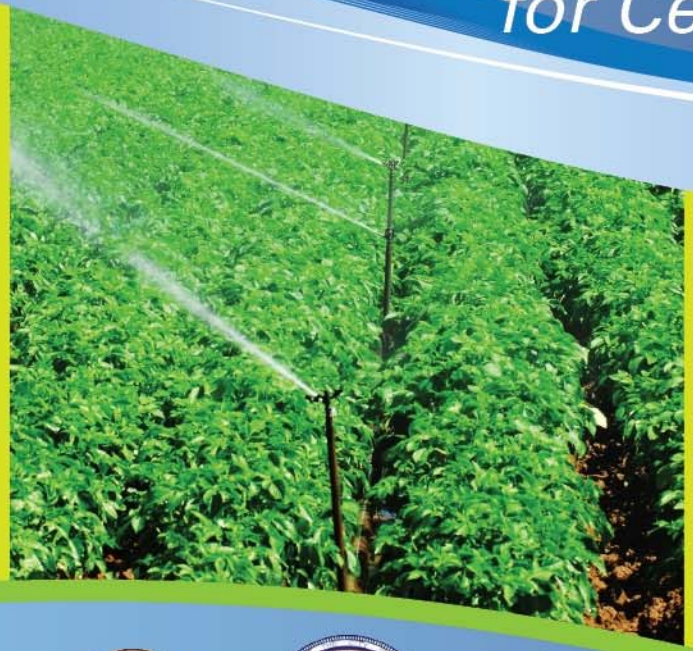
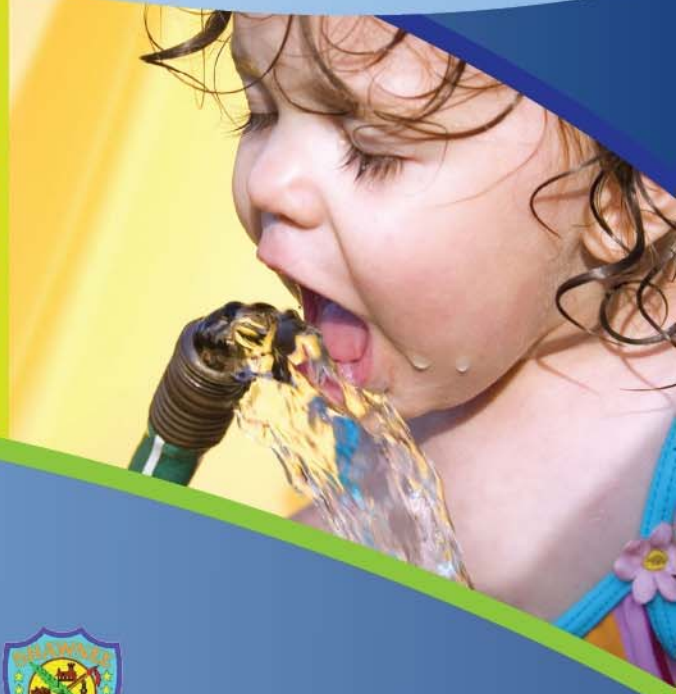
CDM

Regional Raw Water Supply Study

for Central Oklahoma





COWRA
Central Oklahoma Water Resource Authority
PO Box 851331
Yukon, OK 73085-1331

Chickasha

DEL CITY OKLAHOMA

EDMOND 1909

GOLDSBY

CITY of MIDWEST CITY STATE of OKLAHOMA

CITY of MOORE OKLAHOMA 1893

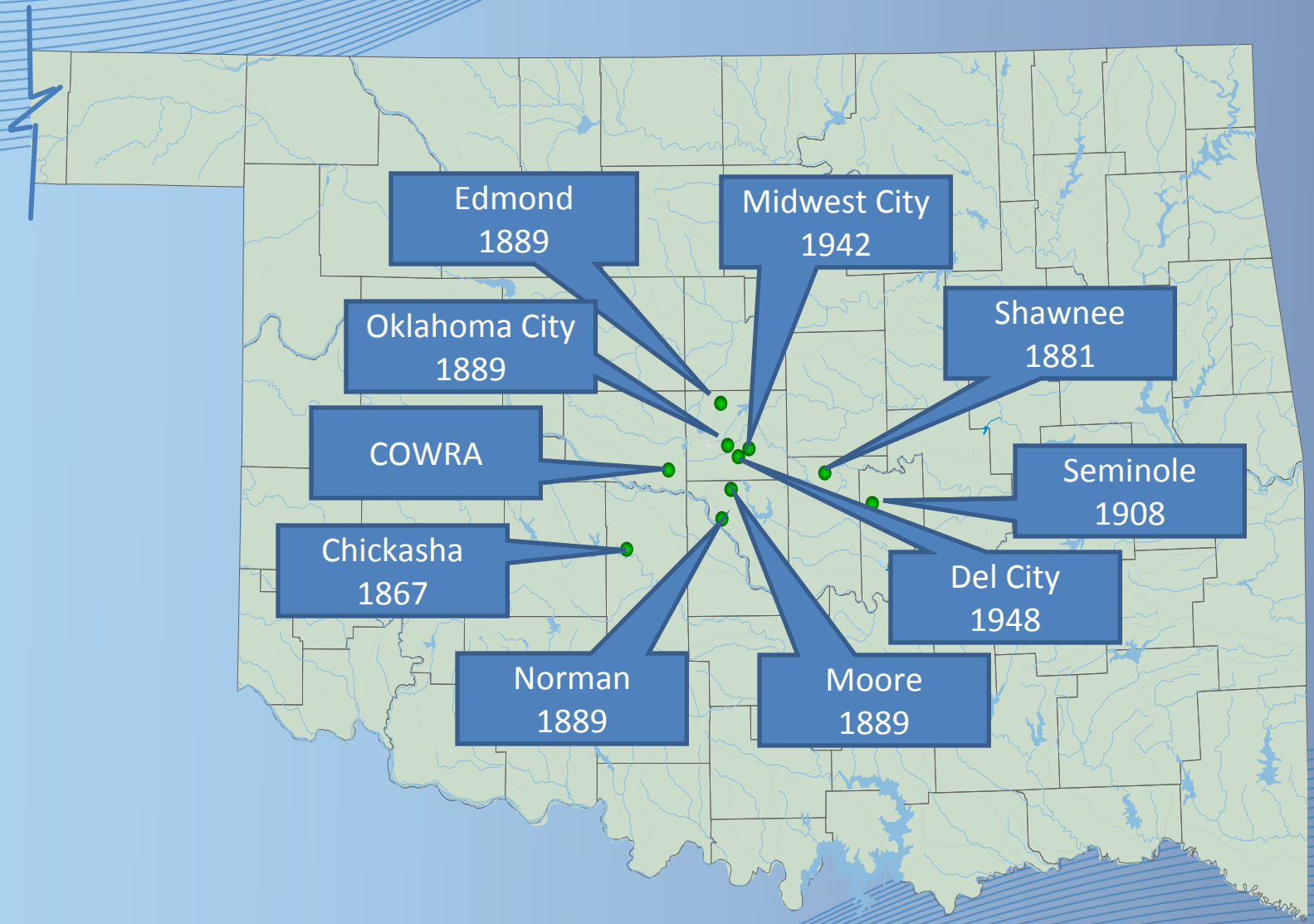
SEAL OF THE CITY OF OKLAHOMA CITY

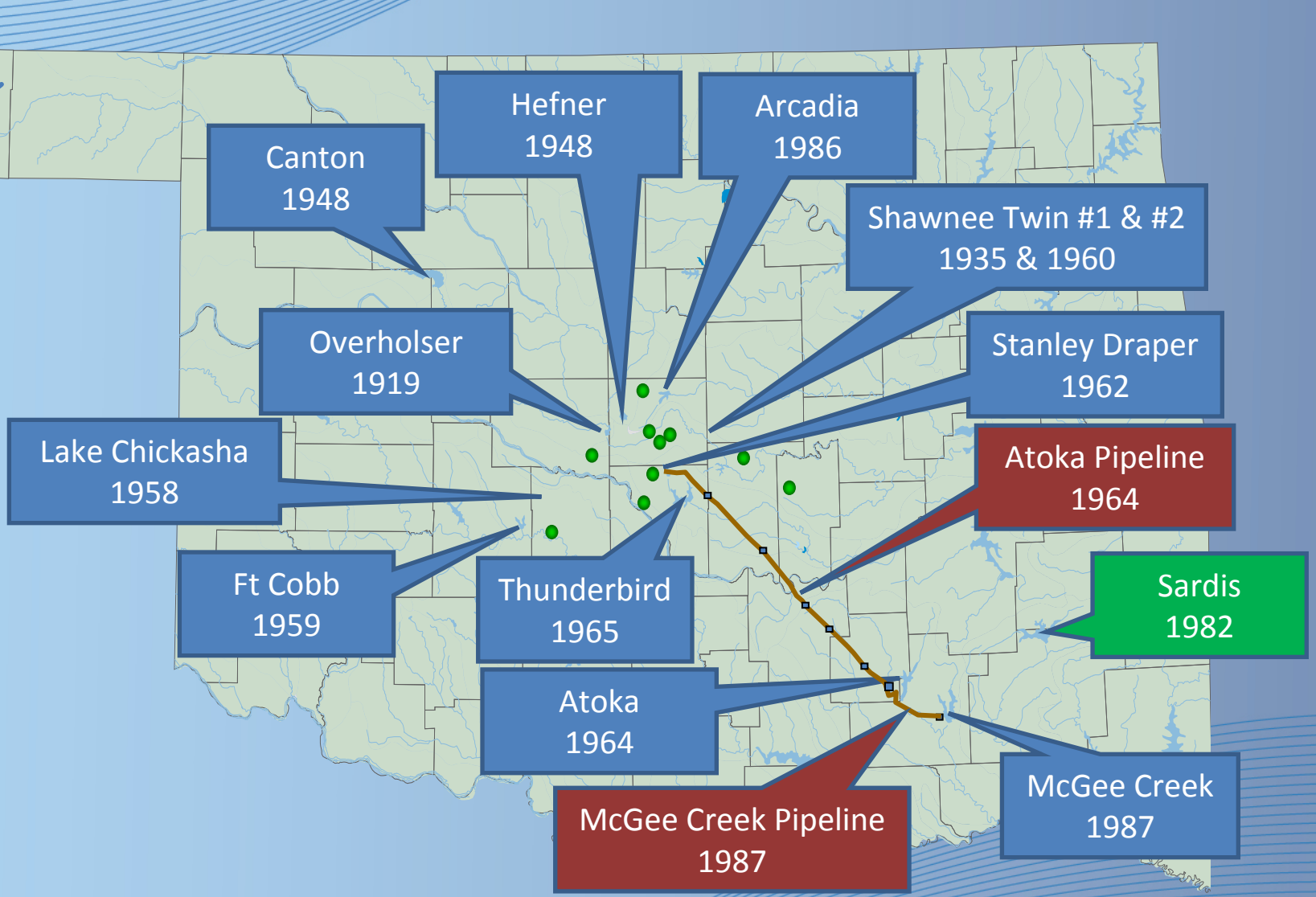
CITY OF SEMINOLE

March 4, 2010

"Water links us to our neighbor in a way more profound and complex than any other."

John Thorson


Edmond
1889
Midwest City
1942
Oklahoma City
1889
Shawnee
1881
COWRA
Seminole
1908
Chickasha
1867
Del City
1948
Norman
1889
Moore
1889


Canton
1948
Hefner
1948
Arcadia
1986
Shawnee Twin #1 & #2
1935 & 1960
Overholser
1919
Stanley Draper
1962
Lake Chickasha
1958
Atoka Pipeline
1964
Ft Cobb
1959
Thunderbird
1965
Sardis
1982
Atoka
1964
McGee Creek Pipeline
1987
McGee Creek
1987

“Each citizen should play his part in the community according to his individual gifts.”

Plato

COWRA

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GOLDSBY

Collective Needs

Each Participant realizes the need to collectively address water supply needs in order to ensure their individual and collective strengths

Regional Raw Water Supply Study for Central Oklahoma

- Quality of Life
- Health & Safety
- Economic Development
- Individual and Collective Prosperity

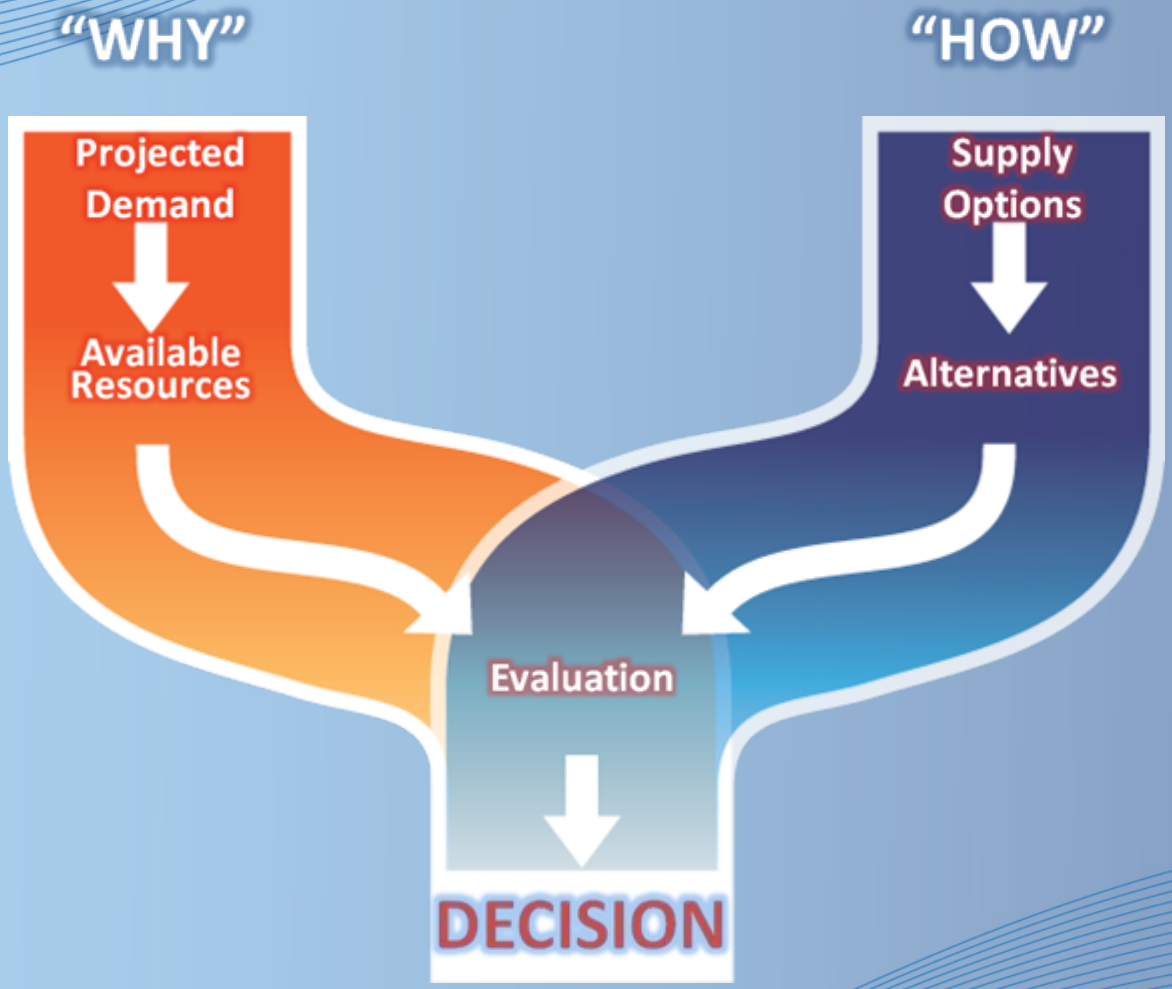



Purpose of the Study

"To engage in a facilitated process which recognizes the broad differences in group members and allows us to make informed decisions on participation (opt in/opt out) in a regional water supply project with particular consideration to cost and timing."

Adopted Mission Statement of Project Participants

Need for a Comprehensive Solution



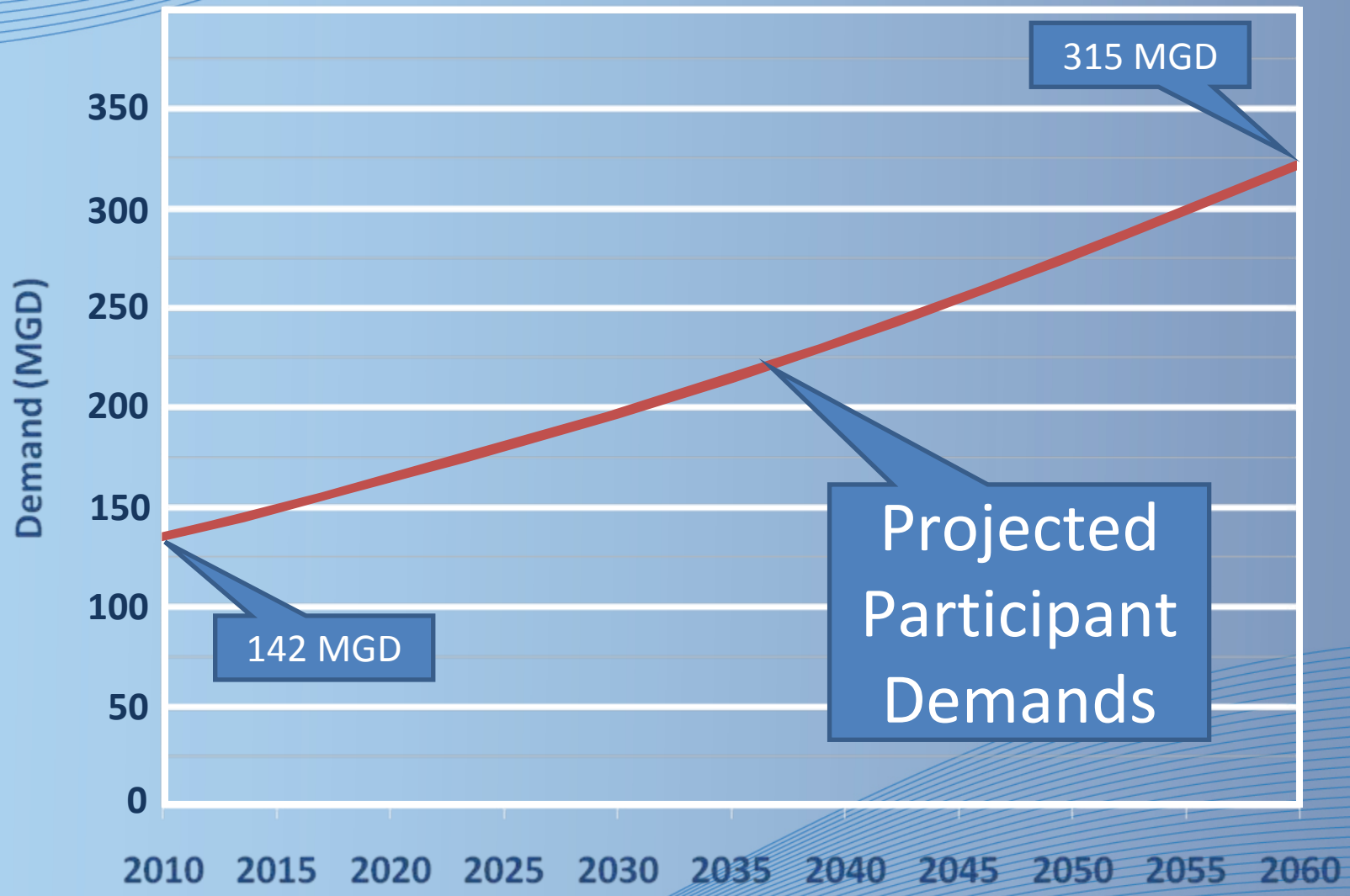
Blending the two tracks of water resource planning enables us to move from technical needs to "interest-based" solutions.

WHY - Individual Needs

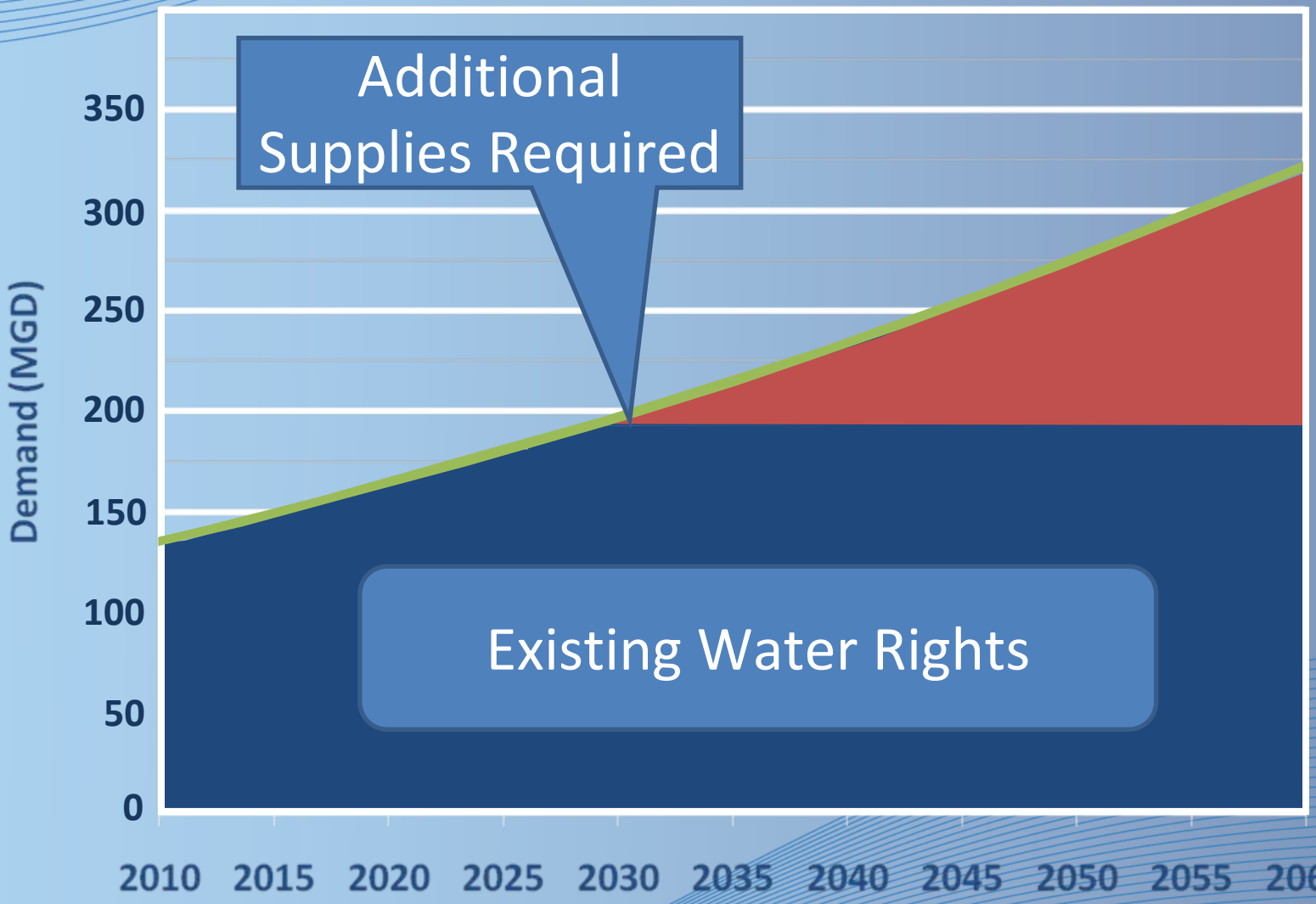
"How Much Water is Needed?"

Participants Forecasts

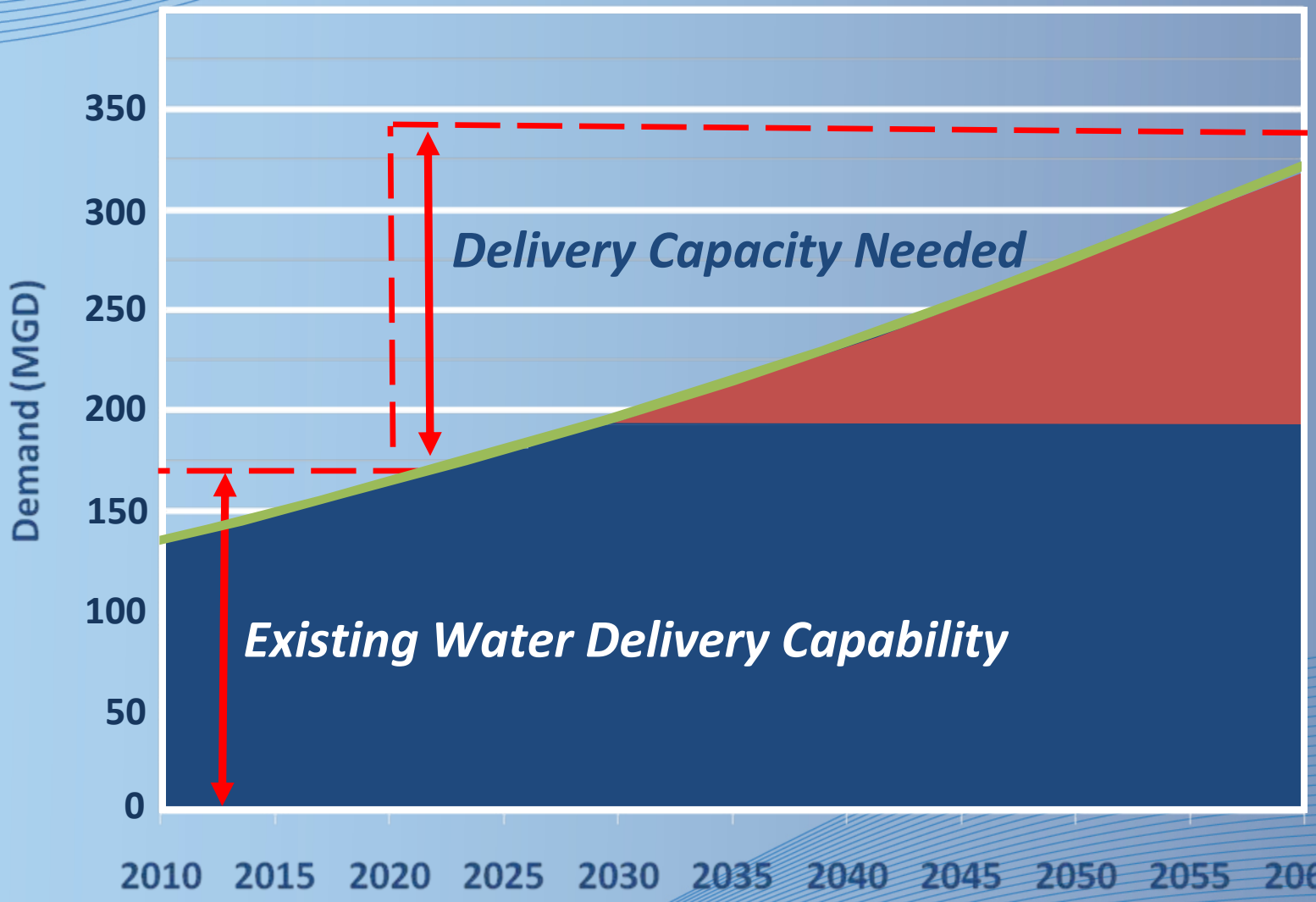
Projected Demands



Projected Supply Needs

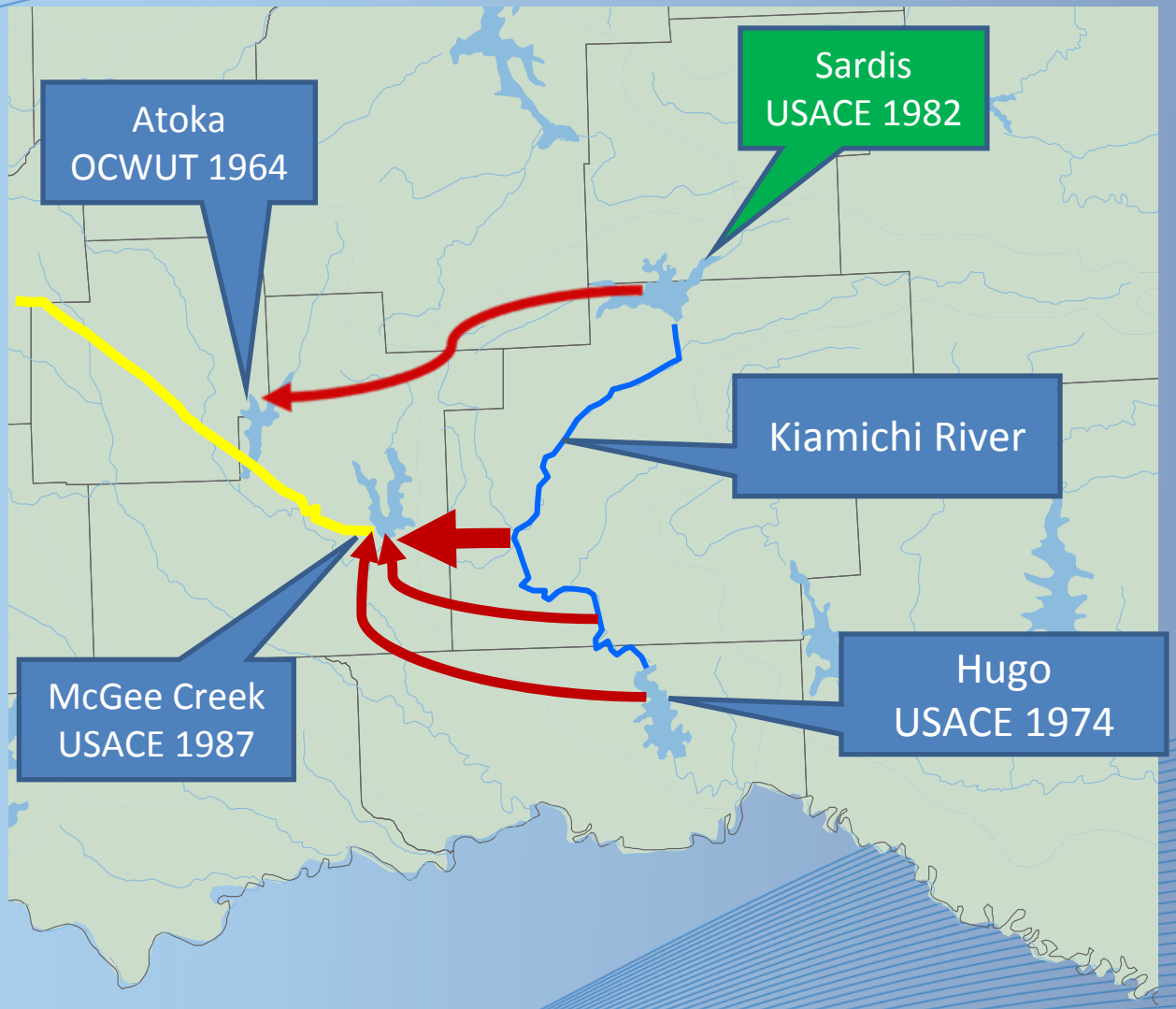


Projected Infrastructure Needs



HOW – Source, Delivery and Costs

HOW – *Source*, Delivery and Costs

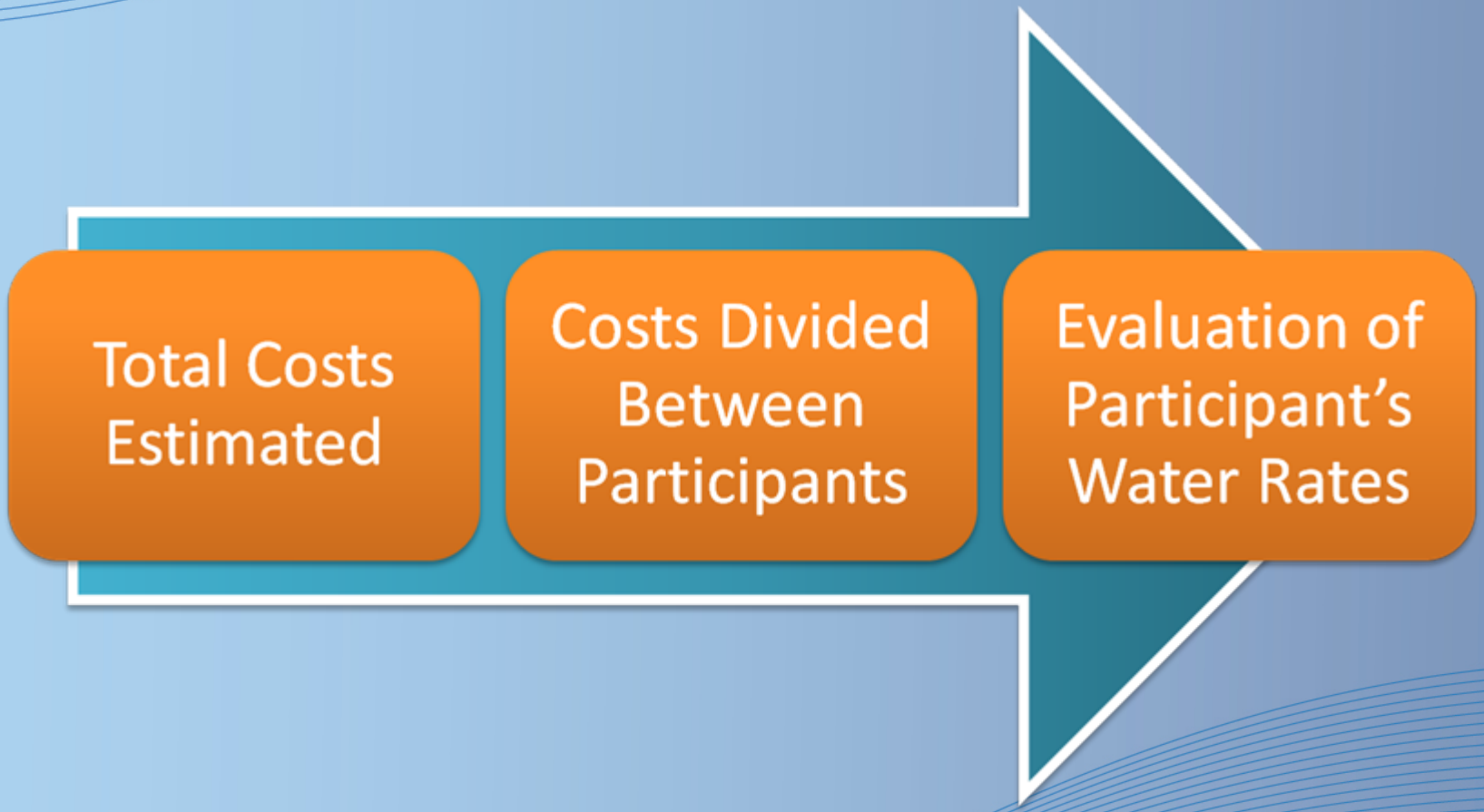


HOW – Source, *Delivery* and Costs

Utilization of existing infrastructure to the greatest extent possible

Blending independence with partnership

HOW – Source, Delivery and *Costs*



“An obstacle is often an unrecognized opportunity”

Unknown

Water Quality

- **OWRB provided water quality data for all potential source waters and receiving waters**

Threatened & Endangered Species

- Potential obstacles involving a variety of endangered species along the Kiamichi River will have to be addressed
  - Ouachita Rock Pocketbook Mussel
  - Winged Mapleleaf Mussel
  - Scaleshell Mussel

Ouachita Rock Pocketbook Mussel

www.fws.gov/southwest/es/Oklahoma/rockpock.htm

Winged Mapleleaf Mussel

www.fws.gov/midwest/endangered/clams/winge_fc.html

Scaleshell Mussel

www.fws.gov/Midwest/endangered/clams/scmu_fct.html

Threatened & Endangered Species

- **Potential obstacles involving a variety of endangered species along the pipeline alignment will have to be addressed**
  - American Burying Beetle
  - Whooping Crane
  - Piping Plover
  - Arkansas River Shiner
  - Interior Least Tern
  - Black-Capped Vireo

Cost Categories

- Planning level costs were established for:
  - Sardis Debt Resolution
  - Source Alternatives Capital
  - Raw Water Transportation
  - Water Treatment
  - Water Delivery
  - Possible Operational Costs

- Capital costs were defined for each participant in detail in the report

Sardis Debt Resolution

Raw Water Transportation

- **Planning level costs based on alignment conditions**

River Crossings

Pump Stations

Alignment Conditions

90” Parallel Atoka Pipeline - $1 Billion

Source Alternatives Capital

- **Planning level costs were established for each of the four source water alternatives:**

Lake Sardis Alt. 1

Moyer's Alt. 2

Highway 3 Alt. 3

Lake Hugo Alt. 4

Lake Sardis to Atoka - $348M (Alt. 1)

Moyer's to McGee to Atoka - $312M (Alt. 2)

HWY 3 to McGee to Atoka - $408M (Alt. 3)

Hugo to McGee to Atoka - $456M (Alt. 4)

Water Treatment

- **Costs will depend on participants choice to receive raw or treated water from the project.**

Water Delivery

Regional Treatment at Stanley Draper Theme (D1) - $145M

New Regional Water Treatment Theme (D2) - $350M

Local Treatment (Raw Water Delivery) Theme (D3) - $379M

Possible Operational Costs

- The Operations and Maintenance costs estimated for all Alternatives and Delivery themes considered the following:
  - Energy Requirements for Transmission, Treatment, and Conveyance
  - Maintenance of Pipelines and Pump Stations
  - Water Treatment Operation and Maintenance

Capital Cost Summary

		Regional Distribution Themes (2008 Dollars, Presented in Billions)		
		OKC Treatment Theme D1	Regional Treatment Theme D2	Raw Water Delivery Theme D3
Raw Water Transmission Alternative	Lake Sardis Alt. 1	$1.58	$1.78	$1.81
	Moyer's Crossing Alt. 2	$1.53	$1.73	$1.76
	Highway 3 Alt. 3	$1.63	$1.83	$1.86
	Lake Hugo Alt. 4	$1.68	$1.88	$1.91

Capital Cost Summary – Norman

Appendix G

		Regional Distribution Themes (2008 Dollars, Presented in Millions)		
		OKC Treatment Theme D1	Regional Treatment Theme D2	Raw Water Delivery Theme D3
Raw Water Transmission Alternative	Lake Sardis Alt. 1	$365.8	$403.9	$403.9
	Moyer's Crossing Alt. 2	$360.3	$398.4	$398.4
	Highway 3 Alt. 3	$375.1	$413.2	$413.2
	Lake Hugo Alt. 4	$382.5	$420.6	$420.6

				Calculation	Norman's Share
Atoka Pipeline					
	Atoka to Seminole/Shawnee			$900,000,000	
	Norman Demand				
	2060	23.67	mgd		
	Project Demand 2060	154.16	mgd	15.40%	
				$138,600,000	$138,600,000
	Seminole/Shawnee to Stanley Draper			$180,000,000	
	Norman Demand				
	2060	23.67	mgd		
	Project Demand 2060	146.16	mgd	16.20%	
				$29,160,000	$29,160,000
Supply Pipeline					
	Moyers' Crossing to McGee Cr. To Atoka			$312,000,000	
	Norman Demand				
	2060	23.67	mgd		
	Project Demand 2060	154.16	mgd	15.40%	
				$48,048,000	$48,048,000
Sardis Lake Estimated Debt				$70,000,000	
	Norman Demand				
	2060	23.67	mgd		
	Project Demand 2060	154.16	mgd	15.40%	
				$10,780,000	$10,780,000
Distribution Theme D1					
	Norman (Cost from Stanley Draper)			$20,089,200	$20,089,200
Stanley Draper WTP Expansion					
	Expansion Need (2 x peaking factor)		mgd	144.94	
	Cost per Gallon			$2.40	
				$347,856,000	
	Norman Demand				
	2060	23.67 x 2	mgd		
	Project Demand 2060	72.47 x 2	mgd	32.66%	
				$113,616,000	$113,616,000
Total of Norman's Share of Capital Costs					**$360,293,200**

Norman Project Cost Distribution

			Immediate Projects	Deferred Projects
Capital Costs			$226,588,000	$133,705,200
Annual Debt Service Payments			$18,272,000	$10,782,000
Term	30	years		
Interest	6	percent		
Issuance Costs	1	percent		
Debt Service Reserve	10	percent		

Norman Project Cost Distribution

Operation/Maintenance Costs

Stanley Draper - Variable Costs	$0.36	per 1,000 gallons

Years	2020	2040	2060
Norman Demand - mgd	4.96	13.63	23.67
Annual Cost	**$652,000**	**$1,791,000**	**$3,110,000**
Operation/Maintenance Costs			
Pumping	**$1,072,577**	**$2,819,013**	**$5,324,799**

Supply from Moyers Crossing and Distribution D1
Norman - Annual and Unit Costs

Norman - Moyers/D1	Treated Water - Immediate Projects Only (Year 2020)	Treated Water - - Immediate & Deferred Projects (Year 2040)	Treated Water - Immediate & Deferred Projects (Year 2060)
Capital Costs Allocated to Participant (Table 10-6)	$226,588,000	$360,293,200	$360,293,200
Projected Annual Debt Service (Table 10-6)	$18,272,000	$29,054,000	$10,782,000
Coverage Requirement (20%)	3,654,400	5,810,800	2,156,400
O&M Costs Pumping	1,072,577	2,819,013	5,324,799
O&M Costs Allocated to Participant (Table 10-3)	652,000	1,791,000	3,110,000
Total New Costs	**$23,650,977**	**$39,474,813**	**$21,373,199**
Existing Participant Costs			
O&M	$8,841,052	$8,841,052	$8,841,052
Annual Debt Service	858,275	858,275	858,275
Total Existing Costs	**$9,699,327**	**$9,699,327**	**$9,699,327**
Less: Non-Operating Revenues	(1,082,783)	(1,082,783)	(1,082,783)
Net Operating Revenue Requirement	**$8,616,544**	**$8,616,544**	**$8,616,544**
Total - Existing Plus New Revenue Requirement	**$32,267,521**	**$48,091,357**	**$29,989,743**
Existing User Fee Revenues - Increased for 2020/2040/2060* Customer Base	$17,226,373	$23,201,427	$31,248,958
User Fee Revenue Required	$32,267,521	$48,091,357	$29,989,743
Percent Increase in User Fee Revenue	87.31%	107.28%	-4.03%
Annual Charge per Connection - Existing	$193.20	$193.20	$193.20
Monthly Charge per Connection - Existing	$16.10	$16.10	$16.10
Annual Charge per Connection - Projected	$361.89	$400.46	$185.41
Monthly Charge per Connection - Projected	**$30.16**	**$33.37**	**$15.45**
Annual Gallons (in 1,000's)	1,810,400	4,974,950	8,639,550
New Costs per 1,000 Gallons	**$13.06**	**$7.93**	**$2.47**

* Annual customer growth assumption 1.5%.

“Anything else you're interested in is not going to happen if you can't breathe the air and drink the water. Don't sit this one out. Do something. You are by accident of fate alive at an absolutely critical moment...”

Carl Sagan

Next Steps

- **Continue collaborative work toward a secure water supply for one-third of Oklahoma's population**

Next Steps

2009

- Trust Formation
- Secure Sardis and Water Rights
- Finalize Source Alternative and Alignment
- Initiate Program Management
- Initiate Survey Data Collection

2010

- Initiate Environmental Studies and Permitting
- Initiate Atoka Pipeline Design
- Initiate Alt. Pipeline Route Acquisition
- Public Outreach
- Debt Issuance for Studies

2015

- Finalize Designs
- Finalize Atoka Related Environmental Studies
- Initiate Atoka Pipeline Construction
- Initiate Source Water Pipeline Permitting
- Debt Issuance for Construction

Public Outreach

“Successful people ask better questions, and as a result, they get better answers.”

Tony Robbins

CDM

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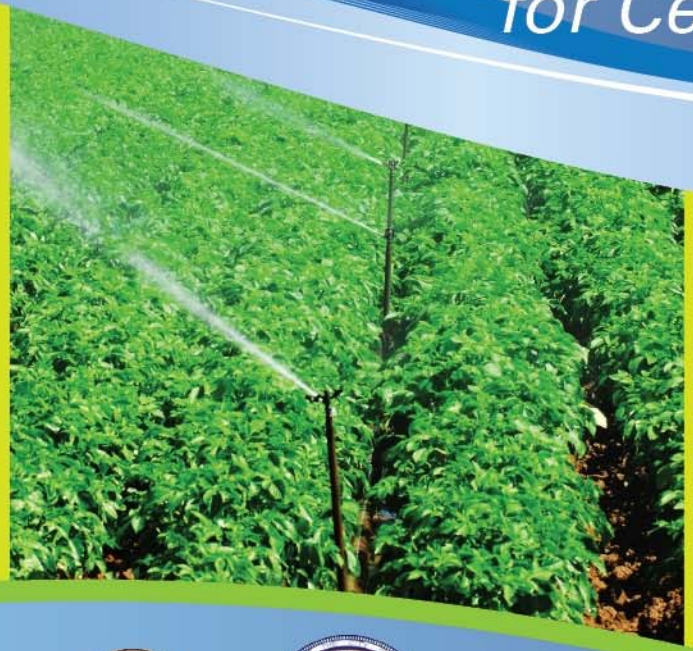

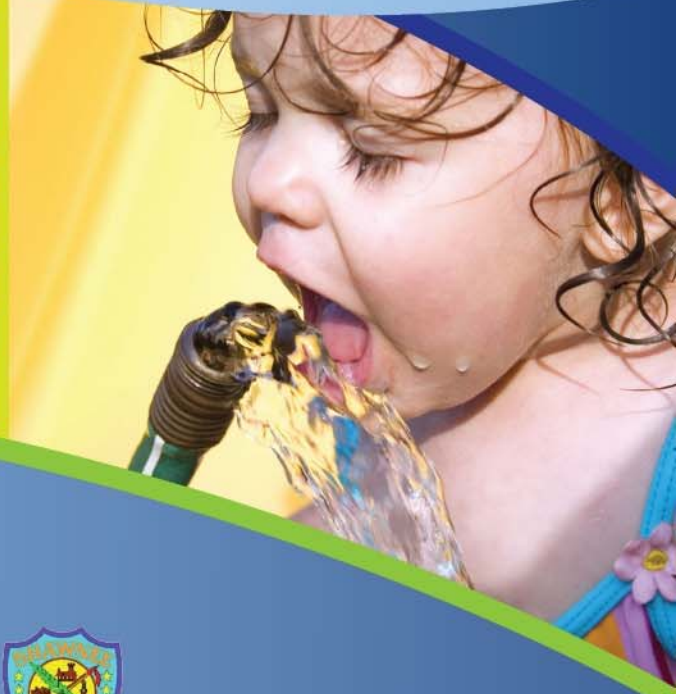

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