Groundwater Reduction Plan Participant Meeting

December 11, 2020

2020 Participant Meeting

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

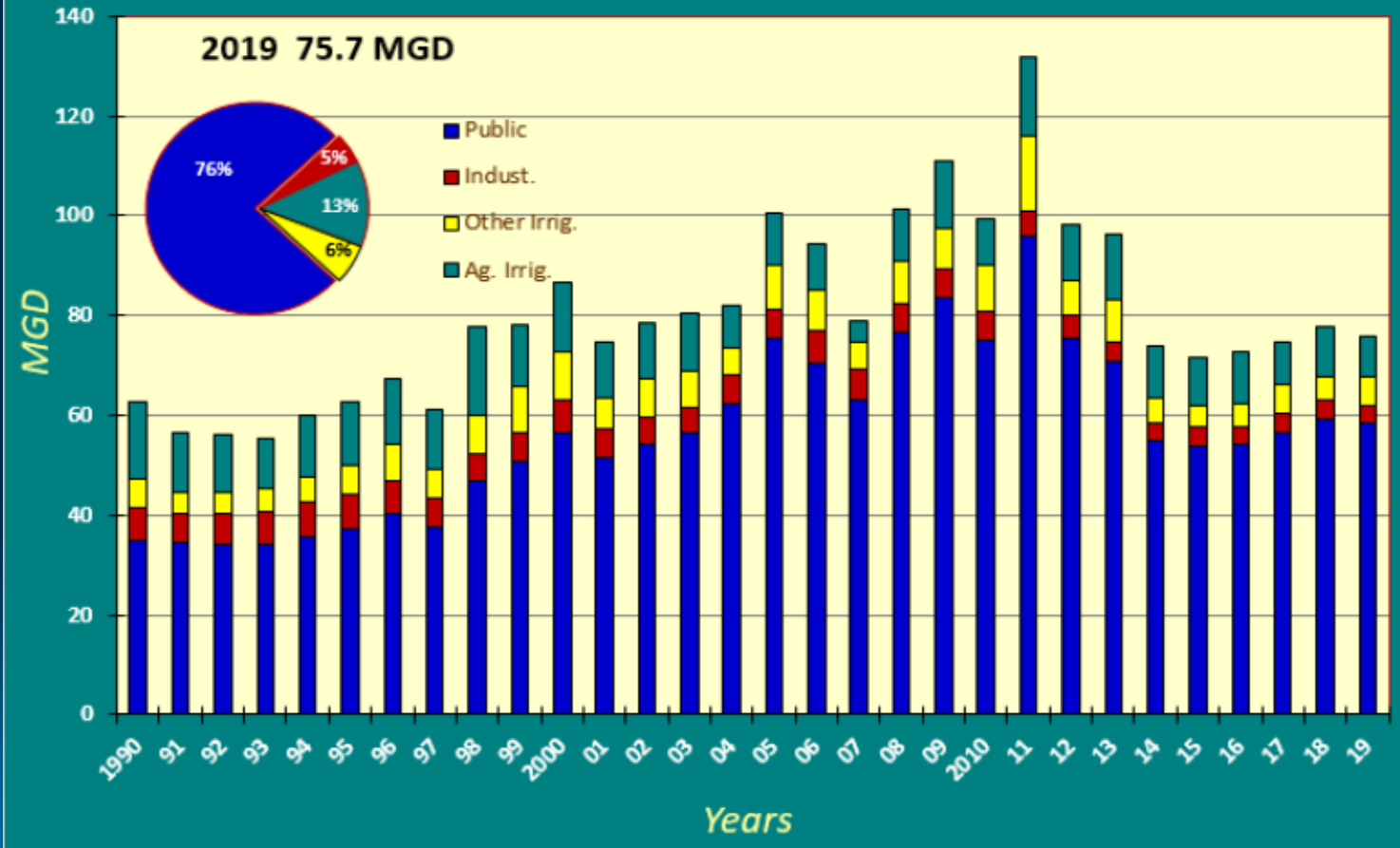
Fort Bend Subsidence District

Robert Thompson
Assistant General Manager

- The 2019 Groundwater Hearing was held virtually on May 28, 2020 at 2:30 am. Approximately 25 people attended.
- With Ms. Helen Truscott presiding, testimony on 2019 climate, water use, groundwater levels and subsidence was presented by Mr. Robert Thompson, Mr. Jason Ramage (USGS),and Ms. Ashley Greuter.
- A companion report has been developed to summarize the testimony given at the 2019 Groundwater Hearing.

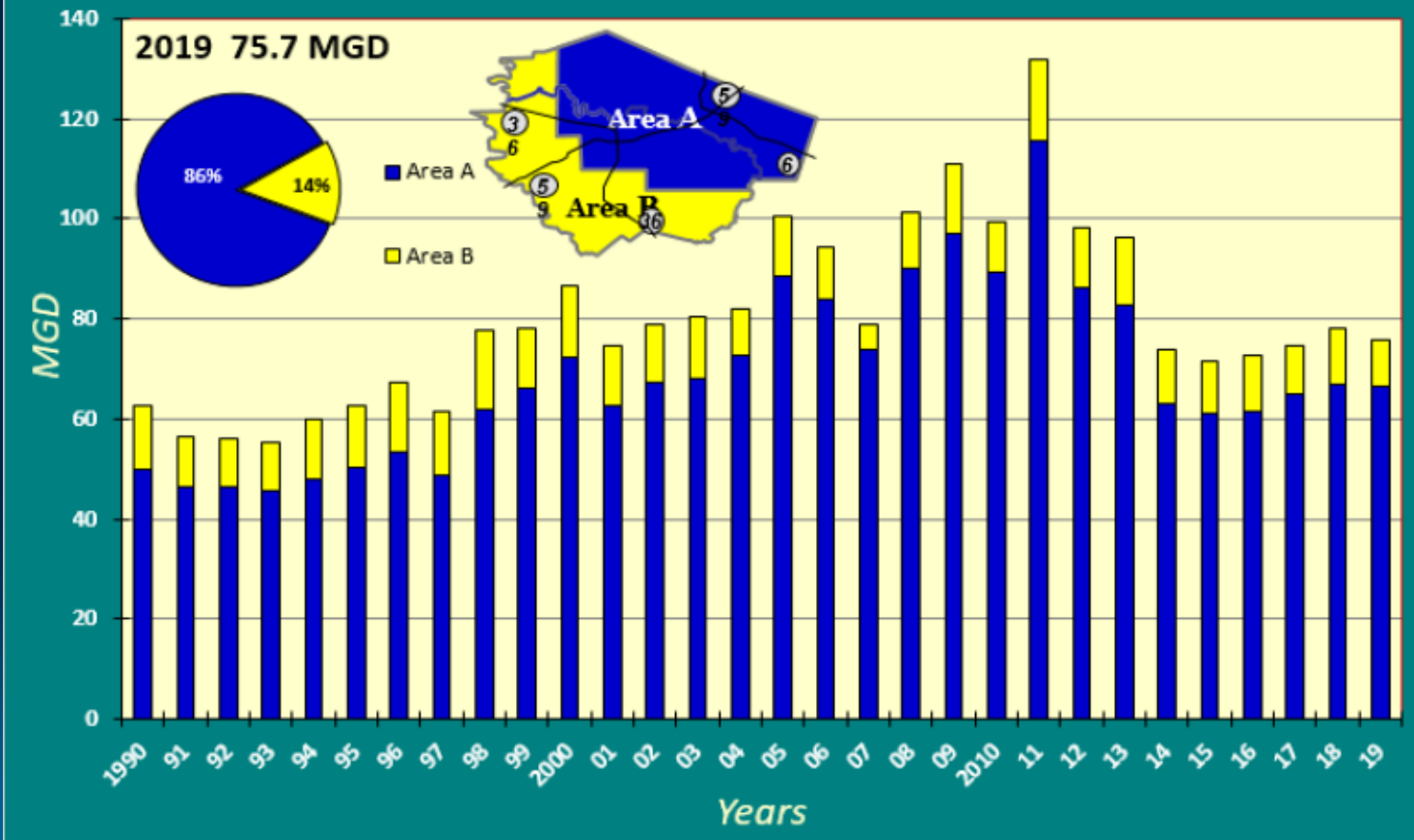
Groundwater Withdrawals

Grouped By Use - Entire District



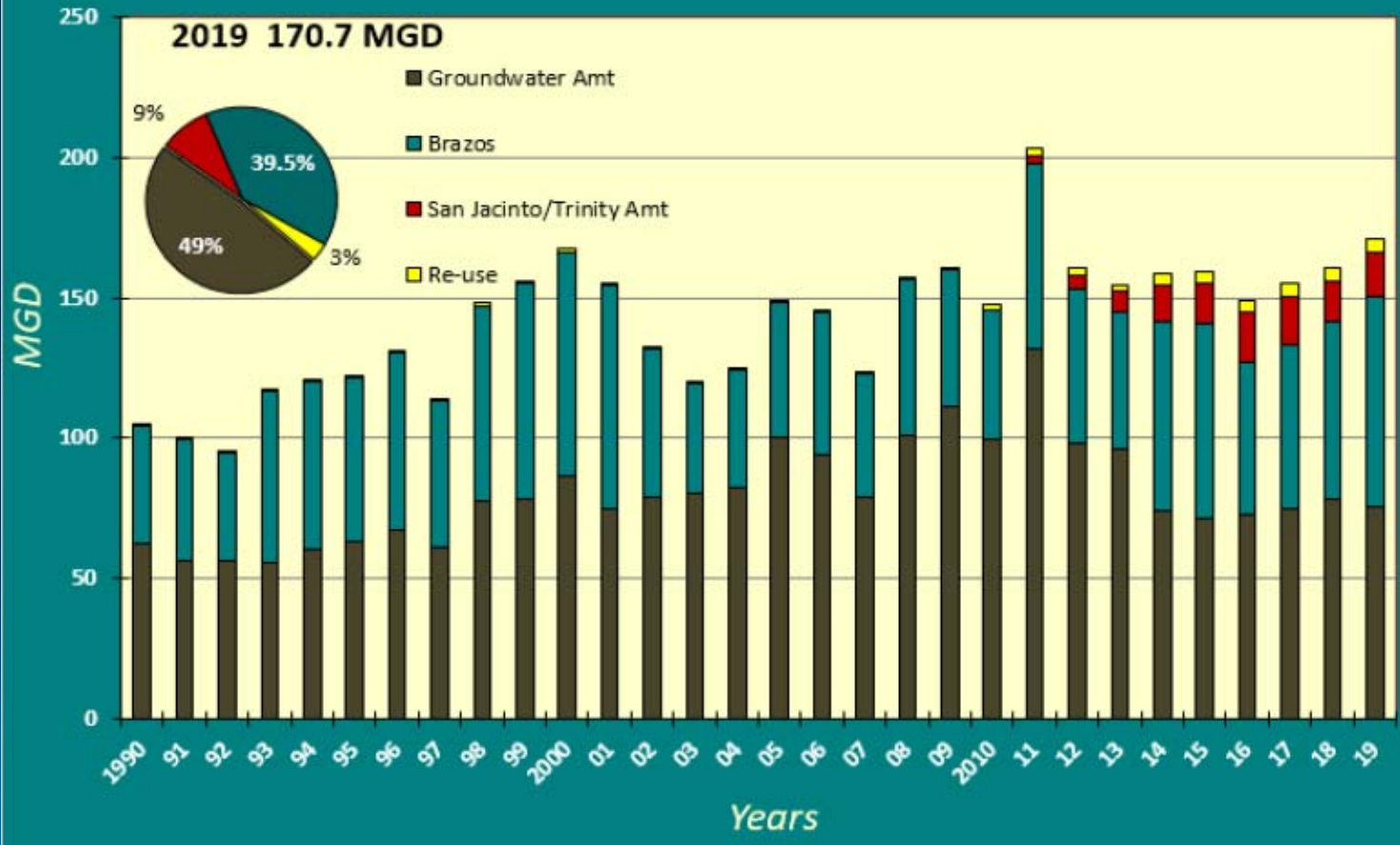
Groundwater Withdrawals

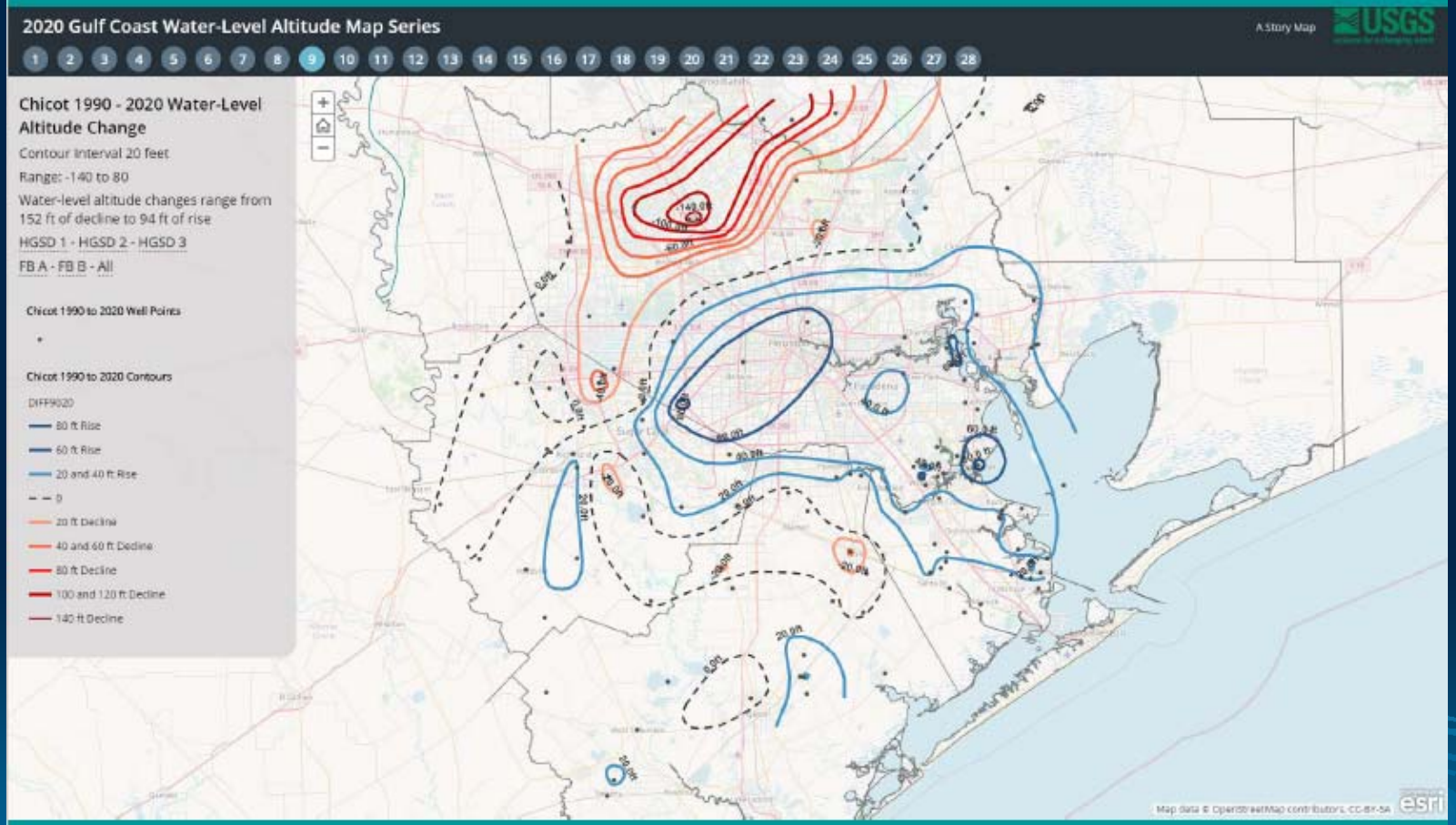
Grouped By Area - Entire District

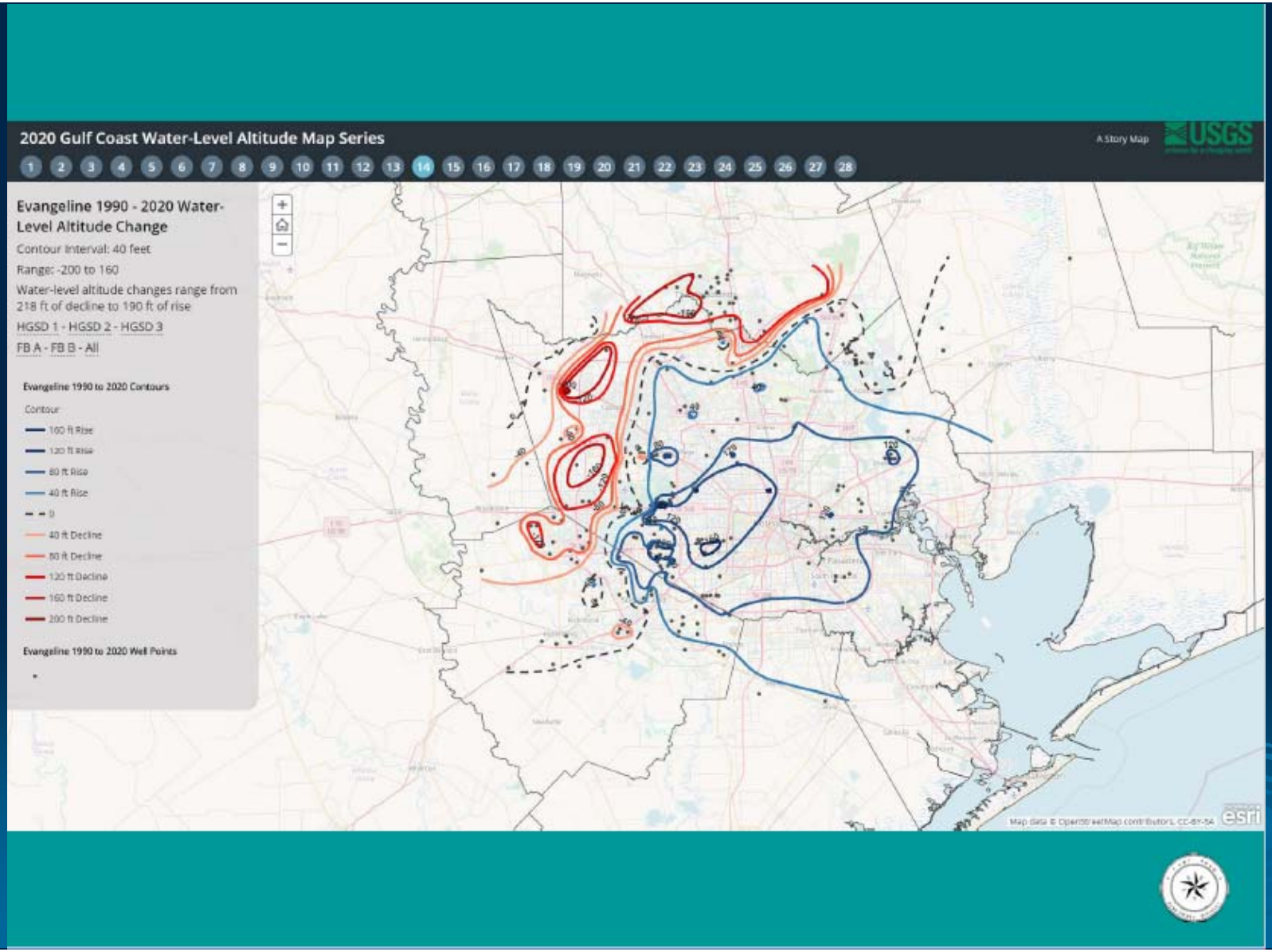


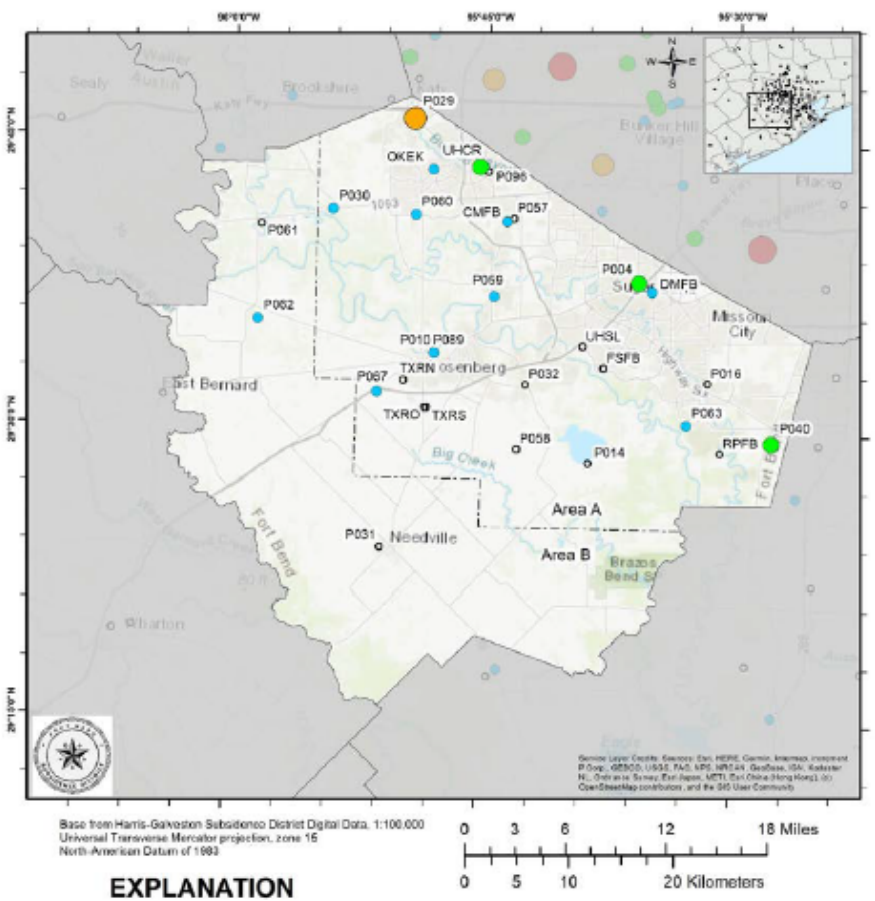
Total Water Demand

Grouped By Source - Entire District

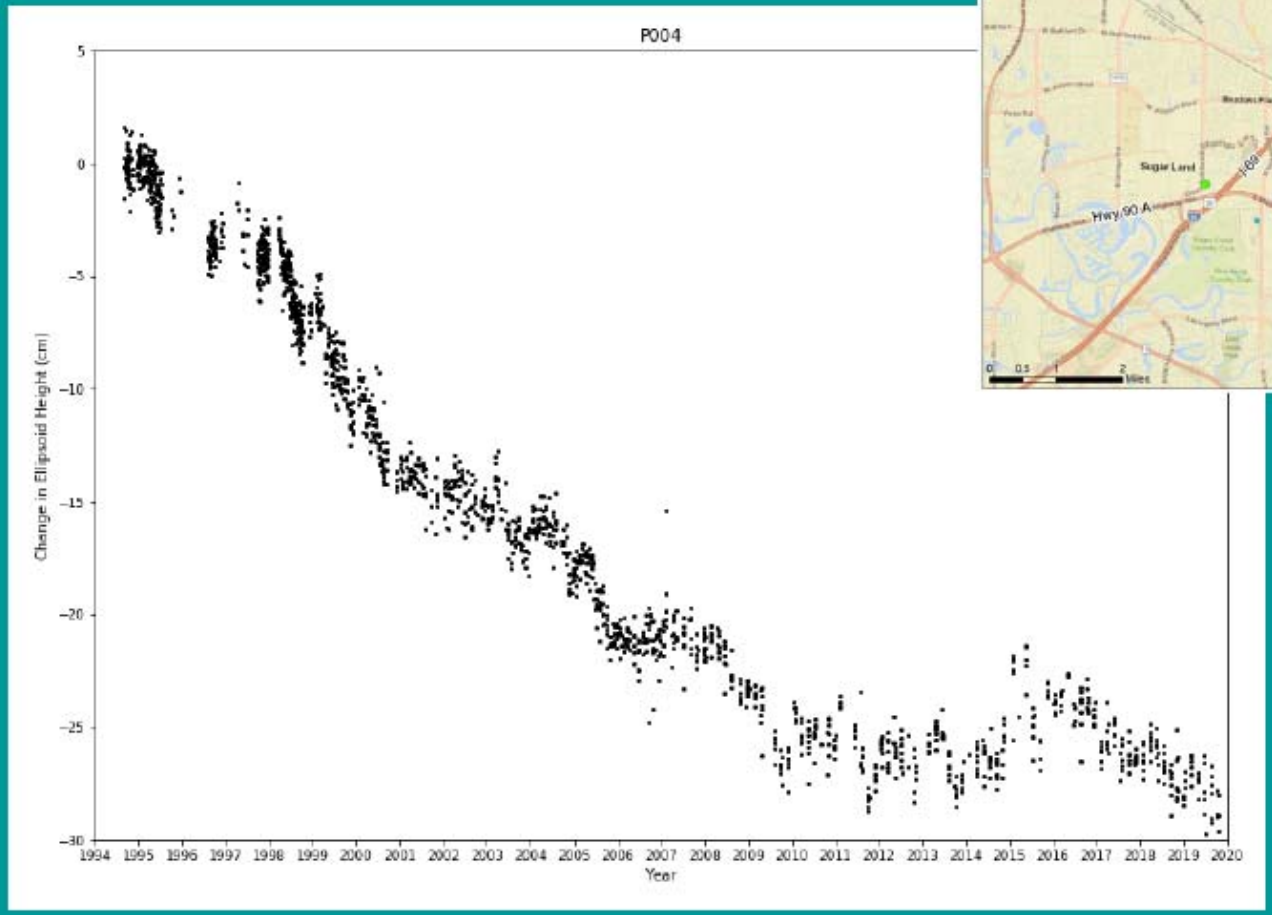



2020 Gulf Coast Water-Level Altitude Map Series
A Story Map
USGS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Chicot 1990 - 2020 Water-Level Altitude Change
Contour Interval 20 feet
Range: -140 to 80
Water-level altitude changes range from 152 ft of decline to 94 ft of rise
HGSD 1 - HGSD 2 - HGSD 3
FB A - FB B - All
Chicot 1990 to 2020 Well Points
Chicot 1990 to 2020 Contours
DIFF9020
80 ft Rise
60 ft Rise
20 and 40 ft Rise
0
20 ft Decline
40 and 60 ft Decline
80 ft Decline
100 and 120 ft Decline
140 ft Decline
Map data © OpenStreetMap contributors, CC-BY-SA
esri


2020 Gulf Coast Water-Level Altitude Map Series
A Story Map
USGS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Evangeline 1990 - 2020 Water-Level Altitude Change
Contour Interval: 40 feet
Range: -200 to 160
Water-level altitude changes range from 218 ft of decline to 190 ft of rise
HGSD 1 - HGSD 2 - HGSD 3
FB A - FB B - All
Evangeline 1990 to 2020 Contours
Contour
160 ft Rise
120 ft Rise
80 ft Rise
40 ft Rise
0
40 ft Decline
80 ft Decline
120 ft Decline
160 ft Decline
200 ft Decline
Evangeline 1990 to 2020 Well Points
Map data © OpenStreetMap contributors, CC-BY-SA
esri

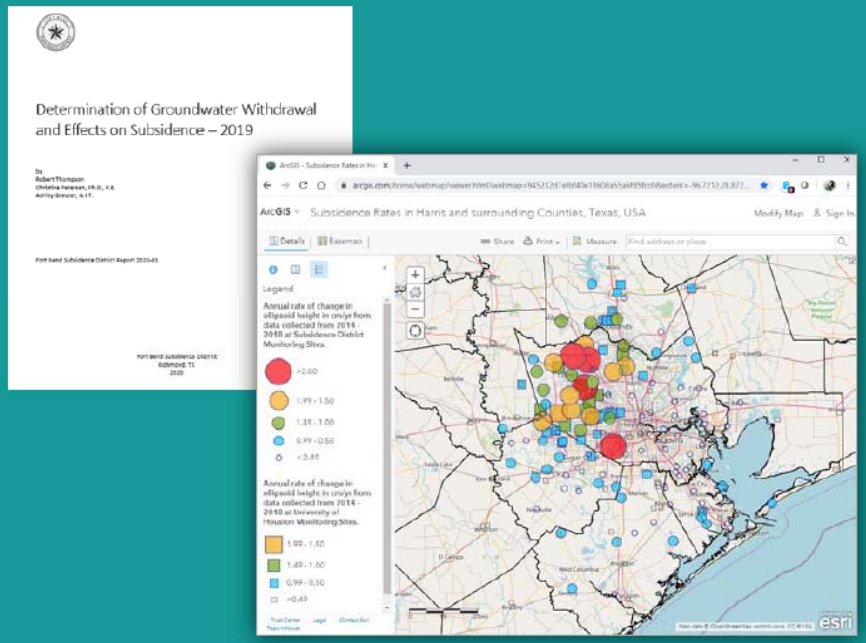

P029
OKEK
UHCR
P096
P030
P060
CMFB
P057
P061
P004
DMFB
P069
P062
P010
P089
UHSL
FSFB
TXRN
P067
P032
P016
TXRO
TXRS
P063
P040
P058
P014
RPFB
Area A
P031
Needville
Area B
Fort Bend
Big Creek
Missouri City
Sugar Land
Rosenberg
East Bernard
Wharton
Brazos Bend St
Base from Harris-Galveston Subsidence District Digital Data, 1:100,000
Universal Transverse Mercator projection, zone 15
North American Datum of 1983
0 3 6 12 18 Miles
0 5 10 20 Kilometers
EXPLANATION
Subsidence Rate (cm/yr) from 2015 to 2019
Greater than 2.0
1.9 - 1.5
1.4 - 1.0
0.9 - 0.5
Less than 0.5 or period of record less than 3 years
Annual subsidence rate, in centimeters per year, estimated from periodic and continuous GPS data measured at GPS monitoring sites in Fort Bend and Surrounding Counties, Texas, 2015-2019.

Sugar Land



FBSD Exhibit 17

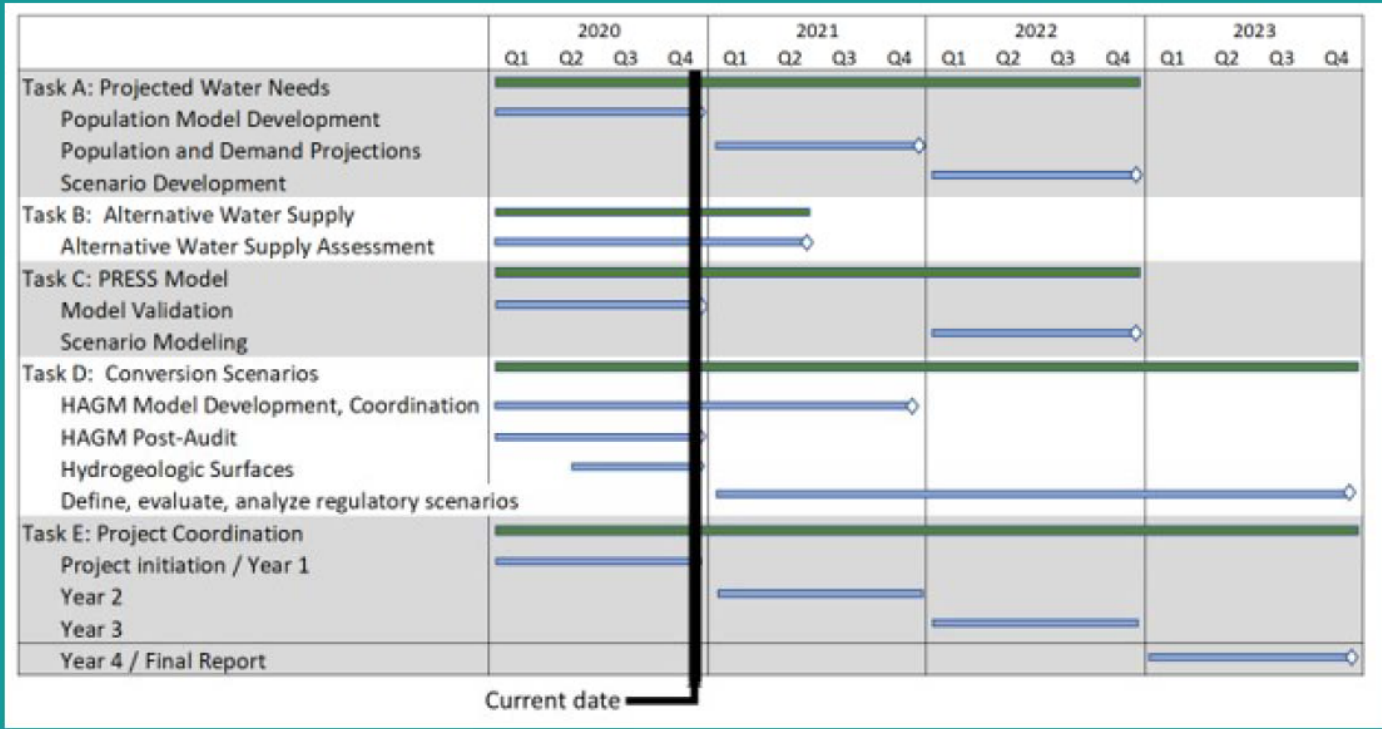
- Companion report and interactive ArcGIS Annual Subsidence Rate map will be posted on website following board approval



Joint Regulatory Plan Review

- Contracts were signed in late 2019.
- In Conjunction with HGSD.
- Work began January 2020.
  - Task A-Development of 2020 Projected Water Needs-FNI
  - Task B-Alternative Water Supply Assessment-KIT
  - Task C-PRESS Modeling-FNI & Intera
  - Task D-Conversion Scenarios-Intera & USGS
  - Task E-Project Coordination and Stakeholder Involvement-FNI

Task	Responsible Party	Deliverable	Anticipated Delivery Date	Status
A	FNI	Technical memorandum (TM) on population model development	Q1 2021	**ON SCHEDULE**. Draft memo is expected in early 2021.
	FNI	TM on water demand and population projection methodologies	Q3 2022	Not yet authorized
	FNI	TM on conversion scenario development	Q3 2022	Not yet authorized
B	KIT	Recommendations Report	Q4 2021	**AHEAD OF SCHEDULE.** Draft report is expected in early 2021.
C	FNI	TM on the update and verification of the PRESS models	Q3 2020	**ON SCHEDULE**. Draft memo received in Q3. Final memo is expected by end of the year.
	INTERA	TM on the suitability of MODFLOW 6 to replace PRESS	Q4 2020	**ON SCHEDULE**. Draft memo expected by end of the year.
	FNI	TM on conversion scenario development	Q1 2023	Not yet authorized
D	INTERA	TM on results of the post-audit of the 2013 regulatory plan modeling;	Q4 2020	**ON SCHEDULE**. Draft memo expected by end of the year.
	USGS	Scientific Investigations Report documenting climate and recharge inputs for the MODFLOW Groundwater Model	Original: Q1 2021 Revised: Q3 2021	**SCHEDULE REVISED TO Q3 2021**. USGS schedule is delayed because of COVID-19 and the complexity of the task of the task. We do not anticipate any impact to overall project schedule as a result of this schedule revision.
	USGS	MODFLOW Groundwater Model Peer-Reviewed Model documentation		
	INTERA	TM on hydrogeologic surfaces for the Gulf Coast Aquifer System	Q3 2020	**COMPLETE**. Draft report received in Q3 and final report has also been
	INTERA	TM on conversion scenario approach, results and recommendations.	Q1 2023	Not yet authorized
E	FNI	Comprehensive Final Technical Report	Q2 2023	**ON SCHEDULE.** Task initiated. Draft report not anticipated until 2023.
	FNI	Executive Summary	Q2 2023	Not yet authorized


2020
2021
2022
2023
Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
Task A: Projected Water Needs
Population Model Development
Population and Demand Projections
Scenario Development
Task B: Alternative Water Supply
Alternative Water Supply Assessment
Task C: PRESS Model
Model Validation
Scenario Modeling
Task D: Conversion Scenarios
HAGM Model Development, Coordination
HAGM Post-Audit
Hydrogeologic Surfaces
Define, evaluate, analyze regulatory scenarios
Task E: Project Coordination
Project initiation / Year 1
Year 2
Year 3
Year 4 / Final Report
Current date

Groundwater Reduction Plan Implementation Update

Katie Clayton, P.E.
Assistant Director of Public Works

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

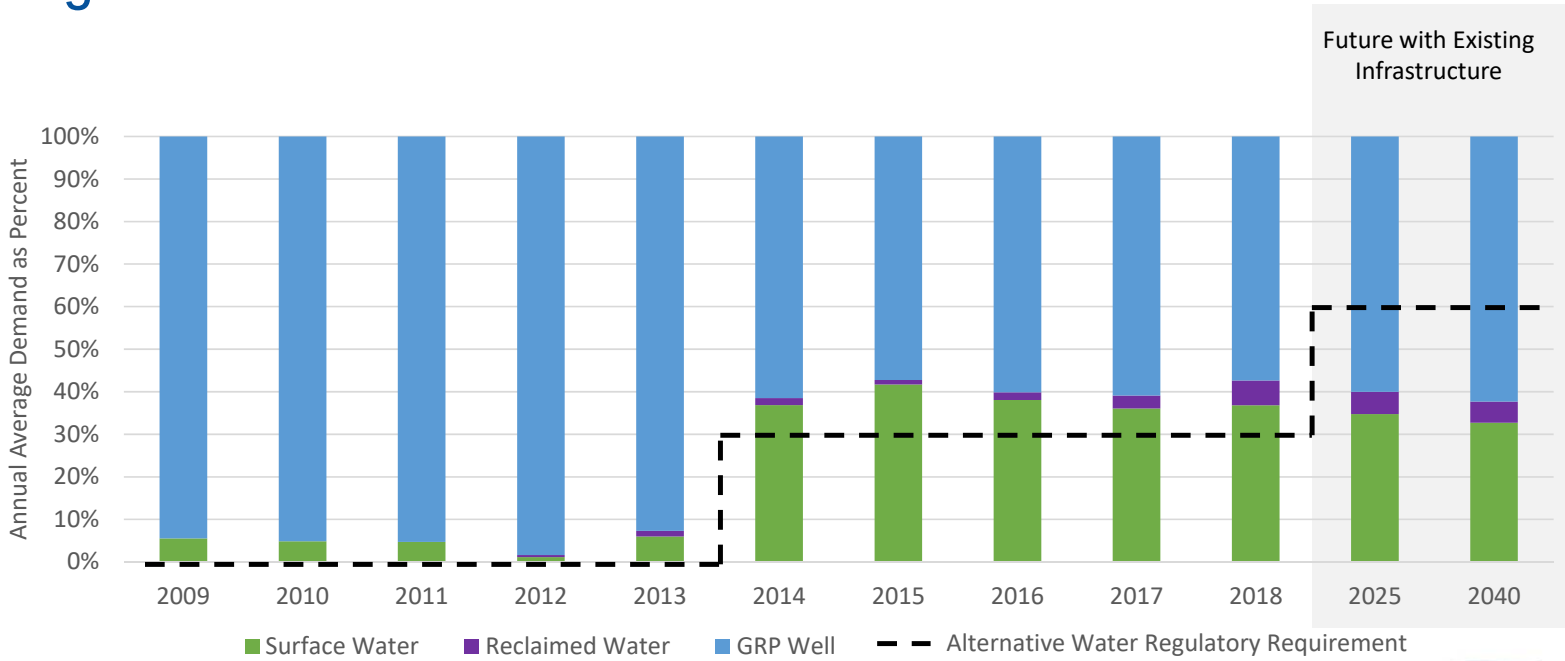
FBSD Year	*Demand*	*Conversion*	
April- March		*Actual*	*Percent*
2009-10	**24.22**	**1.17**	
2010-11	**25.43**	**1.20**	
2011-12	**30.37**	**1.29**	
2012-13	**24.70**	**0.67**	
2013-14	**25.03**	**3.38**	
2014-15	**22.09**	**9.39**	**42%**
2015-16	**22.87**	**9.72**	**42%**
2016-17	**22.94**	**8.99**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

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

Planning for 2025 Conversion Requirements

- GRP was approved in 2008
- Integrated Water Resource Plan

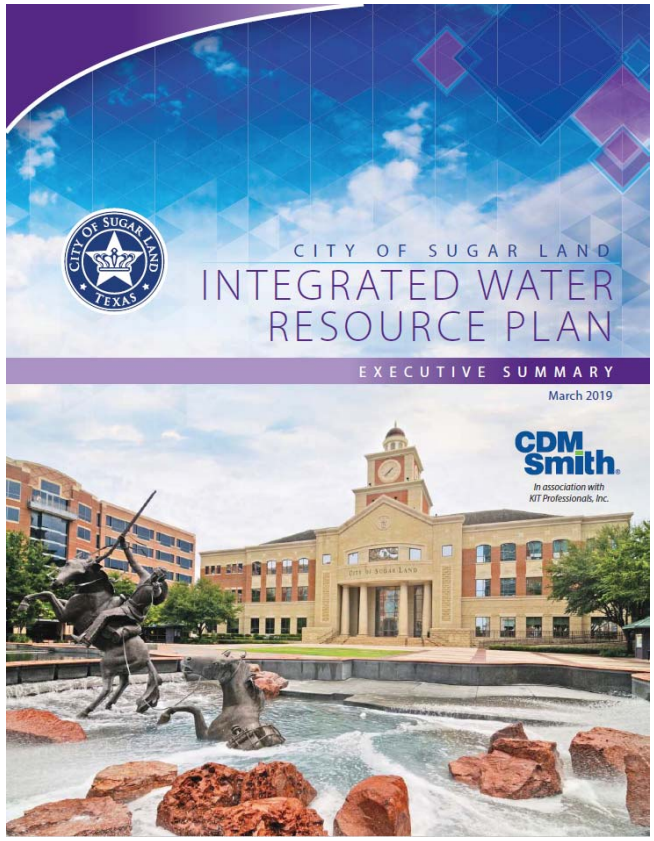


Planning for 2025 Conversion Requirements

Traditional Approach		Integrated Approach
• Cost • Yield	VS	• Community Vision • Stakeholder Participation • Council and Citizen Task Forces • Comprehensive Process • CIP/ Policies/ Best Practices • Reliability, Risk • Innovation • Accountability/ Performance Measures

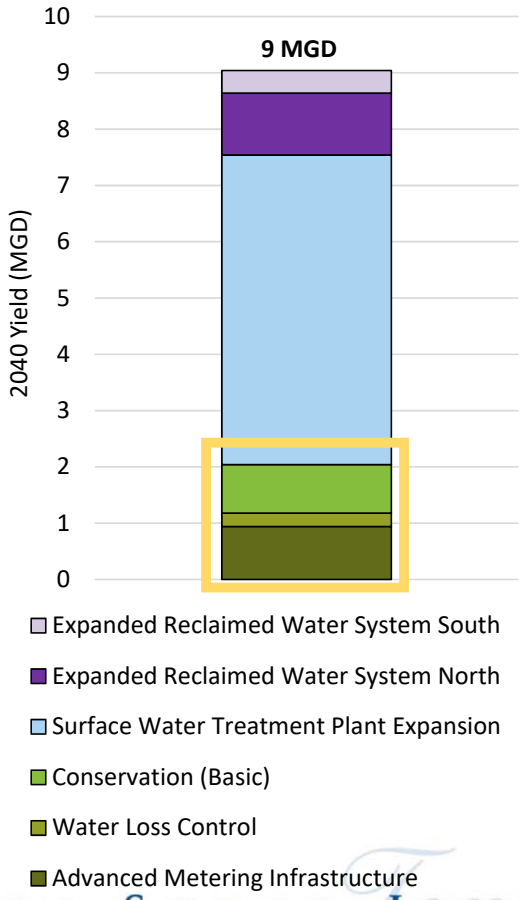
Integrated Water Resource Plan

- Recommended by:
  - Council Task Force
  - Citizen Task Force
  - City Council- approved 3/19/2019
- Diversified portfolio of water supplies:
  - Continued focus on surface water
  - Expansion of the reclaimed water system
  - Emphasis on demand management



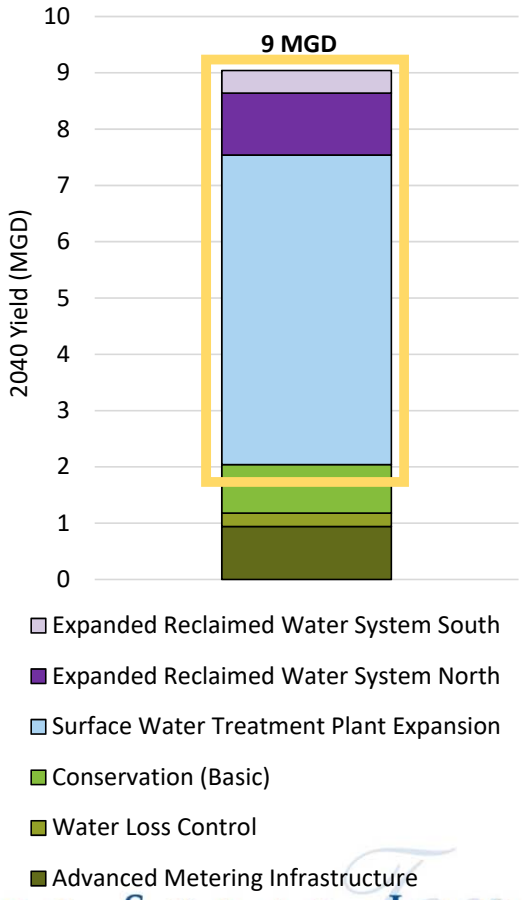
IWRP Recommendations

- Basic Conservation
  - Focused on voluntary reduction
  - Education, outreach and incentives
  - Indoor and outdoor demands
- Advanced Metering Infrastructure
  - Integrated system of water meters, communication networks and data management systems
  - Increases system efficiency
- Water Loss Control
  - Increased focus on opportunities to control water loss in distribution system



IWRP Recommendations

- Surface Water Treatment Plant Expansion of 5.5MGD
  - Associated transmission lines to New Territory and groundwater plant improvements
  - Exercise GCWA Option Water and new Water Supply Contract with BRA (SysOp)
- Expanded Reclaimed Water Facilities
  - South WWTP Expansion
  - North WWTP Construction
  - Amenity Lake filling and irrigation



IWRP Implementation

- Strategic plan for project timing
- Ability to monitor progress and adapt
- 2019
  - City Council approval of IWRP
- 2020
  - Rate Study Ph1
  - BRA Water Supply Contract
  - Policy Review and Update
  - PER for SWTP Expansion
  - PER for SW Transmission Lines
  - Water Loss Audit
  - Asset Management Programs
  - Water & Wastewater Master Plan Updates

IWRP Implementation

- 2021
  - Rate Study Ph2
  - PER of SWTP Expansion and Transmission Lines
  - PER for Groundwater Plant Conversions
  - Advanced Metering Infrastructure Ph1
  - Conservation Programs
  - Water Loss Control Programs
  - Groundwater Credit Policy

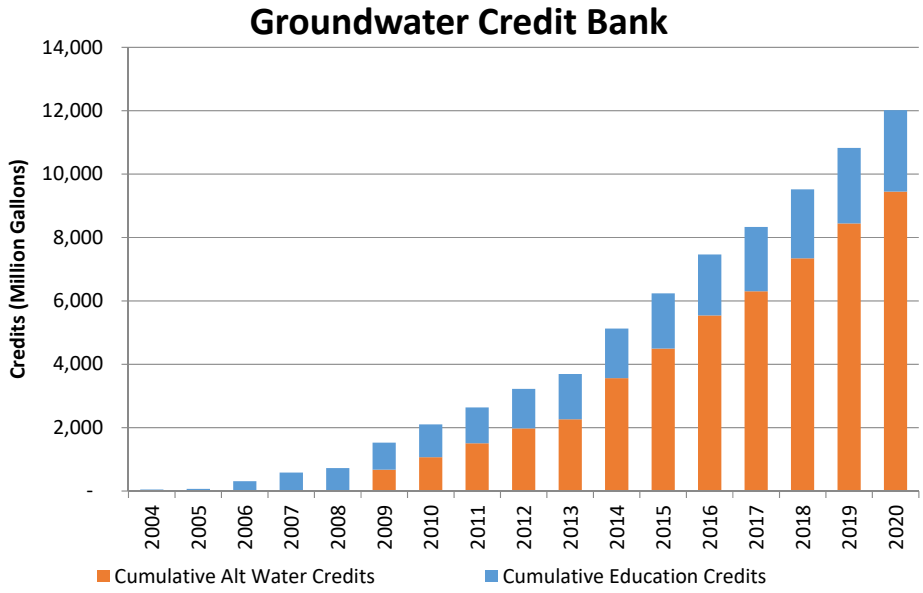
IWRP Implementation

- Groundwater Credit Bank
  - IWRP showed importance through recommendations to continue to utilize Credit Banking
  - IWRP recommendation to develop a policy for managing, using or selling surplus credits
  - 2 Types of Credits:
    - Over-conversion Credits
      - Earned for gallons of alternative water utilized over requirements
      - Reclaimed water- 1:1.5 gallons
      - NO expiration date
    - Education Credits
      - Students in the “Learning to be Water Wise” conservation program
      - 20 year expiration date
      - Can only be used for 30% of total demand

IWRP Implementation

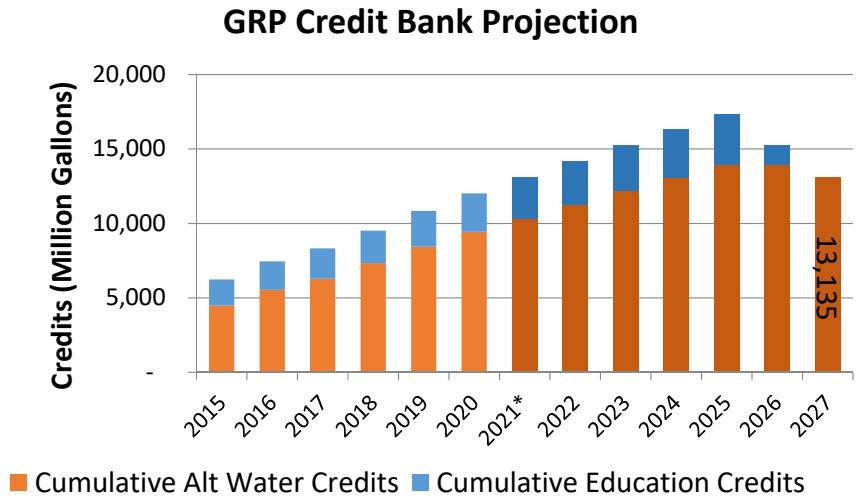
Groundwater Credit Bank

1) Surface Water Treatment Plant
2) Raw Water Customers
3) Reclaimed Water
4) Sponsor 1,800 Students in Water Wise Program



IWRP Implementation

- Ability to utilize groundwater credits for 2025 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



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

Utility Rate Study

- Strategic Project – Utility Rate Study
  - Water & WW Rates
  - Surface Water and GRP Rates
- Phase I – FY20 gather data and consultant complete the current Utility Rate Model for FY21-25
- IWRP identified significant capital investments that were built into phase I of Utility Rate Study
- Calculate revenue requirements to support Operating Needs & future Capital Projects funding

Future Financial Needs

- Phase II to address policy issues such as
  - Wastewater Reuse Rates
  - Updates to Billing Structure
  - GRP Credit Bank
  - Cost Recovery Fees
- 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, 2021
  - GRP Fee $2.50
  - Surface Water Fee $2.69

FY21 Rate Strategies

- Evaluated Options for Surface Water
  - Fiscally responsible government
  - Focus on financial resiliency
  - Where possible take steps to improve bond rating
  - Use the groundwater credits to delay CIP Construction (if reasonable)
  - Build options that meet bond coverage requirements
  - Use cash reserves to minimize rate increases
  - Build options to fund the projects with fewer total rate increases
  - Build flexibility to address outcomes from ongoing initiatives
  - Benchmark our Rates with our regional partners

Prior Years Operating Results- Cash Basis

In $M	Revenue	Expense	Net	GRP Rate
FY 11*	106.38	101.36	5.01	0.70
FY 12	10.00	10.32	-0.32	1.32
FY 13	13.15	7.05	6.10	1.50
FY14	13.47	14.40	0.92	1.75
FY15	13.33	14.10	0.77	1.75
FY16*	25.20	25.59	-0.39	1.75
FY17*	26.73	26.61	0.13	1.75
FY18*	103.74	101.14	2.60	1.75

- Includes Bond Proceeds and Capital Projects
- Figures not stated on a GAAP basis
- Net may not add due to rounding

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	605,250
SW Transmission Line to NT	160,000
SWTP Yard Pipe & Aerial Crossing Recoating	300,000
Total	**$ 131,961,664**

Surface Water Operating Results*

Millions ($)	FY19	FY20
Revenues	$ 14.77	$ 16.09
Expenses	13.48	13.27
Net Income	1.29	2.82
GRP Rate	**$ 1.75**	**$ 1.93**

Not Stated on a GAAP Basis
Excludes Capital Projects and Bond Proceeds
Revenues include Inter-Fund Loan Repayment and Sale of Water to 3rd party

FY21-25 Capital Projects

PROJECT NAME	2021 BUDGET	2022 ESTIMATE	2023 ESTIMATE	2024 ESTIMATE	2025 ESTIMATE	2021-2025 TOTAL
Surface Water Treatment Plant Expansion	191,000	-	-	2,918,000	50,221,210	53,330,210
Surface Water Transmission Lines	317,800	-	-	1,732,000	12,630,200	14,680,000
Surface Water Treatment Plant Yard Pipe & Aerial Crossing Recoating	-	-	-	-	-	-
Groundwater Plant Surface Water Conversion	165,000	-	-	495,000	10,428,000	11,088,000
Advanced Meter Integration (AMI)	1,710,700	9,656,400	-	-	-	11,367,100
Surface Water Treatment Plant Ground Storage Tanks	-	-	-	-	275,000	275,000
TOTAL FUNDING	**2,384,500**	**9,656,400**	**-**	**5,145,000**	**73,554,410**	**90,740,310**

Surface Water Comparative Rates

Per 1,000 Gallons 2020 Rates	GRP Fee	Surface Water Fee
Sugar Land	$1.93	$ 2.09
Sugar Land- Jan 2021	2.50	2.63
Comparative Rates:		
Missouri City (Oct 2020)	1.79	2.38
City of Richmond (June 2019)		2.42
City of Rosenberg (Jan. 2020)	2.60	2.60
North Fort Bend Water Authority (Jan 2021)		4.60
Pecan Grove	1.50	1.50
West Harris County Water Authority (Jan 2021)	3.45	3.85

Questions?

www.sugarlandtx.gov/iwrp

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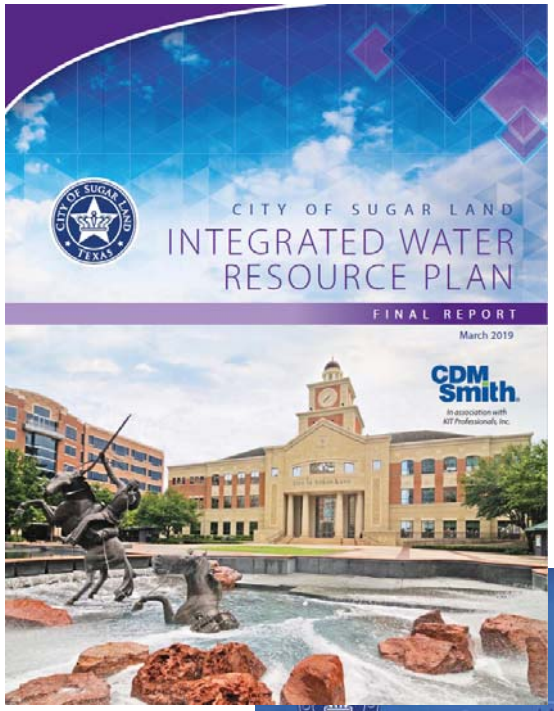
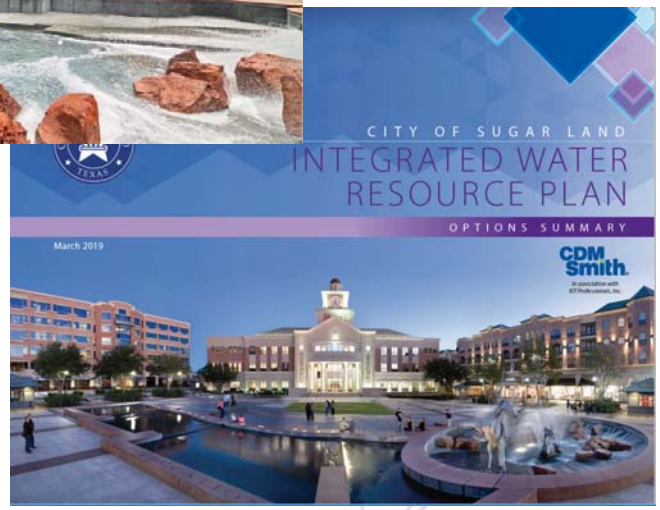
281-275-2083





CITY OF SUGAR LAND