



Doing More With Less...

"Integrated Water Reuse and Planning Strategies"



Ken Ortega, Public Works Director
Rocky Mountain Land Use Institute - 06MAR09

City of Oxnard

"More than just another pretty name..."



- Incorporated 1903
- Area \approx **24 Sq. Miles**
- 16th largest City in State
- 62 miles NW of Los Angeles
- 35 miles south of Santa Barbara
- Mediterranean climate
- Strawberry capital of the world
- Growing community
- Limited Water resources!



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City of Oxnard

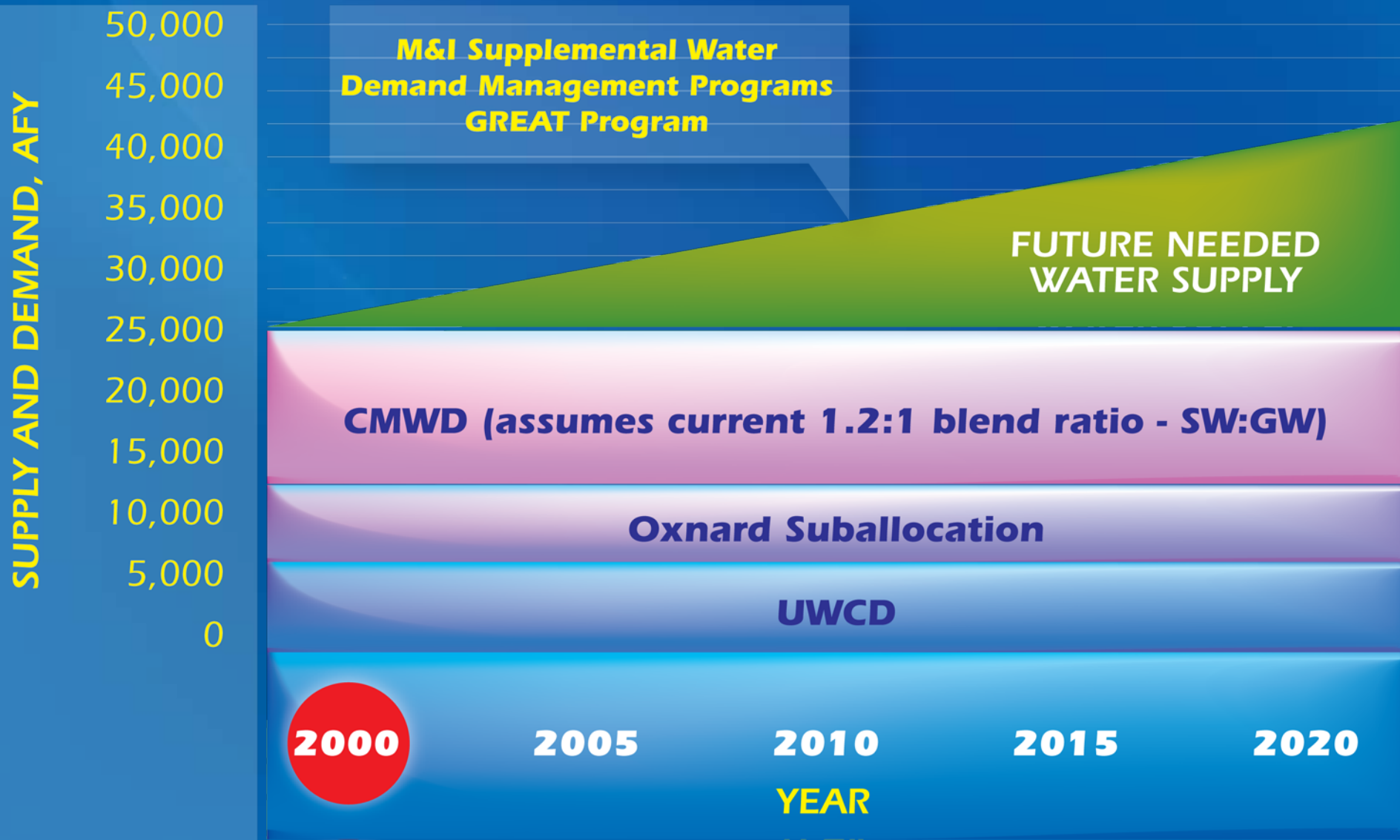
WATER RESOURCES HISTORY



- Water system built for small agricultural town
- No elevated storage, dynamic production
- Multiple water sources
 - ✓ Aquifers
 - ✓ Imported Water
 - ✓ Surface Water



WATER SUPPLY VS. DEMAND



WATER SUPPLIES

(Blending = Quality, Quantity, And Cost Control)

Imported Water

(State Water Project)



Pumped/Groundwater

(Regional/Local)



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IMPORTED (Calleguas) WATER SUPPLIES

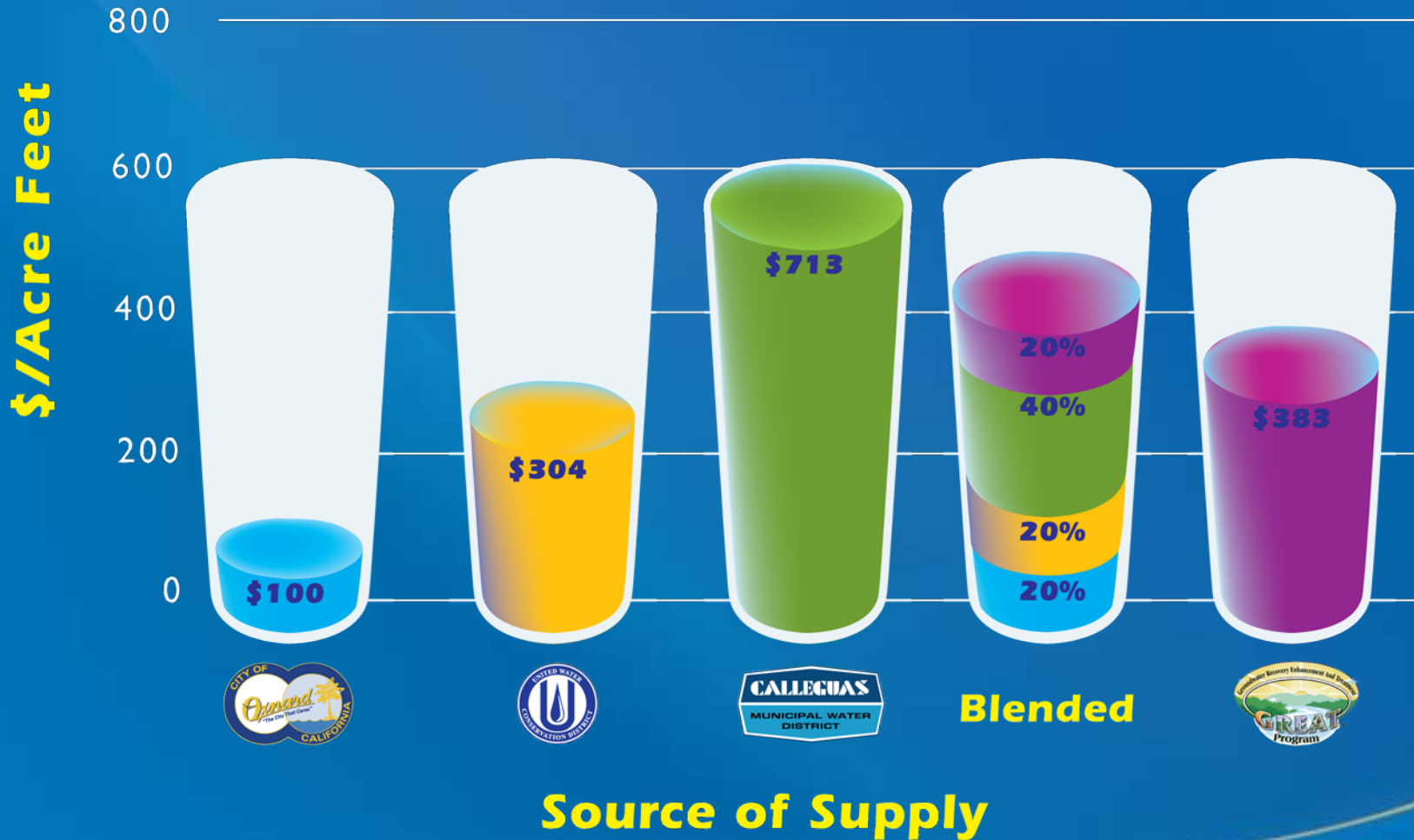


REGIONAL (United Water Conservation District)

WATER SUPPLIES

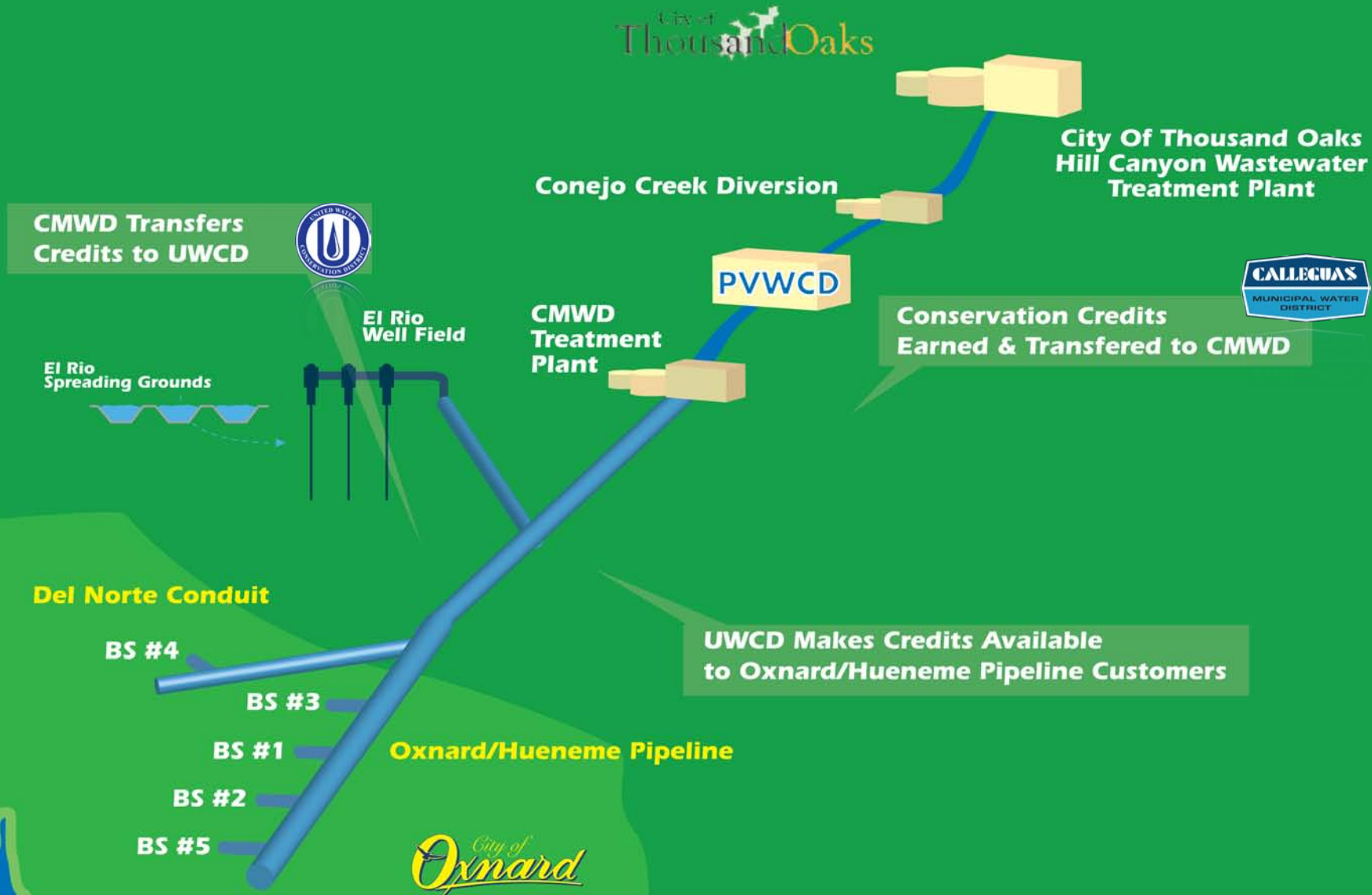


SUPPLY COST COMPARISON



MUNICIPAL & INDUSTRIAL

Supplemental Water Program



DEMAND MANAGEMENT PROGRAM

- Implement All Feasible Best Management Practices of California Urban Water Conservation Council
- Implement All Feasible Programs of Metropolitan Water District
- Water Savings Goal - Match Water Losses



Best Management Practices

What we are doing vs. What we are not

BMPs Implemented

BMP 4: Metering
BMP 6: Clothes Washers
BMP 7: Public Information
BMP 12: Conservation Coordinator
BMP 13: Water Waste Prohibition
BMP 14: Ultra Low Flush Toilets (ULFTs)

BMPs to Implement/Expand

BMP 1: Residential Surveys
BMP 2: Residential Retrofits
 > Need to meet 10% of SF & MF
BMP 3: Distribution System & Water Audit
BMP 5: Large Landscape
BMP 8: School Education
 > Expand
BMP 9: Commercial, Industrial, Institutional
BMP 11: Rates
 > Conservation Sewer Rates



Sustainability Challenges

Water Supply Outlook

- ✓ Precipitation and climate
- ✓ Endangered species
- ✓ Conveyance weaknesses
- ✓ Inadequate storage
- ✓ Water Cutbacks
- ✓ Land-Use restrictions



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Sustainability Challenges

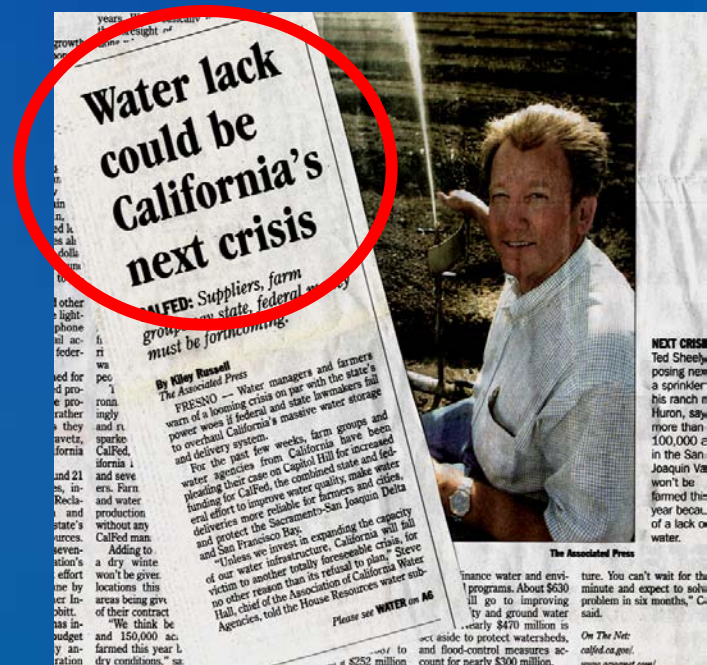
Precipitation and Climate

✓ Statewide Precipitation

- Continues to be Below Average
- Trend of Lower Snowpack

✓ Colorado Basin Precipitation

- Average Precipitation
- Competing Demands



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Sustainability Challenges

Endangered Species Act Compliance

✓ Bay-Delta

- Blue Ribbon Task Force

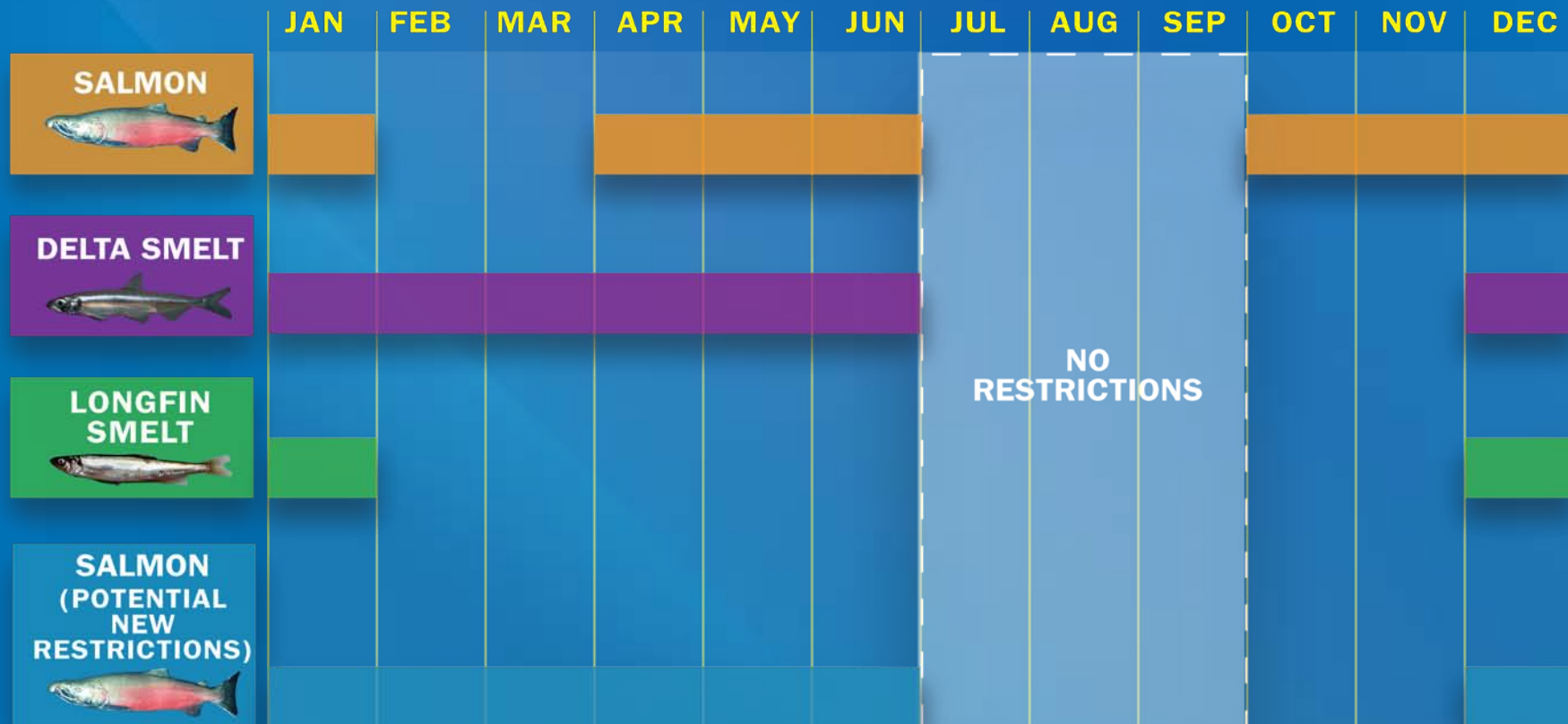
✓ Santa Clara River

- Diversion cutbacks and yield loss



Endangered Species – Bay Delta

Delta Endangered Species Restrictions



Conveyance Weaknesses – State Water Project

- Bond \$\$\$

- Economic Stimulus \$\$\$

- Blue Ribbon Task Force

- Competing interests



Sustainability Challenges

Surface Storage – State Water Project

✓ Reservoirs Low

- Multiple dry years
- New storage very unlikely

✓ State of Emergency

- Drought declaration



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Sustainability Challenges

Water Cutbacks – Federal, State, and Local Regulations

✓ State Water Project

- Reduced Bay-Delta exports
- Mandatory Conservation Ordinance
- Limit MWDSC Annexations

✓ Santa Clara River

- Freeman Diversion cutbacks
- Potential Yield-loss

✓ Fox Canyon GMA

- 10% scheduled cutbacks
- Further cuts necessary
- Basin-by-basin management
- Focus on Local Groundwater Supplies



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Sustainability Challenges

Land-Use Restrictions vs. Water Supply

✓ **General Plan Land-Use boundary restrictions**

- Sphere of influence and City Urban Restriction Boundary
- SOAR Initiative's unintended consequences

✓ **Urban Water Management Planning**

- General Plan/UWMP/Master Plan(s)

✓ **California Urban Water Conservation Council**

- Best management practice implication(s)

✓ **CEQA Implications**

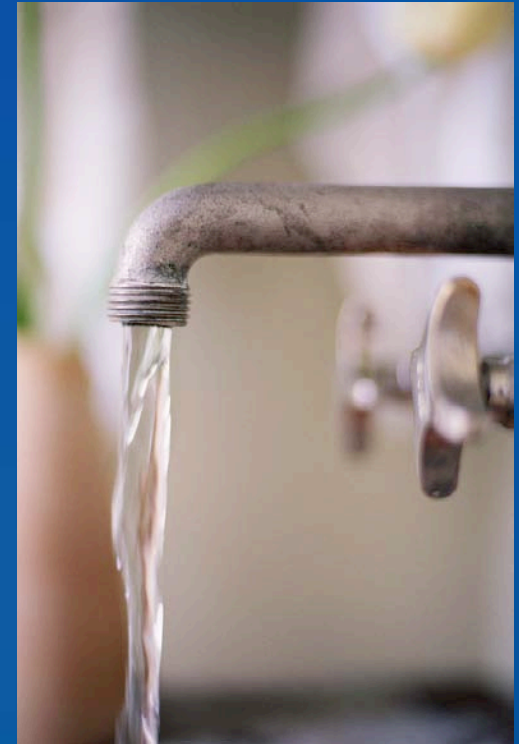
- SB 221/610: Water Supply Availability/Verification
- Vineyard Case



Water Supply Outlook

"City response: IMPROVED LOCAL RELIABILITY"

- ✓ Step-Up Conservation Program
- ✓ Enforce Water Waste Prohibition
- ✓ Raise Tiered Conservation Rate
- ✓ Regional Transfers
- ✓ **GREAT Program**



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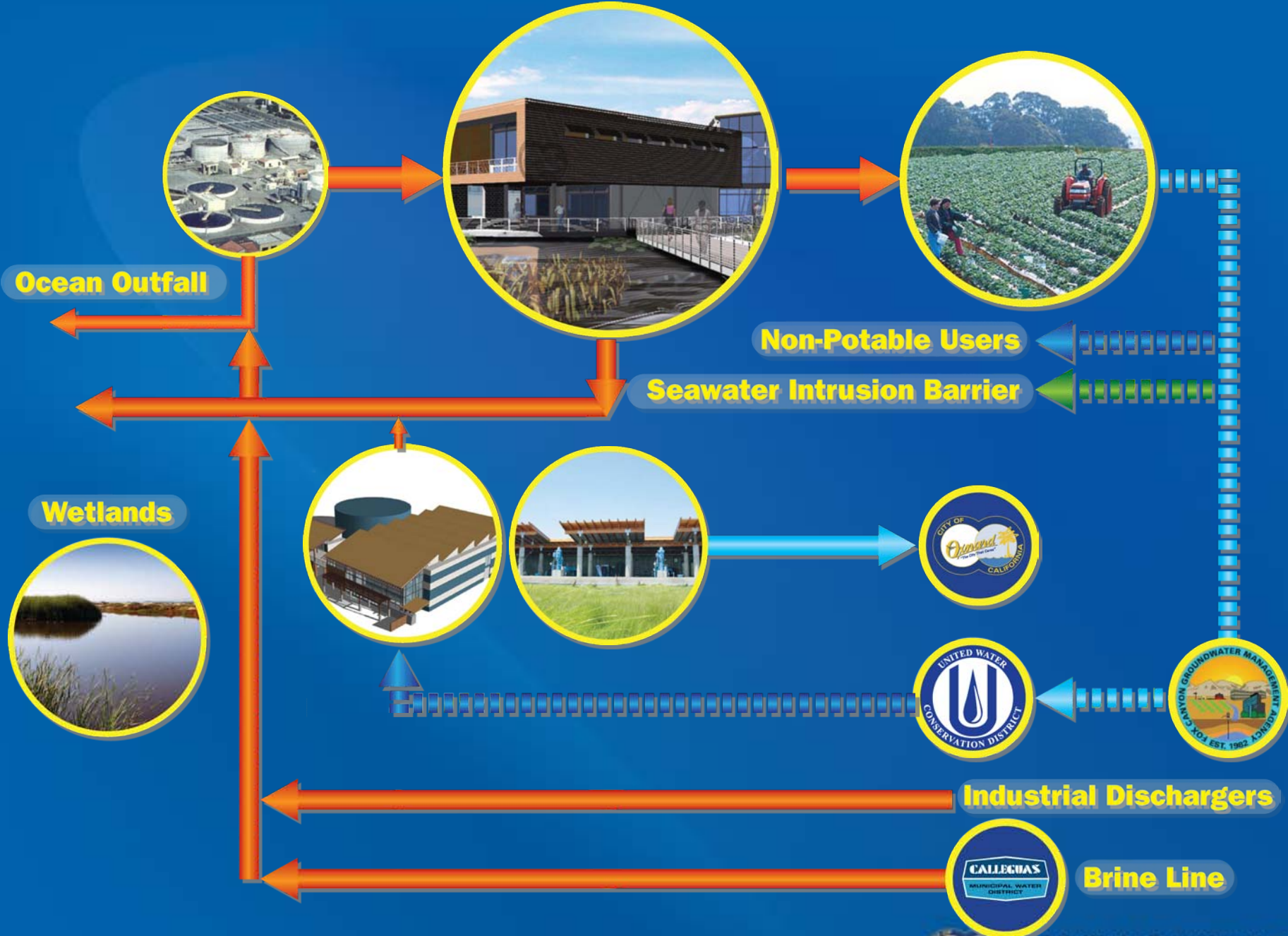
"Necessity is the mother of invention..."

Groundwater
Recovery
Enhancement
And
Treatment



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GREAT Program Desalter Facility

- Maintains Blended Water Quality Objectives
 - ✓ Phase I - 7.5 mgd
 - ✓ Ultimate - 15.0 mgd
- LEED Certification Elements
 - ✓ Low flow toilets and urinals
 - ✓ Low e glass
 - ✓ Window operators w/timers for ventilation
 - ✓ Heat Pump HVAC system
 - ✓ 60KW solar electricity system
 - ✓ Stormwater detention and treatment
 - ✓ Sample water reuse for irrigation
 - ✓ Permeable paving
 - ✓ Wetlands Restoration



BLENDING STATION NO. 1 DESALTER



GREAT Program Desalter Facility



GREAT Program Desalter Facility



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WATER RESOURCES DIVISION

DESALTER MILESTONES

Advanced Planning Study
May 2002

2004 Series Bond Issuance
February 2004

Final EIR
September 2004



2002 2004 2005 2006 2007 2008

Reverse Osmosis System Purchase
July 2005

Permeate Tank Construction Completion
August 2005

Desalter Design Completed
January 2006

2006 Series Bond Issuance
April 2006

Desalter Facility Construction Commenced
July 2006

Desalter Construction Completed
(est.) Spring 2008

Desalter Start-up
(est.) Summer 2008



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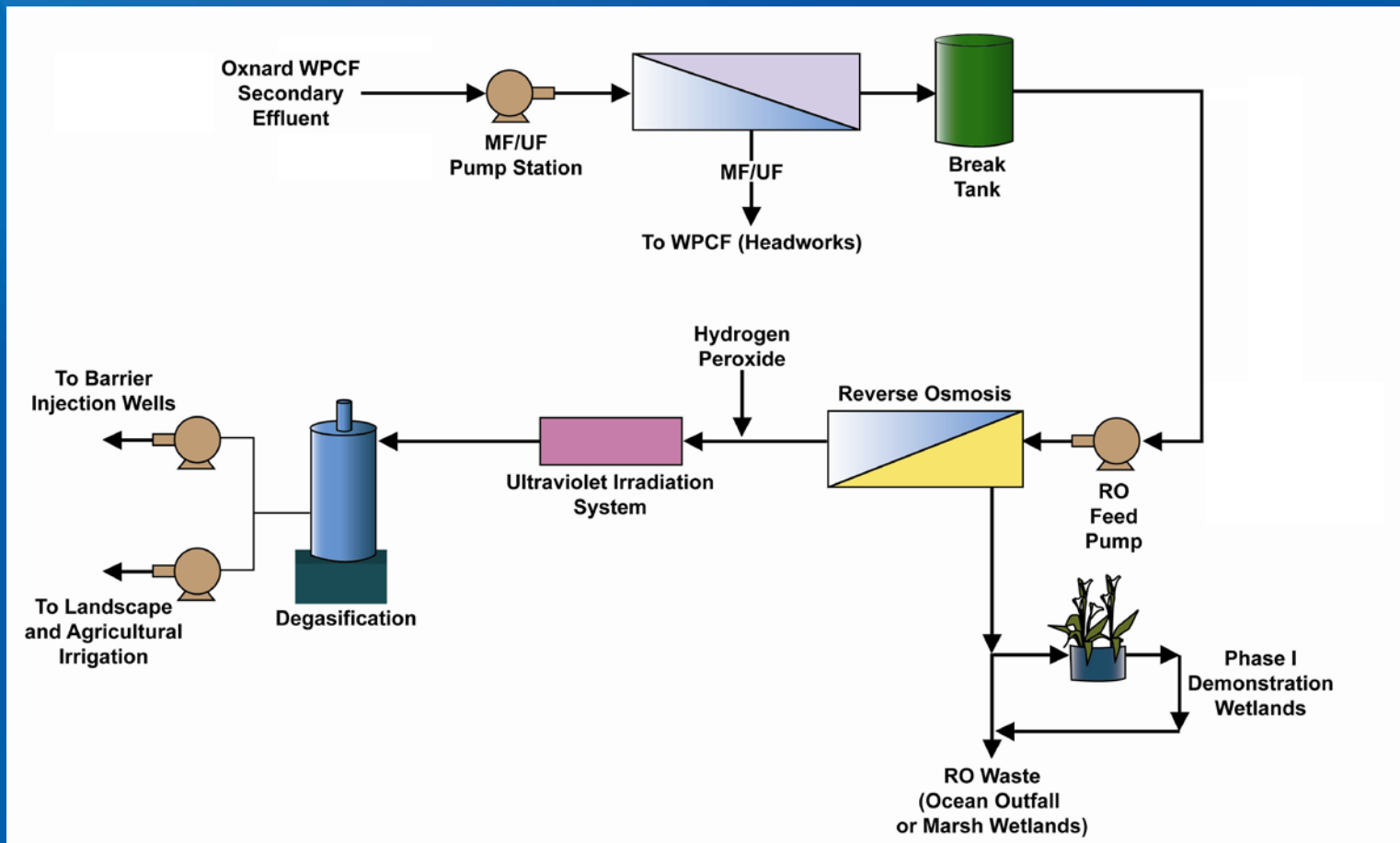
Advanced Water Purification Facility

- Produces High-Quality Recycled Water
 - ✓ Phase I - 6.25 mgd
 - ✓ Ultimate - 25.0 mgd



Advanced Water Purification Facility

(Process Flow Schematic)



Advanced Water Purification Facility West Elevation



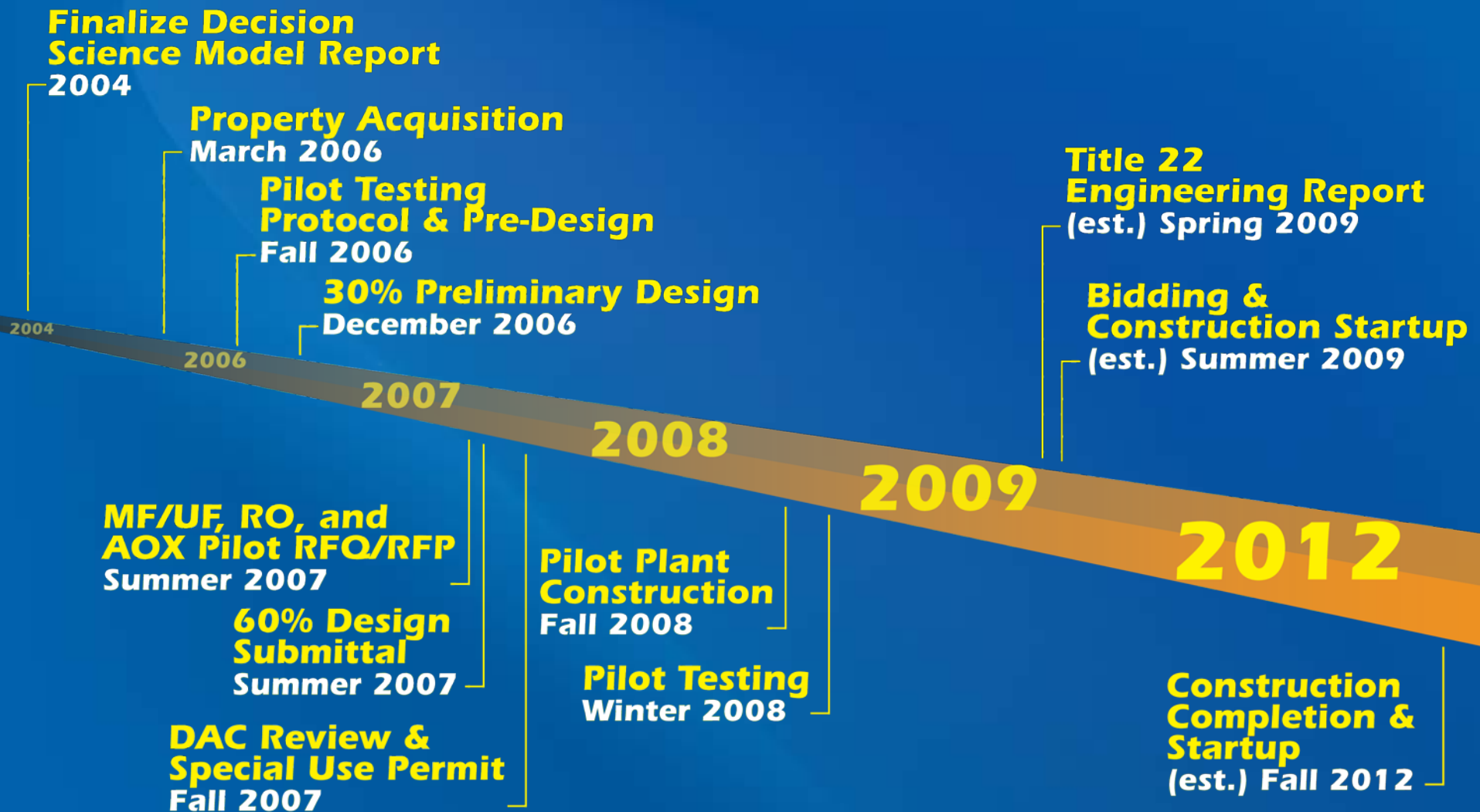
Advanced Water Purification Facility
Visitors Center



Advanced Water Purification Facility South Elevation



AWPF MILESTONES

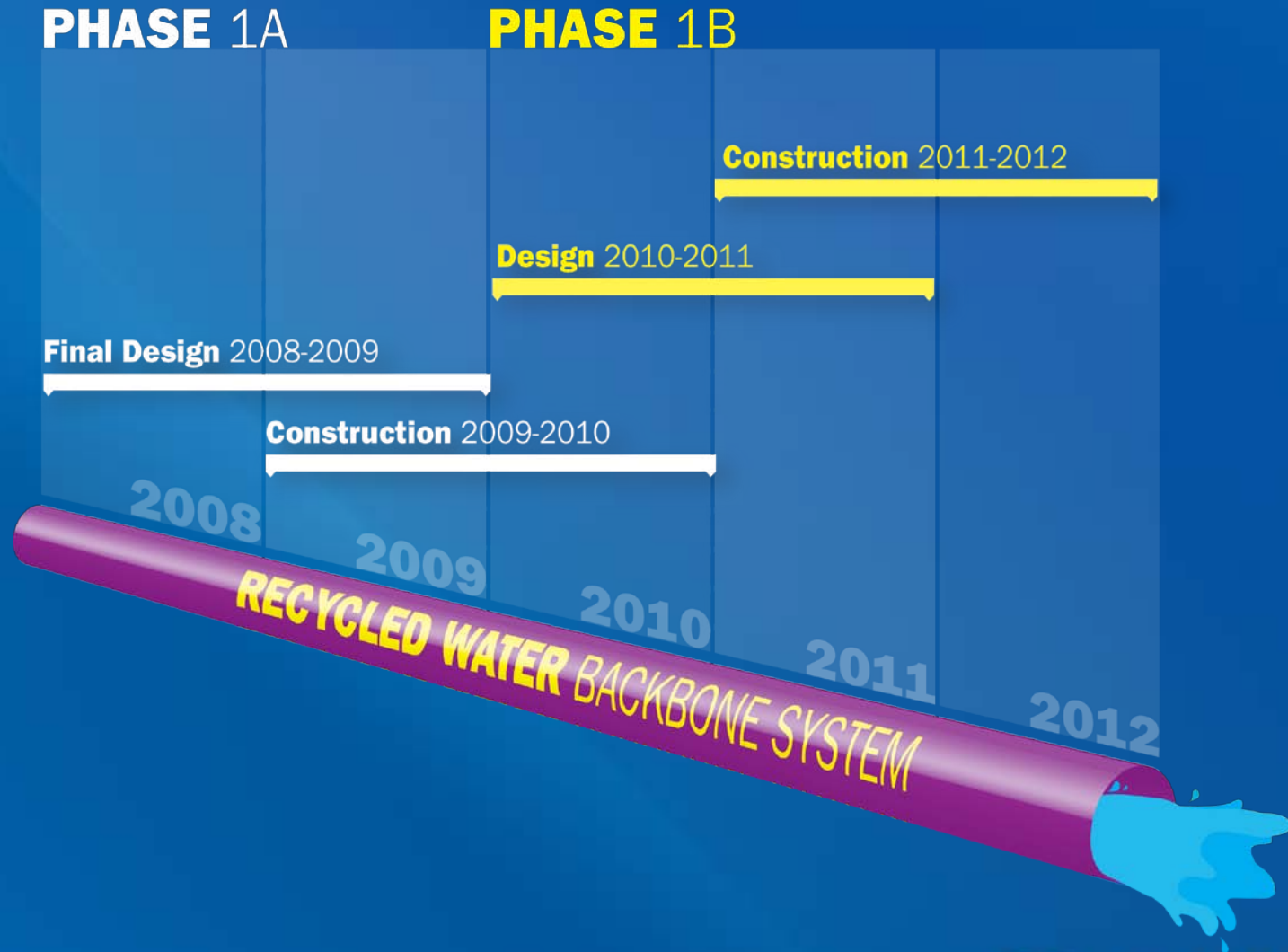




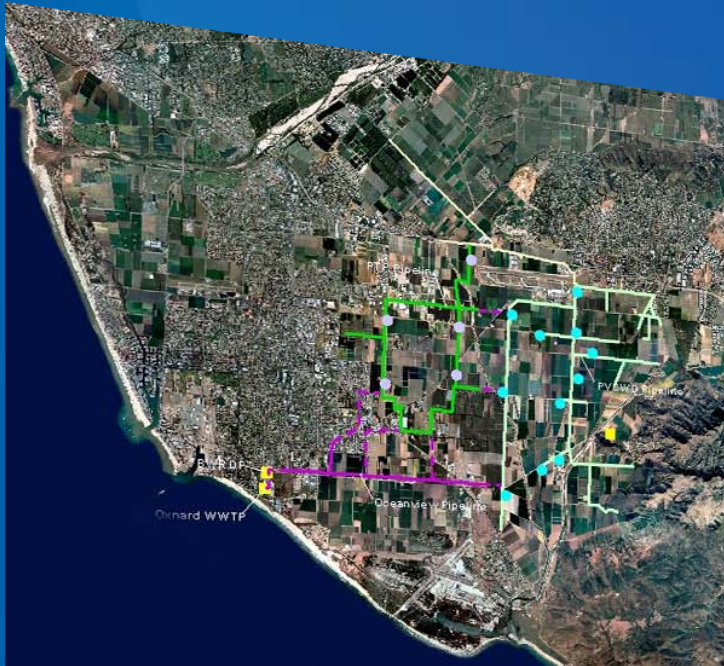
Recycled Water Backbone System



Recycled Water Distribution Timeline



RECYCLED WATER DISTRIBUTION

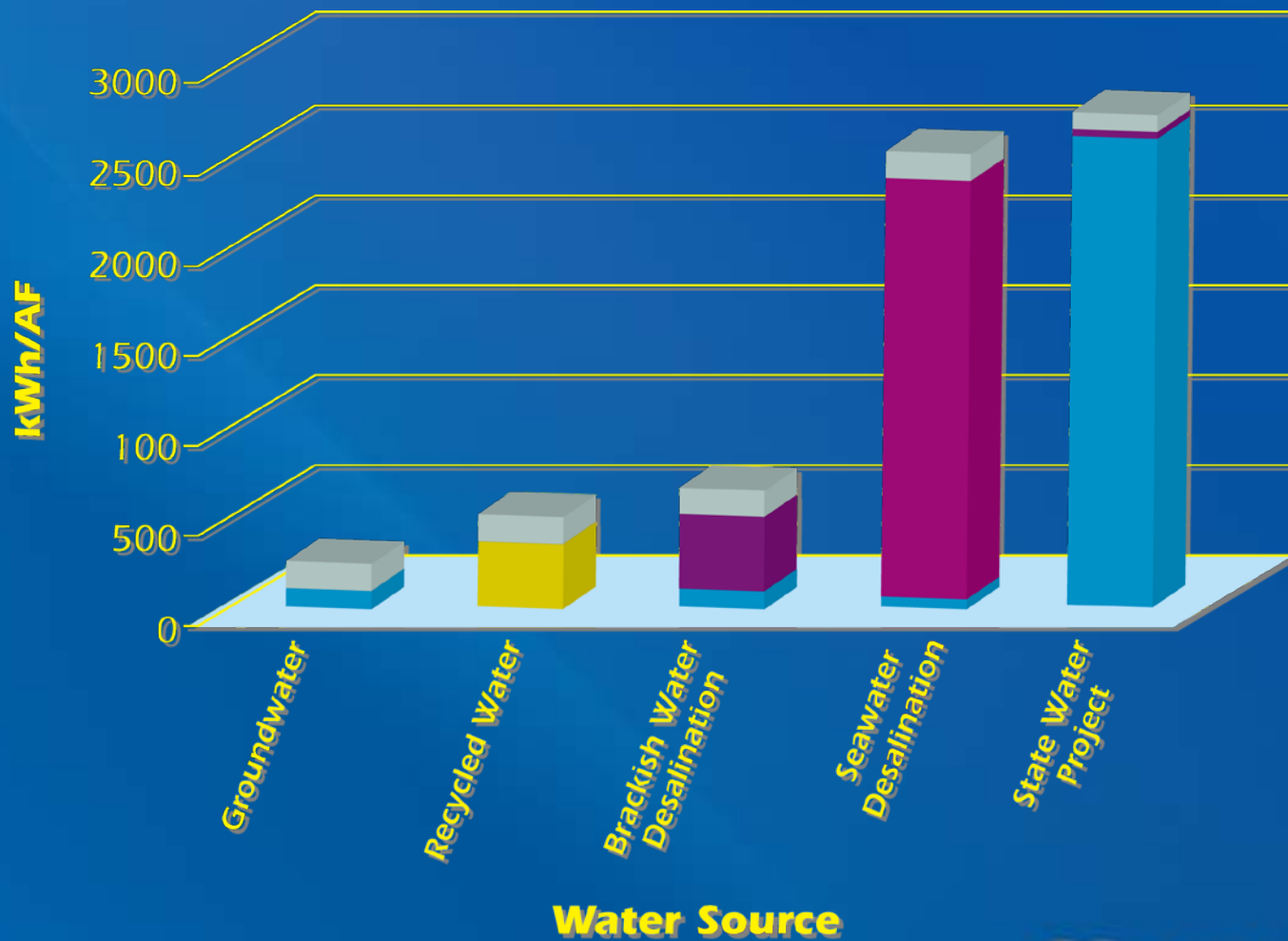


- Multiple water sources
 - ✓ Phase I - 3,081 AF/Year to Ag. Users and Seawater Intrusion Barrier Pilot Injection Well
 - ✓ Phase II - 23,141 AF/Year to PTP and PV Systems



Oxnard Water Source vs. Energy

(Energy Breakdown)

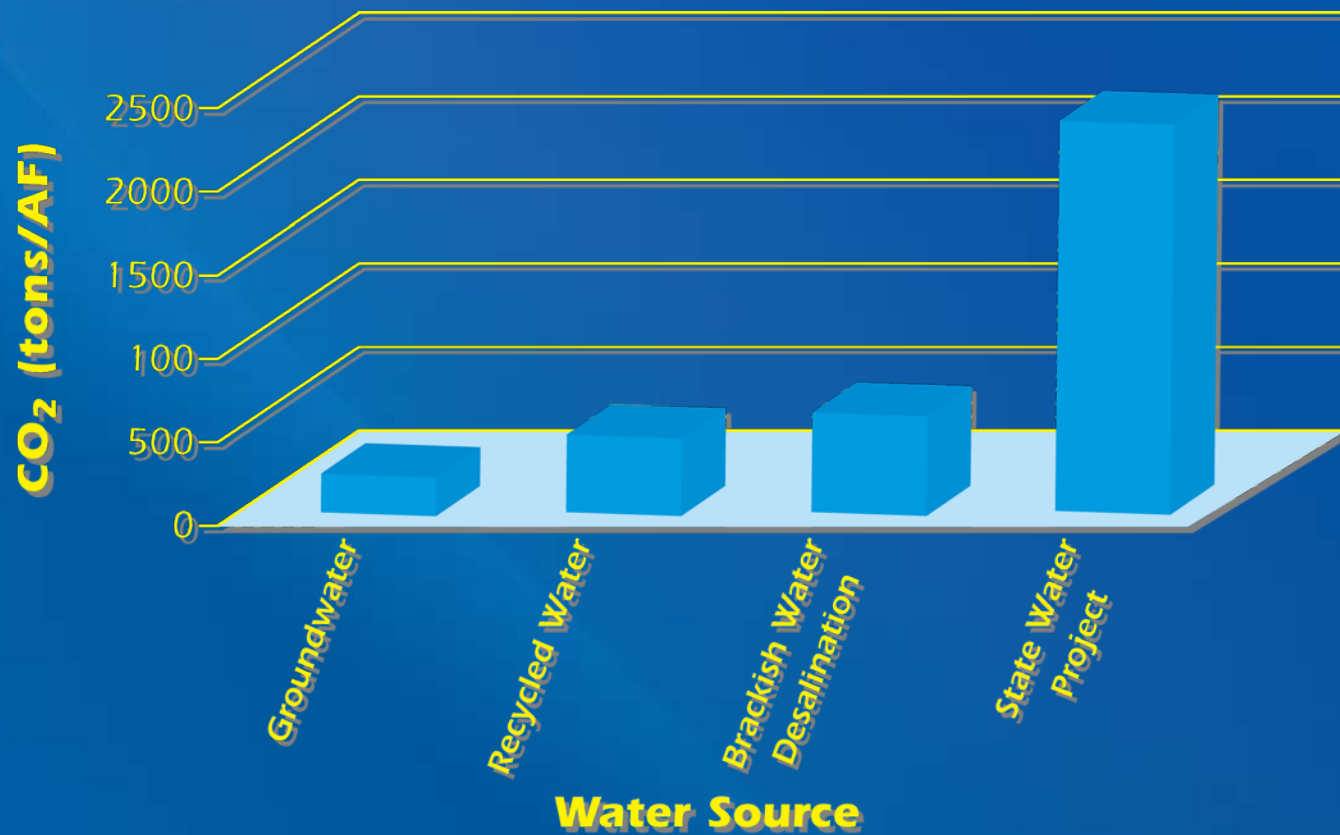


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Carbon Footprint of Water Resources

(Carbon Footprint)



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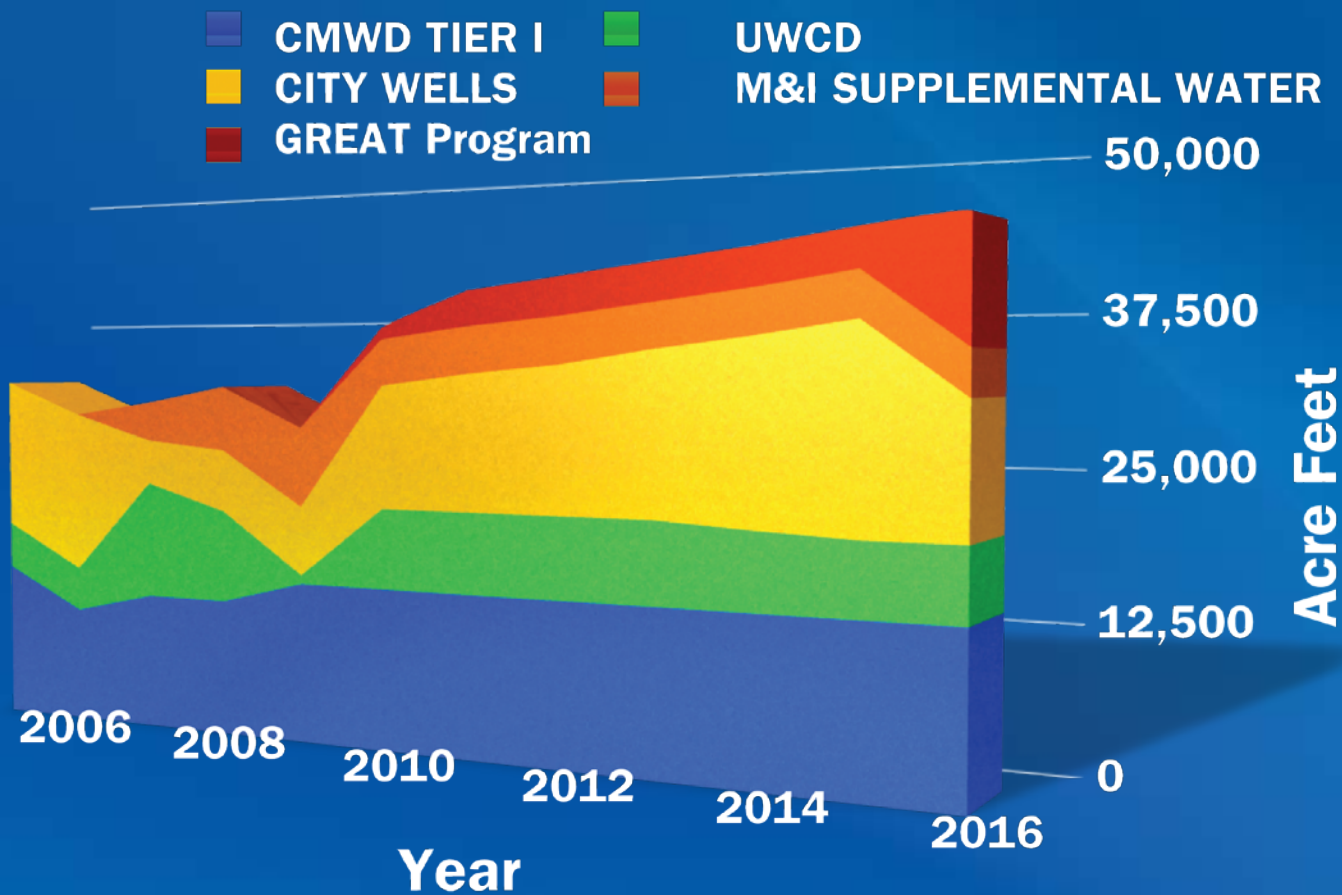
GREAT Program Benefits

- **Meets growing water demands and reduces reliance on imported water**
- **Reduces energy demand and carbon footprint that contribute to climate change**
- **GREAT Desalter**
 - Lower energy demand than the State Water Project
 - LEED Certified Facility
 - Public Education /Outreach opportunities
- **Recycled Water (RW) Benefits**
 - RW injection provides seawater intrusion barrier
 - Offsets groundwater extraction restrictions
 - Reduces overall potable water demand
 - Requires less energy than other available water sources





City of Oxnard Water Portfolio





QUESTIONS?



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