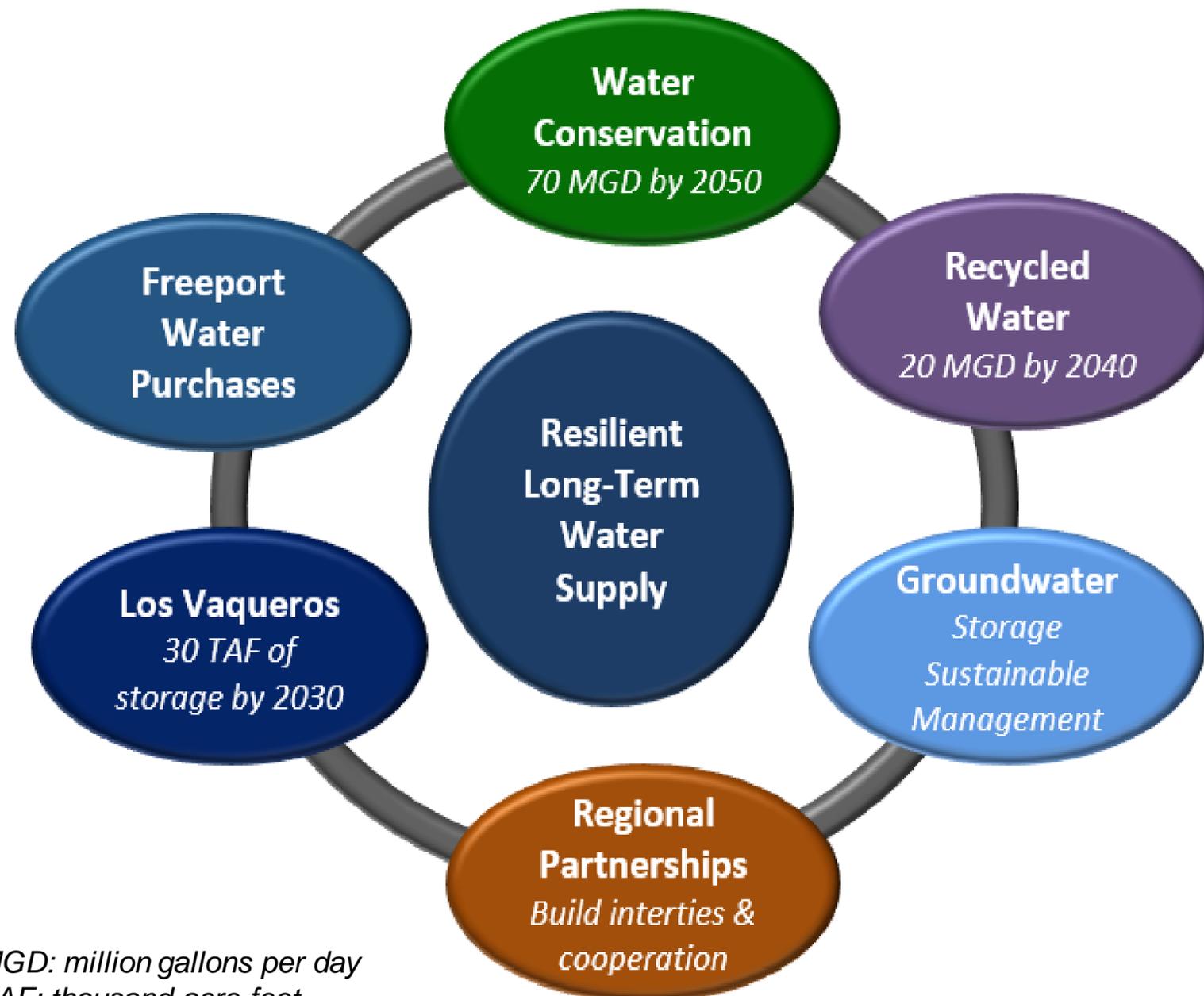
- By 2040, the need for supplemental water supply is projected to range between 28–60 TAF in a third year of a drought.
- Base condition assumes operation of Freeport using CVP supplies.
- In 2022, EBMUD received a 0% CVP allocation, an assumption not considered in the 2020 UWMP.

From EBMUD 2020 Urban Water Management Plan (UWMP)

CVP: Central Valley Project

TAF: thousand acre-feet

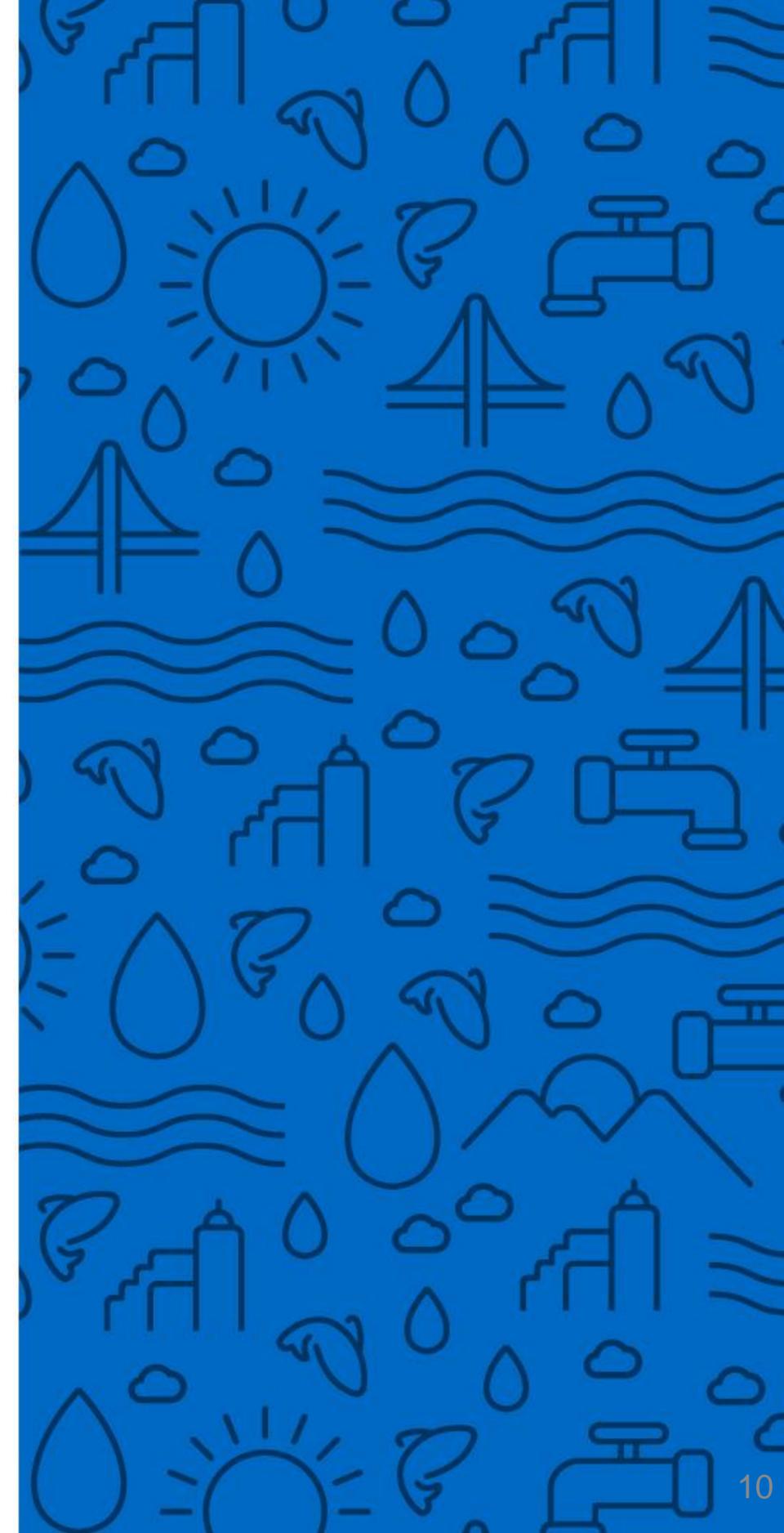
# Supplemental Water Supply Portfolio Approach



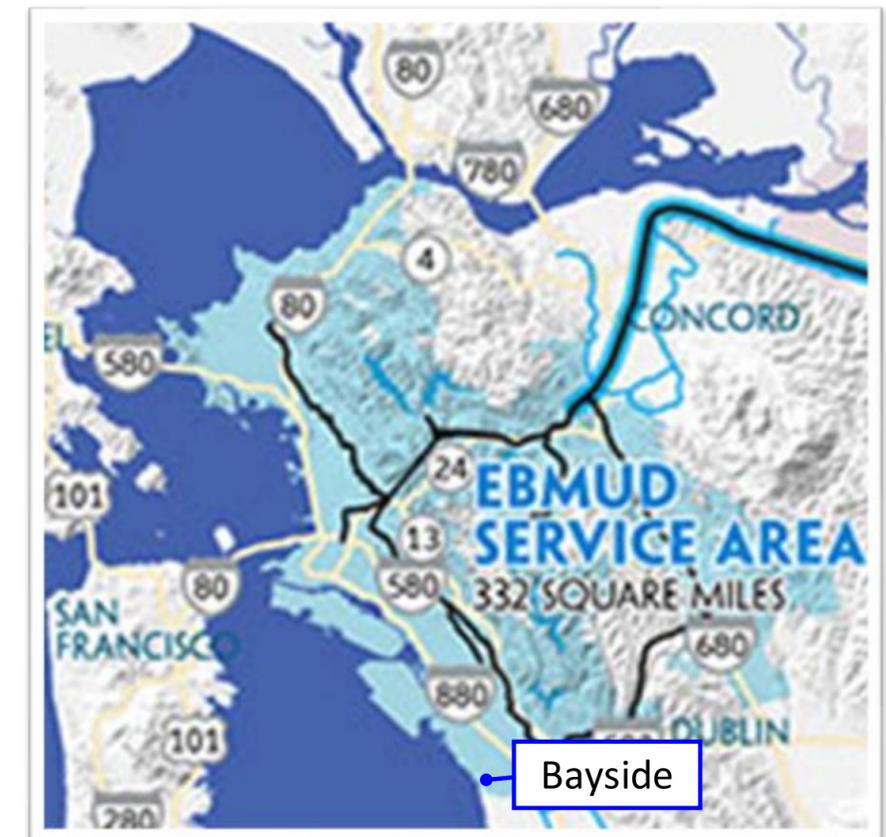
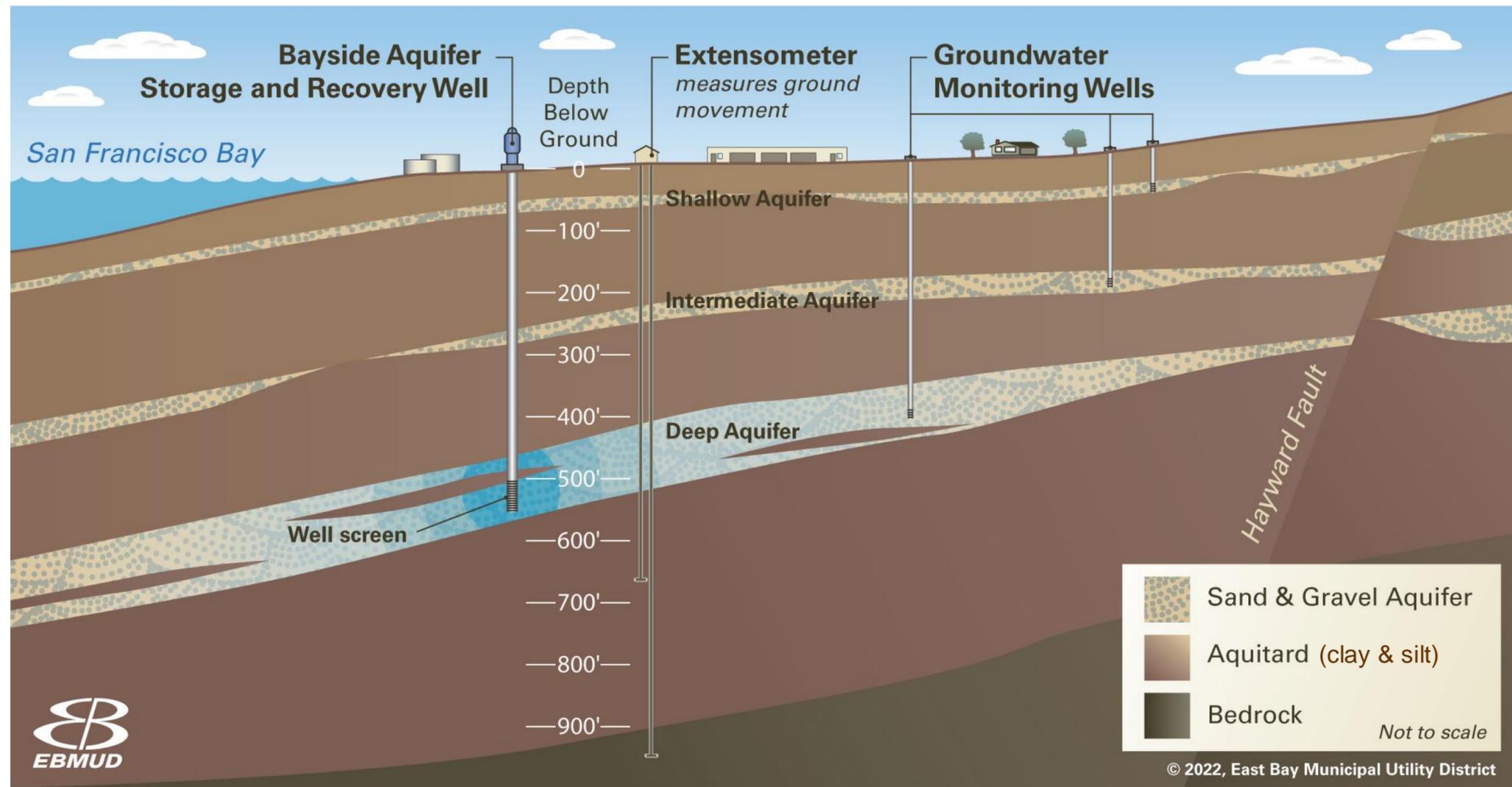
MGD: million gallons per day  
TAF: thousand acre-feet

- Pursue and develop supplemental supply projects
- If certain projects are successful, other projects may not need to be developed
- Groundwater storage/use at Bayside:
  - Bayside Phase 1 facility in place
  - More data is needed before future phase of Bayside can be considered
  - Bayside is last option in supplemental supplies. Backup to the backup supplies in extreme conditions.
  - Not needed to extract at Bayside in the last two significant droughts

# Bayside Facility

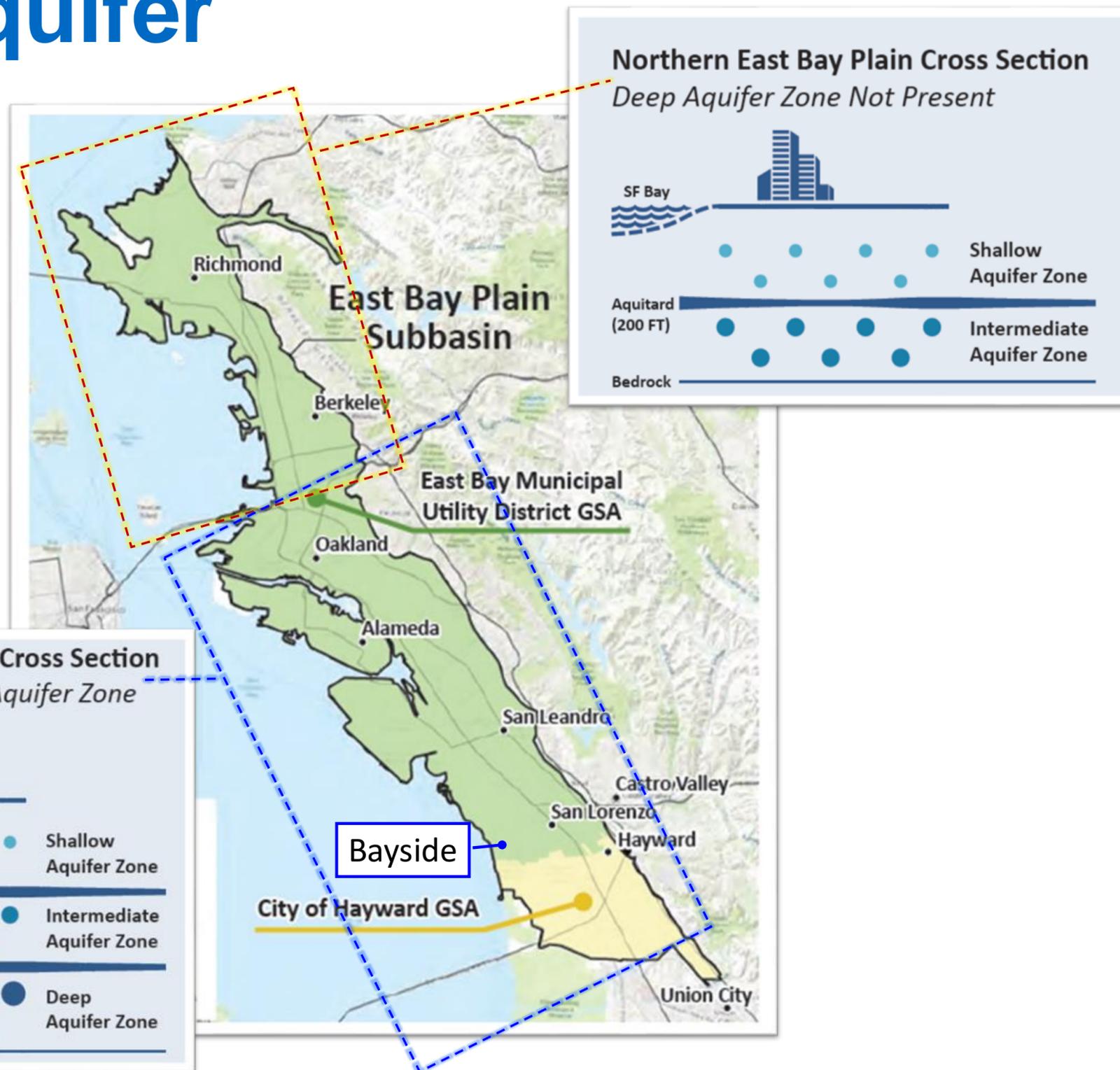


# Bayside Overview



- Capture water during wet years and store it in the aquifer for severe droughts or emergencies
- Well is located about 600 feet deep within the Deep Aquifer and is protected from shallow groundwater impacts and seawater intrusion by continuous clay layers
- Extraction for drought or emergency water supply has not yet been needed

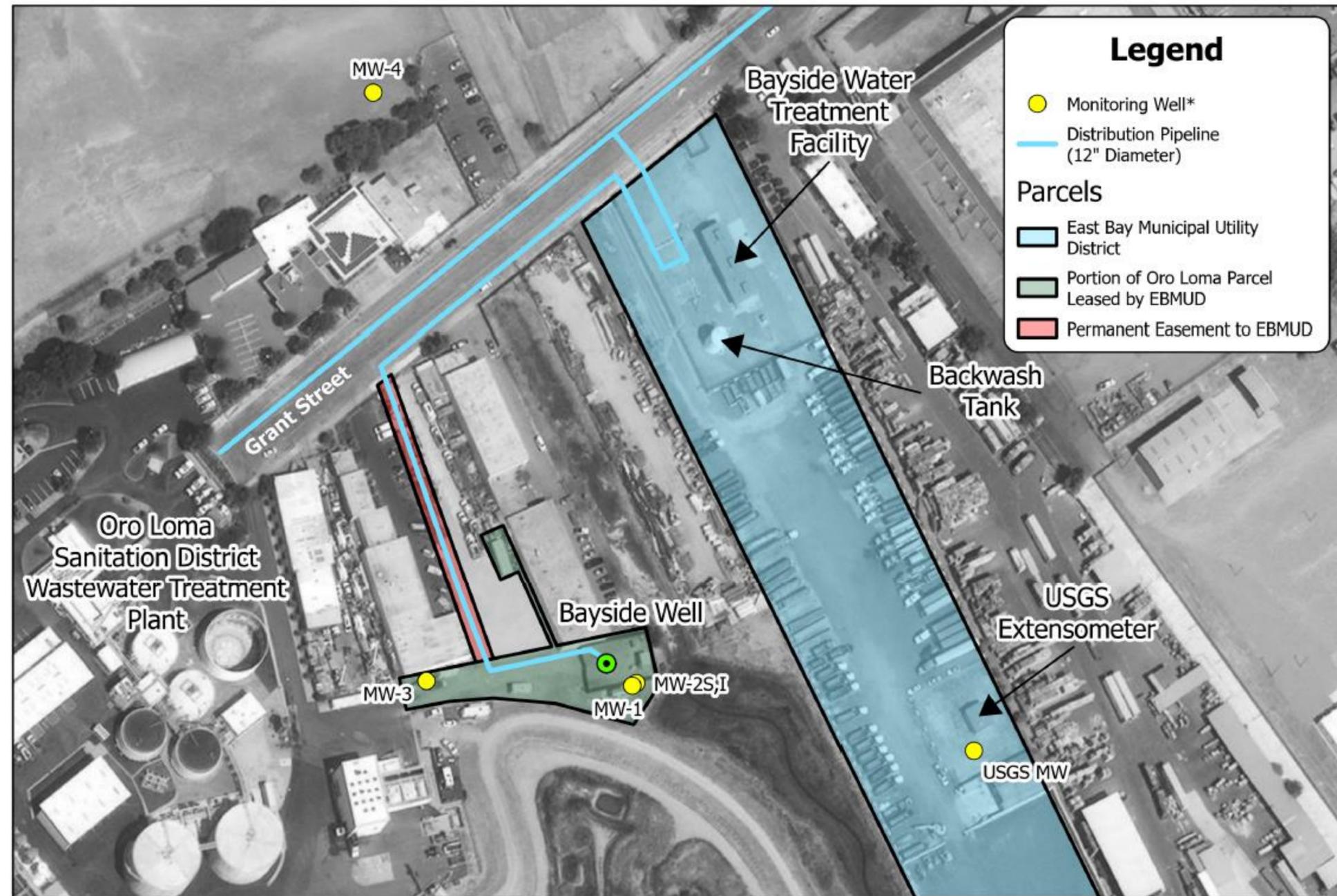
# Deep Aquifer



- Deep Aquifer is only present below Oakland and in the cities to the south
- Studies demonstrate that the Deep Aquifer is the more productive in the area close to the San Francisco Bay in San Lorenzo and San Leandro
- Water can be stored and pumped at the desired quantities at the location selected

# Facilities

- Consist of a well, water treatment facility, extensometer, and monitoring wells
- Construction completed in 2009
- Lease with Oro Loma Sanitary District expires August 2024



**Bayside Facilities and Parcels**

\*Additional groundwater monitoring wells are outside of the map extent.

0 60 120 240 US Feet



# Operations

- Capacity
  - Injection: 0.3 to 0.5 million gallons/day
  - Extraction: up to 2 million gallons/day over 6 months
- 18 million gallons of water stored between surplus water years 2017 - 2019
- Extraction for drought or emergency water supply has not yet been needed
- Permit from Department of Drinking Water needed for extraction
- Could be used in third year or beyond of a drought



# Monitoring Network

- Groundwater Levels
- Water Quality
- Land Subsidence Monitoring



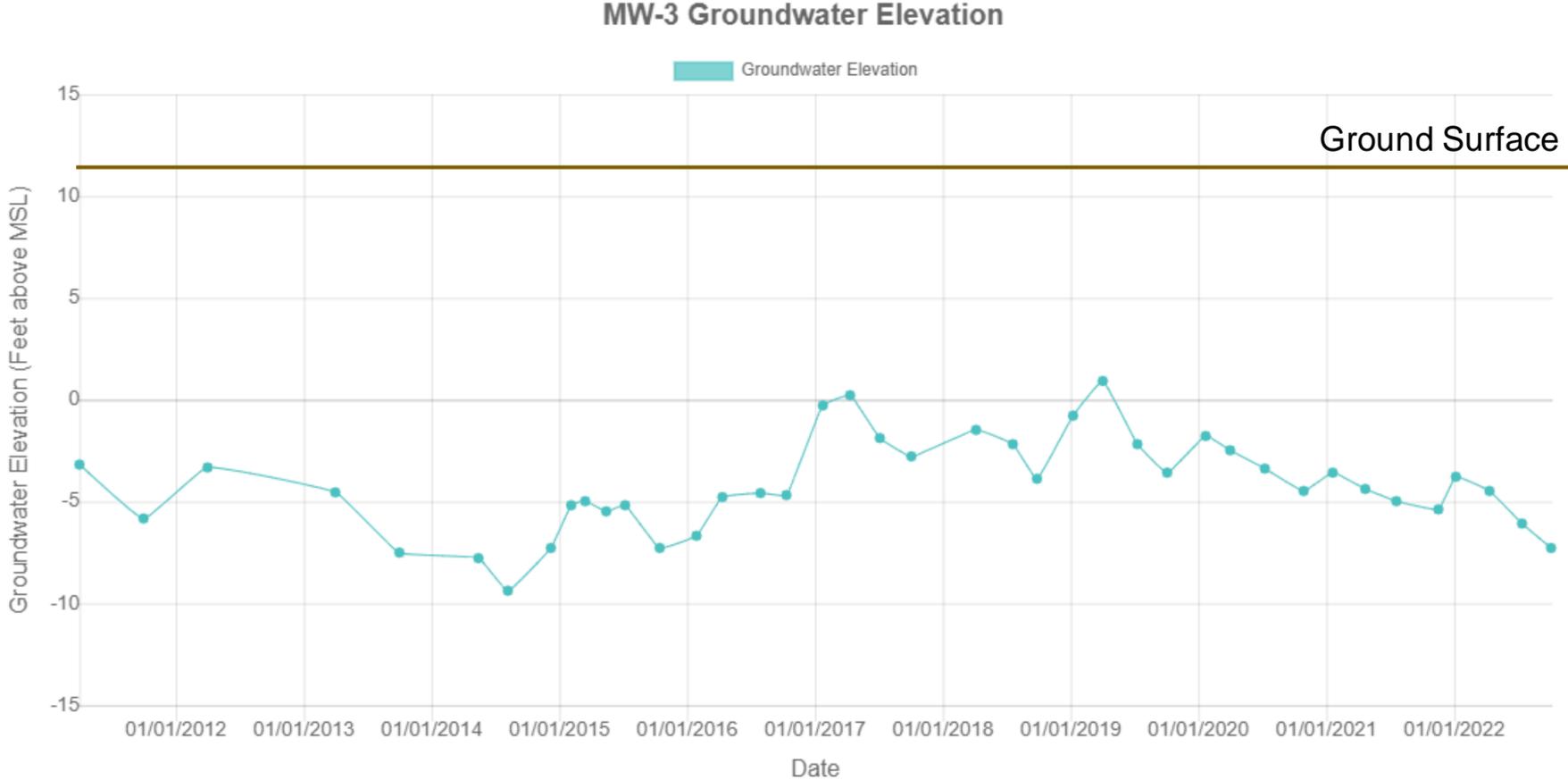
**Bayside Monitoring Wells**

0 1,500 3,000 6,000 US Feet



# Groundwater Elevation Monitoring

- Monitoring Frequency
  - Manual measurements taken quarterly
  - Subset of wells have transducers that collect data every hour
  
- Elevations are on average relatively stable
  - Variations from seasonal changes and pumping from other wells in the deep aquifer



# Bayside Water Quality

- Analyzed annually
- Comparable to surface water from Orinda and/or USL Water Treatment Plants
- Must and will meet or exceed State and Federal standards when used as potable supply
- Manganese, iron, and radon treatment can be added as needed to the existing treatment facility
- Samples to be collected from monitoring wells this summer and tested for PFAS

PFAS: per- and polyfluoroalkyl substances :

Comparative Water Quality Parameters

Parameter	Primary Maximum Contaminant Level (MCL)	Secondary Standard MCL	Treated Surface Water		
			Orinda WTP <sup>a</sup>	USL WTP <sup>a</sup>	Bayside <sup>b</sup>
Total Dissolved Solids, ppm	NA	500	41 - 110	180 – 270	75 – 360
Chloride, ppm	NA	250	4 - 7	15 – 19	9 – 55
Manganese, ppb	NA	50	<20	<20	<20 – 58
Iron, ppb	NA	300	<100 <sup>c</sup>	<100 <sup>c</sup>	<100 - 946
Arsenic, ppb	10	NA	<2 <sup>c</sup>	<2 <sup>c</sup>	<2
Radon, pCi/L	NA <sup>d</sup>	NA	NM	NM	102 - 855
Trihalomethanes <sup>e</sup> , ppb	80	NA	31 - 43	32 – 45	1 – 40
Haloacetic Acids, 5 species <sup>e</sup> , ppb	60	NA	18 - 27	18 – 32	0 – 10.4
Alkalinity, bicarbonate, ppm	NA	NA	22 - 53	97 – 160	47 – 170
pH	NA	NA	9.1 – 9.4	8.2 – 8.5	6.8 – 8.2
Hardness, ppm	NA	NA	16 - 48	100 – 160	40 – 100
Sulfates, ppm	NA	250	1 - 18	36 – 46	11 – 42
Aluminum, ppb	1,000	200	<50	<50 – 101	<50

WTP = water treatment plant  
NA = not applicable

NM = not measured  
pCi/L = picocuries per liter

ppb = parts per billion  
ppm = parts per million

<sup>a</sup> Values taken from EBMUD 2021 Annual Water Quality Report

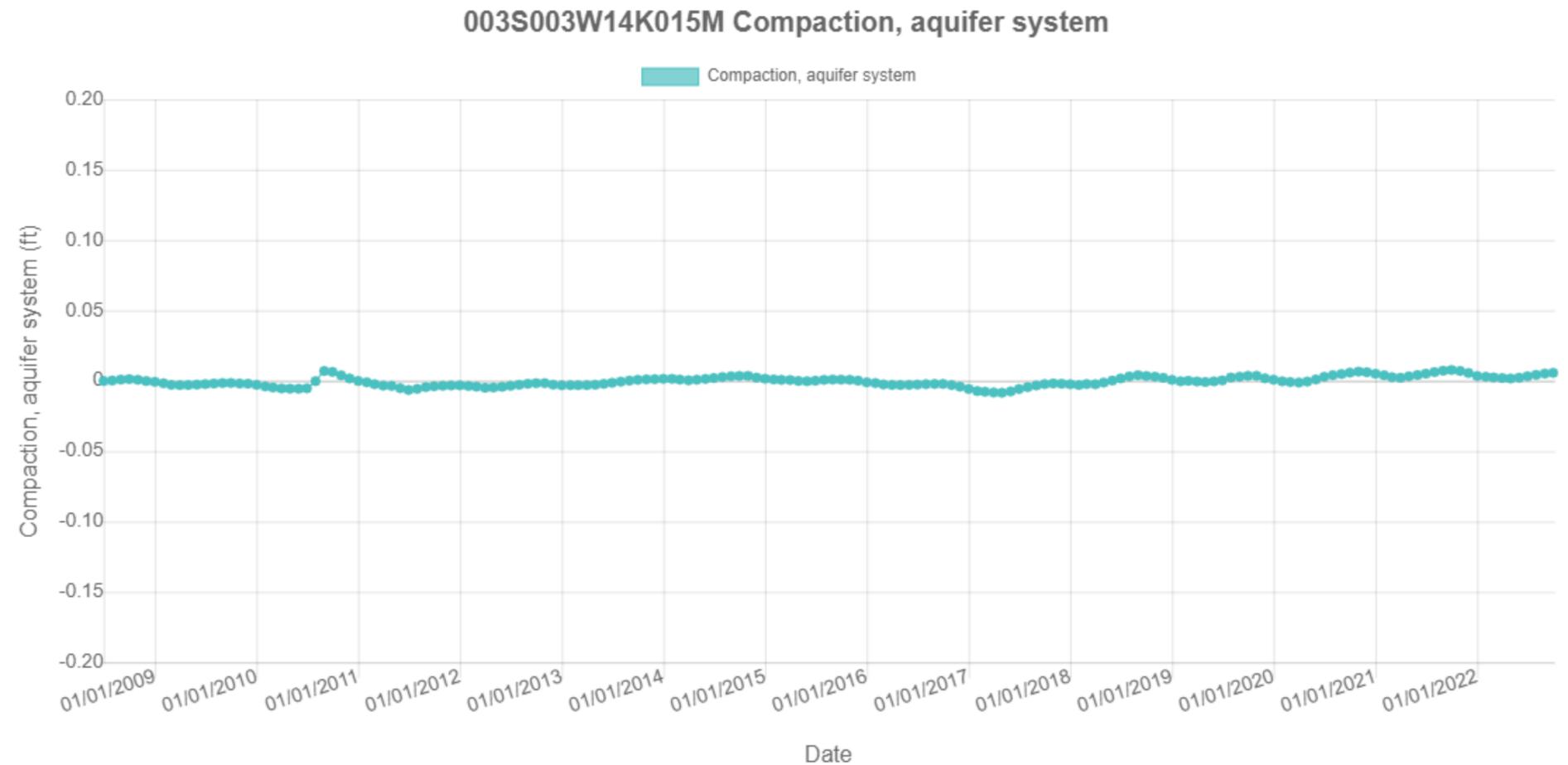
<sup>b</sup> EBMUD Bayside Groundwater Project Annual Reports: 2009 through 2021

<sup>c</sup> Measured in 2021

<sup>d</sup> In 1999, the EPA proposed an MCL of 300 pCi/L and an alternative MCL of 4,000 pCi/L depending on whether a multimedia mitigation program was in place.

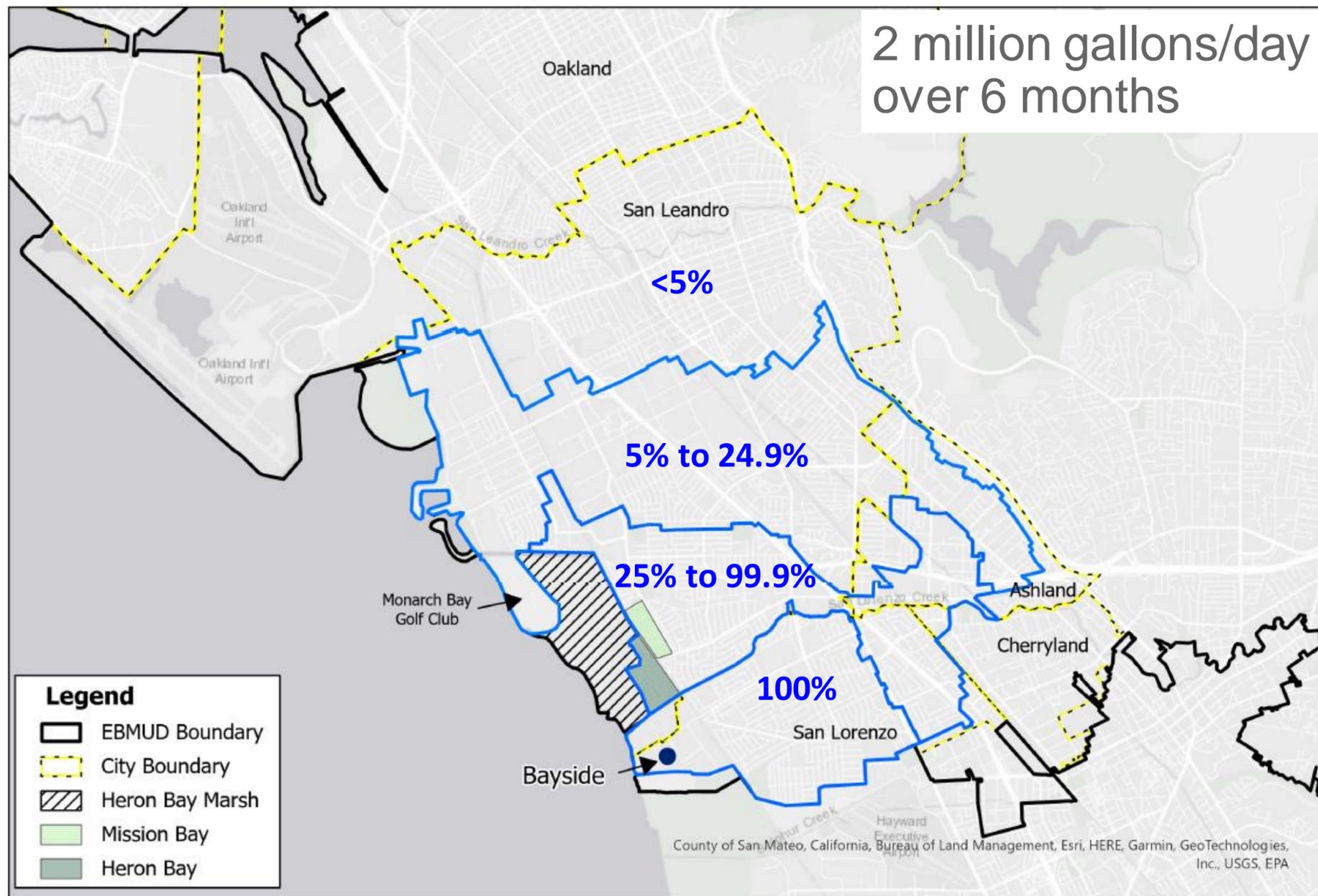
<sup>e</sup> MCL is based on the highest locational running annual average. WTP and Bayside values show the range of individual sample results.

# Land Subsidence Monitoring



- Extensometer monitoring managed by USGS
- Monitoring commenced in 2008
- No concerns have been observed

# Expected Supply During Drought Operations



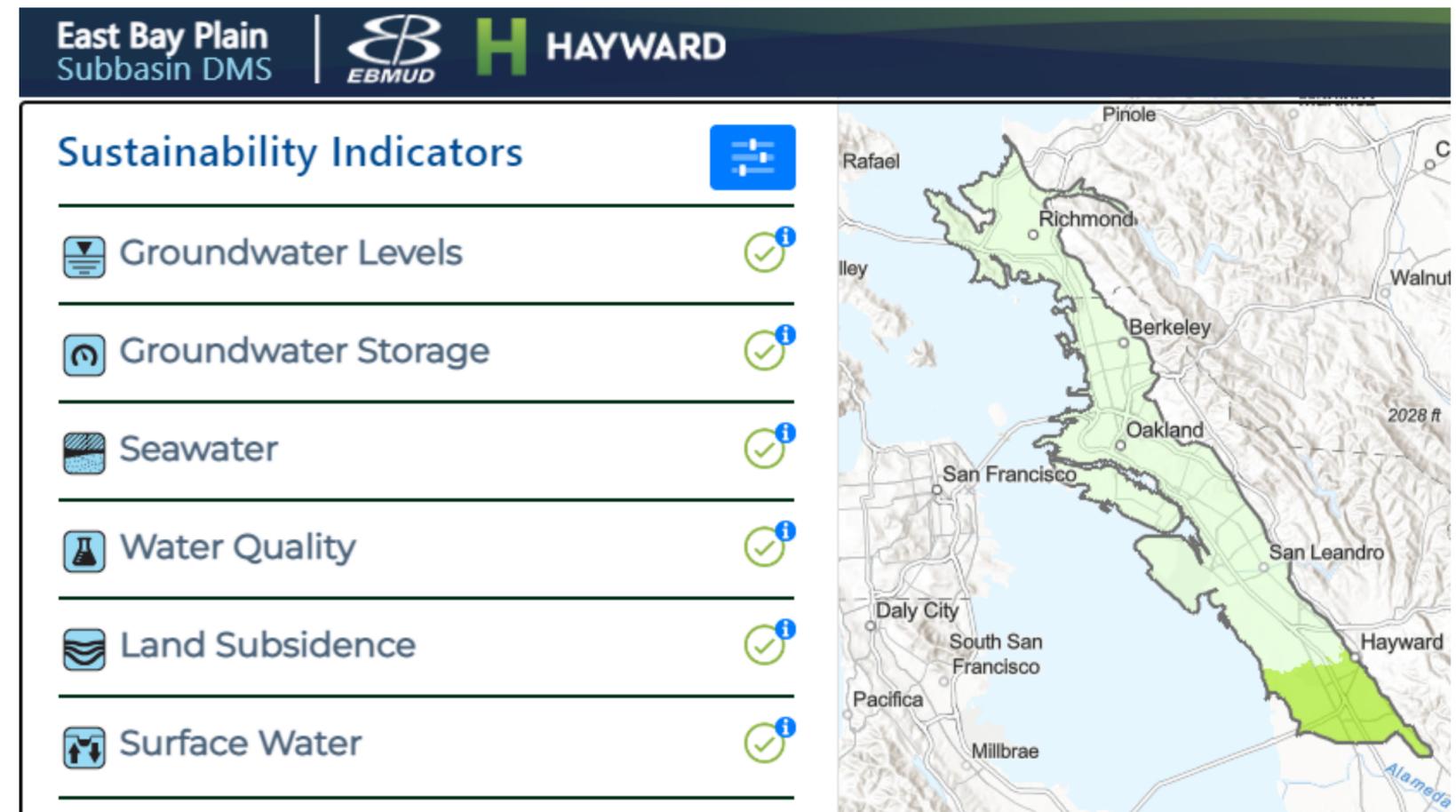
Water quality will meet or exceed State and Federal standards and remain within the normal operational variability when Bayside is used for potable purposes

Date: 9/14/2022



# Data Available to the Public

- Bayside monitoring data and reports on EBMUD's webpage  
<https://www.ebmud.com/bayside>
- East Bay Plain Subbasin Data Management System  
<https://eastbayplainsdms.com/>
- Sustainable Groundwater Management Act Data Viewer  
<https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer>



The screenshot displays the 'East Bay Plain Subbasin DMS' interface. At the top, it features the EBMUD logo and the text 'HAYWARD'. Below this, a section titled 'Sustainability Indicators' lists seven categories, each with a status icon (a green checkmark in a circle) and an information icon (a blue 'i' in a circle):

- Groundwater Levels
- Groundwater Storage
- Seawater
- Water Quality
- Land Subsidence
- Surface Water

To the right of the list is a map of the East Bay Plain region, showing cities such as Pinole, Richmond, Berkeley, Oakland, San Francisco, San Leandro, Hayward, Daly City, South San Francisco, Pacifica, Millbrae, and Alameda. A green shaded area on the map indicates the subbasin boundary.

# Next Steps

- Possibly recharge or store water using Bayside later this year
- Plan for replacement Bayside well on nearby EBMUD property
- Continue community engagement at least annually with local communities and the Bayside Community Group
- Continue to evaluate overall water supply portfolio



# Questions?

Email:

[baysidefacility@ebmud.com](mailto:baysidefacility@ebmud.com)



**FLOWING  
INTO  
THE  
FUTURE**