

# RECLAMATION

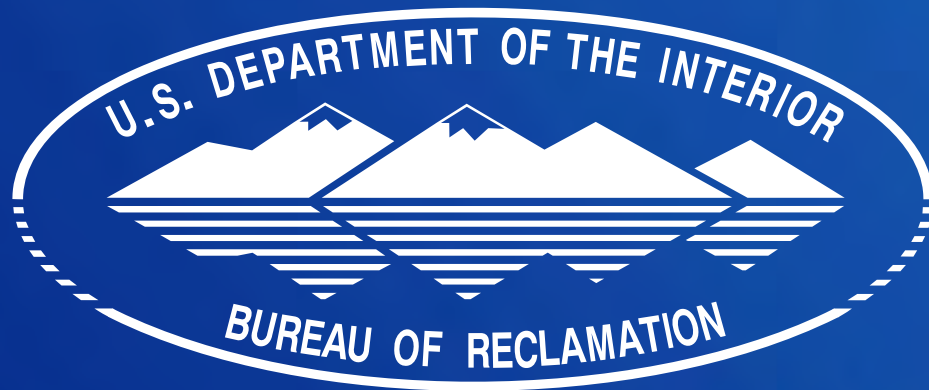
*Managing Water in the West*

## **Santa Margarita River Conjunctive Use Project**



U.S. Department of the Interior  
Bureau of Reclamation

# Project Partners



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# Outline

- Existing Water Supply
- Background
  - Legal
  - Purpose & Need
  - Hydrology
- Project Alternatives
- Previous Studies
- Agency Coordination
- Preliminary Schedule

# Existing Water Supply

- 100 % of Camp Pendleton water supply met from groundwater pumping
- Four ground-water basins developed to meet existing demand for Camp Pendleton
- >95% of Camp Pendleton's water supply is from the Santa Margarita River Basin
- 100 % of Fallbrook Public Utility District water supply met from imported water
- No emergency water supply for Fallbrook Public Utility District from San Diego County Water Authority



- Proposed project will allow the partners to better meet current and future water demands and enhance water supply reliability
- Facilities reduce the regional demand for imported water
- Last local surface supply available for development



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# Existing Weir & Headgate



# What is Conjunctive Use?

- Adaptive management of surface and groundwater resources typically within a single river watershed
  - Active use of aquifers for water storage
  - Surface spreading for groundwater recharge



# Main Project Components

- Lake O'Neill
- Recharge ponds
- O'Neill ditch
- New recharge ponds
- Production wells
- Advanced water treatment plant
- Open space management zone
- Inflatable diversion structure
- Brine Line



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# Inflatable Structures



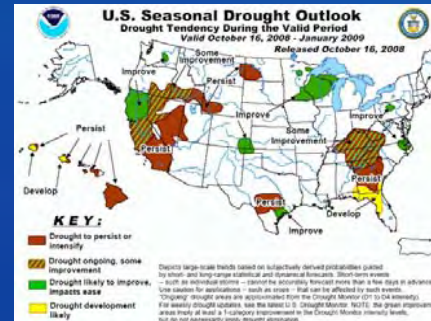
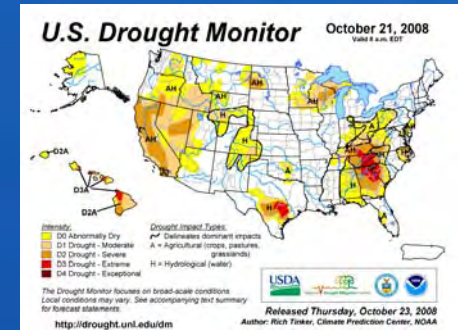
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# Legal Background

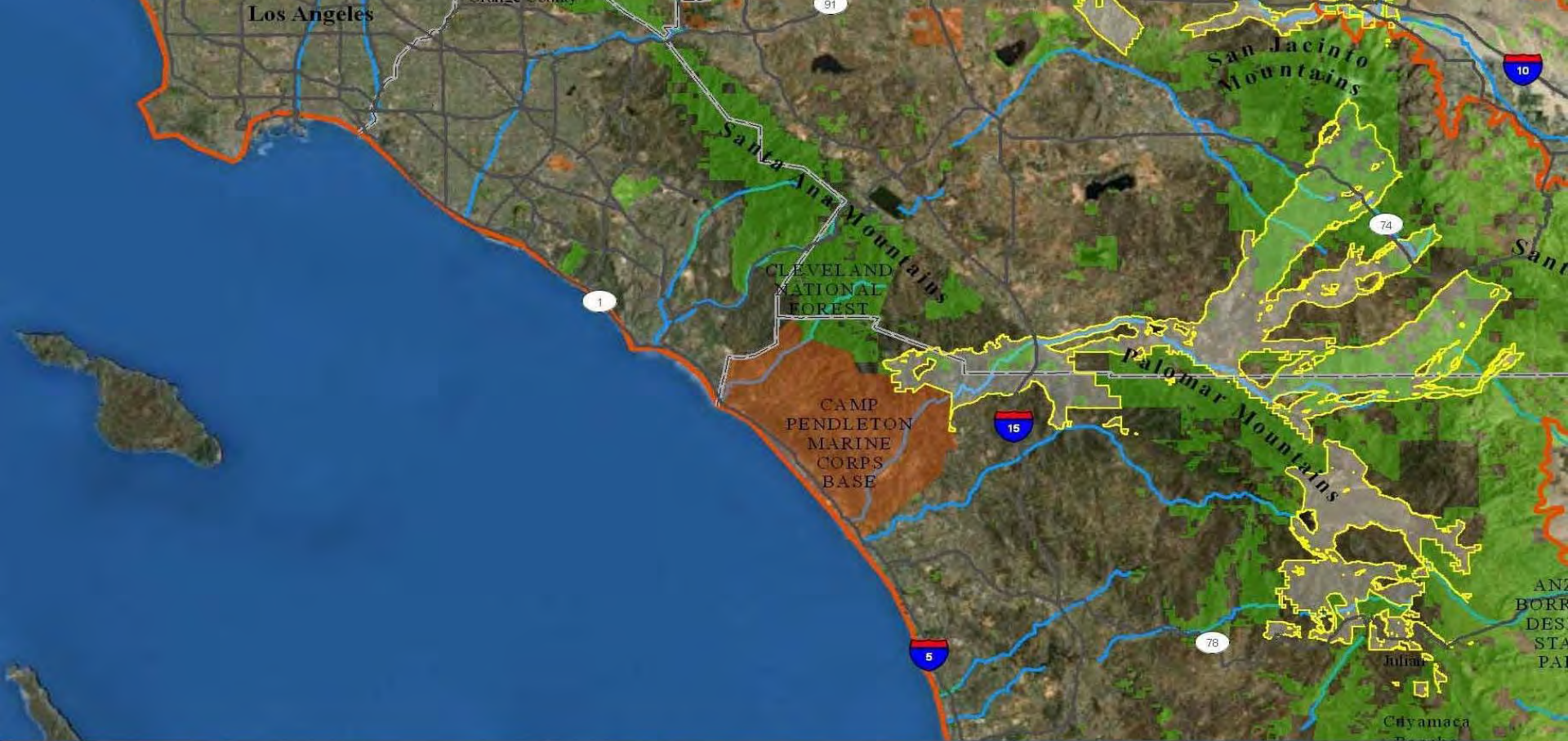
- 1924 State Lawsuit
  - Santa Margarita y Las Flores v. Vail Ranch
- 1951 Federal Lawsuit
  - United States v. Fallbrook PUD
- Post Trial Actions

# Project Purpose & Need

- Enhance water supply reliability
  - Local supply
  - Interruptible rate
- Reduce dependence on import
  - Drought / climate change
  - Delta & ESA issues
- Resolve legal issues
- Improve water quality
- Improve management of hydrologic and environmental resources
- South Coast Linkage







### South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion

-  Linkage Design
-  Conservation Lands
-  Department of Defense Lands
-  South Coast Ecoregion
-  Highway
-  Major River or Stream
-  County Boundary



1:1,350,000

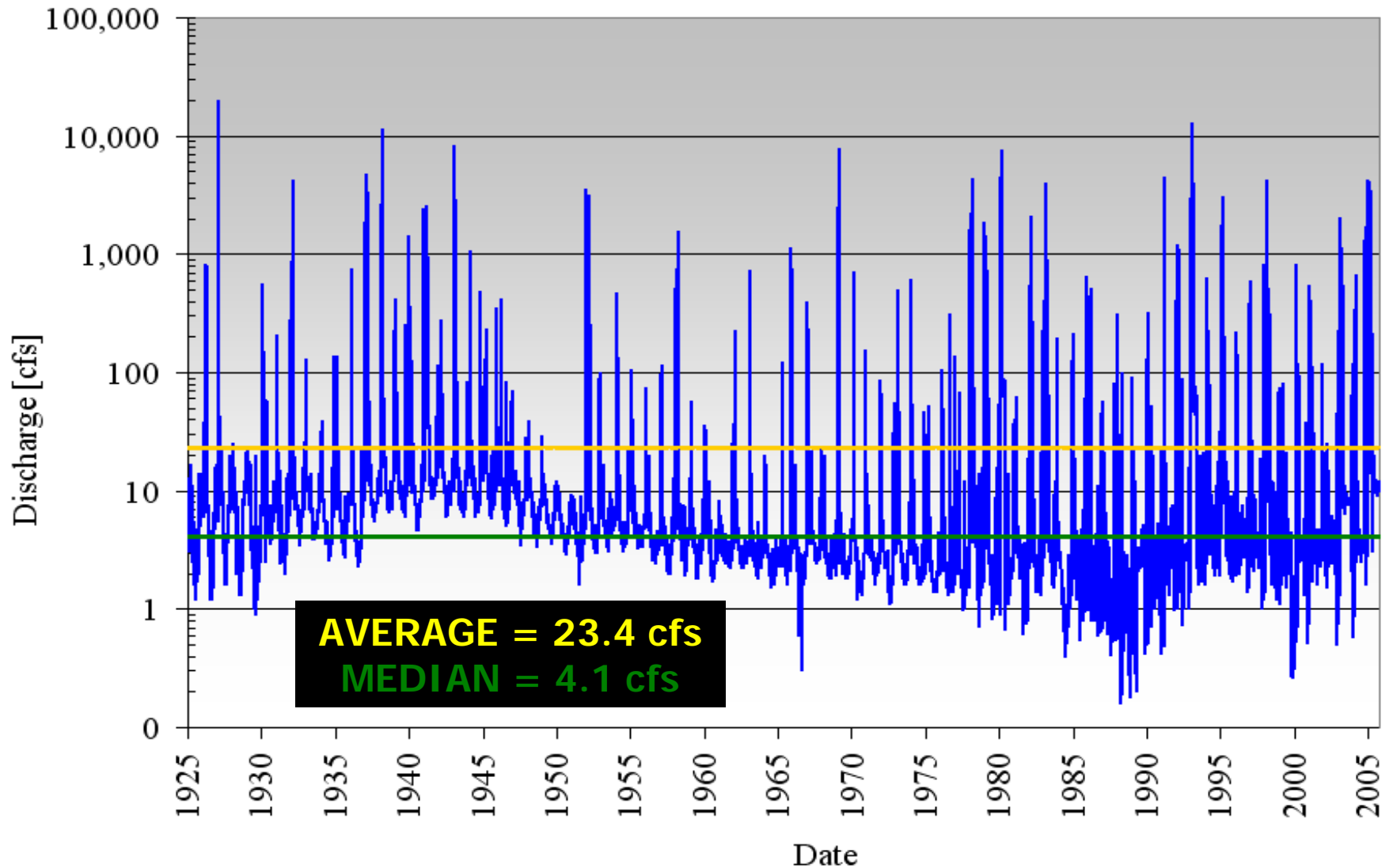


0 10 20 40 60 80 Kilometers

0 10 20 40 60 80 Miles

# Santa Margarita River Hydrology

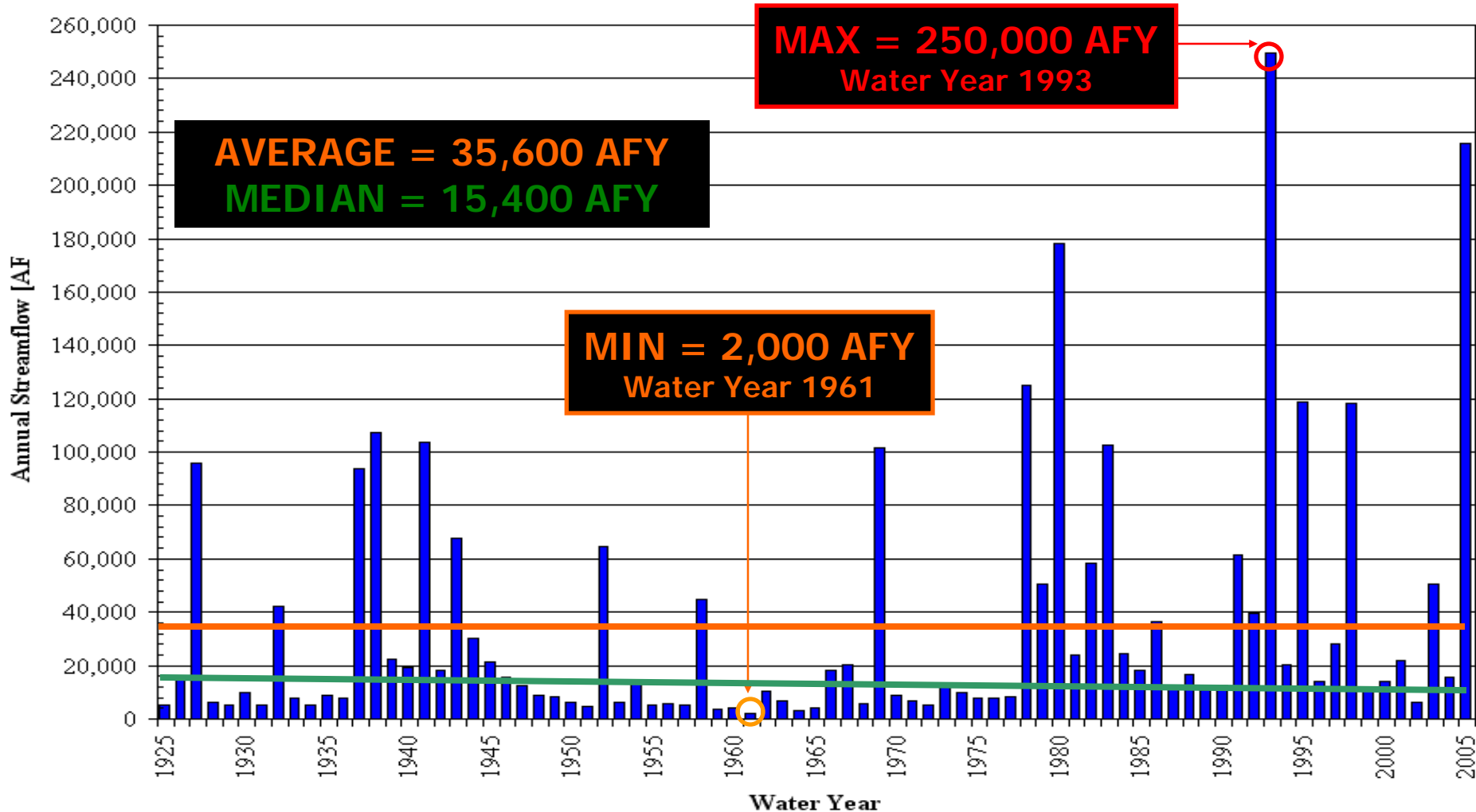
Average Daily Streamflow at the Gorge (WY 1925 – 2005)



# Reconstructed Streamflow

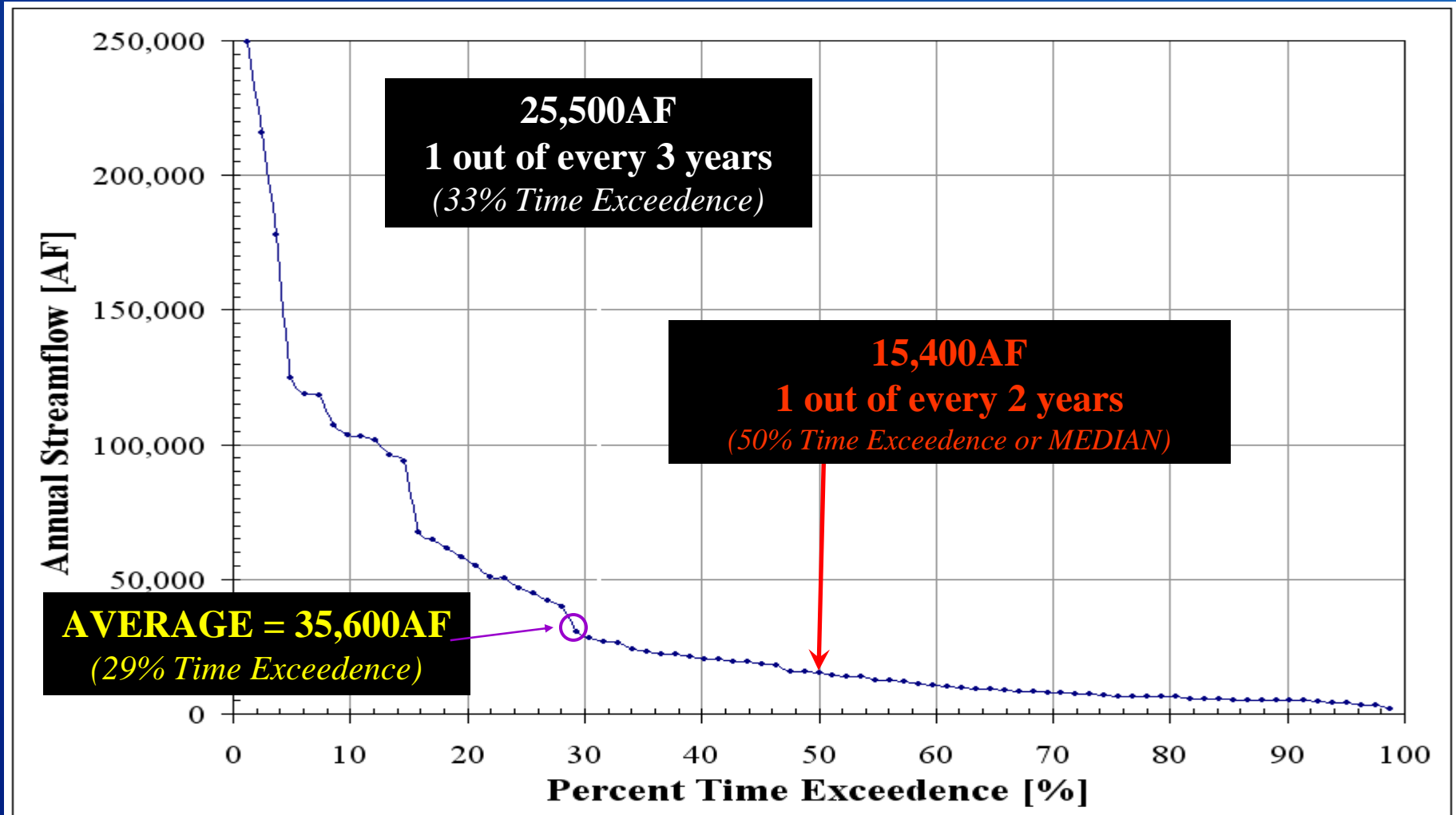
at the Point of Diversion

Water Years 1925-2005





# Frequency Distribution of Reconstructed Annual Streamflow at Point of Diversion (WY 1925-2005)



# Daily Streamflow Variability

- Early winter = Low baseflows
- Spring = Higher baseflows
- One or two large storms = large portion of the annual flow volume
- High Flows ( $> 200$  cfs) cannot be captured by the CUP Diversion Facilities



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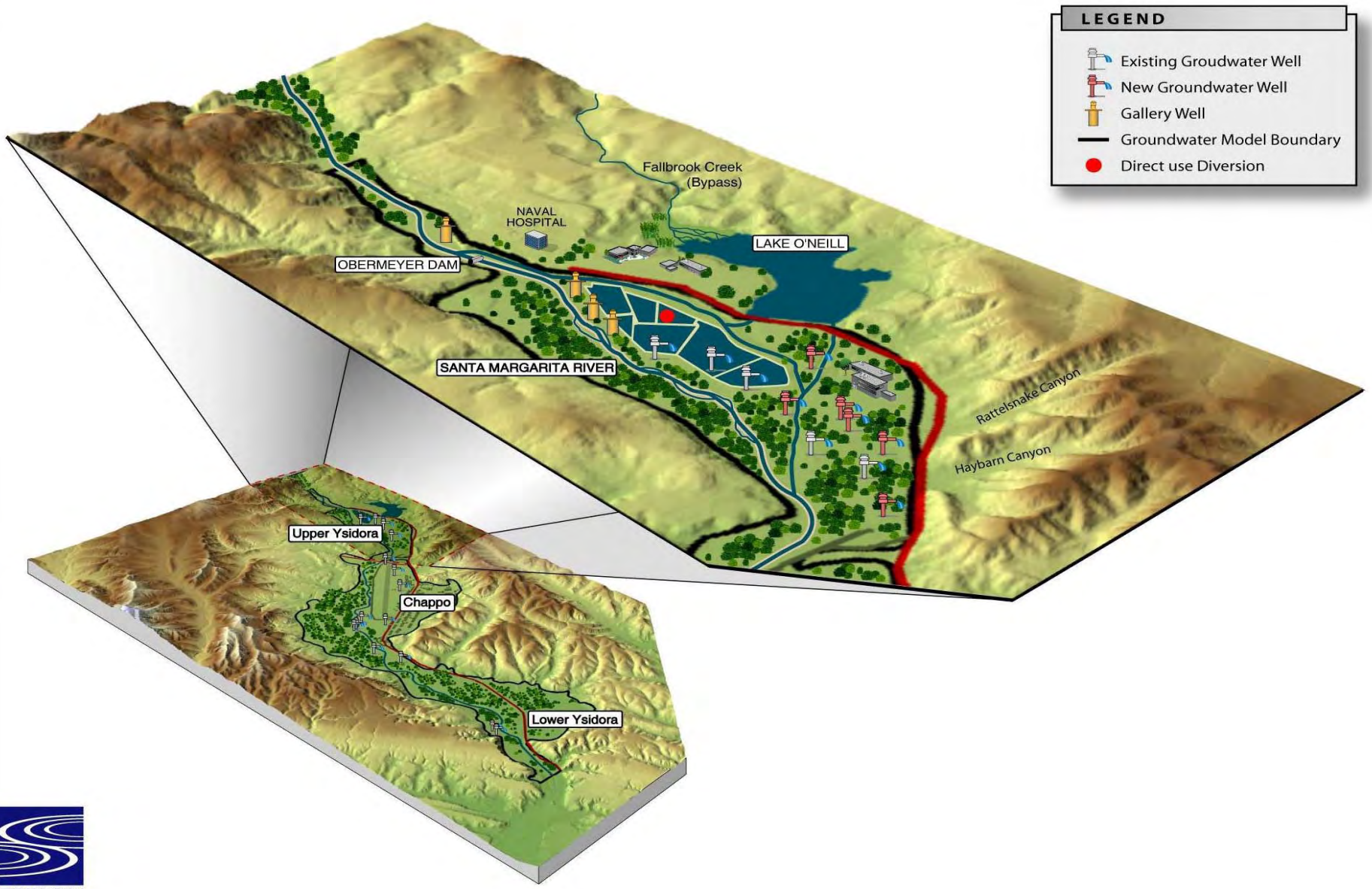
# Surface Water

- Large Flows Pass the Point of Diversion in a Short Period of Time during all Hydrologic Conditions.
- The Wide Range in Annual Streamflow & Max Potential Diversion underscores the Importance of Groundwater Aquifer Storage Capacitance.

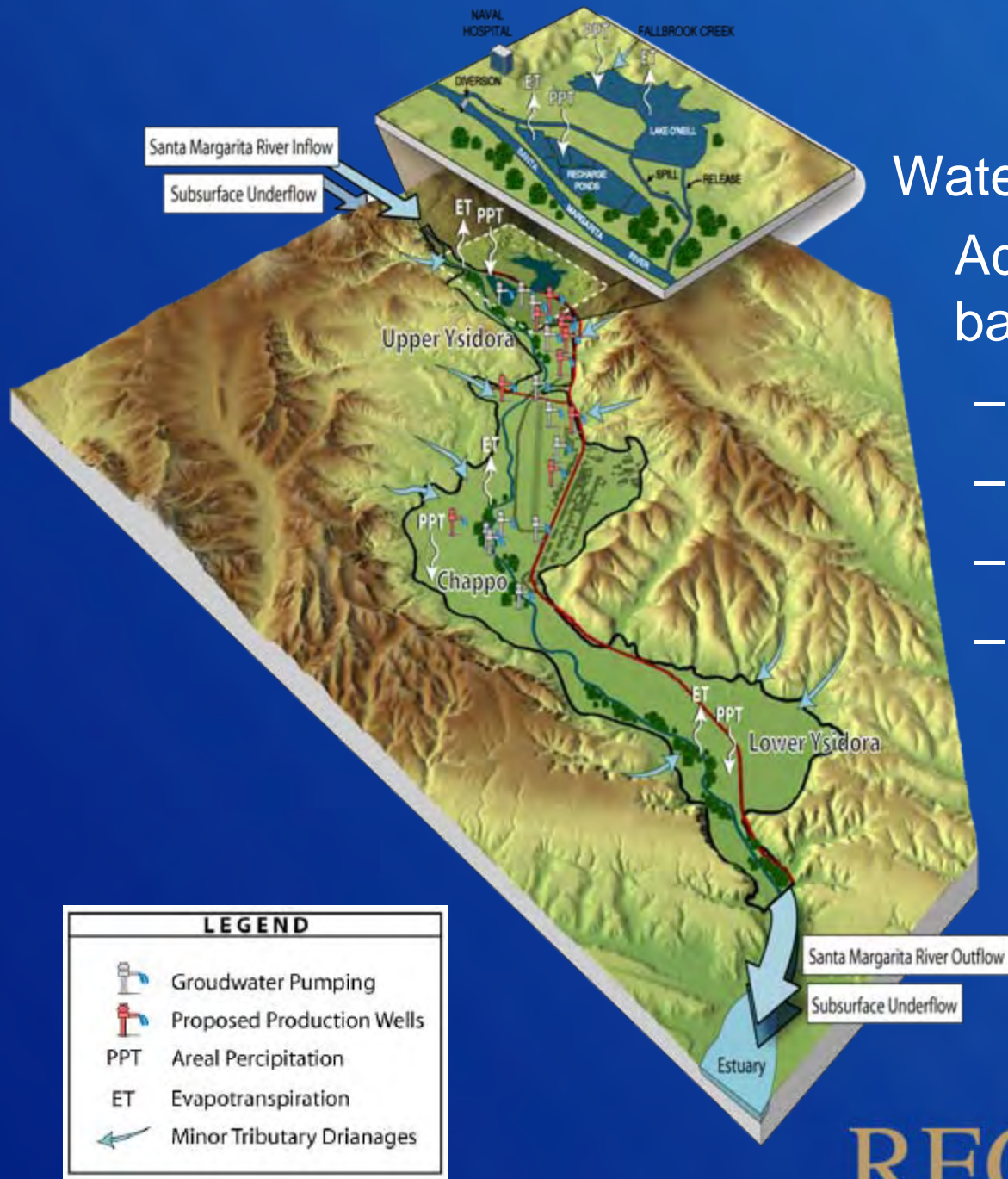


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## Water Budget:

Adaptive management is balanced by changes in:

- Streamflow In
- Streamflow Out
- Evapotranspiration
- Subsurface Underflow

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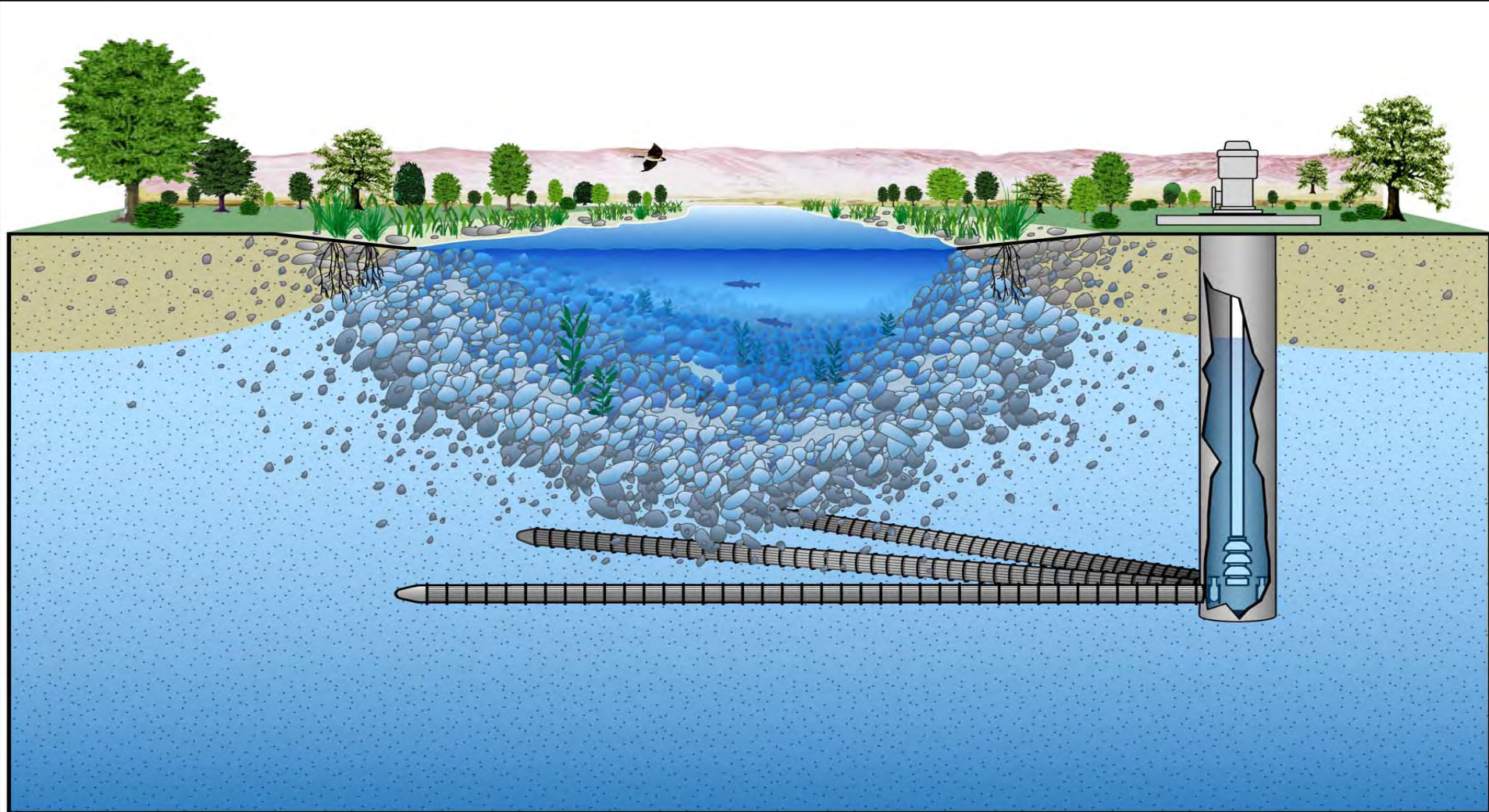


# Groundwater

- Groundwater modeling shows conjunctive use is a better option over surface storage
- New & improved conjunctive use facilities will increase adaptive management capability
- Reduces dependence on imported water



# Conceptual Gallery Well



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# Preferred Alternative

- Bi-directional pipeline
- AWTP
- Production Wells
- Inflatable Diversion Structure
- Recharge Ponds
- Lake O'Neill
- Brine Disposal
- OSMZ

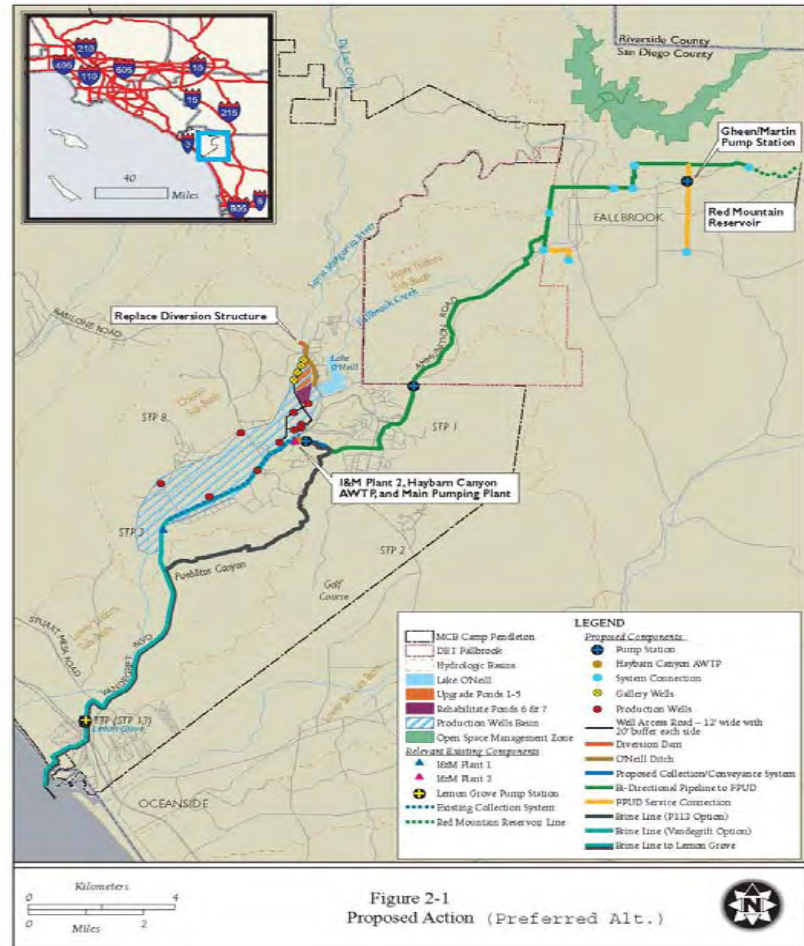


Figure 2-1  
Proposed Action (Preferred Alt.)



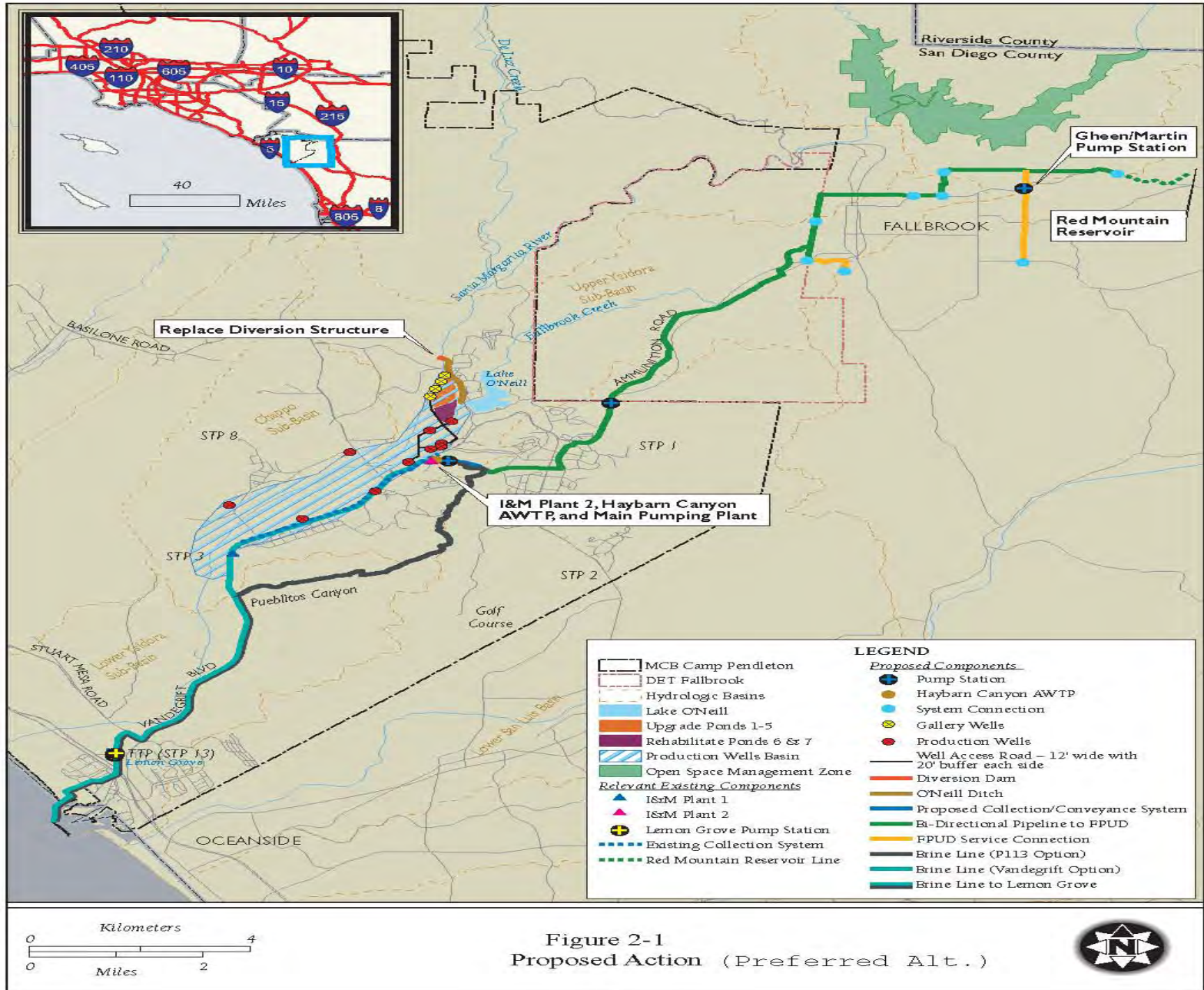
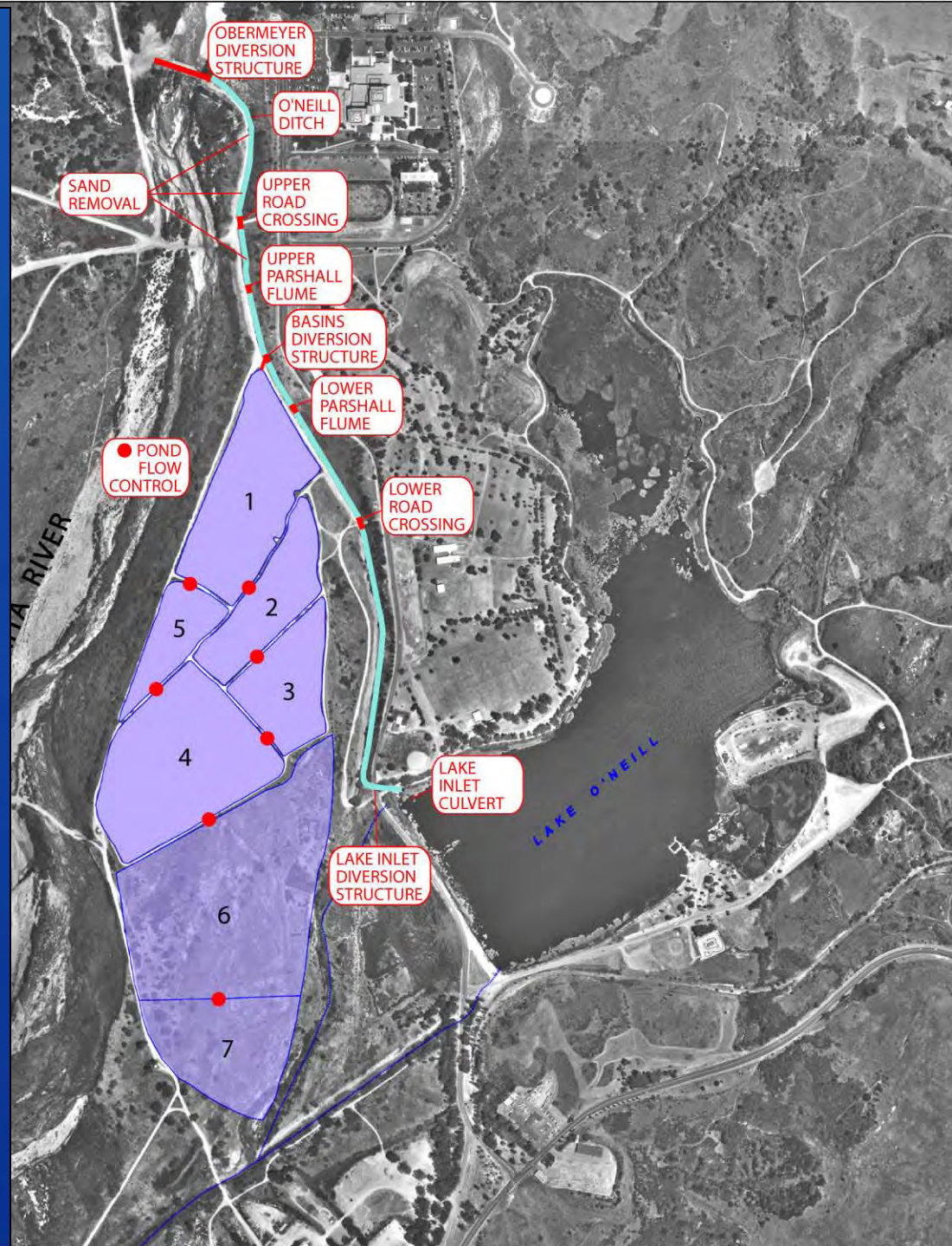


Figure 2-1  
Proposed Action (Preferred Alt.)



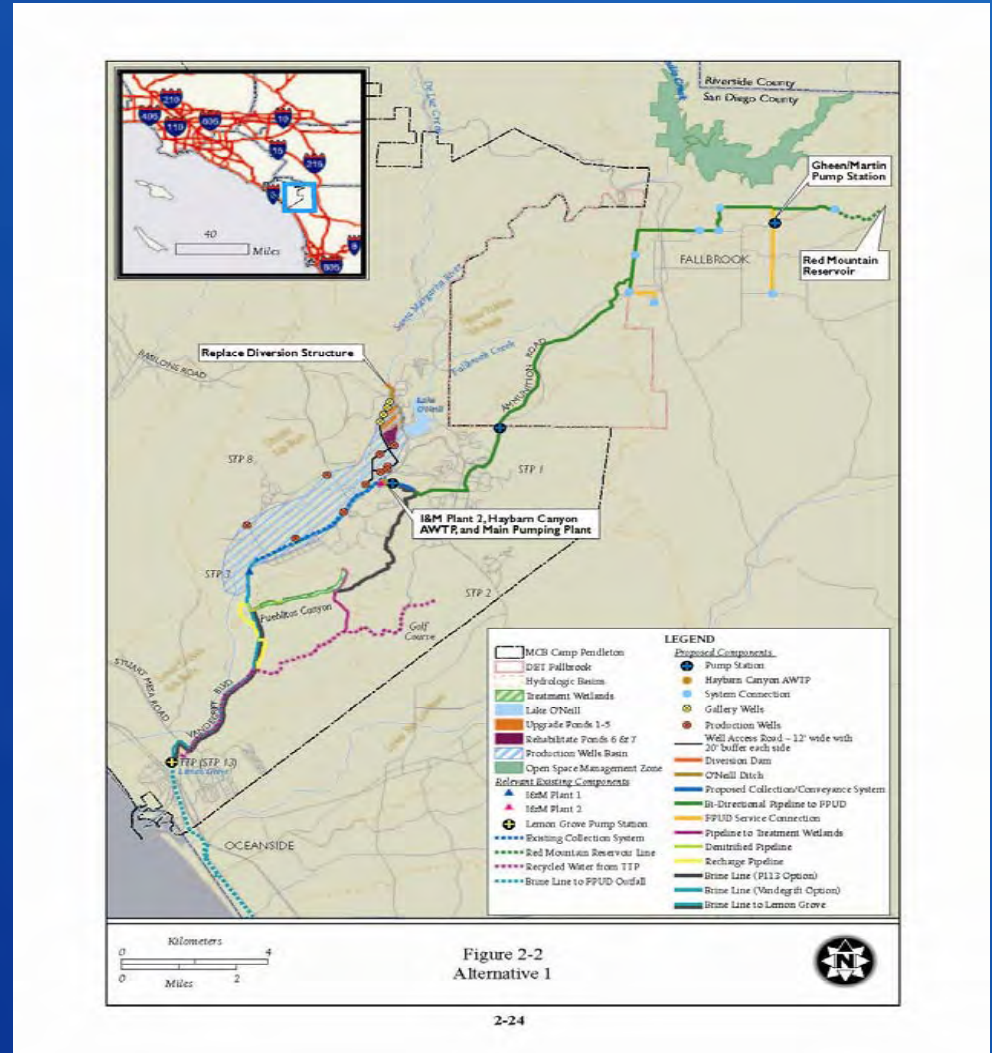
# Diversion & Recharge Improvements

- Install New Inflatable Diversion Structure
- Increase Headgate Capacity to 200 cfs
- Increase Ditch Capacity to 200 cfs
- Construct new Extraction Wells
- Rehabilitate 5 Existing Recharge Ponds
- Construct 2 New Recharge Ponds
- Rehabilitate Lake O'neill



# Alternative 1

- Bi-directional pipeline
- AWTP
- Production Wells
- Inflatable Diversion Structure
- Recharge Ponds
- Lake O'Neill
- Brine Disposal
- OSMZ
- TTP Recycled Water
- Treatment Wetlands
- Seawater Intrusion Barrier





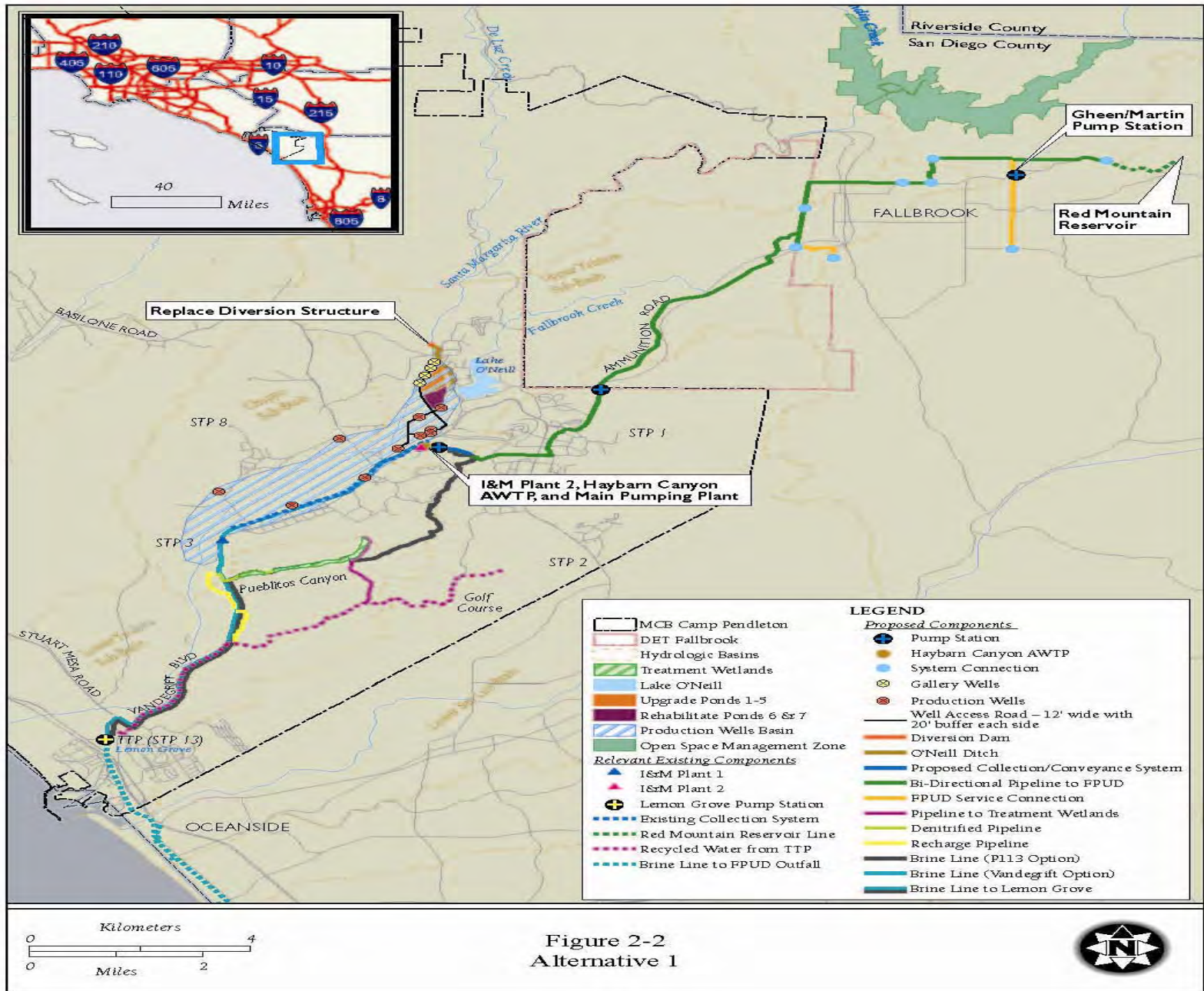
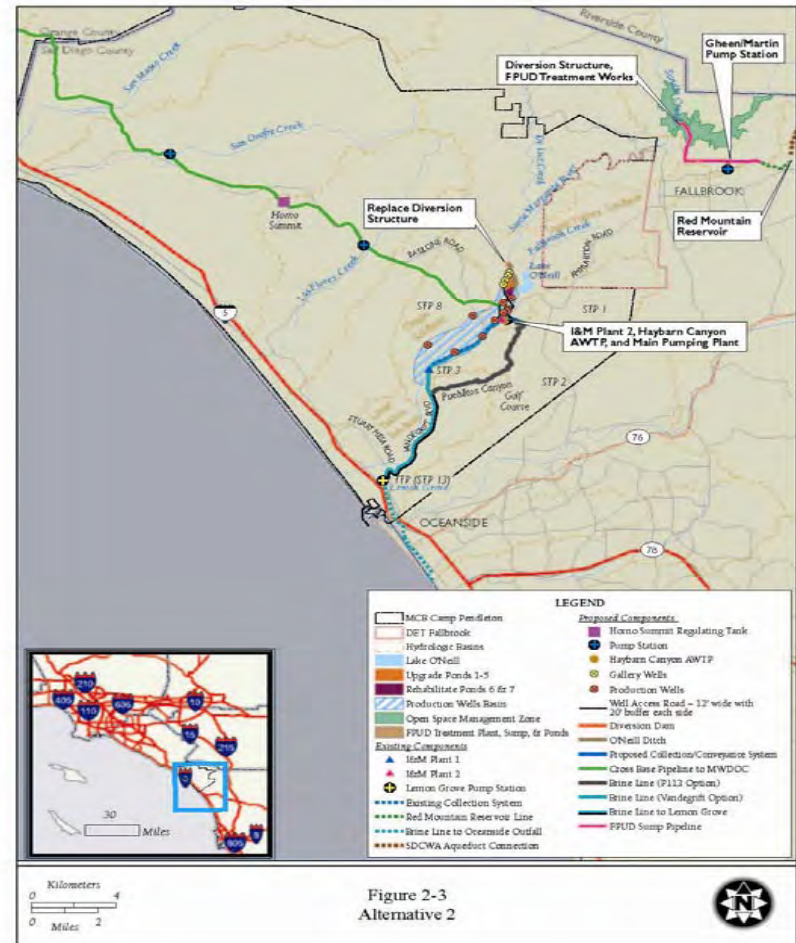


Figure 2-2  
Alternative 1



# Alternative 2

- CPEN
  - AWTP
  - Production Wells
  - Inflatable Diversion Structure
  - Recharge Ponds
  - Lake O’Neill
  - Brine Disposal
  - OSMZ
  - Cross base pipeline to Orange County
- FPU D
  - Inflatable Diversion Structure
  - Pipeline





# No Action Alternative

- Continue to operate CPEN system 'as is'
- Water rights permits expire on a fully appropriated river
- Lose 1380+ acres of open space
- Jeopardize CPEN & FPUD's ability to meet water demands
- No Improvement to either parties' water supply
- Does not resolve lawsuit



# Previous Studies

- 1971 Feasibility Study
- 1976 Santa Margarita EIS
- 1984 Draft SEIS
- 1989 Basewide Study
- 1990 Beak Report
- 1994 Conjunctive Use Study
- 2001 Permit 15000 Study
- 2002 Recycle and Reuse Study
- Others (Camp Pendleton Wastewater Compliance)

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# Recommendations from Previous Studies

- No Dam(s) on the Santa Margarita
- Fully Develop Permits
- Utilize the Existing Groundwater Basin
- Adaptively Manage Existing Groundwater Basin
- Conjunctively Use Surface and Ground Water
- Establish a Connection to Imported Water to Meet Camp Pendleton Demands during Emergency Conditions

# Compliance Strategy

- Implementation of an MOU - Camp Pendleton, Fallbrook PUD, and Reclamation
- Joint Lead NEPA Agencies: Camp Pendleton and Reclamation
- Lead CEQA Agency: Fallbrook PUD
- Reclamation develops Feasibility Report
- Joint Lead Agencies Oversee Feasibility Report/EIS/EIR



# Regulatory Agencies

- U.S. Fish and Wildlife Service (FWS)
- U.S. Army Corps of Engineers (ACOE)
- Regional Water Quality Control Board (RWQCB)
- California Water Resources Control Board (SWRCB)
- California Coastal Commission (CCC)
- Department of Public Health (DPH)
- U.S. Environmental Protection Agency (EPA)

# Initial Feasibility / NEPA-CEQA Schedule

- Regulatory Agency Coordination Sep 2004
- NOI/NOP Nov 2004
- Meet with Tribes Sep 2004
- Public Scoping Meeting Jan 12-13 2005
- Pre-Feasibility Study Jan 05-Apr 06
- Agency Consultation Dec 2008
- Feasibility Study June 2009
- Draft EIS/EIR for Public Review June 2009
- Final EIS/EIR Dec 2009
- ROD/NOD Feb 2010

# Questions / Comments

- Website:
  - <http://www.usbr.gov/lc/socal/>
- Contact info:
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# Thank You



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