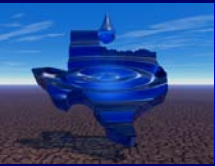




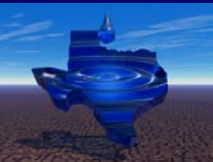
# City of Wichita Falls Texas Drought Contingency Plan

November 19, 2015

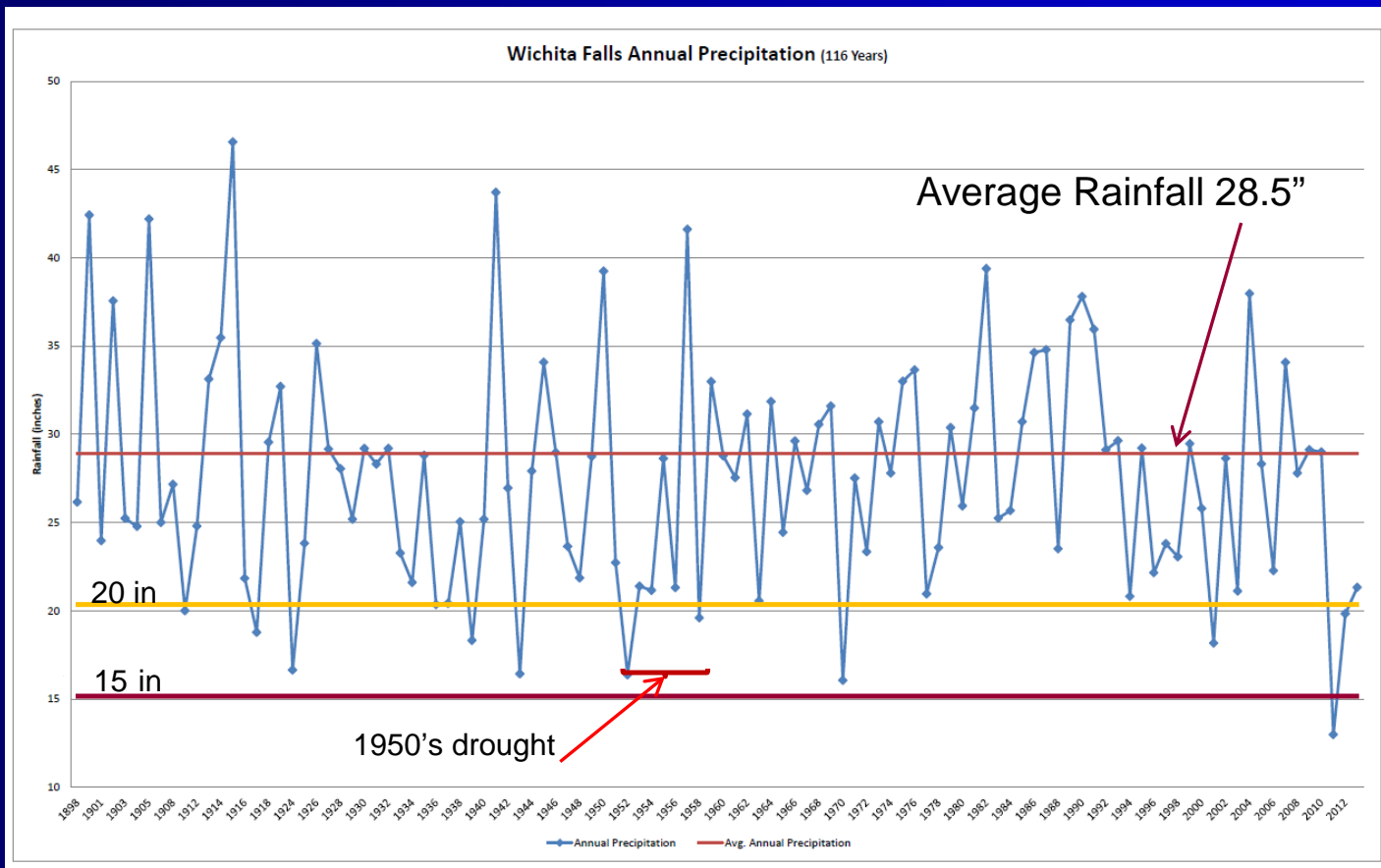


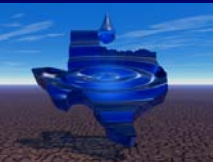
# Water System Summary

- Current Population Served ~ 150,000
- Supply Reservoirs
  - Lake Arrowhead, Lake Kickapoo (Fresh water)
  - Lake Kemp (Brackish water)
  - Water Rights ~95,000 acft
- Water Treatment Plants
  - 66 MGD Conventional Treatment Capacity
  - 10 MGD Membrane Treatment Capacity
- Supply 15 Wholesale Customers
  - Cities, WSC, River Authority



# WF Precipitation Data (116yrs)





# Drought Conditions 2011

Drought Conditions (Percent Area)

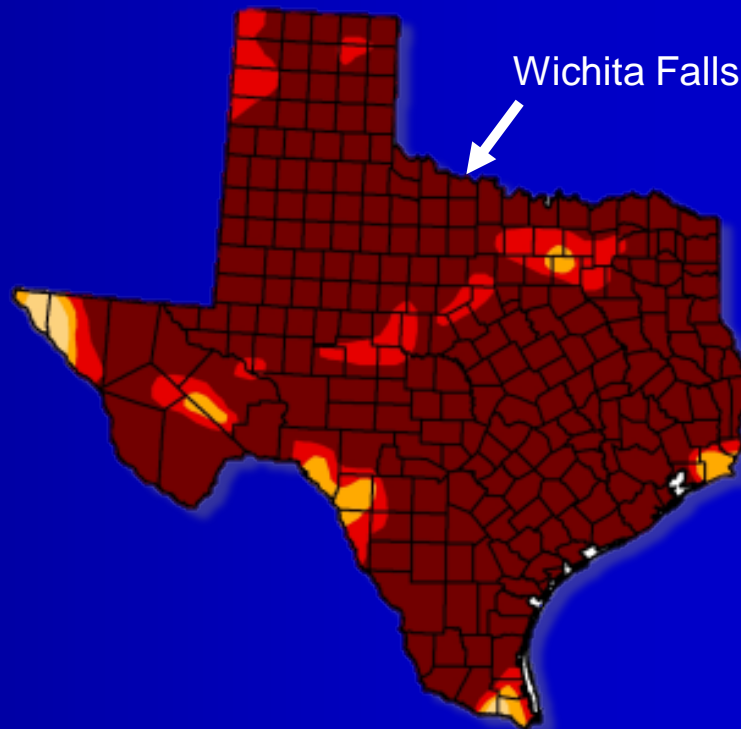
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	99.17	96.75	87.83
Last Week (09/06/2011 map)	0.00	100.00	99.93	99.01	95.68	81.06
3 Months Ago (06/14/2011 map)	1.97	98.03	96.53	94.77	88.57	64.78
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/28/2010 map)	75.57	24.43	2.43	0.99	0.00	0.00
One Year Ago (09/07/2010 map)	69.60	30.40	5.25	1.51	0.00	0.00

Intensity:

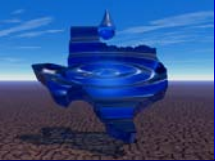
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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

<http://drought.unl.edu/dm>



October 2011



# Drought Conditions 2015

**January 6, 2015**

*(Released Thursday, Jan. 8, 2015)*

Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	38.95	61.05	41.81	24.07	10.72	2.47
<b>Last Week</b> <i>12/30/2014</i>	34.37	65.63	44.68	25.73	11.70	3.17
<b>3 Months Ago</b> <i>10/7/2014</i>	29.64	70.36	49.29	29.49	11.78	2.88
<b>Start of Calendar Year</b> <i>12/31/2014</i>	34.37	65.63	44.68	25.73	11.70	3.17
<b>Start of Water Year</b> <i>9/30/2014</i>	28.92	71.08	48.95	29.54	11.26	2.69
<b>One Year Ago</b> <i>1/7/2014</i>	28.13	71.87	43.89	20.84	5.82	0.79

Intensity:

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

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

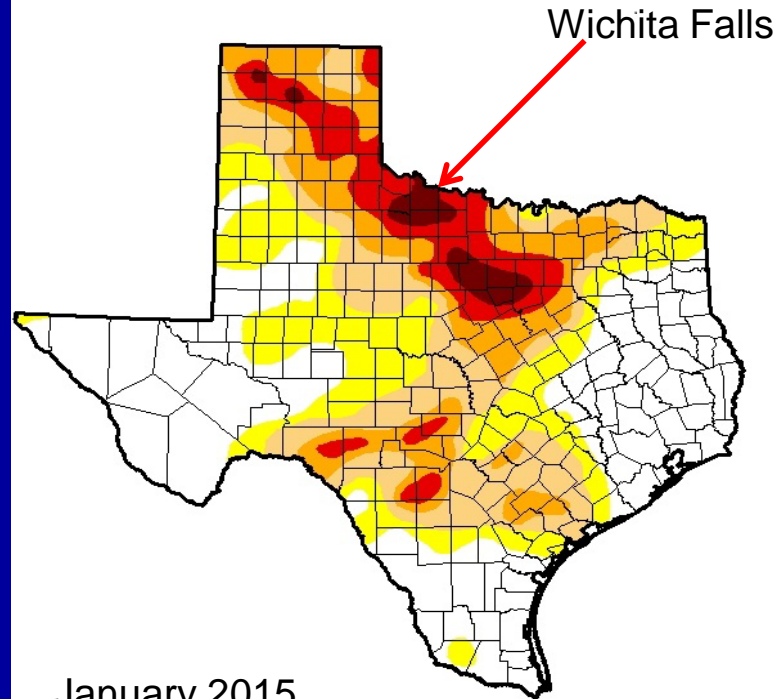
**Author:**

*Brad Rippey*

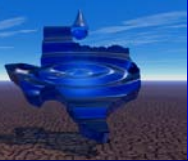
*U.S. Department of Agriculture*



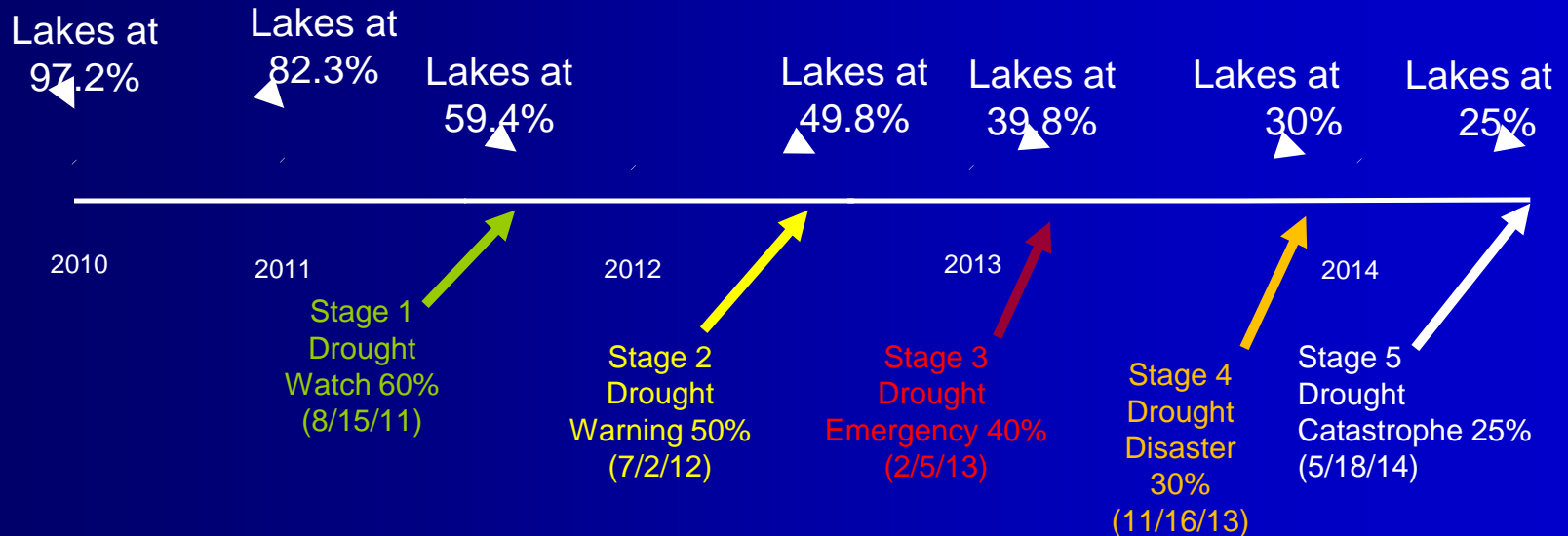
## U.S. Drought Monitor Texas



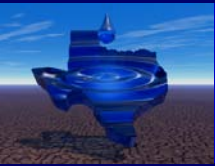
January 2015



# Conservation Measures

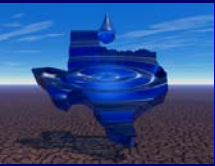


- 1395 days of water restrictions ( 3yrs and 300 days)
- City much more aggressive with restrictions during this drought.
- Conservation reduced consumption from 35 MGD to 11 MGD



# Plan Details

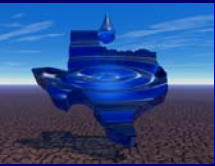
- Year-round restrictions
  - No Spray Irrigation between the hours of 11:00 am to 7:00 pm
  - Hand-held hose must have a positive shut-off nozzle
  - Car wash nozzles must discharge less than 3.0 gpm
  - Short-term lodging must offer a linen reuse option
  - New installations single-pass water cooled ice machines is prohibited.



# Plan Details

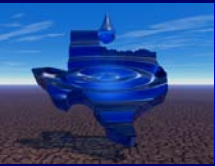
- Stage 1-----65% lake capacity
  - Public outreach thru all forms of media
  - All year-round restrictions remain in place
  - Spray Irrigation limited to 2x per week based on address
  - Restricts water from running down curb
  - Golf course watering limited to 2x per week, except for the greens
  - New Landscape waiver available for a period of 30 days.





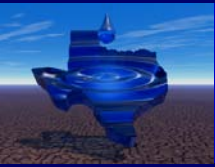
# Plan Details

- Stage 2-----50% lake capacity
  - All year-round restrictions remain in place
  - Spray Irrigation limited to 1x per week based on address
  - Restricts water from running down curb
  - Golf course watering limited to 1x per week, except for the greens
  - New Landscape waiver available for a period of 30 days  
cost of water 3 times normal rate
  - Surcharges begin for usage over 10 units (ccf)



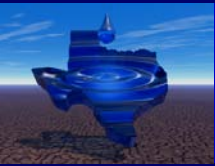
# Plan Details

- Stage 3-----40% lake capacity
  - All year-round restrictions remain in place
  - Spray Irrigation limited to 4 hours 1x per week based on address
  - Restricts water from running down curb
  - Golf course watering limited to Tee boxes 1x per week greens can be watered anytime
  - New Landscape waiver no longer available
  - Surcharges doubled



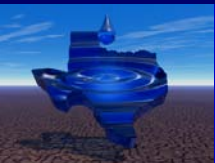
# Plan Details

- Stage 4-----30% lake capacity
  - All year-round restrictions remain in place
  - All irrigation prohibited
  - All Golf course watering eliminated
  - Car washing prohibited at residence
  - Commercial Car washes cannot use City water one day per week
  - Large industries required to perform water audit
  - Watering foundation allowed with soaker hose for 4 hours 1 day per week
  - Surcharges doubled



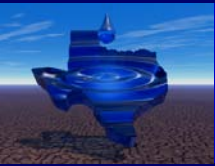
# Plan Details

- Stage 5-----25% lake capacity
  - All year-round restrictions remain in place
  - All irrigation prohibited
  - All Golf course watering eliminated
  - Car washing prohibited at residence
  - Commercial Car washes cannot use City water  
2 days per week
  - Large industries required to implement water strategies identified in audit
  - Watering foundation allowed with soaker hose for 4 hours 1 day per week
  - Surcharges doubled



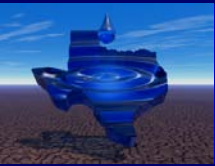
# Success for Drought Plan

- Must have a solid logical water conservation plan
- Typically focus on “discretionary” water uses
- Make public aware of the plan
- Engage all forms of media
  - Television
  - Newspapers
  - Radio stations
  - City web site
  - City cable channel
- Enforce the Plan



# Conclusions

- Existing plan worked well
- Reduced water demand by over 50%
- Critical to extended water supply thru new drought of record
- Public outreach, acceptance efforts successful



# Questions / Discussion

## Contact Info

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940-761-7477