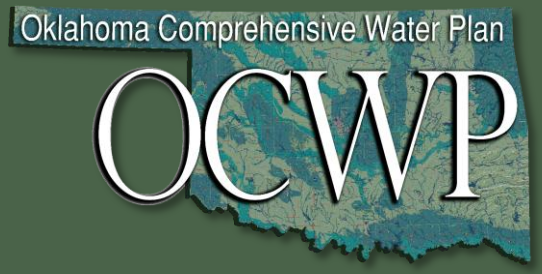
2012 Update of the Oklahoma Comprehensive Water Plan



Water Policy Recommendations

Joint Legislative Water Committee Meeting

October 5, 2011

FURTHER EXPLANATION: INSTREAM/ENVIRONMENTAL FLOWS & EXCESS/SURPLUS WATER DRAFT PRIORITY RECOMMENDATIONS

Instream/Environmental Flows

Recognizing Nonconsumptive Water Needs and Supporting Recreational & Local Economic Interests

DRAFT RECOMMENDATION:

An instream flow program should be established to preserve water quality, protect ecological diversity, and sustain and promote economic development, including benefits associated with tourism, recreation, fishing, and spiritual and cultural heritage. The process developed by the OCWP Instream Flow Workgroup should be implemented and followed to ascertain the suitability and structure of such a program for Oklahoma. The Oklahoma Scenic Rivers Act–as codified in Title 82, Section 1452, of Oklahoma Statutes–already provides for protection of the free-flowing conditions of designated state scenic rivers. The OWRB should seek express authority from the State Legislature prior to promulgating rules to accommodate and protect instream flows elsewhere in the state.

Instream/Environmental Flows

OCWP Instream Flow Advisory Group:

- 5 meetings between February-December 2010
- Technical analysis of various instream flow methods
- Analysis of regulation and potential implementation
- Review of successful and unsuccessful programs in other states/countries

Members from variety of interests:

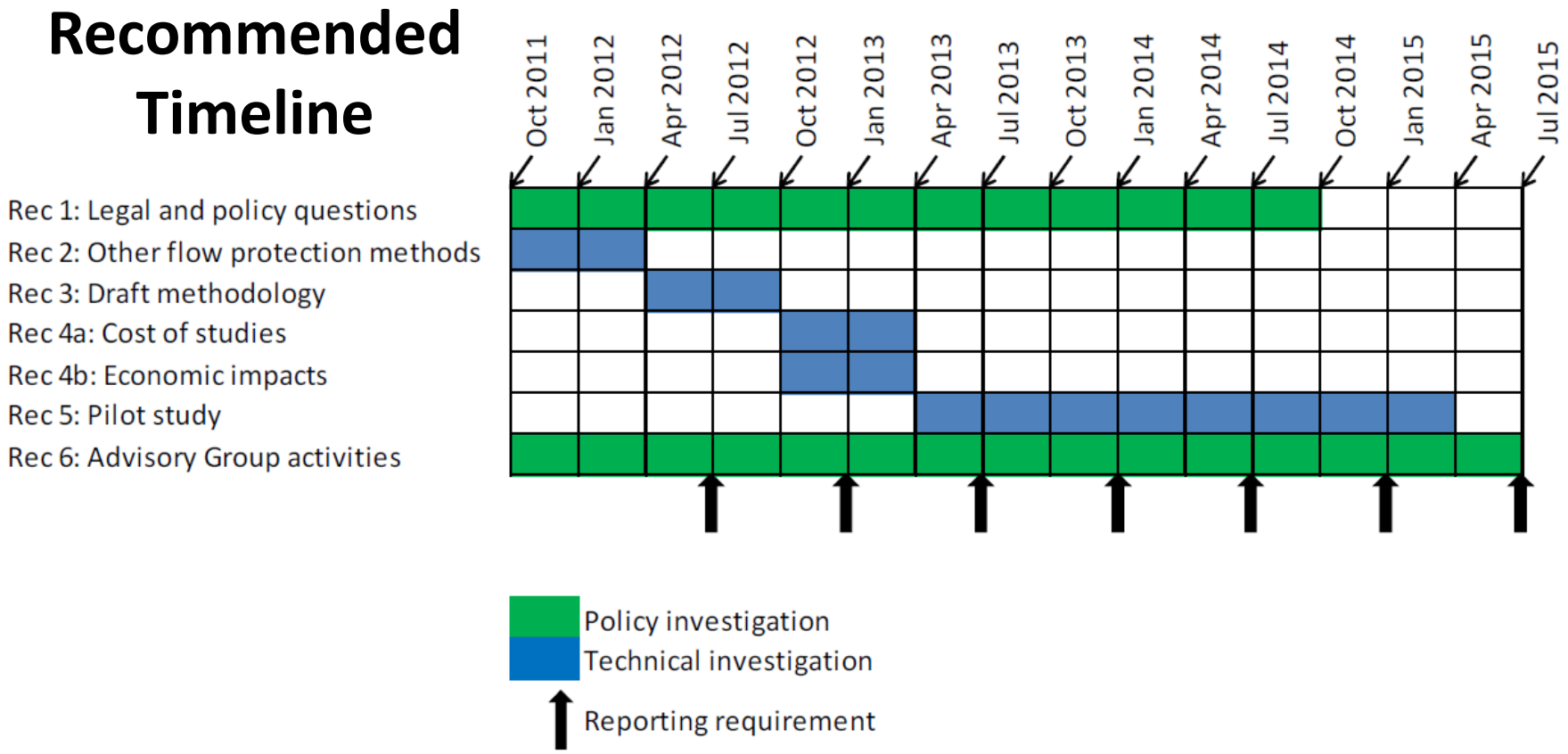
OK Water Resources Board
OK Department of Environmental Quality
OK Conservation Commission
OK Department of Agriculture, Food & Forestry
Office of the Secretary of Environment
Bureau of Reclamation
U.S. Army Corps of Engineers
OK Department of Wildlife Conservation
U.S. Geological Survey
U.S. Fish & Wildlife Service

Oklahoma Independent Petroleum Association
Oklahoma Cattlemen's Association
Cherokee Nation
Oklahoma Rural Water Association
Oklahoma Municipal League
Environmental Federation of Oklahoma
Oklahoma Farm Bureau
The Nature Conservancy
Chesapeake Energy Corporation
State Chamber of Commerce
Oklahoma State Parks

Instream/Environmental Flows

Implementation Costs = $ 1.5 million over 4 years

Recommended Timeline



Excess & Surplus Water

Protecting Local Water Needs While Addressing Statewide Demands

DRAFT DEFINITION:

The OWRB adopts the following definition and procedure for determining excess and surplus water for inclusion in the OCWP update:

'Excess and surplus water' means the projected surface water available for new permits in 2060, less an in-basin reserve amount, for each of the 80 basins as set forth in the 2012 OCWP Watershed Planning Region Reports whose surface water is under OWRB jurisdiction (excepting the Grand Region); provided that nothing in this definition is intended to affect ownership rights to groundwater and that groundwater is not considered excess and surplus water.

Excess & Surplus Water

Protecting Local Water Needs While Addressing Statewide Demands

DRAFT PROCEDURE:

1) *Each of the 80 OCWP watershed planning basins shall be considered an individual stream system wherein water originates (i.e., area of origin) for purposes of appropriation and permitting.*
2) *The total annual amount of available stream water for new permits in 2060 is equal to the total Surface Water Permit Availability amount as set forth in the OCWP Watershed Planning Region Reports minus the amount of the annual Anticipated Surface Water Permits in 2060 also set forth in those reports. The in-basin reserve amount is equal to 10% of the total Surface Water Permit Availability amount plus 10% of the annual Anticipated Surface Water Permits in 2060.*

Excess & Surplus Water

Protecting Local Water Needs While Addressing Statewide Demands

DRAFT PROCEDURE:

3) In considering applications for permits to transport and use more than 500 acre-feet of stream water per year outside the stream system wherein the water originates, the Board shall determine whether there is "unappropriated water available in the amount applied for" by considering only the remaining amount of excess and surplus water calculated for the stream system where the point of diversion is proposed, and for stream systems located downstream from this proposed point of diversion, provided this procedure shall not be used to reduce the amount authorized under existing permits and water rights.

Excess & Surplus Water

Protecting Local Water Needs While Addressing Statewide Demands

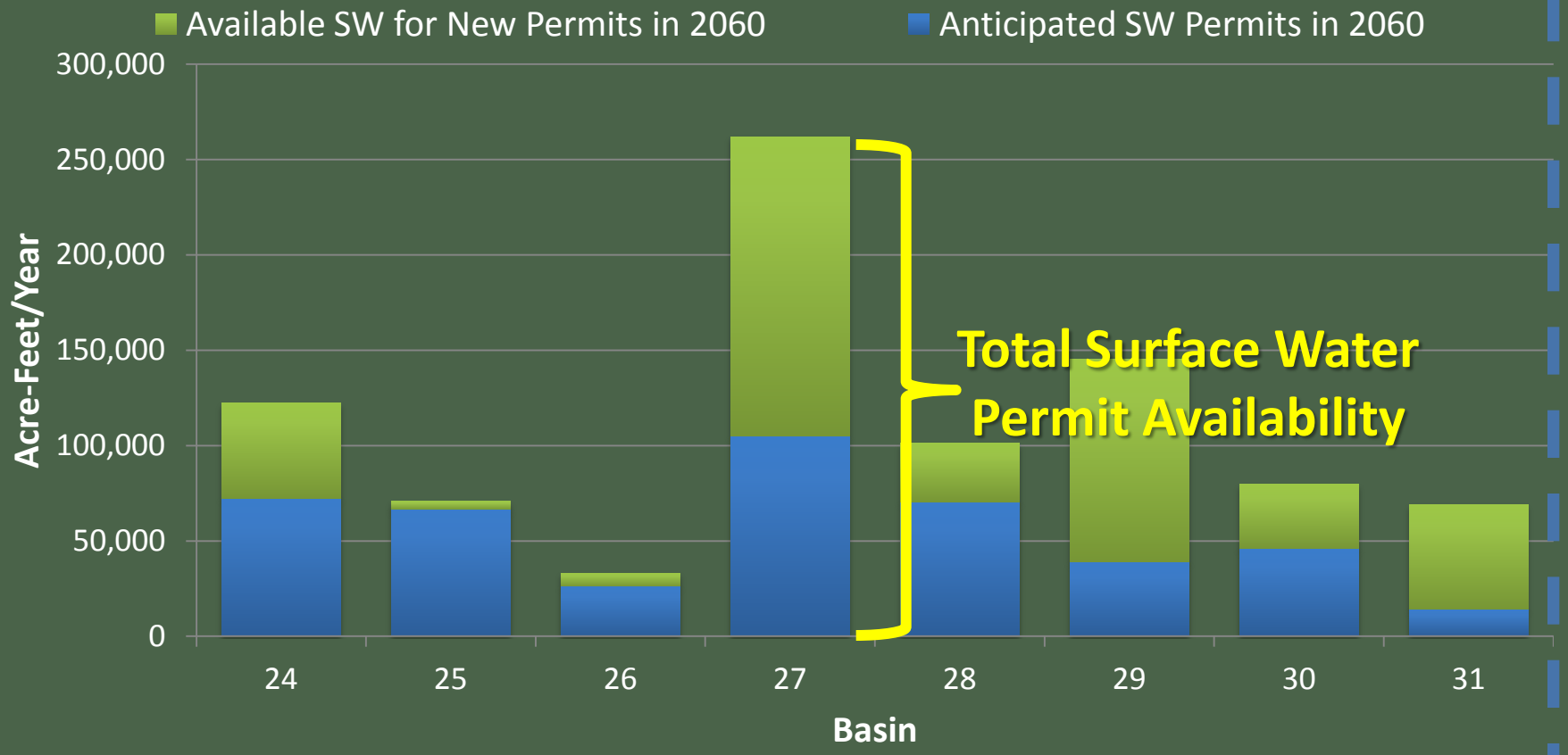
DRAFT PROCEDURE:

4) *The Board will also exclude from consideration for any permit for out-of-basin use:*
   a) *the quantity of water adjudicated or agreed by cooperative agreement or compact to be reserved for Federal or Tribal rights, and*
   b) *the quantity of water reserved for instream or recreational flow needs established pursuant to law.*

Calculating Surplus Water

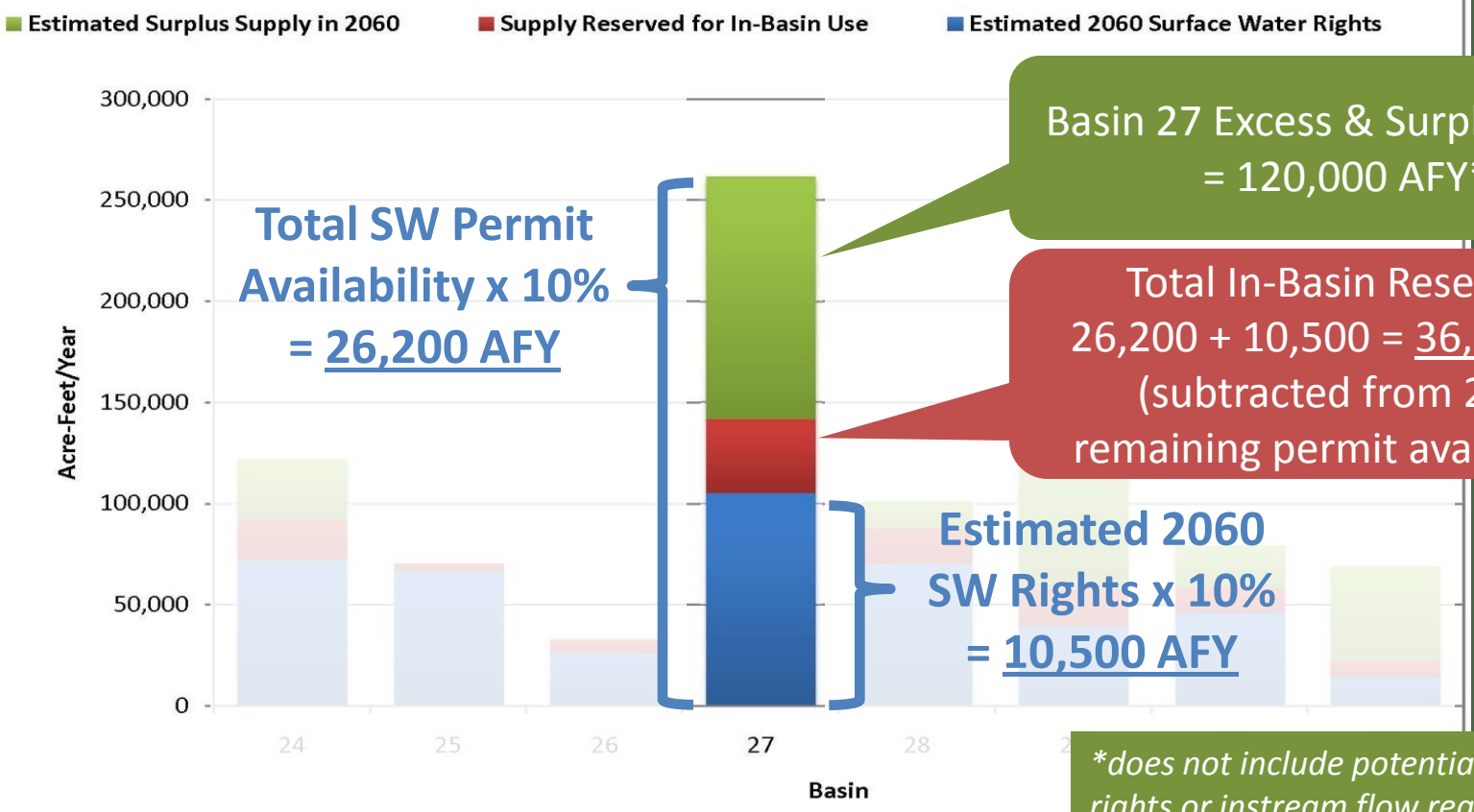
Surface Water Permit Availability

Beaver-Cache Region



Example
Calculating Surplus Water

DRAFT Provisional Estimated Surface Water Surplus in 2060 for the Beaver-Cache Region



Total SW Permit Availability x 10% = 26,200 AFY

Basin 27 Excess & Surplus Water = 120,000 AFY*

Total In-Basin Reserve = 26,200 + 10,500 = 36,700 AFY (subtracted from 2060 remaining permit availability)

Estimated 2060 SW Rights x 10% = 10,500 AFY

**does not include potential federal/Tribal rights or instream flow requirements*

OVERVIEW OF REMAINING DRAFT PRIORITY RECOMMENDATIONS

Draft Priority Water Policy Recommendations for Implementation

- Water Quality & Quantity Monitoring
- Instream (Environmental) Flows
- Water Efficiency & Reuse
- State/Tribal Water Consultation and Resolution
- Excess & Surplus Water
- Regional Planning Groups
- Water Supply Reliability
- Water Project & Infrastructure Funding

Regional Planning Groups
Addressing Regional Variability through Direct Local Input

DRAFT RECOMMENDATION:

The OWRB should work with the State Legislature to develop and authorize the creation of at least thirteen Regional Planning Groups to assist in planning and implementing OCWP initiatives at the regional level. These regional groups should be non-regulatory and consist of local stakeholders, as well as appropriate agency representatives, charged with developing regional water plans in a manner consistent with the OCWP and its implementation priorities. Such plans would include the identification of specific projects, studies, programs, research and other evaluations designed to address the unique needs and issues identified by Regional Planning Group participants. The State Legislature should establish regular appropriations to the OWRB to coordinate the activities of these groups.

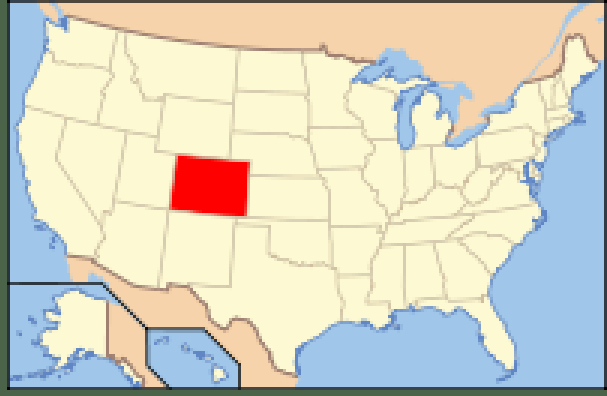
Regional Planning Groups
Important Elements of Recommendation

- Calls for formation of a workgroup to develop the Regional Planning Group concept
- Proposes broad functions:
  - Development of regional water plans
  - Activities focused on OCWP Implementation
  - Seeks consistency with the 2012 OCWP
  - Representation from variety of stakeholders
  - Seeks multi-agency participation
  - Calls for OWRB to be coordinating agency
  - Does not propose regulatory authority
  - Requests funding to support these functions

Why Form Regional Planning Groups?

- Included in 9 OCWP Recommendations (6 from Public):
  - *The State Legislature should enact legislation to create thirteen Regional Advisory Groups charged with identifying local water resource issues and developing action plans and recommendations for implementation by the OWRB. [Public Rec]*
- Facilitates OCWP implementation and establishes excellent groundwork for next decennial OCWP update
- Recognizes unique regional characteristics and needs:
  - Reflects national trend in watershed-based planning (EPA, Corps, Reclamation)
- Prioritization of regional issues through regional water plans
- Establishes feedback mechanism between OWRB/stakeholders
- Local outreach on water issues
- **Approximately 65% of states have similar groups**

Colorado



Basin Roundtables:

- Origins in 2003 through SWSI; formalized in 2005
- 9 Roundtables (based on 8 major river basins and Denver metro area)
- Membership:
  - 10 at-large members representing major water use sectors
  - 4 non-voting members (from outside basin)
  - Agency liaisons (federal and state)
  - CWDB member from the basin

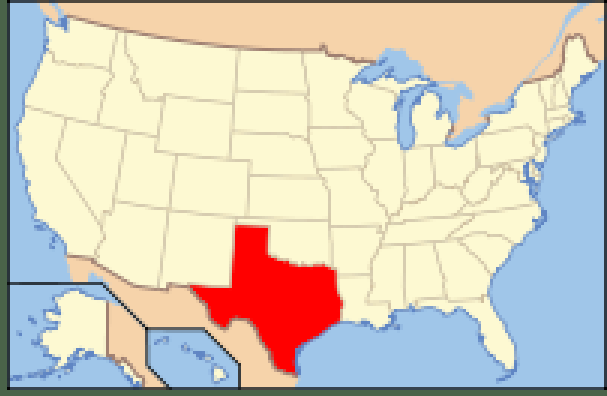
Colorado Basin Roundtables

- Purpose and Mission:
  - Facilitate discussions on water issues and encourage locally driven collaborative solutions.
  - Each Roundtable is required to develop a basin-wide water needs assessment consisting of four parts:
    1. Consumptive water needs (municipal, industrial and agricultural);
    2. Nonconsumptive water needs (environmental and recreational);
    3. Available water supplies (surface and groundwater) and an analysis of unappropriated waters; and
    4. Proposed projects or methods to meet identified water needs and achieve water supply sustainability

Colorado Basin Roundtables

- Type of Authority:
  - Advisory/technical input.
  - Informal influence on policy making:
    - they don't set policy, but can provide input
- Relationship to Agency:
  - Overseen by the CWCB
- Funding:
  - $10 million annually allocated to basin/statewide accounts
  - Managed by the CWCB

Texas



Regional Water Planning Groups:

- Established in 1997 (Senate Bill 1)
- 16 Groups based primarily on political boundaries
- Membership:
  - Appointed by TWDB
  - Representation from 11 major water use interests (minimum)
  - Balance within each region may be different

Texas Regional Water Planning Groups

- Purpose and Mission:
  - Each RWPG is responsible for preparing and adopting a regional water plan for their area that meets the 50-year future needs of every water user group:
    - includes policy recommendations with public input component
  - TWDB financial assistance for water supply projects provided only to projects that meet identified needs consistent with approved regional water plans
  - Texas Commission on Environmental Quality may not issue a water right permit for municipal purposes unless it is consistent with an approved regional water plan
  - Plans updated every 5 years

Texas Regional Water Planning Groups

- Type of Authority:
  - Regional Plans carry weight, but must be approved by TWDB
  - Do not perform regulatory functions
  - Policy input through regional plans
- Relationship to Agency:
  - Overseen by TWDB
- Funding:
  - Approximately $16 million every 5 years
  - TWDB passes funding down and regions contract for work (in the form of grants)

Kansas

Basin Advisory Committees:

- Established in 1985
- 12 Committees based on major river basins
- Membership:
  - 7 core membership categories represented
  - 2-4 members representing particular needs and interests of the basin

Kansas Basin Advisory Committees

- Purpose and Mission:
  - Provide insight and advice on water issues to the Kansas Water Authority and serve as a forum for community involvement
  - Collaboration among stakeholders
  - Provide feedback on water issues to the KWA, which may be elevated to the Legislature

Kansas Basin Advisory Committees

- Type of Authority:
  - Advisory only on matters of policy and funding of planning studies
- Relationship to Agency:
  - Overseen by the Kansas Water Office
  - Agenda for meetings set by the KWO
- Funding:
  - Approximately $20 million annually for KWO planning studies
  - KWO/KWA sets spending priorities, BACs provide input
  - KWO can pay miscellaneous travel expenses for members

Regional Planning Groups

Justification:

- Included in 9 OCWP Recommendations.
- Facilitate OCWP implementation and establish groundwork for next OCWP update.
- Recognize unique regional characteristics and needs.
- Prioritize regional issues through regional water plans.
- Establish feedback mechanism between OWRB/stakeholders.
- Facilitate local outreach on water issues.

Regional Planning Groups

Supported by OCWP Technical Analyses:

- Regional/basin delineations formed the basis of OCWP supply/demand studies and other technical analyses.
- Public input recognized the integral importance of regional citizen representation.

Regional Planning Groups

Implementation:

- Continue momentum and local citizen/stakeholder relationships established through OCWP Update.
- Work with State Legislature/Joint Water Committee to draft legislation next session.
- Contemplates OWRB administration of and coordination with RPGs to "seed" local water planning projects.

Estimated Startup Cost = $95,000

Annual Implementation Cost = TBD

OVERVIEW OF REMAINING DRAFT PRIORITY RECOMMENDATIONS: WATER SUPPLY RELIABILITY

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

To address projected increases in water demands and related decreases in availability, and to ensure the fair, reliable, and sustainable allocation of Oklahoma's water supplies, the State Legislature should provide stable funding to the OWRB to implement the following recommendations:

1. *Address the growing backlog of statutorily-required maximum annual yield studies and overdue 20-year updates on groundwater basins within the state by 2022 – including validation of interactions between surface and groundwater sources–to accurately determine water available for use.*

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

2. *Develop stream water allocation models on all stream systems within the state to assess water availability at specific locations, manage junior/senior surface water rights under various drought scenarios, anticipate potential interference between users, and evaluate impacts of potential water transfers.*
3. *Utilize water use stakeholders (including recommended Regional Planning Groups), researchers, and other professionals to develop regionally appropriate recommendations.*

Water Supply Reliability

Recommendations:

- Public: Fairness in water rights administration; interstate water issues; Funding priority on outdated and unstudied surface and groundwater basins; SW/GW interactions where appropriate
- Agriculture Water Needs Workgroup (ODAFF): Access to water essential for economic growth; use robust modeling to predict supply/demand impacts; adoption of mgmt. practices to decrease vulnerability to drought; "exurban development" (domestic use) demand impacts on alluvial GW use; reservoir and in-stream flow optimization to minimize use conflicts
- OWRB Staff: Scientifically defensible water rights administration; improved protection; prediction of seasonal shortages/water availability; and informed management decisions

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

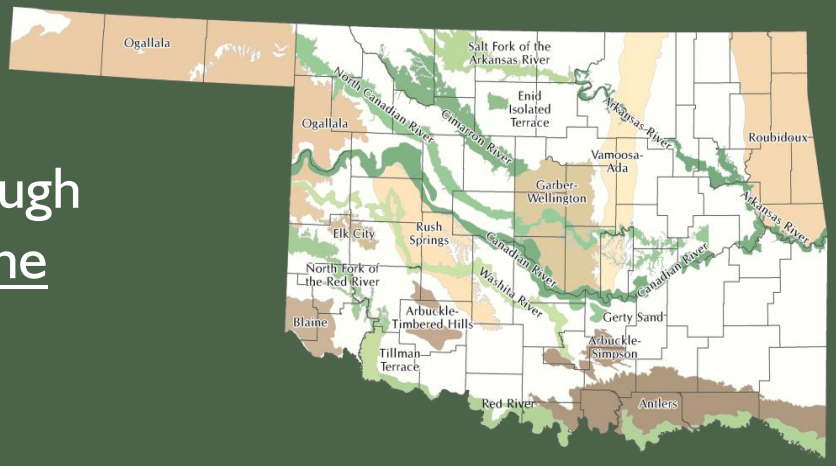
1. *Address the growing backlog of statutorily-required maximum annual yield studies and overdue 20-year updates on groundwater basins within the state by 2022 –including validation of interactions between surface and groundwater sources–to accurately determine water available for use.*

Water Supply Reliability

Groundwater Maximum Annual Yield Studies:

- Large-Scale studies that answer fundamental question…*How much water is available?*
- Basis for water rights allocation system— fundamental to State Water Management System
- Offer robust characterization of the aquifer and opportunity for availability forecasting and "what-if" assessment for policy decisions
- Historically minimal/inconsistent funding

Oklahoma Groundwater Law



- GW <u>private property</u> belonging to the overlying surface owner, although <u>subject to reasonable regulation by the state</u>, through the OWRB

- *Statutes provide that the OWRB …*
  - Allocate water based on hydrologic studies to determine Maximum Annual Yield and "equal share"
  - Update studies "at least every 20 years"
  - Utilize specific criteria for determination of water available
  - Facilitate water use reporting, which informs studies

Determination of Max. Annual Yield

How much water is available per acre of land?

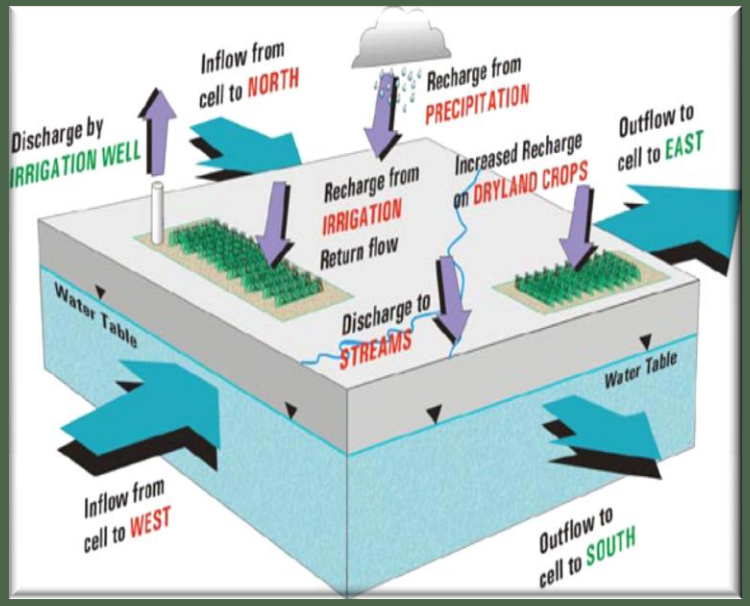
Max. Annual Yield (MAY) determination by OWRB of **total amount of fresh groundwater** that can be produced from a basin or sub-basin allowing, at a minimum, a **20-year life.**

"Equal Proportionate Share"— per acre share of total

Study Criteria:

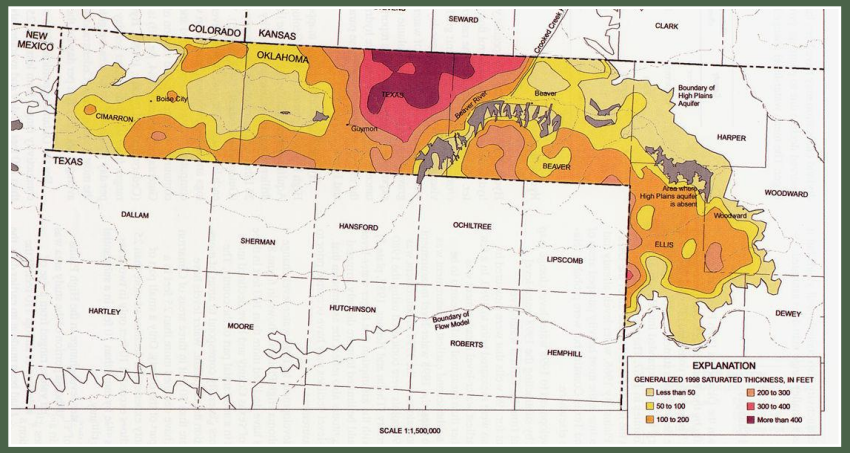
- Total Land Area Overlying the Basin
- Water in Storage
- Recharge, Discharge, Transmissivity
- Pollution potential
- Present/Foreseeable Future Use
- Geographical Region

Hydrologic Models



Water Supply Reliability

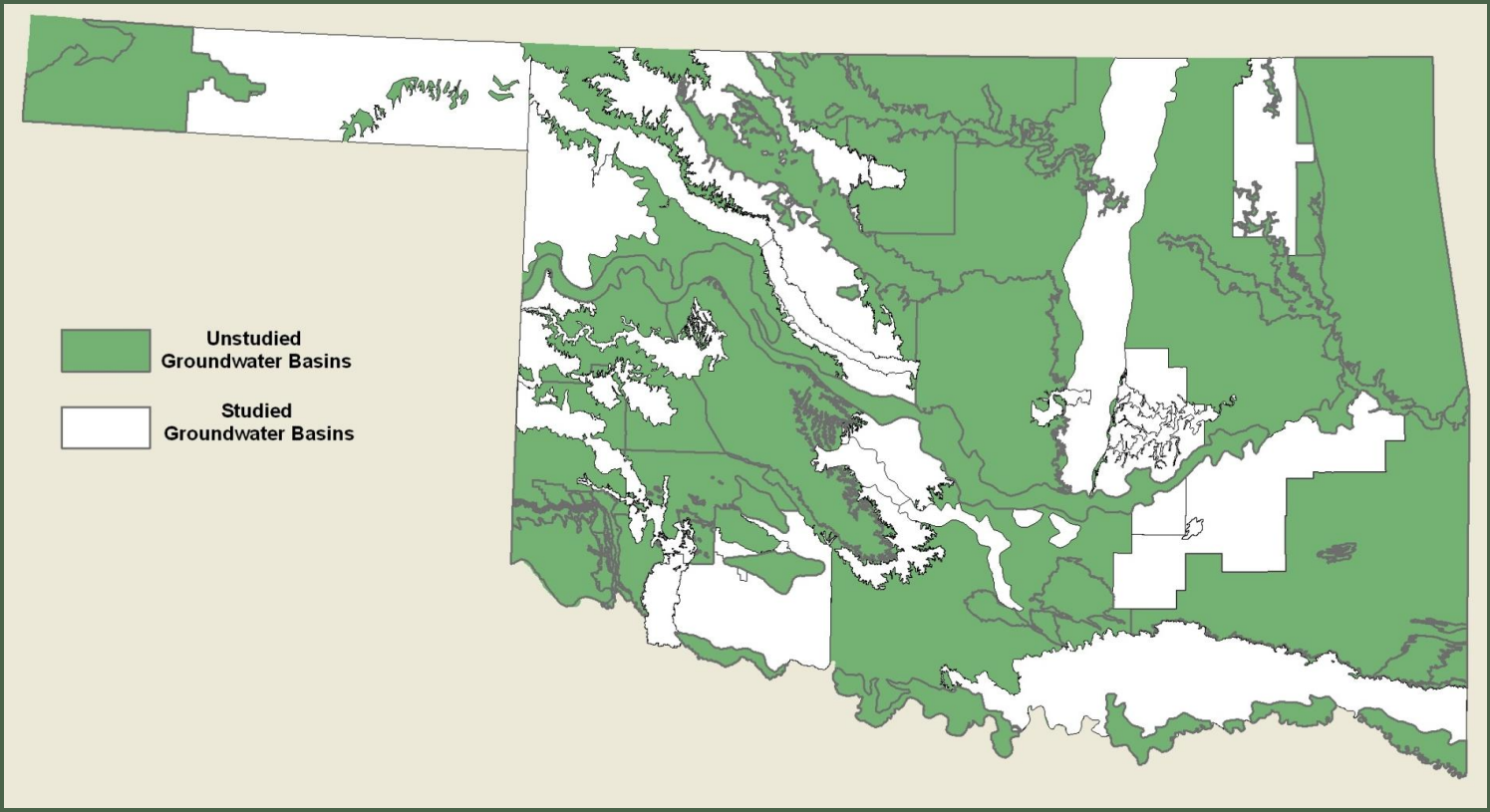
Groundwater Hydrologic Model Analysis



Location-Specific Analysis:

- Allows local and state managers to evaluate development areas and water supplies that promote economic growth
- Locate contamination and predict flow direction
- Assess potential groundwater/stream water interactions and effects on reservoir yield
- Anticipate locations most affected by drought

Water Supply Reliability
Unstudied Groundwater Basins



Major & Minor Groundwater Basin:

36 basins unstudied or 20-year updates overdue

8 major basins located in OCWP-priority "hot spot" areas

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

2. *Develop stream water allocation models on all stream systems within the state to assess water availability at specific locations, manage junior/senior surface water rights under various drought scenarios, anticipate potential interference between users, and evaluate impacts of potential water transfers.*

Water Supply Reliability

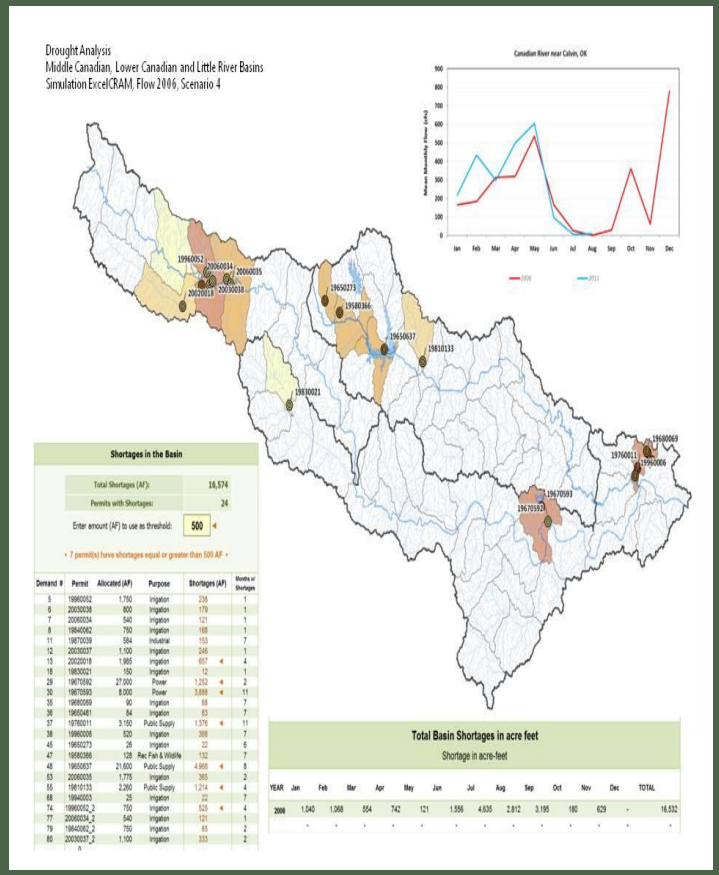
Oklahoma Stream Water Law

- Stream water **publicly-owned** and **subject to appropriation** by the OWRB
- System of junior/senior appropriation based on application date
- "Domestic use" priority and exempt from permitting
- OWRB charged with determining if unappropriated stream water is available prior to permit issuance and addressing interference conflicts after issuance

Water Supply Reliability

Stream Water Allocation Models:

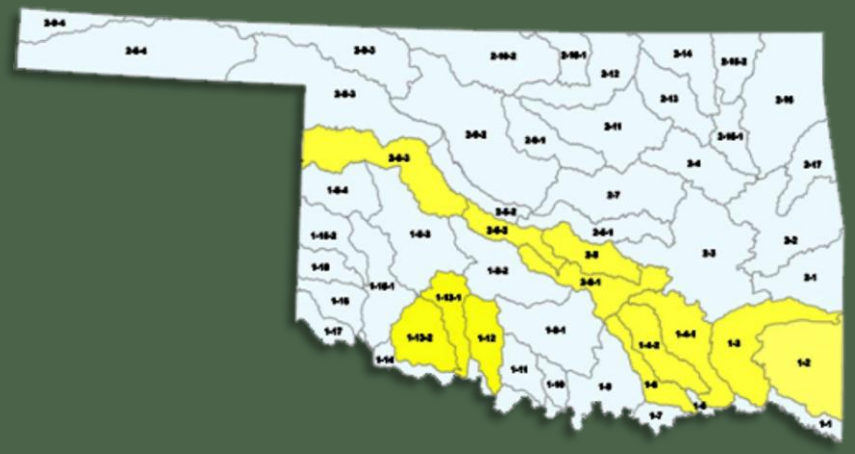
- Location-specific analysis
  - Surface water availability at any location
  - Water reliability on a monthly basis
  - Evaluate new permit applications
  - Domestic use impacts
- Evaluate water policy
  - Inter/intra basin transfers
  - Inter-state Compact
  - Environmental regulations
- Management during low flows/drought
  - Identify potential shortages
  - Pre-drought warning for water rights



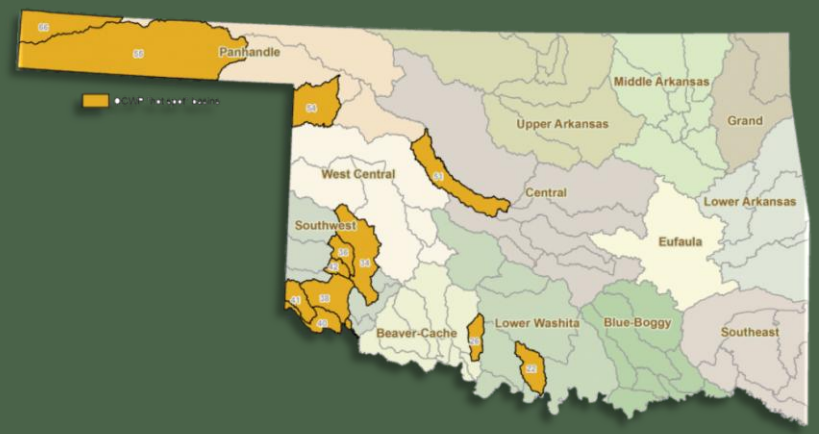
Water Supply Reliability

Stream Water Allocation Models:

- 9 stream systems completed;
- 42 unstudied
- Future Priorities:
  - Full/mostly allocated systems (e.g., Washita, North Canadian, North Fork/Red)
  - OCWP hot spots, demand growth areas, etc.
  - Public, policymaker, sector need



Modeled Basins



OCWP Hot Spot Basins

Water Supply Reliability
Ensuring Water Availability for Future Growth

Justification:

- Local and state **economies depend** upon reliable supply.
- Hydrologic studies **fundamental for determining water available** for allocation.
- Scientifically-based WR allocation **explicitly set out in Statute.**
- Provides policy-makers **basis for forecasting location-specific** shortages in **drought** and various use **conditions.**
- **Lack of water picture** allows **over-appropriation**; economic **uncertainty,** and ongoing "**back-end" conflict management** between water users.
- **Addresses public issues**: **fair** WR administration, **priority** on unstudied basins/outdated studies, assessment of **SW/GW interaction**, legislative **funding,** etc.

Water Supply Reliability
Ensuring Water Availability for Future Growth

Supported by OCWP Technical Analyses:

- Identified "Hot Spot" basins facing significant future water supply challenges.
- Identified basins with forecasted surface water gaps and groundwater storage depletions.

Water Supply Reliability
Ensuring Water Availability for Future Growth

Implementation:

Annual Hydrologic Study Costs (through 2022)

Unstudied and Overdue 20-Year Groundwater Basin Updates	$1,045,200
Stream Water Hydrologic Studies	$ 73,125
Total	**$1,118,325**

Annual Hydrologic Study Costs (2023 through 2060)

20-Year GW Basin Updates	$ 342,134
Stream Water Hydrologic Studies	$ 18,750
Total	**$ 360,884**

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

3. *Utilize water use stakeholders (including recommended Regional Planning Groups), researchers, and other professionals to* ***develop regionally appropriate recommendations****, including…*

Goals:

- Seek local input on future proposed changes to water allocation policy to avoid one-size-fits-all management
- OWRB inform discussion with knowledge of current state water rights issues and allocation management techniques employed by other state

Water Supply Reliability
Water Allocation and Use

Philosophy and statutes vary greatly from State to State

1. Private ownership of water vs. public ownership and allocation— easier for state to administer/enforce, less private control
2. Passive vs. Active Water Management— detailed up-front analysis of water availability and associated cost by State vs. over appropriation and back-end management/enforcement
3. Utilization vs. conservation for future use

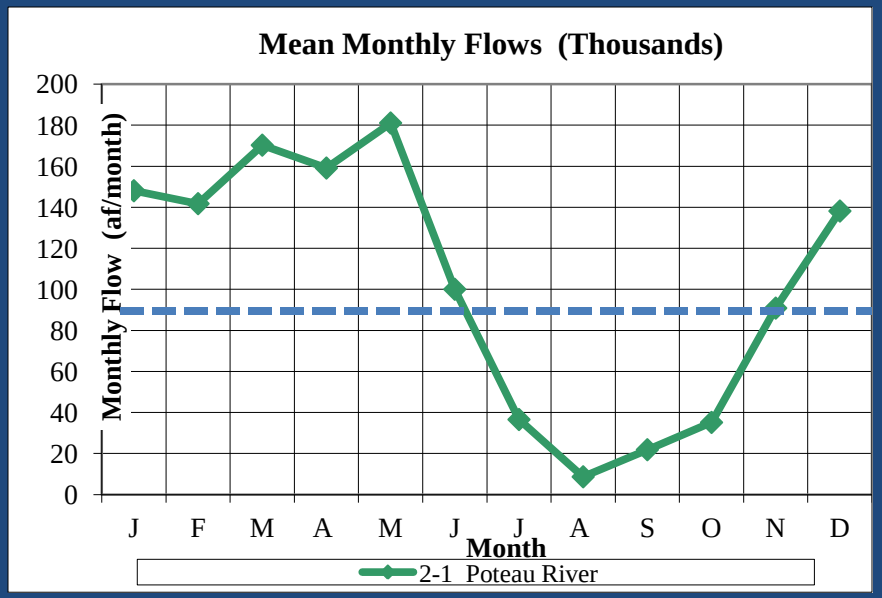
Regardless of management scheme, reliability of water supply at the local level remains a fundamental issue.

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

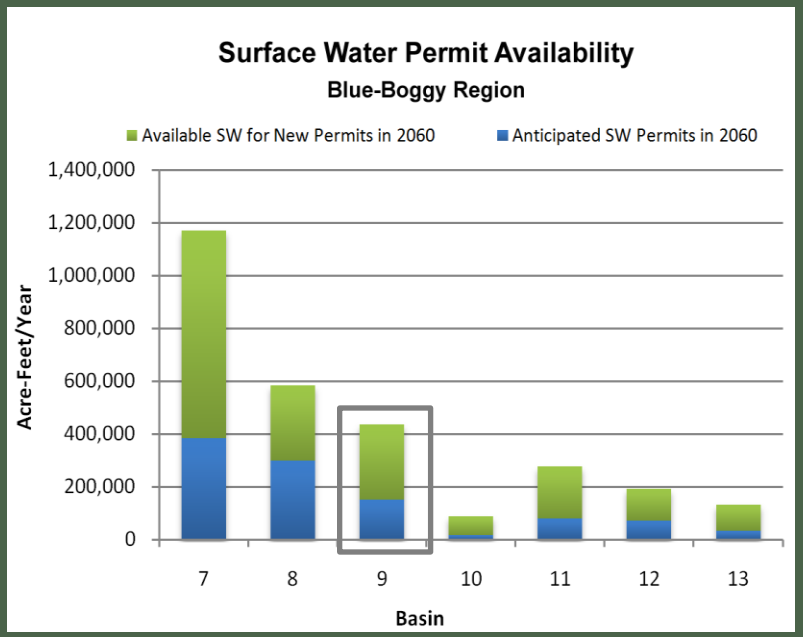
Example Water Allocation Techniques:

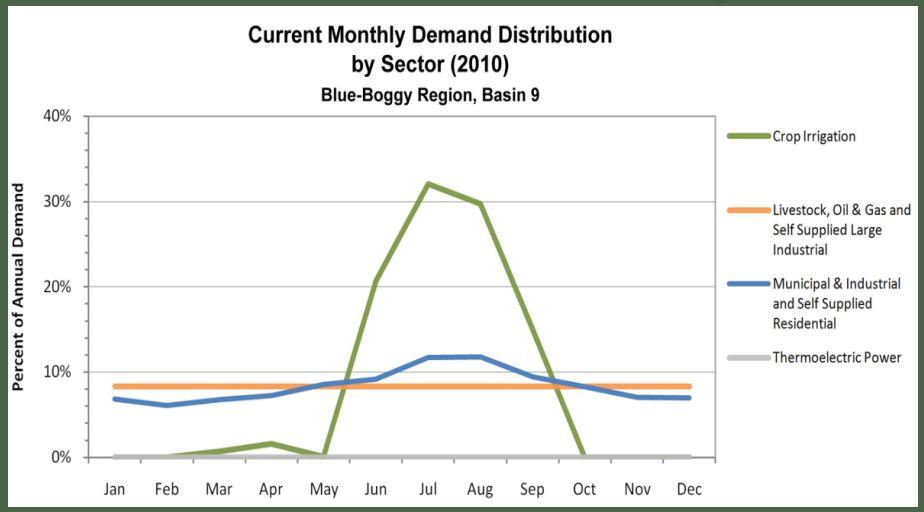
a) consideration of a seasonal stream water allocation program (rather than annual) to address seasonal surface water shortages and water rights interference;



- Currently permit on average annual basis
- Seasonal permitting would allow for storage of storm flows during wet months and limit taking of stream water during dry months.

Example Seasonal Shortages





Magnitude and Probability of Annual Gaps and Storage Depletions

Blue-Boggy Region, Basin 9

Planning Horizon	Maximum Gaps/Storage Depletions			Probability of Gaps/ Storage Depletions	
	Surface Water	Alluvial Groundwater	Bedrock Groundwater	Surface Water	Alluvial Groundwater
	AFY			Percent	
2020	370	0	0	16%	0%
2030	570	30	0	19%	14%
2040	810	30	0	22%	14%
2050	1,000	40	0	22%	17%
2060	1,290	60	0	22%	22%

Surface Water Gaps by Season (2060 Demands)

Blue-Boggy Region, Basin 9

Months (Season)	Maximum Gap[1]	Median Gap	Probability
	AF/month	AF/month	Percent
Dec-Feb (Winter)	0	0	0%
Mar-May (Spring)	0	0	0%
Jun-Aug (Summer)	480	450	17%
Sep-Nov (Fall)	270	270	14%

1 Amount shown represents the largest amount for any one month in the season indicated.

Water Supply Reliability
Seasonal Stream Water Allocation

Current Permitting System (Average Annual):

- May overestimates water actually available during high-demand, low-flow conditions
- Water source unreliable
- Requires more active water right administration (complaints/conflict response and enforcement)

Seasonal System:

- More accurately and efficiently appropriates water
- Greater assurance of availability
- Reduces over-appropriation of water and need for costly enforcement/complaints response

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

b) consideration of a conjunctive management water allocation system to address potential decline in surface water flows and reservoir yields resulting from forecasts of increased groundwater use in areas where these sources are hydrologically connected;

- Considers impacts of GW and SW use on other and combines groundwater and stream water law
- Can include utilization of GW and SW in combination, to improve overall availability and reliability in these areas.

Water Supply Reliability
Conjunctive Management

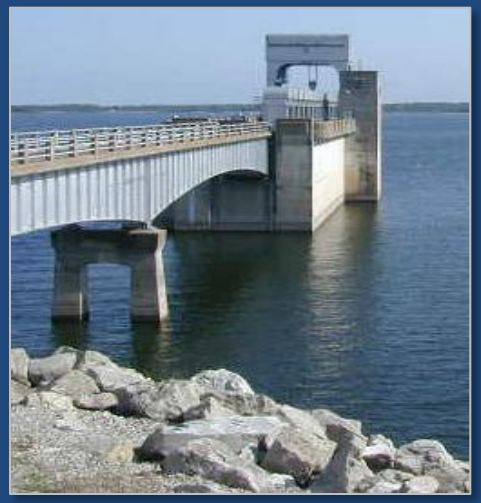
- Oklahoma GW "mining law" allows GW depletion, but can also lead to loss of perennial streams
- 2003 legislation–Sensitive sole source GW basins, requires assessment of interactions and establishment of a maximum annual yield allocation that protects stream and spring flow
- Many states recognize interactions and restrict GW development:
  - KS: two-tier system 1) restrictions, 2) closes aquifer to new permits
  - OR, WA: GW permits are junior to SW
  - CO: in alluvium terrace, if analysis over interference threshold, permit application denied
  - ID, MT, NM, WY: recognize and have some form of conjunctive use management to protect stream flow

Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

c) Conditioning junior water use permit holders to discontinue…diversion of water during predetermined periods of shortage (i.e. "trigger" points) to enhance availability of dependable yields in appropriate reservoirs and minimize interference between riparian users and users of reservoir storage; and

- Complaints-based water management upstream of reservoirs can lead to long-term yield shortages
- Determine critical reservoir-level



Water Supply Reliability
Ensuring Water Availability for Future Growth

DRAFT RECOMMENDATION:

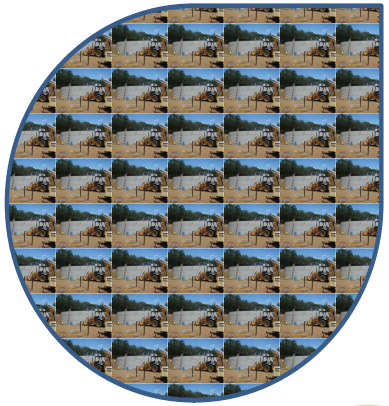
d) transitioning to a more conservation-oriented approach—such as metering, irrigation practice improvements, adoption of new technology, and banking of allocations—in the calculation of groundwater basin yields and allocation of …permits, including the consideration of more sustainable use and development of state groundwater supplies.

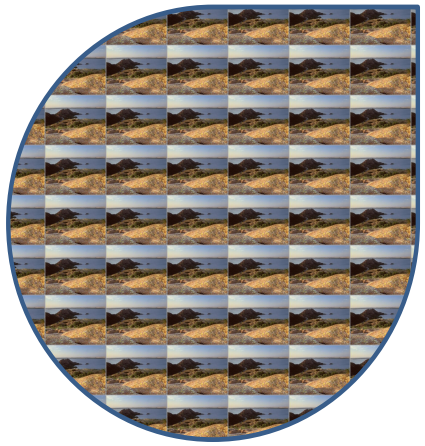
Several States Implementing—

- Longer-term life-of-basin calculations
- Metering to ensure use within permit
- Allocation banking and use during drought
- Voluntary or incentive based conservation

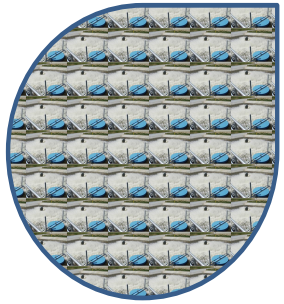
OVERVIEW OF REMAINING DRAFT PRIORITY RECOMMENDATIONS: WATER PROJECT & INFRASTRUCTURE FUNDING

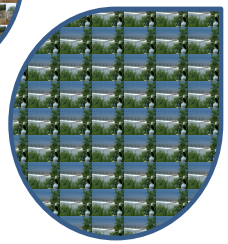
Financial Assessment of the OCWP





State of Oklahoma
OWRB
WATER RESOURCES BOARD
the water agency





Addressing Oklahoma's $82 Billion Water and Wastewater Project Need

Emergency Grants

Income Source: FAP Bond Reserve Interest	
Since 1983 grants funded for	$33,482,977.17
Funds Available	$507,047.06

Rural Economic Action Plan Grants (REAP)

Income Source: State Appropriations of $52,043,813.00	
Since 1996 grants funded for	$49,948,322.65
FY 2011 Carryover	$467,425.44
2012 Appropriations	$1,628,065.00
Total Funds Available	$2,095,490.44

State Revenue Bond Issue Loan Program (FAP)

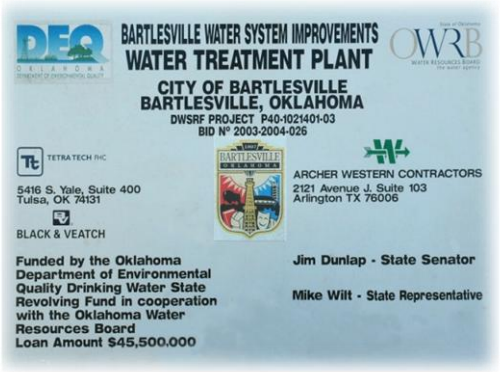
Reserve Funds	
State Funds	$18,115,948.67
Gross Production Tax	$1,845,000.00
AMBAC Surety Policies	$28,500,000.00
TOTAL RESERVES	$48,460,948.67
Since 1985 loans funded for:	$704,840,000.00
Available Funds	$0.00

Clean Water State Revolving Fund Loan Program (CWSRF)

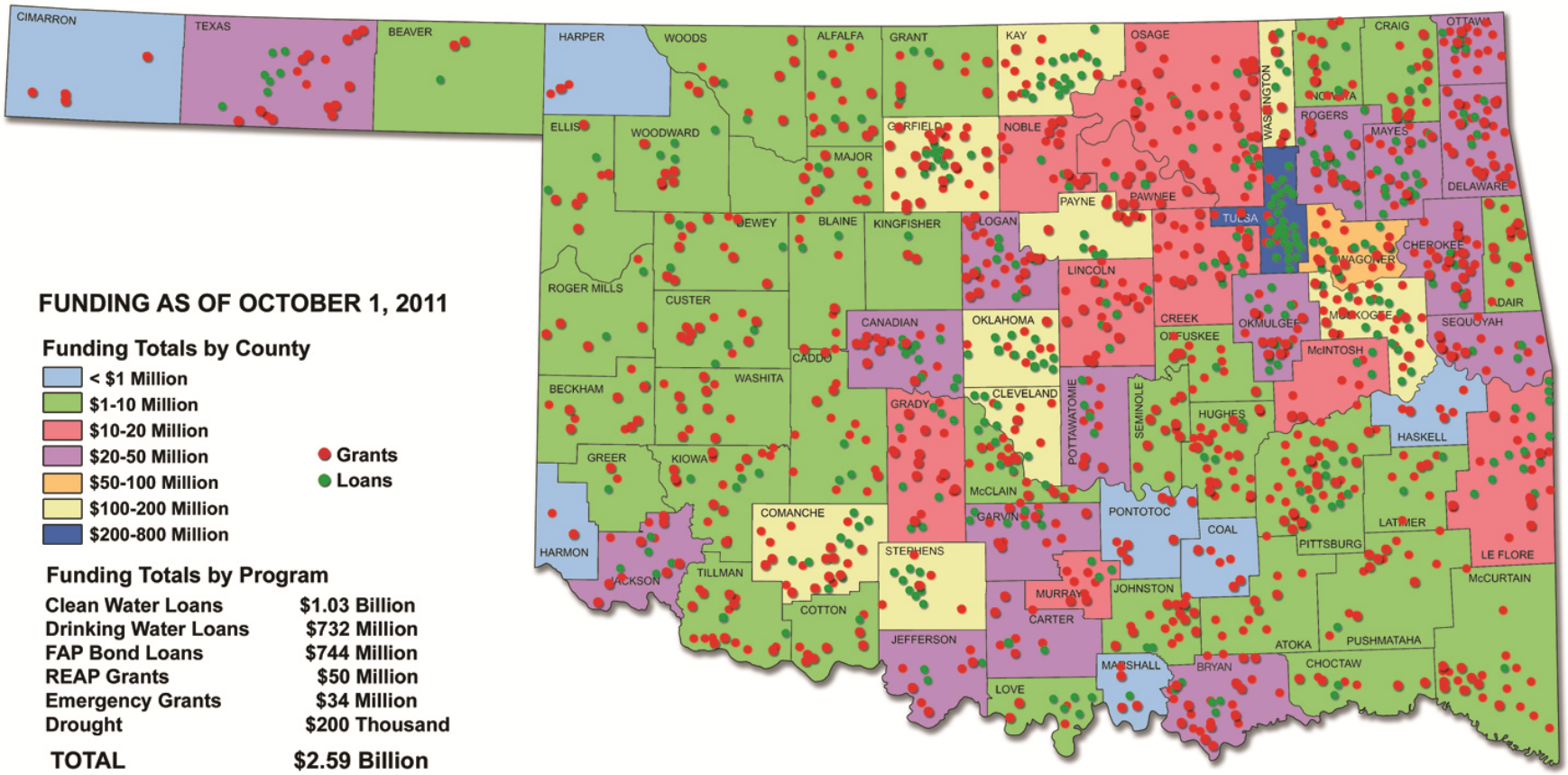
State Match Funds	
State Funds	$14,261,359.40
Ute Reservoir Settlement Funds	$200,000.00
Debt Issuance	$33,708,740.60
Total State Match	$48,170,100.00
Since 1990 loans funded for:	$1,006,107,003.59
Available Funds	$141,500,000.00
Fund Commitments	$304,000,000.00
Additional Funds Needed	($162,500,000.00)

Drinking Water State Revolving Fund Loan Program (DWSRF)

State Match Funds	
State Funds	$5,500,000.00
Gross Production Tax	$4,800,320.00
Debt Issuance	$25,903,080.00
Total State Match	$36,203,400.00
Since 1997 loans funded for:	$697,064,642.40
Available Funds	$90,900,000.00
Fund Commitments	$371,550,000.00
Additional Funds Needed	($280,640,000.00)



Financial Assistance Program
Loan and Grant Recipient Status



FUNDING AS OF OCTOBER 1, 2011

Funding Totals by County

- < $1 Million
- $1-10 Million
- $10-20 Million
- $20-50 Million
- $50-100 Million
- $100-200 Million
- $200-800 Million

- Grants
- Loans

Funding Totals by Program

Clean Water Loans	$1.03 Billion
Drinking Water Loans	$732 Million
FAP Bond Loans	$744 Million
REAP Grants	$50 Million
Emergency Grants	$34 Million
Drought	$200 Thousand
TOTAL	$2.59 Billion
TOTAL SAVINGS	$898 Million

The DWSRF, CWSRF and the FAP have funded on a combined basis $2.6 billion in water and wastewater related projects and have saved communities $898 million in debt service costs

Funding Agency Coordinating Team

- Group of federal and state organizations that offer financing to eligible Oklahoma public entities for water and wastewater projects
- Meet quarterly with the purpose of facilitating infrastructure funding through communication and streamlined application processes

Members	
Oklahoma Water Resources Board	USDA Rural Development
Oklahoma Department of Commerce	Oklahoma Council of Governments
Indian Health Service	Community Resource Group
Oklahoma Department of Environmental Quality	

Working together to find solutions to Oklahoma's most challenging water and wastewater infrastructure needs!

Infrastructure Investment Impacts

- Economic growth
- Quality of life
- System sustainability
- Increased property values
- Reduced health risks
- Energy cost savings

Analysis Shows each additional:

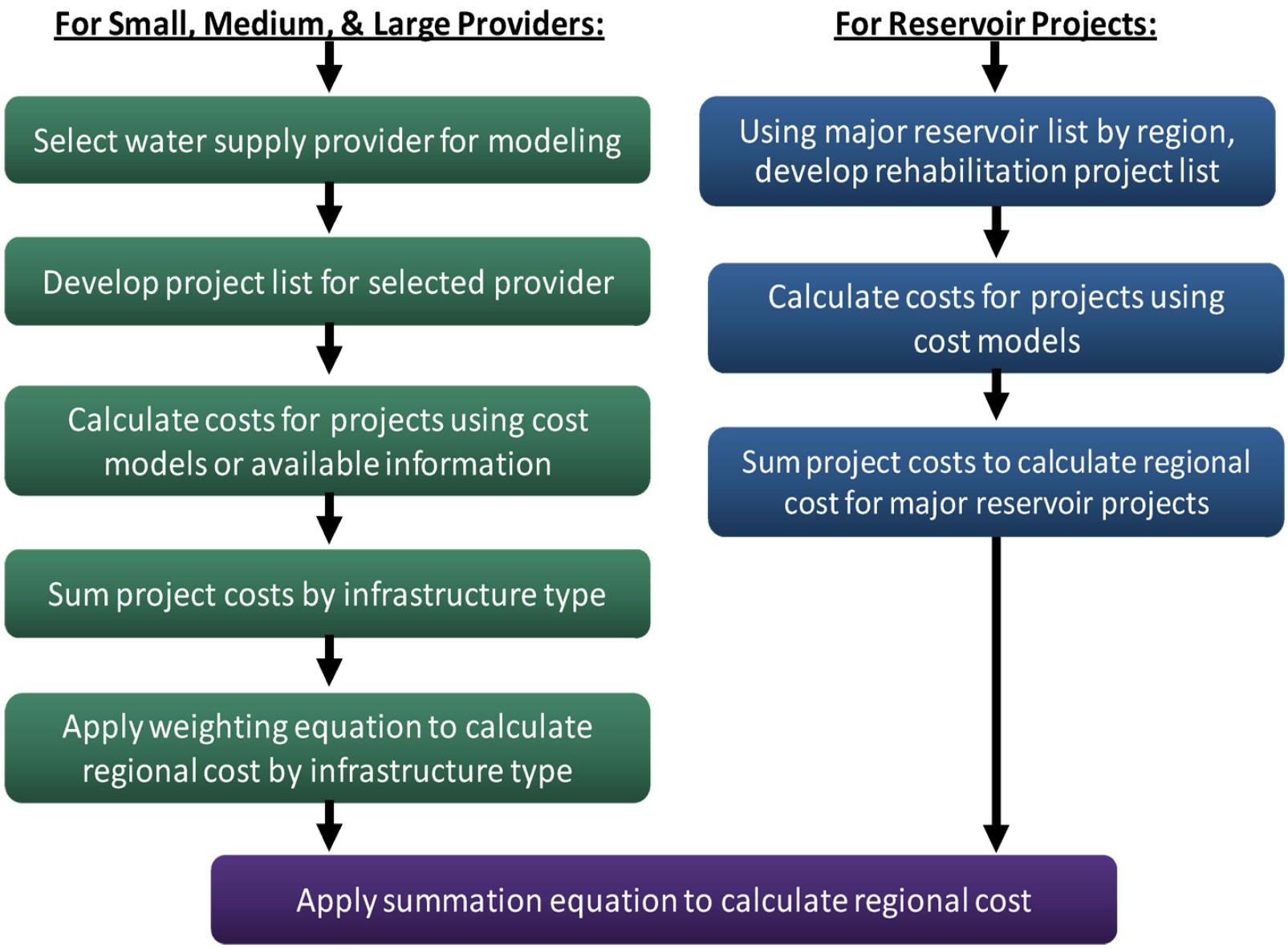
- $1 in Construction Increases Economic Output by $2.37
- $1 million in Construction creates 25 jobs

Oklahoma Advantages Assessment and Scoring for Infrastructure Solutions (OASIS) is a web based application which quantifies the social, economic and environmental benefits of infrastructure investments to communities and the state beyond regulatory compliance.

What is the Urgency for Infrastructure Funding?

- Address health concerns related to water and wastewater
- Aging Infrastructure
- Need infrastructure for economic development
- DWSRF Capacity has been strained
- SRF need over the next five years is over $565M
- Financial need over the next 50 years

Review of the Projected Drinking Water Infrastructure Costs

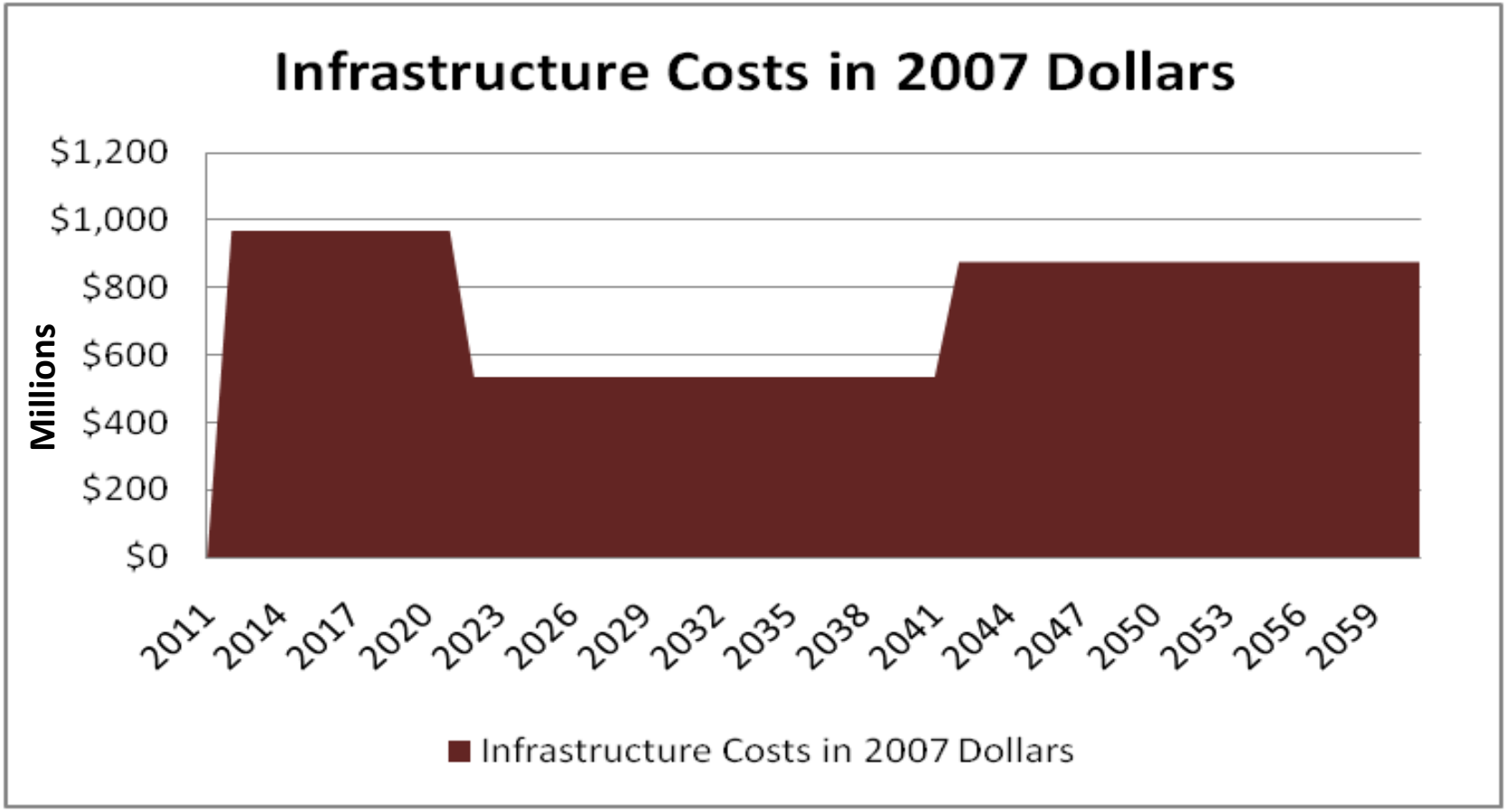

For Small, Medium, & Large Providers:
Select water supply provider for modeling
Develop project list for selected provider
Calculate costs for projects using cost models or available information
Sum project costs by infrastructure type
Apply weighting equation to calculate regional cost by infrastructure type
For Reservoir Projects:
Using major reservoir list by region, develop rehabilitation project list
Calculate costs for projects using cost models
Sum project costs to calculate regional cost for major reservoir projects
Apply summation equation to calculate regional cost

Category[A]	Potential Funding Source[B]	Present - 2020 Infrastructure Need (millions of 2007 dollars)	2021-2040 Infrastructure Need (millions of 2007 dollars)	2041-2060 Infrastructure Need (millions of 2007 dollars)	Total Period Infrastructure Need (millions of 2007 dollars)	Total Period Infrastructure Need (percent by category)	Total Period Infrastructure Need (percent by population)
Small	DWSRF Eligible	$ 3,395.29	$ 5,059.79	$ 8,766.65	$ 17,221.73		
	Non-DWSRF Eligible	$ 43.97	$ 66.94	$ 66.93	$ 177.84		
Small Subtotal		$ 3,439.26	$ 5,126.72	$ 8,833.59	$ 17,399.57	45%	13%
Medium	DWSRF Eligible	$ 4,323.54	$ 4,054.95	$ 6,122.61	$ 14,501.09		
	Non-DWSRF Eligible	$ 53.42	$ 61.91	$ 61.90	$ 177.23		
Medium Subtotal		$ 4,376.96	$ 4,116.85	$ 6,184.51	$ 14,678.32	39%	51%
Large	DWSRF Eligible	$ 1,720.54	$ 1,173.15	$ 1,689.45	$ 4,583.14		
	Non-DWSRF Eligible	$ 50.48	$ 16.78	$ 16.78	$ 84.04		
Large Subtotal		$ 1,771.02	$ 1,189.93	$ 1,706.23	$ 4,667.18	12%	36%
Reservoir	DWSRF Eligible	$ -	$ -	$ -	$ -		
	Non-DWSRF Eligible	$ 95.27	$ 256.52	$ 806.61	$ 1,158.40		
Reservoir Subtotal		$ 95.27	$ 256.52	$ 806.61	$ 1,158.40	4%	0%
Total		$ 9,682.51	$ 10,690.02	$ 17,530.94	$ 37,903.46		

DRINKING WATER INFRASTRUCTURE NEED (All shown in Millions of 2007 Dollars)				
	Present - 2020	2021-2040	2041-2060	Total Period
Total Period Costs	$ 9,682.51	$ 10,687.86	$ 17,530.94	$ 37,901.31
Average Cost per Year	$ 968.25	$ 534.39	$ 876.55	$ 758.03

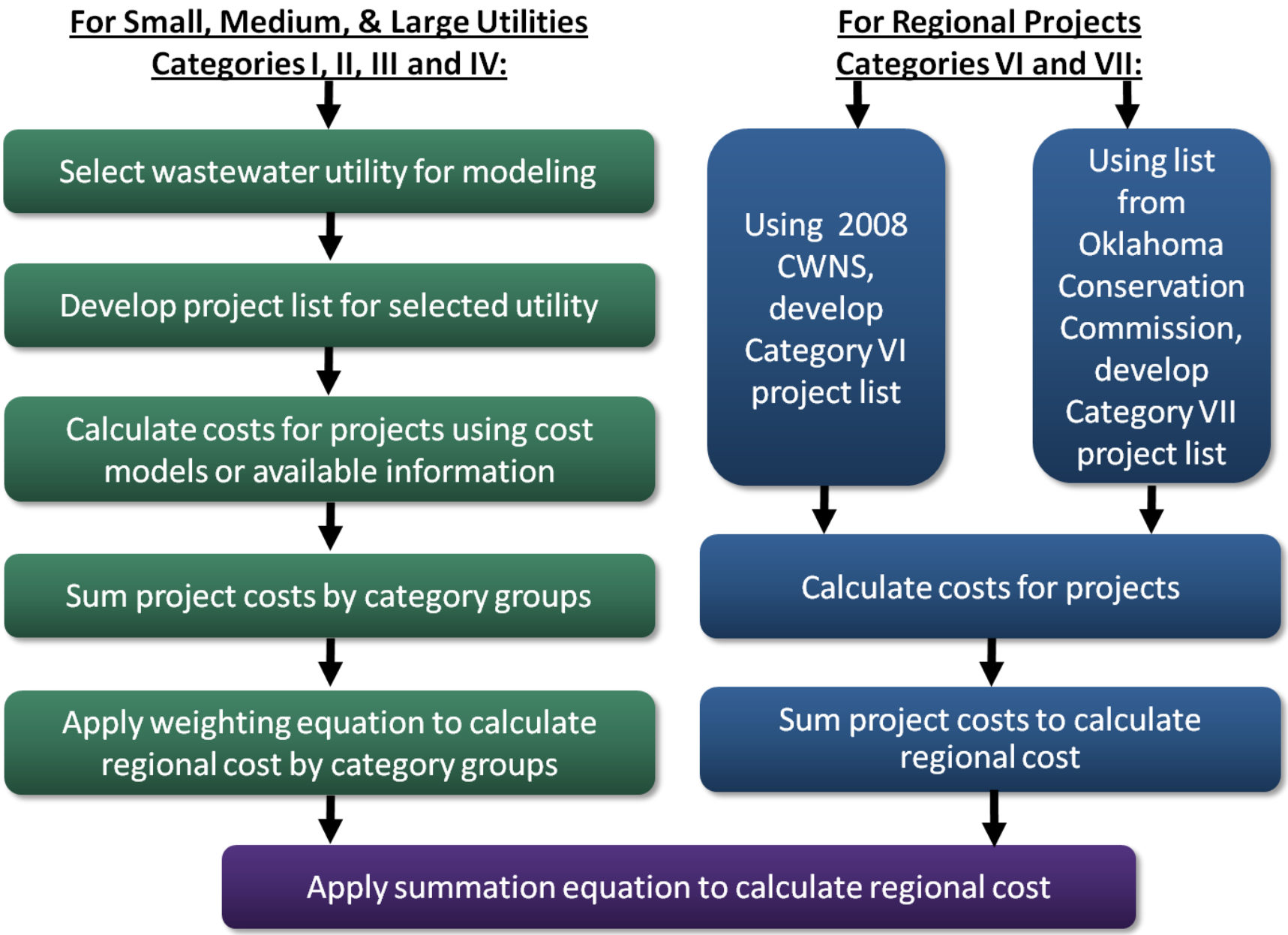
- Infrastructure cost projections from CDM were provided in 2007 dollars
- Figures will be impacted by inflation over time

Review of OCWP



- Debt is often the tool utilized to finance projects that have long useful lives like the proposed infrastructure projects

Review of the Projected Wastewater Infrastructure Costs

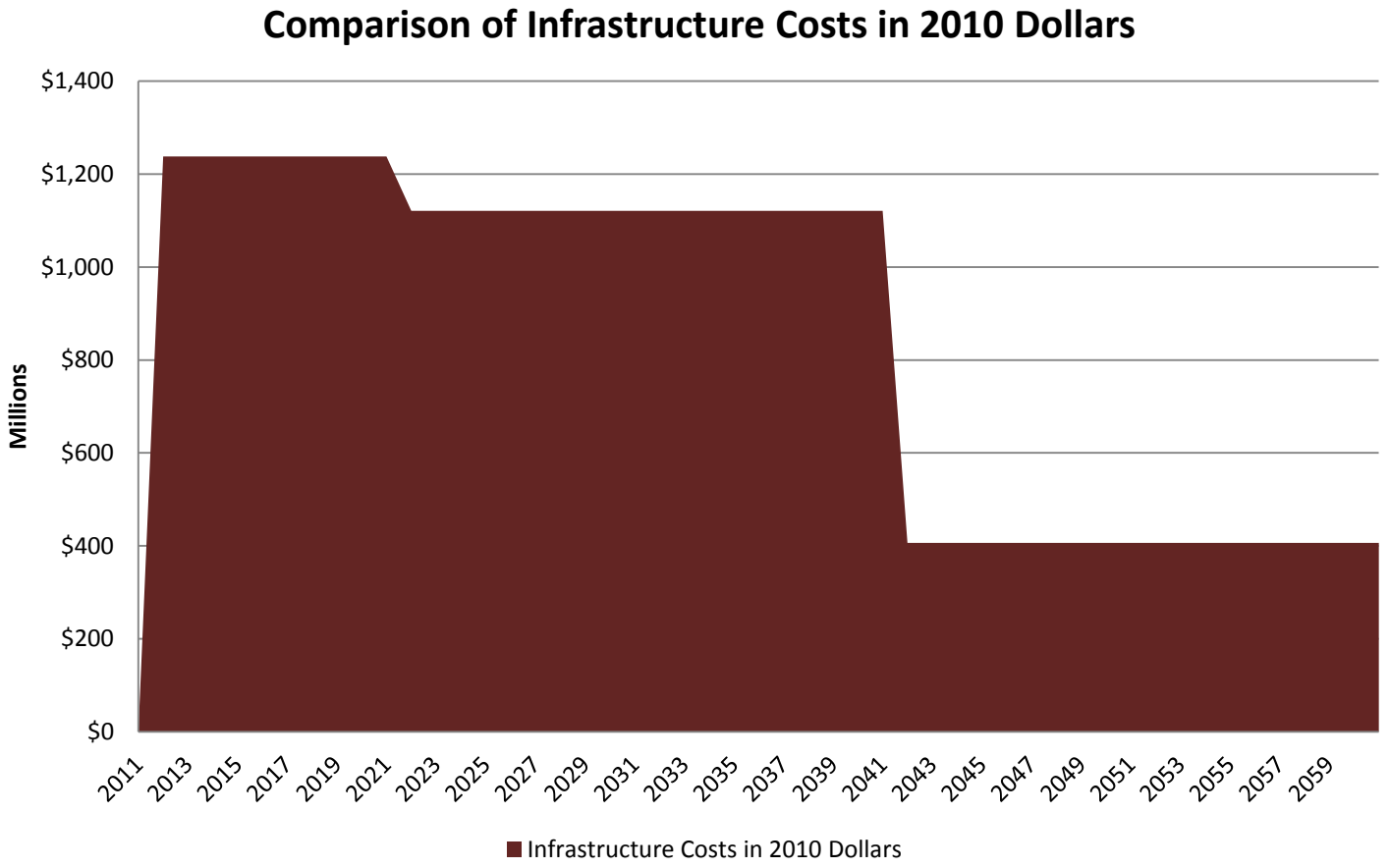

For Small, Medium, & Large Utilities
Categories I, II, III and IV:
Select wastewater utility for modeling
Develop project list for selected utility
Calculate costs for projects using cost models or available information
Sum project costs by category groups
Apply weighting equation to calculate regional cost by category groups
For Regional Projects
Categories VI and VII:
Using 2008 CWNS, develop Category VI project list
Using list from Oklahoma Conservation Commission, develop Category VII project list
Calculate costs for projects
Sum project costs to calculate regional cost
Apply summation equation to calculate regional cost

Category[A]	Official Needs Category Group[B]	Present - 2020 Infrastructure Need (millions of 2010 dollars)	2021 - 2040 Infrastructure Need (millions of 2010 dollars)	2041 - 2060 Infrastructure Need (millions of 2010 dollars)	Total Period Infrastructure Need (millions of 2010 dollars)[C]	Total Period Infrastructure Need (percent by category)	Total Period Infrastructure Need (percent by population)
Small	I and II	$ 170	$ 1,300	$ 530	$ 2,000		
	III and IV	$ 2,200	$ 5,000	$ 1,100	$ 8,300		
Small Subtotal		$ 2,370	$ 6,300	$ 1,630	$ 10,300	23%	13%
Medium	I and II	$ 1,100	$ 4,000	$ 1,150	$ 6,250		
	III and IV	$ 7,500	$ 10,000	$ 4,000	$ 21,500		
Medium Subtotal		$ 8,600	$ 14,000	$ 5,150	$ 27,750	63%	51%
Large	I and II	$ 310	$ 1,010	$ 830	$ 2,150		
	III and IV	$ 900	$ 1,600	$ 780	$ 3,280		
Large Subtotal		$ 1,210	$ 2,610	$ 1,610	$ 5,430	12%	36%
Regional	VI	$ 240	$ -	$ -	$ 240		
	VII	$ 170	$ 130	$ 130	$ 430		
Regional Subtotal		$ 410	$ 130	$ 130	$ 670	1.5%	
Total		$ 12,590	$ 23,040	$ 8,520	$ 44,150		

WASTEWATER INFRASTRUCTURE NEED (All shown in Millions of 2010 Dollars)				
	Present - 2020	2021-2040	2041-2060	Total Period
Total Period Costs	$ 12,590	$ 23,040	$ 8,520	$ 44,150
Average Cost per Year	$ 1,238	$ 1,121	$ 407	$ 883

- Infrastructure cost projections from CDM were provided in 2010 dollars
- Figures will be impacted by inflation over time

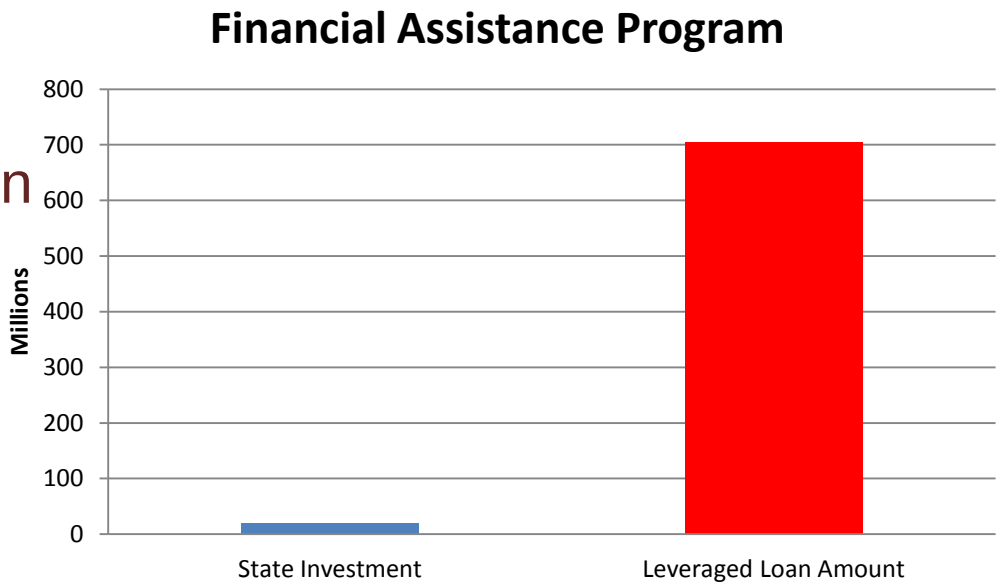
Review of OCWP



- Debt is often the tool utilized to finance projects that have long useful lives like the proposed infrastructure projects

Impact of Leveraging

- The Financial Assistance Program (FAP) provided the first loan in 1985
- The $20 million in funding has been utilized to fund approximately $705 million in loans
- The FAP has the highest rating of AAA
  - ***Given the AAA rating, we recommend the borrower credit analysis, loan administration and on-going surveillance of those programs be the foundation for any new program***



Water Project & Infrastructure Funding

Addressing Oklahoma's $82 Billion Water and Wastewater Project Need

"… a team of financial and water/wastewater infrastructure professionals, led by the OWRB, should investigate development of a more robust state funding program to meet the state's projected $82 billion water and wastewater infrastructure need between now and 2060…."

Recommendations

- Additional State Investments
- Maintain Gross Production Tax revenue
- Creation of new or restructured Financial Assistance Program (FAP)
- Creation of a small loan initiative

Financial and Programmatic Analysis of Existing Programs

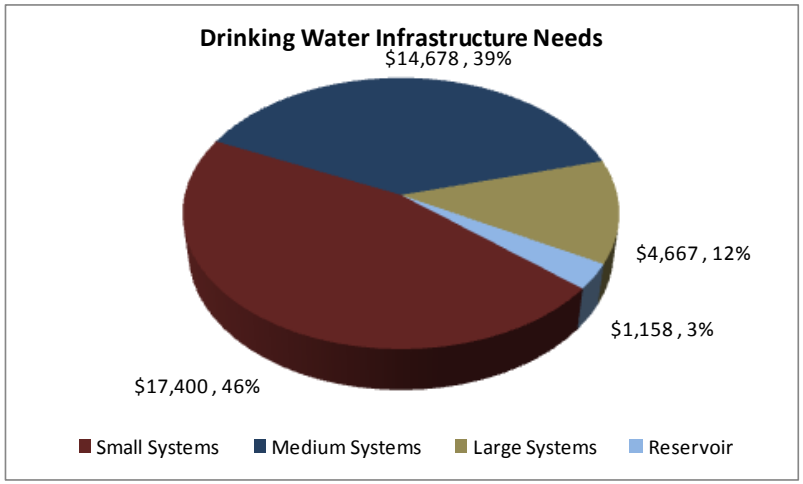
- Given the magnitude of the funding gap, we suggest that a new program be created or the FAP be restructured
- Utilize the same framework and statutory authority that provided for the creation of the FAP
- Will allow the maximum flexibility in creating the program guidelines, legal parameters and bond requirements

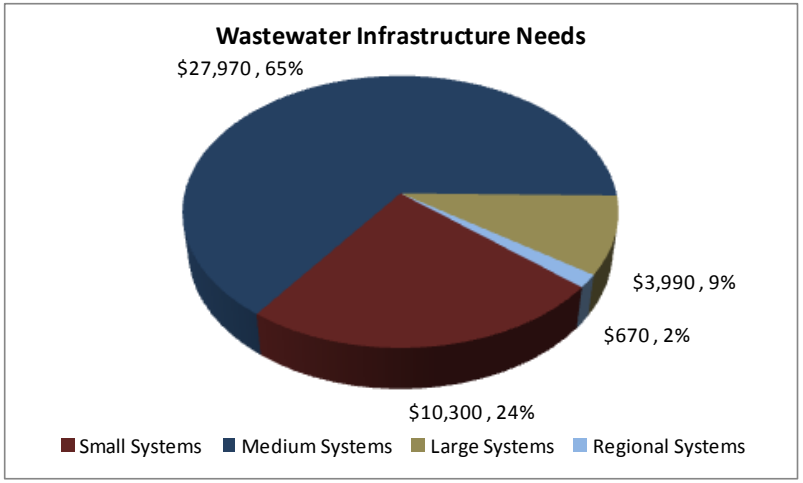
Small Issuer Strategies

- The OCWP identifies small entities have the largest overall drinking water infrastructure cost
- Comprises 46% of the State's drinking water and 24% of the wastewater needs

Some challenges in funding small systems include:

- Credit and financial implications to the program
- Difficulties meeting financial ratios and credit thresholds
- On-going surveillance performance considerations
- Lack of audited financial statements





Small Issuer Strategies

There are ways to ensure funding while minimizing the impact of the challenges:

- Define annual funding goal to ensure funding levels
- Create a second smaller revolving fund for direct loans to communities with weak credits and financial circumstances

Recommendations

- Consider interest rate subsidy reduction and methodology
- Develop new methods to encourage regionalization
- Explore new alternative funding sources
- Creation of State-backed Credit Enhancement Reserve Fund (CERF)

OVERVIEW OF RED RIVER COMPACT & IMPLICATIONS ON STATE WATER PLANNING

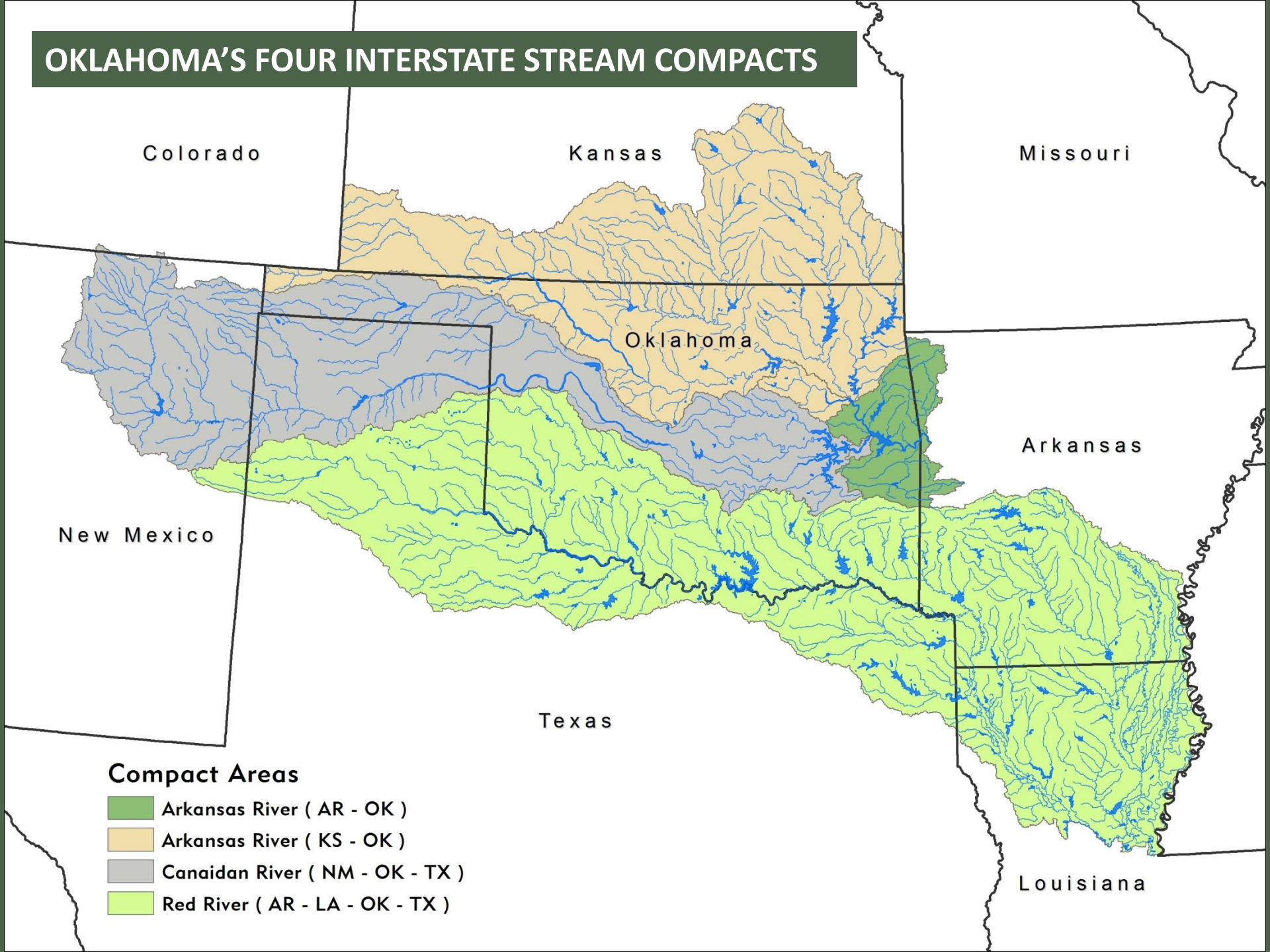
INTERSTATE STREAM COMPACTS

- U.S. Constitution Article 1, Section 10, Cl. 3
- Approval to negotiate
- Negotiating Committee – members from states
- Engineers and lawyers advise Negotiations Committee
- Input from federal agencies incl. DOJ
- Final draft approved by Negotiations Committee, then to each State legislature for approval

INTERSTATE STREAM COMPACTS

- After States approve, then to Congress
- Approval by Congress = federal law
- Supreme Law of the Land - Art. VI, Cl. 2
- Oklahoma – party to four compacts

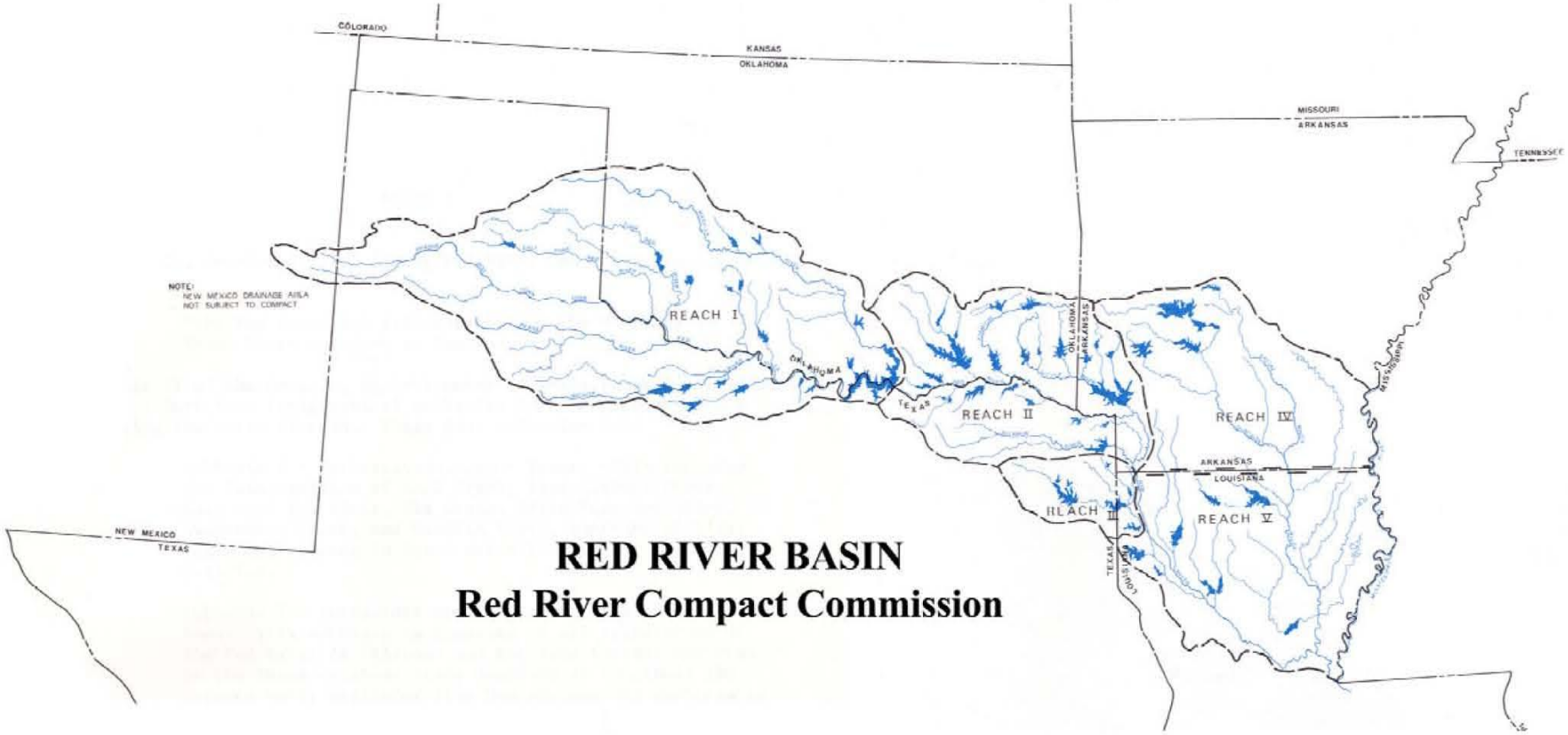
OKLAHOMA'S FOUR INTERSTATE STREAM COMPACTS



INTERSTATE STREAM COMPACTS

- Compact Apportionments:
  - agreed division of water between the States
- Better than "equitable apportionment" by U.S. Supreme Court with unknown, unclear, and uncertain outcome
- Better than Congressional apportionment where Congress divides the water to benefit federal projects

RED RIVER COMPACT



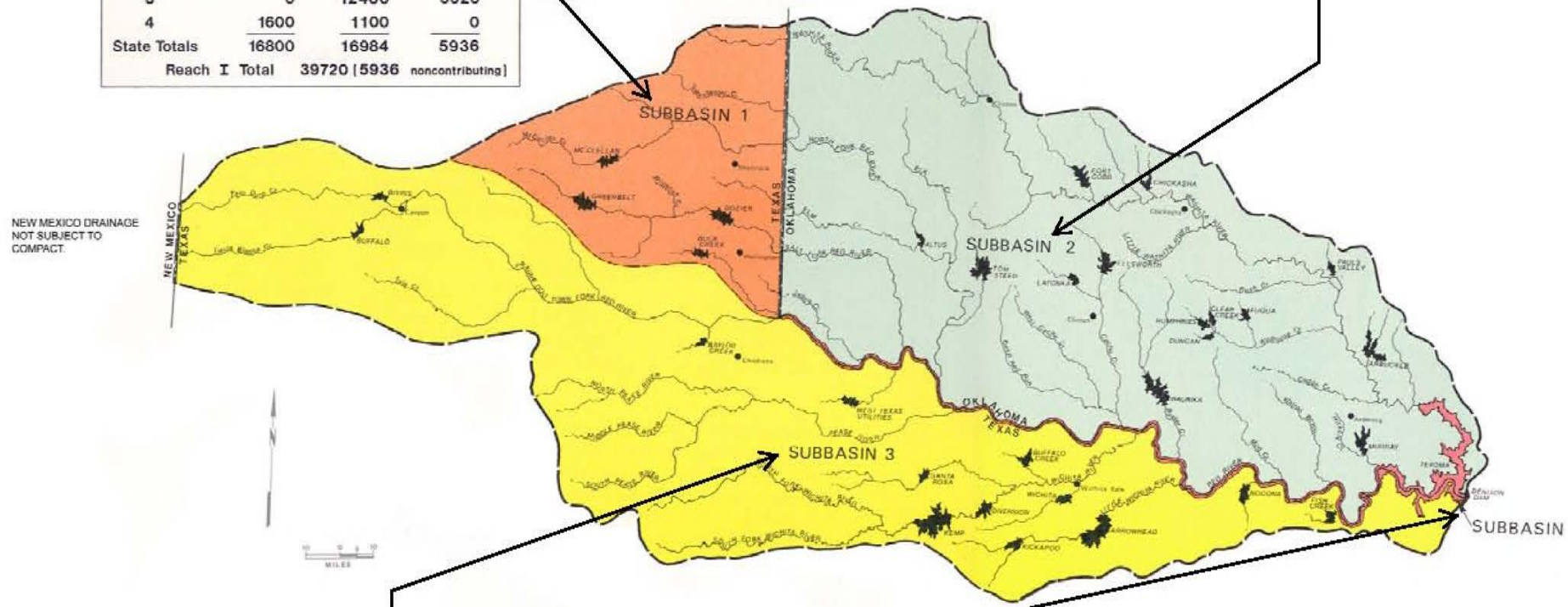
REACH I

"The annual flow within this subbasin is hereby apportioned sixty (60) percent to Texas and forty (40) percent to Oklahoma." Sec. 4.01(b).

"The State of Oklahoma shall have free and unrestricted use of the water of this subbasin." Sec. 4.02(b).

REACH I
APPROXIMATE DRAINAGE AREAS
[in square miles]

SUBBASIN	OKLAHOMA	TEXAS contributing	TEXAS noncontributing
1	0	3484	608
2	15200	0	0
3	0	12400	5328
4	1600	1100	0
State Totals	16800	16984	5936
Reach I Total	39720 [5936 noncontributing]		

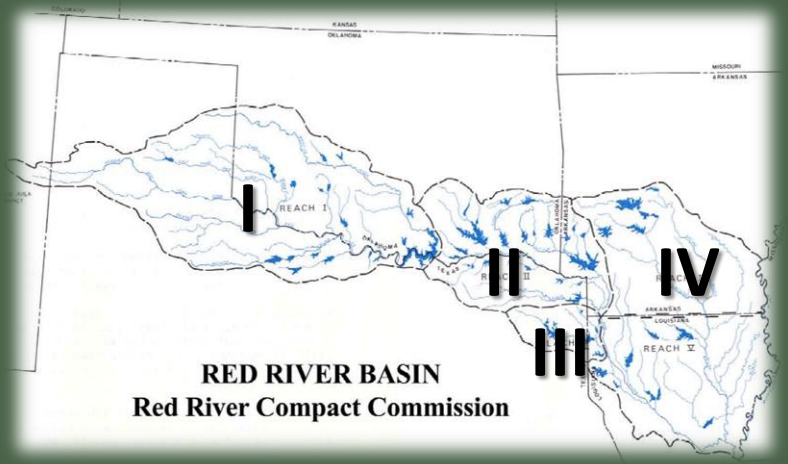


"The State of Texas shall have free and unrestricted use of the water of this subbasin." Sec. 4.03(b).

"The storage of Lake Texoma and flow from the mainstem of the Red River into Lake Texoma is apportioned as follows: (1) Oklahoma 200,000 acre-feet and Texas 200,000 acre-feet, which quantities shall include existing allocations and uses; and (2) Additional quantities in a ratio of fifty (50) percent to Oklahoma and fifty (50) percent to Texas." Sec. 4.04(b).

REACH 1
Upstream from Denison Dam/Texoma

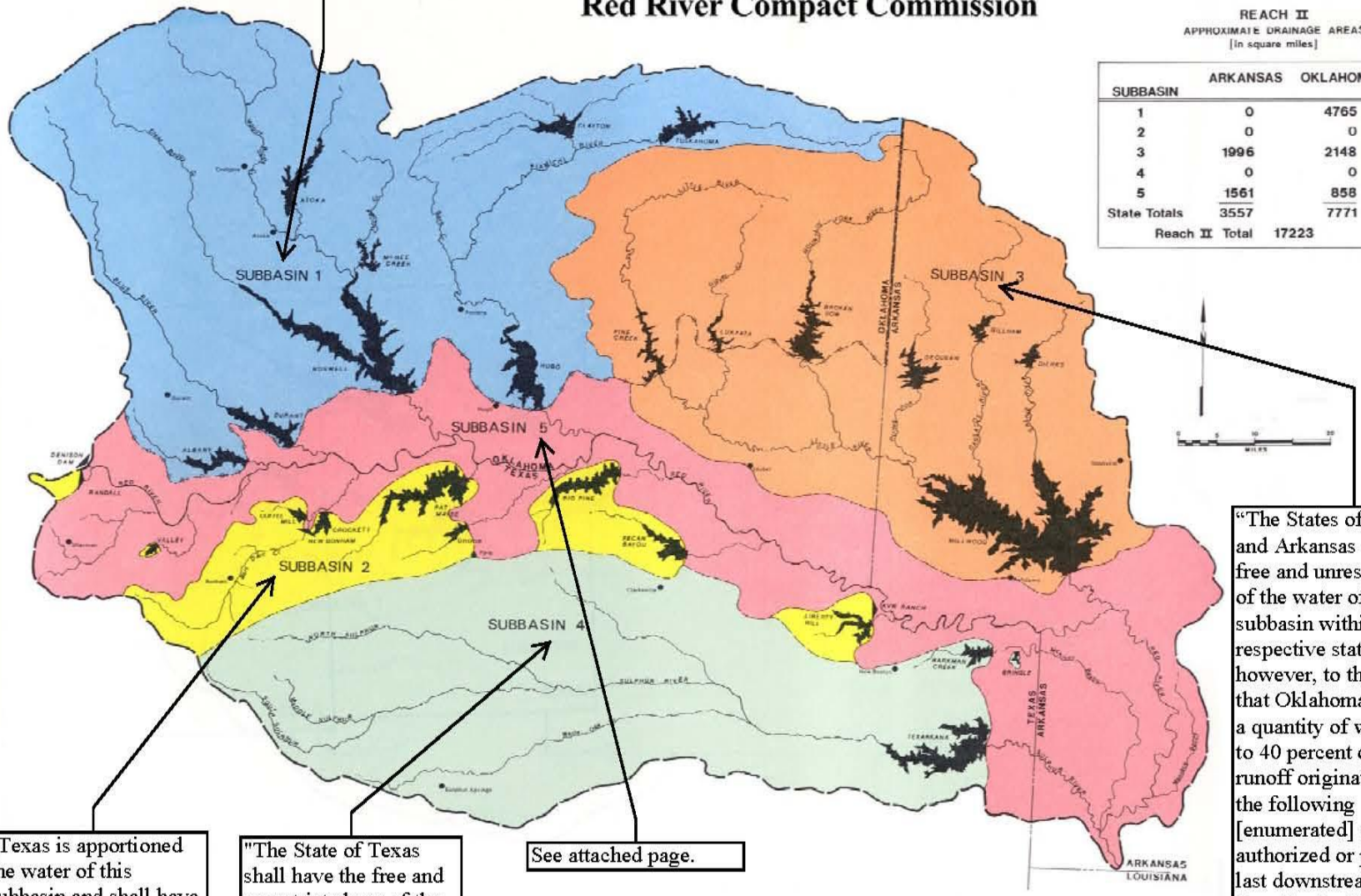
- Subbasin 1: 60/40 split Texas and OK
- Subbasin 2: Free and unrestricted to OK
- Subbasin 3: Free and unrestricted to Texas
- Subbasin 4: Mainstem of Red River and Lake Texoma 50/50 split between Texas and Oklahoma



REACH II

"Oklahoma is apportioned the water of this subbasin and shall have unrestricted use thereof." Sec. 5.01(b).

REACH II
Red River Compact Commission



REACH II
APPROXIMATE DRAINAGE AREAS
[In square miles]

SUBBASIN	ARKANSAS	OKLAHOMA	TEXAS
1	0	4765	0
2	0	0	930
3	1996	2148	0
4	0	0	3480
5	1561	858	1485
State Totals	3557	7771	5895
Reach II Total		17223	

"Texas is apportioned the water of this subbasin and shall have unrestricted use thereof." Sec. 5.02(b).

"The State of Texas shall have the free and unrestricted use of the water of this subbasin." Sec. 5.04(b).

See attached page.

"The States of Oklahoma and Arkansas shall have free and unrestricted use of the water of this subbasin within their respective states, subject, however, to the limitation that Oklahoma shall allow a quantity of water equal to 40 percent of the total runoff originating below the following [enumerated] existing, authorized or proposed last downstream major damsites in Oklahoma to flow into Arkansas." §Sec. 5.03(b).

REACH 2

- Subbasin 1: Above named dams in Oklahoma; free and unrestricted to Oklahoma
- Subbasin 2: Above named dams in Texas; free and unrestricted to Texas
- Subbasin 3: 60/40 split between Oklahoma and Arkansas
- Subbasin 4: Above named dams in Texas; free and unrestricted use to Texas
- Subbasin 5: Mainstem and tributaries downstream from listed dams

REACH 2
Subbasin 5

- States have "equal rights to the use of runoff originating in Subbasin 5 and undesignated water flowing into Subbasin 5"
- As long as flow of the Red River at Arkansas/Louisiana state boundary is 3,000 cubic feet per second (cfs) or more
- No State is entitled to more than 25% of water in excess of 3,000 cfs

REACH 2
Subbasin 5

- Tarrant Regional Water District: "equal rights" to use of runoff and undesignated flow includes "right of access" to put pumps anywhere in subbasin 5 (including Oklahoma)
- Disregard Oklahoma/Texas political boundary; subbasin 5 boundary controls?
- Red River Boundary Compact (approved by both States/Congress in October 2000) establishes south "vegetation line" as political boundary; Oklahoma law controls north

REACH 2
Subbasin 5

- “No state guarantees to maintain a minimum low flow to a downstream state”
- Subbasin 5 - “upstream states cooperate in assuring reliable flows to Arkansas and Louisiana” where there are few storage lakes

Red River Compact
WATER QUALITY

- Distinguishes "natural deterioration" and "pollution" from human activities
- States agree to cooperate with federal agencies to alleviate natural pollution – U.S. Army Corps of Engineers Chloride Control Project

Red River Chloride Control

Estelline Springs, Texas
Area V

Truscott Brine Lake

Red River Compact
WATER QUALITY

- “Dilution is not the solution to pollution”
- “No state guarantees to maintain a minimum low flow to a downstream state”