



# Groundwater Reduction Plan Participant Meeting

October 23, 2023



# 2023 Participant Meeting



- **Introductions**
- **Fort Bend Subsidence District Update**
- **GRP Implementation**
  - **Integrated Water Resource Plan**
- **GRP Financial Update**



# **Fort Bend Subsidence District**

**Robert Thompson  
Assistant General  
Manager**

# 2013 Regulatory Plan Key Elements

## Regulatory Areas & Conversion Requirements

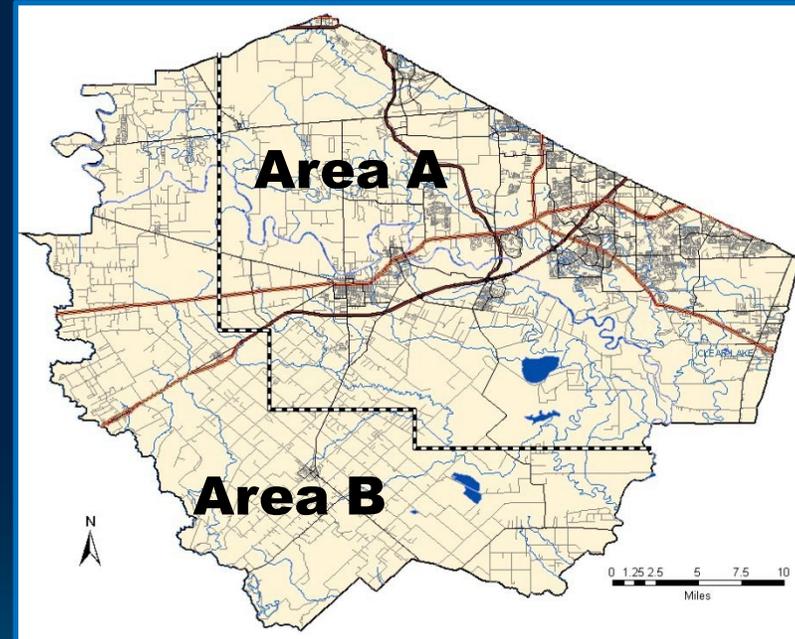
### Area A

**At least 30% of the total water demand must be met from alternate water.**

**Reduce GW pumpage by 60% by 2027**

**Exemptions: Ag. Irrigation, and  
TWD  $\leq$  10.0 MGY until alternate water is available**

**The Disincentive Fee is currently  
\$6.50 per 1,000 gallons**



**Area B - No scheduled groundwater reductions at this time.**

**FBSD will evaluate the need for reduction requirements in the future.**

**Cannot transfer GW to Area A unless use dates back to before Sept. 24, 2003**

# Important Changes

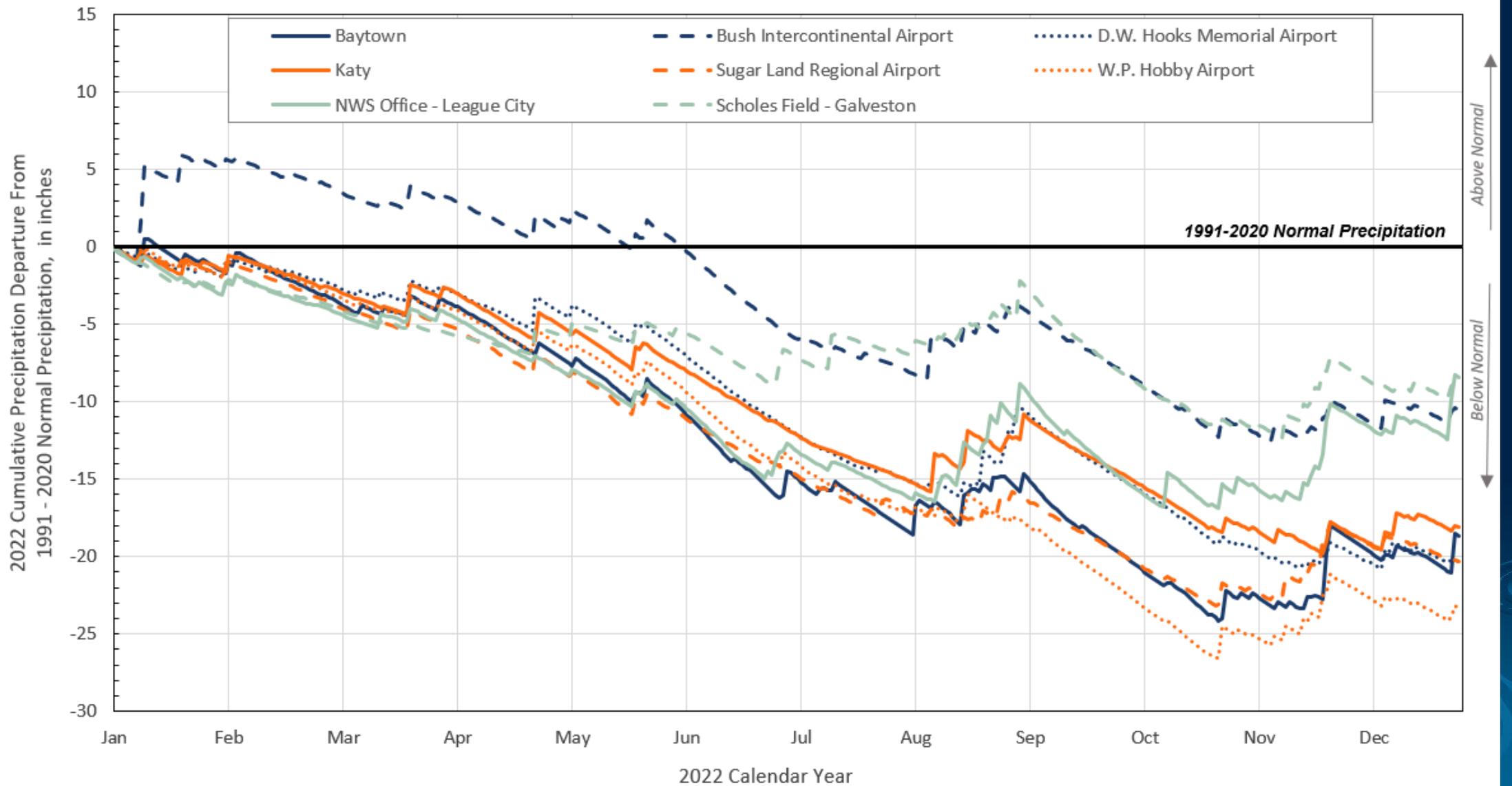
**The Board amended the 2013 Regulatory Plan and the Over-Conversion Credit Policy.**

- 1. The next reduction date is 2027.**
  - 2. At least 60% of your total water demand must be met by alternate water by 2027.**
  - 3. Over-conversion credits can only be earned if alternate water use exceeds 60% during the two year extension period.**
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# Studies and Projects

- The Subsidence District is currently working with the Harris-Galveston Subsidence District for a joint regulatory plan review project that began in 2020. This is for the Regional Groundwater Update Project that is expected to be completed by the end of 2023. This was last conducted from 2010 to 2013 and resulted in the adoption of the 2013 Regulatory Plan.
- Changes to the current regulatory plan, if any, will be considered in 2024.

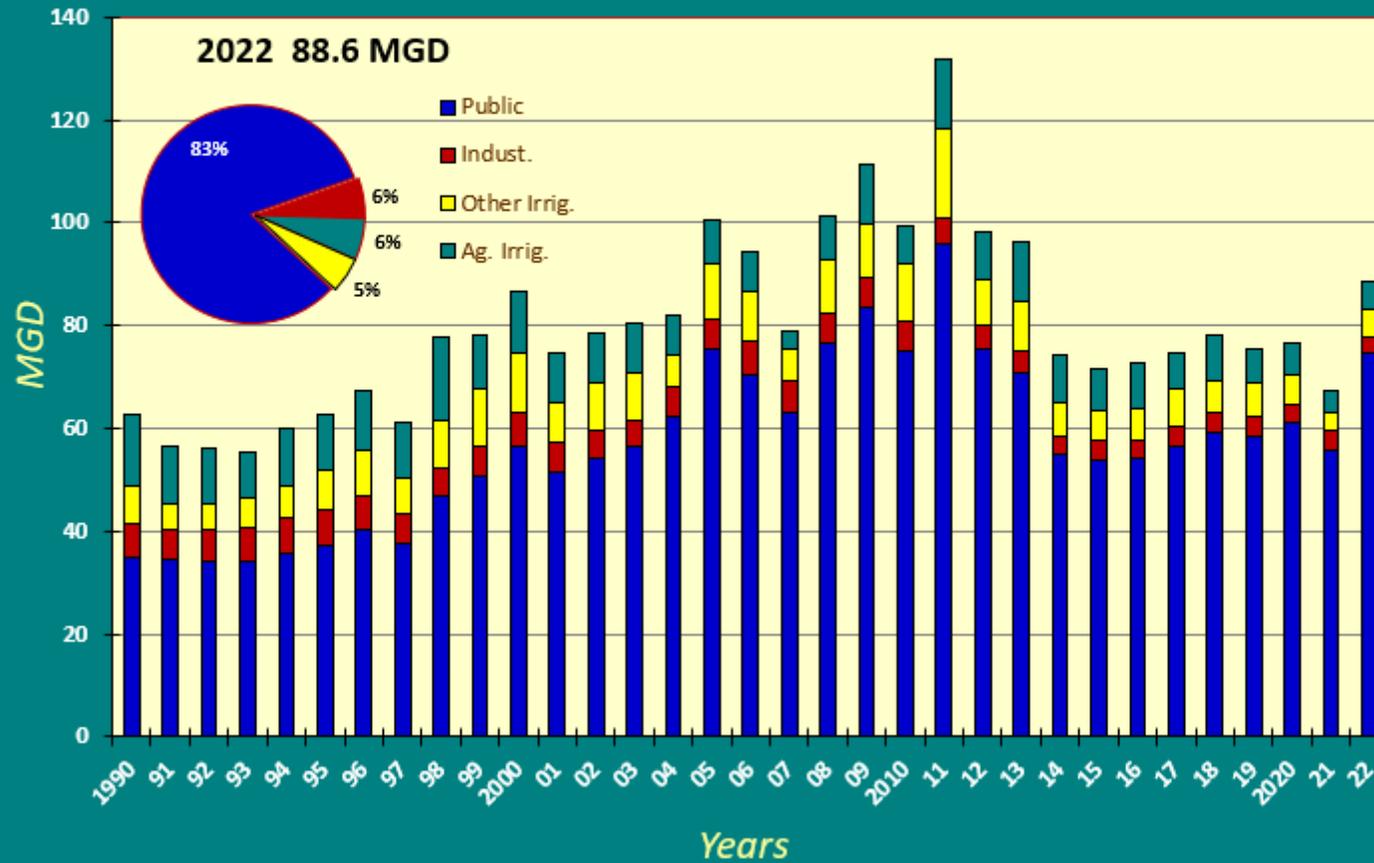
# Weather



# Groundwater Withdrawals | Grouped by Use – Entire District



## Groundwater Withdrawals Grouped By Use - Entire District

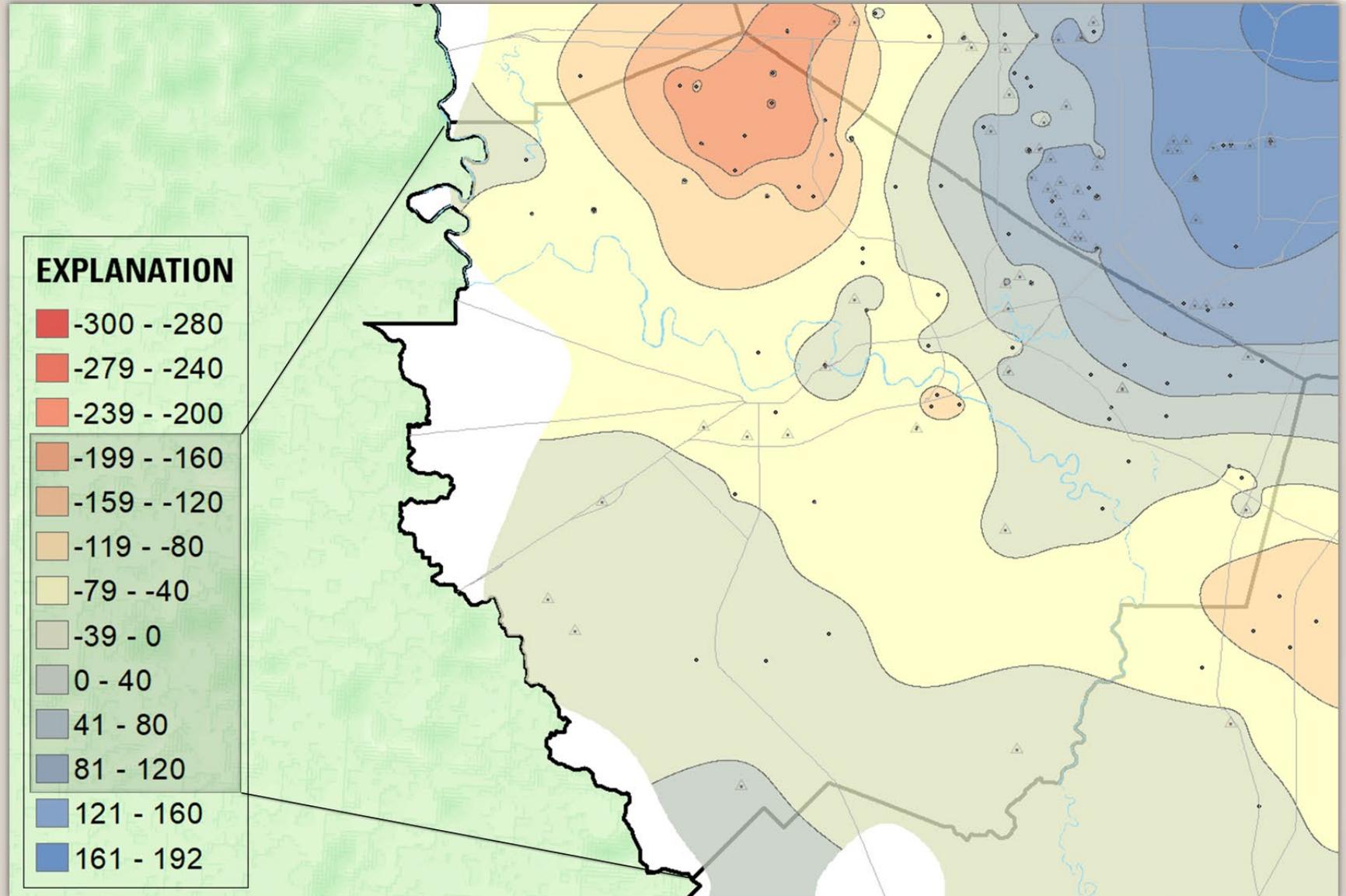


# Long term change

## Chicot and Evangeline (undifferentiated) Water-Level Change 1990 to 2023

Water level rises along the border with Harris County

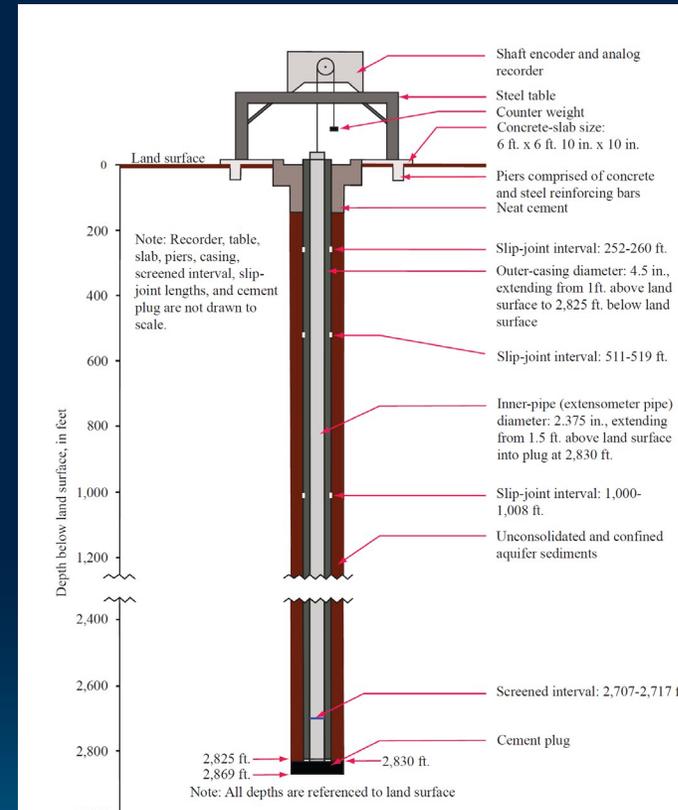
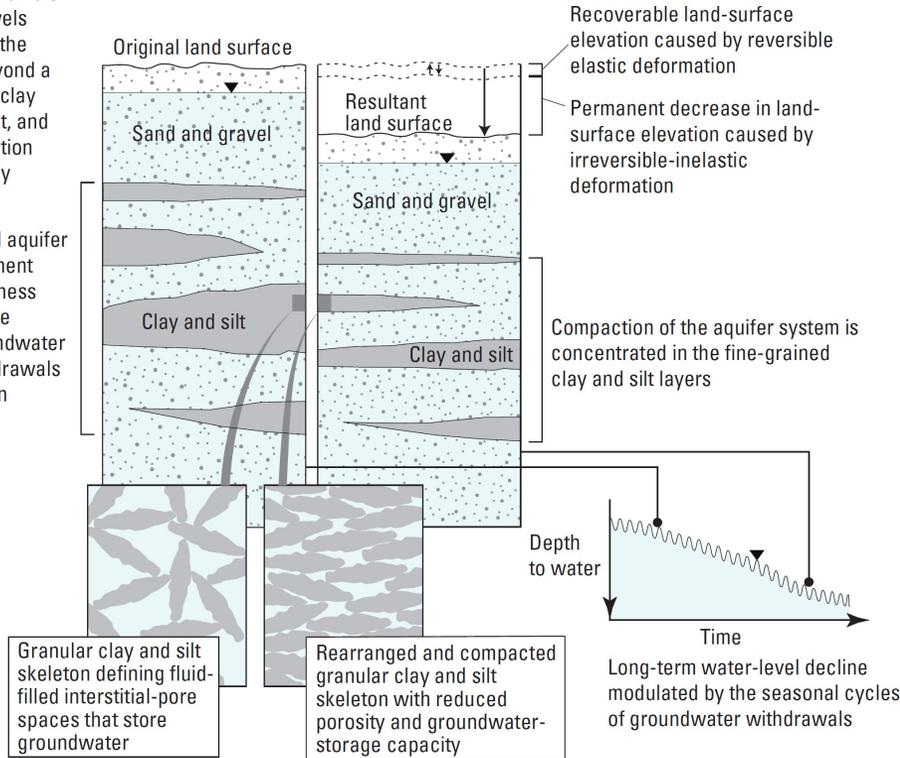
Water-level declines across much of the county with larger declines



# Compaction Mechanics and Method of Measurement

When long-term withdrawals lower groundwater levels and raise pressure on the clay and silt layers beyond a threshold amount, the clay and silt layers compact, and the land-surface elevation decreases permanently

Initial aquifer sediment thickness before groundwater withdrawals began



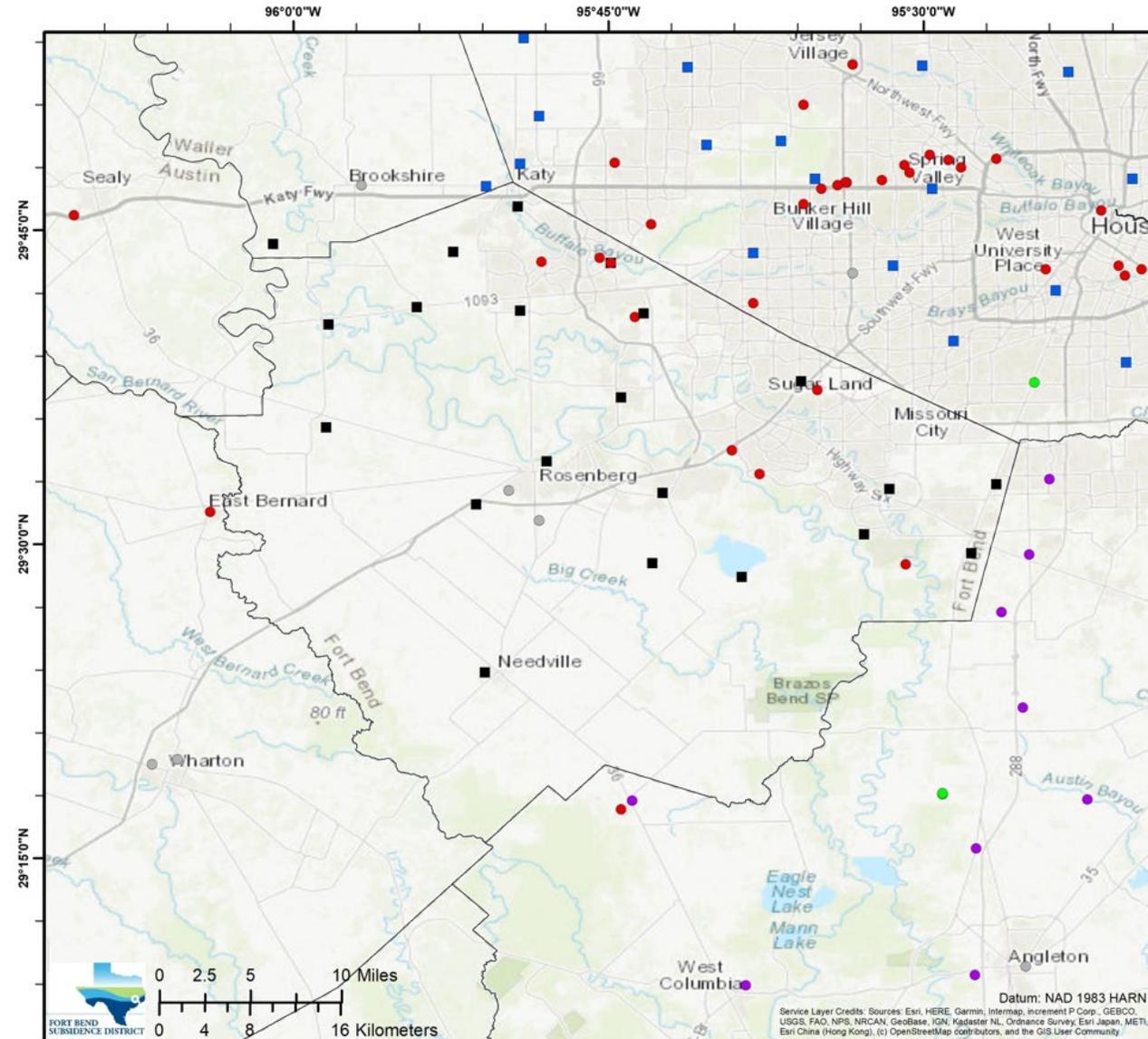
# GPS Station Operators



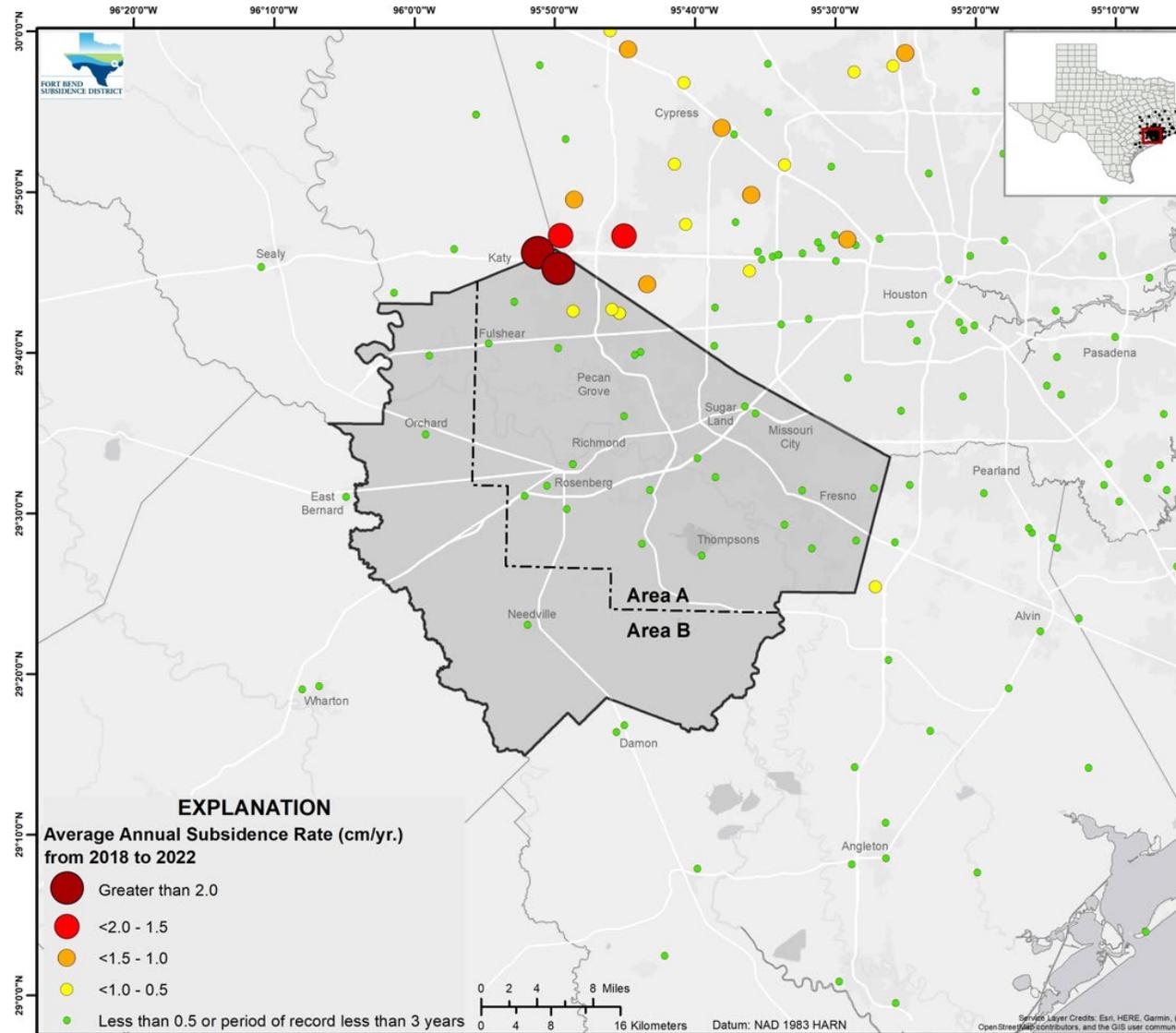
## EXPLANATION

### GPS Station Operators

- Fort Bend Subsidence District
- Harris-Galveston Subsidence District
- Brazoria County Groundwater Conservation District
- Lone Star Groundwater Conservation District
- Texas Department of Transportation
- University of Houston
- Other Agencies

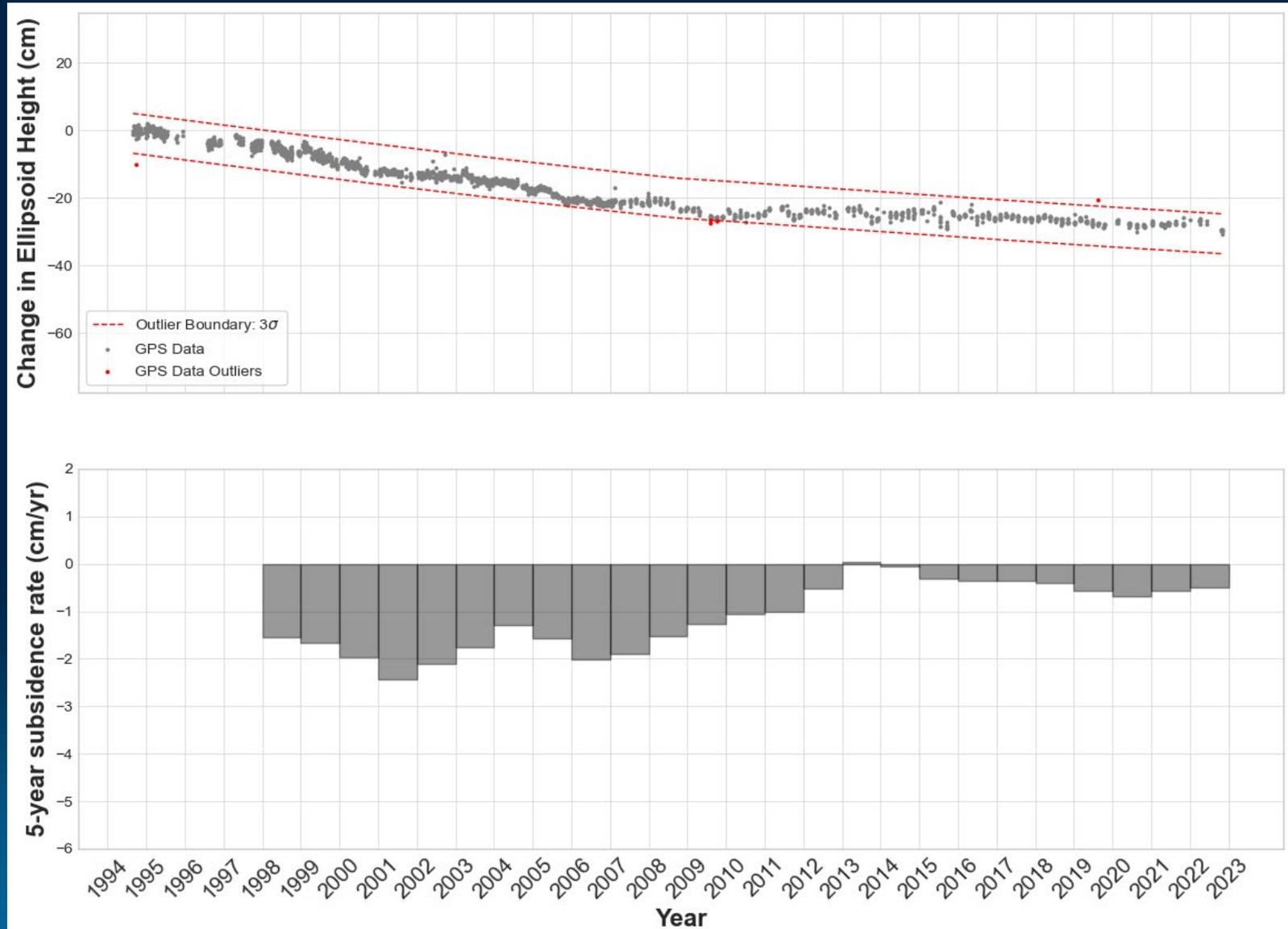


# Subsidence Rates



# Period of Record Plot for P004 - Sugar Land

- Processed GPS data (source: UH) over period of record.
- Processed GPS data (gray circles) located inside the outlier boundary (red dashed lines) are used when calculating subsidence rates.
- Processed GPS data identified as outliers (red circles) are not considered by the District when calculating subsidence rates and are shown for informational purposes only.





# **Fort Bend Subsidence District**

**Sugar Land GRP**

**Participant Meeting**

**October 23, 2023**

**<http://www.fbsubsidence.org/>**



# Groundwater Reduction Plan Implementation Update

**Merritt Nolte-Roth**  
Water Resources Manager

# GRP Participants

## Public Water Systems

- ◆ FBC MUD 192 (Greatwood Lake)
- ◆ Plantation MUD (Tara Plantation)
- ◆ Royal Valley Utilities
- ◆ City of Sugar Land
  - ◆ Greatwood (*annexed Dec 2017*)
  - ◆ New Territory (*annexed Dec 2017*)

## Private Businesses

- ◆ Texas Par Golf Academy
- ◆ River Pointe Golf
- ◆ Sweetwater Golf, LLC
- ◆ Schlumberger

## Property Owner Assoc & Levee Dist

- ◆ Avalon CAI
- ◆ Sugar Mill CAI
- ◆ Sugar Lakes HOA
- ◆ First Colony Community Assoc.
- ◆ First Colony Property Owners Assoc.
- ◆ New Territory Res. Comm. Assoc.
- ◆ River Park on the Brazos Property Owners Assoc.
- ◆ Royal Lakes Estates HOA
- ◆ Sugar Land Business Park
- ◆ FBC LID 17 (Telfair Levee Dist.)
- ◆ Oyster Creek Property Owners Assoc.

# GRP Historic Water Demand

Million Gallons per Day (MGD) Average Day

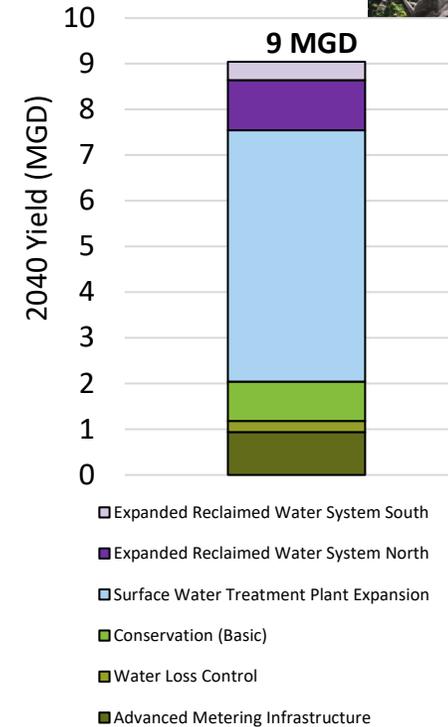
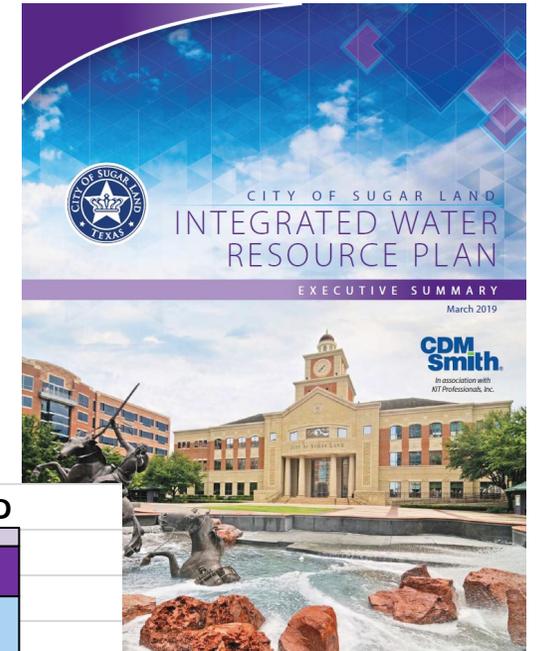
<i>FBSD Year</i>	<i>Demand</i>	<i>Conversion</i>	
<i>April- March</i>		<i>Actual</i>	<i>Percent</i>
<b>2009-10</b>	<b>24.22</b>	<b>1.17</b>	
<b>2010-11</b>	<b>25.43</b>	<b>1.20</b>	
<b>2011-12</b>	<b>30.37</b>	<b>1.29</b>	
<b>2012-13</b>	<b>24.70</b>	<b>0.67</b>	
<b>2013-14</b>	<b>25.03</b>	<b>3.38</b>	
<b>2014-15</b>	<b>22.09</b>	<b>9.39</b>	<b>42%</b>
<b>2015-16</b>	<b>22.87</b>	<b>9.72</b>	<b>42%</b>
<b>2016-17</b>	<b>22.94</b>	<b>8.99</b>	<b>38%</b>
<b>2017-18</b>	<b>23.71</b>	<b>9.97</b>	<b>41%</b>
<b>2018-19</b>	<b>22.63</b>	<b>9.62</b>	<b>42%</b>
<b>2019-20</b>	<b>24.24</b>	<b>9.81</b>	<b>40%</b>
<b>2020-21</b>	<b>24.12</b>	<b>9.54</b>	<b>40%</b>
<b>2021-22</b>	<b>20.97</b>	<b>8.23</b>	<b>39%</b>
<b>2022-23</b>	<b>26.08</b>	<b>9.91</b>	<b>38%</b>

# GRP Implementation Strategy

- **Secure surface water supplies**
  - Oyster Creek Water Right
  - Gulf Coast Water Authority (GCWA)
  - Brazos River Authority (BRA)
- **Surface Water Treatment Plant**
  - 10.85 MGD Facility completed November 2013
- **Raw Surface Water Pump Stations**
  - Pump stations to fill amenity lakes
- **Water Reuse / Reclaimed**
  - South Reclaimed Facility (Riverstone)
  - West Reclaimed Facility (New Territory)
  - Internal reuse at WWTPs
- **Water Conservation**
  - Education and Outreach

# Integrated Water Resource Plan

- Recommended by:
  - Council Task Force
  - Citizen Task Force
  - City Council- approved 3/19/2019
- Recommended Projects:
  - Basic Conservation
  - Advanced Metering Infrastructure
  - Water Loss Control
  - Surface Water Treatment Plant Expansion of 5.5MGD
  - Expanded Reclaimed Water Facilities
  - Groundwater Credit Banking



# IWRP Implementation

2019

- City Council approval of IWRP

2020

- Rate Study Ph1
- BRA Water Supply Contract
- Policy Review and Update
- Water & Wastewater Master Plan Updates

2021

- Rate Study Ph2
- Completed PER of SWTP Expansion, SWTP Transmission Lines, and Groundwater Plant Conversions
- Advanced Metering Infrastructure Contract
- Conservation and Water Loss Control Programs

# IWRP Implementation

2022

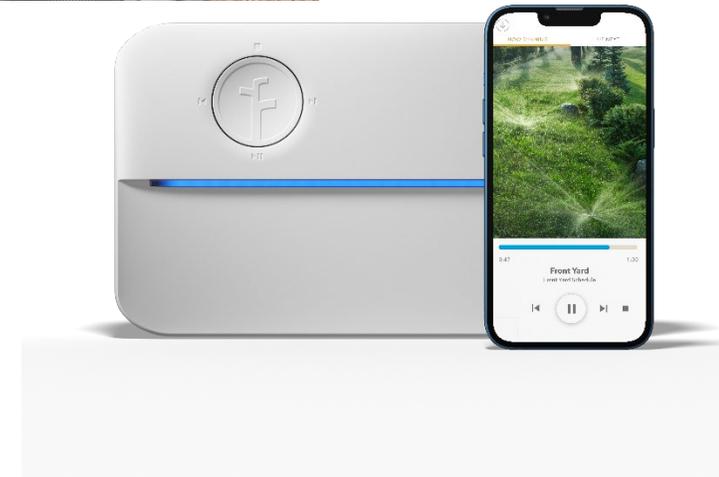
- Conservation Programs
- Water Loss Control Programs

2023

- Advanced Metering Infrastructure implementation
- Conservation Programs
- Water Loss Control Programs

2024

- Continuation of 2023 programs

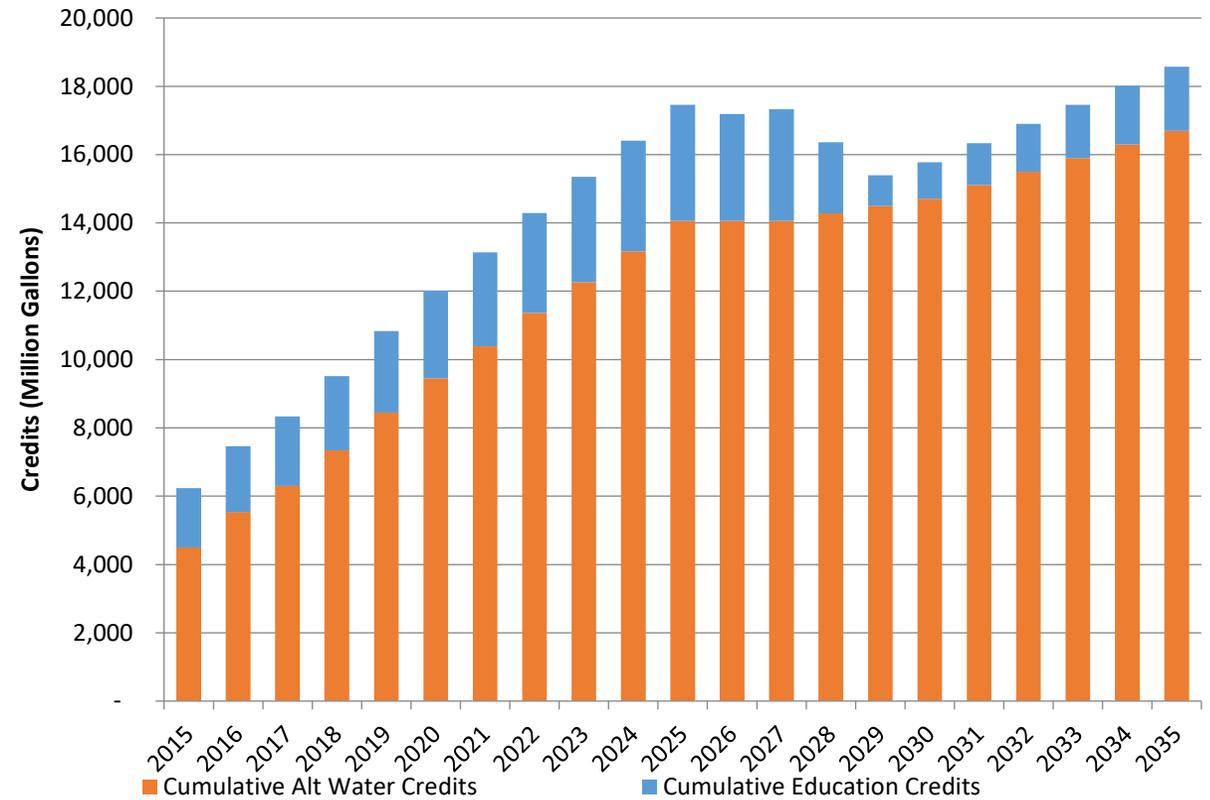


# IWRP Implementation

## Groundwater Credit Bank

- Ability to utilize groundwater credits for 2027 conversion plan
- SWTP Expansion delay by 2 years per Utility Rate Study
- Utilize education credits prior to expiration
- Maintain healthy credit bank for to offset risks

GRP Credit Bank by Credit Type





# Financial Update

Katie Clayton

Deputy Director of Public Works

# GRP Philosophy

- City Policy adopted in September 2002
  - Plan for the City and our ETJ
  - Surface Water Fund to Account for Costs
- Costs of Surface Water Conversion Shared Equally among GRP Members
- Blended Rate for all Members
  - All Participants Pay Based on Same Rates
- GRP Participants avoid FBSD disincentive fee
  - \$6.50 per 1,000 gallons

# GRP Finances and Rate Study

- Operations funded in the System Utility Fund
- Consultant update the Utility Rate Model and develop a 10-year forecast for IWRP Implementation and strategic decision making
- Calculate rates necessary to generate revenues for:
  - Operating Needs
  - Capital Projects Funding

# Utility Rate Study

- Variables analyzed that impact the rate model
  - Weather (normal vs wet vs dry year)
  - Residential consumption impacts to revenue
    - Volumetric block rates
    - Downward trends in consumption over time
  - Water Loss
  - Raw Water Costs
  - Strategic Use of Fund Balances
  - Bond Ratings
    - Impact of all-in bond coverage
  - Five-Year Capital Improvement Program
    - O&M impact of CIP projects
    - Asset Management and Reinvestment

# Rate Study Implementation Plan

- Meet financial objectives for the Utility System
  - Fiscally responsible government
  - Focus on financial resiliency of the system
  - Where possible take steps to improve bond rating
- Use the groundwater credits to delay capital construction where possible
  - Build flexibility to address outcomes of ongoing initiatives (Delay SWTP expansion by 2 years)
- Utility Rates
  - Benchmark our rates with our regional partners
  - Build options to fund the projects with fewer total rate increases (10/10/7 Plan adopted by Council- implementation complete)
  - Options that meet bond coverage requirements
  - Use cash reserves to minimize rate increases

# Future Financial Needs

- Model showed rate increases needed to support future debt to be issued to meet 60% Groundwater Reduction Mandate
  - Council Finance/Audit Committee developed the 10/10/7 plan
  - Plan implemented from FY21-FY23
- In September, City Council approved rates effective January 1, 2024
  - GRP Fee \$3.32
  - Surface Water Fee \$3.57
  - 2.1% Increase

# Prior Years Capital Improvement Projects

Project Name	Funding
Newland Water Connection	443,732
Oyster Creek Raw Water Use	7,000
Non-Potable Water/ Pump Stations	503,623
Assets Purchased - WCID#1	49,561
Surface Water Transmission Lines	16,900,068
Surface Water Treatment Plant	81,935,521
Water Plant Upgrades	8,337,800
SCADA Comm. Conversion	385,000
SWTP OM Manual and SOP	417,830
SWTP Computerized Maintenance System	473,479
SWTP CT Study/Tracer Test	75,000
SWTP Raw Monitoring System	29,000
SWTP Membrane & LRV Test	155,000
Brooks Lake Wier/AMIL Gates	4,620,000
Dam 3 Flood Control Improvements	88,800
Riverstone Groundwater Plant Improvements	5,950,000
Transmission Line to Riverstone GW Plant	10,525,000
SWTP Expansion	796,250
SW Transmission Line to NT	477,800
SWTP Yard Pipe & Aerial Crossing Recoating	300,000
Groundwater Plant Surface Water Expansion	165,000
Telfair Raw Water Pump Station Rehab	260,000
<b>Total</b>	<b>\$ 132,895,464</b>

# Surface Water Operating Results\*

Millions (\$)	FY20	FY21	FY22	FY23*
Revenues	\$ 16.09	\$ 16.46	\$24.67	\$26.37
Expenses	13.27	14.87	15.20	15.46
Net Income	\$ 2.82	\$ 1.59	9.46	10.91
<b>GRP Rate</b>	<b>\$1.93</b>	<b>\$2.50</b>	<b>\$3.01</b>	<b>\$3.25</b>

\* Unaudited: Not Stated on a GAAP Basis  
Excludes Capital Projects and Bond Proceeds  
Revenues include Sale of Water to 3<sup>rd</sup> party

# FY24-28 Capital Projects

PROJECT NAME	2024 ESTIMATE	2025 ESTIMATE	2026 ESTIMATE	2027 ESTIMATE	2028 ESTIMATE	2024-2028 TOTAL
Surface Water Treatment Plant Expansion	\$ -	\$ -	\$3,500,000	\$59,805,000	-	\$63,305,000
Surface Water Transmission Lines	-	-	2,000,000	14,131,000	-	16,131,000
Groundwater Plant Surface Water Conversion	-	-	1,050,000	9,873,000	-	10,923,000
North WWTP Reuse PER	-	-	-	-	527,000	527,000
SWTP Rehab Ph 1	964,000	6,425,000	-	-	-	7,389,000
SWTP Rehab Ph 2	-	429,000	4,859,000	-	-	5,288,000
<b>TOTAL FUNDING</b>	<b>\$964,000</b>	<b>\$7,354,000</b>	<b>\$11,409,000</b>	<b>\$83,809,000</b>	<b>\$527,000</b>	<b>\$104,063,000</b>

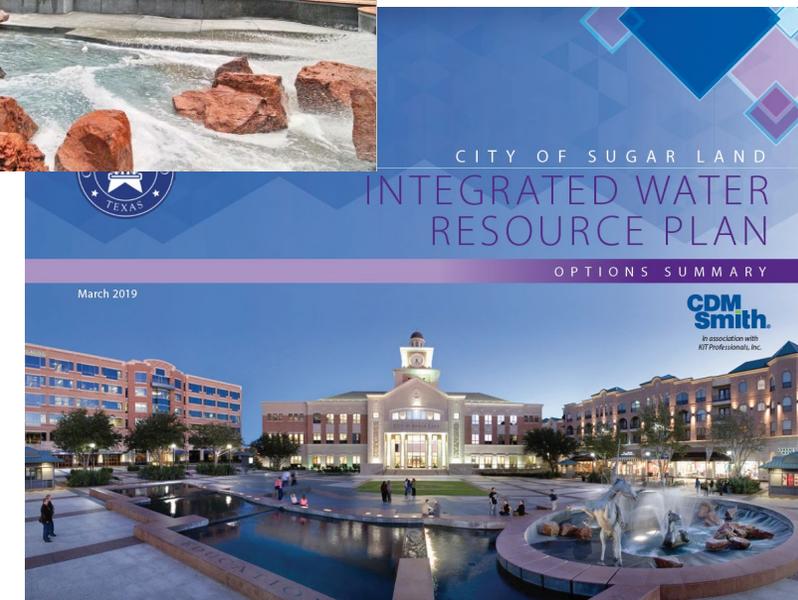
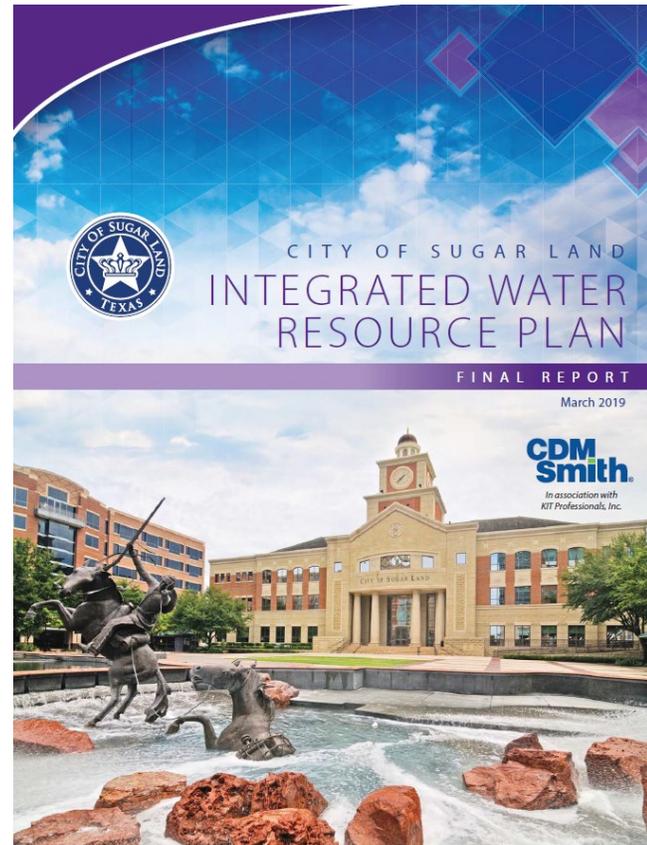
# Surface Water Comparative Rates

Per 1,000 Gallons Water Rates	GRP Fee	Surface Water Fee
Sugar Land	\$3.25	\$ 3.49
<i>Sugar Land- Jan 2024</i>	3.32	3.57
Comparative Rates:		
Missouri City (Oct 2023)	2.39	
City of Richmond (Oct 2024)		2.98
City of Rosenberg (January 2024)	2.75	2.75
North Fort Bend Water Authority (Jan 2023)	4.55	4.90
West Harris County Water Authority (Jan 2024)	3.95	4.35

# Questions?

[www.sugarlandtx.gov/iwrp](http://www.sugarlandtx.gov/iwrp)

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CITY OF SUGAR LAND *Texas*