CARPINTERIA VALLEY WATER DISTRICT

WATER SUPPLY IN THE FACE OF DROUGHT AND A CHANGING ENVIRONMENT

Robert Mc Donald
General Manager
CVWD

TODAY'S DISCUSSION

- ABOUT THE DISTRICT
- WATER SUPPLY & DEMAND
- WATER SECURITY CHALLENGES
- DISTRICT WATER SUPPLY STRATEGIES

ABOUT THE DISTRICT

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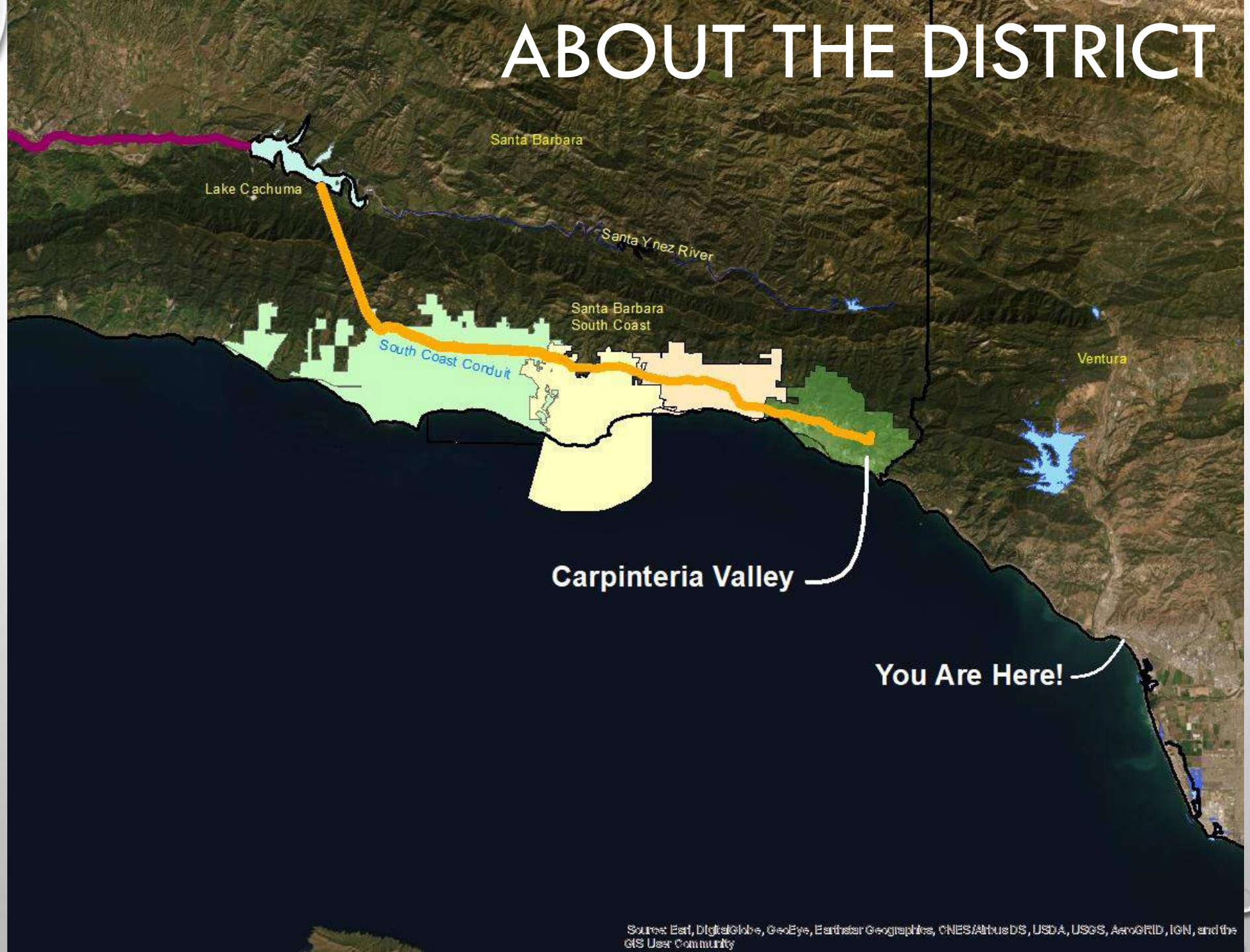

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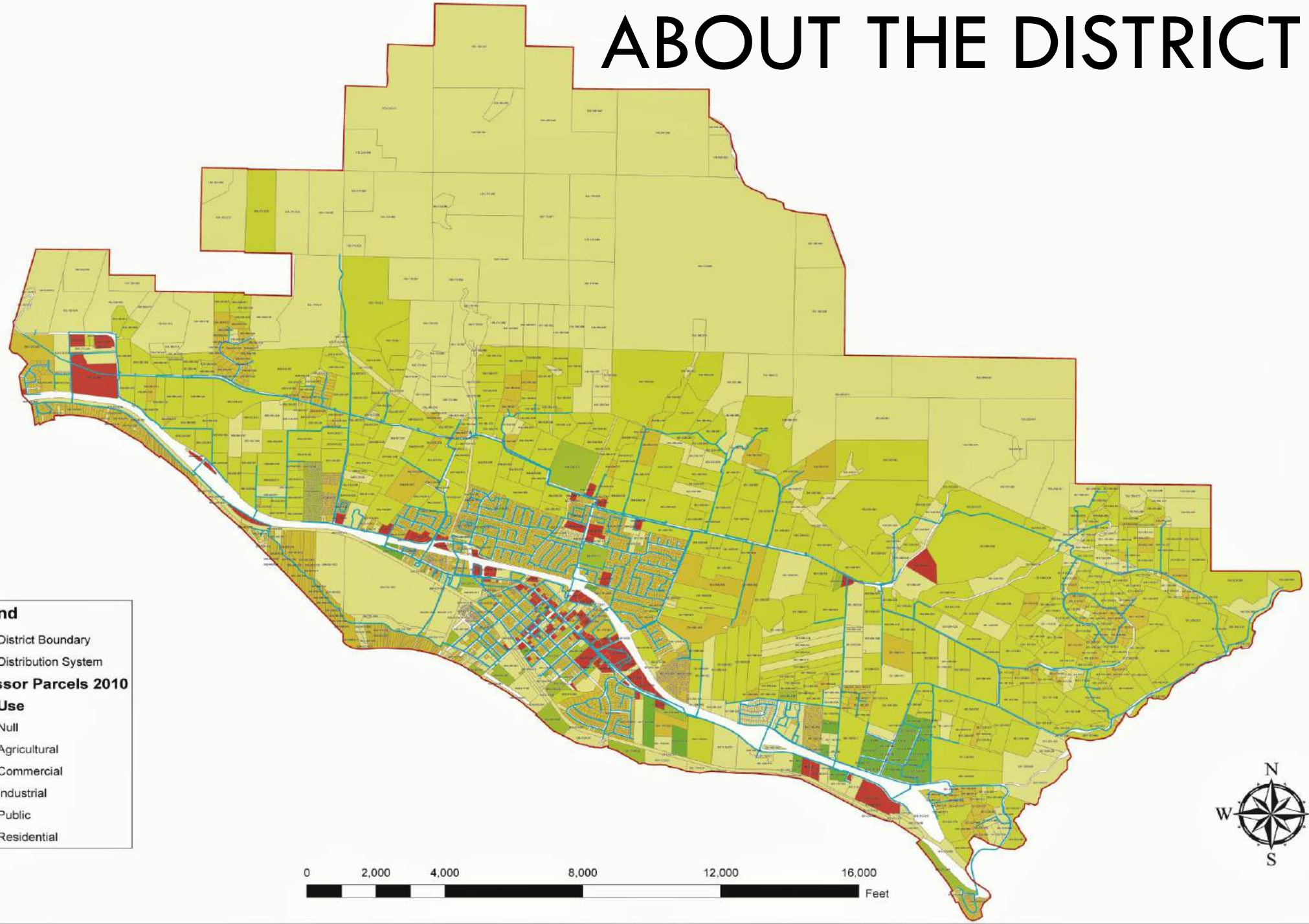
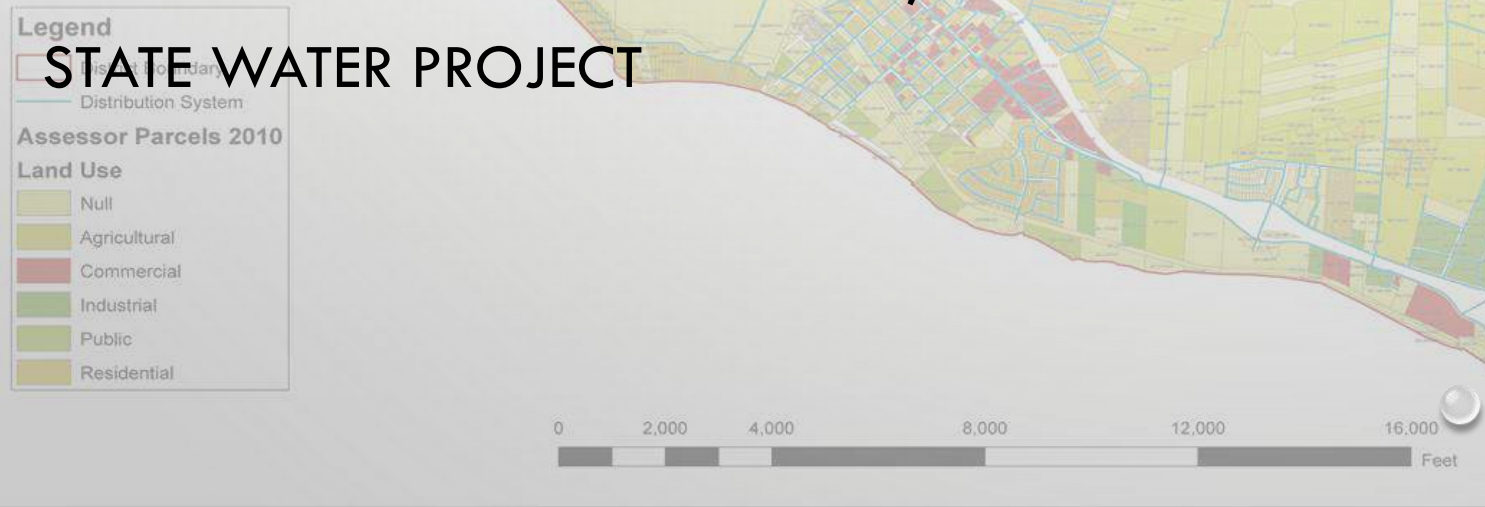


ABOUT THE DISTRICT

- APPROXIMATELY 4,500 CUSTOMERS, SERVING 4,200 AF OF WATER ANNUALLY
- CUSTOMER CLASSES AGRICULTURE, RESIDENTIAL, COMMERCIAL, INDUSTRIAL & INSTITUTIONAL
- SERVICE AREA COVERING 11,100 ACRES WITHIN THE CITY AND UNINCORPORATED COUNTY WITH A POPULATION OF 16,200
- SERVICE 3000 ACRE OF IRRIGATE AGRICULTURE
- THREE PRIMARY WATER SUPPLIES; LOCAL GROUNDWATER, CACHUMA PROJECT AND THE STATE WATER PROJECT



WATER SUPPLY

Normal Year Water Supplies

- Cachuma Project 2813 AF
- *State Water Project 1320 AF
- Local Groundwater 1300 AF
- Losses -150 AF

5283 AF

*Assumes 60% SWP allocation

Average Ann Demand 4200 AF

Surplus Water 1083 AF

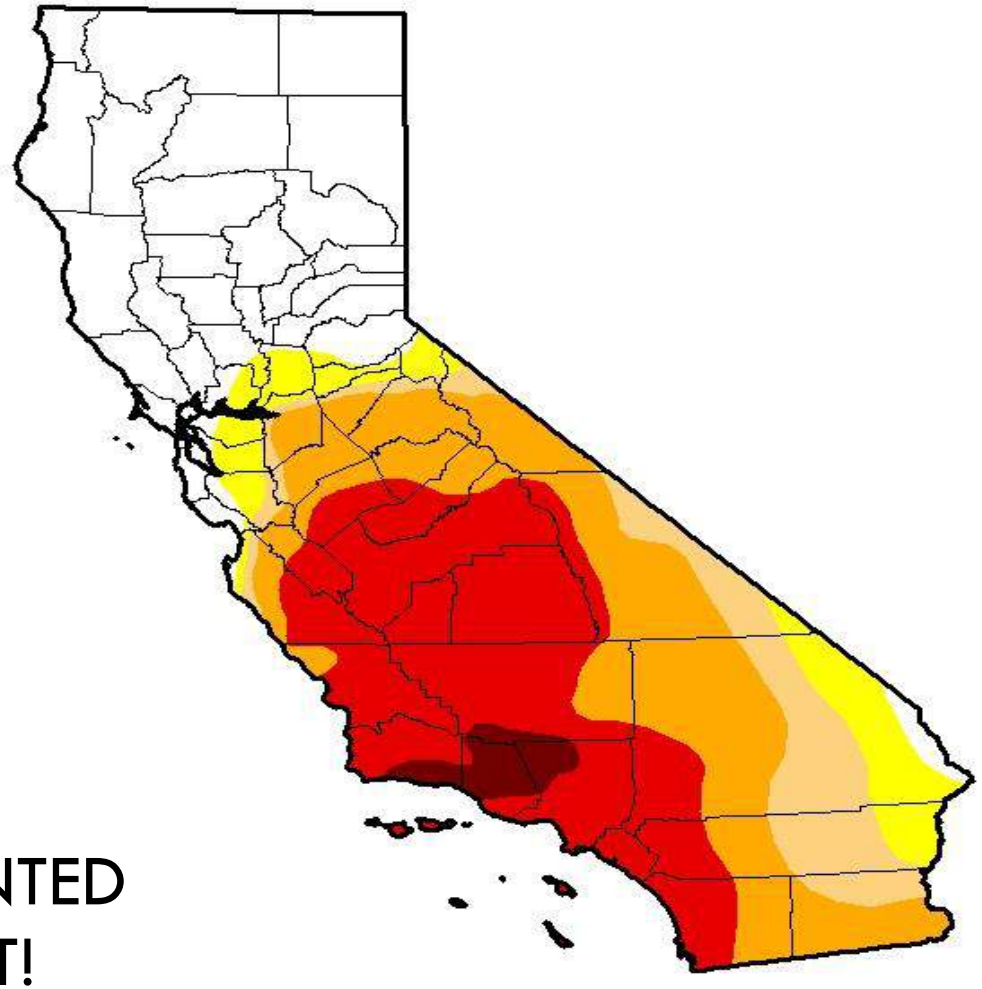
WATER SECURITY CHALLENGES

- Drought

- Environmental Competition

- Emergency and Disaster Management

WATER SECURITY CHALLENGES



U.S. Drought Monitor

California

January 10, 2017

(Released Thursday, Jan. 12, 2017)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	34.62	65.38	58.22	49.22	27.80	2.13
Last Week 1/3/2017	18.07	81.93	67.61	54.02	38.17	18.31
3 Months Ago 10/11/2016	0.00	100.00	83.59	62.27	42.80	21.04
Start of Calendar Year 1/3/2017	18.07	81.93	67.61	54.02	38.17	18.31
Start of Water Year 9/27/2016	0.00	100.00	83.59	62.27	42.80	21.04
One Year Ago 1/12/2016	0.00	100.00	97.33	87.55	69.07	42.66

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

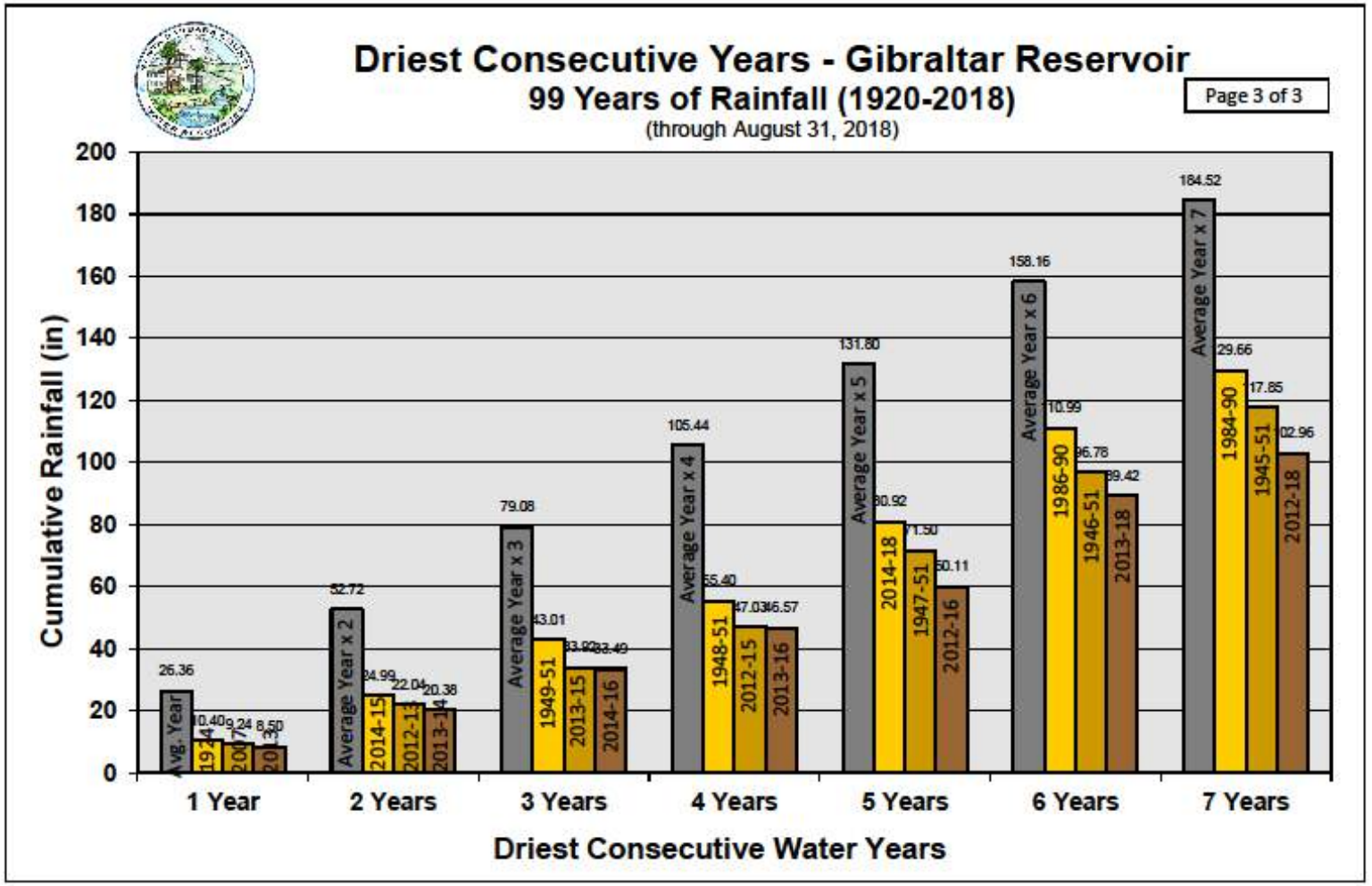
David Miskus

NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

UNPRECEDENTED DROUGHT!

NEW DROUGHT OF RECORD

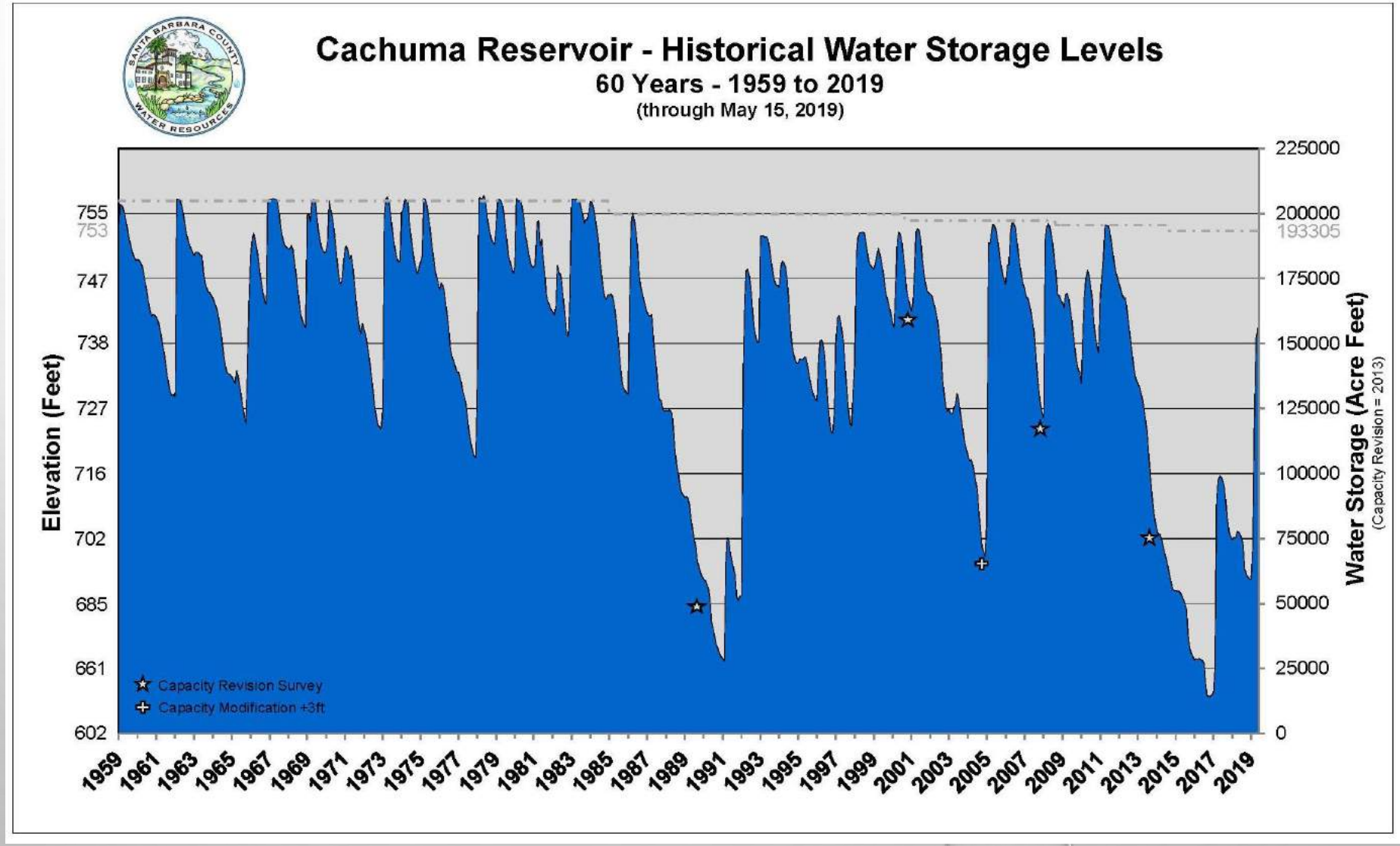


UNPRECEDENTED DROUGHT!

LAKE CACHUMA

UNPRECEDENTED DROUGHT!

LAKE CACHUMA



UNPRECEDENTED DROUGHT!

LAKE CACHUMA DROUGHT IMPACTS

- Resulted in the first ever zero allocation from the Cachuma Project
- Resulted in multiple years of reduced allocation
- Required floating pumping system to be installed to bring water into the intake
- Required importation of State Water and supplemental water at a higher rate than ever before on the Santa Barbara South Coast.
- Storage was as low as 15,000 AF or 8%

UNPRECEDENTED DROUGHT!

LAKE CACHUMA ENIRONMENTAL CONFLICTS

- Southern California Steelhead Trout listed under Federal ESA as Endangered in 1997
- Santa Ynez River listed as Critical Habitat for Steelhead in 2000
- National Marine Fisheries Service (NMFS) Issued a Biologic Opinion to the USBR Stating the Project was not expected to put in jeopardy Steelhead recovery by its proposed operations in 2000.
- However more recently a new BO and Water Rights Order are in draft form and are expected to impact annual yields at Cachuma and likely change operations.

STATE WATER PROJECT

CVWD Allotment of 2200 AF per Year

Year	% Delivery	AF Delivery
2012	65%	1430 AF
2013	35%	770 AF
2014	5%	110 AF
2015	20%	440 AF
2016	60%	1320 AF
2017*	85%	1870 AF
2018	30%	660 AF
2019*	75%	1650 AF

*San Luis Reservoir Spill

WATER SECURITY

DISASTER RESPONSE

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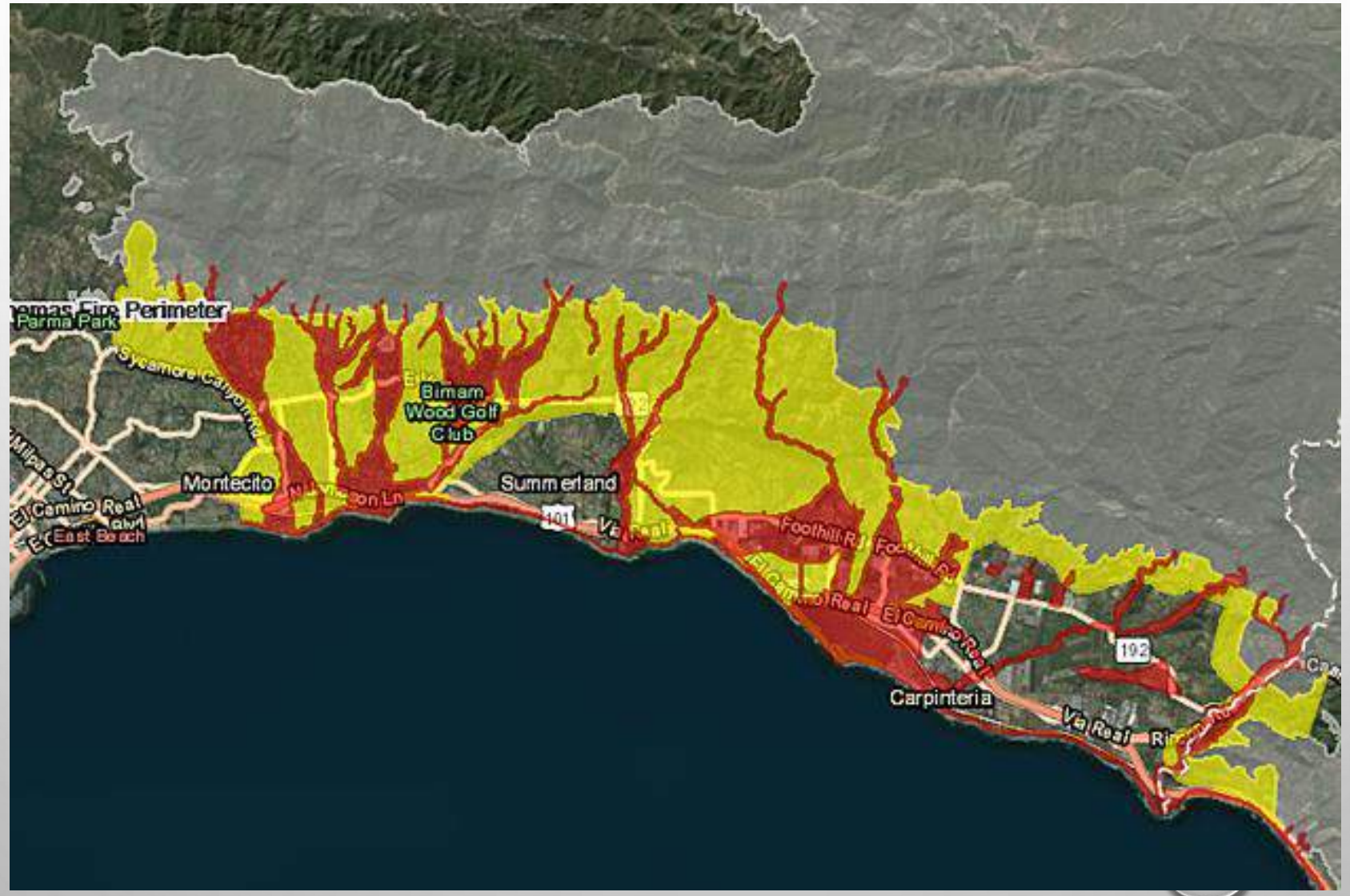
DISASTER RESPONSE



WATER SECURITY

DISASTER RESPONSE

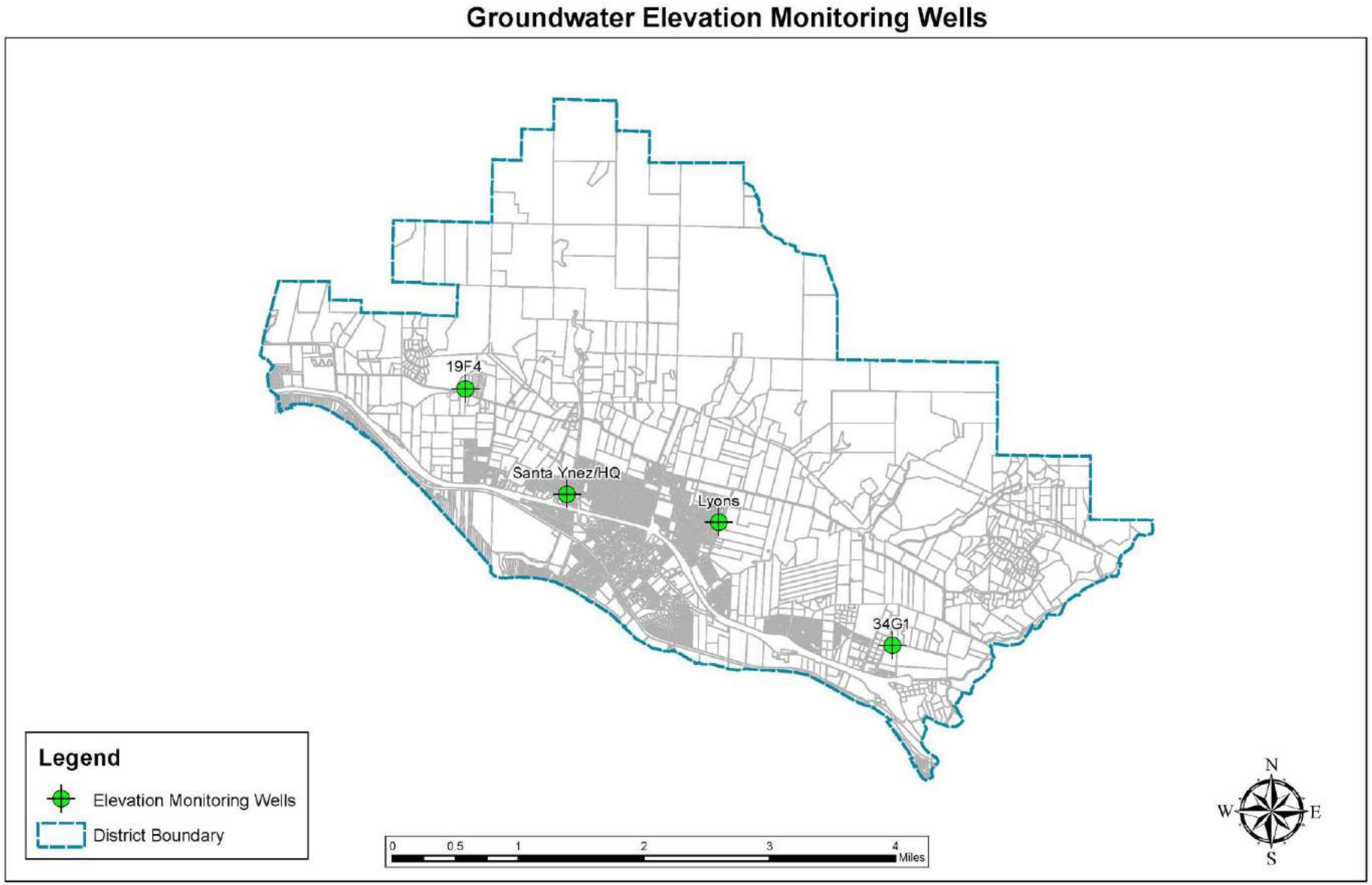
- Debris flows occurred at eight location along the South Coast Conduit after the Thomas Fire
- Some damage occurred to above ground SCC Facility
- Both Montecito and Carpinteria experienced pipeline damage during the debris flow event
- Fortunately no pipeline ruptures occurred on this critical transmission facility
- These events illuminated CVWDs conveyance vulnerability

WATER SECURITY

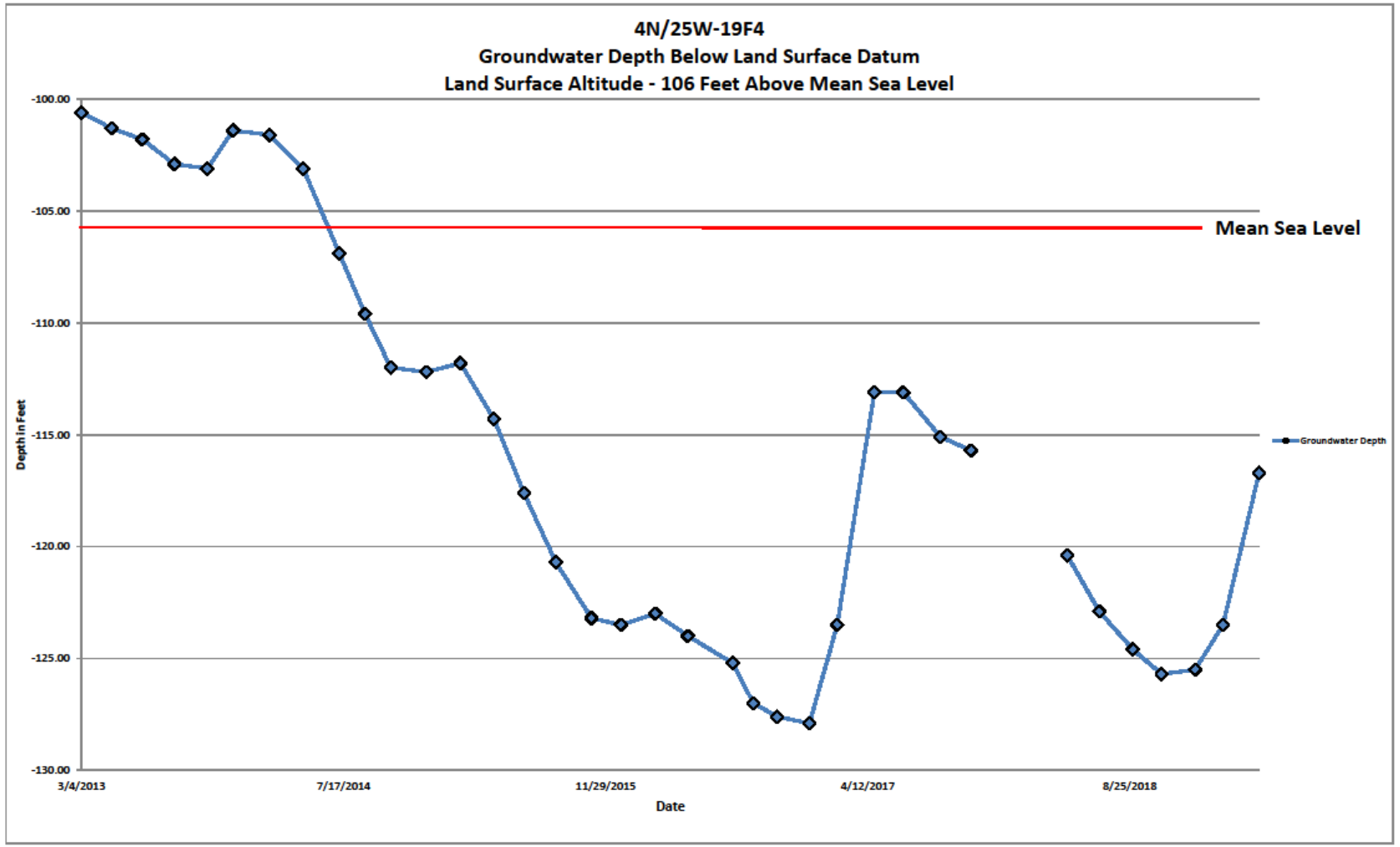
Carpinteria Groundwater

- Used extensively during the drought for water supply
- Groundwater levels dropped below sea level during the drought
- Concerns about seawater intrusion
- GSA formation under SGMA underway

CGB WATER LEVELS – KEY WELL LOCATION MAP



CGB WATER LEVELS



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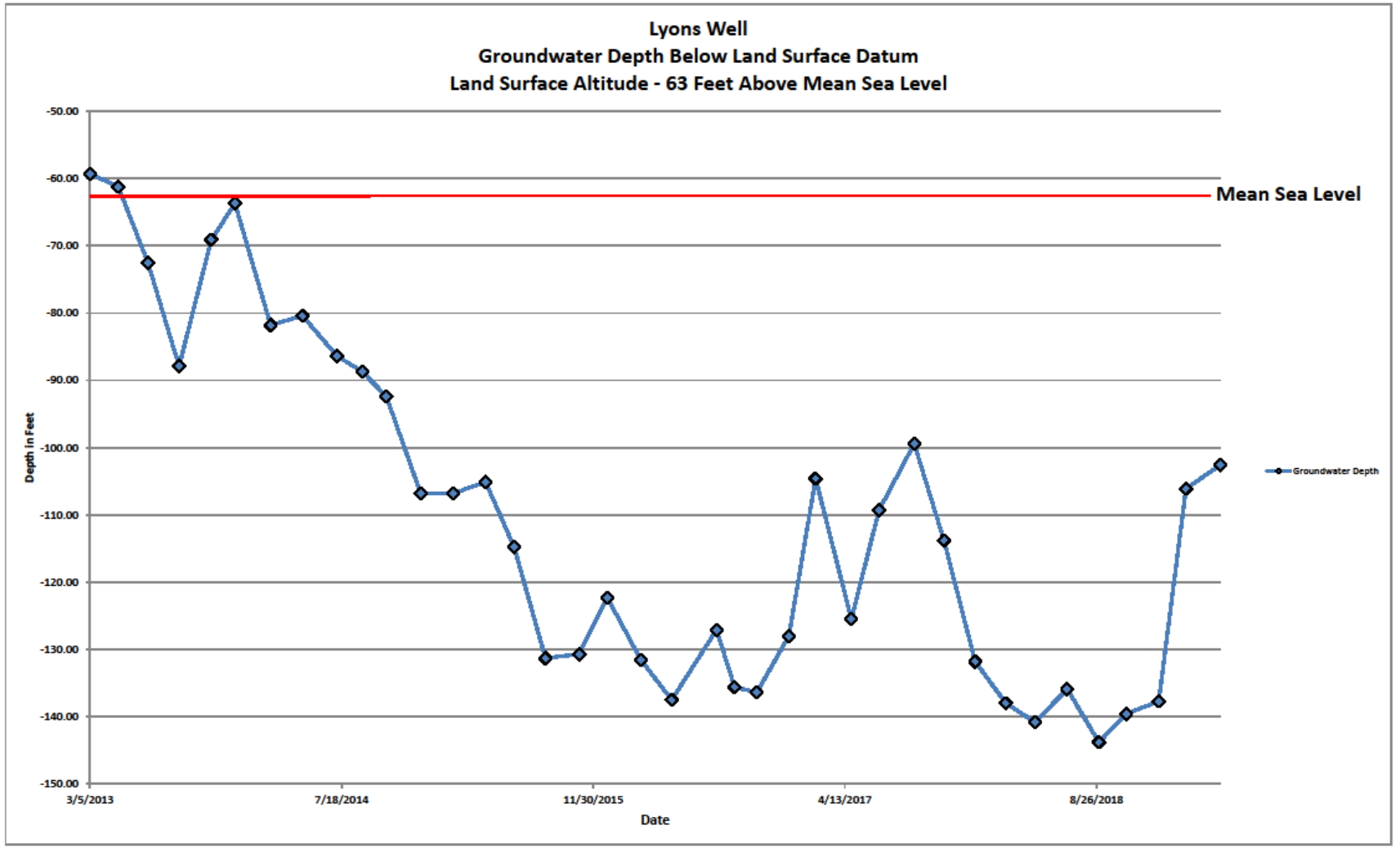


CHALLENGES AND STRATEGIES

Summary of Water Security Challenges

- New Regional drought of record
- Revised BO for Steelhead in Santa Ynez River may reduce Cachuma Yield
- Post Fire Siltation at Lake Cachuma
- State Water Project Delta Conveyance and reliability uncertainty
- Declining water supplies
- Seawater intrusion risk in Carpinteria Groundwater Basin
- Groundwater Management Challenges under SGMA
- South Coast Conduit vulnerability to natural disasters

WATER SECURITY STRATEGIES

Solutions?

- Water Supply Reliability
  - ✓ Proposed Recycle Water Project (IPR) -CAPP
  - ✓ Water Conservation
  - ✓ Groundwater banking
- Groundwater Management
  - ✓ Sustainable Groundwater Management Act (SGMA)
  - ✓ Proposed Sentry Wells (seawater intrusion monitoring)
  - ✓ Aquifer storage and recovery (ASR)
- Emergency Preparedness
  - ✓ Power Reliability Projects (Backup generators)
  - ✓ SCADA and Communications upgrades
  - ✓ Proposed Casitas Intertie

WATER SECURITY STRATEGIES

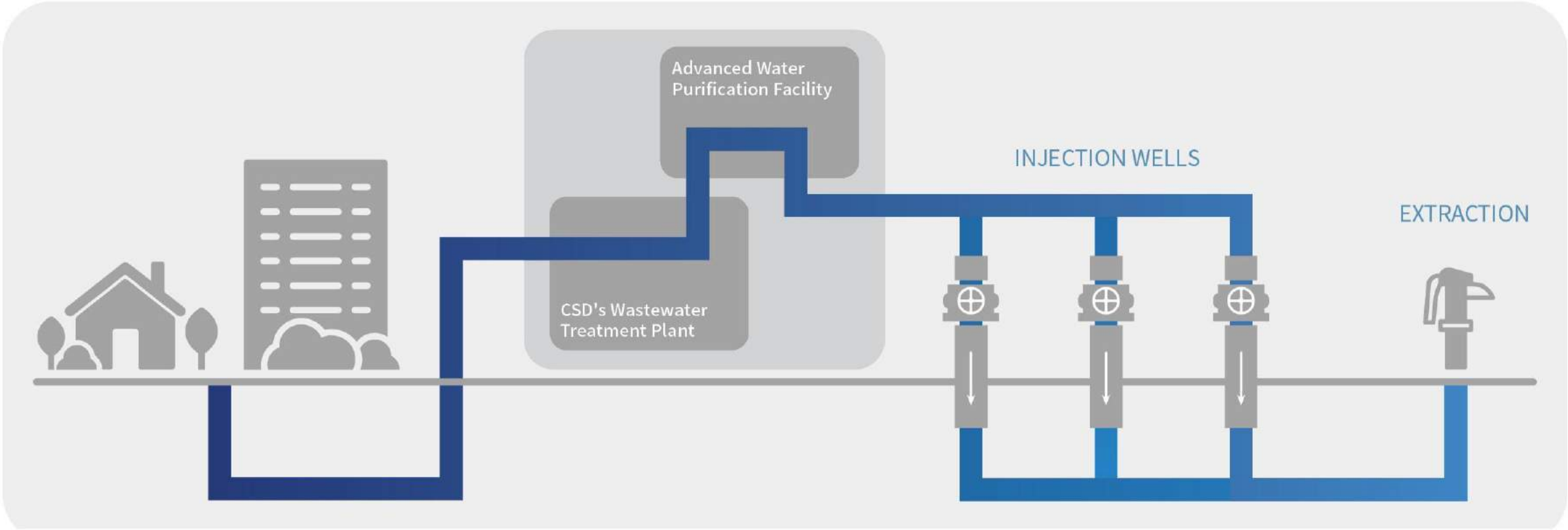
CARPINTERIA ADVANCED PURIFICATION PROJECT (CAPP)

- In partnership with Carpinteria Sanitary District
- Reuse of wastewater that currently flows to ocean ~ 1100 AFY
- Proposed Treatment = Advanced Water Treatment (AWT)
- Storage of purified water in Carpinteria Groundwater Basin
- Capital Cost projected at ~$24M Operational Costs at ~$1200/AF
- FEMA HMGP applications submitted for 75% capital funding
- Seeking CWSRF funding and Title 16 funding as well

WATER SECURITY STRATEGIES

CARPINTERIA ADVANCED PURIFICATION PROJECT (CAPP)

Project Schematic



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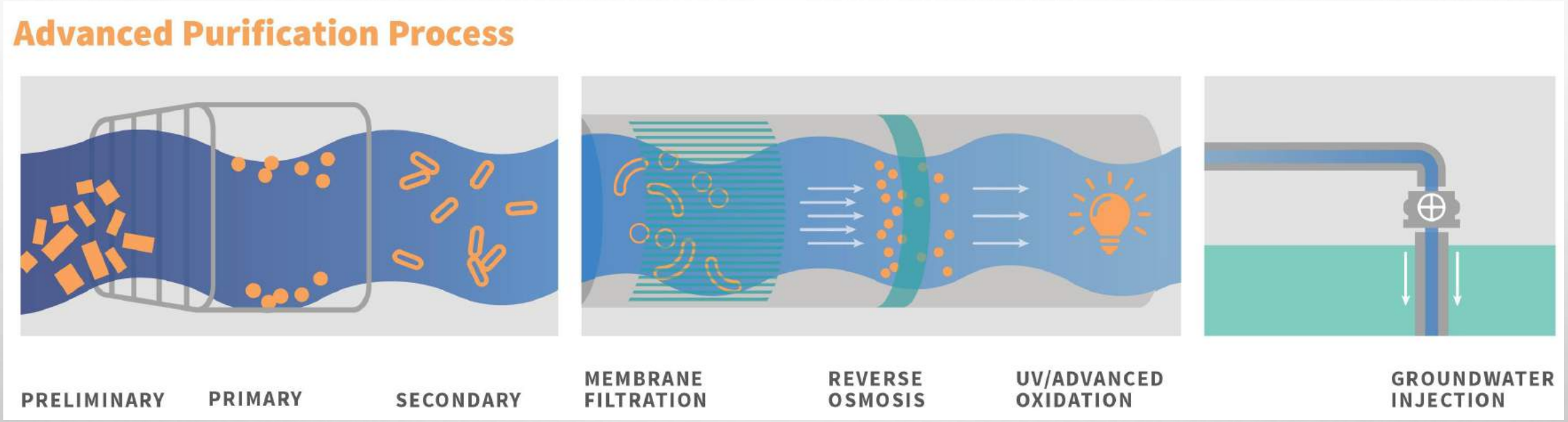


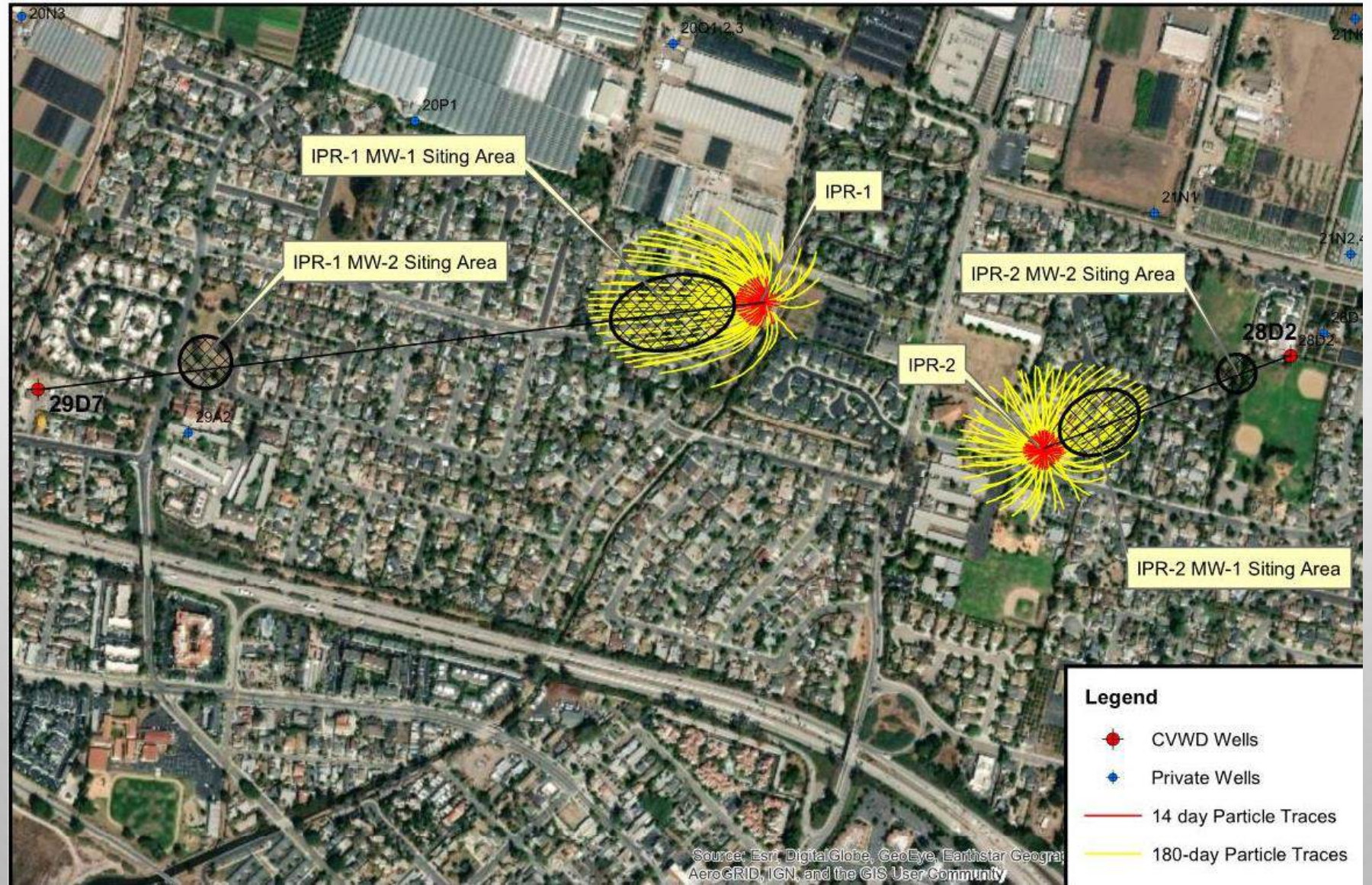
WATER SECURITY STRATEGIES

CARPINTERIA ADVANCED PURIFICATION PROJECT (CAPP)

- Advanced Water Purification Facility (AWPF)
- Booster Pump Station
- Ocean Outfall Modifications
- 1.3 miles of Conveyance Pipelines
- Two Injection Wells
- Four Monitoring Wells

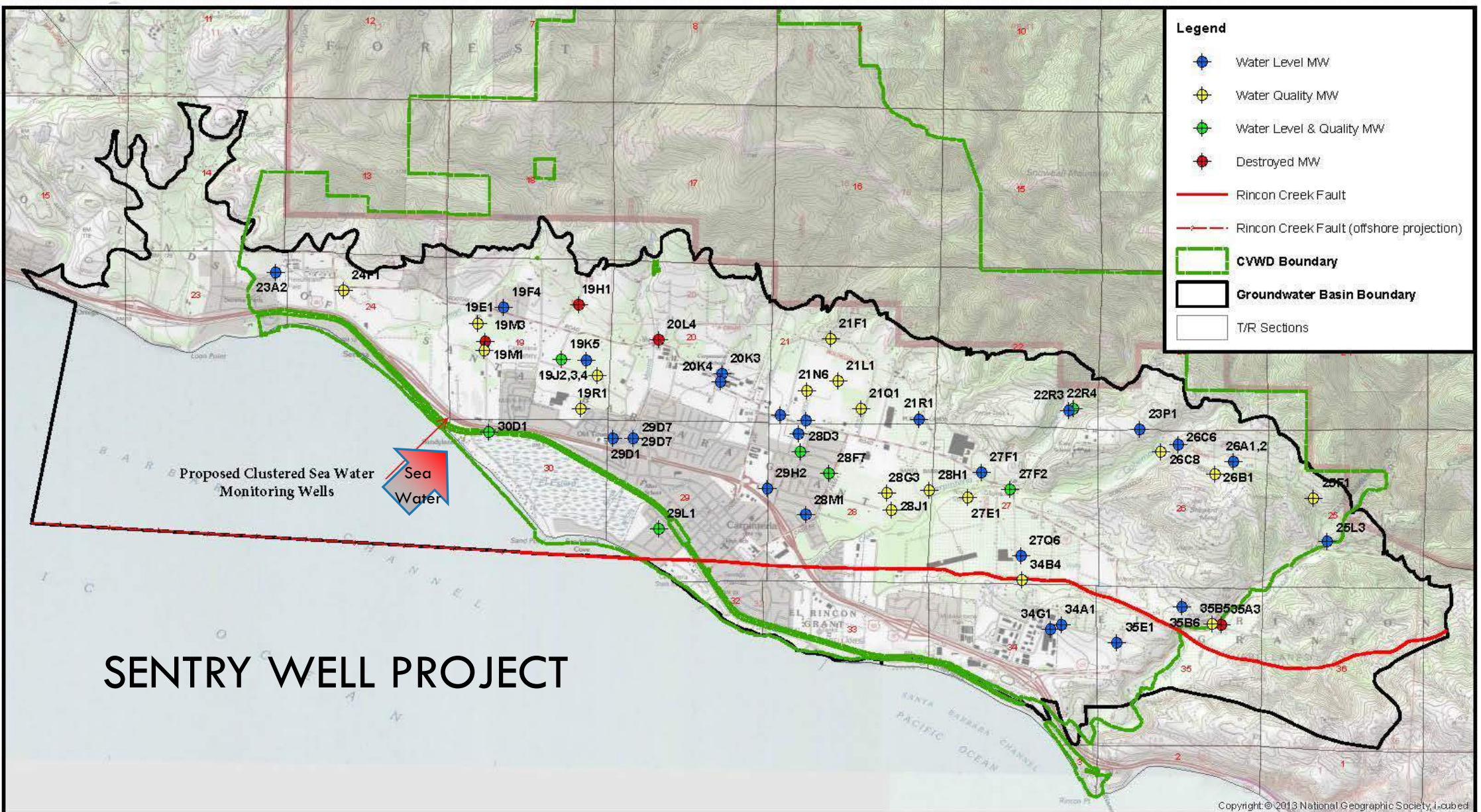
WATER SECURITY STRATEGIES

CARPINTERIA ADVANCED PURIFICATION PROJECT (CAPP)



WATER SECURITY STRATEGIES

SEAWATER SENTRY WELLS



SENTRY WELL PROJECT

WATER SECURITY STRATEGIES

SEAWATER SENTRY WELLS

- Three Clustered Zone Specific Wells
- Project Cost at ~$750K
- Completed in July 2019
- Baseline Sample Completed
- Monitoring program to be implemented

WATER SECURITY STRATEGIES

SEAWATER SENTRY WELLS

WATER SECURITY STRATEGIES

CASITAS INTERTIE PROJECT

- 1.5 Mile Large Capacity Bi-Direction Pipeline Intertie
- Preliminary Design And CEQA Completed
- Project Capital Cost Estimated at $20M
- FEMA Grant Application Submitted to fund 75% of costs
- Casitas evaluating a number of Water Supply Projects

WATER SECURITY STRATEGIES

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CARPINTERIA VALLEY WATER DISTRICT

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Thank You!

Questions?

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