

***South Central Texas Regional  
Water Planning Group***

**Technical Evaluation of  
Drought Management as a  
Water Management Strategy  
(Draft)**

**February 7, 2008**

# Purposes of Discussion Today

- 1) Present concepts for consideration of Drought Management as a Water Management Strategy (WMS).
- 2) Demonstrate draft methodology for technical evaluation for example Water User Groups (WUGs).
- 3) Provide example applications of methodology.

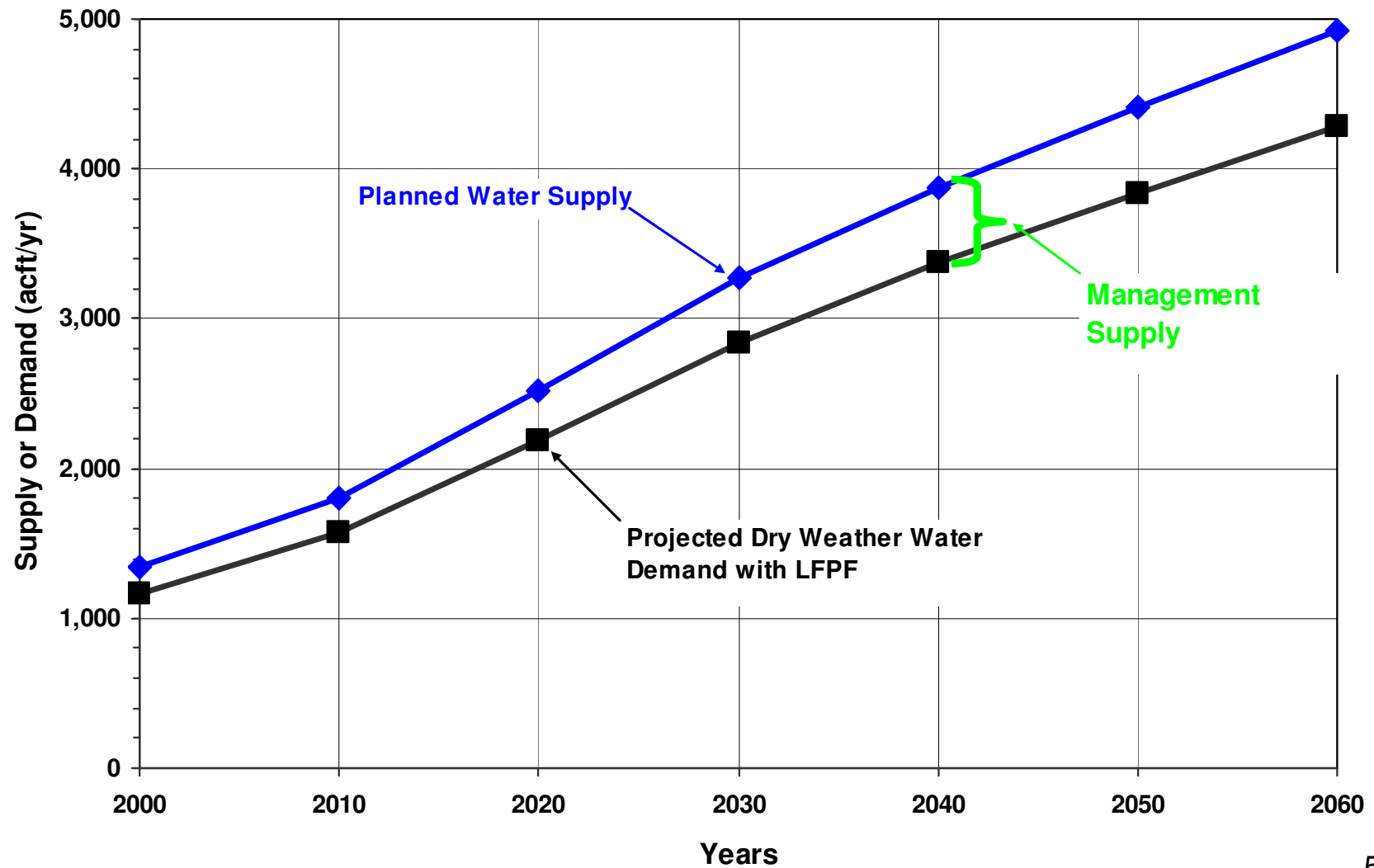
# Basis

- 1) Texas Administrative Code, Chapter 357  
Regional Water Planning Guidelines –  
*Regional water plan development shall include evaluation of all water management strategies the regional water planning group determines to be potentially feasible, including drought management measures including water demand management. [357.7(a)(7)(B)]*

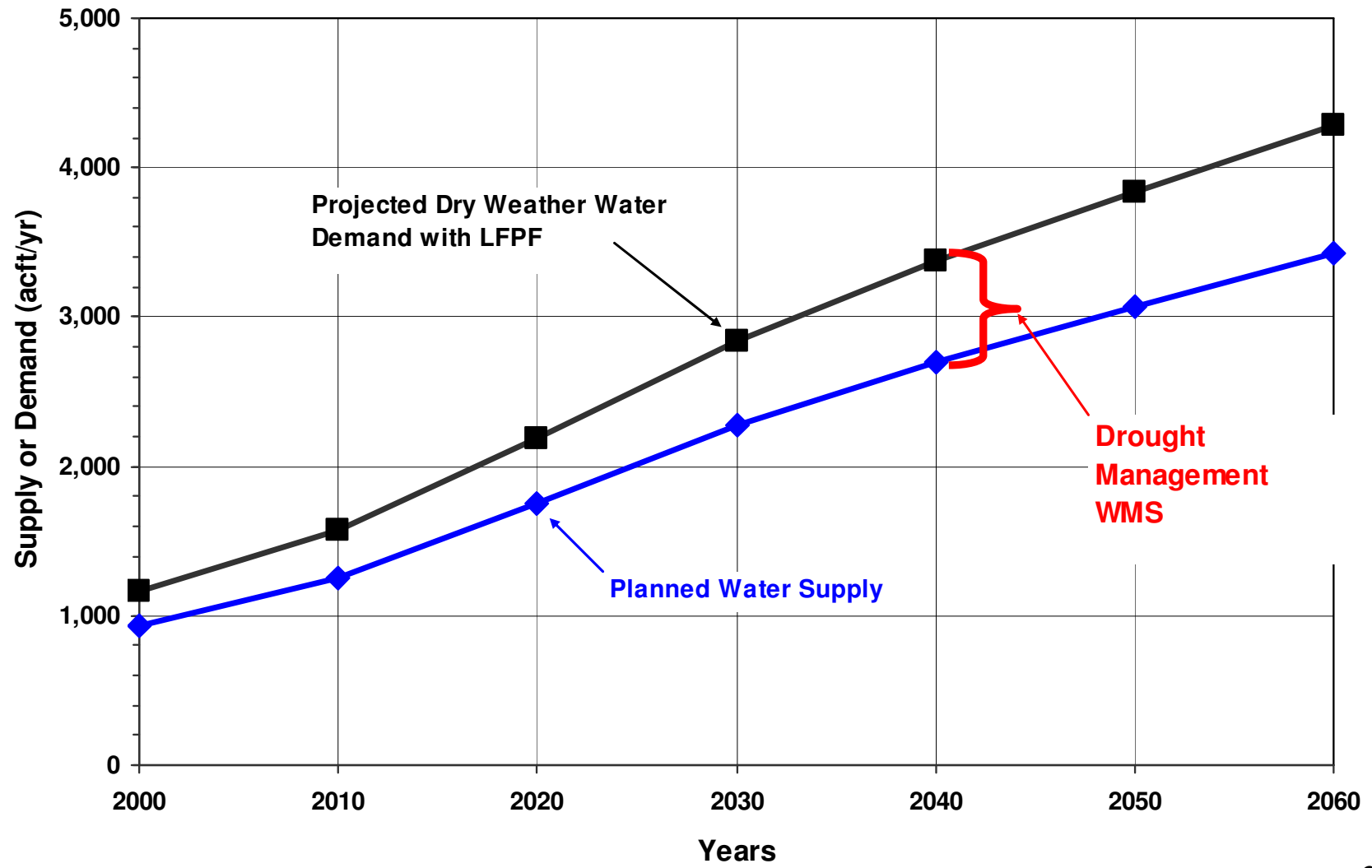
# Concepts

- 1) Drought management (e.g., periodic activation of approved drought contingency plan, demand reduction, and/or rationing) may be considered a water “supply” source.
- 2) An entity may make the conscious decision not to develop firm water supplies greater than or equal to projected water demands with the understanding that demands will be reduced or unmet during times of shortage.
- 3) An economic impact of not meeting projected water demands can be estimated and compared with the costs of other potentially feasible water management strategies in terms of annual unit cost.

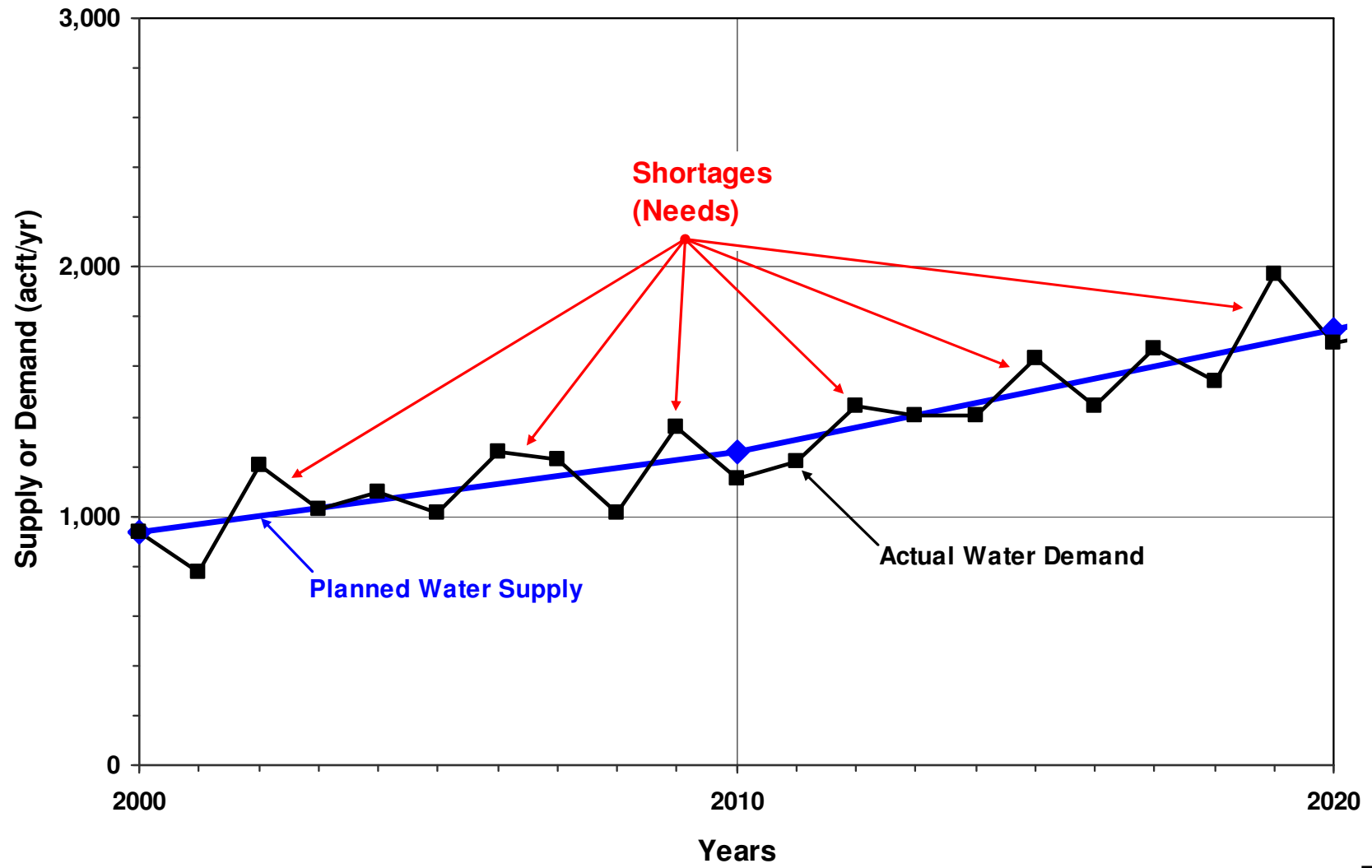
# Typical Planning in 2006 Regional Water Plan



# Planning w/ Drought Management WMS



# Planning w/ Drought Management WMS

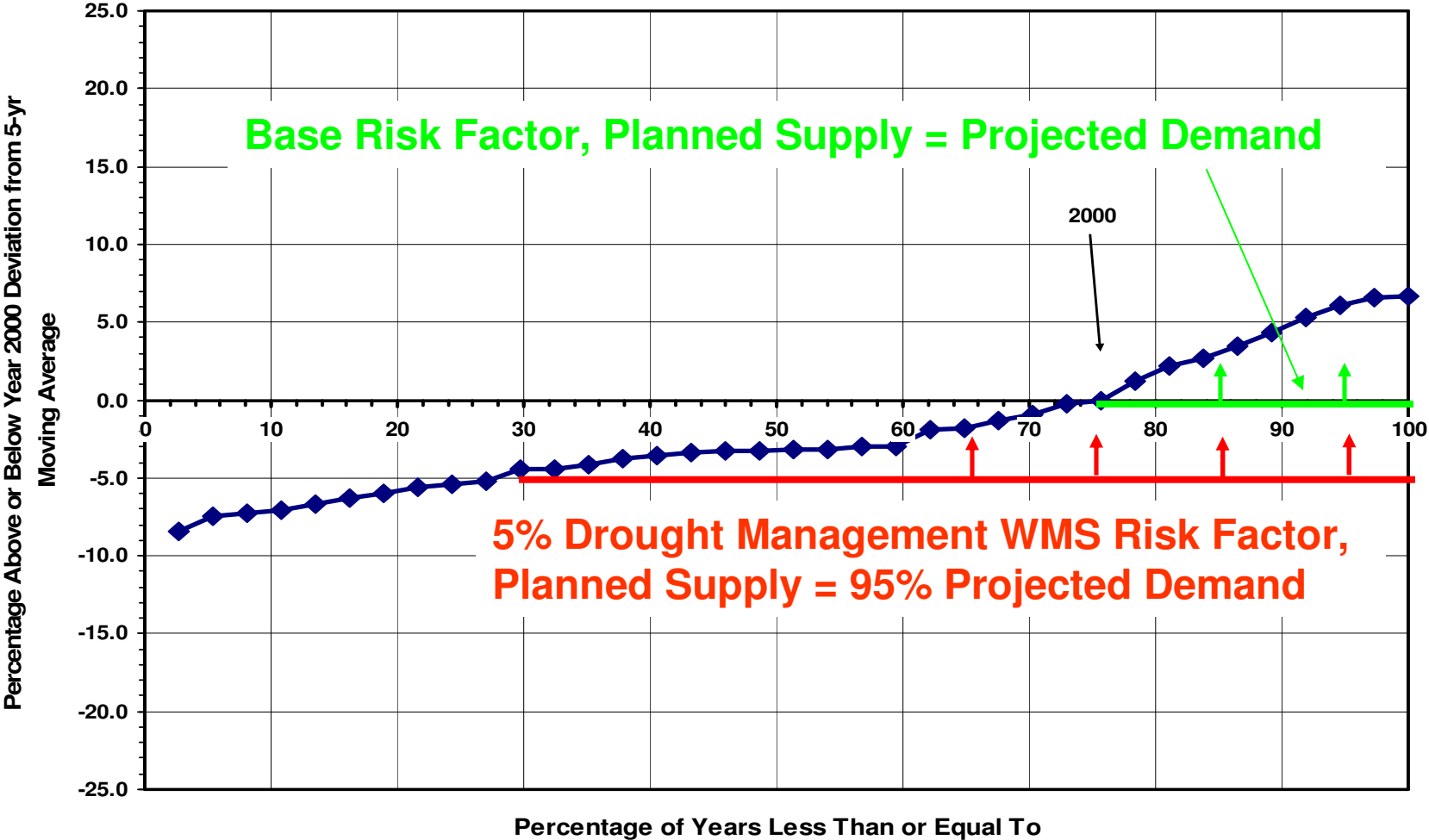


# Methodology for Economic Impacts of Drought Management (DM) WMS

(Demand) X (Risk Factor) X (\$ Impact Factor) = DM WMS Annual Cost

- Demand (acft/yr) = Projected “dry year” demand from TWDB based on year 2000 per capita use rate.
- Risk Factor = Integrated chance of occurrence of potential annual demands in excess of planned supply based on historical per capita use variations for entity. With DM WMS, planned supply is less than projected demand.
- \$ Impact Factor (\$/acft) = Sum of economic impact factors used by TWDB to calculate economic impacts of not meeting needs. TWDB factors used include: a) Lost sales for water-intensive commercial uses; b) Lost water utility revenues; c) Costs to non-water-intensive commercial businesses & households; and d) Lost sales for manufacturing.
- DM WMS Annual Cost (\$/yr) = Typical annual economic impacts of adhering to Drought Management WMS. Can be converted to annual unit cost for comparison to other potentially feasible WMS.

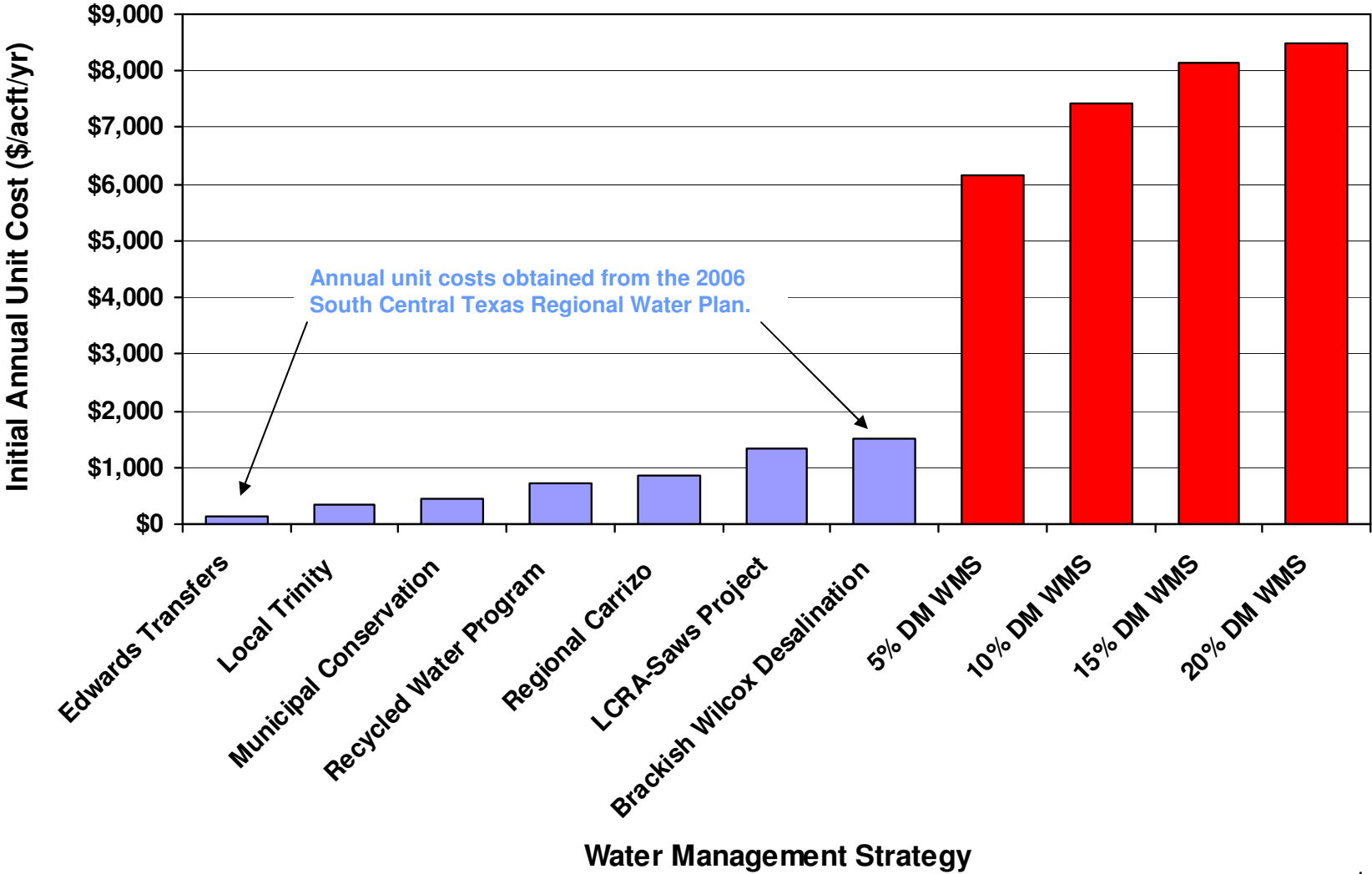
# Frequency of Per Capita Water Use Variations Adjusted to Basis of Demand Projections



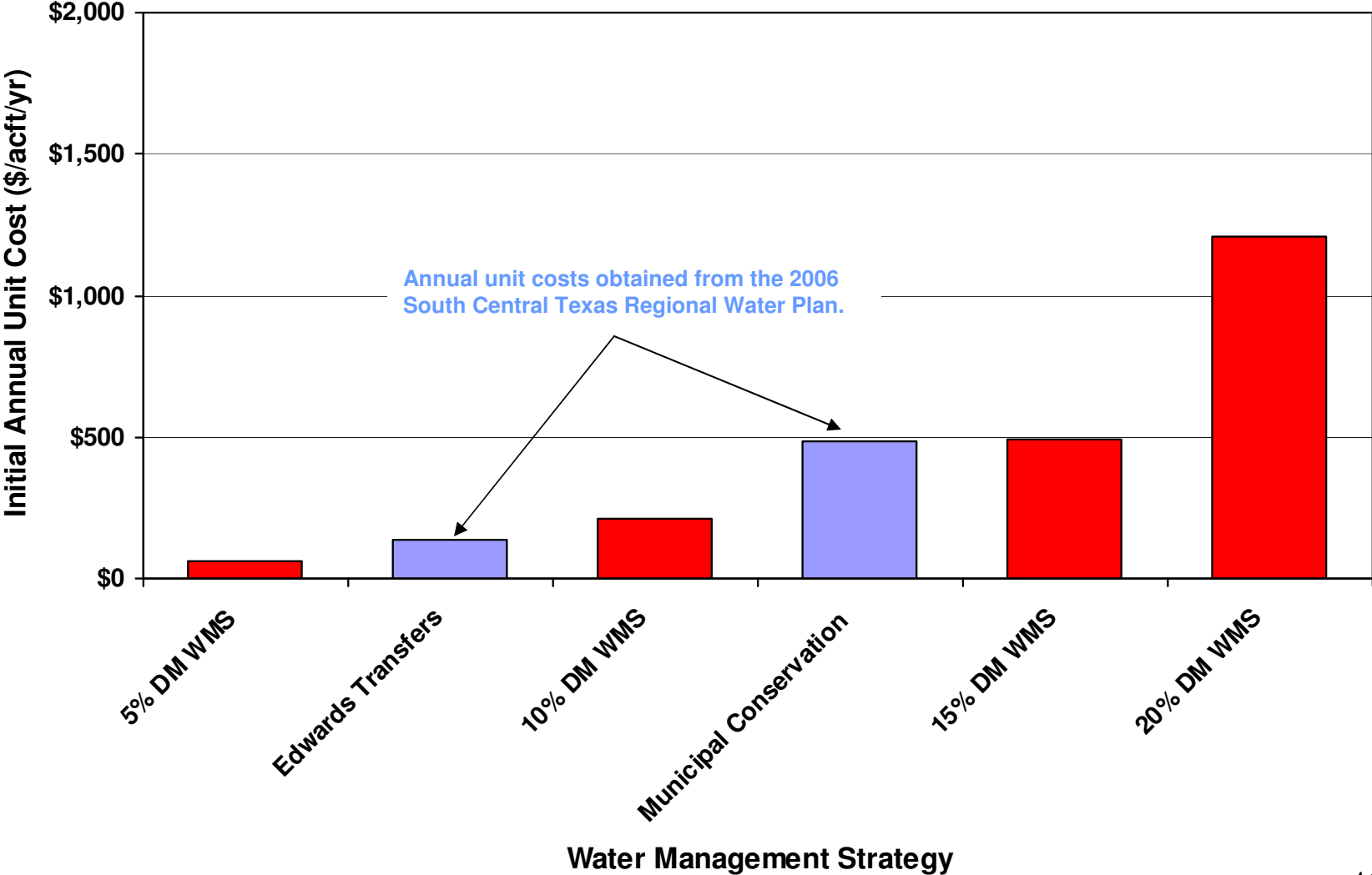
# Example Applications of Methodology

<b>Water User Group</b>	<b>SAWS</b>	<b>Uvalde</b>
<b>Year</b>	<b>2010</b>	<b>2010</b>
<b>"Dry-Year" Demand (acft/yr)</b>	<b>199,108</b>	<b>6,087</b>
<b>Economic Impact Factor (\$/acft)</b>	<b>\$9,560</b>	<b>\$10,791</b>
<b>Base Risk Factor</b>	<b>0.95559</b>	<b>0.00000</b>
<b>5% DM WMS Risk Factor</b>	<b>3.21741</b>	<b>0.02948</b>
<b>10% DM WMS Risk Factor</b>	<b>7.75961</b>	<b>0.19562</b>
<b>15% DM WMS Risk Factor</b>	<b>12.75961</b>	<b>0.68687</b>
<b>20% DM WMS Risk Factor</b>	<b>17.75961</b>	<b>2.23357</b>
<b>Base Annual Cost (\$M)</b>	<b>\$18</b>	<b>\$0.00</b>
<b>5% DM WMS Annual Cost (\$M)</b>	<b>\$61</b>	<b>\$0.02</b>
<b>10% DM WMS Annual Cost (\$M)</b>	<b>\$148</b>	<b>\$0.13</b>
<b>15% DM WMS Annual Cost (\$M)</b>	<b>\$243</b>	<b>\$0.45</b>
<b>20% DM WMS Annual Cost (\$M)</b>	<b>\$338</b>	<b>\$1.47</b>
<b>5% DM WMS Unit Cost (\$/acft)</b>	<b>\$6,152</b>	<b>\$64</b>
<b>10% DM WMS Unit Cost (\$/acft)</b>	<b>\$7,418</b>	<b>\$211</b>
<b>15% DM WMS Unit Cost (\$/acft)</b>	<b>\$8,132</b>	<b>\$494</b>
<b>20% DM WMS Unit Cost (\$/acft)</b>	<b>\$8,489</b>	<b>\$1,205</b>

# SAWS – Recommended and DM WMS



# Uvalde – Recommended and DM WMS



# **Comments & Questions**

## **Actions**