

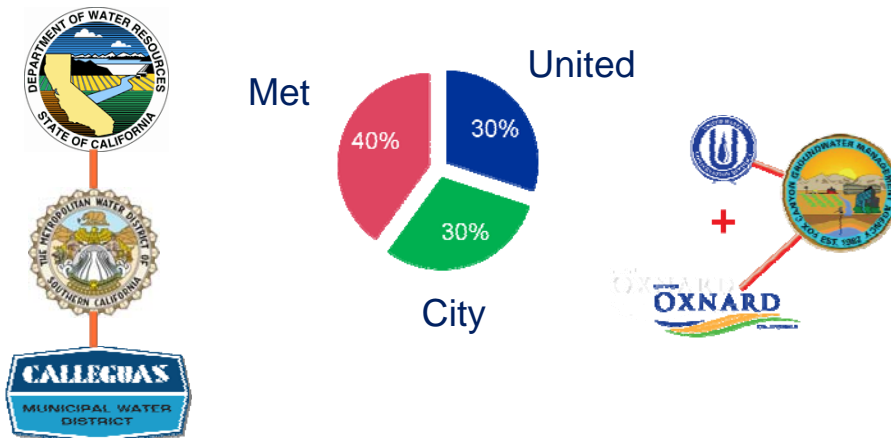
GREAT Program Update

City Council Report
December 10, 2013

Draft November 22, 2013



Oxnard's Water Supply



Water Management

Options Available to Make-Up for Fox Canyon GMA's Groundwater Cutbacks ~ 5,000 AFY

- Conservation – Already Being Done
- Pump Beyond Allocation
 - \$1,605 Penalty/Acre-Foot (AF) (~\$8 Million/Year)
- Additional Imported Water
 - \$1,173/AF for Tier 1 (~\$5.9 Million/Year)
- GREAT Program – Only New Water Source



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Water Management

State Water Project

- Levees Subject to Earthquake Damage
- Pumping Shutdowns
- 500 Mile Delivery
- Multiple Endangered Species
- High Energy Usage
- Pending Projects -- \$25+ Billion
- Increasing Costs to Customers



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Water Management

Local Groundwater

- Fox Canyon Groundwater Management Agency
 - Cutbacks to Date ~5,000 AFY – Belongs to Existing Water Customers
- City Water Usage Rate Light on Groundwater Basins
- Fewer Environmental Issues
- More Stable Costs



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Water Issues and Risks



Environmental Mitigation - Paid by Users

- State Water Project Mitigation & Habitat Restoration -- \$25 Billion plus
- United WCD – Steelhead Trout Mitigation & Habitat Restoration -- \$100 Million plus

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Water Issues and Risks

Limited Supply

- State Water Project
 - Delta Restrictions
 - Declining Snow
- Colorado River Aqueduct
 - Baseline Rainfall Estimate Too High
- Santa Felicia Dam
- Freeman Diversion



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What Other Agencies are Doing

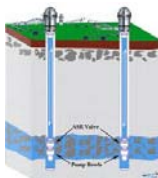


Expanding Recycled Water Use

- AWWPF was 3rd in California
- 49 Similar Plants in Permitting Process
- California Water Plan – Recycled Water Significant Portion of Future Water

Indirect Reuse

- Orange County Groundwater Replenishment System – 70 MGD
- West Basin Municipal Water District
- City of Long Beach



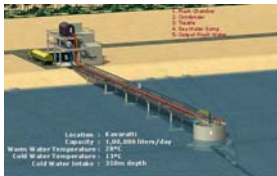
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What Other Agencies are Doing



Direct Potable Reuse

- Singapore NEWater
- Big Spring Texas



Ocean Desalination

- San Diego County Water Authority Carlsbad Desal.
 - \$2,200/AF Cost

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Recycled Water Uses – Currently Permitted



- Industrial Processes
- Landscape & Agricultural Irrigation
 - Single Family Residences Not Allowed & Not Cost Effective
- Indirect Reuse
 - Aquifer Storage and Recovery (ASR) Wells
 - Minimum 2 Months Response Time

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GREAT Program Long-Term Benefits



Quality

- Reduce Mineral Content
- Nitrates from Agricultural Fertilizer & Septic Systems

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GREAT Program Long-Term Benefits



Efficiency

- Conservation
- Eliminate Double Treatment
- Reduce Water Softener Use

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GREAT Program Long-Term Benefits



Sustainability

- Ormond Beach Wetland Restoration
- Energy & Greenhouse Gas Reduction
- Reduce Dependence on Imported Water

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GREAT Program Long-Term Benefits

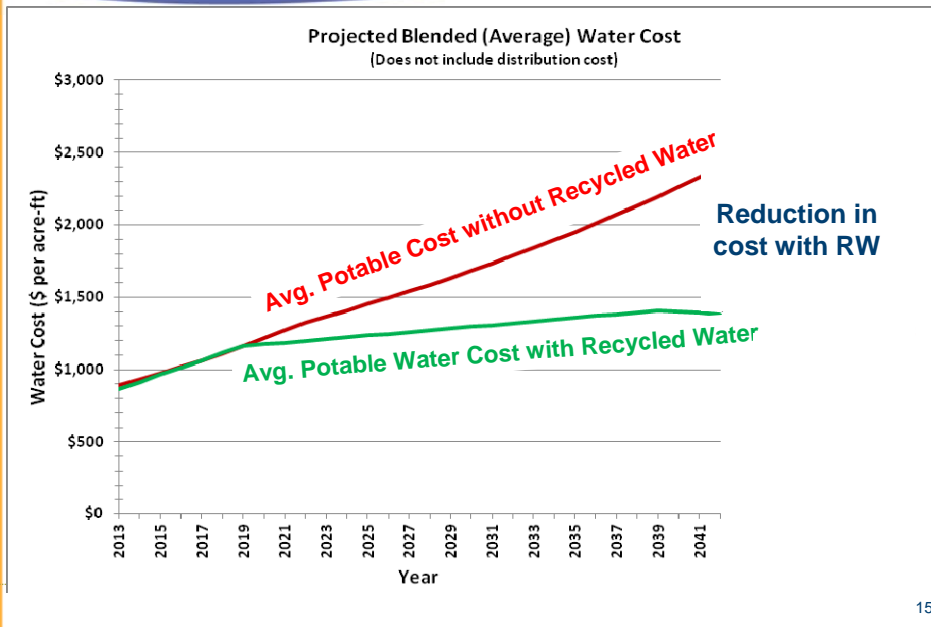


Economy

- Reduce Purchases of Imported Water
- Stabilize Rates
- Improve Reliability
- Provide for ~5,000 AFY Lost -- Fox Canyon GMA Cutbacks

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Effect Upon Water Costs – Stabilized Rates



GREAT Program Components

Desalter

- Reverse Osmosis (RO) Treatment
 - Removes Dissolved Minerals
 - Removes Nitrates (Health Concern)
 - Helps to Meet Public Health Goals in Future
 - Allows Use of Poor Quality Oxnard Aquifer Water
 - Allows Use of Current ~ 43,000 AF Credits
 - Discharges Concentrate to Wastewater System



GREAT Program Components

Concentrate Collection System

- Pipeline to Carry Minerals Removed from Water to Ocean
 - Avoids Triple Treatment
 - Reduces Operations Costs
 - Reduces Load on Central Trunk Wastewater Line
 - Allows Desalter to Expand
 - Expandable to Include Multiple Sites



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GREAT Program Components

Advanced Water Purification Facility

- Produces High Quality Recycled Water
 - Microfiltration – Removes Fine Sediments & Bacteria
 - Reverse Osmosis – Removes Viruses & Minerals
 - Advanced Oxidation – Destroys Trace Pharmaceuticals



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GREAT Program Components

Recycled Water Distribution System

- Distributes Recycled Water to Large Users
 - Industrial Users
 - Agricultural Users
 - Future Indirect Use Sites



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GREAT Program Components

Aquifer Storage and Recovery (ASR) Wells

- Underground Storage of High Quality Recycled Water
- Facilitates Indirect Potable Reuse
 - 2 Months Holding Time
- Prevents Waste of Recycled Water During Rainy Periods
- Lowers Unit Cost of Recycled Water Program



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Phase I Completed Projects

- Advanced Planning, Environmental Documents, Pilot Studies & Preliminary Engineering
- Desalter Phase 1
 - 7.5 MGD (Expandable to 15 MGD)
- Blending Station No. 1 Wellfield No. 2
 - 3 New Wells to Feed Desalter
- Power Building No. 2
 - Backup Power for New Wells & Desalter

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Phase I Completed Projects

- Advanced Water Purification Facility Phase 1
 - 6.25 MGD (Expandable to 25 MGD)
- Recycled Water Transmission Pipelines (Backbone)
 - Ventura Road Recycled Water Pipeline
 - Hueneme Road Recycled Water Pipeline to Olds Road

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Phase I Completing Current Projects

- In-City Recycled Water Retrofits
- Concentrate Collection System Phase 1
- Advanced Water Purification Facility
- Backup Power
- Stormwater Treatment
- Aquifer Storage & Recovery (ASR) Well

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Phase I Projects to Maximize Savings

- Hueneme Road Recycled Water Pipeline Phase 2
- Advanced Water Purification Facility
- Land Acquisition
- Storage Phase 1 – 3 Million Gallons
- Blending Station 1 (Desalter) Expansion
- Larger Piping to System
- Booster Pump for Water from United WCD
- Desalted Water Storage
- Additional Wells & Back-up Power
- Additional Chemicals Storage
- Additional RO Units (Increase Total to 15 MGD)

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Meeting Current Demand – Phase IA Financial Update

Completed Projects (\$millions):

GREAT Program Planning, Environmental, Pilot, Preliminary Engineering	26.8
Desalter Ph. 1 and related improvements	26.8
AWPF Ph. 1	71.8
Backbone (includes Hueneme Rd Ph. 1)	<u>39.4</u>
Total Completed	<u>164.8</u>
Debt Service (annual)	11.2
Rate Increases (avg < 1% a year) over 5 years	1.8

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Meeting Current Demand – Phase IA Financial Update

Completing Current Projects (\$millions):

Retrofits Phase 1A (2015)	1.8
Concentrate Collection Ph. 1	20.0
Storm Water for AWPF Area (2016)	2.5
AWPF Backup Power (2016)	3.7
ASR Wellfield (2016)	<u>5.0</u>
Total Completed	33.0
Current Funding	1.0
Future Bonds/Grants	32.0

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Meeting Current Demand

Annual Savings from Use of Current Credits 3,000 AFY (\$millions):

	2014	2015	2016	2017	2018	2019	2020	Total
Savings from reduced water purchases	2.2	2.4	2.6	2.7	2.9	3.2	3.5	19.5
Additional debt service payment			(2.7)	(2.7)	(2.7)	(2.7)	(2.7)	(13.5)
Net Annual Savings	2.2	2.4	(0.1)	0.0	0.2	0.5	0.8	6.0

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Meeting Current Demand – Phase I B Financial Update

Maximizing Savings (\$millions):

Hueneme Road Pipeline Ph.2 (2016)	25.0
Storage - Includes Land Purchase (2016)	29.5
Blending Station 1 Expansion Ph. 1 (2015)	23.0
Blending Station 1 Expansion Ph. 2 (2016)	7.5
Total Completed	85.0
Current Funding	0.8
Future Bonds/Grants	84.2

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Meeting Current Demand – Phase IB Financial Update

Annual Savings (\$millions):

	2016	2017	2018	2019	2020	Total
Recycled Water Sales (7,000 A-F)	3.3	3.3	3.3	3.8	3.8	17.5
Savings from reduced water purchases	9.2	10.2	11.2	12.5	14.1	57.2
Annual Production cost	(4.3)	(4.5)	(4.6)	(4.6)	(4.7)	(24.8)
Additional debt service payment	(7.1)	(7.1)	(7.1)	(7.1)	(7.1)	(35.5)
Net Annual Savings	1.0	1.9	2.8	4.6	6.1	14.4

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Meeting Current Demand – Phases IA & IB

Combined Costs and Savings (\$millions):

	2014	2015	2016	2017	2018	2019	2020	Total
Capital Improvements	1.8	85.2	31.0					118.0
Net Annual Savings:								
Phase 1A	2.2	2.4	(0.1)	0.0	0.2	0.5	0.8	6.0
Phase 1B			1.0	1.9	2.8	4.6	6.1	14.4
Total Savings	2.2	2.4	0.9	1.9	3.0	5.1	6.9	20.4

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Recommendation

- Provide direction on the proposed capital projects and financing
- Approve the budget to realign funding of current projects (no net increase)



December 17th

- Multi-party recycled water agreement
- Hueneme Road Pipeline Phase 2 design contract