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Please mute your microphone during the meeting to reduce background noise. Click on the microphone icon to unmute your microphone if needed.
Call to Order

Board of Directors Workshop - Resources
Thursday, August 6, 2020

Chairperson – Director Hayes
Vice-Chair – Director Harrison
Introductions

Following the introduction of Directors and District staff, participants may use this time to state their name and agency/affiliation in order to be included in the formal record of attendees.
Public Comment

Any person may address the Board on matters within its jurisdiction.

- Please use the chat feature on the Zoom toolbar or digitally raise your hand to let the moderator know you would like to make a comment.
Discussion Item 4.1

Bob Tincher, PE, MS – Deputy GM/Chief Water Resources Officer

Results of Study to Estimate the Usable Groundwater Storage of the Arlington, Rialto-Colton, Riverside and San Bernardino Groundwater Basins

Staff Recommendation
Receive and file.
Usable Groundwater in Storage Estimation for the San Bernardino, Rialto-Colton, Riverside, and Arlington Groundwater Basins

August 2020
Cumulative Change in Storage for the SBBA with and without SWP Water

- Cumulative Change in Storage (CCIS)
- CCIS without SWP
Total Usable Storage Study

• Estimate the Total Amount of Usable Storage
• Identify impacts of decreasing storage in extended drought
• Estimate the Amount of Groundwater That Can Be Extracted Using Existing Wells
• Identify Facility Needs, if Any, to Access Groundwater if Water Levels Decline
• Estimate the Number of Years of Groundwater in Storage
Total Usable Storage Study

- Estimate the Total Amount of Usable Storage
- Identify impacts of decreasing storage in extended drought
- Estimate the Amount of Groundwater That Can Be Extracted Using Existing Wells
- Identify Facility Needs, if Any, to Access Groundwater if Water Levels Decline
- Estimate the Number of Years of Groundwater in Storage
Depth to Water for Total Usable Storage Calculation
## Impacts of an Extended Drought

<table>
<thead>
<tr>
<th>When Subsidence Risk Increases</th>
<th>When Low Yield Areas Stop Producing Water</th>
<th>When Wells Need to be Deepened</th>
<th>When Water for Habitat is Affected</th>
<th>When Water Levels Fall Below 1961 Decree Requirements</th>
<th>When Water Levels Fall Below 1969 Judgment Requirements</th>
</tr>
</thead>
</table>

*Note: The table above outlines various impacts of an extended drought.*
Increased Subsidence Risk Elevation

- **990** Control Point with the Lowest Historical Water Level Measurement, ft amsl (1966-2016)
- **800** Increased Subsidence Risk Elevation in Area of Historical Subsidence, ft amsl
- Groundwater Flow Barrier
- Pressure Zone
Lower Yield Zones

“Fringe Areas”

Annual Average Pumping, acre-ft/yr (2012-2016)

- Production Below 100 acre-ft/yr
- Production Above 100 acre-ft/yr
- Area of Low Production Yield
- Groundwater Flow Barrier
Area of Rising Water for Habitat

- Area of Rising Groundwater
- Groundwater Flow Barrier
San Bernardino Basin

- Total Usable Storage: 5,690,000 acre-ft
- Current Groundwater in Storage: 4,716,000 acre-ft
- When Low Yield Areas Stop Producing Water: 4,465,000 acre-ft
- When Wells Need to be Deepened: 3,236,000 acre-ft
- When Subsidence Risk Increases: 2,690,000 acre-ft
San Bernardino Basin Usable Storage
(in acre-feet)

Usable Storage: 5,690,000 acre-feet
(constrained by liquefaction potential)

When some wells need to be deepened: 3,236,000 acre-feet
Pumping from the San Bernardino Basin
Rialto-Colton Basin

Amount of Groundwater Storage, acre-ft

- Total Usable Storage (1,749,000 acre-ft)
- Current Groundwater in Storage (1,530,000 acre-ft)
- When Water Levels Fall Below 1969 Judgment Requirements (1,527,000 acre-ft)
- When Low Yield Areas Stop Producing Water (1,278,000 acre-ft)
- When Water Levels Fall Below 1961 Decree Requirements (1,090,000 acre-ft)
- When Wells Needs to be Deepened (784,000 acre-ft)

(2.5 million, USGS)
Rialto-Colton Basin Storage
(in acre-feet)

Usable Storage: 1,749,000

When some wells need to be deepened: 784,000 acre-feet
Riverside Basin

- Total Usable Storage (810,000 acre-ft)
- Current Groundwater in Storage (722,000 acre-ft)
- When Water Levels Fall Below 1969 Judgment Requirements (720,000 acre-ft)
- When Water for Habitat is Affected (688,000 acre-ft)
- When Low Yield Areas Stop Producing Water (558,000 acre-ft)
- When Wells Need to be Deepened (349,000 acre-ft)
Arlington Basin
More Usable Storage than the SWP!

- **Total Usable Storage**
  - SBB, 5,690,000
  - RCB, 1,749,000
  - RB, 810,000
  - AB, 95,000

- **Sites Reservoir**
  - 1,500,000

- **State Water Project**
  - 5,746,790

The diagram shows the storage capacities of different reservoirs and projects compared to the State Water Project (SWP).
Total Usable Storage Study

- Estimate the Total Amount of Usable Storage
- Identify impacts of decreasing storage in extended drought
- Estimate the Amount of Groundwater That Can Be Extracted Using Existing Wells
- Identify Facility Needs, if Any, to Access Groundwater if Water Levels Decline
- Estimate the Number of Years of Groundwater in Storage
Groundwater Access Using Existing Wells

- Arlington: 95,000
- Riverside: 43% (461,700)
- Rialto-Colton: 45% (699,600)
- San Bernardino: 57% (1,877,700)

Legend:
- **Gray**: Not Accessible
- **Blue**: Accessible
Groundwater Access Using Existing Wells

Accessible

Not Accessible
Total Usable Storage Study

• Estimate the Total Amount of Usable Storage
• Identify impacts of decreasing storage in extended drought
• Estimate the Amount of Groundwater That Can Be Extracted Using Existing Wells
• Identify Facility Needs, if Any, to Access Groundwater if Water Levels Decline
• Estimate the Number of Years of Groundwater in Storage
Pumping Reduction of Existing Wells Below Well Deepening Elevation

-67%  -60%  -62%

San Bernardino  Rialto-Colton  Riverside  Arlington

Above  Below
# Wells to Access Deeper Groundwater

<table>
<thead>
<tr>
<th>Basin</th>
<th>Number of Wells that are Currently Screened to Bedrock(^1)</th>
<th>Number of Wells that Need to Be Deepened to Extract Additional Groundwater(^2)</th>
<th>Number of New Wells that May be Added at Identified Locations for Additional Pumping(^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBBA</td>
<td>13</td>
<td>77</td>
<td>14</td>
</tr>
<tr>
<td>Rialto-Colton</td>
<td>7</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Riverside</td>
<td>1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Arlington</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

1. Wells with average pumping greater than 250 gpm were used to estimate the quantity of wells that are currently screened to bedrock.

2. Wells with additional capacity less than 100 gpm after deepening were excluded (refer to Tables 1-3 in TM 2 for more details).

3. Locations were identified based on areas favorable for additional extraction (see Figure 13).
Potential Wells That Could Be Deepened

17 Pumping Well Location and ID
(See Tables 1-3 for Potential Deepening Depths)

Groundwater Flow Barrier

Groundwater Basin
- San Bernardino Basin Area
- Rialto-Colton
- Riverside
- Arlington
Areas for Additional Pumping

Annual Average Pumping, acre-ft/yr (2012-2018)
- Production Below 100 acre-ft/yr
- Production Above 100 acre-ft/yr

Saturated Thickness, ft
- < 100
- 100 - 200
- 200 - 300
- 300 - 400
- > 400

Groundwater Flow Barrier
Total Usable Storage Study

- Estimate the Total Amount of Usable Storage
- Identify impacts of decreasing storage in extended drought
- Estimate the Amount of Groundwater That Can Be Extracted Using Existing Wells
- Identify Facility Needs, if Any, to Access Groundwater if Water Levels Decline
- Estimate the Number of Years of Groundwater in Storage
## Model Scenarios

<table>
<thead>
<tr>
<th>Basin</th>
<th>Model Scenario</th>
<th>Hydrology</th>
<th>State Water Project</th>
<th>Stormwater Recharge</th>
<th>Recycled Water Recharge</th>
<th>Groundwater Pumping*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBBA</td>
<td>SAR-T3-1</td>
<td>Dry</td>
<td>Projected Table A Allocation</td>
<td>SAR SG diversion capacity of 500 cfs</td>
<td>None</td>
<td>2015 Pumping plus a factor of 10% for dry years and an additional reliability factor of 10% on top of this</td>
</tr>
<tr>
<td>Rialto-Colton</td>
<td>SAR-T3-2</td>
<td>Dry</td>
<td>Projected Table A Allocation</td>
<td>SAR SG diversion capacity of 500 cfs</td>
<td>None</td>
<td>2040 Projected Pumping plus a factor of 10% for dry years and an additional reliability factor of 10% on top of this</td>
</tr>
<tr>
<td>Riverside</td>
<td>SAR-T3-3</td>
<td>Average</td>
<td>Projected Table A Allocation</td>
<td>SAR SG diversion capacity of 500 cfs</td>
<td>None</td>
<td>2015 Pumping plus a reliability factor of 10%</td>
</tr>
<tr>
<td>Arlington</td>
<td>SAR-T3-4</td>
<td>Average</td>
<td>Projected Table A Allocation</td>
<td>SAR SG diversion capacity of 500 cfs</td>
<td>None</td>
<td>2040 Projected Pumping plus a reliability factor of 10%</td>
</tr>
<tr>
<td>HCP (1966-1990) Historic</td>
<td>SAR-T3-5</td>
<td>HCP</td>
<td>Projected Table A Allocation</td>
<td>SAR SG diversion capacity of 500 cfs</td>
<td>None</td>
<td>2015 Pumping plus a reliability factor of 10%</td>
</tr>
</tbody>
</table>

*All model scenarios assume existing wells are drilled to bedrock.
Historical Showing Dry, Average, and Wet Years 1966-1990

Average - 1/2 SD = 24.0 inches
Average + 1/2 SD* = 38.1 inches
Average (1931-2019) = 31.0 inches

*SD = Standard Deviation
Dry
Repeat Cycle of Below Average Years
Average Repeat Cycle of Average Years

Average + 1/2 SD* = 38.1 inches
Average (1931-2019) = 31.0 inches
Average - 1/2 SD = 24.0 inches
SBB Years of Groundwater in Storage

<table>
<thead>
<tr>
<th>Model Scenario</th>
<th>No. of Yrs of Groundwater in Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR-T3-1</td>
<td>81</td>
</tr>
<tr>
<td>SAR-T3-2</td>
<td>57</td>
</tr>
<tr>
<td>SAR-T3-3</td>
<td>172</td>
</tr>
<tr>
<td>SAR-T3-4</td>
<td>96</td>
</tr>
<tr>
<td>SAR-T3-5</td>
<td>Infinite</td>
</tr>
</tbody>
</table>
### Rialto-Colton Basin

#### Years of Groundwater in Storage

<table>
<thead>
<tr>
<th>Model Scenario</th>
<th>No. of Yrs of Groundwater in Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR-T3-1</td>
<td>161</td>
</tr>
<tr>
<td>SAR-T3-2</td>
<td>113</td>
</tr>
<tr>
<td>SAR-T3-3</td>
<td>310</td>
</tr>
<tr>
<td>SAR-T3-4</td>
<td>184</td>
</tr>
<tr>
<td>SAR-T3-4</td>
<td>Infinite</td>
</tr>
</tbody>
</table>
Riverside Basin
Years of Groundwater in Storage

<table>
<thead>
<tr>
<th>Model Scenario</th>
<th>No. of Yrs of Groundwater in Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR-T3-1</td>
<td>127</td>
</tr>
<tr>
<td>SAR-T3-2</td>
<td>65</td>
</tr>
<tr>
<td>SAR-T3-3</td>
<td>717</td>
</tr>
<tr>
<td>SAR-T3-4</td>
<td>149</td>
</tr>
<tr>
<td>SAR-T3-5</td>
<td>Infinite</td>
</tr>
</tbody>
</table>
Arlington Basin
Years of Groundwater in Storage

<table>
<thead>
<tr>
<th>Model Scenario</th>
<th>No. of Yrs of Groundwater in Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR-T3-1</td>
<td>14</td>
</tr>
<tr>
<td>SAR-T3-2</td>
<td>7</td>
</tr>
<tr>
<td>SAR-T3-3</td>
<td>25</td>
</tr>
<tr>
<td>SAR-T3-4</td>
<td>7</td>
</tr>
<tr>
<td>SAR-T3-5</td>
<td>26</td>
</tr>
</tbody>
</table>
## Summary of Study Results

<table>
<thead>
<tr>
<th>Basin</th>
<th>Usable Storage (acre-ft)</th>
<th>Current Storage (acre-ft)</th>
<th>%</th>
<th>% Groundwater Accessible (Existing)</th>
<th>% Groundwater Accessible (New)</th>
<th>Storage (years)</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Bernardino (SBB)</td>
<td>5,690,000</td>
<td>4,716,000</td>
<td>83%</td>
<td>43%</td>
<td>57%</td>
<td>57</td>
<td></td>
<td>Infinite</td>
</tr>
<tr>
<td>Rialto-Colton (RCB)</td>
<td>1,749,000</td>
<td>1,530,000</td>
<td>87%</td>
<td>55%</td>
<td>45%</td>
<td>113</td>
<td></td>
<td>Infinite</td>
</tr>
<tr>
<td>Riverside (RB)</td>
<td>810,000</td>
<td>722,000</td>
<td>89%</td>
<td>57%</td>
<td>43%</td>
<td>65</td>
<td></td>
<td>Infinite</td>
</tr>
<tr>
<td>Arlington (AB)</td>
<td>95,000</td>
<td>56,000</td>
<td>59%</td>
<td>100%</td>
<td>0%</td>
<td>7</td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>
Next Steps

• Present Study Results to BTAC
• Work with BTAC on developing ”action items” based on the results
  – Possible grants for well deepening/new wells
  – Possible management “zones” for each basin
  – Other
Management Zone Concept

<table>
<thead>
<tr>
<th>Storage</th>
<th>% Full</th>
<th>Action(s)</th>
</tr>
</thead>
</table>
| > 4.5   | 79 to 100% | 1. Maximize SWP Recharge  
|         |          | 2. Develop Water Supply Projects  
|         |          | 3. Store water in Central Valley |
| 4.5     | 79%      | 1. Same as Green  
|         |          | 2. Plan to deepen wells |
| 3.8     | 67%      | 1. Same as Yellow  
|         |          | 2. Deepen wells  
|         |          | 3. Plan additional recycling  
|         |          | 4. Reduce pumping 10% |
| 3.2     | 56%      | 1. Same as Salmon  
|         |          | 2. Reduce Pumping 20%  
|         |          | 3. Increase recycling |
| 2.7     | 47%      | Continue to reduce pumping in 5% increments until storage levels increase to purple area |
San Bernardino Basin Management Zones

Usable Storage: 5,690,000 acre-feet
(constrained by liquefaction potential)

Currently in the Green Zone

When some wells need to be deepened: 3,236,000 acre-feet
Director Comments and Discussion

T. Milford Harrison
President

Paul Kielhold
Vice President

Susan Longville
Treasurer

June Hayes
Director

Gil Navarro
Director

Staff Recommendation
Receive and file.
Discussion Item 4.2

Kristeen Farlow, MPA – External Affairs Manager

Discuss San Bernardino Municipal Water Department Water Use Efficiency Pilot Project

Staff Recommendation
Discuss this item and direct Staff on how to proceed.
Background

- Valley District assists the retail water providers in meeting their demand reductions.
- This includes water education, water use efficiency rebates, or technical assistance.
- Our typical reimbursement on residential programs is 25% to the retailers.
San Bernardino Municipal Water District

PROPOSED:
WEATHER BASED IRRIGATION CONTROLLER PILOT PROJECT

Goals:
• Address inefficient water use on landscapes.
• Identify areas for alternative irrigation solutions.
• Reduce overall water use.
• Contribute to achieving water-use efficiency goals.
Pilot Project Details

- 150 participants
- Residents and small to medium-size commercial sites
- Conduct site assessments;
- Gather irrigation data;
- Provide repairs as needed;
- Install a WBIC.
Marketing

- Target marketing to the high-water users
- General marketing to all customers
- Ensure equity among City’s seven wards
- Valley District will market on our social media and website as well as announce at online workshops
# The Numbers

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Participants</td>
<td>150</td>
</tr>
<tr>
<td>Cost per site</td>
<td>$1,034 - $1,141</td>
</tr>
<tr>
<td>Estimated total project</td>
<td>$181,918</td>
</tr>
<tr>
<td>costs</td>
<td></td>
</tr>
<tr>
<td>50% cost share from</td>
<td>$90,959</td>
</tr>
<tr>
<td>Valley District</td>
<td></td>
</tr>
<tr>
<td>Estimated water savings</td>
<td>16 - 28 acre feet per year</td>
</tr>
</tbody>
</table>
Discussion

- Consider 50% contribution to this pilot project
- City will assess success of program after one year
- If successful, this program would be offered to all customers in the City and request the 25% reimbursement from Valley District
- Valley District will be recognized as a project partner
- Valley District does have the $90,959 available in the Water Use Efficiency fund
Director Comments and Discussion

T. Milford Harrison  
President

Paul Kielhold  
Vice President

Susan Longville  
Treasurer

June Hayes  
Director

Gil Navarro  
Director

Staff Recommendation
Discuss this item and direct Staff on how to proceed.
Consider Proposal for Performance of Water Conservation Public Outreach Programs

Staff Recommendation
Direct Staff to place this item on a Board Meeting agenda for consideration of entering into an agreement with IERCD for the Performance of Water Conservation Public Outreach Program for a cost not to exceed $30,000.
Background

- Worked with IERCD since 2007
- Manage and perform student education programs, adult programs, and educational workshops
- Requirements from AB 1668 and SB 606 – Making Water Conservation a Way of Life
Results of 2019-2020 Year

- 97 classroom presentations
- Six landscape workshops
  - Three in-person
  - Three Online
- One teacher workshop
- Online resources
  - At-home activities for kids and families
  - Classroom activities for teachers
- Estimated reach of 3,000 students and adults
- Total cost of $25,900
Proposal for 2020-2021

- All in-person programs have shifted online
- Online materials
- Live or recorded classroom presentations
- Goal of 100 presentations
- Downloadable content and narrated presentations

- Online Landscape Workshops
  - 4-6 workshops
- Virtual Project WET Teacher Workshops
  - Two workshops
- Contract as a not to exceed $30,000
Director Comments and Discussion

Staff Recommendation

Direct Staff to place this item on a Board Meeting agenda for consideration of entering into an agreement with IERCD for the Performance of Water Conservation Public Outreach Program for a cost not to exceed $30,000.
Directors' Request for Consideration 5.1

Heather Dyer, MS, MBA – Chief Executive Officer/General Manager

Directors' Requests for Consideration

Staff Recommendation

Staff recommends that the Board consider the following requests and provide direction to staff on each item.
I. **Director's Requested Activity to be Considered by the Board:**

The District owns a vacant parcel adjacent to the Garcia Center for the Arts (Center) that is leased to the SB Valley Concert Assoc. (Association) who operated the Center. The Board recently considered and approved an amendment to this lease, originally for overflow parking, for the development of a Community Garden. An Online survey of residents in this disadvantaged community has found strong support for the community garden that would plant fruit trees for harvest by residents and provide small plots for residents to learn how to grow, irrigate, and harvest their own produce that is grown in a sustainable and water efficient manner. There is no existing water system on the District's parcel but there is a hook up to the SB Water Dept. The Association has no funding for the development of a water system that is envisioned to consist of multiple faucets on the parcel to irrigate the individual gardens by hose and drip irrigation of the fruit trees. I respectfully request that the Board consider funding a water system for the community garden and direct staff to work with the Association President to determine the cost.

II. **Discussion of Activity's Value to Valley District and/or the Board:**

Our District seeks to mitigate the effects of climate change and potential drought in every project that is brought before the Board. Providing funding to construct a simple water system that would support the development of a community garden in a severely disadvantaged community will mitigate the effects of climate change by providing additional shade, reducing greenhouse gas emissions and promoting sustainable gardening practices in an urban environment.

III. **Estimated Staff Time Required (to be completed by Staff):**

Staff time of approximately 8 hours to meet with the Association to assess needs and to develop an approach to the water system required. Additional time to implement would be further along in the process, if the project were approved.

IV. **Estimated Cost or Use of District Resources (to be completed by Staff):**

Unknown beyond the staff time to develop a concept plan for the project.

V. **Possible Modification or Suggested Alternative:**

Staff suggests that the Board direct staff to develop a demonstration project that includes important parts of the system have educational signage on the efficient irrigation and potentially other educational information on drought, urban heat islands, and methods to address water sustainability in everyday activities such as gardens and landscapes. Staff suggests we reach out to the SB Water Department to see if they would be interested in partnering on this demonstration project. Could also bring in local scouts or civic groups to boost the education and external affairs aspect.
DATE:  7/17/20
TO:   Board of Directors
FROM: Susan Longville
SUBJECT: Director's Request for Consideration by Board

I. Director's Requested Activity to be Considered by the Board:

In December of 2019 at a Regular Meeting of the BOD, I expressed a Christmas wish that the District consider producing large, recycled/reusable shopping bags with our logo promoting water use efficiency as other wholesale agencies have done for some time. Kristen indicated that she would follow up on this idea and bring this back to the Board. Since then, the BOD approved the Directors' Request for Consideration policy.

It has become reasonably foreseeable to me that the District's Public Affairs efforts with our ratepayers during the next fiscal year will need to be done virtually or by mail as a result of the lingering COVID-19 pandemic. For that reason, I am requesting that the BOD consider directing staff to provide an estimate of the cost to produce and mail a large, recycled/reusable shopping bag promoting the District and water use efficiency to every address in our service area that pays property tax to the District.

This would be the District's first direct interface with our ratepayers that is not in the form of a property tax bill. It is intentional but should be noted that it would not diminish or in any way interfere with the efforts of our retail water agencies.

II. Discussion of Activity's Value to Valley District and/or the Board:

The District is spending $30,000 a year for social media impressions with our ratepayers. That is valuable, but there is nothing like a desirable gift to foster a connection with our ratepayers. I carried my favorite, large recycled shopping bag that promotes water use efficiency for two years that had a Western Municipal Water District logo and it always seemed wrong. I respectfully request the BOD direct staff to investigate the shopping bag and direct mailing idea and bring back an estimated cost to the Board for consideration.

III. Estimated Staff Time Required (to be completed by Staff):

6-8 hours staff time to investigate bag designs and manufacturers and approximate postage.

IV. Estimated Cost or Use of District Resources (to be completed by Staff):

Unknown beyond the staff time stated above.

V. Possible Modification or Suggested Alternative:

None at this time.
Staff Recommendation

Staff recommends that the Board consider the following requests and provide direction to staff on each item.
Adjournment