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## **Water Conservation Overview**

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Water conservation is increasingly recognized as a key component of water supply strategies in Texas and across the country. Simply put, with a fixed amount of water<sup>2</sup> and a rapidly growing population, we have no choice but to continue to become more efficient in how we use water. As discussed further below, the 2012 State Water Plan contemplates that about 24% of projected water needs in 2060 will be met through improved water conservation. As a general proposition, the percentage of water needs proposed to be met through water conservation has been increasing as updated water plans are prepared. The Water Plan is updated on a five-year cycle and an updated plan will be available soon.

As the level of water conservation projected in the water planning process continues to grow, the actual level of water conservation implemented to meet water needs also must continue to grow. Decisions about implementation of water conservation measures are made primarily at the water supplier level. Individual water suppliers may impose conservation requirements as a condition of water supply contracts or, depending on the nature of the supplier, through local ordinances. There are state-level requirements for various entities to develop water conservation plans but, as a general proposition, the contents, and extent of implementation, of those plans are, at least in practice, largely left to the discretion of the individual supplier.

This paper provides an overview of the requirements for, and progress in, consideration of active water conservation measures, and drought contingency measures, in the water planning process and highlights key water conservation requirements in the surface water permitting process and the potential for more effective implementation of those requirements.

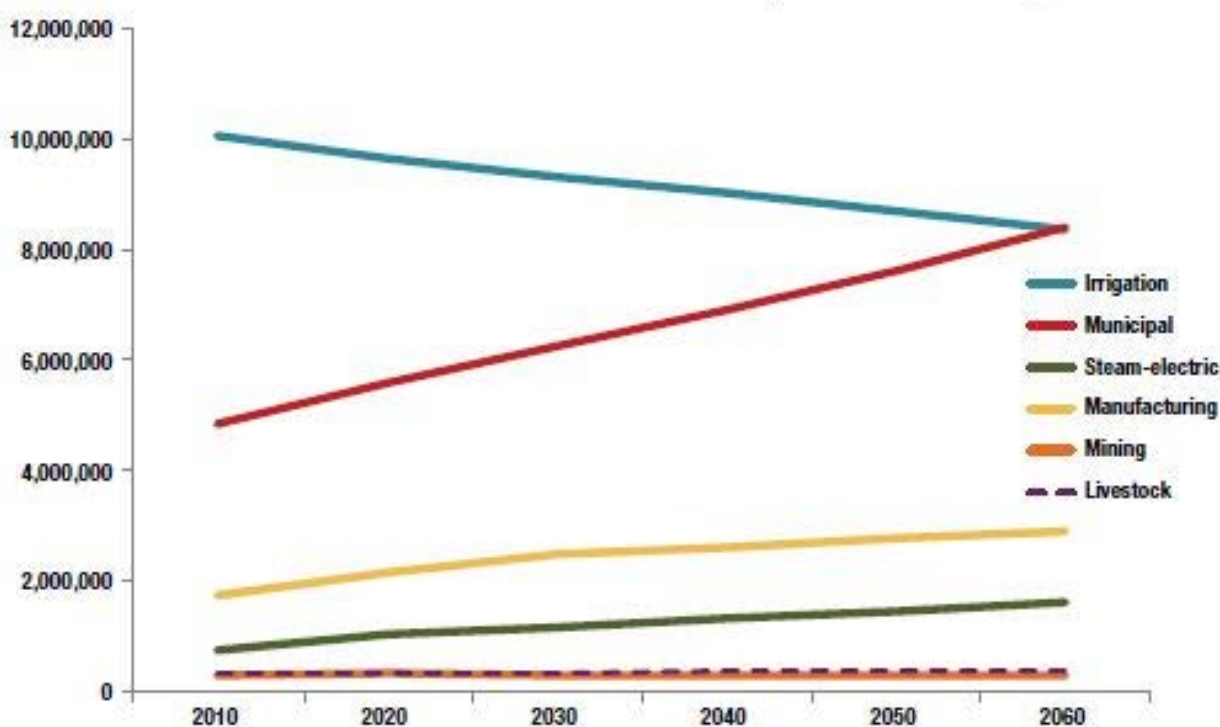
### **Water Conservation and Drought Contingency Considerations in Water Planning.**

As illustrated by Figure 3.6, which is reproduced below, from the 2012 State Water Plan, the two largest demand categories for water use in Texas are irrigation and municipal use. While irrigation demand is projected to decrease, municipal demand is expected to increase rapidly and dramatically. Manufacturing and steam-electric (*i.e.*, power generation) demands also are projected to increase significantly, but those demands are much smaller in scale than the irrigation and municipal categories. Active water conservation measures represent one way that water demands can be met. Water demands represent total projected use within a category. By contrast, water needs represent the amount of demand that is not expected to be met from existing supply sources. Recommended water management strategies are developed to meet projected needs and, in fact, in many regions, the amount of supply projected to be produced by recommended management strategies greatly exceeds the actual projected need.

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<sup>2</sup> One exception to the concept of a “fixed” water supply is desalination, particularly desalination of seawater. Although it does not result in an increase in the amount of water on the planet, desalination does have the potential to make much more of that water suitable for consumption and other uses. However, desalination has significant challenges, particularly related to energy requirements and disposal of reject water. Seawater desalination projects, if not sited correctly, also can cause significant deleterious effects by sucking up and killing large numbers of aquatic organisms, processes referred to as impingement and entrainment. As legislation passed in 2015 illustrates, desalination is getting increasing focus as a water supply option in Texas. See, e.g., H.B. 2031 at <http://www.capitol.state.tx.us/tlodocs/84R/billtext/pdf/HB02031F.pdf#navpanes=0> and H.B. 4097 at <http://www.capitol.state.tx.us/tlodocs/84R/billtext/pdf/HB04097F.pdf#navpanes=0>.

**FIGURE 3.6. WATER DEMAND PROJECTIONS BY USE CATEGORY (ACRE-FEET PER YEAR).\***



\*Water demand projections for the livestock and mining water use categories are similar enough to be indistinguishable at this scale.

*For those viewing this paper in black and white, the top line in Figure 3.6, with the downward trend, represents irrigation use; municipal use is next starting at about 4,500,000 acre-feet and showing a sharp upward trend; manufacturing use is the third line from the top, which starts at slightly less than 2,000,000 acre-feet; steam-electric is represented by the fourth line from the top; and mining and livestock uses align almost on top of one another near the bottom of the figure.*

Figure 7.2, also reproduced below, from the 2012 State Water Plan illustrates the relative role projected to be played by various types of recommended water management strategies, including water conservation, in 2060. Water conservation is represented by sector, with water conservation for agricultural irrigation representing 16.7% of recommended water management strategies. Water conservation for municipal use represents 7.2% of total strategies and water conservation for all other use categories represents 0.3% of all recommended water management strategies. One important point within the realm of water conservation is that in the water planning process, active water conservation measures<sup>3</sup> are treated as water supply strategies to be implemented to meet identified needs rather than as a mechanism for reducing demand. Passive conservation measures, such as increased efficiency expected to occur automatically when old dishwashers and clothes washers wear out and are replaced with newer models which are required by law to be more efficient than older models, generally are taken into account in developing projections of water demand.<sup>4</sup> The passive measures are treated as a mechanism to reduce demands. That is also true for installation of new high efficiency toilets and

<sup>3</sup> In the planning process, active measures refer to conservation activities that are implemented through affirmative measures. Examples include conservation education programs, ordinances limiting outdoor watering, and rebates for replacement of inefficient plumbing fixtures.

<sup>4</sup> Entities can take specific measures to speed up the incorporation of new plumbing fixtures and higher efficiency appliances and such measures, such as rebate programs, are treated as active water conservation measures.

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