Maximizing Southwest Oklahoma’s Water Supply Reliability

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Altus/SW Area Economic Development Corp.
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
Mountain Park Master Conservancy District
Southwest Oklahoma’s Primary Public Water Supplier

Altus
Snyder
Frederick
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
Oklahoma’s Precipitation History

Three recent decades of unprecedented moisture had led to a false sense of water security.
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
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
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
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

$2.3 million OWRB loan
$575,000 OWRB Drought Grant
Implementation

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

Funded by City of Altus
Ongoing Implementation

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

Funded by City of Altus ($1.2 million)
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

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<th>Location</th>
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| 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  |
| LAID Efficiencies| • Drip irrigation systems  
                    • Tailwater pits catch and retain runoff  
                    • Reuse  |
Ongoing Implementation

• 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

Altus Lake Rehabilitation
Ongoing Implementation

- 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
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?