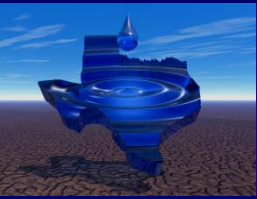


# **City Of Wichita Falls Water Reuse Projects**

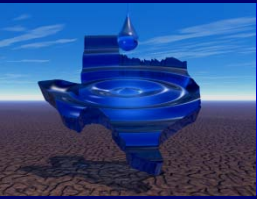
**May 17, 2013**



# Water System Improvements since 2000

(Treatment Side)

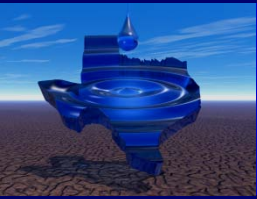
- Jasper WTP Expansion Improvements
- Cypress Conventional WTP Expansion
- High Service Pump Station
- Sludge Dewatering Facilities
- Chemical Building
- Secondary Reservoir Pump Station Expansion
- Ground Storage Tank Expansion
- Elevated Storage Tank Expansion
- Administration and Maintenance Facilities
- Total System Capacity 76 MGD
- Cost \$118 million



# Water System Improvements since 2000

(Supply Side)

- Microfiltration / Reverse Osmosis Plant
  - Lake Kemp supply on-line
- Revised Drought Plan
  - Elevated drought triggers
  - Increased restrictions
- Secured a Global 210 Reuse authorization
  - Allows reuse water to be used for numerous purposes
  - Reuse water being used to irrigate some parks
- Increase budget for water main replacement
  - Reduces water loss due to leaks



# The Current Problem

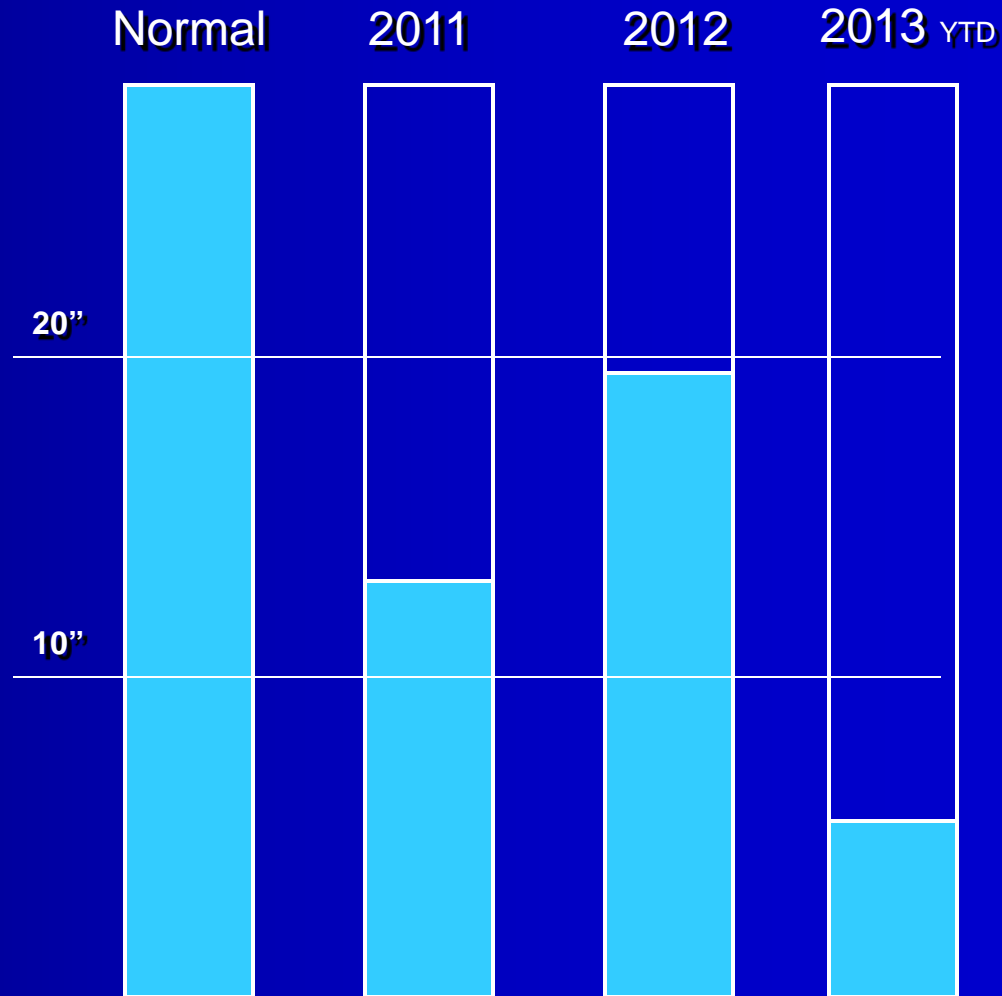
## *Loss of Rainfall*

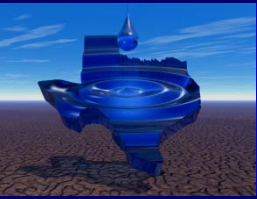
The annual average rainfall for the Wichita Falls area is 28.5 inches.

In 2011 we were 15.5 inches below normal.

In 2012 we were 8.75 inches below normal.

YTD, in 2013 we are 4 inches below normal.





# The Current Problem

## *Record Temperatures*

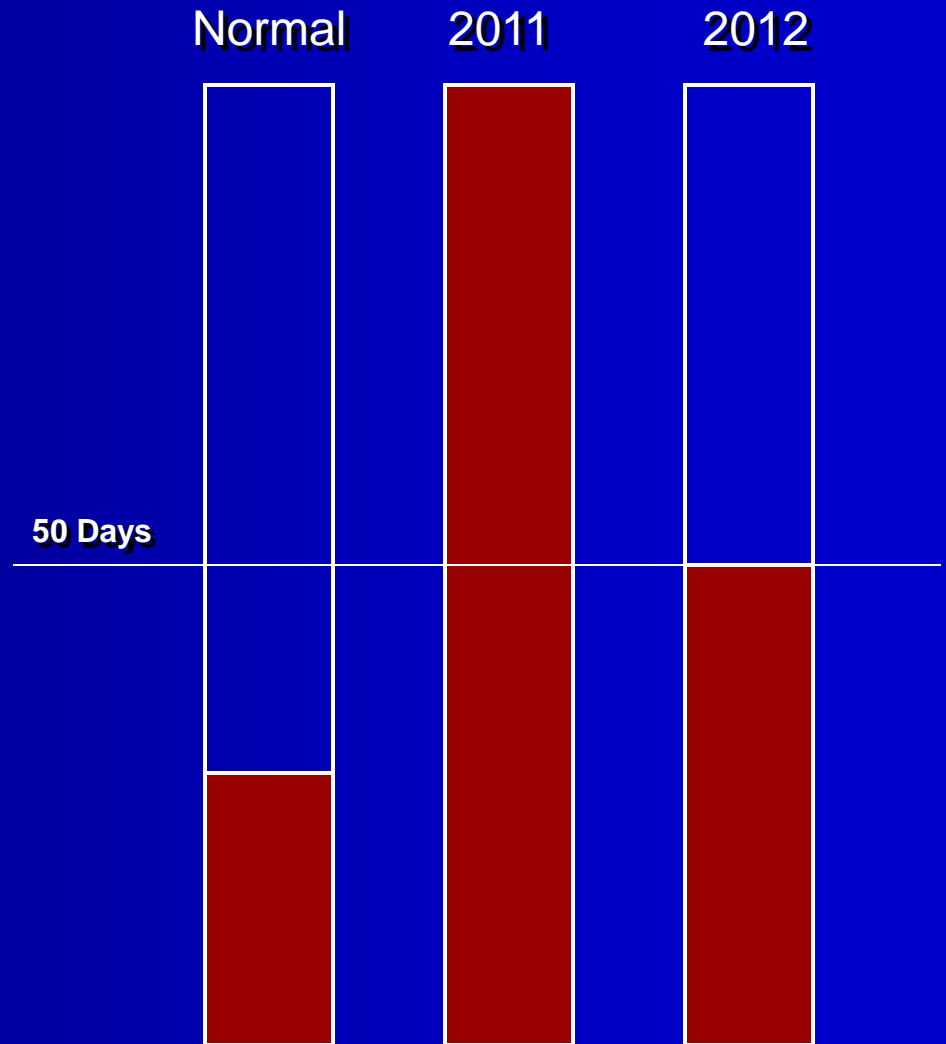
Wichita Falls typically averages 28 days over 100 degrees

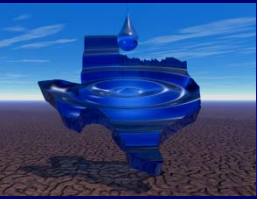
In 2011 we had 100 days.

First 100 degree day April 6<sup>th</sup>,  
last one was Sept 13<sup>th</sup>.

The Weather Channel ranked Wichita Falls the #1 Worst Summer anywhere in the U.S. for 2011.

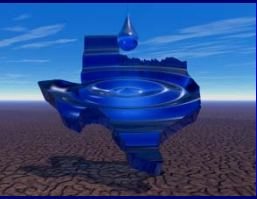
In 2012 we had 50 days.





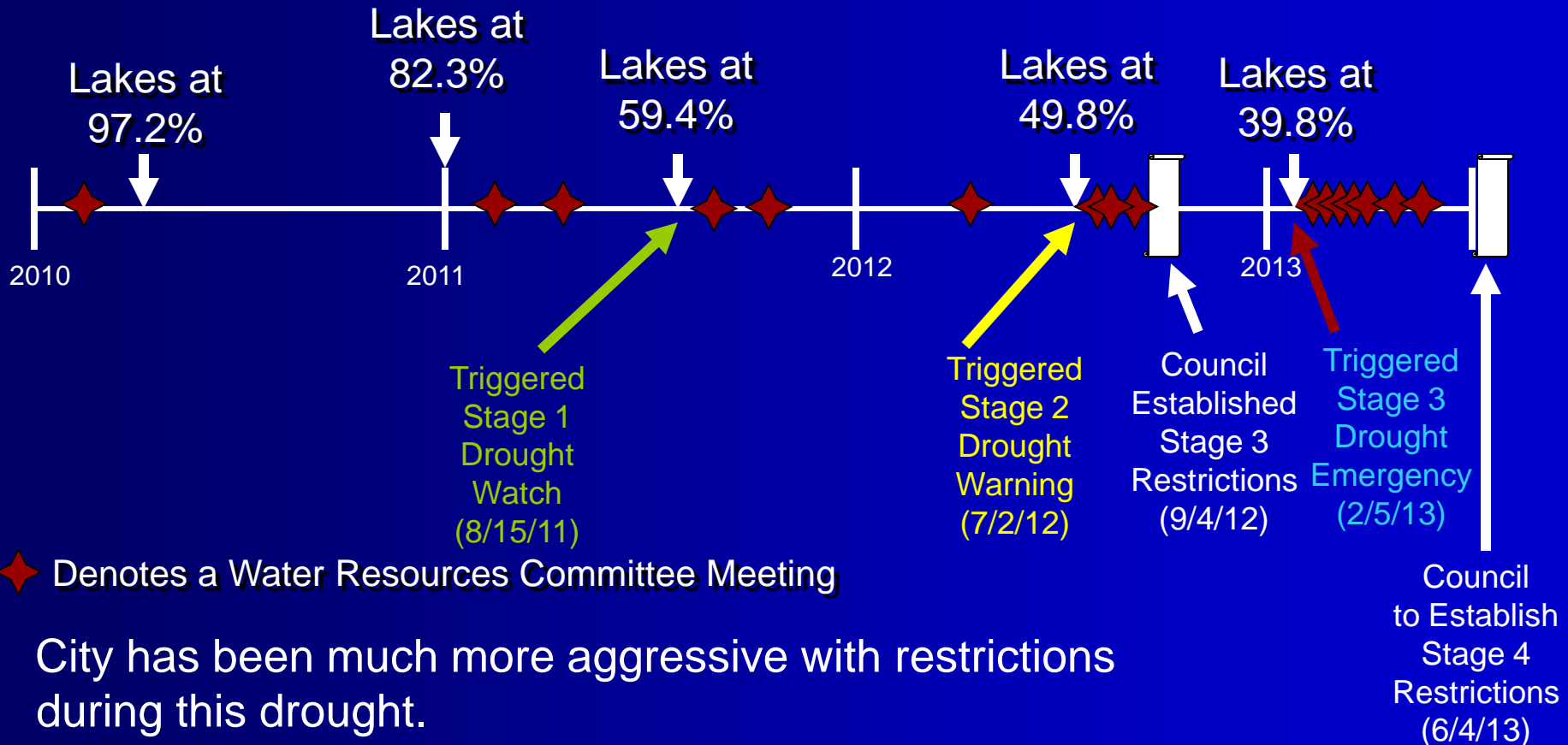
# The Current Problem

*Lake Level Decline*

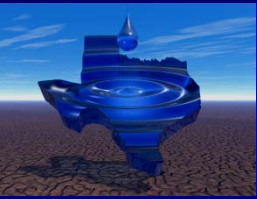


# What is Being Done

## *Drought Triggers to Date*

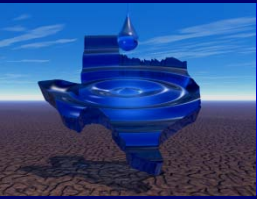


- City has been much more aggressive with restrictions during this drought.
- Public and Wholesale customers have responded well



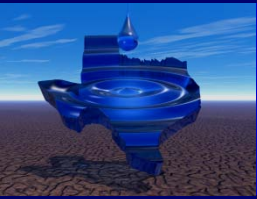
# Other Actions

- April 2012 Staff begins to revive 1999/2000 Reuse Project
- Met with Texas Commission on Environmental Quality (TCEQ) staff on numerous occasions
- New regulations established
  - Direct Potable Reuse (DPR)
  - Indirect Potable Reuse (IPR)
- Regulations and level of treatment identified
- Consultants hired to evaluate long-term reuse options
- Staff developed an Emergency Reuse Project



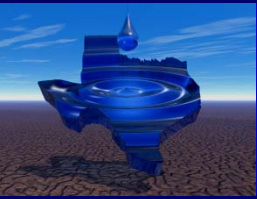
# Emergency Reuse Project

- Temporary Pump Station and pipeline to Cypress Microfiltration/Reverse Osmosis Plant (MF/RO)
- Treat water through both membrane plants
- Blend water with lake water 50/50 ratio
- Treat blended water through conventional treatment plant (*water is treated 4 times*)



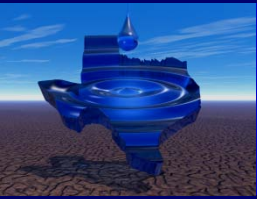
# Emergency Reuse Project

- Concept paper developed
- TCEQ gave general approval of the concept paper
- Wholesale customers support project
- Health Board and Health Coalition support project
- Dr. McBroom MD, Dr. Mattar MD, Dr. Hallford PhD  
Dr. Dodge PhD, all understand and support the project.



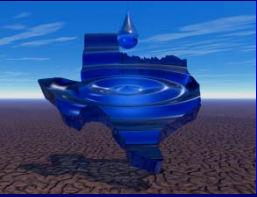
# Emergency Reuse Project

- Preliminary Engineering Report submitted to TCEQ
  - Details entire project
  - Level of Treatment for each process
  - Full Scale Testing Protocol
- Plans and specifications approved by TCEQ
- Project delivery mechanism developed
- Financing of project developed
- Estimated Cost of \$13 million (*anticipate recovering the pipe cost of \$6 million*)

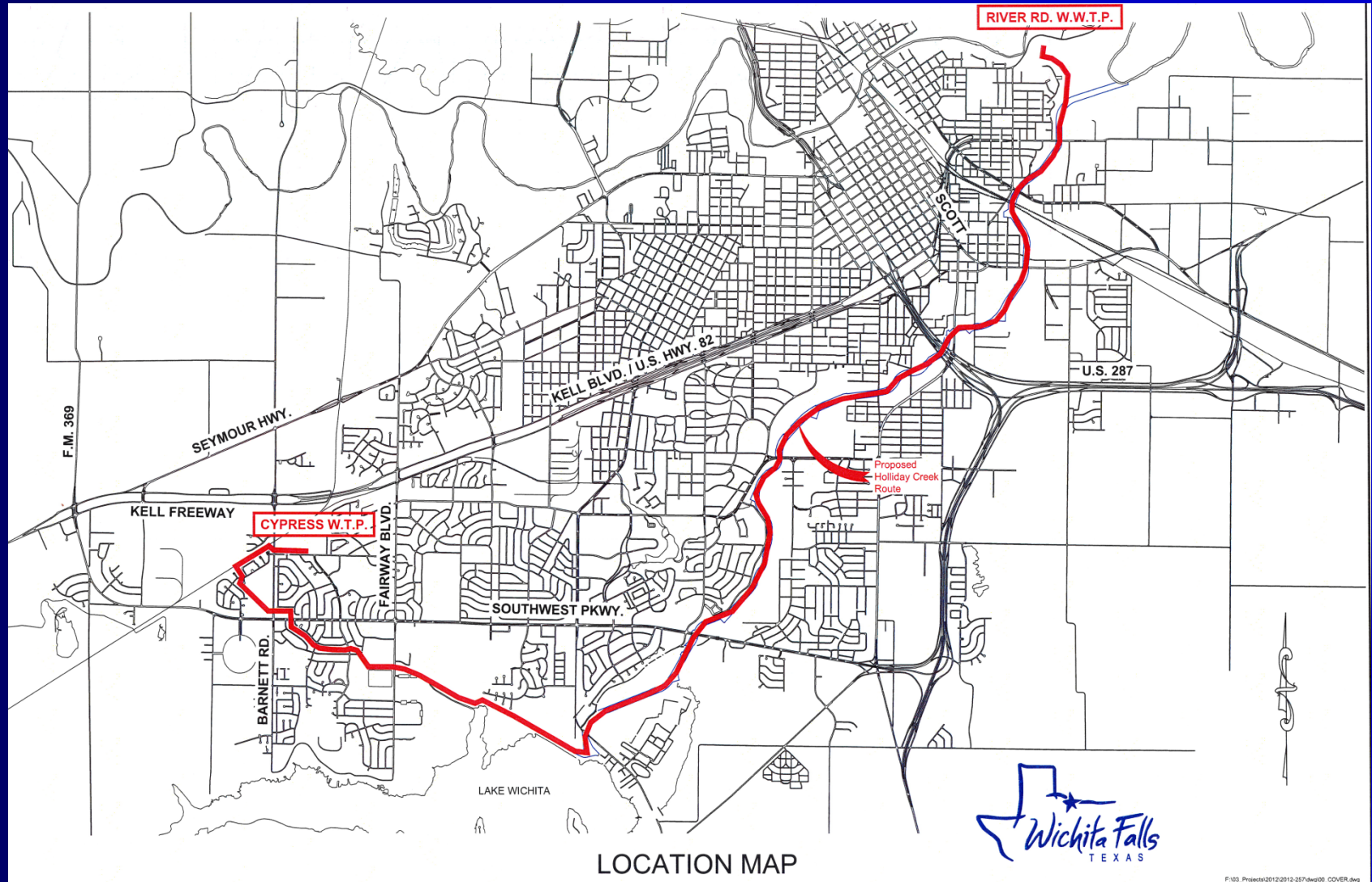


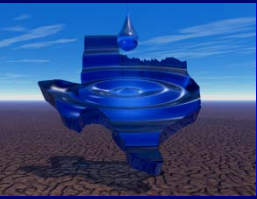
# Emergency Reuse Project

- TCEQ approval expected in Sept 2013
- Construction to begin August 2013
- Full Scale Verification Testing February 2014
- Water in system March 2014
- Project will add 5 to 6 million gallons per day to the water supply *(all effluent is utilized)*



# Emergency Reuse Project

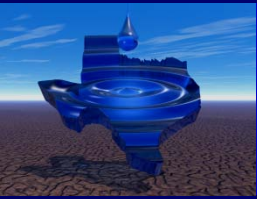




# Permanent Reuse Project

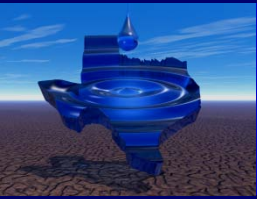
- Alternatives evaluated
  - Discharge to Lake Arrowhead ~\$29,000,000
  - Discharge to Lake Wichita ~\$158,300,000
  - Construct new MF/RO Plant at Cypress ~\$91,000,000
  - Construct new MF/RO Plant at Jasper ~\$81,000,000

Discharge to Lake Arrowhead identified as most economical and feasible.



# Permanent Reuse Project

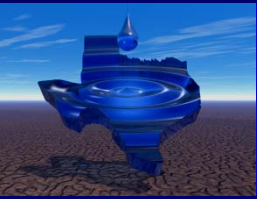
- Project requires:
  - Discharge permit from TCEQ
  - Improvements to River Road WWTP
  - 15 miles of ROW acquisition
  - Construction of pipeline and pump station
- Cost for the project estimated \$29 million
- 4 to 5 years to complete



# Permanent Reuse Project

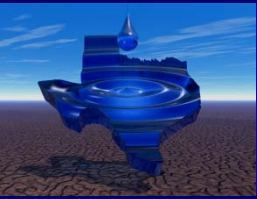
- Permitting process has begun
- Design of WWTP Improvements
- Pipeline route selection
- Acquisition of ROW
- Design of pipeline

Project to move forward regardless of drought conditions.



# Ringgold Reservoir

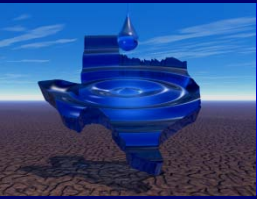
- Currently conducting a Feasibility Study
  - Reservoir size evaluated (firm yield, total acres required)
  - Dam Site being evaluated (geotechnical analysis)
  - Environmental conflicts being identified (wetlands, endangered species)
  - Other conflicts to be identified (roads, wells, etc.)
  - Report due in late 2013
- Project will take 20 to 30 years to develop
- Cost Estimated ~ \$400 million



# Conclusions

Ringgold Reservoir will be a future supply. Emergency and Permanent Reuse Projects are the next water supply that will be developed.

***These supplies will make the City more drought tolerant, BUT will NOT make the City completely drought resistant.***



# Questions