Recycled Water Agreement

We live in a semi-arid climate

Water Challenges

Cities and lawns are non-native
Much of our water comes from miles away

Increase to SFR Over Past 6 Years
Inflation 11.7%
CMWD: 28.5%
UWCD: 13.8%
City: 6.5%

41.3% increase

The cost is going up

Old assumptions are not valid

Not enough has been done
Oxnard started preparing 20 yrs ago

Response

Solutions are being implemented

City Preparation

20 years of hard work just in time

Recycled water is now a reality for Oxnard
Water Supply Options

- Conservation – Already Being Done
- Water Neutrality Policy for Development – Already Being Done
- Pump Beyond Allocation
  - $1,605 Penalty/Acre-Foot (AF) (~$8 Million/Year)
- Additional Imported Water
  - $1,210/AF for Tier 1 in 2015 (~$6 Million/Year)
- GREAT Program – Only New Water Source
  - In lieu of potable
  - Agricultural irrigation
  - Indirect Reuse via ASR Wells
  - Recharge Pits (RiverPark & Ferro)
  - Hybrid of City, Agricultural Customers & ASR
    - Indirect Potable Reuse & Future Direct Potable Reuse
GREAT Program

City Benefits of the GREAT Program

• Reliability of Supply
  • Diversity Supply Options
  • Increase City Control of Supply
  • Reduce Reliance on Imported Water

• Quality
• Rate stabilization
• Sustainability
Regional Benefits of the GREAT Program

- Groundwater supply reliability & management
  - GMA mid and long term strategy
  - Recharge of basin from portion of yield
  - Shift Pumping from Stressed Areas to Forebay which is more easily recharged
- Remove salt from basin
- Uses less water for farming
- Increases yield of berry crops
- Keep farming viable
  - Economy
  - Culture
GREAT Program Components

Current RW Demand: 1,800AFY
Maximum: 3,200AFY

Complete System = Reliability and Sustainability

ASR 1 Storage & Indirect
BS 1 Desalter Reverse Osmosis
Current RW Demand: Exceeds 28,000AFY

RWBS PH 1

Concentrate Collection Line

AWPF RO & UV

Wastewater Treatment Plant Primary & Secondary

Pleasant Valley County Water District Service Area

United Water Conservation District Pumping Trough Pipeline Service Area

ASR 2 Storage & Backup Power

RWBS PH 2

Recycled Water Production

- Captures Portion of 22 Million Gallons/Day (MGD) City's Treated Wastewater Discharge
- Produces Advanced-Treated Recycled Water
  - Phase 1 - 6.25 MGD
  - Phase 2 - 12.50 MGD
  - Phase 3 - 18.75 MGD
  - Phase 4 - 25 MGD
**Water Supply Plan**

<table>
<thead>
<tr>
<th>Source</th>
<th>Past</th>
<th>2013</th>
<th>2016</th>
<th>Future</th>
<th>Future</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AWPF Ph 1</td>
<td>AWPF Ph 2</td>
<td>AWPF Ph 3</td>
</tr>
<tr>
<td>Imported Surface water</td>
<td>17,377</td>
<td>13,826</td>
<td>13,826</td>
<td>12,443</td>
<td>12,443</td>
<td>12,443</td>
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<tr>
<td>United Groundwater</td>
<td>8,967</td>
<td>6,833</td>
<td>7,328</td>
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<tr>
<td>City Groundwater</td>
<td>10,913</td>
<td>8,423</td>
<td>7,198</td>
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<td>7,198</td>
<td>7,198</td>
</tr>
<tr>
<td>AWPF</td>
<td>0</td>
<td>0</td>
<td>7,000</td>
<td>14,000</td>
<td>21,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Total Available</td>
<td>37,257</td>
<td>29,082</td>
<td>35,352</td>
<td>40,969</td>
<td>47,969</td>
<td>54,969</td>
</tr>
<tr>
<td>Total Demand</td>
<td>30,000</td>
<td>27,000</td>
<td>27,000</td>
<td>30,400</td>
<td>31,400</td>
<td>33,000</td>
</tr>
<tr>
<td>Net without RW</td>
<td>7,257</td>
<td>2,082</td>
<td>1,352</td>
<td>(3,431)</td>
<td>(4,431)</td>
<td>(6,031)</td>
</tr>
<tr>
<td>Net With RW</td>
<td>7,257</td>
<td>2,082</td>
<td>8,352</td>
<td>10,569</td>
<td>16,569</td>
<td>21,969</td>
</tr>
</tbody>
</table>

Note:
1. Past demand reduction is due to conservation efforts.
2. Future demand has been reduced from previous Urban Water Management Plan estimate.
3. Phase 4 requires increased future wastewater effluent or brackish desalting similar to the planned United Water Conservation District facility.
4. Might want to maintain imported water agreement for reliability for the City and region.
5. Includes Oxnard and Ocean View systems.

**GREAT Phase IA - Completed Components**

**Completed Projects ($millions):**

- GREAT Program Planning, Environmental, Pilot, Preliminary Engineering
- Blending Station No. 1 Wellfield No. 2
- Power Building No. 2
  - Desalter Ph. 1 and Related Improvements
    - 7.5 MGD (Expandable to 15 MGD)
  - AWPF Ph. 1 6.25 MGD (Expandable to 25 MGD)
- Backbone (Ventura Rd. & Hueneme Rd. Ph. 1)

**Total Completed**

**Annual Debt Service**

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1/12/2015
Effects of the Drought

- State emergency declaration
- GMA Emergency Ordinance E
  - Reduced pumping allocations
  - Conservation credits frozen
- Calleguas supply reduction
- Imported water cost increases
- Integrated Water Resources Master Plan Adjustment
  - Master plan update will review CIP plan and rate model to determine long term effects of drought
  - Opportunities to partner

Future Components

Future Projects ($millions):

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentrate Collection Line</td>
<td>$20.0</td>
</tr>
<tr>
<td>Water Line Hydraulic Capacity Improvements</td>
<td>$3.8</td>
</tr>
<tr>
<td>Desalter Expansion</td>
<td>$26.6</td>
</tr>
<tr>
<td>Recycled Water Retrofits</td>
<td>$1.8</td>
</tr>
<tr>
<td>AWPF Completion, Storm water, Backup Power</td>
<td>$8.3</td>
</tr>
<tr>
<td>Recycled Water Storage</td>
<td>$29.5</td>
</tr>
<tr>
<td>Hueneme Road Pipeline Ph.2 (2016)</td>
<td>$25.0</td>
</tr>
<tr>
<td>ASR Wellfield</td>
<td>$25.0</td>
</tr>
<tr>
<td>AWPF Expansion Ph 2 &amp; 3</td>
<td>$40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$180.0</strong></td>
</tr>
<tr>
<td><strong>Annual Debt Service</strong></td>
<td><strong>$12.2</strong></td>
</tr>
</tbody>
</table>
Recycled Water Cost

Cost of Producing Recycled Water

<table>
<thead>
<tr>
<th>Engineers Estimate of Cost to Produce Recycled Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWPF Production, acre-ft/yr (AFY)</td>
</tr>
<tr>
<td>--------------------------------------</td>
</tr>
<tr>
<td>RW System Capital Cost per acre-ft/yr capacity</td>
</tr>
<tr>
<td>RW System Total Capital &amp; Financing cost per acre-ft</td>
</tr>
<tr>
<td>TOTAL O&amp;M Cost per Acre-ft</td>
</tr>
<tr>
<td>Process O&amp;M cost per acre-ft</td>
</tr>
<tr>
<td>Equip. Replace. cost per acre-ft</td>
</tr>
<tr>
<td>Facility O&amp;M cost per acre-ft</td>
</tr>
<tr>
<td>Labor Cost per acre-ft</td>
</tr>
<tr>
<td>TOTAL O&amp;M Cost per Acre-ft</td>
</tr>
<tr>
<td>GRAND TOTAL COST OF WATER per Acre-ft</td>
</tr>
</tbody>
</table>
Estimated Future Water Supply Cost

<table>
<thead>
<tr>
<th>Water Source</th>
<th>Approximate Cost per Acre-Ft (AF)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2003</td>
</tr>
<tr>
<td>Local (City &amp; UWCD)</td>
<td>$529</td>
</tr>
<tr>
<td>Imported (CMWD)</td>
<td>$482</td>
</tr>
<tr>
<td>Phase 1 AWPF</td>
<td>NA</td>
</tr>
<tr>
<td>Phase 2 AWPF</td>
<td>NA</td>
</tr>
<tr>
<td>Phase 3 AWPF</td>
<td>NA</td>
</tr>
<tr>
<td>Phase 4 AWPF</td>
<td>NA</td>
</tr>
</tbody>
</table>

Note: Water supply cost only. Does not include distribution. Includes capital cost of recycled water system. AWPF is total production cost not net cost.

Historic Imported and Local Water Supply Cost

This gap is the cost driver for the GREAT Program.
Rates will continue to rise regardless of whether or not the RW system is completed.

30% reduction in cost per AF with RW

Note: Avg. potable water cost with RW is lower than local water cost due to revenue and incentives for RW.

Stabilized Water Supply Cost – with Ordinance E

Potential short term increase if pumping allocations and conservation credits remain frozen

30% reduction in cost per AF with RW

Note: Avg. potable water cost with RW is lower than local water cost due to revenue and incentives for RW.
Effect on Water Spending

Projected Cumulative Water Spending
(Does not include distribution cost)

- $1.9 billion total spending
- $482 million Net savings
- $302 million Net savings
- $122 million additional economic benefit from water quality
- Direct reuse implementation

Cumulative Water Supply Spending ($ million)

Year

Effective Early Future

$906 million net benefit over the next 30 years

Revenue and Savings from Sale of Recycled Water

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Benefit ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
</tr>
<tr>
<td>Sales Revenue</td>
<td>$4.41</td>
</tr>
<tr>
<td>Local Resource Program Incentive</td>
<td>$0.37</td>
</tr>
<tr>
<td>Savings from Reduced Imports</td>
<td>$7.63</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$4.78</td>
</tr>
</tbody>
</table>
Pumping Credits and Allocations

- Conservation credits
  - City has approximately 44,000 credits
  - Approximate value of $24 million is used to pump and desalt groundwater instead of purchasing imported water

- Pumping Allocations
  - City will earn pumping allocations from deliveries for ag irrigation
  - GMA has frozen the use of these during the drought

Risk Assessment
Risk Assessment

Recycled Water Permits
Assumptions: Ag and ASR use is permitted on schedule.
Risk: Temporary loss of permit to serve ag. customers.
Mitigation: Expand ASR and develop recharge pits sooner. Increase rates 2.8%.
Result: Payback increases 1 yr

Concentrate Collection System Permits
Assumptions: Permit desalter discharge before construction.
Risk: Can’t bypass the WWTP and AWPF.
Mitigation: Retrofit AWPF. Increase O&M cost.
Result: Payback increases less than 1 yr.

Risk Assessment – Worst Case

Worst Case Scenario
Assumptions:
• Construction cost increase 40% over life of project.
• Financing cost increases 25%.
• Inflation doubles.
• The aquifer is balanced.
• City credits are reduced.
• TDS of WWTP effluent continues to rise.
• Ag demand is zero.
• No grants are received.
• Direct reuse is not permitted in the next 30 years.
Risk Assessment – Worst Case

Worst Case Scenario

Mitigation:

- Additional desalter capacity
- Additional ASR wells
- Increase water rates 3.4% per year for 4 years (13.6% total).

(Approximately the same increase for imported water pass through)

Result:

- Payback increases from 19yr to 25yr.
- Reliability and quality benefits are increased due to additional system components.
- Meet public health goals sooner.

Sales Agreement
Recycled Water Management and Use Agreement

Summary of Agreement

• Parties
  • City
  • Pleasant Valley County Water District (PVCWD)
  • United Water Conservation District (UWCD)
  • Houweling Nurseries
  • Reiter Affiliated Companies
  • Southland Sod

• Standard Agreement Format
  • Accommodate Additional Users

• Operations
  • City, United and PVCWD Coordinate Operations and Delivery
  • PVCWD and UWCD Responsibilities
    • Day-to-Day Management
    • Regulatory Compliance
    • Maximize Use of Recycled Water
      • Storage Capacity
      • Distribution Systems
      • Coordinate Use with Other Water Sources
Recycled Water Management and Use Agreement

- **Quantity**
  - Yield: Phase 1 = 7,000 AFY (6.25 MGD)

- **Allocation**
  - 1,800 AFY City (Priority 1)
  - 5,200 AFY Ag (Priorities 2-4)
  - Expansion – open options

- **Term**
  - 10 yr

- **Pricing**
  - Water rates will go up due to State water project price increases

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Recycled Water Management and Use Agreement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(No Groundwater Exchange)</td>
<td>(With Groundwater Exchange)</td>
</tr>
<tr>
<td>1</td>
<td>$1,413</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>$1,340</td>
<td>$650</td>
</tr>
<tr>
<td>3</td>
<td>$1,340</td>
<td>$500</td>
</tr>
<tr>
<td>4</td>
<td>$1,340</td>
<td>$325</td>
</tr>
<tr>
<td></td>
<td>($500 – $115 Management Discount)</td>
<td></td>
</tr>
</tbody>
</table>

- All Prices Subject to Annual Adjustment
- CPI
- Pump Charges
Recycled Water Management and Use Agreement

<table>
<thead>
<tr>
<th>Priority</th>
<th>User / Quality</th>
<th>Reliability</th>
<th>Estimated Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In City / High Quality</td>
<td>High Reliability</td>
<td>1,800 AFY</td>
</tr>
<tr>
<td>2</td>
<td>Out of City Ag / High Quality</td>
<td>High Reliability</td>
<td>2,000 AFY</td>
</tr>
<tr>
<td>3</td>
<td>Out of City Ag / High Quality</td>
<td>As Available</td>
<td>1,500 AFY</td>
</tr>
<tr>
<td>4</td>
<td>Out of City Ag / Blended (UWCD / PVCWD)</td>
<td>As Available</td>
<td>2,700 AFY</td>
</tr>
</tbody>
</table>

Next Steps

- Start plant
  - Golf club
  - Riverpark
  - Industrial
  - Initial ag irrigation
- Complete CIP and rate study
- Council approves CIP and rate plan
- Next projects
  - Permanent pipeline
  - Expand plant – grants
- GMA and United purchases for recharge
Recommendation

- Approve the recycled water agreement.
- Approve the Hueneme Rd pipeline Phase 2 design amendment
- Approve the MND for pipeline alignment

Questions?

“The results of 20 years of hard work just in time”