Special Water Planning and Environmental Committee Meeting

November 12, 2020
Urban Water Management Plan

- Serves as long-range planning document

- Follows guidelines prescribed by law
  - Evaluates supplies and demands over minimum 20-year planning horizon
  - Forecasts demands for normal, dry, multiple-dry years
  - Does **not** forecast high/low range of demands

- Documents supply availability for compliance with state laws
  - Senate Bills 610 and 221
## 2020 UWMP Previous Activities

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Month/Year</th>
</tr>
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<tbody>
<tr>
<td>Board approved contract with Hazen and Sawyer</td>
<td>September 2018</td>
</tr>
<tr>
<td>Demand forecast kick-off meeting with member agencies</td>
<td>October 2018</td>
</tr>
<tr>
<td>Presented to Board on 2020 UWMP / Board approved contract with Woodard &amp; Curran</td>
<td>January 2020</td>
</tr>
<tr>
<td>Collected local supply projections from member agencies</td>
<td>February – May 2020</td>
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<tr>
<td>Coordination meeting with member agencies</td>
<td>March 2020</td>
</tr>
<tr>
<td>Reviewed preliminary demand forecast projections with individual member agencies</td>
<td>September – October 2020</td>
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</tbody>
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Today’s Presentations

1. Update on Preparation of 2020 UWMP
   - Alexi Schnell – Water Authority

2. Preliminary 2045 Baseline Demand Forecast, Water Conservation Savings, Water Resources Mix
   - Tim Bombardier – Water Authority
   - Rachel Cortes – San Diego Association of Governments (SANDAG)
   - Elizabeth Lovsted – Water Authority
   - Dr. Tom Chesnutt – A&N Technical Services
   - Dr. Jack Kiefer – Hazen and Sawyer
Update on Preparation of 2020 Urban Water Management Plan

Alexi Schnell, Water Authority
Urban Water Management Planning Act

- Part of California Water Code
- Requires urban water suppliers to submit UWMP to DWR in years ending in one and six
  - Urban water supplier is agency that provides water for municipal purposes to >3,000 customers or supplies >3,000 acre-feet of water annually
  - Excludes: City of Del Mar, Yuima MWD, Camp Pendleton Marine Corps Base
- UWMP must be submitted by July 1, 2021
Senate Bill 606 & Assembly Bill 1668

- Signed by Governor in 2018
- Provides for long-term improvements in water conservation and drought planning, including
  - Water Shortage Contingency Plan
  - Drought Risk Assessment
  - Planning for five consecutive dry years
- Many implementation details under development
  - Water use efficiency standards
  - Stakeholder workgroups formed August 2019
Overview of 2020 UWMP

- 11 sections
- 11 appendices
- Worked collaboratively with member agencies
  - Section 2 – Water Demands
  - Section 5 – Member Agency Local Supplies
Section 1 – Introduction

- Background on California Urban Water Management Planning Act
- Key legislation affecting 2020 UWMP requirements

Section 2 – Water Demands

- Projected regional baseline demand demand forecast
- Adjustments for future conservation savings
- Projected member agency water demands on Water Authority
Section 3 – Demand Management

- Role of water use efficiency
- Overview of water use efficiency programs, achievements, resources
- Public outreach programs and strategies, including sponsored legislation

Section 4 – Water Authority Supplies

- Identify supply sources
- Actions to diversify
Section 5 – Member Agency Supplies

- Development and management of local resources
- Projected yields from 2025 to 2045
  - Surface water
  - Groundwater
  - Recycled water
  - Potable reuse
  - Seawater desalination
  - Water transfers
Section 6 – Metropolitan Water District of Southern California Supplies

- Supply sources
- Reliability and environmental considerations of supply sources

Section 7 – Water Quality

- Water quality of supply sources
- Impacts on supply reliability
Section 8 – Integrated Regional Water Management Plan

- Background on IRWM planning
- IRWM grant projects

Section 9 – Water Supply Reliability

- Projected mix of resources (verifiable supplies) to meet future demand
- Assessment of water supply reliability
Section 10 – Scenario Planning

- Reliability of region’s future resource mix
- Management strategies to address uncertainties

Section 11 – Water Shortage Contingency Planning

- Water Shortage Contingency Plan
- Drought risk assessment
## Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>California Water Code Changes</td>
</tr>
<tr>
<td>B</td>
<td>Water Authority 2020 UWMP Implementation Documents</td>
</tr>
<tr>
<td>C</td>
<td>DWR 2020 UWMP Checklist</td>
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<tr>
<td>D</td>
<td>Documentation of Water Authority Supplies</td>
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<tr>
<td>E</td>
<td>Water Shortage Contingency Plan</td>
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<tr>
<td>F</td>
<td>Member Agency Local Supply Projections</td>
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<td>G</td>
<td>Model Drought Ordinance</td>
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<td>H</td>
<td>Water Authority Demands Provided by Metropolitan</td>
</tr>
<tr>
<td>I</td>
<td>Distribution System Water Losses</td>
</tr>
<tr>
<td>J</td>
<td>Water Authority’s Energy Intensity Calculations</td>
</tr>
<tr>
<td>K</td>
<td>DWR’s Standardized Tables</td>
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</table>
Questions?
Preliminary 2045 Baseline Demand Forecast, Conservation Savings, and Water Resources Mix

Tim Bombardier, Water Authority
## Presentation Outline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>Demand Forecast Background</td>
<td>Tim Bombardier</td>
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<tr>
<td></td>
<td>Water Authority</td>
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<tr>
<td>SANDAG Growth Forecast</td>
<td>Rachel Cortes, PhD</td>
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<tr>
<td></td>
<td>SANDAG</td>
</tr>
<tr>
<td>CWA–MAIN Model</td>
<td>Dr. Jack Kiefer</td>
</tr>
<tr>
<td></td>
<td>Hazen &amp; Sawyer</td>
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<tr>
<td>Water Conservation Estimates</td>
<td>Elizabeth Lovsted</td>
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<td>AWE Conservation Tool</td>
<td>Dr. Tom Chesnutt</td>
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<td>A&amp;N Technical Services</td>
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<td>Long-Range Demand Forecast</td>
<td>Tim Bombardier</td>
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<td></td>
<td>Water Authority</td>
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<tr>
<td>Water Resources Mix</td>
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Demand Forecast Background

- 25-year planning horizon
  - Current period extends to 2045

- Multiple regression statistical modeling approach

- Incorporates historic member agency demand

- Linked to San Diego Association of Governments (SANDAG) Regional Growth
Baseline Demand Forecast + Additional Demand Increment - Conservation = Long Range Demand Forecast
1988 Proposition C tasked SANDAG with developing regional growth management strategy

Regional strategy includes a water element to coordinate planning for water

SANDAG and the Water Authority entered into a Memorandum of Agreement in 1992
Land-Use and Water Supply Coordination in the San Diego Region

- Cities/County General Plans
- SANDAG’s Regional Growth Forecast
- Projected Water Demands
- Urban Water Management Plan

- SANDAG Regional Plan
- Water Assessment (SB 610) Written Verification (SB 221)
- Cities/County Plans & Policies
Purpose of SANDAG Forecast
Population growth will continue to be "home-grown"
Population, Jobs and Housing: 2016-2050
Accurate Population Forecast Track Record
Regionwide Projections

- Historic Economic Trends
- National Economic Projections
- Demographic Trends
- Existing Demographic Characteristics
- Peer Review and Board Input
Key Changes in Forecast Methodology

Change in population forecast approach
Department of Finance projections as regional control

Modification to housing structure definition
All housing units on land uses not SFA or SFD are classified as MF
Full utilization of all jurisdiction’s developable land capacities
Subregional Forecast Starts with Local Land Use Input
Summary

Methodology changes

Growing and ageing population

Concentration on multi-family development and urban-infill
Growth in SANDAG Forecast between 2025 to 2045

<table>
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<tr>
<th>Forecast Variable</th>
<th>Growth in Water Authority Service Area</th>
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<tr>
<td>Population</td>
<td>+347,000</td>
</tr>
<tr>
<td>Single-Family Housing Units</td>
<td>+58,000</td>
</tr>
<tr>
<td>Multi-Family Housing Units</td>
<td>+174,000</td>
</tr>
<tr>
<td>Employment Counts</td>
<td>+209,550</td>
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</table>
## Comparison of SANDAG Series 13 & Series 14 Forecasts for Year 2040

### Water Authority Service Area

<table>
<thead>
<tr>
<th>Forecast Variable</th>
<th>Series 13</th>
<th>Series 14</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>3,825,041</td>
<td>3,709,299</td>
<td>-115,742 (-3.03%)</td>
</tr>
<tr>
<td>Single-Family Housing Units</td>
<td>729,880</td>
<td>738,997</td>
<td>9,117 (1.25%)</td>
</tr>
<tr>
<td>Multi-Family Housing Units</td>
<td>624,970</td>
<td>612,129</td>
<td>-12,841 (-2.05%)</td>
</tr>
<tr>
<td>Employment Counts</td>
<td>1,756,533</td>
<td>1,876,271</td>
<td>119,738 (7%)</td>
</tr>
</tbody>
</table>
Questions?
CWA-MAIN Model

Tim Bombardier, Water Authority
Dr. Jack Kiefer, Hazen and Sawyer
Approved contract with Hazen & Sawyer for not to exceed amount of $529,603

Tasks aggregated into 5 major groups
1. Data collection and database development
2. Re-estimation of sectoral models
3. Development of “Baseline” normal year demand forecast
4. Construction dry-year demand forecast scenarios
5. Stakeholder meetings and comprehensive project report
Baseline Demand Forecast Model (CWA–MAIN)

- Forecasting framework initially developed by Army Corps of Engineers
- Model customized to project member agency level water demands by sector
- Represents normal–year demand projections
- Reflects only conservation savings level achieved during historic dataset
CWA–MAIN Modeling Approach

- Water Authority forecast = sum of member agency level projections
- Forecast generated by major sector
  - Single-family
  - Multi-family
  - Non-residential
  - Agriculture
CWA–MAIN Modeling Approach

Models use a “rate of use x driver variable” approach

- **Predictive drivers of demand**
  - Housing units
  - Employment counts
  - Agricultural acres

- **Rate of use factors**
  - Gallons per household
  - Gallons per employee
  - Gallons per acre

\[
Q_{SDCWA} = \sum_{j} Q_{MA}
\]

\[
Q_{MA} = \sum_{i} N_{i} \cdot q_{i}
\]

\[
q_{i} = f(x)
\]
### Modeling Variables

Example of variables used to model historical variability in water use among and within member agencies

<table>
<thead>
<tr>
<th>Residential Sectors</th>
<th>Nonresidential Sector</th>
<th>Agricultural Sector</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Temperature</td>
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<tr>
<td></td>
<td>Precipitation</td>
<td></td>
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<tr>
<td></td>
<td>Price</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water Shortage Restrictions</td>
<td></td>
</tr>
<tr>
<td>Median Income</td>
<td>Mix of Crops</td>
<td></td>
</tr>
<tr>
<td>Household Size</td>
<td>Mix of Industries</td>
<td>Water Requirements</td>
</tr>
<tr>
<td>Housing Density</td>
<td></td>
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</tbody>
</table>
## Influence of SANDAG Projections on 2045 Baseline Demand Forecast

<table>
<thead>
<tr>
<th>Variable</th>
<th>Direction of SANDAG Projections</th>
<th>Influence on Demand Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied Housing Units</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Real Household Income</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>MF Housing Density</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>SF Housing Density</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Total Employment</td>
<td>+</td>
<td>+</td>
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</tbody>
</table>
Key Features of Econometric Model

- Incorporates price elasticity as a forecast variable
- Impact of water rates, land use, economics, and demographics on demand
- Model allows for development of alternative demand scenarios based on:
  - Dry years
  - Climate change
Baseline Forecast Development

- Member Agency Water Use Survey
- Historic SANDAG Demographics
- Historic Price and Weather Data

Water Use Modeling Database

Development of Predictive Models

Testing and Calibration of Predictive Models

SANDAG Series 14 Forecast

Preliminary Baseline Water Demand Forecast
Updated CWA–MAIN Model Features

- Incorporates economic index to account for water use impacts driven by the economy
- Additional granularity for weather response at the member agency level
- Multi-year model calibration balances and accounts for
  - Economic “boom” and “bust” cycles
  - Pre- and post-drought demand patterns
  - Prevailing water efficiency levels
Modeling Challenges

- Recent statewide emergency water use restrictions significantly impacted water demands
- Water use restrictions delayed recovery process from the Great Recession and earlier drought period
- Changes in SANDAG’s forecasting methodology
  - Some variables estimated differently
  - Others no longer produced
Trend “resets” have happened before

Timing and severity of future shocks are unknown

These situations best handled through monitoring and forecast updates
Regional Factors Influencing Baseline Demand Forecast

- Calibration period anchoring forecast
  - Lower unit demand
  - Room for recovery

- Pricing assumptions
  - Wholesale rate path 2020–2025
  - Rate of inflation post–2025

- Densification of development
  - Greater percentage of multi-family units
  - Higher density in both single-family and multi-family

- Relatively slow income growth
Questions?
Baseline Demand Forecast

Tim Bombardier, Water Authority
Additional Demand Increment

- Developed outside of the CWA–MAIN model
- Demands computed through collaborative process with member agencies and SANDAG
- Used to capture incremental demands associated with:

  1. **Accelerated Forecast Growth** – demand tied to growth that could develop on a faster pace than projected (not agency specific)
  2. **Near-term Annexations** – potential member agency annexations in the next 5 years (agency specific)
## Draft Baseline Demand Forecast (AF) (before future conservation)

<table>
<thead>
<tr>
<th>Baseline Water Demand Forecast</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal &amp; Industrial</td>
<td>569,674</td>
<td>595,267</td>
<td>620,242</td>
<td>642,562</td>
<td>661,587</td>
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<tr>
<td>Agriculture</td>
<td>46,719</td>
<td>45,993</td>
<td>45,266</td>
<td>45,218</td>
<td>45,168</td>
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<tr>
<td>Accelerate Forecast Growth</td>
<td>2,072</td>
<td>3,817</td>
<td>5,526</td>
<td>7,298</td>
<td>9,051</td>
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<tr>
<td>Near-term Annexations</td>
<td>5,648</td>
<td>6,168</td>
<td>6,168</td>
<td>6,168</td>
<td>6,168</td>
</tr>
<tr>
<td>Baseline Demand Forecast</td>
<td>624,112</td>
<td>651,245</td>
<td>677,202</td>
<td>701,247</td>
<td>721,974</td>
</tr>
</tbody>
</table>
Comparison of Baseline Demand Forecasts (TAF)
Demand Forecast Development

Baseline Demand Forecast + Additional Demand Increment - Conservation = Long Range Demand Forecast
Questions?
Water Use Efficiency

Elizabeth Lovsted, Water Authority
Dr. Tom Chesnutt, A&N Technical Services
Factors Impacting Water Use and Efficiency

- Economic recession/growth
- Restrictions due to drought
  - MWD allocation
  - Statewide regulations
- Land use changes
- Conservation programs
- Climate
- Weather
Water Use Efficiency Formula

- An aggregate indoor and outdoor use target and losses in AF/Year will be calculated for each retail agency.

\[
\text{Target Amount} = (\text{Indoor Standard}) + (\text{Outdoor Standard}) + \text{Variances} + (\text{Losses}) + (\text{Bonus})
\]

- Bonus (up to 15%) for qualifying potable reuse projects.

- Performance measures to be developed for CII.
Actual targets unknown
- Standards to be adopted in 2022
- Estimate 20% of water use above target and 20% reduction in water use required (4% regionally)
- Assume equivalent actions across region
- Actual impact will vary

Water Use Vs Target (Illustrative Use Only)
Water Conservation Assumptions

- Use Alliance for Water Use Efficiency (AWE) Conservation Tool
- Accounts for passive and active water savings
- Builds on conservation added since 2018
- "Steady state" active program
- Active savings transitions to passive
- Model Water Efficient Landscape enforcement
- Water loss control
San Diego County Water Authority
Water Conservation Savings Projections

Tom Chesnutt
tom@antechserv.com
760.942.5149
A & N Technical Services, Inc.
839 Second Street Suite 5
Encinitas, CA 92024
www.antechserv.com

November 12, 2020
What is the AWE Water Conservation Tracking Tool?

• Industry standard application listed in the California Department of Water Resources Urban Water Management Plan (UWMP) Guidebook for 2015
• It is used by more than one hundred water agencies in the United States
• Spreadsheet-based application that enables the evaluation of different conservation scenarios
• Includes pre-defined conservation measures and provides flexibility for customization
• Estimates conservation impact on a utility’s revenue requirement
• Estimates energy and GHG emission reductions from conservation
Tracking Tool Inputs and Outputs

Model Outputs

- Water Savings
- Benefit-Cost Analysis
- Revenue/Rate Impacts
- Energy Savings
Evaluate Water Saving Potential Specific to Each Agency

- Evaluate potential water savings through 2045 for the various customer classes
- Potential for market transformation programs to support higher efficiency
- Number of water saving devices and the amount of turf replacement that occurred through current and past programs
- Number of water saving devices and water efficient landscapes installed due to current regulations and requirements
- Water savings quantitatively estimated and compared to observed demand
- Cost per acre foot of water saved estimated for each device/program
- Determination of the number of devices, by type, that can be installed
Welcome to the AWE Conservation Tracking Tool. This model is designed to help you plan and track water conservation program activity and results. It provides a basic analytical framework for estimating the effects of plumbing/appliance standards and planned conservation programs on future water use, utility costs and sales revenue, and average customer rates and bills. It evaluates these effects in terms of costs and benefits from the perspectives of the utility (and its ratepayers) and program participants. Costs and benefits are separately calculated for each conservation measure and can be used to help screen measures and construct program portfolios.

The tracking tool is organized as a series of worksheets. There are three worksheet groups: (1) user input worksheets, (2) tracking tool output worksheets, (3) and background calculation and data storage worksheets. You need only concern yourself with the first two groups. Worksheets in the third group are accessible if you would like to audit the calculations made by the tracking tool, but knowledge of them is not recommended to use the tracking tool.

User Input worksheets will include both cells that take inputs from you as well as cells that contain formulas. Changing the formulas will change the way the tracking tool works and therefore is not recommended. Data input cells are distinguished from all other cells in the model by their light yellow fill. Data input cells look like this: $500,000.

The first two user input worksheets should be completed sequentially: 1. Common Assumptions then 2. Specify Demands. This will ensure the tracking tool has the basic data it needs to get started. After that, the remaining user input worksheets can be completed in any order. The last user input worksheet—6. Enter GHG Emission Factors (Optional) if you want the tracking tool to calculate GHG emission reductions from plumbing/appliance standards and planned conservation. The User Guide provides lots of additional information and help if you get stuck.

You can use the model schematic below to navigate to different parts of the model, or simply use Excel’s standard worksheet navigation methods.

### User Input Sheets
1. Common Assumptions
2. Specify Demands
3. Enter Utility Avoided Costs
4. Define Activities
5. Enter Annual Activity
6. Enter GHG Emission Factors (Optional)

### Tracking Tool Output Sheets
- Activity Savings Profiles
- Water Savings Summary
- Utility Revenues and Rates
- Utility Costs and Benefits
- Water Loss Comparison
- Customer Costs and Benefits
- GHG Reduction Benefits
Quantify Active & Passive Savings

SDCWA Annual Water Savings (AFY): Passive and Active Conservation
AWE Water Conservation Tracking Tool

- Passive: Plumbing Code after 2018
- Active: Utility Conservation Programs
- Passive: Model Water Efficient Landscape Ordinance
- Passive: New Landscape Persistence (SWAT, Market Transformation)
- Active: Retail Water Loss Control
Calculated Conservation Savings

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-2018 Conservation</th>
<th>Conservation Savings Estimate</th>
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<tbody>
<tr>
<td>2025</td>
<td></td>
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<tr>
<td>2030</td>
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<td>2035</td>
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<tr>
<td>2045</td>
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Included in baseline projection
## Conservation Savings Estimate

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<th>2035</th>
<th>2040</th>
<th>2045</th>
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<tr>
<td>Active</td>
<td>38,667</td>
<td>33,415</td>
<td>32,263</td>
<td>32,200</td>
<td>27,600</td>
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<td>Incremental</td>
<td>23,876</td>
<td>33,609</td>
<td>40,846</td>
<td>49,475</td>
<td>58,104</td>
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<tr>
<td>Passive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Conservation (Active + Passive)</td>
<td>62,543</td>
<td>67,024</td>
<td>73,109</td>
<td>81,675</td>
<td>85,718</td>
</tr>
</tbody>
</table>

Note: Total regional conservation estimates expected to meet conservation targets. Individual retailer implementation will vary.
Questions?
Long-Range Demand Forecast

Tim Bombardier, Water Authority
Demand Forecast Development

Baseline Demand Forecast

+ Additional Demand Increment

- Conservation

= Long Range Demand Forecast
Trends in Water Authority Total Water Demand

Total Demand
(Thousands of Acre-Feet)


450 500 550 600 650 700 750
Trends in Water Authority Total Water Demand

Total Demand
(Thousands of Acre-Feet)

- Supply Shortage
- Mandatory Use
- Restrictions
- Supply Allocations

450 500 550 600 650 700 750

San Diego County Water Authority
Trends in Water Authority Total Water Demand

Total Demand
(Thousands of Acre-Feet)


- Supply Shortage
- Mandatory Use
- Restrictions
- Supply Allocations
- Recession
- Supply Shortage
- Mandatory Use
- Restrictions
- Supply Allocations
Trends in Water Authority Total Water Demand

Total Demand
(Thousands of Acre-Feet)

- Supply Shortage
- Mandatory Use Restrictions
- Supply Allocations

- Recession
- Supply Shortage
- Mandatory Use Restrictions
- Supply Allocations

- Emergency Proclamation
- Mandatory Use Restrictions
- Supply Allocations


Demand Levels: 450, 500, 550, 600, 650, 700, 750, 800 thousand acre-feet
Normal-Year Conditions?

Rainfall (inches) vs. Total Demand (TAF)

- Rainfall
- Total Demand

Year:
- 2000: 6
- 2002: 3
- 2004: 5
- 2006: 5
- 2008: 4
- 2010: 9
- 2012: 8
- 2014: 7
- 2016: 5
- 2018: 3
- 2020: 11

Total Demand:
- 2000: 400 TAF
- 2002: 450 TAF
- 2004: 500 TAF
- 2006: 675 TAF
- 2008: 750 TAF
## Long-Range Water Demand Forecast (AF)

<table>
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<td>721,974</td>
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<tr>
<td><strong>Conservation Savings (post-2018)</strong></td>
<td>-62,543</td>
<td>-67,024</td>
<td>-73,109</td>
<td>-81,675</td>
<td>-85,718</td>
</tr>
<tr>
<td><strong>Long-Range Water Demand Forecast</strong></td>
<td>561,569</td>
<td>584,221</td>
<td>604,093</td>
<td>619,572</td>
<td>636,256</td>
</tr>
</tbody>
</table>
Comparison of Long-Range Demand Forecasts (TAF)

Long-Range Demand Projection (TAF)

Year: 2025, 2030, 2035, 2040, 2045

- 2015 UWMP
- 2020 UWMP

- 2025: 562 TAF
- 2030: 584 TAF
- 2035: 604 TAF
- 2040: 620 TAF
- 2045: 636 TAF
- 2015 UWMP: 648 TAF
- 2020 UWMP: 677 TAF
- 2015 UWMP: 694 TAF
- 2020 UWMP: 719 TAF
Questions?
Member Agency Local Supply Projections

- Provided by member agencies
  - Contacted member agencies in February 2020 to solicit data

- Types of member agency local supply projects
  - Surface water
  - Water Recycling
  - Groundwater
  - Groundwater Recovery
  - Seawater desalination
  - Potable reuse
  - Water transfers
Local Supply Project Categorization

- Determined by member agency
- Categorized into three groups

<table>
<thead>
<tr>
<th>Project Category</th>
<th>General Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verifiable</td>
<td>Adequate documentation on implementation: e.g. CEQA certification, permits satisfied, contracts executed. These supplies are utilized in the reliability assessment.</td>
</tr>
<tr>
<td>Additional Planned</td>
<td>Feasibility phase complete</td>
</tr>
<tr>
<td></td>
<td>Continue to fund advanced planning efforts</td>
</tr>
<tr>
<td>Conceptual</td>
<td>Pre-planning or pre-feasibility analysis phase</td>
</tr>
</tbody>
</table>
## Preliminary Verifiable Local Supply Projections (AF)

<table>
<thead>
<tr>
<th>Local Supply</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water</td>
<td>46,542</td>
<td>46,442</td>
<td>46,342</td>
<td>46,242</td>
<td>46,242</td>
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<tr>
<td>Water Recycling</td>
<td>54,805</td>
<td>58,305</td>
<td>58,405</td>
<td>58,505</td>
<td>58,605</td>
</tr>
<tr>
<td>Groundwater</td>
<td>22,070</td>
<td>23,270</td>
<td>23,270</td>
<td>19,770</td>
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<tr>
<td>Groundwater Recovery</td>
<td>9,000</td>
<td>9,000</td>
<td>9,000</td>
<td>9,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Seawater Desalination</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Potable Reuse</td>
<td>33,042</td>
<td>53,202</td>
<td>53,202</td>
<td>53,202</td>
<td>53,202</td>
</tr>
<tr>
<td>San Luis Rey Water Transfers</td>
<td>15,800</td>
<td>15,800</td>
<td>15,800</td>
<td>15,800</td>
<td>15,800</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>187,259</td>
<td>212,019</td>
<td>212,019</td>
<td>208,519</td>
<td>208,619</td>
</tr>
</tbody>
</table>
# Water Authority Supplies (AF)

<table>
<thead>
<tr>
<th>Supply</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>IID Water Transfer</td>
<td>200,000</td>
<td>200,000</td>
<td>200,000</td>
<td>200,000</td>
<td>200,000</td>
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<tr>
<td>AAC and CC Lining</td>
<td>78,700</td>
<td>78,700</td>
<td>78,700</td>
<td>78,700</td>
<td>78,700</td>
</tr>
<tr>
<td>Transfers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seawater Desalination</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Totals</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
</tr>
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</table>
## Preliminary Verifiable Water Resources Mix, Normal Weather Year (AF)

<table>
<thead>
<tr>
<th></th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Authority Supplies</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
<td>328,700</td>
</tr>
<tr>
<td>Member Agency Verifiable Local Supplies</td>
<td>187,259</td>
<td>212,019</td>
<td>212,019</td>
<td>208,519</td>
<td>208,619</td>
</tr>
<tr>
<td>MWD</td>
<td>45,610</td>
<td>43,502</td>
<td>63,374</td>
<td>82,353</td>
<td>98,937</td>
</tr>
<tr>
<td><strong>Total Projected Supplies</strong></td>
<td><strong>561,569</strong></td>
<td><strong>584,221</strong></td>
<td><strong>604,093</strong></td>
<td><strong>619,572</strong></td>
<td><strong>636,256</strong></td>
</tr>
<tr>
<td><strong>Long-Range Water Demand Forecast</strong></td>
<td><strong>561,569</strong></td>
<td><strong>584,221</strong></td>
<td><strong>604,093</strong></td>
<td><strong>619,572</strong></td>
<td><strong>636,256</strong></td>
</tr>
</tbody>
</table>
Questions?
## Next Steps

<table>
<thead>
<tr>
<th>Action</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribute Technical Review Draft 2020 UWMP to member agencies for internal review</td>
<td>December 2020</td>
</tr>
<tr>
<td>Distribute Public Review Draft 2020 UWMP to Board and public</td>
<td>January 2021</td>
</tr>
<tr>
<td>Public hearing on Public Review Draft 2020 UWMP</td>
<td>March 2021</td>
</tr>
<tr>
<td>Board considers approval of Final Draft 2020 UWMP</td>
<td>April 2021</td>
</tr>
<tr>
<td>Submit approved 2020 UWMP to DWR</td>
<td>June 2021</td>
</tr>
</tbody>
</table>