

# Findings from the "Arizona Water Meter"

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**WESTERN RESOURCE**  
ADVOCATES

# Arizona Water Meter – What



- 15 communities
- 7 criteria
  - 1) Per capita use and trends
  - 2) Water rate structures
  - 3) Conservation measures
  - 4) Ordinances
  - 5) Funding
  - 6) Water loss
  - 7) Effluent use



# Arizona Water Meter – Why

- Expansion of WRA water program
- Assess state of the state
- Conservation as a viable alternative
- Learn from others = everyone benefits
- Recognize good programs



# Arizona Water Meter – How

- Survey pre-population w. ADWR data
- Provider review
- City summary compilation
- Provider review
- City summaries are the database (App B)



# Participating Entities

- Variation w.r.t. size, location, ownership, demographics, and regulation

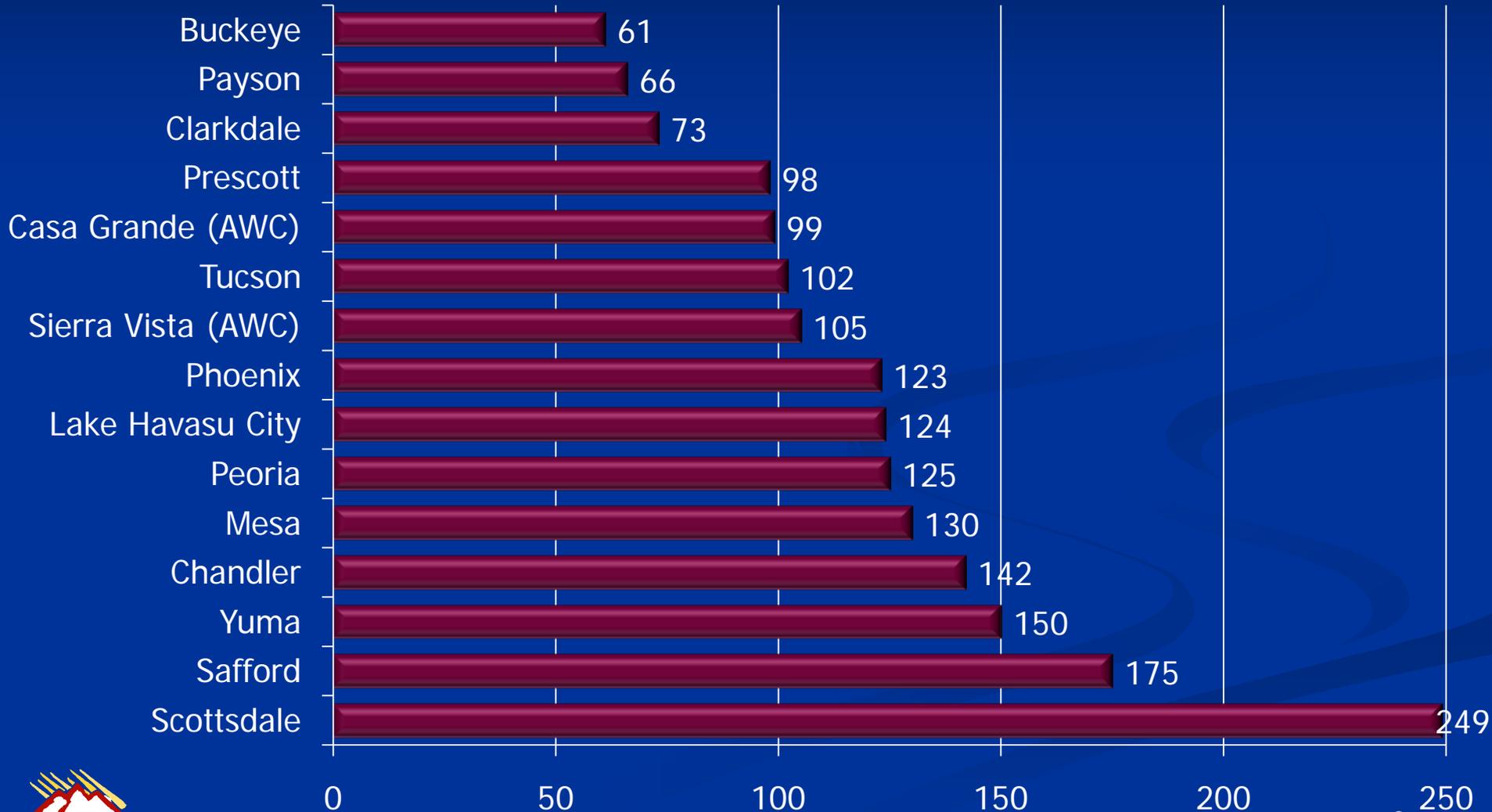
- Buckeye
- Chandler
- Mesa
- Peoria
- Phoenix
- Scottsdale
- Casa Grande (AWC)



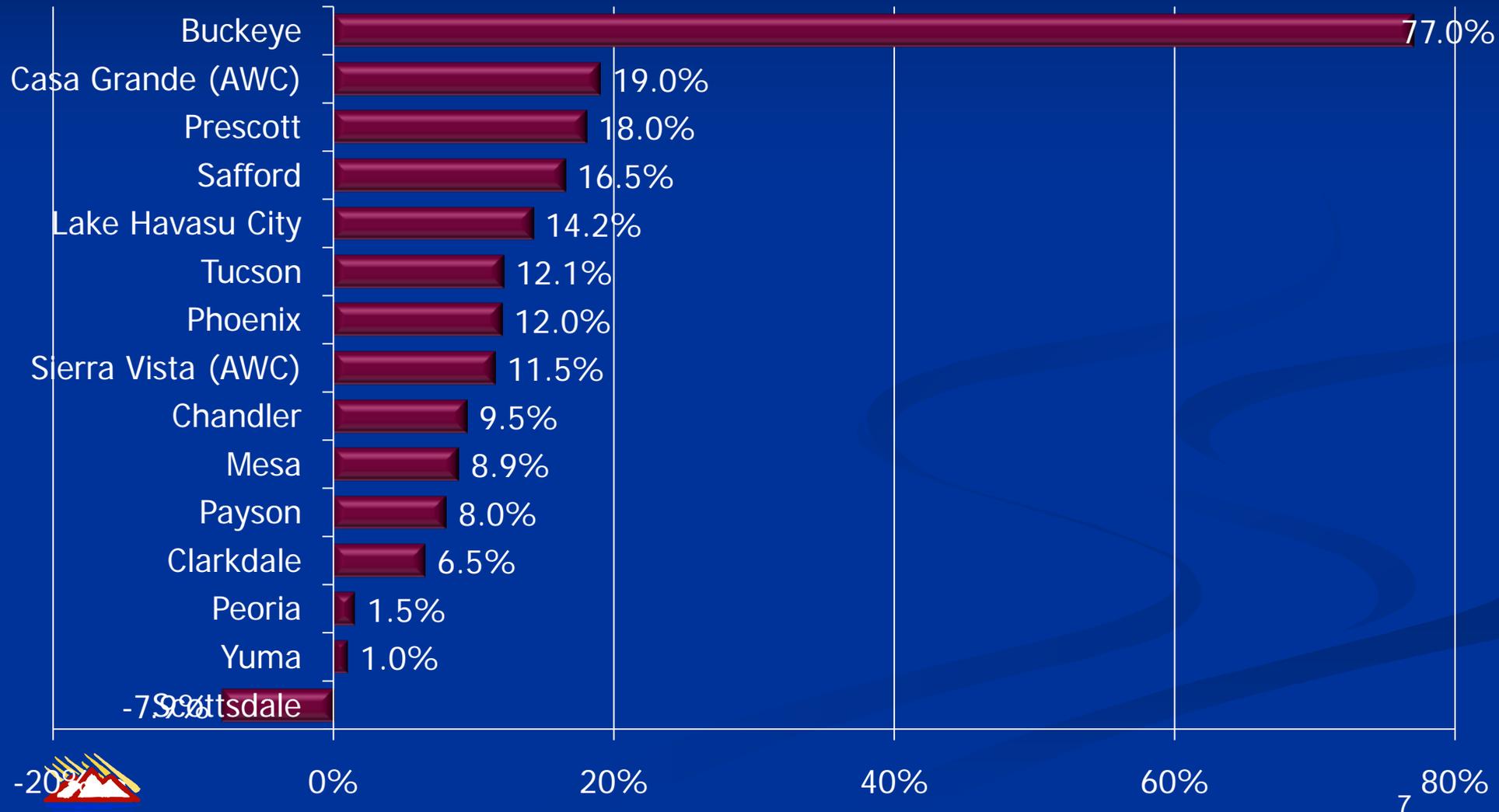
- Tucson
- Sierra Vista (AWC)
- Safford
- Payson
- Clarkdale
- Prescott
- Lake Havasu City
- Yuma



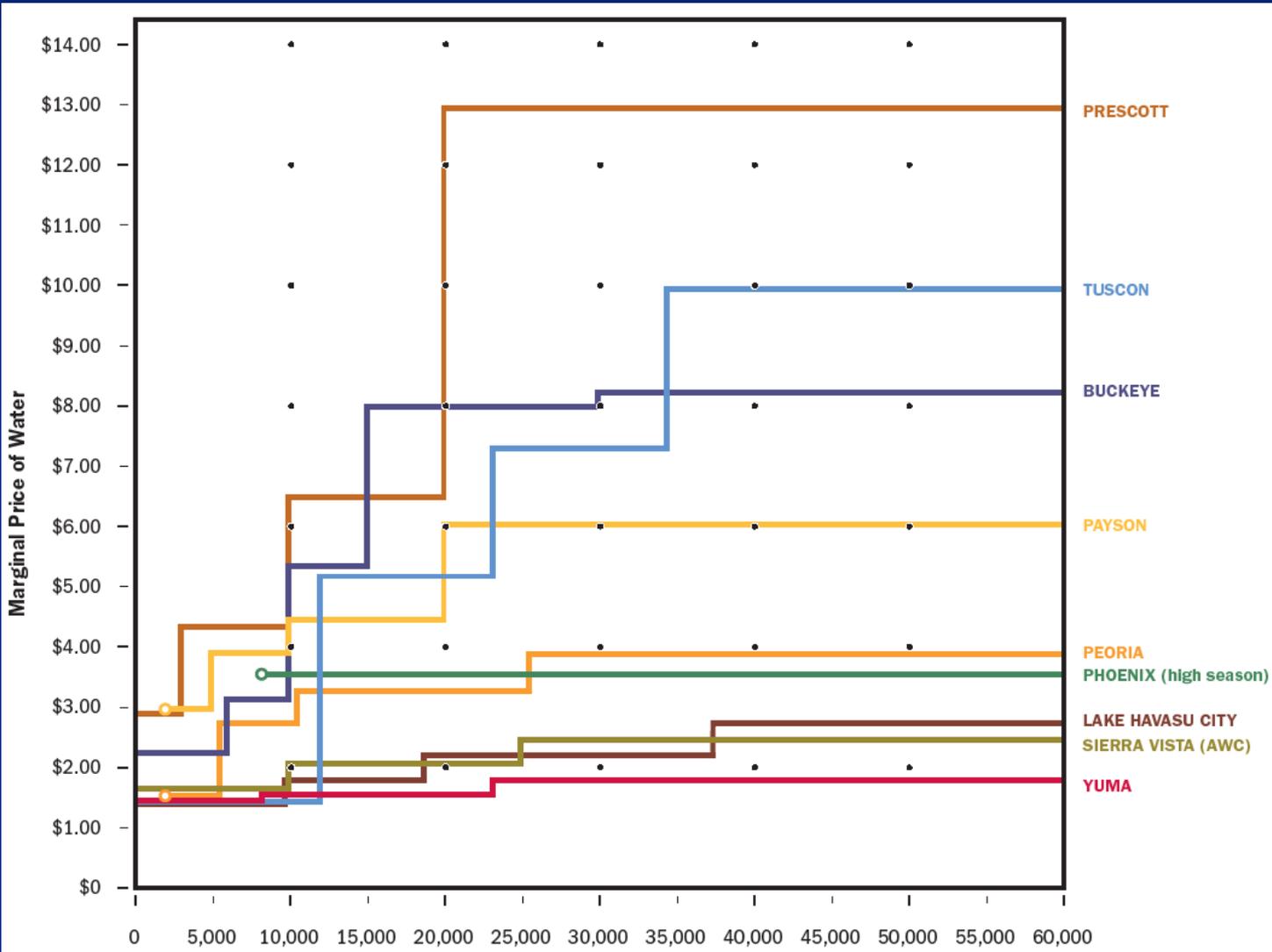
# 1) SFR Per Capita Use



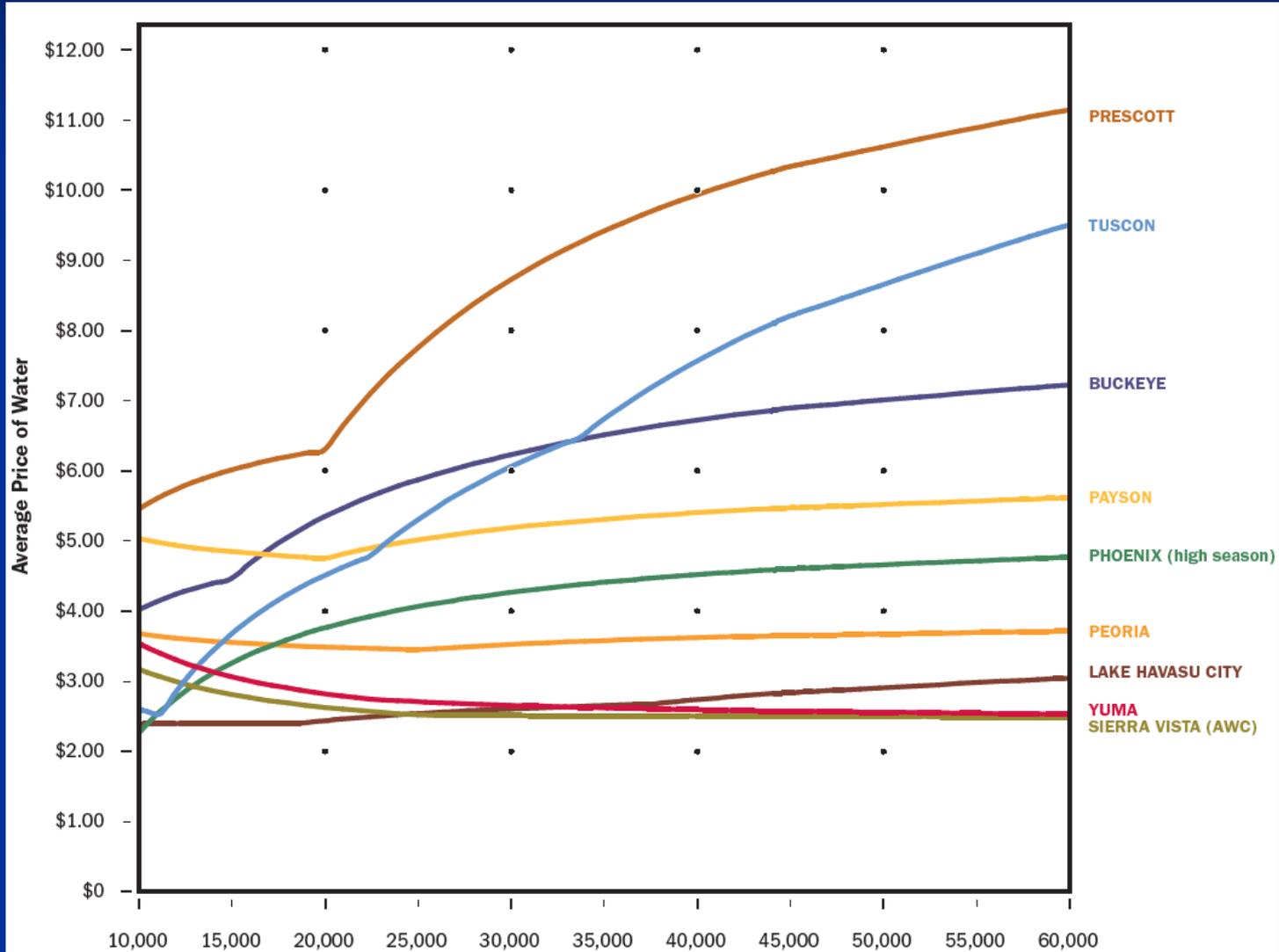
# 1) System-Wide Trend



# 2) Marginal Price



# 2) Average Price



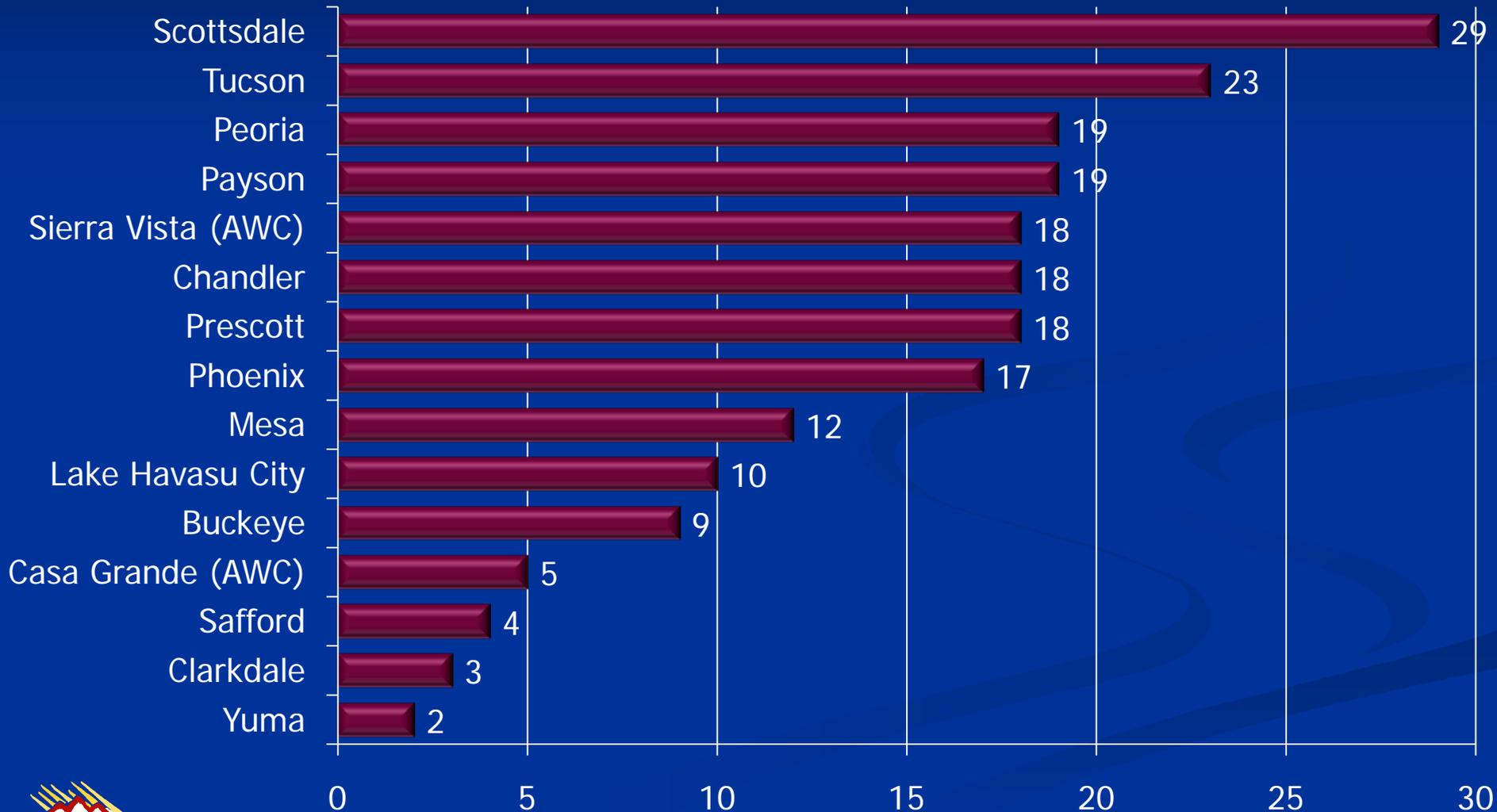
# 3) Public Awareness Measures

**FIGURE 6. NUMBER OF PUBLIC AWARENESS MEASURES IMPLEMENTED BY COMMUNITY**

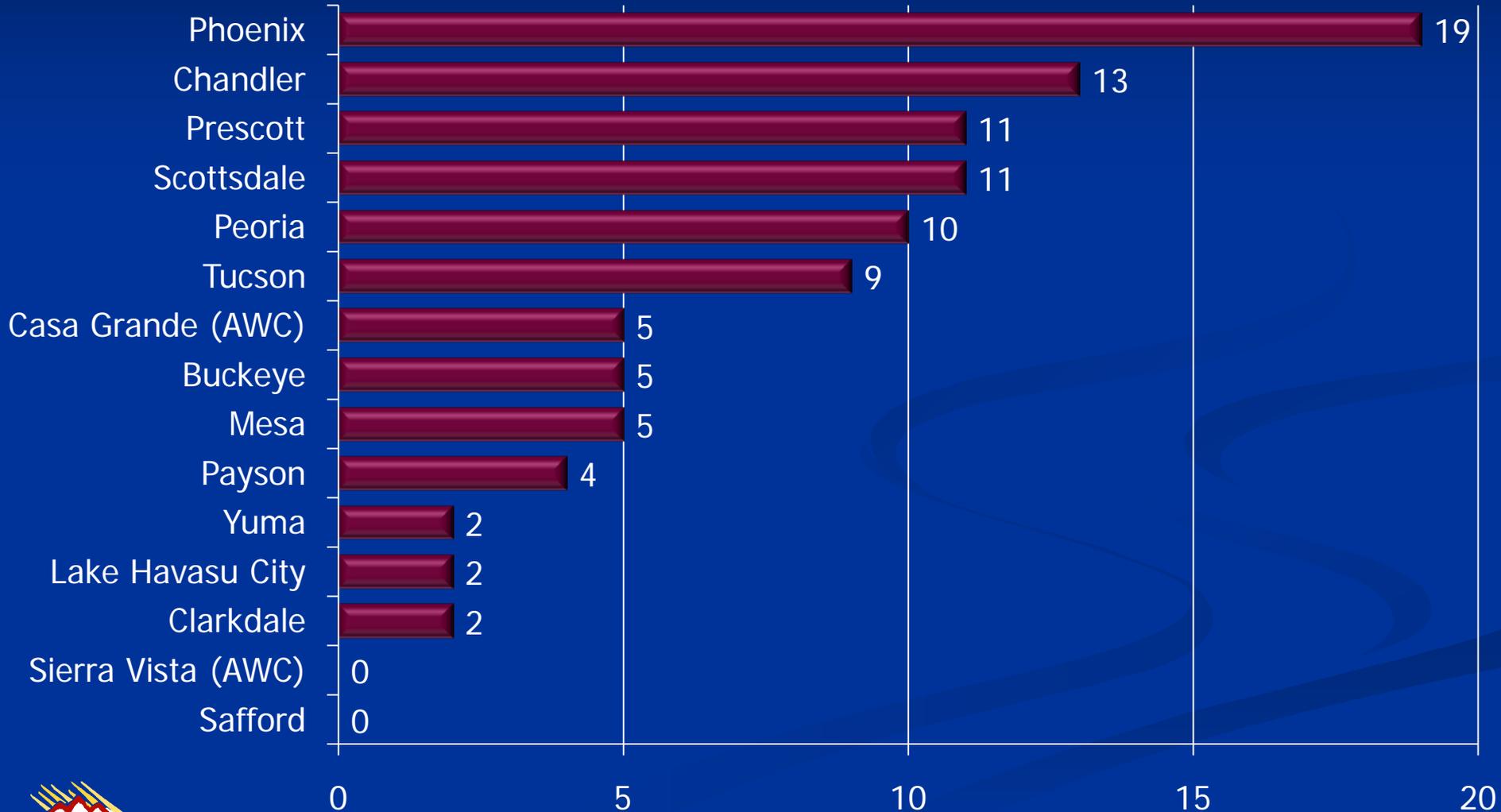
BMPs	Buckeye	Casa Grande (AWC)	Chandler	Clarkdale	Lake Havasu City	Mesa	Payson	Peoria	Phoenix	Prescott	Safford	Scottsdale	Sierra Vista (AWC)	Tucson	Yuma	Measure Count	City Count
<b>1.1. Local and/or regional messaging program</b>	1		1	1	2	2	5	4	4	2	1	3	4	1	2	<b>33</b>	<b>14</b>
<b>1.2. Special events/programs and community presentations</b>	1		2	1		1	3	2	3	2		2	4	1		<b>22</b>	<b>11</b>
<b>1.3. Market surveys to identify information needs/assess success of messages</b>			1			1		1	1			1				<b>5</b>	<b>5</b>



# 3) Conservation Measure Count



# 3) Conservation Assessment



# 3) Conservation Measures

- Most popular
  - Messaging and Youth Education (14 of 15)
  - Events and Audits (2/3<sup>rds</sup>)
- Mid-range
  - HET rebates
  - Landscape conversion incentives
- Underutilized
  - ICI measures
  - Large landscape incentives



# 4) Ordinance Chart

**FIGURE 12. NUMBER OF MANDATORY ORDINANCES ENACTED BY MUNICIPALITIES**

Municipality	Buckeye	Casa Grande	Chandler	Clarkdale	Lake Havasu City	Mesa	Payson	Peoria	Phoenix	Prescott	Safford	Scottsdale	Sierra Vista	Tucson	Yuma	Ordinance Count	City Count
5.1. Low Water Use Landscaping Requirements	2	1	1	1	-	2	1	-	1	1	-	-	6	1	-	17	10
5.2. Water Tampering/Water Waste	-	1	2	2	2	1	2	5	2	5	1	2	2	1	4	32	14
5.3. Plumbing Code Requirements	2	-	-	-	5	-	7	-	-	5	-	1	8	2	-	30	7
5.4. Water Features/ Water Intensive Landscaping Limitations	-	-	2	1	1	2	3	-	2	2	1	3	3	-	-	20	10
5.5. Model Home Landscapes	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	2	2
5.6. Grey Water/Water Harvesting	-	-	1	2	-	2	-	1	1	1	-	-	2	2	-	12	8
5.7. Car Wash Recycling/ Other Non-Landscape Watering Restrictions	2	-	-	4	-	-	2	-	-	-	-	-	3	-	-	11	4
5.8. Landscape Watering Restrictions	1	1	-	2	-	1	3	-	3	2	1	1	3	-	-	18	10
5.9. Hot Water Recirculation/ Energy-Water Efficiency	-	-	-	2	-	1	2	-	-	-	-	-	6	-	-	11	4
5.11. Non-Residential Landscape Water-Use Efficiency Standards	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	3	3
5.13. Water Use Plans New Large Non-Residential	1	-	1	1	-	-	-	1	-	-	-	1	-	-	-	5	5
<b>TOTAL ORDINANCES</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>15</b>	<b>9</b>	<b>9</b>	<b>21</b>	<b>7</b>	<b>9</b>	<b>16</b>	<b>3</b>	<b>9</b>	<b>33</b>	<b>6</b>	<b>4</b>		
<b>TOTAL CATEGORIES</b>	<b>5</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>8</b>	<b>4</b>	<b>1</b>		



# 4) Ordinances

- Water Intensive Landscaping Limitations
- Landscape Watering Restrictions
- Other Examples:
  - Planting new turf and expansion of existing turf areas is prohibited (Payson)
  - Golf course developments must generate a sufficient amount of effluent to meet irrigation needs of the golf course (Clarkdale)



# 5) Funding



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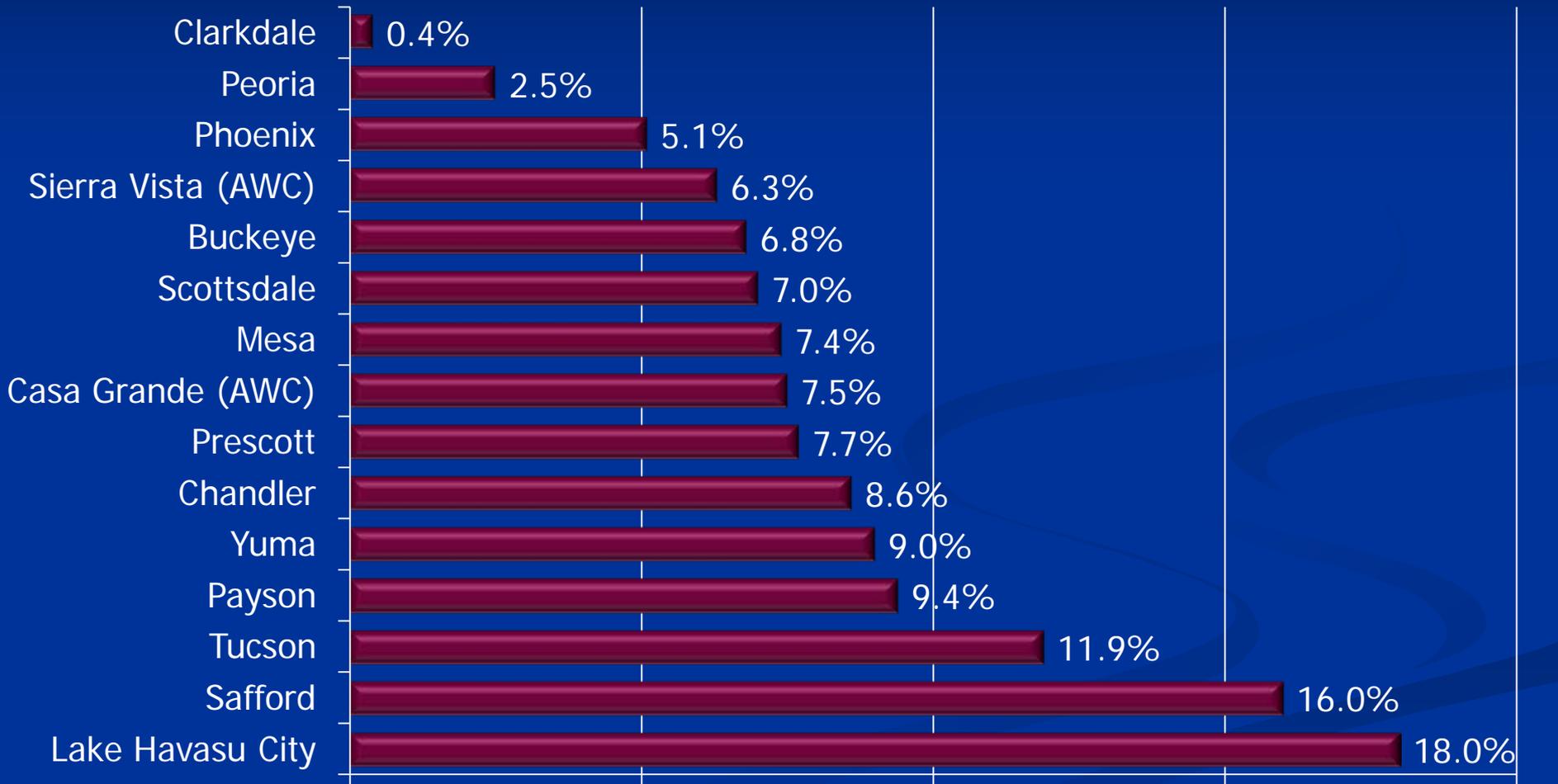
\$2.00

\$4.00

\$6.00

\$8.00

# 6) Water Loss



## 6) Water Loss

- ADWR – 10% standard
- Leak detection
- Meter replacement
- Apparent lack of systematic accounting
  - E.g. AWWA/IWA Water Loss Methodology
  - Notable exception – Peoria



# 7) Effluent Use

- 10 of 15 put 95% to use
  - Direct Use – irrigation, process water
  - Recharge
  - Exchange
- Regional partnership (SROG)
  - 60,000 AF to Palo Verde



# Scoring

- Consistent and transparent "snapshot"
  - 1) Per capita: SFR and system-wide trend
  - 2) Rate structures: avg. price and thresholds
  - 3) Conservation measures and assessment
  - 4) Ordinances
  - 5) Funding
  - 6) Water loss
  - 7) Effluent use



# Scoring – SW Trend

- System Wide Potable Per Capita Trend
  - 15 points if adjusted 2008 system wide potable use decreased 10% or more since 2003
  - 12 points if use decreased 5-10%
  - 9 points if use decreased 0-4%
  - 6 points if use increased 0-15%
  - 3 points if use increased more than 15%



# Scoring – Cons. Measures

- Number of Measures (8 points max)
  - 0.25 points for each specific conservation measure
- Assessment of measures (7 points max)
  - 0.50 points for each assessment of a conservation measure



# Scoring – Water Loss

- Water Loss
  - 10 points for the city with the lowest water loss in 2008, each subsequent city receives one less point
  - 1 point guaranteed if water loss is less than 10%
  - 0 points if water loss is greater than 10%



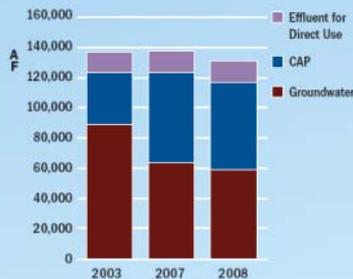
# Tucson Snapshot

## Snapshot: City of Tucson



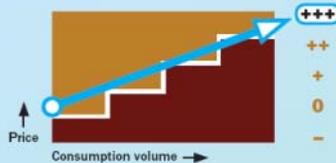
Service Area Population 730,831  
 Total Budget \$ 109,300,000

### Water Sources



### Rate Structure

Structure: 4-Tier Increasing Block  
 Average Price Curve: +++



### Per Capita Water Use Gallons per Person per Day (GPCD)

#### SINGLE-FAMILY RESIDENTIAL USE

2003: 116 gpcd

2008: 102 gpcd

#### SYSTEM-WIDE POTABLE USE

2003: 144 gpcd

2008: 127 gpcd

### Scoring

#### Per Capita Water Use

SFR GPCD 8

SW Trend 12

#### Rate Structure

Slope 20

Thresholds 2

#### Conservation Measures

Number 6

Assessment 5

Ordinances 6

Funding 3

Water Loss 0

Effluent Use 3

Total Points 65

### Recommendations

- ✓ Decrease allocation of first price block to target efficient indoor water use.
- ✓ Improve water loss tracking to prioritize next steps for water loss reduction.



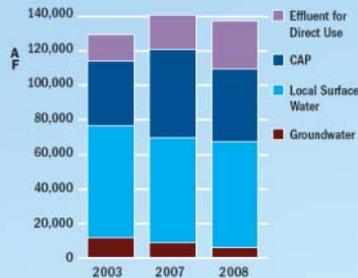
# Mesa Snapshot

## Snapshot: City of Mesa



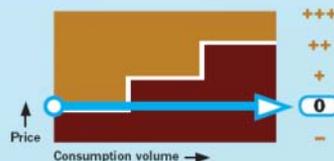
Service Area Population 46,988  
 Total Budget \$ 60,245,000

### Water Sources



### Rate Structure

Structure: 3-Tier Increasing Block  
 Average Price Curve: 0



### Per Capita Water Use Gallons per Person per Day (GPCD)

#### SINGLE-FAMILY RESIDENTIAL USE

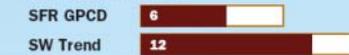


#### SYSTEM-WIDE POTABLE USE



### Scoring

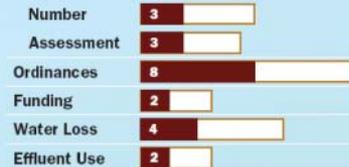
#### Per Capita Water Use



#### Rate Structure



#### Conservation Measures



Total Points 45

### Recommendations

- ✓ Expand rebate program to industrial, commercial, and institutional sector.
- ✓ Improve conservation price signal by increasing price difference between blocks.



# Overall Scoring

**TABLE 2. ARIZONA WATER METER SCORING**

	Maximum Points	Prescott	Tucson	Phoenix	Payson	Clarkdale	Sierra Vista (AWC)	Lake Havasu City	Chandler	Scottsdale	Mesa	Peoria	Buckeye	Safford	Casa Grande (AWC)	Yuma
<b>Per Capita Water Use</b>	[25]															
<i>SFR GPCD</i>	10	8	8	6	10	10	8	6	4	0	6	4	0	4	6	6
<i>System-Wide Trend</i>	15	12	12	9	9	9	9	12	6	3	12	3	3	15	3	9
<b>Rate Structure</b>	[25]															
<i>Slope</i>	20	20	20	15	10	10	0	10	5	5	5	5	15	0	0	0
<i>Thresholds</i>	5	3	2	0	3	0	0	2	2	2	0	0	2	0	3	0
<b>Conservation Measures</b>	[15]															
<i>Number of Measures</i>	8	5	6	5	5	1	5	3	5	7	3	5	2	1	1	1
<i>Assessment of Measures</i>	7	6	5	7	2	1	0	1	7	6	3	5	3	0	3	1
<b>Conservation Ordinances</b>	15	10	6	7	13	12	15	6	8	8	8	5	7	4	5	2
<b>Funding for Conservation</b>	5	5	3	3	5	3	0	3	4	5	2	4	3	3	0	1
<b>Water Loss</b>	10	2	0	8	1	10	7	0	1	5	4	9	6	0	3	1
<b>Effluent Use</b>	5	5	3	5	3	4	5	5	5	5	2	4	2	5	2	5
<b>Total Points</b>	<b>100</b>	<b>76</b>	<b>65</b>	<b>65</b>	<b>61</b>	<b>60</b>	<b>49</b>	<b>48</b>	<b>47</b>	<b>46</b>	<b>45</b>	<b>44</b>	<b>43</b>	<b>32</b>	<b>26</b>	<b>26</b>



# "Top Drop" Awards

- Oct. 14<sup>th</sup> – Desert Botanical Gardens
- Publically recognize leaders
- Prescott, Tucson/Phoenix, Payson



Karin Sheldon  
President, WRA

Ilene Grossman  
Conservation Program  
Manager, Tucson Water



# Take Home Messages

- AZ water providers are doing good work
- Room for improvement
  - Report is a database
  - Learn from each other
  - WRA will be here to help
- Water conservation is an excellent tool for increasing water supplies



# Questions & Comments

The "Arizona Water Meter"  
is available at:

[www.westernresources.org/azmeter](http://www.westernresources.org/azmeter)

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