Water

Infrastructure, Supply & Planning Study

A City of Tucson and Pima County Cooperative Project

Available Water Resources

Acting Deputy Director Tucson Water

Chris Avery

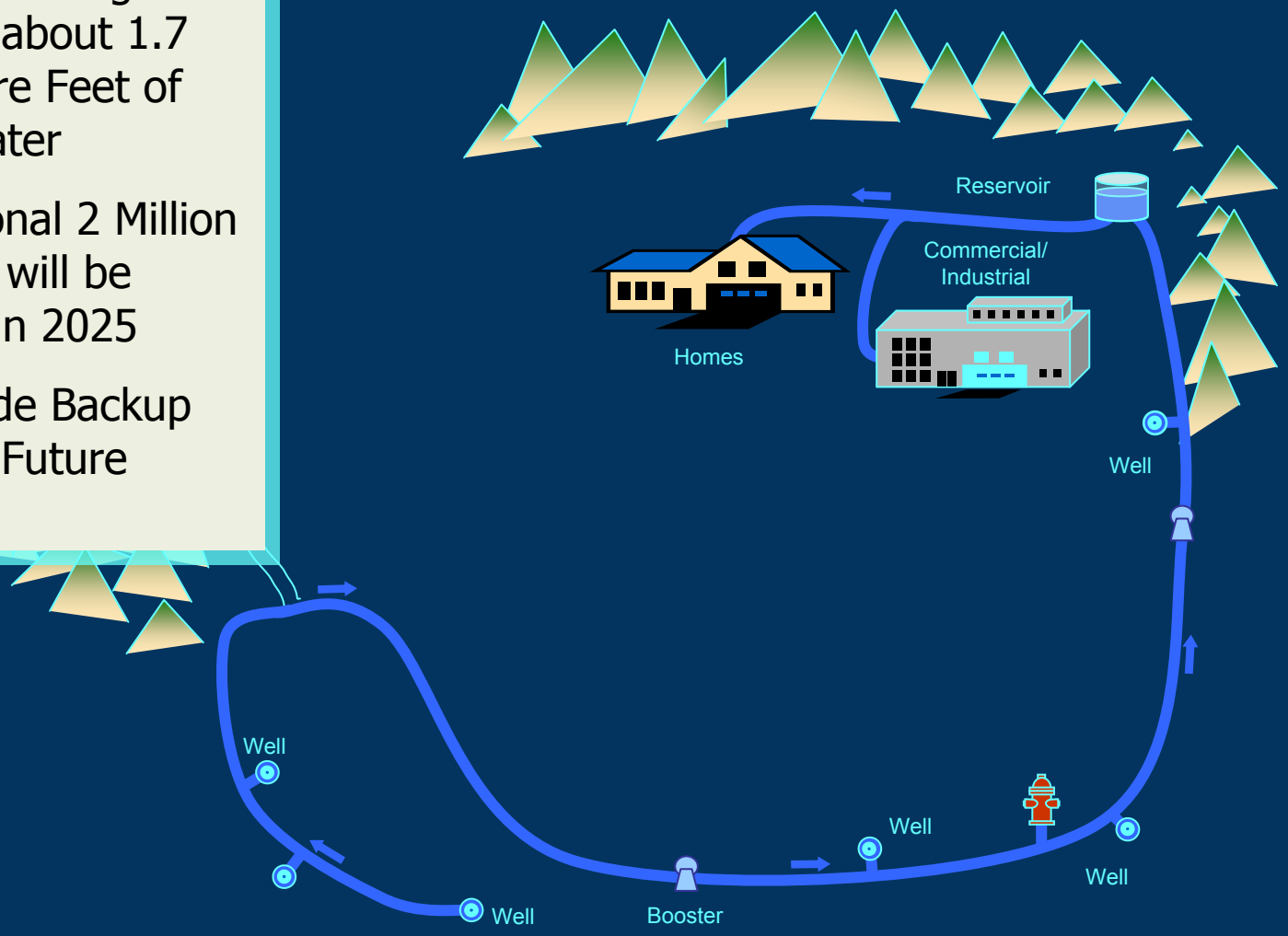
June 25, 2008

Tucson's Available Water Resources

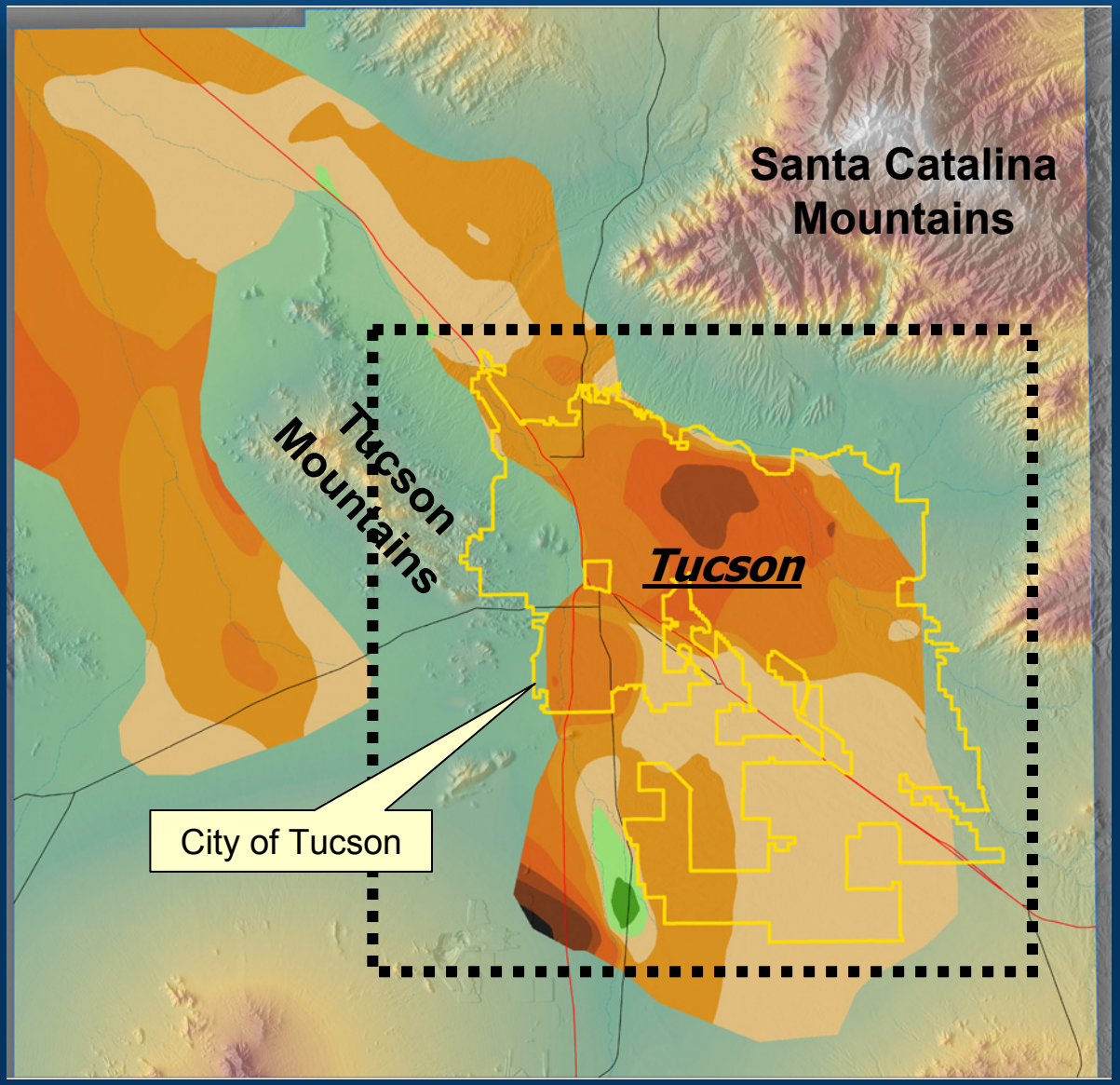
Available Groundwater Resources

Tucson's Groundwater

- Tucson Water currently has legal access to about 1.7 Million Acre Feet of Groundwater
- An additional 2 Million Acre Feet will be available in 2025
- Will Provide Backup Supply in Future



Historical Groundwater Level Change 1950-2000



Legend

Water Level Change

- +51' to +100'
- +1' to +50'
- 0' to -50'
- -51' to -100'
- -101' to -150'
- -151' to -200'
- -201' to -250'
- -251' to -300'
- -301' to -350'

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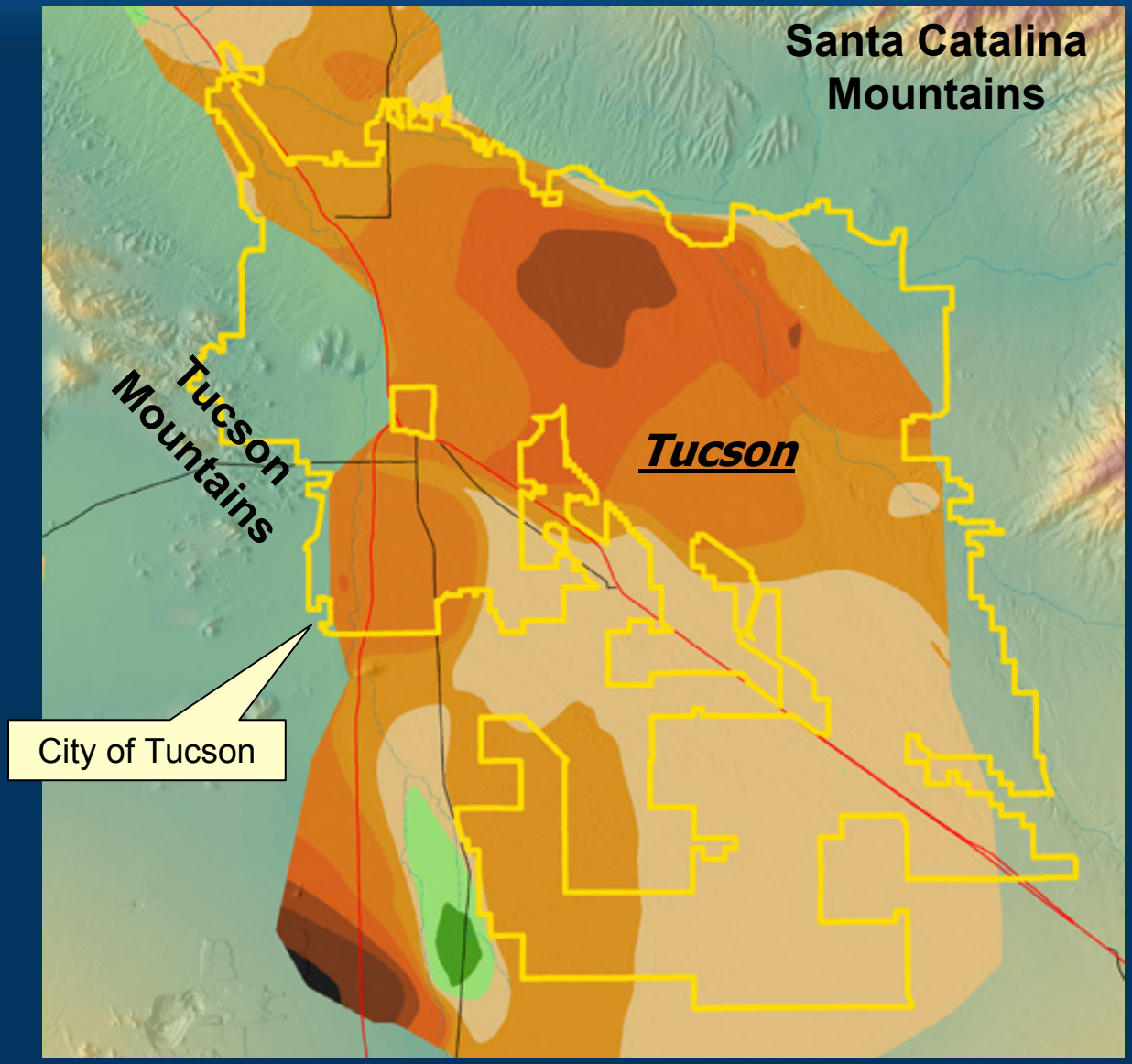

Legend

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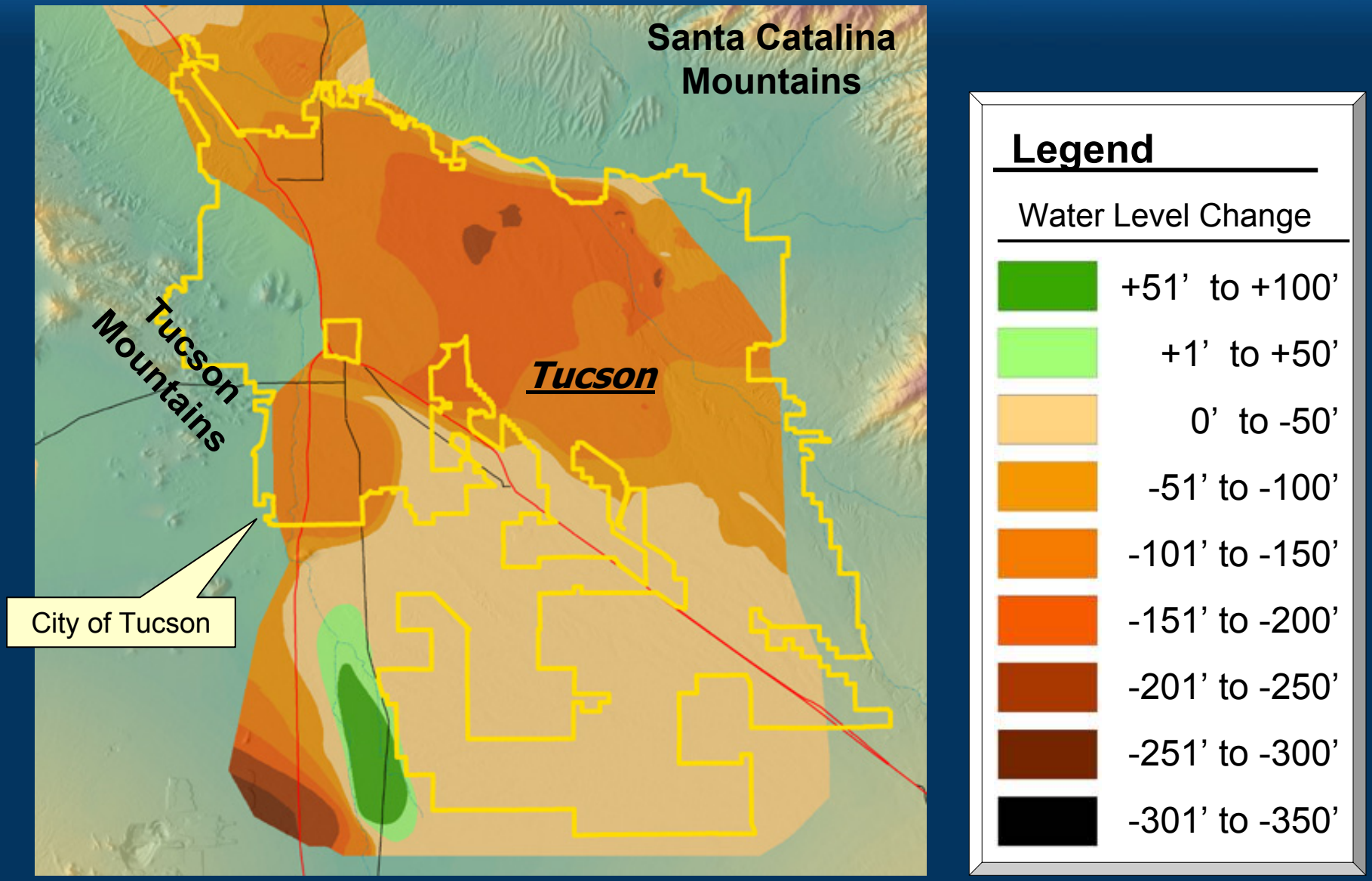
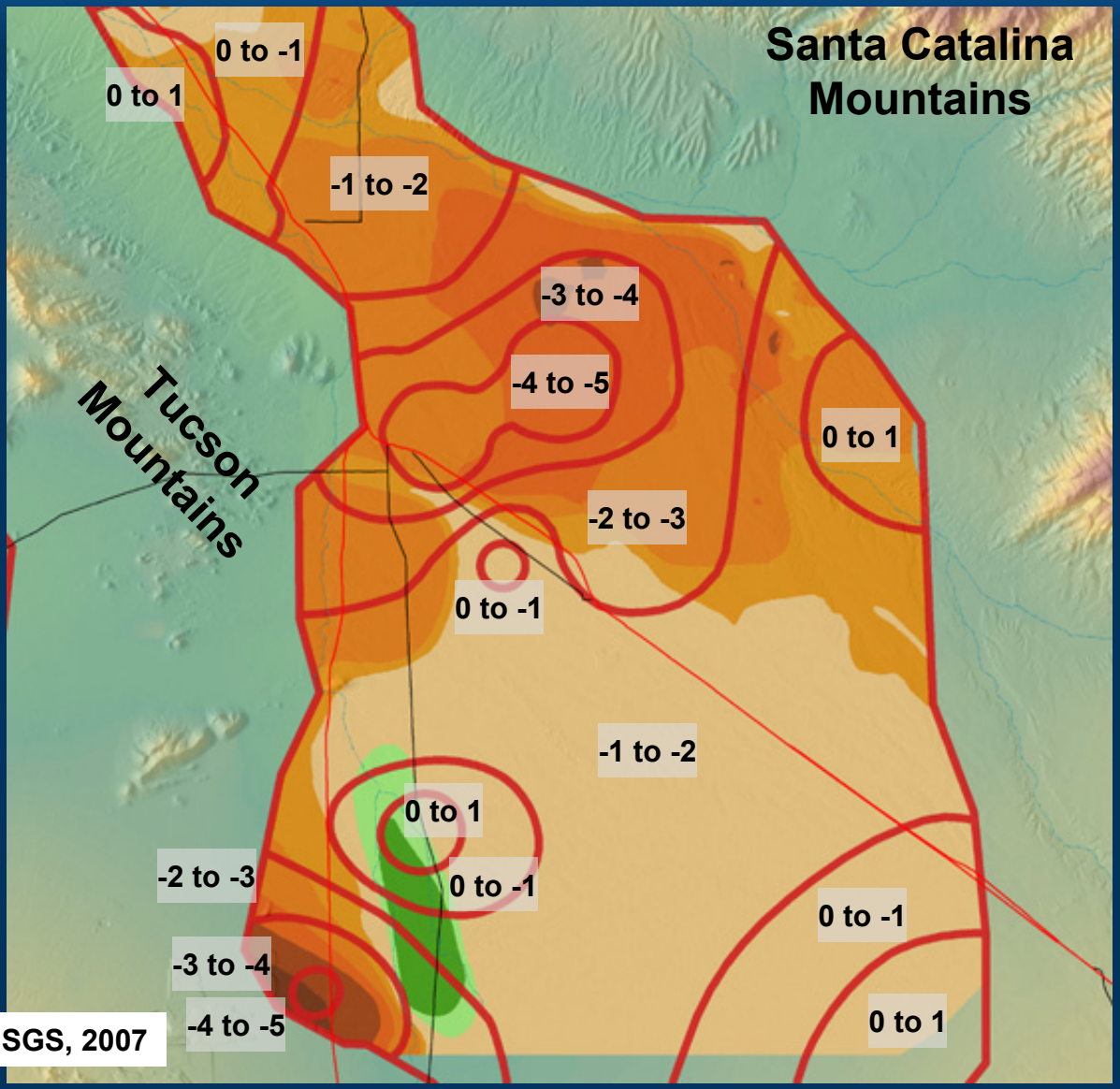
Historical Groundwater Level Change 1950-2007



Land Surface Elevation Change in Inches 1987-2005



USGS, 2007

Legend

Subsidence in Inches

Water Level Change

- +51' to +100'
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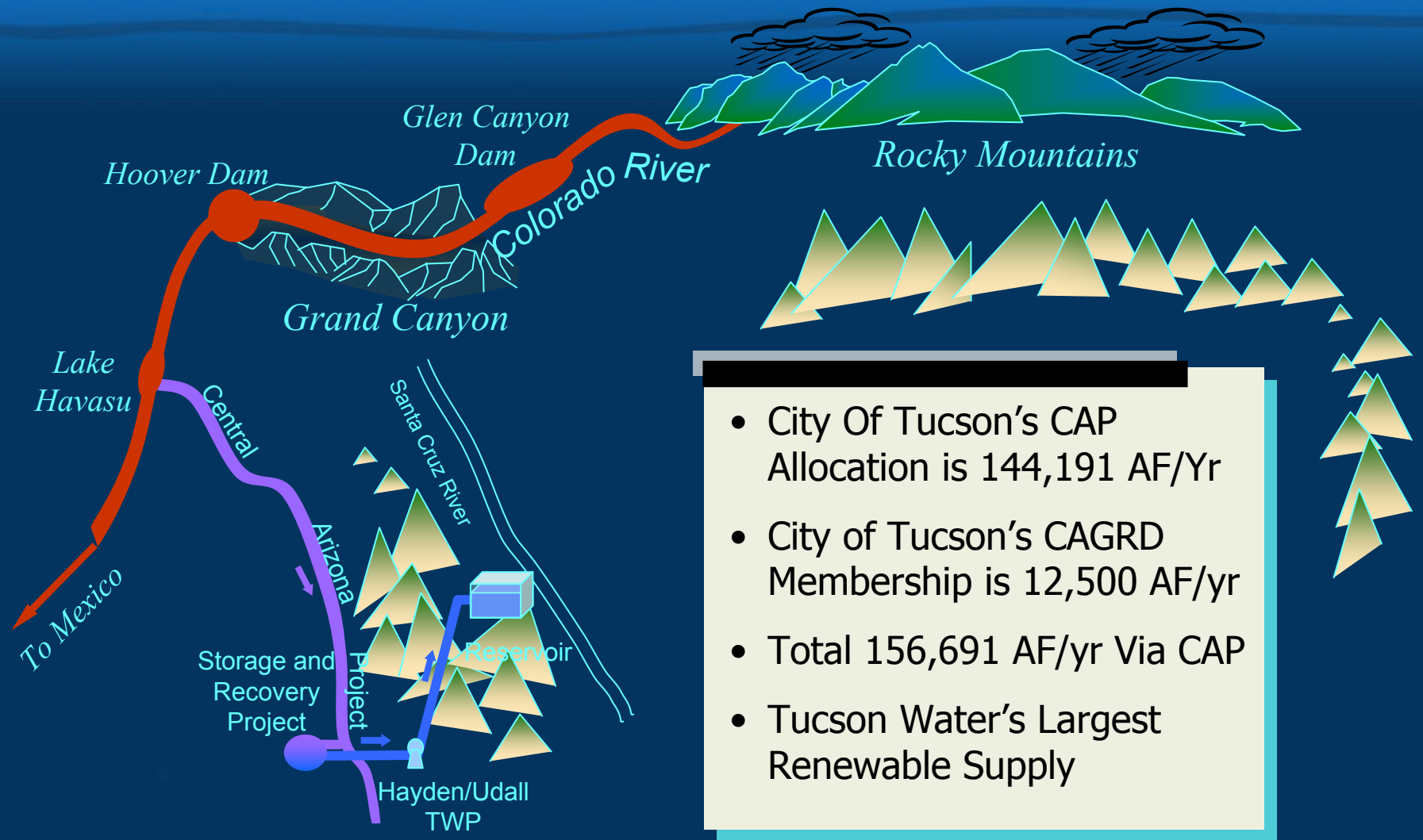
Tucson's Colorado River Water Resources

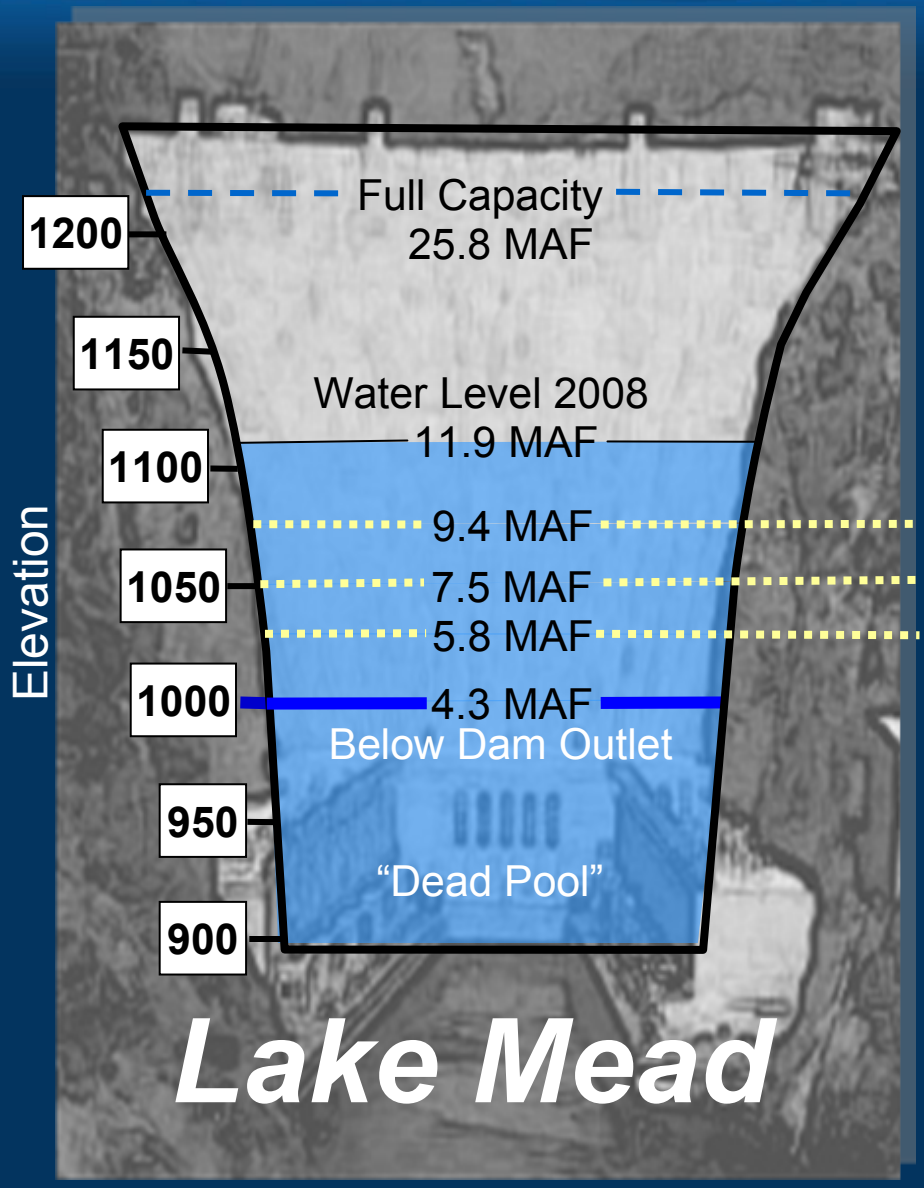
Colorado River Water

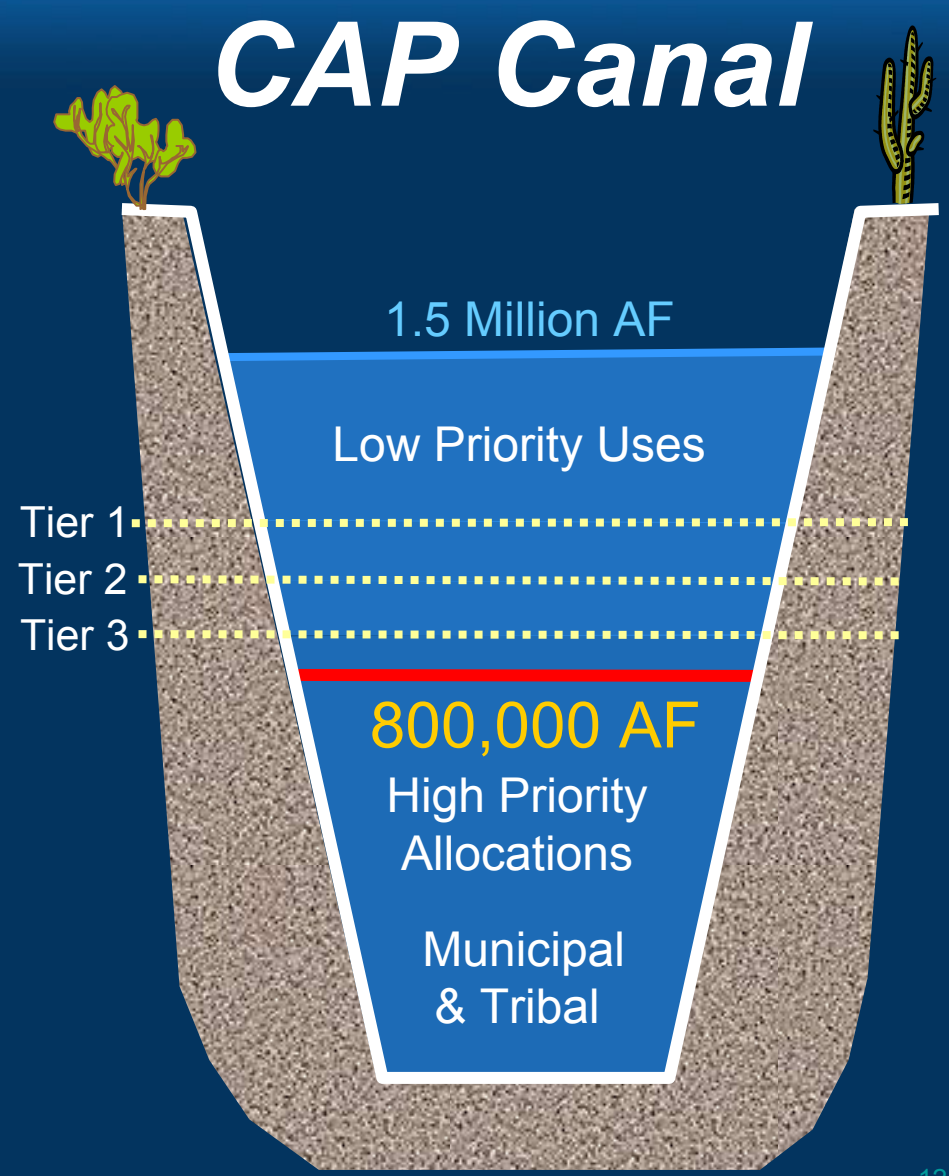


- City Of Tucson's CAP Allocation is 144,191 AF/Yr
- City of Tucson's CAGRD Membership is 12,500 AF/yr
- Total 156,691 AF/yr Via CAP
- Tucson Water's Largest Renewable Supply

Seven Basin States and Mexico

Seven Basin State Tiered Shortage Sharing Agreement



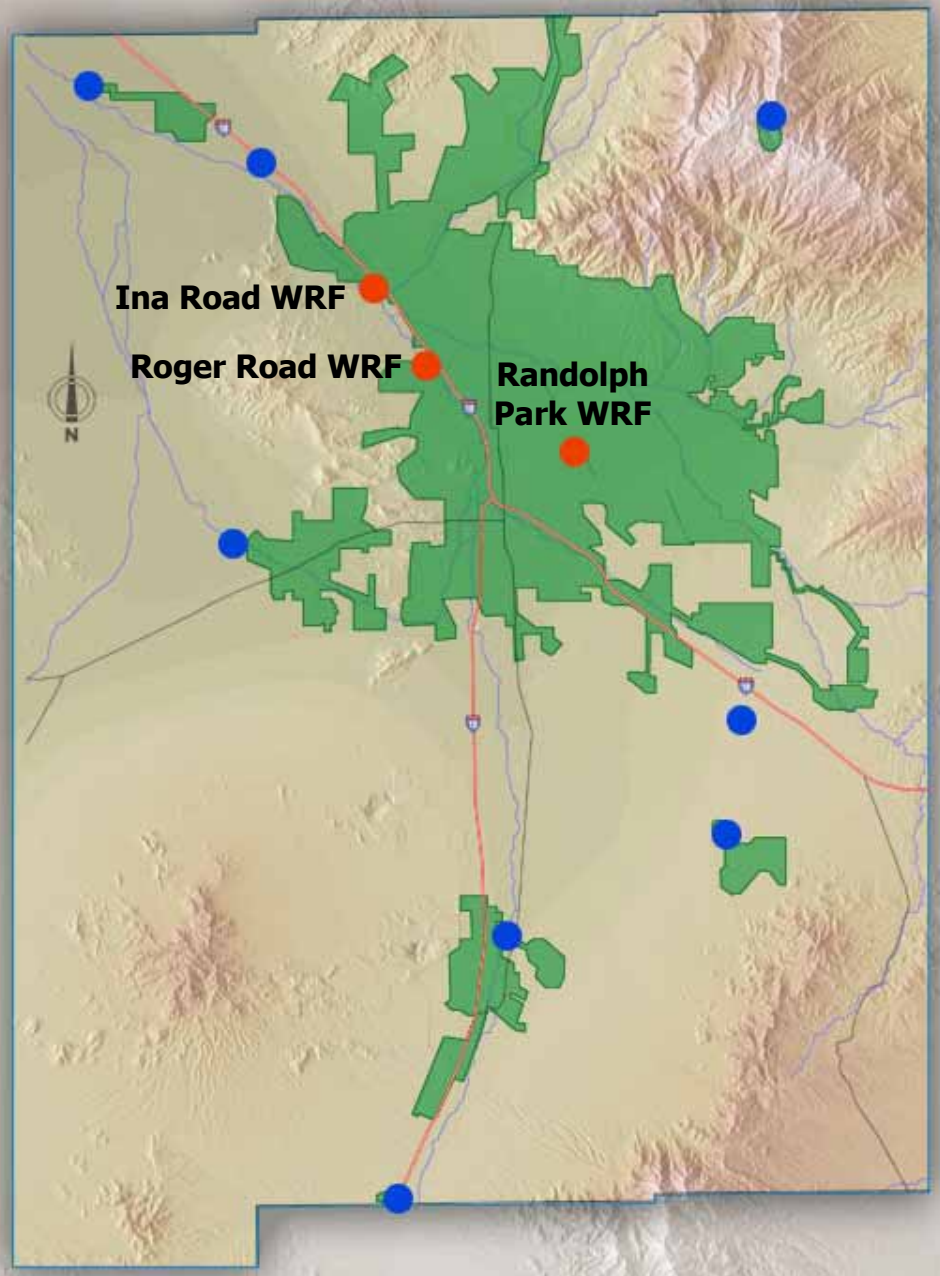


Effluent Resources

PCRWRD Regional Sewer Service Area

Metropolitan Wastewater Reclamation Facilities (3)

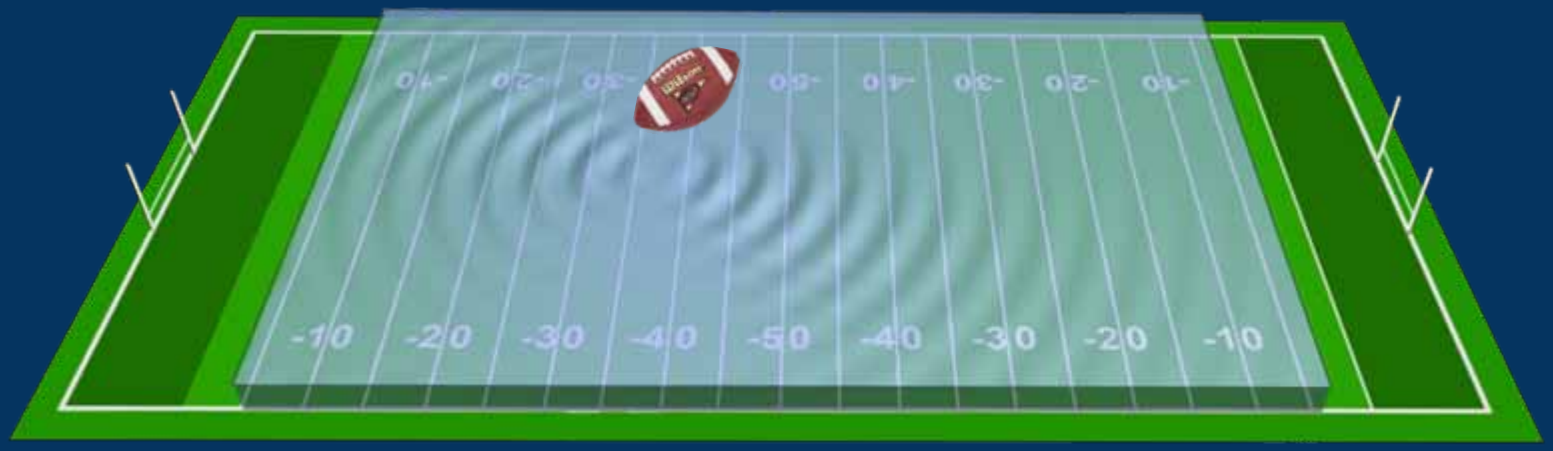
Sub-Regional Wastewater Reclamation Facilities (8)



What is an Acre Foot?

An acre-foot is used to measure large-scale water resources such as reservoirs, effluent discharge volume, and river flows

One acre-foot = an acre of land to a depth of one foot
= 325,851 gallons
= 43,560 cubic feet

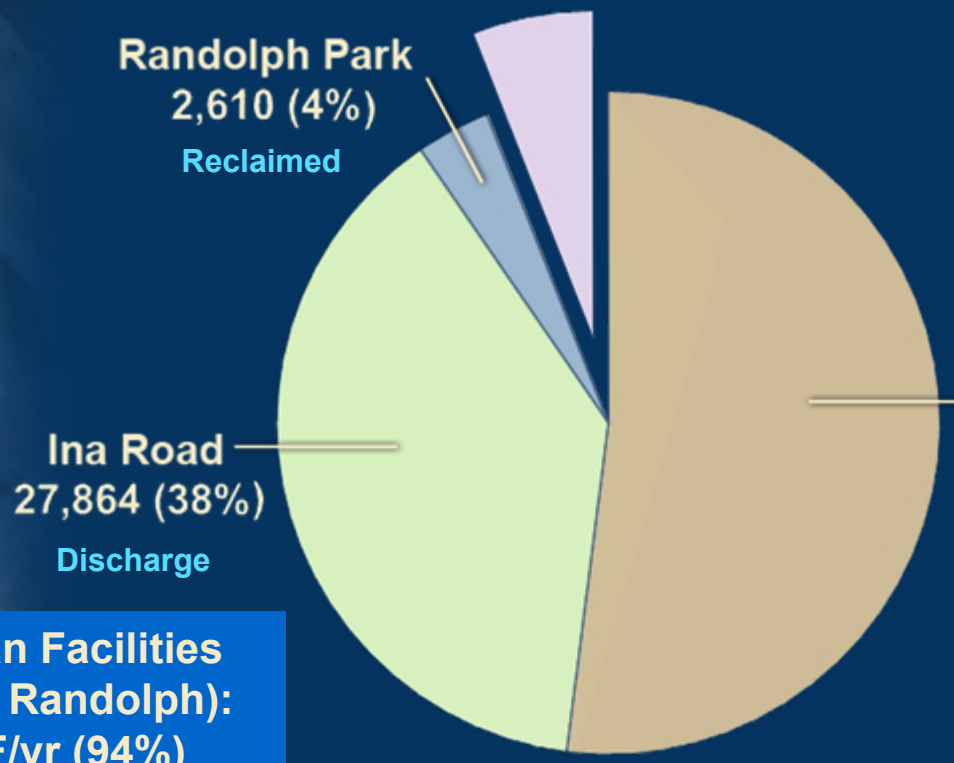


An acre is about ¾ the size of a full football field

PCRWRD Effluent Generation and Use

Total: 72,572 acre feet/year

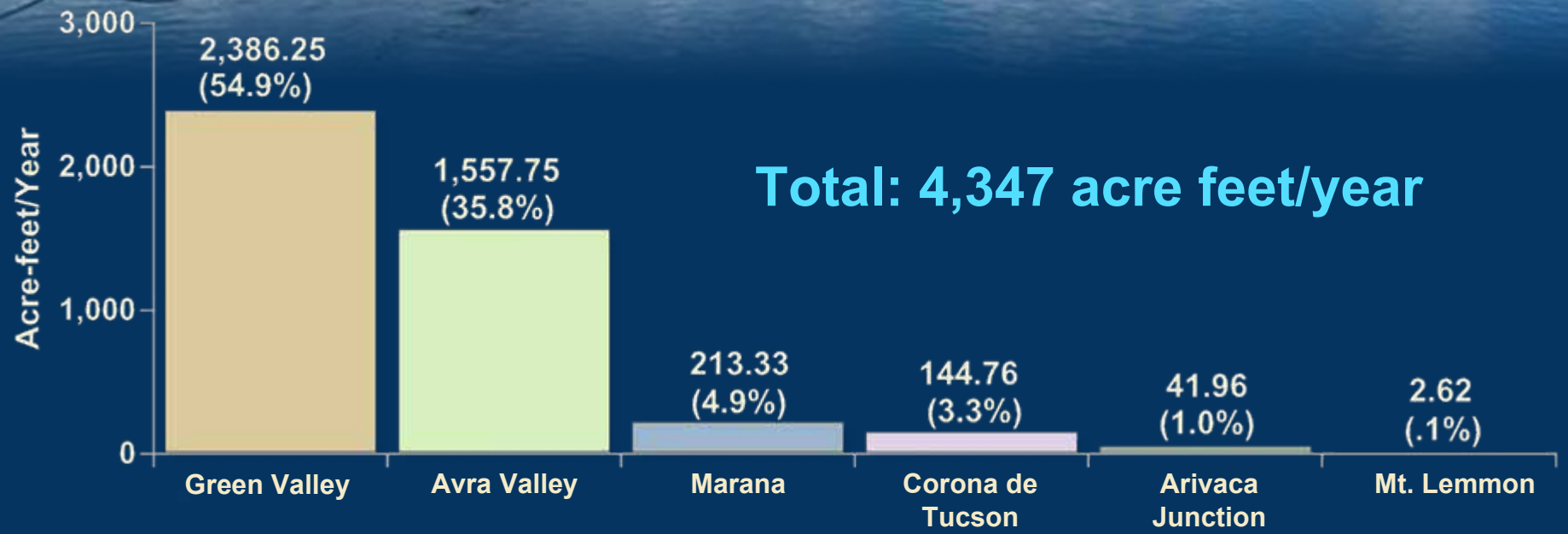
Sub-Regional Facilities:
4,347 AF/yr (6%)



Metropolitan Facilities
(Ina, Roger, Randolph):
68,225 AF/yr (94%)

(Does not include effluent used on-site for treatment processes and irrigation)

PCRWRD Effluent Generation and Use – Sub-Regional Facilities



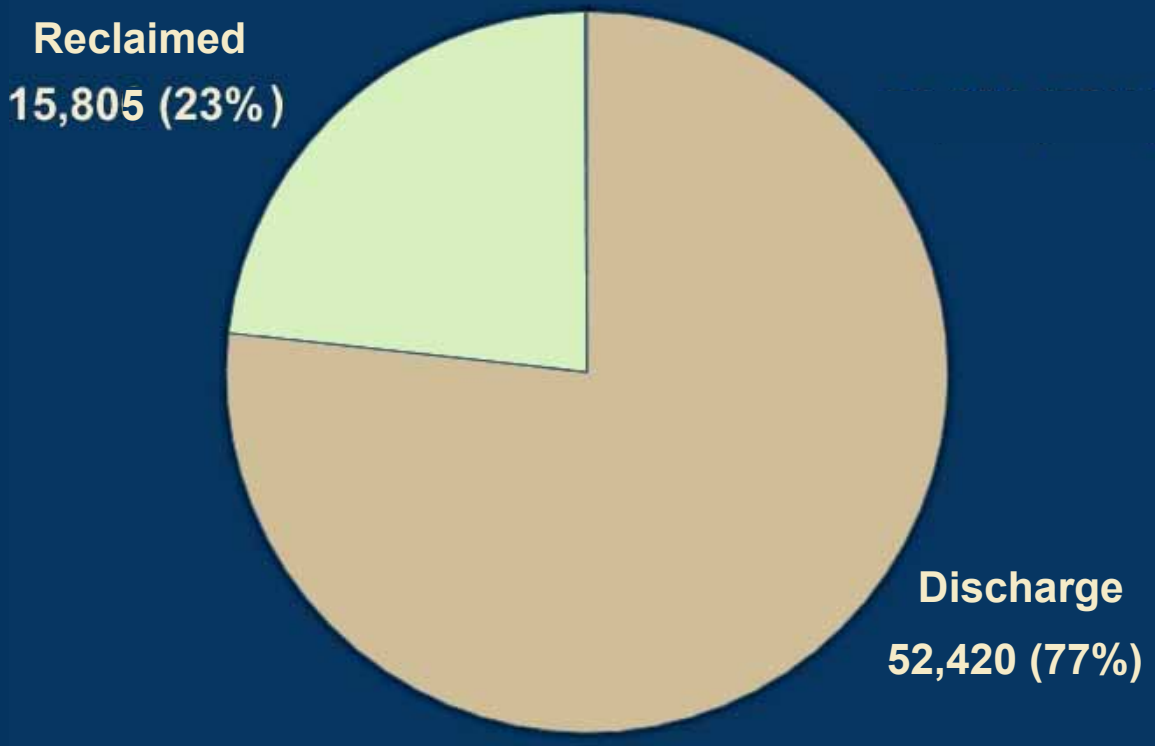
Total: 4,347 acre feet/year

Major Effluent Use:	Green Valley	Avra Valley	Marana	Corona de Tucson	Arivaca Junction	Mt. Lemmon
	Percolation, Reclaimed	Percolation	Discharge	Percolation, Evaporation	Reuse, Evaporation, Percolation	Spray Field

(Data does not include effluent used on-site for treatment processes, does include plant irrigation)

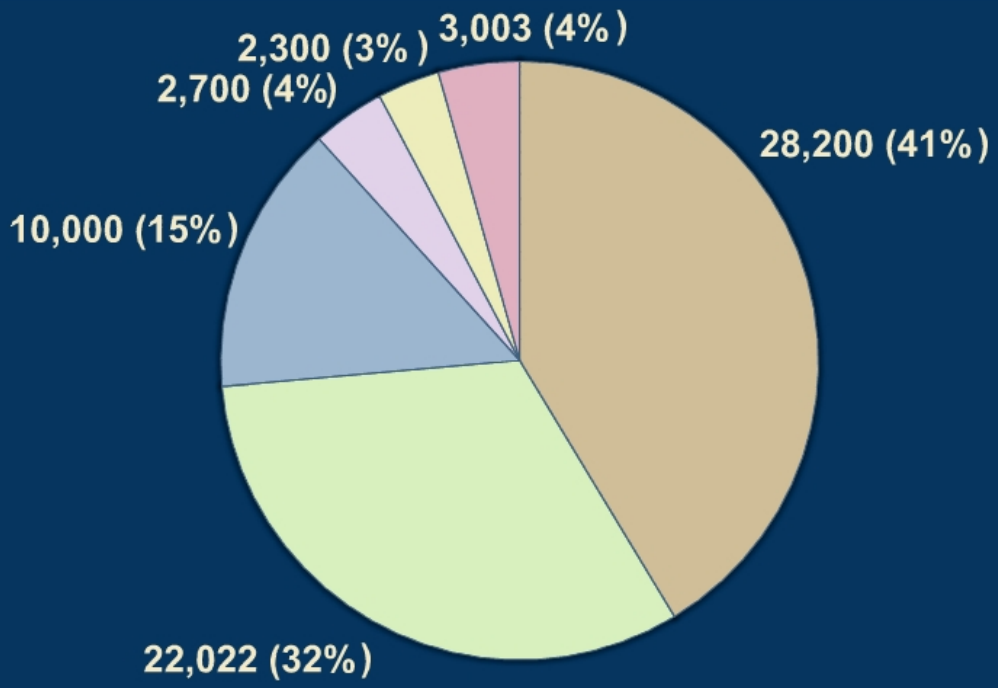
Metropolitan Effluent – Reclaimed and Discharge

Total: 68,225 acre feet/year



Metropolitan Effluent Allocation

Total: 68,225 acre feet/year

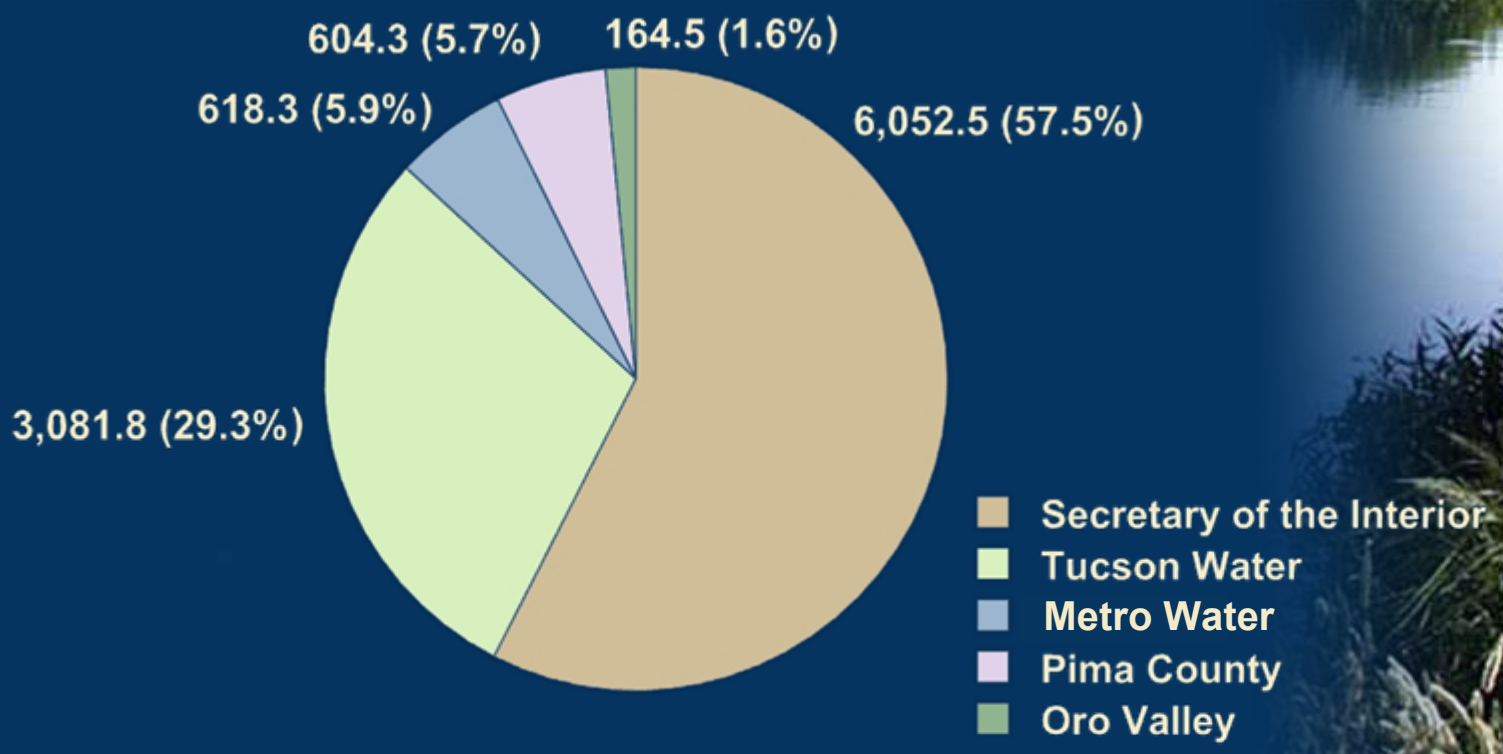


- SAWRSA
- Tucson Water
- Conservation Effluent Pool
- Metro Water
- Oro Valley
- Pima County

Effluent Recharge Credits

Lower Santa Cruz River Managed Recharge Project (LSCRMRP)

Total: Credits of 10,521.4 acre-feet (2007)



County Water Rights

Type	# Rights	Acre-feet in 2006
Surface Water	45	59,764
Type 1 Non-Irrigation	12	2,493
Type 2 Non-Irrigation	18	986

Primary uses are environmental and ranching

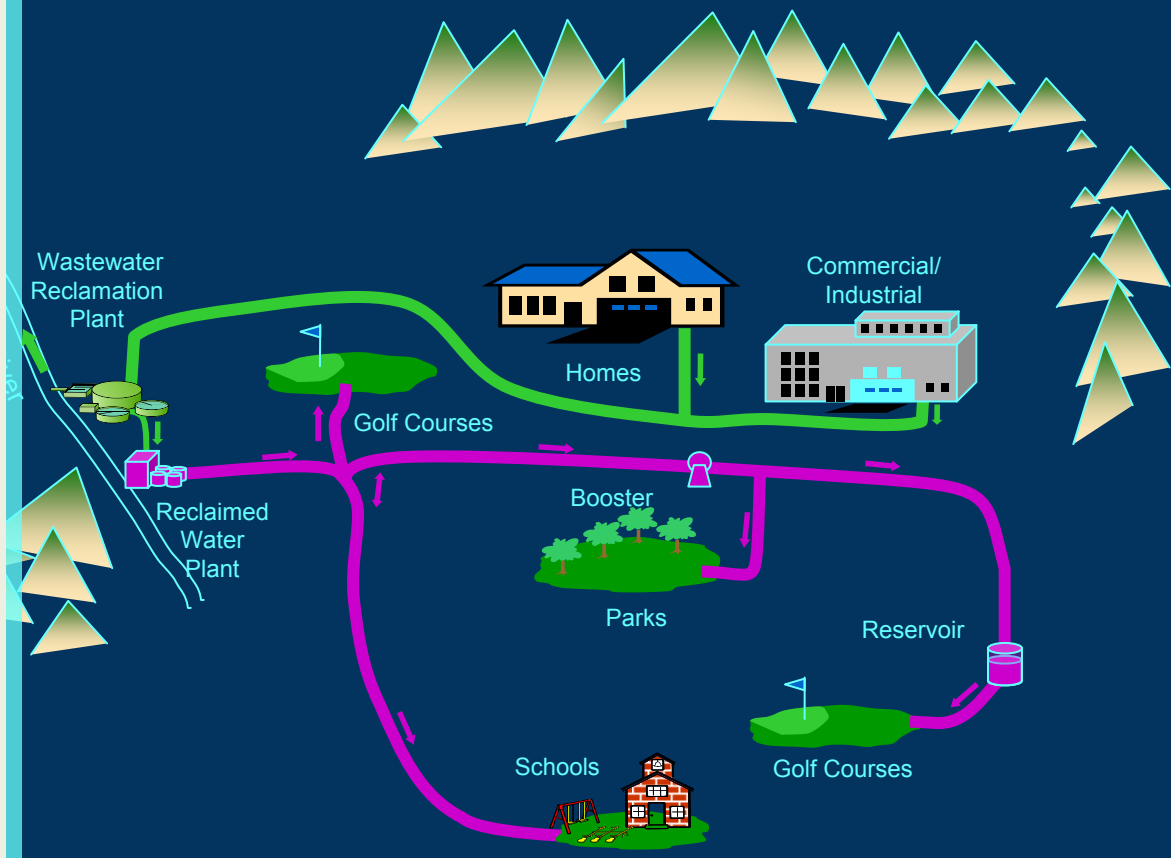
PCRWRD Biosolids

10,300 dry tons produced in 2007

- 5,851 truck loads
- Applied to T-and-T Farm and 23 Kai Farms in Marana
- 3,053 acres amended in 2007

Tucson's Effluent Resources

- Effluent is a Vital, Locally-Generated Renewable Water Resource
- Tucson's Reclaimed System Recycles Effluent and Preserves Groundwater
- The Need to Reuse Effluent Will Increase Over Time
- Effluent Supply Will Grow With the Community
- This Resource Will Help Ensure Supply Sustainability and Drought Resistance in the Future



Effluent Entitlements

(Based on 68,200 AF/YR Effluent Production)

	68,200
Secretary of Interior (SAWRSA)	-28,200
	40,000
Conservation Pool	-10,000 (Current Use = 0)
	30,000 (40,000)

90% 10%

Providers
27,000 (36,000)

County
3,000 (4,000)

Tucson
23,300 (31,000)

Oro Valley
1,700 (2,300)

Metro
2,000 (2,700)

Tucson Effluent Utilization

Current Available Supply (AF) = 31,000 (CEP=0)

Reclaimed -13,000

18,000

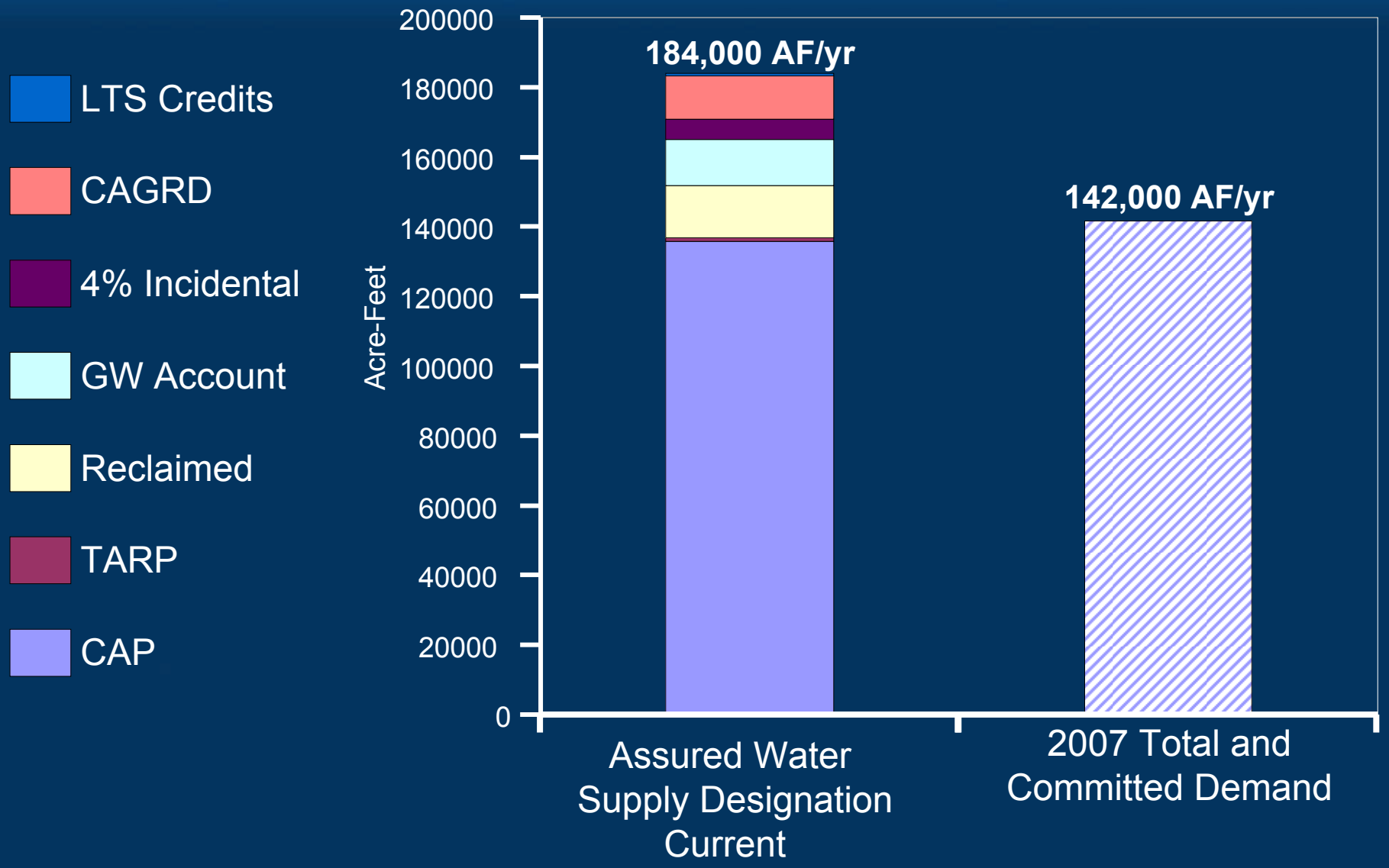
Managed Credits: -5,000

Aquifer Cut: -5,000

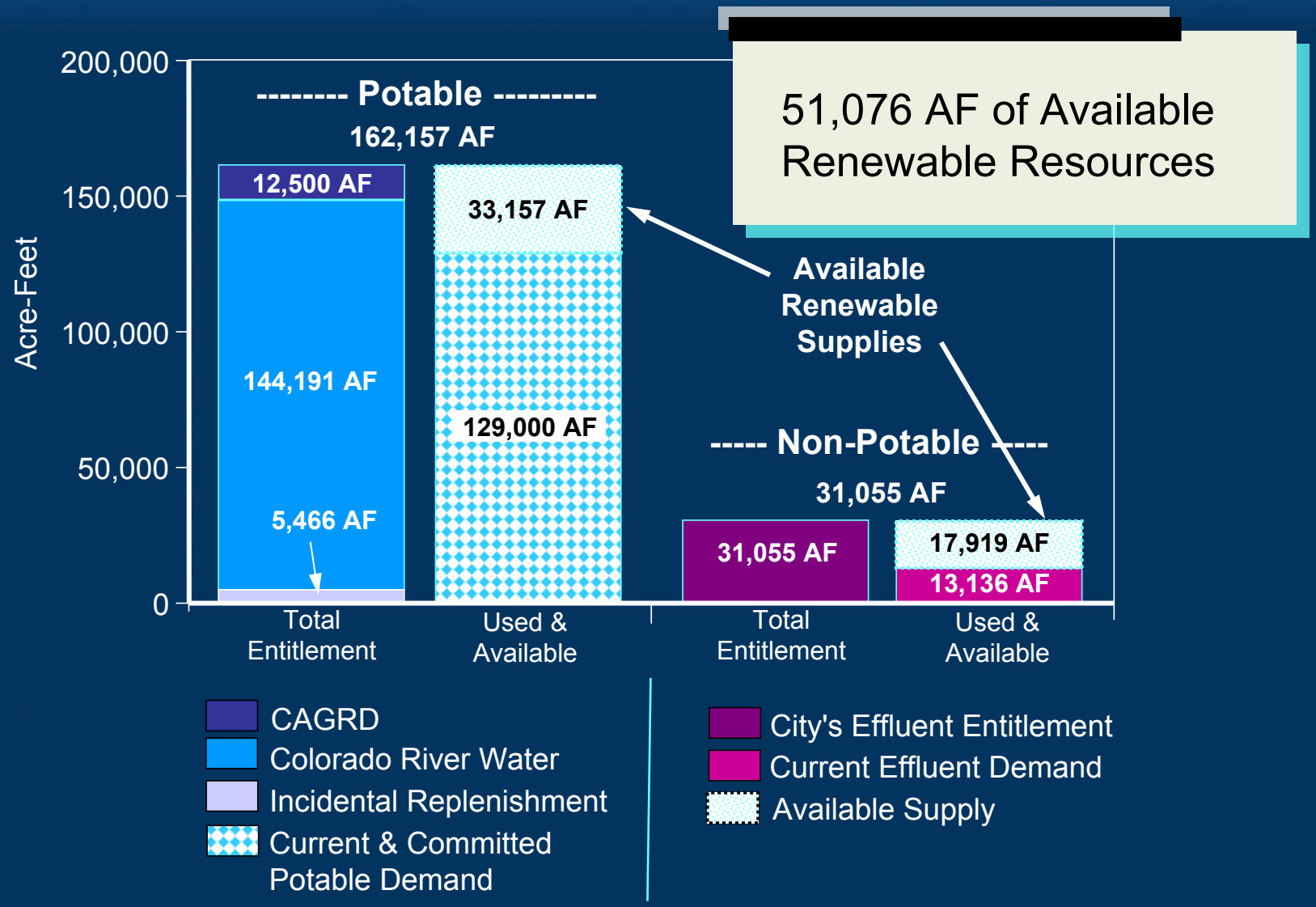
Evaporation: -1,500

Available : 5,500

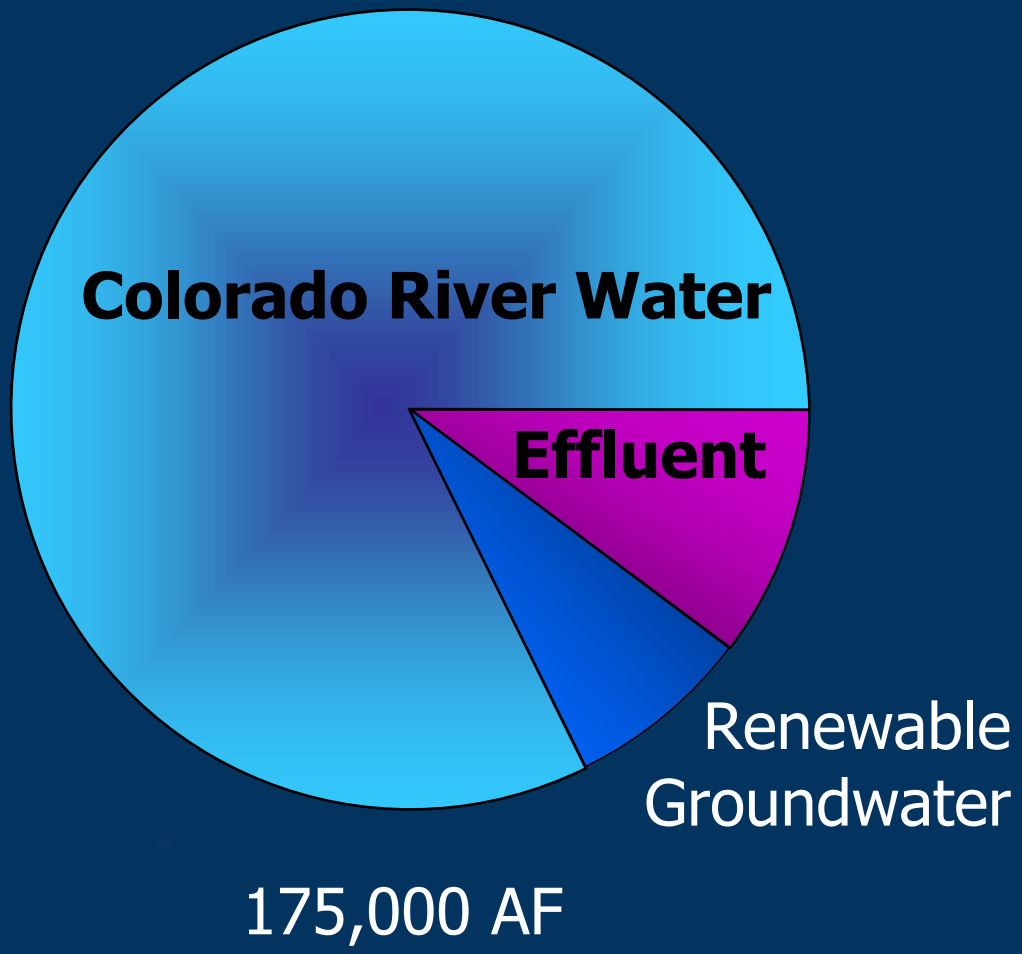
Tucson's Assured Water Supply



Tucson Water's Sustainable Water Resources



Year 2020



- 2.0 Maf Redeemable Gw
- 1.5 Maf Groundwater Credits
- Unused Tucson Effluent
- NIA Reallocation (CAP)
- ADD Water (Non-CAP)
- Rainwater Harvesting
- Indian Leases (CAP)
- Desalination

Available Water Resources

Questions