

# Maximizing Southwest Oklahoma's Water Supply Reliability



Brian Bush  
Altus Chamber of Commerce  
Altus/SW Area Economic Development Corp.

2015  
Governor's  
Water  
Conference

# Southwest Oklahoma (Major Water Supplies & Suppliers)





# About Altus...

- ◎ The economic hub of SW Oklahoma
- ◎ Altus Air Force Base:
  - Primary employer at 4,250 jobs
  - \$350 million/year economic impact
- ◎ Agriculture Industry:
  - \$200+ million/year in cotton production
  - Altus-area production facilities



# SW Oklahoma Water Supply

**Mountain Park  
Master Conservancy  
District**

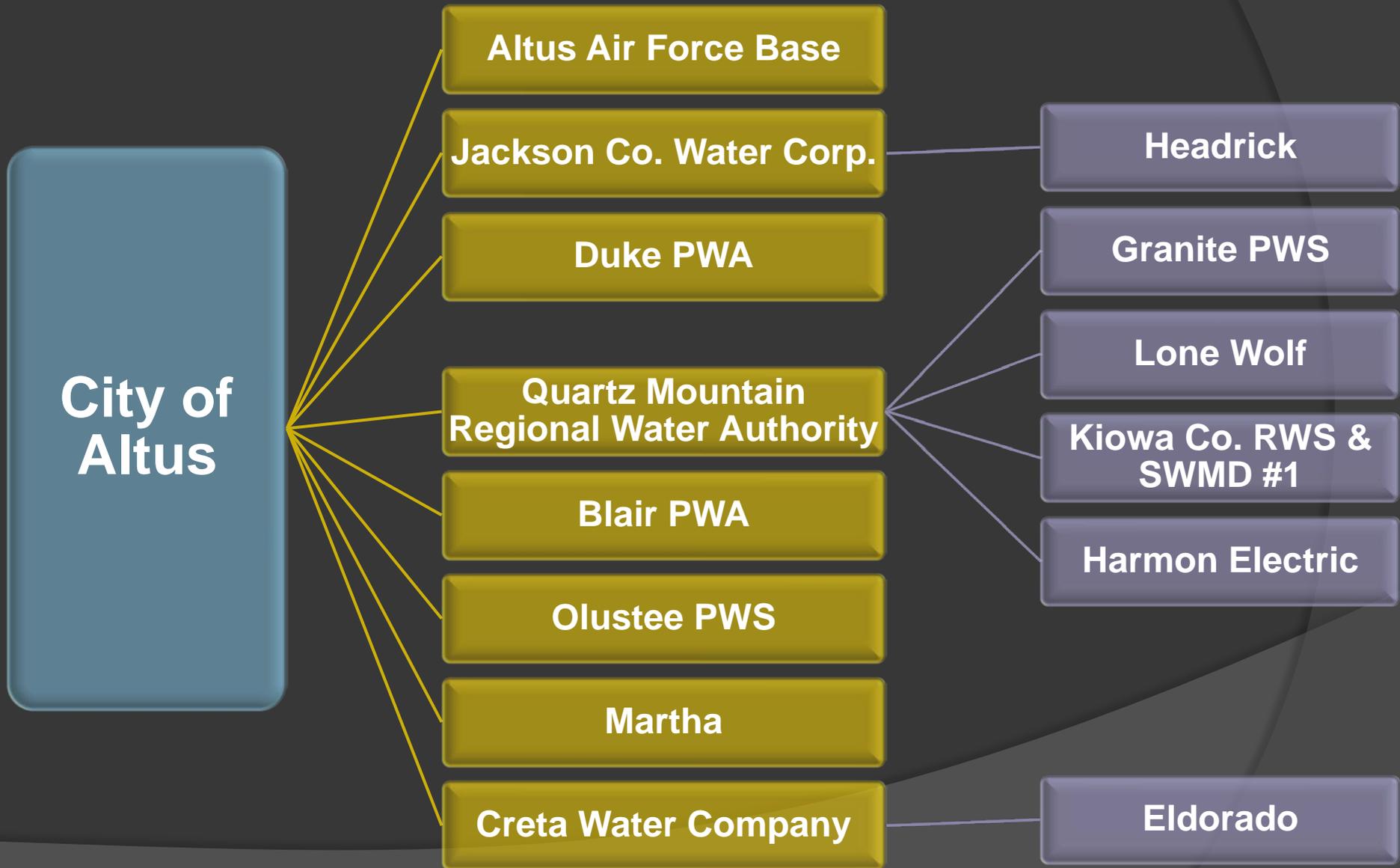
**Southwest Oklahoma's  
Primary Public Water  
Supplier**

**Altus**

**Snyder**

**Frederick**

# SW Oklahoma Water Supply



# SW Oklahoma Water Supply

**Lugert-Altus Irrigation  
District**

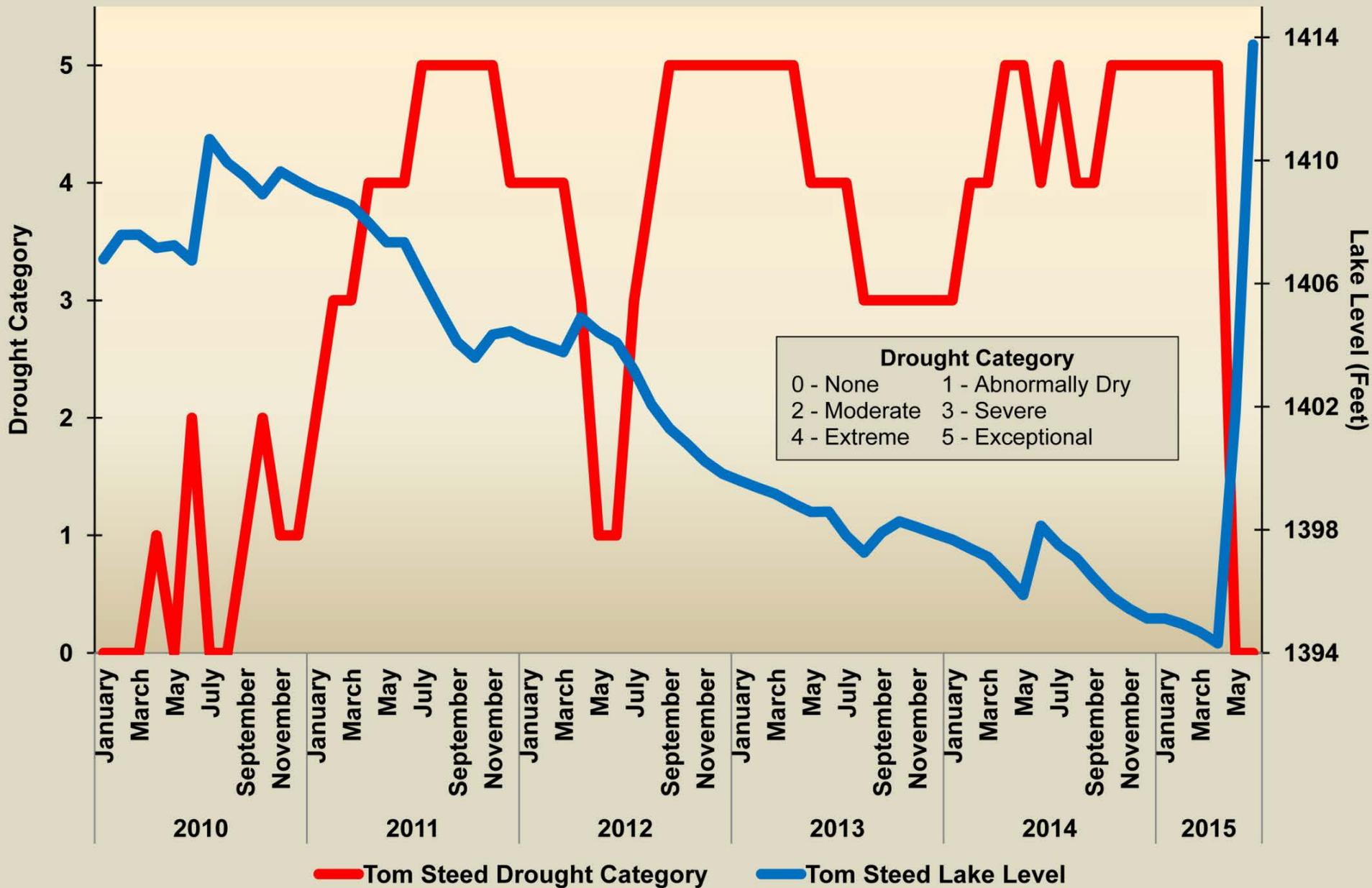
**Fuels Southwest Oklahoma's  
Chief Economic Sector**

**47,000 Acres of  
Irrigated  
Agriculture  
(Hundreds of  
Members)**

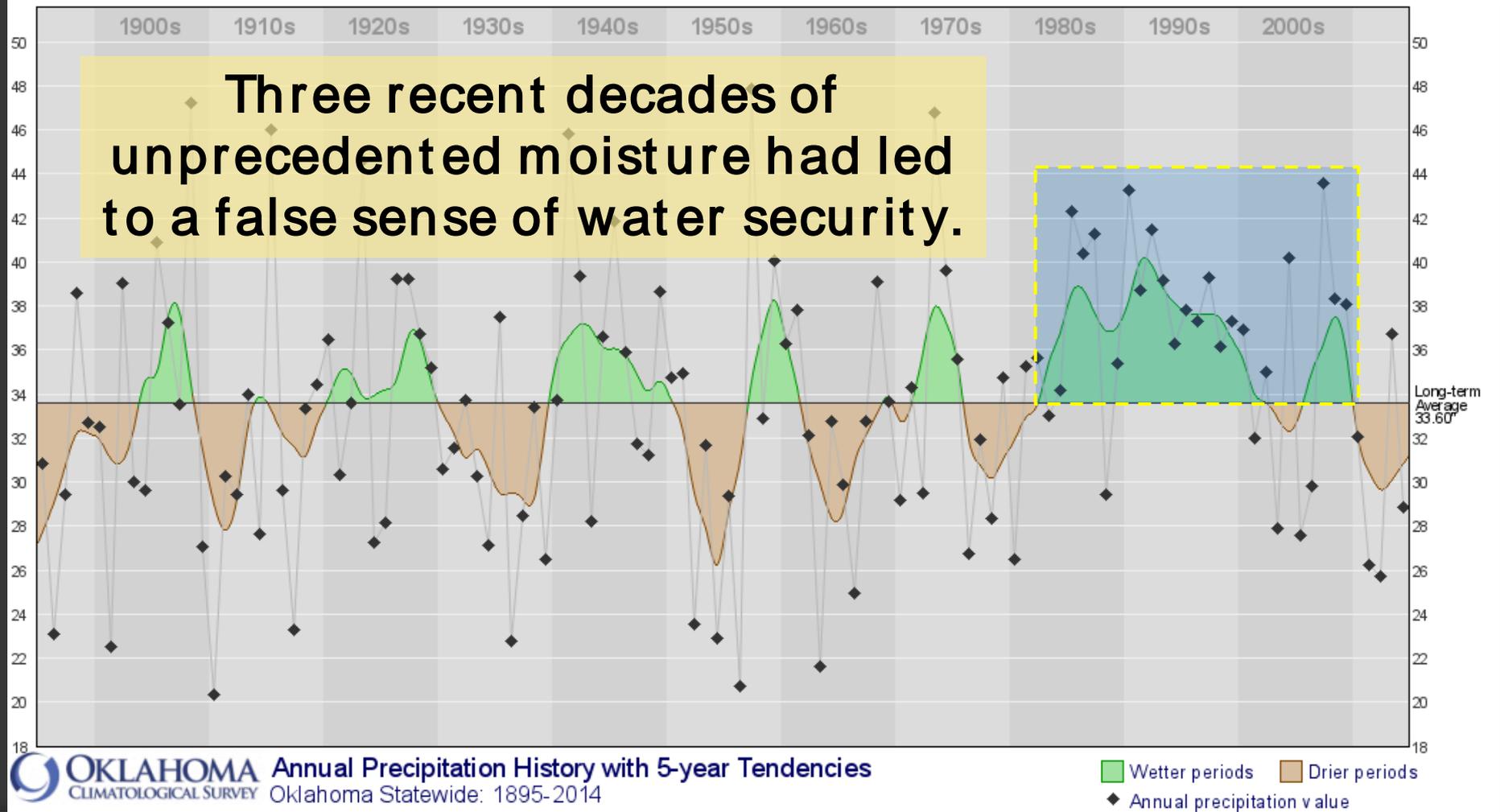
# The 2010-15 Drought

- ⦿ More than 5 years of progressively worsening precipitation deficits
- ⦿ Severe impacts to all economic sectors
- ⦿ Drastic lake level reductions decimated municipal/agricultural water supplies:
  - Tom Steed
  - Lugert-Altus Reservoir

# Tom Steed Drought Conditions & Lake Level 2010 - 2015

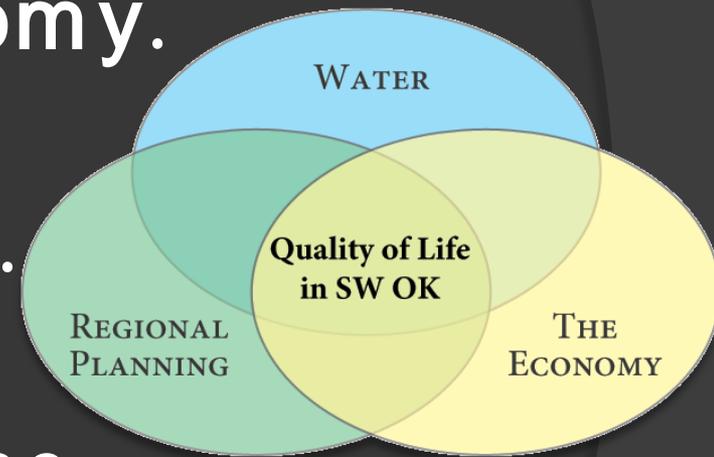


# Oklahoma's Precipitation History



# The 2010-15 Drought: What we learned...

- ⦿ Drought has the power to devastate SW OK's economy.
- ⦿ We must minimize our **vulnerability** to drought.
- ⦿ Water managers should assume that dryness is the "new normal" and plan accordingly in cooperation with all **regional stakeholders**.



# The 2010-15 Drought: Our response...

- Improve southwest Oklahoma's water supply reliability.
- Unify stakeholders & leverage common water supply and economic development goals:
  - SW OK Water Supply Task Force (2013>):
    - City of Altus
    - Mountain Park Master Conservancy District
    - Lugert-Altus Irrigation District
    - Altus Air Force Base
    - Agriculture, Industry, and Business

# SW Oklahoma Water Supply Task Force

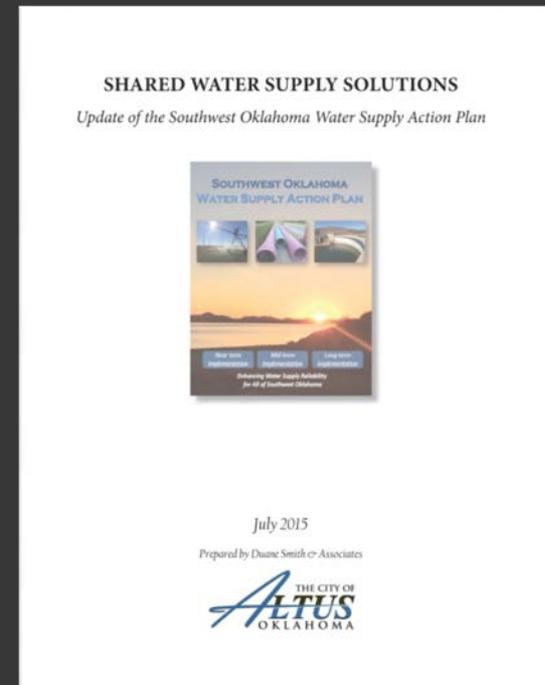
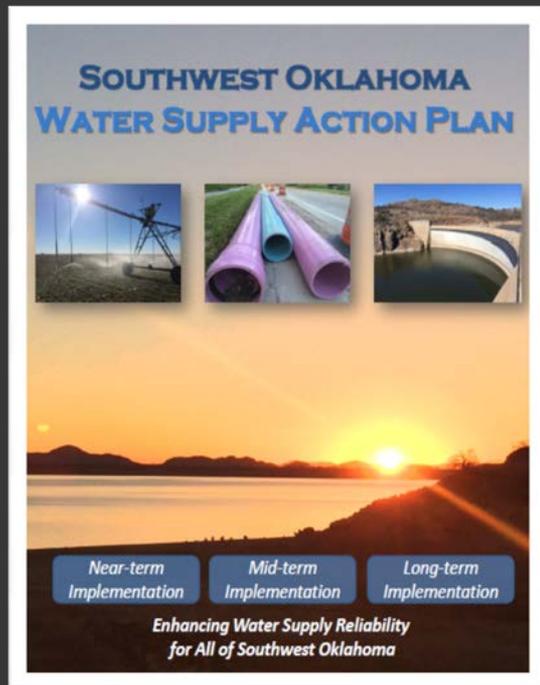
- Initiated regular meetings in 2013 to develop a long-term plan with phased Action Strategies
- Permanent organization



# Southwest Oklahoma Water Supply Action Plan (SWAP)

○ Completed May 2014

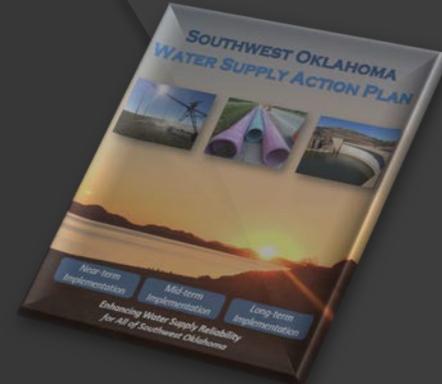
○ Updated July 2015



FACILITATION &  
ENGINEERING SUPPORT



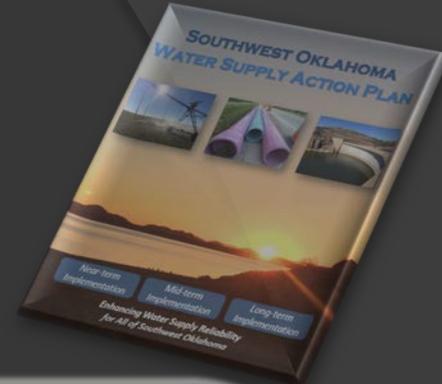
# Southwest Oklahoma Water Supply Action Plan



## Key Findings

- Region is over-reliant on limited surface water supplies
- More reliable groundwater supplies are available

# Southwest Oklahoma Water Supply Action Plan



## Primary Goals for Altus

- Balance water supply
- Increase reliability of Tom Steed
- Decrease the pressure on Tom Steed
- Expand the city's groundwater supply
- Mitigate THMs

# SWAP Strategies: Maximizing Water Reliability

## NEAR-TERM

Groundwater  
Supplies

Water  
Conservation

Unified Drought  
Response

SWAP Advisory  
Committee

## MID-TERM

Divert Flows to  
Storage

Interconnection  
of Systems

Non-Potable  
Reuse

Altus Lake  
Rehabilitation

## LONG-TERM

Reservoir  
Development

Potable Reuse

Transbasin  
Sources

# Ongoing Implementation

\$2.3 million  
OWRB loan

\$575,000 OWRB  
Drought Grant

## Additional Groundwater Supplies

- Develop additional wells and infrastructure to bring up to 2 MGD of groundwater into Altus municipal system:
  - Reactivate Round Timber and Holloway well fields (Texas)
  - Provide supply redundancy
  - Blending to reduce THMs
  - February 2016

# Ongoing Implementation

Funded by  
City of Altus  
(\$1.2 million)

## Additional Groundwater Supplies (Augmentation)

- New wells downstream of Tom Steed dam will increase Mountain Park delivery capacity (>20%):
  - Blending (THMs)
  - Supply distributed to Altus and/or Snyder through direct transmission via existing raw water lines
  - 2016

# Ongoing Implementation

Funded by  
City of Altus

## Treatment Plant Renovation

- Bring Altus RO plant back online to enhance treatment of Lugert-Altus Reservoir water, address THM concerns and provide for future GW supply treatment:
  - redesign and retrofit plant to accommodate conventional pretreatment
  - January/February 2016

# Ongoing Implementation

**Divert  
Additional  
Flows to  
Existing  
Storage  
(Tom Steed)**

- Investigation by Bureau of Reclamation
- Supplement supply at Tom Steed Reservoir
- Widen existing Bretch Diversion Canal and divert more flows from Elk Creek
- 2016/2017

# Ongoing Implementation: Water Conservation

## City of Altus

- New restrictions/Ordinance
- Restructure water/utility rates
- Investigating leak detection study
- Smart meters

## Mountain Park

- Customers have reduced use by 40%

## Altus AFB

- Exemplary water use habits
- THM Monitoring

## LAI Efficiencies

- Drip irrigation systems
- Tailwater pits catch and retain runoff
- Reuse

# Ongoing Implementation

## Cable Mountain Reservoir Project

- Downstream of Lugert-Altus on North Fork
- Estimated yield 100,000-120,000 AFY
- \$300 million (estimated)
- Augment LAID supply through pumping plant, pipeline and canal
- Companion **chloride control** project will improve quality
- Potential regional water supply source (OK/TX cities and military installations)
- Reclamation will fund engineering study; previously studied by COE

# Ongoing Implementation

## Altus Lake Rehabilitation

- 140-acre municipal supply constructed in 1940
- Largely unused due to sedimentation
- Dredging and dam rehab to create redundant water source
- Alleviate pressure on other regional surface sources
- Recreational opportunities

# Future Implementation

## Other Initiatives

- ◎ Unified Drought Response Plan:
  - Early stages of development
- ◎ Interconnection of Water Systems:
  - Investigating opportunities
- ◎ Non-Potable Reuse:
  - Potential at City of Altus, AFB & LAID
- ◎ Potable Reuse:
  - Possibly augment Tom Steed/LAID supply with reclaimed wastewater
- ◎ Other Reservoir Development:
  - Trico Project on North Fork upstream of Lugert-Altus
- ◎ Transbasin Sources

# Questions?

**SOUTHWEST OKLAHOMA  
WATER SUPPLY ACTION PLAN**



**Near-term  
Implementation**

**Mid-term  
Implementation**

**Long-term  
Implementation**

*Enhancing Water Supply Reliability  
for All of Southwest Oklahoma*