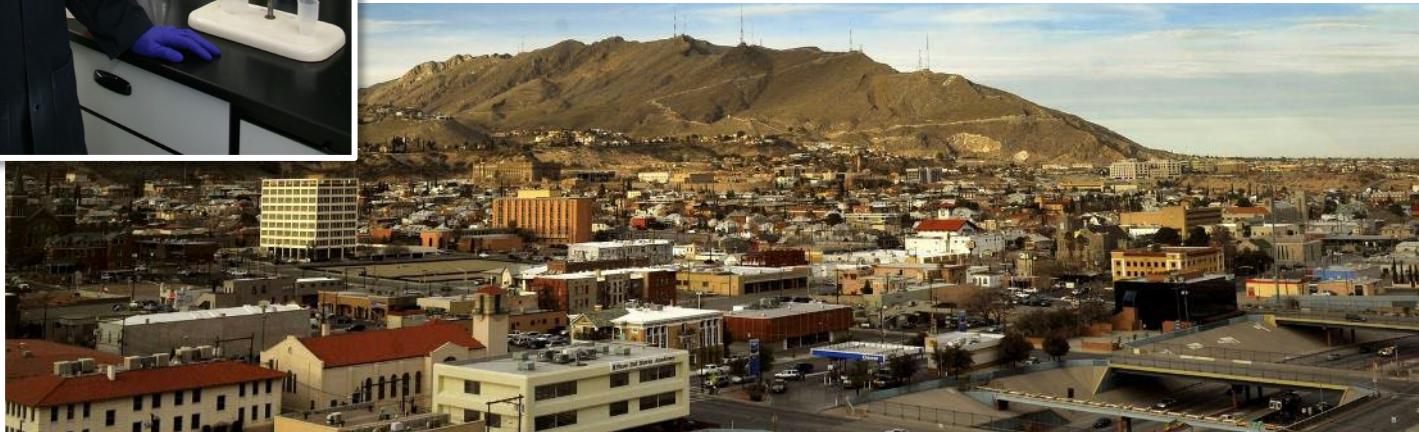


# Building a Sustainable Water Future for El Paso

# We are El Paso Water

- **We provide safe, reliable water** for about 800,000 people in the middle of the Chihuahuan desert
- Over 1200 employees, 24/7 operations
- Water, wastewater, recycled water, stormwater



# History of Diverse Water Sources



**Late 1800s**  
Groundwater



**1962**  
Water Reuse



**2007**  
Desalination

**1940s**  
River Water

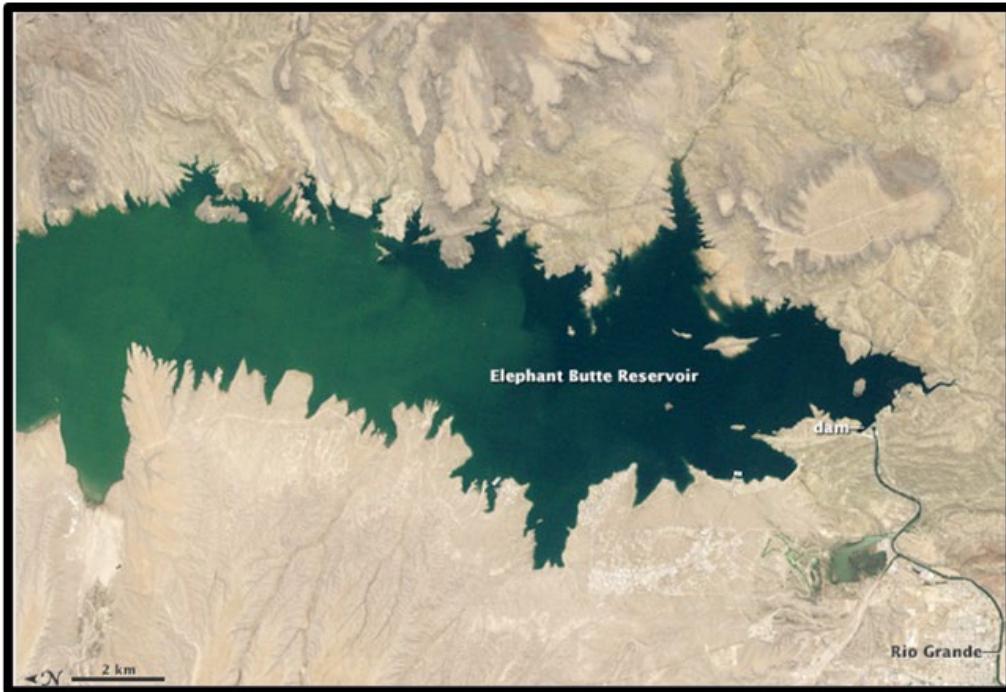


**1991**  
Conservation



# Why do we need to diversify?

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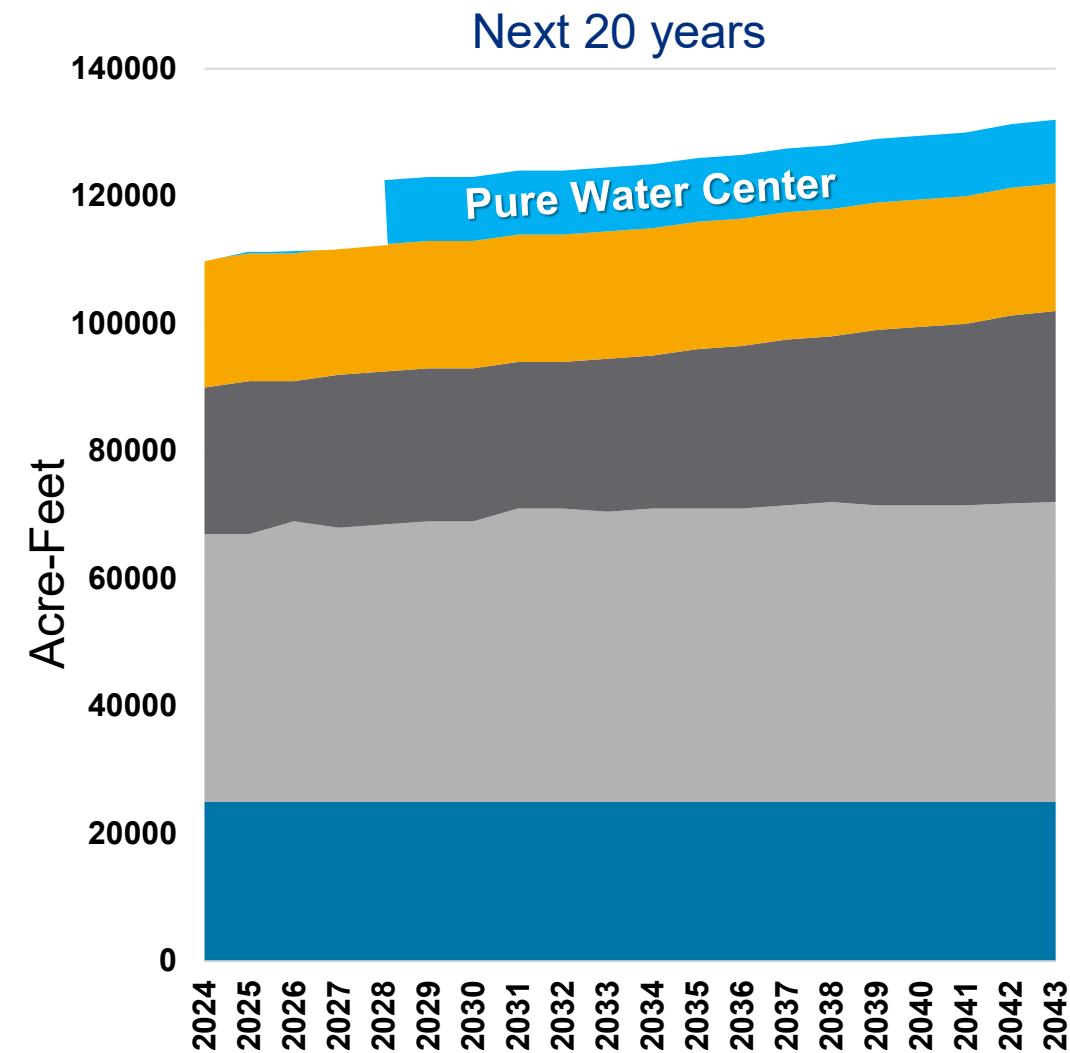
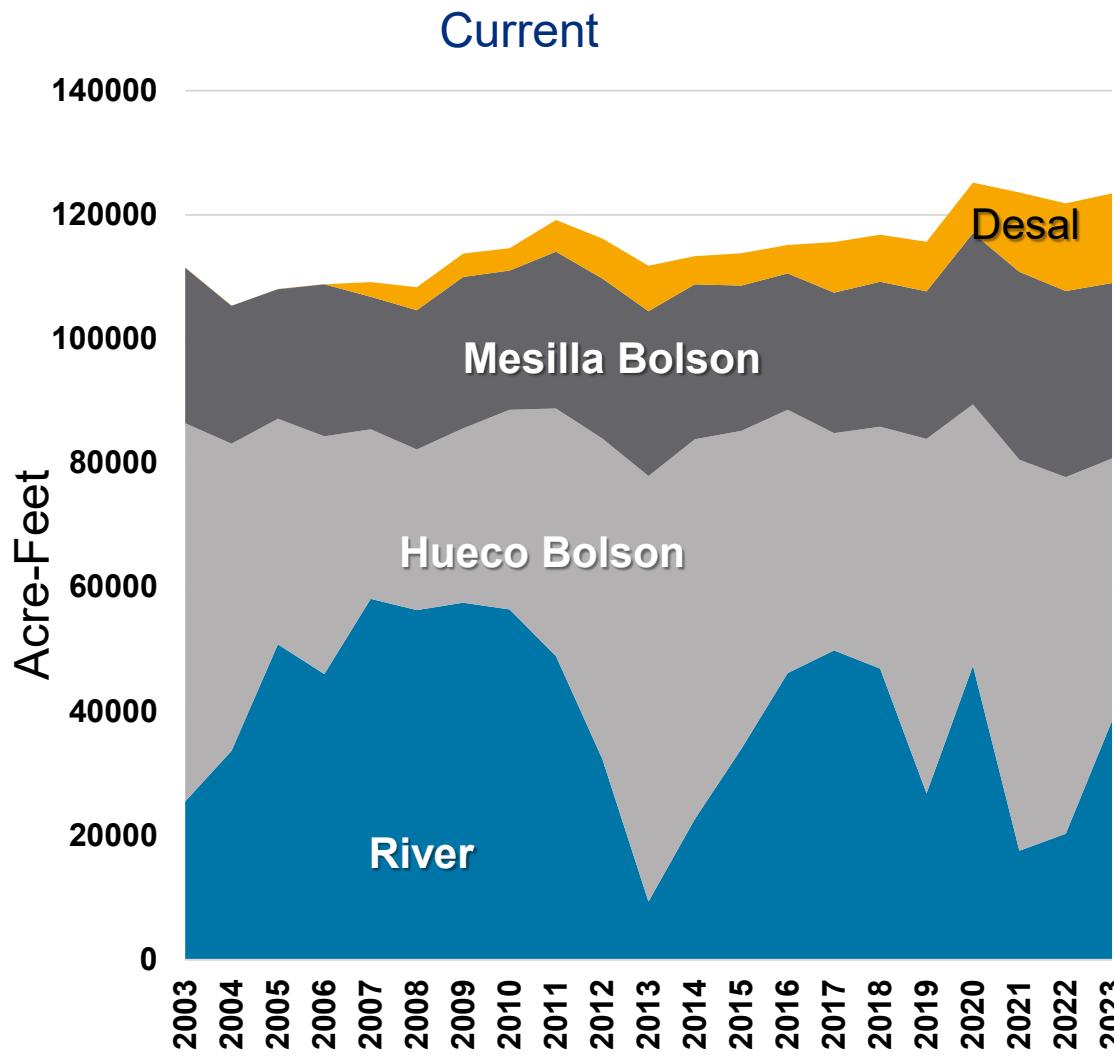


**Elephant Butte Reservoir -  
June 1994 - A “normal” year**



**Elephant Butte Reservoir  
July 2013 – Drought year**

# Securing our future water supply



# Evolution of Water Reuse

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1940s



1960s



1985



2028



# Origins of Purified Water

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**Water treated for irrigation will be cleaned AGAIN in a rigorous process to create high quality, purified water.**

# Federal/state regulatory standards

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- Safe Drinking Water Act
  - Establishes protective drinking water standards
- Clean Water Act
  - Establishes the basic structure for regulating discharges of pollutants to surface waters
- Clean Air Act
  - Protects public health and the environment from air pollution and ozone depletion
- Emergency Planning and Community Right-to-Know Act
  - Establishes reporting requirements for any facility that stores hazardous chemical(s) over set thresholds (Tier II)
- Regulatory Permits

# Environmental Compliance Program

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- Water
  - Drinking Water Standards
  - Monthly Operating Reports
  - Public Notices
  - Inspections
  - Drinking Water Report (CCR)
  - Arsenic Well Monitoring
  - Desalination Injection Well Monitoring



# Environmental Compliance Program

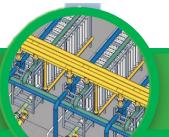
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- Wastewater
  - Texas Pollution Discharge Elimination System (TPDES) Permits
    - Monthly Effluent Reports (MERs)
    - Biomonitoring
    - Industrial Pretreatment
    - Biosolids Handling/Reporting
  - Inspections
  - Reclaimed Water MERs
  - Sanitary Sewer Overflow (SSO)
  - Public Notices



# Multiple barriers to remove contaminants

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## Membrane Filtration

### STEP 1

Primary barrier for particles like bacteria, viruses, and protozoa.



## Reverse Osmosis

### STEP 2

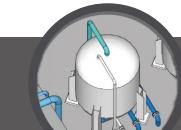
Removes salts and chemicals and provides an additional barrier for microorganisms.



## Advanced Oxidation with Ultraviolet Light and Hydrogen Peroxide

### STEP 3

Additional barrier for microorganisms and chemicals.



## Granular Activated Carbon

### STEP 4

Additional barrier for chemicals.



## Chlorine Disinfection

### STEP 5

Final barrier to microorganisms that lasts as the water reaches homes and businesses.

# Multiple barriers to remove contaminants

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	Membrane Filtration	Reverse Osmosis	Ultraviolet Light	GAC Filters	Chlorine
Particulates	✓	✓		✓	
Nutrients	✓	✓			
Chemicals and Pharmecuticals	✓	✓	✓	✓	
Pathogens	✓	✓	✓	✓	✓
Virus	✓	✓	✓		✓
Total Organic Carbon	✓	✓		✓	
Salts	✓	✓			

# Multiple barriers to remove pathogens and contaminants reduces risk

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- Microbial Contaminants

EPA Safe Drinking Water Act – Surface Water Requirements			Direct Potable Reuse – El Paso Pure Water Center	
Pathogen	Required Log Reduction	Equivalent Percent Removal	Required Log Reduction	Equivalent Percent Removal
Cryptosporidium	2-log	99%	6-log	(99.9999%)
Giardia lamblia	3-log	99.9%	8-log	(99.999999%)
Viruses	4-log	99.99%	10-log	(99.99999999%)

- Chemical Contaminants

- EPA sets Maximum Contaminant Levels (MCLs) and/or Maximum Contaminant Level Goals (MCLGs) for chemical contaminants.
- These define the highest level of a contaminant allowed in drinking water and guide treatment requirements.

# Independent expert panel



## Expert Panel Endorsement



**Expertise:** Engineering, regulatory, chemistry, microbiology, public health risk, public outreach

**Reviewed pilot concept over several months; Input included in final design**

- Operation of pilot
- Multi barrier approach
- Monitoring strategies
- Components of the PWC system

# Proof of concept

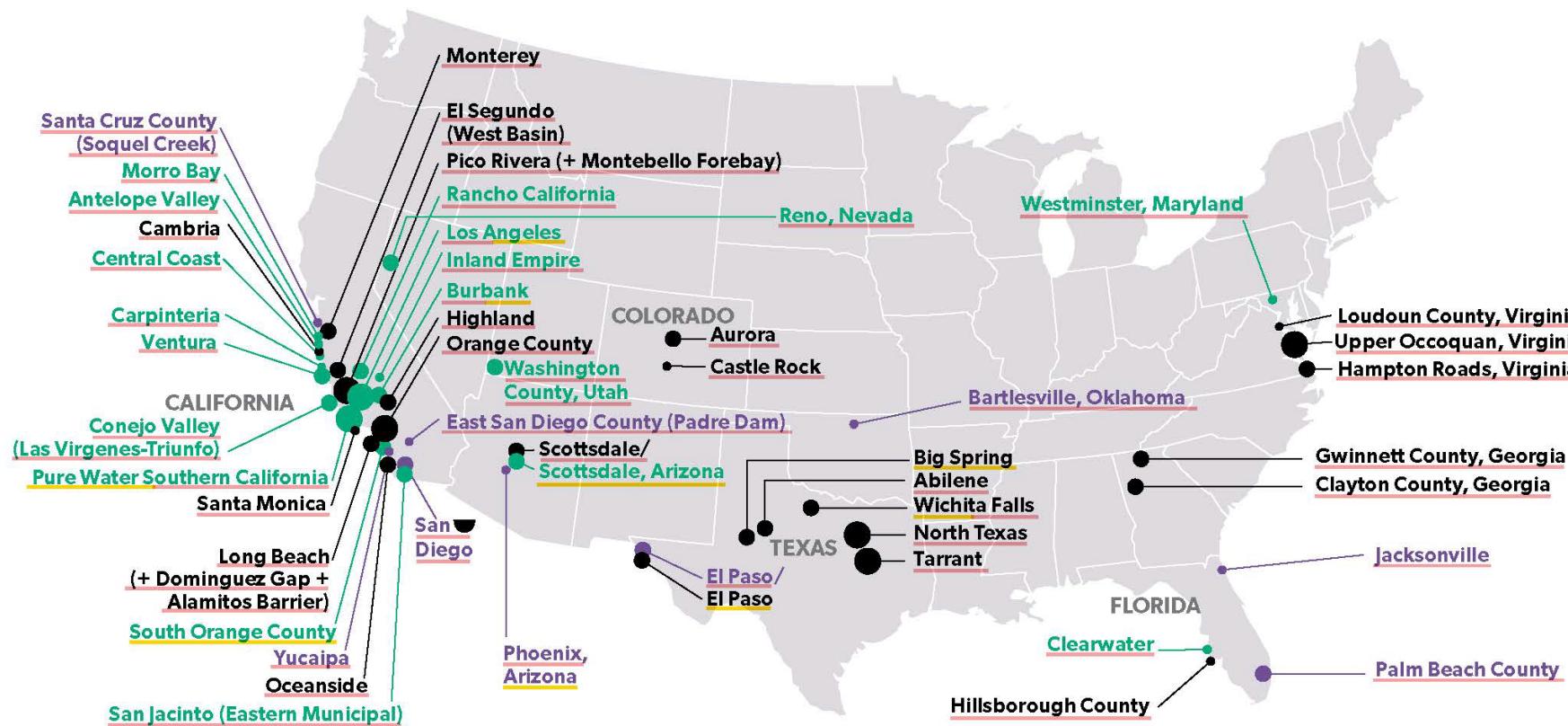
- Several processes piloted in 2015-16
- Testing for **97** contaminants of emerging concern (CECs)
- Thousands of samples sent to Texas Commission on Environmental Quality (TCEQ)
- Over 300 people toured facility



# Pure Water Center Timeline



# Water reuse is a national solution



● Planned   ● In Construction   ● Operating/Available   ■ INDIRECT POTABLE REUSE (IPR)  
■ DIRECT POTABLE REUSE (DPR)

● Supplies <100,000 people or Demonstration/education only   ● Supplies 100,000 – 1,000,000 people   ● Supplies >1,000,000 people



# EPWater is trailblazer

EPWater is leading the charge in the ultimate and most efficient form of water recycling in the U.S.

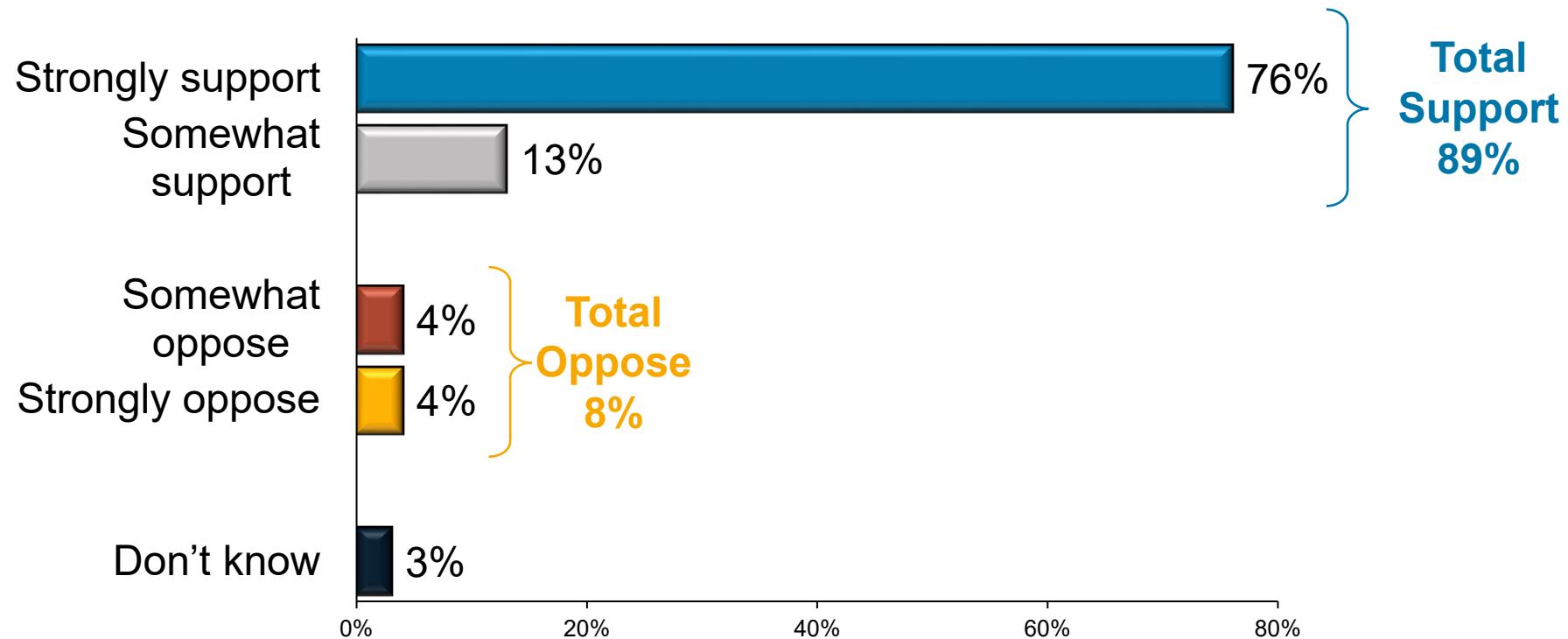


TEXAS  
El Paso

# Nearly 9 in 10 support water reuse when they learn it meets safety standards.

What if you knew that water from an advanced water purification facility met and exceeded federal and state drinking water regulations and could provide a sustainable water supply for El Paso?

*(Asked Only of Those Not Strongly Supportive After Treatment Information)*

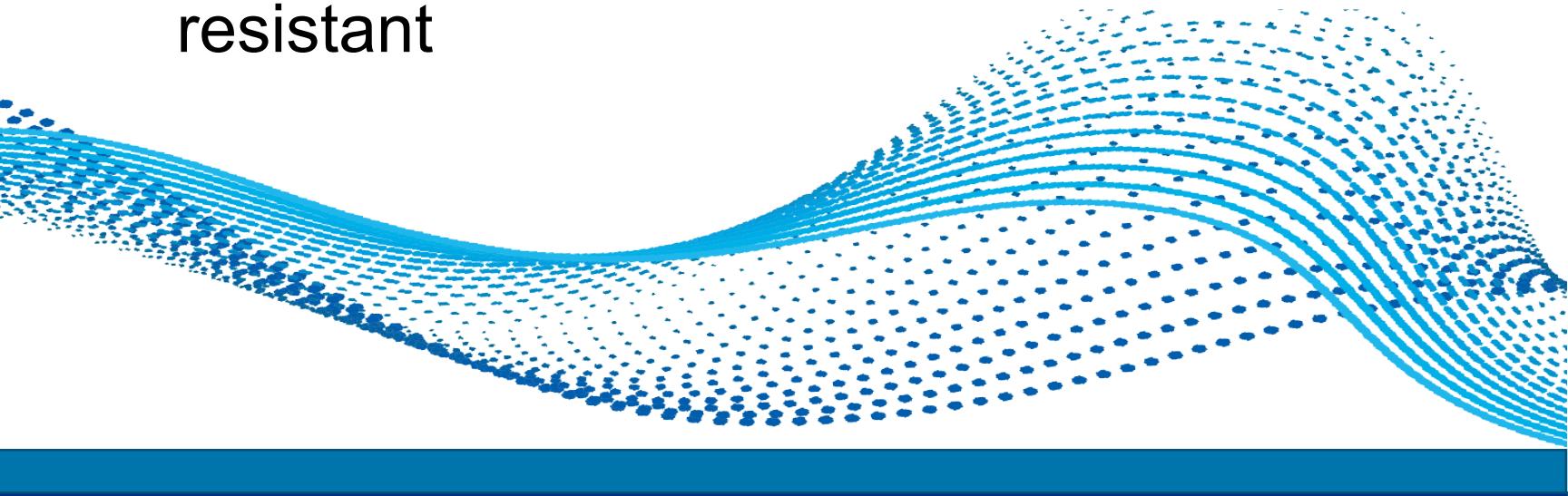




# Pure Water Center provides additional water supply

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- 10 million gallons per day or 3.6 billion gallons per year
- Safe, local, reliable and drought resistant



# Pure Water Center is the first of its kind





# TO LEARN MORE

[epwater.org](http://epwater.org)

[publicaffairs@epwater.org](mailto:publicaffairs@epwater.org)



el paso  
**WATER**



**PURE WATER**  
CENTER

