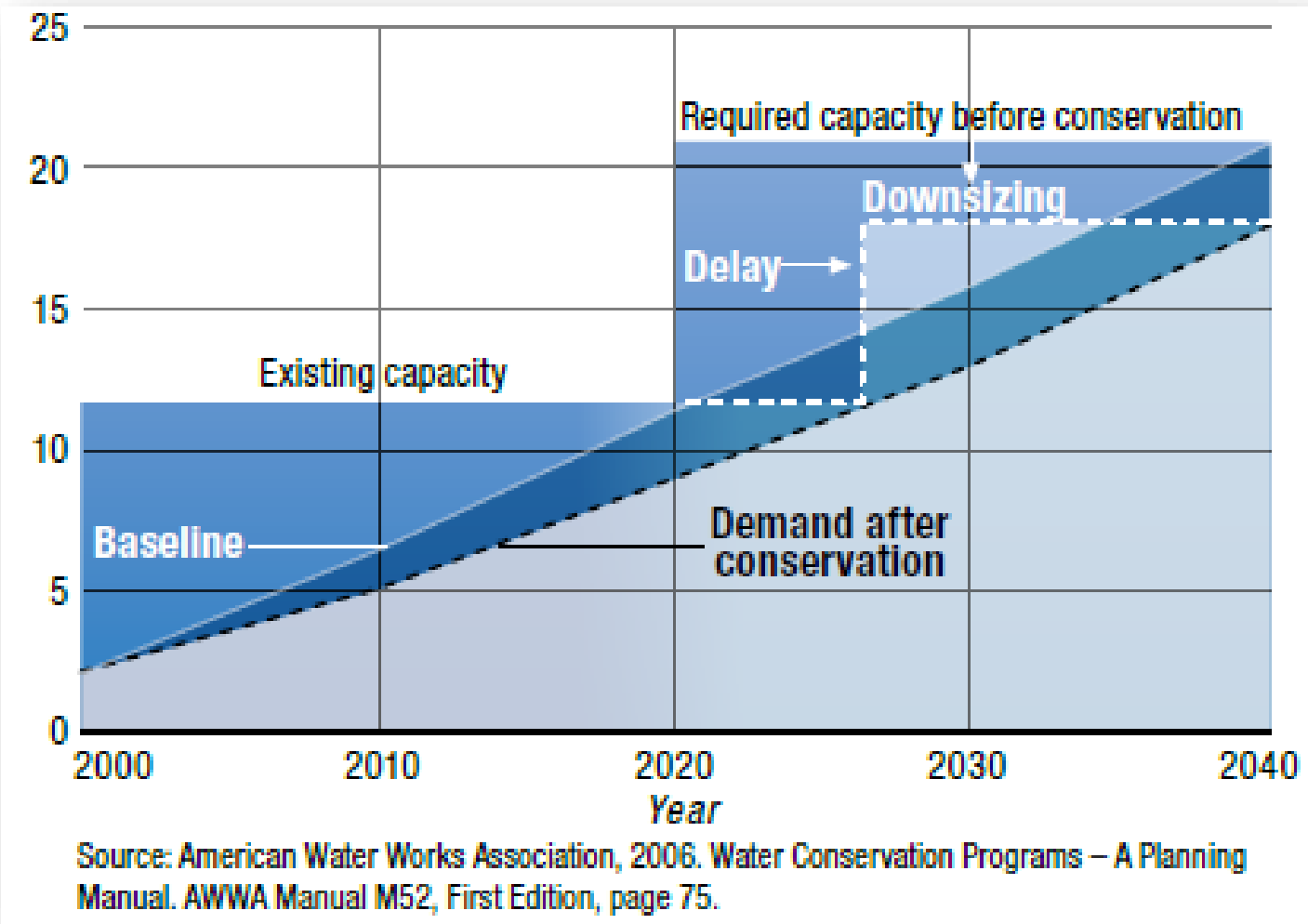


NWPA Water Supply Sustainability Plan: *Examining Conservation Strategies*

NWPA Technical Advisory Committee June 27, 2023

Why Conserve Water?

Example of delaying or downsizing a capital facility, *peak demand/capacity in millions of gallons*











Proposed Water Conservation Strategies

- 1) Residential retrofits
- 2) Adopt community policies
- 3) Water loss control
- 4) Commercial, Industrial and Institutional (CII) Programs
- 5) Costing & Pricing
- 6) Information & Education



Residential Retrofits - What is it?

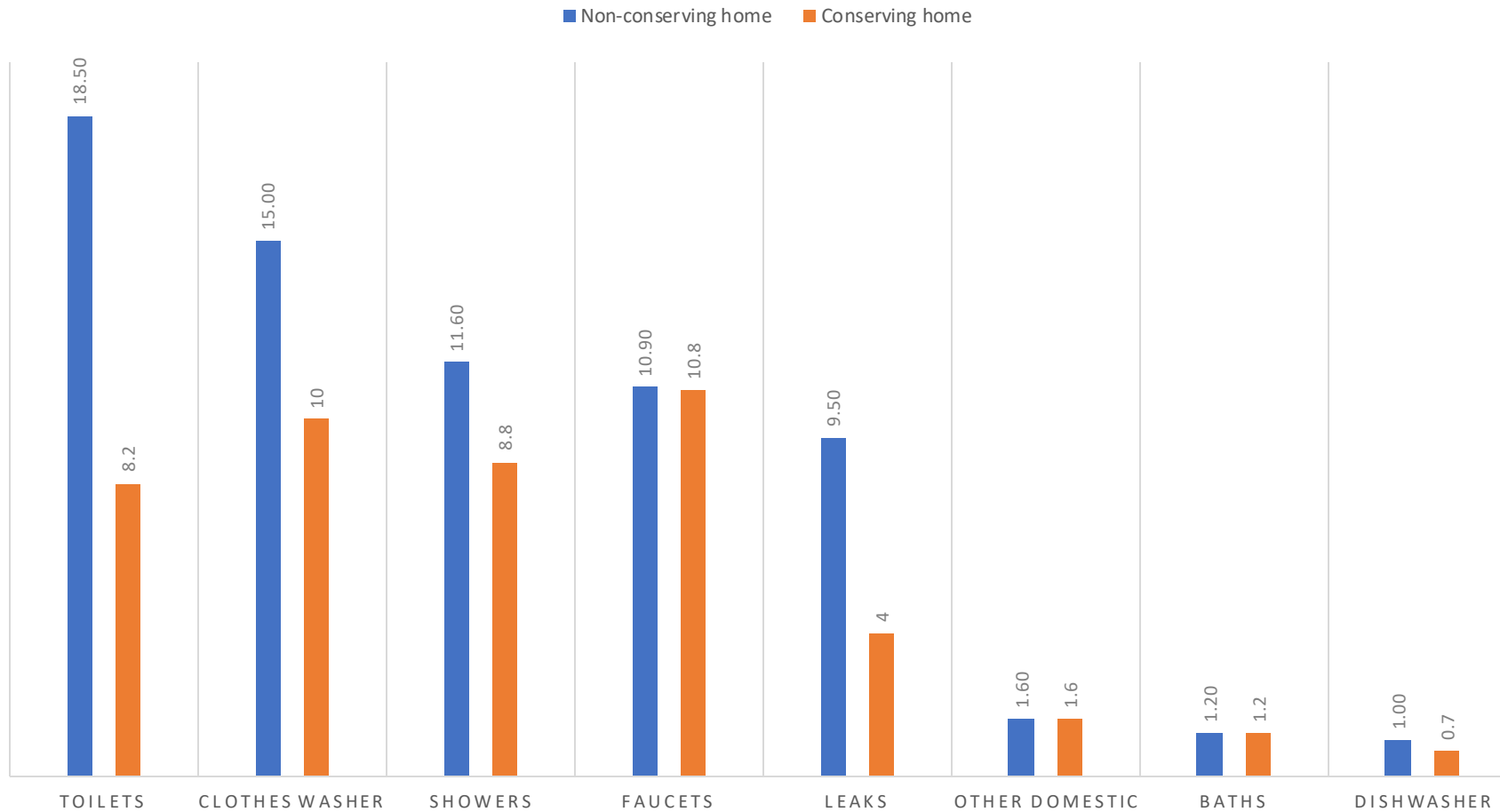
Retrofitting involves either making an improvement to an existing fixture or appliance in order to increase water-use efficiency, or replacement of older features with newer, water saving ones.

							
Toilet 24% 32.6 gphd	Faucet 20% 27.0 gphd	Shower 20% 26.9 gphd	Clothes washer 16% 22.0 gphd	Leak 13% 17.8 gphd	Bath 3% 4.4 gphd	Other* 3% 4.0 gphd	Dishwasher 2% 2.2 gphd

* The "Other" category includes evaporative cooling, humidification, water softening, and other uncategorized indoor uses.

Residential Retrofits - How does it save water?

WATER SAVINGS FROM RESIDENTIAL RETROFITS & REPLACEMENTS, GPCD



Non-Conserving Home
69.3 gpcd

Conserving Home
45.2 gpcd

~35% reduction

Source: Vickers, 2001

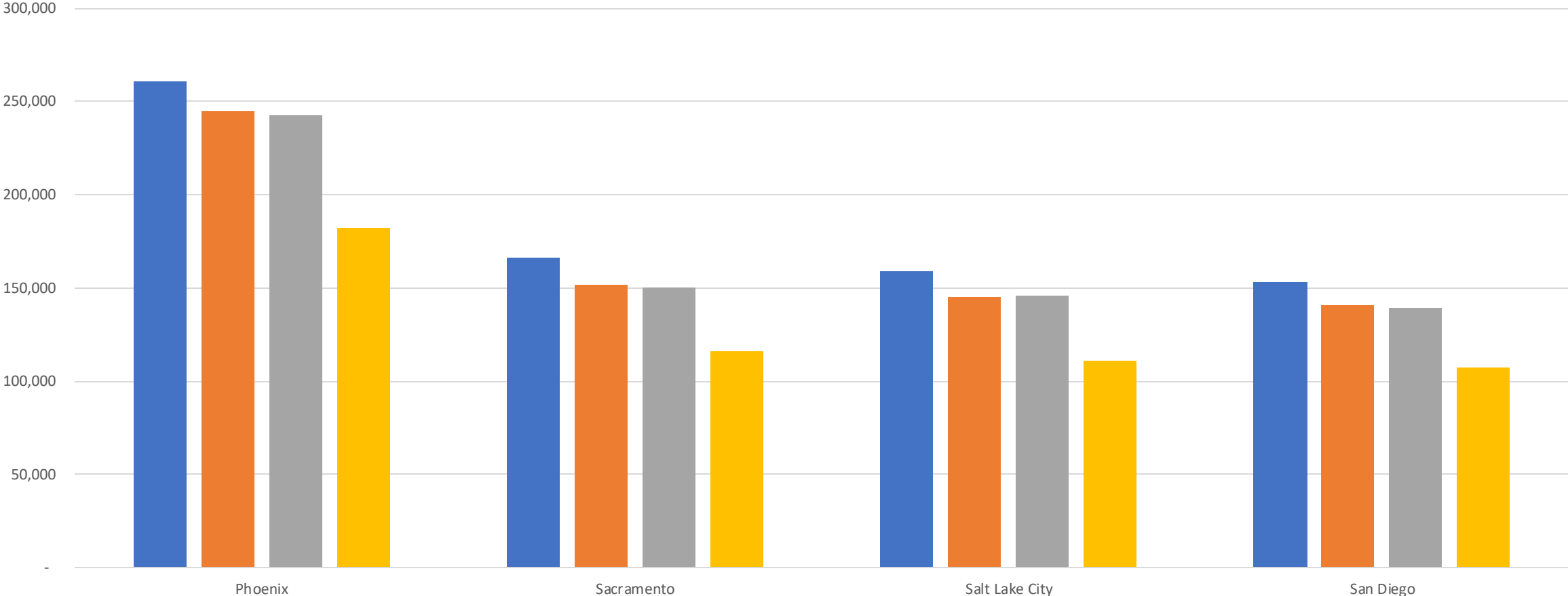
Community Policy: New Development Standards

Encourages developers to design with water-efficiency in mind and allows for the community to grow/add new development while limiting water resource impact.



WaterSense Labeled Homes are 30 percent more water-efficient than typical new construction

Total Estimated Water Use, in gallons



- Baseline Home
- WaterSense Mandatory Checklist
- California Appliance Efficiency Standards
- Example WaterSense Labeled Home

Community Policy: Landscape Water Efficiency

Encourages communities to adopt measures limiting discretionary water use and promoting landscape water efficiency.



WaterSense Landscape Certification
A household's irrigation water use can be reduced by 15 percent annually.

Water Loss Control

Water loss control represents the efforts of water utilities to provide accountability in their operation by reliably auditing their water supplies and implementing controls to minimize system losses.



Non-revenue water benchmark of 10 %
(Vickers, 2001, from CUWCC)

Commercial, Industrial and Institutional Conservation

Conservation programs for (CII) accounts include audits resulting in inefficient equipment retrofits, and setting retrofit and new development standards

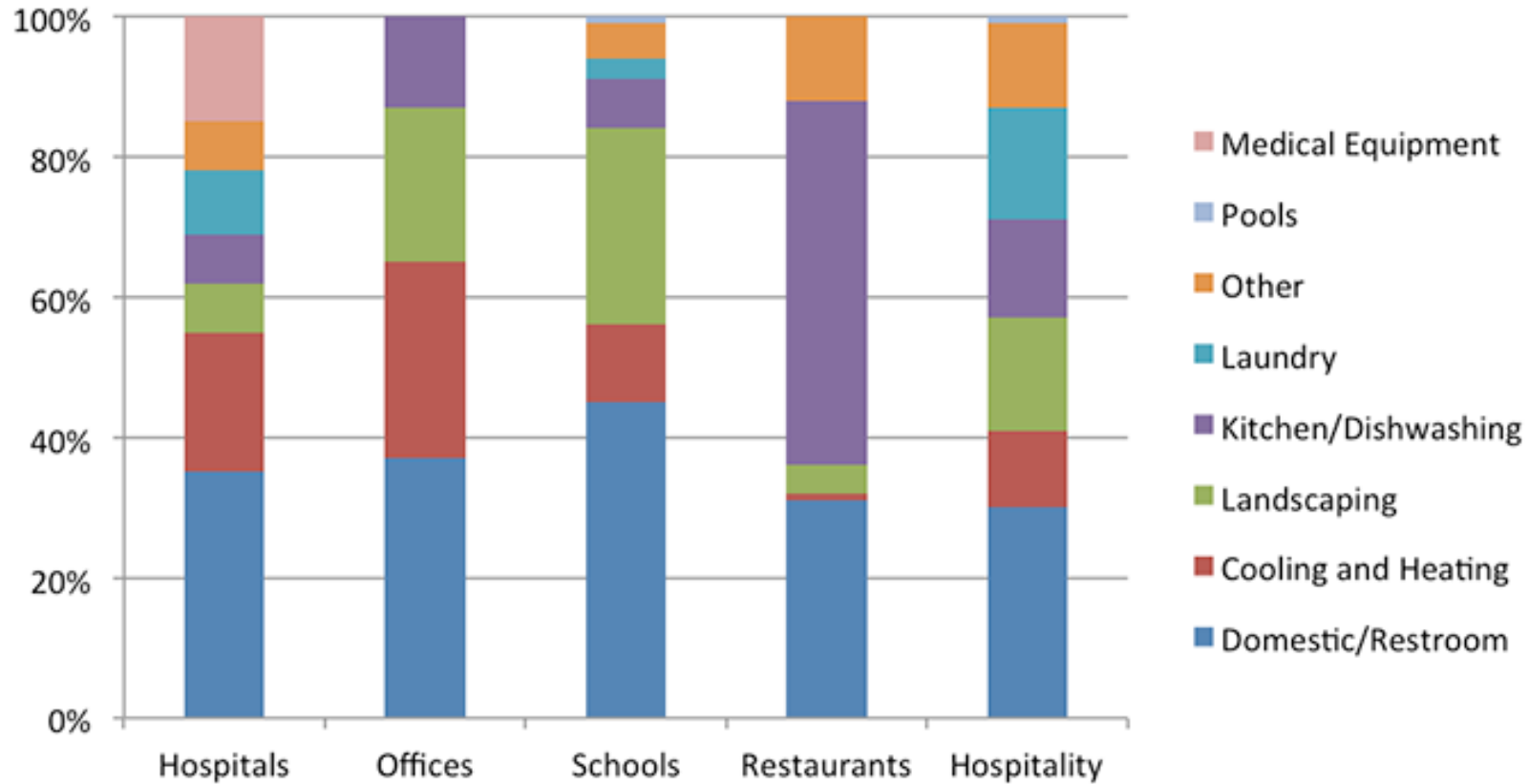


Pre-rinse spray valve

WaterSense at Work

Reduce water use to an amount equal to 10% of baseline use within 10 years through a CII water conservation program, up to total 40% water savings in the CII sector (CUWCC; Gleick et al 2003)

End Uses of Water in Various Types of Commercial and Institutional Facilities

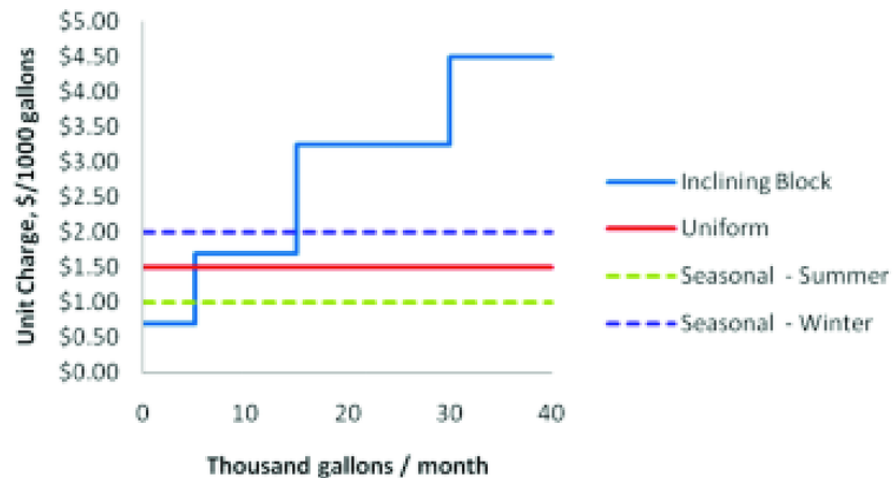


Source: EPA WaterSense

Costing and Pricing

Costing and pricing are conservation strategies as they convey water value, through prices, to water customers.

Conservation Volumetric Water Rate Structures



A 10% increase in price reduces quantity demanded by 1.5%.
(Dziegielewski and Chowdhury 2008)



Information and Education

A foundational water conservation program measure aimed at raising awareness of the value of water and fostering a culture of conservation.

An information and education program increases the uptake of other water conservation programs and can change water-use behaviors

