

Potential Water Savings Under Ag-to-Urban Legislation

SB 1172, HB 2647

Key Point 1: Continued farming of IGFRs uses significant amounts of groundwater, even when accounting for incidental recharge from irrigation.

IGFR Allocation and Incidental Recharge

| | Phoenix AMA | Pinal AMA | Tucson AMA | Avg Across the AMAs |
|---|----------------|--------------|---------------|------------------------|
| Avg IGFR Water Allotment ¹ | 4.63 AF/ac | 3.54 AF/ac | 4.50 AF/ac | 3.97 AF/ac |
| Avg Incidental Recharge ² | 1.39 AF/ac | 1.06 AF/ac | 1.35 AF/ac | 1.19 AF/ac |
| Effective <u>Unreplenished</u> Groundwater Use ³ | 3.24 AF/ac | 2.48 AF/ac | 3.15 AF/ac | 2.78 AF/ac |

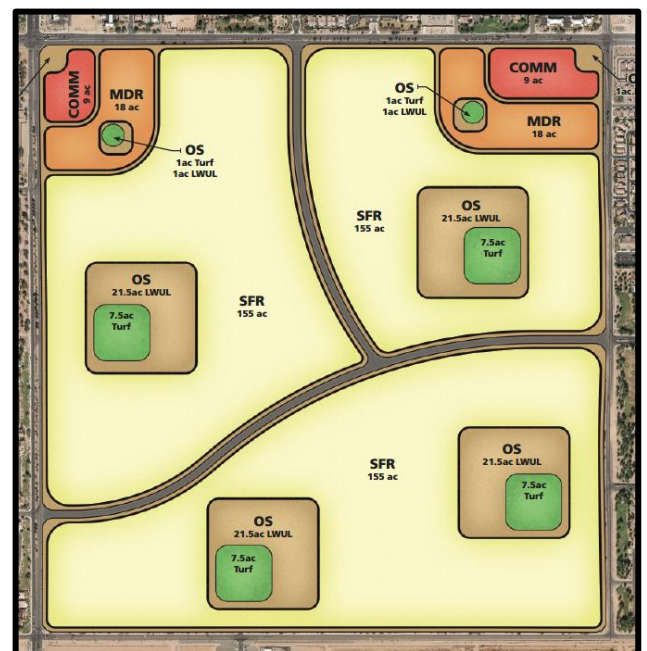
Key Point 2: Ag-to-Urban uses less water, would require 100% replenishment through CAGR, and would allow additional water sources to be captured.

Ag-to-Urban PAC and Recharge Data

| PAC per Irrigation Acre | CAGR Obligation | Effective Groundwater Use |
|-------------------------------|--------------------|---------------------------------|
| 2.1 AF/ac | 100% | 0 AF/ac |

Additional Water Sources Captured

| | |
|---|------------|
| Effluent ⁴ | 0.84 AF/ac |
| Increased Rainwater Capture ⁵ | 0.18 AF/ac |



AF/ac data for capture of precipitation through stormwater retention and drywells calculated based on a 640-acre conceptual land use plan using historic precipitation and Buckeye runoff coefficient values.

Key Point 3: Ag-to-Urban would save significant amounts of groundwater across the Phoenix, Pinal, and Tucson AMAs.

IGFRs Across the Phoenix, Pinal, and Tucson AMAs ¹

| | Phoenix AMA | Pinal AMA | Tucson AMA |
|---|------------------------|----------------------|-----------------------|
| Total Irrig. Acres | 138,124 acres | 253,398 acres | 33,710 acres |
| Effective <u>Unreplenished</u> Use ³ | 3.24 AF/ac | 2.48 AF/ac | 3.15 AF/ac |

**Savings per
Irrig. Acre:
Reduced
Groundwater**

**Potential Savings
Across the AMA**

**Savings per
Irrig. Acre:
New Water
Captured**

**Potential Savings
Across the AMA**

| | Savings per Irrig. Acre: Reduced Groundwater | Potential Savings Across the AMA | Savings per Irrig. Acre: New Water Captured | Potential Savings Across the AMA |
|------------------------|---|---|--|---|
| Phoenix AMA | 1.14 AF/ac = 3.24 AF/ac Unreplenished Use – 2.1 AF/ac PAC | 157,461 AF/yr = 1.14 AF/ac x 138,124 acres | 4.26 AF/ac = 1.14 AF/ac + CAGR + Effluent + Rainwater | 588,407 AF/yr = 4.26 AF/ac x 138,124 acres |
| | | 15.7 million AF = 157,461 AF/yr x 100 years | | 58.8 million AF = 588,407 AF/yr x 100 years |
| Pinal AMA | 0.38 AF/ac = 2.48 AF/ac Unreplenished Use – 2.1 AF/ac PAC | 96,291 AF/yr = 0.38 AF/ac x 253,398 acres | 3.50 AF/ac = 0.38 AF/ac + CAGR + Effluent + Rainwater | 886,893 AF/yr = 3.50 AF/ac x 253,398 acres |
| | | 9.6 million AF = 96,291 AF/yr x 100 years | | 88.7 million AF = 886,893 AF/yr x 100 years |
| Tucson AMA | 1.05 AF/ac = 3.15 AF/ac Unreplenished Use – 2.1 AF/ac PAC | 35,396 AF/yr = 1.05 AF/ac x 33,710 acres | 4.17 AF/ac = 1.05 AF/ac + CAGR + Effluent + Rainwater | 140,572 AF/yr = 4.17 AF/ac x 33,710 acres |
| | | 3.5 million AF = 35,396 AF/yr x 100 years | | 14.1 million AF = 140,572 AF/yr x 100 years |

Data Sources:

- (1): ADWR’s [List of Current IGRs and Allotment data query](#) lists IGFRs and includes their Allotment and number of Irrigation Acres. The listed value equals the Allotment divided by the number of Irrigation Acres, with both high and low outlier values filtered out which appear to have typos in their Current Allotment or number of Irrigation Acres.
- (2): In a [2022 report on Management Goals](#), ADWR calculates agricultural incidental recharge as 30 percent of demand, accounting for transmission and application losses. The listed value equals the Avg Allocation x 0.30.
- (3): Equals the Avg IGFR Water Allocation, less the amount considered as Incidental Recharge.
- (4): Estimated based on the [City of Phoenix’s 2021 Water Resource Plan Update](#), which reports that approximately 40 percent of total deliveries ends up at wastewater treatment plants. The listed 0.84 AF/ac value equals the 2.1 AF/ac PAC x 0.40.
- (5): Zoning codes require [stormwater retention basins](#). Dry wells constructed in these basins recharge stormwater that would otherwise evaporate or be lost as surface water. The 0.18 AF/ac value was calculated based on a hypothetical 640-acre development in Buckeye, considering [precipitation](#), evaporation and [runoff coefficients](#) for different uses.