Implementation of the Regional Recycled Water Program (RRWP)

A NEW source of water for Southern California

Bruce Chalmers – Program Manager - Regional Recycled Water

Los Angeles Area Chamber of Commerce
Energy, Water & Environmental Sustainability Council
October 3, 2019
LA Area Chamber of Commerce
Energy, Water & Environmental Sustainability Council Focus

• Secure safe, reliable and affordable water supplies for Southern California
  – Identify feasible and cost-effective augmentations to imported water to secure long-term water quality and supply of the region

• Ensure resiliency is built into new and existing infrastructure investments
  – Supports a diverse mix of energy and water supplies and delivery systems to ensure critical services are maintained during and after disasters
Agenda

• Metropolitan Water District
• RRWP Background
• Proposed RRWP Facilities
• Raw Water Augmentation Opportunities
• RRWP Benefits and Costs
• Agreements & Arrangements
• Next Steps
Metropolitan Water District

- Nation’s largest wholesaler of water
- 6 counties/26 member agencies
- 19 million people / 5,200 square miles

- $1 trillion regional economy
- Imports water from Northern Sierra and the Colorado River, invests in local projects
Metropolitan Water District

Sources of Water for Southern California

MWD Service Area Local Supplies:

45%
- Los Angeles Aqueduct
- Conservation
- Groundwater
- Recycling
- Desalination

State Water Project 30%

COLORADO RIVER 25%

NORTHERN SIERRA

SACRAMENTO & FEATHER RIVERS

BAY-DELTA

LOS ANGELES AQUEDUCT

COLORADO RIVER AQUEDUCT

UPPER COLORADO RIVER BASIN
RRWP BACKGROUND
RRWP Background

- Diversify regional supplies
- Improve storage and delivery capabilities
- Provide new source of high quality, drought-resistant water
- Increase overall reuse within its system
- Begin beneficial reuse at the Joint Water Pollution Control Plant
- Reduce ocean discharges
RRWP Background

• Development of a new regional water source
  – Up to 150 mgd (168,000 AFY) of purified recycled water
  – Replenish groundwater basins
  – Provide water to industries
  – Connect to Metropolitan’s water treatment plants
RRWP Background
Three-Step Planning Process

- Can it be done?
- What will it cost?
- How should it be done?
- Can it be phased?
- What are the impacts/mitigation?
- Refine project elements
RRWP Background

Demand Characterization

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Existing</th>
<th>Planned</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets Existing Demands on Metropolitan</td>
<td>Current</td>
<td>Expected</td>
<td>Possible</td>
</tr>
<tr>
<td>New Injection Wells Needed</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Significant Operational Changes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
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RRWP Background
Phasing Alternatives
RRWP Background
Recommended Phasing

- Initial Backbone System
- Additional Basin Options
- Future DPR Options

- West Coast Basin Injection Wells
- JWPCP 150-mgd AWT & Pump Station
- Harbor Industrial Users
- Long Beach Injection Wells
- Montebello Forebay Injection Wells
- Rio Hondo Spreading Grounds
- Santa Fe Spreading Grounds
- Pump Station(s)
- Junction Structure
- 60-mgd Pipeline
- Up to 150-mgd Pipeline
- Weymouth Water Treatment Plant
- Yorba Linda Feeder
- East Orange County Feeder #1
- Orange County Spreading Grounds
- Diemer Water Treatment Plant
PROPOSED REGIONAL RECYCLED WATER PROGRAM
Proposed RRWP
Major Facilities
Proposed RRWP Treatment Plant Location

- FORCO (35 acres)
- Full-Scale AWT Site (~52 acres)
- Demonstration Plant Site
- Joint Water Pollution Control Plant (JWPCP)
Proposed RRWP Processes & Facilities

JWPCP Effluent → MBR → Reverse Osmosis → UV/AOP → To Recharge

Rio Hondo Recharge Ponds (WRD)

Conceptual Site Plan
Proposed RRWP Demo Plant

- Pilot Scale Studies (2010-12)
- Feasibility Study Report (Nov. 2016)
- Demonstration Plant
  - Completion of Final Design (Feb. 2017)
  - Construction Completion & Start-up (Sept. 2019)
  - PH 1 Testing (October 2019)
  - PH 2 Testing (January 2021)
Demo Plant Testing and Monitoring

- Primary focus is to demonstrate pathogen removal and achieve regulatory acceptance of MBR
- Water quality will be monitored to ensure treatment goals are met
- LACSD to characterize JWPCP source water and brine/waste streams
• DPR Framework (2019)
  – Enhanced source control
  – Wastewater treatment optimization
  – Higher levels of redundancy through multiple independent barriers
  – More rigorous monitoring
  – Enhanced tools to respond to “off-spec” events
  – System integration that minimizes impacts on blended water quality

• DPR Regulations (2023)
RRWP COSTS & BENEFITS
RRWP Costs & Benefits

<table>
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<tr>
<th>Item</th>
<th>Phase 1 Backbone (2018 Dollars)</th>
<th>Full Program (2018 Dollars)</th>
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</thead>
<tbody>
<tr>
<td>Production Capacity (mgd)</td>
<td>100</td>
<td>150</td>
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<tr>
<td>Capital Program Cost</td>
<td>$2.6 billion</td>
<td>$3.4 billion</td>
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<tr>
<td>Program Unit Cost of Yield ($/AF)</td>
<td>$1,813</td>
<td>$1,826</td>
</tr>
</tbody>
</table>

Allocation of capital & operating costs on overall unit costs of Phase 1 product water:

- Capital: $1,181/AF
- O&M: $631/AF
- Total: $1,813/AF
RRWP Costs & Benefits

Source: 2015 IRP and SCWC, 2018
RRWP Costs & Benefits

- Local and Regional benefits
- Consistent with Integrated Resources Plan
- Reduces potential future shortages/allocations
- Drought resistant
- Improved water quality
- Increases reservoir storage and raises groundwater levels
- Economy of scale
- Reduced vulnerability to climate change
- Decreased ocean discharges
- Cost competitive to other new sources
- Consistent with legislative mandate to expand water recycling
Agreements & Arrangements

• Potential collaboration/partners
  – LACSD
  – LADWP
  – LACDPW
  – City of Long Beach
  – Upper San Gabriel Valley Municipal Water District
  – City of Torrance
  – West Basin Municipal Water District
  – Central Basin Municipal Water District
  – Water Replenish District

• Letters of Interest (LOI)
• Memo of Understanding (MOU)
NEXT STEPS
Next Steps

Workshop #1: Implementation and DPR Considerations

White Paper #1

July 23, 2019

Workshop #2: Planning, Agreements and Financial Considerations

January 2020

White Paper #2

Spring 2020

Board Action on Next Steps

Board Letter

DONE

White Paper #1

January 2020

White Paper #2

Spring 2020

Board Letter
Next Steps

- Three Implementation Approaches
  - Traditional
  - Accelerated Construction
  - Accelerated Deliveries
Next Steps

**Support Board Action**
- Investigate Implementation Approaches
- Additional studies
- Prepare detailed schedules
- Determine design responsibilities
- Refine costs
- Letters of Interest/Agency Collaboration
- DPR regulatory coordination
- Climate Action Plan (CAP)

**After Board Authorization**
- Programmatic EIR/Tiered Reports/CEQA support
- Preliminary Engineering
- Complete Demo Plant testing
- Additional studies
- Permitting coordination
- MOUs
A NEW SOURCE OF WATER FOR SOUTHERN CALIFORNIA

Water is too precious to use just once. So the Metropolitan Water District of Southern California is making a major investment in a potential water recycling project that will reuse water currently sent to the ocean.

www.mwdh2o.com/RRWP

For social media: Use #recycledwater, tag @mwdh2o and @SanDistricts