

# Ensuring Sustainable Water Sources in Oklahoma

Cameron University

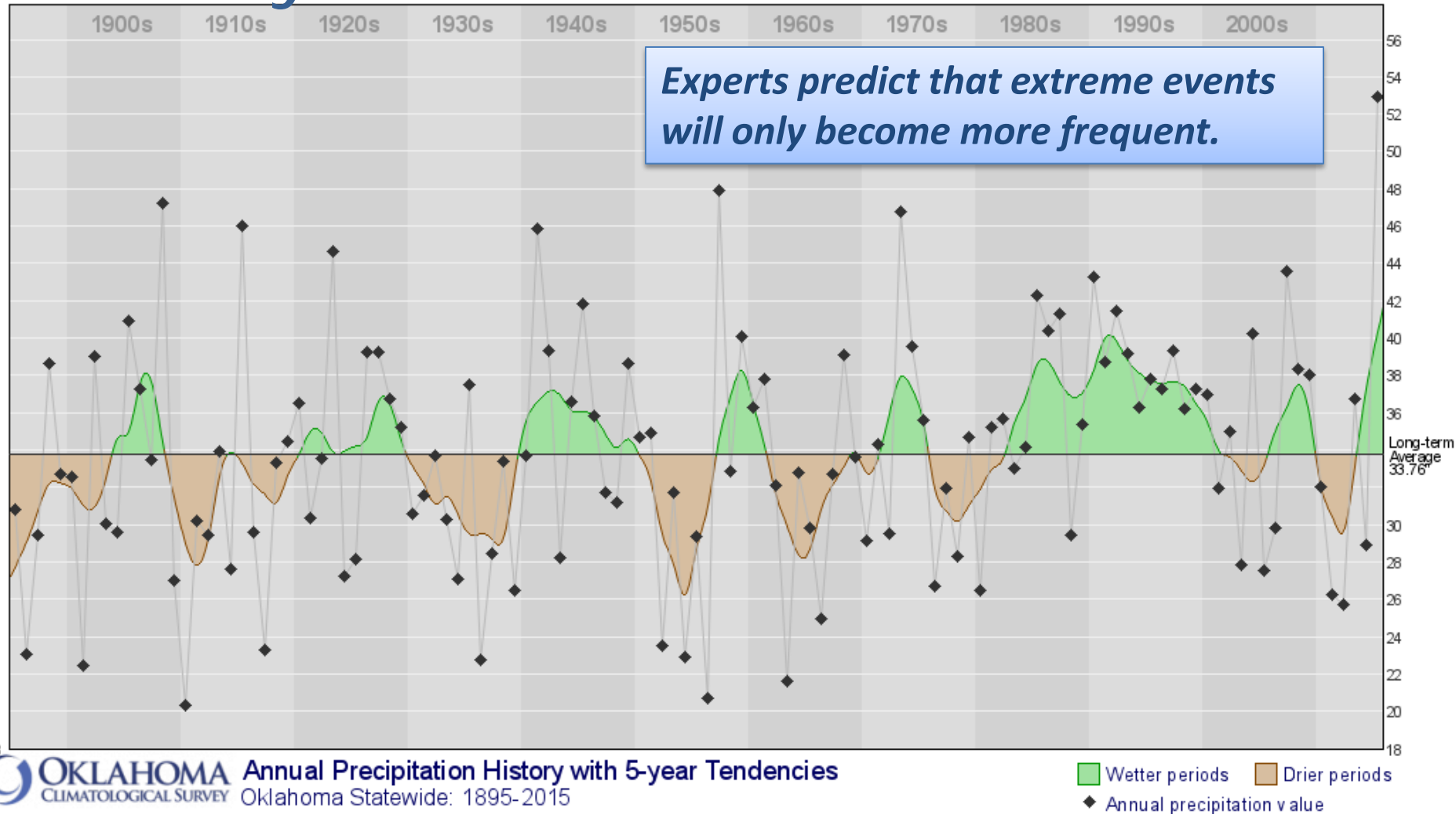
May 18, 2016

J. D. Strong

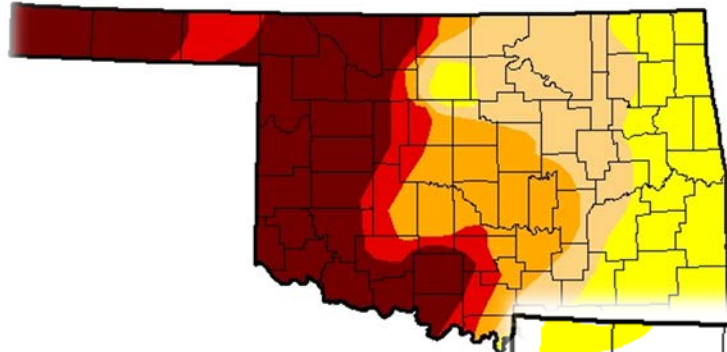
OWRB Executive Director



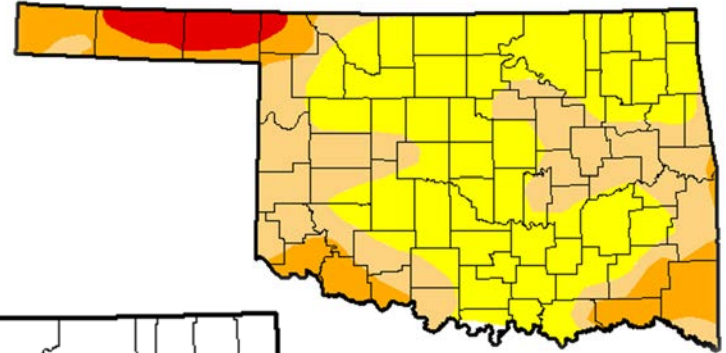
# History of Extremes



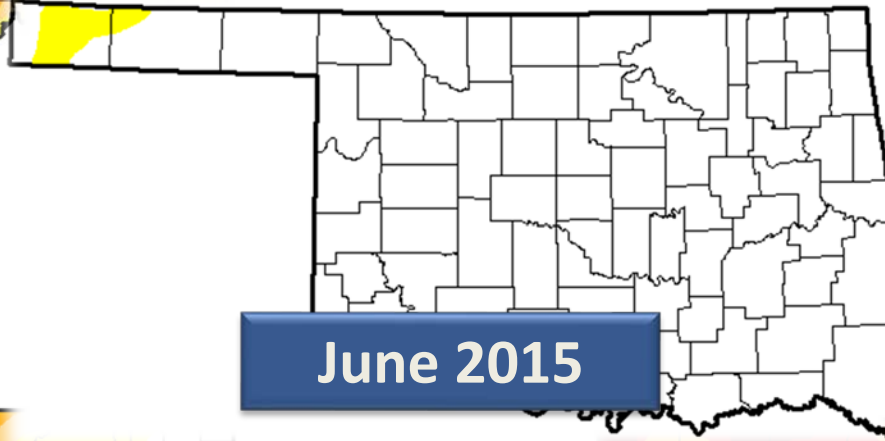
# A Tale of 5 Junes



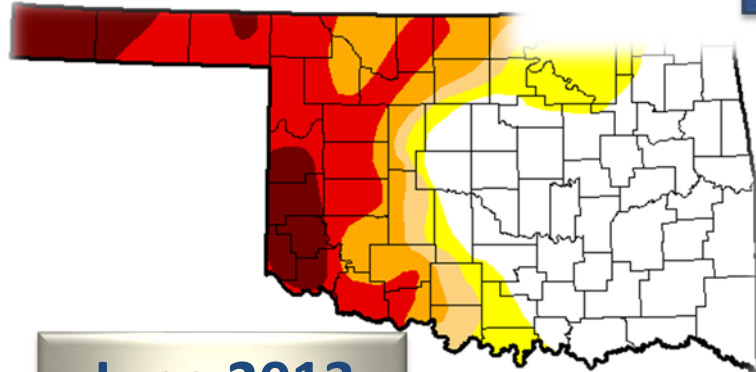
June 2011



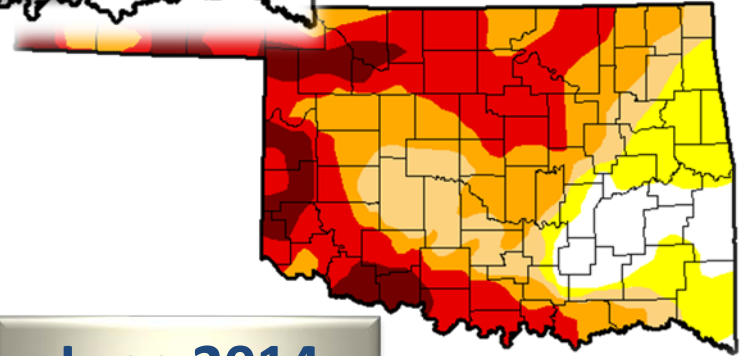
June 2012



June 2015



June 2013



June 2014

## WESTBROOK LEADS WEST TO WIN

Russell Westbrook won most valuable player in the NBA's All-Star Game, scoring 41 points as he led the West to victory Sunday night.

PAGE 10



## Speakers remember beginning of civil rights movement

PAGE 12



# THE OKLAHOMAN

MONDAY, FEBRUARY 16, 2015

REACHING MORE THAN 475,000 PEOPLE EACH DAY

NEWSOK.COM

OKLAHOMAN.COM

## OKC officials look to pipeline project to help during drought

BY SHANE ALLEN  
Staff Writer  
shane@newsok.com

This week at Lake Overholser or Lake Hefner, and it's easy to see why the city's drought has taken on Oklahoma City's

drinking water supply. Water levels at both north Oklahoma City reservoirs have dropped, leaving the city's drinking water supply by a narrow margin. The city is now looking to move more water from south-

west to the north, where it is more plentiful, to customers on the north side of the city. They plan to lay a 20-mile pipeline connecting the Lake Hefner Draper treatment plant with a booster station at Wilcox Avenue and N Council Road, and

another 7 miles of pipeline to connect the booster station with an elevated tank on Cemetery Road south of W. 50th Avenue. The pipeline will improve the ability to move water from where it's most plentiful to residents in other areas, said Larry Shaw, an

engineer with the city's utilities department. "Trying to get water to everybody is our No. 1 priority," Shaw said. "We're always looking for ways to get this done."

SEE DROUGHT, PAGE 2A

## State pension systems show performance is improving

BY SANDY ELLIS  
Staff Writer  
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Booned by a strong stock market, Oklahoma's state pension systems experienced lowest income growth ranging from 5.1 percent to 8.1 percent last year, according to a report scheduled to be presented Wednesday to the Oklahoma State Pension Commission.

The Oklahoma Teachers' Retirement System performed the best of the group and grew 8.1 percent in 2014, while the Police Retirement System grew the least at 5.1 percent.

Assets performed best on the 3-7 percent growth expected by Standard & Poor's 500 stock index, which tracks the performance of 500 large companies that have their common stock listed on the New York Stock Exchange or Nasdaq.

Because of their conservative investment strategies, pension funds can be expected to underperform or match the performance of the stock market during strong market years, said Tom Spensky, executive director of the Oklahoma Teachers' Retirement System.

### Slower returns, less loss

Pension funds typically diversify by placing their funds in a wide variety of investments including common stocks, real estate, bonds and fixed-income investments. This came from the fact that the return of major stock market indexes during last market years, but enables them to not lose as much during stock market crashes, like the 2008 crash when the S&P 500 index dropped more than 50 percent.

"If you keep your portfolio diversified, you're going to lose less when it goes down, but you're not going to gain as much in a year like 2014 when the S&P was up 12.7 percent," Spensky said. "This was a good year for those who were going in the right direction."

Spensky said he is personally most excited by the formation of another report to be presented Wednesday that shows all seven state pension systems a brightened their financial positions last fiscal year.

SEE PENSIONS, PAGE 2A



## DESTROYED MEMORIES

Homeowner fights back against squatting contractor

BY ADAM KEMP  
Staff Writer  
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It was about three months after the May 2013 tornado almost destroyed her Moore home that Latoya Wright, who was living in a hotel while a contractor allegedly made repairs, became a squatter.

Wright said she thought she'd waited long enough after the storm for all the involved contractors to have left town. She thought she'd hired a reputable company, one given an A+ placarding by the Better Business Bureau's website, she said.

Southern Petco Roofing and Construction, an Alabama-based company, in turn, hired Timothy Wayne, an Oklahoma City contractor, who told Wright she'd need to move out of the two-bedroom, one-bath home as work could begin.

In the weeks that followed, Wright said she drove by the home occasionally. She saw a new fence go up. The front door revealed a thick coat of paint. A colorful piece of stained glass window at the broken bay window. Work seemed to be progressing.

Then, one day, her neighbor telephoned. She'd seen kids playing in Wright's backyard and then washed them over Wright's house.

Wright hung up, got in her car and drove to her house. When she opened the garage door, she found a



Above: Latoya Wright shows a piece of decorative plastic she says the contractor who squatted her home hung up to make it look like he had installed a stained-glass window at her Moore home. Top: Latoya Wright stands near a crack in the slab in her bedroom from the May 20, 2013, tornado at her Moore home.

PHOTOS BY NATHAN LANGE, THE OKLAHOMAN

Online: Scan the QR code at right to see more photos and to see a video of the damage to the home, or go to NewsOK.com and search for "contractor squats"



SEE CONTRACTOR, PAGE 2A



## OSU FALLS TO TEXAS IN BIG 12 FINAL

PAGE 10

## HIGH-TECH MOVIE MAKING

In Oklahoma Film Institute course, it's lights, cameras, action!

PAGE 18



# THE OKLAHOMAN

MONDAY, MAY 25, 2015

REACHING MORE THAN 475,000 PEOPLE EACH DAY

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OKLAHOMAN.COM



Left: Eddie Valdez taken pictures Sunday of an overflowing Medicine Creek in Medicine Park. PHOTO BY SARAH HAYES, THE OKLAHOMAN

### INSIDE

• Claremore firefighter remembered as a 'softies, brave person'

• View across photos

PAGE 6A

ONLINE AT NEWSOK.COM

In Parcell, residents describe their experiences after flooding forced them from their homes. Scan the QR code to watch the video.



## 'LIKE A MONSTER'

Flooding kills at least two, forces many from homes

BY SHANE ALLEN  
Staff Writer  
shane@newsok.com

Yet another round of heavy rain swept across Oklahoma on Saturday night and Sunday, causing floods, forcing evacuations and leading to at least two deaths, authorities reported.

A Claremore firefighter drowned Sunday night while trying to evacuate stranded residents, Claremore Fire Chief Sean Douglas said.

Capt. Jason Farley was one of a group of firefighters working to evacuate about 10 residents from a flooded area when he was swept into a store drain, Douglas said. Farley's body was recovered early Sunday.

Another firefighter, Lt. Steve James, also was swept into the store drain while trying to help Farley, Douglas said. James survived the incident and was taken to a Tulsa hospital for treatment of his injuries.

Farley had been with the fire department for about 10 years, James said. The department is a right-to-life group, he said, and Farley's death has been difficult. "It hurts," he said. "It's kind of like your family."

SEE FLOODING, PAGE 6A



George and Susan Kruger make one of three trips with their animals from their flooded house to safety in Parcell. Overnight rains caused water to rise early Sunday.



Daveen Easter looks at his damaged property Sunday after the West Cache Creek overflowed, flooding the area in Cache. PHOTO BY SARAH HAYES, THE OKLAHOMAN

## Residents lose belongings, but thankful they are safe

BY JACLYN COSSGROVE  
Staff Writer  
jaclyn@newsok.com

Cache — Katy Baker thought she had more time.

But then the creek water broke through a side door of her house, and she watched a national TV news anchor's face flash on her screen.

The 67-year-old Cache resident knew she needed to act fast, for the water in her house was 4 feet high, almost to her neckline.

"Look, I need to be a MacGyver," she grinned. Baker planned to climb on top of her washing machine and into her front garden's old post box.

SEE CACHE, PAGE 5A

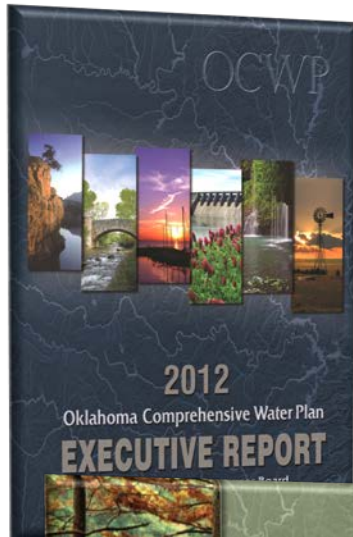
# Challenging Years Ahead

- More climate extremes
- Increasing demands for water
- Aging/failing infrastructure
- Shrinking budgets (at least near term)





# 2012 Update of the Oklahoma Comprehensive Water Plan

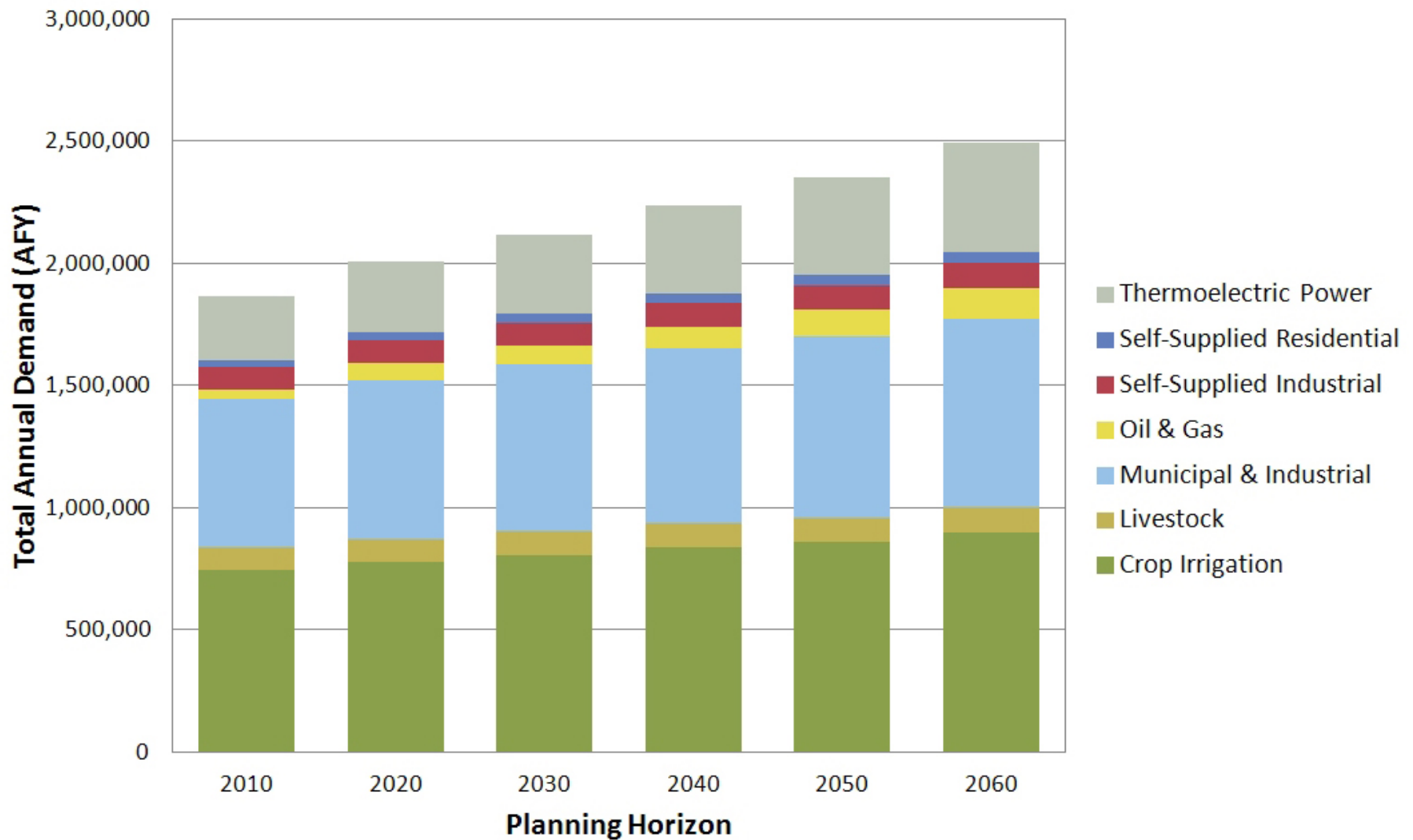


- Submitted to Governor and Legislature in 2012
- Most technically sound, extensively vetted Plan
- Executive Report & 13 Watershed Planning Region Reports

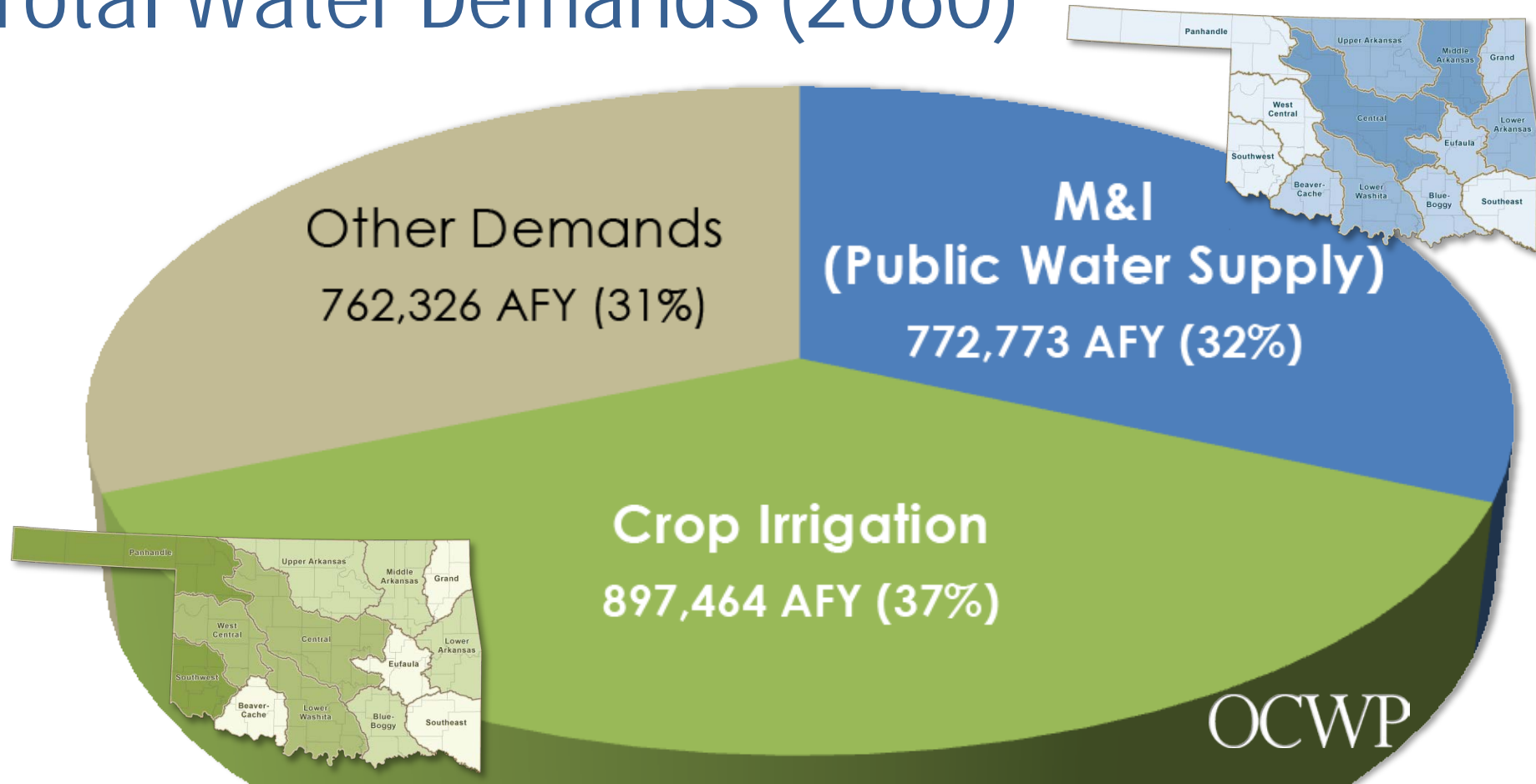


**Overriding goal to provide safe, reliable water supplies to meet needs of all Oklahomans**

# Total Water Demands (2010-2060)



# Total Water Demands (2060)



## Other Demands:

Thermoelectric Power - 450,227 AF (18%)

Self-Supplied Industrial - 54,334 AF (2%)

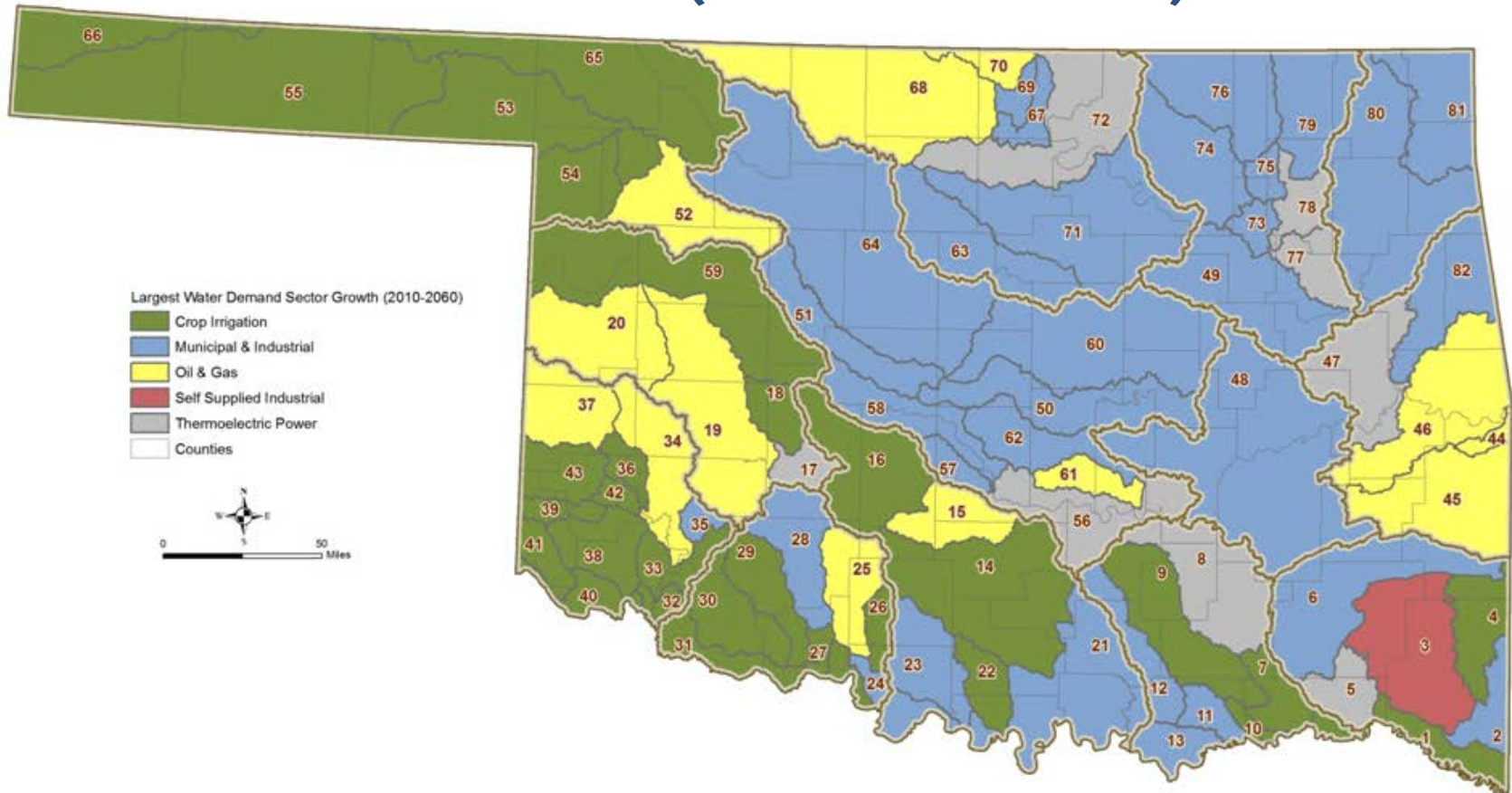
Oil & Gas - 115,570 AF (5%)

Self-Supplied Residential - 41,155 AF (2%)

Livestock - 101,040 AF (4%)

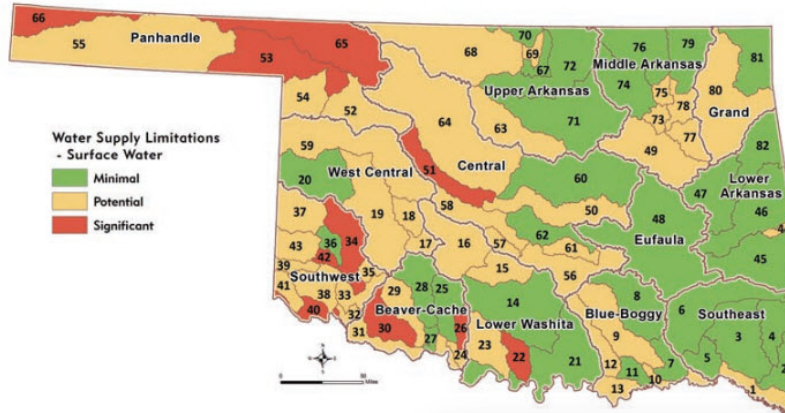


# Largest Water Demand Sector Growth (2010-2060)

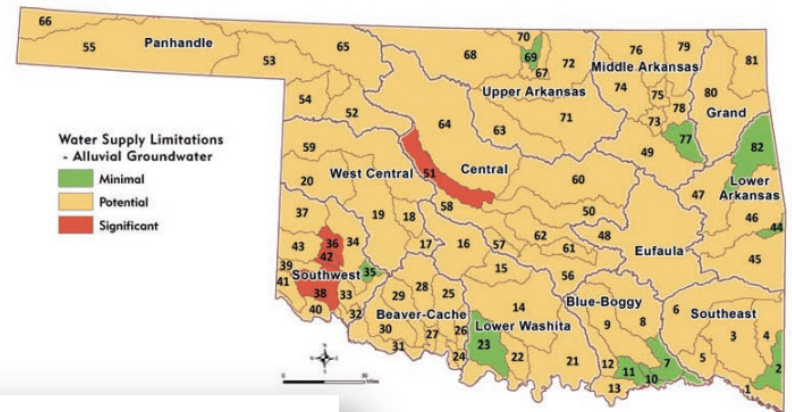


# Future Water Supply Challenges

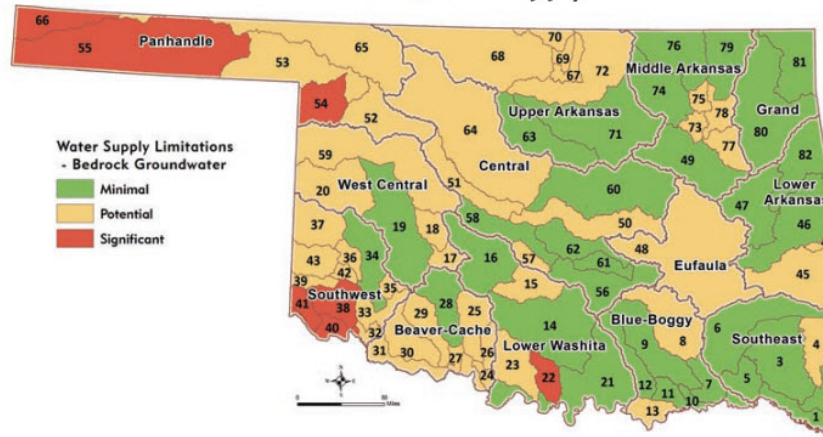
Basin Surface Water Limitations



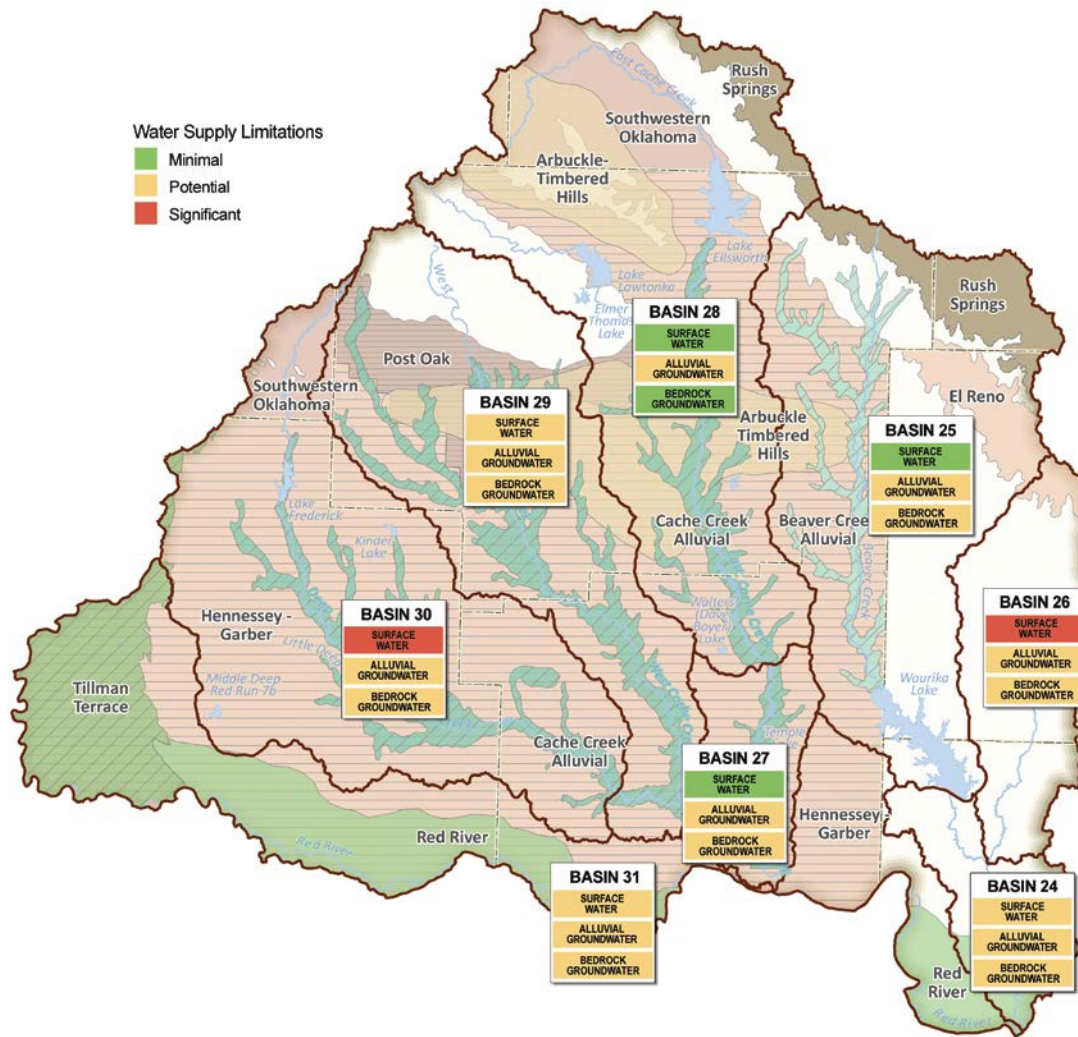
Basin Alluvial Groundwater Supply Limitations



Basin Bedrock Groundwater Supply Limitations

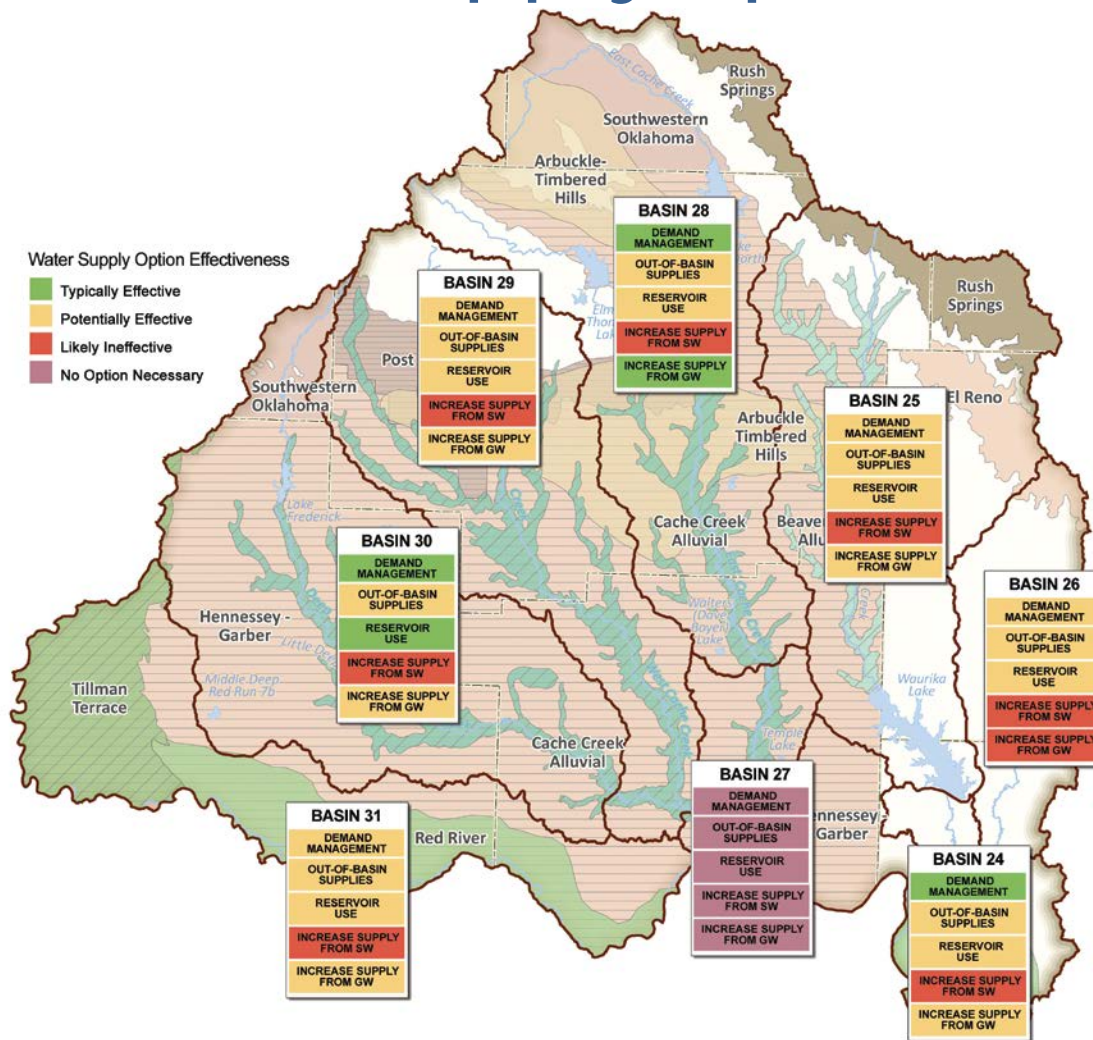


# Beaver-Cache Supply Challenges

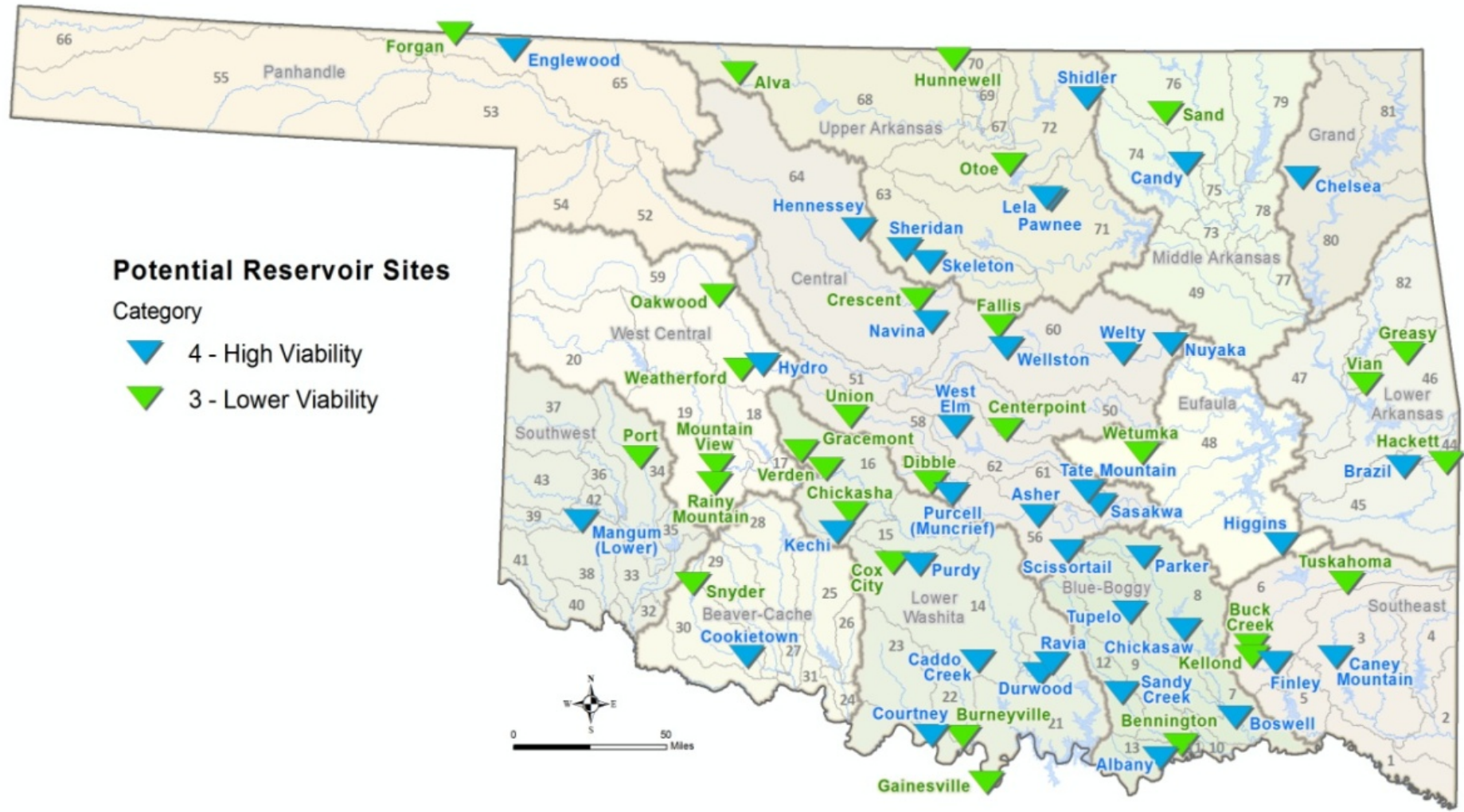




# Beaver-Cache Supply Options



# New Reservoirs?





# Estimated Cost of New Reservoirs...

- 68 detailed studies for Potential new reservoirs
- Construction Costs: \$9 million to over \$1 billion
- Costs Dependable Yield \$500 to \$22,000 per AF

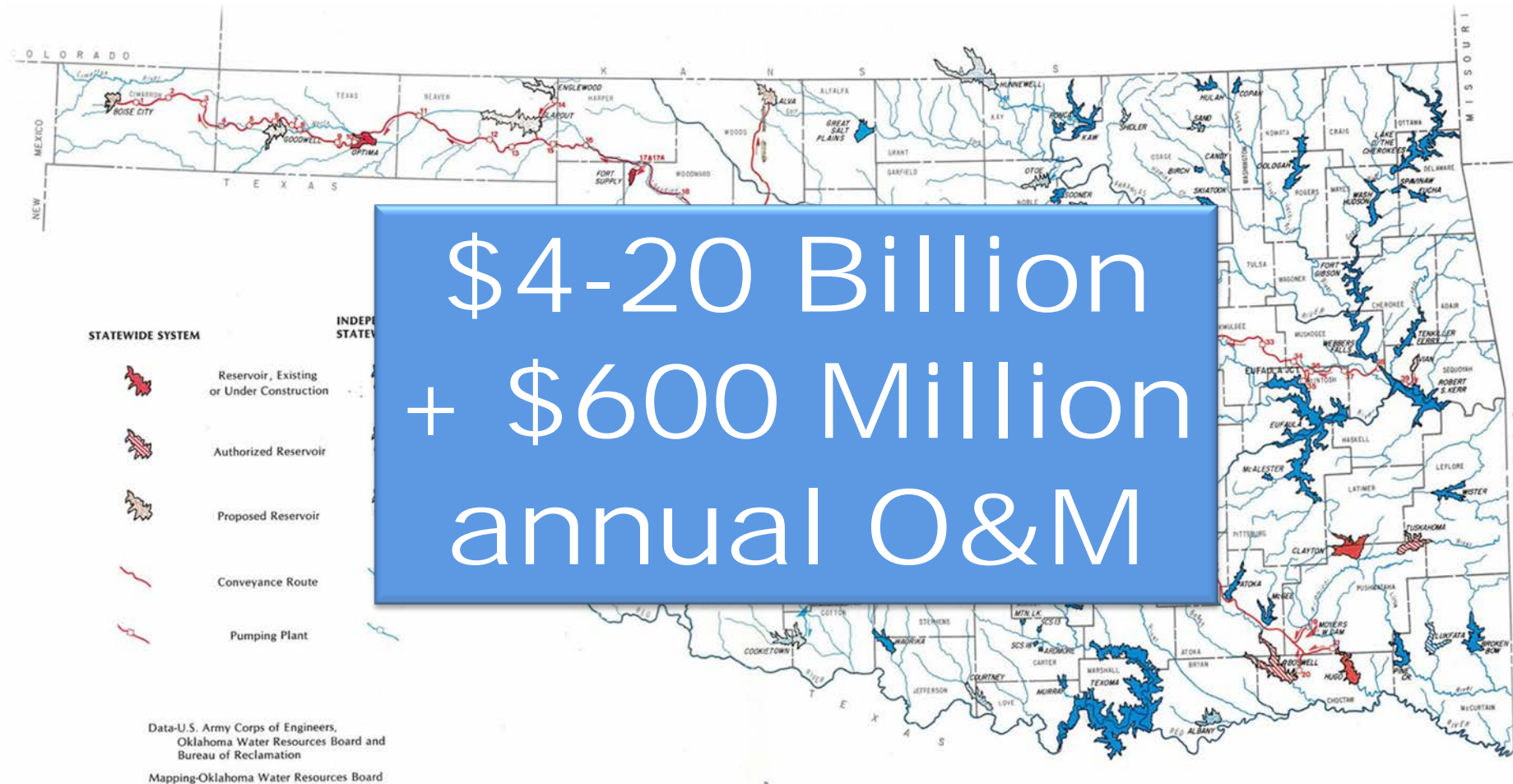
## Five Lowest Estimated Proposals by Total Cost

Reservoir Name	County	Dependable Yield	Conservation Pool Storage	Updated Cost Estimate 2010	Cost per AF Yield
		AF	AF		
Centerpoint Lake	Pottawatomie	700	3000	\$8,943,000	\$12,775.71
Muncrief Dam	McClain	20000	112000	\$28,757,000	\$1,437.85
Wellston Lake	Lincoln	7700	25000	\$54,023,000	\$7,015.97
Verden Reservoir	Caddo	5000	34000	\$56,222,000	\$11,244.40
Shidler Lake	Osage	16803	54920	\$58,264,000	\$3,467.48

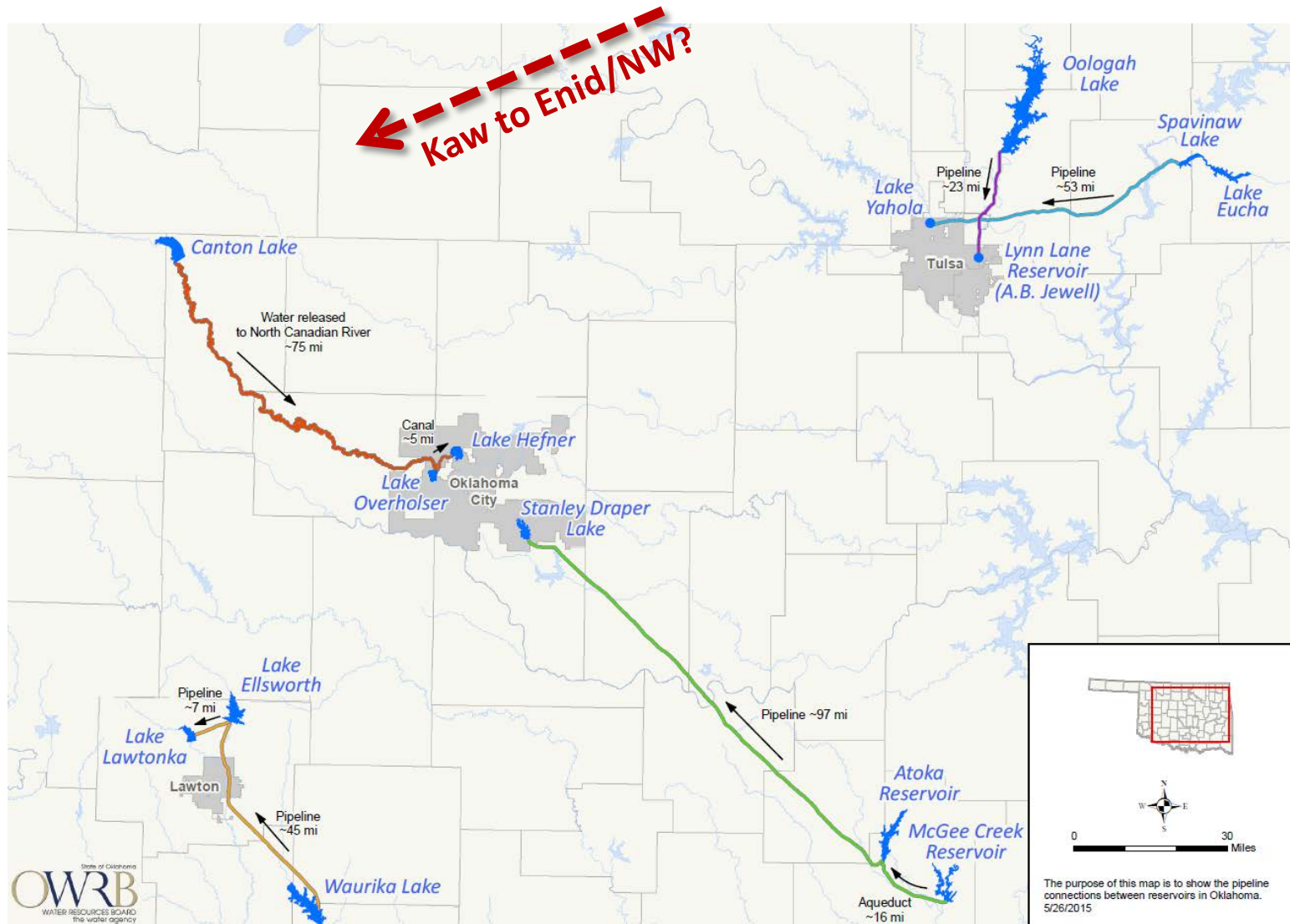
## Five Lowest Estimated Proposals by Cost per A.F. Yield

Reservoir Name	County	Dependable Yield	Conservation Pool Storage	Updated Cost Estimate 2010	Cost per AF Yield
		AF	AF		
Caney Mountain Lake	Pushmataha	280055	384720	\$131,312,000	\$468.88
Durwood Reservoir	Johnston	232000	306000	\$166,429,000	\$717.37
Asher Lake	Pontotoc	400000	550000	\$373,610,000	\$934.03
Bennington Reservoir	Bryan County	179000	287420	\$180,662,000	\$1,009.28
Higgins Reservoir	Latimer	68000	190500	\$84,651,000	\$1,244.87

# East-West Conveyance?



# Smaller Out-of-Basin Water Transfers





Plan.

Do!



Infrastructure Financing



Conservation, Reuse, Recycling



Monitoring



Supply Reliability



Fish & Recreation Flows



Excess/Surplus



State/Tribal Resolution



Regional Planning



# Conserve/Reuse/Recycle

## An Act

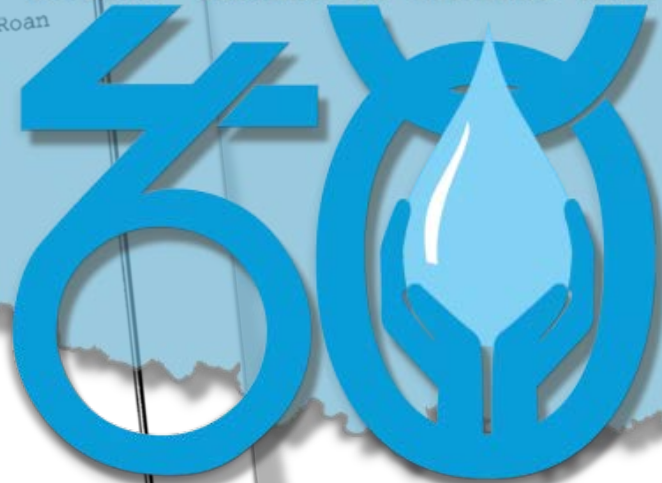
ENROLLED HOUSE  
BILL NO. 3055

By: Steele, Lockhart and Roan  
of the House  
and  
Fields of the Senate

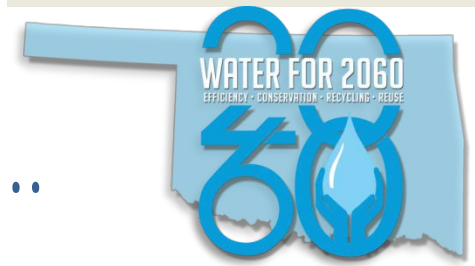
An Act relating to waters and water rights; creating the Water for 2060 Act; providing short title; stating Legislative findings; stating goal for water consumption by certain year; amending 82 O.S. 2011, Section 1088.1, which relates to the Oklahoma Water Conservation Grant Program; modifying name of act; adding rural water districts to act; authorizing certain water reuse projects; creating the Water for 2060 Advisory Council; stating membership and providing for appointments; requiring Executive Director of the Oklahoma Water Resources Board to serve as chair; providing for quorum, membership vacancies and administrative support for Advisory

## WATER FOR 2060

EFFICIENCY • CONSERVATION • RECYCLING • REUSE



# The Cheapest Source of Water...



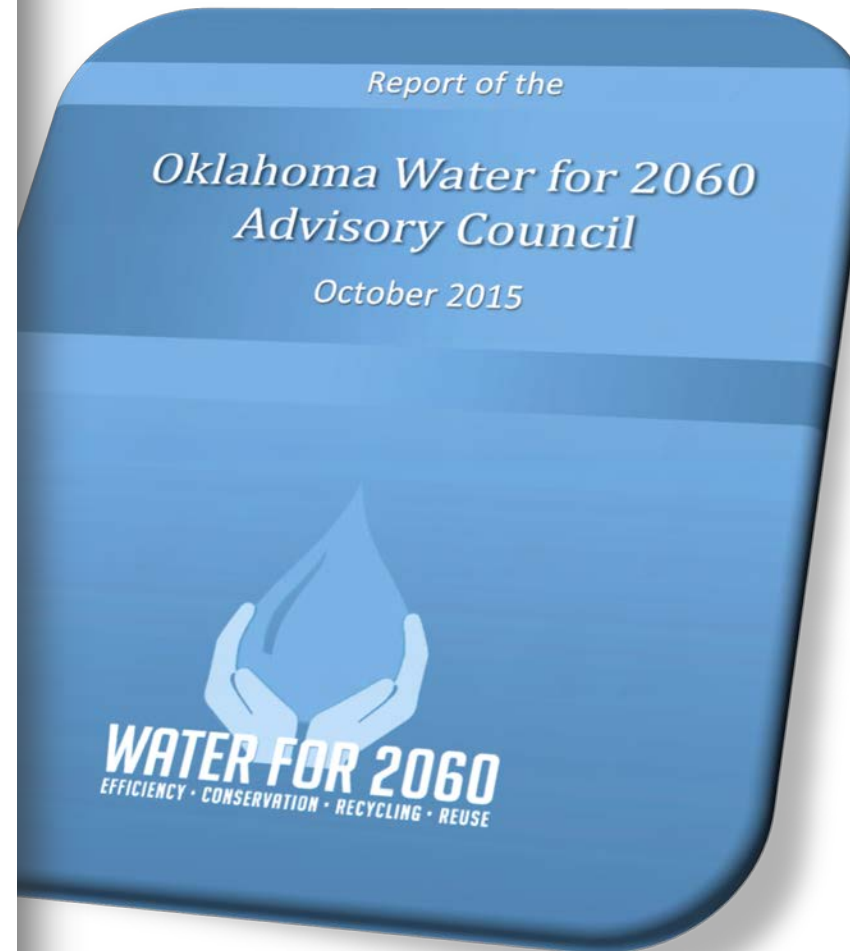
“Oklahoma is truly unique in setting such an ambitious goal for water efficiency, conservation, recycling and reuse.... there is no doubt that it will take each and every one of us working together to become the nation's most water-efficient state.”

- Governor Mary Fallin

# Final Report Submitted!

## Water for 2060 Advisory Council Recommendations

All Water Use Sectors (A)	A-1 Develop public education and outreach materials, a statewide resources conservation campaign, and an Oklahoma water efficiency portal.
Public Water Supply (PWS)	<p>PWS-1 Develop an Oklahoma public water supply system water efficiency best practices guide.</p> <p>PWS-2 Develop a state recognition and rewards program for highly efficient public water supply systems.</p> <p>PWS-3 Develop an Oklahoma water system loss reduction best practices guide.</p> <p>PWS-4 Provide state funding and financing for water system loss reduction.</p> <p>PWS-5 Encourage regionalization and supply sharing.</p>
Crop Irrigation (CI)	<p>CI-1 Apply state financing programs to water-efficient crop irrigation equipment conversion and practices.</p> <p>CI-2 Develop an Oklahoma crop irrigation best practices guide.</p> <p>CI-3 Actively support federal crop insurance reform.</p>
Energy & Industry (EI)	<p>EI-1 Facilitate increased sharing of information and supplies between energy and industry water users.</p> <p>EI-2 Develop an energy and industry water use best practices guidance and recognition program.</p> <p>EI-2 Promote industrial use of marginal quality waters.</p>





# Education & Outreach Campaigns

Squeeze  
Every  
Drop

FOLLOW US



SIGN UP TO RECEIVE OUR NEWSLETTER

HOME | SAVING WATER OUTDOORS | SAVING WATER INDOORS | WORKSHOPS AND EVENTS | ASK THE EXPERTS | WATER CONSERVATION PROGRAM | CONSUMER CONFIDENCE REPORT | CONTACT



Dewey says, "Adjust your sprinkler system to the change of the season. Plants need a lot less water in the fall and winter."

Fall tips to save even more.

## WATER CONSERVATION NEWS

### WATERING DURING FREEZING TEMPERATURES COULD RESULT IN A FINE

Even though it's cold outside doesn't mean it's alright to forget about water...

[READ MORE](#)

POSTED 11/19/2015

### FALL IS IN THE AIR BUT LEAVES ARE ON THE GROUND

Now that Oklahoma is experiencing cool, crisp mornings, warm, sunny days and...

[READ MORE](#)

POSTED 11/12/2015

[MORE NEWS](#)

## DROUGHT MONITOR



## IRRIGATION PLANNER



## HOW TO VIDEOS

## WATER SCHEDULE

## UPCOMING EVENTS

## COMBINED LAKE CAPACITY

Save Our Water



The California lifestyle

Agency & Business Toolkit

English | Español



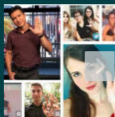
What You Should Know  
Drought Facts



What You Can Do  
Ways to Save



What's New  
In the News



SAVING TOGETHER  
WITH A SELFIE

Find Out How

# Recognition/Incentive Programs



**SOUTHERN NEVADA WATER AUTHORITY**  
A NOT-FOR-PROFIT WATER AGENCY

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Coupons Landscape Rebate

**Multimedia**

Video: Conservation Programs

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Photos: Drip Irrigation Tips

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**Finding Leaks**

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**Pool Cover Coupons**

Did you know a pool cover can save thousands of gallons of water each year by reducing evaporation? Purchase one today using SNWA's instant rebate coupon. [More](#)

**Smart Irrigation Clock Rebate**

A smart irrigation controller will help you save water by automatically adjusting the watering schedule according to the weather. SNWA offers a rebate coupon for smart controllers. [More](#)

**Rain Sensor Rebate**

You may know that turning off your irrigation system on rainy days saves water, but who remembers to do it? Use our instant rebate coupon to purchase a rain sensor, and you'll have one less thing to worry about. [More](#)

**Get more cash for your grass**

There's never been a better time to upgrade your landscape! Take advantage of an increased incentive for the Water Smart Landscapes Rebate Program and receive up to \$2 for every square foot of grass removed and replaced with water-efficient landscaping. [Learn More](#)

**Get Cash for Your Grass**

The Water Authority will rebate customers up to \$2 per square foot of grass removed and replaced with water-efficient landscaping. [Get your Water Smart Landscapes Rebate](#)

**Use a Water Smart Car Wash**

Give yourself a break and take advantage of one of our Water Smart Car Washes. We'll even throw in a coupon for a few dollars off. [Get Car Wash coupons](#)

**Landscape Resources**

Use our worksheets and tips to help you convert your grass to a water efficient landscape.

- [Preconversion Resources](#)
- [Post Conversion Resources](#)

**Getting Started**

- [Plant Coverage Worksheet](#)
- [Water Smart Landscapes Program Plant List](#)
- [Plant Search](#)
- [Professional Landscape Designs](#)

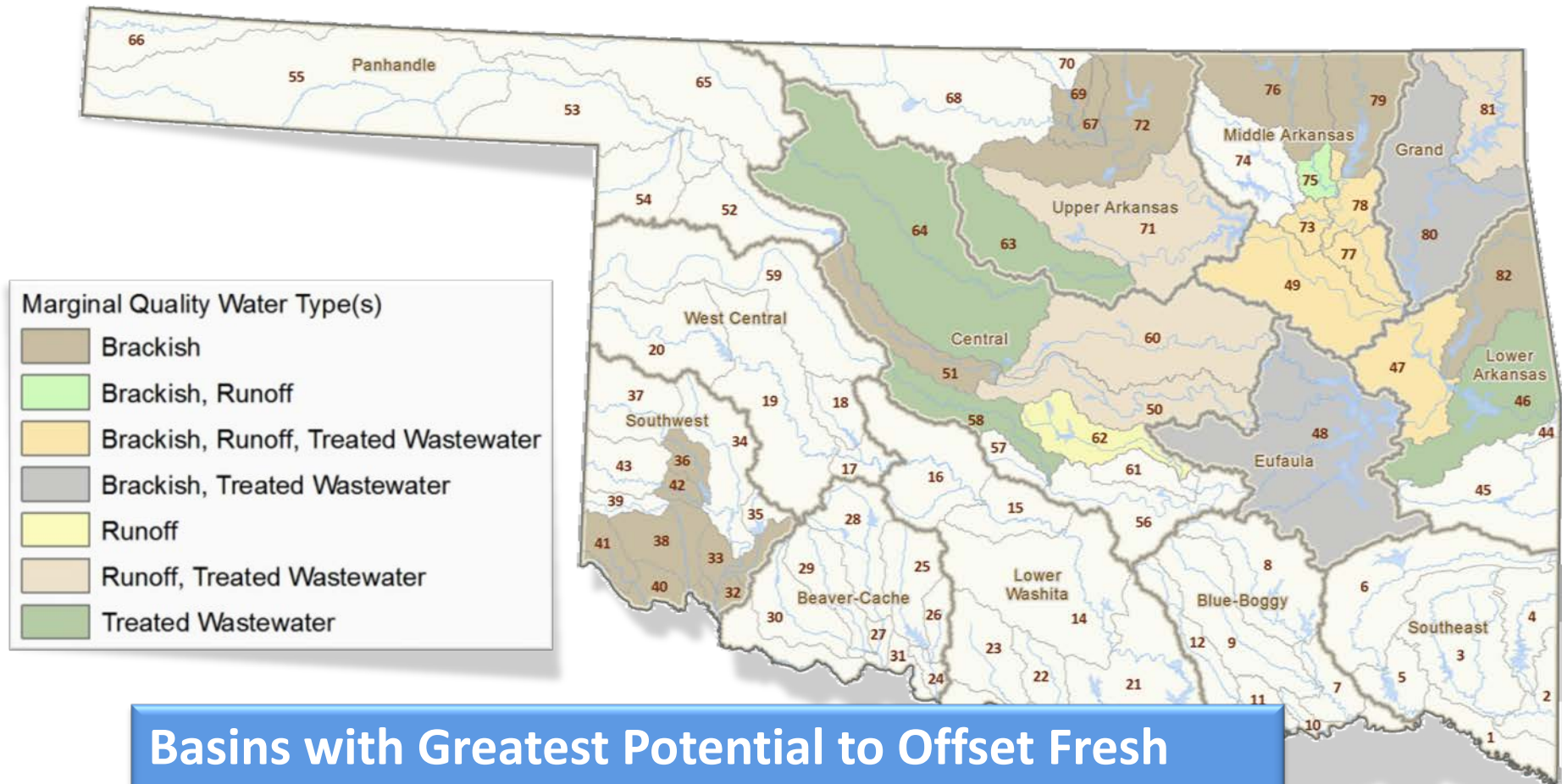
**Keeping It Healthy**

- [The First Few Months](#)
- [New Landscape Maintenance](#)
- [One Year Anniversary - Summer](#)





# Marginal Quality Water



**Basins with Greatest Potential to Offset Fresh Water Use with MQ Water**

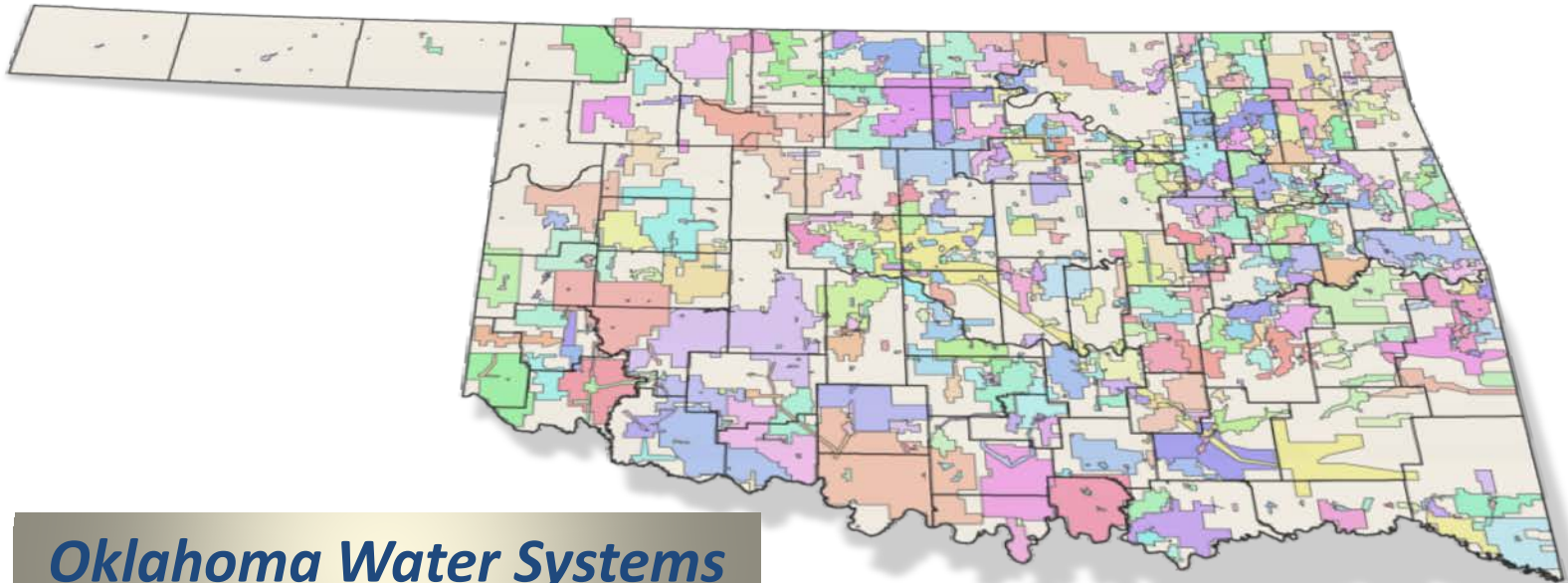




# Regionalization



- Oklahoma has ~700 water systems serving less than 1,000 customers
- Economy of scale benefits; systems with multiple sources more resistant to drought



***Oklahoma Water Systems***

# Regulatory Developments

- **Water reuse collaboration**
- **New SWS-r in WQS**
- **ASR preliminary work**
- **ISF pilot study**



# 2016 Legislative Session

- **Budget, budget, budget!**

- HB 2623: GPT sunset extension
- SB 1219: Opens the door for ASR
- SCR 33: Crop insurance reform
- Other Water for 2060 initiatives?

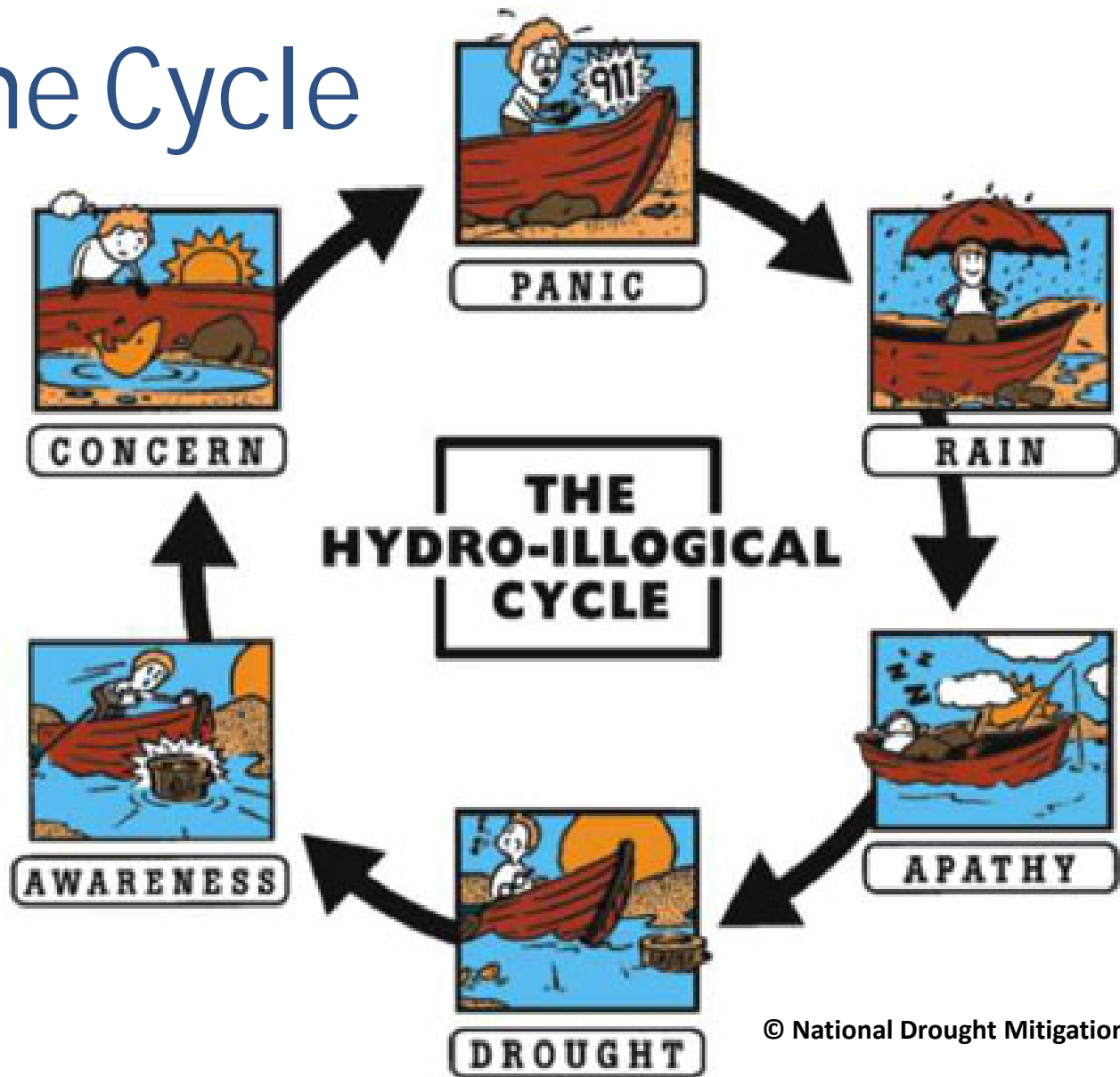
- **WRDA 2016**

- Water supply flexibility
- Infrastructure financing (rural)
- Dam safety/rehabilitation





# Break the Cycle



© National Drought Mitigation Center

# Double-Down on Drought

- **Plan... locally, ahead, for the worst**
- **Conserve, reuse, recycle... innovate!**
- **Invest in the repair and construction of smart, efficient projects**
- **Monitor & measure**
- **(Rinse.) Repeat.**

# Questions?

**J.D. Strong**

Executive Director

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