

Round 2 | Presentation

2025 OCWP Regional Meetings



Northwest	Goodwell	December 5
Southwest	Lawton	December 11
Southeast	Talihina	December 12
Northeast	Tahlequah	December 13
Central	Oklahoma City	December 14
Virtual		December 14



OKLAHOMA
Water Resources Board



US Army Corps
of Engineers®

Website: [Oklahoma.gov/OWRB/Water-Planning](https://www.oklahoma.gov/OWRB/Water-Planning)
Facebook: Oklahoma Comprehensive Water Plan



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01

Welcome

Goals for the OCWP Regional Meetings

Why and how we want you to participate!



Identify the most pressing local water issues and policy needs.



Guide the identification and deployment of solutions to those issues and needs.



Chart a course toward reliable, resilient water management locally and statewide.

Agenda

01 Welcome and Share Success Story

02 OCWP Update

03 Networking Break

Concurrent Breakout Sessions

04 Session 1 – Permitting / Regulations / Policy

Session 2 – Collaboration / Partnership

Session 3 - Infrastructure funding and financing discussion

05 Breakout session reports

06 Look-ahead

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OCWP Team Leaders



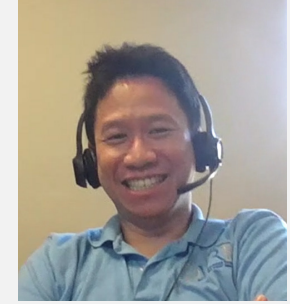
**Julie
Cunningham**

*Executive Director,
OWRB*



**Owen
Mills**

*Director of Planning,
OWRB*



**Yohanes
Sugeng**

*Engineering and Planning
Division Chief, OWRB*



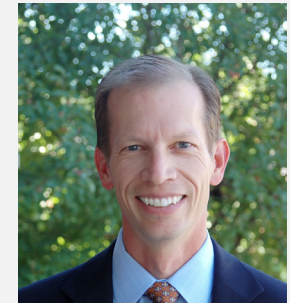
**Amber
Wooten**

*Project Manager,
Carollo Engineers*



**Jessica
Fritsche**

*Senior Water
Resource Planner,
Carollo Engineers*



**John
Rehring**

*Senior Water
Resource Engineer,
Carollo Engineers*

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Welcome



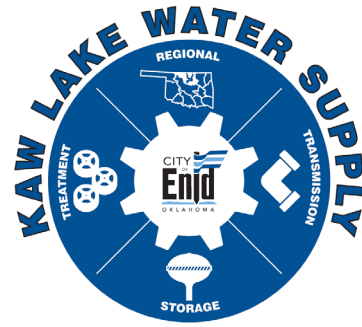
Federal Legislators
State Legislators
Local Government Officials
OWRB Board Members

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Local success story



Murali Katta
City of Enid
Director of Engineering





City of Enid

Kaw Lake Water Supply Program

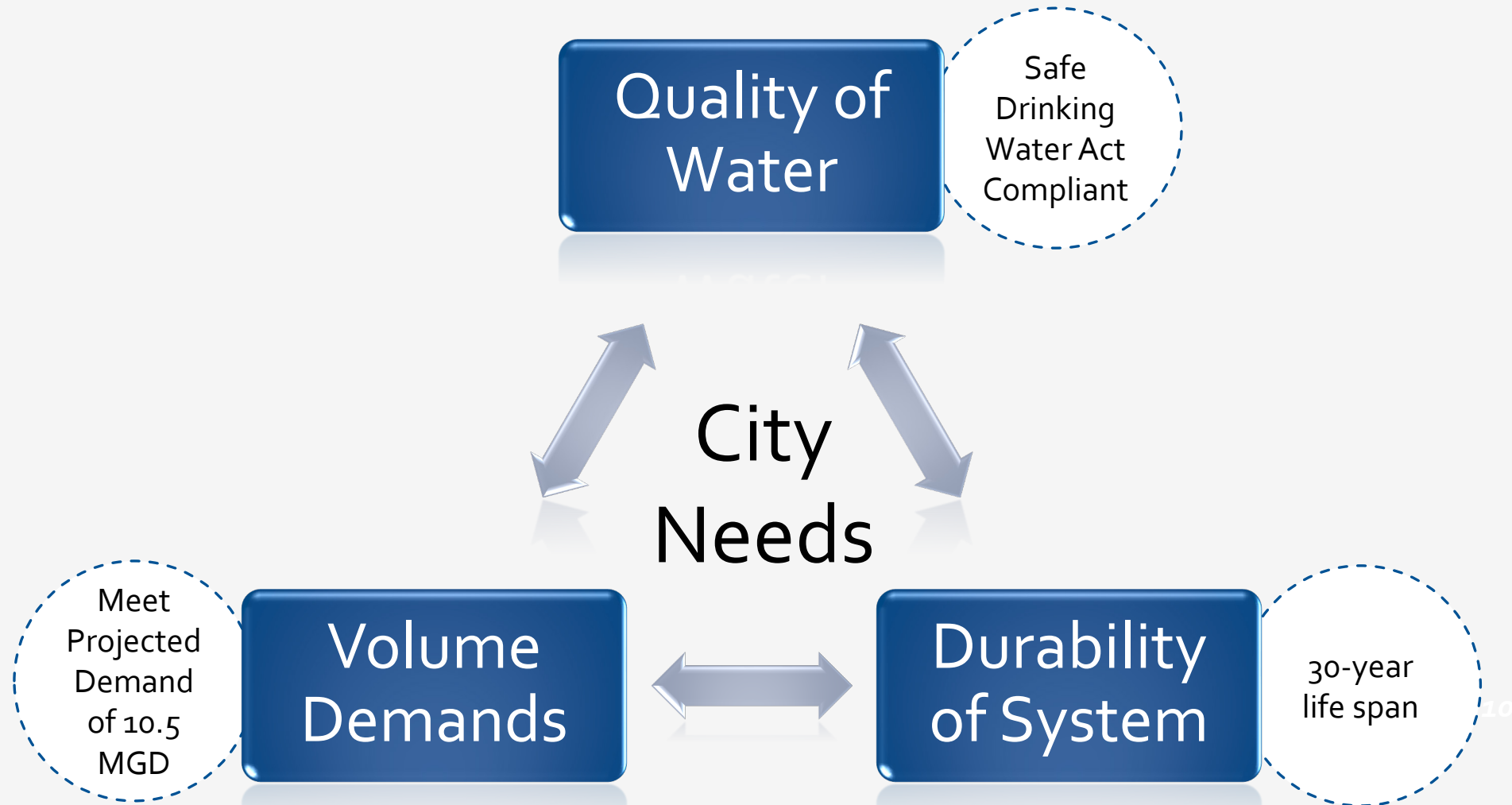
History

December 5, 2023

Agenda

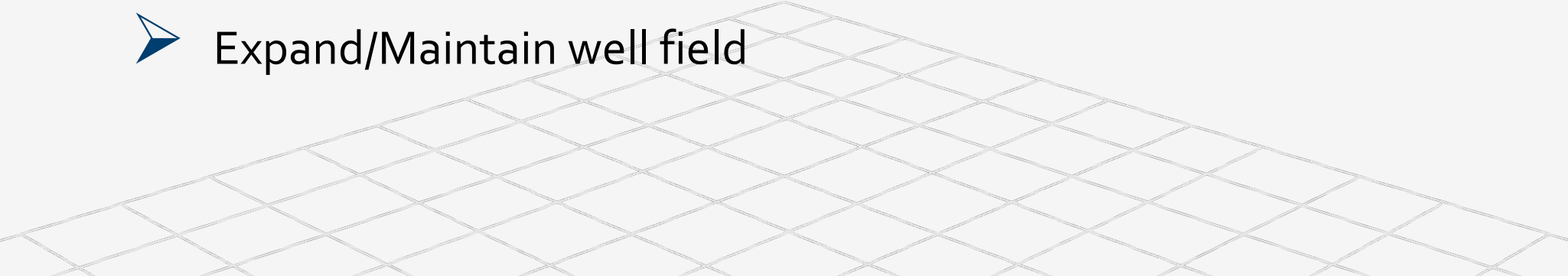
- History
 - Current Status
- 

Maintain Program Pillars

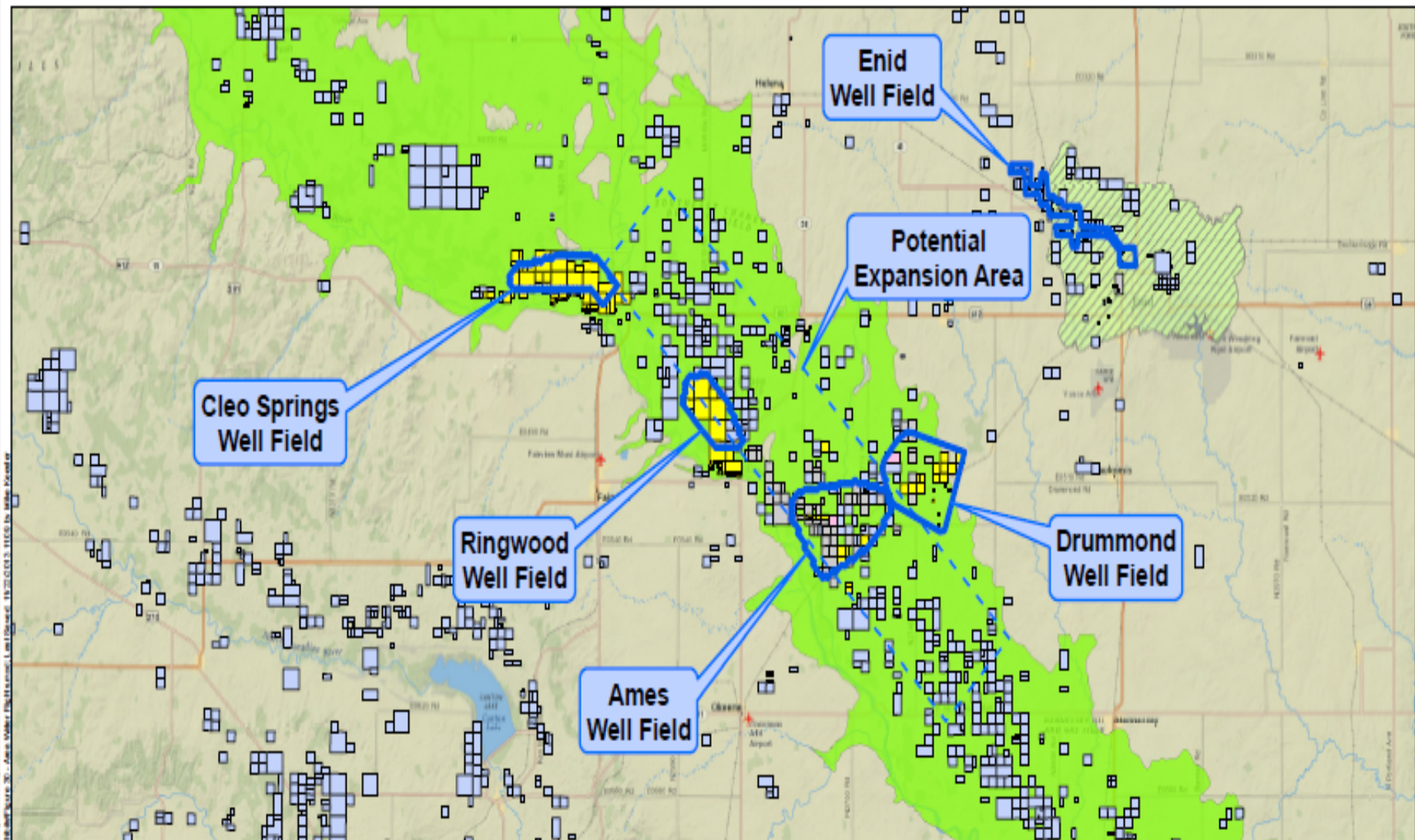


Meet the Demand

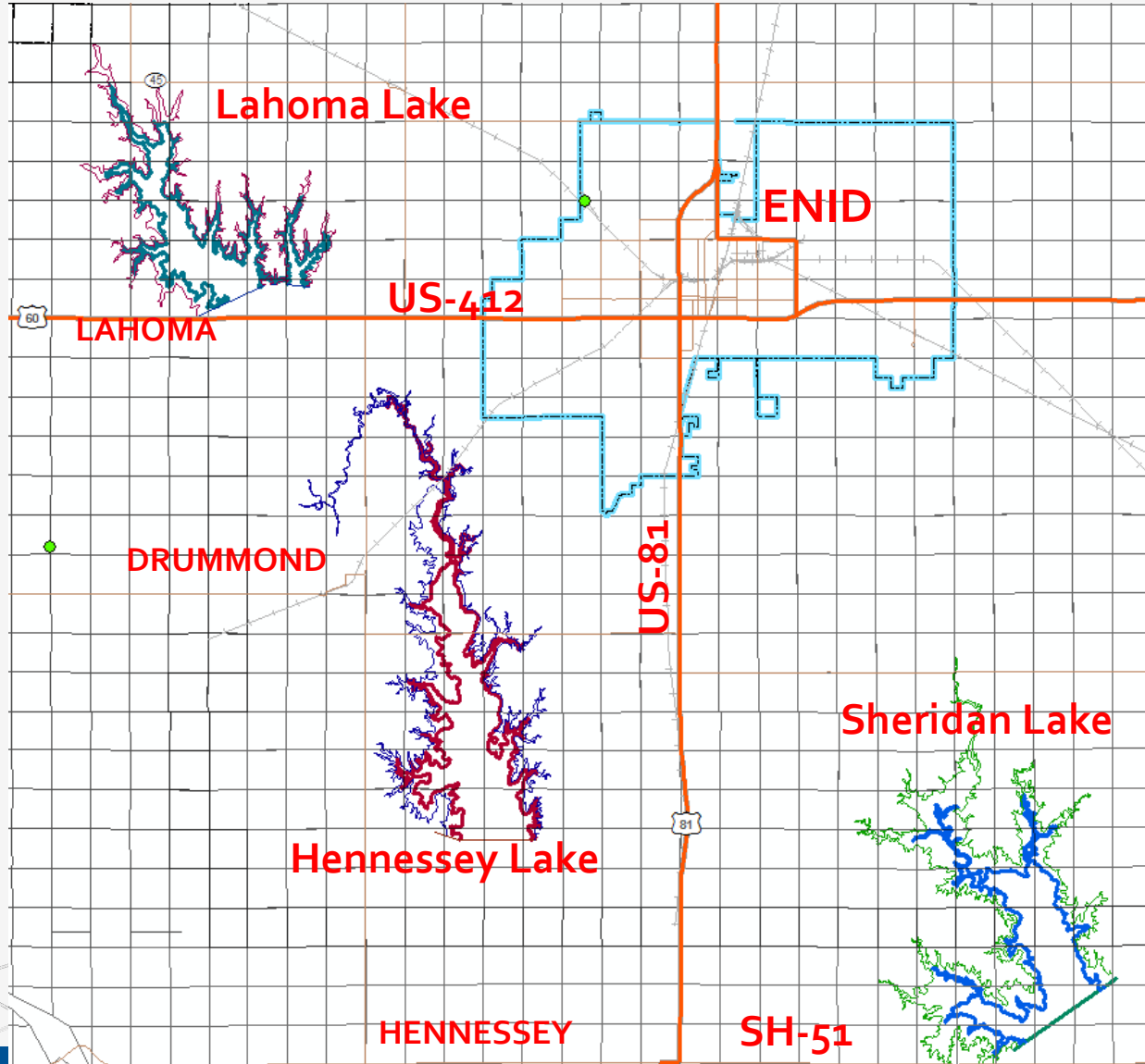
- Expanding the well fields
 - Requires ~ 21,000 acres of water rights
 - Competes with Agriculture and Oil/Gas

 - Surface Supply
 - Requires ~ 10,000 acres
 - Expand/Maintain well field
- 

Area of Groundwater Investigation



Potential Reservoirs



...What's it take to build a lake

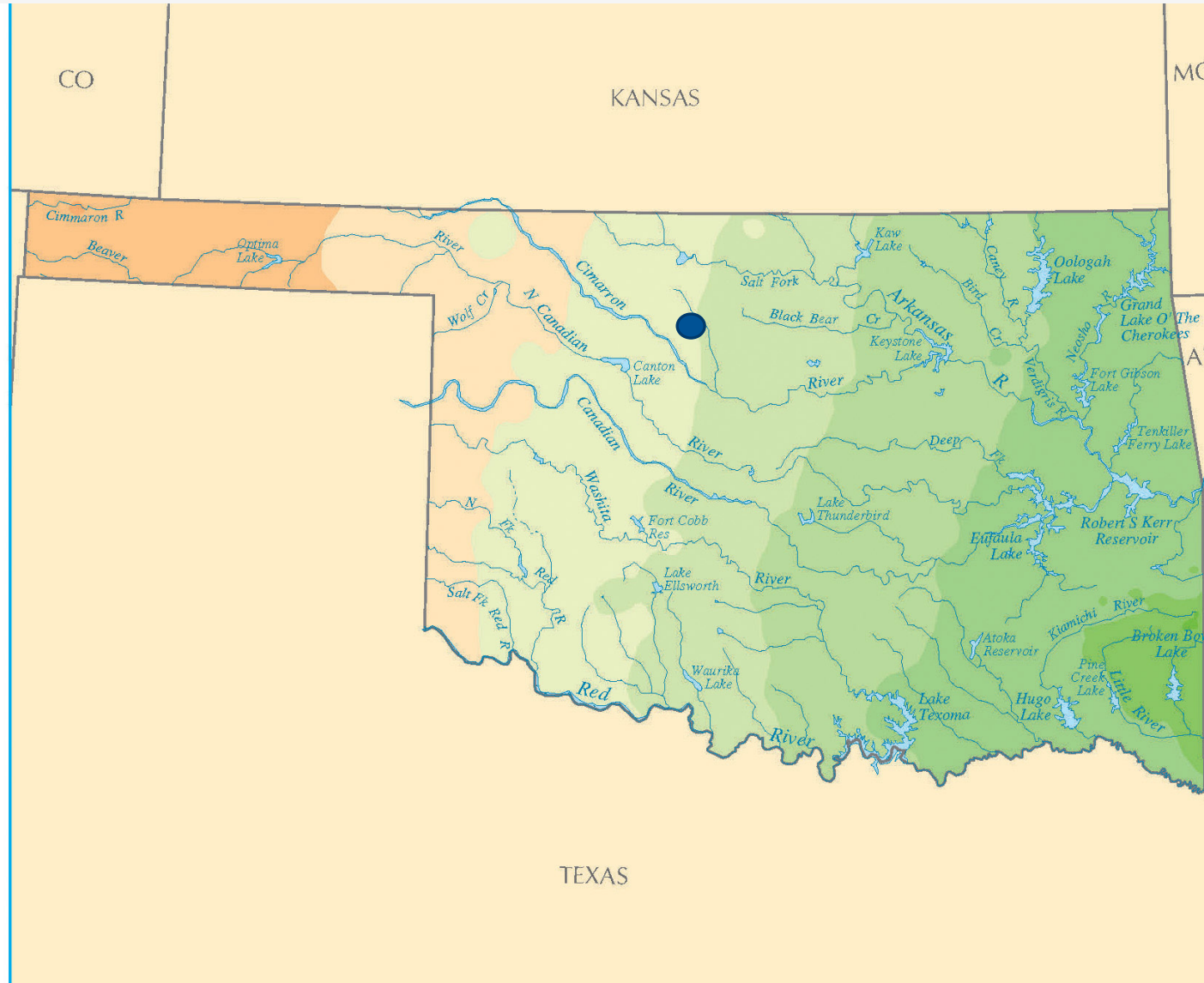
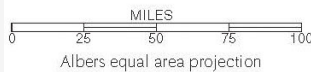
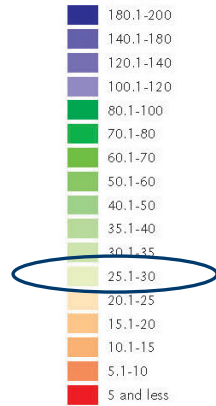
- **Surface Supply**
 - Requires ~ 14,000 to 20,000 acre-feet of water
 - Requires ~ 10,000 surface acres
 - Expand/Maintain well field during development

Oklahoma Precipitation

PRECIPITATION

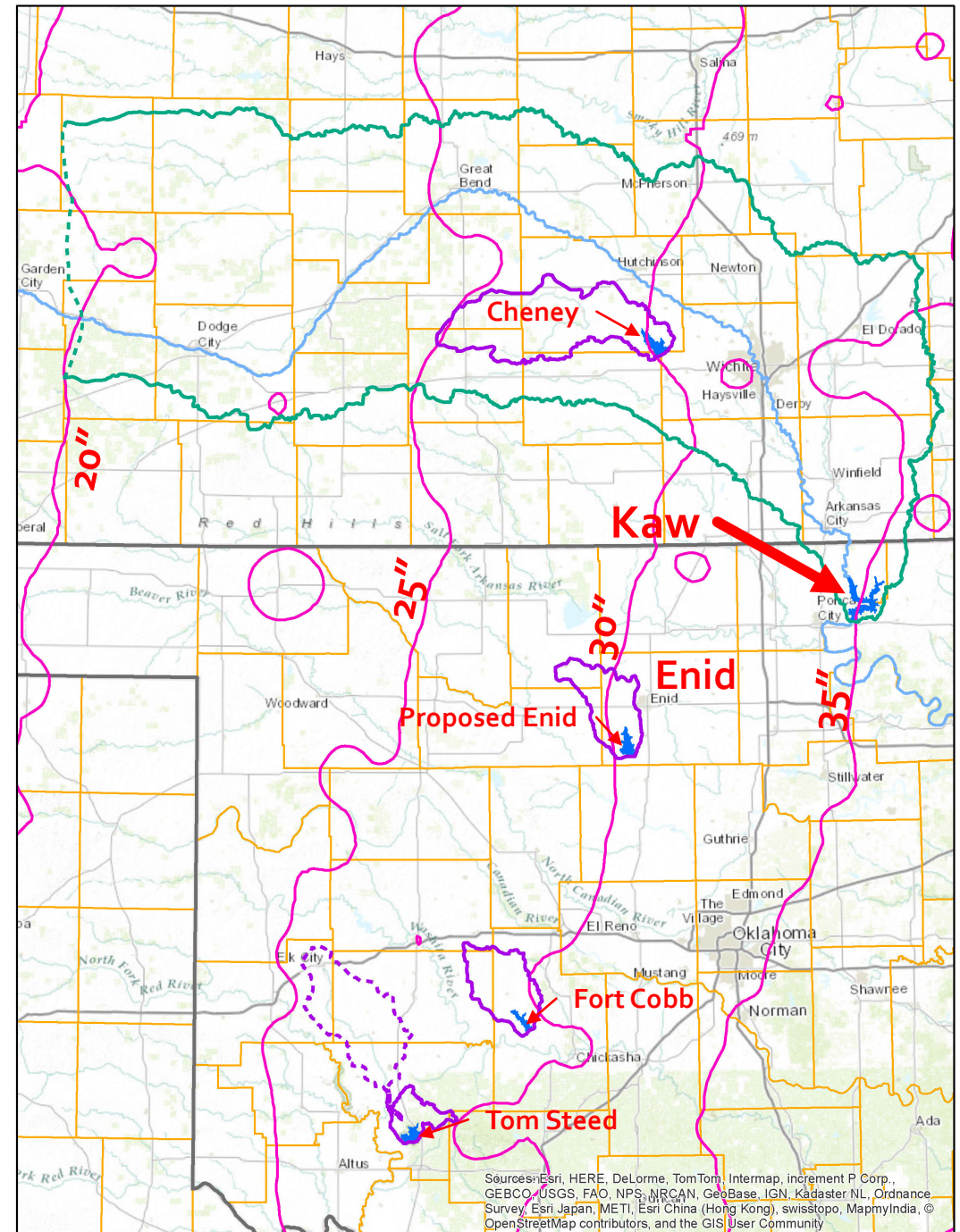
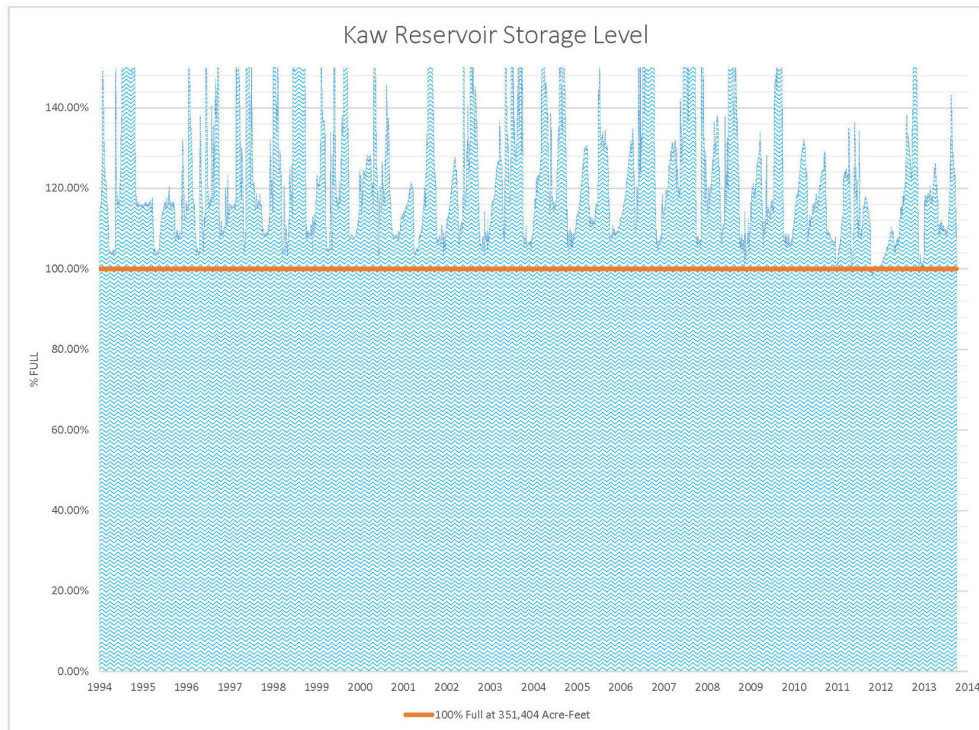
Precipitation varies widely across the United States, from a low of 2.3 inches per year in California's Death Valley to a high of 460 inches on Hawaii's Mount Waialeale. Nevada ranks as the driest state, with an average annual precipitation of 9.5 inches, and Hawaii is the wettest, at 70.3 inches. The average annual precipitation for Oklahoma is 34.25 inches.

Average Annual Precipitation (in inches)
1961-1990



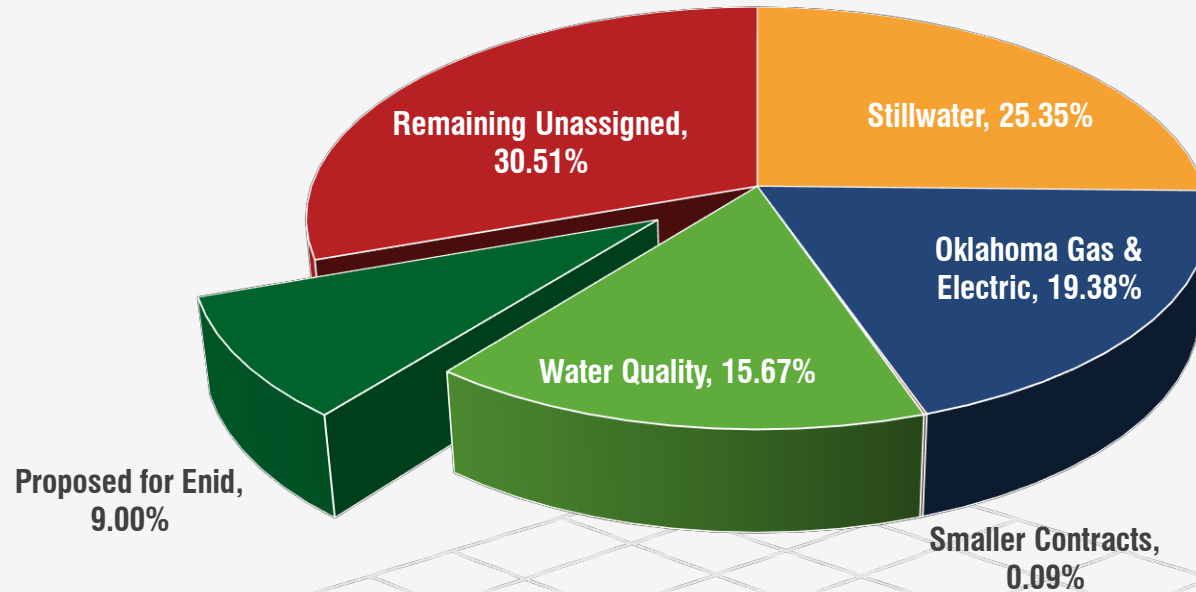
Kaw Reservoir

- Drainage area
- Precipitation
- Lake Levels
- Draught resiliency

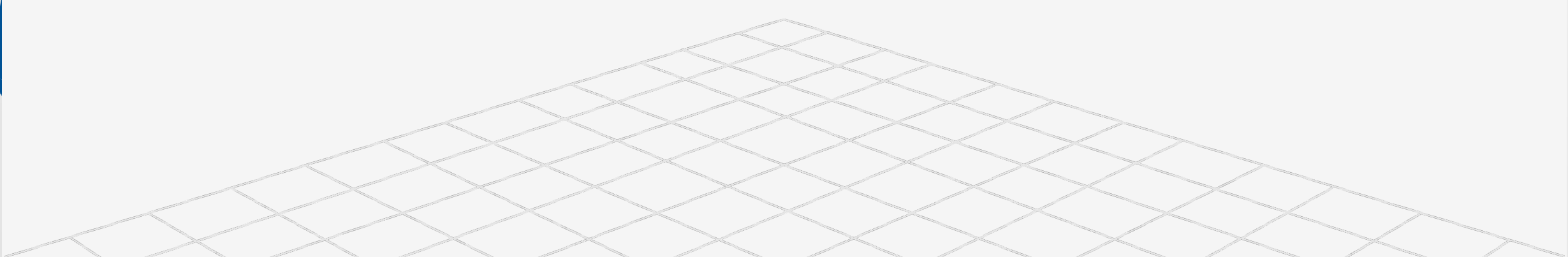


Kaw Lake water Allocation

Conservation Storage Allocation



KLWS Program

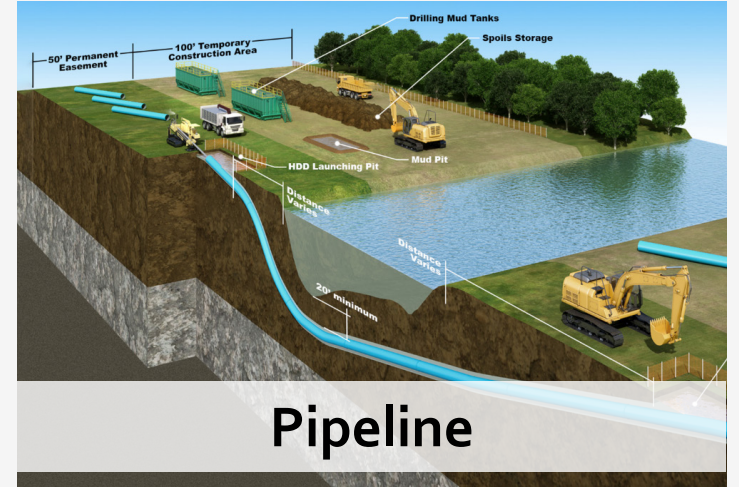
- Budget : \$317 MM
 - GMP: \$256 MM
- 

Major Infrastructure Components

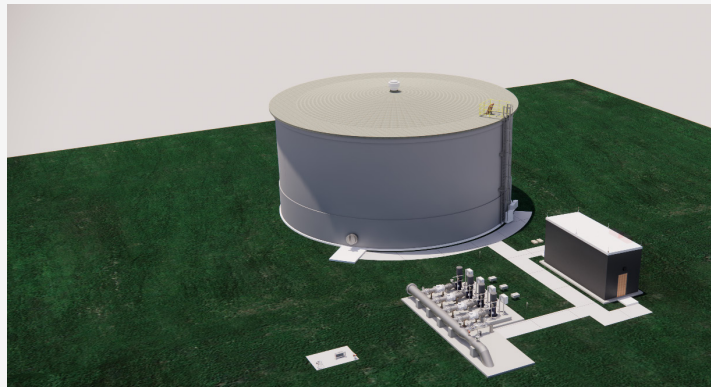
What We're Building



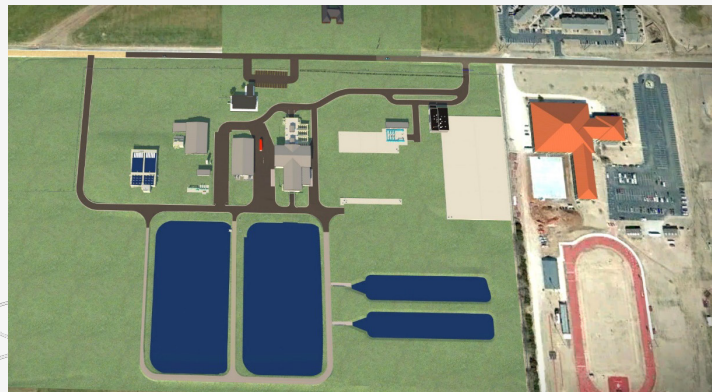
Intake



Pipeline



Pump Station

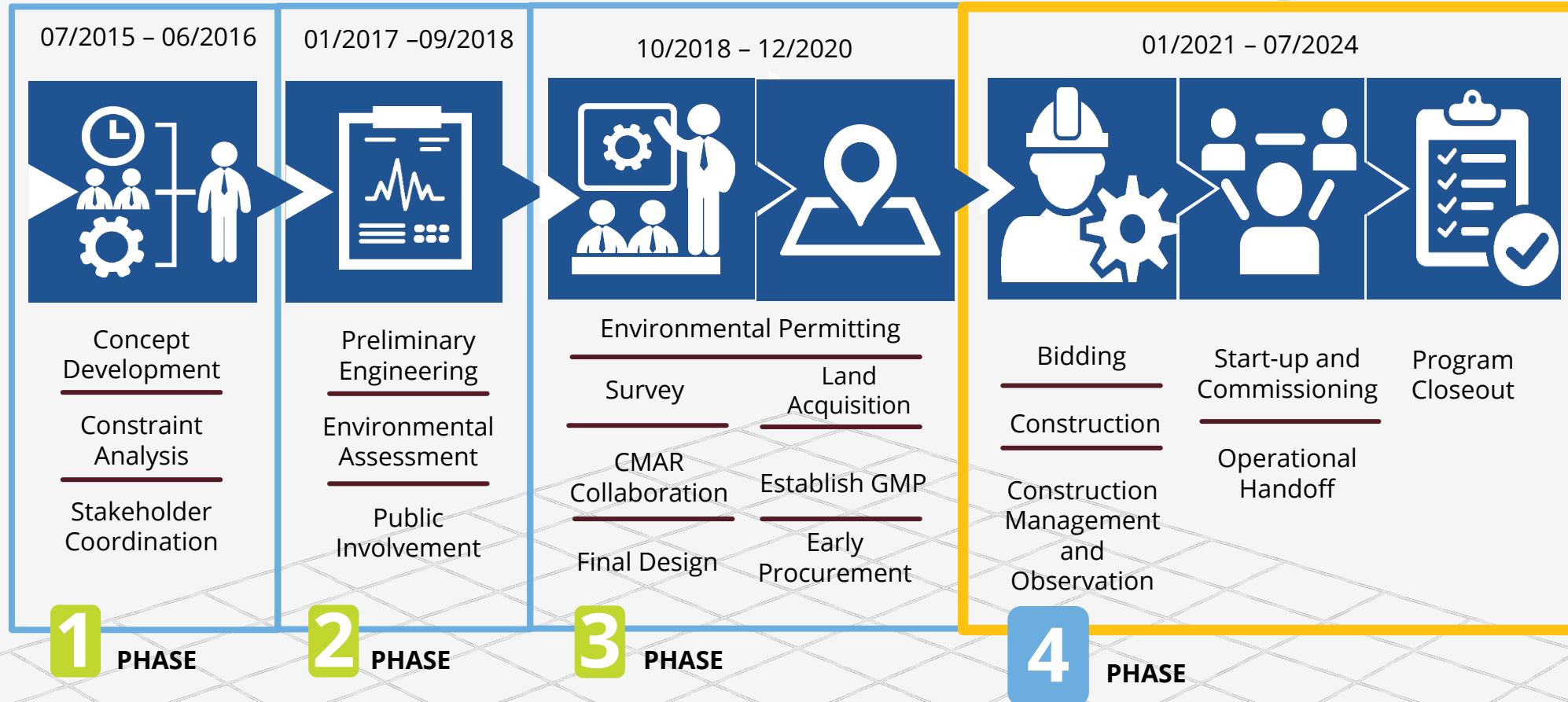


Water Treatment Plant



Distribution

Overview



Intake – Construction



Intake – Construction



Intake – Construction



Intake – Construction



Intake – Construction

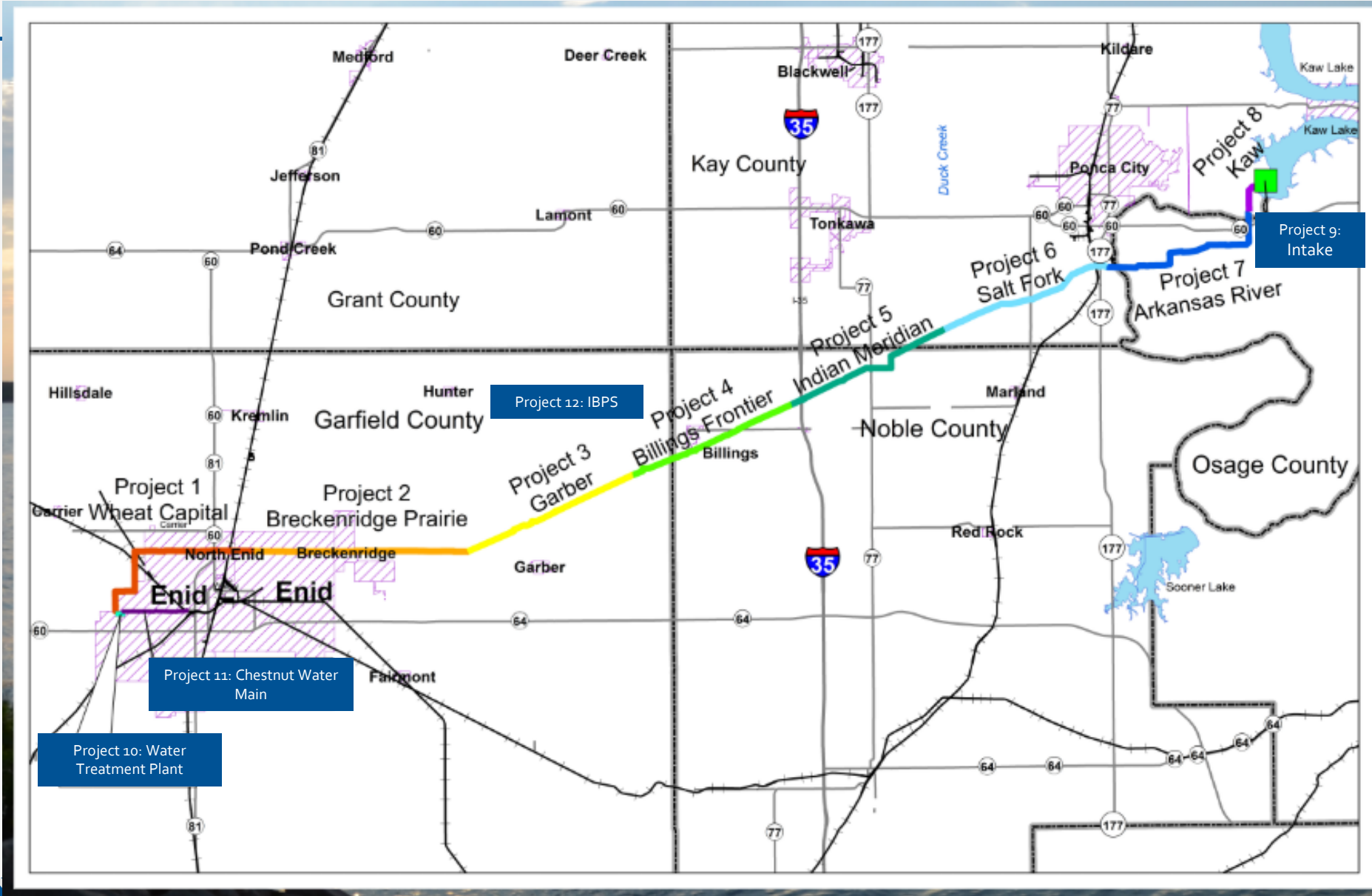


Construction Progress

Intake



Transmission Pipe Line



Enid

Kaw Lake

Pipe Delivery



Top Soil Removal



Transmission Main Installation



BP 5.05 (Segment 7 Pipeline Installation)



Surface Preparation



Surface Restoration



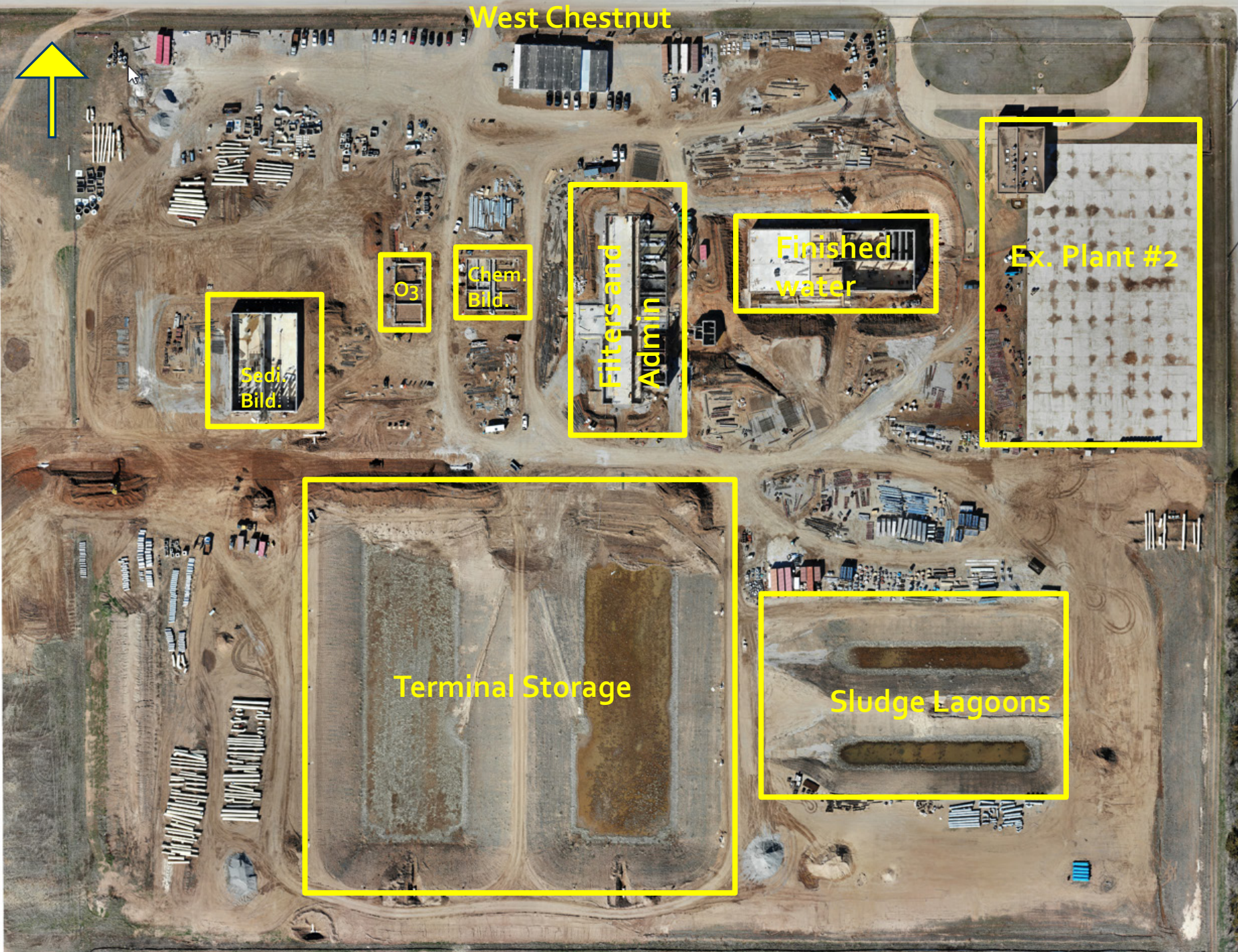
Garney Construction
KLWS Segment 3
3195+00 Seeding
04.13.2023 01:55 PM
36.46985, -97.58616
OK-15, Garber, OK 73738, USA

Intermediate Booster Pump Station

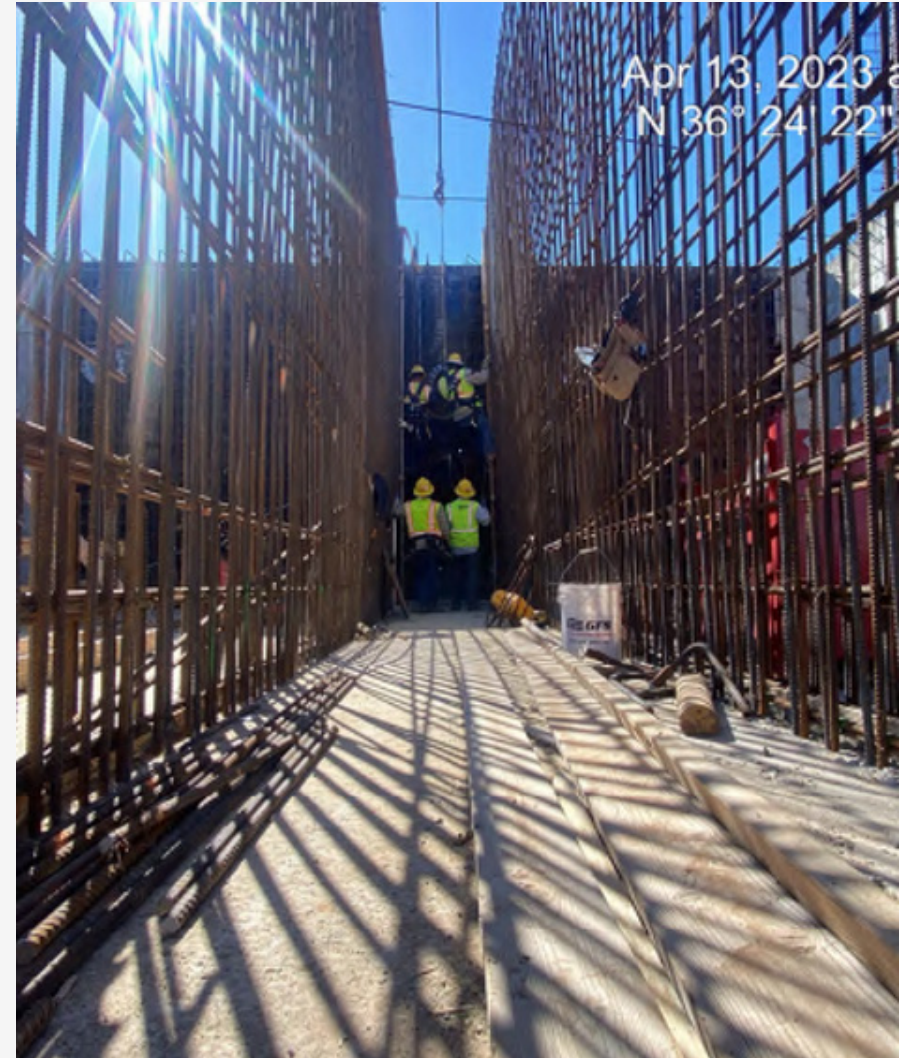


Intermediate Booster Pump Station





Water Treatment Plant Construction Progress



Water Treatment Plant Construction Progress



Water Treatment Plant Construction Progress

Apr 13, 2023 at 3:55:49 PM
N 36° 24' 15", W 97° 57' 23"
280° W
OK, Enid





Thank you for your
valuable time

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Local success story



Charlene Westmoland
Oklahoma Rural
Water Association
Source Water Specialist



Bridgeport - Progress in protecting a groundwater well



Access to the Well by walking from road or driving through ditch.

Bridgeport - Progress in protecting a groundwater well



The Well is more secure due to perimeter fence and gate.

Bridgeport - Progress in protecting a groundwater well



Gravel Road - Access road

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Local success story



Ahndria Ablett Choctaw Nation

Director of Water Resources
Office of Water Resource Management
Environmental Protection Service
Department of Risk Management
Division of Legal and Compliance



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Local success story



Shella Bowlin
Cherokee Nation
Secretary of State



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Local success story



Jennifer Boaz
City of Edmond
Utility Program Specialist
Water Resources



City of Edmond Water Resources



Oklahoma Comprehensive Water Plan, Round 2 Meeting

December 14, 2023

Jennifer Boaz, Utility Program Specialist

(405)216-7775 Jennifer.boaz@edmondok.gov



Water Conservation Outreach

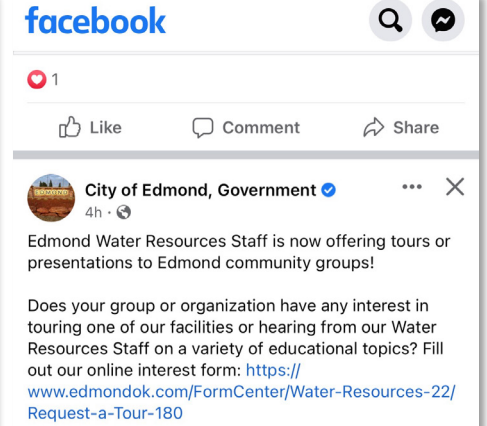
- Outdoor water use is the primary driver for infrastructure growth and rate increases
- Winter vs Summer Water Use
 - 8 million gallons per day (MGD) in the winter
 - **22+** MGD in the summer months
- The goal for conserving water is to delay future plant expansions and be good stewards of the vital resource.

Current Efforts on Water Conservation

- Outdoor watering restrictions year-round (odd/even)
 - Can increase restrictions, if necessary
- Tours are offered year-round on our website and through social media posts
 - 22 tours were conducted over FY22-23
 - Groups attending tours include UCO Biology Students, Operators state-wide training for ODEQ license certification, Boy Scouts, Home School Groups, Residents living near the WTP/WRRF
- Conservation University on our website
 - Tips for conserving water
 - Public Outreach Materials
- AMI/Smart Meters will help customers understand their water use when fully implemented
- Public Outreach around the City

Digital Outreach

- Schedule a Tour or Presentation
- Wyland Foundation Mayor's Challenge for Water Conservation*
- Conservation University Commercials
- Water & Wastewater Rate Changes
- Request Volunteers for Annual Lead & Copper Testing
- Seasonal conservation messages
- Drinking Water Week



Outreach Around the City And Water Resources Facilities

- Boy Scout's Rain Gutter Regata
- COE Touch a Truck
- Water Conservation Classes
- Governor's Water Conference, Water for 2060 Excellence Awards*
- Wyland Foundation National Mayor's Challenge for Water Conservation
- Dear Neighbors Notifications



Conservation University



STUDY GUIDES

- Articles from the Oklahoma State University Cooperative Extension Office

CLASSES

- Video recordings of classes provided to COE Residents

OUTDOOR WATERING

- Current stage of Water Conservation and further details on determining resident's schedule

PLANT DATABASE

- Database from the OSU Extension. Allows residents to find optimal plants based on light available and other individual characteristics of their lawn

DOLLARS AND SENSE

- Infographics on water and wastewater bills and capital projects for water and wastewater.

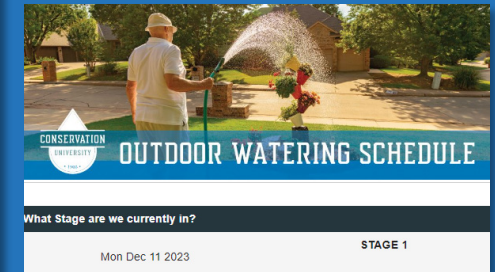
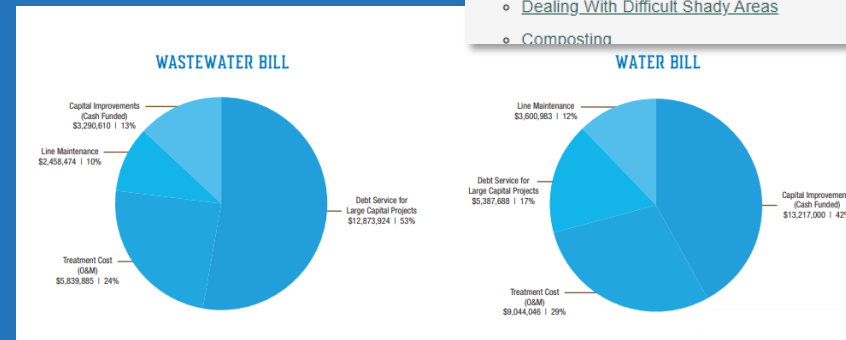


Studying up to save water? Check out these handy guides to help you ace outdoor water conservation!

- [Prevent Frozen Pipes](#)
- [Watering Your Lawn](#)
- [Simple Irrigation Plan](#)
- [Indoor Conservation Tips](#)
- [Managing Pressure in the Home Irrigation System](#)
- [Water-Saving Design Ideas for Oklahoma Landscapes](#)
- [Smart Irrigation Technology: Controllers and Sensors](#)
- [Simple Irrigation Audit for Home Lawns in Oklahoma](#)
- [Drought Tolerant Plant Selections for Oklahoma](#)

Online Classes:

- [Rainwater Harvesting & Gray Water Use](#)
- [Advanced Composting for the Homeowner](#)
- [Water Efficient Plants](#)
- [Made in the Shade](#)
- [Step Into Spring](#)
- [Rainwater Harvesting](#)
- [Drought Resistant Plants for Oklahoma](#)
- [Home Irrigation Checkup](#)
- [Smart Irrigation Technology 2019](#)
- [Dealing With Difficult Shady Areas](#)
- [Composting](#)



SUN	MON	TUE	WED	THU	FRI	SAT
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6



Happy Holidays from the City of Edmond's



Arcadia Lake Water Treatment Plant

H₂O!
H₂O!
H₂O!



Coffee Creek Water Resource Recovery Facility



Thank you for your time!

- Please feel free to contact me to schedule a tour, presentation, or if you would like to hold your meeting at one of our facilities!

Jennifer Boaz

Utility Program Specialist

Email: Jennifer.boaz@edmondok.gov

Office: (405)216-7775

Cell: (405)508-0890



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02

OCWP Update

1:30 pm

15 minutes



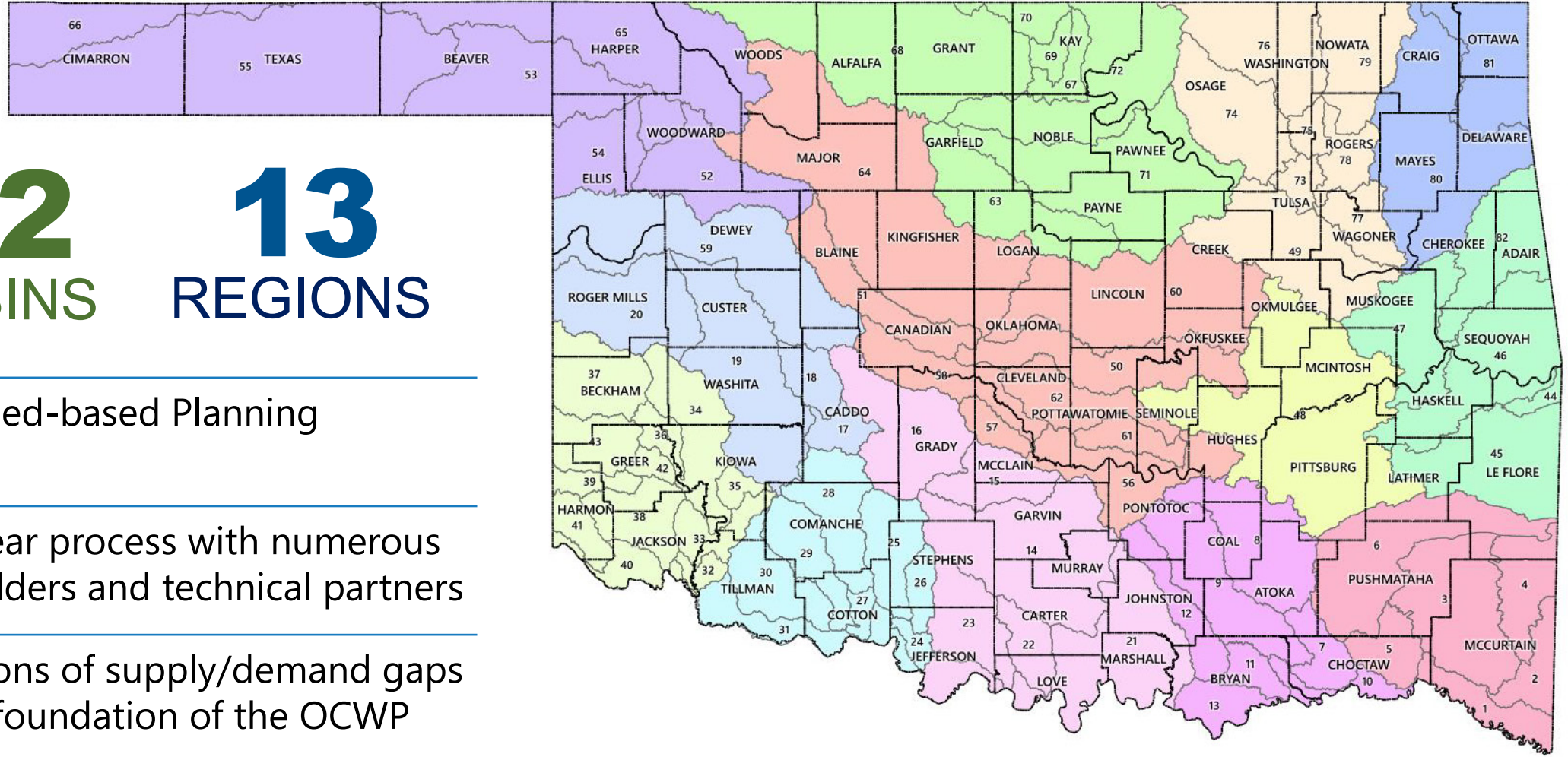
Supply Issues and Solutions Vary Across the State

82 BASINS **13** REGIONS

Watershed-based Planning

Multi-year process with numerous stakeholders and technical partners

Projections of supply/demand gaps are the foundation of the OCWP



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Technical Studies Support All OCWP 2025 Focus Areas



Identify basins with projected water challenges or opportunities



Identify and **recommend** water management strategies



Identify **infrastructure investment needs** & financial solutions



Advance 2012 OCWP Policy Recommendations



Integrate Oklahoma's first statewide **Flood Plan**



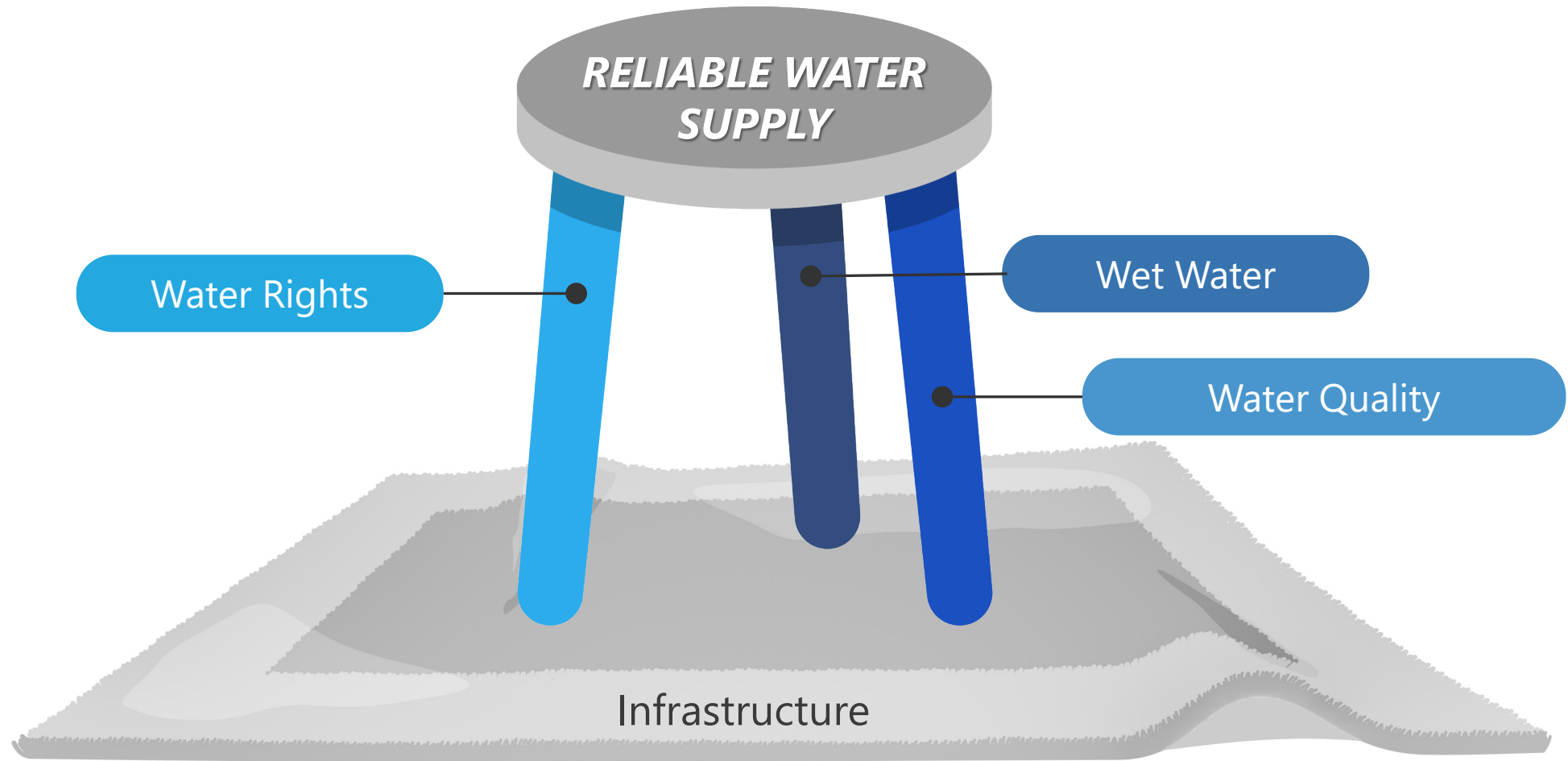
Conduct **focused engagement** throughout the process



Provide **greater access** to OCWP deliverables

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OCWP Data Provides Critical Information for Planners



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Water Demand Forecasts for Every Sector

➤ Projections of water use through 2075

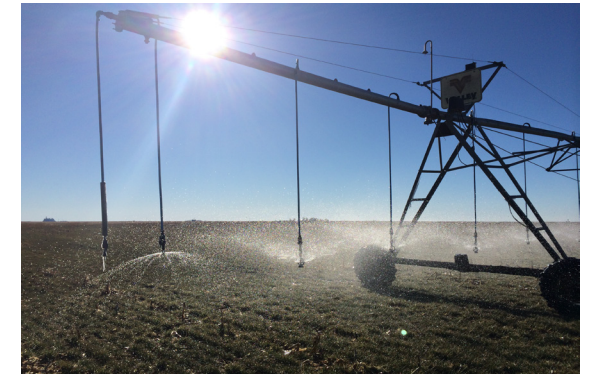
Public Supply



Self-Supplied Domestic



Crop Irrigation



Thermoelectric Power



Self-Supplied Industrial



Livestock



Oil & Gas



Key Inputs Drive Forecasts for Each Sector

➤ Projections of water use through 2075

Public Supply

- Reported municipal water use
- Population projections (Dept. of Commerce)

Self-Supplied Domestic

- Per capita water use by county (USGS)
- Population projections (Dept. of Commerce)
- Proportion of residences that self-supply (USGS)

Crop Irrigation

- Irrigation Guide by crop by station (NRCS)
- Withdrawals by source and method (USGS)
- Current & historical irrigated acres (FSA)
- Use trends

Thermoelectric Power

- Historical water use (EIA)
- gal/kWh by fuel type (literature)
- Regional energy generation through 2050 by fuel type (EIA)

Self-Supplied Industrial

- Water use data for large industrial users (OWRB)
- Employment by county & industry (BLS)
- Employment projections (OK Employment Security Commission)

Livestock

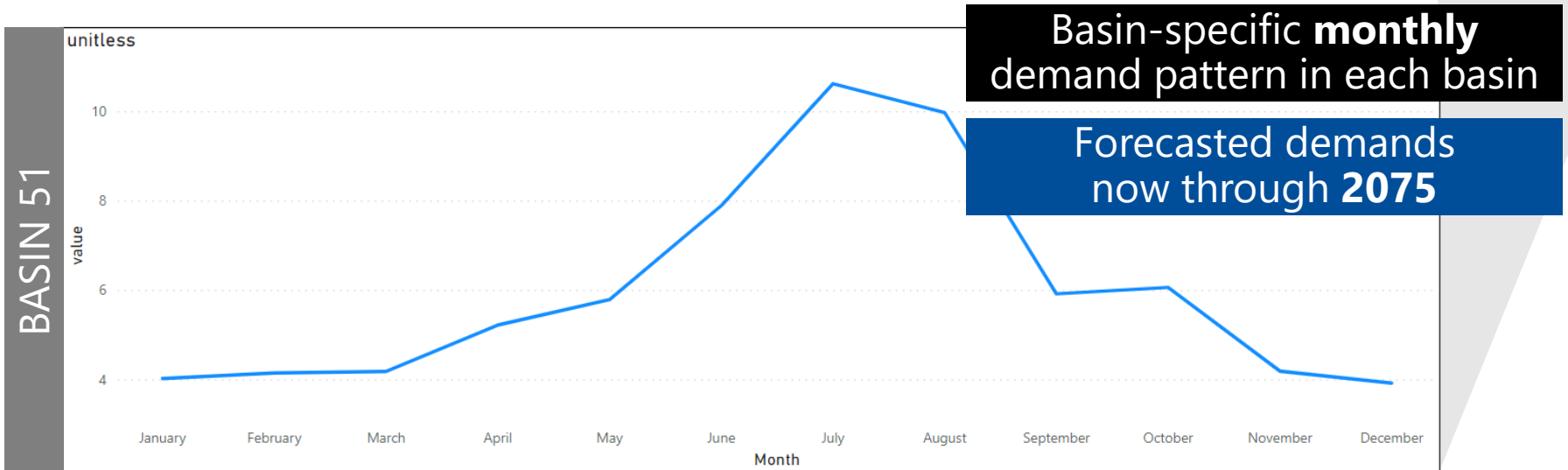
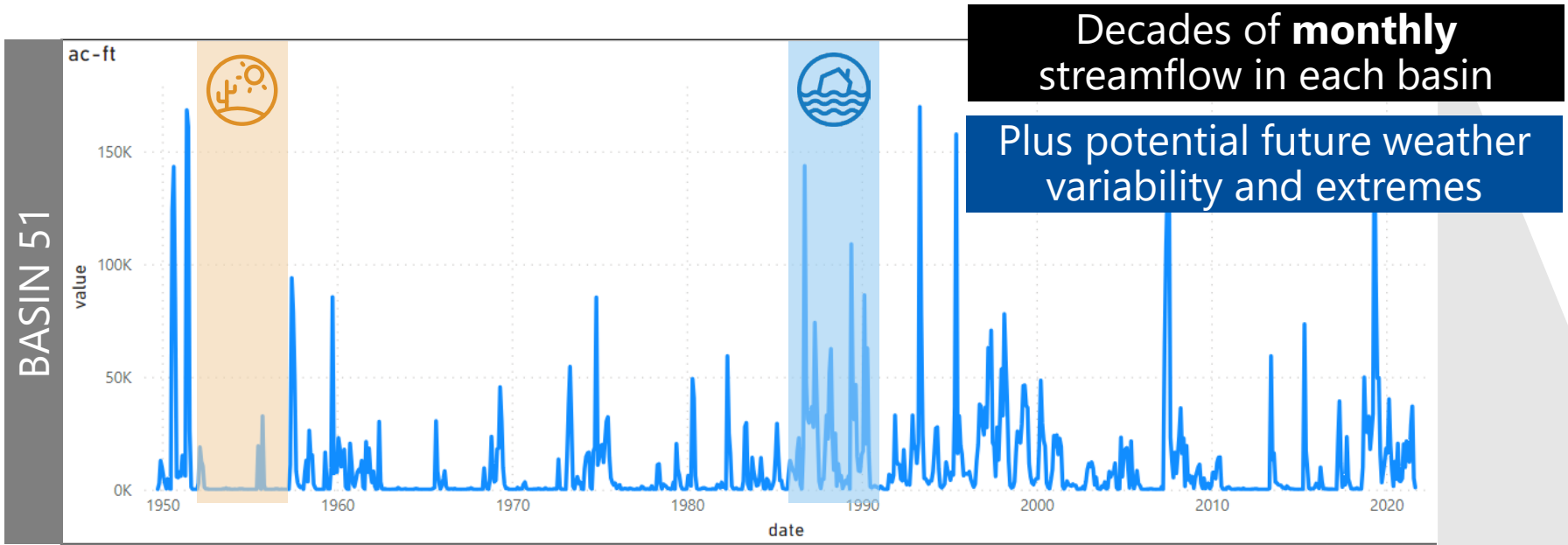
- Daily animal water requirements (USGS)
- Livestock count at county level (OK Ag Census)
- US meat production forecast (FAPRI & FAO)

Oil & Gas

- Water use per drilling activity (industry input)
- Recent historical drilling activity (OK Corporation Commission)



Physical Supply: Surface Water Example



FUTURE SURFACE WATER SHORTAGES

Where: By Basin

When: By Decade

How much:

- Magnitude
- Frequency
- Duration

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OCWP Permit Availability Analyses Address Key Questions

For Each of 82 Basins

Surface Water Sources

Groundwater Sources

Is the stream, lake, or groundwater aquifer fully allocated?

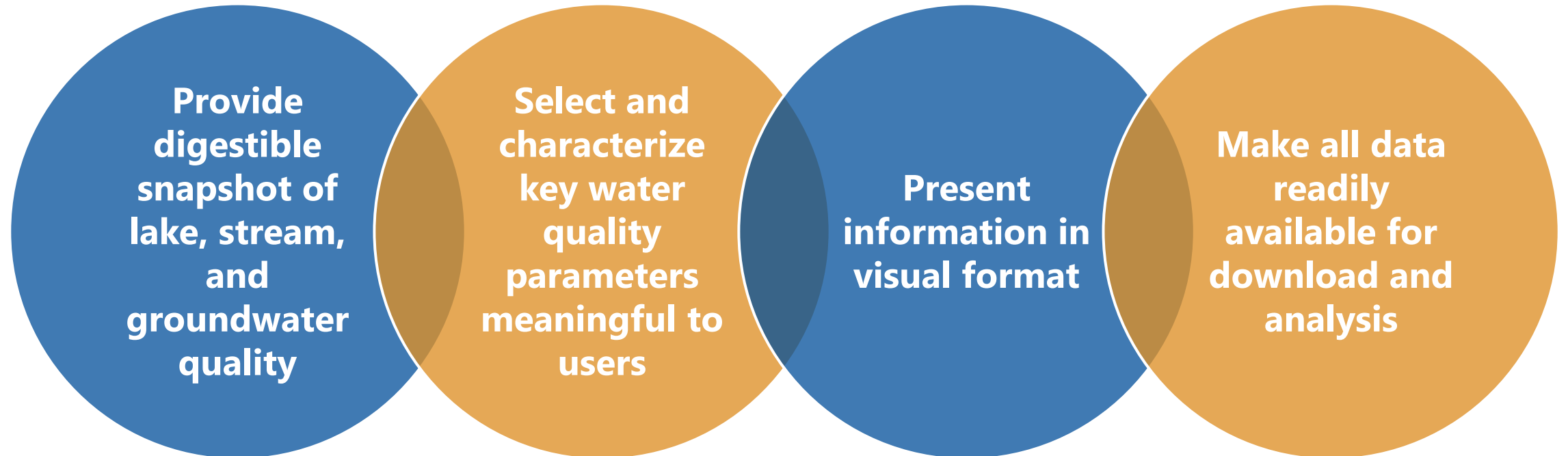
Do we expect permit availability constrain use of a source after 10, 20, 50 years of growth?

What nearby sources have available water to meet my future needs?

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Objectives of Water Quality Assessment

➤ **Considering current water quality conditions and trends**



Key Parameters for Summary and Trending

Lakes and Reservoirs

1. Chlorophyll a
2. Turbidity
3. Secchi Depth
4. Conductivity
5. Total Nitrogen
6. Total Phosphorus
7. Surface water temperature

Streams and Rivers

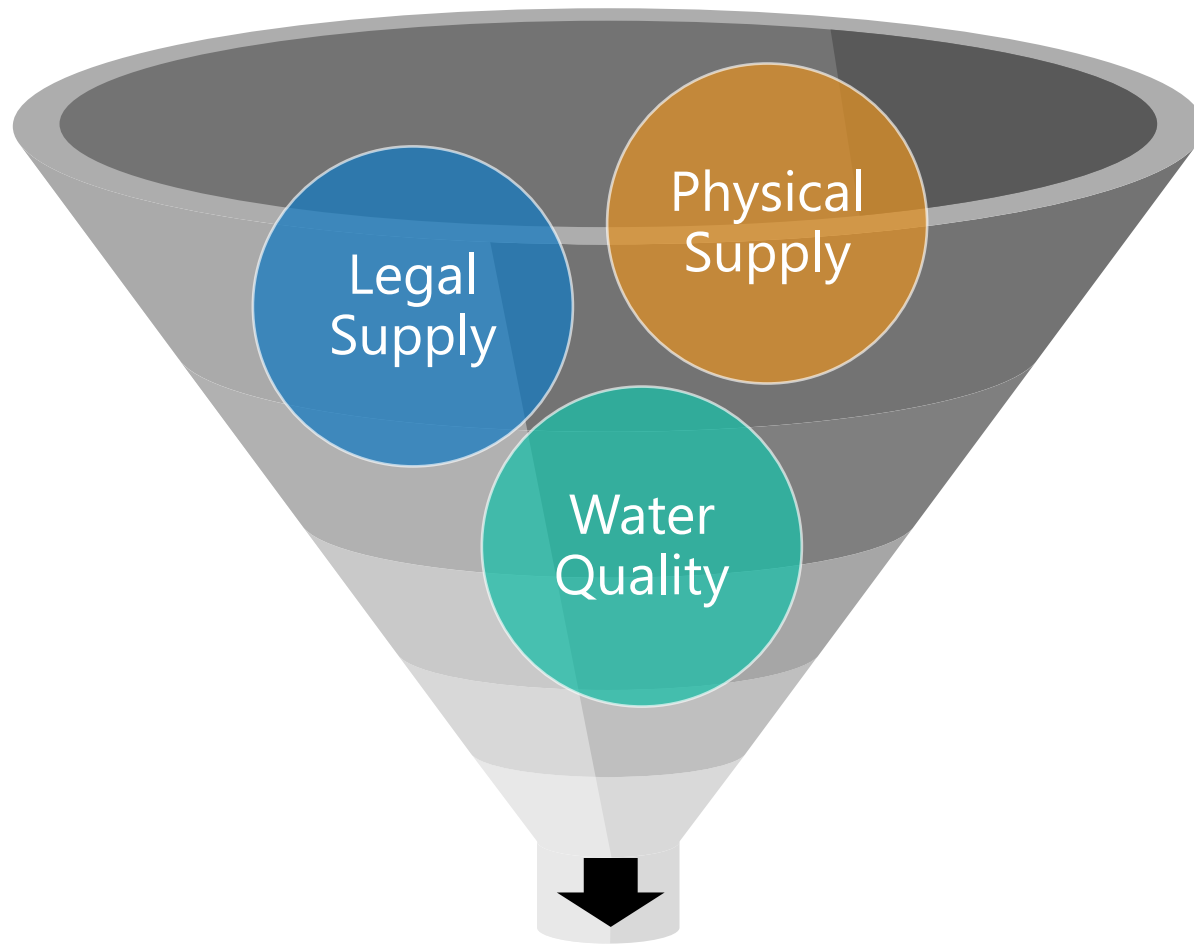
1. Turbidity
2. Conductivity
3. Total Nitrogen
4. Total Phosphorus
5. Temperature

Groundwater

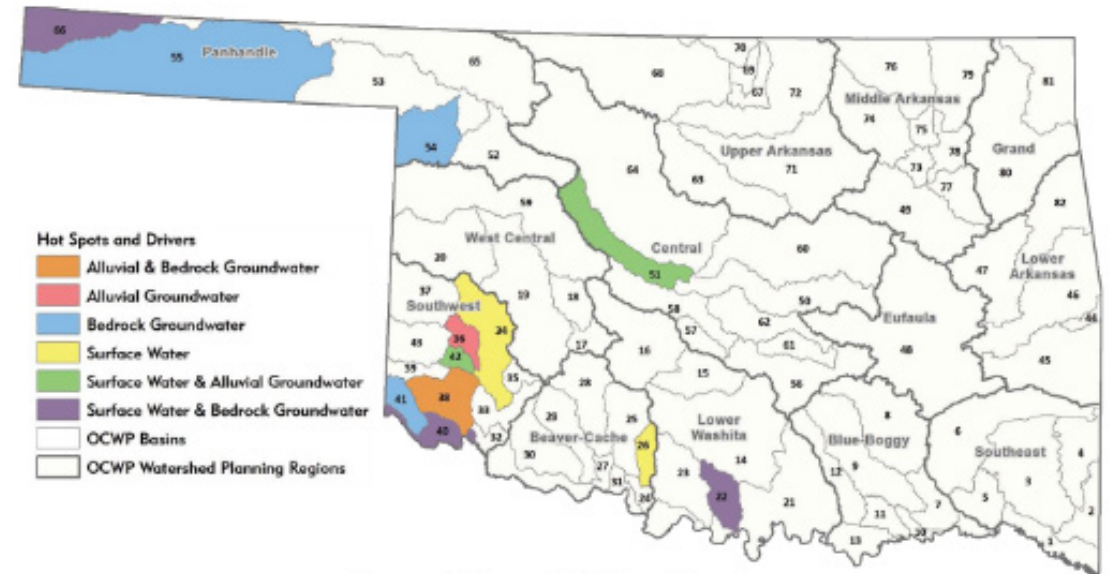
1. Iron
2. Manganese
3. Nitrate
4. Conductivity
5. Arsenic

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Identification of Focus Basins



Example from OCWP 2012



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OCWP Water Management Strategies: the Response

Tier 1: Effectiveness in Each Basin

Demand Management

Agriculture Options

Water Transfers

Surface Water

Increase Reliance on Groundwater

Stormwater Capture and Use

Water Reuse

Tier 2: Application in Focus Basins

Additional Wells

Brackish Groundwater

Artificial Aquifer Recharge and Recovery

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Provider data utilized to estimate infrastructure needs

Launches the OCWP LPP Data Collection Form for Water Providers

The screenshot shows the Oklahoma Water Resources Board website. The header includes the logo, navigation links (Water Permitting, Financing, Wells & Licensing, Floodplain Management, Dam Safety, More), and a search bar. The main content area is titled 'Water Planning' and includes a description of the OCWP. A blue banner for 'OCWP NEWS & EVENTS' is visible. Below it, two buttons are shown: 'INFRASTRUCTURE NEEDS SURVEY' (highlighted with a red circle) and 'PUBLIC ENGAGEMENT SURVEY'. The right sidebar contains links for 'I'm Looking For' (Water for 2060, Interstate Stream Compacts), 'Publications' (Public Water Supply Planning Guide, Public Wastewater System Planning Guide, Loan and Grant Resource Guide for Water and Wastewater Projects), and 'Related Links' (Master Irrigator Program, NRCS Regional Conservation).

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Round 1 regional meeting recap – statewide comments



Round 1 regional meeting recap

Permitting / Regulations / Policy

- Water use metering and/or more broadly reporting and accuracy
- Flexible regulations that adapt to changing technologies and conditions
- Connection of surface water and groundwater
- Enforcement of existing rules
- Coordination between agencies/groups to eliminate or reduce number of unidentified wells
- Better coordination between agencies on granting water permits
- Well spacing, property line set-back, noncontiguous land dedication

Infrastructure Improvements and Funding / Financing

- Concern about how to pay for upgrades to meet future regulations
- Improve access to and/or knowledge of funding opportunities, especially in small communities
- Difficulty in raising water rates – need help education the general public and boards about the true cost of water
- How do we get more money to producers for infrastructure?
- Connection between water and economic development/ vitality of communities
- Difficulty providing matching funds for existing programs

Collaboration and Partnership

- Informal collaboration between water systems is already happening
- Partnerships between state and tribal nations, economic development, private partners, and local communities
- Partnerships between urban and rural areas and with all water users for bigger impact and region improvement
- Would forming an irrigation district benefit folks?
- What support is available and/or needed to form an irrigation district or other local group?

Round 2 regional meeting – Breakout Sessions

Permitting / Regulations / Policy

- *Changes in permitting and spacing rules*
- *Enhanced enforcement of existing rules*
- *Water management districts and/or irrigation districts*
- *General discussion*

Collaboration / Partnership

- *Regional water planning*
- *Regionalization*
- *Encouraging best water management practices*
- *Water management districts and/or irrigation districts*
- *General discussion*

Funding / Financing

- *Changes to existing funding / financing programs*
- *Ideas for new funding / financing programs*
- *General discussion*

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03

Breakout Sessions

Breakout 1 – Permitting / Regulations / Policy

Breakout 2 – Collaboration / Partnership

Breakout 3 – Funding / Financing

2:00 pm

80 minutes

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04

Breakout session reports

3:30 pm

20 minutes

Breakout Session Reports

Permitting / Regulations / Policy

- *Changes in permitting and spacing rules*
- *Enhanced enforcement of existing rules*
- *Water management districts and/or irrigation districts*
- *General discussion*

Collaboration / Partnership

- *Regional water planning*
- *Regionalization*
- *Encouraging best water management practices*
- *Water management districts and/or irrigation districts*
- *General discussion*

Funding / Financing

- *Existing funding / financing programs*
- *New funding / financing programs*
- *General discussion*



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05

Look-ahead

3:50 pm

10 minutes

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Future rounds of regional meetings



Follow up on
today's
conversations



Explore other
priority topics



Present data and
findings from
technical studies



Discuss
recommendations
to include in the
OCWP

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LPP Data Collection Form

Launches the OCWP
LPP Data Collection
Form for Water
Providers

The screenshot shows the Oklahoma Water Resources Board website. At the top, there is a navigation bar with the board's logo, a search bar, and links for Translate and State Agencies. Below this is a secondary navigation bar with links for Water Permitting, Financing, Wells & Licensing, Floodplain Management, Dam Safety, and a More dropdown menu. The main content area is titled "Water Planning" and includes a breadcrumb trail: Oklahoma Water Resources Board > Water Planning. A paragraph of text describes the board's role in coordinating decadal updates of the OCWP. Below the text is a blue banner for "OCWP NEWS & EVENTS" with a bell icon. At the bottom of the main content area, there are two buttons: "INFRASTRUCTURE NEEDS SURVEY" (green) and "PUBLIC ENGAGEMENT SURVEY" (orange). The "INFRASTRUCTURE NEEDS SURVEY" button is circled in red. To the right of the main content is a sidebar with sections: "I'm Looking For" (with links for Water for 2060 and Interstate Stream Compacts), "Publications" (with links for Public Water Supply Planning Guide, Public Wastewater System Planning Guide, and Loan and Grant Resource Guide for Water and Wastewater Projects), and "Related Links" (with links for 1995 Water Plan, 1980 Water Plan, Master Irrigator Program, and NRCS Regional Conservation).

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Provide feedback to us

- Which types of studies or data are most needed?
- Topics of priority to you



Owen Mills | Director of Water Planning
Oklahoma Water Resources Board
405.530.8904 Office | 405.421.4127 Cell
Owen.Mills@owrb.ok.gov