

Central Arizona Project

Extension In-Service
Tempe, Arizona
August 11, 2016



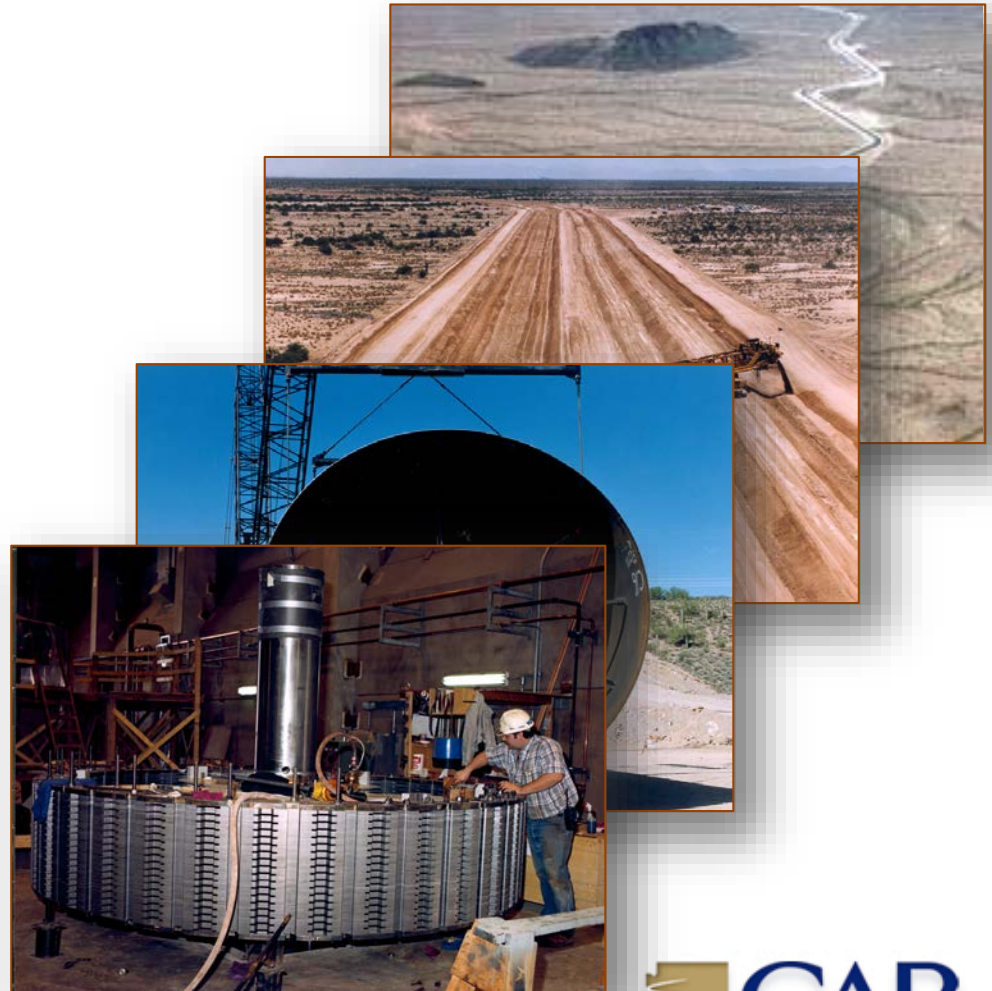
Ken Seasholes
Manager, Resource Planning & Analysis
Central Arizona Project



YOUR WATER. YOUR FUTURE.

CAP System

- Diverts ~1.6 MAF of Arizona's Colorado River entitlement
 - 336 mile aqueduct system
 - 15 pumping plants
 - 8 siphons, 3 tunnels
 - 2,900 ft. of lift
 - 2.8 million MWH/yr.



CAP Governance

- Central Arizona Water Conservation District (CAWCD) was authorized in 1971
- CAWCD is not a State agency
- Governed by a 15-member Board, elected by county
 - 10 from Maricopa
 - 4 from Pima
 - 1 from Pinal
- 6-year terms
- No compensation



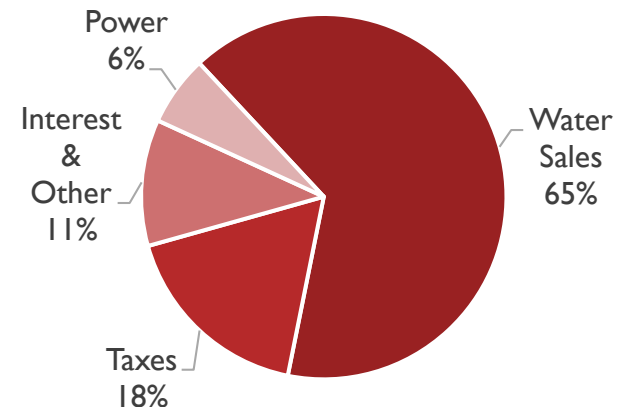
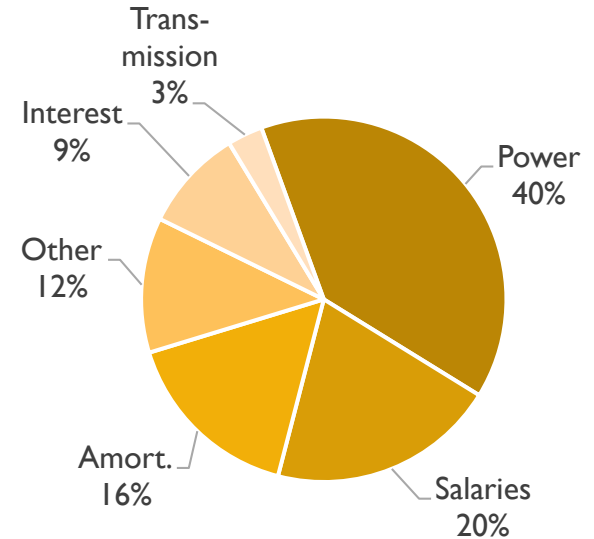
CAP Budget & Funding

• Expenses

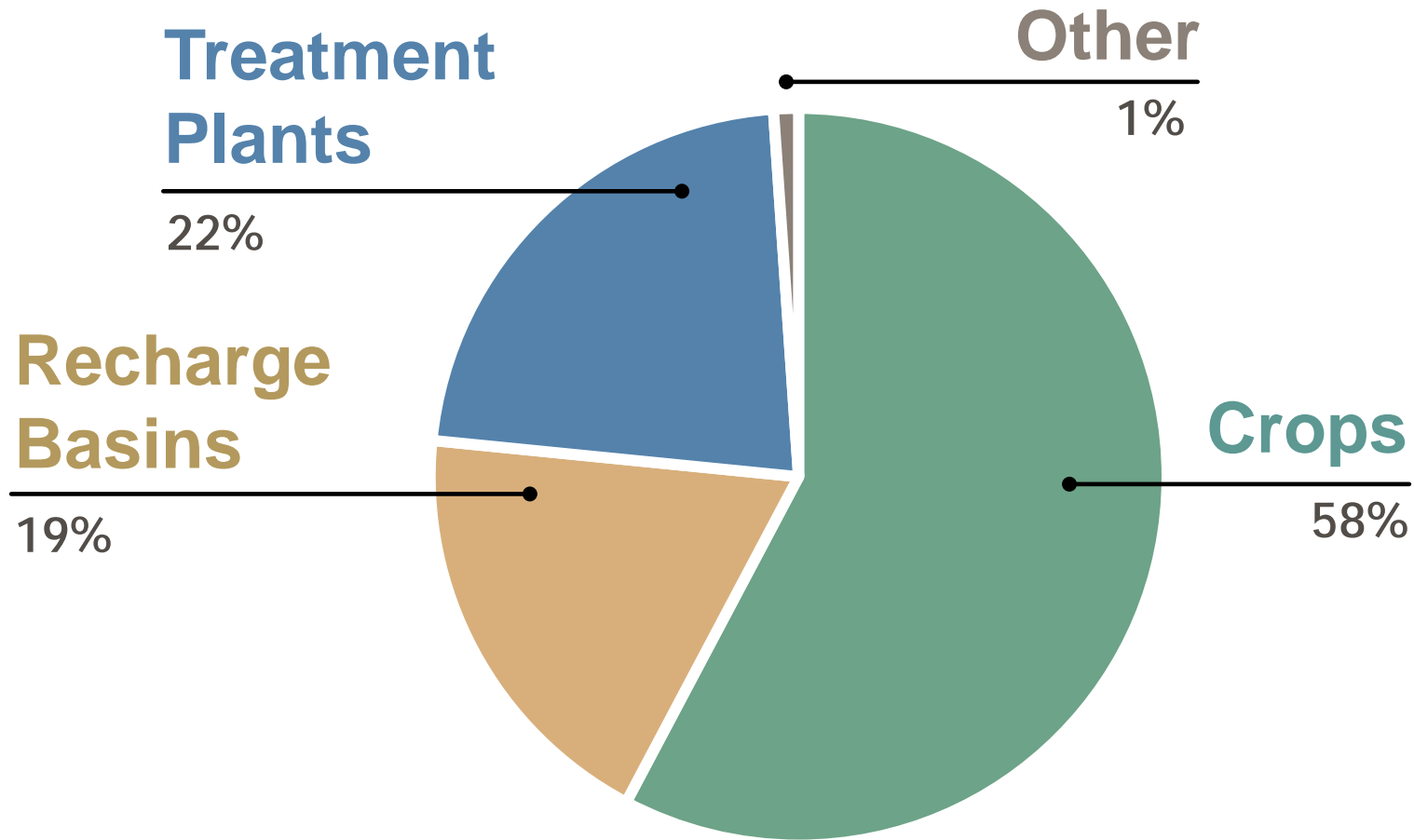
- \$286 million (2016)
 - 40% for power
 - 20% for employees

• Revenues

- Water service charges from sale of CAP water
- Property tax levied in Maricopa, Pinal and Pima counties
- Sale of surplus power from the Navajo Generating Station

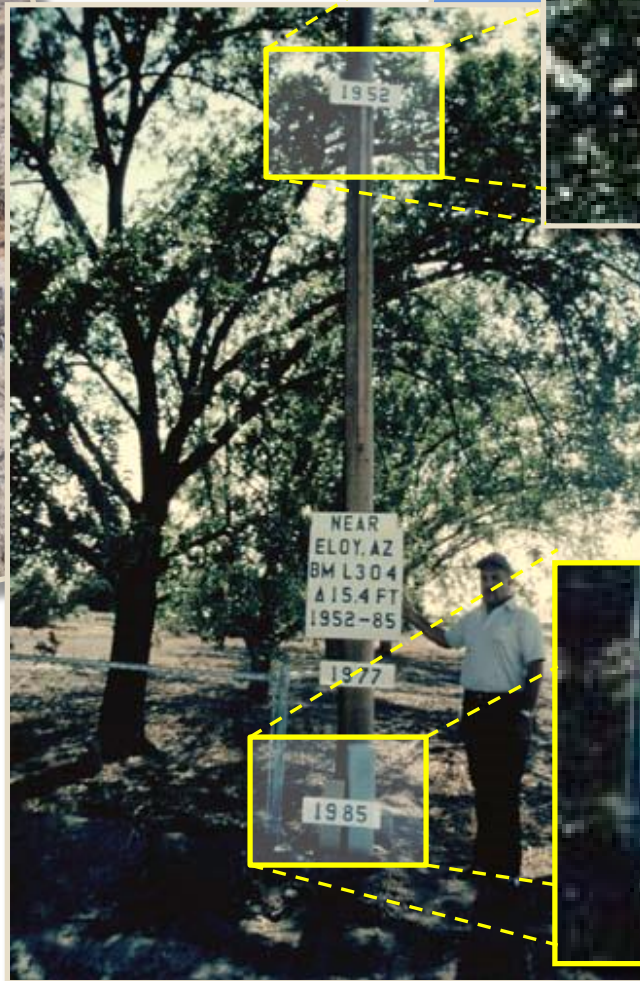


CAP Water Use

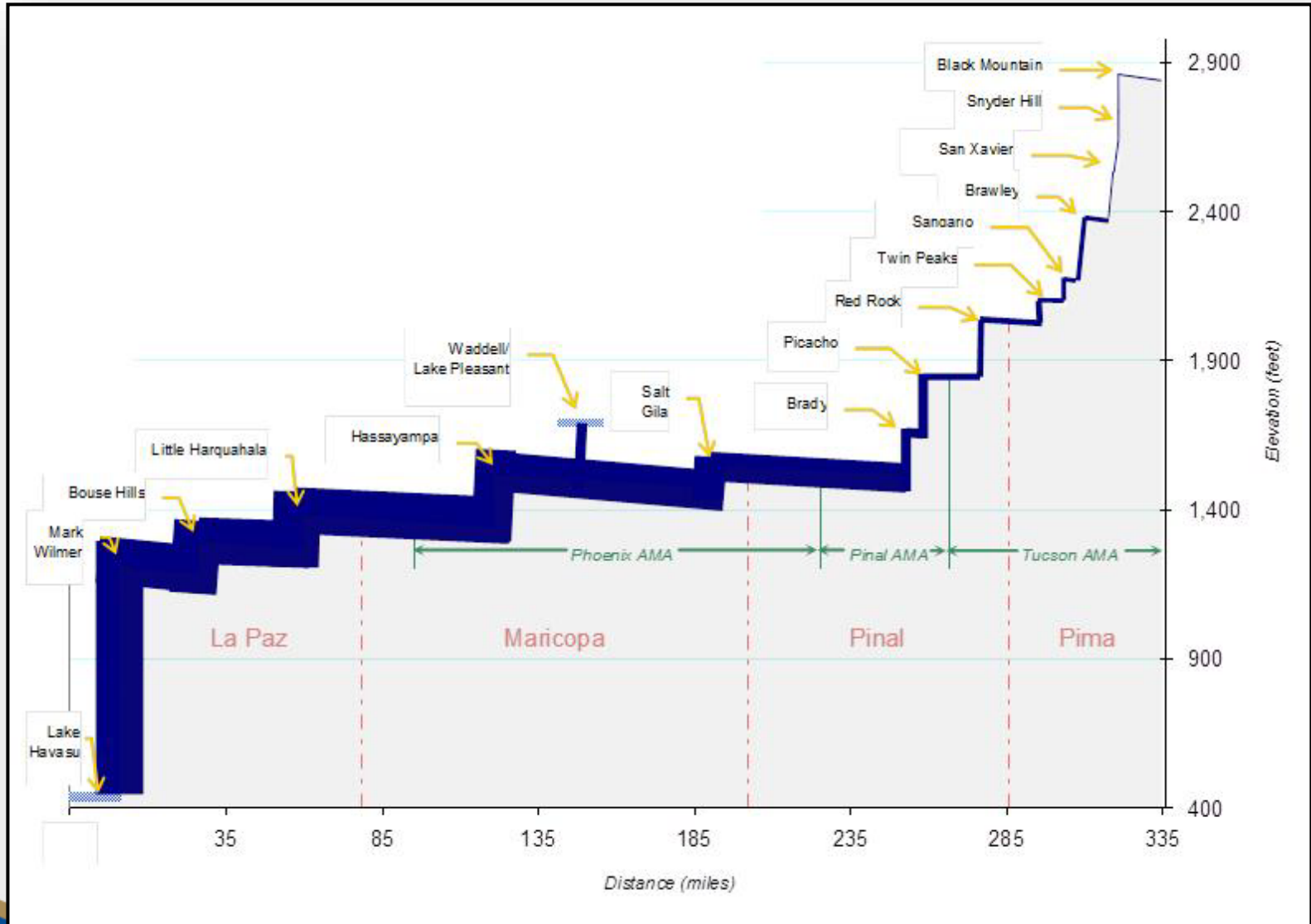


Physical "destination" of CAP water independent of user, priority, or rate type (2014)

Groundwater Overdraft

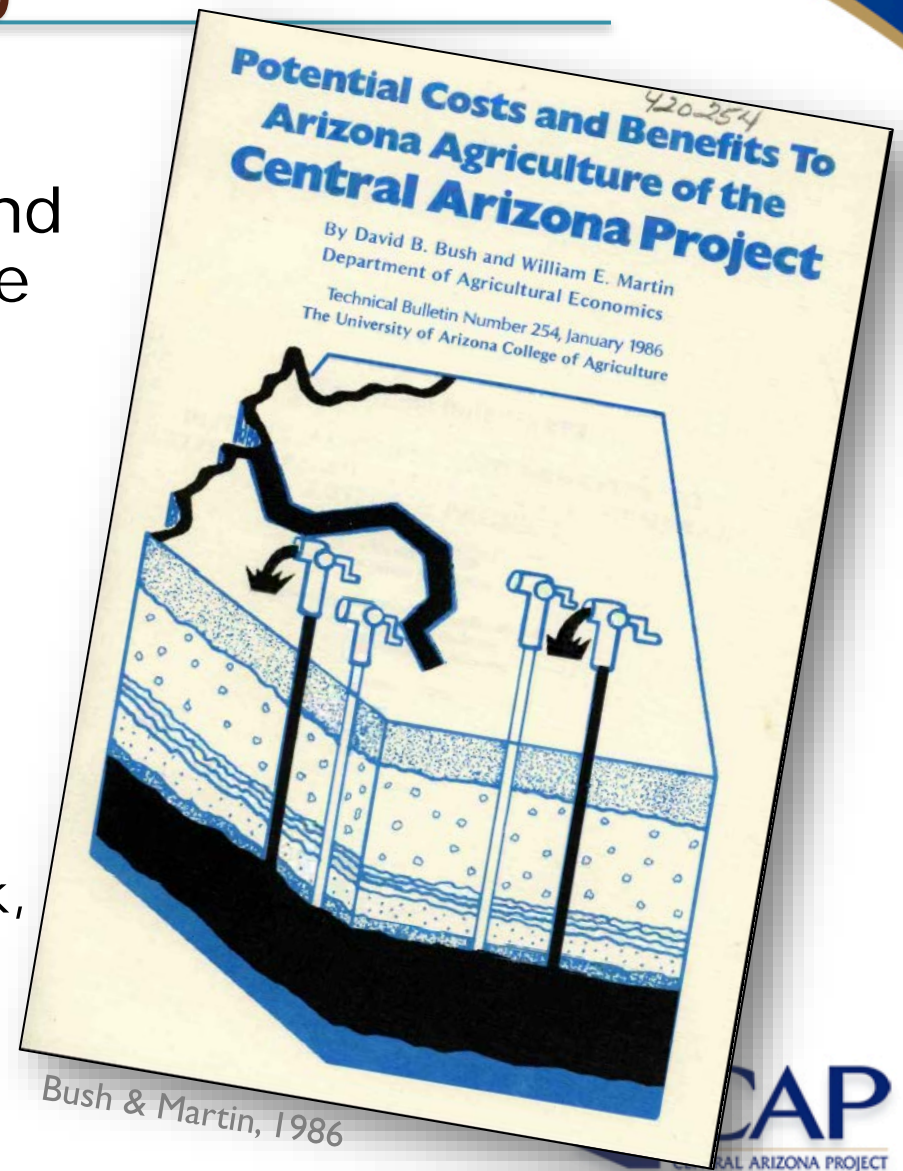


Challenges for Ag



Challenges for Ag

- In 1967, two UofA researchers—Young and Martin—challenged the conventional wisdom about Ag's willingness to pay for CAP water
- Their insights and warnings were later corroborated and amplified by others
 - Barr, Pingry, Kelso, Mack, Bush, Wilson, Ingram, Colby...



Crisis Of Underuse

- By 1993, when the CAP was deemed “substantially complete”, serious problems arose
 - Cost overruns by USBR
 - Lawsuits and acrimony
 - Underutilization of supply caused high O&M rates
 - Cost of water was pushing Ag districts towards bankruptcy

Policies & Institutions

- **Underground Water Storage, Savings and Replenishment Act** (1994)
 - Consolidated & expanded role of recharge
- **Assured Water Supply Rules** (1995)
 - Requires new growth to offset pumping with recharge of renewable supplies
- **Central Arizona Groundwater Replenishment District** (1993)
 - Mechanism for new subdivisions to comply with renewable supply requirement of AWS Rules
- **Arizona Water Banking Authority** (1996)
 - Recharges CAP water for shortage and other purposes

Recharge Facility Types



Superstition Mountains Photo: CAP

Underground Storage Facilities (USF)

- “Direct” recharge
- Water is delivered to spreading basins, trenches, injection wells or natural channels

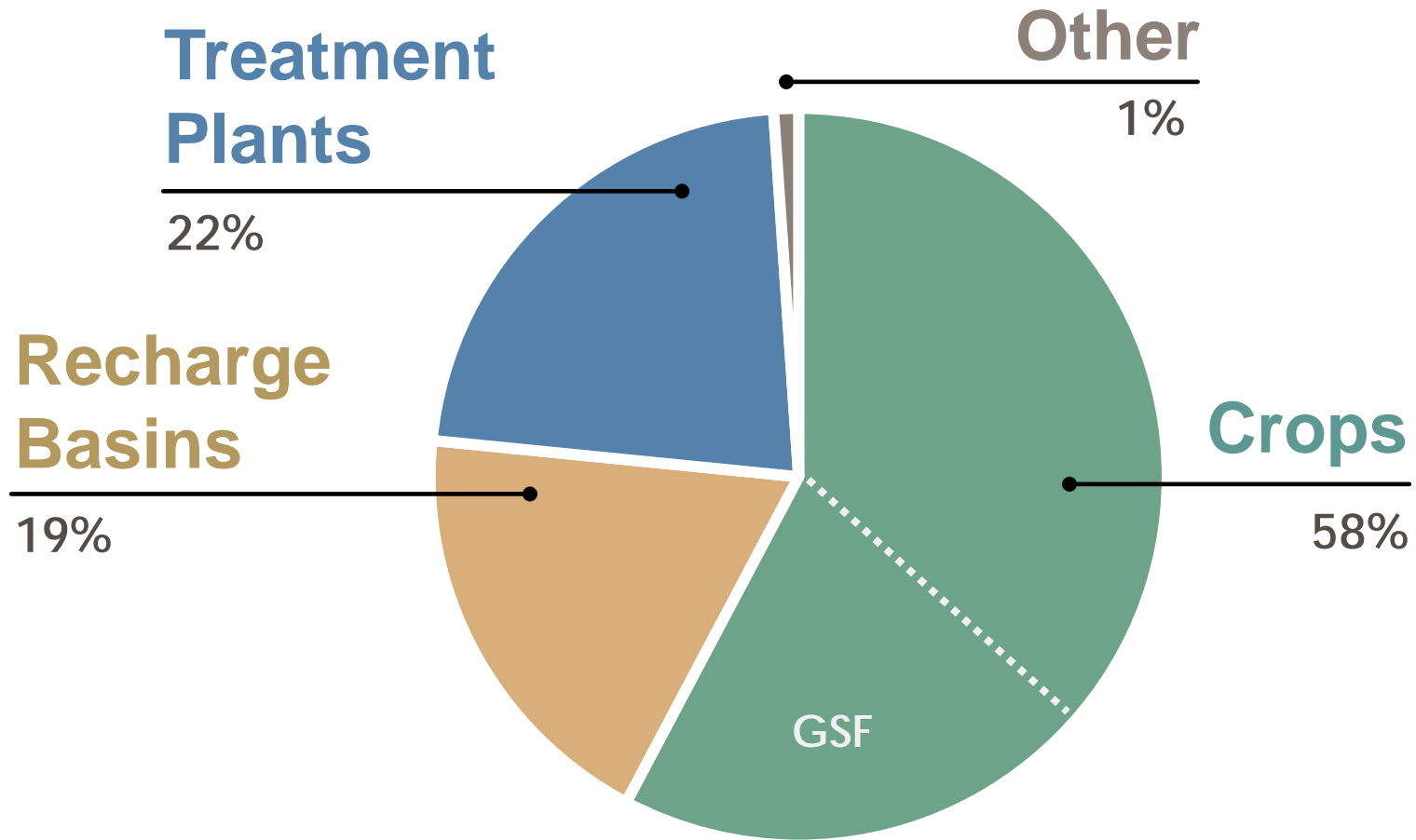


Drip Irrigation, MSIDD. Photo: Megdal

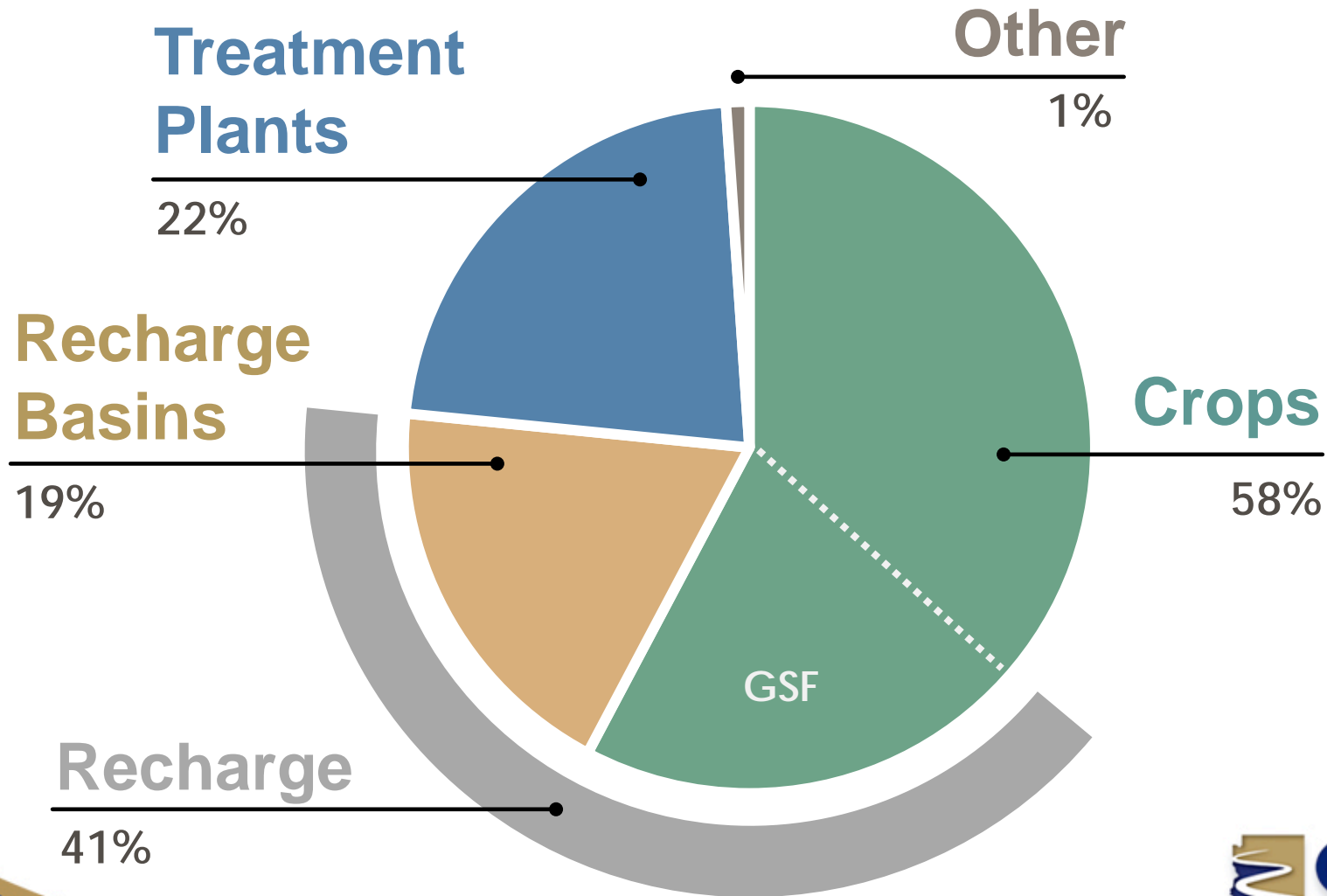
Groundwater Savings Facilities (GSF)

- “Indirect” or “in lieu” recharge
- Water is delivered to agricultural user that would have otherwise pumped groundwater

CAP Water Use



CAP Water Use

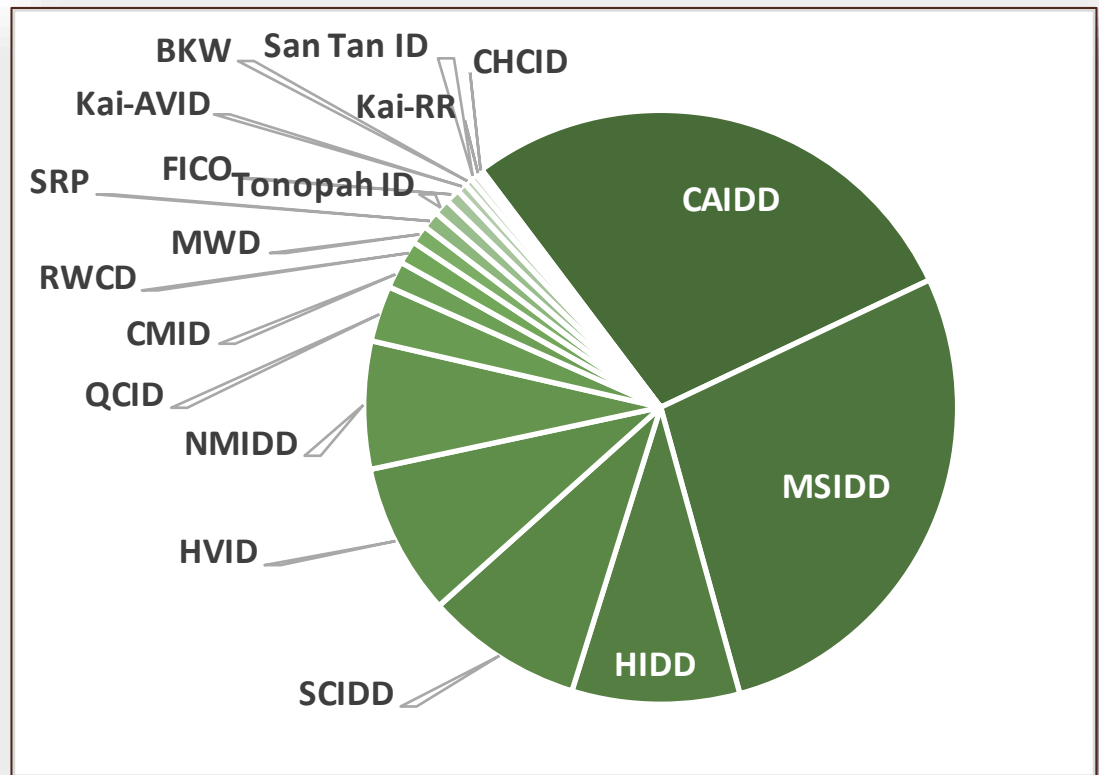


Non-Indian Ag Subcontracts

- CAP Ag subcontracts included “take-or-pay” provisions that were financially burdensome
- Some of the water was relinquished and allocated to Valley cities
- The remaining contracts were relinquished in exchange for debt relief, exemption from Reclamation Reform Act limitations, and a defined volume of affordable CAP water—the Agricultural Settlement Pool

Agricultural Settlement Pool

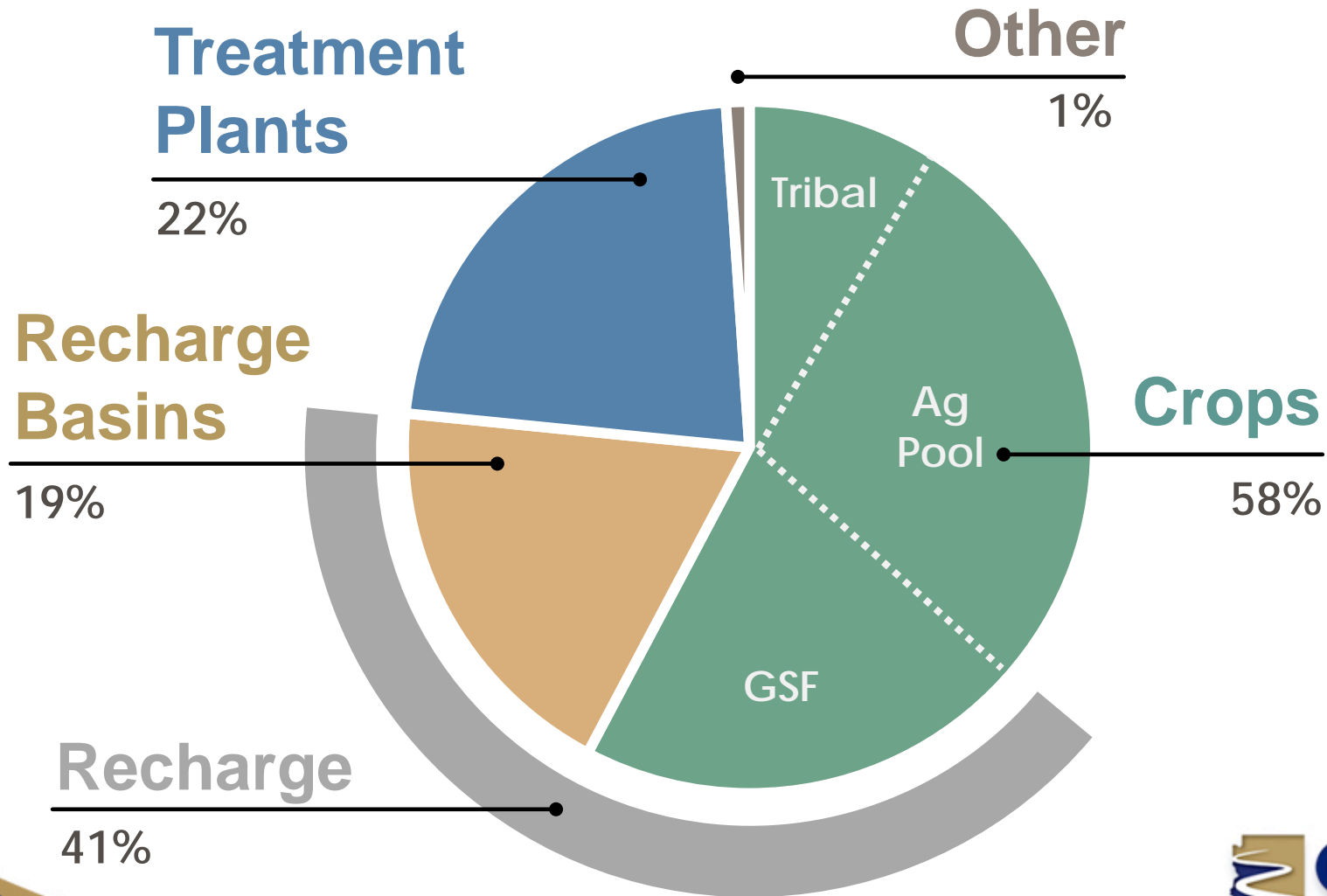
- Compared with the original Ag contracts, the Ag Pool is:
 - Lower priority
 - Part of “Excess” CAP supply
 - Lower-cost
 - Energy only
 - Limited duration
 - Through 2030, with step-downs



Indian Agriculture

- The same action that created the Ag Pool—*the Arizona Water Rights Settlement Act*—resolved several long-standing native American water rights claims
- Funding was made available to expand on-reservation tribal farming operations for Gila River Indian Community and the Tohono O'odham Nation

CAP Water Use



Colorado River Shortage

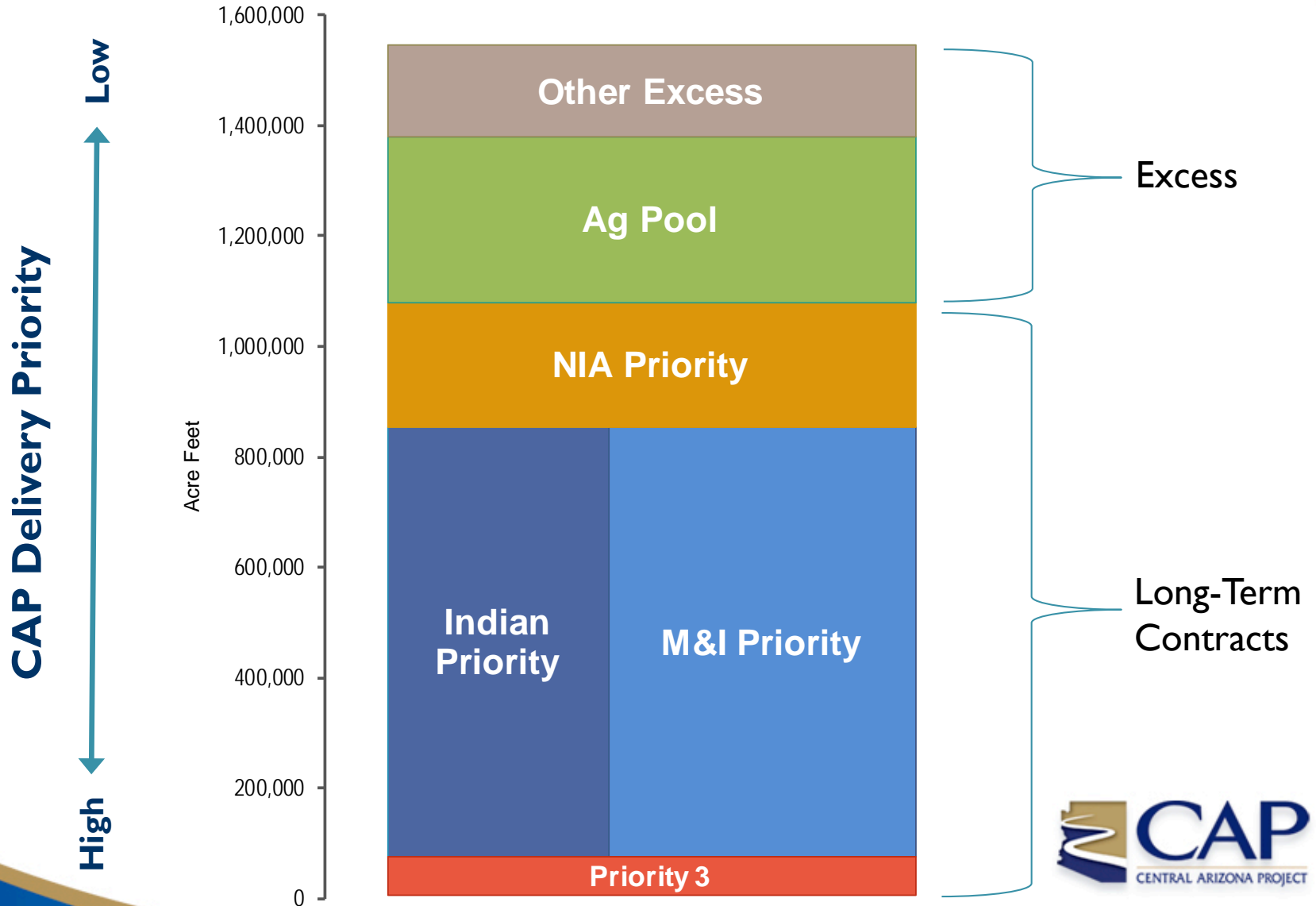
- Almost all of the defined shortage reductions will fall to CAP, due to its junior priority
- Shortages will affect all customers due to higher rates
- Specific customer impacts depend on the priority of the CAP supply they hold

Lake Mead Elevation

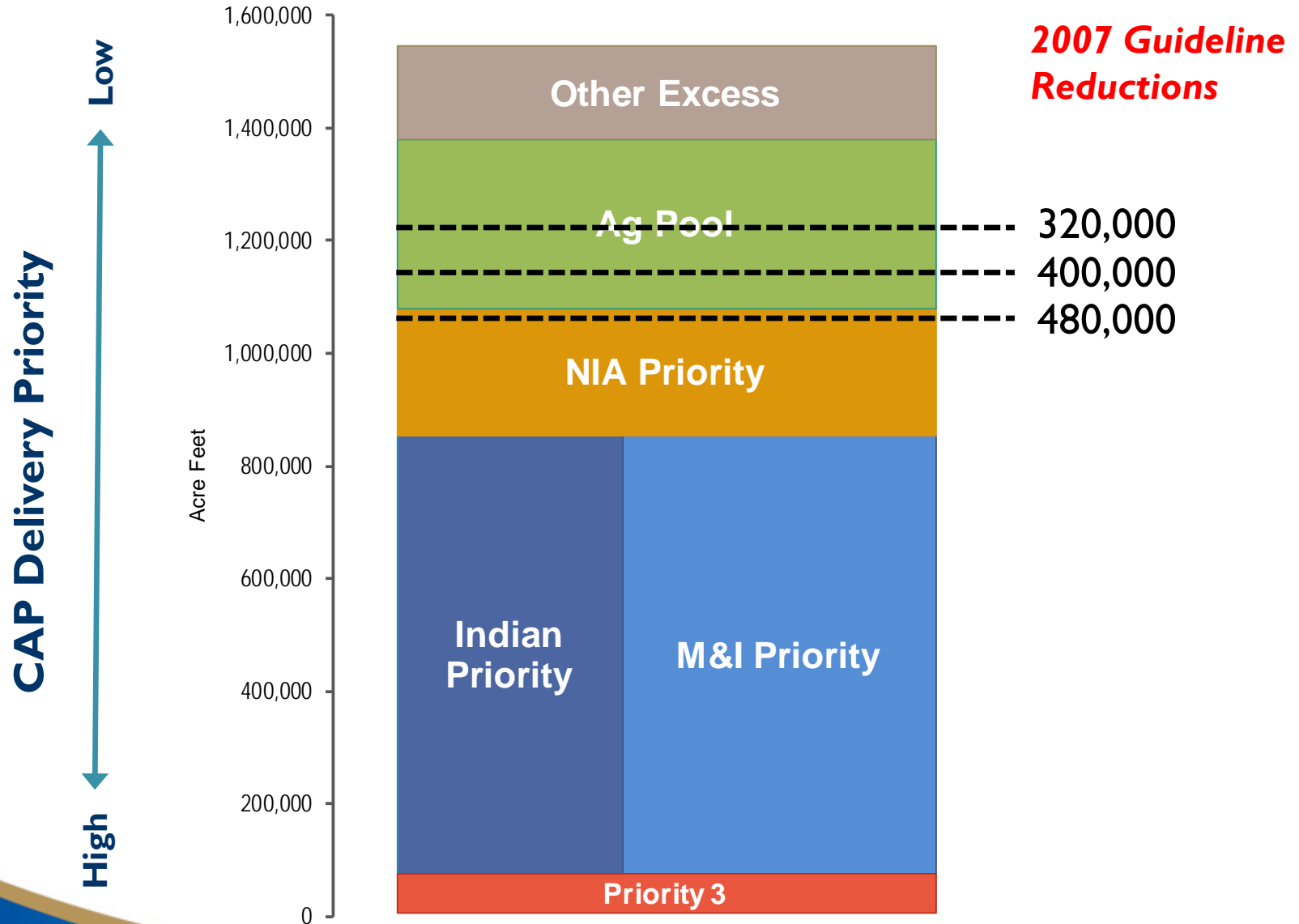


Historic Levels, with July 2016 to July 2018 Projection

CAP Priority Pools



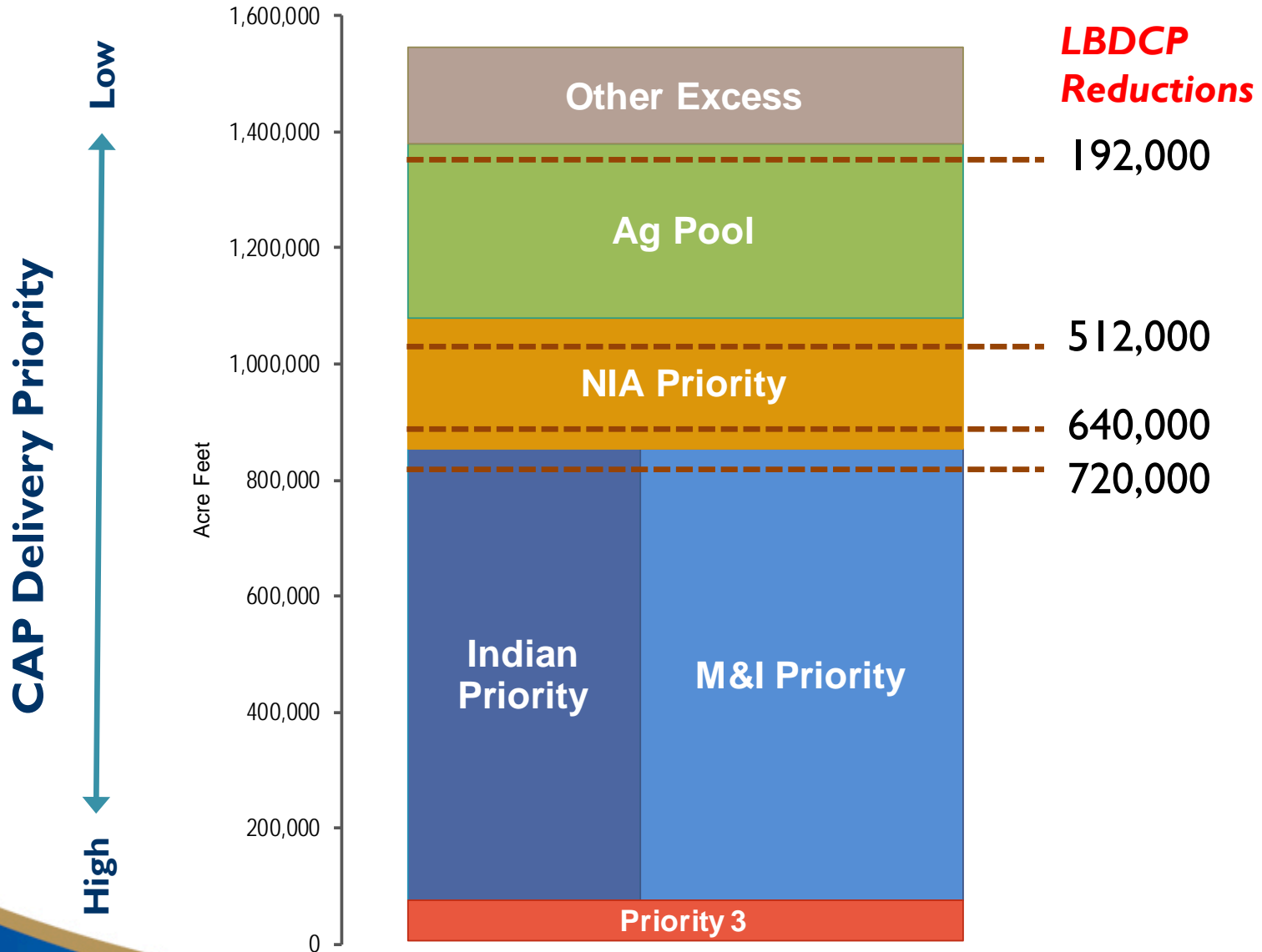
CAP Priority Pools



Drought Contingency

- Additional reductions have been proposed in the Lower Basin Drought Contingency Plan
- The LBDTCP is an “insurance policy” that provides more certainty and greater protection of Colorado River supplies
- Actions and reductions, in addition to the 2007 Guidelines, to “bend the curve” in the decline of Lake Mead
 - Earlier, deeper and more widely shared reductions

CAP Priority Pools



Shortage Management Efforts

Storage and Recovery

- 3.4 MAF of underground storage in partnership with AWBA

Lake Mead Reservoir Protection

- Interstate plan to leave 740 KAF in Lake Mead by end of 2017
- CAP's share is 345 KAF – will be accomplished by end of 2016

Innovative Conservation

- Interstate funding to conserve >75 KAF in the Colorado River
- Conservation research grant program

Augmentation

- Weather modification projects in the Upper Basin
- Evaluation of local and binational desalination

Shortage Management Efforts

Storage and Recovery

- 3.4 MAF of underground storage in place

Lake Mead Reservoir Protection

- Interstate plan to leave 740 KAF in Lake Mead
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Innovative Conservation

- Interstate funding to conserve >75 KAF
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Augmentation

- Weather modification projects in the West
- Evaluation of local and binational desalination

12 Ag Participants

Tonopah IDD
Roosevelt WCD
Queen Creek IDD
New Magma IDD
Hohokam IDD
Maricopa-Stanfield IDD
Central Arizona IDD
Kai Farms
BKW Farms
Salt River Project
YMIDD (on-River)

4 Cities

Glendale
Peoria
Phoenix
Scottsdale

1 Tribe

Tohono O'odham

Conclusions

- Looming shortage is the latest in a series of challenges that have faced the Central Arizona Project and its customers
- Arizona has a demonstrated track-record of addressing challenges in innovative and effective ways
 - Multiple strategies are being employed to manage shortage risks
- Irrigated agriculture will continue to be an important partner with CAP



CAP

CENTRAL ARIZONA PROJECT

YOUR WATER. YOUR FUTURE.

**PROTECT
LAKE MEAD**

