

# **Norman Utilities Authority**

## **2060 Strategic Water Supply Plan**



**Public Meeting #5**  
**June 3, 2014**

## AGENDA

Introductions and Goals for This Meeting

Status and Progress Update

Recent State and National  
Regulatory and Policy Developments

Questions and Feedback on Preferred Portfolios

Path Forward for 2060 SWSP

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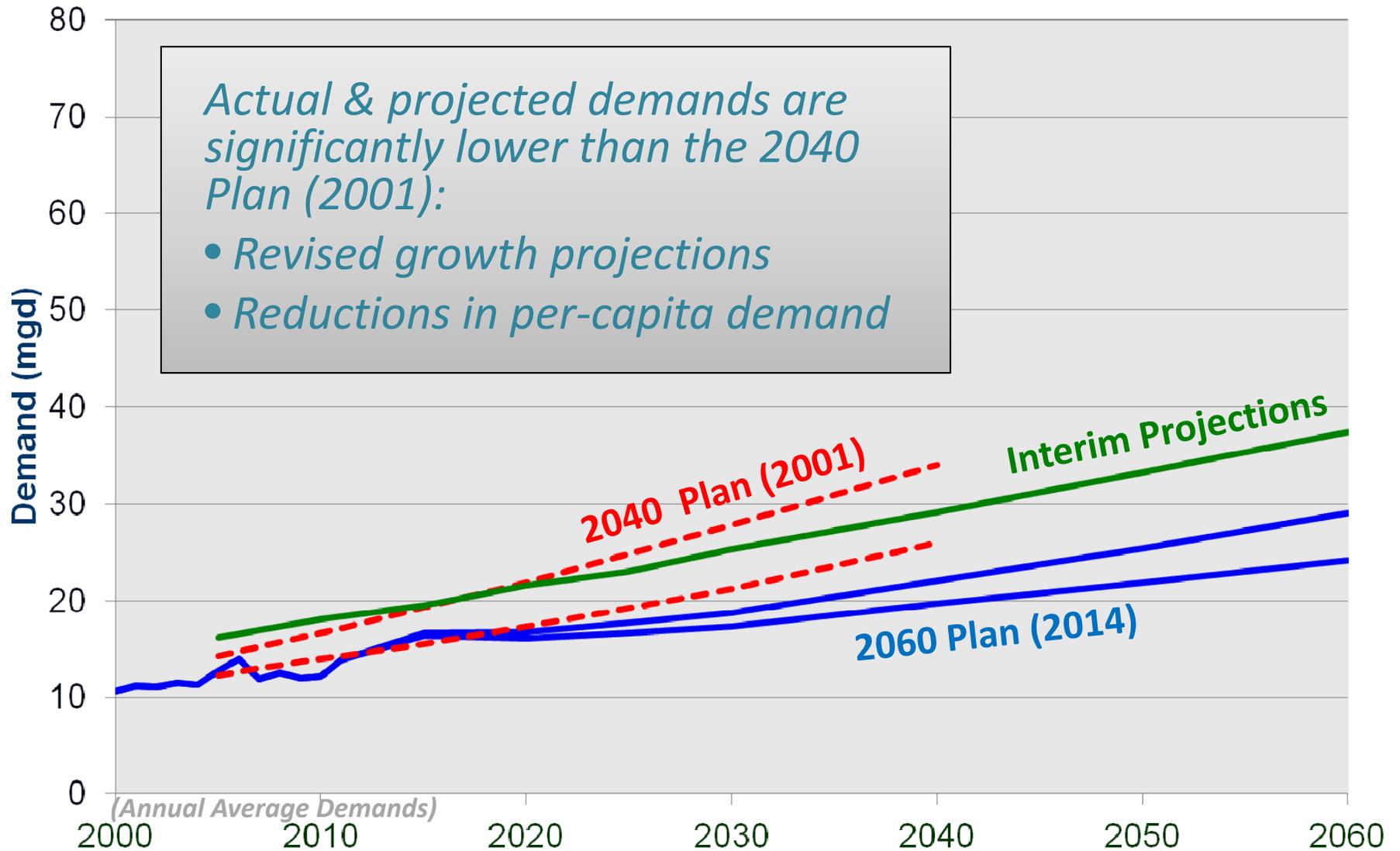
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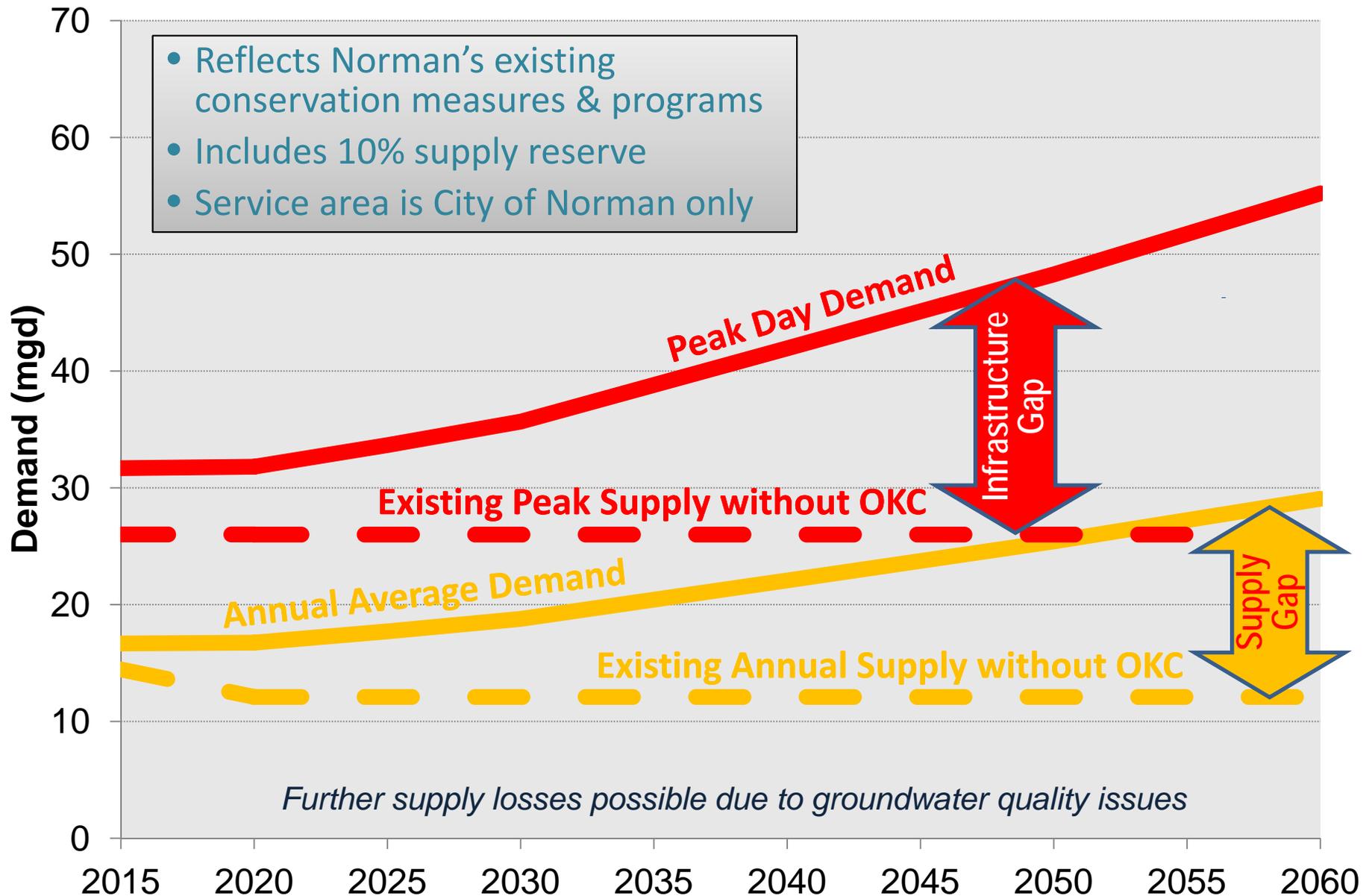
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# Projected Water Use

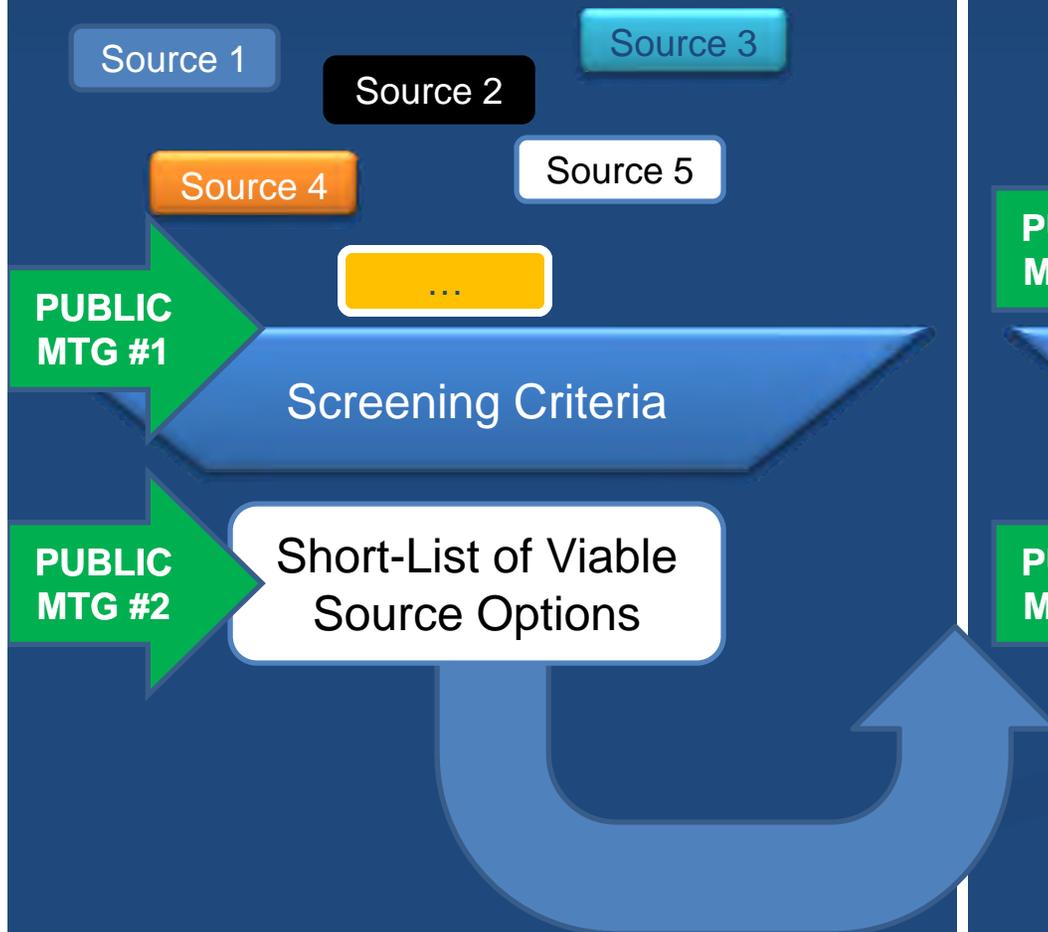


# Use Already Exceeds Local Supply



# SWSP Planning Process

## Source Options (Phase 1)



## Supply Portfolios (Phase 2)



# Water Supply Options Considered

Existing Sources	New Local Sources	New Regional Sources
Lake Thunderbird (at firm yield)	Additional conservation	Co-owner with OKC for SE Oklahoma treated water
Garber Wellington Aquifer Wells (with treatment)	Direct non-potable reuse (purple pipe)	Co-owner with OKC for SE Oklahoma raw water
Intermittent purchase of treated water from OKC (wholesale)	Lake Thunderbird Augmentation (indirect potable reuse)	Scissortail Reservoir
Conservation and reuse	Groundwater recharge (indirect potable reuse)	Parker Reservoir
	Stormwater capture and reuse	Kaw Lake
	Canadian River diversion	
	Capture Lake Thunderbird spillage	
	Dredging Lake Thunderbird	

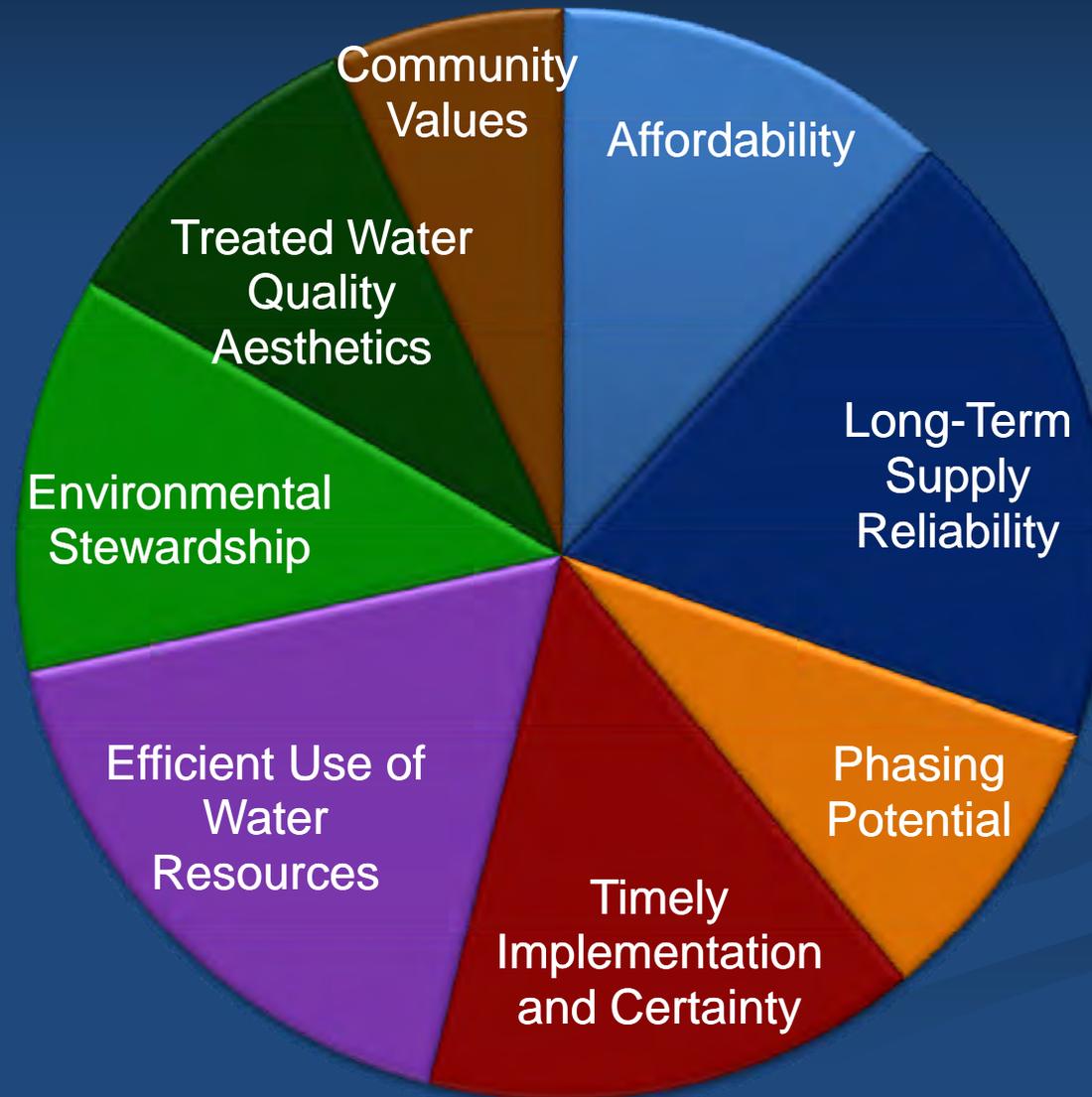
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	<del>Stormwater capture and reuse</del>	Kaw Lake

*The most viable and cost-effective supply options became the “building blocks” for water supply portfolios*

~~Dredging Lake Thunderbird~~

# Weighted Criteria Were Used to Compare 14 Different Supply Portfolios



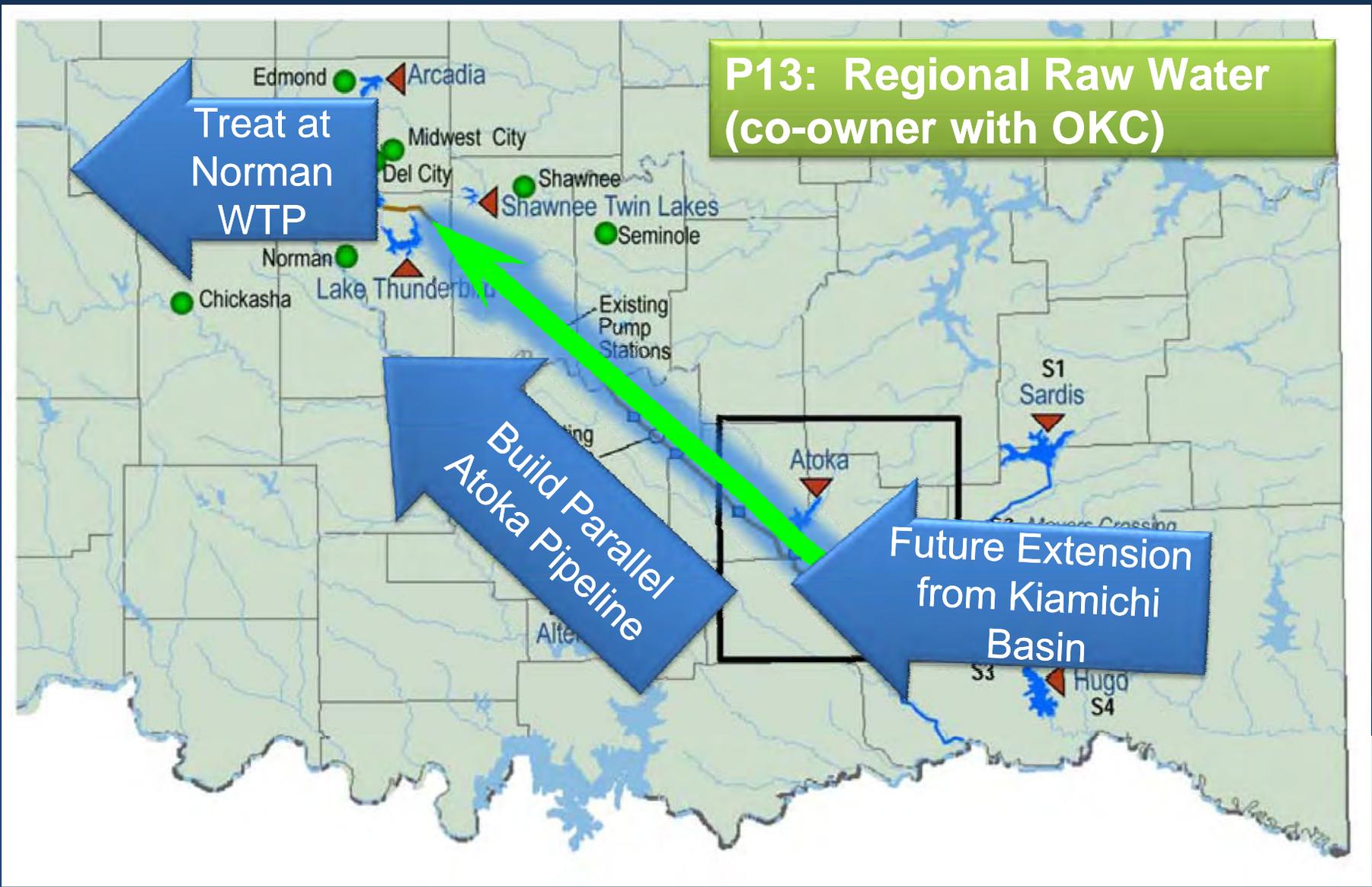
# Portfolios that Best Meet Norman's Criteria

	Lake Thunderbird Allocation	Existing Groundwater Wells	New Groundwater Wells	Conservation & Non-potable Reuse	Lake Thunderbird Augmentation	Regional Supplies via Oklahoma City	Capital and O&M Costs (2012\$)
<b>P1 Eliminated: Public / Council feedback indicates strong preference for including new wells to maintain existing groundwater supply proportions</b>							
P13 Regional OKC	6	8		2		13	\$340M \$23M/yr
P14 Wells + TBird Aug.	6	8	2	2	11		\$270M \$22M/yr

Values are 2060 Annual Avg. Use (mgd)

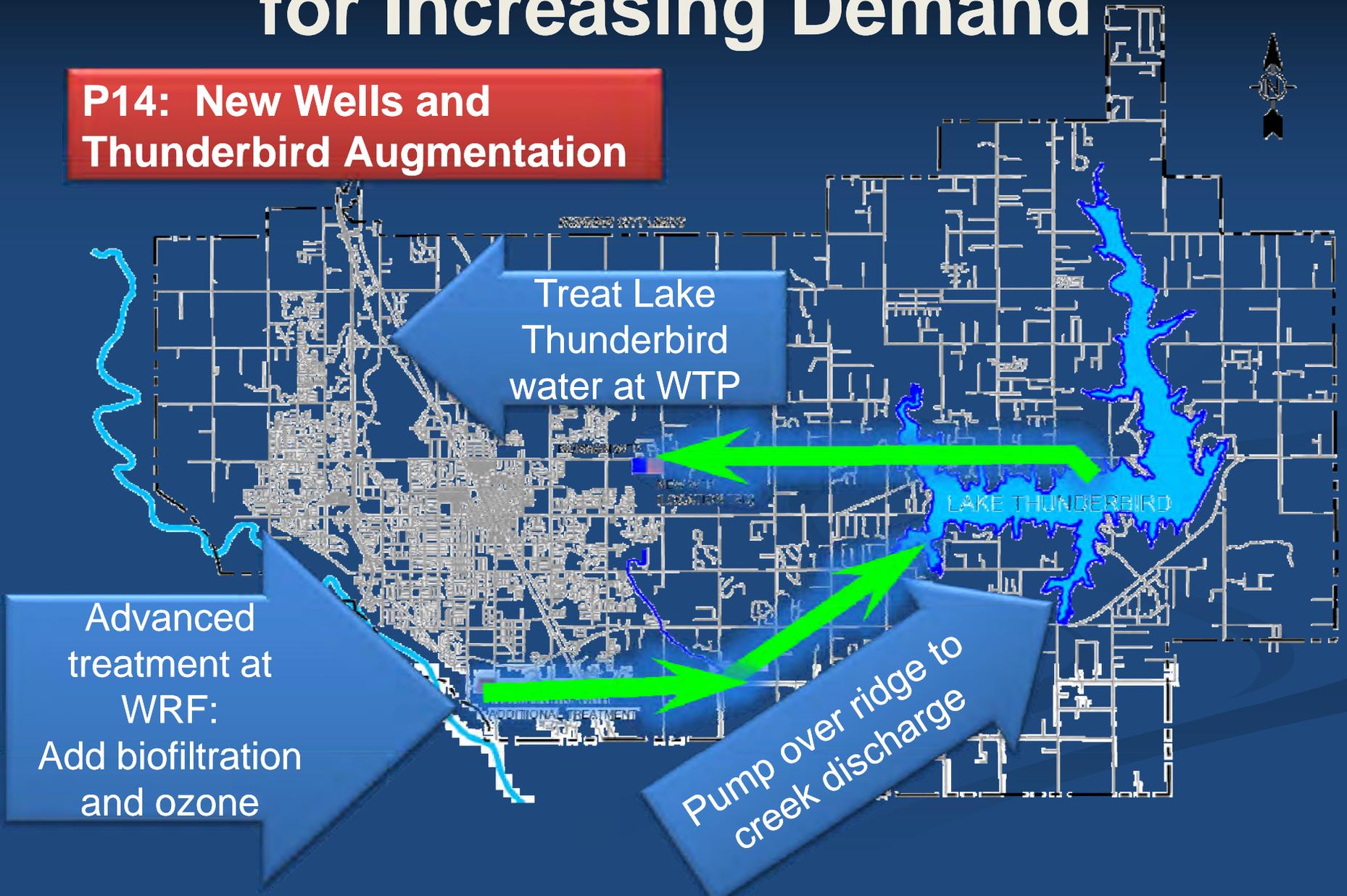
OKC deliveries are raw water treated by Norman

# Key Difference: Source of Water for Increasing Demand

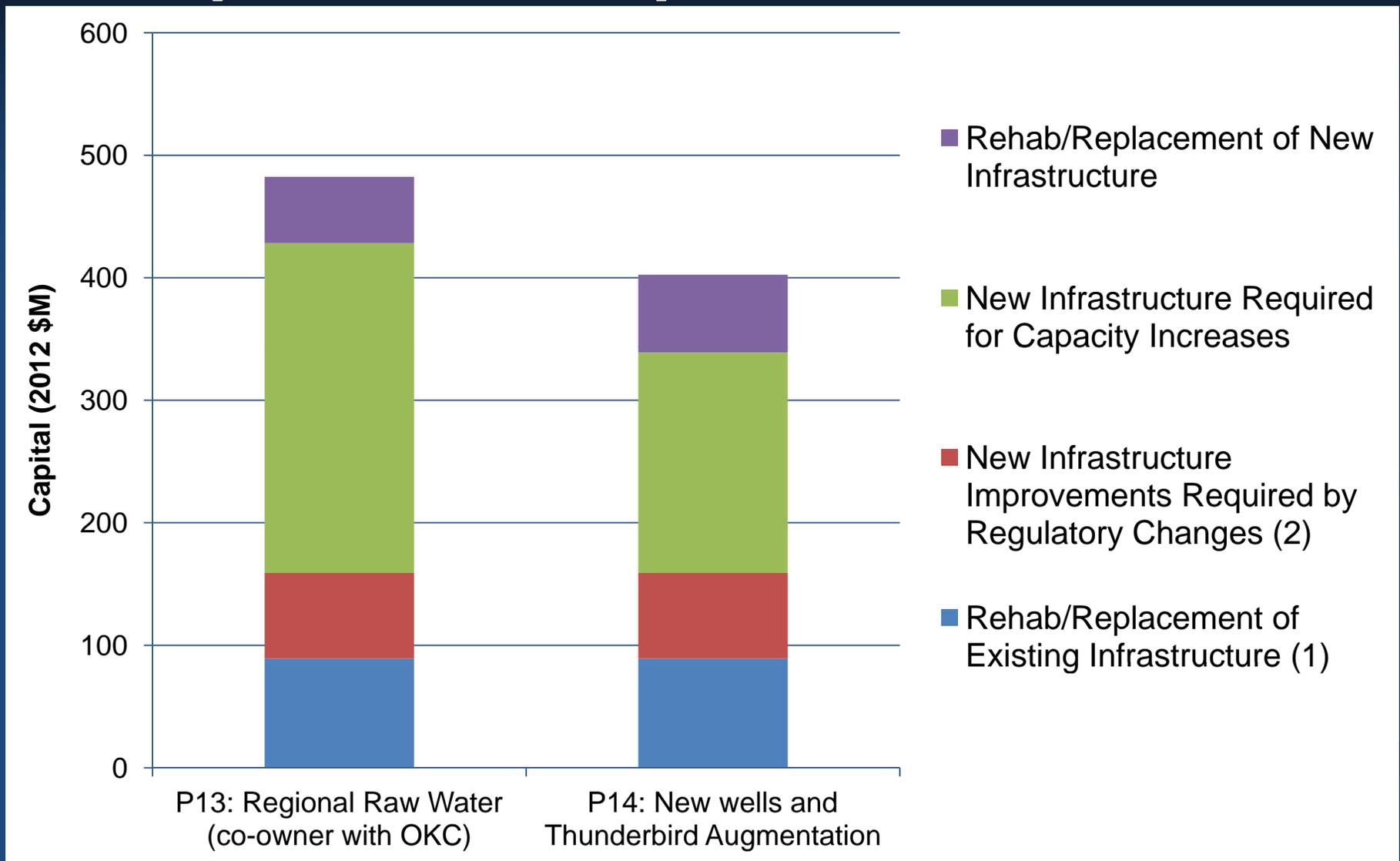


# Key Difference: Source of Water for Increasing Demand

**P14: New Wells and Thunderbird Augmentation**



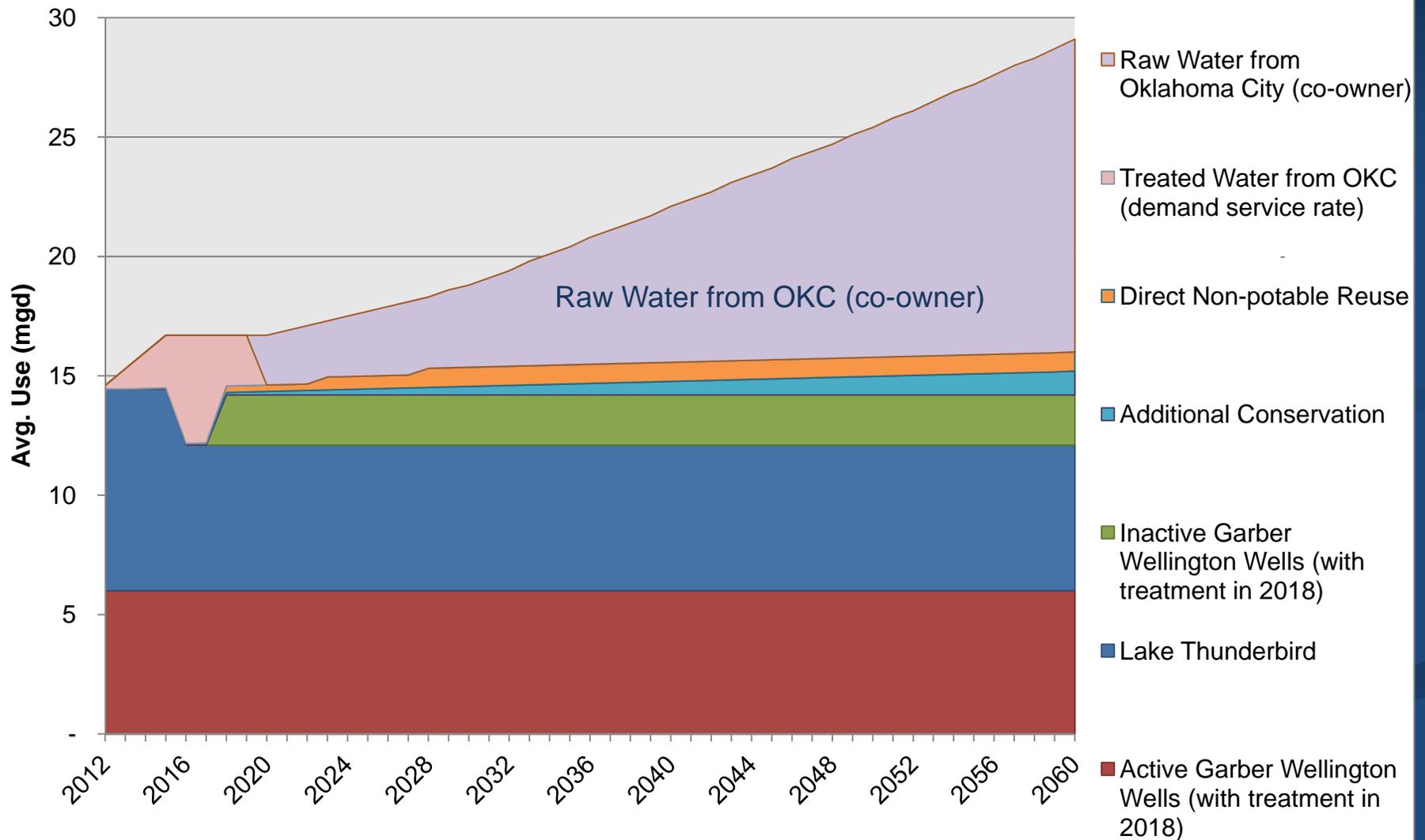
# Comparison of Capital Costs



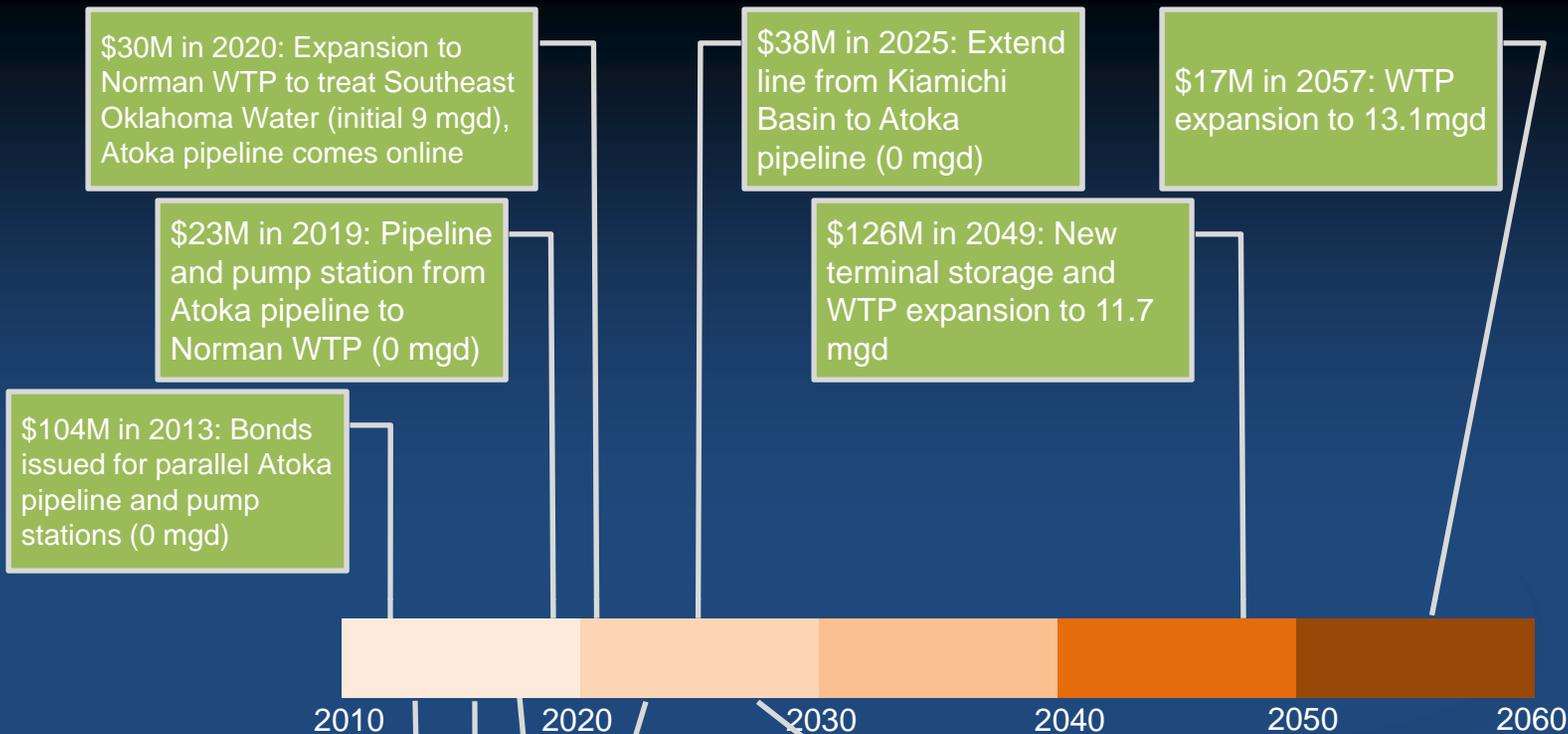
Notes:

1. Existing infrastructure includes Vernon Campbell WTP, raw water piping, and treated water connection to OKC.
2. Infrastructure required because of anticipated regulatory changes includes treatment for active Garber-Wellington Aquifer wells.

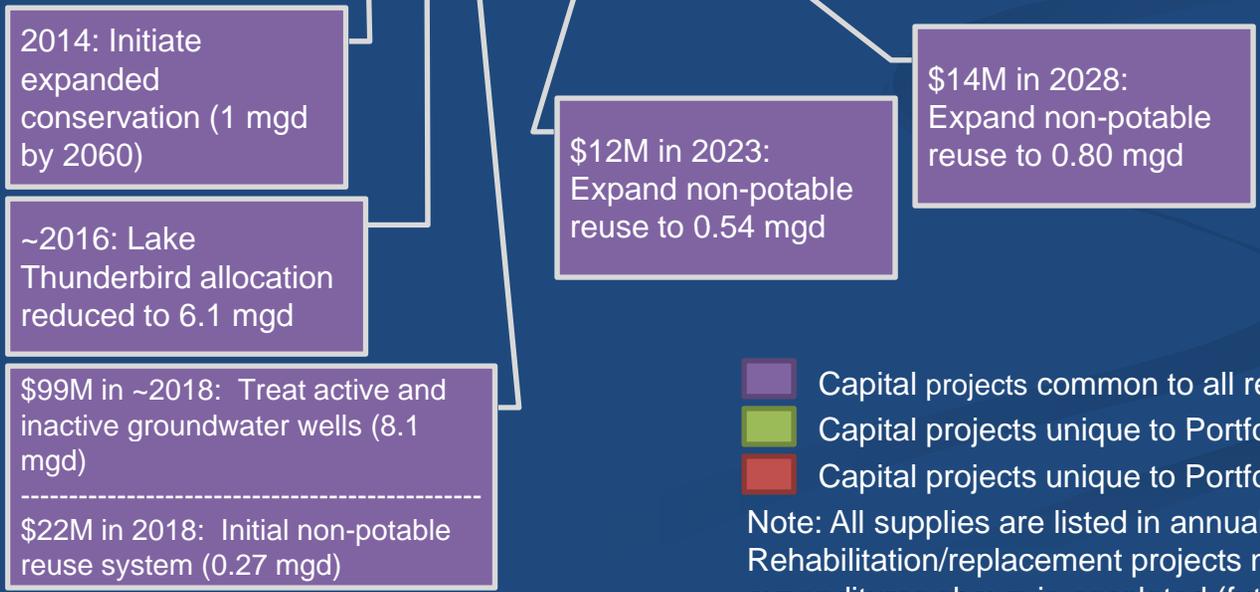
# Phased Capacity Increases to Meet Demand: Portfolio 13



Capital Projects for Portfolio 13 – Partnership with Oklahoma City for Southeast Oklahoma Raw Water



Capital Projects Common to All of the Recommended Portfolios

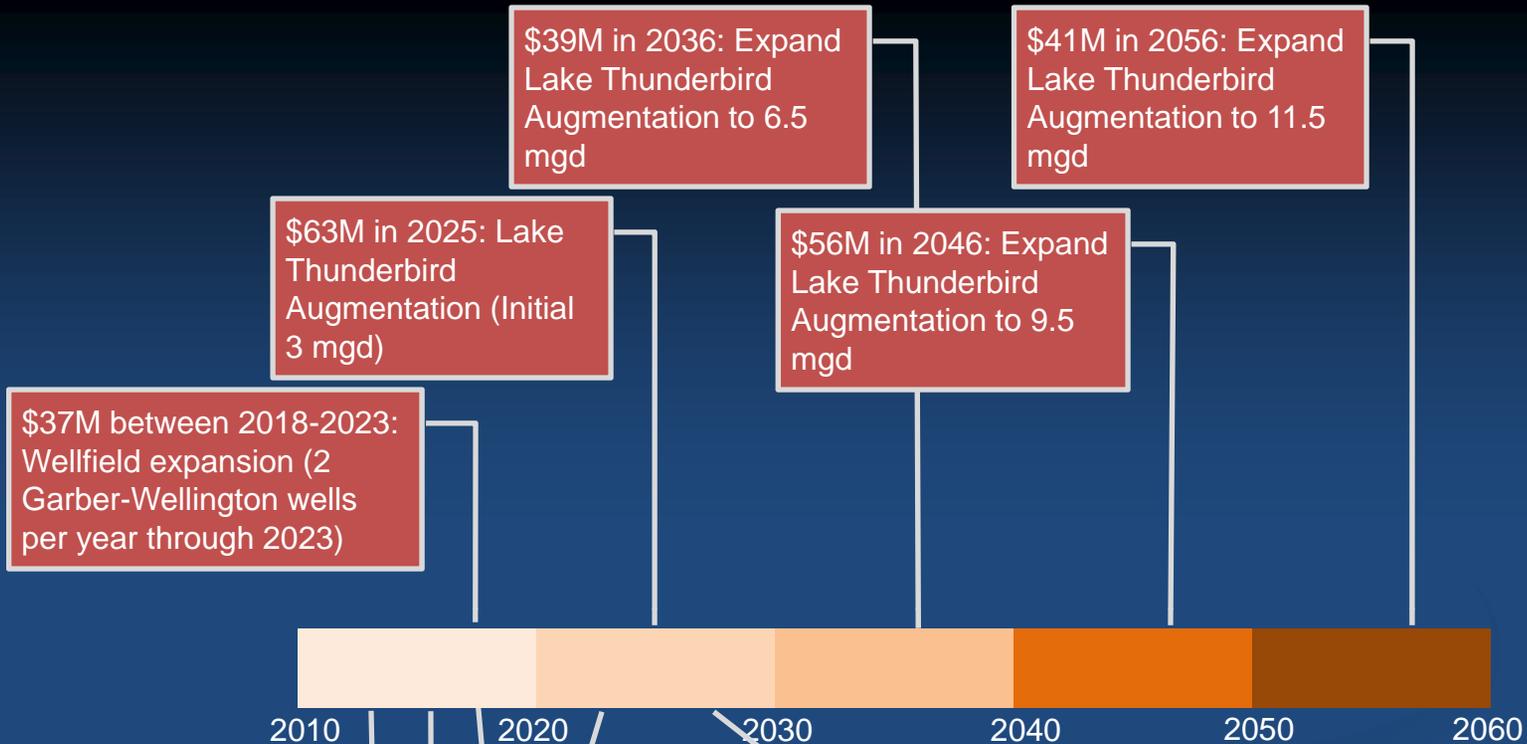


- Capital projects common to all recommended portfolios
- Capital projects unique to Portfolio 13
- Capital projects unique to Portfolio 14

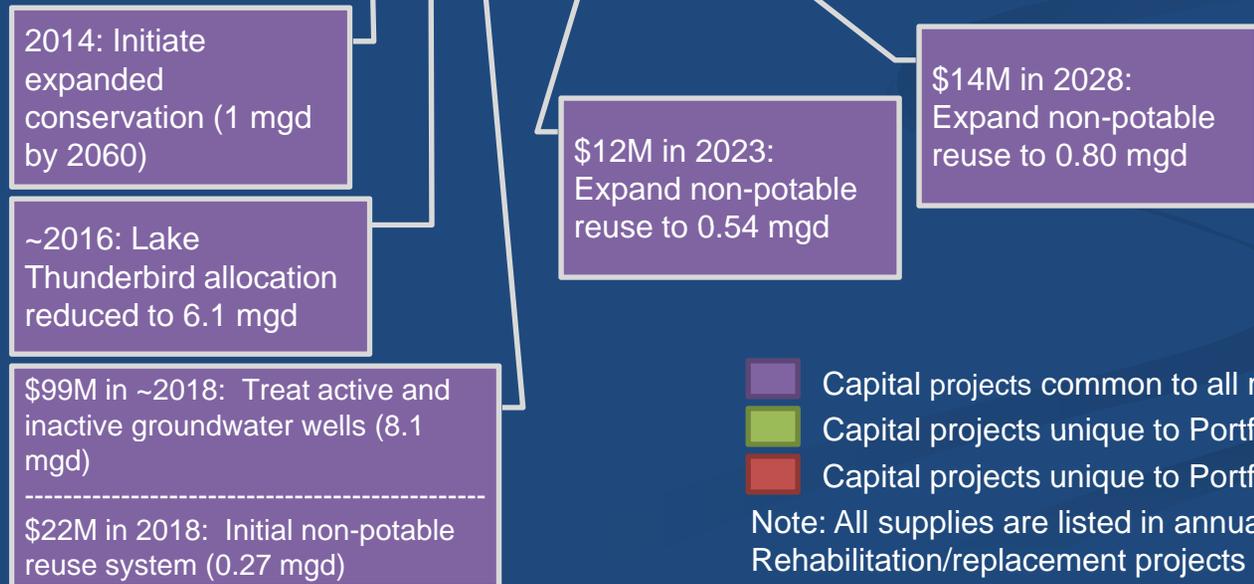
Note: All supplies are listed in annual average flow. Rehabilitation/replacement projects not shown. Capital expenditures shown in escalated (future) dollars.



Capital Projects for Portfolio 14 – New Groundwater Wells and Lake Thunderbird Augmentation



Capital Projects Common to All of the Recommended Portfolios



- Capital projects common to all recommended portfolios
- Capital projects unique to Portfolio 13
- Capital projects unique to Portfolio 14

Note: All supplies are listed in annual average flow. Rehabilitation/replacement projects not shown. Capital expenditures shown in escalated (future) dollars.

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# Recent State and National Regulatory & Policy Developments

- National:
  - Chromium-6 regulations
- Oklahoma:
  - Water for 2060
  - Potable reuse regulations
  - Sensitive water supply designation

# Chromium-6

- California Cr6 limit of 10 ug/L sent to Office of Administrative Law 4/2014
- EPA Cr6 limit (likely >10 ug/L) expected in 2017
- Most of Norman's wells will not meet new Cr6 regulations without treatment

Hexavalent

TITLE 22, CALIFORNIA CODE OF REGULATIONS  
DIVISION 4, CHAPTER 14, ARTICLE 3

(1) Amend Section 64213 to read as follows:

**§64213. Chemical Quality Monitoring.**

(a) A water supplier operating a state small water system shall sample each source of supply prior to any treatment at least once. The sample shall be analyzed at a laboratory, certified by the Department pursuant to Article 3, commencing with section 100625, of Chapter 4 of Part 1 of Division 101, Health and Safety Code, for fluoride, iron, manganese, chloride, total dissolved solids, and the inorganic chemicals listed in Table 64431-A, section 64431(a).

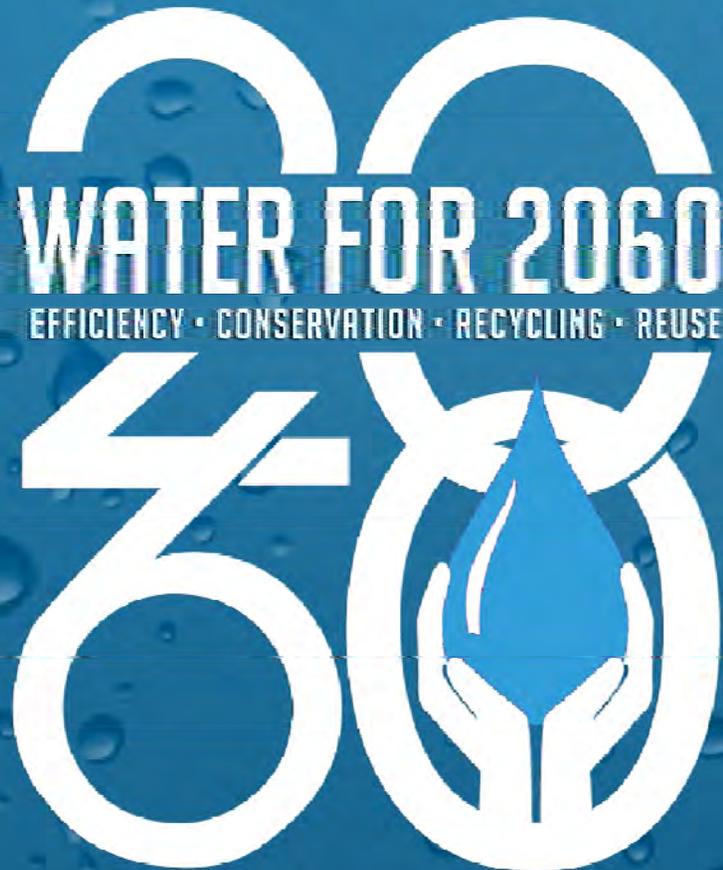
(b) No Change to Text.

(c) The results of the laboratory analyses shall be submitted to the local health officer by the state small water system no later than the 10th day of the month following receipt of the results by the state small water system. A copy of the results of the analyses and a comparison of the results with the maximum contaminant levels for those contaminants listed in Table 64431-A, section 64431(a), and Table 64444-A, section 64444, shall be distributed by the state small water system to each regular user of the water system within 90 days of receiving the results. A copy of the distribution notice shall be provided to the local health officer.

(d) No Change to Text.

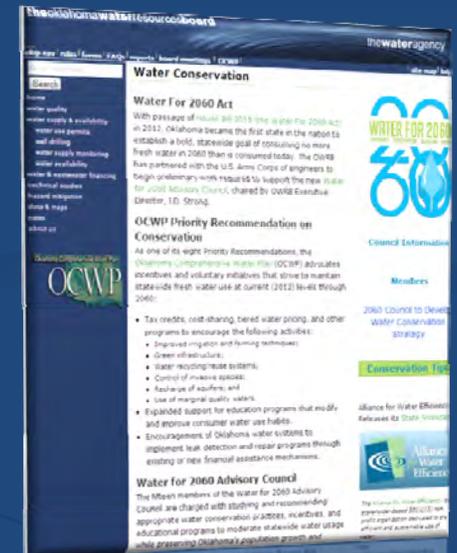
NOTE: Authority cited: Sections 116340, 116350, 131052 and 131200, Health and Safety Code. Reference: Sections 116275 and 116340, Health and Safety Code.

Oklahoma



...a goal of  
consuming  
**no more**  
**fresh water**  
**in 2060**  
than is  
consumed  
statewide in  
2012...

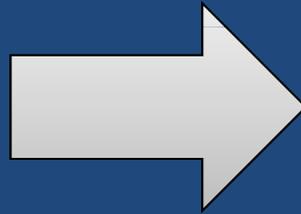
- Water for 2060 Act passed in 2012
- Advisory Council appointed to recommend incentives and voluntary initiatives for water efficiency
- Focus: water conservation and reuse
- Local conservation and marginal quality water analyses being conducted by OWRB later in 2014



# Cultural Shifts are Happening in the Water Industry and in Our Communities



**“WASTEWATER  
TREATMENT”**



**“WATER RECLAMATION”  
AND  
“RESOURCE RECOVERY”**

# Nonpotable reuse is already meeting diverse needs across Oklahoma





# Indirect Potable Reuse: Surface Water Augmentation

“IPR”



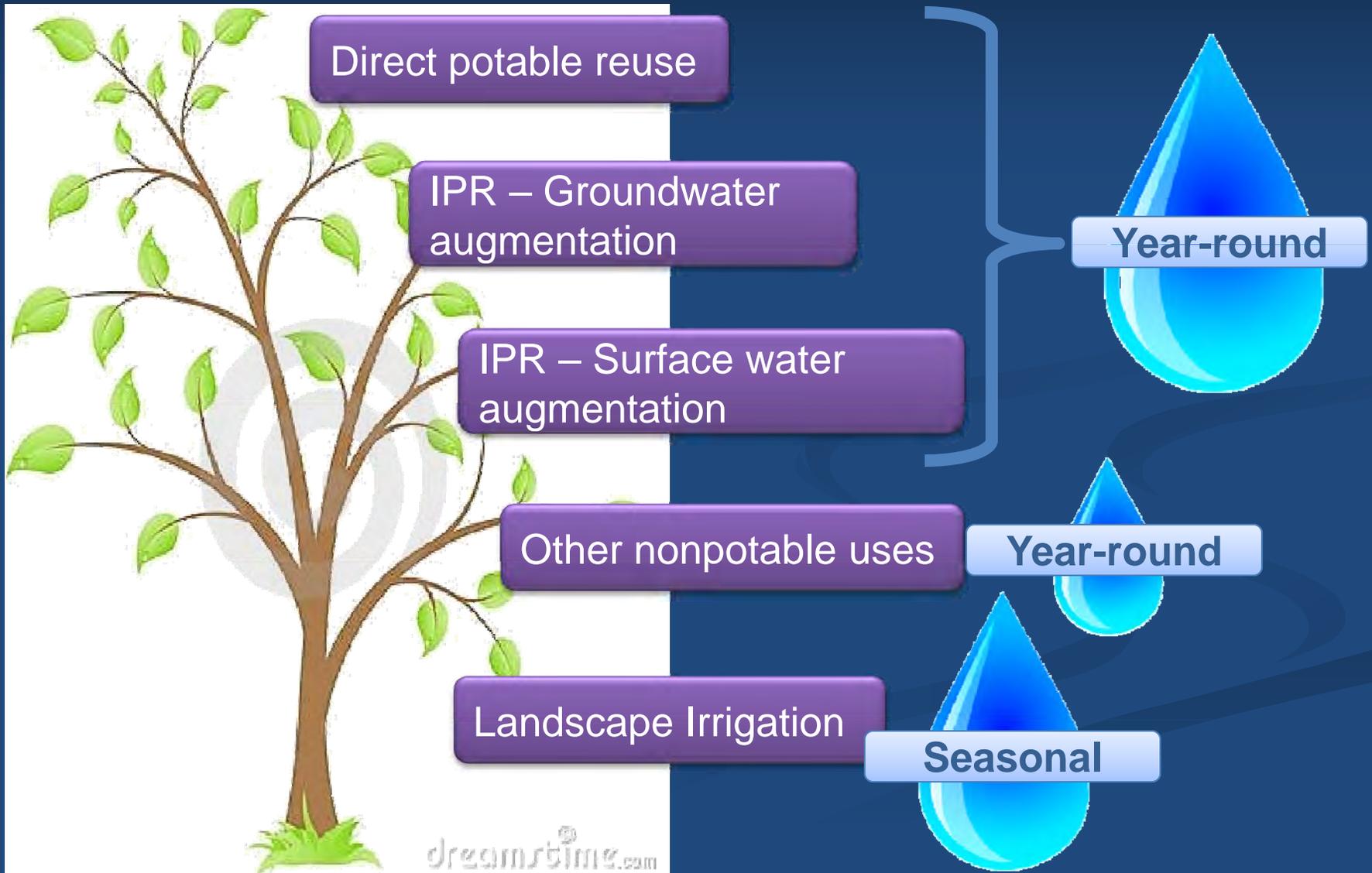


## Direct Potable Reuse

“DPR”

*What's different?  
Direct potable reuse has no “environmental buffer.”*

# Why is POTABLE Reuse Attractive in Oklahoma?



Two major Oklahoma communities recently included **IPR** in their supply analyses

# Indirect Potable Reuse is Becoming Commonplace

*Examples of prominent IPR projects*

**San Diego:**  
Reservoir  
Augmentation  
Demonstration

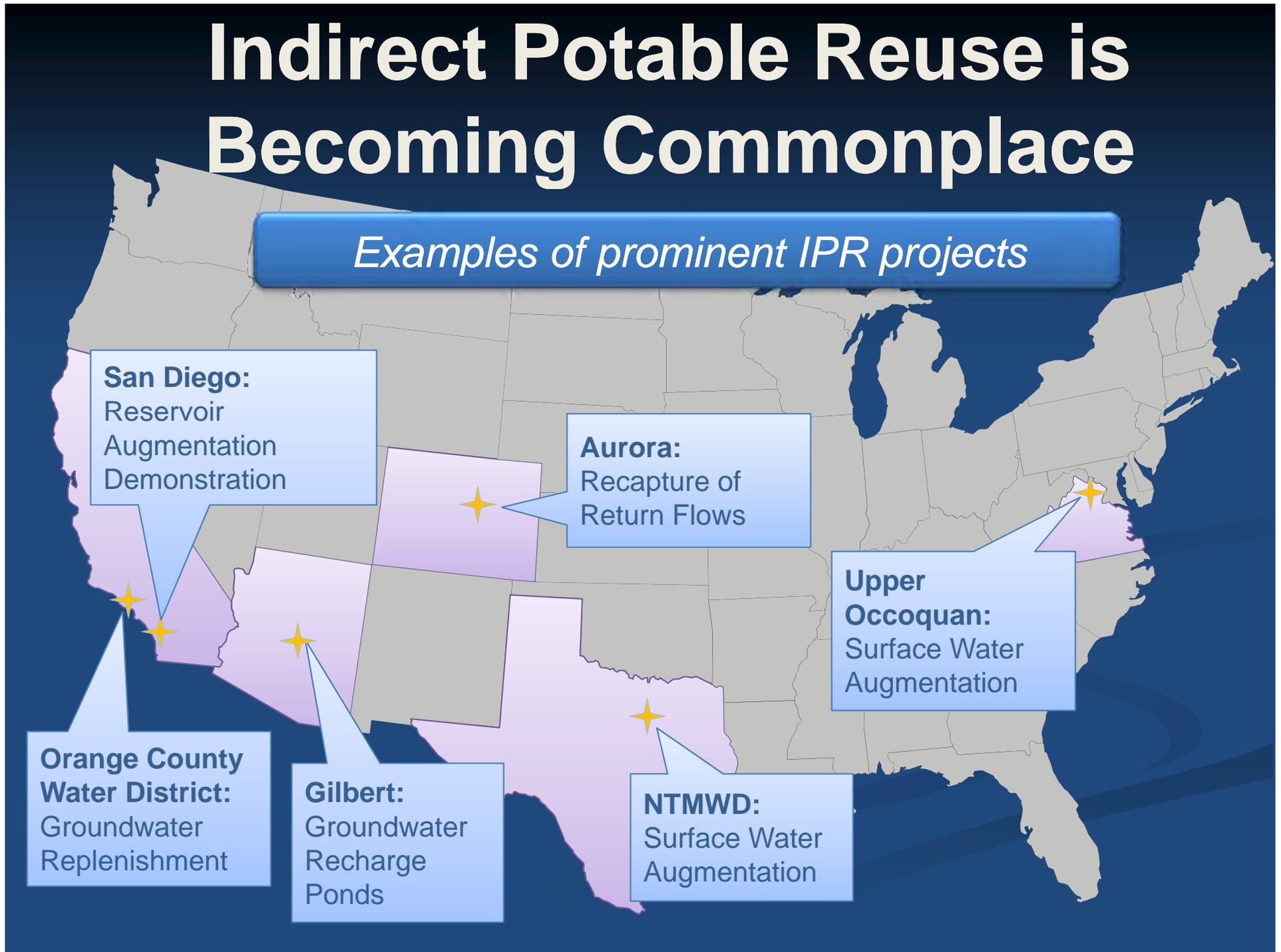
**Aurora:**  
Recapture of  
Return Flows

**Upper  
Occoquan:**  
Surface Water  
Augmentation

**Orange County  
Water District:**  
Groundwater  
Replenishment

**Gilbert:**  
Groundwater  
Recharge  
Ponds

**NTMWD:**  
Surface Water  
Augmentation



# Direct Potable Reuse is Getting “Closer to Home”



**Cludcroft**

**[YOU ARE HERE]**

**Big Spring**

**Coming soon!  
Wichita Falls**

**Coming soon!  
Laguna Madre**

# Applied Research is Paving the Way for Potable Reuse Outreach, Treatment, and Monitoring



*\$6 million  
for cutting  
edge DPR  
research*

California Direct Potable Reuse Initiative

**REPORTING ON OUR PROGRESS**

**WRRF 06019 & 02009:  
Removal of TOrCs in  
reclaimed water**

**WRRF 1302 – Model  
Public Communication  
Plan for DPR**

**WRRF 1303 – Reliability  
of Multiple Treatment  
Barriers for DPR**

**WRF 4536 –  
Blending  
Requirements for  
Water from DPR  
Treatment  
Facilities**

**Study of Innovative Treatments  
for Reclaimed Water**

**NWRI** | National  
Water  
Research  
Institute

**WATERREUSE**  
RESEARCH

**Examining the Criteria for  
Direct Potable Reuse**

- From Raw Wastewater to Potable Water
  - 12-log virus
  - 9-log bacteria
  - 10-log protozoa

**WRRF 1401 –  
Sensor Data for  
Real Time  
Decision Making  
and Response**

**WRRF 1102 –  
Finding lower  
cost treatment for  
potable reuse**

WaterReuse Research Foundation

# Oklahoma's Reuse Regulations Are Being Expanded to Include Potable Reuse

Category	Examples of Authorized Uses
<b>Potable</b>	1 [RESERVED]
<b>Non-Potable</b>	2 Public access landscape irrigation, toilet flushing, fire protection, vehicle/equipment washing, range cattle watering, drip irrigation of vineyards/ orchards
	3 Restricted access landscape irrigation, new restricted access golf courses, cooling towers and various nonpotable commercial/industrial uses, livestock pasture, subsurface irrigation of vineyards/ orchards
	4 Soil compaction and existing restricted access golf courses
	5 Restricted access pasture irrigation and restricted access non-food crop irrigation

Treatment, Quality, BMPs

# An Act

ENROLLED SENATE  
BILL NO. 1187

By: Standridge, Fields and  
Sparks of the Senate

and  
Martin (Scott) of the House

An Act relating to environment and natural resources; requiring the Department of Environmental Quality to receive, review, and evaluate certain permit applications for water reuse projects; requiring the Department to issue permits; requiring the Department to approve certain discharges into sensitive public and private water supplies; specifying review procedures and timelines; providing for codification; and declaring an emergency.

SUBJECT: Water reuse projects

BE IT ENACTED BY THE PEOPLE OF THE STATE OF OKLAHOMA:

SECTION 1. NEW LAW. A new section of law to be codified in the Oklahoma Statutes as Section 2-2-108 of Title 27A, unless there is created a duplication in numbering, reads as follows:

A. The Department of Environmental Quality shall receive, review, and evaluate permit applications for discharges to water bodies for water reuse projects. The Department shall approve such applications as comply with the applicable rules of the Environmental Quality Board for discharges to the waters of the State.

Senate Bill 1187 (enrolled) requires ODEQ to review and evaluate permit applications for water reuse and approve water reuse discharges into sensitive water supplies (e.g., Lake Thunderbird).

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# Discussion and Input

- “Do nothing” alternative?
  - Increase treated water purchases from Oklahoma City
    - Physical constraint of existing connection
    - Purchase costs higher than sales cost
  - Lose existing groundwater wells when future chromium-6 groundwater regulations implemented

# Discussion and Input

- Which portfolio best meets the community's priority objectives? Why?
  - Long term reliability
  - Efficient use of supplies
  - Timely implementation and certainty
- What concerns you about these portfolios?
- How critical is local control?
- Will the community support potable reuse?
- Additional questions & ideas

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# Path Forward

- Public meeting today
- Water supply portfolio recommendation to City Council
- Council action
- Finalize Strategic Water Supply Plan
- Implement plan

# Norman Utilities Authority

## 2060 Strategic Water Supply Plan



June 3, 2014