Delivering water and power®

A TALE OF TWO RIVERS

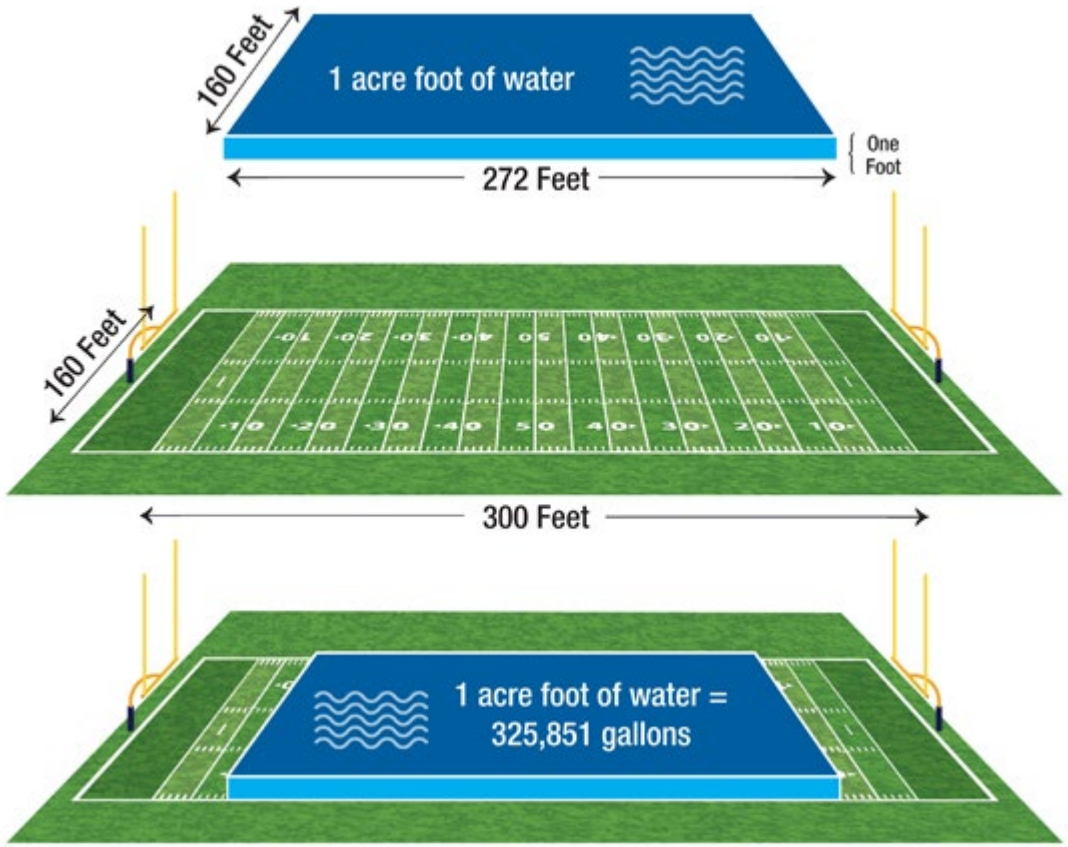
Christa McJunkin
Senior Director, Water Supply & System
February 27, 2026

AGENDA

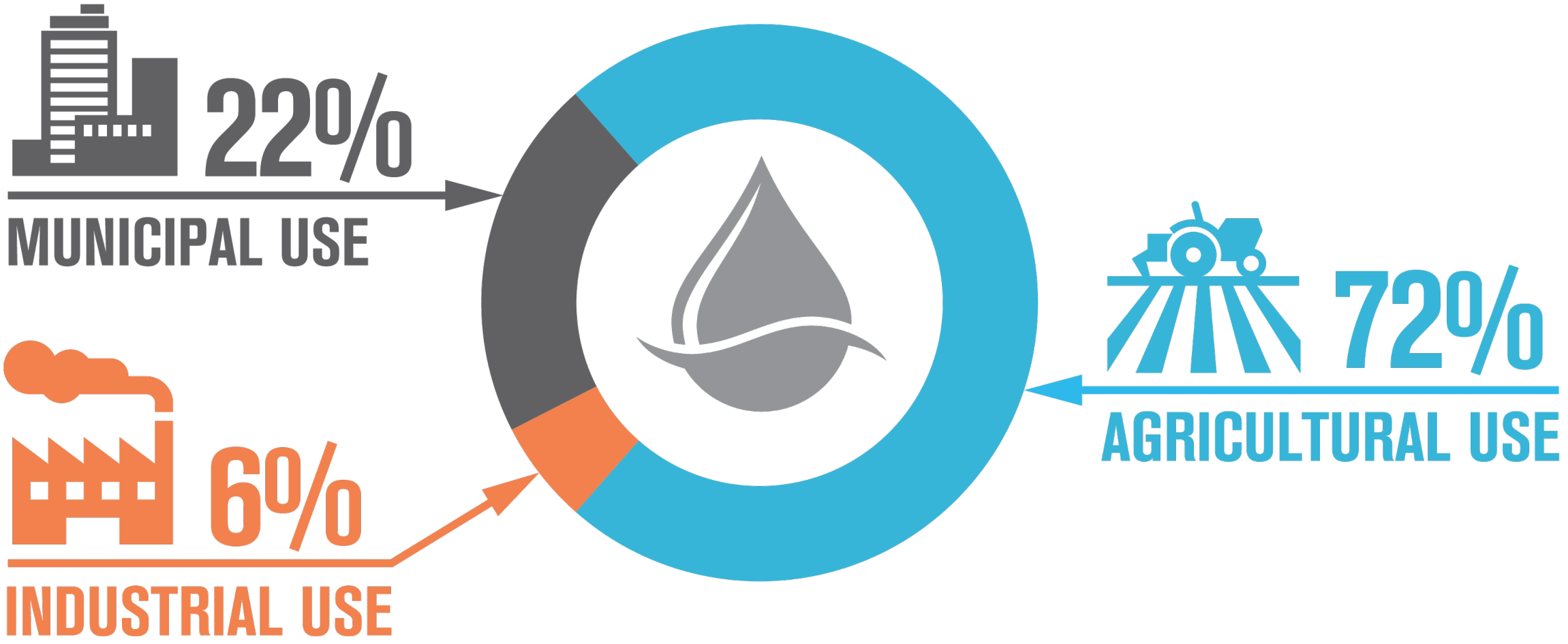
- Water Basics
- Salt River Project Overview
- Colorado River Basics
- A Tale of Two Rivers

What is an Acre-Foot?

- 1 acre-foot = 325,851 gallons
- Commonly used when discussing water supply at scale
- 1 acre-foot is sufficient to meet the demand of four households for a year

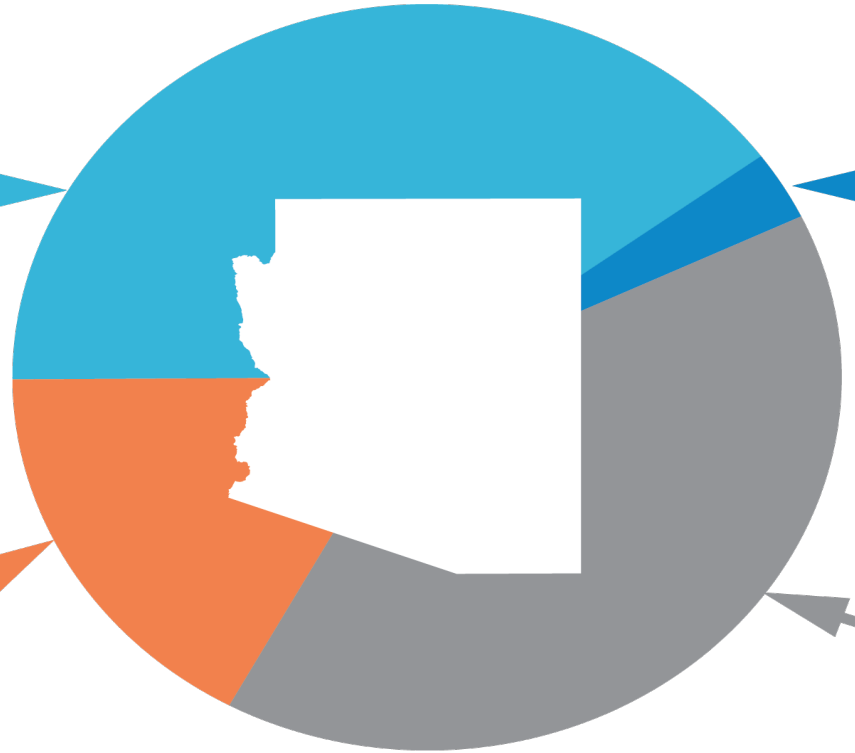


ARIZONA'S WATER USE BY SECTOR



SOURCE: ADWR, 2020

ARIZONA'S WATER SUPPLY



36%
COLORADO RIVER

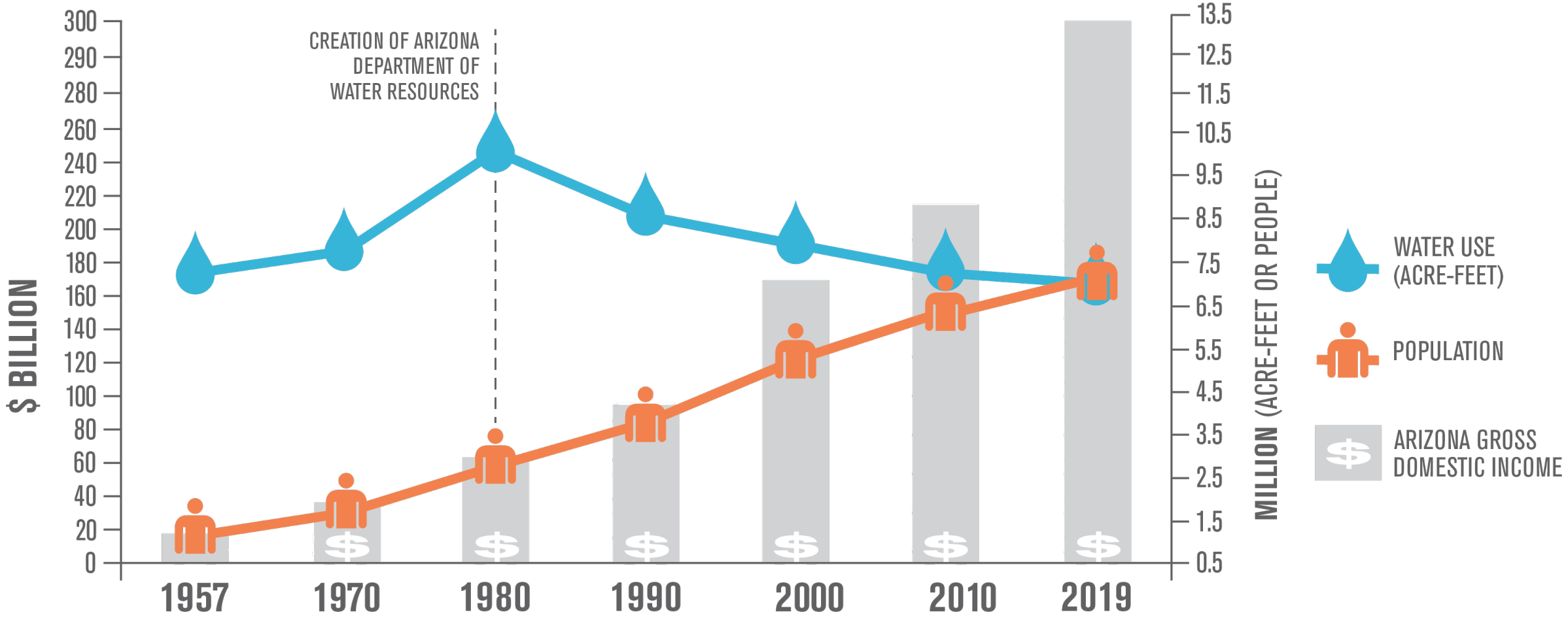
5%
RECLAIMED WATER

18%
IN-STATE RIVERS

41%
GROUNDWATER

SOURCE: ADWR, 2020

ARIZONA'S WATER MANAGEMENT



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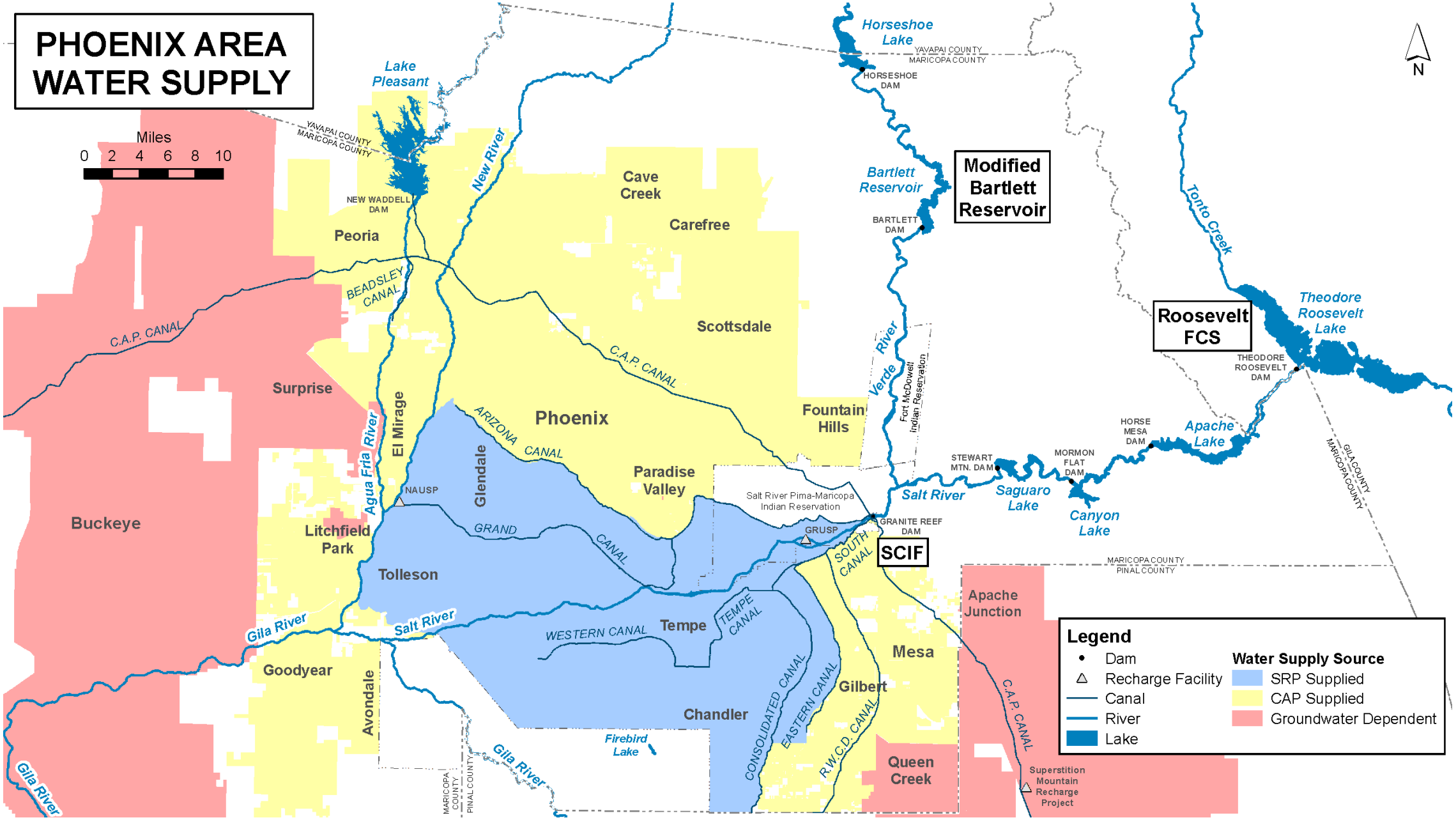
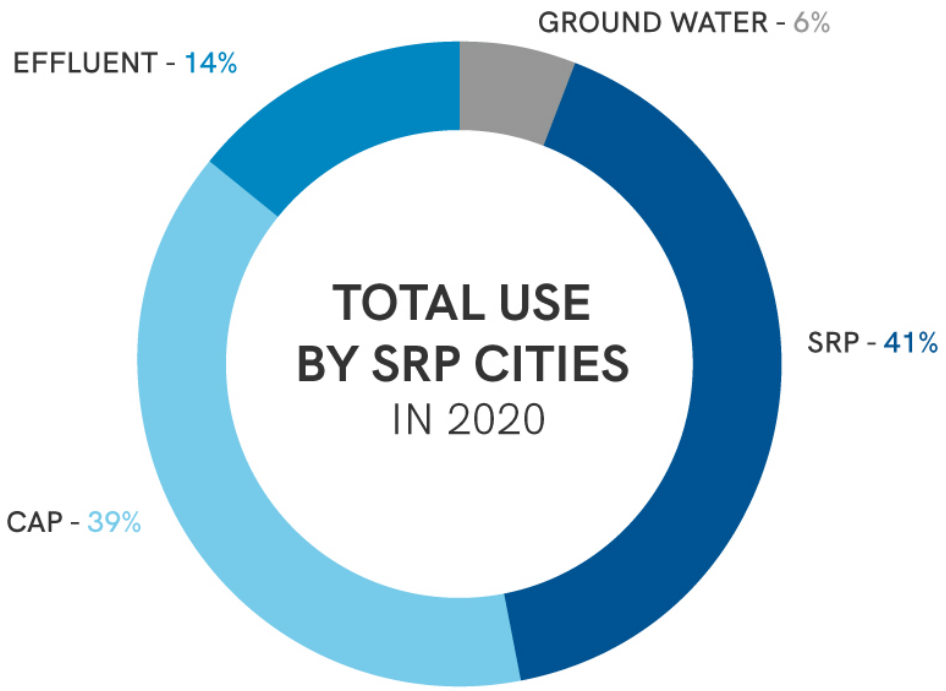
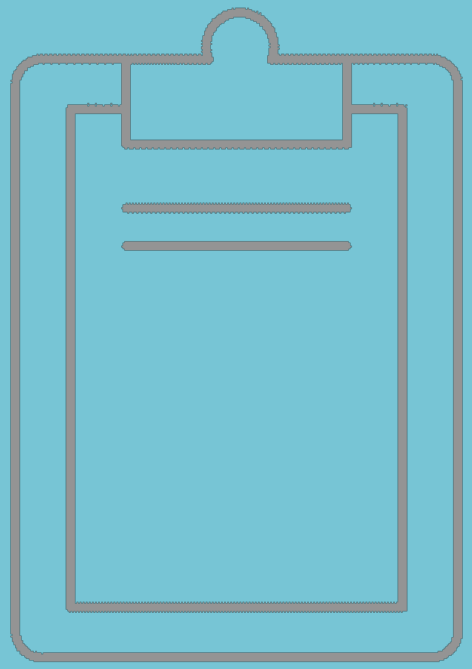

PHOENIX AREA WATER SUPPLY
Miles
0 2 4 6 8 10
N
Horseshoe Lake
YAVAPAI COUNTY
MARICOPA COUNTY
HORSESHOE DAM
Lake Pleasant
NEW WADDELL DAM
New River
Bartlett Reservoir
BARTLETT DAM
Modified Bartlett Reservoir
Tonto Creek
Theodore Roosevelt Lake
THEODORE ROOSEVELT DAM
Roosevelt FCS
Cave Creek
Carefree
Peoria
BEADSLEY CANAL
C.A.P. CANAL
Scottsdale
Verde River
Fort McDowell Indian Reservation
Surprise
El Mirage
Agua Fria River
Phoenix
ARIZONA CANAL
Fountain Hills
HORSE MESA DAM
Apache Lake
STEWART MTN. DAM
MORMON FLAT DAM
Salt River
Saguaro Lake
Canyon Lake
GILA COUNTY
MARICOPA COUNTY
Glendale
NAUSP
Paradise Valley
Salt River Pima-Maricopa Indian Reservation
GRANITE REEF DAM
GRUSP
SCIF
SOUTH CANAL
Buckeye
Litchfield Park
GRAND CANAL
Tolleson
MARICOPA COUNTY
PINAL COUNTY
Apache Junction
Gila River
Salt River
WESTERN CANAL
Tempe
TEMPE CANAL
Mesa
Goodyear
Avondale
Gilbert
CONSOLIDATED CANAL
EASTERN CANAL
Chandler
R.W.C.D. CANAL
C.A.P. CANAL
Firebird Lake
Queen Creek
Superstition Mountain Recharge Project
Legend
Dam
Recharge Facility
Canal
River
Lake
Water Supply Source
SRP Supplied
CAP Supplied
Groundwater Dependent

Water Resiliency

- SRP is the largest provider of water to Valley residents.
- SRP's water supply can withstand current drought conditions while still meeting needs.



SALT RIVER PROJECT OVERVIEW

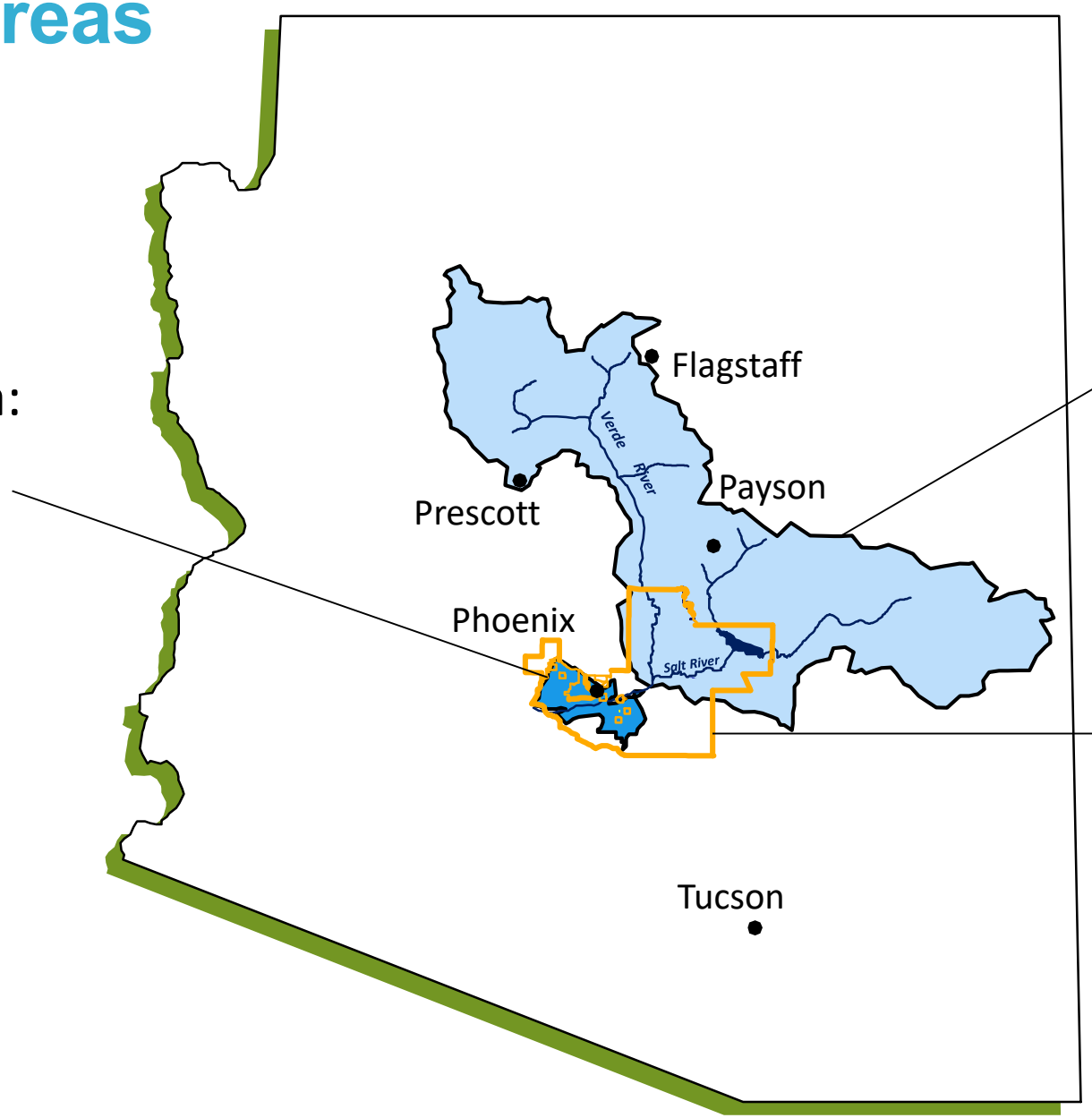


What is SRP?

- One of the nation's largest public power utilities
- Provide reliable, affordable water and power to more than **2 Million** people
- The largest raw-water supplier in the Valley, delivering about **800,000** acre-feet of water annually
- Managing a **13,000** square-mile watershed

SRP Service Areas

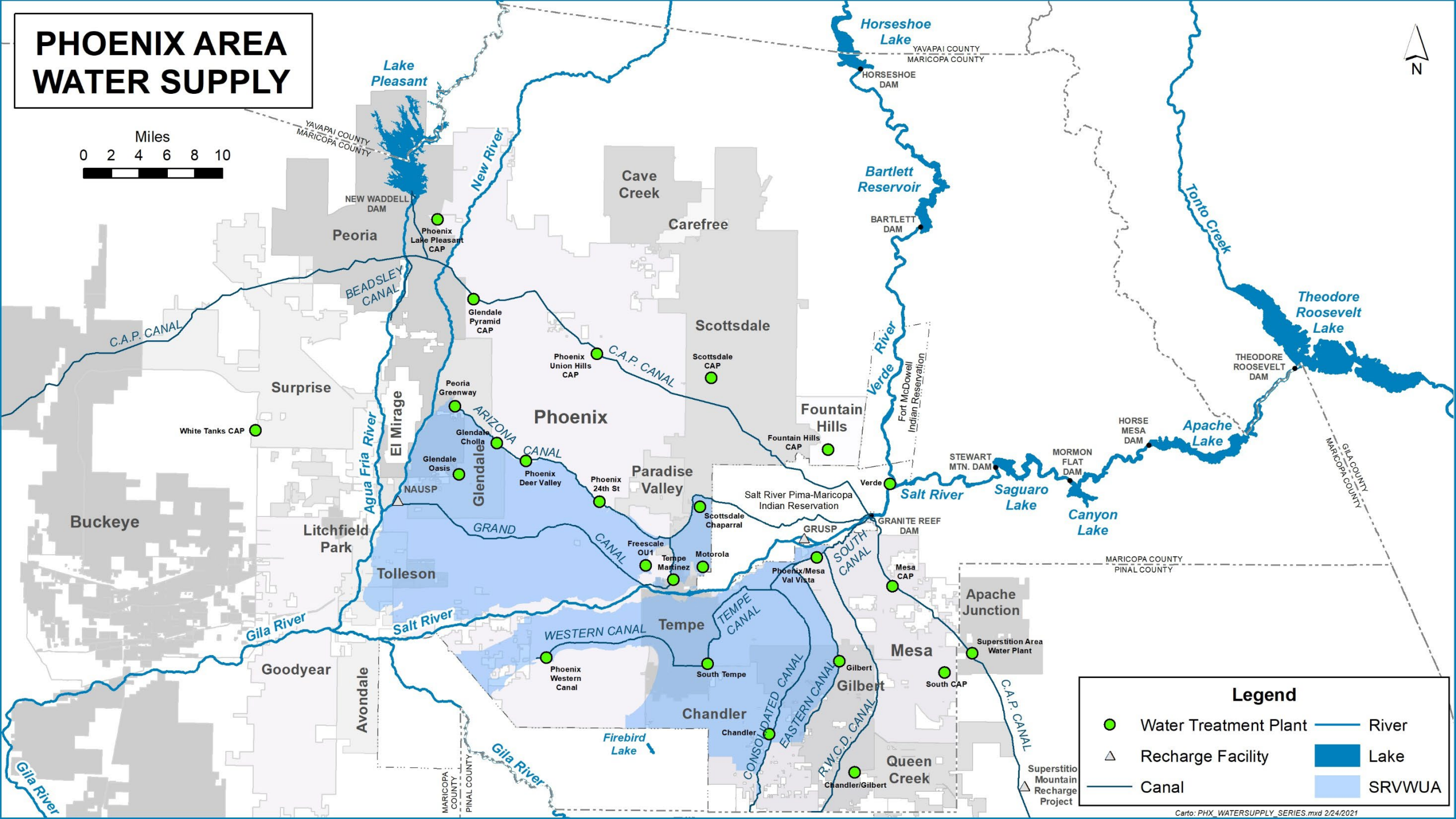
Water Delivery Area:
375 sq. mi.



Watershed: 13,000
sq. mi

Electric Service Area:

2,900 sq. mi. (Phoenix
Metro)


PHOENIX AREA WATER SUPPLY
Miles
0 2 4 6 8 10
N
Lake Pleasant
YAVAPAI COUNTY
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NEW WADDELL DAM
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Phoenix Lake Pleasant CAP
New River
Cave Creek
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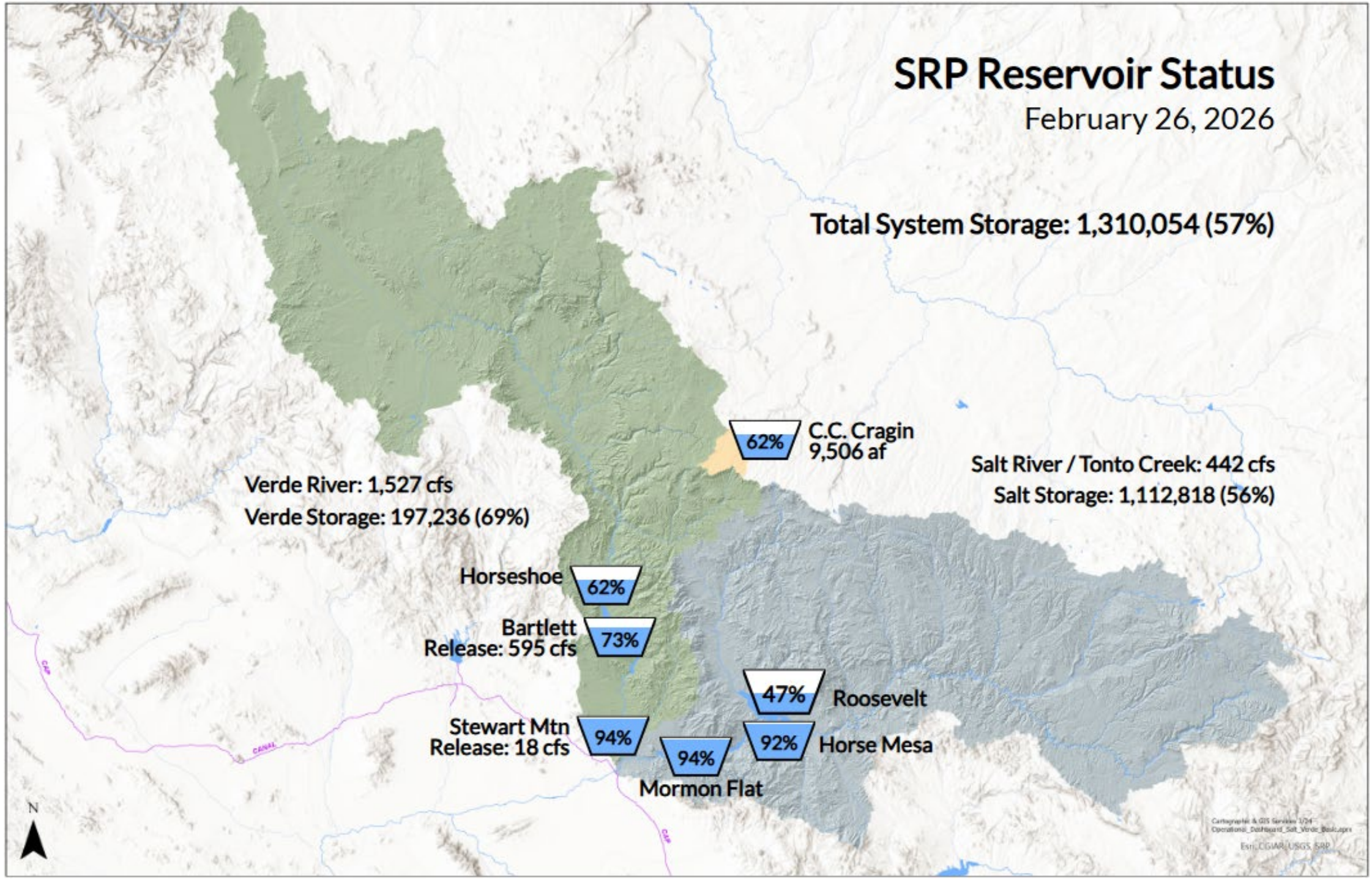
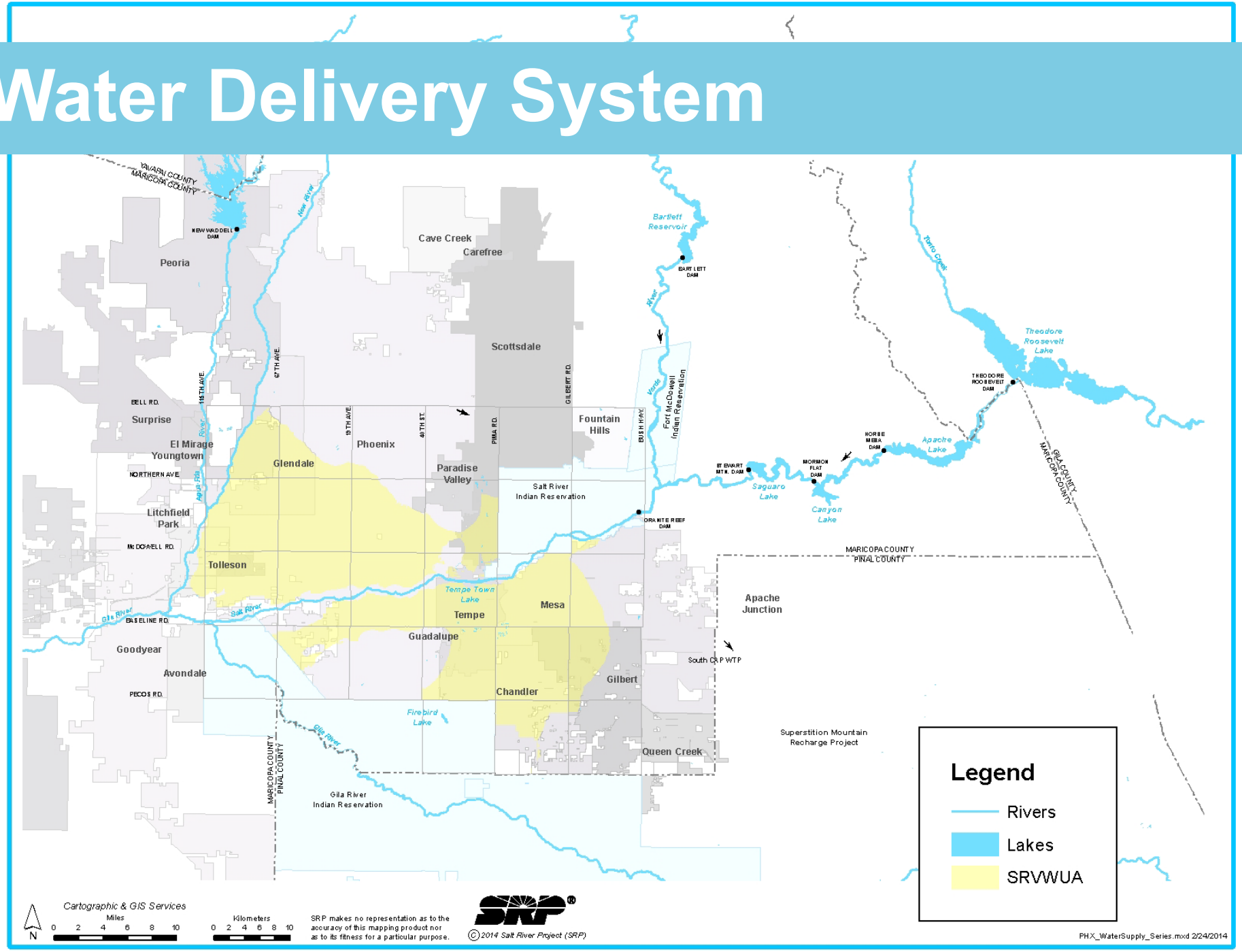
Bartlett Reservoir
BARTLETT DAM
Tonto Creek
Theodore Roosevelt Lake
THEODORE ROOSEVELT DAM
BEADSLEY CANAL
C.A.P. CANAL
Glendale Pyramid CAP
Phoenix Union Hills CAP
Scottsdale CAP
Verde River
Fort McDowell Indian Reservation
Surprise
White Tanks CAP
El Mirage
Peoria Greenway
Phoenix
Fountain Hills
Fountain Hills CAP
HORSE MESA DAM
Apache Lake
STEWART MTN. DAM
MORMON FLAT DAM
Saguaro Lake
Canyon Lake
Salt River
Verde
Agua Fria River
Glendale Cholla
ARIZONA CANAL
Glendale Oasis
Glendale
Phoenix Deer Valley
Phoenix 24th St
Paradise Valley
NAUSP
Salt River Pima-Maricopa Indian Reservation
Scottsdale Chaparral
GRUSP
GRANITE REEF DAM
GILA COUNTY
MARICOPA COUNTY
Buckeye
Litchfield Park
GRAND CANAL
Freescale OU1
Tempe Martinez
Motorola
Tolleson
Phoenix/Mesa Val Vista
SOUTH CANAL
Mesa CAP
MARICOPA COUNTY
PINAL COUNTY
Apache Junction
Gila River
Salt River
WESTERN CANAL
Tempe
TEMPE CANAL
Superstition Area Water Plant
Mesa
Goodyear
Avondale
Phoenix Western Canal
South Tempe
Gilbert
South CAP
CONSOLIDATED CANAL
EASTERN CANAL
Chandler
Firebird Lake
R.W.C.D. CANAL
Queen Creek
Chandler/Gilbert
C.A.P. CANAL
Superstition Mountain Recharge Project
MARICOPA COUNTY
PINAL COUNTY
Legend
Water Treatment Plant
Recharge Facility
Canal
River
Lake
SRVWUA
Carto: PHX_WATERSUPPLY_SERIES.mxd 2/24/2021

Episode 1: Origins of Water—3:15

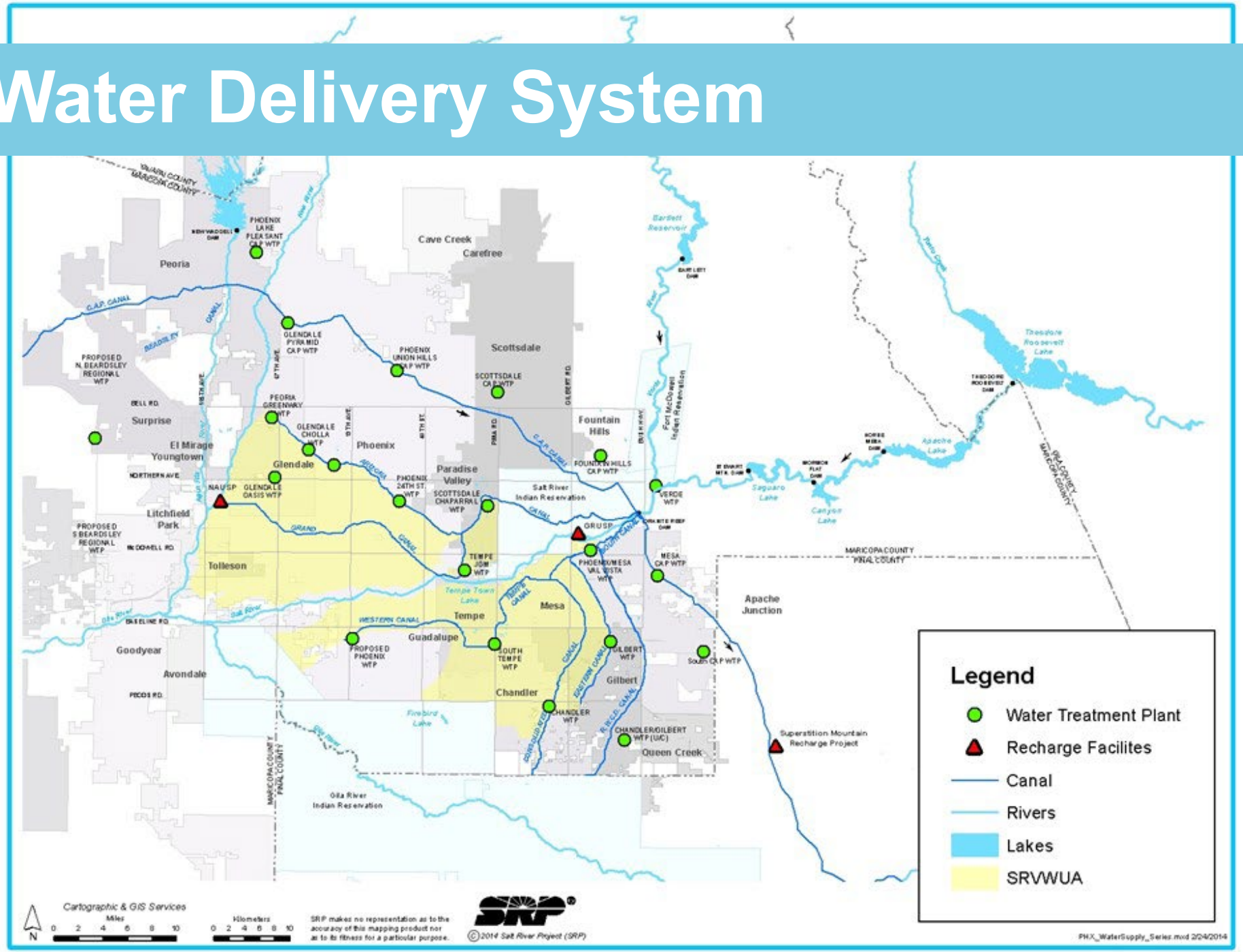
https://vimeo.com/showcase/srp-watershed?video=438311504


SRP Reservoir Status
February 26, 2026
Total System Storage: 1,310,054 (57%)
62%
C.C. Cragin
9,506 af
Salt River / Tonto Creek: 442 cfs
Salt Storage: 1,112,818 (56%)
Verde River: 1,527 cfs
Verde Storage: 197,236 (69%)
Horseshoe
62%
Bartlett
Release: 595 cfs
73%
47%
Roosevelt
Stewart Mtn
Release: 18 cfs
94%
92%
Horse Mesa
94%
Mormon Flat
N

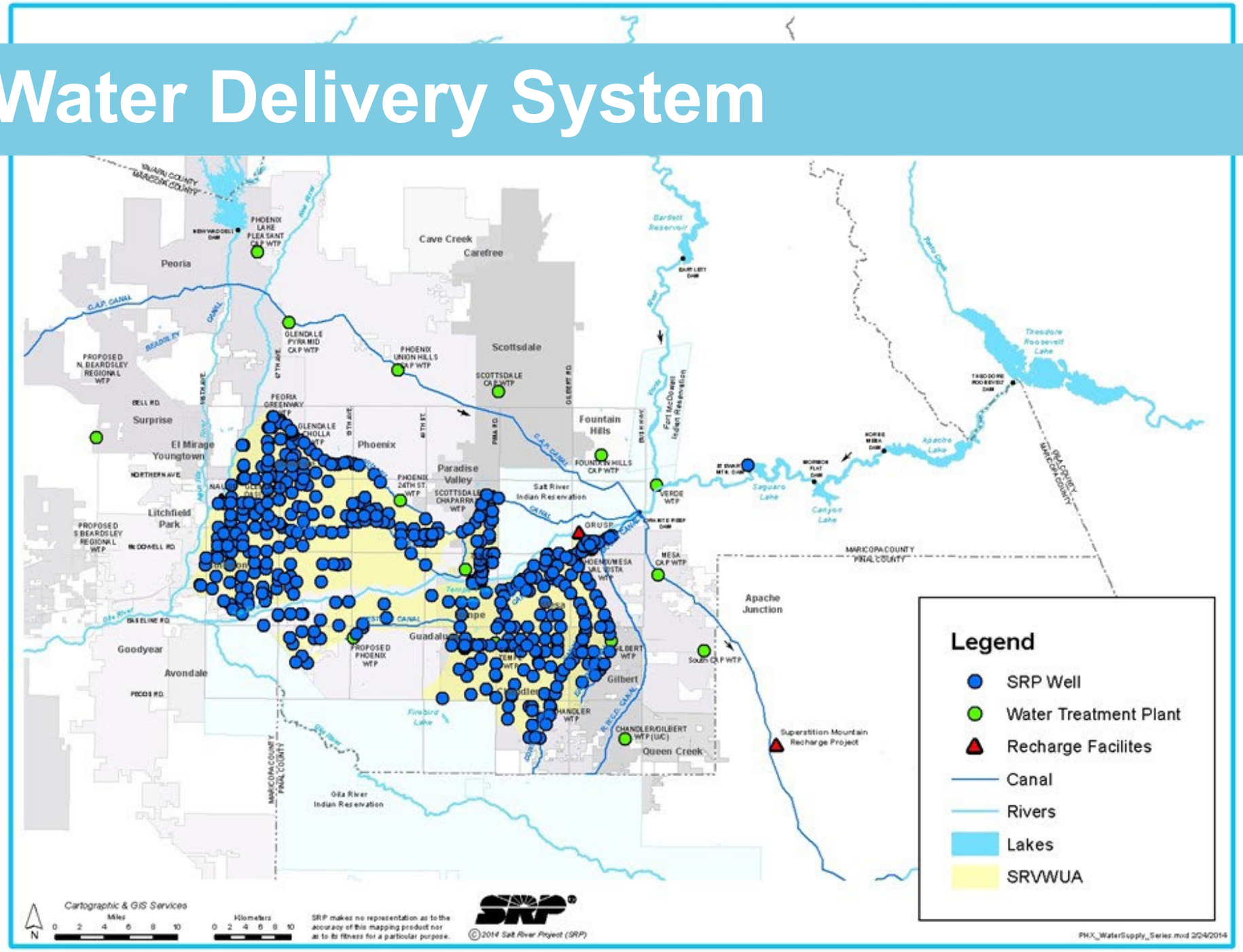
SRP Water Delivery System



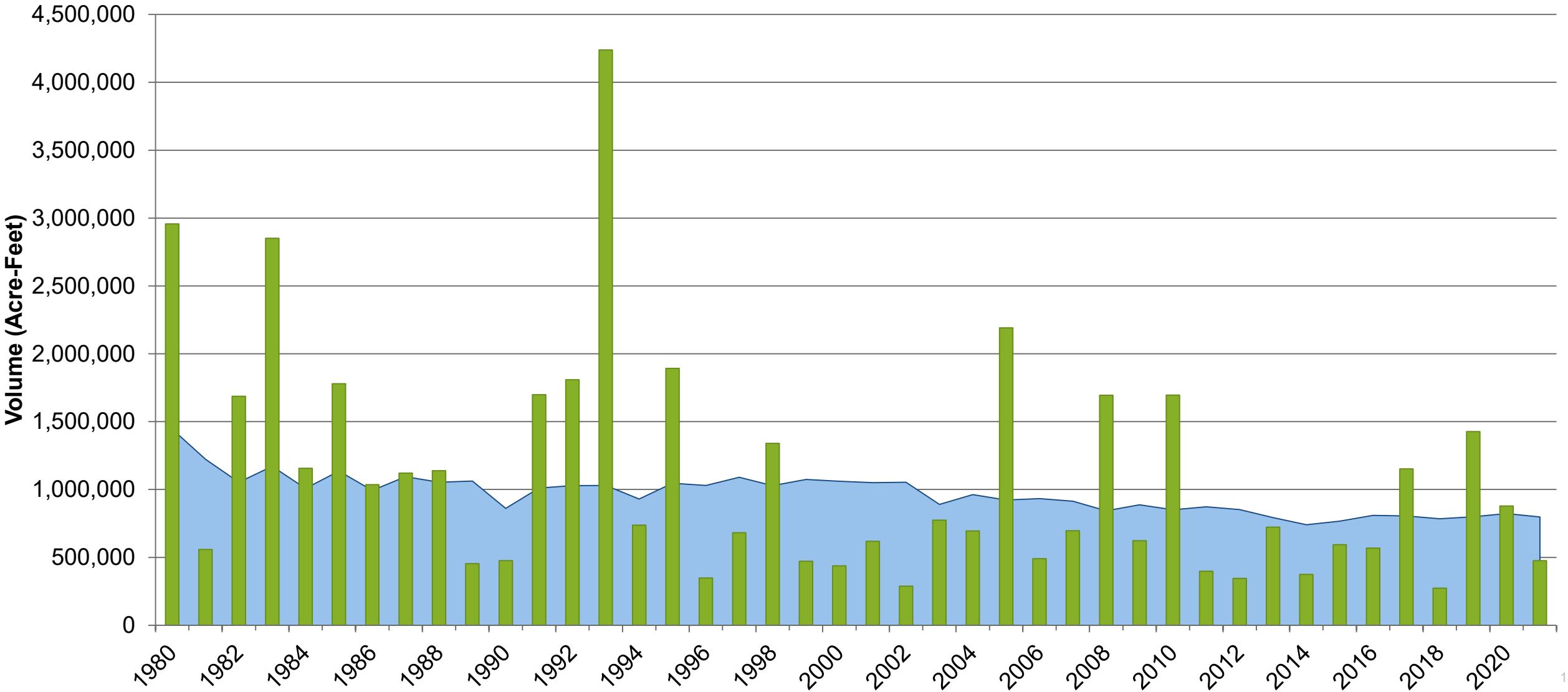
SRP Water Delivery System



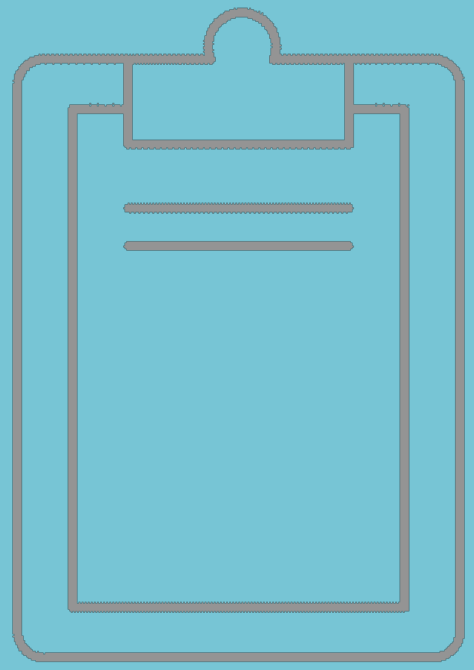
SRP Water Delivery System



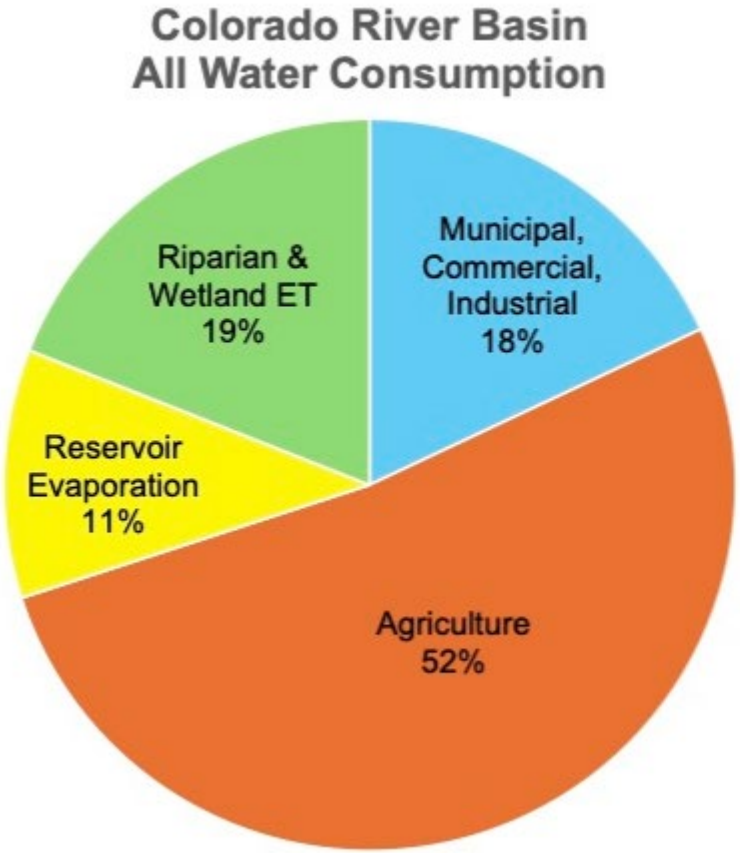
Creating Resiliency from Variability

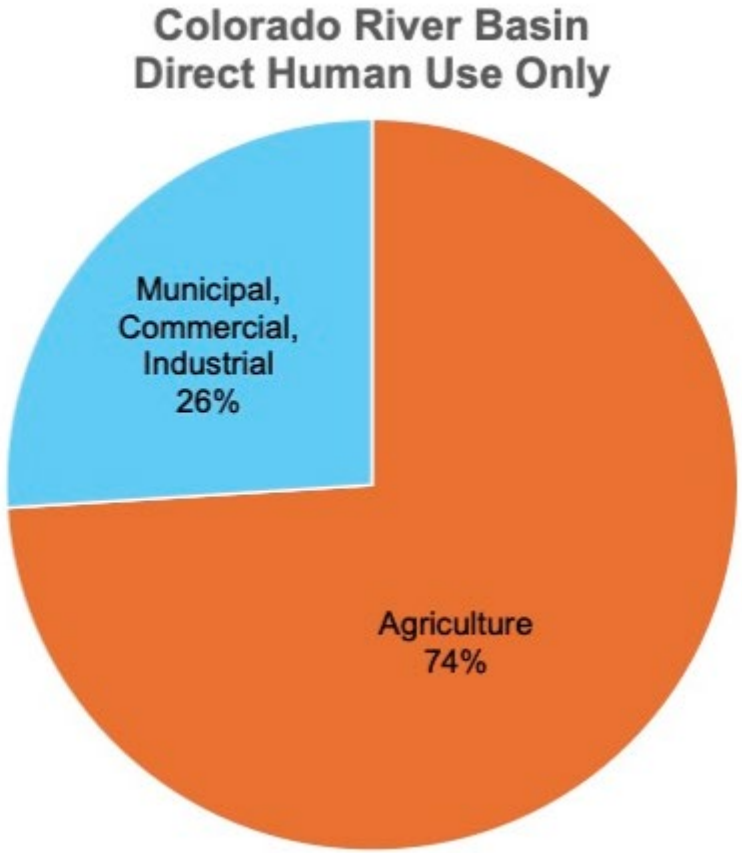


COLORADO RIVER BASICS



Colorado River Flows





- Provides irrigation water to about 3.5 million acres of farmland, about 52% of its flow
- 18% of flow provides water to municipal and industrial water users, more than 40 million people
- 30 tribes have recognized rights to use about 3.2 million acre-feet per year
- 11 hydroelectric plants on the river produce 4.1 gigawatts per year for 15 million people

1922: The Colorado River Compact

Purpose: “to provide for the equitable division and apportionment” of the Colorado River; “to remove causes of present and future controversies”

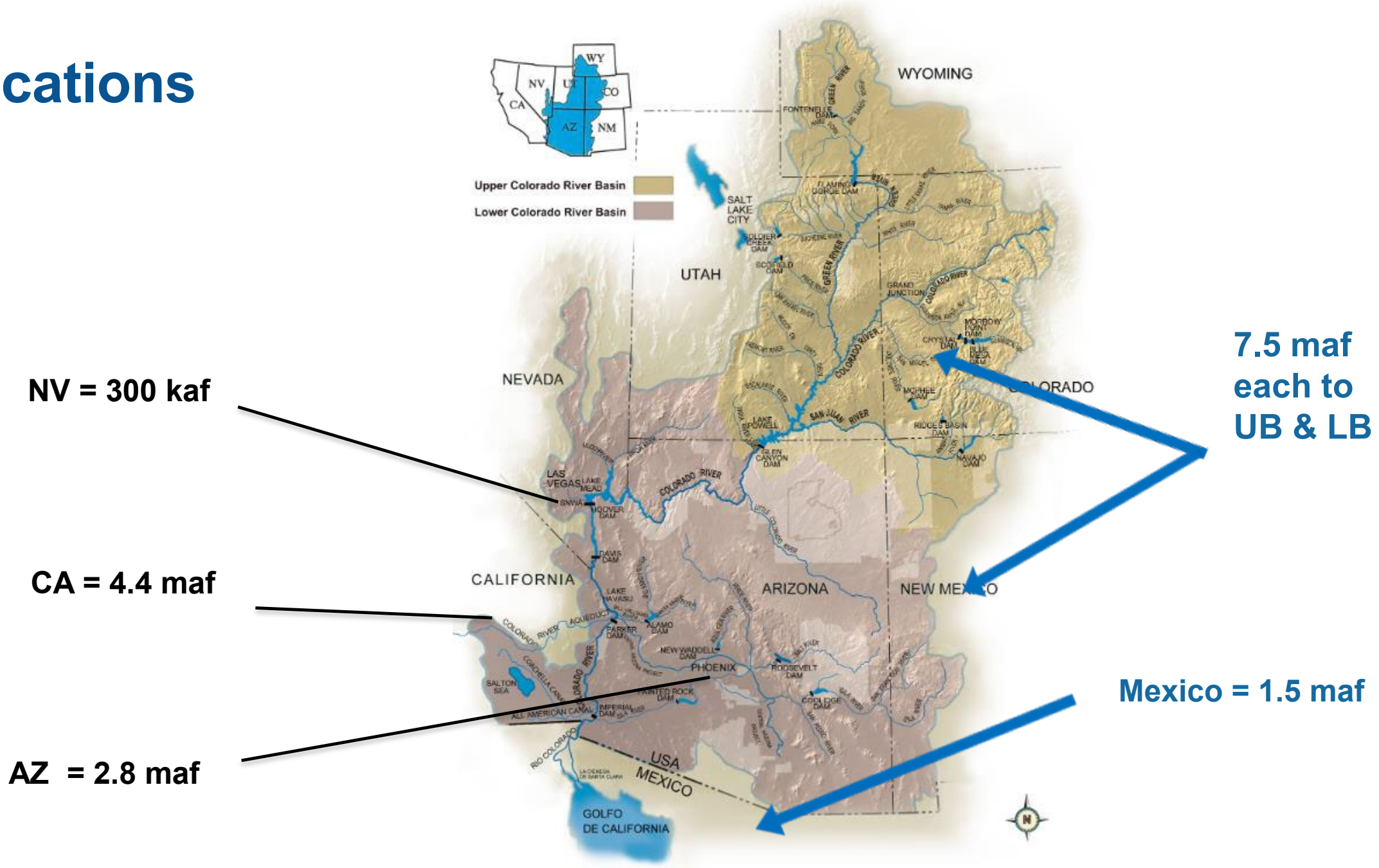
Allocated 7.5 MAF each to the Upper and Lower Basins, divided at Lee Ferry.

“The States of the Upper Division **will not cause the flow of the river at Lee Ferry to be depleted below [75 MAF over any ten-year period]**.”

Provided the burden of an **allocation to Mexico** (absent surplus) is **borne equally by the Upper and Lower Basins**.

“The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water, which cannot reasonably be applied to domestic and agricultural uses.”

Allocations



NV = 300 kaf

CA = 4.4 maf

AZ = 2.8 maf

7.5 maf each to UB & LB

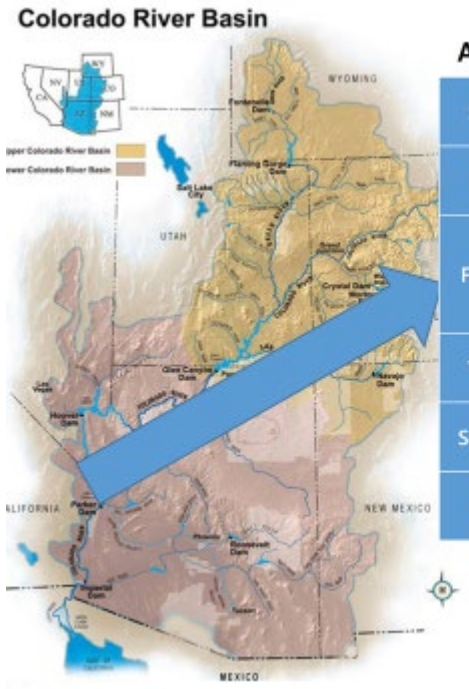
Mexico = 1.5 maf

Arizona v. California & the Colorado River Basin Project Act

- 1964—US Supreme Court decides in Arizona's favor in Arizona v. California
    - Affirmed lower basin allocations and protected Arizona's tributary water use
- 1968—Colorado River Basin Project authorizes Central Arizona Project, but at a price

Colorado River Priorities in AZ

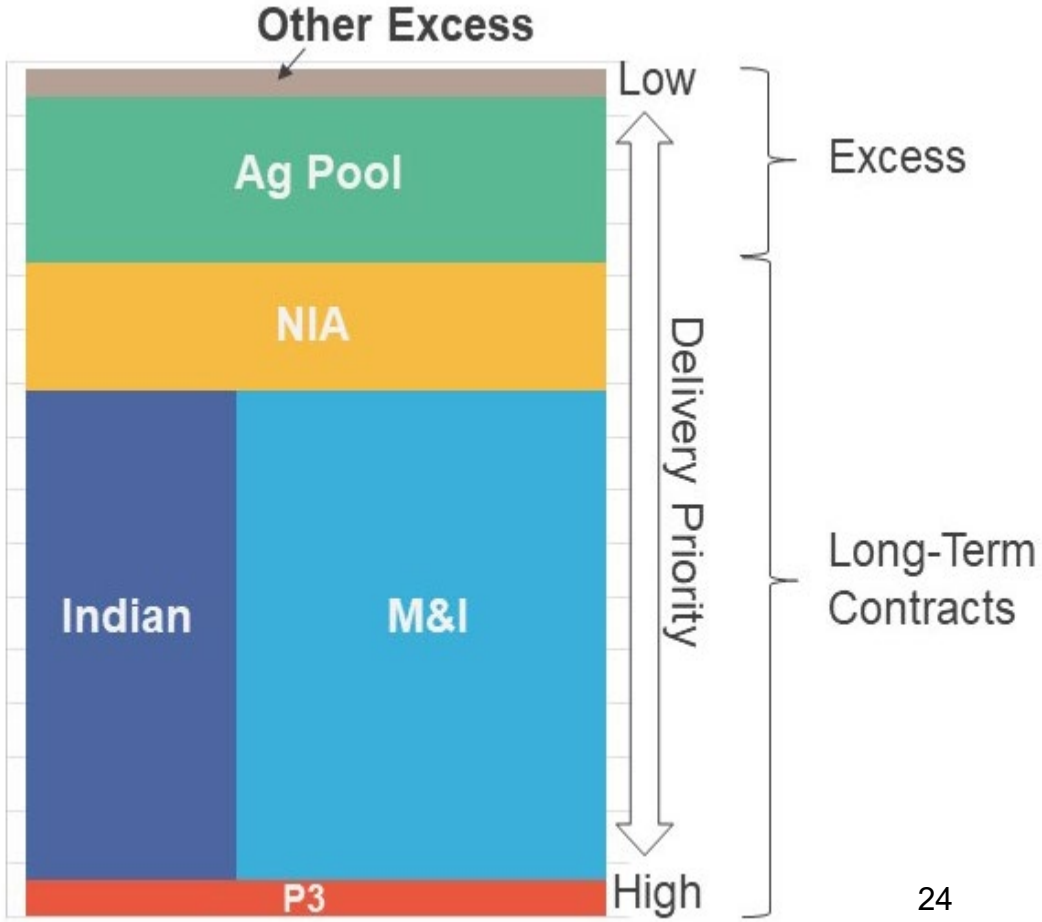
On River Priorities



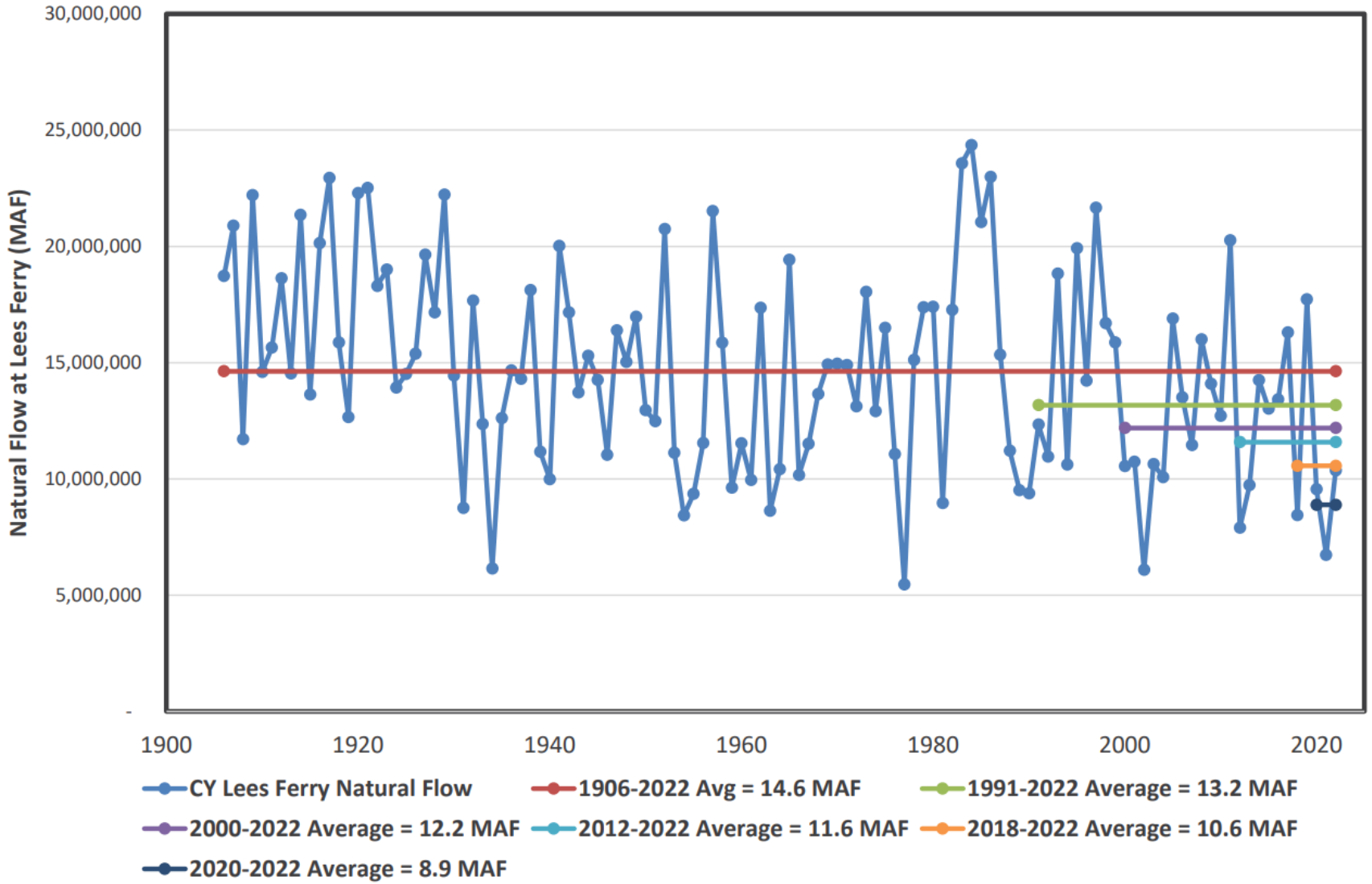
Arizona Colorado River – Priority System

Sixth Priority	Entitlements to surplus.
Fifth Priority	Entitlements to unused Arizona entitlement or unused apportionment water.
Fourth Priority	Entitlements (i) entered into after September 30, 1968 for use on Federal, State, or privately-owned lands in the State of Arizona (for a total quantity of not to exceed 164,652 acre-feet per year); and (ii) CAP Contract No. 14-06-W-245, as amended dated December 15,1972. Entitlements in (i) and (ii) are coequal.
Third Priority	Entitlements pursuant to contracts executed on or before September 30, 1968.
Second Priority	Secretarial Reservations and Perfected Rights established or effective prior to September 30, 1968.
First Priority	Present Perfected Rights (PPRs) existing as of June 25, 1929, as recognized in the Consolidated Decree in *Arizona v. California*.

CAP Priorities



Natural Flow Record at Lees Ferry (1906-2022)



August 24-Month Study Results

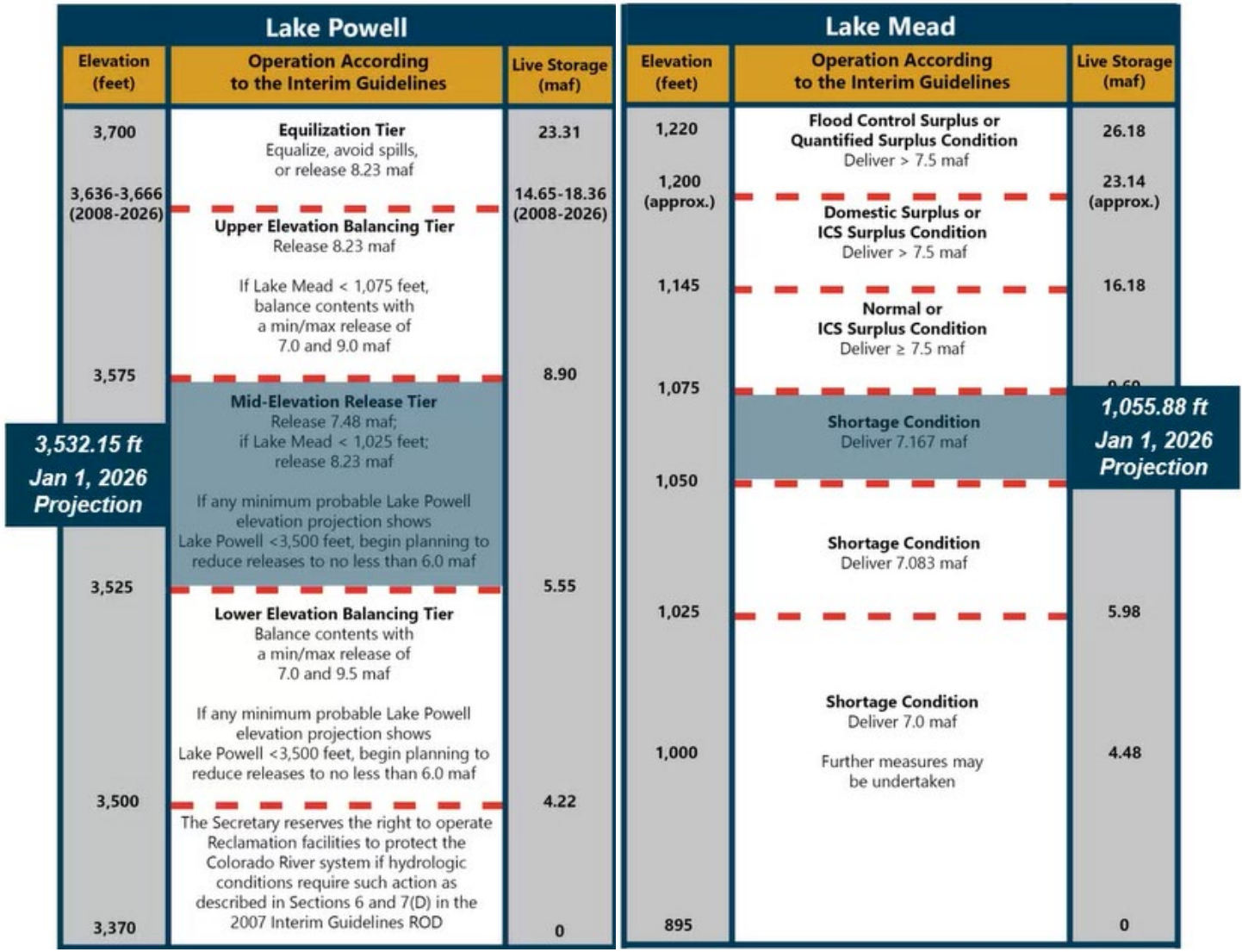
Same operating conditions as 2025*

Powell: Mid-Elevation Release Tier

- Release 7.48 MAF, reduce as necessary to protect elevation

Mead: Tier 1 Shortage Condition

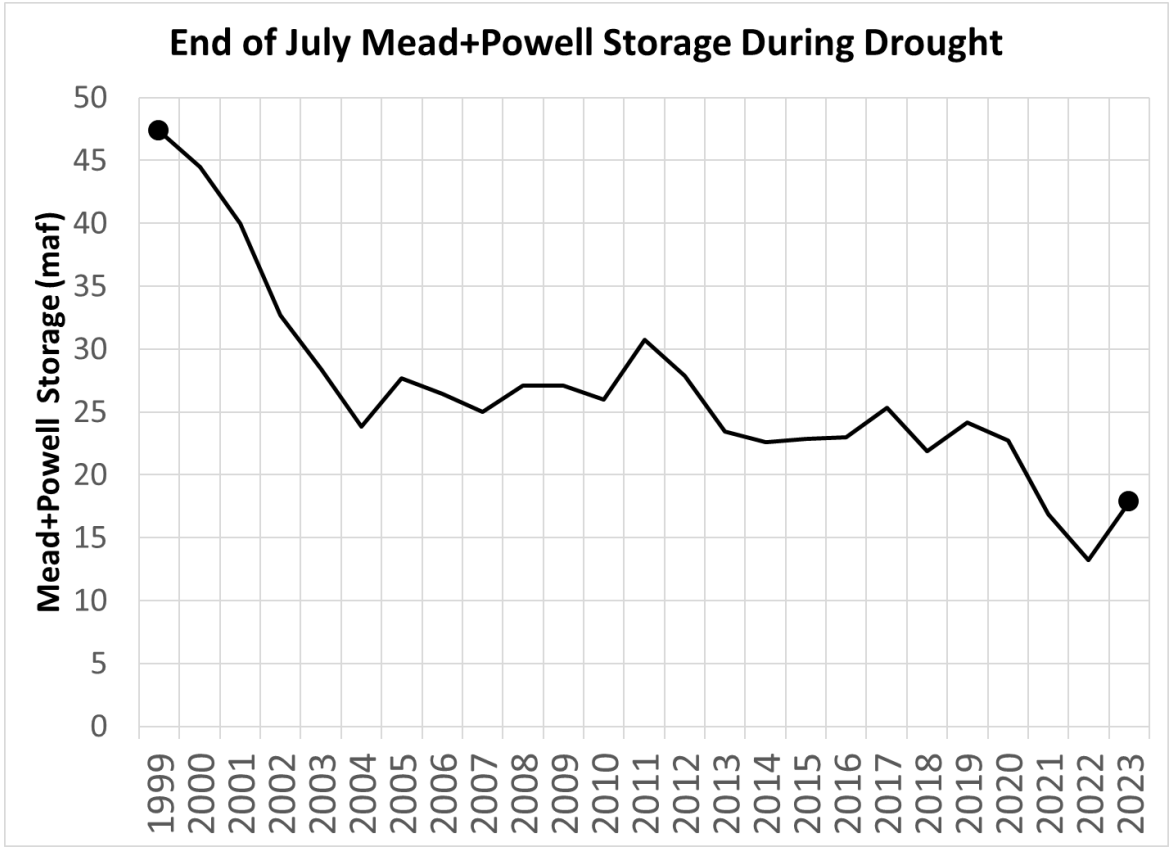
- AZ Guidelines/DCP reductions + SEIS conservation: ~820 KAF



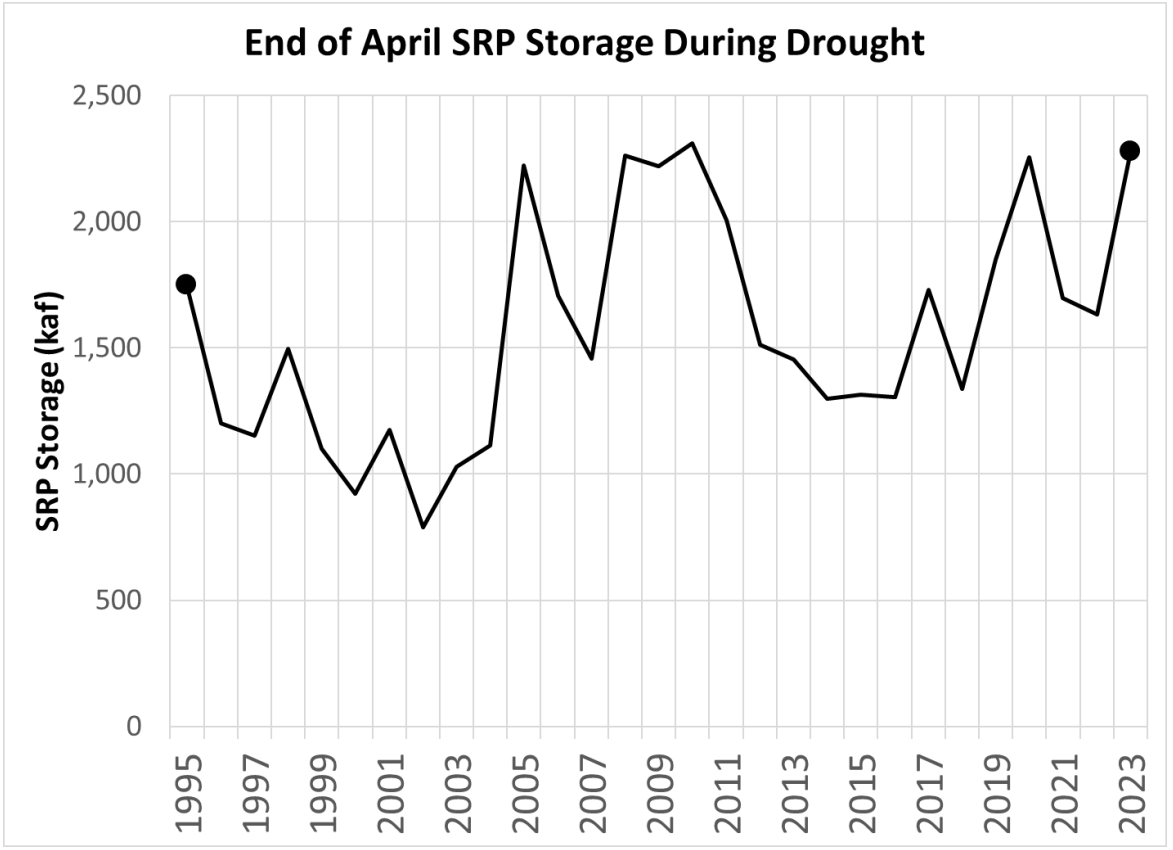
A TALE OF TWO RIVERS

Storage During Extreme Long-Term Drought

Colorado River



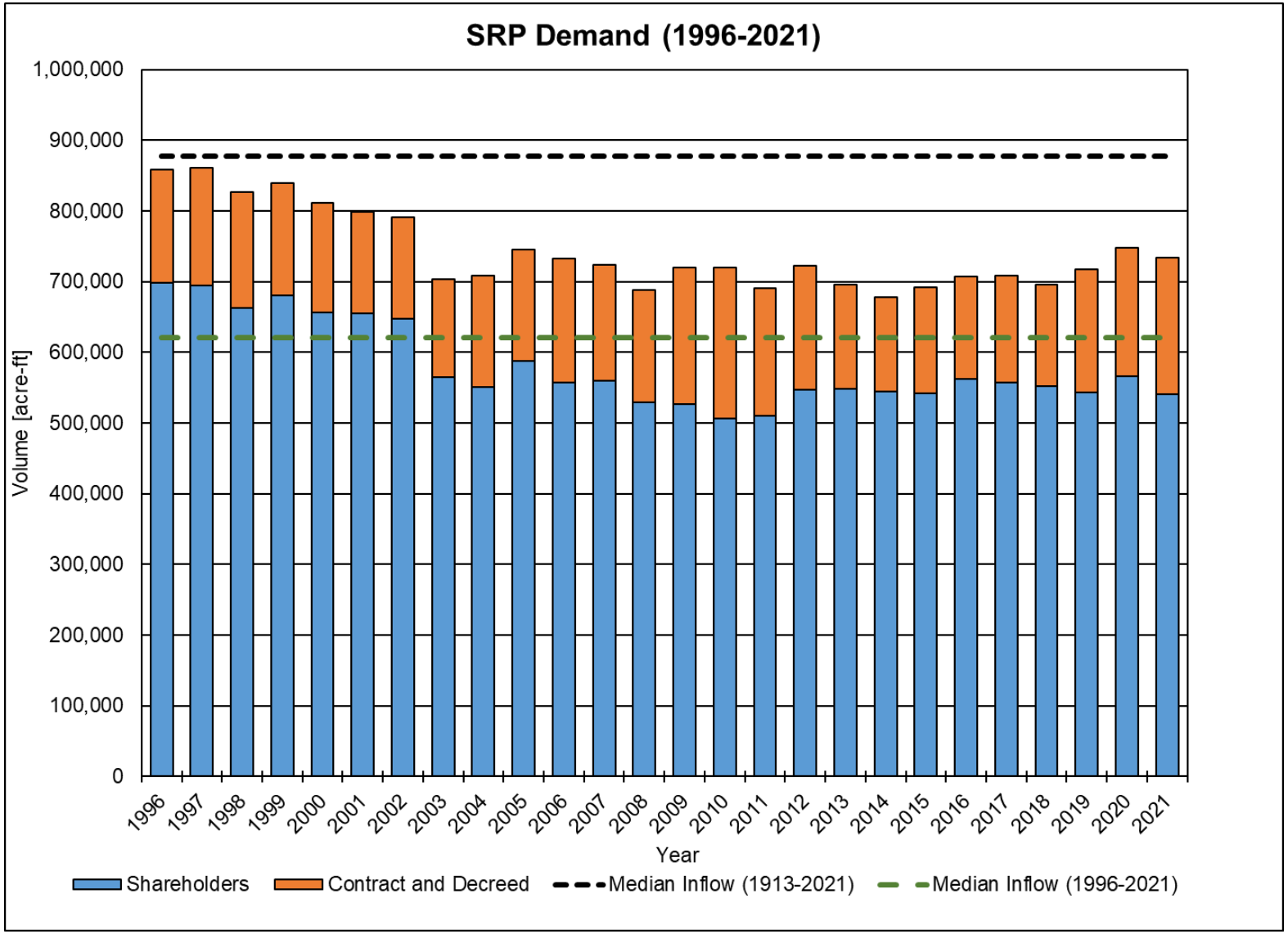
Salt-Verde Rivers



Demand

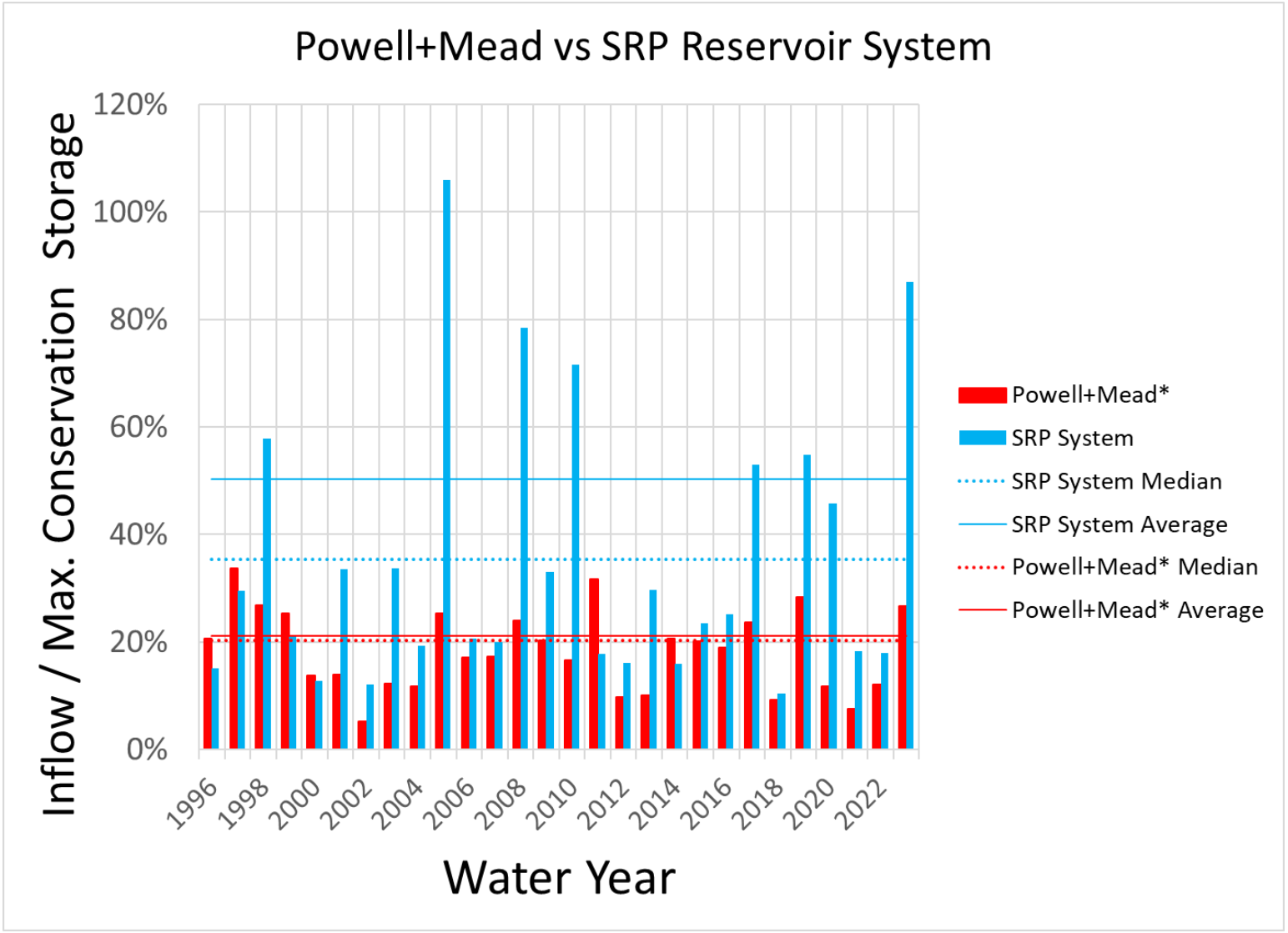
SRP demand lower than long-term median inflow

In contrast, Lake Mead is overallocated, a structural deficit of over 1.2 million acre-feet per year[1]



[1]Udall, B. and J. Overpeck (2017), The twenty-first century Colorado River hot drought and implications for the future, Water Resour. Res.,53, 2404–2418, doi:10.1002/2016WR019638

Capacity

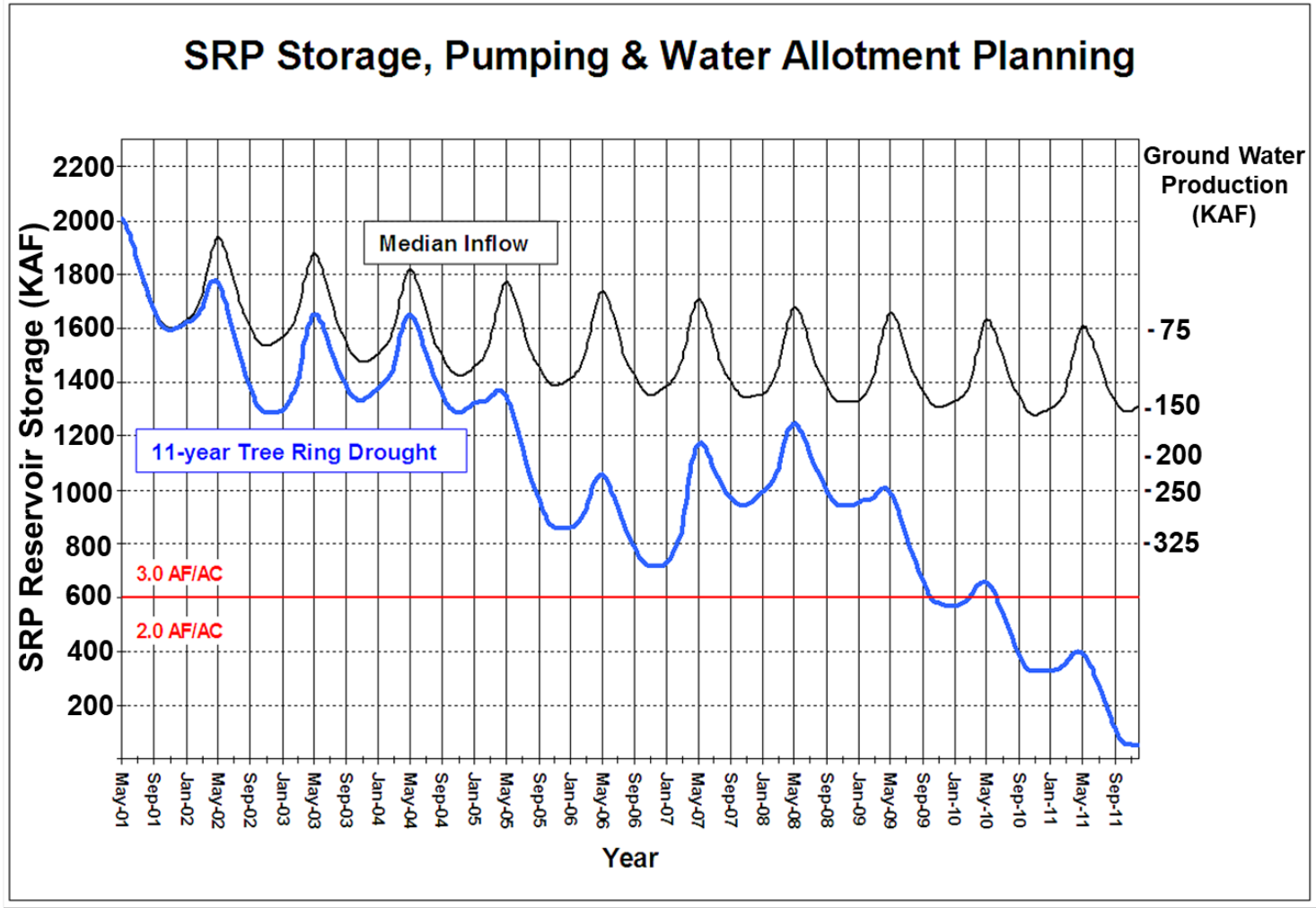


*Unregulated Lake Powell inflow relative to Lake Powell and Lake Mead total capacity

Other Supplies: Groundwater

Planning Assumptions

- 900,000 AF -- full demand
- 325,000 AF -- maximum pumping
- Tree-ring drought of record, 1575-1585
- Use revised allocation and pumping plan to manage for the 11-year tree-ring drought
- Demand mostly urban



Storage Planning Diagram

Warming

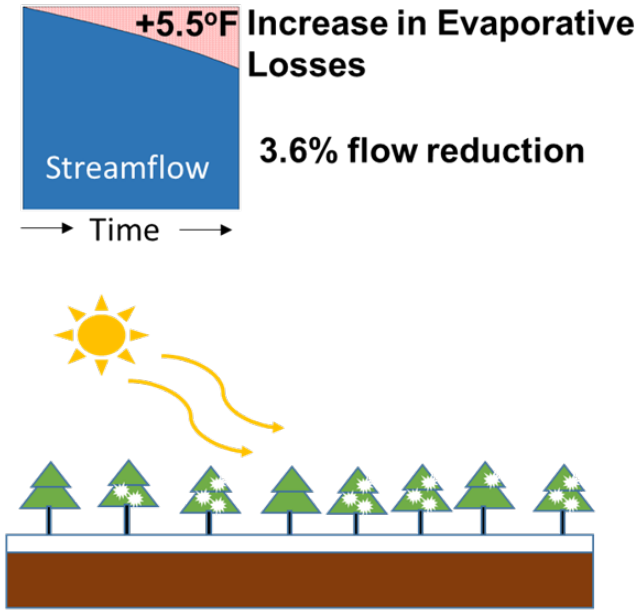
Climate Change: Salt-Verde vs Colorado River

The peak energy available for evaporative loss occurs 3 months after peak streamflow on the Salt-Verde (Robles et al. 2020).

This is not case for the UCRB partly contributing to a 5 times greater streamflow sensitivity to warming on the UCRB than the Salt-Verde (BOR 2020).

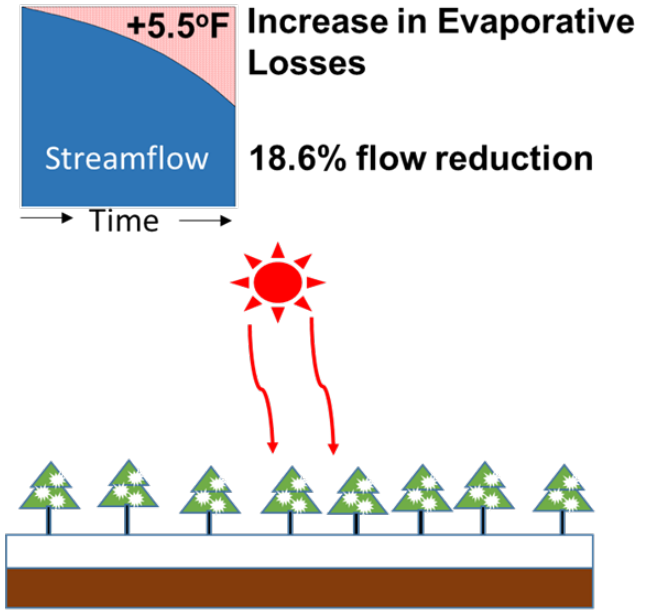
Salt-Verde Runoff Season

January-April



Colorado River Runoff Season

April-July



BOR 2020; https://www.usbr.gov/watersmart/pilots/docs/reports/Final_Reservoir_Operations_Pilot_Report-Salt_and_Verde_Az.pdf
Robles, M. et al. 2020: *Water* 2021, *13*(1), 3; https://doi.org/10.3390/w13010003
Woodhouse, C.A. and B. Udall. 2022. Upper Gila, Salt, and Verde Rivers: Arid land rivers in a changing climate. Earth Interactions 1, 1-14. https://doi.org/10.1175/EI-D-21-0014.1

Summary

Colorado River

1. Large storage **decrease** during drought
2. Average annual inflow **21%** of max. conservation storage
3. Structural deficit
4. Limited conjunctive use with alternative water supplies
5. Very sensitive to warming

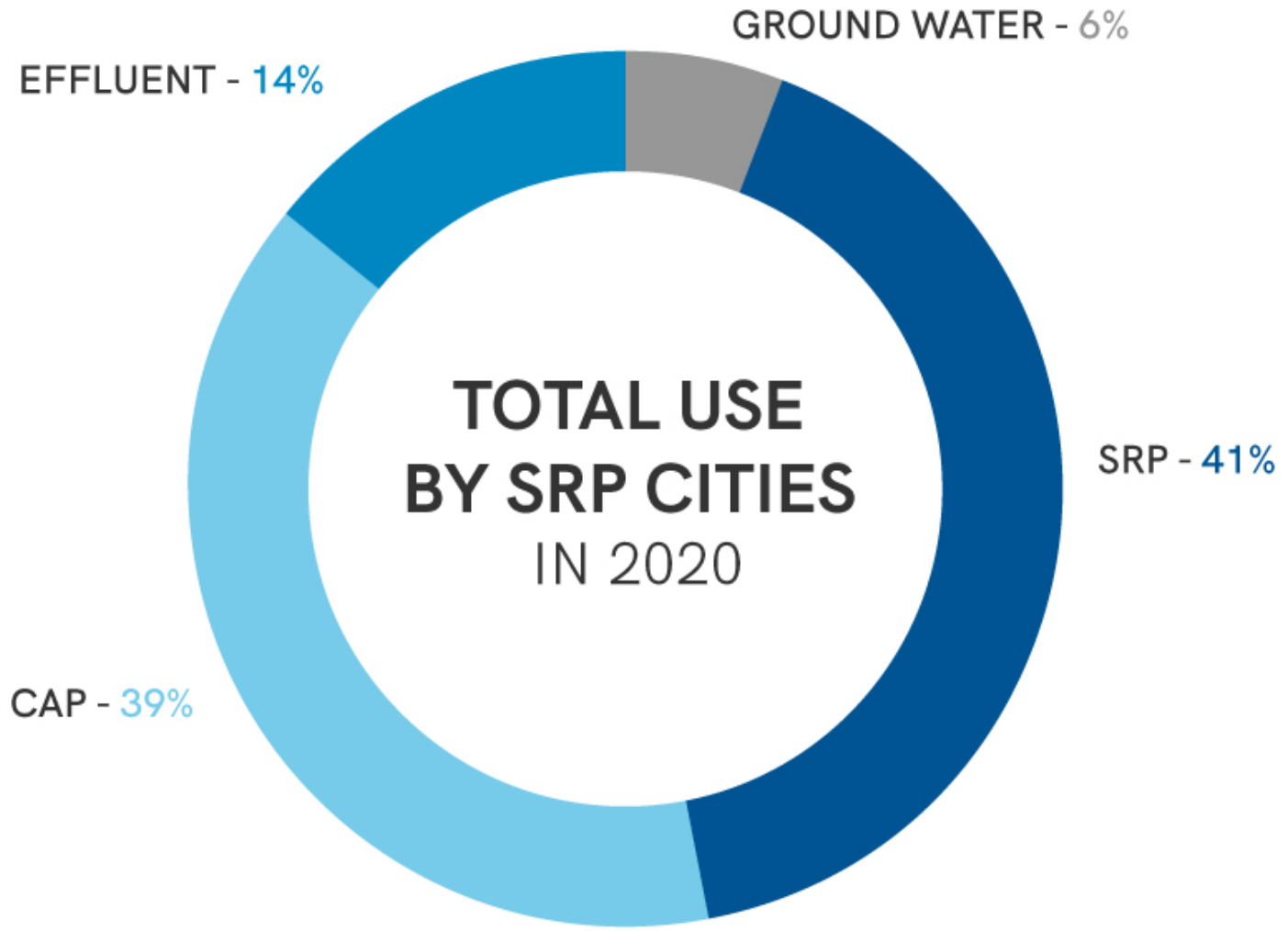
Salt River

1. Storage **increase** during drought
2. Average annual inflow **50%** of max. conservation storage
3. Long-term balance and recent decreasing demand
4. Conjunctive use with alternative supplies (groundwater)
5. Less sensitive to warming


THANK YOU

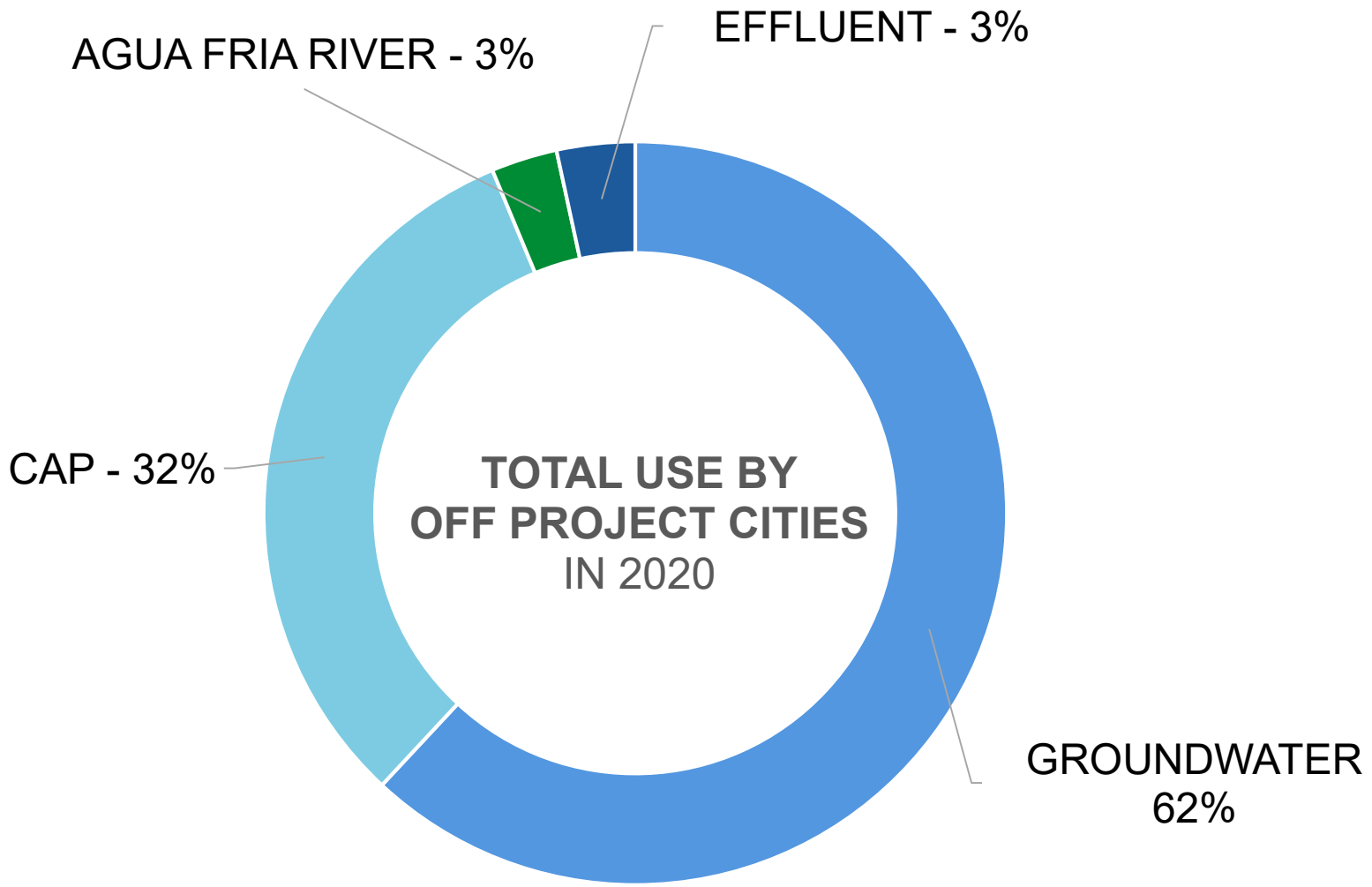
On-Project Cities

- Avondale
- Chandler
- Gilbert
- Glendale
- Mesa
- Peoria
- Phoenix
- Scottsdale
- Tempe
- Tolleson



Off-Project Cities

- Apache Junction
- Queen Creek
- San Tan Valley
- Goodyear
- Buckeye
- El Mirage
- Litchfield Park
- Surprise
- Carefree
- Cave Creek
- Fountain Hills
- Paradise Valley



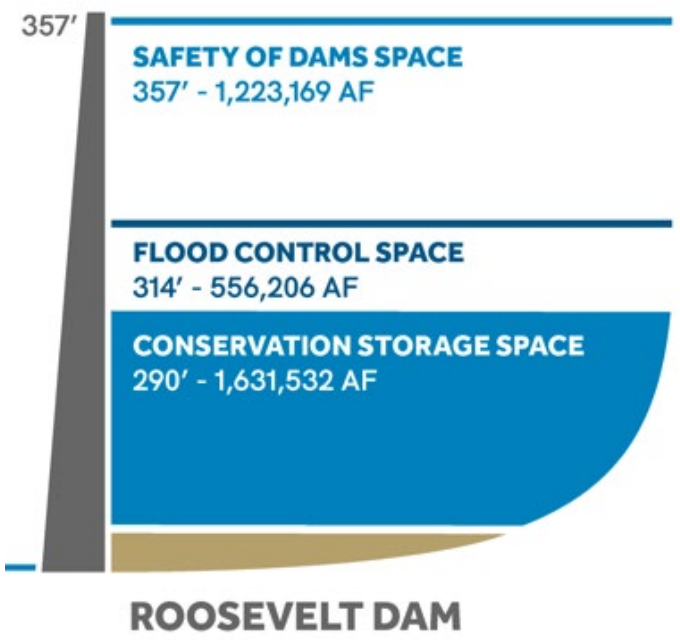
Challenges & Opportunities

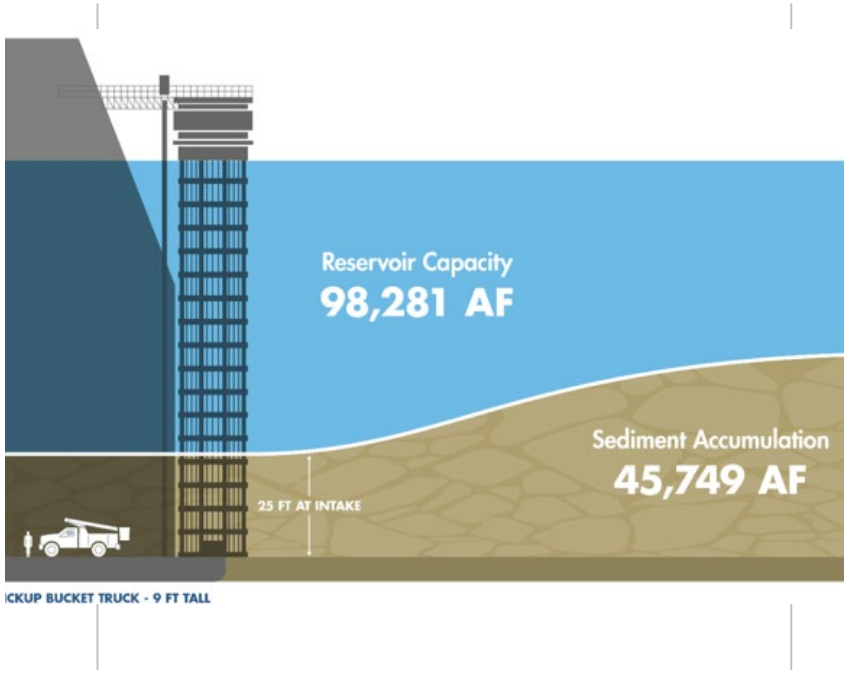
- SRP ***water*** cannot be used off-project
- CAP water fully allocated & subject to shortages
- Continued reliance on groundwater/CAGRD
- Lack of recovery infrastructure

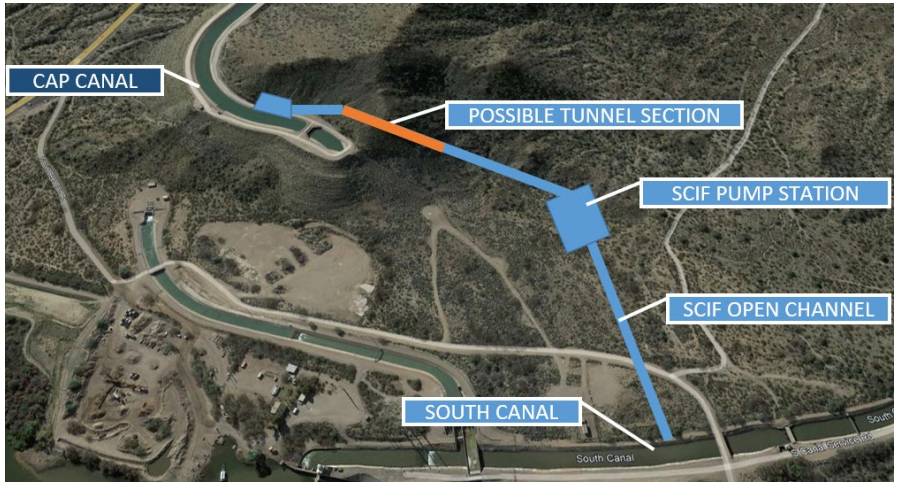
- SRP ***infrastructure*** can benefit everyone
- SRP has projects that create new water resources for our region
- SRP has over 270 wells and a project to transport recovered water where it is needed

Water Infrastructure & Augmentation Projects

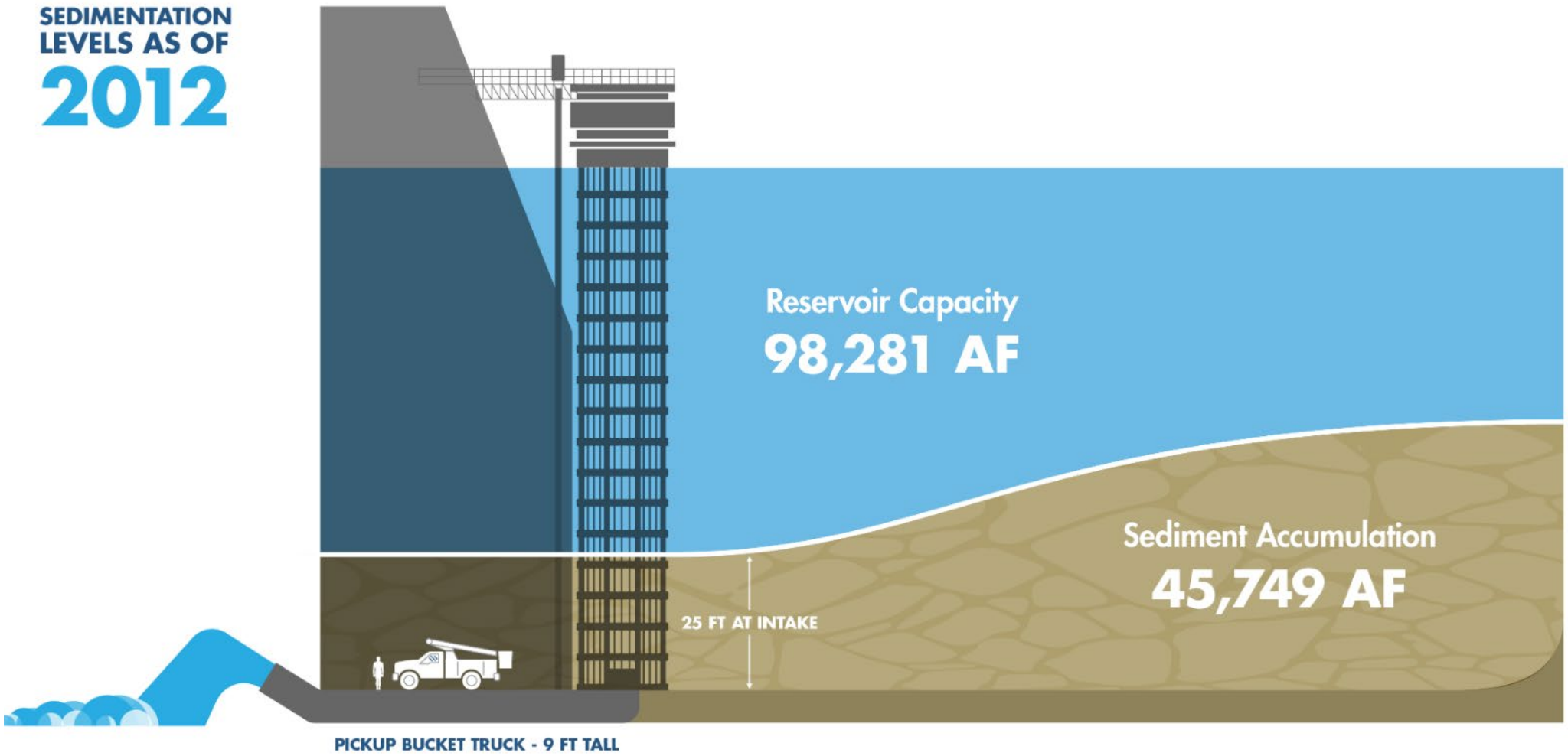
Roosevelt Flood Control Space | Verde River Sediment | SRP-CAP Interconnection







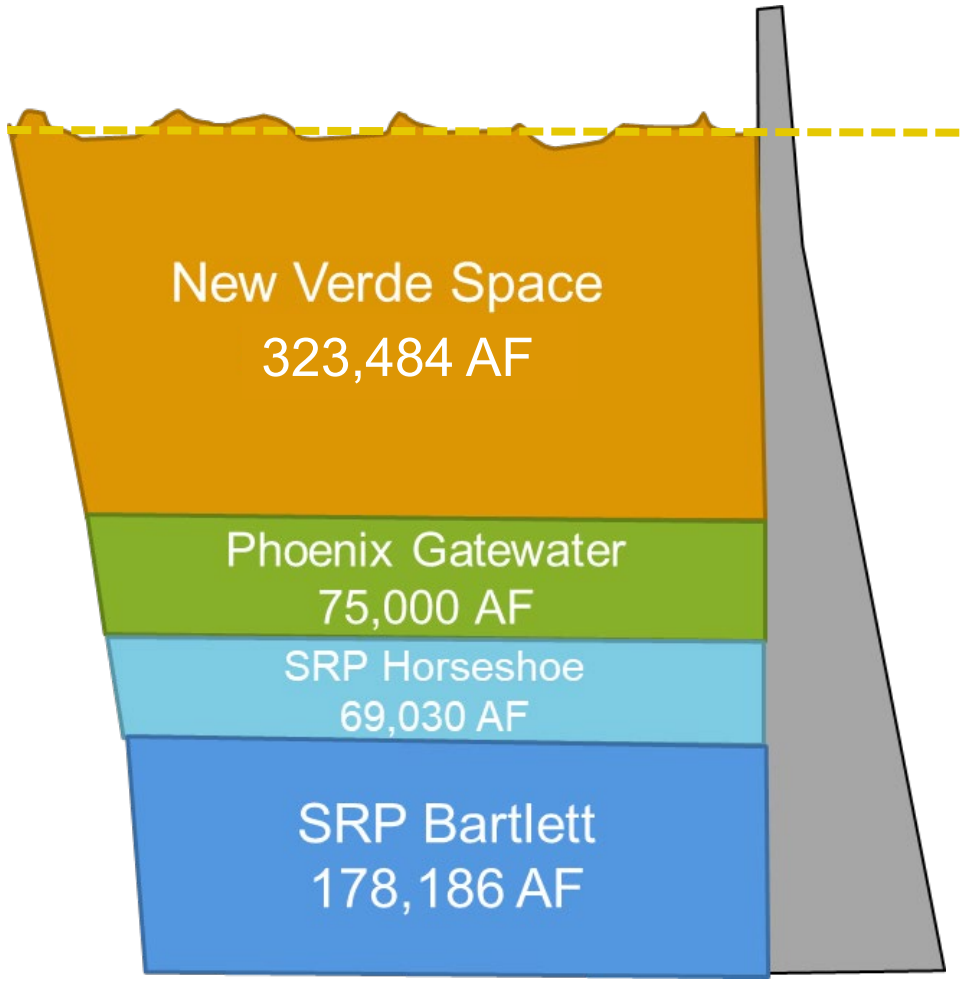
Sedimentation at Horseshoe Dam



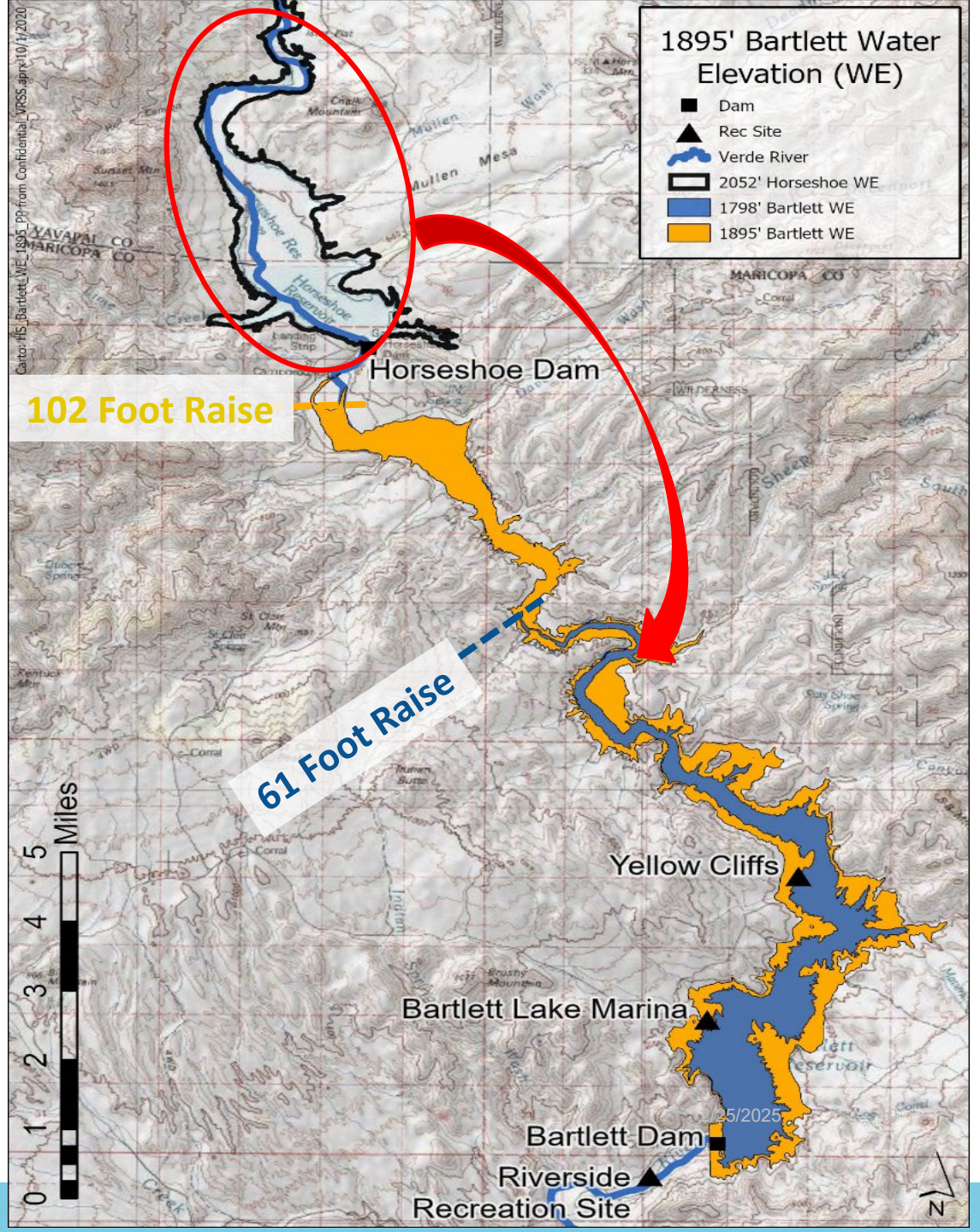
Bartlett Modification Options

Option 1: Increase dam height=102 Feet, 650,122 Acre-Foot Reservoir

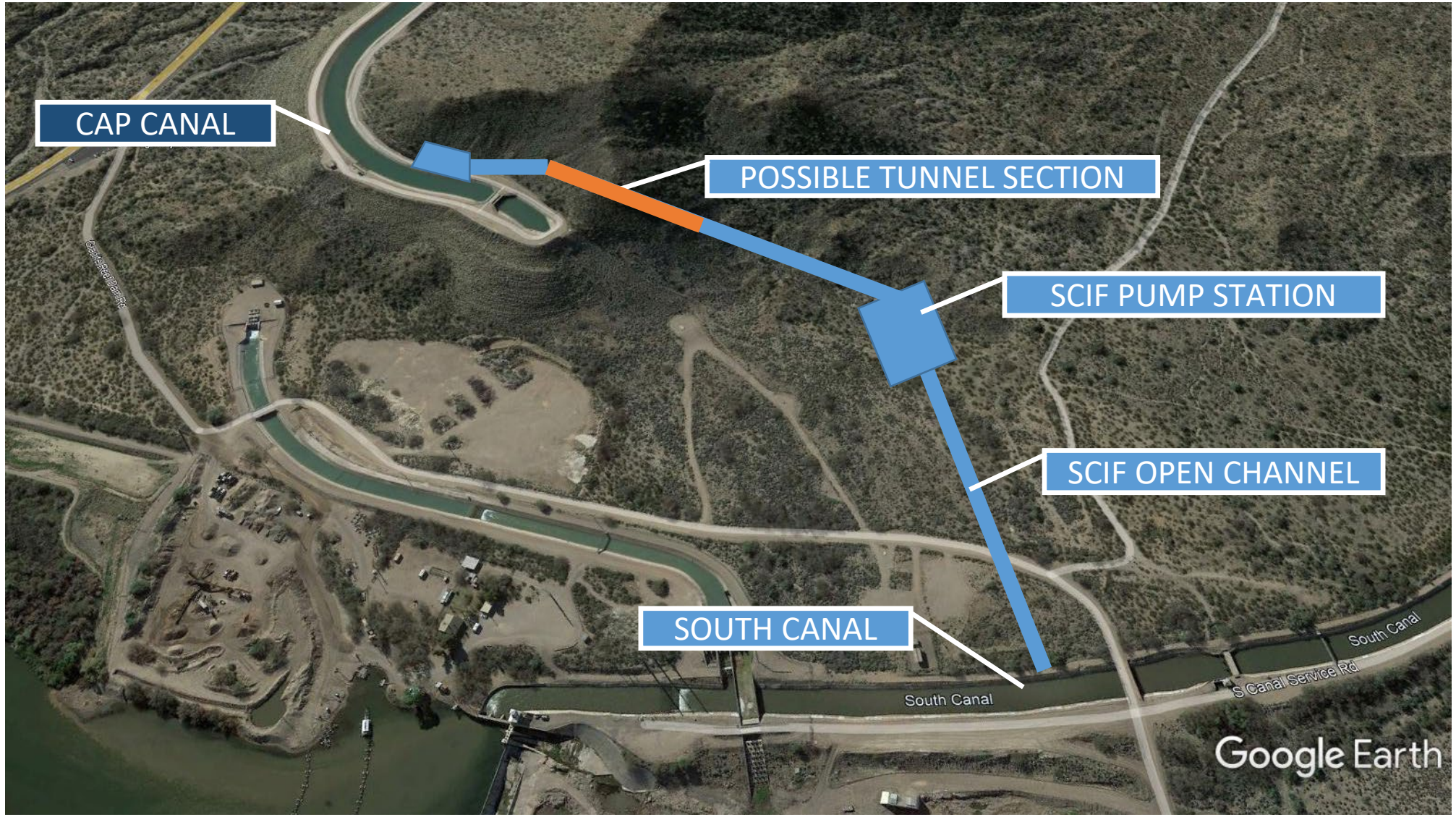
Option 2: Increase dam height=61 Feet, 402,422 Acre-Foot Reservoir



Christa McJunkin, Salt River Project



SCIF – SRP/CAP Interconnection Facility



Colorado River System Contents Since 2000