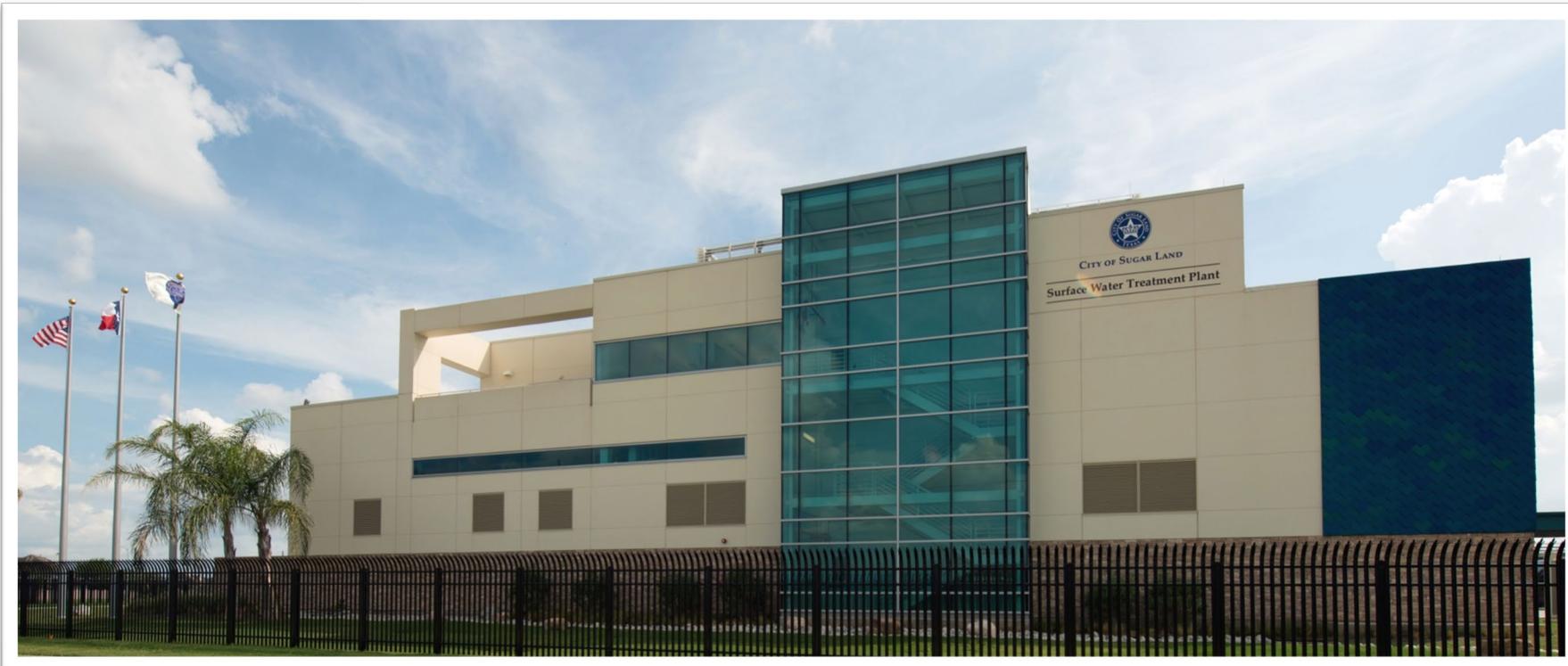




Groundwater Reduction Plan Participant Meeting

October 27, 2022



2022 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

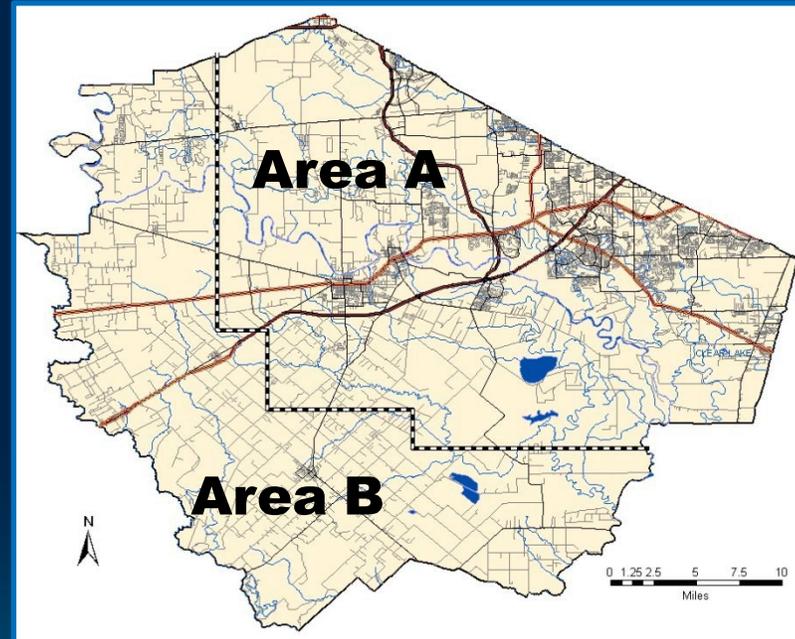
At least 30% of the total water demand must be met from alternate water.

Reduce GW pumpage by 60% by 2027

Exemptions: Ag. Irrigation, and

TWD \leq 10.0 MGY until alternate water is available

Earlier this year, the Board considered increasing the Disincentive Fee, but it remains at \$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

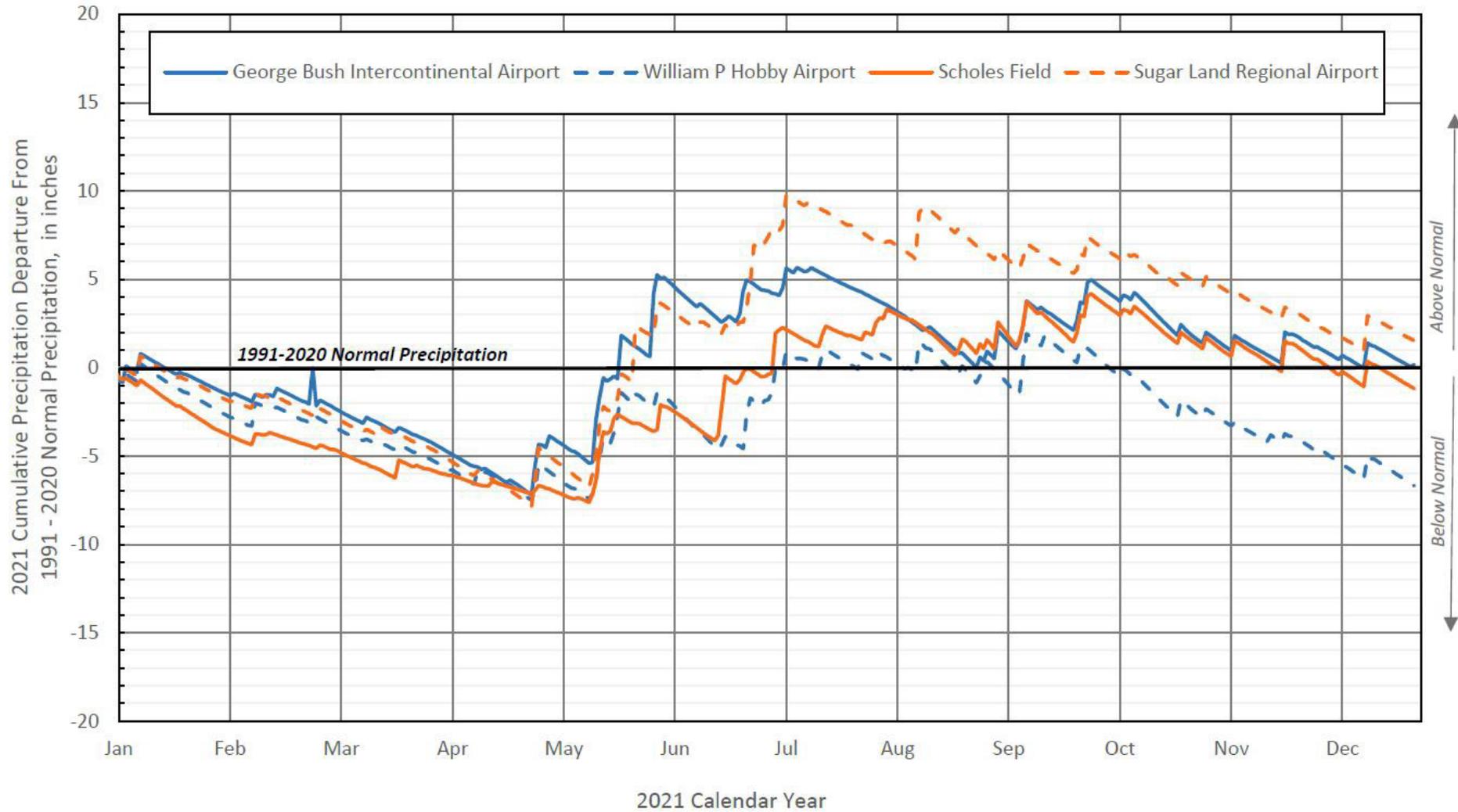
The Board amended the 2013 Regulatory Plan and the Over-Conversion Credit Policy.

- 1. The next reduction date has been pushed back to 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.**

Studies and Projects

- **The Subsidence District completed a study entitled the “Evaluation of Projected Population and Water Demands in Fort Bend County” in 2019.**
- **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 in 2023. This was last conducted from 2010 to 2013.**

Weather

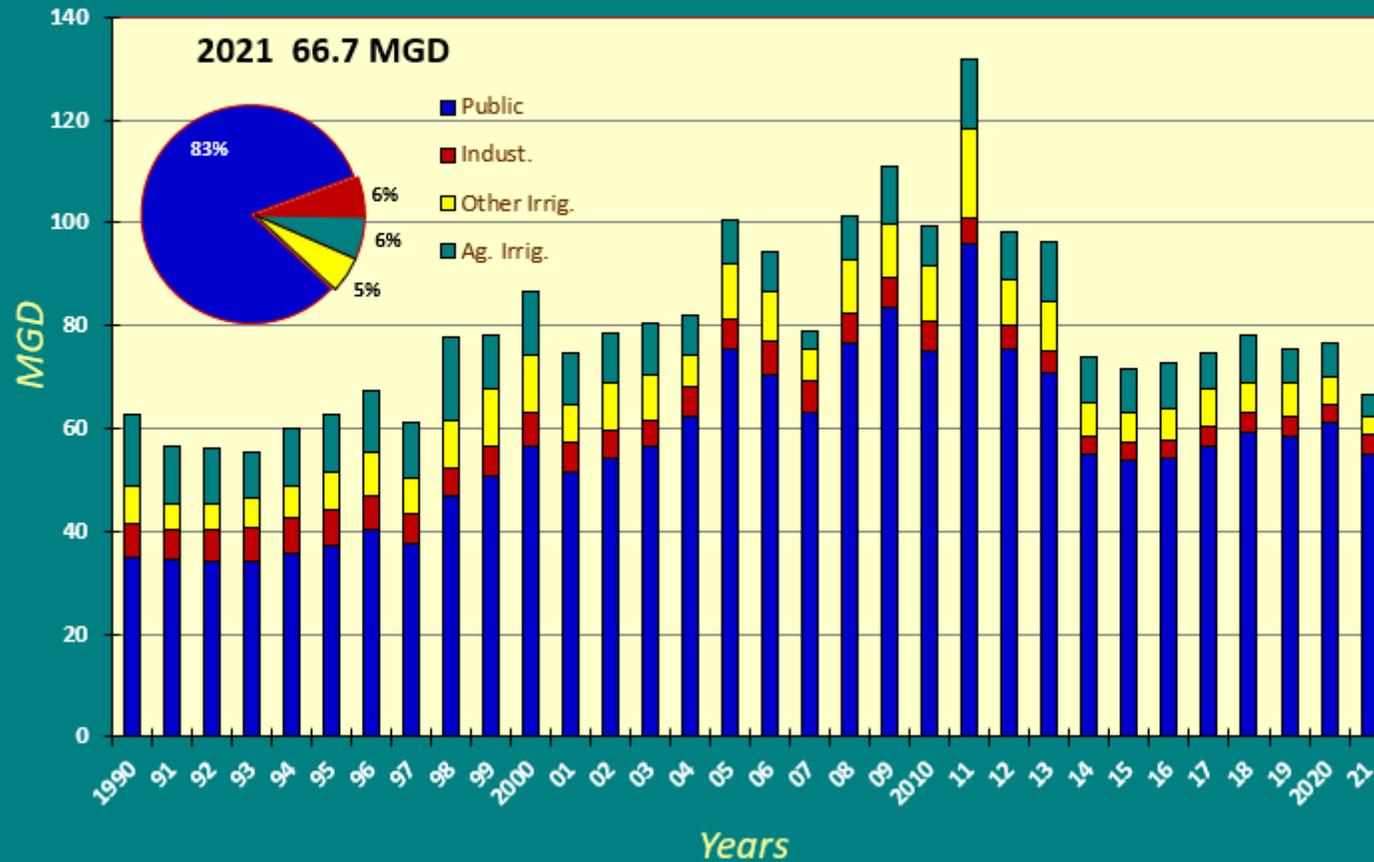


Source: NOWData - NOAA Online Weather Data via <https://www.weather.gov/wrh/Climate?wfo=hgx>

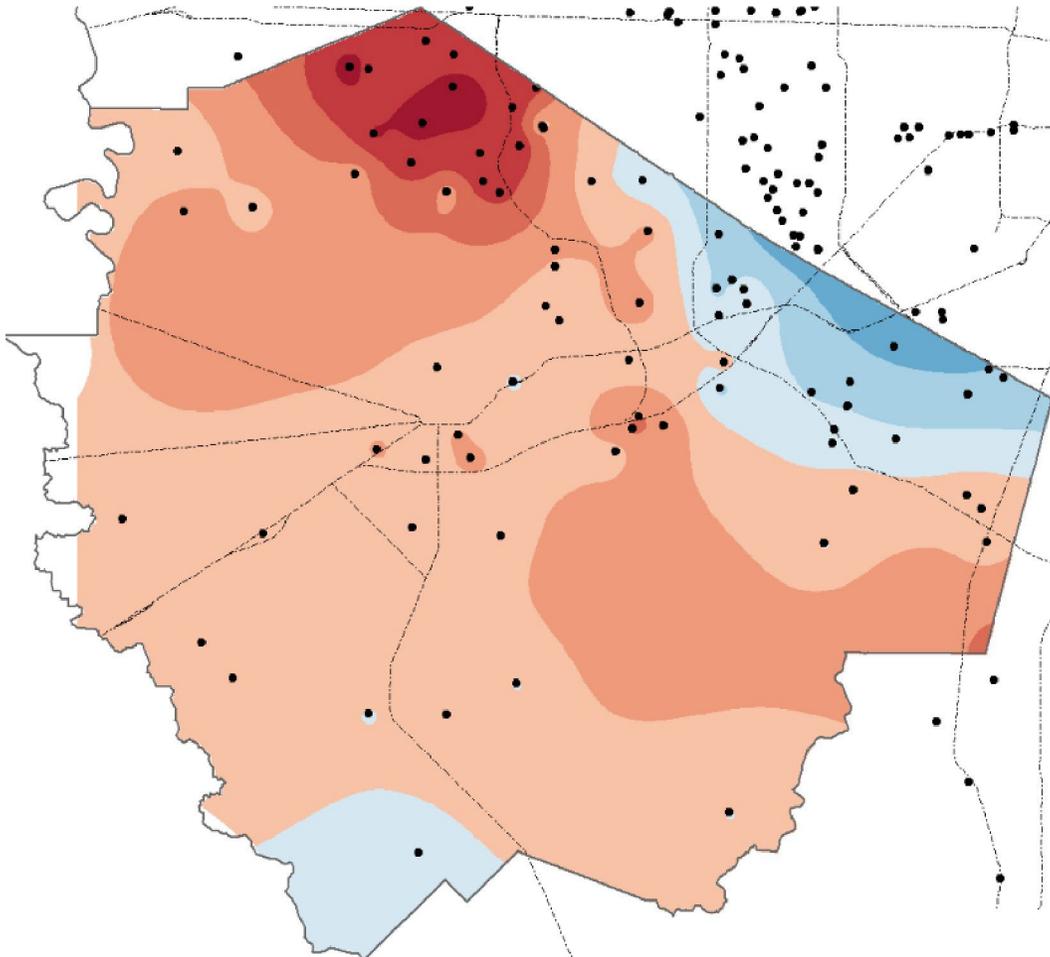
Groundwater Withdrawals | Grouped by Use – Entire District



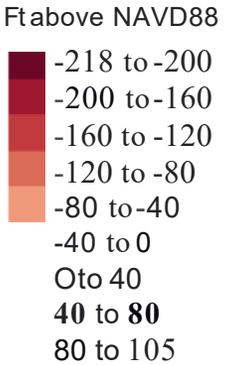
Groundwater Withdrawals Grouped By Use - Entire District



Chicot and Evangeline (Undifferentiated) water-level change since 1990



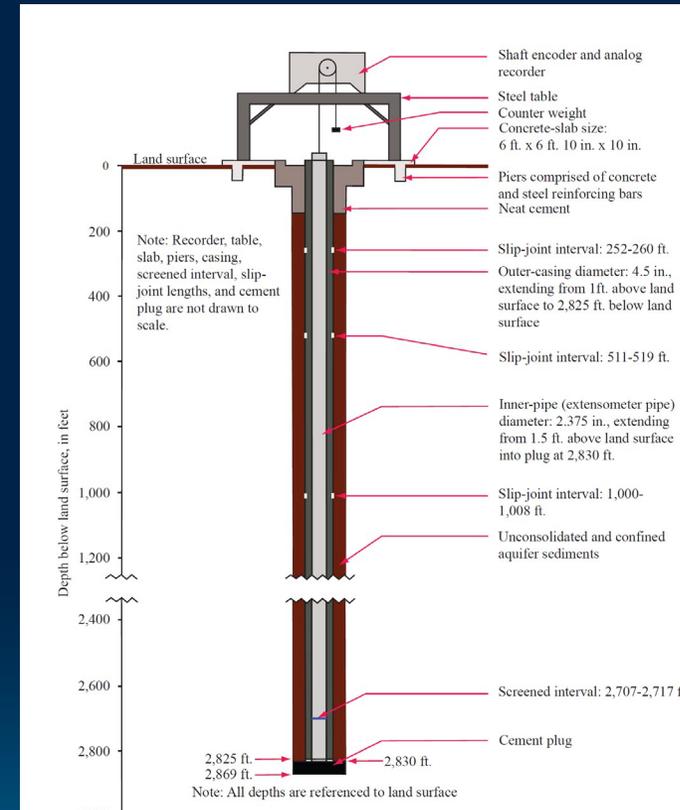
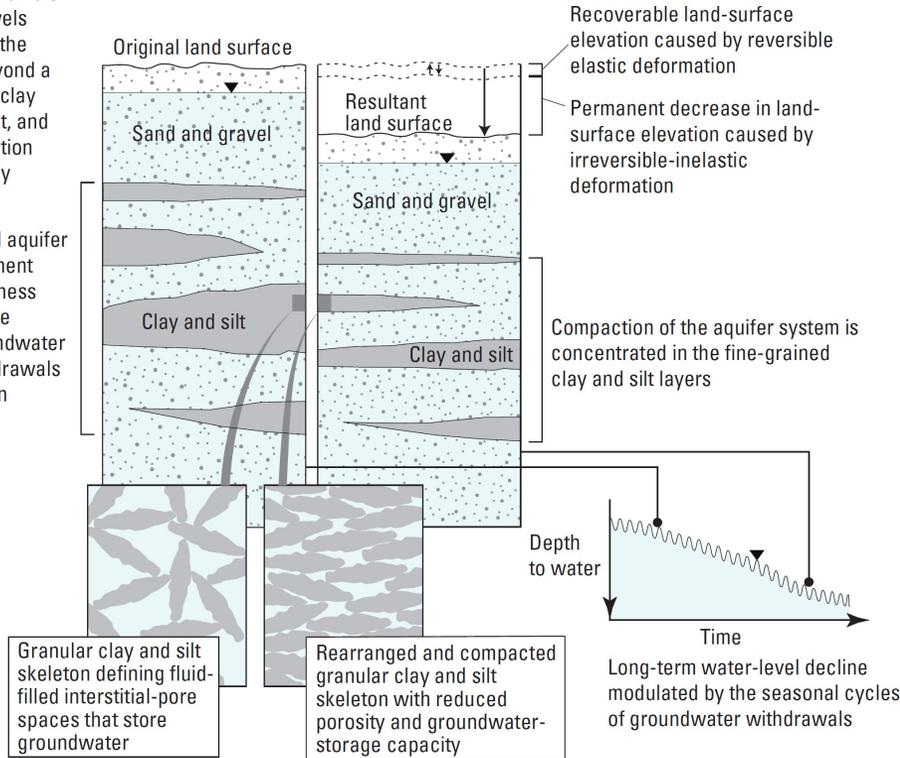
- Data Summary:
Mn: **-218**
Mean: **-29**
Max: **105**
- Water-level rises across most of central and eastern and central Harris County
- Largest water-level declines in the Northern part of Fort Bend County



Compaction Mechanics and Method of Measurement

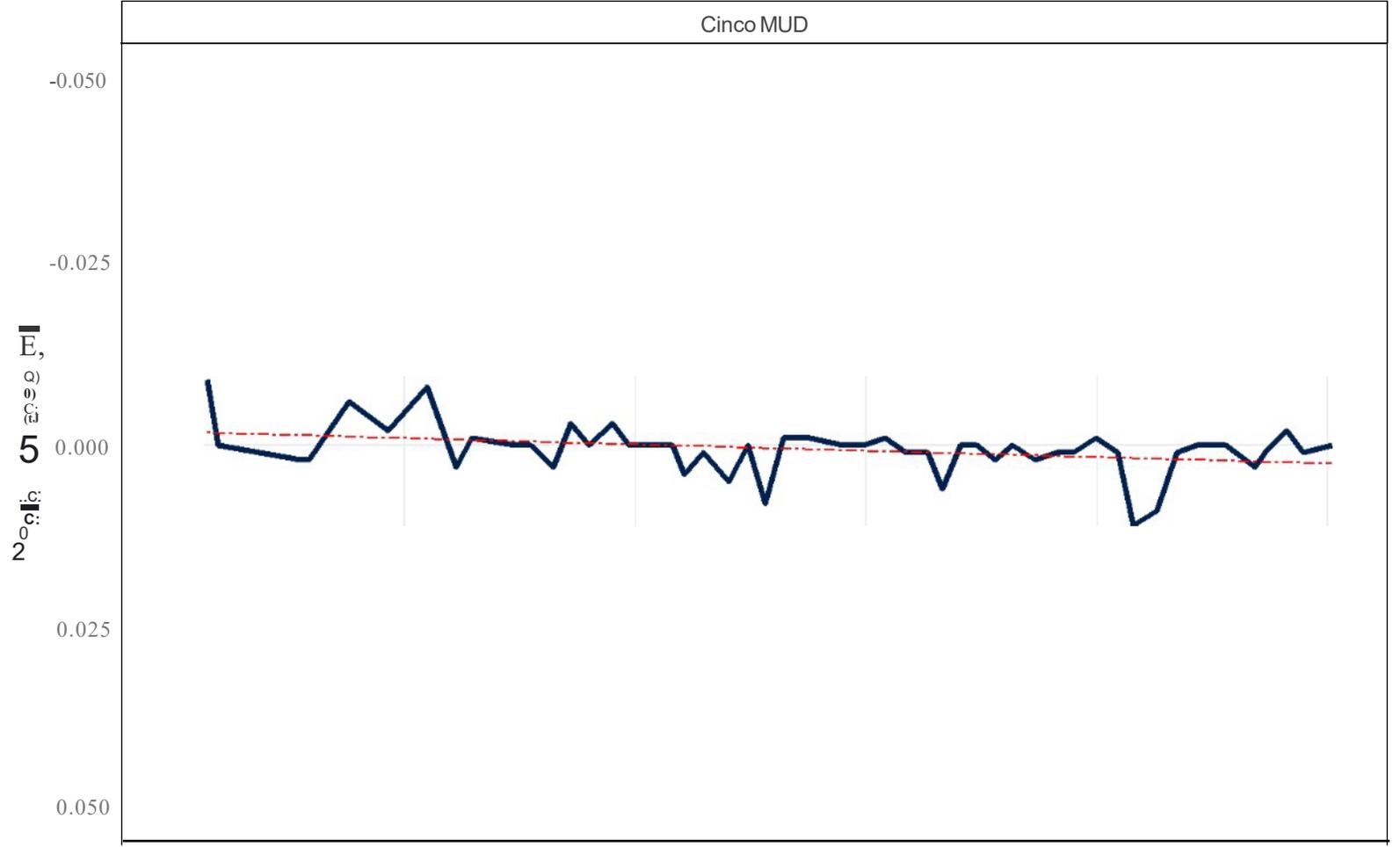
When long-term withdrawals lower groundwater levels and raise pressure on the clay and silt layers beyond a threshold amount, the clay and silt layers compact, and the land-surface elevation decreases permanently

Initial aquifer sediment thickness before groundwater withdrawals began



Compaction 5 year monthly changes

Monthly Compaction
Dec 2016 - Dec 2021



- Slight increase in trend (compaction)

Monthly change in landsurface elevation at each location
(-) expansion, (+) compaction

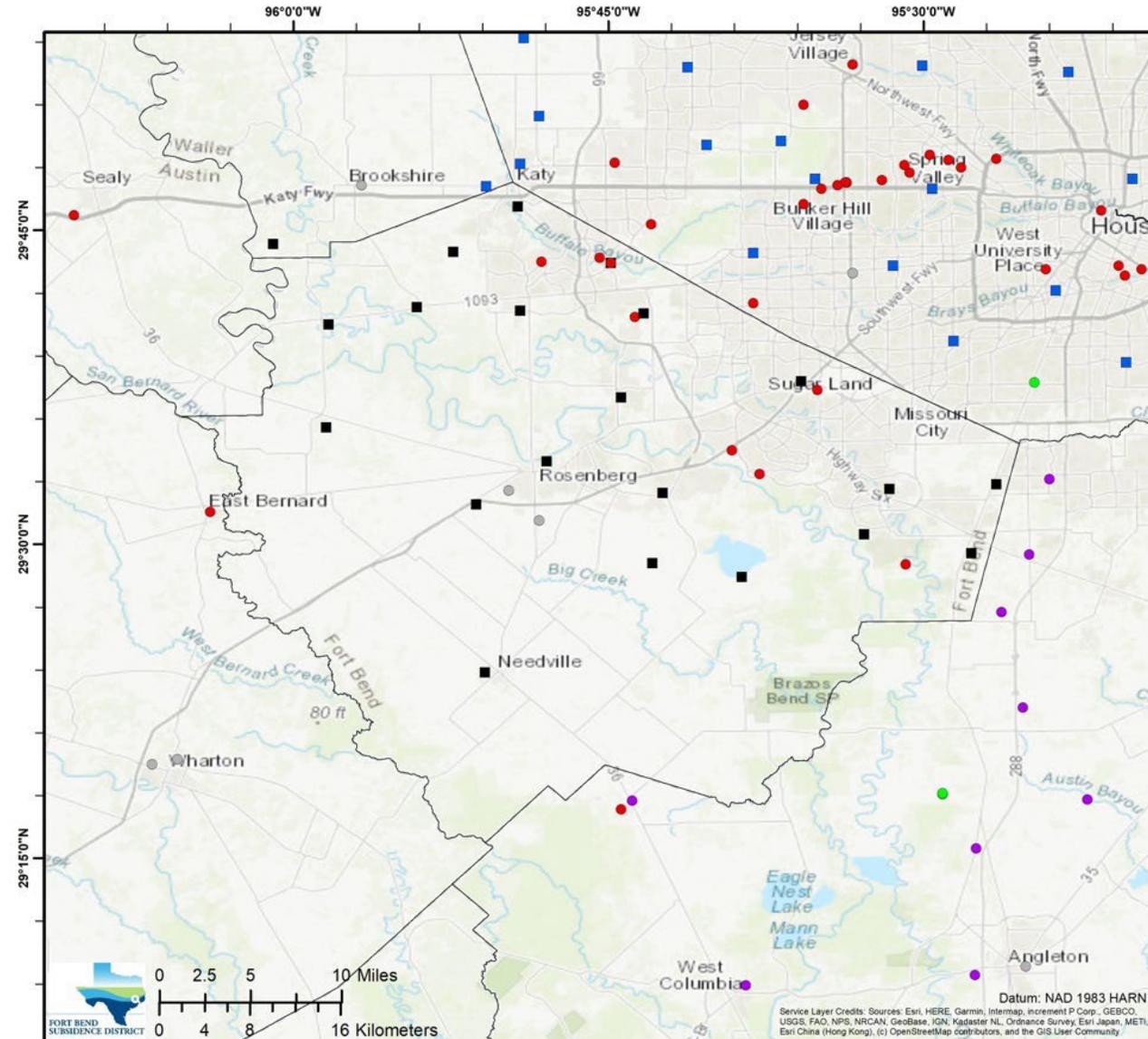
GPS Station Operators



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

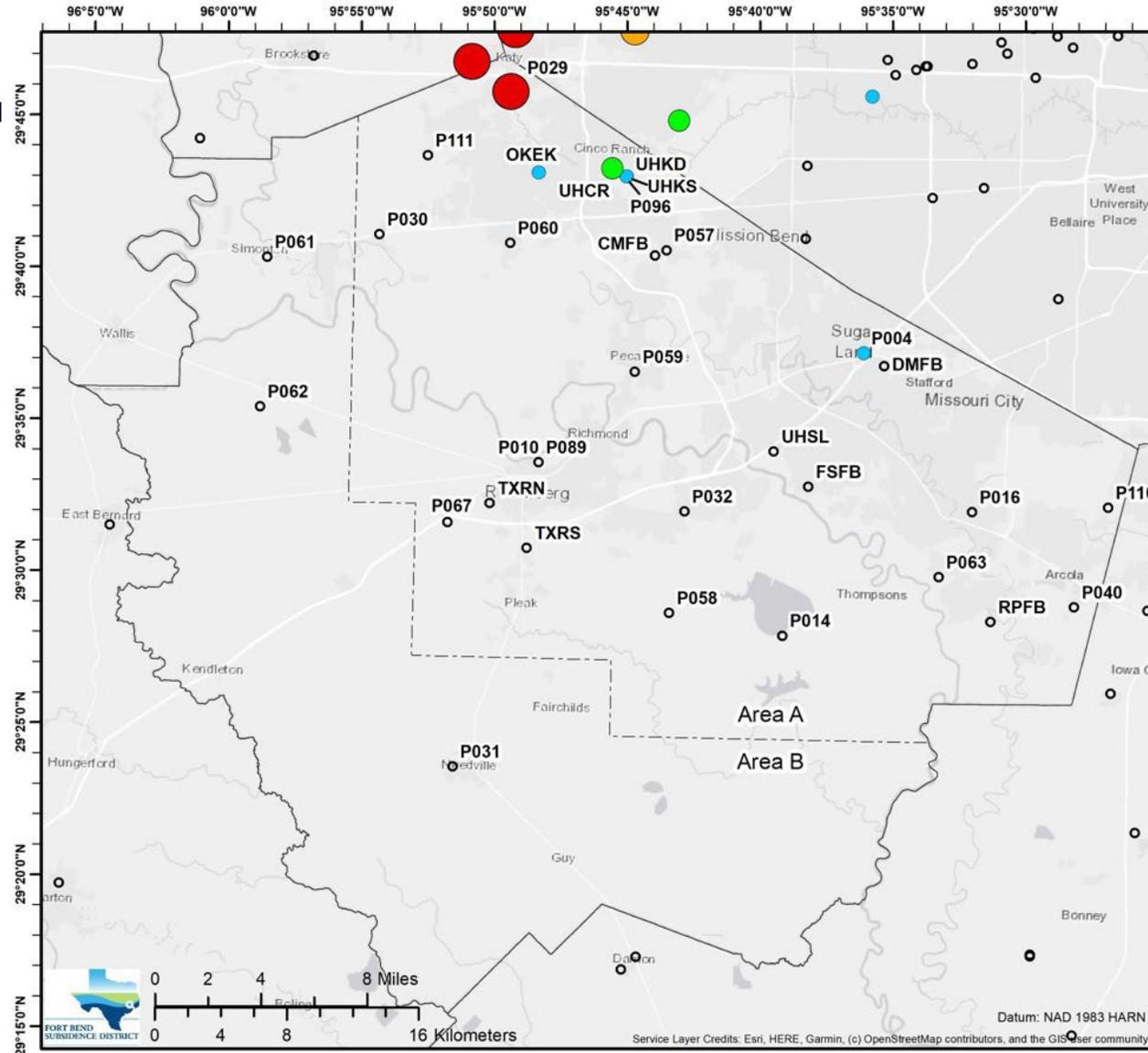


FORT BEND
SUBSIDENCE DISTRICT

EXPLANATION

Annual Subsidence Rate (cm/yr) from 2017 to 2021

- Greater than 2.0
- <2.0 - 1.5
- <1.5 - 1.0
- <1.0 - 0.5
- Less than 0.5 or period of record less than 3 years





Fort Bend Subsidence District

Sugar Land GRP

Participant Meeting

October 27, 2022

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



Groundwater Reduction Plan Implementation Update

Merritt Nolte-Roth
Water Resources Manager

Subsidence District Updates

- FBSD Regulatory Plan deadline extension
 - City formal request in 2021 to delay next phase of regulations
 - June 2022, Board approved 2-year delay
 - New conversion deadline in 2027
- FBSD Joint Regulatory Plan Update
 - City active participant in update

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

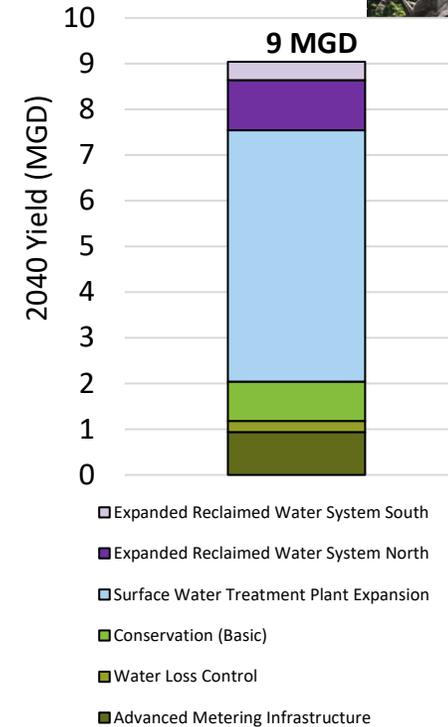
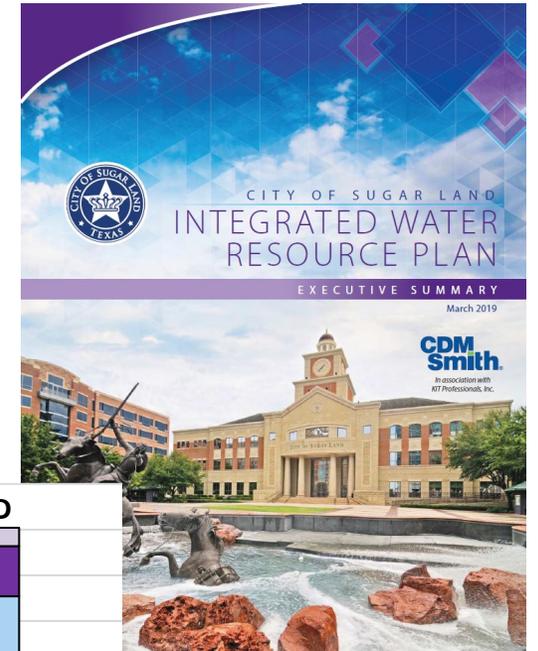
<i>FBSD Year</i>	<i>Demand</i>	<i>Conversion</i>	
<i>April- March</i>		<i>Actual</i>	<i>Percent</i>
2009-10	24.22	1.17	
2010-11	25.43	1.20	
2011-12	30.37	1.29	
2012-13	24.70	0.67	
2013-14	25.03	3.38	
2014-15	22.09	9.39	42%
2015-16	22.87	9.72	42%
2016-17	22.94	8.99	38%
2017-18	23.71	9.97	41%
2018-19	22.63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

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
- Groundwater Credit Policy

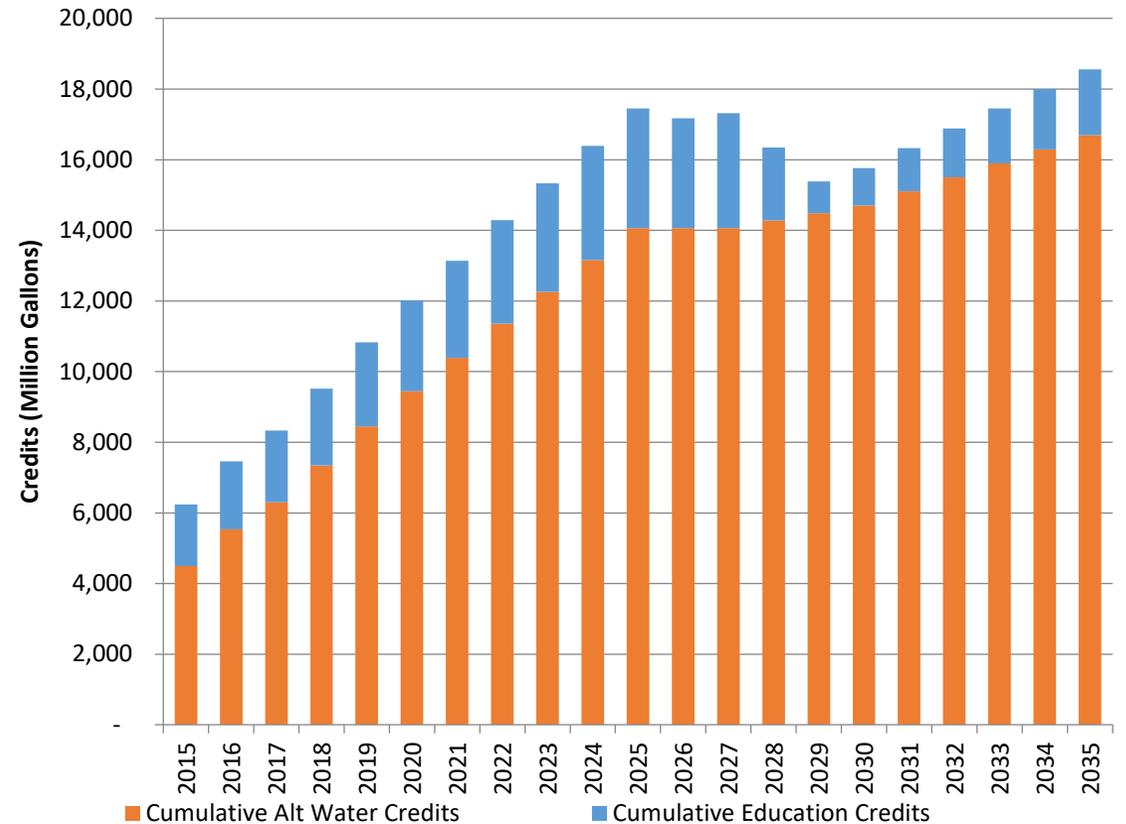


IWRP Implementation

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

Jennifer Brown
Director of Finance

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

- Operations Funded in the System Utility Fund
 - In FY2019 this was combined into the System Utility Fund
- City issued CO's backed by GRP fees in 2011
 - More cost effective than Revenue Bonds
 - GRP Benefits from City's AAA bond rating
 - No bond coverage or reserve requirements
- 2011 CO's were Advance Refunded by GO's in Dec 2017
 - Debt service savings of \$14.94 million to maturity
- Rating agencies are now treating the prior bonds as system revenue debt and including them in coverage calculations
 - Future bond issues will be Revenue Bonds
 - Requires 1.25x coverage and Debt Service Reserves

Rate Study

- 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
- Prior year forecasts showed increases needed over several years to fund current operations and CIP in addition to CIP needs to meet the 60% groundwater reduction mandate

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

Utility Rate Study: Conclusions

- Existing rates are not recovering the cost of services
 - Especially for water and surface water
- Bond coverage requirements not where they need to be
 - City policy is 1.25x on Revenue Bonds
 - Rating agencies use “all-in” coverage - includes additional debt
- Staff identified the need to build revenues to recover cost of services and build capacity for future CIP projects
 - Council Finance/Audit Committee developed the 10/10/7 plan
 - Recognizing and building flexibility for future impacts
 - Council request to delay CIP projects and use GRP credits to meet 60% groundwater reduction mandate as much as possible

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
- Utility Rates
 - Benchmark our rates with our regional partners
 - Build options to fund the projects with fewer total rate increases
 - Options that meet bond coverage requirements
 - Use cash reserves to minimize rate increases

Future Financial Needs

- Model shows rate increases needed to support future debt to be issued to meet 60% Groundwater Reduction Mandate
- In September, City Council approved rates effective January 1, 2023
 - GRP Fee \$3.25
 - Surface Water Fee \$3.49

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

Continued...

Prior Years Capital Improvement Projects

Project Name	Funding
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
Total	\$ 132,635,464

Surface Water Operating Results*

Millions (\$)	FY20	FY21	FY22*
Revenues	\$ 16.09	\$ 16.46	\$22.90
Expenses	13.27	14.87	15.02
Net Income	\$ 2.82	\$ 1.59	7.88
GRP Rate	\$1.93	\$2.50	\$3.01

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

FY23-27 Capital Projects

PROJECT NAME	2023 BUDGET	2024 ESTIMATE	2025 ESTIMATE	2026 ESTIMATE	2027 ESTIMATE	2023-2027 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
Telfair Raw Water Pump Station	260,000	-	-	-	-	260,000
North WWTP Reuse PER	-	-	-	527,000	-	527,000
TOTAL FUNDING	\$260,000	\$-	\$-	\$7,077,000	\$83,809,000	\$91,146,000

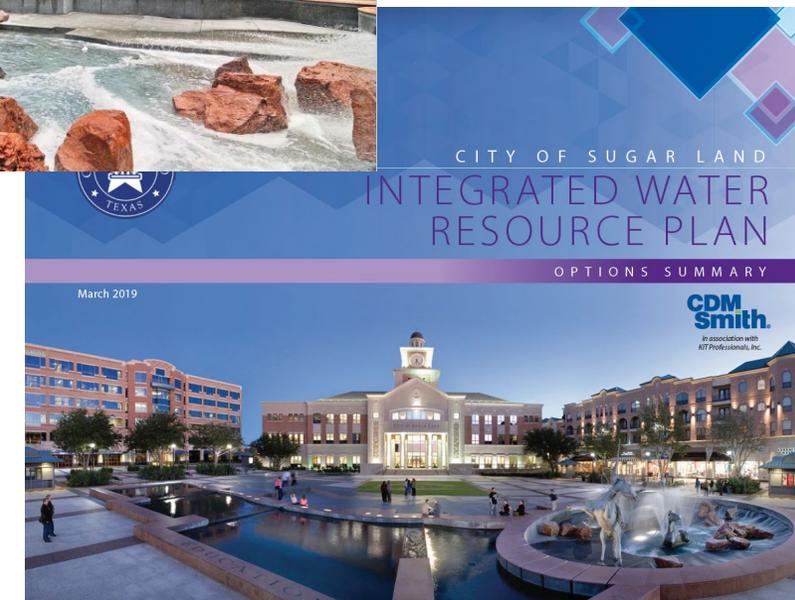
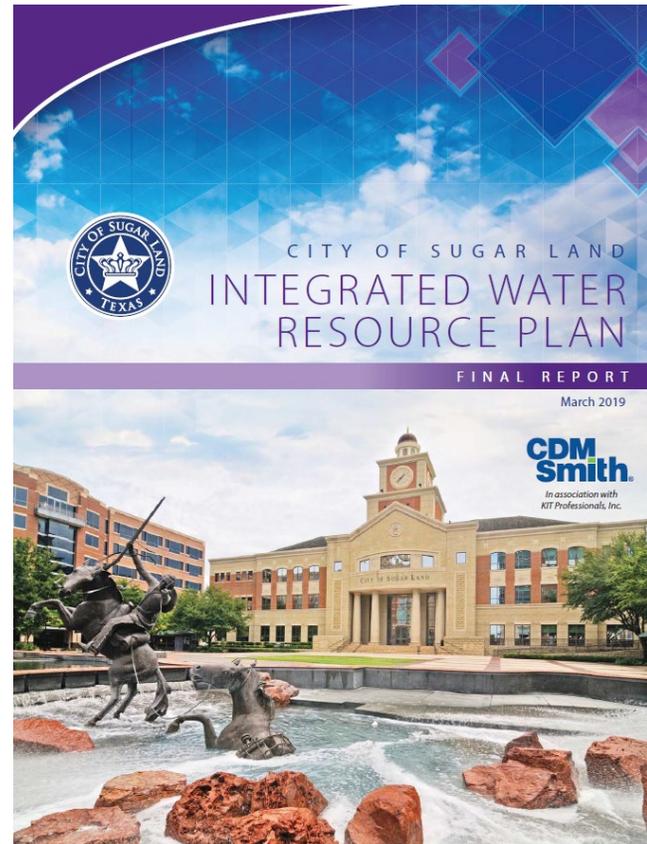
Surface Water Comparative Rates

Per 1,000 Gallons Water Rates	GRP Fee	Surface Water Fee
Sugar Land	\$3.01	\$ 3.23
<i>Sugar Land- Jan 2023</i>	3.25	3.49
Comparative Rates:		
Missouri City (Oct 2020)	1.79	2.38
City of Richmond (Oct 2022)		2.98
City of Rosenberg (January 2020)	2.60	2.60
North Fort Bend Water Authority (Jan 2022)	4.55	4.90
West Harris County Water Authority (Jan 2022)	3.70	4.10

Questions?

www.sugarlandtx.gov/iwrp

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CITY OF SUGAR LAND *Texas*