

Lessons Learned through Experience



*April 4, 2013
Metropolitan Washington Council
of Governments Drought Workshop*

Overview

- Fort Worth Water System overview
- Water Supply Planning in Texas
- Experience with Restrictions
- Lessons learned from previous experiences
- Next Steps

Whiskey is for drinking.

Water is for fighting.

-- Mark Twain



When the well is dry, we
know the worth of water.

-- Benjamin Franklin



Mission Statement

To provide safe and reliable water and wastewater service with environmental integrity.

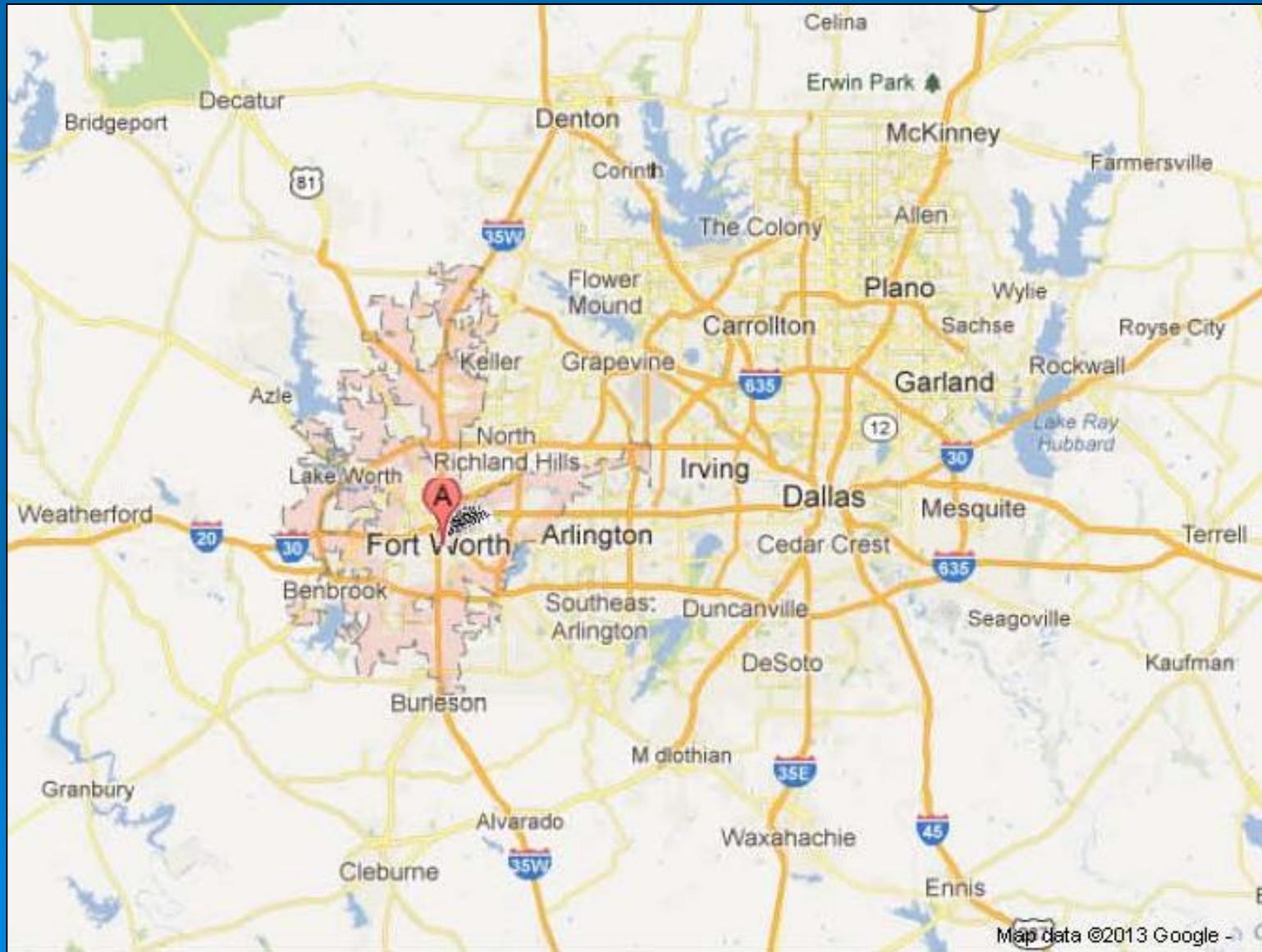


Fort Worth Water System Assets

- Operate three systems:
 - Water
 - Wastewater
 - Reclaimed water
- Council authorized and franchised Fort Worth Water Works Company - 1882
- Private system was municipalized in 1885



Fort Worth-Dallas Metroplex

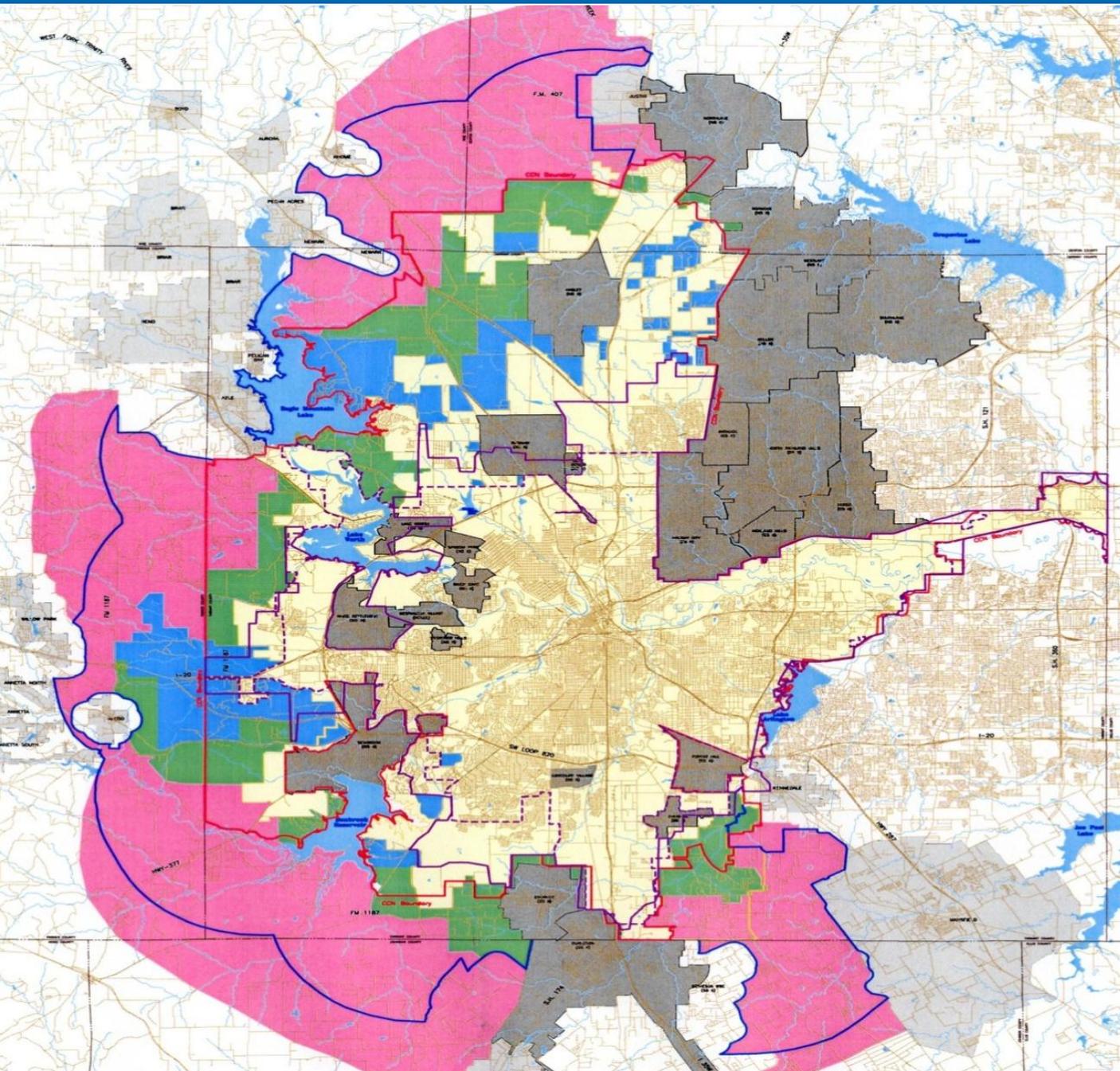


Fort Worth Water Service Area

349.2 square miles in city limits

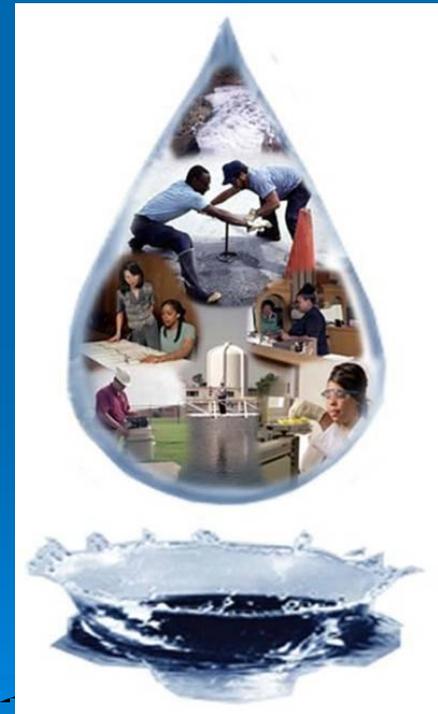
307.8 square miles in ETJ

436.2 square miles in CCN area



Fort Worth Water System Assets

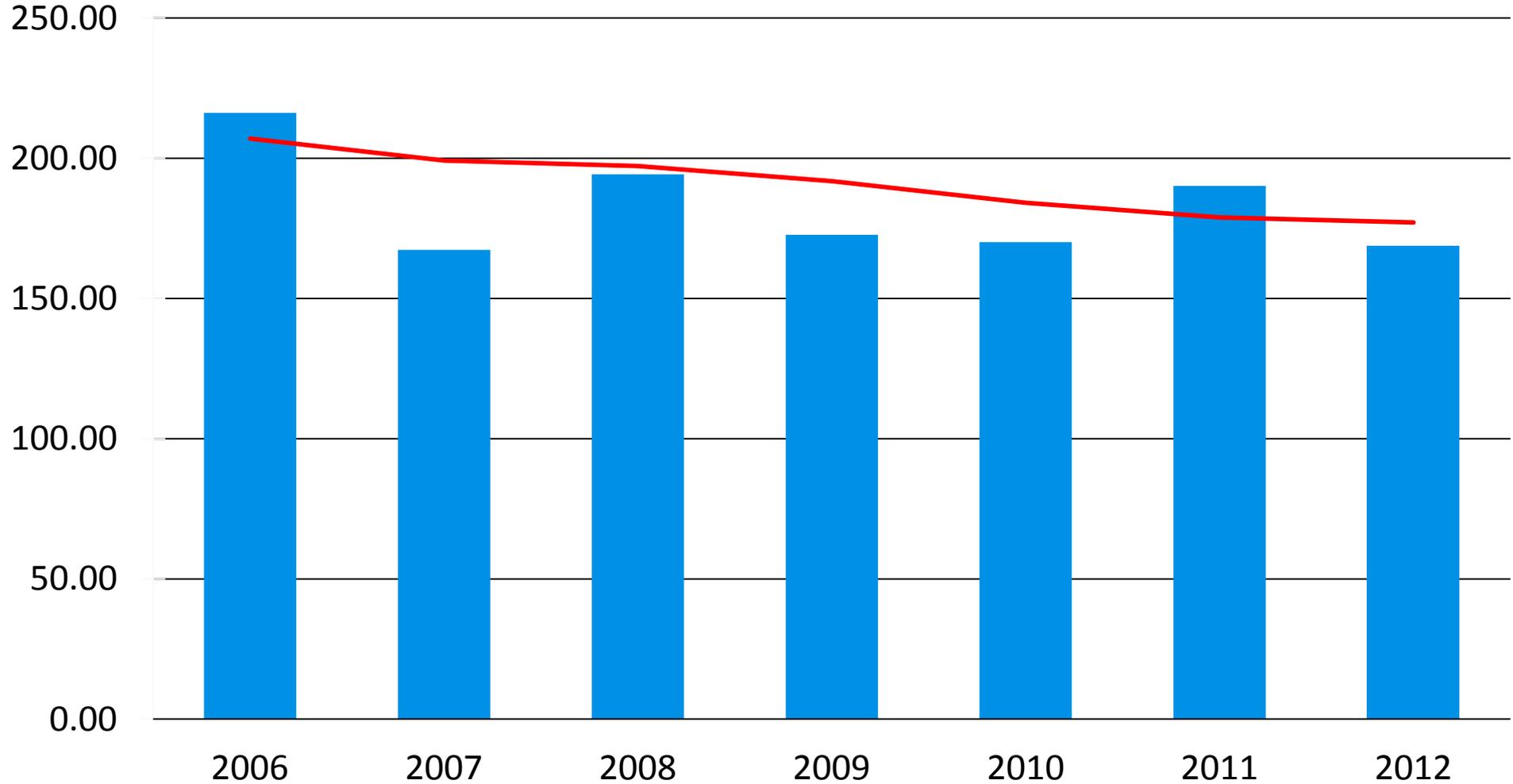
- 5 Treatment plants (497 MGD)
- 3,454 miles of water mains (4" to 72")
- Pump stations
 - 22 Booster
 - 7 High Service
 - 3 Raw Water
- 26 storage tanks (90 MG)
 - 15 ground storage
 - 11 elevated storage

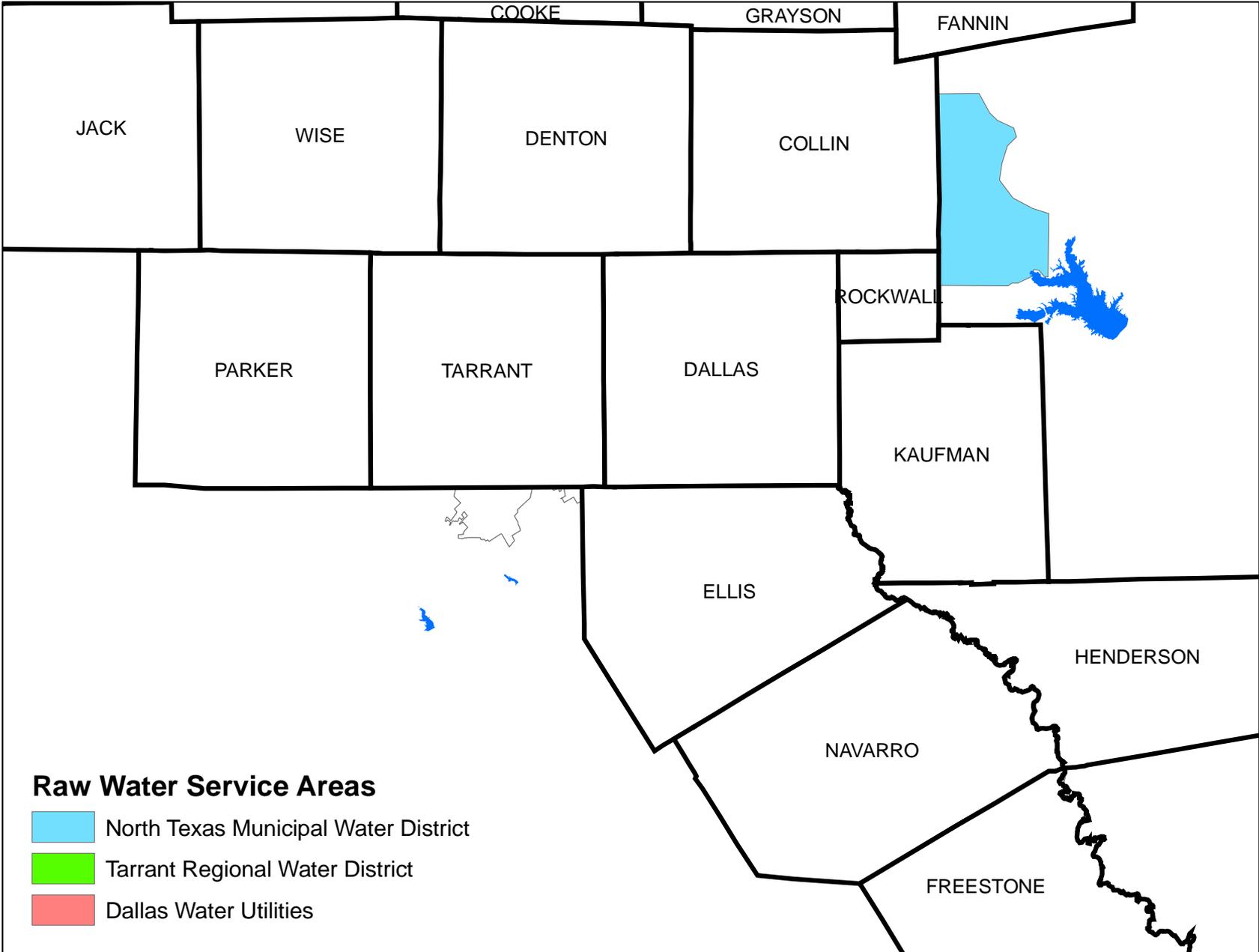


Population

- 757,810 in Fort Worth
 - 69 percent increase since 1990
 - 41 percent increase since 2000
- 347,542 in wholesale customer cities and other entities serving Tarrant, Johnson, Parker and Denton counties

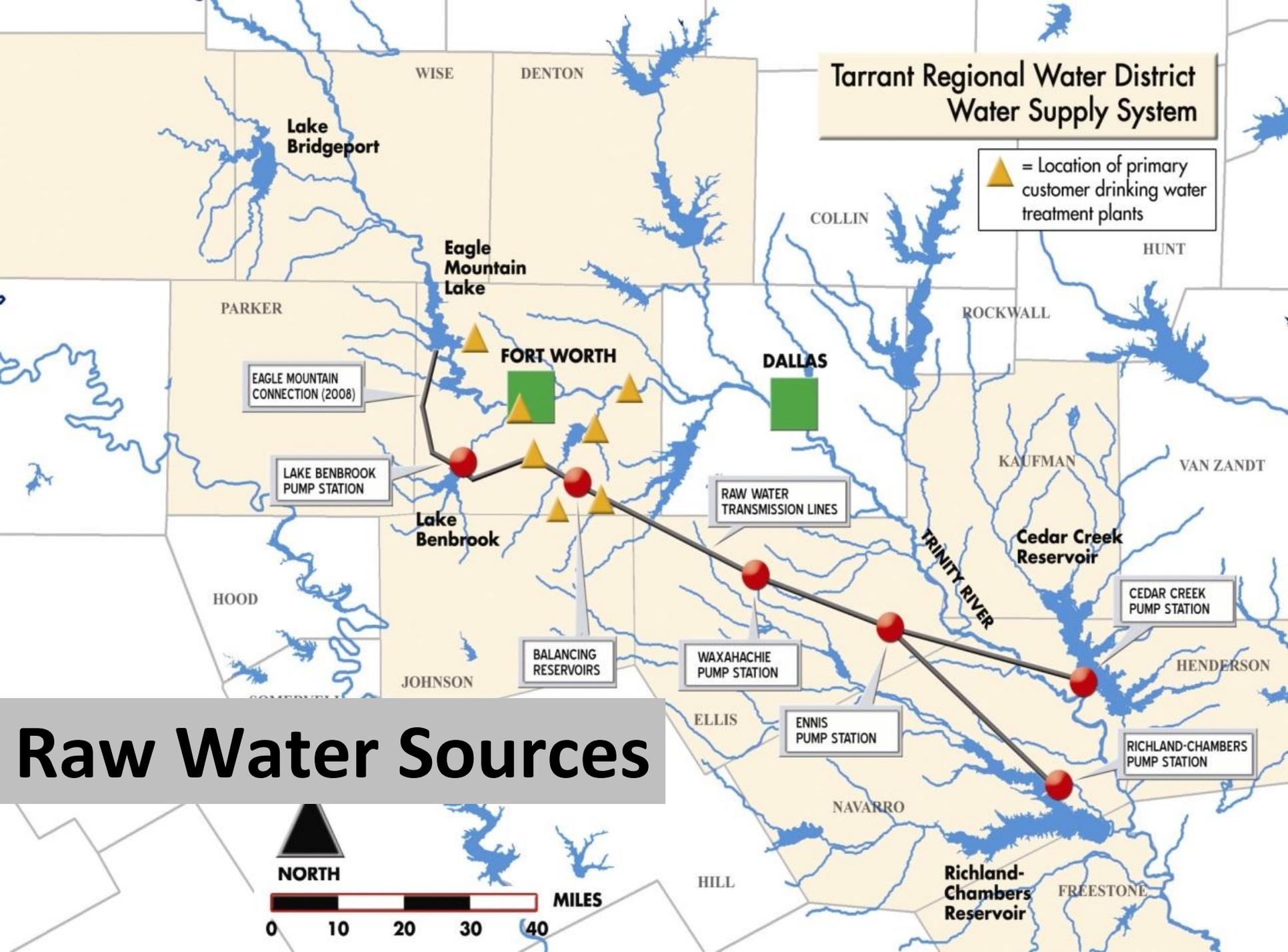
Fort Worth GPCD



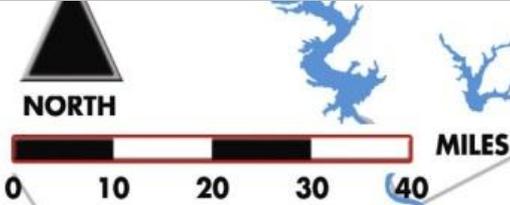


Tarrant Regional Water District Water Supply System

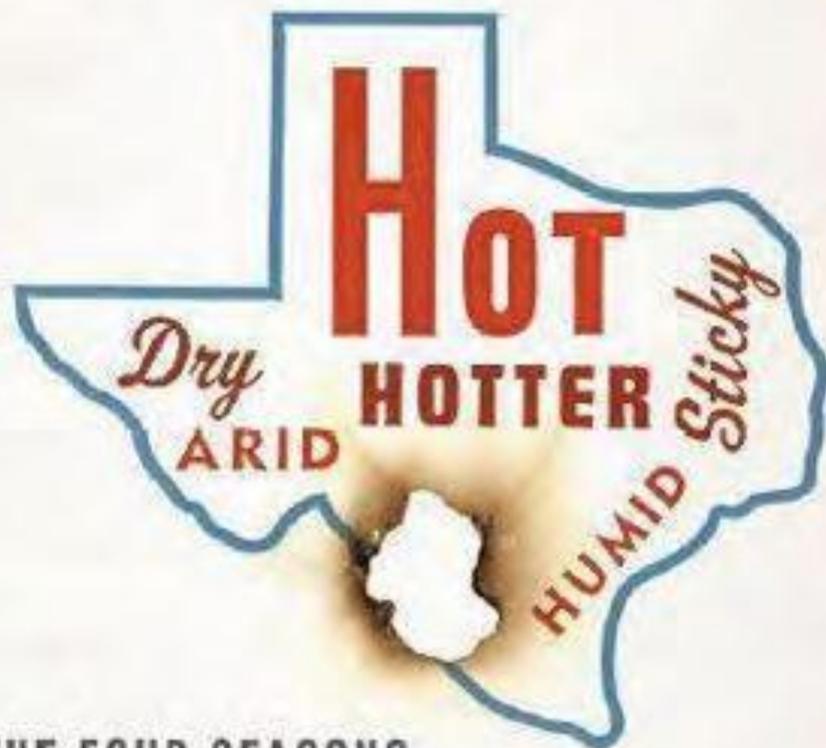
▲ = Location of primary customer drinking water treatment plants



Raw Water Sources



A CRASH COURSE IN
TEXAS WEATHER



THE FOUR SEASONS



JANUARY



SUMMER



SUMMERER



CHRISTMAS

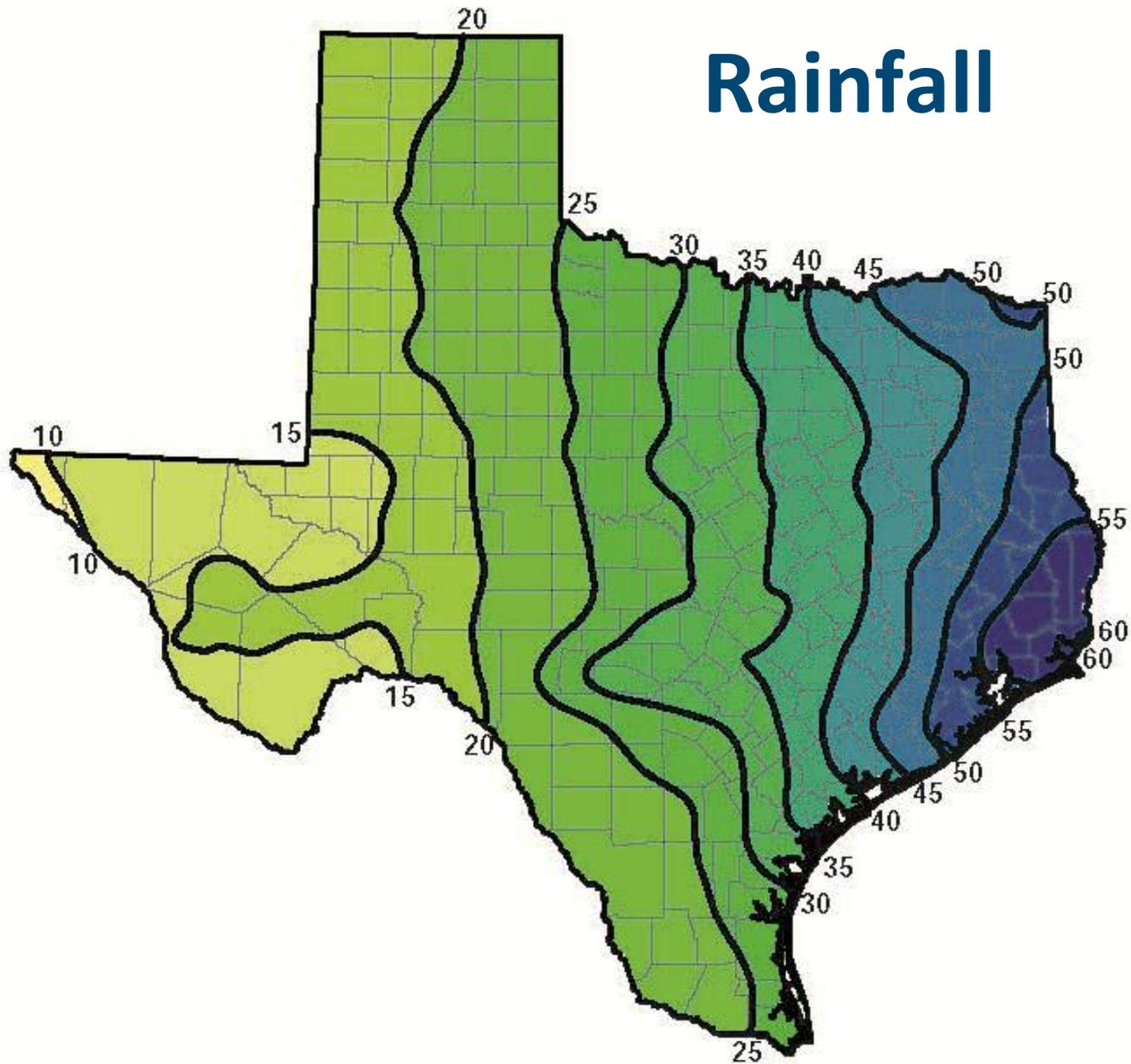
Water Supplies in Texas

- Only one natural lake
- 1913 - Only eight lakes (including Lake Worth)
- 1998 - 6,736 reservoirs had been constructed, including 203 major lakes.

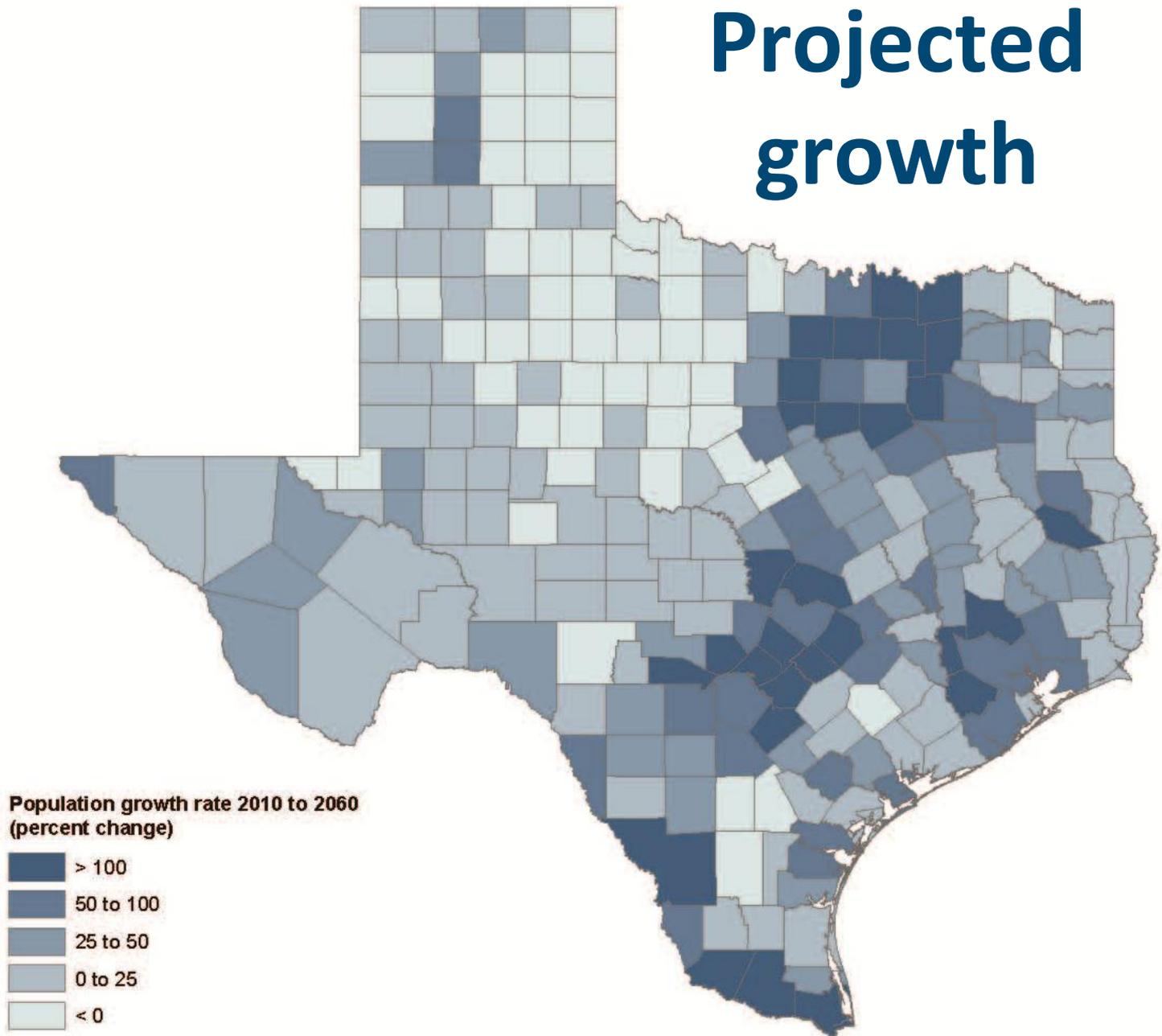
Drought of 1950s



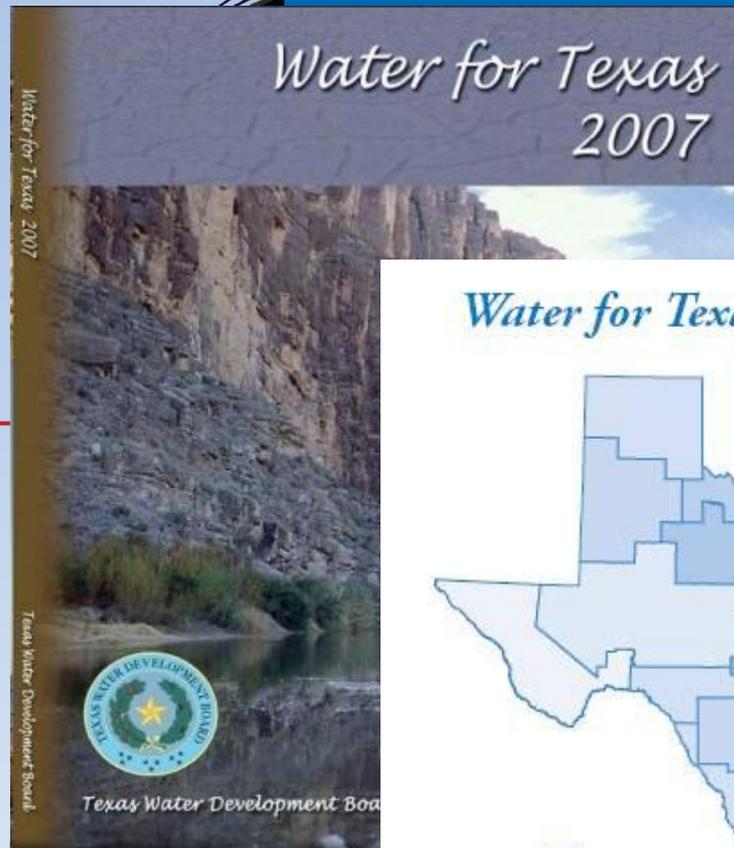
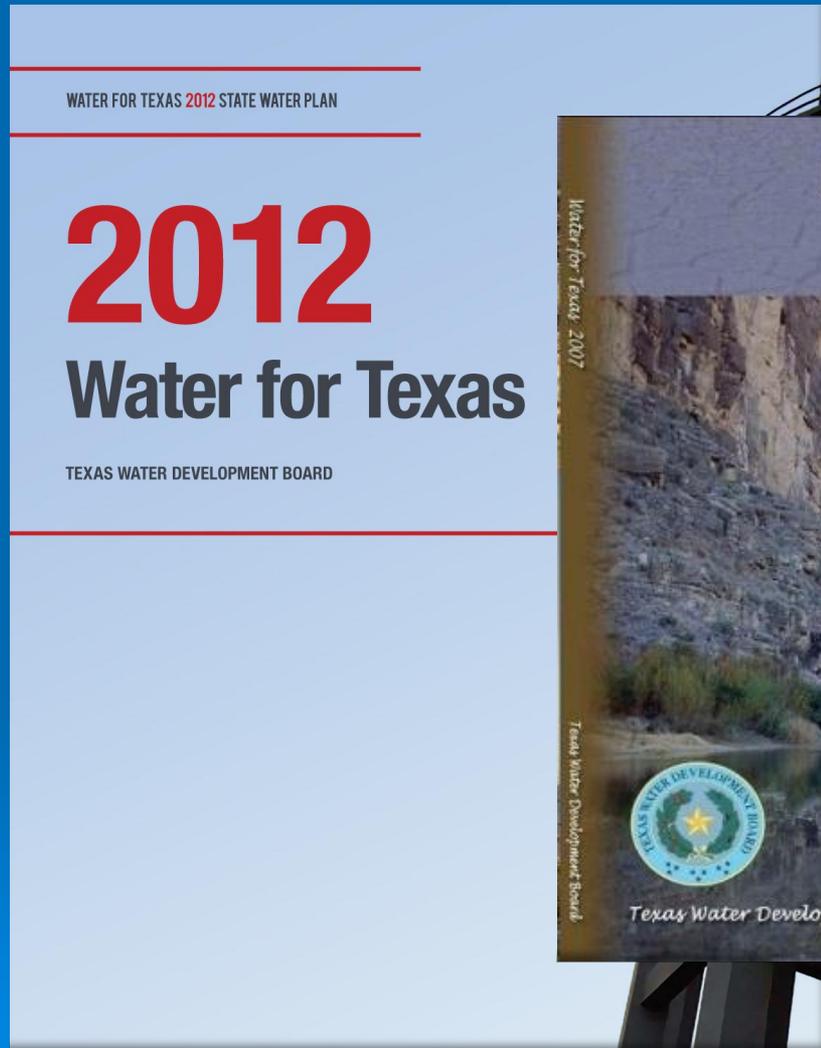
Rainfall



Projected growth



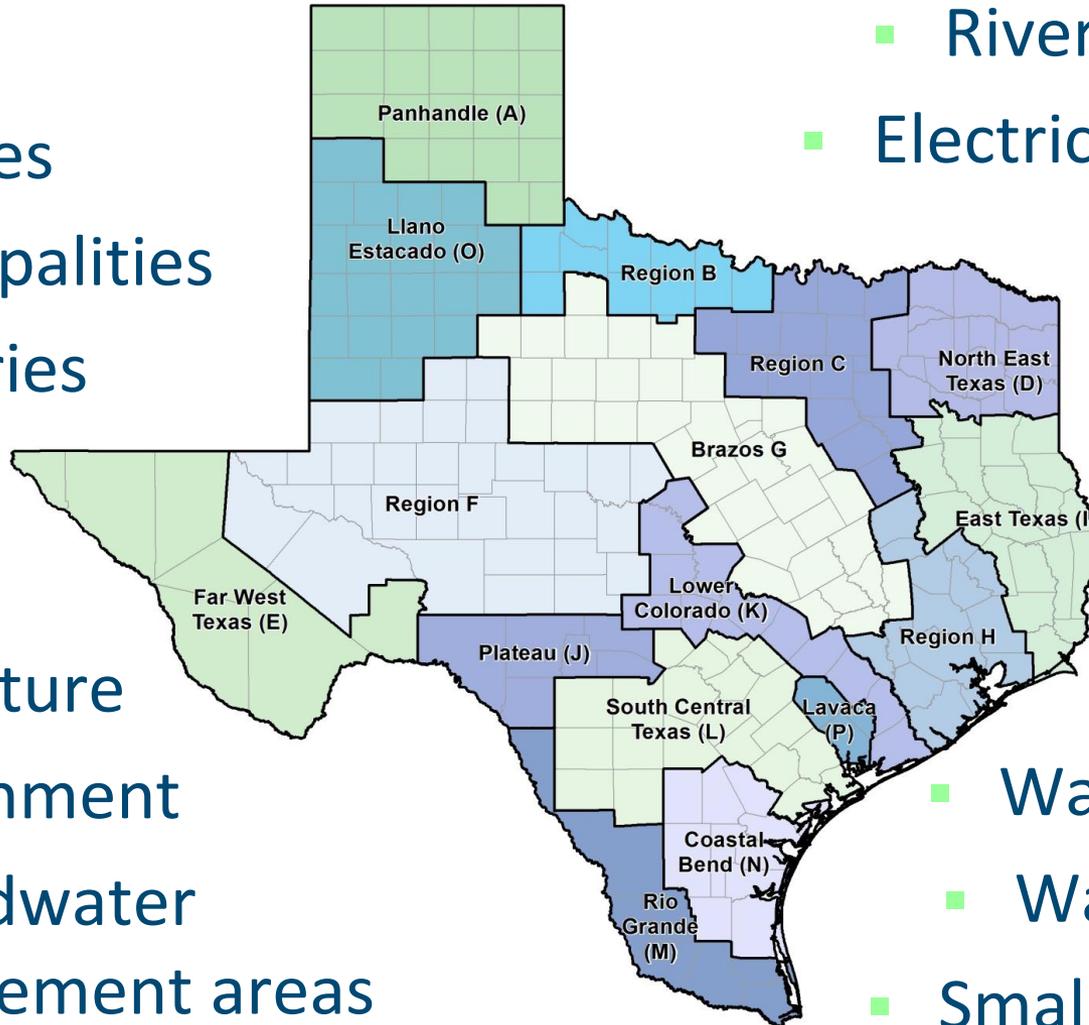
Regional water planning



Regional water planning: 12 interests

- Public
- Counties
- Municipalities
- Industries

- Agriculture
- Environment
- Groundwater management areas



- River authorities
- Electric-generating utilities

- Water districts
- Water utilities
- Small businesses

Planning assumptions

- Meet drought of record water needs
- 50-year planning horizon
- 5-year planning cycle
- Categories of water use: municipal, manufacturing, irrigation, mining, livestock, steam-electric power
- Public participation

2011 Texas Records

- Worst one-year drought on record
- Driest period on record
- Hottest period on record
- Statewide reservoir storage lowest since 1978 at <60%
- Ag losses at \$7.62 billion
- ~ 4 million acres burned by wildfires
- Rivers with first-time calls on water rights

State Requirements

➤ Water Conservation Plan

- Promote efficient use of water all the time
- Ongoing effort even in times of plentiful supply

➤ Drought Contingency /Emergency Water Management Plans

- Water use restrictions that take effect when a trigger is reached
- Usually short-term
- Trigger could drought situation or system failure

Fort Worth's Experience with Restrictions



- 1998 – 36-inch cast iron main breaks on July 23
- 1998 – 90-inch raw water supply line bursts on Aug. 2
- 2005 – 54-inch transmission main ruptures on June 23
- 2011 – Aug. 29 reached Stage 1 Drought trigger

Evolution of Emergency Water Management Plans

- 1998 – no plan - or a very poor one
- 2004 – Texas Commission on Environmental Quality adopts rule changes that set requirements
- 2005 – adopt plan that is coordinated with our wholesale customers
- 2008 – adopt plan that is coordinated with raw water supplier, its other major customers and our wholesale customers

Lessons Learned

- To obtain compliance, entire area need to be on the same page to easily communicate restrictions
- Voluntary stages are useless
- Odd/Even schedule increases water use
- Ongoing education is essential

Lessons Learned

- Ongoing education is essential
- Don't single out certain businesses
- Encourage more efficient irrigation methods through requirements
- Enforcement measures are important
 - Warnings
 - Citations vs. fees

Unresolved Questions

- How do you measure success of the plan?
- When do you come out of a Stage?

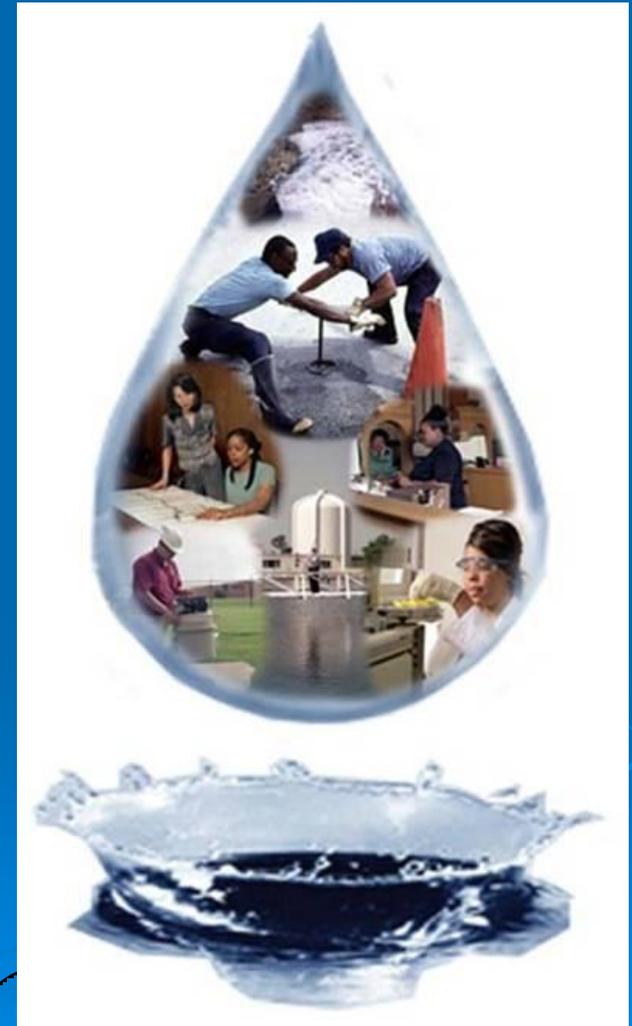
**Water Restrictions
in Effect**

Know your watering days.

www.savefortworthwater.org

Next Steps

- Get all of the Metroplex on the same plan
 - Doesn't mean all are in the same stage at the same time
- Monitor and work toward revisions in proposed legislation to have one drought plan for the entire state



Mary L. Gugliuzza

Media Relations/Communications Coordinator

City of Fort Worth Water Department

817-392-8253

mary.gugliuzza@fortworthtexas.gov

Questions



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