TENTATIVE AGENDA*

Times shown are approximate. Some items may take more or less time than scheduled, or the Chair may grant requests to hear items in an order other than shown.

1. Consideration of Action to Approve the Minutes of the June 20, 2019 CAGRD and Underground Storage Committee - Megdal (12:30)
2. Report on External Financing for Water Acquisition Approved by the Board between CAWCD, Gila River Indian Community and Gila River Water Storage LLC - Dunlap (12:35)
   a. Report on Water Market Trends - Harry Seely, WestWater Research, LLC (1:00)
5. Discussion Pursuant to Board Member Agenda Item Request Regarding the Relationship Between CAGRD Enrollment Obligation and Available CAGRD Water Supplies - Megdal (1:30)
6. Report on CAWCD Participation in CAP Ag Pool Groundwater Infrastructure and Efficiency Program - Seasholes (1:45)
7. Report on 2019 Q2 Member Land and Member Service Area Enrollment and Activation Activity (Replenishment: CAGRD Management and Oversight*) - Fox (2:05)
8. Report on the History of Minimum Reporting Requirements for CAGRD Member Lands - Grignano (2:10)
9. Future Agenda Items (2:20)
10. Public Comment (2:25)
11. Adjourn (2:30)

* Please note that this tentative agenda may be changed prior to the scheduled meeting by modifying or deleting listed matters or adding new ones. Anyone interested in the final agenda for the meeting should contact the CAP office (623.869.2333) or consult CAP's website (www.cap-az.com) twenty-four (24) hours in advance of the meeting.

^ Linkage to 2016 CAWCD Board of Directors Strategic Plan.
A meeting of the Central Arizona Groundwater Replenishment District ("CAGRD") and Underground Storage Committee ("Committee") of the Central Arizona Water Conservation District’s ("CAP" or "CAWCD") Board of Directors was called to order by Chairperson Megdal on 6/20/2019 at 10:03 a.m. The meeting was held at the Central Arizona Project, 23636 North Seventh Street, Phoenix, Arizona, in the Board Room.

Committee Members present were: Chair Sharon B. Megdal, Pima County; Karen Cesare, Pima County; Pat Jacobs, Pima County; Heather A. Macre, Pima County (via teleconference); and Jennifer Martin, Maricopa County.

Committee Members not present were: Jim Hartdegen, Pinal County.

Staff members present were: Ted Cooke, General Manager; Suzanne Ticknor, Assistant General Manager; Jay Johnson, General Counsel; Laura Grignano, CAGRD Manager; Ken Seasholes, Resource Planning and Analysis Manager; Jessica Fox, CAGRD Senior Policy Analyst; Megan Casey, Public Affairs Management Analyst, Jenn Miller, Board Support Specialist; and Nelle Carlsmith, CAGRD Specialist.

1. **CONSIDERATION OF ACTION TO APPROVE THE MINUTES OF THE MAY 16, 2019 CAGRD AND UNDERGROUND STORAGE COMMITTEE - MEGDAL**

On a motion (Board Member Cesare) and a second (Board Member Jacobs), approved the minutes of the May 16, 2019 CAGRD and Underground Storage Committee. Motion passed.

Voting yes: Sharon B. Megdal, Karen Cesare, Pat Jacobs, Jennifer Martin

Not voting: Heather A. Macre

2. **REPORT ON CAGRD MID-PLAN REVIEW: ENROLLMENT & OBLIGATION PART 2 (REPLENISHMENT: CAGRD MANAGEMENT AND OVERSIGHT*) - FOX**

Jessica Fox, CAGRD, began by reviewing CAGRD enrollment trends presented last month by Ken Seasholes. Overall regional population growth has been much lower than the growth projections used in the 2015 Plan of Operation (Plan), which in turn has resulted in lower than projected enrollment over the past four years. She explained that this lower enrollment in early Plan years will most likely result in lower than anticipated future obligation. The Plan projects that by 2034, the annual obligation by CAGRD members will be 86,900 AF. Additional factors were identified as likely contributors towards lower than projected current obligation and include: 1) downward trends in household water demand by members, 2) temporary avoidance by members to report excess groundwater by using their groundwater allowances, long term storage credits and extinguishment credits as well as 3) continued groundwater availability constraints in Pinal.
2.a. **PRESENTATION ON CENTRAL AND SOUTHERN ARIZONA ECONOMIC OUTLOOK – DR. GEORGE HAMMOND, ELLER COLLEGE OF MANAGEMENT, UNIVERSITY OF ARIZONA**

As part of the CAGRD Mid-Plan review process, Dr. George Hammond, Director of the Economic and Business Research Center, Eller College, University of Arizona, reported on the economic outlook of Central and Southern Arizona compared to the rest of the US. He reported that since rebounding in 2010, Arizona’s job expansion continues at a much faster pace than the national average, with Phoenix as the engine of job growth in the state. Only in the past few years, however, has construction job growth begun to contribute to job gains. The short-term outlook shows recession risks are higher than last year, however odds still favor continued growth in Arizona.

Dr. Hammond said Arizona continues to grow much faster than the national average. Population growth drives the construction industry and this can be tracked through housing permits. The housing model used at the Economic and Business Research Center predicts that population growth will stabilize around 100,000 new residents per year in Arizona which equates to about 43,000 net new housing permits (assuming 2.5 persons per new housing permit). This is well below the peak experienced around 2005, but not particularly low. The rate of growth over the next 10 to 20 years is expected to be lower than what Arizona has experienced historically. These longer term outlooks are mostly driven by demographics (baby boomers) and technology. Unemployment in Arizona is above the national average, but it is most likely a sign of the state’s healthy job market. Arizona attracts many migrants from other states looking for employment. The state is starting to see higher wage growth although the median income is still below the national average. There are other elements, however, that contribute to quality of life and continue to attract many new residents to the state.

3. **REPORT ON NEXT STEPS FOR CAGRD CONSERVATION PROJECT - FOX**

Jessica Fox, CAGRD, updated the Committee on staff's latest approach towards the development of a CAGRD Conservation Program. Staff will soon release a new Request for Proposal (RFP) for the Member Land (ML) water demand analysis component of the Conservation Program development. The original RFP included all 3 phases of the work: 1) Demand analysis, 2) Program development, and 3) Program implementation. In retrospect, this may have been one of the challenges to finding a contractor experienced in all three areas. The ML water demand analysis will serve to identify and target potential conservation opportunities among CAGRD members from which a program can be developed. The Committee suggested that perhaps a focus group or Round-table discussion with the greater conservation community would be beneficial during program development.

4. **REPORT ON CAWCD PARTICIPATION IN CAP AG POOL GROUNDWATER INFRASTRUCTURE AND EFFICIENCY PROGRAM - SEASHOLES**

Ken Seasholes, Resource Planning and Analysis, provided an update on the Ag Pool Groundwater Infrastructure and Efficiency Program with a focus on the commitment from the Board for $5 million towards the development of 70,000 acre feet of groundwater infrastructure as part of Arizona’s Implementation of the DCP and our role relative to recovery. He explained that staff is more interested in securing recovery capacity than specific recovery infrastructure. In the past, recovery of stored water by the Districts in Pinal occurred through a combination of
increased pumping and a reduction of surface water supplies. Contemplated agreements with the Districts will use similar methods. CAWCD has a number of recovery responsibilities in the Pinal AMA through agreements with the AWBA. Staff is working to satisfy both the Districts’ needs (immediate upfront capital) as well as CAWCD’s long term recovery needs and is currently working with the Districts to draft agreements. Draft agreements could be ready to share with the Board in August with possible action on a subset of the agreements in September.

5. **FUTURE AGENDA ITEMS**

Chair Megdal noted the next Committee Meeting is scheduled for August 15, 2019. Future agenda items include: a Mid-Plan review on water supplies and the replenishment reserve, including a report on water market trends from guest speaker Matt Payne, with West Water Research, a report on CAGRD water provider audits, a quarterly report on the Member Land and Member Service Area activity, and a report on external financing on the GRIC/GRWS Acquisition. Additionally, a discussion of what CAGRD is legislatively obligated to do in terms of enrollment and water supplies, and a report on the 2016/2017 CAGRD Operational Challenges issue list. The Committee would like to bring the list back as a refresher on the operational issues discussed and blend it into future agendas and discussion. Currently there are future Committee meetings scheduled for September, October, November, and December. Due to scheduling conflicts, there may be changes in the schedule that may result in a delay to finalize the Mid-Plan Review by the end of calendar year.

6. **PUBLIC COMMENT**

No additional public comment.

7. **ADJOURN**

There being no further business to come before the Committee, the meeting adjourned at 11:59 a.m.

___________________________
Sharon B. Megdal
Chair
Agenda Number 3.

CONTACT: Christopher Brooks  Andrew Craddock
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cbrooks@cap-az.com  acraddock@cap-az.com

MEETING DATE: Thursday, August 15, 2019

AGENDA ITEM: Report on CAGRD Mid-Plan Review: Water Supplies Update and Replenishment Reserve (Replenishment: CAGRD Management and Oversight) - Brooks/Craddock

LINKAGE TO STRATEGIC PLAN, POLICY, STATUTE OR GUIDING PRINCIPLE:
Replenishment: CAGRD Management and Oversight

PREVIOUS BOARD ACTION/ACTIVITY:
None

ISSUE SUMMARY/DESCRIPTION:
As part of the Mid-Plan review of the CAGRD 2015 Plan of Operations, staff are evaluating the existing water supply portfolio of the CAGRD in comparison to current replenishment obligations and expected future replenishment obligations for the remainder of the current Plan. Today staff will present an update on CAGRD water supplies, how those supplies will be used to meet projected replenishment obligations, and a preliminary evaluation of our need to acquire additional supplies. Staff will also provide an update on progress toward meeting the Replenishment Reserve goals described in the 2015 Plan of Operations.

The staff presentation will be followed by an update on Arizona water markets by Harry Seely with WestWater Research, consultant to the CAGRD Water Supply Program.

ATTACHMENTS:
1. Mid Plan Water Supply Presentation
Focus of Presentation:

• Review current CAGRD Water Supply Portfolio
• Compare currently available supplies to projected obligations
• Available Water Supplies from 2015 Plan of Operations
• Evaluate need for additional water supply acquisitions during current Plan term
• Status of Replenishment Reserve goals
• WestWater water market update
## Current Water Supply Portfolio

<table>
<thead>
<tr>
<th>Supply Class</th>
<th>Volume (AF)</th>
<th>Availability</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP M&amp;I</td>
<td>8,311</td>
<td>Annually</td>
<td>Permanent entitlement, reduced to 6,426 AF from 2020; potential reduction under Tier 3 shortage</td>
</tr>
<tr>
<td>CAP Indian (GRIC)</td>
<td>15,000</td>
<td>Annually from 2020 to 2044</td>
<td>25 year exchange; potential reduction under Tier 3 shortage</td>
</tr>
<tr>
<td>CAP NIA (GRIC)</td>
<td>18,185</td>
<td>Annually from 2020 to 2044</td>
<td>25 year lease, subject to shortage reduction</td>
</tr>
<tr>
<td>Effluent (Liberty)</td>
<td>2,400</td>
<td>Annually, began 2017</td>
<td>100 year lease</td>
</tr>
<tr>
<td>CAP NIA (WMAT)</td>
<td>2,500</td>
<td>Annually from 2024</td>
<td>100 year lease, awaiting final authorization; subject to shortage</td>
</tr>
<tr>
<td>CAP NIA</td>
<td>18,185</td>
<td>Annually from 2024</td>
<td>Permanent, awaiting final authorization; subject to shortage</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>42,011 (currently available)</strong> / <strong>62,696 (including future supplies awaiting final authorization)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Long-term Storage

| Credits (current)     | 344,000     | As needed    | Currently in CAGRD Subaccount; equivalent to 3,440/year for 100 years |
| Credits (future)      | 487,500     | 2019-2114    | To be acquired under existing purchase agreements; equivalent to 4,875/year for 100 years |
| **TOTAL (with current and future credits; annualized)** | **50,326 / 71,011 (including future supplies awaiting final authorization)** |

## Current Water Supplies by AMA

### Phoenix AMA

- 6,426 AF CAP M&I allocation (after 2020 reduction) – transferred from water providers in Phoenix AMA, must be used first to meet obligations incurred by lands within those providers service areas
- 18,185 CAP NIA (GRIC) lease – agreement requires that this water be stored at GRIC MAR-5 recharge facility to earn credits in Phoenix AMA
- 2,400 AF effluent entitlement – effluent is produced at Liberty Palm Valley Wastewater Reclamation Facility and Recharged at the Liberty Aquifer Replenishment Facility in Phoenix AMA
- 222,240 LTSCs currently owned by CAGRD located in Phoenix AMA
- Approximately 378,000 LTSCs to be acquired by CAGRD in Phoenix AMA from 2019 to 2114
Current Water Supplies by AMA

Tucson AMA
• 121,800 LTSCs currently owned by CAGRD located in Tucson AMA
• Approximately 109,500 LTSCs to be acquired by CAGRD in Tucson AMA from 2019 to 2114

Pinal AMA
• 316,000 LTSCs currently owned by CAWCD located in Pinal AMA currently dedicated for CAGRD uses including replenishment obligation and replenishment reserve

Non-AMA Specific Supplies
• 15,000 AF CAP Indian Priority under GRIC exchange
• 18,185 AF CAP NIA awaiting final reallocation, and
• 2,500 AF WMAT lease awaiting implementation

Phoenix AMA Supplies and Obligation

Assumptions:
• CAGRD NIA and WMAT NIA available in 2024
• Most current shortage probabilities based on observed hydrology with DCP
• Tier 0 shortage through 2023
• Tier 1 shortage 2024-2026
• Tier 2 shortage 2027-2034
**Pinal AMA Supplies and Obligation**

**Assumptions:**
- Most current shortage probabilities based on observed hydrology with DCP
- Supplies unaffected by shortage
- CAWCD Pinal LTSCs continued availability to meet replenishment obligations

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**Tucson AMA Supplies and Obligation**

**Assumptions:**
- Most current shortage probabilities based on observed hydrology with DCP
- Supplies unaffected by shortage
- Additional LTSCs or other supplies will be needed in future
Future Water Supplies: Need and Availability

- Near-term supply outlook is positive
  - Ample wet water supplies with GRIC lease
  - Shortage impacts firmed with LTSCs/RR
  - Replenishment obligations trending below projections
  - No projected reliance on Excess Water
- Future supplies needed to hedge drought risk to CAP NIA supplies, meet longer-term obligations, meet RR targets
- Combination of wet water and LTSCs
Future Supply Acquisition Considerations

- Phoenix AMA
  - Acquisition strategy update end of 2019
  - Need for additional supplies dependent on obligation trends, shortage impacts to current supplies, availability of other NIA supplies
  - Opportunistic acquisitions of LTSCs and CAP supplies
- Tucson AMA
  - Replenishment Obligation: Existing LTSCs meet obligations through 2034.
  - Selectively and opportunistically acquire supplies to satisfy long-term needs – both wet-water and LTSCs
- Pinal AMA
  - Manage unencumbered CAWCD LTSC (dedicated to CAGRD by Board policy) to satisfy replenishment obligation and meet replenishment reserve targets

Replenishment Reserve: Establishment

- 2003: Arizona Revised Statutes enacted requiring the establishment and maintenance of the Replenishment Reserve through acquisition of LTSCs so in times of water supply shortage CAGRD would:
  - Ensure ability to meet annual replenishment obligation
  - Provide rate stability for its members
  - Minimize water supply competition with municipal water providers
  - Improve short-term supply reliability
Replenishment Reserve Target

- AMA-specific targets identified/recalculated for each 10-year Plan of Operation
- Based on water supply volumes and availability identified in the Plan
- “Reserve Target” is intended/equivalent to a 20-year supply of LTSCs to firm short-term supplies (< 20 years) if necessary during shortage conditions
- Reserve Target Formula = (100 yr. AMA Obligation - Long/Intermediate Water Supplies) x .20

Progress Toward Replenishment Reserve Target

- Per statute, the Reserve Targets may be adjusted during the Plan with ADWR Director approval if a significant change occurs in either the identified:
  - Projected replenishment obligation or
  - Water supply acquisition plan
- 2019: CAGRD transferring approximately 30,000 LTSCs into the Replenishment Reserve
- Annually during 2015 Plan CAGRD adds about 2% increase to the RR Target by each AMA and overall
  - 764,000 AF all-AMA total/ 14,000 AF added annually
### RRA AMA Accruals and Targets

<table>
<thead>
<tr>
<th>AMA</th>
<th>Replenishment Reserve Balance 12/31/15</th>
<th>Replenishment Reserve Balance 12/31/16</th>
<th>Replenishment Reserve Balance 12/31/17 12/31/18*</th>
<th>2015 Plan of Operation Reserve Target</th>
<th>% of Reserve Target Achieved 12/31/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoenix</td>
<td>155,257</td>
<td>167,330</td>
<td>179,738</td>
<td>603,866</td>
<td>30%</td>
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<tr>
<td>Pinal</td>
<td>3,823</td>
<td>4,021</td>
<td>4,289</td>
<td>48,036</td>
<td>9%</td>
</tr>
<tr>
<td>Tucson</td>
<td>32,543</td>
<td>33,833</td>
<td>34,616</td>
<td>112,600</td>
<td>31%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>191,623</td>
<td>205,184</td>
<td>218,643</td>
<td>764,502</td>
<td>29%</td>
</tr>
</tbody>
</table>

#### Replenishment Reserve Accruals by AMA in Relation to Total Reserve Target (Acre-Feet)

- **2004 Plan Target**: Achieved 11%
- **2015 Plan Target**: Achieved 29%
Replenishment Reserve Target on Target

- RR Rates collected on members for 25 years
  - RR Upfront Fee: 2-year payment
  - RR Rate: annually for years 2-24
  - Members enrolling in Year 10 of Plan of Operation began paying RR Rates for 24 years; est. outer limit of RR Target
- The acre-foot balance still needed to achieve the RR Target are spread over the timeframe uniformly and costed out annually to develop the RR Rate.
- Provides contributions ($) & AF progress toward RR Target equitably and uniformly over timeframe

Questions?
2019 Arizona Water Market Update
CAGRD & Underground Storage Committee of the CAWCD Board of Directors

August 15, 2019

Agenda

- Background and Purpose
- Arizona Water Markets
  - Long Term Storage Credits
  - CAP Tribal Leases
  - Colorado River Entitlements
  - Extinguishment Credits
  - Type 2 Grandfathered Groundwater Rights
- Markets Summary
Background and Purpose

- Provide market update on active water markets in Arizona.
- Presentation covers five active and evolving markets relevant to CAWCD.
  - Long Term Storage Credits
  - CAP Tribal Leases
  - Colorado River Entitlements
  - Extinguishment Credits
  - Type 2 Grandfathered Groundwater Rights
2019 Arizona Water Market Update

ARIZONA WATER MARKETS

Long Term Storage Credits

Phoenix AMA LTSC Market

- Most active market in AZ.
- Prices continue to exceed the cost to create new LTSC.
- CAGRD has received favorable pricing due to:
  - Large buyer with scale
  - Financial capabilities
  - Legacy contracts
  - Disciplined water supply program
- Future purchases likely to be higher priced.
  - Expect continued divergence between market transactions and the cost to create LTSC
Long Term Storage Credits

Pinal and Tucson AMA LTSC Markets

- Tucson AMA market historically active, but prices lower than Phoenix AMA.
  - Greater supply than demand
  - Few active buyers
  - Managed effluent recharge statute recently altered
    - Adds supply to market
- Pinal AMA market historically limited due to permissive Assured Water Supply (AWS) rules.
  - 2007 changes to AWS rules may increase demand for renewable supplies
  - Recent constraints on groundwater availability create uncertainty

Tucson AMA LTSC Market Activity

Pinal AMA LTSC Market Activity

CAP Tribal Leases

Short-Term Leases (1-5 years)

- Pilot System Conservation Program (PSCP) impacting short-term price expectations.
- Still a handful of low-cost leases ($20/AF).
- Low-cost leases unlikely to be available in the future:
  - Shortage concerns
  - Rising price expectations (PSCP)
  - Changing demand fueled by growth

Short-Term CAP Lease Activity
CAP Tribal Leases

Long Term Leases (50-100 years)

• Price expectations for long-term leases continue to be high.
  – Generally require up-front payment
  – Prices have risen in recent years
    • 8.6% annual growth rate since 2013
• Most recent 100-year lease: San Carlos Apache Tribe (SCAT) to Town of Gilbert (2019):
  – 5,295 AF for $31,208,238 (up-front)
  – Equivalent to $5,267/AF
• Prices expected to continue rising due to:
  – Changing demand
  – Shortage concerns

Colorado River Entitlements

Overview

• Historically few transfers of on-river Colorado River Entitlements (CRE).
  – Politically challenging
  – Regulatory uncertainty
• CRE considered potential future water supply due to:
  – Concerns of shortage
  – Continued demand growth within central AZ
• Recent transactions that are influencing prices:
  1. Pilot System Conservation Program
  2. Proposed Transfers to Central Arizona
Colorado River Entitlements

Pilot System Conservation Program
- Series of innovative water sharing agreements designed to keep water in Lake Mead.
- Colorado River Indian Tribes (CRIT) initiated rotational following program in late 2016:
  - Flexible annual agreements
  - Preserves agricultural production
  - Politically palatable
- Expect to see similar transaction structures in the future.

<table>
<thead>
<tr>
<th>Year</th>
<th>Price ($/AF CU)</th>
<th>Volume (AF CU)</th>
<th>Funding Parties</th>
</tr>
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<tbody>
<tr>
<td>2016-17</td>
<td>$189</td>
<td>8,572</td>
<td>USBR, CAWCD, MWD, SNWA</td>
</tr>
<tr>
<td>2017-18</td>
<td>$190</td>
<td>8,572</td>
<td>USBR, CAWCD, MWD, SNWA</td>
</tr>
<tr>
<td>2018-19</td>
<td>$189</td>
<td>10,741</td>
<td>USBR, CAWCD, MWD, DW, SNWA, EDF</td>
</tr>
<tr>
<td>2019</td>
<td>$202</td>
<td>17,294</td>
<td>USBR, CAWCD, MWD, SNWA, EDF</td>
</tr>
</tbody>
</table>

CRIT PSCP Transactions

Proposed Transfers to Central Arizona
- Continued interest in transferring CRE to central Arizona.
  - Politically unfavorable
  - Regulatory uncertainty
- Example – GSC Farm, LLC (Greenstone) to Queen Creek:
  - Property constituent to Cibola Valley Irrigation and Drainage District in La Paz County.
  - 2018 agreement to transfer 2,088 AF CU
  - $10,000/AF CU
  - Contingent upon regulatory approval
- Speculative buying of land with CRE.
  - 9.1% annual growth in land prices since 2013
Extinguishment Credits

- Extinguishment Credits (EC) provide the owner of an AWS with 1 AF of groundwater consistent with the management goals of the AMA.
- EC markets are generally small.
- CAGRD has not participated in EC markets, but they affect CAGRD:
  - Some buyers seeking to reduce CAGRD obligation
  - Example: Queen Creek
    - Acquired 175,174 AF from an investor
    - Paid $280/AF

Type 2 Grandfathered Groundwater Rights

- CAGRD has not participated in the Type 2 market.
- Market has recently transitioned to a seller’s market.
  - 2004-2017: Investment in Type 2 rights
    - Investors purchasing and leasing rights
  - 2018-2019: Sales by investors to end-users
    - Recent sales to a mine and a beverage company
Markets Summary

- **Long Term Storage Credits**
  - Phoenix AMA prices rising above the cost to create credits
  - Additional supply in Tucson AMA due to altered recharge statute
  - Uncertainty in Pinal AMA due to recent constraints on groundwater

- **CAP Tribal Leases**
  - System conservation impacting low-cost short-term leases
  - Long-term lease prices continuing to rise

- **Colorado River Entitlements**
  - Emerging flexible fallowing agreements
  - Continued interest in transfers to Central Arizona

- **Extinguishment Credits**
  - New interest in EC to offset CAGRD obligations

- **Type 2 Grandfathered Groundwater Rights**
  - Investors selling Type 2s
Agenda Number 4.

CONTACT: Laura Grignano  Jessica Fox
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lgrignano@cap-az.com  jfox@cap-az.com

MEETING DATE: Thursday, August 15, 2019

AGENDA ITEM: Report on the 2016/2017 CAGRD Operational Challenges List (Replenishment: CAGRD Management and Oversight) - Grignano

LINKAGE TO STRATEGIC PLAN, POLICY, STATUTE OR GUIDING PRINCIPLE:
Replenishment; CAGRD Management and Oversight

PREVIOUS BOARD ACTION/ACTIVITY:
Feb 16, 2017  Report on and Committee Discussion of CAGRD Operational Challenges
Oct 20, 2016  Discussion of Draft CAGRD Operational Challenges

ISSUE SUMMARY/DESCRIPTION:
In October of 2016, and February of 2017, CAGRD staff presented to the Committee a list of operational challenges faced by the District. See attached list and associated presentation given to the Committee in February of 2017.

Although some of the topics on the list have been discussed by the Committee over the past few years, this list has not been reviewed since 2017. At the start of the Mid-Plan review process and more recently, the Committee requested that this list be brought back for further review to determine if any of these items are still relevant and worth pursuing. Today’s agenda item is intended to address a timeline and process for this potential review, not a substantive review of the issues.

ATTACHMENTS:
1. Operational Challenges Table
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
</table>
| Rate Structure                | **Revenue Variability**  
Current rate structure may result in revenue shortfall if annual obligation declines unexpectedly                                                                                                           | ARS §48-3772(A) |
|                               | **Administrative Costs**  
Current rate structure may result in some large water users paying a larger share of administrative costs than may be appropriate                                                                                               | ARS §48-3772(A) |
|                               | **AMA Specific Rates**  
Requirement to establish specific rates by AMA may hinder future operational flexibility                                                                                                               | ARS §48-3772(A)(1) |
|                               | **Replenishment Reserve**  
Replenishment reserve structure creates uncertainties in planning and limits operational flexibility                                                                                                         | ARS §48-3772(E) |
| Annual Reports                | Errors in annual reports submitted by member land water providers can create incorrect assessments on member land properties that are difficult to correct                                                                 |           |
| Annual Membership Dues        | Formula for calculation of annual membership dues can result in significant increases or decreases with each new Plan of Operation                                                                                                                             | ARS §48-3779 |
| Category II Lands             | Replenishment reserve exemption for member land golf courses may result in significant cost increases; implementation is uncertain                                                                                                                                  | ARS §48-3774.01(C) and (D) |
| Unpaid Assessments            | Identifying unpaid assessments is difficult and time-consuming and remedies are uncertain                                                                                                                                                                            |           |
| Drought Exemption             | Assured Water Supply rules allow water providers a limited exemption for groundwater used during drought; CAGRD does not have a comparable exemption for its annual replenishment obligation                                                                 | R12-15-705 T |
| Water Conservation Program    | Board direction is needed to guide the design of a new CAGRD water conservation program                                                                                                                     |           |
Challenges

- Rate Structure
- Replenishment Reserve
- Water Provider Annual Reports
- Annual Membership Dues
- Category II Member Lands
- Unpaid Assessments
- Drought Exemption
- Water Conservation Program
Rate Structure/Revenue Variability

- CAGRD revenues from rates vary with volume of annual obligation
- Current rate structure is designed to recover both fixed and variable costs
- Only one of four rate components represents variable cost
  1. Water & Replenishment (variable cost)
  2. Administrative (fixed cost)
  3. Infrastructure & Water Rights (fixed cost)
  4. Replenishment Reserve Charge (fixed cost)

Rate Structure/Revenue Variability

- Annual obligation (and revenues) may vary based on:
  - Economic conditions
  - Membership agreements
  - NIA reallocation
  - Temporary use of other water supplies by Member
  - Other factors
- Fluctuations in annual obligation can impact CAGRD’s ability to cover fixed costs
Rate Structure/Administrative Costs

- Administrative component of rate varies with obligation amount
- Members with higher obligation pay more toward administrative overhead costs than members with lesser obligation
- Administrative burden generally does not vary with amount of water use; larger users do not cause greater administrative costs

Rate Structure/AMA Specific Rates

- Statutes require CAGRD to establish separate annual assessment rates for each AMA (ARS §48-3772 (A)(1))
- Current differences between rates for each AMA reflect variable cost of replenishing excess CAP water
  - Lowest in Pinal AMA (all GSF)
  - Highest in Tucson AMA (all USF)
  - Intermediate in Phoenix AMA (GSF and USF)
Rate Structure/AMA Specific Rates

- Water supplies used for future replenishment will vary across AMAs and across time
- Calculating AMA specific rates will become increasingly complex over time
- Operational flexibility and management of costs may conflict with this requirement

Replenishment Reserve/RR Target

- Replenishment Reserve target is recalculated for each AMA with each new 10-year Plan (ARS §48-3772 (E)(1))
- Creates uncertainty in calculating the replenishment reserve rate component
- Creates uncertainty in evaluating progress toward achieving target for each AMA, as well as Total Target
Replenishment Reserve/Replacement

- Statutes require CAGRD to charge a RR “replacement” rate component against all CAGRD members in AMA if reserve is used (ARS §48-3772 (E)(7))

- This requirement hinders CAGRD’s ability to manage its available resources to most efficiently and cost-effectively meet its replenishment obligation throughout the three-AMA area.

Replenishment Reserve/RR Charge

- Replenishment Reserve Charge rate component is limited in time
  - Generally can be collected only over first 23 years of water use
- Assumes that water use on Member Land parcels is constant over time
- Assumes steady growth in Member Service Area obligation over time
- Neither assumption is necessarily correct, limiting ability to collect appropriate RR Charge
Water Provider Annual Reports

- Member Land water providers must report annual Excess Groundwater use for each ML parcel
- Significant errors in Annual Reports have occurred in recent years
- If CAGRD staff do not discover errors, incorrect assessments are sent out by the Assessors’ offices
- Corrections are difficult and time-consuming
- CAGRD has no authority to “incentivize” correct reporting by water providers

Annual Membership Dues

- AMDs are calculated by a formula prescribed in statute (ARS §48-3779)
- Member Land AMDs are based on projections in 10-year Plan
- Member Service Area AMDs are updated during each 2-year rate cycle
- Difference in calculation methodology resulted in significant shifts in AMDs in 2016
Category II Member Lands

- Category II Member Lands are golf courses
  - Exempt from paying Replenishment Reserve charges
  - Must pay “market rate” if use Excess Groundwater in year Replenishment Reserve is used
- Reporting (and assessment) occur AFTER water use occurs
- No current process in place for notification/reporting/assessing

Unpaid Assessments

- County Treasurers’ offices do not report unpaid assessments to CAGRD
- Identifying unpaid assessments will require time-consuming research
- Remedies for unpaid assessments, particularly on HOA properties, are uncertain
Drought Exemption

- The Assured Water Supply Rules provide an exemption for a limited amount of groundwater used by holders of a Certificate or Designation of Assured Water Supply
  - Groundwater used under this exemption is not deducted from the user's groundwater allowance balance
- There is no process in place for CAGRD to receive a comparable exemption from its replenishment obligation during times of drought

Water Conservation Program

- CAGRD collects revenues from its members to fund a conservation program
- Due to staffing limitations, this program has been inactive in recent years
- CAGRD Committee has discussed possible parameters of new program but has not yet reached consensus
- Staff plans to recommend suspension of collection of funds until a new program has been developed and implemented
AZ DCP Ag Mitigation Commitment

- Development of 70,000 AF/year of new groundwater capacity, by 2023
- $50M of funding from federal & non-federal sources
  - CAWCD Board commitment of up to $5M, tied to recovery
  - ~$55 M
  - CAWCD $5M
  - State of Arizona $9M
  - Ag Districts $5M
  - State of Arizona (Pump Tax) $8-9M
  - NRCS – RCPP $25M (request)
  - State of Arizona Loan $20M
  - ~$30M Non-Federal Match For RCPP Grant
Recovery Options with Irrigation Districts

- Several variations, but all begin with Ag district wells being pumped pursuant to a CAWCD Recovery Well Permit
  - The recovered water is a non-Project supply
- Options for the recovered water are:
  1. Discharge into the CAP aqueduct
  2. Discharge to another canal to exchange with a CAP contractor
     - CAP contractor must agree to exchange
  3. Irrigate with the water, and exchange for Ag district CAP water
  4. Irrigate with the water, and exchange for a GSF partner’s CAP water
     - GSF partner must agree to exchange
- The proposed agreements utilize options 3 & 4

Key Terms of Draft Agreements

- Recovery Capacity:
  - $1 million per 2,500 AF/year of recovery capacity
  - 25-year term, beginning in 2027
- CAWCD agrees to:
  - Up-front payment
  - Pay pumping costs (O&M) during a recovery year
- Irrigation District agrees to:
  - Reduced CAP water delivery in recovery year
  - Additional pumping of District wells
  - Allow CAWCD recovery well permit on District wells (new or existing)
  - Acknowledge contribution towards AZ DCP commitment
Recovery Capacity Cost

- Favorable relative to the AZ DCP commitment
  - $50M ÷ 70kAF = $714/AF (permanent)
  - $1M ÷ 2.5kAF = $400/AF (25 year)
    - $16/AF if capacity was fully used for 25 years
- Similar to costs of recovery agreements previously approved by the Board
- Potential to recoup some cost if recovering for Nevada
  - Similar to Recharge Capital Charge at CAWCD USFs

Benefits to CAWCD and Irrigation Districts

- Benefits to CAWCD
  - Secures 12,500 AF/yr of recovery capacity in Pinal and Phoenix AMA
  - Can be used for intrastate and interstate recovery
  - Term spans timeframe when recovery is likely
  - Avoids tying CAWCD’s recovery to specific infrastructure
- Benefits to Irrigation Districts
  - Provides immediate up-front funding for infrastructure development
  - Creates new groundwater capacity
  - Provides flexibility for how the funds are expended
  - Retains operational control of infrastructure
Other Considerations

- CAWCD assumes some risk that no CAP water is scheduled to an Ag district when recovery is desired
  - Hedged by relatively small volumes (e.g., ~5kAF for MSIDD), and a provision to extend the term if capacity is unavailable

- Staff are exploring other recovery opportunities with the districts
  - Additional agreements may utilize funds from the Board’s previously established Recovery Reserve

- Ak-Chin Community has requested that any funding for Ag district infrastructure be conditioned on resolution of water quality issues in the Santa Rosa Canal

Next Steps

- Further discussion related to Ak-Chin water quality issue
- Finalize agreement language
- Review by all parties
- Additional discussion in CAGRD & Underground Storage Committee
- Consideration of approval by the CAWCD Board
- Consideration of approval by Irrigation District Boards
Questions?
Report on 2019 Q2 Member Land and Member Service Area Enrollment and Activation Activity
August 15, 2019

Jessica Fox
Sr. Policy Analyst

Member Land Enrollment
Member Land Enrollment

Total Enrolled Lots, 1995-2019

Enrolled Lots by AMA, 2010-2019

Member Land Enrollment
Compared to Plan Projection

Lot's

Compared to Plan Projection

West Phoenix AMA
East Phoenix AMA
Pinal AMA
Tucson AMA
Plan Projection
Activation Units

Enrollment & Activations
through June 30, 2019

<table>
<thead>
<tr>
<th>YTD 2019</th>
<th>Phoenix AMA</th>
<th>Pinal AMA</th>
<th>Tucson AMA</th>
<th>Total</th>
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<td>0</td>
<td>3,963</td>
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<td>Activation (ML &amp; MSA Lots)</td>
<td>9,387</td>
<td>620</td>
<td>1,549</td>
<td>11,556</td>
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</table>
Table 2: YTD 2019 Activation Units

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<td>11</td>
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<td>620</td>
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<tr>
<td>Tucson</td>
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<td>1,233</td>
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<td>TOTAL</td>
<td>6,050</td>
<td>5,506</td>
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Table 1: YTD 2019 Enrollment Units

<table>
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<th>AMA</th>
<th>ML Lots</th>
<th>Projected Demand (AF/yr)</th>
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<td>TOTAL</td>
<td>3,963</td>
<td>2,996</td>
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</table>

Figure 1: Member Land Enrollment

Figure 2: Activation Units

2019 YTD Enrollment

An individual subdivision enrolls as a Member Land (ML) of CAGRD when: (1) its owner executes and records an irrevocable declaration of covenants, conditions and restrictions (“ML Declaration”) running with the land that includes the land in CAGRD and subjects it to the replenishment assessment, and (2) the owner and the municipal provider that will supply water to the subdivision execute and record an agreement (“ML Agreement”) under which the water provider agrees to submit the water delivery information necessary to calculate the replenishment assessment for each parcel of land annually to CAGRD. Individual parcels within a CAGRD ML are categorized as Category 1 MLs or Category 2 MLs. Category 2 MLs are those parcels that are part of a golf course and that choose not to participate in CAGRD’s replenishment reserve program. Category 1 MLs are all ML parcels that do not qualify as Category 2 MLs.

Figure 1 illustrates the recent history of CAGRD member land enrollment from 2010 through Q2 2019. Table 1 provides a breakdown by AMA of member land enrollment activity during the first half of 2019. So far, all 2019 ML enrollment occurred in the Phoenix AMA, primarily in the East Valley, and was comprised of 17 subdivisions with 2,918 lots whose projected obligation totaled 2,996 AF/year. The East Valley encompassed 5% of new membership (1,045 lots) with a projected annual obligation of 1,083 AF/year associated with the new enrollment. The West Valley encompassed 65% of new membership (1,845 lots) with a projected annual obligation of 1,883 AF/year associated with the new enrollment. The West Valley encompassed 20% of new membership (545 lots) with a projected annual obligation of 545 AF/year. No new subdivisions have enrolled in 2019 within the Pinal or Tucson AMAs.

Figure 2: Activation Units

2019 YTD Activation

The Arizona Department of Real Estate issues a public report allowing the sale of lots within subdivisions. Prior to this report being issued for subdivisions within CAGRD AMAs and MAs, an Activation Fee must be paid to CAGRD per residential unit offered for sale. Figure 2 shows the recent history of activation lots in Member Lands and Member Service Areas by AMA. MSA lots are represented with crosshatching while ML lots are solid colors by AMA. Through Q2 2019, the number of lots activated totaled 11,556 (Member Land lots = 6,050; Member Service Area lots = 5,506). Table 2 provides a breakdown by AMA of previously enrolled lots that were activated in the first half of 2019.
<table>
<thead>
<tr>
<th>Member Land Name</th>
<th>CAGRD #</th>
<th>County</th>
<th>AIRE</th>
<th>Member Date</th>
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</table>

**Total**: 3,963

Denotes ML with Category 2 Parcels
Date: 08/05/19  
To: CAGRD and Underground Storage Committee  
From: Laura Grignano, Manager, CAGRD  
Subject: History of the Two-Thirds Minimum Reporting Requirements for Member Land Water Providers

ISSUE: At the June 2019, CAGRD and Underground Storage Committee meeting staff briefed the Committee on factors effecting current reported obligation. One factor mentioned as temporarily lowering obligation was the 2015 expiration of the two-thirds minimum reporting requirement for Member Land (ML) water providers serving subdivisions enrolled prior to January 1, 2004. Starting in 2015, per their contractual agreement with CAGRD, water providers reporting water delivered to pre-2004 MLs no longer were required to report a minimum of two-thirds groundwater delivered as excess groundwater. The Committee asked staff for the history of the two-thirds minimum reporting requirement and the reason for this expiration in 2015 for MLs enrolled before 2004. This memo attempts to answer those questions.

BACKGROUND: In 1995, under the new Assured Water Supply (AWS) Rules, a designated provider or subdivision certificate holder received a lump sum of “allowable groundwater credits”¹, or groundwater that was exempt from needing replenishment, and there was no restriction on when and how those credits could be used. For example, a provider could use all of the subdivision’s “allowable groundwater credits” early on to avoid reporting any excess groundwater to CAGRD. Under CAGRD’s enabling legislation, unless a provider delivered excess groundwater to a CAGRD member in any given year, CAGRD had no revenue.

¹ The Arizona Administrative Code details how ADWR may calculate a groundwater allowance for a certificate or designation in each AMA. The calculation for Pinal AMA was just changed this year. In any case, the most basic explanation is that an allowance was awarded at a particular allocation factor multiplied by the annual estimated water demand of the subdivision or service area. (R12-15-724 through R12-15-727).
stream from which to cover its operating expenses. In order to guarantee that CAGRD would have a steady revenue stream to cover its operating expenses as well as protect provider’s customers from rate shock once the credits were all used, CAGRD developed a contractual solution that required providers to report deliveries of excess groundwater according to a phase-in formula. As each new Member Land was enrolled, CAGRD would enter into an agreement\(^2\) with the provider which, among other things, required providers serving MLs to annually report a minimum amount of excess groundwater. This minimum amount gradually increased over a prescribed period of time. The phase-in period for both Phoenix and Tucson AMAs was 20 years (1995-2014)\(^3\). At the end of that period, providers would no longer be required to report a minimum excess groundwater amount at a percentage of total groundwater deliveries. Providers could report any portion of their total groundwater deliveries as excess groundwater, so long as they had sufficient credits available to make up the difference.

In late 2003, due to new statues related to the Replenishment Reserve Fee and Charge, both the Phoenix and Tucson AMA standard form ML agreements were revised to eliminate the phase-in period and instead required that at least two-thirds of the groundwater delivered to new MLs (enrolled after January 2004), carry a replenishment obligation indefinitely. This was implemented to improve equality among CAGRD members and increase available funding for the development of the newly created CAGRD replenishment reserve. In 2007, with the change in the Pinal Assured Water Supply Rules, the Pinal AMA standard form ML agreements for MLs enrolled post Rule change required the same two-thirds minimum reporting requirement.

---

\(^2\) "Agreement and Notice of Municipal Provider Reporting Requirements"

\(^3\) See attached Table D-1 from 2005 Plan of Operation
### TABLE D-1
CAGRD Minimum Reporting Factors

<table>
<thead>
<tr>
<th>Year</th>
<th>Phx AMA MLs Enrolled Prior to 2004</th>
<th>Phx AMA MLs Enrolled After 2004</th>
<th>Tucson AMA MLs Enrolled Prior to 2004</th>
<th>Tucson AMA MLs Enrolled After 2004</th>
<th>Phx AMA MSAs</th>
<th>Tuc AMA MSAs</th>
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<td>1996</td>
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</table>

**Notes:**
- The minimum factor is multiplied by the member's groundwater use to determine the volume of Excess Groundwater to be reported.
- There are no minimum factors for members in the Pinal AMA.
- For Tucson and Peoria, Excess Groundwater to be reported is based on a negotiated schedule rather than these factors.