

## Round 2 | Presentation

# 2025 OCWP Regional Meetings

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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://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

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02 OCWP Update

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03 Networking Break

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Concurrent Breakout Sessions

04 Session 1 – Permitting / Regulations / Policy

Session 2 – Collaboration / Partnership

Session 3 - Infrastructure funding and financing discussion

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05 Breakout session reports

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06 Look-ahead

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# OCWP Team Leaders



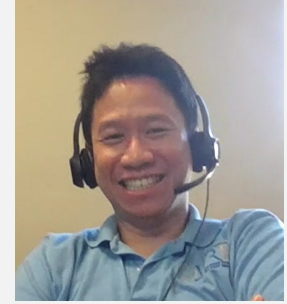
**Julie  
Cunningham**

*Executive Director,  
OWRB*



**Owen  
Mills**

*Director of Planning,  
OWRB*



**Yohanes  
Sugeng**

*Engineering and Planning  
Division Chief, OWRB*



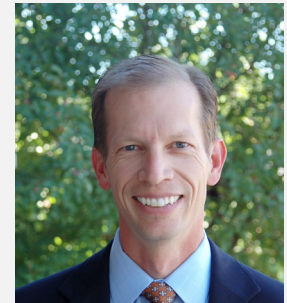
**Amber  
Wooten**

*Project Manager,  
Carollo Engineers*



**Jessica  
Fritsche**

*Senior Water  
Resource Planner,  
Carollo Engineers*



**John  
Rehring**

*Senior Water  
Resource Engineer,  
Carollo Engineers*

# Welcome



Federal Legislators  
State Legislators  
Local Government Officials  
OWRB Board Members

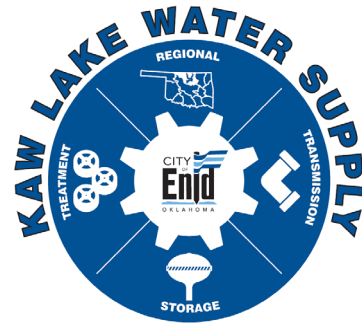
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# Local success story



Murali Katta  
City of Enid  
Director of Engineering





# City of Enid

# Kaw Lake Water Supply Program

## History

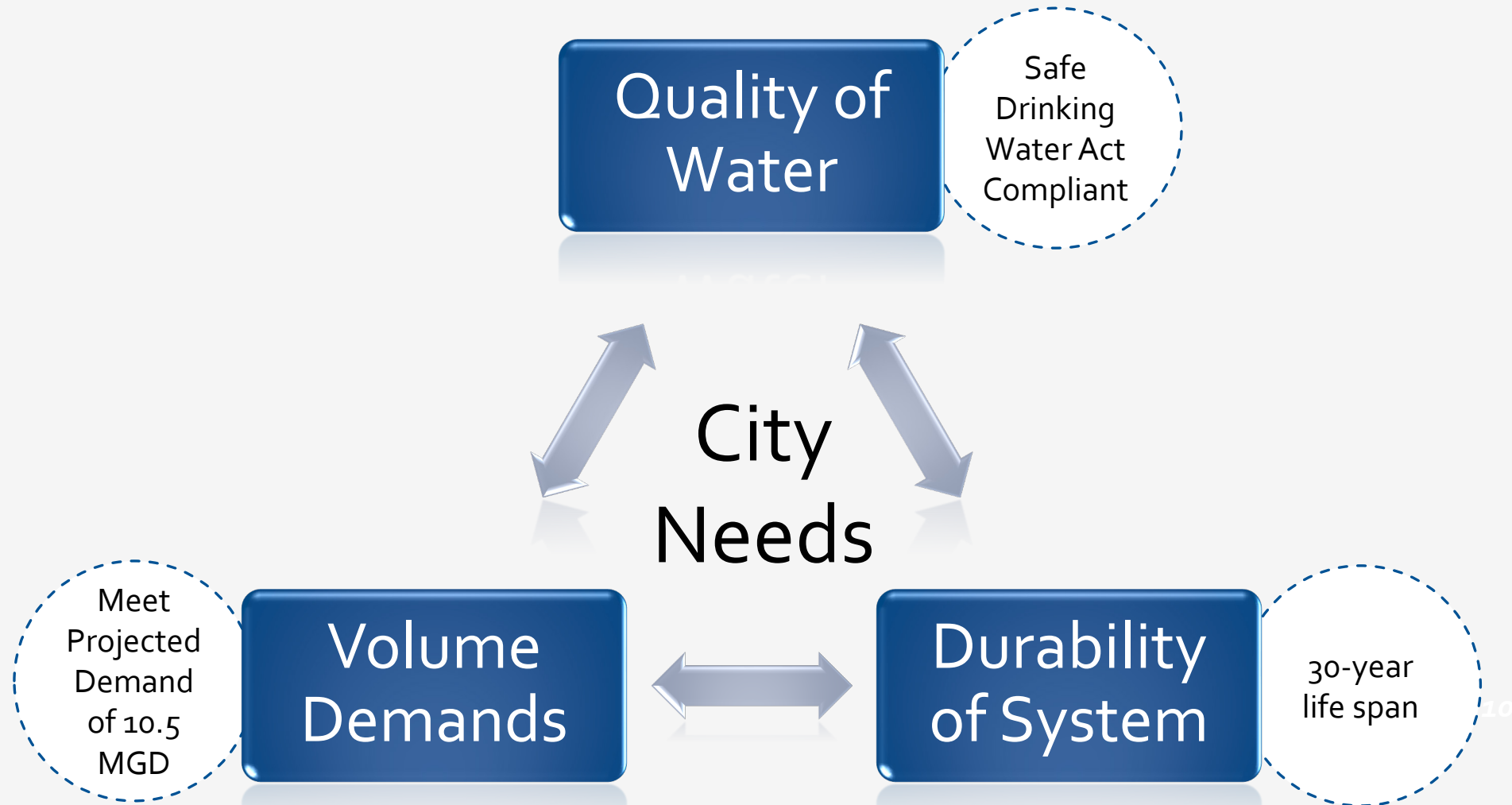
December 5, 2023

# Agenda

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- History
  - Current Status
- 

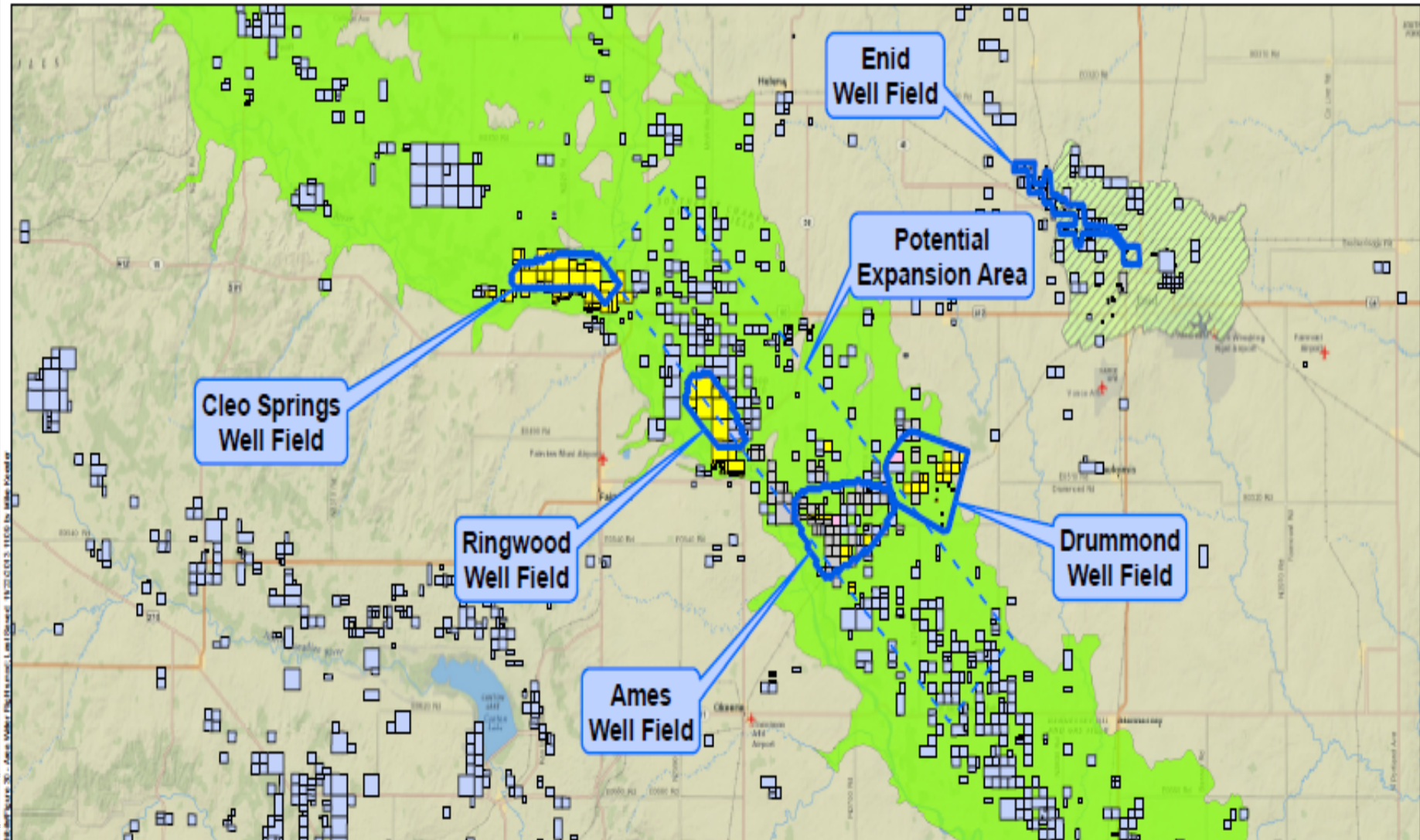
# Maintain Program Pillars



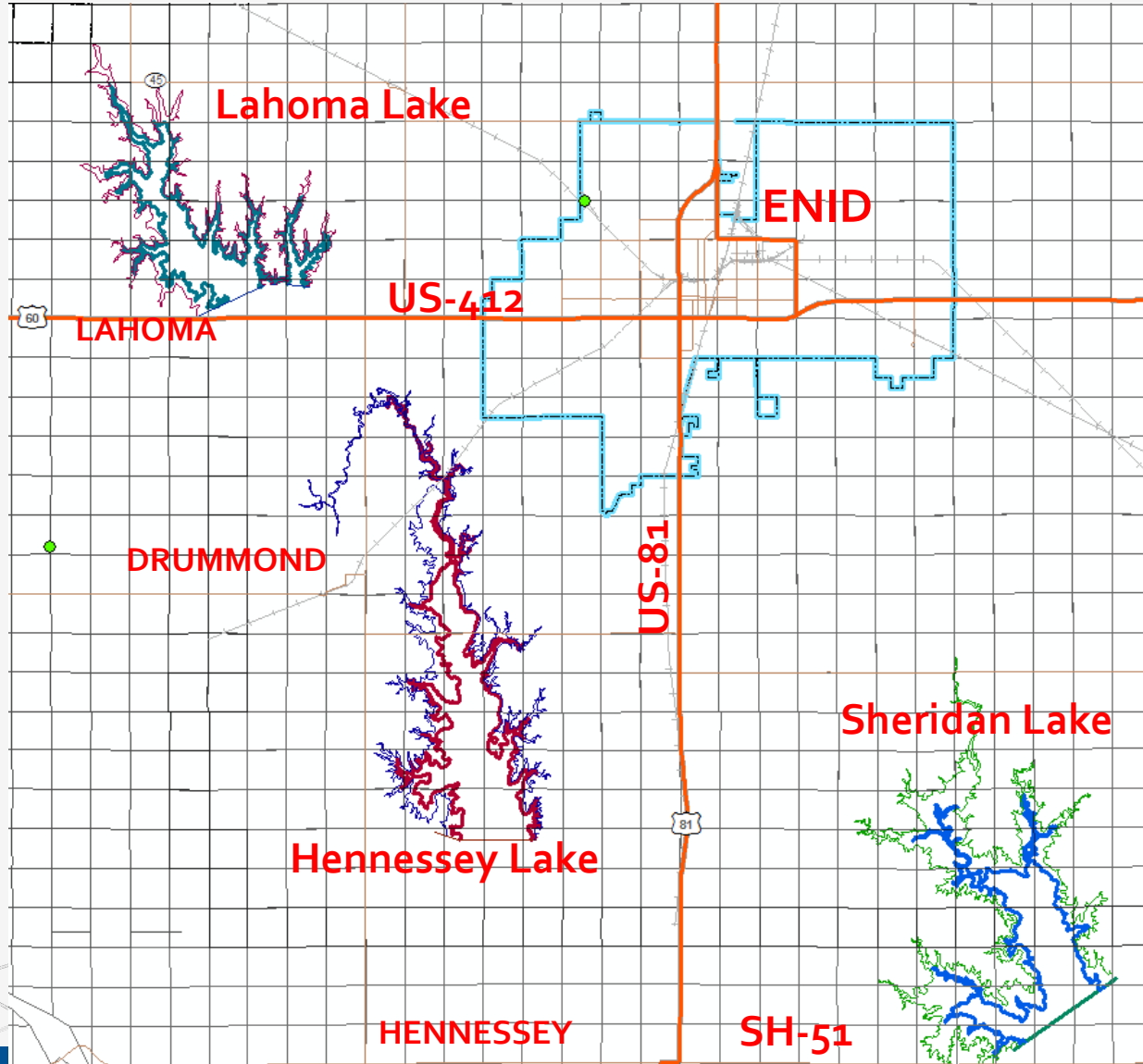
# Meet the Demand

- 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

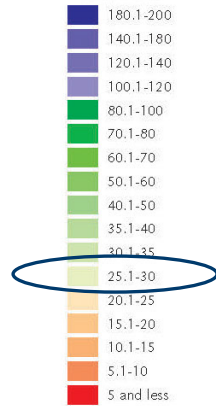
- **Surface Supply**
  - Requires ~ 14,000 to 20,000 acre-feet of water
  - Requires ~ 10,000 surface acres
  - Expand/Maintain well field during development

# Oklahoma Precipitation

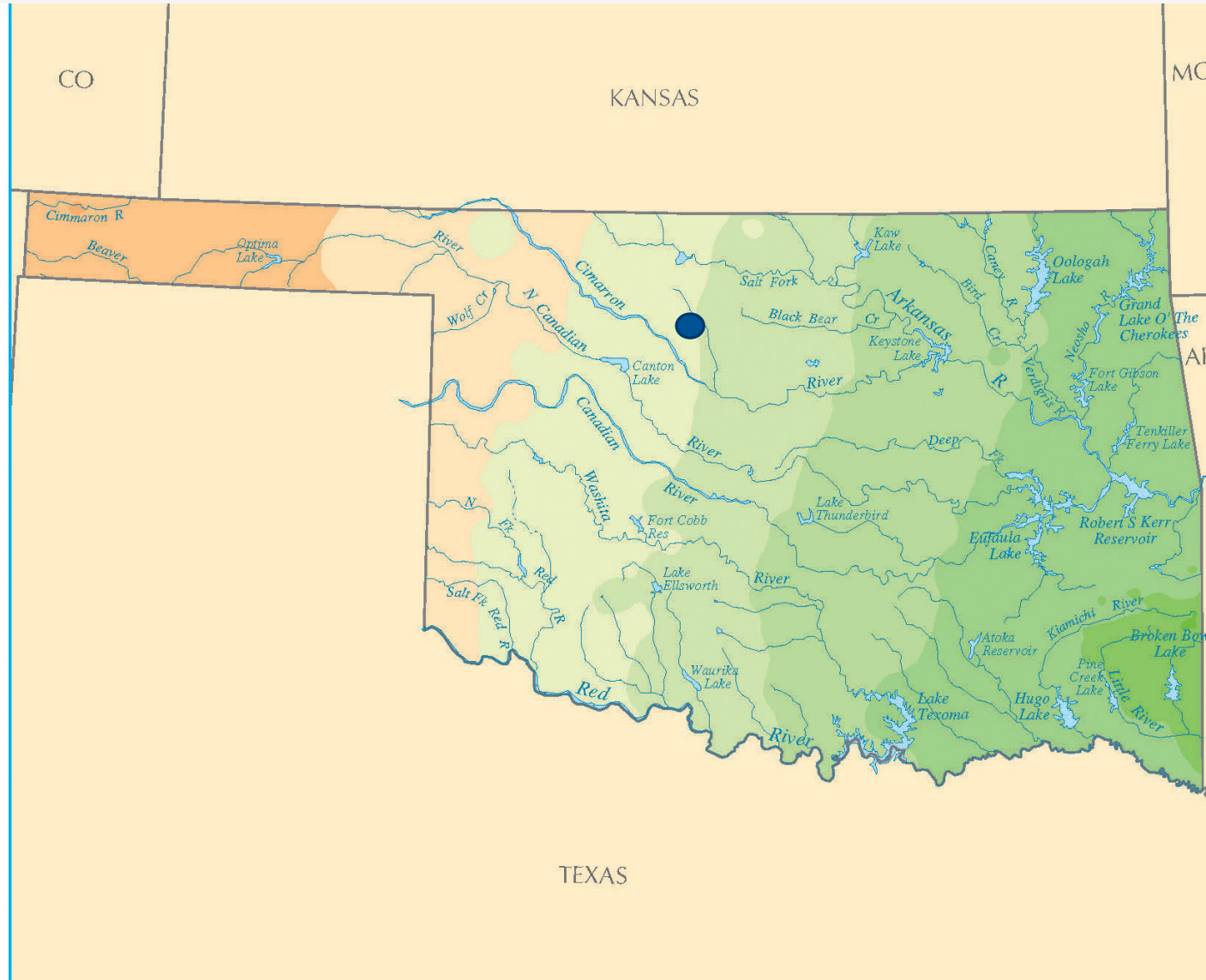
## PRECIPITATION

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

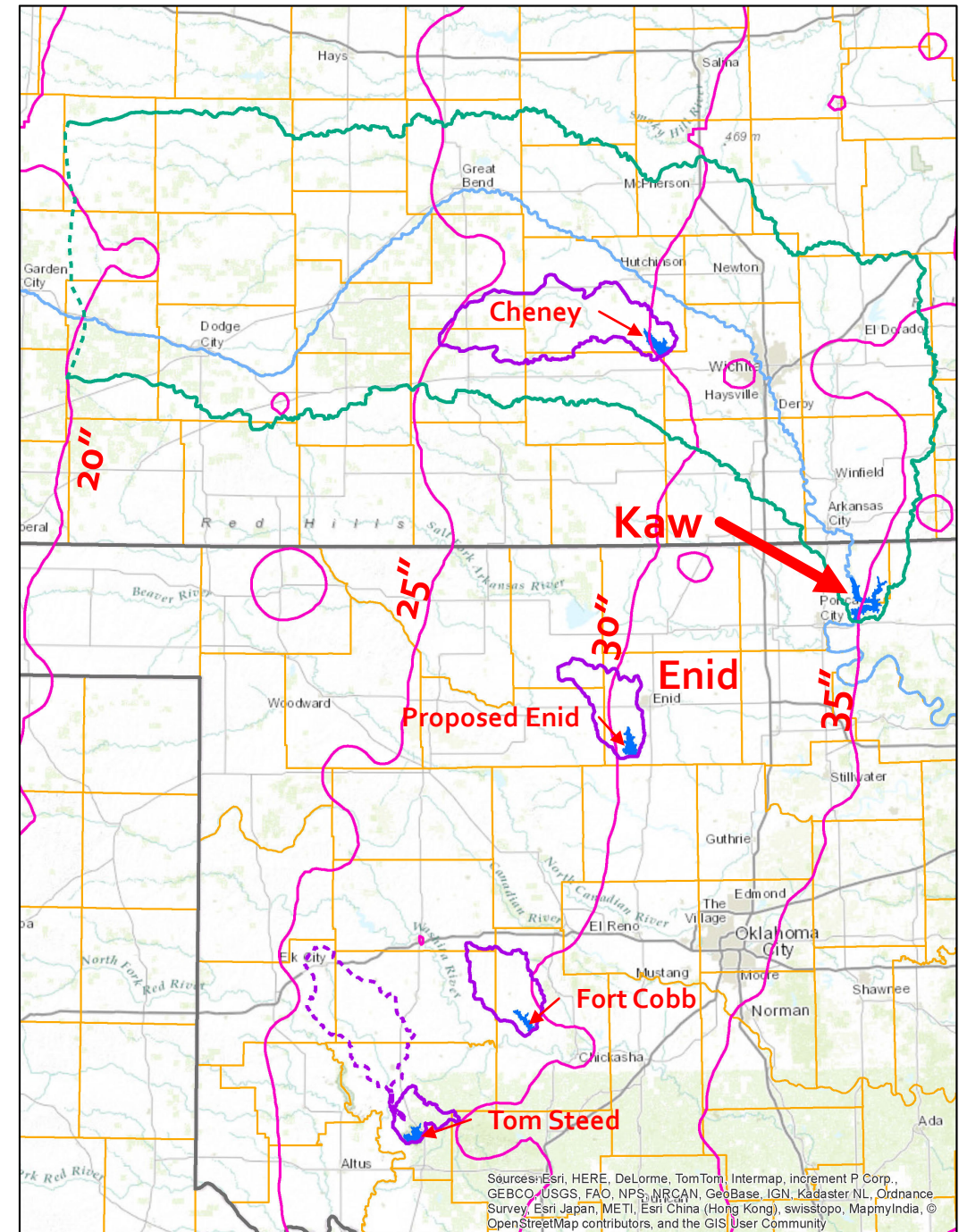
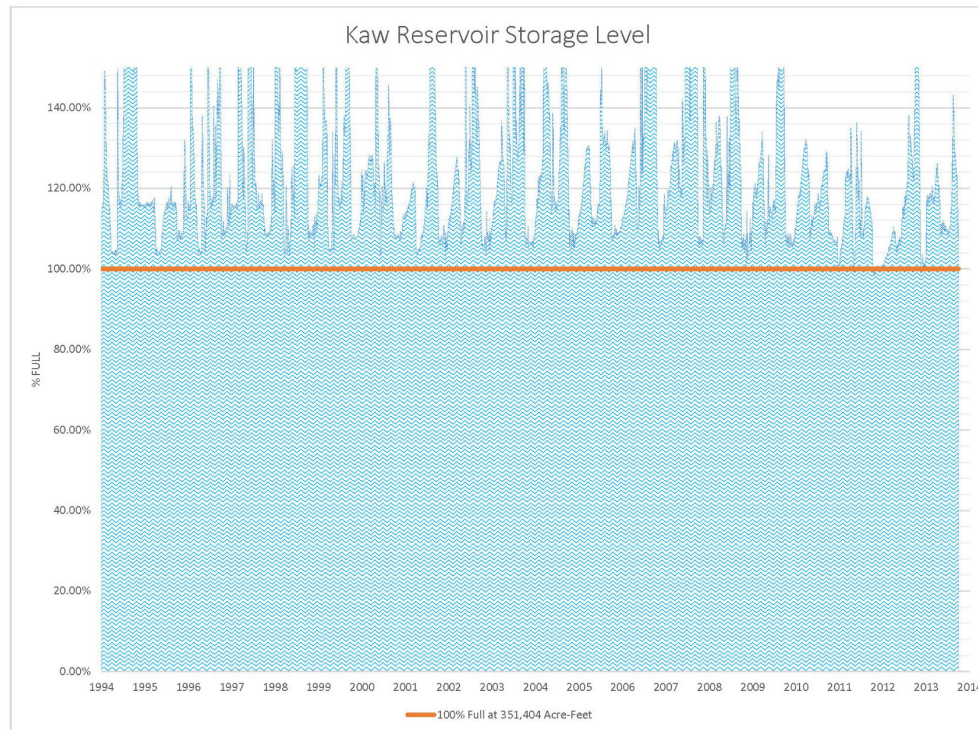


0 25 50 75 100  
MILES  
Albers equal area projection



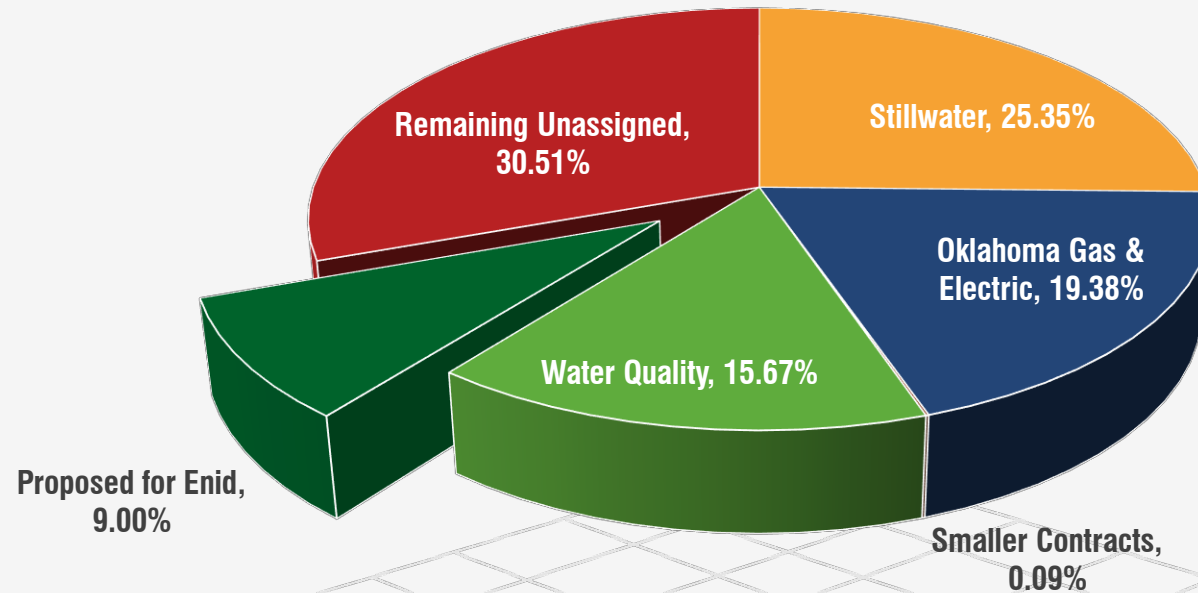
# Kaw Reservoir

- Drainage area
- Precipitation
- Lake Levels
- Draught resiliency



# Kaw Lake water Allocation

## Conservation Storage Allocation

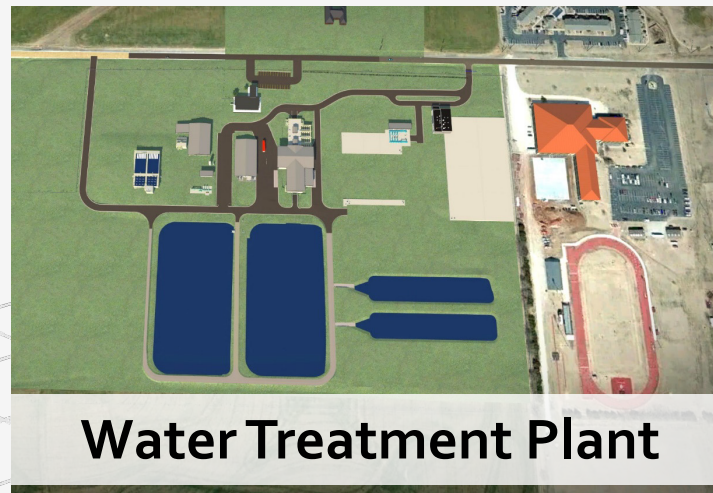
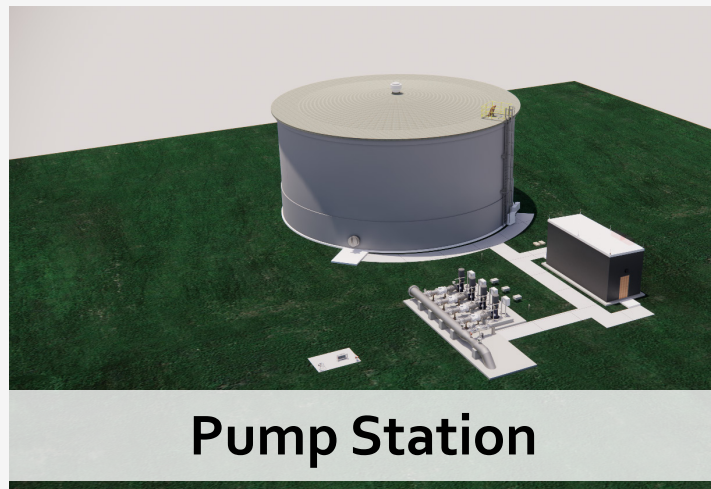
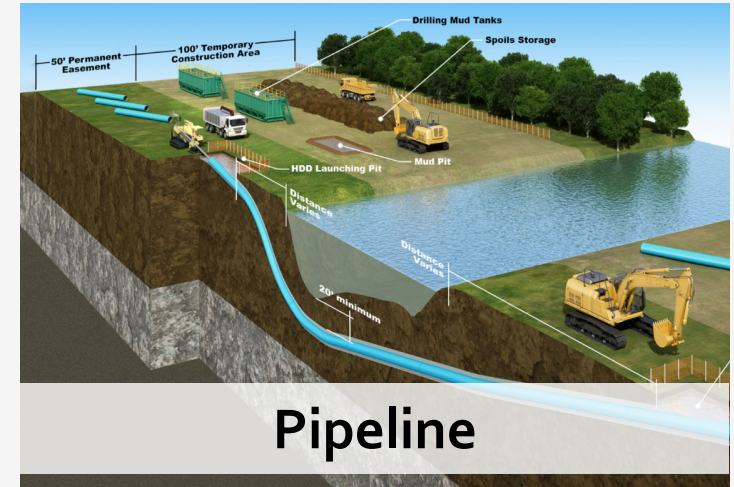
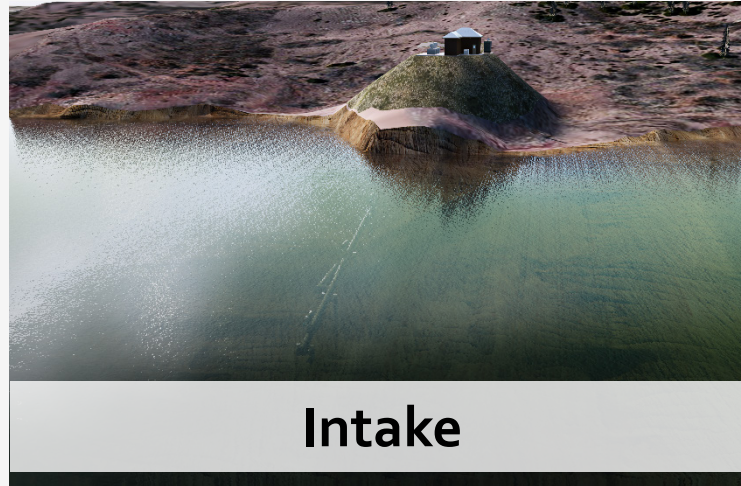


# KLWS Program

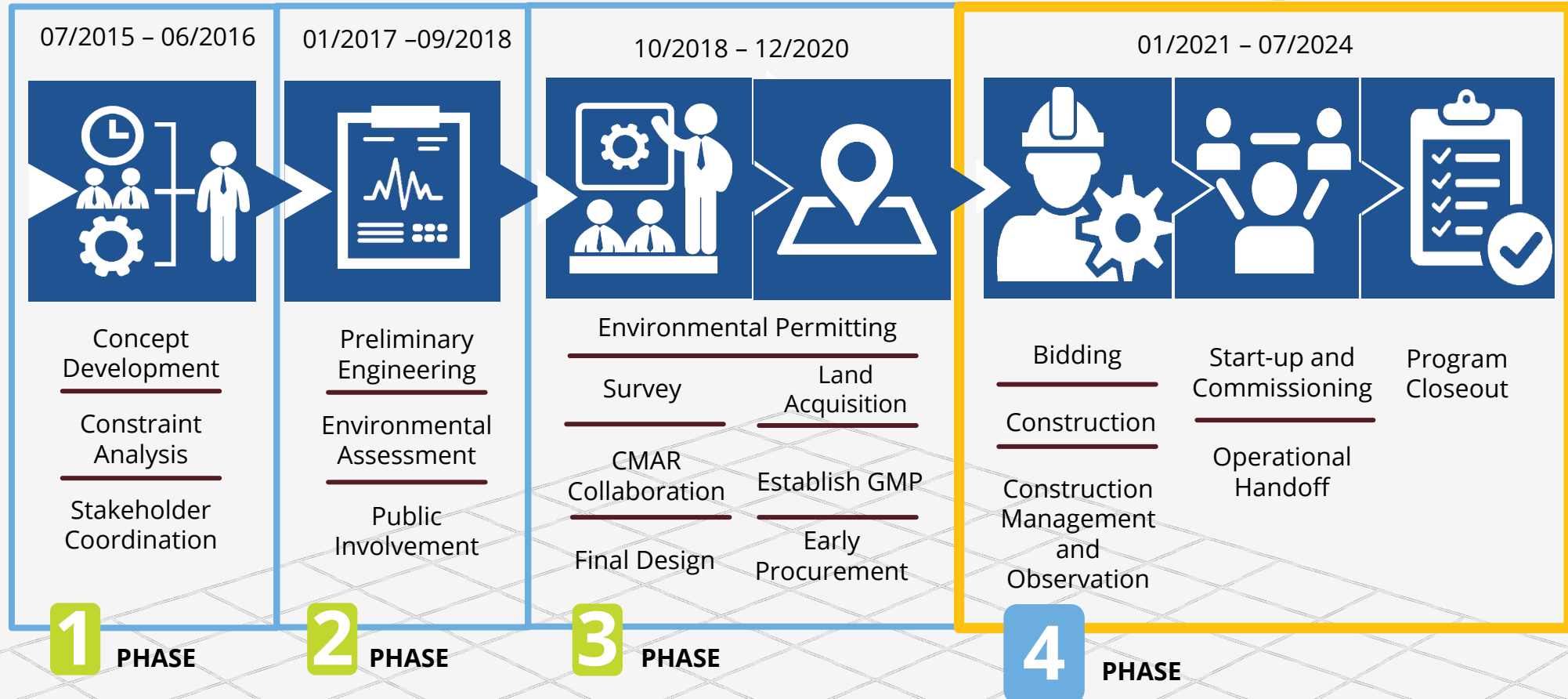
- Budget : \$317 MM
- GMP: \$256 MM

# Major Infrastructure Components

What We're  
Building



# Overview



# Intake – Construction



# Intake – Construction



# Intake – Construction



# Intake – Construction



# Intake – Construction

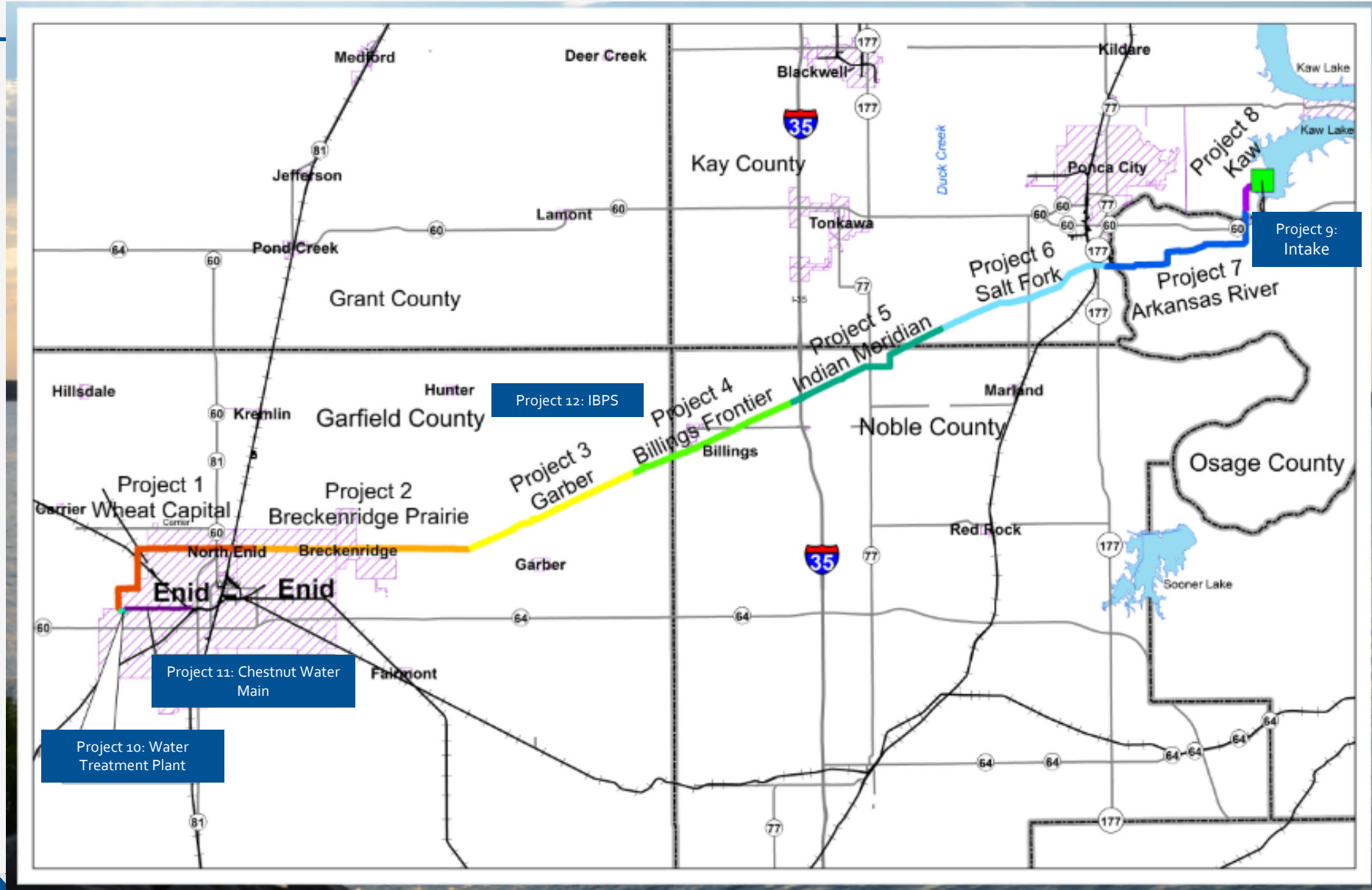


# Construction Progress

## Intake



# Transmission Pipe Line



Kaw  
Lake

Enid

# Pipe Delivery



# Top Soil Removal



# Transmission Main Installation



## BP 5.05 (Segment 7 Pipeline Installation)



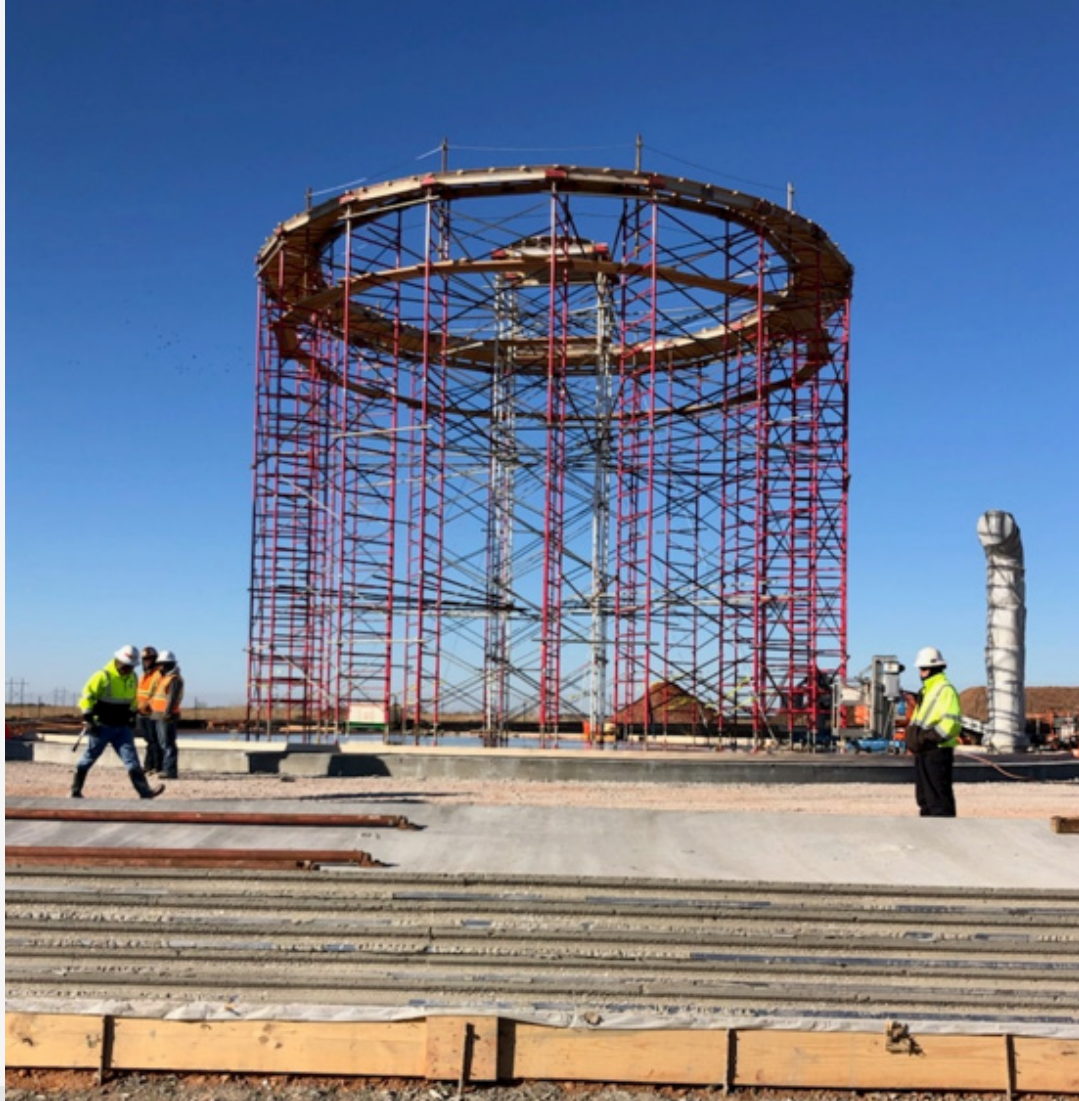
# Surface Preparation



# Surface Restoration

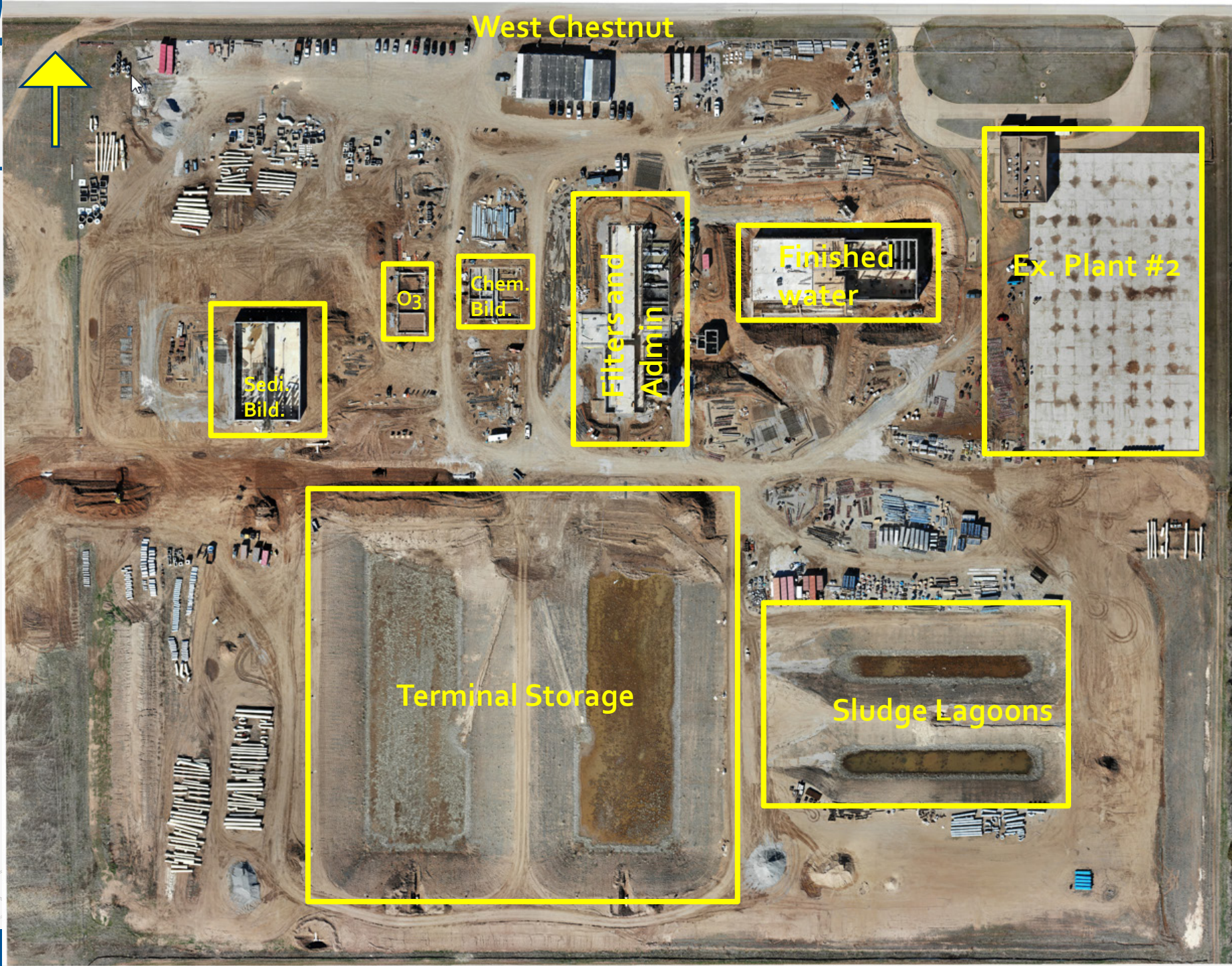


# Intermediate Booster Pump Station

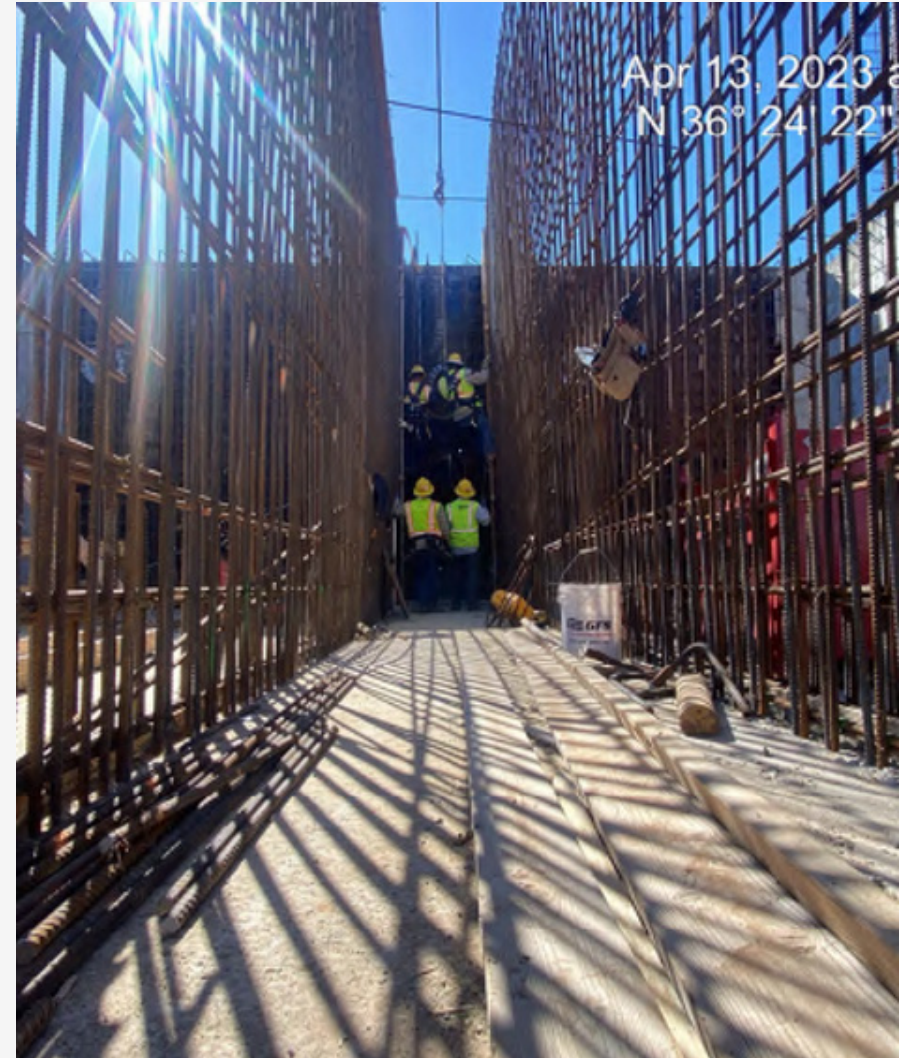


# Intermediate Booster Pump Station





# Water Treatment Plant Construction Progress



# Water Treatment Plant Construction Progress



# Water Treatment Plant Construction Progress





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

# 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](mailto: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.



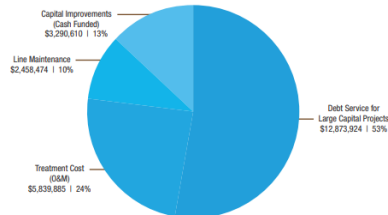
Studying up to save water? Check out these handy guides to help you ace outdoor water conservation!

- [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](#)

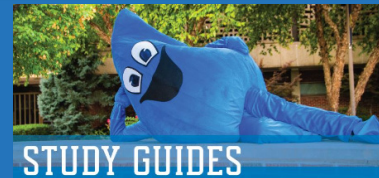
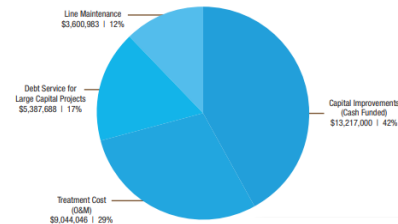
### Online Classes:

- [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](#)

### WASTEWATER BILL

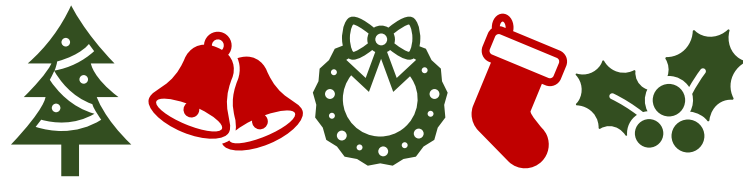


### WATER BILL



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

H<sub>2</sub>O!  
H<sub>2</sub>O!  
H<sub>2</sub>O!



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](mailto:Jennifer.boaz@edmondok.gov)**

**Office: (405)216-7775**

**Cell: (405)508-0890**



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02

# OCWP Update

1:30 pm

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15 minutes

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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**

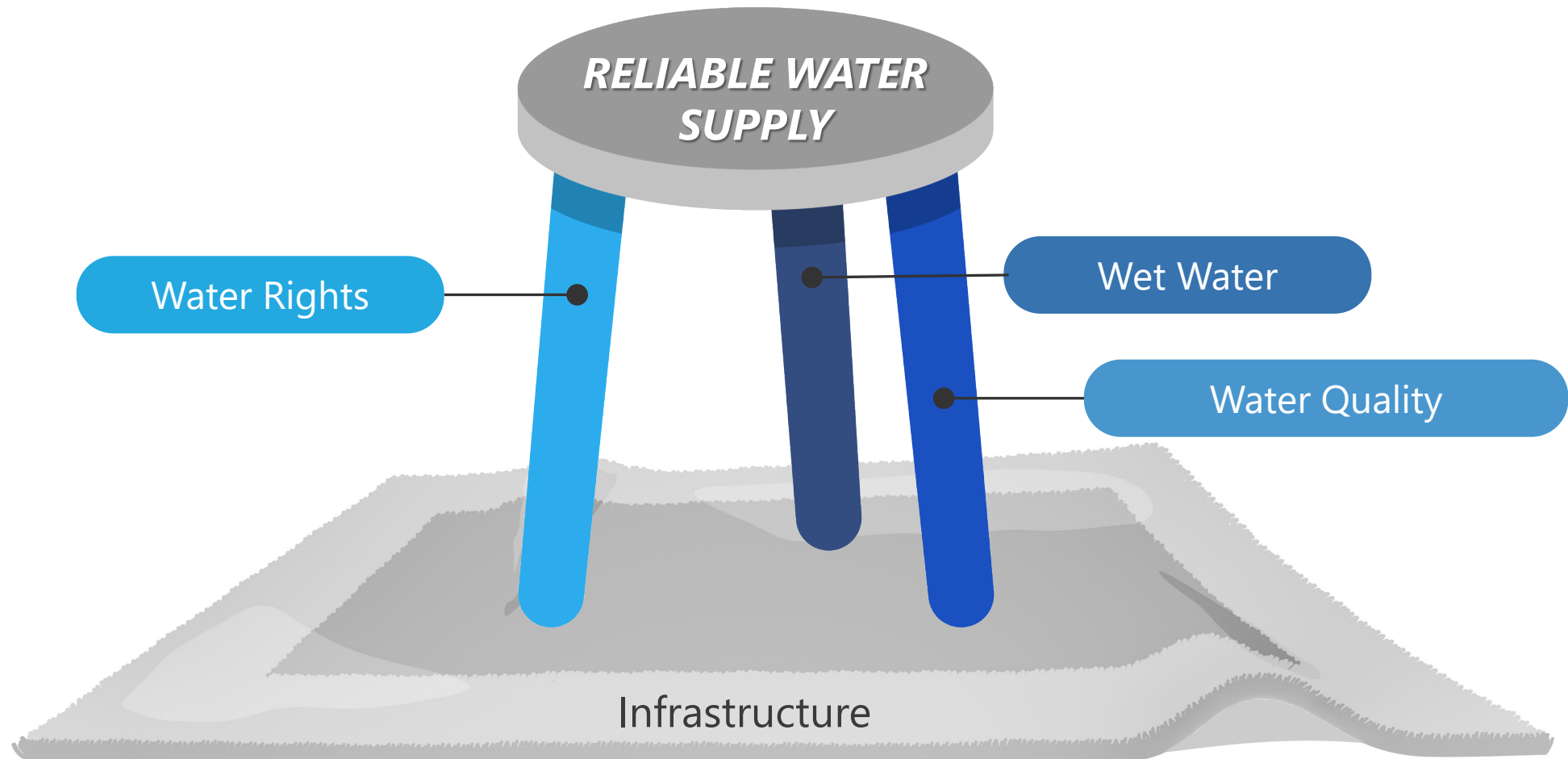


Conduct **focused engagement** throughout the process



Provide **greater access** to OCWP deliverables

# OCWP Data Provides Critical Information for Planners



# 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)

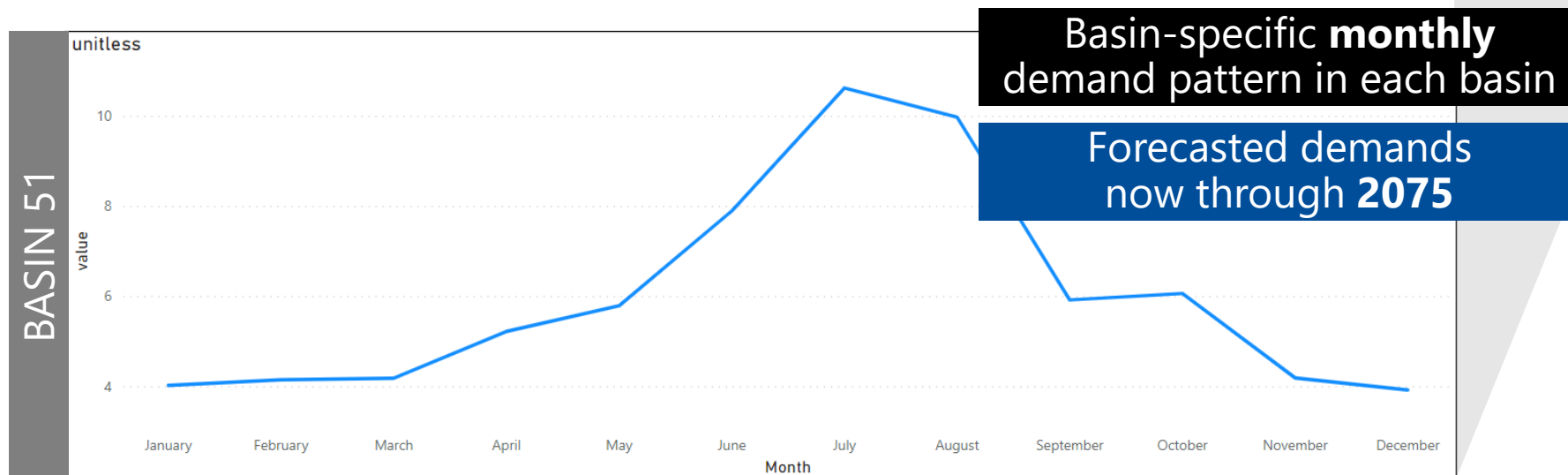
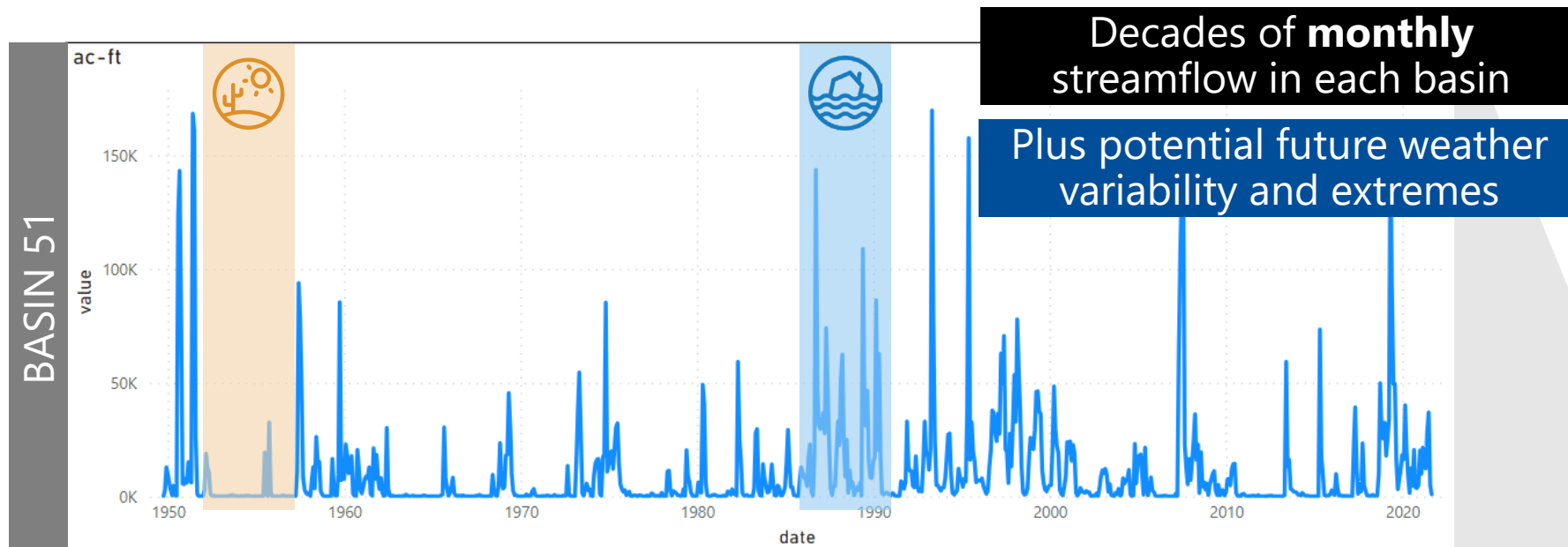
### *Livestock*

- 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

# 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?

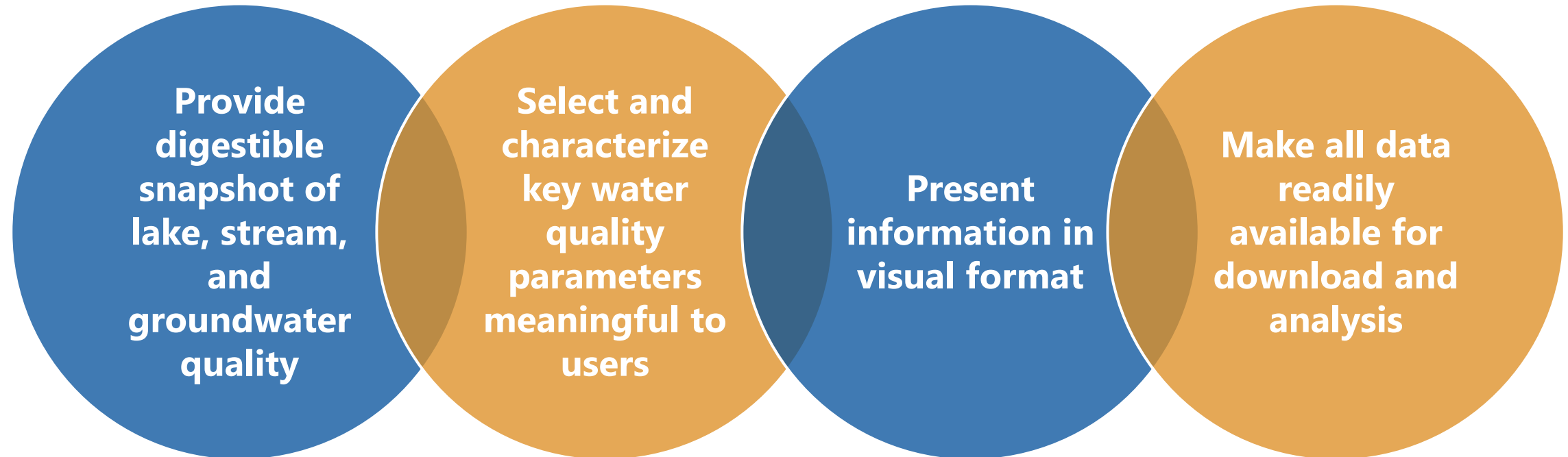
Do we expect permit availability constrain use of a source after 10, 20, 50 years of growth?

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

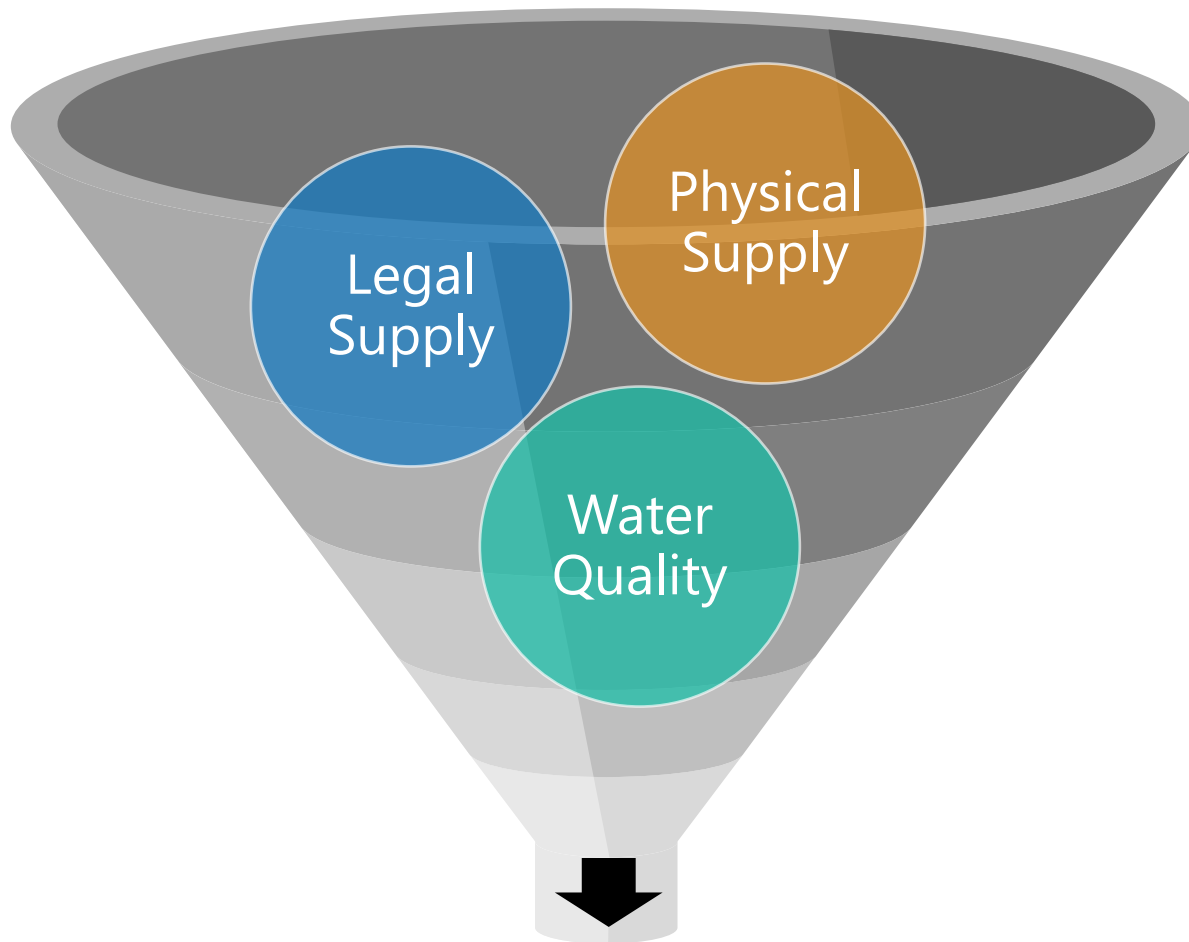
## *Groundwater*

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

*Subject to potential modification as analyses are completed*

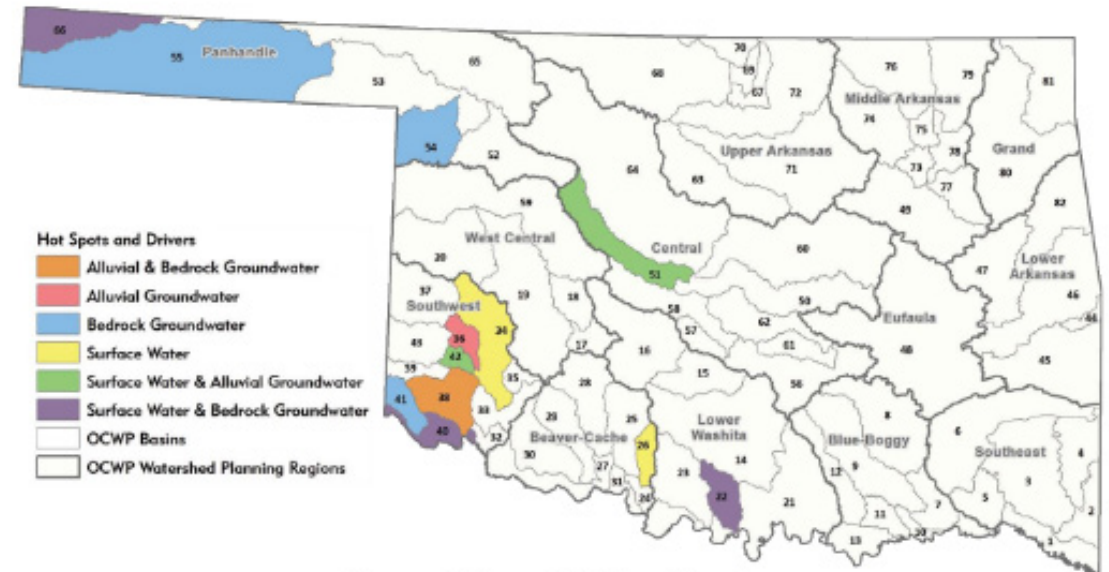
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# Identification of Focus Basins



FOCUS BASINS

*Example from OCWP 2012*



**Figure 1.1 Hot Spot Basins**

# 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**

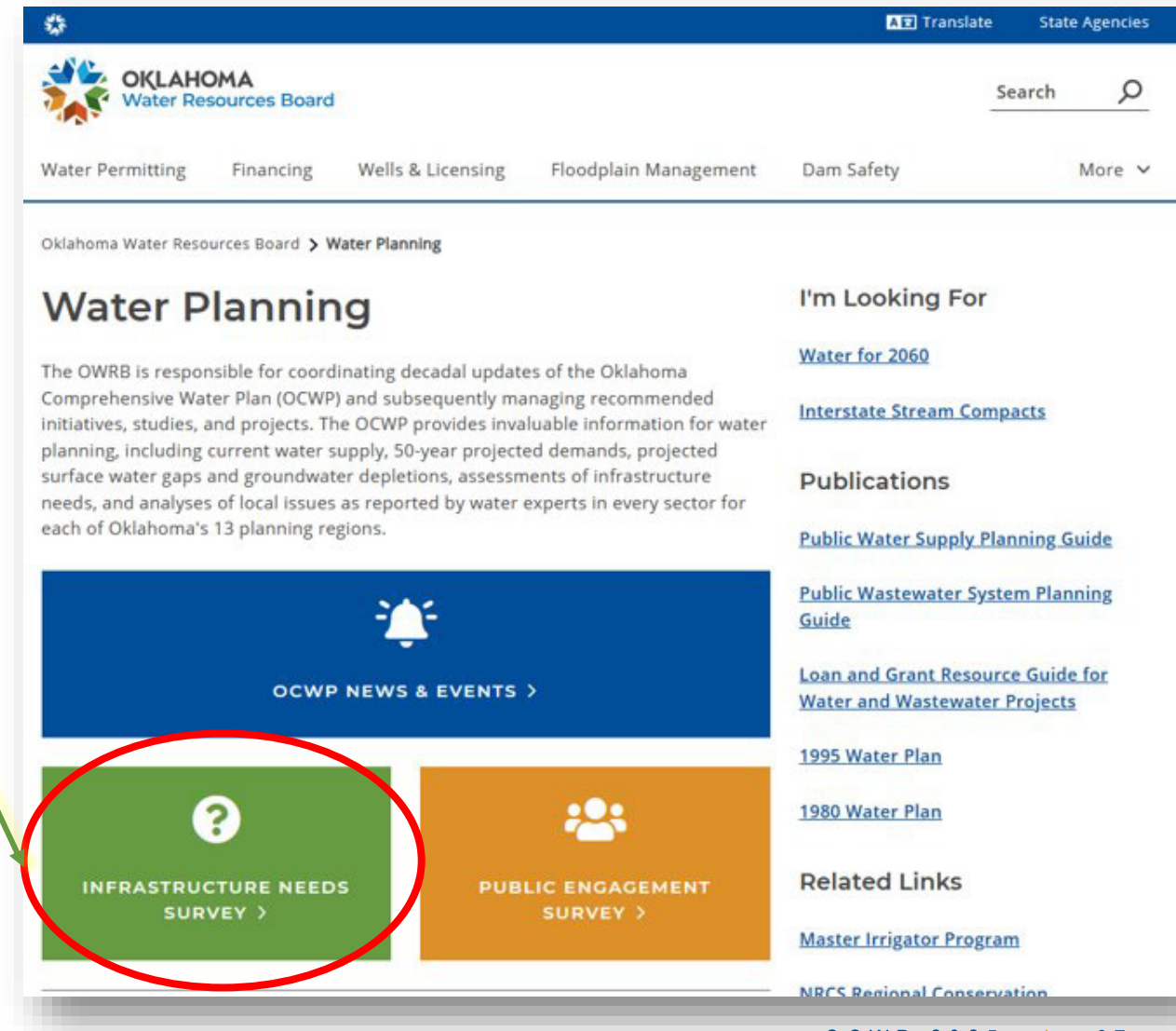
**Brackish Groundwater**

**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



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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 setback, 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

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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

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10 minutes

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## Future rounds of regional meetings



Follow up on  
today's  
conversations



Explore other  
priority topics



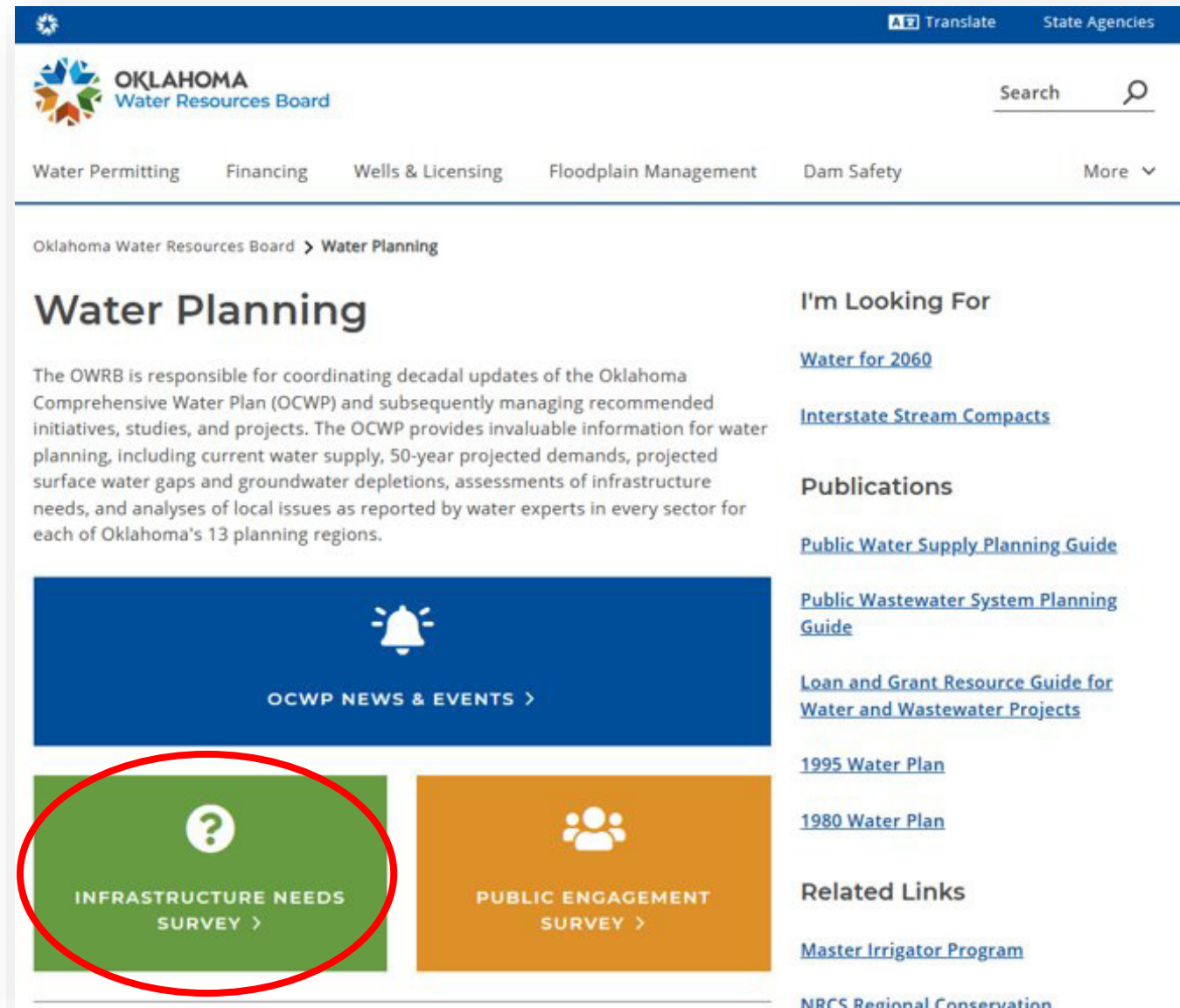
Present data and  
findings from  
technical studies



Discuss  
recommendations  
to include in the  
OCWP

# LPP Data Collection Form

Launches the OCWP  
LPP Data Collection  
Form for Water  
Providers



The screenshot displays the Oklahoma Water Resources Board website. The header includes the board's logo, a search bar, and navigation links for Water Permitting, Financing, Wells & Licensing, Floodplain Management, Dam Safety, and a 'More' dropdown. The main content area is titled 'Water Planning' and describes the board's role in coordinating decadal updates of the Oklahoma Comprehensive Water Plan (OCWP). Below this, there is a blue banner for 'OCWP NEWS & EVENTS' and two prominent buttons: '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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## 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](mailto:Owen.Mills@owrb.ok.gov)