

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

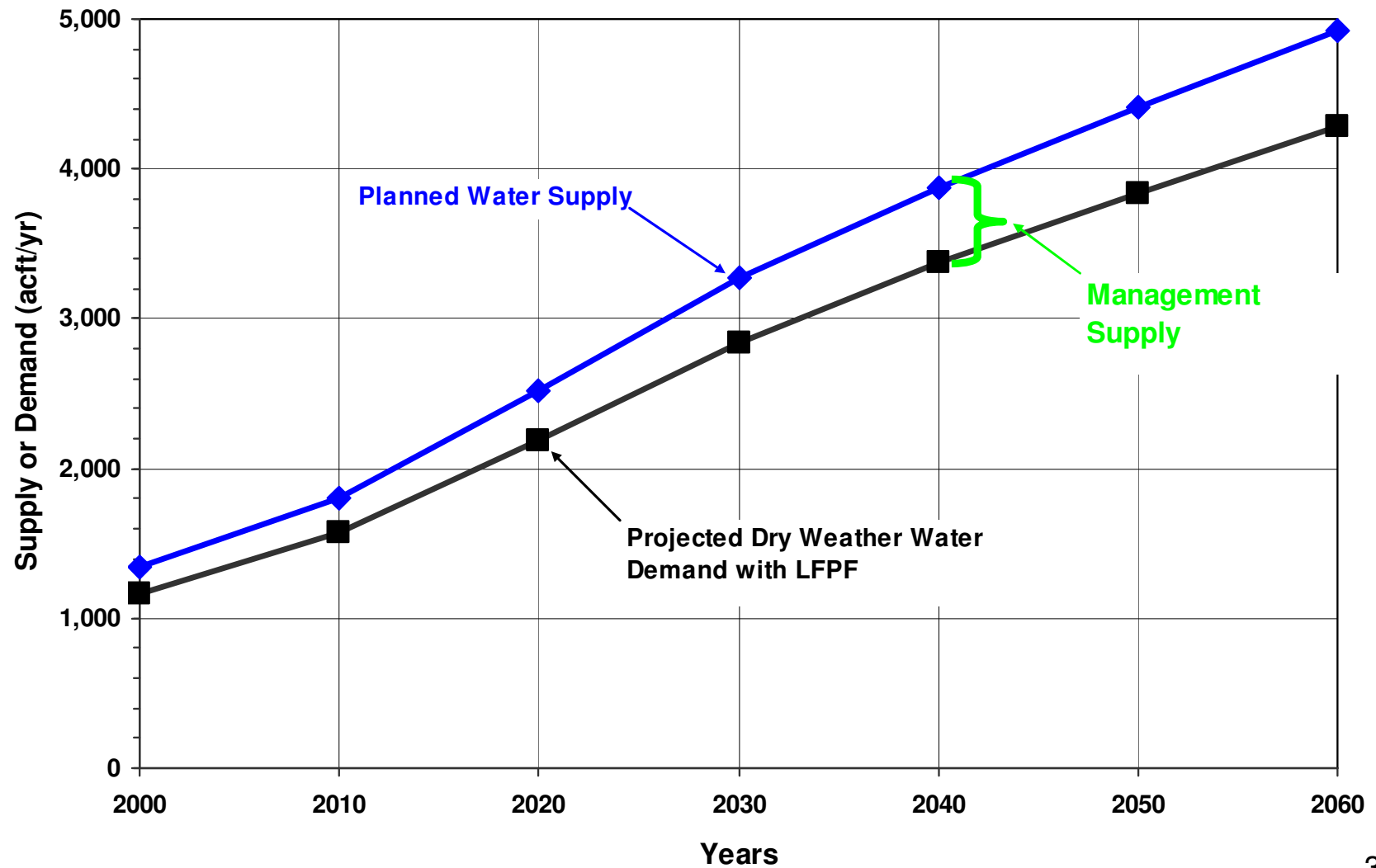
**Technical Evaluation of
Drought Management as a
Water Management Strategy**

August 7, 2008

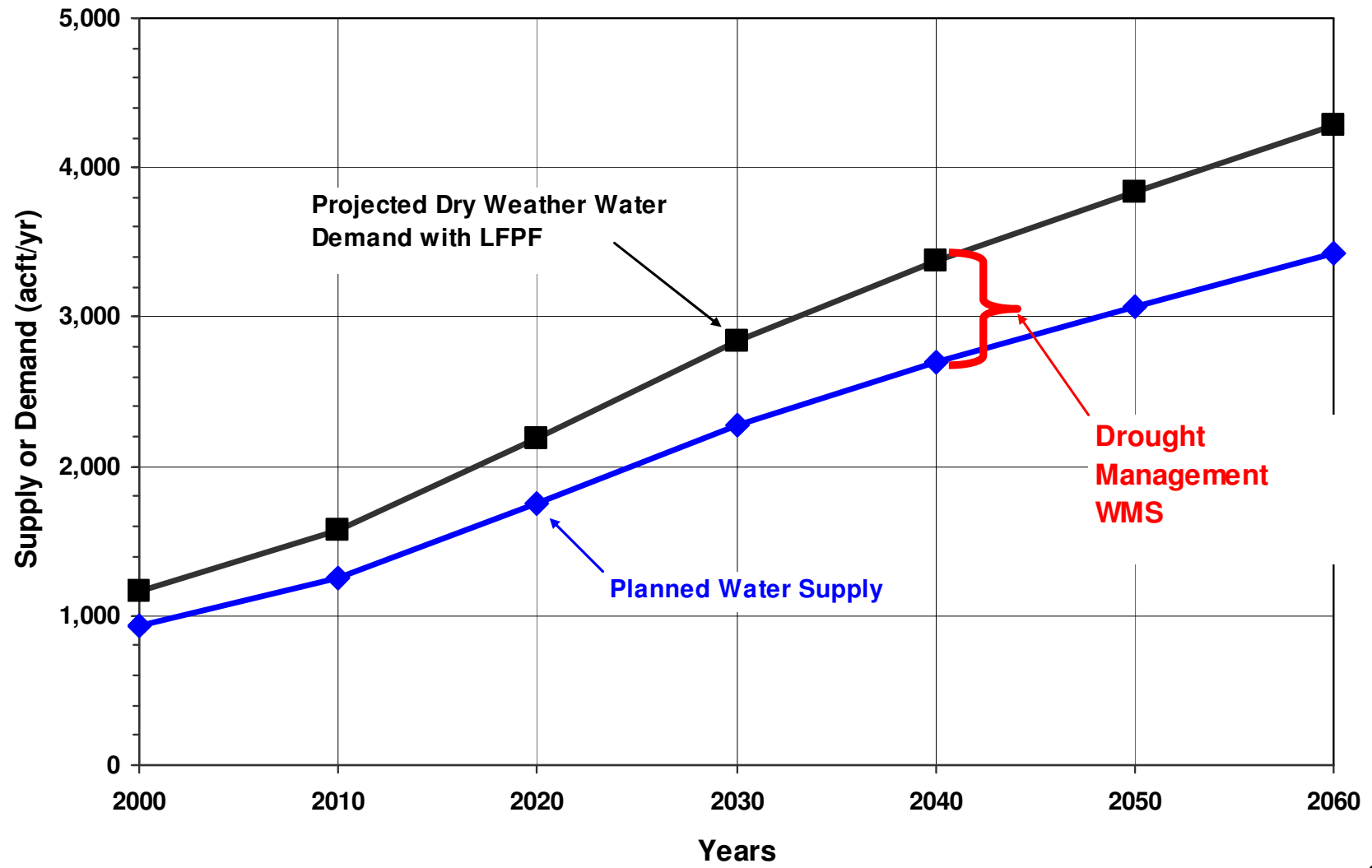
Concepts

- 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

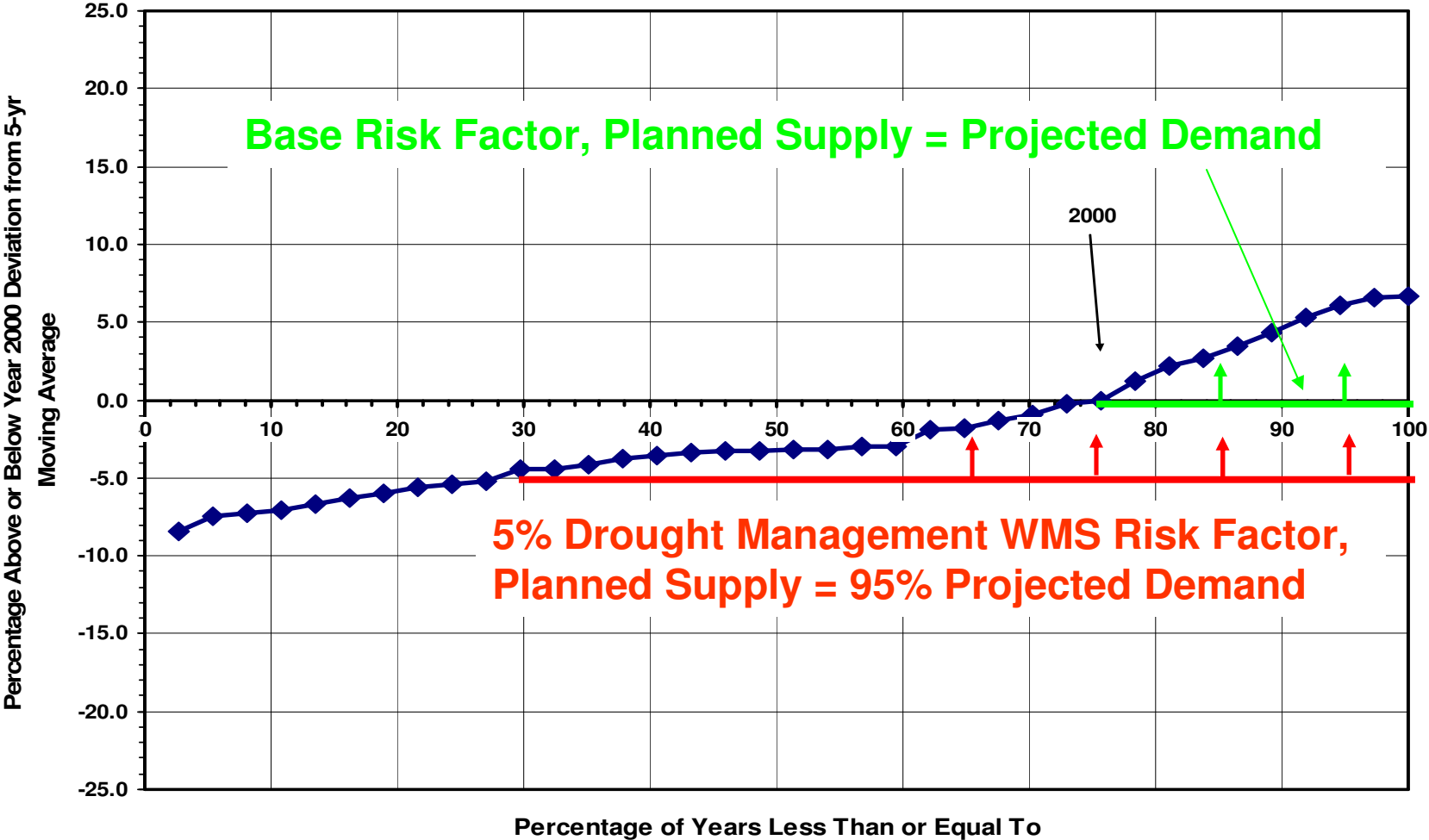


Methodology for Economic Impacts of Drought Management (DM) WMS

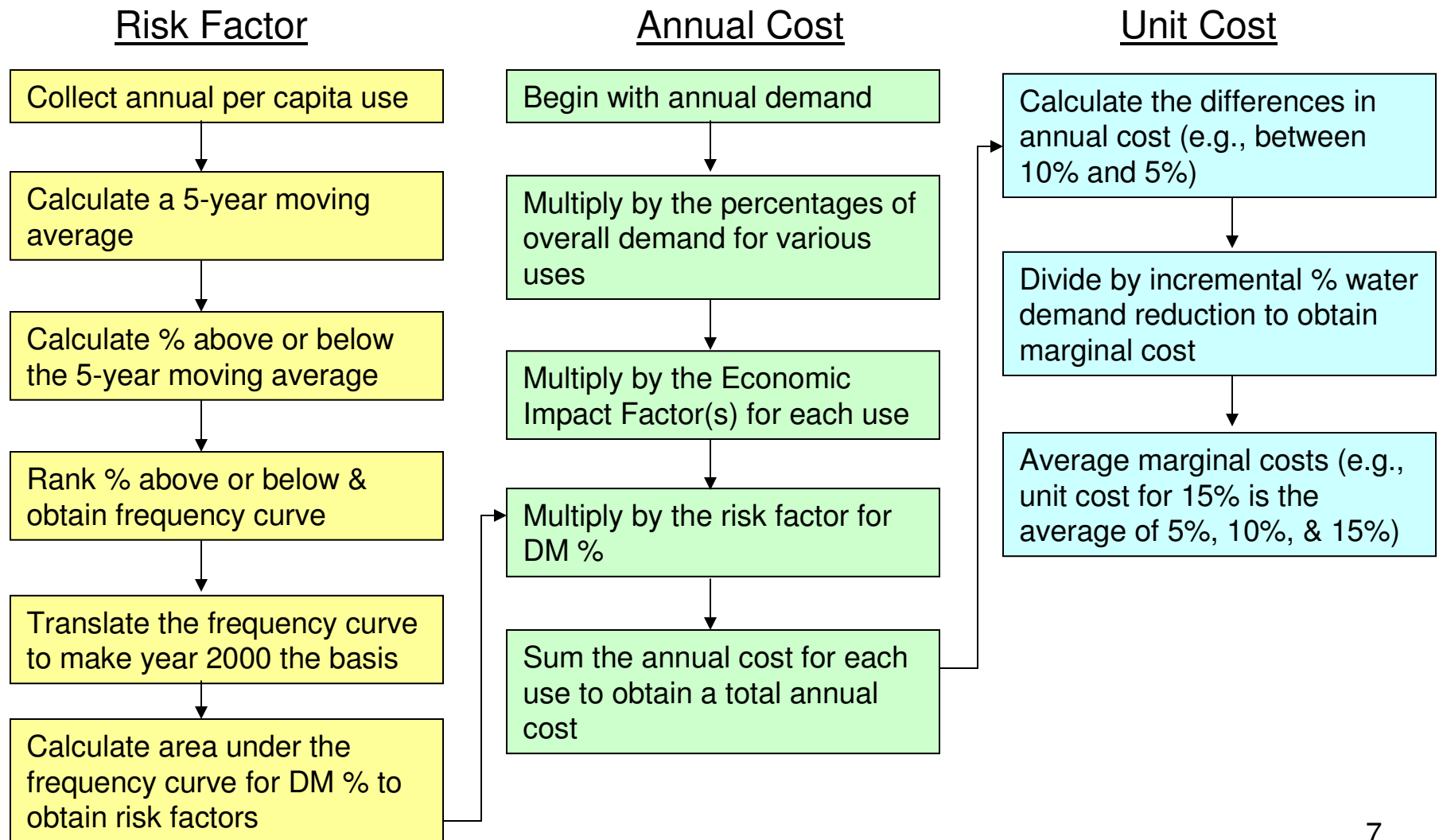
(Demand) X (% Demand by Use) X
(Risk Factor) X (\$ Impact Factor) = DM WMS Annual Cost

- Demand (acft/yr) = Projected “dry year” demand from TWDB based on year 2000 per capita use rate.
- % of Demand = Proportion of water demand associated with various use types (i.e. domestic, commercial, and manufacturing)
- 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, firm supply is less than projected demand.
- \$ Impact Factor (\$/acft) = 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 & wastewater utility revenues; c) Costs to non-water-intensive commercial businesses & households (increasing rate on percent shortage); 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.

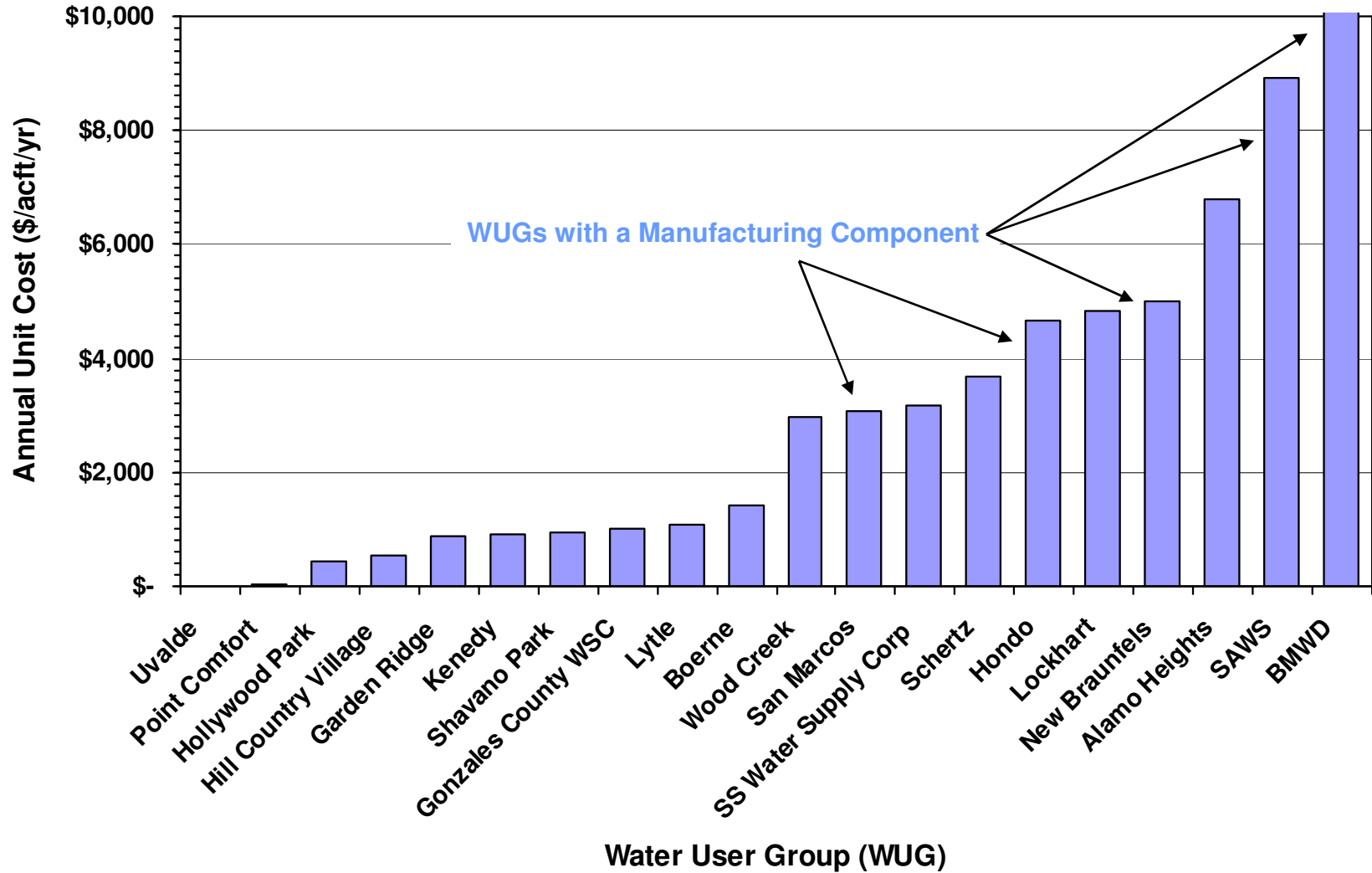
Frequency of Per Capita Water Use Variations Adjusted to Basis of Demand Projections



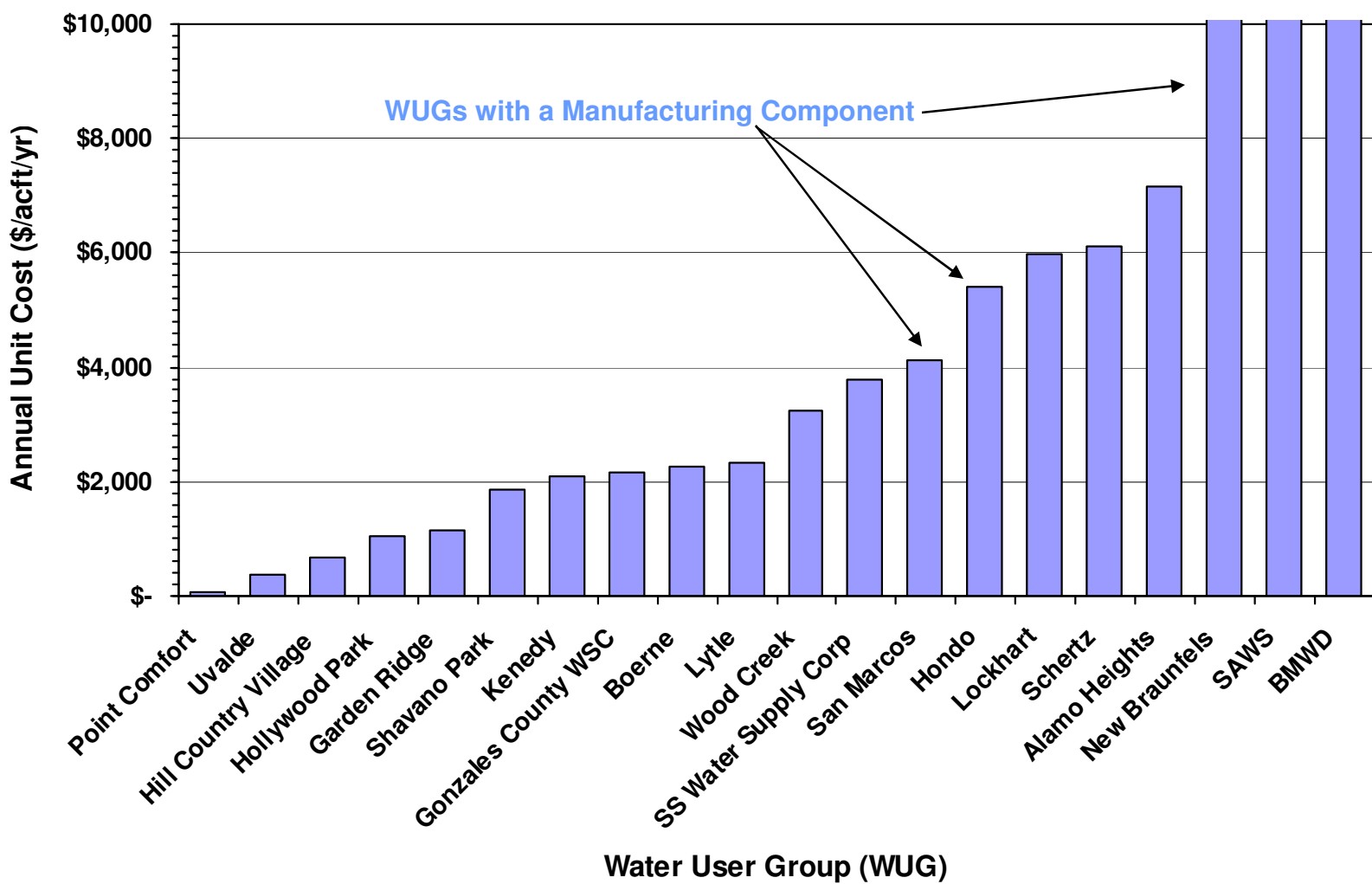
Methodology Flowchart



5% Reduction Drought Management Strategy



15% Reduction Drought Management Strategy



Conclusions

- A reasonable approximate methodology has been developed for estimating the economic impacts associated with implementing Drought Management as a water management strategy.
- Application of this methodology facilitates comparison of Drought Management to other potentially feasible water management strategies on a unit cost basis.
- Drought Management appears potentially economically viable for a very limited number of municipal water user groups in Region L.