Preparing Landscapes for Drought Resiliency
Water Supply

- Colorado River
- Central Arizona Project (CAP)
Water Supply

- Salt River Project (SRP)
Water Supply

• Groundwater
Water Supply

- Reclaimed
Populations Are Growing

![Phoenix Historic Population Graph](image-url)
Water Supplies Are Not
Water Supplies Are Not...
Climate

• We know it’s changing
• Less precipitation
• Winter rainfall
Climate

• We know it’s changing
• Less precipitation
• Monsoon rainfall
Climate

• We know it’s changing
• Higher temperatures
• Shifting patterns
Climate

• We know it’s changing
• Higher temperatures
• Planet wide
• [https://climate.nasa.gov/interactives/climate-time-machine](https://climate.nasa.gov/interactives/climate-time-machine)
Water Resources Management

- Where have we been in Arizona?
- Groundwater Management Act of 1980
- Safe yield by 2020
- In Active Management Areas
Water Resources Management

- What about the Colorado River?
- Tier 1 shortage
- When Lake Mead reaches 1075’ elevation
- Remember this?
- AZ has junior rights
- Ca never takes cuts
Water Resources Management

- Why isn’t someone doing something?
- We are
- Drought Contingency plan (DCP)
- Tier 0 shortage
- AZ and Nevada take cuts at 1090’ elevation
- Bureau of Reclamation has already called Tier 0
- California takes cuts at 1045’ elevation
- DCP is only a first step
Water Resources Management

• Who gets cut?
• Under DCP some muni water will be sent to Ag users
• What about cost?
• Cities ~ $60 Mil/Yr
Landscape Water Use

• Is discretionary
• First to be cut
Getting In Front Of It

- Use less now
- Keep it in the reservoirs
- Push back cutbacks
Getting In Front Of It

- Use less now
- Keep it in the reservoirs
- Push back cutbacks
Eliminate Overwatering

- Better scheduling

**LANDSCAPE WATERING GUIDELINES**

<table>
<thead>
<tr>
<th>How Much &amp; How Often</th>
<th>Seasonal Frequency — Days Between Waterings</th>
<th>Water This Deeply (Typical Root Depth)</th>
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<tr>
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These guidelines are for established plants (1 year for shrubs, 3 years for trees). Additional water is needed for new plantings or unusually hot or dry weather. Less water is needed during cool or rainy weather. Drip run times are typically 2 hours or more for each watering.
**Eliminate Overwatering**

- ET based scheduling

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Eliminate Overwatering

• Adjust schedules often
Eliminate Overwatering

• Adjust schedules often
Eliminate Overwatering

• Smart controllers work
Irrigation Efficiency

• Head spacing
Irrigation Efficiency

- Nozzles
- MPR rotor

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### PGP ULTRA / 1:20 MPR-20 LT. GREEN NOZZLE PERFORMANCE DATA

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### 5000-MPR-35 (Beige)

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Irrigation Efficiency

- Nozzles
- High Efficiency
Irrigation Efficiency

- Nozzles
- Stream rotors
Irrigation Efficiency

Which grass will be green?
Irrigation Efficiency

- Pressure management
Irrigation Efficiency

• Fix your drip
• PC emitters
Irrigation Efficiency

- Fix your drip
- Emitter placement
- Grow roots
Irrigation Efficiency

- Fix your drip
- Emitter placement
- Grow roots
Change the landscape

• Decisions, decisions
• New designs and retrofits
Change the landscape

- Marginal species
- Elderica pines
Change the landscape

- Marginal species
- Fraxinus
Change the landscape

- Marginal species
- Fraxinus
- And we’re still planting them!
Change the landscape

- Non-functional turf
Change the landscape

- Non-functional turf
- Strips
- Slopes
Change the landscape

• Get better grades
• Rainwater harvesting
• LID
Change the landscape

• Get better grades
• Rainwater harvesting
• LID
Change the landscape

• Get better grades
• Rainwater harvesting
• LID
Before The Cuts Come

• Proper irrigation
• Doesn’t mean no irrigation
• Change run times?
• Change frequency?
• 2 Hour 2X/Week
• 4 Hours every 10 days
• Saved 4 hours of run per month
• On one station
Before The Cuts Come

- Proper irrigation
- Remember watering to ET?

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Before The Cuts Come

- Proper irrigation
- Remember where this math came from?
Before The Cuts Come

- Proper irrigation
- Watering for yield in desert landscapes
Before The Cuts Come

- True deficit irrigation
- Rainfall as irrigation
- Last watered October 2008
Before The Cuts Come

• True deficit irrigation
• Rainfall as irrigation
• Last watered October 2008
Before The Cuts Come

- Remember watering to ET?

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- Does this sound so crazy now?
- Is there something between 2X/Week and once every 11 years?
Before The Cuts Come

- Deficit irrigation
- Turf irrigated 1X/Week
- 1.14"
- Taken this Tuesday
- What????
Horticultural Practices

- That’s a whole other presentation
- Stop shearing shrubs
- Ornamental turf is not a golf green
- Stop mowing like it is
- Irrigation needs to be thought of as supplemental water not total water
Hold On To The Water