

ARIZONA HOUSE OF REPRESENTATIVES  
Fifty-fourth Legislature - First Regular Session

**HOUSE AD HOC COMMITTEE ON GROUNDWATER SUPPLY IN PINAL COUNTY**

Report of Interim Meeting  
Monday, October 21, 2019  
Pinal County Board of Supervisors Hearing Room -- 1:30 P.M.

**Convened** 1:30 P.M.

**Recessed**

**Reconvened**

**Adjourned** 4:25 P.M.

MINUTES RECEIVED  
CHIEF CLERK'S OFFICE

10-23-19

**Members Present**

Representative Cook, Chairman  
Mr. Buschatzke  
Representative Campbell  
Representative Gabaldón  
Representative Roberts  
Representative Rodriguez

**Members Absent**

Representative Griffin

**Agenda**

Original Agenda -- Attachment 1

**Request to Speak**

Report -- Attachment 2, 3, 4

**Committee Attendance**

Report -- Attachment 5

**Presentations**

<b><u>Name</u></b>	<b><u>Organization</u></b>	<b><u>Attachments (Handouts)</u></b>
Director Buschatzke	Arizona Department of Water Resources	6, 7
Christopher Salas, P.E.	Town of Florence	8
Jason Hauter	Gila River Indian Community	9
Sheryl Sweeney	Ryley Carlock & Applewhite	None
Craig Adams	Pulte Homes	None
Rob Anderson	Homebuilders Association for Southern Arizona	None

  
Sharon Carpenter, Policy Advisor  
October 23, 2019

(Original attachments on file in the Office of the Chief Clerk; video archives available at <http://www.azleg.gov>)

## ARIZONA HOUSE OF REPRESENTATIVES

### INTERIM MEETING NOTICE OPEN TO THE PUBLIC

#### HOUSE AD HOC COMMITTEE ON GROUNDWATER SUPPLY IN PINAL COUNTY

**Date:** Monday, October 21, 2019

**Time:** 1:30 P.M.

**Place:** Pinal County administrative Complex  
Pinal County Board of Supervisors Hearing Room  
135 N. Pinal Street, Florence, AZ 85312

Convened 1:30pm  
adjourned 4:25pm

#### AGENDA

1. Call to Order
2. Presentations:
  - Arizona Department of Water Resources
  - Town of Florence
  - Gila River Indian Community
  - Builders and Developers
3. Public Testimony
4. Committee Discussion
5. Adjourn

#### Members:

Representative David L. Cook, Chair ✓  
Representative Noel Campbell ✓  
Representative Rosanna Gabaldón ✓  
Representative Gail Griffin  
Representative Bret Roberts ✓  
Representative Diego Rodriguez ✓

Thomas Buschatzke ✓

10/16/19  
JY

People with disabilities may request reasonable accommodations such as interpreters, alternative formats, or assistance with physical accessibility. If you require accommodations, please contact the Chief Clerk's Office at (602) 926-3032 or through Arizona Relay Service 7-1-1.

PLEASE COMPLETE THIS FORM FOR THE PUBLIC RECORD



HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on Pinal Groundwater Bill Number \_\_\_\_\_

Date 10/24/19  Support  Oppose  Neutral

Name Take Lendeking Need to Speak?  Yes  No

Representing Global Water Resources Are you a registered lobbyist? \_\_\_\_\_

Complete Address 2016 W Forest Pleasant Ln Phoenix AZ 85085

E-mail Address Take.Lendeking@gwresources.com Phone Number 480 225 4538

Comments: Good job - Be co-chair I think it's cool

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

PLEASE COMPLETE THIS FORM FOR THE PUBLIC RECORD



HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on \_\_\_\_\_ Bill Number \_\_\_\_\_

Date 10-21-19  Support  Oppose  Neutral

Name FRANK Corkhill Need to Speak?  Yes  No

Representing ADWR Are you a registered lobbyist? \_\_\_\_\_

Complete Address 6701 E 2nd St Scottsdale AZ 85251

E-mail Address fcorkhill@adwr.com Phone Number 480 424 7284

Comments: \_\_\_\_\_

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

PLEASE COMPLETE THIS FORM FOR THE PUBLIC RECORD



HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on \_\_\_\_\_ Bill Number \_\_\_\_\_

Date 10-21-2019  Support  Oppose  Neutral

Name William Garfield Need to Speak?  Yes  No

Representing Arizona Water Co Are you a registered lobbyist? No

Complete Address 8659 E. Hobart St Mesa, AZ 85207

E-mail Address bgarfield@azwater.com Phone Number 480-984-9565 (home)  
602-361-4785 (work)  
(cell)

Comments: want to speak in support of local stakeholder  
group - formed to find solution to Pinal Water problem

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

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HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on \_\_\_\_\_ Bill Number \_\_\_\_\_

Date 10-21-19  Support  Oppose  Neutral

Name STEPHEN MILLER Need to Speak?  Yes  No

Representing Pinal County Are you a registered lobbyist? NO

Complete Address \_\_\_\_\_

E-mail Address \_\_\_\_\_ Phone Number \_\_\_\_\_

Comments: wants a local stakeholder meeting

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

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HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on Ad Hoc Bill Number \_\_\_\_\_

Date 10/21/19  Support  Oppose  Neutral

Name BAS AJA Need to Speak?  Yes  No

Representing AZ CATTLE FEEDERS Are you a registered lobbyist? \_\_\_\_\_

Complete Address 916 W. ADAMS PHOENIX AZ

E-mail Address baja@arizonabeef.com Phone Number \_\_\_\_\_

Comments: Brought up great question about our next 80 plus food/stock supply.

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

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HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on Pical AMA Bill Number \_\_\_\_\_

Date 10/21/19  Support  Oppose  Neutral

Name Brent Billingsley Need to Speak?  Yes  No

Representing Town of Florence Are you a registered lobbyist? No

Complete Address 9144 N. Cordonia Ln

E-mail Address brent.billingsley@florenceaz.gov Phone Number (520) 868-7558

Comments: Re. Ad Hoc Committee Process

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

PLEASE COMPLETE THIS FORM FOR THE PUBLIC RECORD



HOUSE OF REPRESENTATIVES

Please PRINT Clearly

Committee on WATER Bill Number \_\_\_\_\_

Date 10-21-19  Support  Oppose  Neutral

Name PAUL HENDRICKS Need to Speak?  Yes  No

Representing \_\_\_\_\_ Are you a registered lobbyist? NO

Complete Address 19002 N 21ST AVE, PHX AZ 85027

E-mail Address HENDRICKS.PAUL@<sup>OUTLOOK.</sup>COM Phone Number 623 204 4901

Comments: USE IMPERICAL DATA, JEROME PINALAMA  
to LOCAL REALITY

\*\*\*FIVE-MINUTE SPEAKING LIMIT\*\*\*

Former BOAL member CAP - (good)!

October 16, 2019

The Honorable David L. Cook  
Arizona House of Representatives  
1700 W. Washington St.  
Phoenix, AZ 85007

Re: House Ad Hoc Committee on Groundwater Supply in Pinal County

Dear Representative Cook:

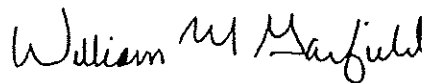
We appreciate that you established the ad hoc committee to study Pinal AMA groundwater supplies and other related issues. We agree the best solutions to address these matters should come from local stakeholders and community leaders as was discussed during the October 11 meeting in Casa Grande. We believe our experience working on Pinal County groundwater issues makes us well qualified to serve as co-chairs of a local stakeholder effort examining potential solutions. To that end, we would like to solicit your input concerning our potential involvement.

Thank you for your consideration.

Sincerely,



Stephen Q. Miller  
Pinal County Board of Supervisors  
District 3 Supervisor



William Garfield  
Arizona Water Company  
Senior Advisor and Director

jrc

VIA U.S. POSTAL SERVICE AND EMAIL ([dcook@azleg.gov](mailto:dcook@azleg.gov))



October 17, 2019

*Via Email*

Representative David Cook  
Arizona House of Representatives  
1700 West Washington Street  
Phoenix, Arizona 85007

Re: Ad Hoc Committee on Groundwater Supply in Pinal County and Stakeholders

Dear Representative Cook,

Thank you for taking a strong leadership position on the Pinal water issues and creating the Ad Hoc Committee on Groundwater Supply in Pinal County. Your process is proving successful and I am honored to have had the opportunity to present at it. Also, I really enjoyed discussing water issues on Horizon with you. It is very clear, we have some issues to deal with and a lot of hard work ahead of us. You have asked for someone in the community to "step up and lead a local effort to address shortages in Pinal County so that together we can work toward a long-term solution that is supported by the people closest to the issue." I am writing you today to formally step up to help lead our community to the solutions we need.

Not only am I active in today's issues, but I have a strong track record of getting difficult things accomplished in water resources. Over the years, I've secured many new water resources (and we're going to need them in Pinal) by working with farmers on water leasing and in another separate project securing a 50-year water supply agreement with an irrigation district. I was even key to a stakeholder process in Clovis, NM that created new groundwater rules similar to what we are about to do here in Pinal.

Specific to the Pinal water issues today, I am a co-study manager on the Eloy and Maricopa Stanfield Basin Study, a three-year study on water in the Pinal AMA. Additionally, I brought together a task force regarding water for development, a task force that has been working on answers to our local water issues, some of which I discussed at the last Ad Hoc committee meeting.

We face some difficult issues, issues that are going to take courage and hard work to tackle. I know that I am that person who can both foster the courage in myself and others to make the difficult decisions together for the betterment of our community. I hope and trust that you will agree.

Thanks again for your proven leadership on this difficult issue.

Kind Regards,

A handwritten signature in black ink, appearing to read 'Jake Lenderking', is written over a thin, light-colored line.

Jake Lenderking

cc: Thomas Buschatzke, Director, Arizona Department of Water Resources

Global Water Resources, Inc. - Corporate Headquarters  
21410 North 19<sup>th</sup> Avenue, Suite 220, Phoenix, AZ 85027  
gwresources.com

Phone: 480-360-7775  
Fax: 844-232-3517



**ARIZONA STATE LEGISLATURE**  
Fifty-fourth Legislature – First Regular Session

**INTERIM COMMITTEE ATTENDANCE RECORD**

COMMITTEE ON HOUSE AD HOC COMMITTEE ON GROUNDWATER SUPPLY  
IN PINAL COUNTY

CHAIRMAN: David Cook VICE-CHAIRMAN: \_\_\_\_\_

DATE	10/21/19	/19	/19	/19	/19
CONVENED	1:30 pm				
RECESSED					
RECONVENED					
ADJOURNED	4:25pm				
MEMBERS					
Thomas Buschatzke	✓				
Representative Noel Campbell	✓				
Representative Rosanna Gabaldón	✓				
Representative Gail Griffin	exc				
Representative Bret Roberts	✓				
Representative Diego Rodriguez	✓				
David Cook, Chairman	✓				

√ Present      --- Absent      exc Excused



**DOUGLAS A. DUCEY**  
Governor

**THOMAS BUSCHATZKE**  
Director

**ARIZONA DEPARTMENT of WATER RESOURCES**  
1110 West Washington Street, Suite 310  
Phoenix, Arizona 85007  
602.771.8500  
azwater.gov

October 21, 2019

Representative David L. Cook  
Arizona House of Representatives  
1700 West Washington Street, Suite H  
Phoenix, Arizona 85007-2844

Re: October 16, 2019 Letter Requesting Information Regarding Pumping in the Pinal Active Management Area

Dear Representative Cook:

Thank you for your request that Arizona Department of Water Resources (ADWR) modeling staff be available to answer questions at the committee hearing on October 21, 2019. ADWR will have a hydrologist available to answer questions from the committee.

Following are responses to your requests for information in your October 16, 2019 letter. However, the 20-year timeframe for the data you requested is not consistent with the 100-year time period used for the 2019 Pinal Groundwater Model as required by statute. Comparing the projected pumping for a 20-year time period against a 20-year historical time period is not an accurate assessment of the 100-year model projections. In particular, the agricultural pumping in the Pinal AMA declines more significantly in the last 80 years of the model timeframe than in the first 20 years.

- 1. Request for maximum allowed pumping for agriculture over the last 20 years, including actual pumping numbers and projections for the next 20 years**

#### Maximum Allowed Pumping

ADWR cannot accurately determine a maximum pumping allotment for the last 20 years. Agricultural lands enrolled in the Best Management Practices (BMP) Program, established by statute in 2002, are not subject to maximum allotments.

The total maximum allowed agricultural pumping for the years 1999 through 2018 in the Pinal AMA, not including lands enrolled in the BMP Program, is 16,117,385.8 acre-feet. Based on the allotment in the year prior to BMP Program enrollment, the total maximum allowed agricultural pumping for the years 1999 through 2018 for lands enrolled in the BMP Program in the Pinal AMA is 2,755,542.5 acre-feet. The sum of those totals is 18,872,928.3 acre-feet. The annual allotment information used to calculate these totals is provided in Table 1, attached.

The volumes described above and included in Table 1 do not include pumping on Gila River Indian Community lands, because that pumping is not subject to state groundwater laws. Pursuant to the Gila River Indian Community Water Rights Settlement Agreement, the Gila River Indian Community can pump up to 156,700 acre-feet per year.

### Actual Historic Pumping

As reflected in Table 2, attached, the total historic agricultural pumping in the Pinal AMA for the years 1999 through 2015 was 7,104,757 acre-feet. From annual reports submitted to ADWR, the total agricultural pumping in the Pinal AMA for the years 2016 and 2017 combined was 855,787 acre-feet. The total historic agricultural pumping in the Pinal AMA from 1999 through 2017 is 7,960,544. Agricultural pumping data for 2018 is not yet available. ADWR does not have estimates of agricultural pumping on Gila River Indian Community lands for 2016 through 2018 at this time.

### Projected Pumping

As shown in Table 2, the 2019 Pinal Groundwater Model projects 9,640,524 acre-feet of agricultural pumping in the Pinal AMA from 2016 through 2037.

The projected future pumping for the requested 20-year period deviates from the requested 20-year historical data described above as follows:

- a. As required by the AWS rules, ADWR assumed discontinuation of agricultural pumping (and associated incidental agricultural recharge) for all agricultural lands that are also included in an analysis of assured water supply (analysis) or a certificate of assured water supply (certificate). The discontinued agricultural pumping was replaced with the groundwater pumping associated with the respective analysis or certificate.
- b. ADWR incorporated projected changes in future groundwater pumping to account for the reduction in CAP water deliveries to the agricultural/excess pool beginning in 2024 and the elimination of the agricultural/excess pool beginning in 2031.

ADWR's long-term projections in the 2019 Pinal Groundwater Model incorporated additional reductions in agricultural pumping based on projections from CAIDD and MSIDD in combination with planning and other projection data. These longer-term reductions are not represented in the 20-year projections you requested.

ADWR did not incorporate assumptions regarding additional agricultural production wells or pumping related to the Arizona Drought Contingency Implementation Plan, which was still under negotiation during the development of the 2019 AWS Run assumptions.

**2. Request for actual pumping allowances for the City of Maricopa for the last 20 years and projections for the next 20 years.**

The City of Maricopa does not hold any groundwater withdrawal authority. Maricopa is served by two municipal providers: Maricopa Domestic Water Improvement District (MDW) and Global-Santa Cruz Water Company (Global-Santa Cruz). Global-Santa Cruz has two service areas, which are separated by the Ak-Chin Indian Community Reservation. The North service area serves most of the City of Maricopa. The Southwest service area serves a smaller area southwest of the Ak-Chin Indian Community Reservation outside the City of Maricopa.

Both Global-Santa Cruz and MWD are legally authorized to pump groundwater according to their respective service area rights. Service area rights do not limit the volume of groundwater that the service area right holder may pump.

MDW is not designated as having an assured water supply. According to annual reports from 2003 to 2017, MDW's groundwater withdrawals ranged from 145 to 262 acre-feet per year. In the 2019 Pinal Groundwater Model, ADWR used MDW's 2015 reported groundwater pumping volume of 218 acre-feet and assumed the same volume of groundwater pumping for each year of the 100-year projection. The total projected pumping for 20 years is 4,360 acre-feet.

Global-Santa Cruz is designated as having an assured water supply for both its North and Southwest service areas for a total volume of 22,914.12 acre-feet per year of groundwater and effluent. ADWR inadvertently included this full volume in the 2019 Pinal Groundwater Model for each year of the 100-year projection period. However, only 17,782.25 acre-feet per year of groundwater pumping should have been included for Global-Santa Cruz. The total projected pumping for 20 years (of the 100 years included in the model) is 458,282.4 acre-feet. The corrected total projected pumping for 20 years would be 355,645 acre-feet.

In 2017, the total groundwater pumping for both the North and Southwest service areas was 7,512.86 acre-feet. In 2018, the total groundwater pumping for both service areas was 7,401.70 acre-feet.

Sincerely,



Thomas Buschatzke  
Director

# **ATTACHMENT 1**

**Table 1: Maximum Pumping Allotments for the Pinal AMA 1998-2018**

<b>Year</b>	<b>BMP Allotments (AF)<sup>1</sup></b>	<b>Base Program (non-BMP) Allotments (AF)</b>	<b>Sum of Allotments (AF)</b>
1999	0.0	1,075,793.0	1,075,793.0
2000	0.0	949,156.7	949,156.7
2001	0.0	948,332.9	948,332.9
2002	0.0	983,584.3	983,584.3
2003	0.0	982,657.6	982,657.6
2004	63,006.5	916,914.9	979,921.3
2005	94,249.5	874,283.3	968,532.7
2006	102,410.0	843,373.7	945,783.7
2007	105,511.8	809,953.7	915,465.5
2008	114,094.4	801,305.6	915,400.0
2009	113,525.9	802,247.9	915,773.8
2010	150,782.0	767,332.5	918,114.5
2011	184,795.9	746,669.0	931,464.9
2012	196,716.4	724,246.7	920,963.1
2013	224,549.4	693,806.0	918,355.4
2014	266,815.9	659,141.1	925,957.0
2015	280,218.4	639,990.4	920,208.9
2016	281,817.7	638,327.5	920,145.1
2017	286,075.4	634,044.1	920,119.5
2018	290,973.3	626,224.9	917,198.2
<b>Grand Total</b>	<b>2,755,542.5</b>	<b>16,117,385.8</b>	<b>18,872,928.3</b>

<sup>1</sup> The BMP allotments are assumed based on the allotment for the year prior to enrollment in the BMP Program.

# **ATTACHMENT 2**

Table 2 Model Assigned Agricultural Pumping 1996 - 2037

Model Assigned Pumping For the Agricultural Sector For Wells Within the Pinal Model Domain													
Stress Period	SUBBASIN	ELOY				Maricopa-Stanfield			East Salt River Valley (Part Within Pinal AMA Model)			Total Eloy + Maricopa Stanfield Only (Pinal)	Total Inside Model Domain
		DATA SOURCE	RoGR	GRIC	SCIP	Total Eloy	RoGR	GRIC	Total M-S	GRIC	SCIP		
HISTORIC (1996 - 2015)													
75	1996	280,152	6,689	39,200	326,040	154,962	11,810	166,772	34,963	16,437	51,400	492,812	544,212
76	1997	247,123	5,047	53,306	305,476	95,403	9,245	104,649	27,013	27,491	54,504	410,125	464,629
77	1998	221,351	6,689	36,520	264,559	90,982	11,810	102,792	34,963	17,118	52,081	367,351	419,432
78	1999	228,234	4,906	49,586	282,727	93,376	8,646	102,022	25,615	26,393	52,007	384,749	436,756
79	2000	254,684	2,307	48,284	305,275	89,091	0	89,091	4,359	22,919	27,278	394,366	421,644
80	2001	209,465	6,689	41,305	257,458	81,491	11,810	93,302	34,963	23,438	58,401	350,760	409,161
81	2002	244,726	0	48,591	293,317	104,239	0	104,239	0	23,969	23,969	397,556	421,525
82	2003	289,945	0	42,977	332,922	139,451	0	139,451	0	26,041	26,041	472,374	498,414
83	2004	267,224	2,292	33,109	302,624	143,831	0	143,831	4,331	23,263	27,594	446,456	474,049
84	2005	200,343	6,689	31,429	238,461	93,019	11,810	104,829	34,963	14,497	49,460	343,290	392,750
85	2006	219,631	4,267	30,016	253,914	96,704	8,059	104,763	24,810	18,637	43,447	358,677	402,123
86	2007	249,207	4,129	35,399	288,735	107,294	7,558	114,852	23,759	19,754	43,513	403,588	447,101
87	2008	270,332	4,849	35,271	310,453	162,016	8,646	170,662	9,570	22,858	32,428	481,115	513,543
88	2009	237,291	6,689	38,198	282,178	139,184	11,810	150,994	6,360	24,833	31,193	433,172	464,365
89	2010	219,164	6,937	32,045	258,146	93,044	12,248	105,291	6,595	14,262	20,857	363,437	384,294
90	2011	267,388	11,531	33,160	312,079	136,643	20,361	157,004	10,964	16,521	27,485	469,082	496,568
91	2012	250,597	10,658	39,501	300,755	133,484	18,819	152,303	10,134	27,418	37,552	453,059	490,610
92	2013	269,460	10,022	37,504	316,986	127,544	17,695	145,240	9,529	23,374	32,902	462,226	495,128
93	2014	259,872	8,645	33,946	302,464	132,590	15,265	147,855	8,220	23,397	31,617	450,318	481,935
94	2015	247,622	11,332	26,579	285,532	134,993	20,009	155,001	10,774	28,363	39,137	440,534	479,671
	TOTAL	4,933,811	120,364	765,927	5,820,102	2,349,342	205,601	2,554,943	321,884	440,981	762,866	8,375,045	9,137,911
	MIN	200,343	0	26,579	238,461	81,491	0	89,091	0	14,262	20,857	343,290	384,294
	MAX	289,945	11,531	53,306	332,922	162,016	20,361	170,662	34,963	28,363	58,401	492,812	544,212
	AVE	246,691	6,018	38,296	291,005	117,467	10,280	127,747	16,094	22,049	38,143	418,752	456,896
PROJECTED (2016 - 2037)													
		Existing Registered Well Localtons	GRIC Well Localtons	SCIP Well Localtons	Total Eloy	Existing Registered Well Localtons	GRIC Well Localtons	Total M-S	GRIC Well Localtons	SCIP Well Localtons	Total ESRV	Total Eloy + Maricopa Stanfield Only (Pinal AMA)	Total Inside Model Domain
95	2016	159,105	14,033	16,811	189,949	131,436	24,779	156,214	13,343	35,124	48,467	346,163	394,630
96	2017	163,594	13,753	14,501	191,848	131,436	24,284	155,719	13,076	34,422	47,498	347,567	395,066
97	2018	179,394	13,472	25,829	218,696	131,436	23,789	155,224	12,810	33,721	46,530	373,920	420,450
98	2019	189,213	13,192	32,923	235,329	131,332	23,294	154,626	12,543	33,019	45,562	389,955	435,517
99	2020	168,379	12,912	17,513	198,804	131,212	22,799	154,010	12,277	32,317	44,594	352,814	397,408
100	2021	181,835	12,631	27,561	222,027	130,892	22,304	153,195	12,010	31,616	43,626	375,222	418,848
101	2022	188,282	12,351	32,469	233,103	130,564	21,809	152,373	11,743	30,914	42,657	385,475	428,133
102	2023	185,798	12,071	30,821	228,690	130,231	21,314	151,544	11,477	30,212	41,689	380,234	421,923
103	2024	199,216	11,790	15,256	226,263	155,762	20,819	176,580	11,210	29,511	40,721	402,843	443,564
104	2025	206,803	11,510	16,949	235,262	158,363	20,324	178,687	10,944	28,809	39,753	413,949	453,702
105	2026	213,998	11,230	17,608	242,836	161,020	19,829	180,849	10,677	28,107	38,785	423,685	462,470
106	2027	215,396	10,949	14,489	240,835	162,854	19,334	182,188	10,411	27,406	37,816	423,023	460,839
107	2028	229,849	10,669	16,780	257,298	167,691	18,839	186,529	10,144	26,704	36,848	443,828	480,676
108	2029	226,191	10,389	13,948	250,528	166,653	18,344	184,997	9,878	26,002	35,880	435,524	471,404
109	2030	209,539	10,108	10,415	230,062	147,054	17,849	164,902	9,611	25,301	34,912	394,964	429,876
110	2031	303,750	9,828	18,425	332,003	175,215	17,354	192,568	9,345	24,599	33,944	524,571	558,515
111	2032	312,837	9,548	23,298	345,682	175,215	16,859	192,073	9,078	23,897	32,975	537,755	570,731
112	2033	306,217	9,267	18,340	333,825	175,215	16,364	191,578	8,811	23,196	32,007	525,403	557,410
113	2034	321,753	8,987	29,668	360,408	175,215	15,869	191,083	8,545	22,494	31,039	551,492	582,531
114	2035	331,527	8,707	36,763	376,997	175,215	15,374	190,588	8,278	21,792	30,071	567,585	597,655
115	2036	299,981	8,426	21,352	329,759	171,521	14,879	186,399	8,012	21,091	29,102	516,158	545,261
116	2037	303,571	8,146	31,400	343,117	170,893	14,384	185,276	7,745	20,389	28,134	528,393	556,528
	TOTAL	5,096,229	243,972	483,119	5,823,319	3,386,422	430,783	3,817,205	231,968	610,642	842,611	9,640,524	10,483,135
	MIN	159,105	8,146	10,415	189,949	130,231	14,384	151,544	7,745	20,389	28,134	346,163	394,630
	MAX	331,527	14,033	36,763	376,997	175,215	24,779	192,568	13,343	35,124	48,467	567,585	597,655
	AVE	231,647	11,090	21,960	264,696	153,928	19,581	173,509	10,544	27,756	38,300	438,206	476,506



October 21, 2019

## **Questions and Answers Prepared by ADWR About the 2019 Pinal Model and 100-Year Assured Water Supply Projection Technical Memorandum**

ADWR recently released the 2019 Pinal Model and 100-Year Assured Water Supply Projection Technical Memorandum (Technical Memo), dated October 11, 2019, available on the Arizona Department of Water Resources' (ADWR) website at: <http://infoshare.azwater.gov/docushare/dsweb/View/Collection-19686>

The 2019 Pinal Model used for this analysis is an updated and modified version of the Pinal model completed in 2014. The 2019 Pinal Model includes reported pumping and estimated recharge data through 2015 and structural modifications to the conceptual aquifer thickness in several areas of the model domain. Model updates and modifications will be discussed at the upcoming Pinal Model Presentation to be held at ADWR on November 1<sup>st</sup>, 2019 from 1-5 pm.

The purpose of this 100-Year Assured Water Supply Projection (2019 AWS Run) was to model existing and projected future groundwater use and recharge over the 100-year projection period, quantify any unmet demands by sector and location within the model domain, and project the depth to water after 100 years of pumping. See the Technical Memo, Page 9 for further details.

Below is a list of potential model-related questions with ADWR's answers:

- 1. Given that the 2019 AWS Run shows significant unmet demand that were not apparent with the use of smaller, local models, would it make more sense to revert to smaller, local models to allow development to proceed?**

Smaller, local models do not accurately represent the cumulative impacts of pumping throughout the aquifer. This is why the full volume of unmet demand in the Pinal AMA was not apparent in the smaller, local models that were relied on previously. In order to provide the consumer protection intended by the Assured Water Supply (AWS) program, ADWR must rely on the best tools available to estimate the future groundwater supply. In the Pinal AMA, the 2019 Pinal Model is currently the best available tool. Rather than weakening the consumer protections of the AWS program, it is incumbent upon Pinal stakeholders to identify real water solutions to ensure that long-term, reliable water supplies will be available to support Pinal's economic development in the future.

- 2. Does the 2019 AWS Run assume that all irrigation grandfathered groundwater rights (IGFRs) will be pumped to the maximum limits authorized by law?**

No. ADWR recognizes that the legal authorization to pump groundwater pursuant to an IGFR is a maximum limit, and not necessarily the likely annual pumping volume.

October 21, 2019

Additionally, under certain management plan programs (particularly flex credits and the Best Management Practices program), the annual authorized pumping volume would be difficult to quantify. Instead, ADWR relied on 2015 reported use on a district-wide basis (rather than IGFR-specific), in combination with information available regarding likely future changes, to develop the assumptions regarding future agricultural pumping.

**3. How did ADWR develop the pumping assumptions for agricultural pumping in the 2019 AWS Run?**

ADWR relied on reported well pumping data for 2015 to establish a baseline for existing agricultural use. This baseline was projected forward, subject to the following assumptions regarding changes in pumping:

- a. As required by the AWS rules, ADWR assumed discontinuation of agricultural pumping (and associated incidental agricultural recharge) for all agricultural lands that are also included in an analysis of assured water supply (analysis) or a certificate of assured water supply (certificate). The discontinued agricultural pumping was replaced with the groundwater pumping associated with the respective analysis or certificate.
- b. ADWR incorporated projected changes in future groundwater pumping to account for the reduction in CAP water deliveries to the agricultural/excess pool beginning in 2024 and the elimination of the agricultural/excess pool beginning in 2031.
- c. ADWR incorporated reductions in agricultural pumping based on projections from CAIDD and MSIDD in combination with planning and other projection data.

ADWR did *not* incorporate assumptions regarding additional agricultural production wells or pumping related to the Arizona Drought Contingency Implementation Plan, which was still under negotiation during the development of the 2019 AWS Run assumptions.

**4. Does the 2019 AWS Run assume maximum pumping for Type 1 and Type 2 Grandfathered Rights for 100 years?**

No. Model assumptions regarding Type 1 and Type 2 rights are described under Municipal and Industrial Groundwater Uses in the Technical Memo. Type 1 and Type 2 rights were assumed to continue pumping at the rates reported in 2015.

**5. How are long-term storage credits treated in the 2019 AWS Run?**

Long-term storage credits that are not included in issued assured water supply determinations were treated as follows:

- a. Existing long-term storage credits are projected to be removed at a rate of 1/100<sup>th</sup> of the total per year, for 100 years.
- b. The 2019 AWS Run does not include future storage at underground storage facilities.
- c. Future storage and accrual of long-term storage credits at groundwater savings facilities (GSFs) are simulated to be removed in the same year.
- d. The long-term storage credits associated with the Central Arizona Groundwater Replenishment District (CAGRDR), except for a small volume set aside as the Replenishment Reserve Account, remain in storage to meet CAGRDR replenishment obligations within the early years of the simulation (2016 – 2035). Thereafter, additional CAGRDR replenishment is simulated at a rate of 15,500 acre-feet per year based on the 2015 CAGRDR Plan of Operation (related to question 6).

Long-term storage credits included in assured water supply determinations are included in the model, along with the associated removal of those credits to meet the water demand.

**6. Does the 2019 AWS Run include groundwater allowances and extinguishment credits?**

ADWR did not consider groundwater allowances and extinguishment credits. ADWR used the replenishment projection of 15,500 acre-feet per year included in the 2015 CAGRDR Plan of Operation, which already incorporated assumptions regarding groundwater allowances and extinguishment credits.

Groundwater allowance and extinguishment credits do not directly affect physical availability. Groundwater allowance and extinguishment credits may be used to reduce replenishment requirements.

**7. How is natural inflow, including Gila River flood flows, simulated in the 2019 AWS Run?**

Stream recharge is simulated to fluctuate consistent with the 16-year historical pattern between 1995-2010, which includes an average mix of wet and dry years. Mountain front recharge is simulated to remain at 2014 levels. Groundwater underflows at model boundaries are held constant at 2009 published model rates from 2010 – 2115 as specified flux boundary cells.

**8. What sources of incidental recharge are simulated in the 2019 AWS Run?**

Incidental recharge sources include urban, Picacho Reservoir, canal seepage, and agriculture.

**9. How are issued assured water supply determinations (analyses, certificates and designations) included in the 2019 AWS Run?**

Pursuant to the existing rules, all issued AWS determinations are assumed to be fully constructed and full pumping volumes are assumed for 100 years.

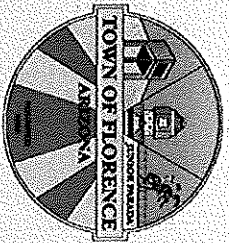
- a. Analyses: The pumping demand associated with each analysis, less any portion converted to a certificate, was assigned a proposed new well location in the center of the development's geographic footprint. For large developments, the pumping is represented in the center of several model cells covering the development's footprint.
- b. Certificates: ADWR determined whether the subdivisions associated with issued certificates have been fully constructed, partially constructed, or remain unconstructed.
  - i. Fully constructed: Pumping demands of certificates for fully built-out developments were assumed to be included in existing municipal pumping based on 2015 reported pumping data, and the certificated demand volume was not added.
  - ii. Partially constructed: For partially constructed certificates, ADWR estimated the portion constructed and the portion unconstructed. The pumping associated with the constructed portion was assumed to be included in existing municipal pumping from 2015. ADWR then estimated the remaining certificate demand associated with the unconstructed portion. This pumping was assigned to proposed new well locations, located in the center of the certificate's geographic footprint, or in larger developments, the center of several model cells covering the certificate's footprint.
  - iii. Unconstructed: For unconstructed subdivisions, the full pumping volume was assigned to new well locations in the center of each certificate's geographic footprint, or for larger subdivisions, the center of several model cells covering the certificate's footprint.
- c. Designations: The pumping associated with issued designations, other than the City of Eloy, was simulated at fully issued rates, simulated to be pumped from their existing well networks. In the case of Eloy, ADWR reduced the pumping to the volume requested in the pending application.
- d. Ten developments (certificates and analyses) are located outside the model domain but are expected to be served by water providers within the model domain. For these developments, the pumping was simulated within the model domain and within a few miles of the respective development.

**10. How are existing wells and proposed wells represented in the 2019 AWS Run?**

Most demands for existing sectors and for the AWS Designations are simulated at existing wells that were active in 2015 and reported their pumping to ADWR. Certain wells within the model domain, including wells located on or operated by the Gila River Indian Community or the federally run San Carlos Irrigation Project, do not report pumping to ADWR. In these cases, ADWR developed assumptions based on the most recent information available. Wherever possible, ADWR used actual well construction information without assuming future deepening or replacement.

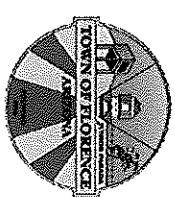
Proposed new wells created for simulating demands of unconstructed lots associated with issued AWS determinations are all assumed to be 20” diameter wells screened across all 3 model layers. The actual depth would depend on the model thickness assigned to the model cell where the well is located.

Both existing and proposed new wells use the Modflow Multi-Node Well (MNW) package for the projection period only. All wells are limited by the aquifer characteristics, well construction and simulated saturated thickness in their locations. Existing wells are further limited by their physical depth. ADWR did not impose any limitations on future pumping based on the economic feasibility of pumping from increasingly deeper depths. The Technical Memo provides further detail.



# Groundwater and Florence

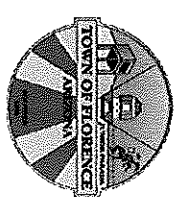
Seeking solutions through collaboration, quality science, and good  
policy



# Florence and our Water Future

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- Sources of Supply
  - Groundwater (Assured Water Supply Designation) – 15,069 AFA
  - CAP Allotment – 2,048 AFA
- Paper Water
  - CAGRD Membership
  - Incidental Recharge
  - Long Term Storage Credits
  - Extinguishment Credits

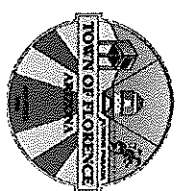


# Water Sustainability

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- Projects
  - New Town Recharge Facility
  - Water Sustainability Plan
- Partnerships
  - WaterNow Alliance
  - Growing Water Smart (Sonoran Institute)
  - Babbitt Center for Land Use Policy
  - Pinal Water Augmentation Authority
  - Arizona Department of Water Resources

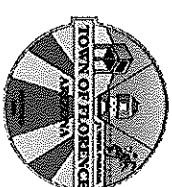




# Ongoing Policy Discussions

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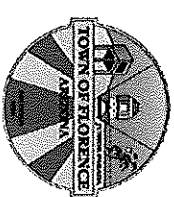
- 4<sup>th</sup> and 5<sup>th</sup> Pinal AMA Management Plans
  - Lack of participation from Senior ADWR Staff
  - Don't marginalize the GUAC (participation from all sectors)
  - Slow down, trust the process, history, and relationships
  - The 4<sup>th</sup> Management Plan was delivered in 2017 (Not signed)
  - Options provided on September 18 (A & B)
    - Safe Yield
    - One size fits all approach with Phoenix AMA
- \$9,000,000 to fund additional groundwater infrastructure



# Pinal AMA Model

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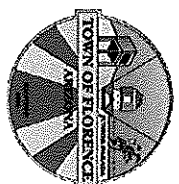
- Florence's Unique Position
  - Growth in Florence
  - Recharge and increase of BGS
  - Inflow and lack of issues experienced elsewhere in AMA
- AWS issues
  - Local Government "Entitlement Process"
  - Undeveloped/not created lots
  - AWS percentage of total impact to model (25%)



# Pinal AMMA Model

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- Appendix F
  - AFA 100% annually (out to 2115)
  - Linear growth rate (Florence example)
  - Inconsistency between the model results and the Technical Memo
- Assumptions
  - 100% buildout by 2115
  - Agriculture assumption

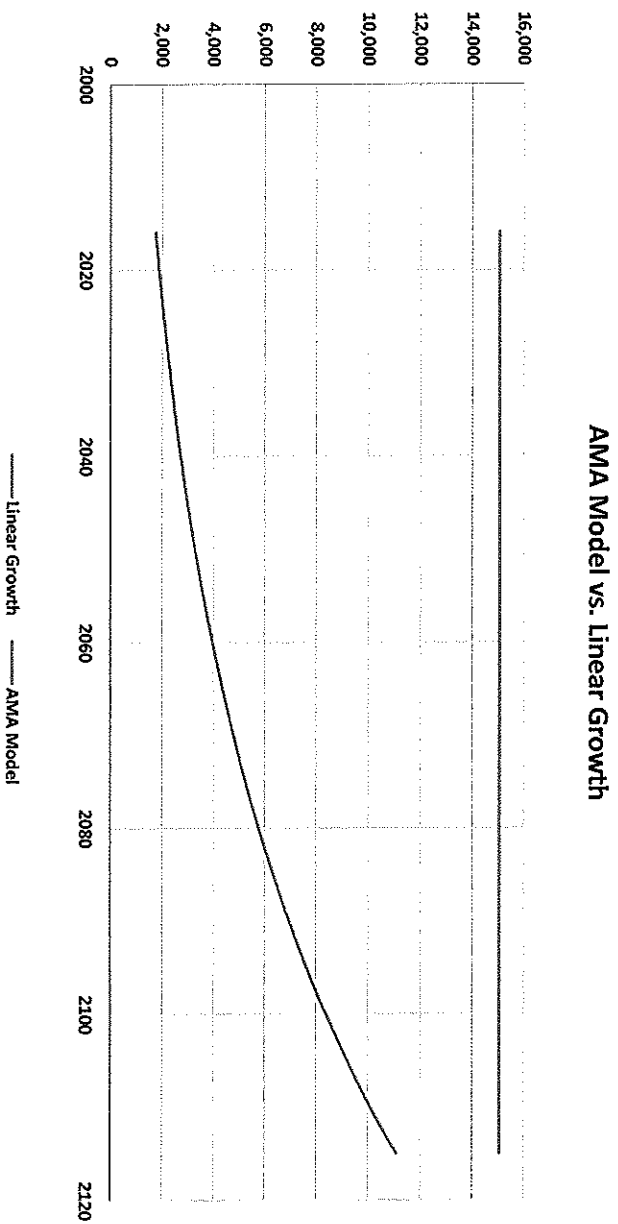
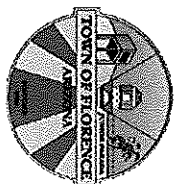


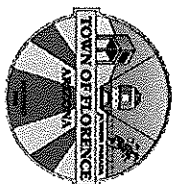
# Table F-3 Summary of Pinal AMA

NAME	Provider	Issued Groundwater Demand (AFA)	Modeled Demand (AFA)	Current Demand (AFA 2016)	Additional Population	Well Count <sup>2</sup>	Well Count With Unmet	Demand: AF (2016 - 2115)	Simulated AF (2016 - 2115)	Unmet AF (2016 - 2115)	Percent Unmet	Entry With Unmet Demand
Town of Florence	Town of Florence	15,069	1,753	15,069	116,547	6	5	1,506,900	981,772	525,128	34.85%	Y
Global Water - Santa Cruz Water Company	Global Water - Santa Cruz Water Company	22,914	6,172	22,914	146,533	13	0	2,291,412	2,291,406	6	0.00%	N
Johnson, Utilities, LLC	Johnson, Utilities, LLC	1,595	1,098	1,595	4,354	4	2	159,548	145,514	14,034	8.80%	Y
City of Eloy	City of Eloy	3,101	1,410	3,101	17,610	13	8	310,100	248,258	61,842	19.94%	Y
Johnson Ranch Estates (SW Environmental Utilities)	Johnson Ranch Estates (SW Environmental Utilities)	2,072	0	2,072	18,138	6	0	207,230	207,228	2	0.00%	N
City of Casa Grande	City of Casa Grande	4,113	178	4,113	34,441	3	1	411,300	379,056	32,242	7.84%	Y
<b>TOTAL</b>	<b>TOTAL</b>	<b>48,865</b>	<b>10,611</b>	<b>48,865</b>	<b>337,622</b>	<b>45</b>	<b>16</b>	<b>4,886,490</b>	<b>4,259,237</b>	<b>633,253</b>	<b>12.96%</b>	<b>Y</b>

Note:  
 1. For designations, existing wells operated by each was used for projections except for Johnson Ranch Estates which used proposed well locations in the model cell centroids where the designation outline was located.  
 [Shaded Box] = Unmet Demands  
 [White Box] = No Unmet Demands

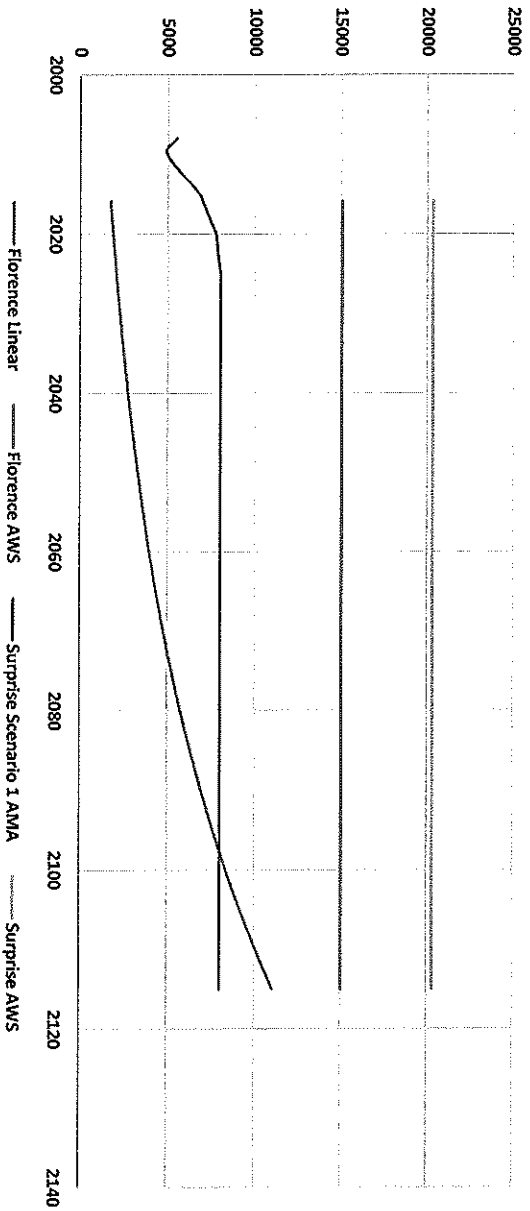
# Pinal AMMA Model

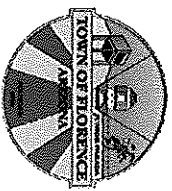




# Pinal AMA vs. Phoenix AMA

Pinal AMA vs. Phoenix AMA

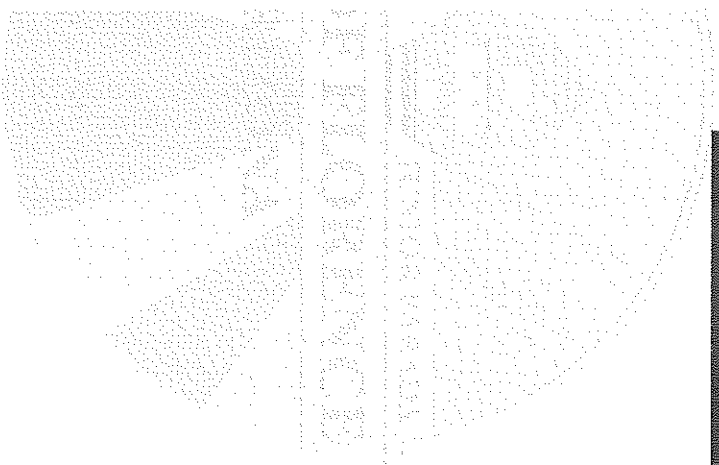


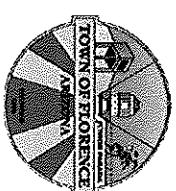


## Pinal AMA Methodology – Agriculture Retirements

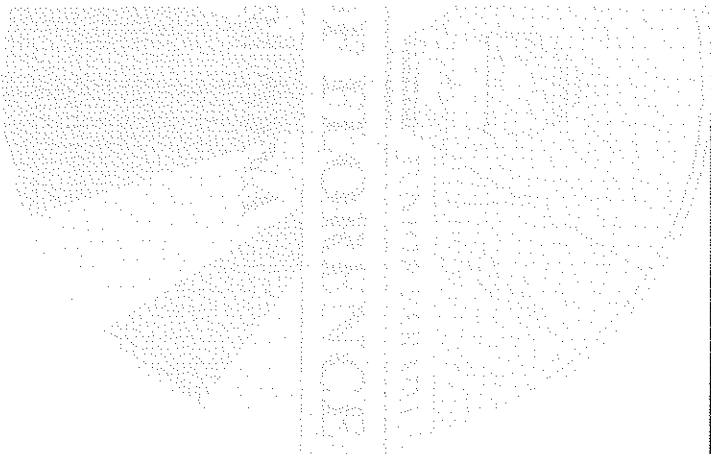
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Within the Analysis of Assured Water Supply (AAWS) and Certificate of Assured Water Supply (CAWS) development footprints, agricultural wells that were active in 2015 are not assigned any further pumping during the 2016 – 2115 projection period.



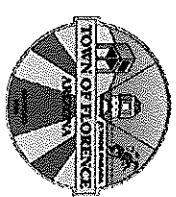


## Phoenix AMA Methodology – Agriculture Retirements



To reasonably project the agricultural pumping into the future a method was created to turn the agricultural pumping off as the land urbanized. This method used predicted population data to determine when an area would urbanize. Once an area urbanized the agricultural pumping was turned off in the predictive scenario. The Department used a similar process for the predictive model work that was done for the Salt River Valley in the later part of the 1990's (Hipke, et.al., 1996) and for the East Valley Water Forum (Hipke, 2007).





## In Closing

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- Make the MOD Flow Model available
- Take a close look at how recharge is represented
- Focus Management Plans on local process and input
- Don't use the one size fits all approach
- Address the AWS issue
- Work with outside technical professionals and all sectors on the Pinal AMA model and its assumptions
- Consider allowing Florence to have its own sub area model

## **Statement for Groundwater Ad Hoc Committee October 21, 2019**

First, Governor Lewis would like to express the Community's commitment to continue to work with its neighbors to help meet water demand challenges we will collectively face in the coming years.

The Community also applauds ADWR's release of the 2019 Pinal Model and 100 Year Assured Water Supply Projections.

The Community is currently going through its own internal planning process to update its Water Plan.

Its Water Plan was adopted in 2015 and expires next year.

The 2019 Pinal Model will inform us as we go through this planning process.

Because the Community has the largest CAP Water entitlement in Arizona it is often approached to help its neighbors meet their assured water supply requirements and other water supply needs.

Understanding what kind of demands the Pinal and Phoenix AMAs have, informs the Community's internal planning, as it considers how much of its water resources it wants to make available for storage, exchange or lease, and how much CAP water it will need for its own long-term demands.

Since 2010 the Community has delivered over 1.6 million acre-feet to underground storage facilities and groundwater savings facilities in the Phoenix and Pinal AMAs.

Approximately 1 million acre-feet of this water has been delivered to Pinal AMA groundwater savings facilities.

However, in past three years the Community has curtailed its storage in the Pinal AMA largely to make substantial portions of its CAP water available for conservation efforts related to the Drought Contingency Plan, or DCP.

By the end of the DCP the Community will have conserved or stored a minimum of 290,000 acre-feet of its CAP water in Lake Mead, and is likely to exceed this number.

The Community also entered into a lease and exchange with Central Arizona Groundwater Replenishment District that will provide approximately 30,000 acre-feet annually to the GRD over the next 25 years.

The Community's commitments under the DCP and under the GRD agreement has reduced the availability of CAP water to store in the Pinal AMA in the short-term.

In addition, given that the Community is located in both the Pinal and Phoenix AMAs, it has been storing more water in the Phoenix AMA so it will eventually have an equal amount of long-term storage credits in both AMAs.

Further, the discussions over the past few years regarding Pinal AMA groundwater capacity has created some uncertainty regarding the utility of Pinal AMA long-term storage credits.

Ultimately, the Community thinks the 2019 Pinal Model helps alleviate some of this uncertainty, but we expect in the coming months and years ongoing discussion regarding how to meet Pinal's growth demands.

The Community is strong supporter of economic growth in Central Arizona, but the Community also believes this growth should be sustainable.

Internally, the Community has adopted water management policies to ensure that its increased reliance on groundwater is done in a manner that ensures a safe yield of pumped water.

The Community's irrigation demands are primarily met by the flows and stored water in the Gila River system.

It also receives water from other non-CAP water renewable sources.

In years past, the Community relied on CAP water as its primary source of supplementary water to meet peak demands in the Summer months.

But given the rising cost of CAP water the Community started rehabbing old wells and drilling new wells to have less expensive supplementary supply of water for its growers.

Under its settlement, the Community can pump over 156,000 acre-feet per year on its lands, and can exceed this amount if it needs to, provided it does not exceed its 10 year total water use cap of 6.5 million acre-feet.

In practice the Community pumps between 70,000 – 90,000 acre-feet per year for irrigation.

It expects this volume to increase over time as it relies less and less on CAP water and shifts to pumps as its primary supplemental supply to the water it receives from the Gila River and other non-CAP water sources.

In order to ensure that this increased pumping is sustainable, the Community has developed on-reservation recharge facilities that also serve as riparian restoration areas.

When all three of its planned recharge facilities are completed, the Community anticipates recharging between 40,000 – 60,000 acre-feet of CAP water per year.

How much CAP water the Community can make available for increased demands is an issue the Community leadership is currently tackling as it considers its own water needs.

The Community's leadership is also very sensitive to the concerns among its membership regarding entering into 100 years leases of its CAP water supplies.

The Community has made a commitment under its GRWS agreement with SRP to make some CAP water available for long-term lease, but this is a fairly small amount of water.

As it updates its Water Plan the Community's leadership must consider its own demands, which are paramount, the negotiation of the Colorado River management guidelines, which end in 2026, the rising cost of CAP water and the risks to that and other renewable supplies, and the demands in both the Phoenix and Pinal AMAs.

These are not easy policy choices, and the leadership must rely on imperfect costs projects, supply projections, and other studies like the Pinal Model.

And the leadership must make these decisions with an eye toward generations of members yet to be born.

The Community's goal is to ensure that it will have enough water to meet all of its needs in perpetuity.

The Community is committed to working with its neighbors to meet our regional water demand challenges, but any decision it makes is influenced by the primary goal of ensuring its own water demands are met.

Thank you for allowing me to speak to you today.

I am happy to answer any questions you may have.