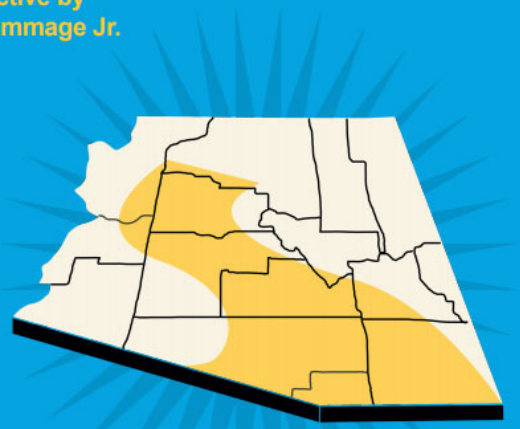
Beyond the Bathtub Ring:

How to Think about Water in the Sun Corridor

Return to Watering the Sun Corridor

A Perspective by
Grady Gammage Jr.



Spring 2021

ASU Kyl Center for Water Policy at Morrison Institute
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Summary of Existing Sun Corridor Supplies

2011

Salt/Verde	800,000 Average Af/Yr
Other Surface Water	250,000 Average Af/Yr
Natural Groundwater Recharge	260,000 Average Af/Yr
Colorado River	1,500,000 Average Af/Yr
TOTAL	**2,810,000 Average Af/Yr**

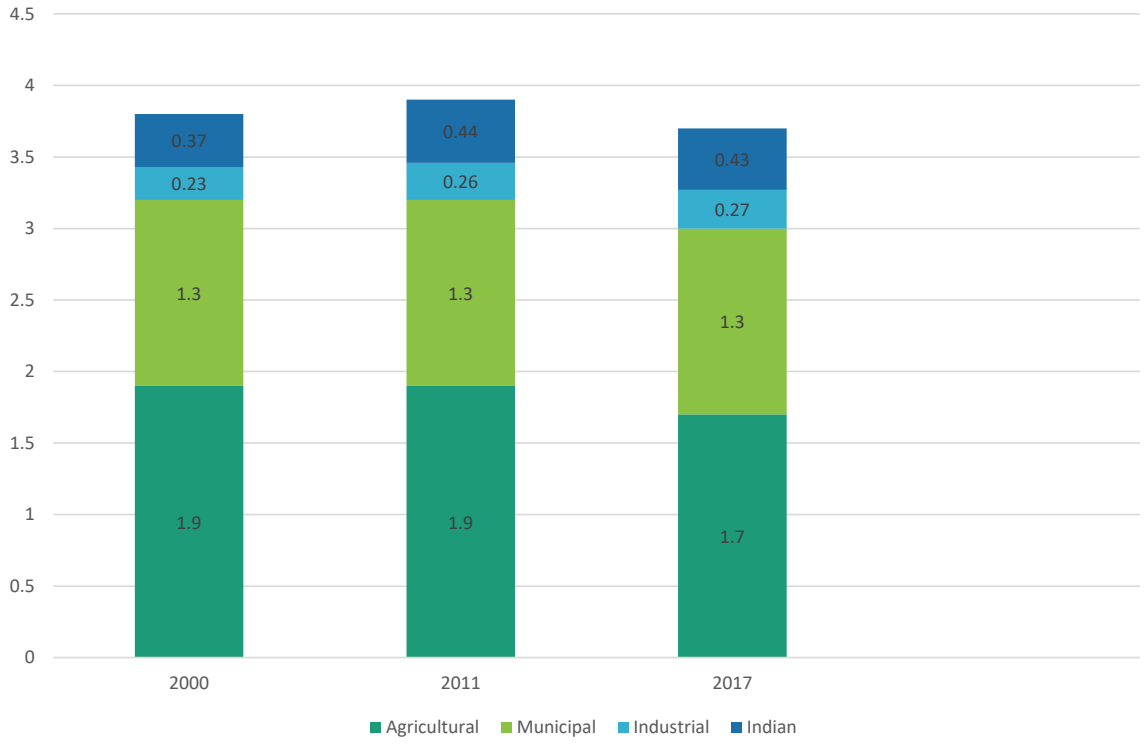
2020

Salt/Verde	800,000 Average Af/Yr
Other Surface Water	150,000 Average Af/Yr
Natural Groundwater Recharge	344,000 Average Af/Yr
Colorado River	1,200,000 Average Af/Yr
TOTAL	**2,494,000 Average Af/Yr**

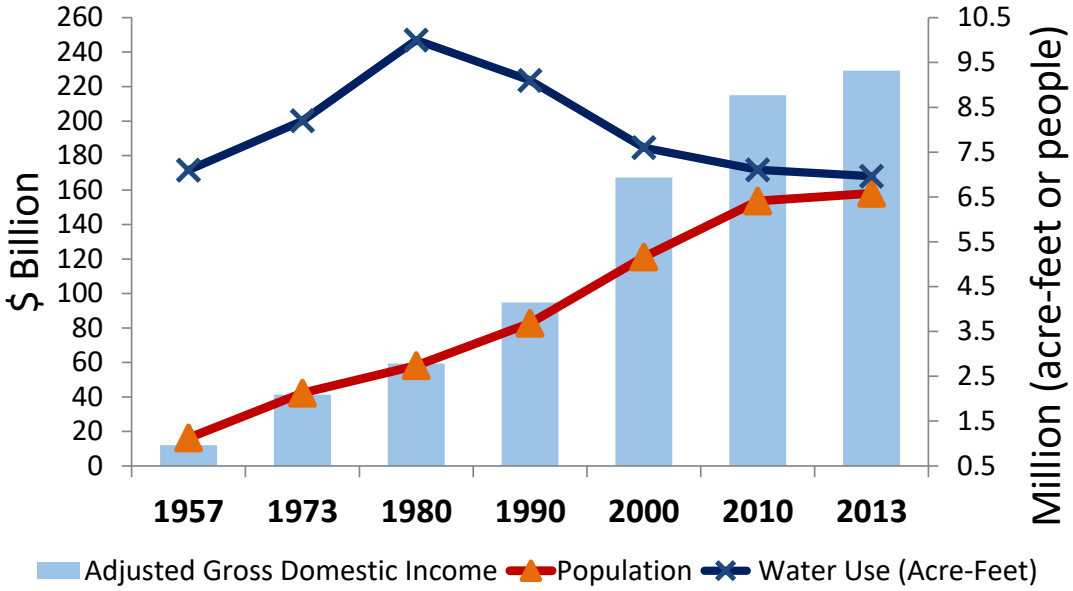
Climate Change Assumption (2011 = -15%)

	2020 Supply Estimates (AF)
Climate Change Reduction	2,494,000
-20%	1,995,200
-25%	1,870,500
-30%	1,745,800

Water Use in the Sun Corridor (in Million Acre Feet)



Water Demand & Growth (1957 – 2013)



Source: Arizona Dept. of Water Resources

Chart 6: Residential GPCD Trends, 2005 to 2018[36]

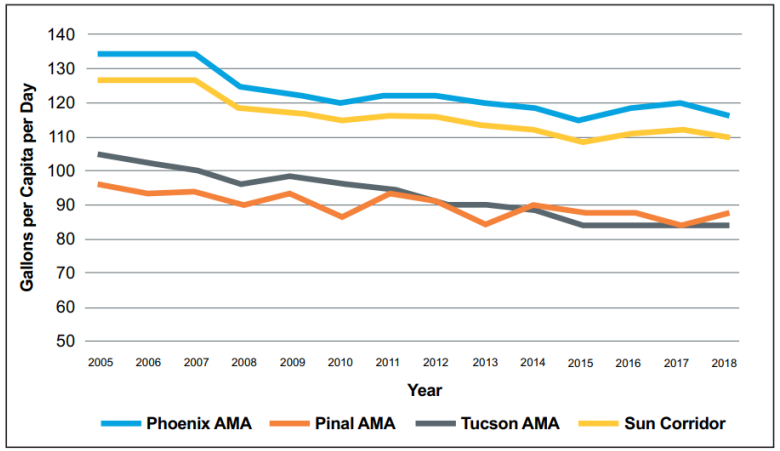
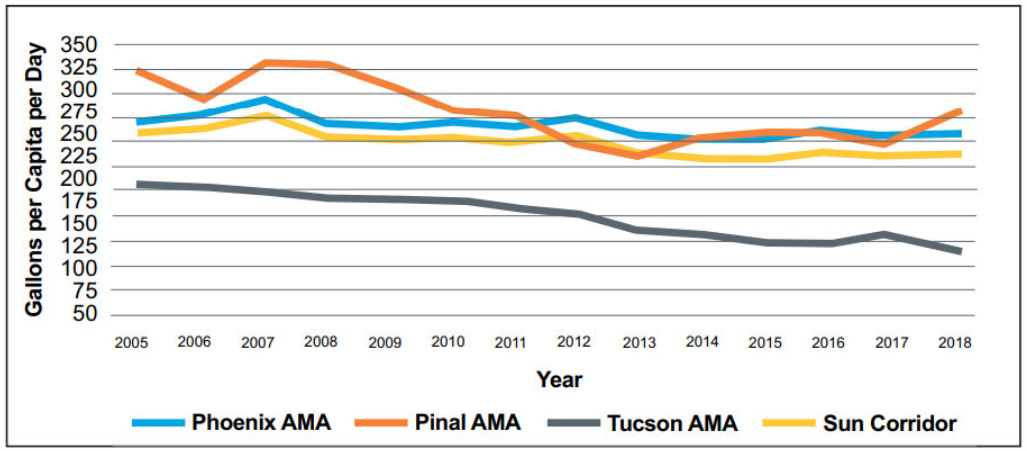
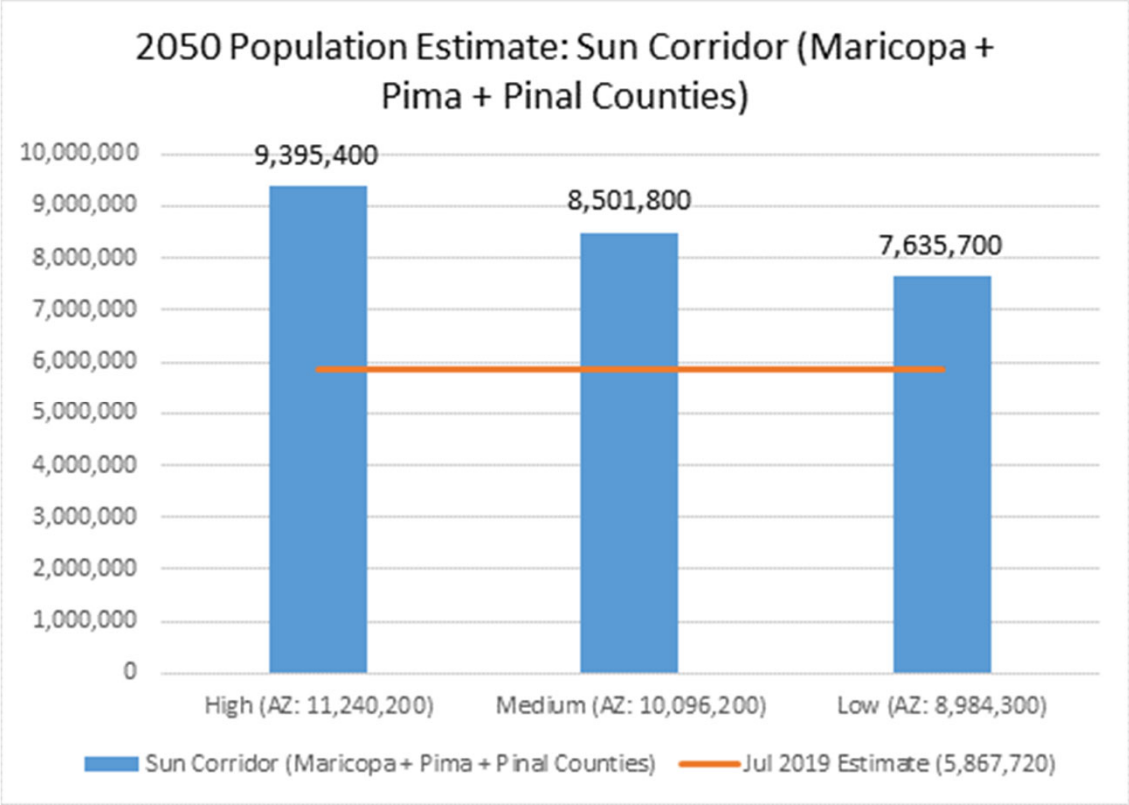


Chart 9: Sun Corridor Urban Water Use Trends[38]





Population as per Census July 2020 (6,121,084)

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Sun Corridor Theoretical Carrying Capacity

2011

	Water Supply	1,800,000 AF	2,000,000 AF	2,200,000 AF
Per capita use	**Approximate Population**			
200 GPCD (0.22 AF/year)		8,182,000	9,100,000	10,000,000
150 GPCD (0.17 AF/year)		10,588,000	11,765,000	12,941,000

2020

	30% climate change reduction	25% climate change reduction	20% climate change reduction
Total Supply	1,745,800 AF/y	1,870,500 AF/y	1,995,200 AF/y
Municipal Supply*	1,556,800 AF/y	1,681,500 AF/y	1,806,200 AF/y
	Approximate Population		
220 GPCD (~0.25 AF/Year)	6,317,370 pop	6,823,390 pop	7,329,420 pop
200 GPCD (~0.22 AF/Year)	6,949,100 pop	7,505,730 pop	8,062,360 pop
175 GPCD (~0.20 AF/Year)	7,941,840 pop	8,577,980 pop	9,214,120 pop

How to Think About Water Challenges in the Sun Corridor

Water is Like Money

=

Current Supply/Demand Balance (living on “cash flow “)

- The Message of Return to Watering: **20-25 years of growth** based on current usage trends
- Demand management to stretch that horizon
    - Elimination of farming in the Sun Corridor
    - Further changes to urban landscaping
    - Greater re use of effluent
    - Changes in density of development

Short Term Ways to Increase Supply

- SRP changes in management of the Verde (Removing Horseshoe, changing Bartlett) could yield as much as **100,000 AF/year.**
- Mainstem Colorado River transfers (currently pending Cibola to Queen Creek). Fierce political opposition from on-River users.
- Importation of groundwater from remote basins in Western Arizona.

Using Savings Account When Necessary (Banked Groundwater)

- The account currently has **12 MAF** in the bank (Current urban use is about 1.6 MAF)
- That savings represents about **7.5 years** worth of total urban use
- In reality, it could sustain up to **20-30 years** with continuing, though reduced, deliveries of Colorado River, Salt and Verde and safe yield ground water
- But once used up, it is gone. And it is unlikely we'll add much to the account for the next few years.

Long Term Augmentation

- Cloud seeding
  - There's evidence it could work to increase snowpack. Unknown side effects?
- Mississippi diversions
  - Possible, but a long shot– way too many hurdles.
- Ocean desalinization— In Mexico or California.
  - It is time to get really serious about this.
    - It will take decades to implement, but having a long term solution in the works is necessary to reassure people who want to invest in Arizona.

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The Dilemma of the Sun Corridor: It is all About Choices