Doing More With Less...
“Integrated Water Reuse and Planning Strategies”

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City of Oxnard

“More than just another pretty name…”

- Incorporated 1903
- Area ≈ 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!
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 SUPPLIES
(Blending = Quality, Quantity, And Cost Control)

Imported Water
(State Water Project)

Pumped/Groundwater
(Regional/Local)
IMPORTED (Calleguas) WATER SUPPLIES

San Francisco Bay
Sacramento Delta
Sacramento River
San Joaquin River
State Water Project
MWDSC Jensen Treatment Plant
Calleguas Conduit
CMWD Treatment Plant
Springville Reservoir
Oxnard Conduit
Del Norte Conduit
BS #4
BS #3
BS #1
BS #2
BS #5
Sierra Nevada
Las Posas Aquifer Storage & Recovery
Lake Bard
SUPPLY COST COMPARISON

$\text{$/Acre Feet}$

$800$

$600$

$400$

$200$

$0$

$100$

$304$

$713$

$383$

Source of Supply
MUNICIPAL & INDUSTRIAL
Supplemental Water Program

CMWD Transfers Credits to UWCD

El Rio Well Field

CMWD Treatment Plant

Conejo Creek Diversion

City Of Thousand Oaks Hill Canyon Wastewater Treatment Plant

Conservation Credits Earned & Transfered to CMWD

PVWCD

UWCD Makes Credits Available to Oxnard/Hueneme Pipeline Customers

Del Norte Conduit

BS #4

BS #3

BS #1

BS #2

BS #5

Oxnard/Hueneme Pipeline
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
  - Need to meet 10% of SF & MF
- BMP 2: Residential Retrofits
- 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
Sustainability Challenges
Precipitation and Climate

✓ Statewide Precipitation
  - Continues to be Below Average
  - Trend of Lower Snowpack

✓ Colorado Basin Precipitation
  - Average Precipitation
  - Competing Demands
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

- **Salmon**
  - JAN to JUN

- **Delta Smelt**
  - JUL to SEP

- **Longfin Smelt**
  - OCT to NOV

- **Salmon (Potential New Restrictions)**
  - DEC
Sustainability Challenges
Conveyance Weaknesses – State Water Project

✓ Bay-Delta Levees
  - Bond $$$
  - Economic Stimulus $$$

✓ Delta Bypass Conveyance
  - 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
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
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**
“Necessity is the mother of invention...”
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
Advanced Water Purification Facility

- Produces High-Quality Recycled Water
  - Phase I  - 6.25 mgd
  - Ultimate - 25.0 mgd
Advanced Water Purification Facility
South Elevation
Recycled Water Distribution Timeline

**PHASE 1A**

**Final Design** 2008-2009

**PHASE 1B**

**Design** 2010-2011

**Construction** 2011-2012

**Construction** 2009-2010

2008 2009 2010 2011 2012
• 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)
Carbon Footprint of Water Resources

Water Source

- Groundwater
- Recycled Water
- Brackish Water Desalination
- State Water Project

CO₂ (tons/AF)
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
QUESTIONS?

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