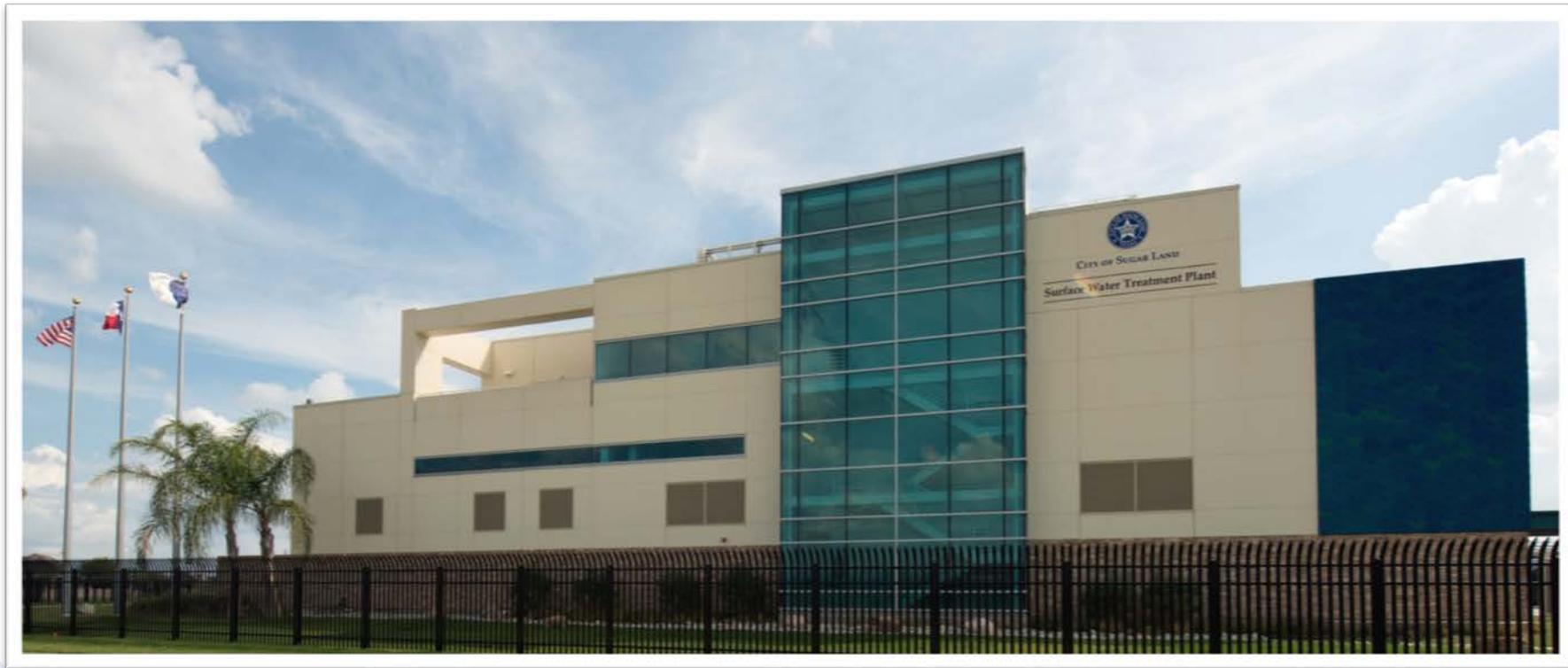




Groundwater Reduction Plan Participant Meeting

Thursday, October 17, 2019



2019 Participant Meeting



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



Fort Bend Subsidence District

**Sugar Land GRP
Participant Meeting
October 17, 2019**

2013 Regulatory Plan Key Elements

Regulatory Areas & Conversion Requirements

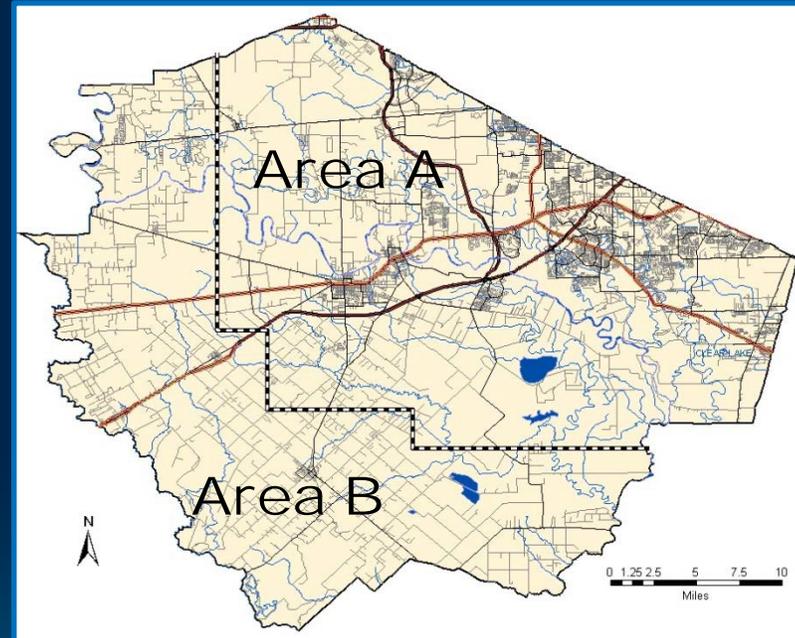
Area A

Reduce GW pumpage by 30%

Reduce GW pumpage by 60% by 2025

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

Disincentive Fee currently set in 2013 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

There have been no changes to the District Plan since it was adopted in 2013.

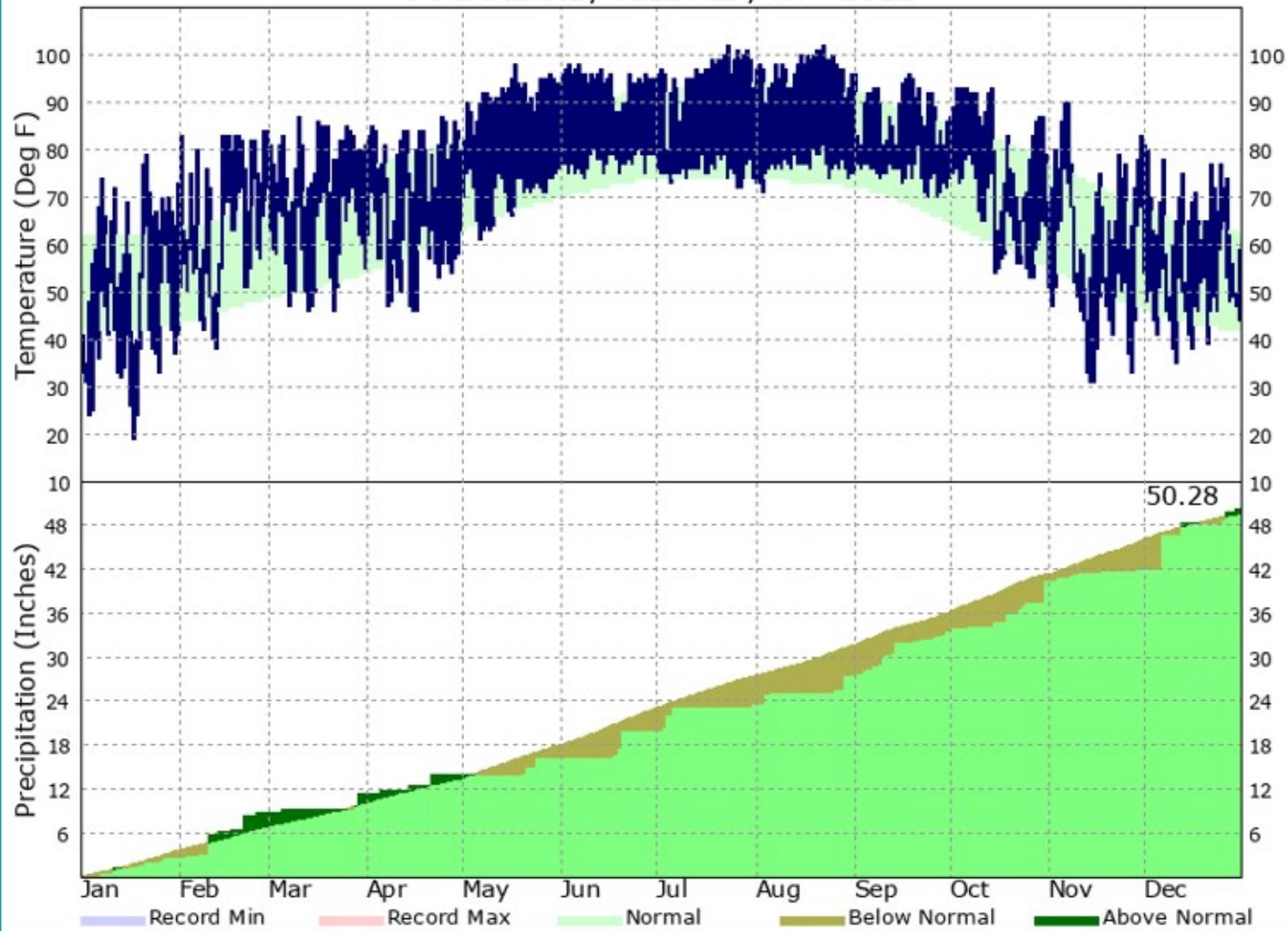
However, the FBSD Board adopted new Rules on September 28, 2016. There were three significant changes.

1. The one small-well exemption has been removed.
2. New wells for houses and/or irrigation for houses require permits and meters, if other water is available.
3. All wells are now required to be metered except for some wells with an allocation of 1.0 MG or less.

Studies and Projects

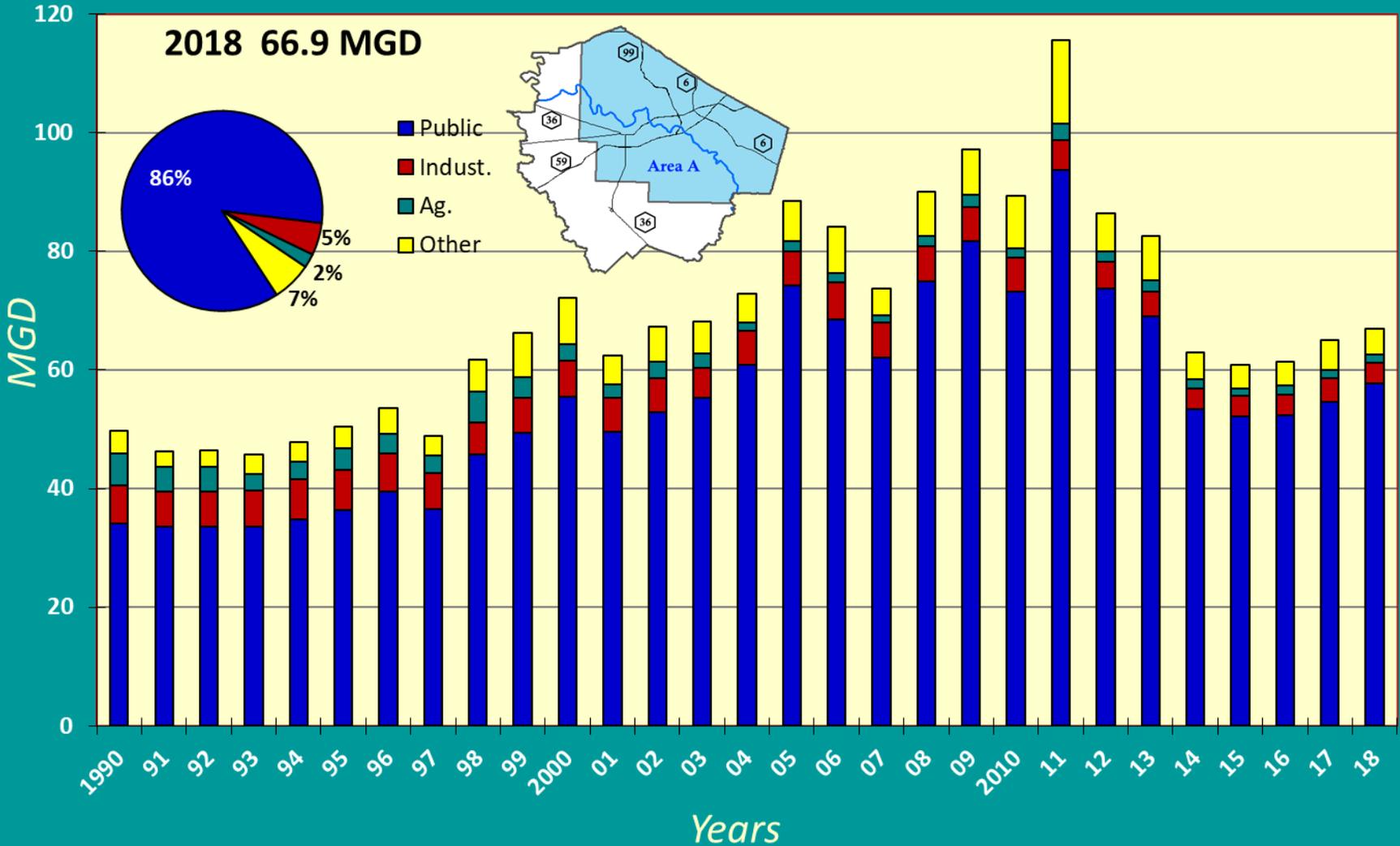
- **The Subsidence District completed a study entitled the “Evaluation of Projected Population and Water Demands in Fort Bend County.”**
- **The Subsidence District is currently working with the Harris-Galveston Subsidence District for an upcoming project that will begin next year. This will be for the Regional Groundwater Update Project. This was last conducted from 2010 to 2013.**

SUGARLAND/HULL FLD, TX - 2018



Groundwater Withdrawals

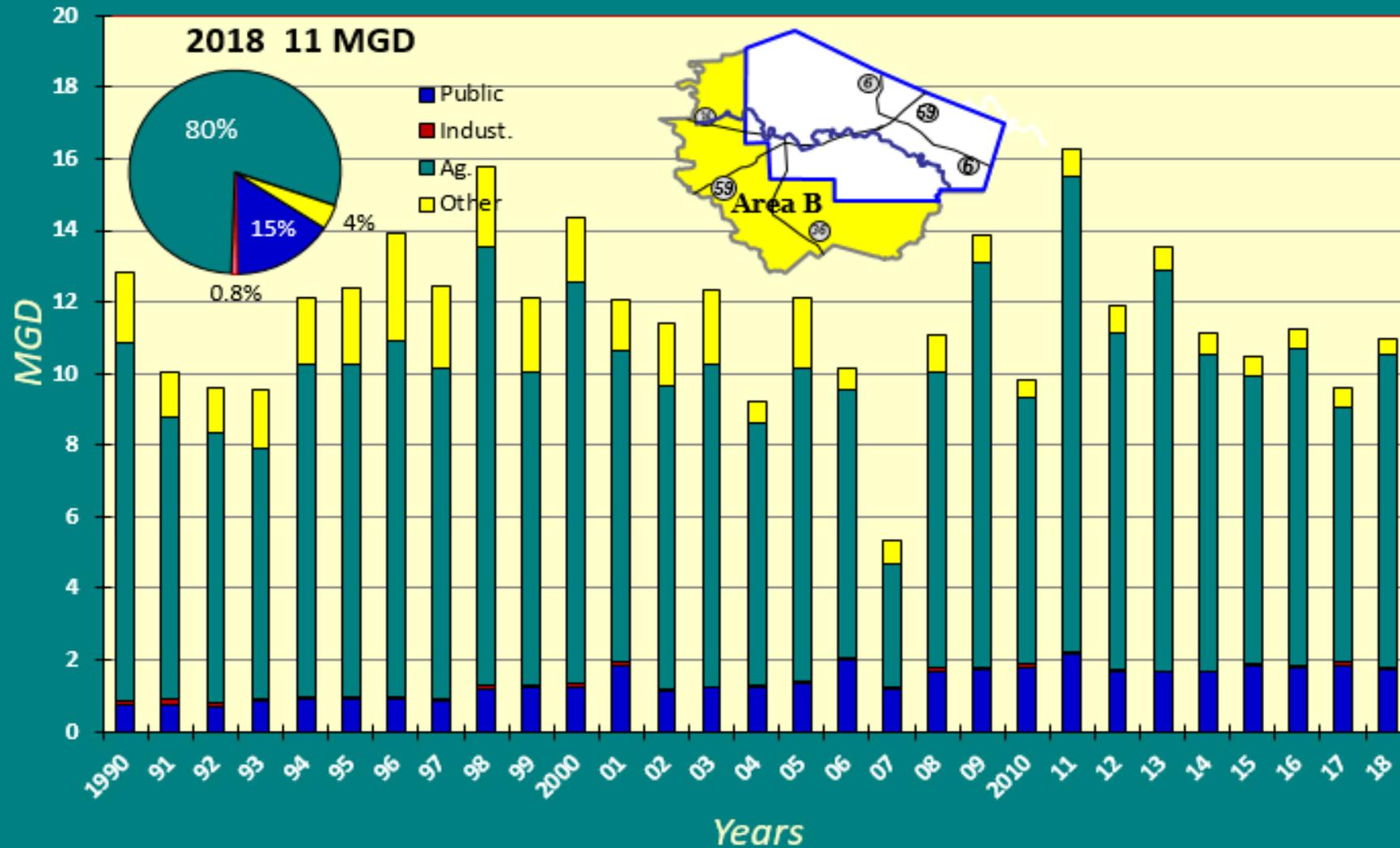
Grouped by Use - Regulatory Area A





Groundwater Withdrawals

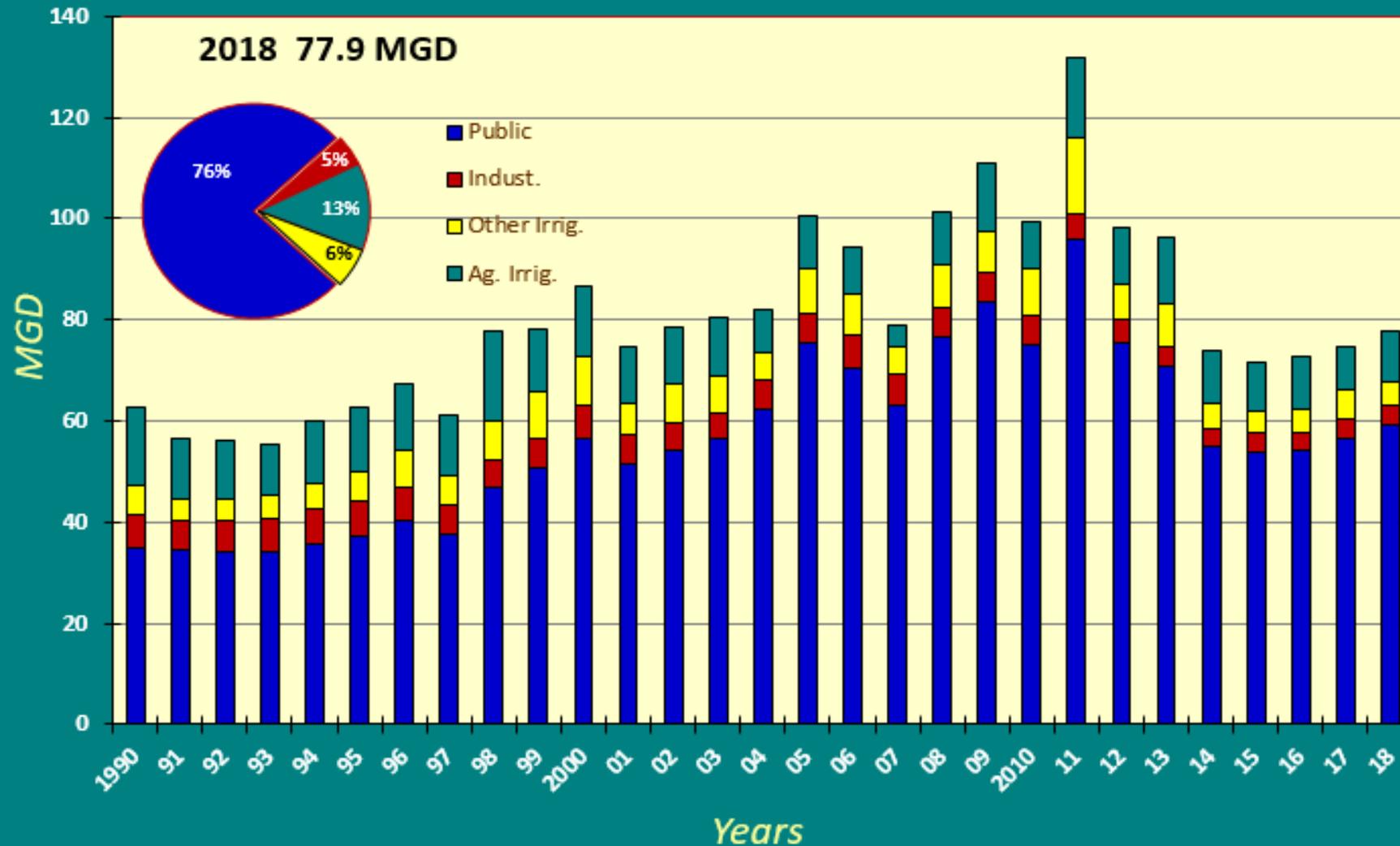
Grouped by Use - Regulatory Area B





Groundwater Withdrawals

Grouped By Use - Entire District



Chicot 1990 - 2019 Water-Level Altitude Change

Contour Interval 20 feet

Range: -120 to 80

Changes range from 139 ft of decline to
94 ft of rise

Chicot 1990 to 2019 points



Chicot 1990 to 2019 contours

Contour

80

60

40

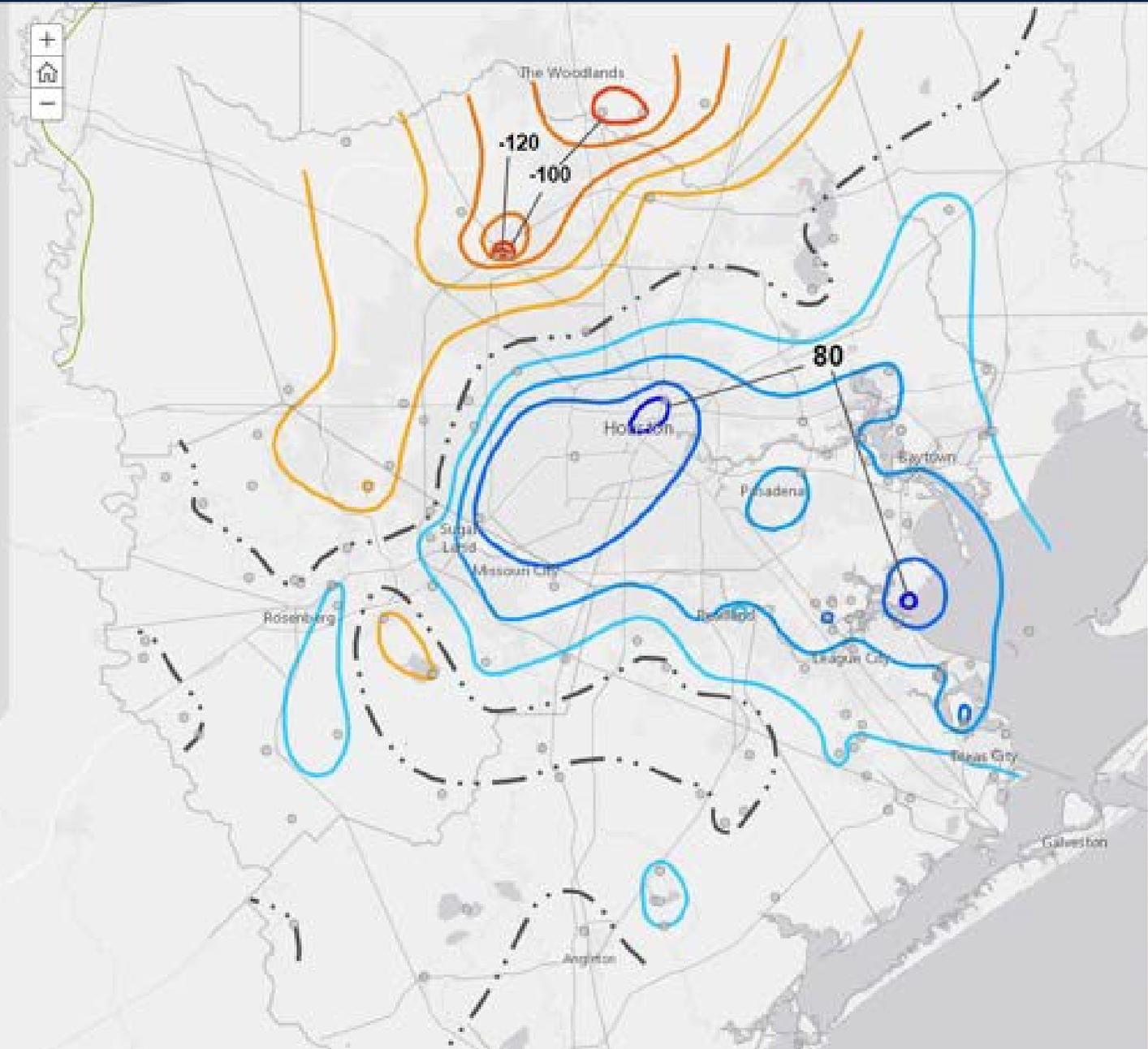
20

0

-20 and -40

-60 and -80

-100 and -120



Evangeline 1990 - 2018 Water-Level Altitude Change

Contour Interval: 40 feet

Range: -160 to 160

Water-level altitude changes range from 191 ft above datum to 211 ft below datum

Evangeline 1990 to 2019 points

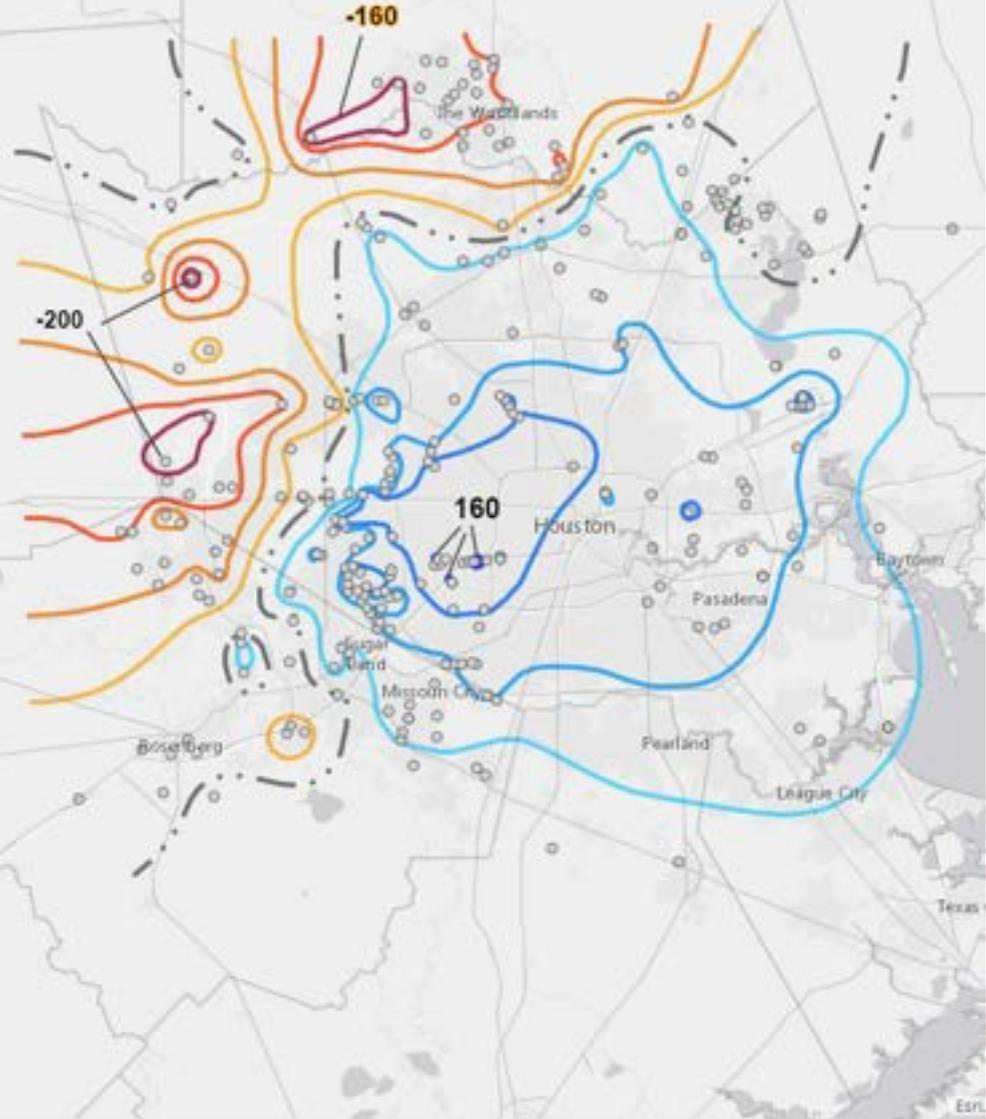


Evangeline 1990 to 2019 contours

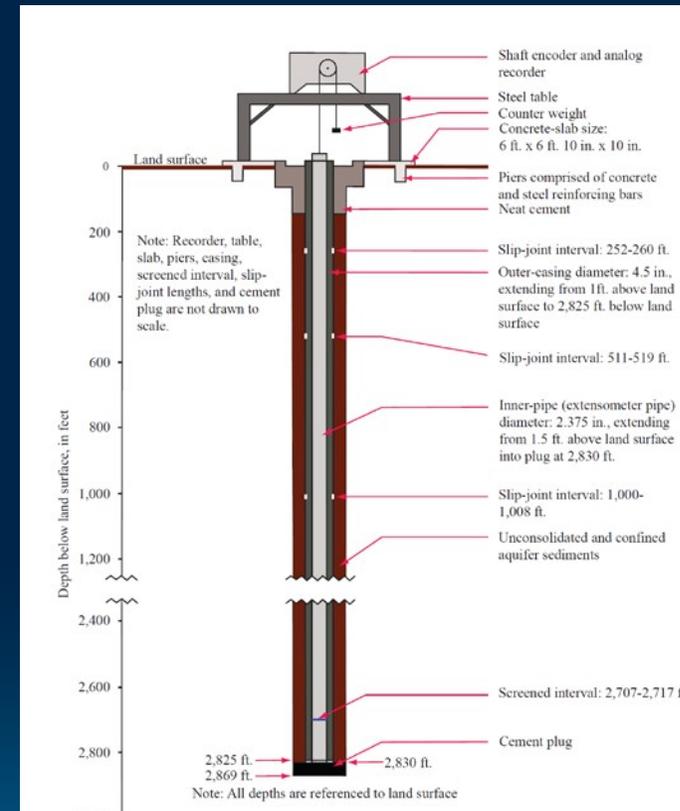
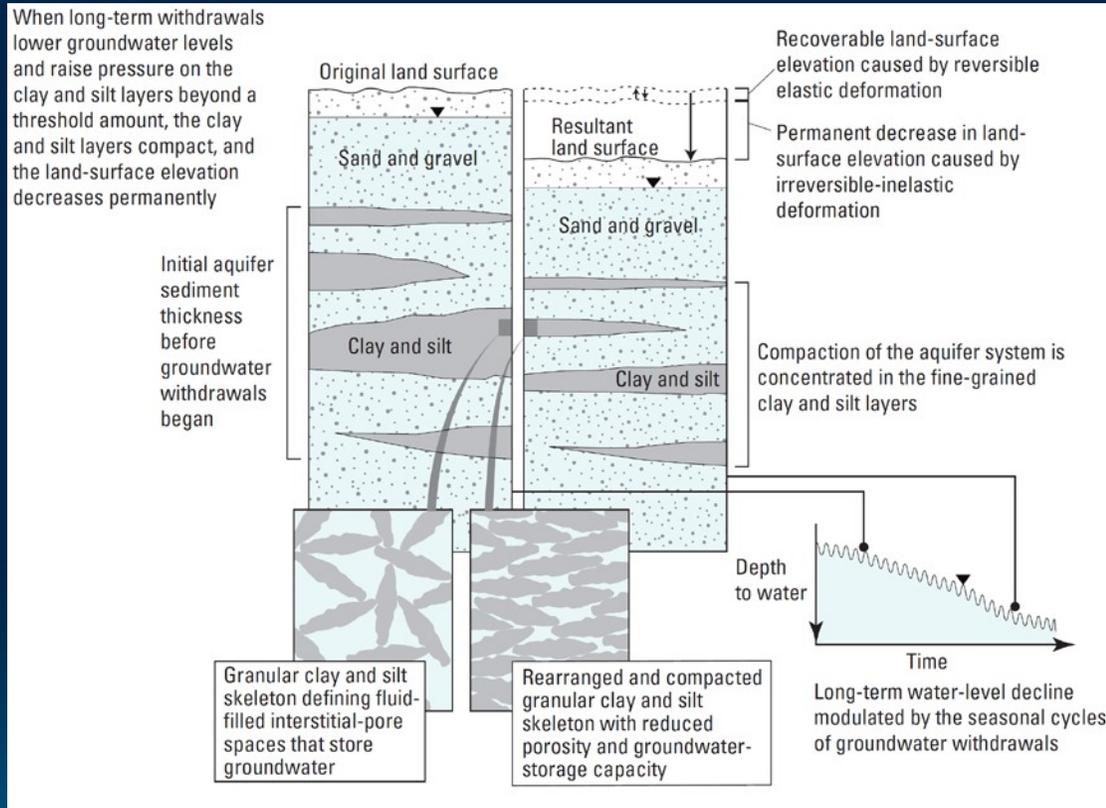
CONTOUR



Burham



Compaction Mechanics and Method of Measurement



2019 Gulf Coast Water-Level Altitude Map Series

No issues detected

Edit

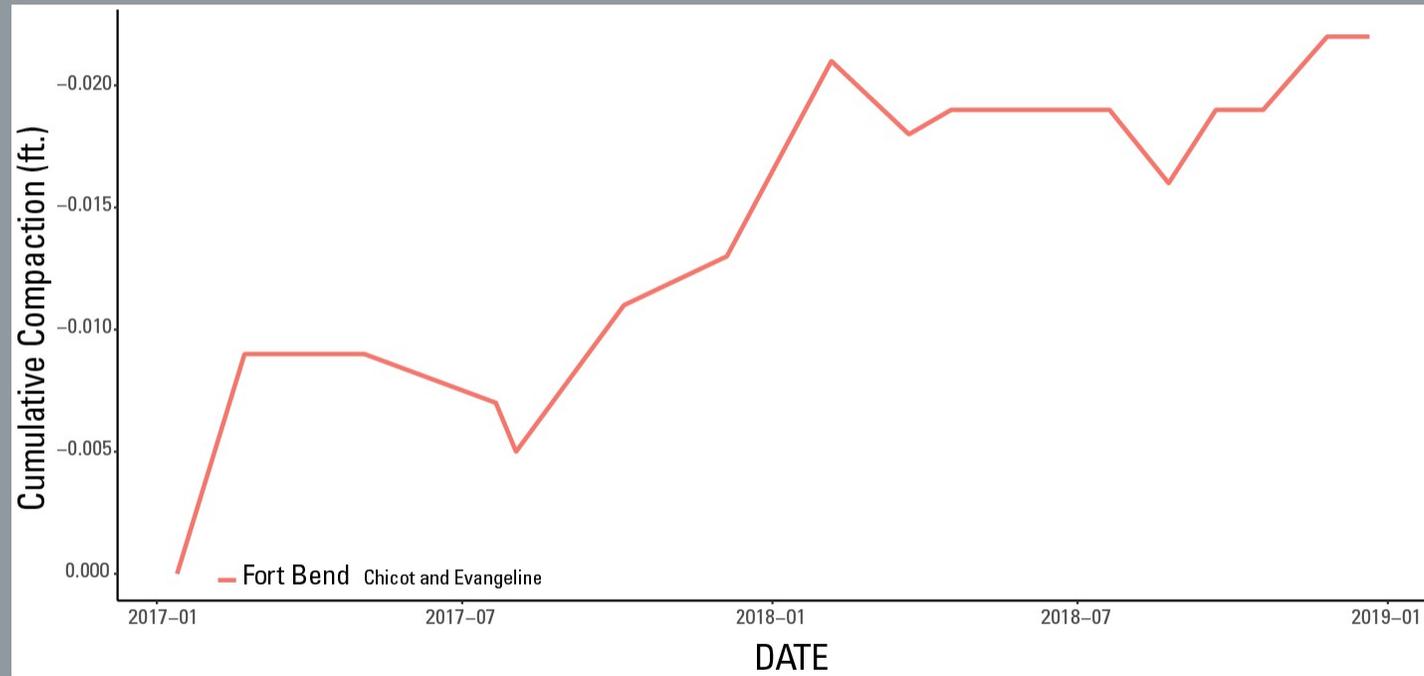
A Story Map

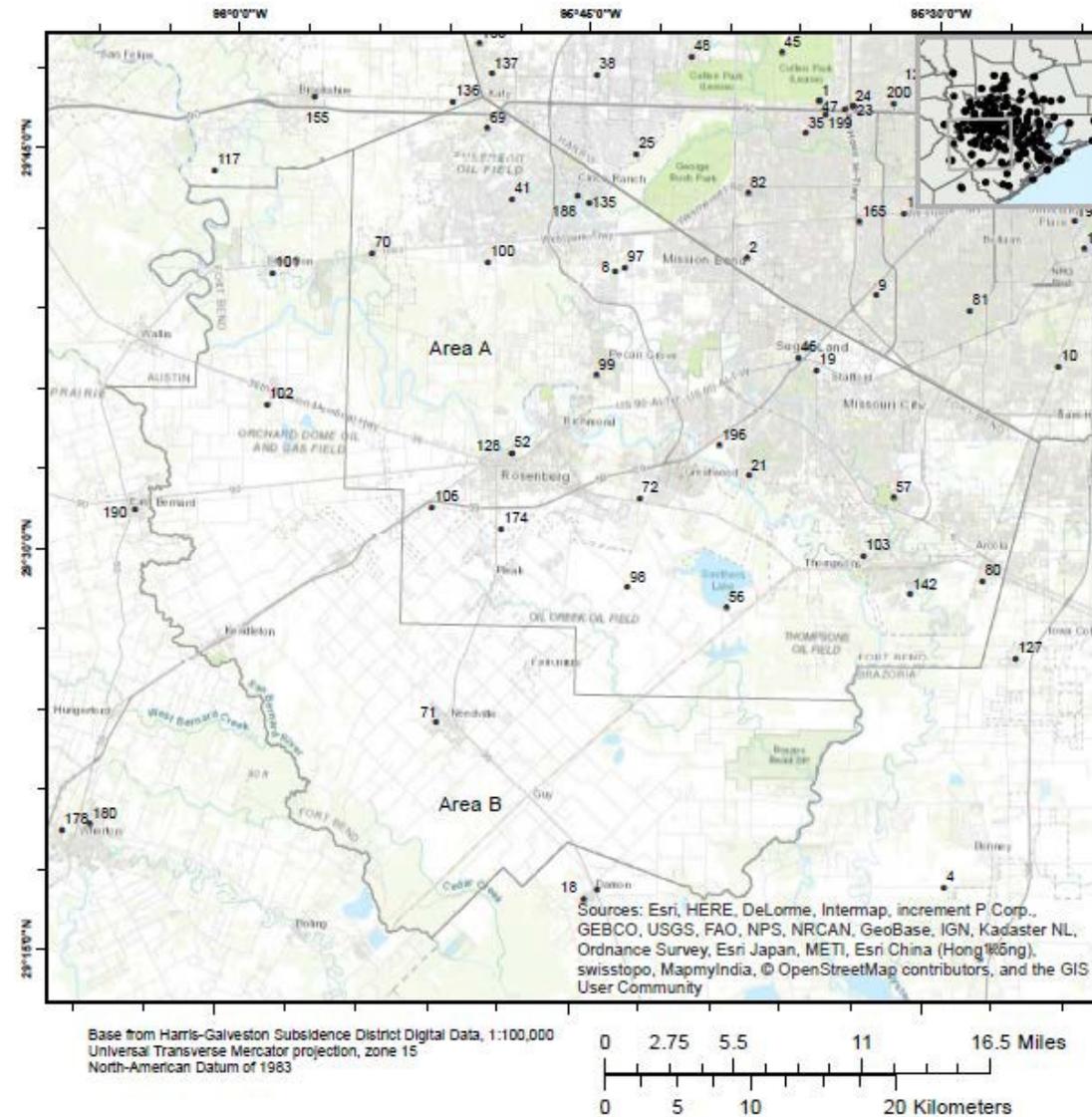


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BACK

- All Compaction Sites
- East End: [1.342](#)
- Johnson Space Center: [2.551](#)
- Lake Houston: [0.617](#)
- Northeast: [0.932](#)
- Pasadena: [0.459](#)
- Southwest: [1.678](#)
- Addicks: [3.751](#)
- Texas City - Moses Lake: [0.095](#)
- Baytown C-1 (Shallow): [0.927](#)
- Baytown C-2 (Deep): [1.100](#)
- Seabrook: [1.555](#)
- Clear Lake (Shallow): [0.664](#)
- Clear Lake (Deep): [0.704](#)
- Fort Bend Monitor: [-0.022](#)

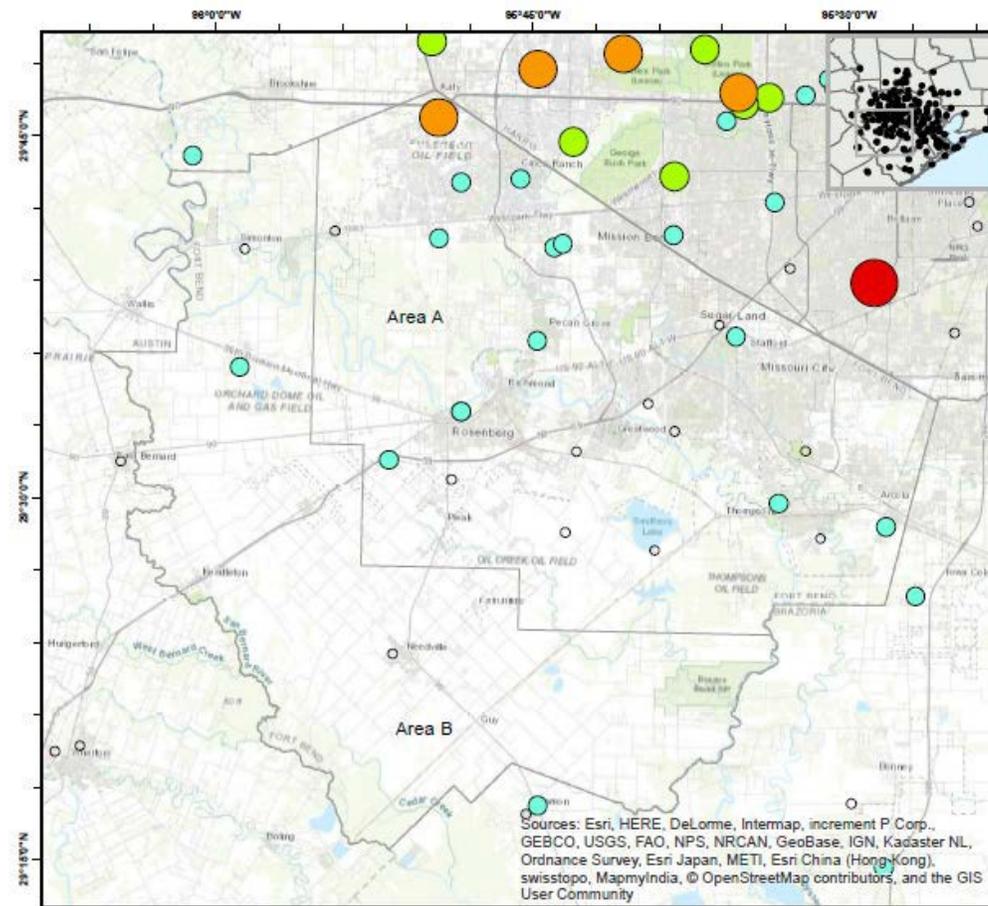




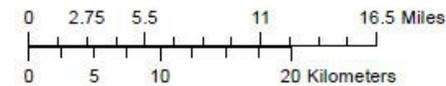
HGSD EXHIBIT 12. Annual subsidence rate, in centimeters per year, estimated from three or more years of periodic and continuous GPS data measured at subsidence monitoring sites, Harris and Galveston Counties, 2014-2018.

EXPLANATION

- XY_HGSD_summary_table_...



Base from Harris-Galveston Subsidence District Digital Data, 1:100,000
Universal Transverse Mercator projection, zone 15
North-American Datum of 1983



EXPLANATION

Subsidence Rate (2014-2018) cm/year

-  Greater than 2.0
-  1.9 - 1.5
-  1.4 - 1.0
-  0.9 - 0.5
-  Subsidence Rate less than 0.5
cm/yr or period of record less
than 3 yrs

HGSD EXHIBIT 13. Annual subsidence rate, in centimeters per year, estimated from three or more years of periodic and continuous GPS data measured at subsidence monitoring sites, Harris and Galveston Counties, 2014-2018.





Fort Bend Subsidence District

**Sugar Land GRP
Participant Meeting
October 17, 2019**

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



Groundwater Reduction Plan Implementation Update

Katie Clayton, P.E.
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 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

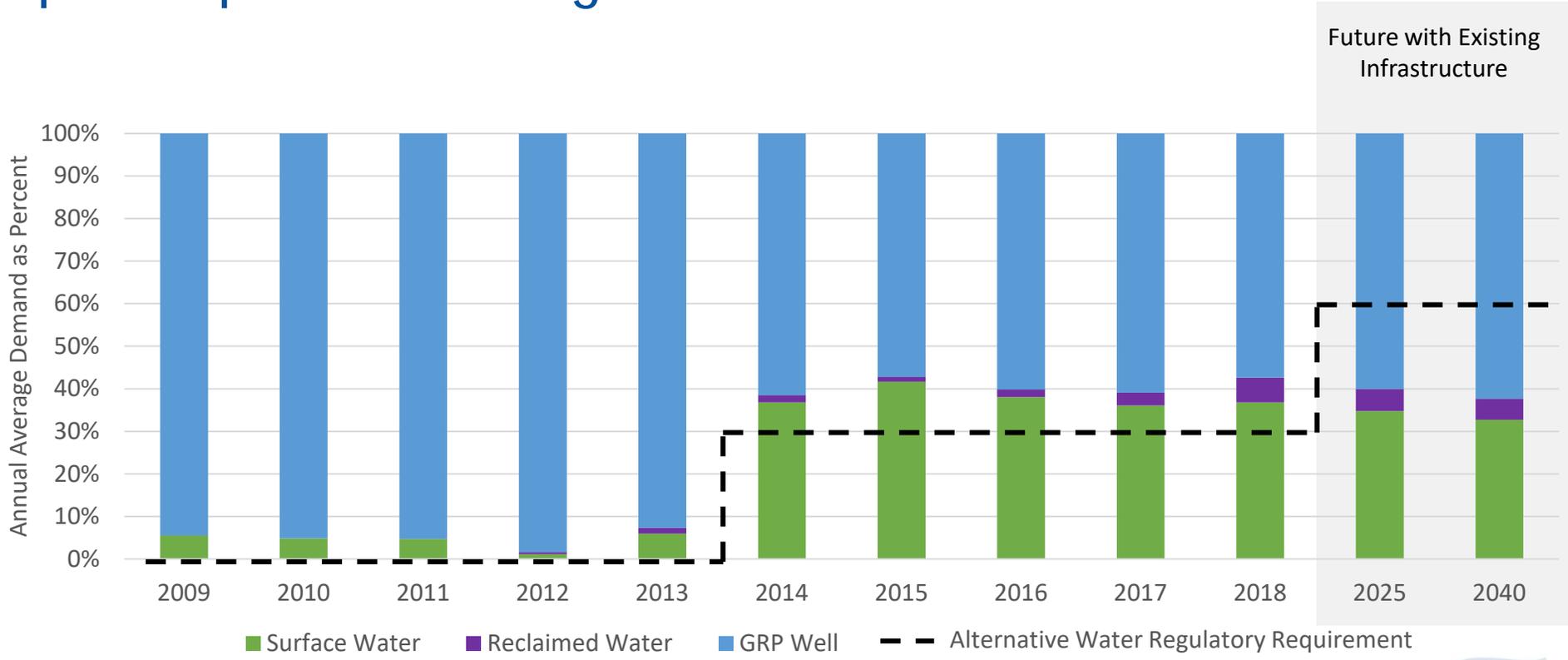
GRP Historic Water Demand

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%

Planning for 2025 Conversion Requirements

- GRP was approved in 2008
- 19 participants totaling 70 wells

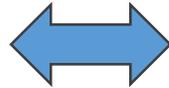


Planning Approach

Traditional Approach

- Cost
- Yield

VS



Integrated Approach

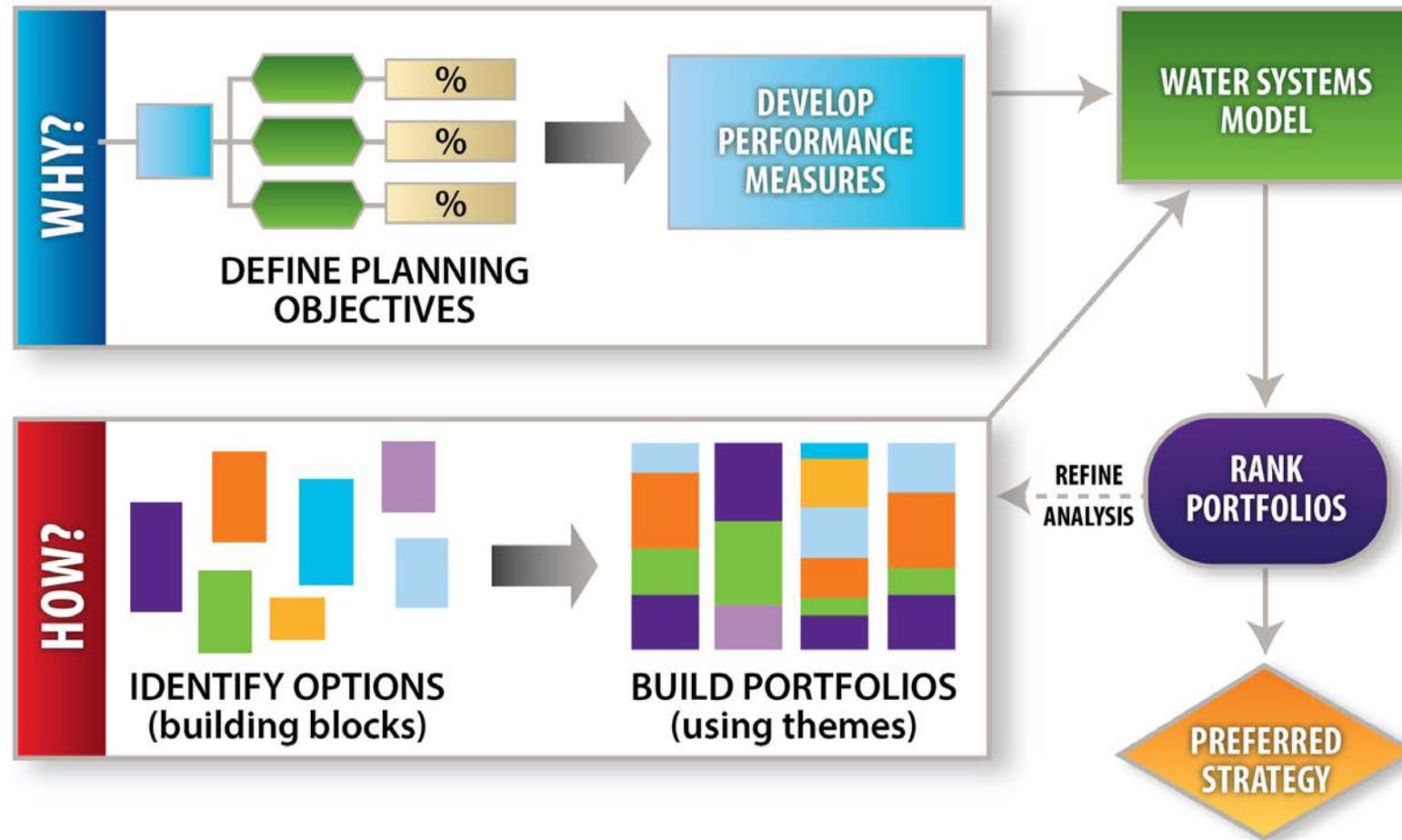
- Community Vision
- Stakeholder Participation
- Comprehensive Process
- CIP/ Policies/ Best Practices
- Reliability
- Risk
- Innovation
- Accountability/ Performance Measures

Project Structure

- Council Task Force
 - 2 Members
- Citizen Task Force
 - 13 Members, 1 Alternate
 - Application Process
- Consultants
 - Water Supply Reliability Study
 - Reclaimed Water Supply Study
 - IWRP



IWRP Process

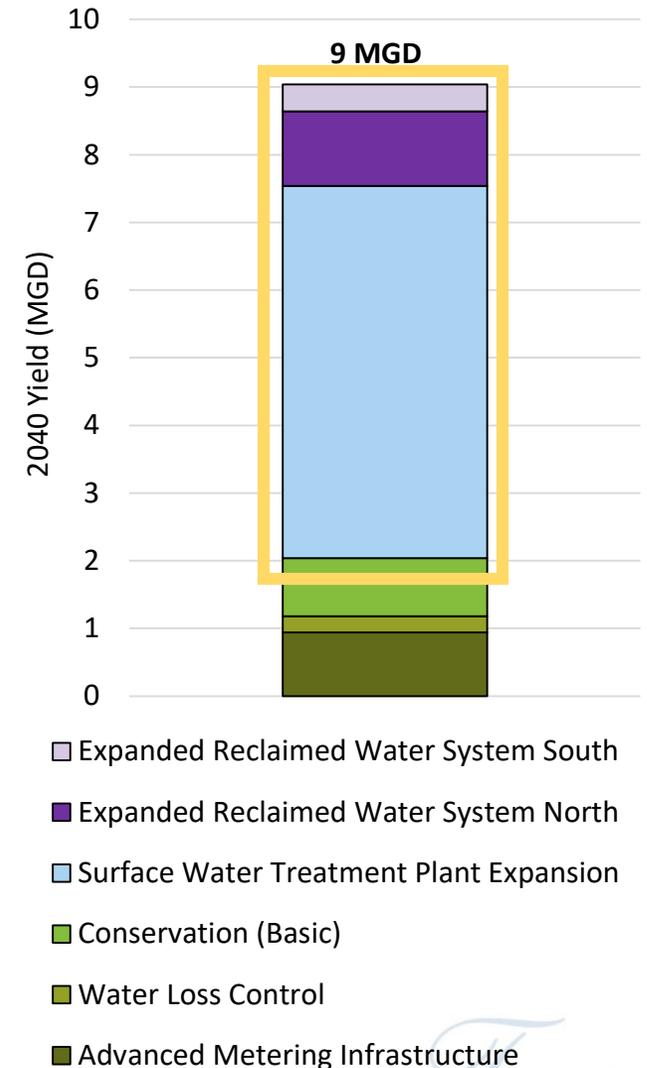


Recommendations

- 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
- Rate Study

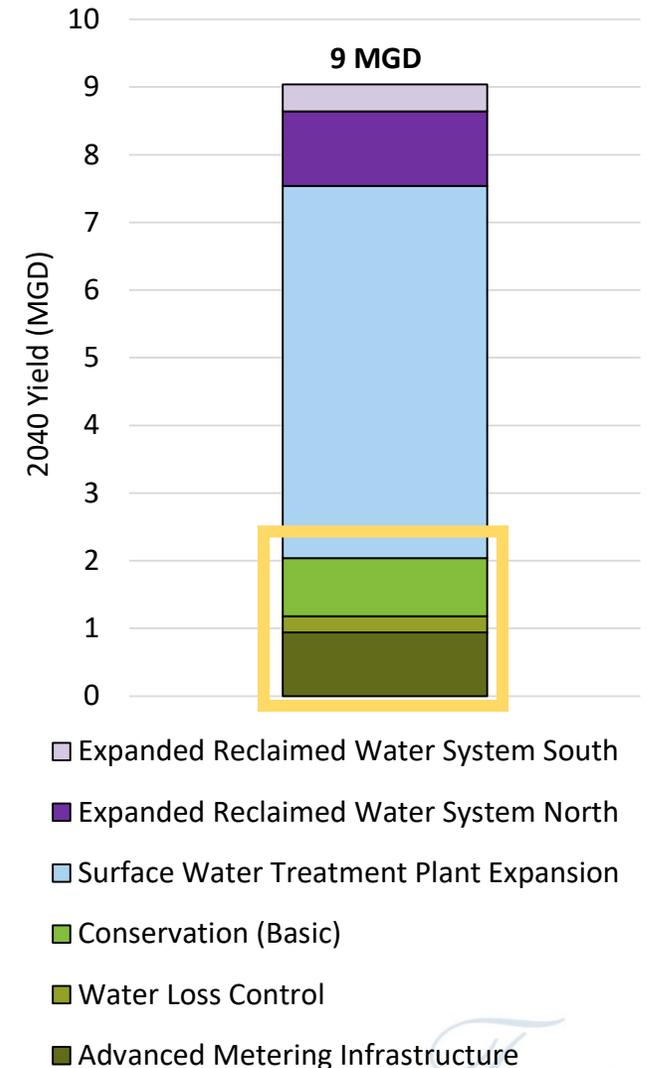
Recommendations

- 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



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



Implementation

- Strategic plan for timing of projects
- Ability to monitor progress and adapt
- 2019
 - City Council approval of IWRP
- 2020
 - Rate Study
 - Policies and contracts
 - Preliminary Engineering of SWTP Expansion and Transmission Lines
- 2021- 2025
 - Construction of SWTP Expansion and Transmission Lines
 - Conservation
 - AMI
 - Water Loss Control

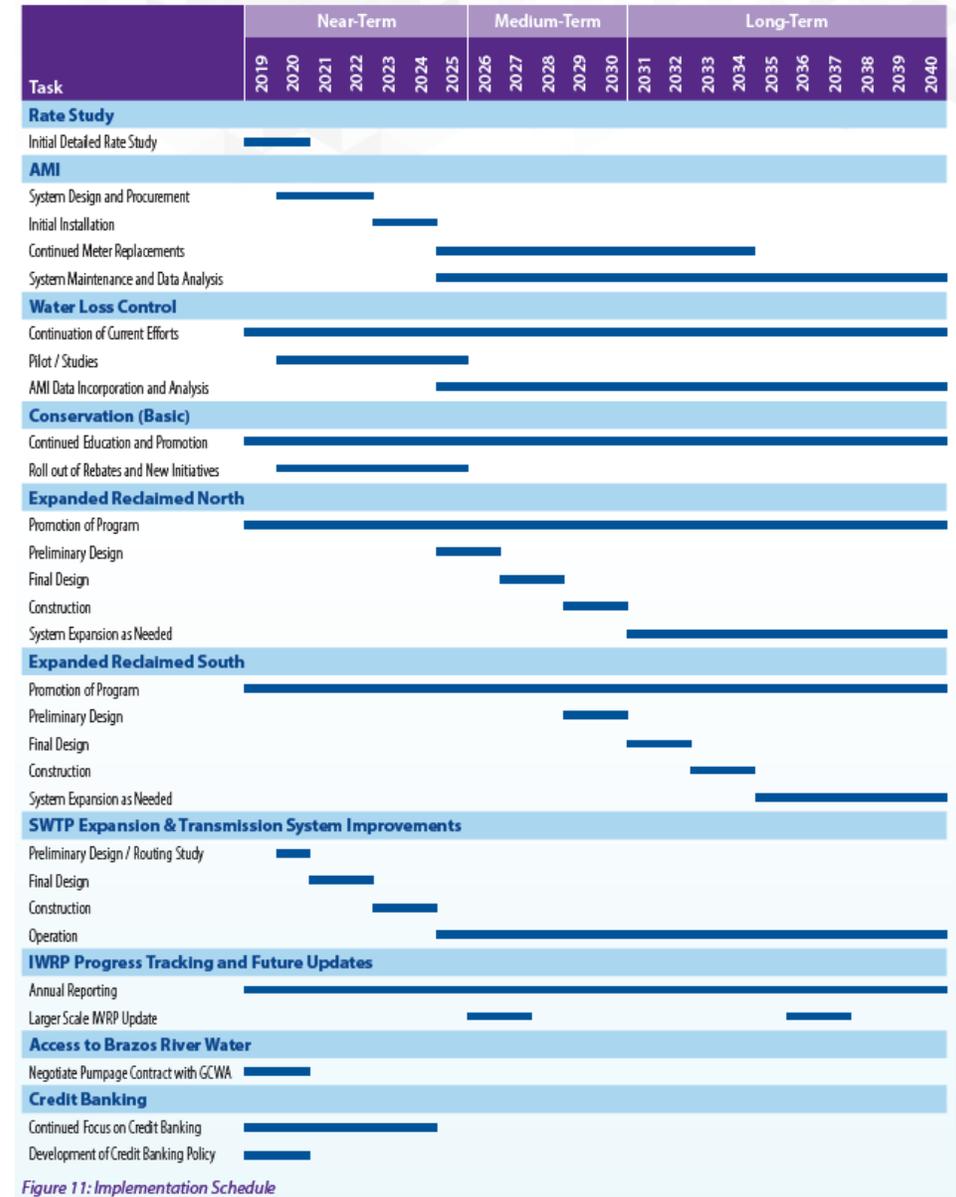


Figure 11: Implementation Schedule



Financial Update

Jennifer Brown
Director of Finance

GRP Philosophy

- City Policy adopted in September 2002
 - We will Plan for the City and our ETJ
 - Separate GRP Fund Created, contains all Costs/Expenditures
- 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 disincentive fee of \$6.50 per 1,000 gallons

Financial Capacity

- Operations Funded in the Surface Water Fund
 - In FY2019 this has been combined into the System Utility Fund
- City sold 2011 CO's backed by GRP fees
 - More cost effective than Revenue Bonds
 - GRP Benefits from City's AAA bond rating
 - No bond coverage requirement
- 2011 CO's were Advance Refunded in December 2017
 - 2017 GO Refunding Bonds
 - Total Debt service savings of \$14.94 million to maturity
- Future bond issues will be Revenue Bonds
 - Will require 1.25x coverage ratio and have reserve requirements

Surface Water Fund

- FY14 Begin SWTP Plant Operations Mid November
- Final GRP Rate Increase Implemented Jan 2014
- Plant Transitioned to Full City Operations in Summer 2014
- December 2017 City annexed 9 of the MUDs that were participants in the GRP
 - Consolidated the surface water fund into the System Utility Fund in FY19
 - Rating agencies treat them as one fund due to common revenue base
 - Continue to track revenues and expenses for GRP/surface water separately

What Can Impact Rates

- FBSD Regulations & Fees
- Future Plant Expansions and Capital Costs
- Policy Direction on Integrated Water Resources Plan
- Increased Conversion Requirements
- Dramatic Changes in Pumpage
 - Rainfall- High or Low

Surface Water Fund 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 Year 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 Year 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
Total	\$ 130,896,404

Surface Water FY 19 Estimates

Millions (\$)	FY19B	FY19E	Variance
Revenues	\$ 13.81	\$ 14.77	\$ 0.96
Expenses	13.49	13.48	0.01
Net Income	0.32	1.29	0.97

- Note: Totals may not add due to rounding

FY 20-24 Capital Projects

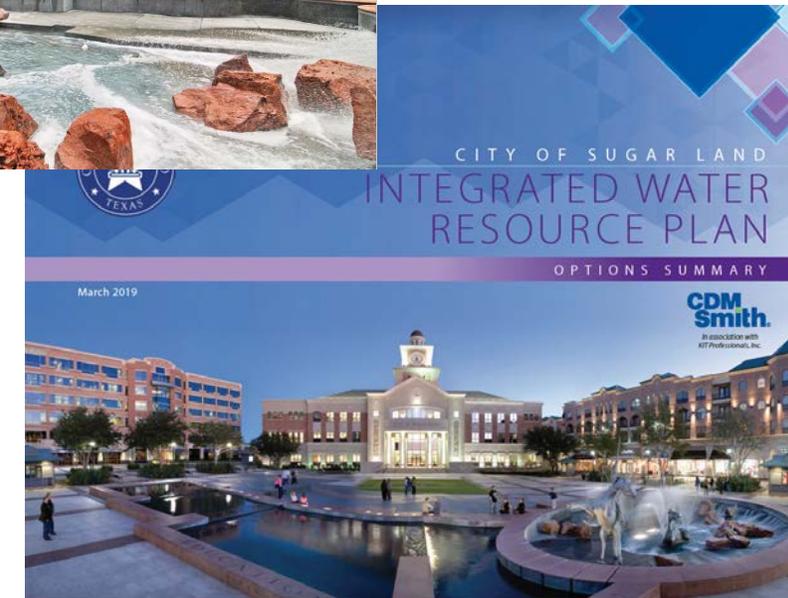
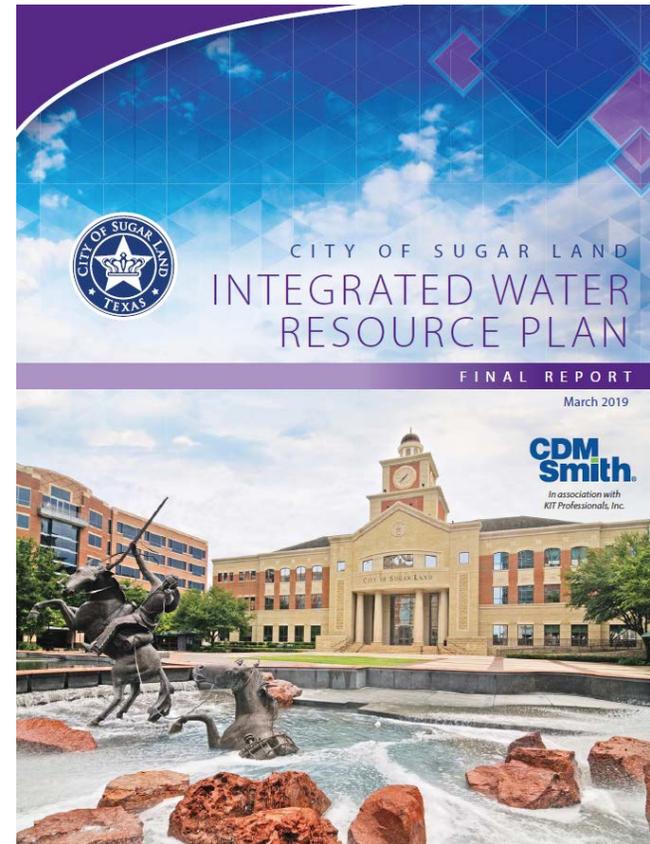
Project Name	FY20	FY21	FY22	FY23	FY24	5 Year Total
SWTP Expansion	\$ 605,250		\$ 1,815,750	\$38,246,000		\$40,667,000
SW Transmission Line to NT	160,000		417,750	8,795,000		9,372,750
SWTP Yard Pipe & Aerial Crossing Recoating	300,000					300,000
New Territory WP Surface Water Conversion		165,000	495,000	10,428,000		11,088,000
Automated Meter Integration		1,710,700	9,656,400			11,367,100
Total CIP Projects	\$1,065,250	\$1,875,700	\$12,384,900	\$57,469,000		\$72,794,850

Surface Water Comparative GRP Fees

Per 1,000 Gallons 2019 Rates	GRP Fee	Surface Water Fee
Sugar Land	\$1.75	\$1.88
<i>Sugar Land- Jan 2020</i>	1.93	2.09
Comparative Rates:		
Missouri City (Oct 2018)	1.72	2.25
City of Richmond (June 2019)		2.42
City of Rosenberg (Jan. 2020)	2.60	
North Fort Bend Water Authority (Jan 2019)	3.65	4.00
Pecan Grove	1.50	1.50
West Harris County Water Authority (Jan 2019)	2.95	3.35

Questions?

www.sugarlandtx.gov/iwrp



CITY OF SUGAR LAND *Texas*