



Region I

East Texas Regional
Water Planning Group



**REGIONAL WATER PLANNING
GROUP MEETING
November 20, 2019**



Region I

East Texas Regional
Water Planning Group



**Item 9
Consultant Team
Report**



PLUMMER



**FREESE
AND
NICHOLS**

wsp

November 20, 2019

Consultant Team Report Agenda

- **Planning Schedule**
 - Where are we today? Where are we headed?
- **County Review**
 - Angelina, Henderson, Nacogdoches, Orange, and Rusk Counties
- **Update on activities:**
 - Definition of Significant Need
 - Review of Chapters 5A, 5B, and 5C
 - Fiscal Year 2020
 - Website Discussion



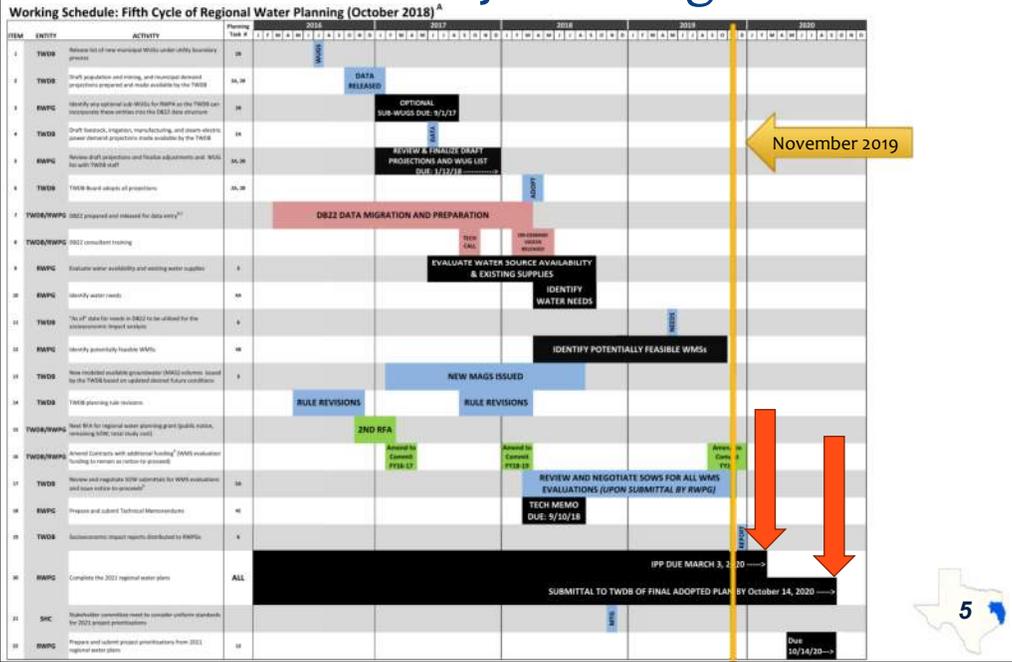
Update on the 5th Round Planning Cycle:

Item 9a

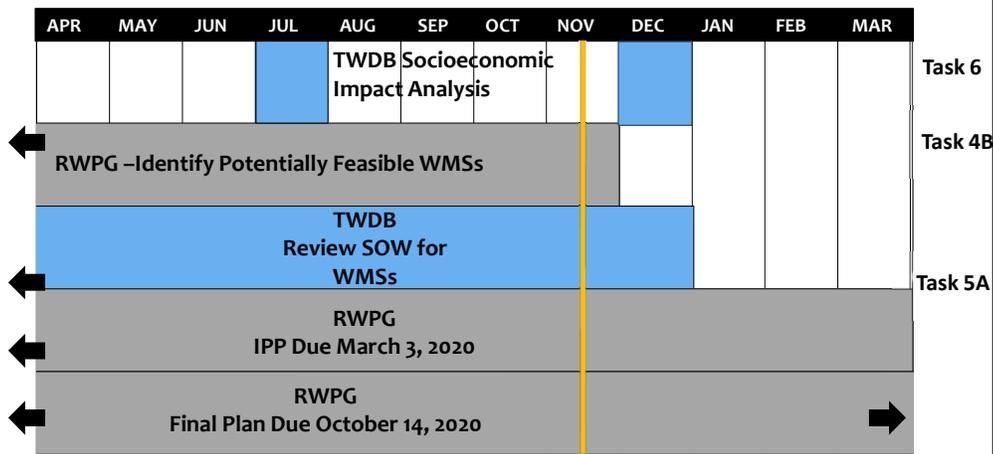
Project Schedule



TWDB Preliminary Working Schedule



2019-2020 Project Schedule



2019-2020 RWPG Meeting Schedule

Year	Quarter	Agenda Items		RWPG Mtg. Date
		Chapter	County-Other	
2019	Q2	1, 2 (Needs must be finalized May 2020)	4 Counties	April 17, 2019
	Q3	6, 8	6 Counties	July 17, 2019
	Q4 a	3, 4, 10	5 Counties	October 15, 2019
	Q4 b	5A, 5B, 5C	5 Counties	November 20, 2019
2020	Q1 a	ES, 7, 9, 11		January 15, 2020
	Q1 b	Initially Prepared Plan Approval (IPP due 03/03/20)		February 19, 2020
	Q3 a	Review Public Comments, Prioritization		July 15, 2020
	Q3 b	Final Plan Approval (Final Plan due 10/14/20)		September 16, 2020
ES - Executive Summary				



Item 9b County Review



County Projections Review

Angelina County

- Steady population growth
- Primary water use is municipal
- Total developed supply greater than total demand
- No municipal WUGs with identified needs
- Manufacturing and mining with identified needs
- Strategies include purchasing additional supply from Lufkin and ANRA



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ANGELINA COUNTY

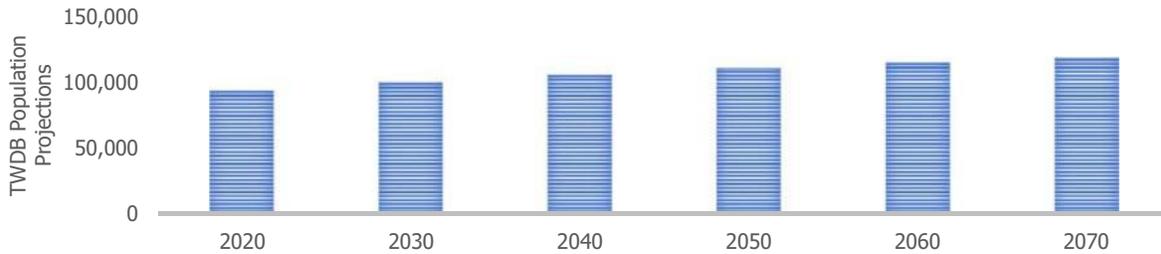
YOUR WATER DEPENDENT ECONOMY:

Agriculture
Industry
Recreation
Timber

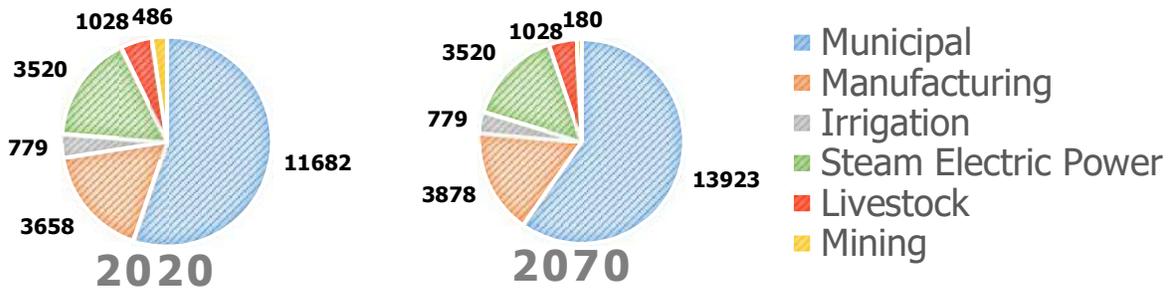
YOUR WATER SOURCE(S):

Groundwater Wells
Lake Kurth
Local Supplies
Neches River
Yegua-Jackson Aquifer
Carrizo-Wilcox Aquifer
Queen City Aquifer
Sparta Aquifer

YOUR COUNTY POPULATION PROJECTIONS



YOUR COUNTY WATER USE (ACRE-FEET)



YOUR AVAILABLE WATER SUPPLY



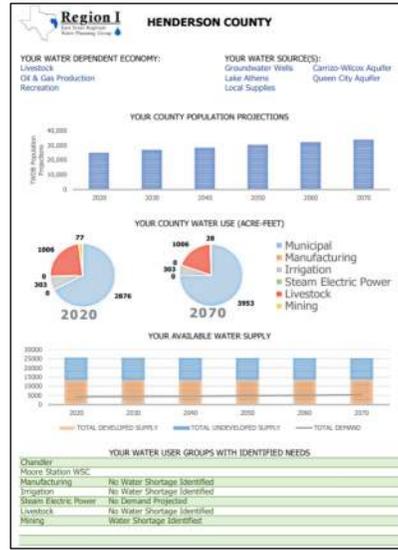
YOUR WATER USER GROUPS WITH IDENTIFIED NEEDS

Municipal	No Water Shortage Identified
Manufacturing	Water Shortage Identified, WMS - Purchase Additional Supply from Lufkin / New Wells
Irrigation	No Water Shortage Identified (Yegua Jackson)
Steam Electric Power	No Water Shortage Identified
Livestock	No Water Shortage Identified
Mining	Water Shortage Identified, WMS - Purchase Additional Supply from ANRA

County Projections Review

Henderson County

- Steady population growth
- Primary water use is municipal
- Total developed supply greater than total demand
- WUGs identified with needs: Chandler, Moore Station WSC, mining
- Municipal conservation, purchase water from Tyler for Chandler
- Strategies to develop groundwater supplies in Carrizo-Wilcox for Moore Station WSC and mining



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HENDERSON COUNTY

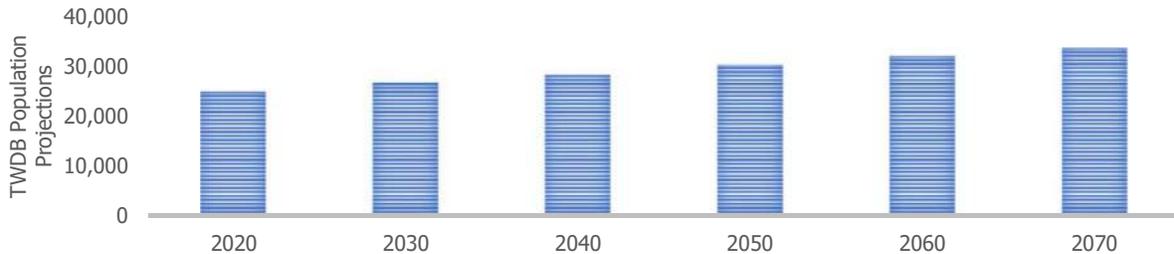
YOUR WATER DEPENDENT ECONOMY:

Livestock
Oil & Gas Production
Recreation

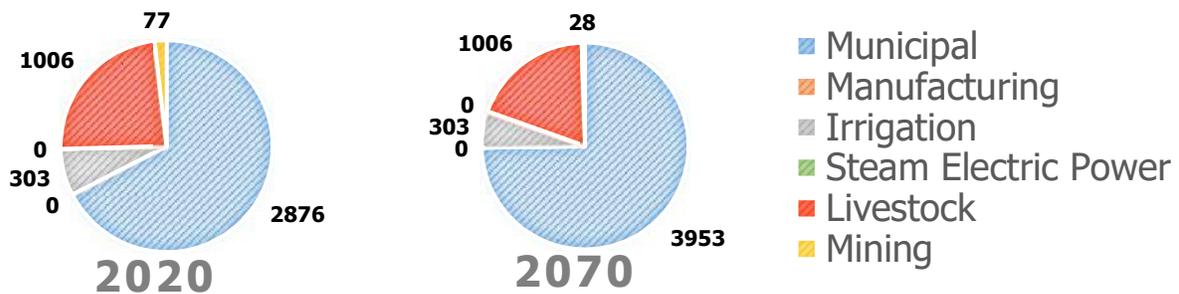
YOUR WATER SOURCE(S):

Groundwater Wells Carrizo-Wilcox Aquifer
Lake Athens Queen City Aquifer
Local Supplies

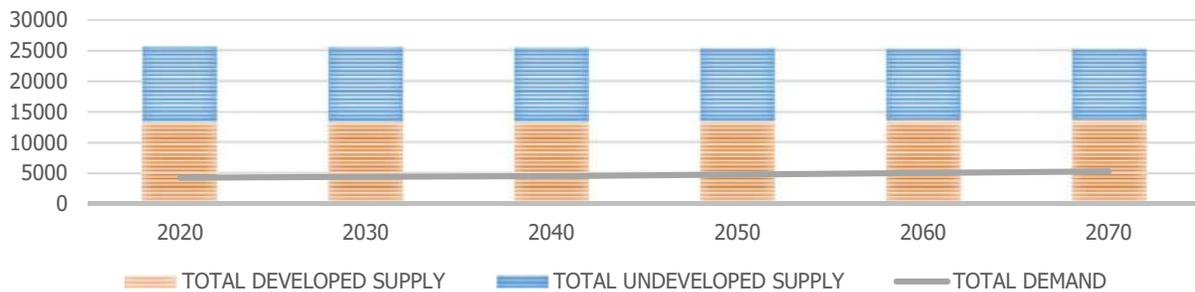
YOUR COUNTY POPULATION PROJECTIONS



YOUR COUNTY WATER USE (ACRE-FEET)



YOUR AVAILABLE WATER SUPPLY



YOUR WATER USER GROUPS WITH IDENTIFIED NEEDS

Chandler	WMS - Municipal Conservation, Purchase Additional Supply from Tyler
Moore Station WSC	WMS - Municipal Conservation, Purchase Additional Supply from Tyler
Manufacturing	No Water Shortage Identified
Irrigation	No Water Shortage Identified
Steam Electric Power	No Demand Projected
Livestock	No Water Shortage Identified
Mining	No Demand Projected - Additional Wells in Carrizo-Wilcox Aquifer

County Projections Review

Nacogdoches County

- Steady population growth
- Primary water uses are municipal and livestock
- Projected demand approximately equal to developed supply
- WUGs identified with needs: Cushing, D&M WSC, Livestock, and Mining
- Strategies include municipal conservation, additional wells in Carrizo Aquifer, purchase additional water from ANRA



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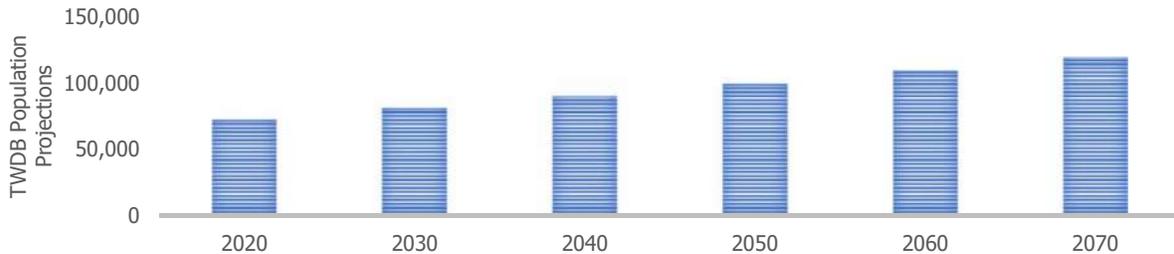
YOUR WATER DEPENDENT ECONOMY:

Agriculture
Education
Livestock
Timber

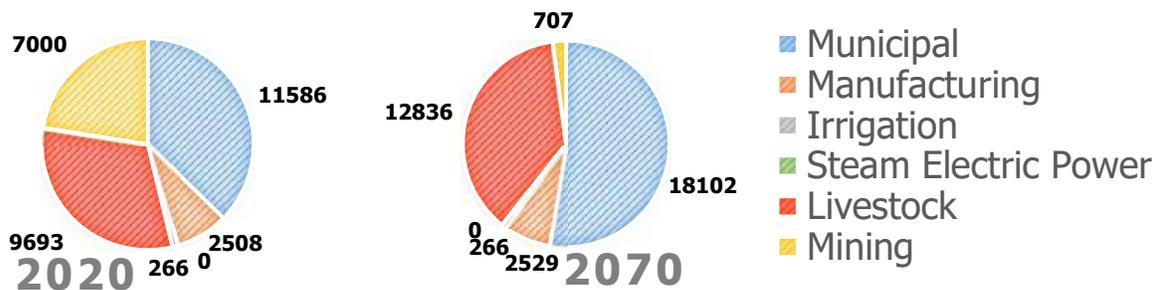
YOUR WATER SOURCE(S):

Groundwater Wells Carrizo-Wilcox Aquifer
Lake Nacogdoches Queen City Aquifer
Local Supplies Sparta Aquifer
Neches River Yegua-Jackson Aquifer

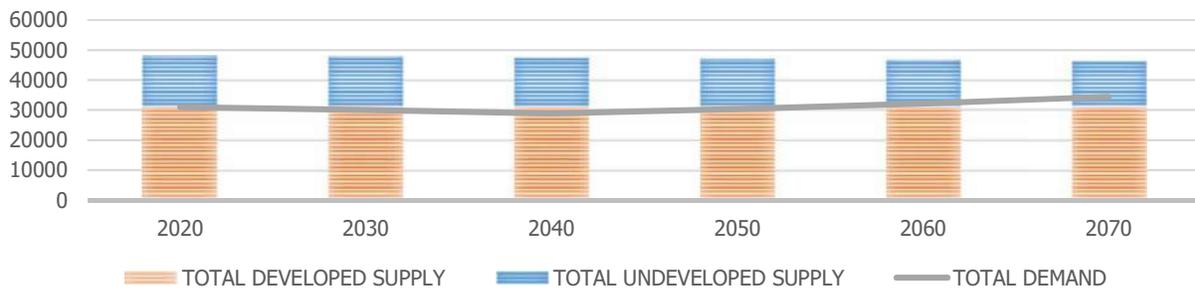
YOUR COUNTY POPULATION PROJECTIONS



YOUR COUNTY WATER USE (ACRE-FEET)



YOUR AVAILABLE WATER SUPPLY



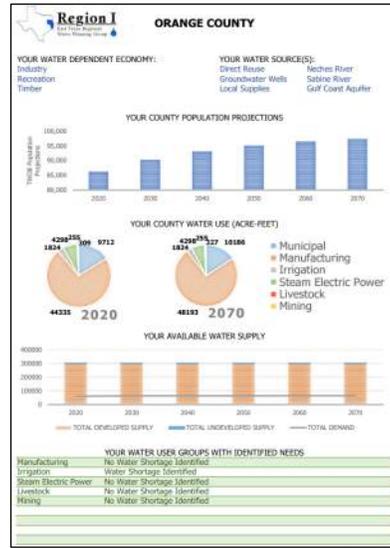
YOUR WATER USER GROUPS WITH IDENTIFIED NEEDS

Cushing	Water Shortage Identified, WMS - Additional Wells in Carrizo Aquifer
D&M WSC	WMS - Additional Wells in Carrizo Aquifer
Manufacturing	No Water Shortage Identified
Irrigation	No Water Shortage Identified
Steam Electric Power	No Demand Projected
Livestock	Water Shortage Identified, WMS - Additional Wells in Carrizo Aquifer
Mining	Water Shortage Identified, WMS - Purchase Additional Supply from ANRA

County Projections Review

Orange County

- Steady population growth
- Primary water uses are manufacturing and municipal
- Almost all supply is developed
- Total developed supply significantly exceeds demands
- Irrigation users identified with needs, strategy to purchase supply from SRA



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ORANGE COUNTY

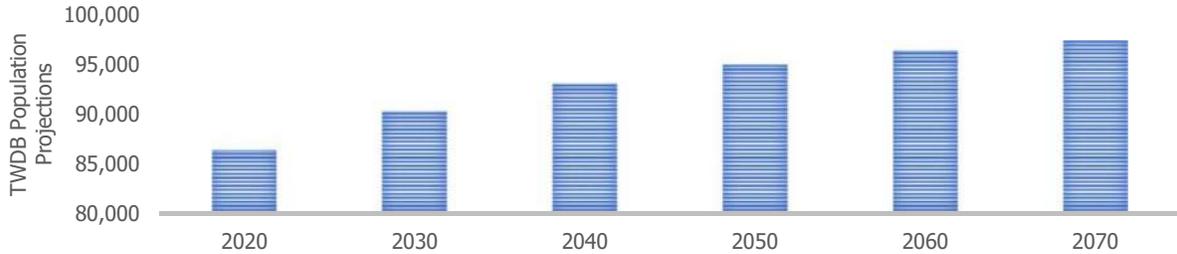
YOUR WATER DEPENDENT ECONOMY:

- Industry
- Recreation
- Timber

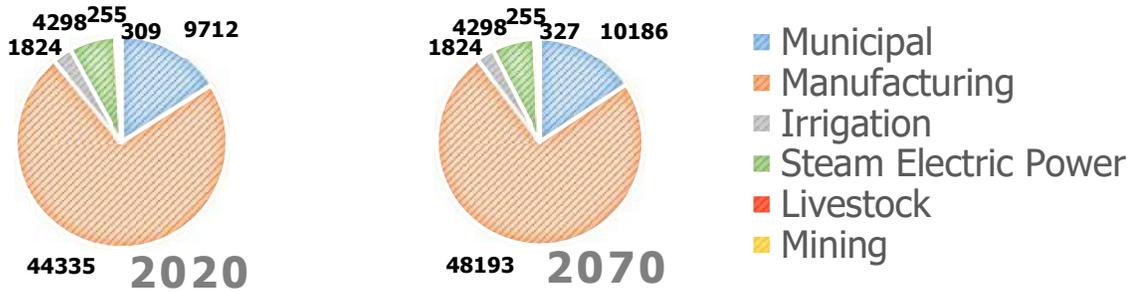
YOUR WATER SOURCE(S):

- Direct Reuse
- Groundwater Wells
- Local Supplies
- Neches River
- Sabine River
- Gulf Coast Aquifer

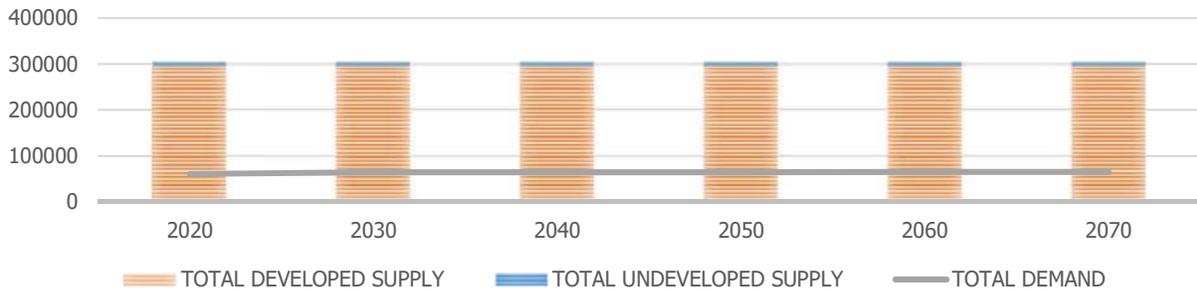
YOUR COUNTY POPULATION PROJECTIONS



YOUR COUNTY WATER USE (ACRE-FEET)



YOUR AVAILABLE WATER SUPPLY



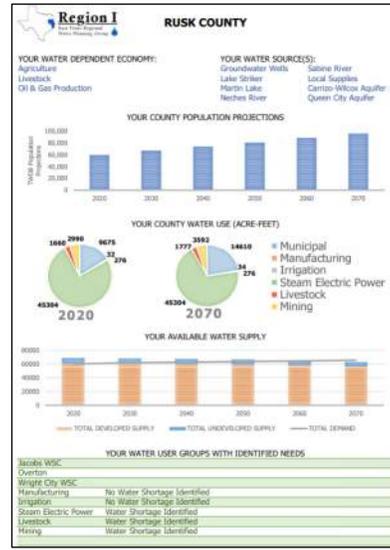
YOUR WATER USER GROUPS WITH IDENTIFIED NEEDS

Manufacturing	No Water Shortage Identified
Irrigation	Water Shortage Identified, WMS - Purchase Additional Supply from SRA
Steam Electric Power	No Water Shortage Identified
Livestock	No Water Shortage Identified
Mining	No Water Shortage Identified

County Projections Review

Rusk County

- Increasing population growth
- Primary water uses are steam electric power and municipal
- Total demand exceeds total supply
- Multiple users identified with needs
- Strategies to develop groundwater supplies in Carrizo-Wilcox for Jacobs WSC, Wright City WSC, and Livestock
- Strategies to purchase from ANRA (mining) or SRA (SEP)



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RUSK COUNTY

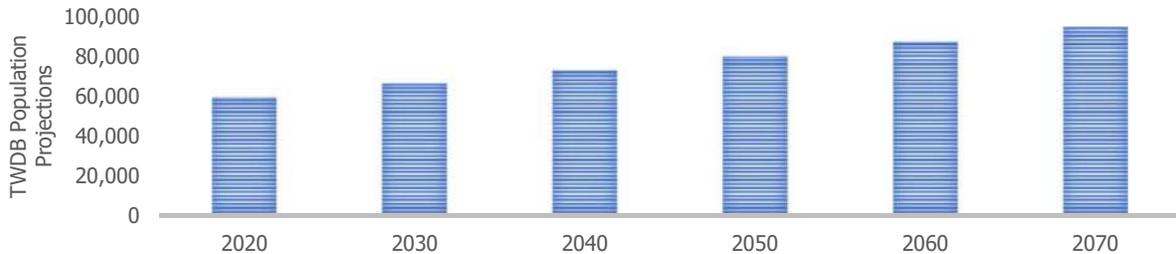
YOUR WATER DEPENDENT ECONOMY:

Agriculture
Livestock
Oil & Gas Production

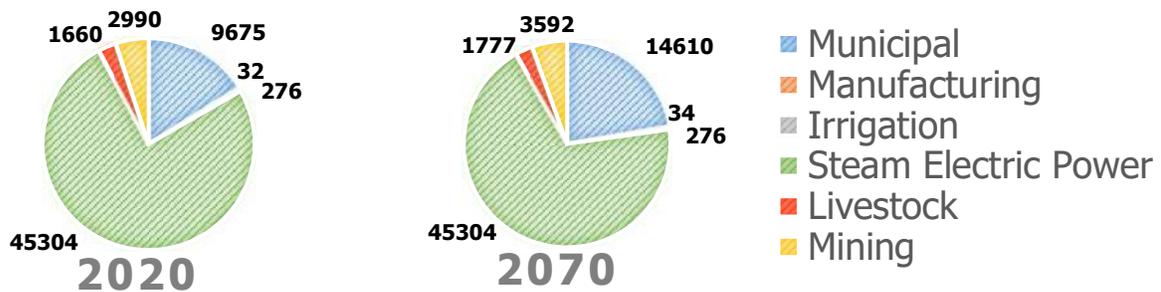
YOUR WATER SOURCE(S):

Groundwater Wells
Lake Striker
Martin Lake
Neches River
Sabine River
Local Supplies
Carrizo-Wilcox Aquifer
Queen City Aquifer

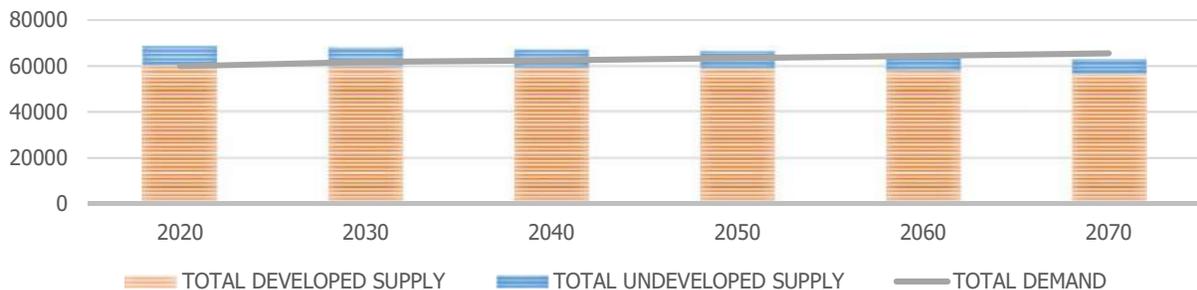
YOUR COUNTY POPULATION PROJECTIONS



YOUR COUNTY WATER USE (ACRE-FEET)



YOUR AVAILABLE WATER SUPPLY



YOUR WATER USER GROUPS WITH IDENTIFIED NEEDS

Jacobs WSC	WMS - Additional Wells in Carrizo-Wilcox Aquifer
Wright City WSC	WMS - Additional Wells in Carrizo-Wilcox Aquifer
Manufacturing	No Water Shortage Identified
Irrigation	No Water Shortage Identified
Steam Electric Power	Water Shortage Identified, WMS - Purchase Additional Supply from SRA
Livestock	Water Shortage Identified, WMS - Additional Wells in Carrizo-Wilcox Aquifer
Mining	Water Shortage Identified, WMS - Purchase Additional Supply from ANRA



Item 10

Definition of Significant Need



Significant Needs for ASR

- **HB 807 TWC §16.053(e)(10):**
 - RWPGs must define “significant” identified water needs
 - If identified, RWPG shall assess ASR potential

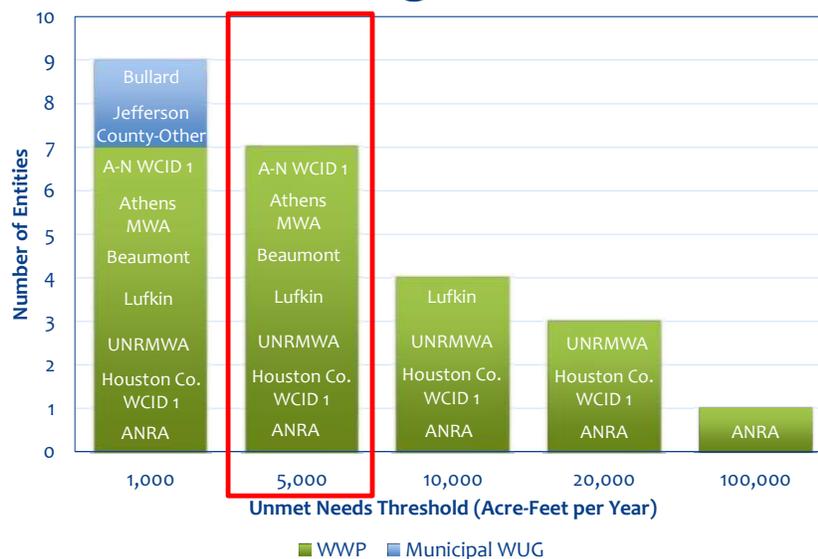


Process for Defining Significant Needs for Region I

- 1) Identify unmet needs before WMS implementation
- 2) Assess various numerical thresholds
 - i. Entities with larger needs are more likely to adopt ASR
- 3) Constrain to municipal WUGs and WWPs
 - i. Most likely to sponsor ASR projects



Defining Significant Needs for Region I





Item 11

Chapter 5A:

Identification of Potentially Feasible Water Management Strategies



Chapter 5A – Potentially Feasible WMSs

- Potentially feasible strategies
 - Recommended strategies
 - Alternative strategies
- Cost, environmental permitting and implementation issues



Chapter 5A – Potentially Feasible WMSs

- Water conservation and drought management
- Direct and indirect wastewater reuse
- Expanded use of existing supplies
 - Voluntary transfers (sales/contracts)
 - Expanded groundwater and/or local use
- New supplies
- Inter-basin transfers



Chapter 5A – Conservation

- Conservation strategies discussed in Chapter 5C
- Strategies represent economically achievable level of conservation
- Measures commensurate with WUG/WWP economic conditions
- Conservation strategies meet TWDB evaluation criteria



Chapter 5A – Water Reuse

- Considered potential direct and indirect reuse strategies
- Few opportunities identified
 - potentially feasible in long term
 - cost prohibitive in short term
- Two strategies considered
 - Athens MWA indirect reuse strategy
 - City of Center direct reuse strategy

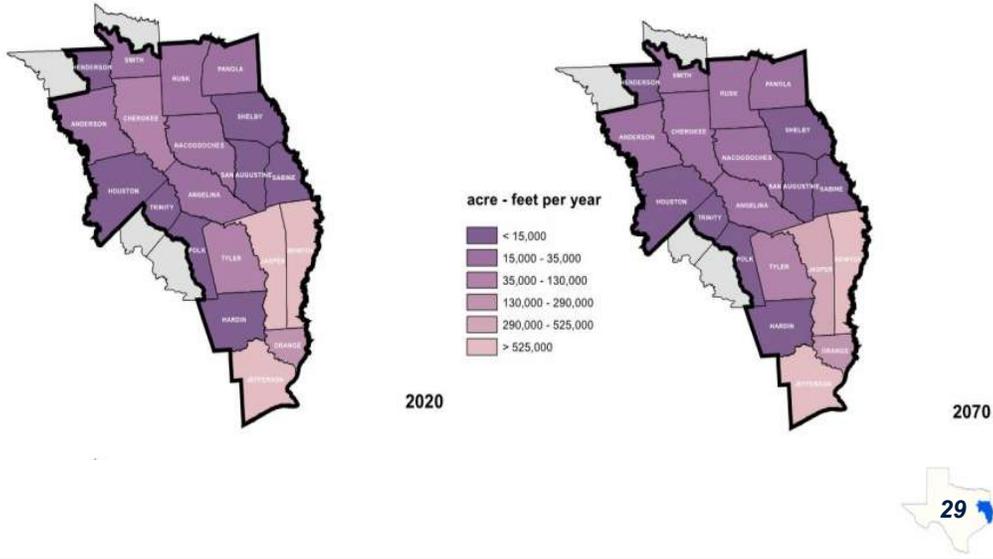


Chapter 5A – Existing Supplies

- Water rich region with existing developed or to-be developed supplies needing infrastructure or contracting
- Expanding existing supplies based on
 - Groundwater
 - Voluntary distribution
 - Local supplies



Chapter 5A – Existing Unallocated Supplies



Chapter 5A – Expanding Groundwater Supplies

	Entities With Projected Additional Groundwater Demand			
	Carrizo Wilcox Aquifer	Gulf Coast Aquifer	Queen City Aquifer	Yegua-Jackson Aquifer
Cherokee	Alto Rural WSC			
	Wright City WSC			
Henderson	Athens MWA			
	Moore Station WSC			
	Chandler Mining			
Houston				TDCJ Eastham Unit
Jasper				Livestock
Nacogdoches	D&M WSC			
	Livestock			
Panola	Livestock			
	Jacobs WSC			
Rusk	Wright City WSC			
	Livestock			
San Augustine	San Augustine			
Smith				

Chapter 5A – Expanding Surface Supplies

Water Provider	Supply Available for Voluntary Redistribution* (ac-ft/yr)	Entity with Need
City of Lufkin (Lake Kurth, Sam Rayburn)	10,172	Manufacturing (Angelina) Mining (Angelina)
Lower Neches Valley Authority	721,329	Manufacturing (Jefferson) Steam-Electric (Jefferson) County Other (Jefferson) Beaumont (Jefferson)
Athens Municipal Water Authority	1,722	City of Athens (Neches)
Sabine River Authority of Texas	793,102	Steam-Electric (Newton) Mining (Newton) Steam-Electric (Orange) Steam-Electric (Rusk) Livestock (Shelby, San Augustine) Irrigation (Orange)
City of Tyler	4,569	Chandler (Henderson) Manufacturing (Smith) Bullard (Smith) Crystal Systems Inc (Smith) R-P-M WSC (Smith) Mining (Smith)



Chapter 5A – Reservoir Supplies

- Lake Columbia
 - Currently being pursued
- Fastrill Reservoir
 - No longer viable due to designation of USFW preserve
 - Replacement project currently being considered

Major Water Provider	Reservoir Site
Angelina Neches River Authority	Lake Columbia (Unique Site)
Lower Neches Valley Authority	Rockland Reservoir
Sabine River Authority	Big Cow Creek
	Bon Weir
	Carthage Reservoir
	Kilgore Reservoir
	Rabbit Creek
	State Hwy. 322, Stage I
	State Hwy. 322, Stage II
Upper Neches River Municipal Water Authority	Stateline
	Socagee
	Neches Off-Channel Reservoir (Fastrill Replacement Project)





Item 11:
**Consideration and Approval of the
substantial completion of Draft
Chapter 5A**

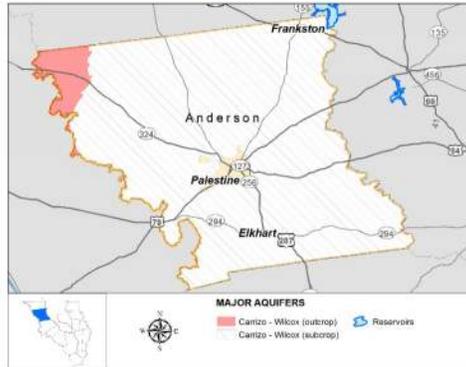


Item 12
Chapter 5B:
**Evaluation of Potentially
Feasible, Recommended,
and Alternative Water
Management Strategies**



Chapter 5B – County Water Management Strategies

- Anderson - No Needs Identified



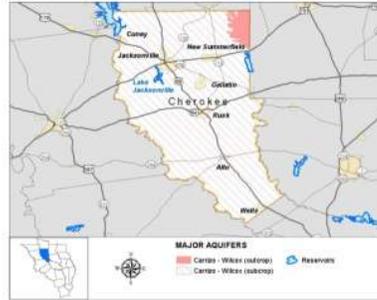
Chapter 5B – county Water Management Strategies

- Angelina - Two WUGs with needs
- Mining
 - Purchase from ANRA (Run-of-River Angelina)
- Manufacturing
 - New Wells (Yegua Jackson)
 - Purchase from Lufkin (Lake Kurth, Sam Rayburn)



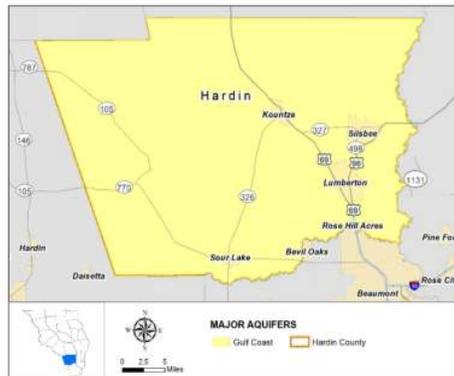
Chapter 5B – County Water Management Strategies

- Cherokee - Four WUGs with needs
- Alto Rural WSC
 - Municipal conservation
 - New wells in Carrizo Wilcox
- Rusk
 - New wells in Carrizo Wilcox
 - Municipal conservation
- Mining
 - Purchase from ANRA (Run-of-River)
- Wright City WSC (*Presented in Rusk County*)



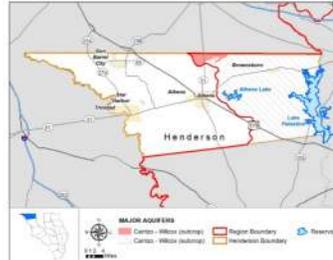
Chapter 5B – county Water Management Strategies

- Hardin - No needs identified



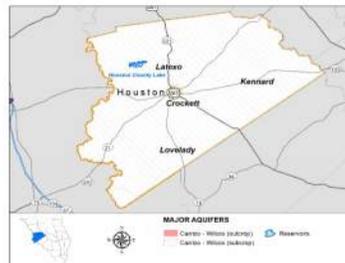
Chapter 5B – County Water Management Strategies

- Henderson - Three WUGs with identified needs
- Chandler
 - Municipal conservation
 - New wells in Carrizo Wilcox
- Moore Station WSC
 - New wells in Carrizo Wilcox
- Mining
 - New wells in Carrizo Wilcox



Chapter 5B – county Water Management Strategies

- Houston - Three WUGs with identified needs
- Crockett
 - No longer showing a need
- TDCJ Eastham Unit
 - **Municipal Conservation**
 - New wells in Yegua Jackson
- Livestock
 - No longer showing a need



Chapter 5B – County Water Management Strategies

- Jasper - One WUGs with identified needs
- Livestock
 - New wells in Gulf Coast Aquifer



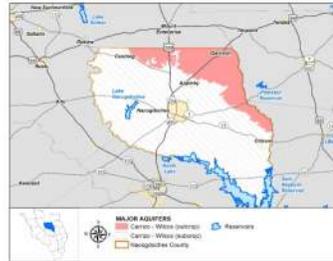
Chapter 5B – County Water Management Strategies

- Jefferson - Four WUGs with identified needs
- Beaumont
 - Municipal conservation
 - Amendment to supplemental contract with LNVA
- County-Other
 - Purchase from LNVA (Sam Rayburn)
- Manufacturing
 - Purchase from LNVA (Sam Rayburn)
- **Steam Electric**
 - Purchase from LNVA (Sam Rayburn)



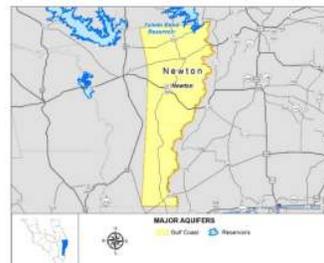
Chapter 5B – County Water Management Strategies

- Nacogdoches - Four WUGs with identified needs
- Cushing
 - Municipal conservation
- D&M WSC
 - New wells in Carrizo Wilcox
- Livestock
 - New wells in Carrizo Wilcox
- Mining
 - Purchase from ANRA (Run-of-River)



Chapter 5B – county Water Management Strategies

- Newton - One WUGs with identified needs
- Mining
 - Purchase from SRA (Toledo Bend)



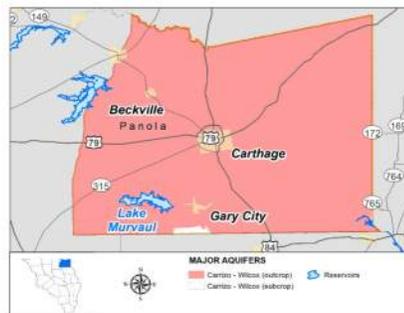
Chapter 5B – County Water Management Strategies

- Orange - One WUGs with identified needs
- Irrigation
 - Purchase from SRA (Toledo Bend)



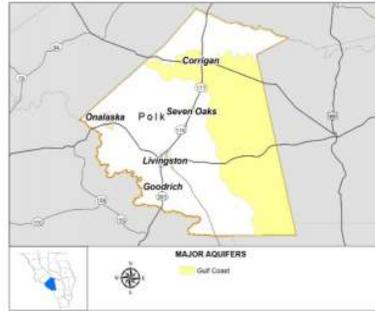
Chapter 5B – county Water Management Strategies

- Panola - One WUG with needs
- Livestock
 - New wells in Carrizo Wilcox



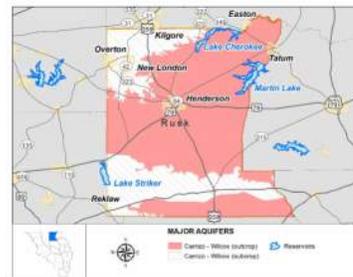
Chapter 5B – County Water Management Strategies

- Polk - No identified needs



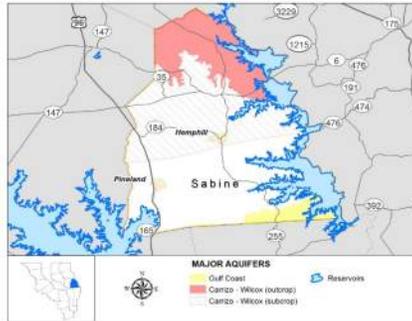
Chapter 5B – county Water Management Strategies

- Rusk - Five WUGs identified needs
- Jacobs WSC
 - New wells in Carrizo Wilcox
- Wright City WSC (see *Smith Co.*)
- Livestock
 - New wells in Carrizo Wilcox
- **Overton**
 - New wells in Carrizo Wilcox
 - Municipal Conservation
- Mining
 - Purchase from ANRA (Run-of-River)
- Steam Electric Power
 - Purchase from SRA



Chapter 5B – County Water Management Strategies

- Sabine - No identified needs



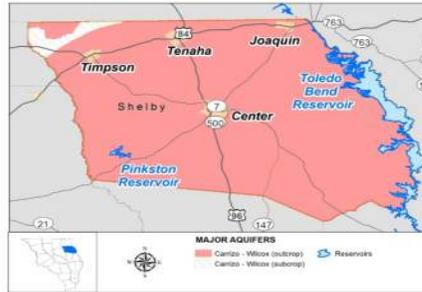
Chapter 5B – county Water Management Strategies

- San Augustine - Three WUGs with identified needs
- San Augustine
 - Municipal conservation
 - New wells in Carrizo Wilcox
- Livestock
 - Purchase from SRA
- Mining
 - Purchase from ANRA (Run-of-River)



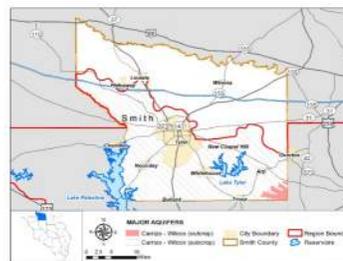
Chapter 5B – County Water Management Strategies

- Shelby- Four WUGs with identified needs
- Center
 - Municipal conservation
- Joaquin
 - Municipal conservation
 - Toledo Bend (Louisiana)
- Sand Hills WSC
 - New Wells / Center
 - Municipal conservation
- Livestock
 - Purchase from SRA
 - Unmet Needs



Chapter 5B – county Water Management Strategies

- Smith- Eight WUGs with identified needs
- Bullard
 - Municipal conservation
 - Purchase from Tyler
- Crystal Systems Inc
 - Municipal conservation
 - Purchase from Tyler
- Overton (see Rusk County)
- R-P-M WSC
 - Purchase from Tyler



Chapter 5B – County Water Management Strategies

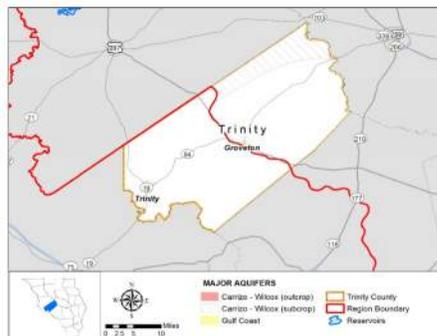
- Smith- Eight WUGs with identified needs
- Southern Utilities
 - Municipal conservation
 - Purchase from Tyler
- Whitehouse
 - Municipal conservation
 - Purchase from Tyler
- **Wright City WSC**
 - New Wells (Carrizo-Wilcox)
- Manufacturing
 - Purchase from Tyler
- Mining
 - Purchase from Tyler



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Chapter 5B – county Water Management Strategies

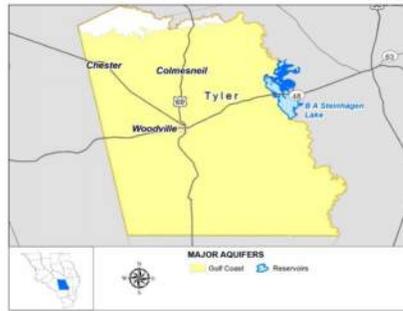
- Trinity - No identified needs



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Chapter 5B – County Water Management Strategies

- Tyler - No identified needs



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Table 5B.1 2021 Needs, Recommended, and Alternative Water Management Strategies for Water User Groups										
NEEDS	RECOMMENDED STRATEGY	ALTERNATIVE STRATEGY	BALANCE (Does not include Alternative totals)							
County	WUG	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070	Strategy Source	
ANDERSON		No need identified								
ANGELINA	MANUFACTURING	Identified Need	-1,449	-1,625	-1,625	-1,625	-1,625	-1,625		
		New Wells (Yegua Jackson)	1,449	1,625	1,625	1,625	1,625	1,625	CT	
		Purchase from Lufkin (Lake Kurth)	6,000	6,000	6,000	6,000	6,000	6,000	WWP	
	MINING	Purchase from Lufkin (Sam Rayburn)	0	6,167	7,471	8,628	9,863	11,195	WWP	
		Identified Need	-473	-572	-397	-299	-224	-167		
		Purchase from ANRA (Run of River, Angelina)	473	572	397	299	224	167	WWP	
CHEROKEE	ALTO RURAL WSC	Identified Need	0	0	0	-65	-137	-215		
		Municipal Conservation	0	0	0	11	20	24	CT	
		New Wells (Carrizo-Wilcox)	0	0	0	54	117	191	CT	
	RUSK	Identified Need	0	0	0	0	0	-122		
		New Wells (Carrizo-Wilcox)	0	0	0	0	0	100	CT	
			Municipal Conservation	0	0	0	0	0	22	CT
	MINING	Identified Need	-238	-247	-210	-147	-84	-40		
		Purchase from ANRA (Run of River, Angelina)	238	247	210	147	84	40	WUG & WWP	
HARDIN		No need identified								
HENDERSON	CHANDLER	Identified Need	0	0	0	0	0	-118		
		Municipal Conservation	0	0	0	0	0	17	CT	
		New Wells (Carrizo-Wilcox)	0	0	0	0	0	101	CT	
	MOORE STATION WSC	Identified Need	0	0	0	0	-38	-111		
		New Wells (Carrizo-Wilcox)	0	0	0	0	38	111	CT	
MINING	Identified Need	-10	-19	-10	0	0	0			
		New Wells (Carrizo-Wilcox)	10	19	10	0	0	0	CT	
HOUSTON	TDCJ EASTHAM UNIT	Identified Need	-221	-211	-202	-198	-197	-197		
		Municipal Conservation	16	25	27	29	30	32	CT	
		Expand Existing Supply	205	186	175	169	167	165	WUG	
JASPER	LIVESTOCK	Identified Need	-8,932	-8,932	-8,932	-8,932	-8,932	-8,932		
		New Wells (Gulf Coast)	8,932	8,932	8,932	8,932	8,932	8,932	CT	
		Identified Need	0	0	-1,102	-3,372	-5,627	-8,230		



Table 5B.1 2021 Needs, Recommended, and Alternative Water Management Strategies for Water User Groups									
NEEDS	RECOMMENDED STRATEGY	ALTERNATIVE STRATEGY	BALANCE (Does not include Alternative totals)						
County	WUG	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070	Strategy Source
JEFFERSON	BEAUMONT	Municipal Conservation	1,313	2,192	3,608	4,653	5,399	5,981	CT
		Amendment to Supplemental Contract with LNVA	0	0	0	0	228	2,249	WWP
	COUNTY-OTHER	Identified Need	0	0	0	-253	-1,434	-2,739	
		Purchase from LNVA (Sam Rayburn)	0	0	0	253	1,434	2,739	WWP
	MANU-FACTURING	Identified Need	-83,972	-98,216	-98,234	-98,281	-98,316	-98,349	
		Purchase from LNVA (Sam Rayburn)	83,972	98,216	98,234	98,281	98,316	98,349	WWP
STEAM ELECTRIC	Identified Need	-2,391	-2,391	-2,391	-2,391	-2,391	-2,391		
	Purchase from LNVA (Sam Rayburn)	2,391	2,391	2,391	2,391	2,391	2,391	WWP	
NACOG-DOCHES	CUSHING	Identified Need	0	0	0	0	-8	-30	
		Municipal Conservation	9	15	21	23	34	43	CT
	D&M WSC	Identified Need	0	0	-32	-135	-251	-374	
		New Wells (Carrizo-Wilcox)	0	0	32	135	251	374	CT
	LIVESTOCK	Identified Need	-5,970	-6,399	-6,896	-7,472	-8,131	-9,113	
		New Wells (Carrizo-Wilcox)	5,970	6,399	6,896	7,472	8,131	9,113	CT
MINING	Identified Need	-5,475	-2,975	-118	0	0	0		
	Purchase from ANRA (Run of River, Angelina)	5,475	2,975	118	0	0	0	WUG & WWP	
NEWTON	MINING	Identified Need	-115	-59	0	0	0	0	
		Purchase from SRA (Toledo Bend)	115	59	0	0	0	0	WWP
ORANGE	IRRIGATION	Identified Need	-526	-526	-526	-526	-526	-526	
		Purchase from SRA (Run of River, Sabine)	526	526	526	526	526	526	WWP
PANOLA	LIVESTOCK	Identified Need	-982	-982	-982	-982	-982	-982	
		New Wells (Carrizo-Wilcox)	982	982	982	982	982	982	CT
POLK		No need identified							
RUSK	JACOBS WSC	Identified Need	0	0	0	0	0	-22	
		New Wells (Carrizo-Wilcox)	0	0	0	0	0	22	CT
	LIVESTOCK	Identified Need	0	0	-20	-51	-83	-83	
		New Wells (Carrizo-Wilcox)	0	0	20	51	83	83	CT
	OVERTON	Identified Need	0	0	-5	-48	-121	-198	
		New Wells (Carrizo-Wilcox)	0	0	5	48	109	177	WUG
		Municipal Conservation	0	0	0	0	12	21	CT



Table 5B.1 2021 Needs, Recommended, and Alternative Water Management Strategies for Water User Groups									
NEEDS	RECOMMENDED STRATEGY	ALTERNATIVE STRATEGY	BALANCE (Does not include Alternative totals)						
County	WUG	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070	Strategy Source
	MINING	Identified Need	0	-305	-168	-22	0	0	
		Purchase from ANRA (Run of River, Angelina)	0	305	168	22	0	0	WUG & WWP
	STEAM ELECTRIC	Identified Need	-1,103	-1,103	-1,103	-1,103	-1,103	-1,103	
		Purchase from SRA (Toledo Bend)	1,103	1,103	1,103	1,103	1,103	1,103	WWP
SABINE		No need identified							
SAN AUGUSTINE	SAN AUGUSTINE	Identified Need	-120	-105	-92	-89	-89	-89	
		Municipal Conservation	11	17	19	21	22	24	CT
		New Wells (Carrizo-Wilcox)	109	88	73	68	67	65	CT
	LIVESTOCK	Identified Need	-1,333	-1,539	-1,774	-2,048	-2,349	-2,349	
		Purchase from SRA	1,333	1,539	1,774	2,048	2,349	2,349	WWP
MINING	Identified Need	-2,102	-1,102	0	0	0	0		
	Purchase from ANRA (Run of River, Angelina)	2,102	1,102	0	0	0	0	WUG & WWP	
SHELBY	CENTER	Identified Need	0	-145	-247	-353	-461	-562	
		Indirect Reuse Pipeline to Lake Center	1,121	1,121	1,121	1,121	1,121	1,121	WUG
		Transfer from toledo Bend to Lake Center	0	0	2,242	2,242	2,242	2,242	WUG
		Municipal Conservation	0	28	48	54	60	67	CT
	JOAQUIN	Identified Need	0	0	-1	-2	-5	-7	
		Toledo Bend (Louisiana)	0	0	1	2	5	7	WUG
	SAND HILLS WSC	Identified Need	-65	-75	-85	-96	-107	-117	
		New Wells (Carrizo-Wilcox) / City of Center	61	68	77	87	97	106	CT
	LIVESTOCK	Municipal Conservation	4	7	8	9	10	11	CT
		Identified Need	-6,491	-8,761	-11,524	-14,896	-19,006	-19,006	
Purchase from SRA (Toledo Bend)		1,367	2,375	3,602	5,099	6,924	6,924	WWP	
BULLARD	BULLARD	Identified Need	-152	-344	-539	-754	-972	-1,199	
		Municipal Conservation	10	22	28	36	44	54	CT
		Purchase from City of Tyler	142	322	511	718	928	1,145	CT
	CRYSTAL SYSTEMS INC	Identified Need	0	0	-78	-192	-310	-435	
		Municipal Conservation	6	12	15	19	24	29	CT
		Purchase from City of Tyler	0	0	63	173	286	406	WUG



Table 5B.1 2021 Needs, Recommended, and Alternative Water Management Strategies for Water User Groups									
NEEDS	RECOMMENDED STRATEGY	<i>ALTERNATIVE STRATEGY</i>	BALANCE (Does not include Alternative totals)						
County	WUG	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070	Strategy Source
SMITH	R-P-M WSC	Identified Need	0	-2	-5	-11	-13	-17	
		Municipal Conservation	4	23	36	54	71	86	CT
	SOUTHERN UTILITIES	Identified Need	-346	-357	-374	-392	-419	-453	
		Municipal Conservation	711	1,167	1,528	1,790	2,043	2,352	CT
	WHITEHOUSE	Identified Need	0	0	0	0	-39	-257	
		New Wells (Carrizo-Wilcox)	0	0	0	0	39	257	CT
	WRIGHT CITY WSC	Identified Need	0	0	0	-24	-71	-120	
	New Wells (Carrizo-Wilcox)	0	0	0	24	71	120	CT	
	MANU-FACTURING	Identified Need	0	-79	-79	-79	-79	-79	
		Purchase from Tyler (Lake Palestine/Lake Tyler/Carrizo-Wilcox)	2,039	2,257	2,467	2,645	2,889	3,154	WWP
	MINING	Identified Need	-3	-8	-9	0	0	0	
		Purchase from City of Tyler	108	113	114	83	54	32	CT
TRINITY		No need identified							
TYLER		No need identified							



Table 5B.2 2021 Needs and Water Management Strategies for Wholesale Water Providers (ac-ft per year)							
RECOMMENDED STRATEGY	<i>ALTERNATIVE STRATEGY</i>						
WWP	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070
ANRA	Identified Needs	-21,176	-62,569	-71,812	-71,387	-71,126	-101,097
	Lake Columbia	0	75,720	75,640	75,560	75,480	75,400
	ANRA Treatment and Distribution System	0	0	0	0	0	0
	Run of River, Neches (New Application)	20,000	20,000	20,000	20,000	20,000	20,000
	Run of River, Neches (Submitted Application)	10,000	10,000	10,000	10,000	10,000	10,000
	New wells (Wilcox Aquifer)	5,600	5,600	5,600	5,600	5,600	5,600
	BALANCE	14,424	48,751	39,428	39,773	39,954	9,903
AN WCID#1	Identified Needs						
	Hydraulic Dredging (Includes Volumetric Survey and Normal Pool Elevation Adjustment)	0	0	5,600	5,600	5,600	5,600
	BALANCE						
ATHENS MWA	Identified Needs	349	-29	-257	-591	-3258	-6,437
	Municipal Conservation	59	98	119	144	277	457
	Amendment of Fish Hatcheries Permit for Reuse	2,872	2,872	2,872	2,872	2,872	2,872
	Additional Carrizo-Wilcox Groundwater	600	600	2,415	2,415	2,415	4,830
	BALANCE	3,880	3,541	5,149	4,840	2,306	1,722
BEAUMONT	Identified Needs	0	0	-1,248	-3,843	-6,357	-9,218
	Municipal Conservation	-	3,238	5,341	7,047	8,579	9,966
	BALANCE	-	3,238	4,093	3,204	2,222	748
CARTHAGE	No strategies were identified						
CENTER	Identified Need						
	Indirect Reuse Pipeline to Lake Center	1,121	1,121	1,121	1,121	1,121	1,121
	Transfer from Toledo Bend to Lake Center	0	0	2,242	2,242	2,242	2,242
	Municipal Conservation	0	28	48	54	60	67
	BALANCE						
HOUSTON CO WCID #1	Identified Needs	0	0	0	0	0	0
	Permit Amendment - Houston County Lake	3,500	3,500	3,500	3,500	3,500	3,500
	BALANCE	3,500	3,500	3,500	3,500	3,500	3,500
JACKSONVILLE	Identified Needs						
	Supply from Lake Columbia	0	0	1,700	1,700	1,700	1,700



Table 5B.2 2021 Needs and Water Management Strategies for Wholesale Water Providers (ac-ft per year)							
RECOMMENDED STRATEGY	<i>ALTERNATIVE STRATEGY</i>						
WWP	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070
	BALANCE						
LNVA	Identified Needs	0	0	0	0	0	0
	Purchase from SRA (Toledo Bend)	0	0	200,000	200,000	200,000	200,000
	Permit Amendment for Sam Rayburn	0	0	0	0	0	0
	Transfer to Region H	0	0	55,000	55,000	55,000	55,000
	Constructed Levy	1,600	1,600	1,600	1,600	1,600	1,600
	In-Line Reservoir with Atlantic Canal Canal System						
	BALANCE	1,600	1,600	256,600	256,600	256,600	256,600
LUFKIN	Identified Needs						
	Transfer from Rayburn to Lake Kurth – Phase I (2030)	0	11,210	11,210	11,210	11,210	11,210
	Transfer from Rayburn to Lake Kurth – Phase II (2040)			11,210	11,210	11,210	11,210
	Transfer from Rayburn to Lake Kurth – Phase III (2050)				5,580	5,580	5,580
	BALANCE						
NACOGDOCHES	Identified Needs						
	Supply from Lake Columbia	0	8,500	8,500	8,500	8,500	8,500
	BALANCE						
PANOLA COUNTY FWSD	No strategies were identified						
	BALANCE						
PORT ARTHUR	Identified Needs	0	0	0	0	0	0
	Advanced Conservation	4,992	7,450	8,516	9,616	10,340	9,767
	BALANCE	4,992	7,450	8,516	9,616	10,340	9,767
SRA	No strategies were identified						
	BALANCE						
TYLER	Identified Needs						
	Lake Palestine Infrastructure Improvements	0	16,815	16,815	16,815	16,815	16,815
	BALANCE						
	Identified Needs	-12,537	-14,114	-15,592	-17,174	-18,859	-21,159
	Run of River, Neches with Lake Palestine	68,625	68,625	68,625	68,625	68,625	68,625



Table 5B.2 2021 Needs and Water Management Strategies for Wholesale Water Providers (ac-ft per year)							
RECOMMENDED STRATEGY		ALTERNATIVE STRATEGY					
WWP	2021 Needs and Strategies	2020	2030	2040	2050	2060	2070
UNRMWA	<i>Run of River, Neches with Terminal Storage</i>	<i>75,000</i>	<i>75,000</i>	<i>75,000</i>	<i>75,000</i>	<i>75,000</i>	<i>75,000</i>
	<i>Run of River, Neches with Groundwater</i>	<i>84,875</i>	<i>84,875</i>	<i>84,875</i>	<i>84,875</i>	<i>84,875</i>	<i>84,875</i>
	BALANCE	56,088	54,511	53,033	51,451	49,766	47,466





Item 13:

Consideration and Approval for chair to submit notice-to-proceed request for additional Task 5A funds with the following actions:

- Approval and authorization to submit the approved notice-to-proceed request to the TWDB;
- Authorization for the consultant and/or political subdivision to work with the TWDB on any follow up information that might be required; and
- Authorization for the political subdivision to negotiate and execute the subsequent TWDB contract amendment that will be issued.



Item 14

Chapter 5C:

Water Conservation Recommendations



Chapter 5c – Water Conservation

- Texas Water Code §11.002(8) defines Water Conservation: water use practices, techniques, and technologies that:
 - Reduce consumption
 - Reduce loss or waste
 - Improve efficient use
 - Increase recycling and reuse
- ...so that additional water supply is made available for future or alternative uses.



Chapter 5c – Water Conservation

- Residential demand projections incorporate regulatory water conservation:
 - 1992: new low-flow fixtures, toilets, etc.
 - 2007: new residential washing machines
 - 2013: new residential dishwashers
- ETRWPA projected residential water conservation 11% reduction by 2070
- Nacogdoches, for example:



Year	2020	2030	2040	2050	2060	2070
TWDB Projected GPCD	163	159	156	155	154	154

(base GPCD of 173 in 2011)



Chapter 5c – Water Conservation

- **Water Conservation Plans** required for:
 - Non-irrigation water user groups (WUGs) with $\geq 1,000$ ac-ft/yr surface water rights 
 - Irrigation WUGs with $\geq 10,000$ ac-ft/yr surface water rights 
 - Retail public water suppliers with $\geq 3,300$ connections 
 - WUGs apply for new or amended water rights 
 - WUGs seeking $> \$500,000$ in State funding for water supply projects 

- Updated Water Conservation Plans were due to the TCEQ by May 1, 2019.



Chapter 5c – Water Conservation

Summary of the Region's Water Conservation Plans

Number of Plans	Conservation Measure
30	Public education
28	Enhanced water loss control
15	Increasing block rate structure
7	Water conservation coordinator

(30 WCPs were summarized)



Chapter 5c – Water Conservation

- State of Texas Water Conservation Implementation Task Force set a statewide goal of 140 gpcd.
- Approximately 71% of municipal WUGs in the region use less than 140 gpcd.
- Advanced conservation measures were evaluated for municipal WUGs that have projected needs (n=22) and that have a projected gpcd greater than 140 (n=14).



Chapter 5c – Water Conservation

- Conservation measures evaluated include:
 - Enhanced Education
 - Conservation Rate Pricing
 - Enhanced Water Loss Reduction



Chapter 5c – Water Conservation (ac-ft/yr)

Year	2020	2030	2040	2050	2060	2070
Alto Rural WSC	0	0	0	11	20	24
Beaumont	1,313	2,192	3,608	4,653	5,399	5,981
Bullard	10	22	28	36	44	54
Center	0	28	48	54	60	67
Chandler	0	0	0	0	0	17
Crockett	18	29	31	32	34	36
Crystal Systems Texas	6	12	15	19	24	29
Cushing	9	15	21	26	34	43
Overton	0	0	0	0	12	21
Rusk	0	0	0	0	0	22
San Augustine	11	17	19	21	22	24
Sand Hills WSC	4	7	8	9	10	11
Southern Utilities	711	1,167	1,528	1,790	2,043	2,352
TDCJ Eastham	16	25	27	29	30	32
Total	2,098	3,514	5,333	6,680	7,732	8,713



Item 14:

Consideration and Approval of the substantial completion of draft Chapter 5C





Item 15
Fiscal Year 2020 Funds



Item 15:
Consideration and Approval
authorizing the City of
Nacogdoches to execute Contract
Amendment Number 4 with
Plummer for Fiscal Year 2020
Funds.



Item 16

Website Updates



Website

- Quotes from three website developers were solicited.

	Vendor #1	Vendor #2	Vendor #3
Redesign Fee	\$5,000	\$5,000	\$449
Annual Fee	\$0	\$0	\$1,560
Party Responsible for Updates	Region I	Region I	Vendor #3
Ownership of Website	Region I	Region I	Vendor #3

- The Executive Committee recommended moving forward with Vendor #2

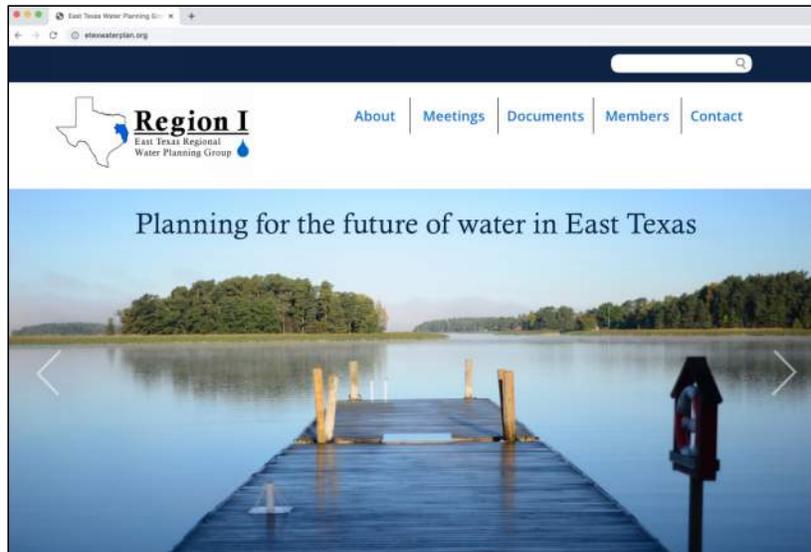


Existing Website

- Outdated website visuals
- Not friendly for viewing on mobile devices
- Difficult to make changes to website



Website Redesign



Website Redesign Schedule

Duration	Work Completed
1-2 Weeks	Mock-ups for review and approval
1-2 Weeks	Mock-ups revised and approved
6-8 Weeks	Full development of website <ul style="list-style-type: none">• Client review and approval following development
1 Week	Launch of final website

If the website revisions begin the first week in December, the website should be live the first week in March, at the latest.



Questions?

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Alan Plummer Associates, Inc.





Region I

East Texas Regional
Water Planning Group



**REGIONAL WATER PLANNING
GROUP MEETING
November 20, 2019**