



Nora Mullarkey, Lower Colorado River Authority

Water Use and Conservation

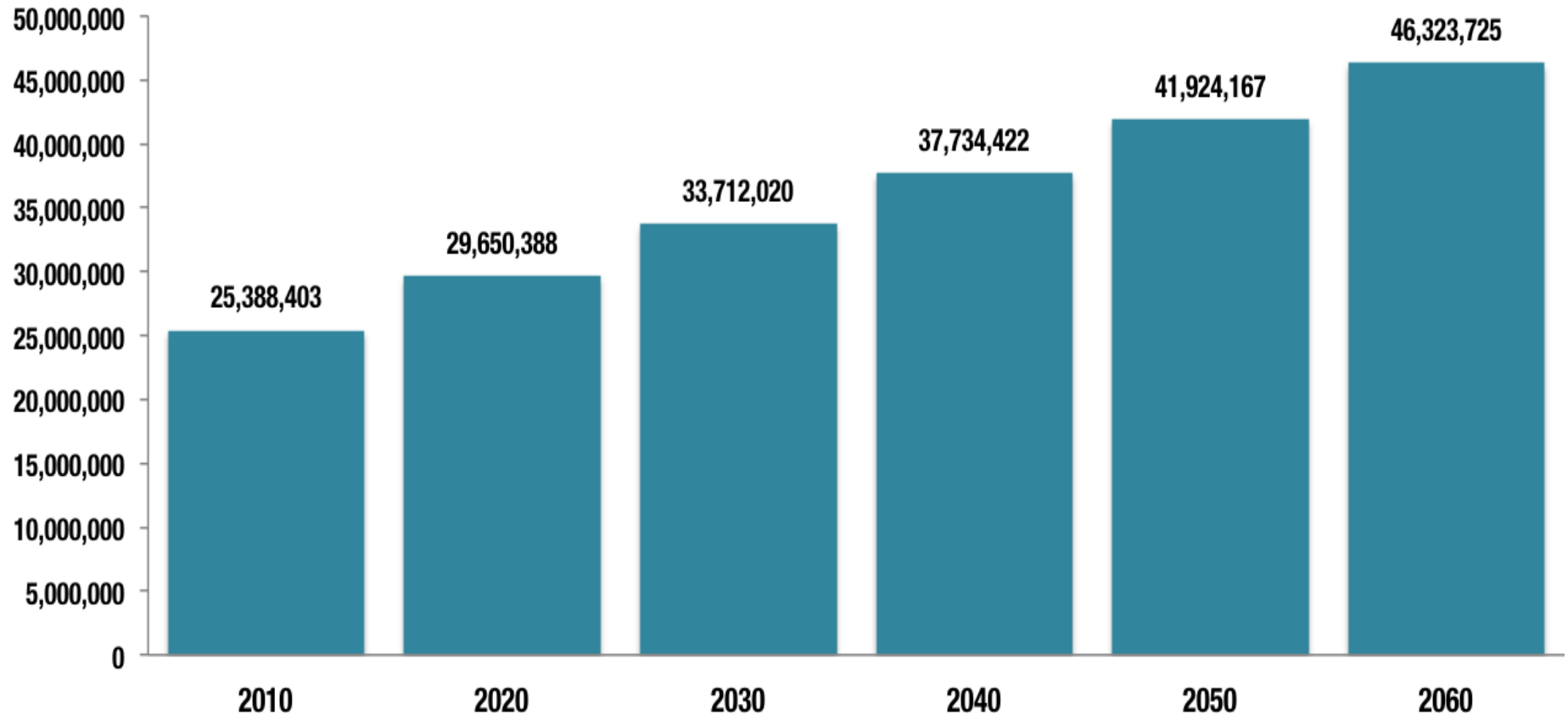
Grow Green Landscape Professional Training

January 23, 2013

Water Use and Conservation

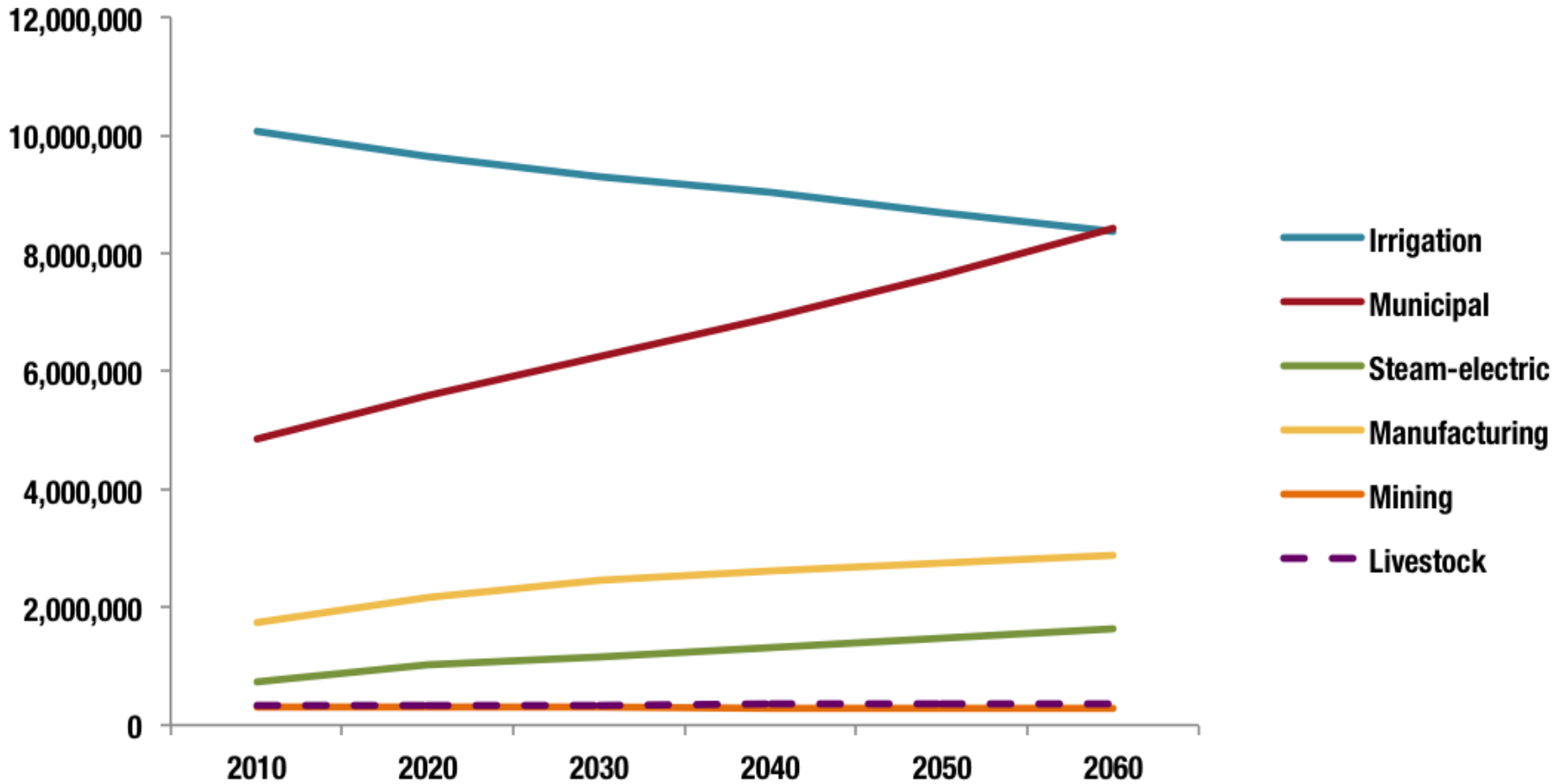
- Summary of State and Regional Water Plans
- How much water do we use?
- Utilizing water conservation techniques in the landscape

Projected Texas Population



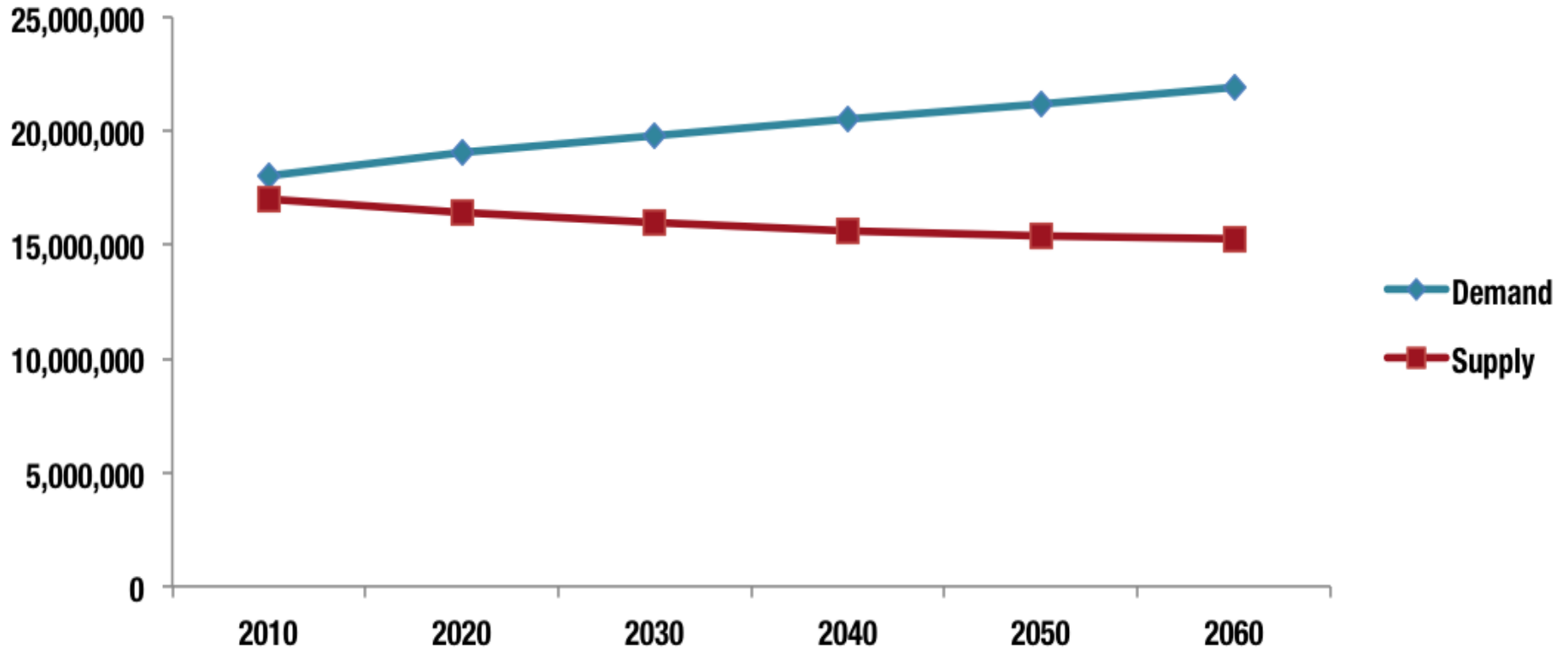
Source: Texas Water Development Board. ***Water for Texas. 2012 State Water Plan.***

Water Demand Projections by Category



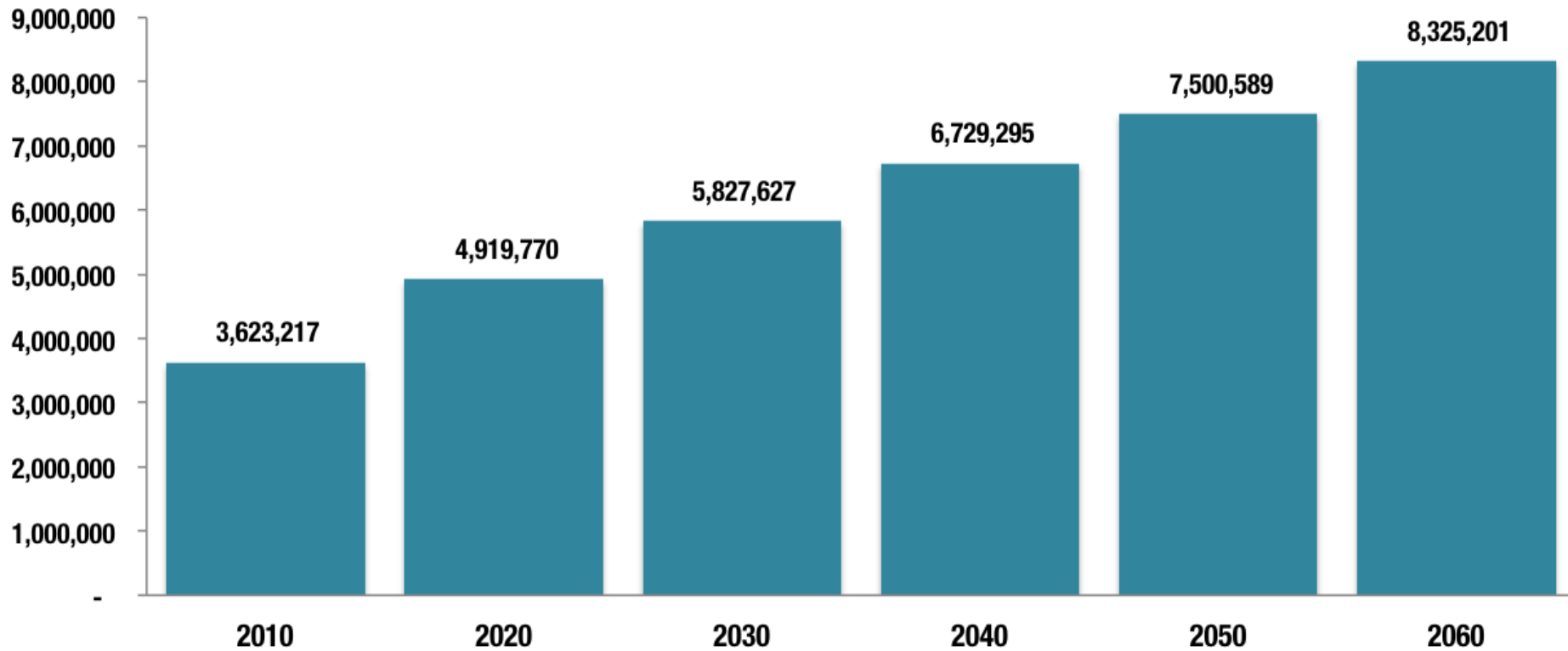
Source: Texas Water Development Board. *Water for Texas. 2012 State Water Plan.*

Projected Water Demands and Existing Supplies



Source: Texas Water Development Board. *Water for Texas. 2012 State Water Plan.*

Projected Need for Additional Water in Times of Drought



Source: Texas Water Development Board. *Water for Texas. 2012 State Water Plan.*

Water Conservation in State Planning

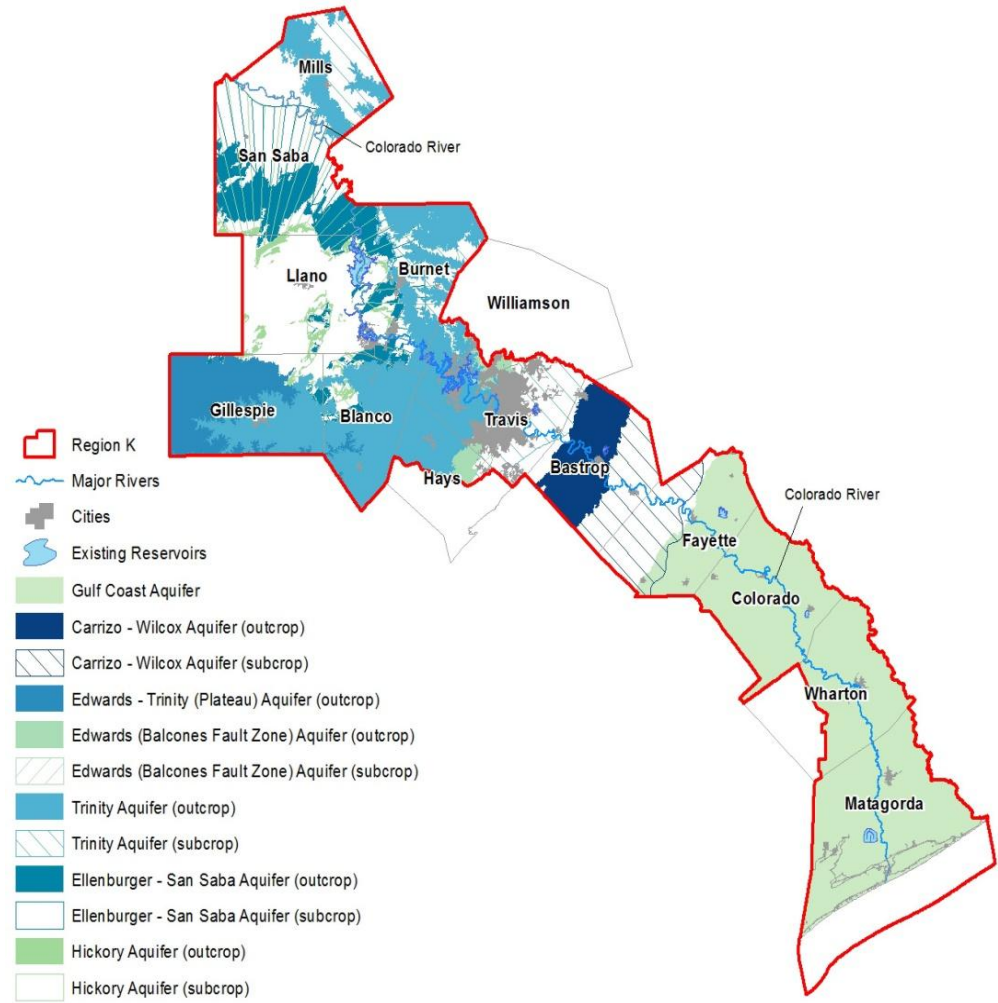
- Produce 767,000 acre-feet (35%)
- Produce 2.2 million acre-feet (all strategies)



Source: Texas Water Development Board. ***Water for Texas. 2012 State Water Plan.***

Lower Colorado (K) Region: 2010-2060

- 2,832,000 population (100% increase)
- 295,584 ac-ft more water needed
- Capital cost \$907 million



Source: Texas Water Development Board. ***Water For Texas: Summary of the 2011 Regional Water Plans.***

Region K

Water Conservation and Reuse

- 2010
 - 14,498: municipal and industrial conservation
 - 4,000: agricultural conservation
 - 11,458: wastewater reuse
- 2060
 - 76,594: municipal and industrial conservation
 - 59,150: agricultural conservation
 - 58,783: wastewater reuse
- Additional conservation and reuse:
 - ***164,571 ac-ft (56% of new water supply)***

Source: Texas Water Development Board. ***Water For Texas: Summary of the 2011 Regional Water Plans.***

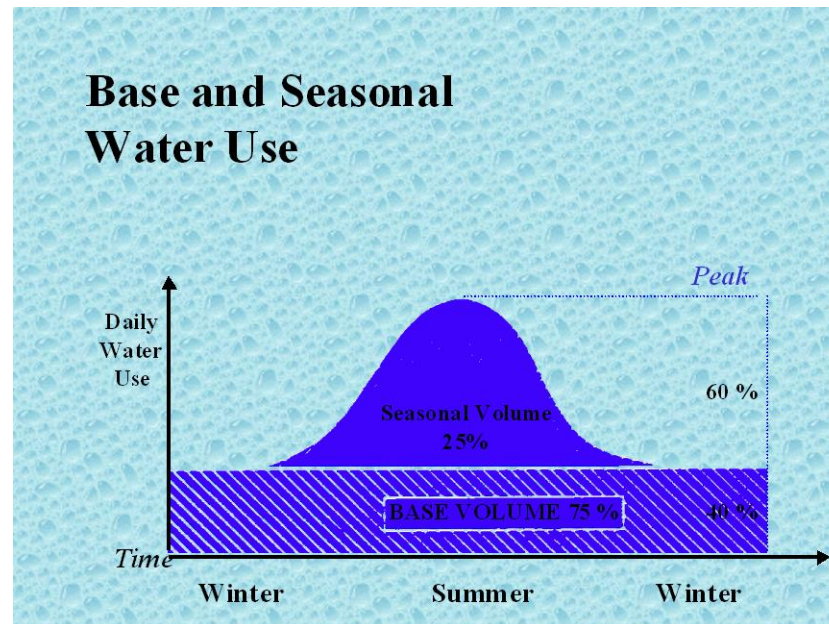
Water Use Facts

- In 1955:
 - Rural homes without running water: 10 gals/person/day
 - Newly “electrified” homes, with water pulps: 60 gals/person/day
- Today: 100 gals/person/day at home.
- Last 100 years:
 - World population up by factor of 4.
 - Water use has gone up by factor of 7.

Source: Fishman, Charles. *The Big Thirst. The Secret Life and Turbulent Future of Water.*

Closer to Home

- Statewide water conservation goal: 140 gpcd.
- Austin: 162, dropped from over 220 in the 1980s.



Landscape Water Use

- 2,500 - 3,000 gallons used each time to water suburban home landscape
- Lawns typically overwatered 20 - 30%
- Automatic sprinklers use about 2 times as much water as “hose draggers”



AWWA Sprinkler Study - 1999

- ◆ 1,129 homes studied in 14 cities around the country.
- ◆ Results:
 - ◆ Manual – 21.7 inches
 - ◆ Automatic – 36.3 inches
 - ◆ All homes – 30 inches



EPA New Home Study 2009*

- Focus: homes built before and after 2001 (9 cities)
- Less water - Phoenix and Las Vegas
- About the same - Denver and Aurora
- More water - Eugene, Roseville, Salt Lake City, St. John's River, Tampa

* Study can be found at www.aquacraft.com

Why is Water Use Higher with Automatic Sprinklers?

- System design?
- Irrigation Controller?
- Lack of knowledge?
- Technology?
- Leaks?



U.S. Drought Monitor

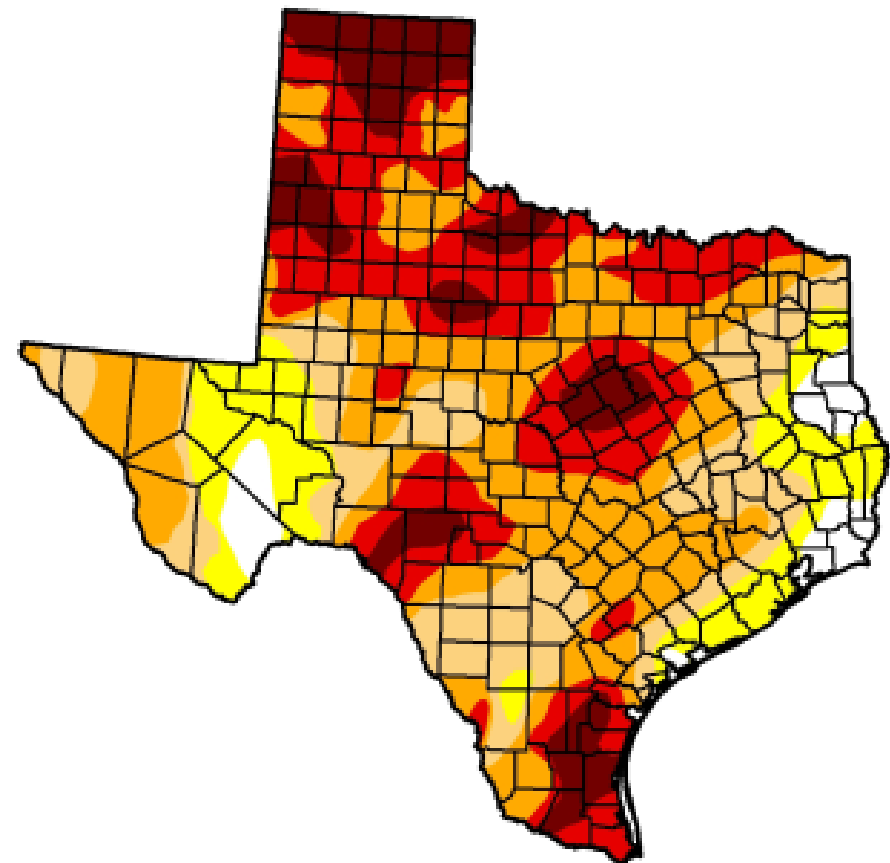
January 8, 2013

Valid 7 a.m. EST

Texas

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.29	95.71	83.78	65.85	34.79	11.41
Last Week (01/01/2013 map)	3.04	96.96	87.00	65.39	35.03	11.96
3 Months Ago (10/09/2012 map)	16.50	83.50	65.38	31.79	15.88	3.23
Start of Calendar Year (01/01/2013 map)	3.04	96.96	87.00	65.39	35.03	11.96
Start of Water Year (09/25/2012 map)	9.13	90.87	78.73	57.41	24.91	5.18
One Year Ago (01/03/2012 map)	0.01	99.99	97.83	84.81	67.32	32.40

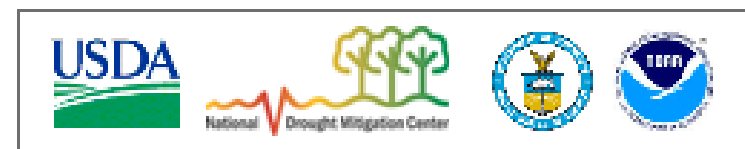


Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, January 10, 2013
David Simeral, Western Regional Climate Center

Landscape Watering Restrictions

- Time of day:
 - Varies, usually no watering from 10 a.m. to 7 p.m.
- Days of the week:
 - Twice a week – some consistency
 - Once a week – varies due to system capacity issues
- Other limitations:
 - Certain plants, sometimes new landscapes, not allowed

Irrigation Evaluations

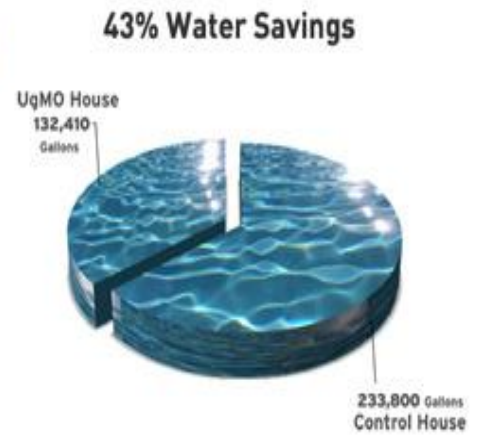
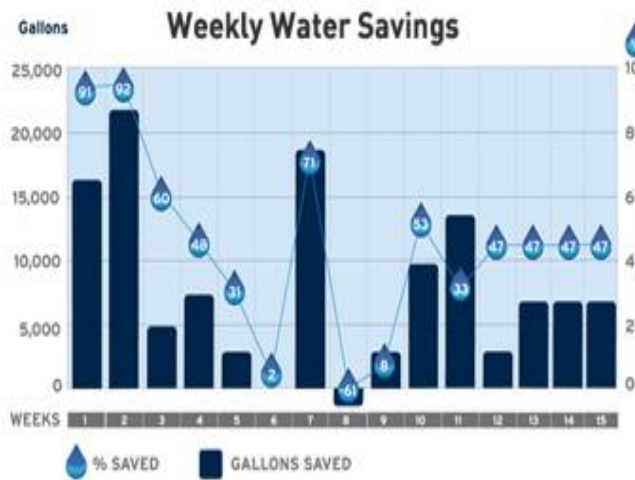
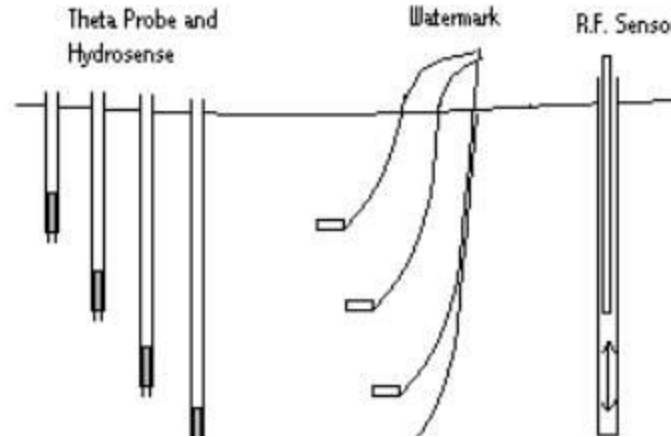


Pressure Regulating Spray Heads



Pressure (PSI)	Water Loss Multiplier
30	0.00
35	0.08
40	0.16
45	0.23
50	0.29
55	0.35
60	0.41
65	0.47
70	0.53

Soil Moisture Sensors



Water Savings	43%	Monthly Savings	\$122
Gallons Saved	101,000	Total Savings	\$549

TCEQ Irrigation Standards*

- Sets new irrigation standards for licensed irrigators
- Community responsibility:
 - Cities over 20,000 population must adopt landscape rules at least as stringent as TCEQ Rules
 - Water Districts may adopt
 - Allows cities and districts to charge a fee to cover costs of program.

* Title 30, Texas Administrative Code. Chapter 344 Landscape Irrigation.

TCEQ Irrigation Standards*

- Must be a licensed irrigator
- Sprinkler heads according to manufacturer
- Proper pressure
- Spray water only on landscape areas
- Rain or moisture shutoff device
- Install isolation valve to turn off water in case of leaks
- Appropriate backflow device
- Plan and irrigation schedule

* Title 30, Texas Administrative Code.
Chapter 344 Landscape Irrigation.



More information?

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