

CITY COUNCIL CONFERENCE

**MUNICIPAL BUILDING CONFERENCE ROOM
201 WEST GRAY, NORMAN, OK**

DECEMBER 18, 2012

5:30 P.M.

- 1. PRESENTATION FROM RANDY WORDEN, EXECUTIVE DIRECTOR OF CENTRAL OKLAHOMA MASTER CONSERVANCY DISTRICT CONCERNING RECENT ACTIVITIES AND PROJECTS UNDERTAKEN BY THE DISTRICT.**

CENTRAL OKLAHOMA MASTER CONSERVANCY DISTRICT

Activity Update for the City of Norman City Council
December 18, 2012

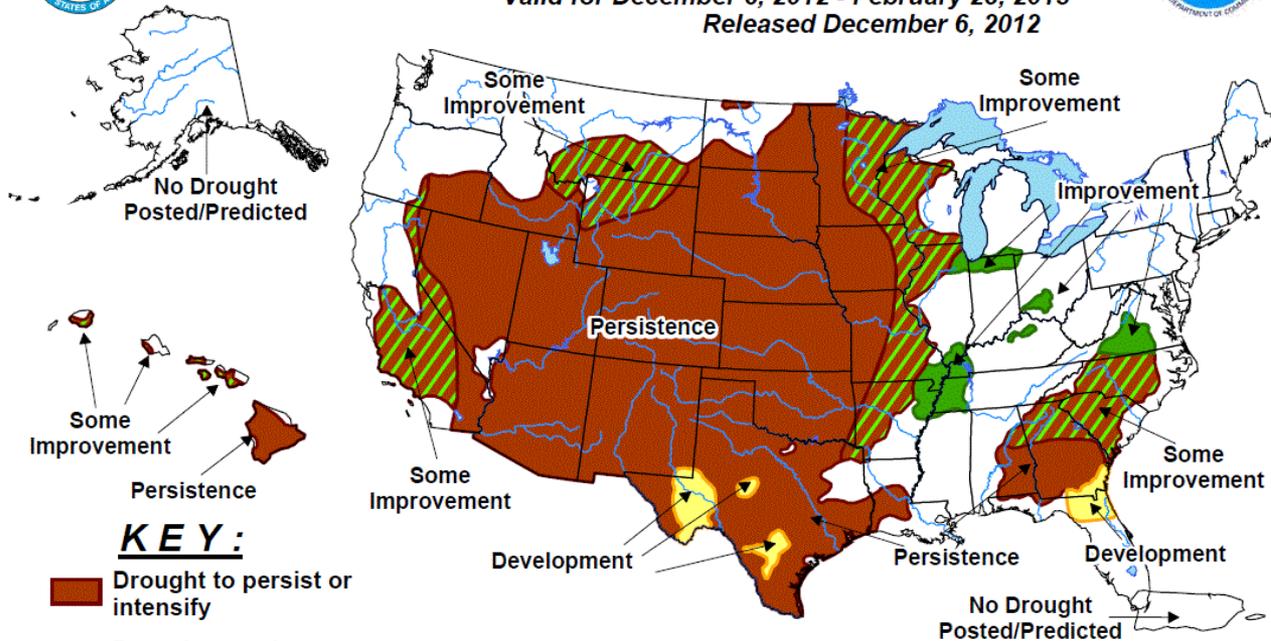
DROUGHT OUTLOOK



U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for December 6, 2012 - February 28, 2013

Released December 6, 2012



KEY:

-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

DROUGHT OUTLOOK

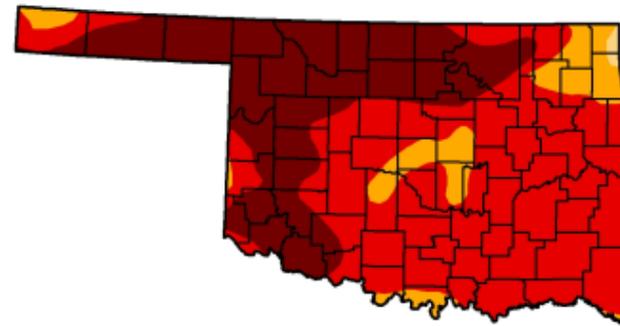
U.S. Drought Monitor Oklahoma

December 4, 2012

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	99.64	90.56	34.56
Last Week (11/27/2012 map)	0.00	100.00	100.00	99.64	90.50	34.46
3 Months Ago (09/04/2012 map)	0.00	100.00	100.00	99.79	91.04	39.66
Start of Calendar Year (12/27/2011 map)	14.83	85.17	78.76	50.55	27.48	3.33
Start of Water Year (09/25/2012 map)	0.00	100.00	100.00	99.98	95.33	42.09
One Year Ago (11/29/2011 map)	7.33	92.67	85.70	59.58	39.92	10.27



Intensity:

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

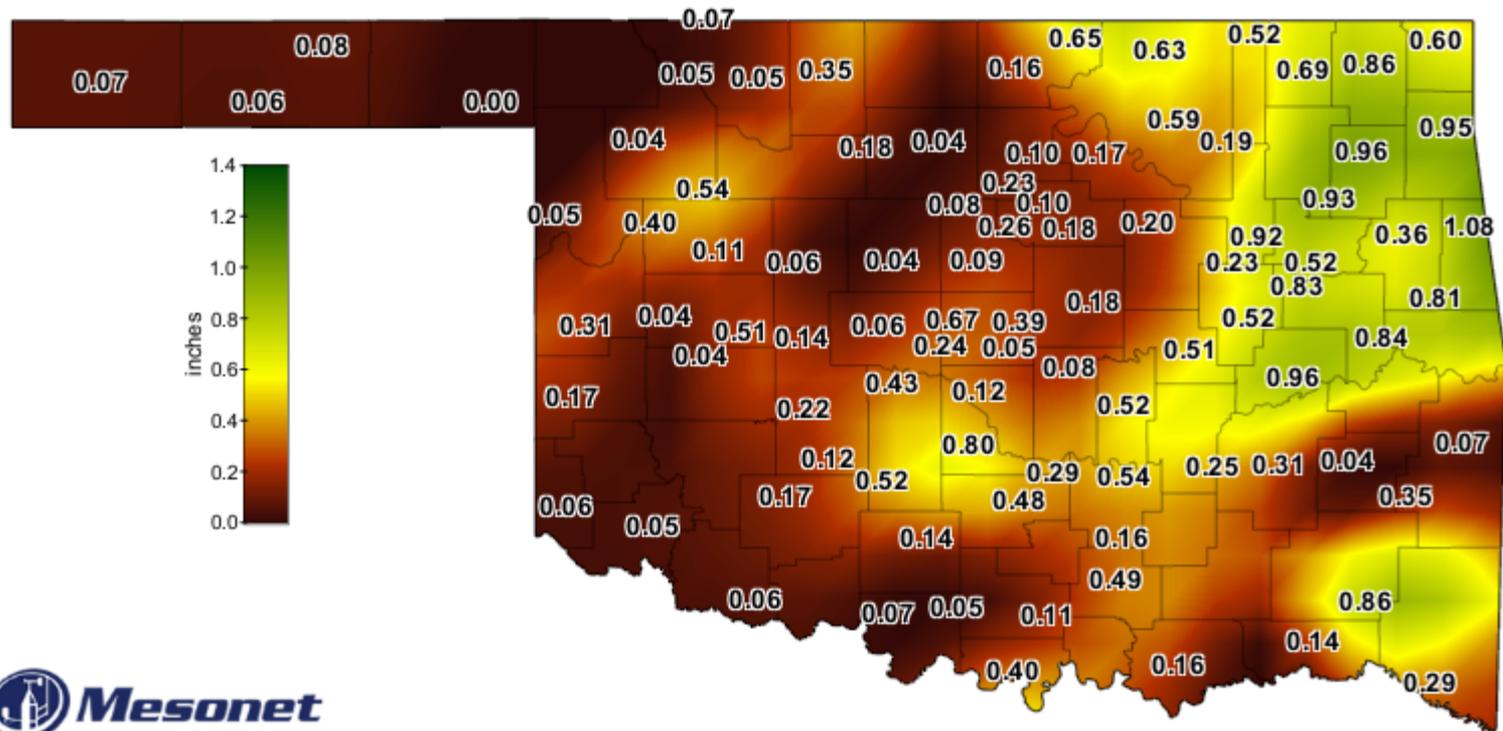
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, December 6, 2012
Richard Tinker, NOAA/CPC

DROUGHT OUTLOOK

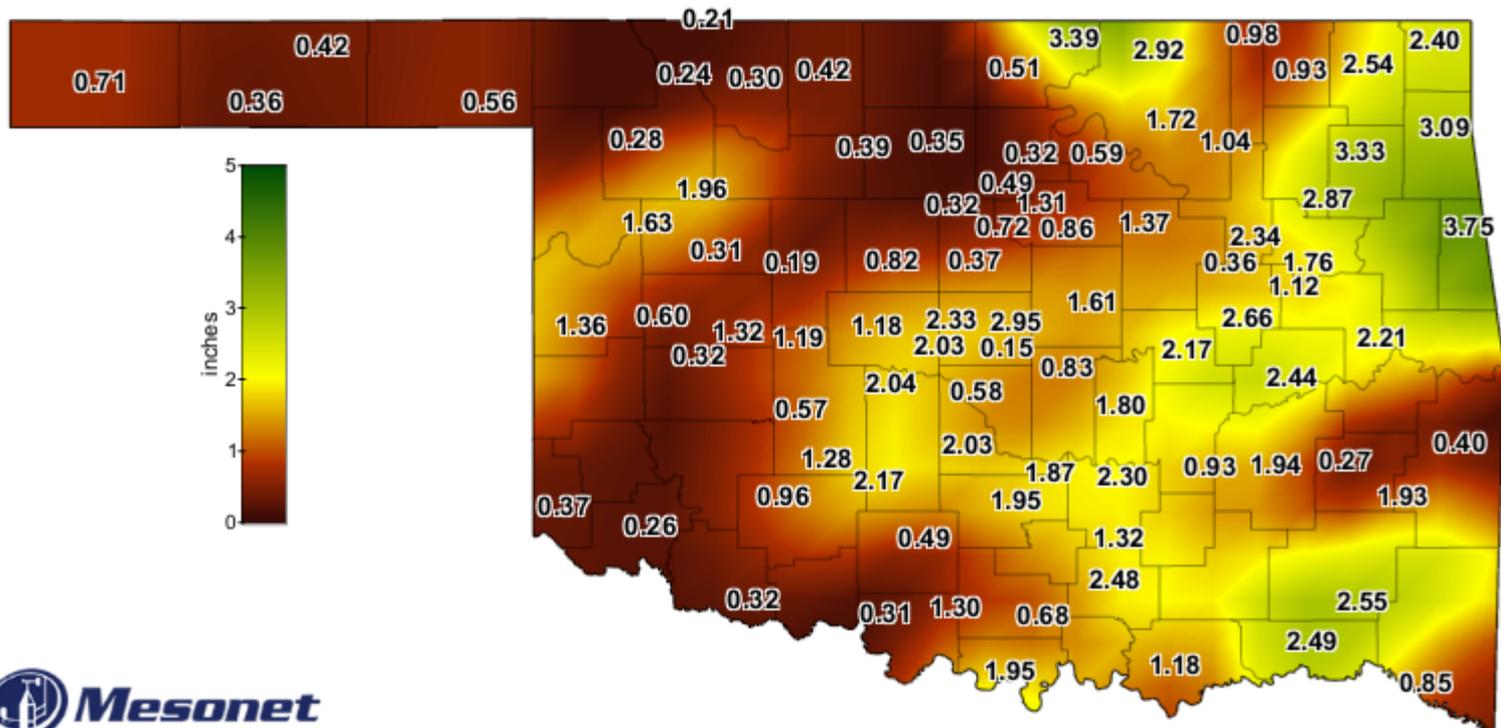


4-inch Plant Available Water

December 11, 2012

Created 6:30:11 AM December 12, 2012 CST. © Copyright 2012

DROUGHT OUTLOOK

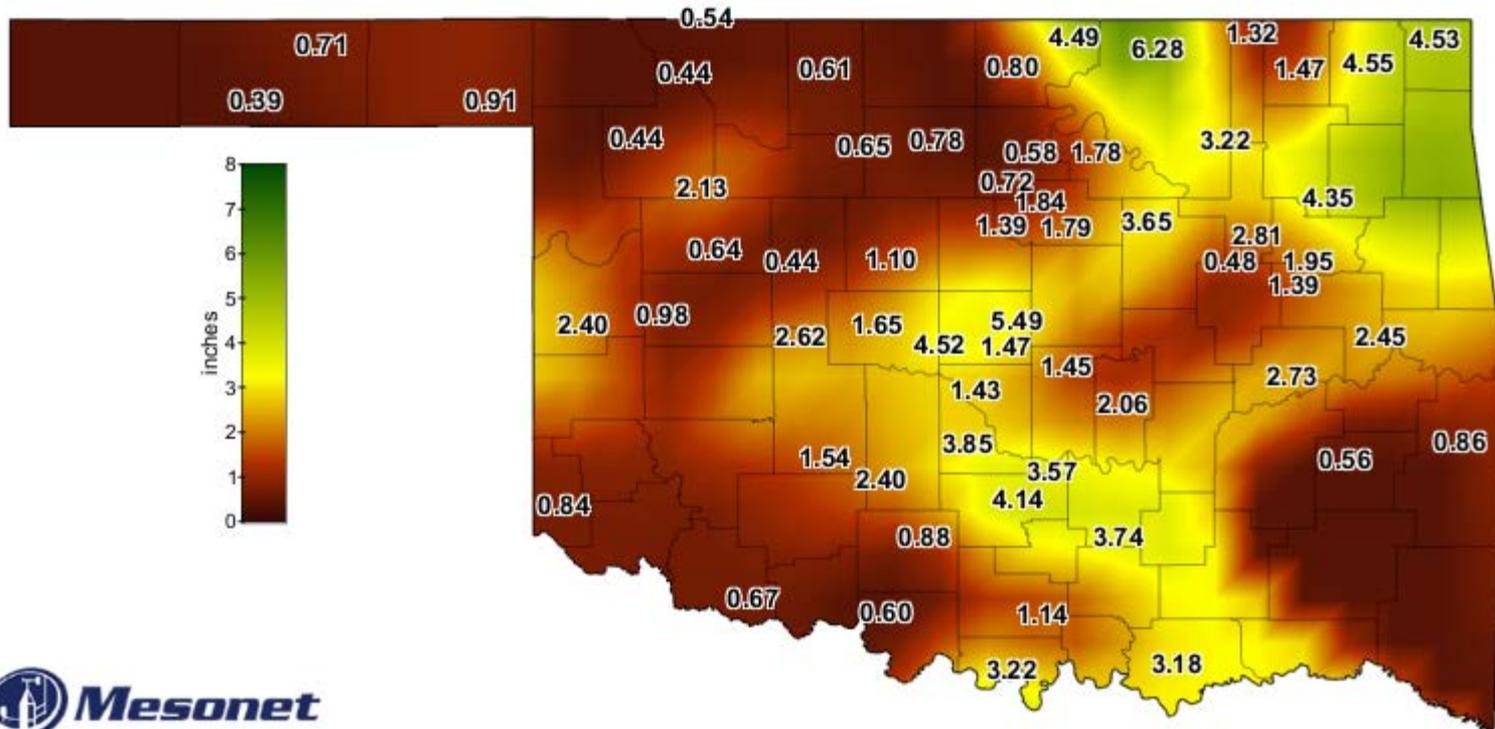


16-inch Plant Available Water

December 11, 2012

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DROUGHT OUTLOOK



32-inch Plant Available Water

December 11, 2012

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LAKE THUNDERBIRD EFFICIENT USE ACT OF 2011

- HR 3262 – Passed by the U.S. House of Representatives
- S 802 – Passed by the Senate Water and Energy Committee and is awaiting a full Senate vote. Being held by Sen. Bingaman (NM)
- Restart process if the Senate does not pass S 802

LAKE THUNDERBIRD WATER REUSE FEASIBILITY STUDY

Table 10. Estimated project costs for reuse alternatives. (2011 \$)

Option	Year	Cumulative Annual Yield		Capital Cost (\$ million)	Life Cycle Capital Cost (\$ million)	Cumulative Annual O&M Cost (\$)	Cumulative Annual Energy Cost (\$)	Net Present Value (\$ million)	Unit Cost of Water	
		MGD	AFY						\$/1000 gal	\$/ac-ft
1. Norman WWTP to Lake Thunderbird	2017	5	5,605	\$37.4	\$52.8	\$512,764	\$83,973	\$90.5	\$0.64	\$209
	2020	10	11,210	\$0.1		\$515,504	\$190,011			
	2031	15	16,815	\$1.4		\$544,985	\$336,187			
2. Moore WWTP to Lake Thunderbird ^A	2017	5	5,605	\$7.0	\$13.7	\$983,000	- ^B	\$43.5	\$0.93	\$302
3. Canadian River to Lake Thunderbird	2017	5	5,605	\$43.0	\$149.5	\$1,339,251	\$154,749	\$325.7	\$2.31	\$753
	2020	10	11,210	\$55.6		\$2,987,714	\$640,286			
	2031	15	16,815	\$50.3		\$4,283,806	\$1,108,194			
4. Canadian River to Norman WTP	2017	5	5,605	\$97.4	\$199.8	\$3,074,487	\$553,513	\$507.7	\$3.60	\$1,174
	2020	10	11,210	\$49.8		\$5,505,924	\$1,154,076			
	2031	15	16,815	\$52.3		\$7,954,769	\$1,840,231			
5. Moore WWTP then Norman WWTP to Lake Thunderbird	2017	5	5,605	\$7.0	\$64.7	\$983,000	-	\$121.4	\$0.86	\$281
	2020	10	11,210	\$36.7		\$1,495,455	\$83,973			
	2031	15	16,815	\$0.1		\$1,498,195	\$190,011			

Notes:

- Costs do not include a commodity charge for the water from Moore.
- Annual energy cost to operate additional chemical feed system at Moore plant not broken out separately from O&M cost.
- Appendix B3 details the Cost Estimate Approach used to compare water supply alternatives. These cost estimates include a planning level of detail and will need to be refined when the recommended Title XVI Project moves forward. Overhead factors for permitting and mitigation, contingency, and engineering are included.

LAKE THUNDERBIRD WATER REUSE FEASIBILITY STUDY (Preferred Option)

- **Phase I: Supply 5 MGD of reclaimed water to Lake Thunderbird from the Moore WWTP**
- **Phase II: Supply a cumulative total of 10 MGD to Lake Thunderbird in 2020 by augmenting lake with 5 MGD from Norman WWTP**
- **Phase III: Supply a cumulative total of 15 MGD to Lake Thunderbird in 2031 by expanding the Norman booster pump station to convey a total of 10 MGD of reclaimed water**

LAKE THUNDERBIRD WATER REUSE FEASIBILITY STUDY (Preferred Option)

Table E-1. Proposed Title XVI Project Cost Estimate (2011 \$).

Phase	Year	Cumulative Annual Yield		Capital Cost (\$ million)	Life Cycle Capital Cost (\$ million)	Cumulative Annual O&M Cost (\$)	Cumulative Annual Energy Cost (\$)	Net Present Value (\$ million)	Unit Cost of Water	
		MGD	AFY						\$/1000 gal	\$/ac-ft
1	2017	5	5,605	\$7.0	\$64.7	\$983,000	-	\$121.4	\$0.86	\$281
2	2020	10	11,210	\$36.7		\$1,495,455	\$83,973			
3	2031	15	16,815	\$0.1		\$1,498,195	\$190,011			

Note: The annual energy cost to operate an additional chemical feed system at the Moore WWTP is not broken out separately from the O&M Cost. Also, annual O&M and energy costs are cumulative with each project phase.

LAKE THUNDERBIRD WATER REUSE FEASIBILITY STUDY

Table 11. Summary of benefits and challenges for reuse water supply alternatives.

Categories	Option 1: Norman WWTP to Lake	Option 2: Moore WWTP to Lake	Option 3: Canadian River to Lake	Option 4: Canadian River to Norman WTP	Option 5: Moore WWTP then Norman WWTP to Lake
Implementation Schedule	Fast (after permitting). ▲	Fastest (after permitting). ▲	Slower ▼	Slowest ▼	Fastest (after permitting). ▲
Cost	\$0.64 per 1000 gallons, \$209 per acre-ft. ▲	\$0.93 per 1000 gallons, \$302 per acre-ft. ▲	\$2.32 per 1000 gallons, \$755 per acre-ft. ▼	\$3.60 per 1000 gallons, \$1,174 per acre-ft. ▼	\$0.86 per 1000 gallons, \$281 per acre-ft. ▲
Infrastructure Requirements	Moderate- requires pumping and some treatment upgrades. ►	Simplest – gravity diversion to Little River. Moore plant will need upgrades. ▲	Complex- requires river intake, some advanced treatment and pumping. ▼	Very complex- requires river intake, very advanced treatment and pumping. ▼	Moderate- requires pumping and some treatment upgrades at both WWTPs. ►
Institutional Requirements	Requires coordination with Norman on WWTP infrastructure and agreement to use effluent. ►	Requires coordination with Moore on WWTP infrastructure and agreement to use effluent. ►	Need land for pumping and water treatment facilities. ►	Need land for pumping and water treatment facilities. ►	Requires coordination with Norman & Moore on WWTP infrastructure and agreement to use effluent. ►
Regulatory Considerations	Process for obtaining discharge permit uncertain; could delay project. ▼	Process for obtaining discharge permit uncertain; could delay project. ▼	Water right required. ►	Water right required; approval of treatment process by ODEQ could delay project. ▼	Process for obtaining discharge permits uncertain; could delay project. ▼
Water Supply Reliability	High- once committed, supply cannot be accessed by others. ▲	High- once committed, supply cannot be accessed by others. ▲	Uncertain- downstream water rights and future environmental flow requirements may impact supply. ►	Uncertain- downstream water rights and future environmental flow requirements may impact supply. ►	High- once committed, supply cannot be accessed by others. ▲
Legend: Blue = Benefit (▲), Green = Intermediate issue (►), Red = Challenge (▼)					

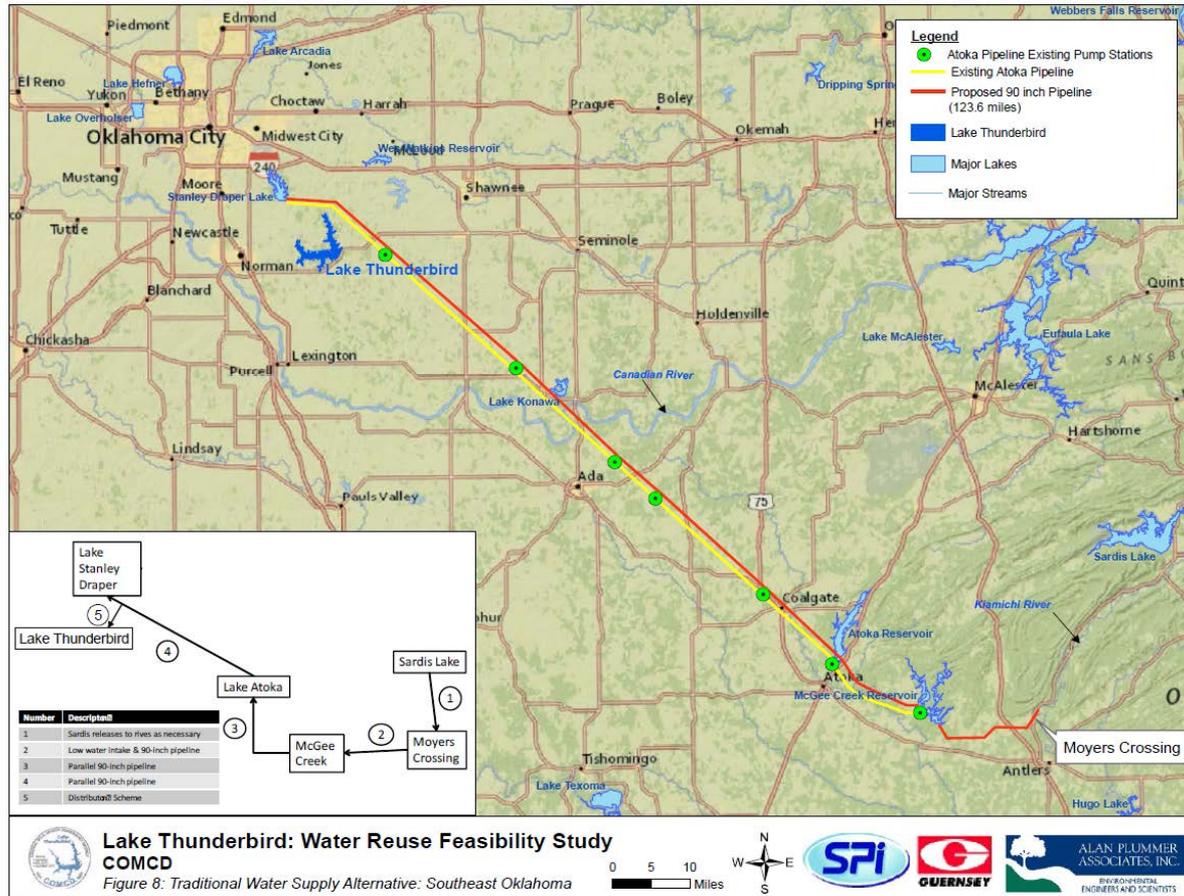
LAKE THUNDERBIRD WATER REUSE FEASIBILITY STUDY

Non-Reuse Alternatives

- Southeast Oklahoma OCWUT
- Kaw Lake
- Scissortail Lake
- Parker Reservoir

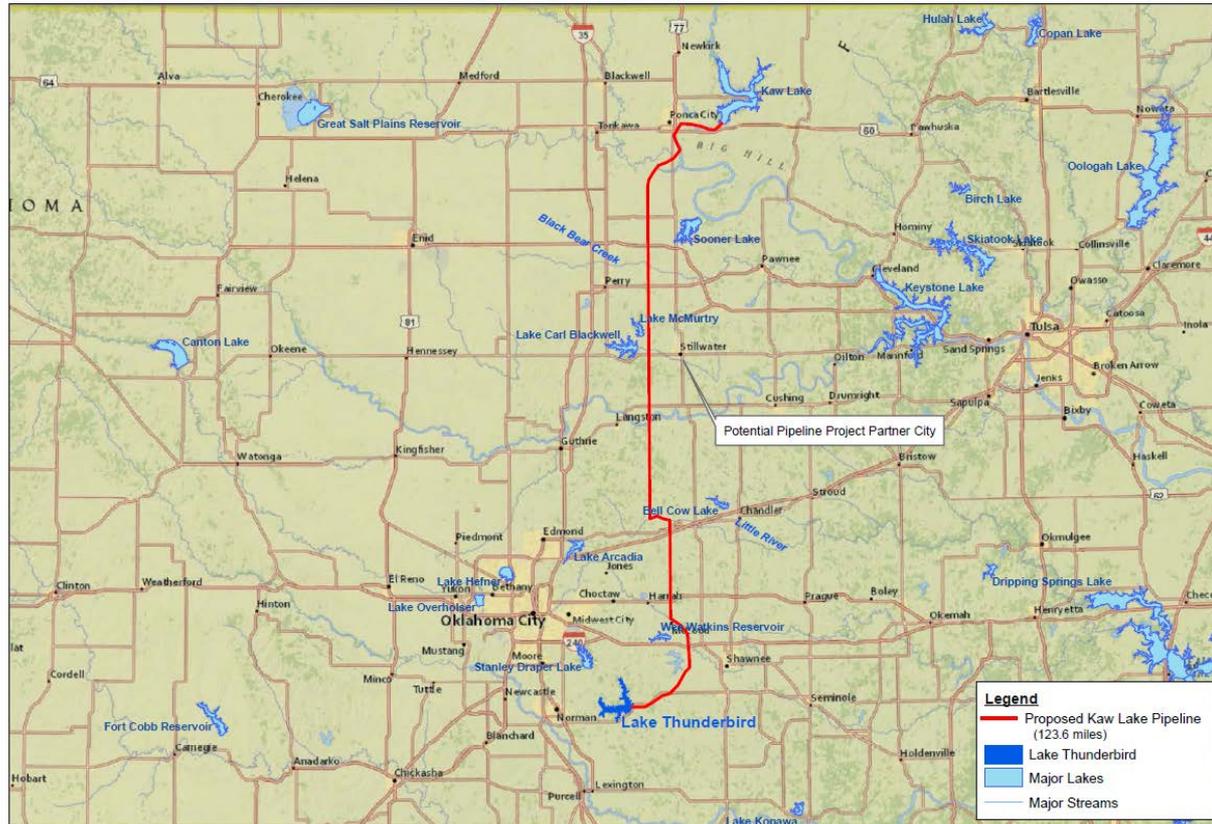
Non-Reuse Alternative #1

Southeast Oklahoma

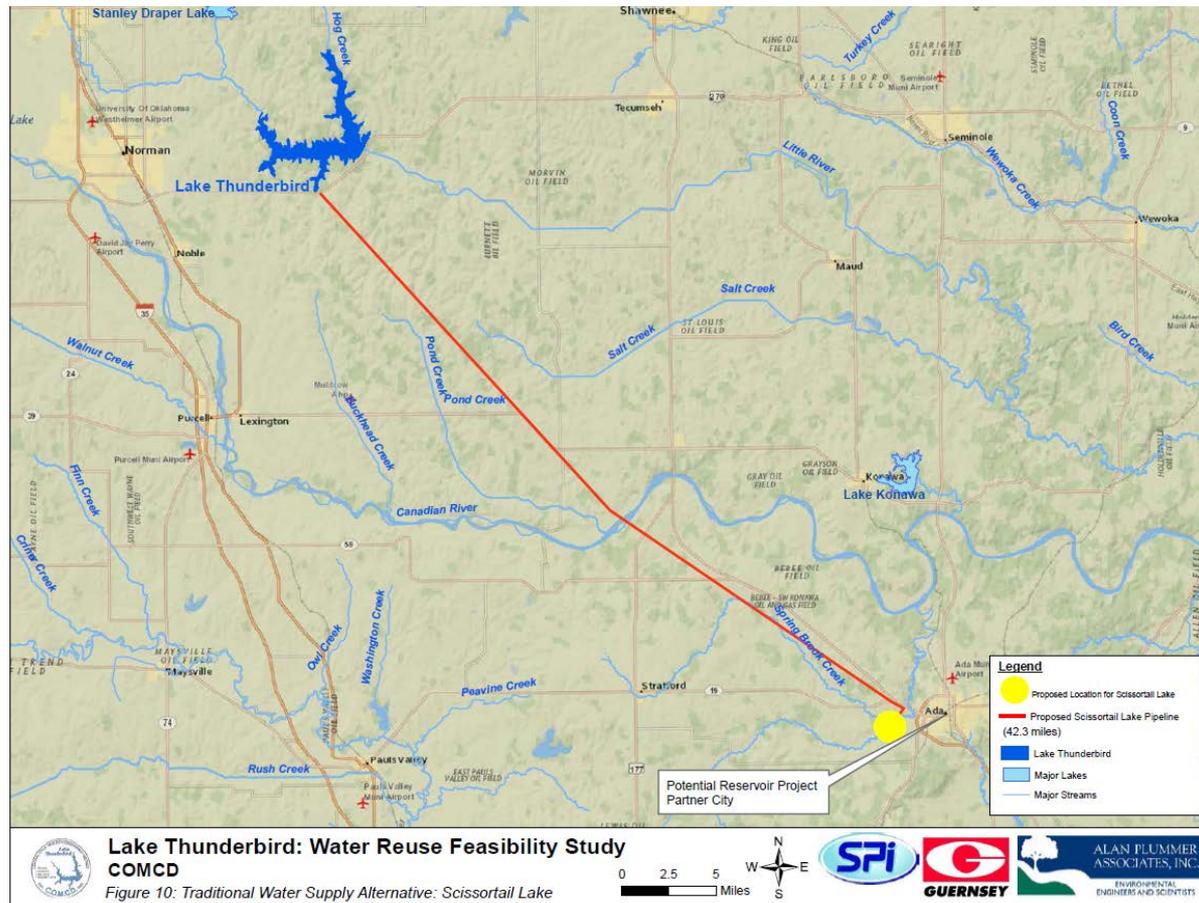


Non-Reuse Alternative #2

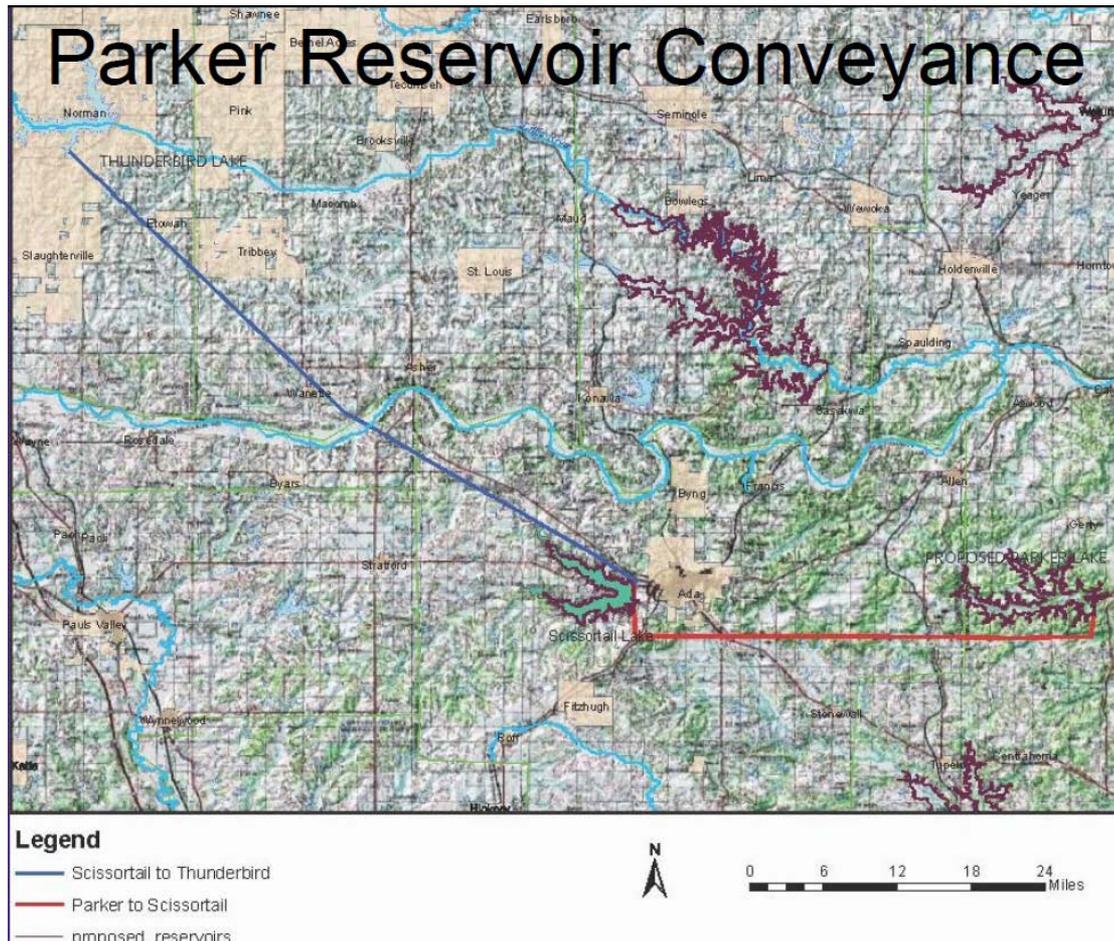
Kaw Reservoir



Non-Reuse Alternative #3 Scissortail Reservoir



Non-Reuse Alternative #4 Parker Reservoir



COMPARATIVE COST ANALYSIS

Alternative	Target Year	Annual Yield		Net Present Value	Unit Cost of Water	
		MGD	acre-ft/year		\$/1000 gal	\$/ac-ft
Option 1: Norman WWTP to Lake Thunderbird	2017 to 2031	15	16,815	\$ 90,528,023	\$ 0.64	\$ 209
Option 2: Moore WWTP to Lake Thunderbird	2017	5	5,605	\$ 43,519,071	\$ 0.93	\$ 302
Option 3: Canadian River to Lake Thunderbird	2017 to 2031	15	16,815	\$ 325,711,048	\$ 2.31	\$ 753
Option 4: Canadian River to Norman WTP	2017 to 2031	15	16,815	\$ 507,742,782	\$ 3.60	\$ 1,174
Option 5: 5 MGD from Moore WWTP & 10 MGD from Norman WWTP	2017 to 2031	15	16,815	\$ 121,372,374	\$ 0.86	\$ 281
SE OK	2020	15	16,815	\$ 340,639,592	\$ 2.42	\$ 788
Kaw	2017	15	16,815	\$ 414,784,207	\$ 2.94	\$ 959
Scissortail	2025	15	16,815	\$ 270,854,548	\$ 1.92	\$ 627
Parker	2025	15	16,815	\$ 297,942,094	\$ 2.12	\$ 689

TMDL

- DEQ delivered Draft TMDL to EPA on November 30,2012
- COMCD is currently reviewing the Draft
- 45 day public comment period during EPA review process