TAKE NOTICE that a meeting of the Rural Community Outreach Work Group, as established by the South Central Texas Regional Water Planning Group (SCTRWPG), will be held on Wednesday, June 5, 2024 at 1:30 PM both in person and virtually. The in-person meeting will be held at the San Antonio River Authority, 100 E. Guenther Street, San Antonio, TX 78204. You can attend virtually on GotoMeeting at <a href="https://meet.goto.com/974389741">https://meet.goto.com/974389741</a>. The following subjects will be considered for discussion and/or action at said meeting.

- 1. Review and Discussion Regarding Water Management Strategies for Rural Communities
- 2. Open Discussion

Comments and submissions may be submitted through email to ccastillo@sariverauthority.org. Any written documentation can be sent to Curt Campbell, Chair, South Central Texas Regional Water Planning Group, c/o San Antonio River Authority, Attn: Caye Castillo, 100 E. Guenther Street, San Antonio, TX 78204. Please direct any questions to Caye Castillo at (210) 302-4258.



### Rural Community Outreach Workgroup

South Central Texas (Region L) Regional Water Planning Group (SCTRWPG)

June 5, 2024, 1:30 pm



# Agenda Overview

- 1. Review and Discussion Regarding Water Management Strategies for Rural Communities
- 2. Open Discussion



6/5/2024 -

## Agenda Item 1: Review and Discussion Regarding Water Management Strategies for Rural Communities



# ADDRESSING IRRIGATION NEEDS

### 2021 Region L Plan:

- 15 counties with 137,000 acft/yr of irrigation unmet needs
- Majority of needs are in the Nueces River Basin (103,000 acft/yr)

### Solutions:

- Outreach Initiative
- Workgroup to Develop WMSs
  - Conservation Strategies
  - Drought Management Strategies

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Frio River in Uvalde County



# ADDRESSING IRRIGATION NEEDS

### Draft 2026 Region L Plan:

- 13 counties with 71,000 acft/yr of irrigation needs
- Majority of needs are in the Nueces River Basin (58,500 acft/yr)

### Solutions:

- Outreach Initiative
- Workgroup to Develop WMSs
  - Conservation Strategies
  - Drought Management Strategies

# Objectives for Irrigation Strategies in 2026 Plan

- Determine which irrigation conservation measures/strategies are appropriate for Region L or for specific counties.
  - May vary based on whether the county has Needs
  - May vary based on crop types
- Develop methodology to determine water savings (yield) and costs
- Evaluate impacts of strategies on natural resources

#### Counties with Irrigation Needs

1.	Bexar	8.	La Salle
2.	Caldwell	9.	Medina
3.	Calhoun	10	.Uvalde
4.	Dimmit	11	. Victoria
5.	Goliad	12	Wilson
6.	Guadalupe	13	Zavala
7.	Karnes		



Irrigation	Demand	s and	Needs	(1 of 3)	)
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13 Counties with Irr. Needs Total Irr.

Needs:

71,000

acft/yr

Nueces Basin Irr. Needs: 58,500 acft/yr

			Demand 2030	Demand 2080	Draft Needs	Draft Needs
Entity Name	County	Basin	(AFY)	(AFY)	2030 (AFY)	2080 (AFY)
Irrigation, Atascosa	Atascosa	Nueces	25,188	25,188	-	-
Irrigation, Atascosa	Atascosa	San Antonio	253	253	-	-
Irrigation, Bexar	Bexar	Nueces	1,291	1,291	-	-
Irrigation, Bexar	Bexar	San Antonio	10,460	10,460	1,873	1,873
Irrigation, Caldwell	Caldwell	Colorado	19	19	19	19
Irrigation, Caldwell	Caldwell	Guadalupe	661	661	-	-
Irrigation, Calhoun	Calhoun	Colorado-Lavaca	525	525	-	-
Irrigation, Calhoun	Calhoun	Lavaca-Guadalupe	9,935	9,935	9,173	9,173
Irrigation, Comal	Comal	Guadalupe	533	533	-	-
Irrigation, Comal	Comal	San Antonio	58	58	-	-
Irrigation, DeWitt	DeWitt	Guadalupe	206	206	-	-
Irrigation, DeWitt	DeWitt	Lavaca	337	337	-	-
Irrigation, DeWitt	DeWitt	Lavaca-Guadalupe	6	6	-	-
Irrigation, DeWitt	DeWitt	San Antonio	41	41	-	-
Irrigation, Dimmit	Dimmit	Nueces	4,192	4,192	3,917	3,917
Irrigation, Dimmit	Dimmit	Rio Grande	497	497	419	419

Irrigation Demands and Needs (2 of 3)				with Irr. Needs	Needs: 71,000 acft/yr	Needs: 58,500 acft/yr
			Demand 2030	Demand 2080	Draft Needs	Draft Needs
Entity Name	County	Basin	(AFY)	(AFY)	2030 (AFY)	2080 (AFY)
Irrigation, Frio	Frio	Nueces	70,567	70,567	-	-
Irrigation, Goliad	Goliad	Guadalupe	554	554	4	-
Irrigation, Goliad	Goliad	San Antonio	2,172	2,172	184	-
Irrigation, Goliad	Goliad	San Antonio-Nueces	400	400	-	-
Irrigation, Gonzales	Gonzales	Guadalupe	4,478	4,478	-	-
Irrigation, Guadalupe	Guadalupe	Guadalupe	764	764	20	20
Irrigation, Guadalupe	Guadalupe	San Antonio	178	178	-	-
Irrigation, Hays	Hays	Guadalupe	130	130	-	-
Irrigation, Karnes	Karnes	Guadalupe	46	46	-	-
Irrigation, Karnes	Karnes	Nueces	78	78	78	78
Irrigation, Karnes	Karnes	San Antonio	759	759	100	659
Irrigation, Karnes	Karnes	San Antonio-Nueces	32	32	7	7
Irrigation, Kendall	Kendall	Guadalupe	370	370	-	-
Irrigation, Kendall	Kendall	San Antonio	91	91	-	-
Irrigation, La Salle	La Salle	Nueces	4,461	4,461	413	413



Nueces

Basin Irr.

13

Counties

Total Irr.

Needs:

Irrigation Demands and Needs (3 of 3)			Counties with Irr. Needs	Needs: 71,000 acft/yr	Basin Irr. Needs: 58,500 acft/yr	
Entity Name	County	Basin	Demand 2030 (AFY)	Demand 2080 (AFY)	Draft Needs 2030 (AFY)	Draft Needs 2080 (AFY)
Irrigation, Medina	Medina	Nueces	47,191	47,191	21,423	21,770
Irrigation, Medina	Medina	San Antonio	7,618	7,618	526	526
Irrigation, Refugio	Refugio	San Antonio-Nueces	867	867	-	-
Irrigation, Uvalde	Uvalde	Nueces	52,703	52,703	18,480	18,480
Irrigation, Victoria	Victoria	Guadalupe	1,331	1,331	200	200
Irrigation, Victoria	Victoria	Lavaca-Guadalupe	9,761	9,761	-	-
Irrigation, Wilson	Wilson	Nueces	5,801	5,801	-	-
Irrigation, Wilson	Wilson	San Antonio	7,517	7,517	331	331
Irrigation, Zavala	Zavala	Nueces	42,574	42,574	14,189	14,189



Nueces

Basin Irr.

13

Total Irr.



# Irrigation Strategies Proposed at 04/25/24 Meeting

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# Soil Moisture Monitoring & Management

- Generally, planting in wet soil and adequate water before critical growth periods indicates the success of a crop. The use of soil matric potential sensors measures water suction in soil and can help manage soil moisture levels
- It is estimated that fewer than 10% of producers in Texas were using soil water sensors for irrigation scheduling as of 2018 (WCAC Report and Recommendations to the 88th Texas Legislature)
- Strategy can stand alone or work in conjunction with Irrigation Scheduling



Source: U.S. General Services Administration

# Irrigation Scheduling

- Allows for the efficient allocation of irrigation water according to crop requirements based on meteorological demands and field conditions, can produce water savings of 10 percent\*
  - \*Source indicated savings was for corn, but applied savings to all crops
  - "Analyzing potential water conservation strategies in the Texas Panhandle," Crouch, MariKate; Guerrero, Bridget; Amosson, Steve; Marek, Thomas; Almas, Lal, Irrigation Science, Volume 38 (5-6): 9 – July 31, 2020
- <u>TexMesoNet | Texas Water Development Board</u> a network of environmental monitoring stations that have collected meteorological and soil moisture data around Texas every 15 minutes since 2016, which can be used for irrigation scheduling



### Proposed Methodology for Irrigation Scheduling and Soil Moisture Monitoring

- Combine soil moisture monitoring and irrigation scheduling into one strategy
- Assume uniform savings for all crops
- Take the total acreage of cropland by county and acreage of crops planted per year to determine potential acres of implementation
- Assume 25% of planted acres would implement strategy by 2030
- Apply anticipated water savings (10-40%) to applied acres (Exact savings will be determined, pending additional literature review)

### Advanced Metering Infrastructure (AMI) or Real-Time Use Metering and Monitoring

- Real-time monitoring involves the installation of meters that assess water use by automatically recording and transferring flow data at 15-minute intervals.
- Methodology Option 1: Assume Uniform Savings
  - Take the total acreage of cropland by county and acreage of crops planted per year to determine potential acres of implementation
  - Assume x% of planted acres would implement strategy
  - Apply water savings (x%) to applied acres
- Methodology Option 2: Crop-Based Methods to Estimate Savings
  - Take the total acreage of cropland by county and acreage of crops planted per year to determine potential acres of implementation
  - Assume x% of planted acres would implement strategy
  - Apply water savings (x acft/ac per crop type) to applied acres. As each county consists of a different makeup of crops grown, the savings would vary

### Incentive Pricing/Tiered Water Rate Structure

• Found to be infeasible for agricultural conservation as many farmers do not receive their water from direct sales





# Other Potential Irrigation Strategies to Consider

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# Example Irrigation WMSs from Other Regions



# Changes to Irrigation Equipment

### **Typical Irrigation Systems**

- Surface Irrigation
  - Spray Irrigation
    - Center pivot
    - Linear move
  - Furrow Irrigation
  - Flood Irrigation
- Drip & Micro-irrigation
  - Surface Drip Irrigation
  - Subsurface Drip Irrigation
  - Microspray Irrigation

#### Discussion

- What types of irrigation systems are used in Region L?
- Are there opportunities to convert to more efficient systems to conserve water while maintaining crop yield?
- Are there canals or other open conveyance infrastructure used in Region L?



### Discussion: Other Potential Irrigation Strategies

- 1. Conversion to Dry-Land Farmland
- 2. Changes to Crop Type
- 3. Changes to Crop Variety
- 4. Are there other strategies to consider including in the Plan that would be beneficial to rural communities?







### Agenda Item 2: Open Discussion