



GROUNDWATER REDUCTION PLAN PARTICIPANT MEETING

WEDNESDAY, OCTOBER 25, 2017





2017 PARTICIPANT MEETING

- Introductions
- FB Subsidence District Update
- GRP Implementation
- GRP Financial Update
- Questions & Answers

FORT BEND SUBSIDENCE DISTRICT

Robert Thompson
Deputy General Manager

2013 Regulatory Plan Key Elements

Regulatory Areas & Conversion Requirements

Area A

Reduce GW pumpage by 30%

Reduce GW pumpage by 60% by 2025

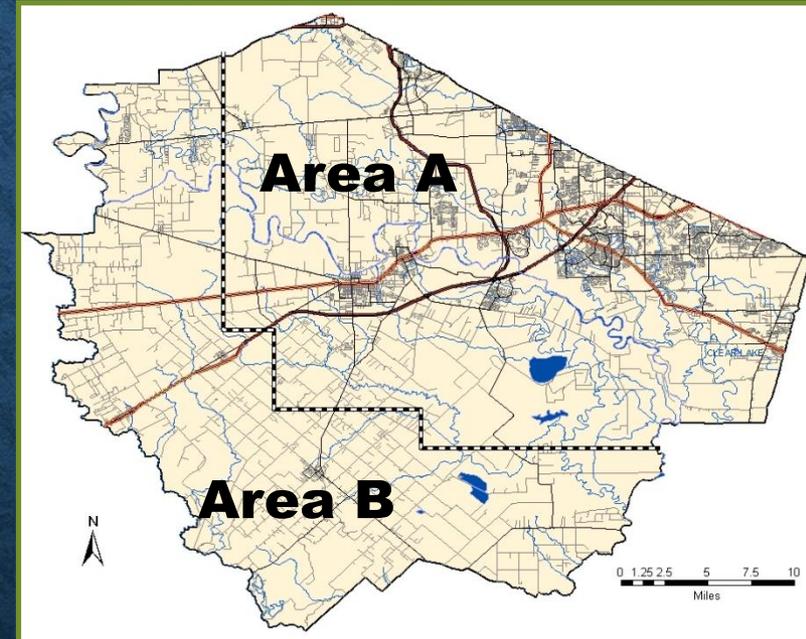
Exemptions: Ag. Irrigation, Livestock, and
TWD \leq 10.0 MGY until alternate water is
available

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 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.

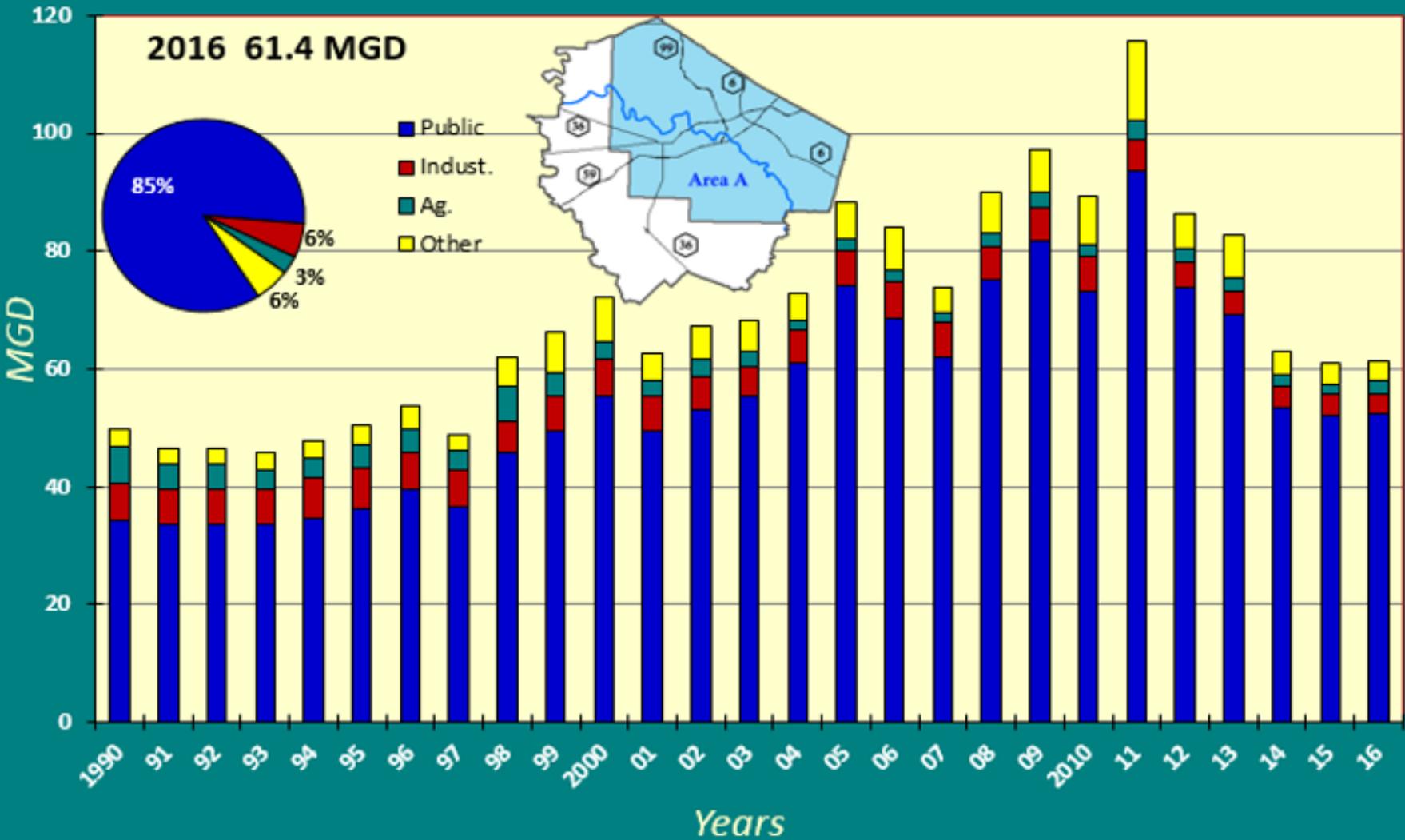
However, the FBSD Board adopted new Rules on September 28, 2016. There were three significant changes.

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.



Groundwater Withdrawals

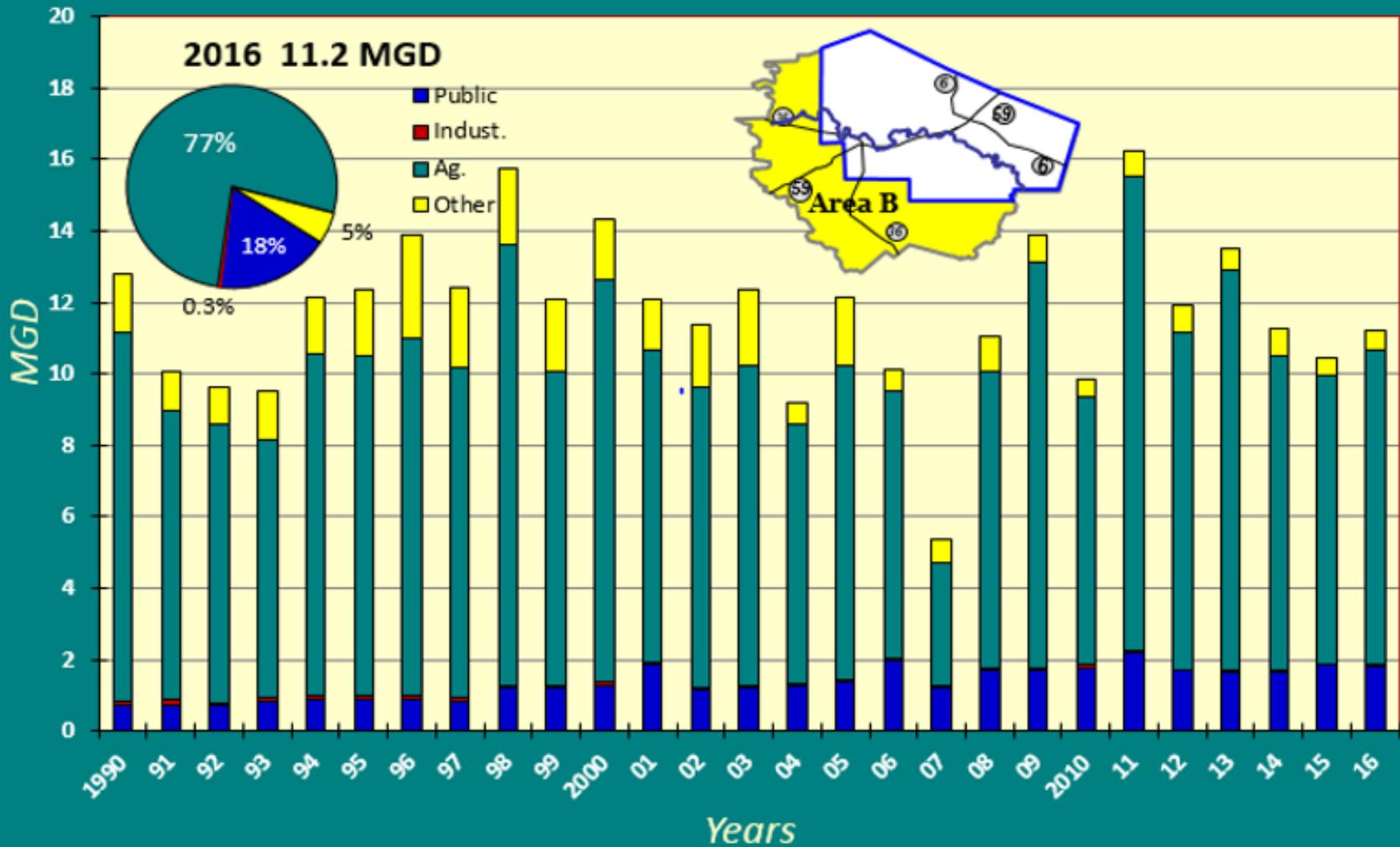
Grouped by Use - Regulatory Area A





Groundwater Withdrawals

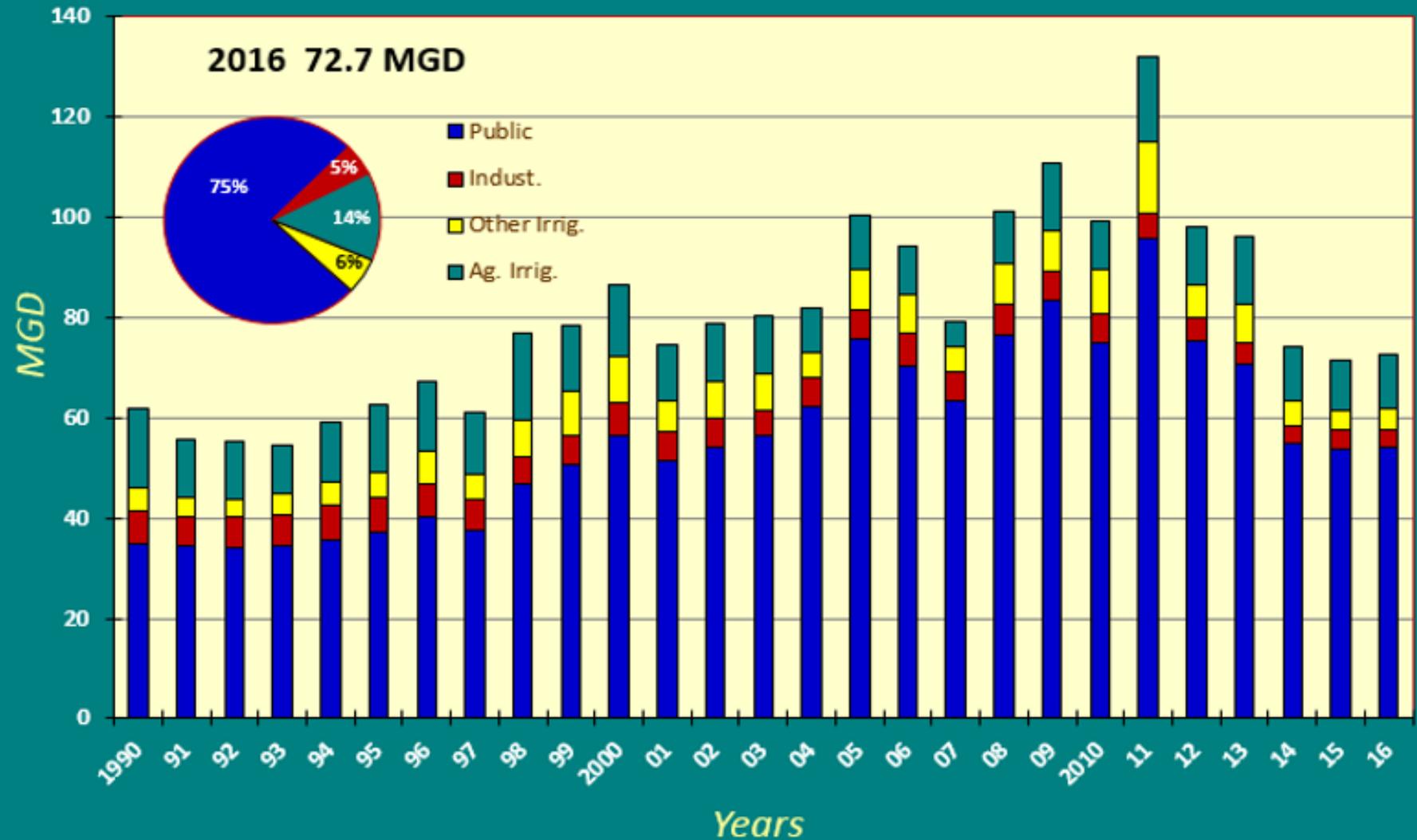
Grouped by Use - Regulatory Area B

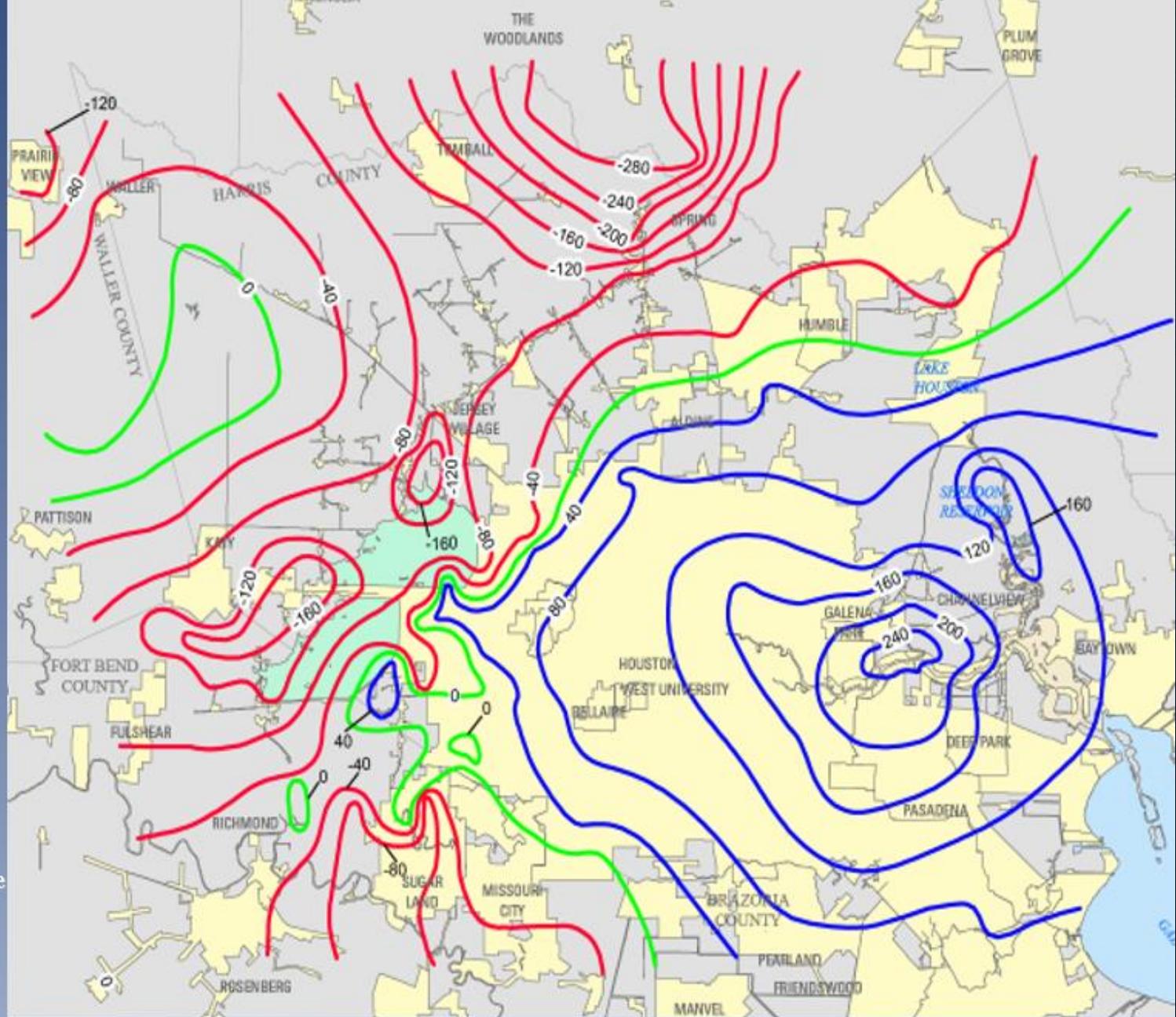




Groundwater Withdrawals

Grouped By Use - Entire District





EXPLANATION

- Water-Level Decline
- No Water Level Change
- Water-Level Rise

-280 to 240

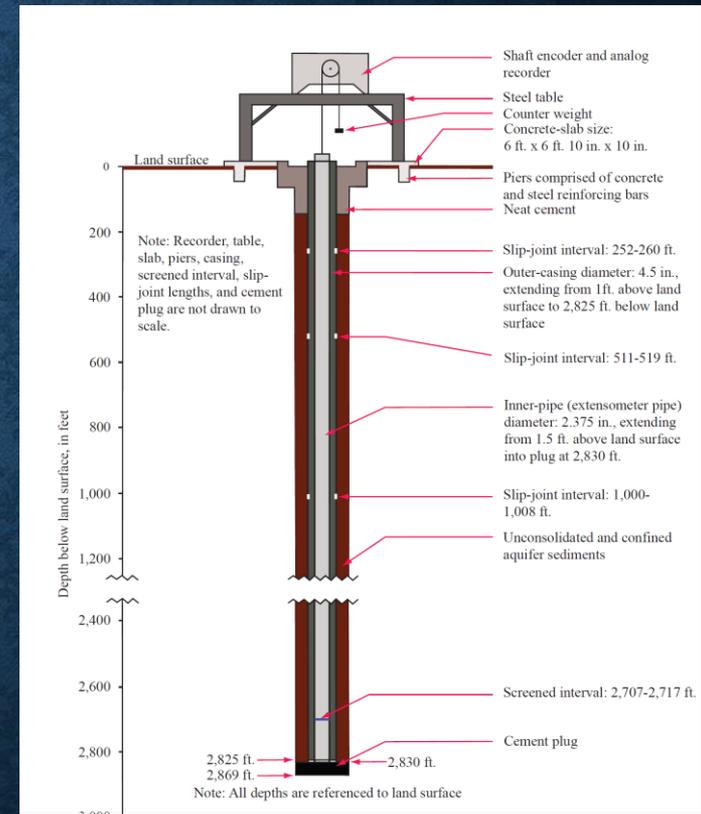
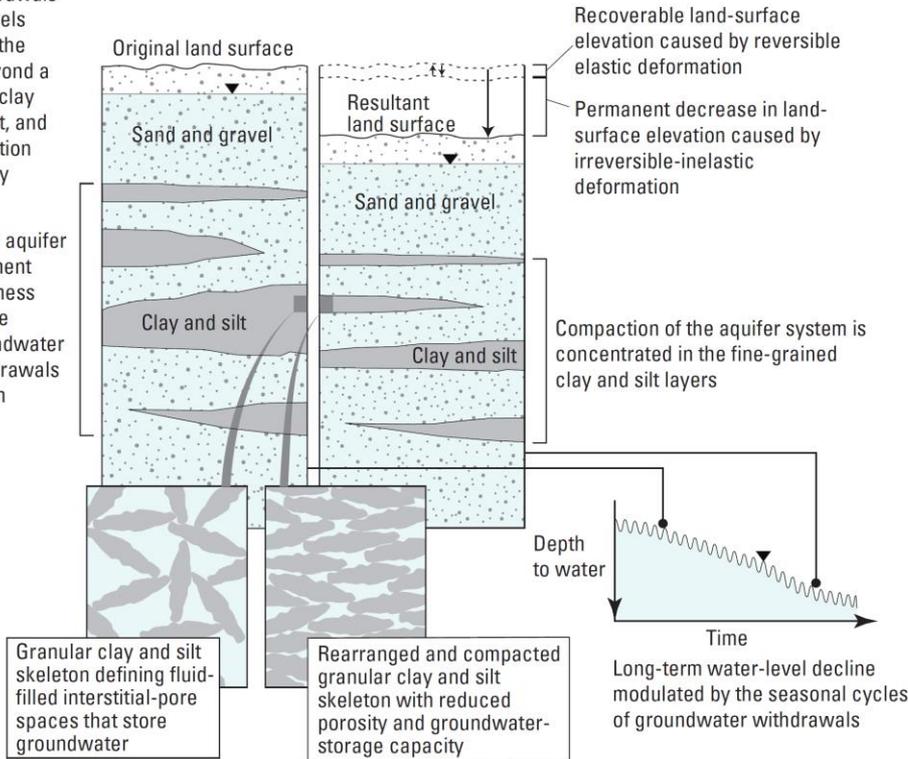
CI = 40'



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

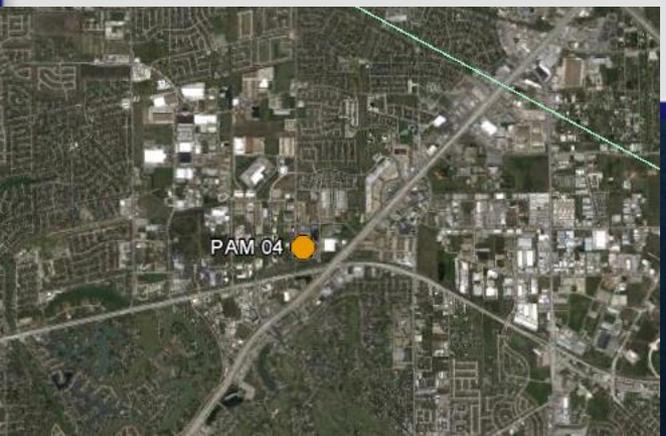
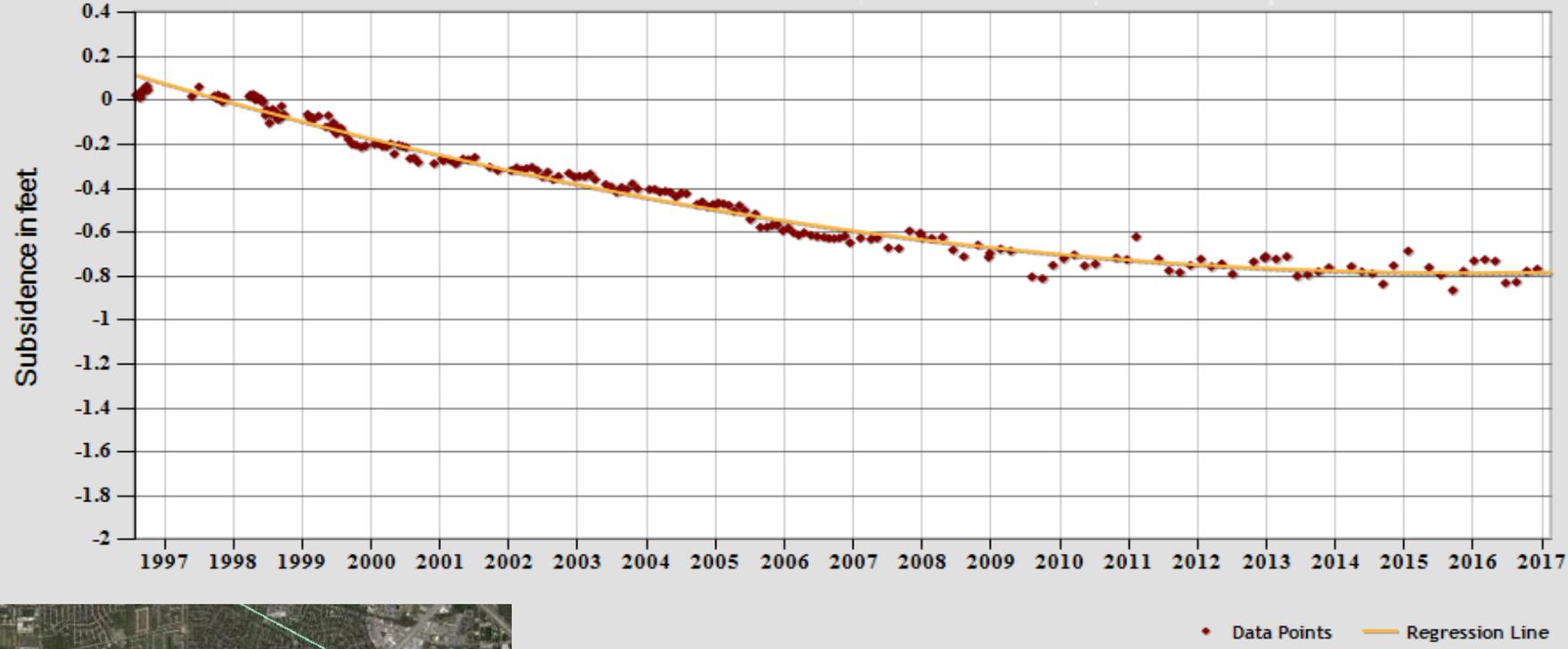


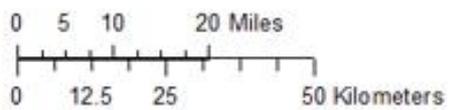
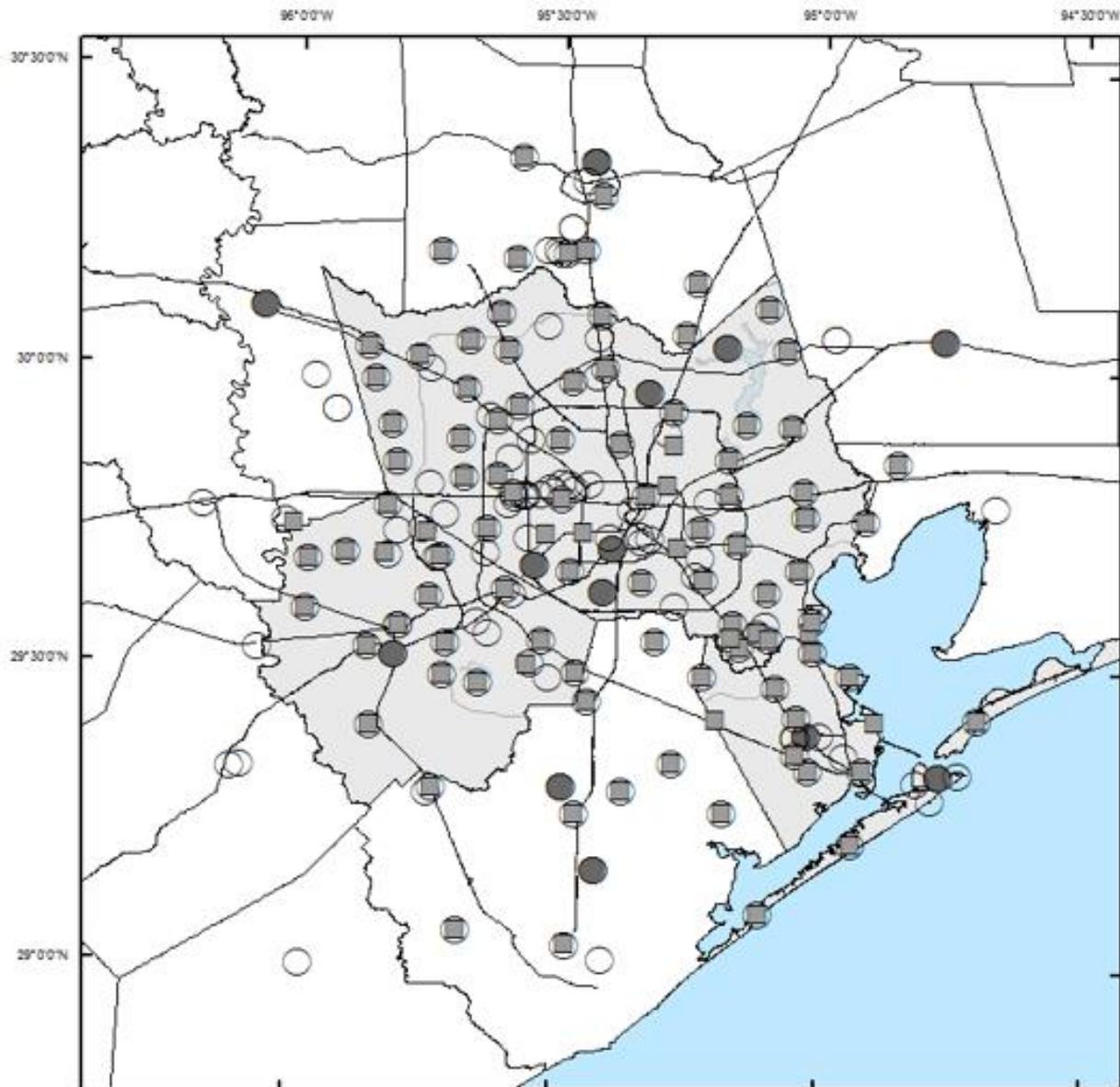
FBSD Subsidence Monitor Site – PAM 04 – Sugar Land

Fort Bend Subsidence District - PAM 04



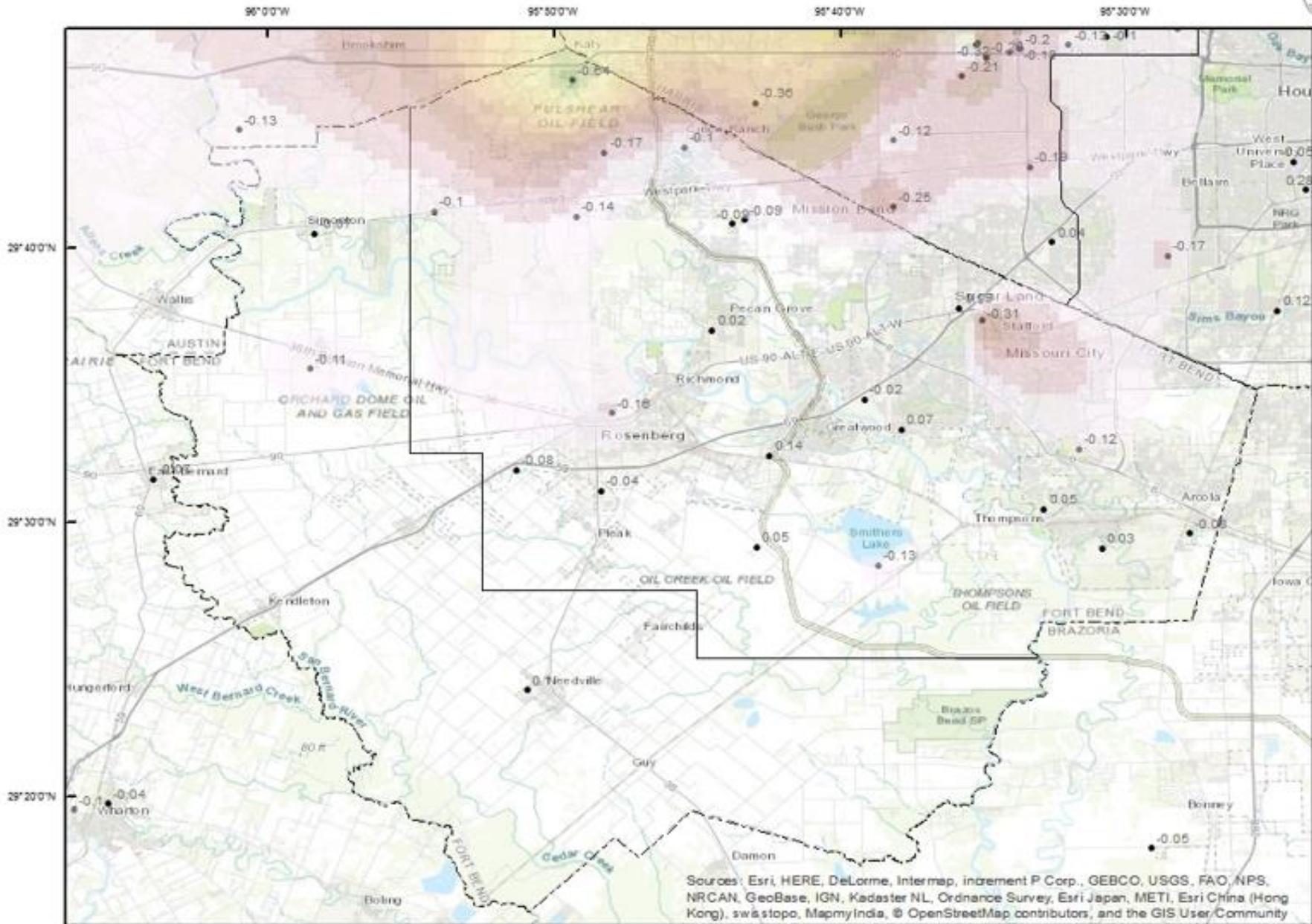
Subsidence Observations

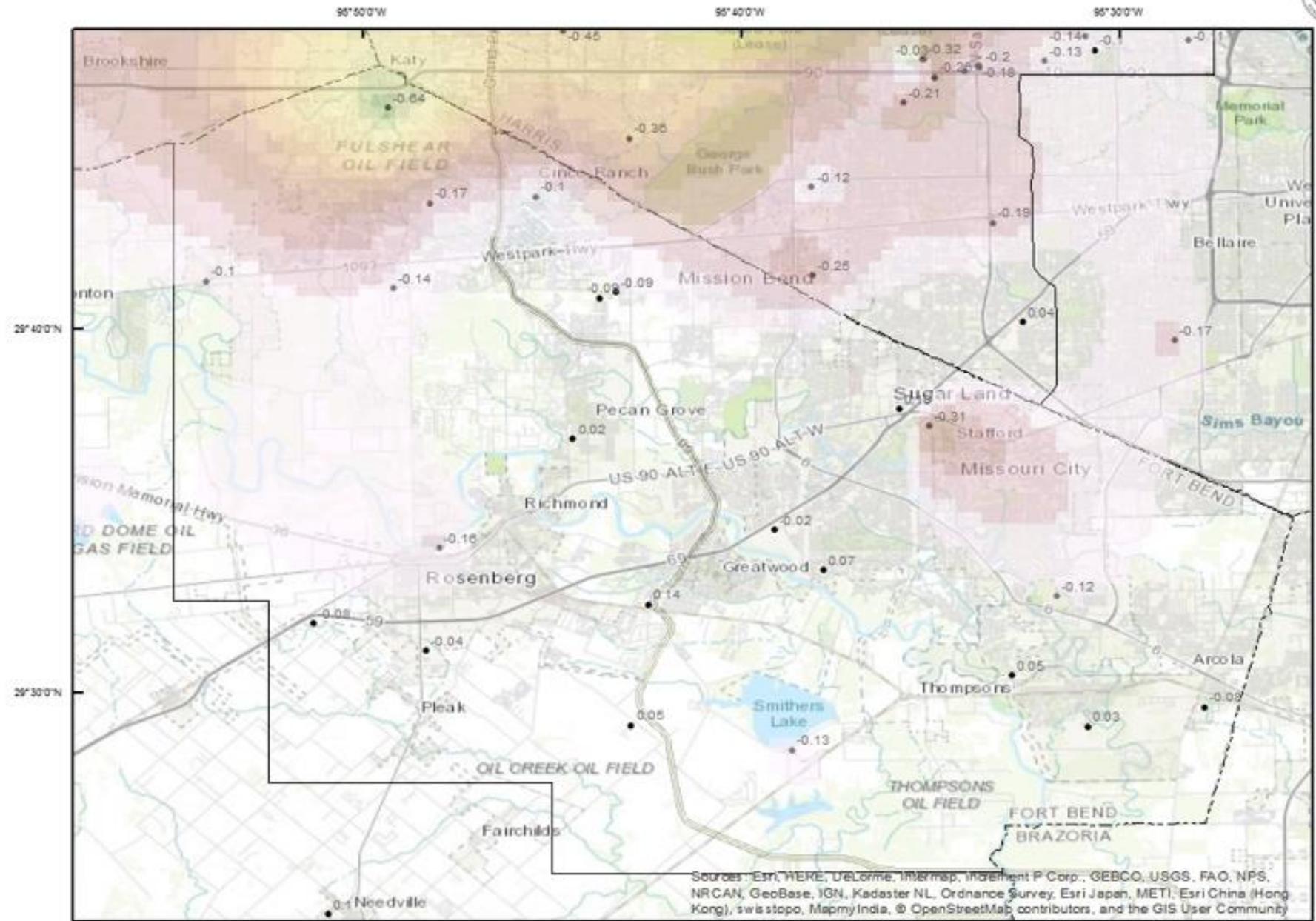


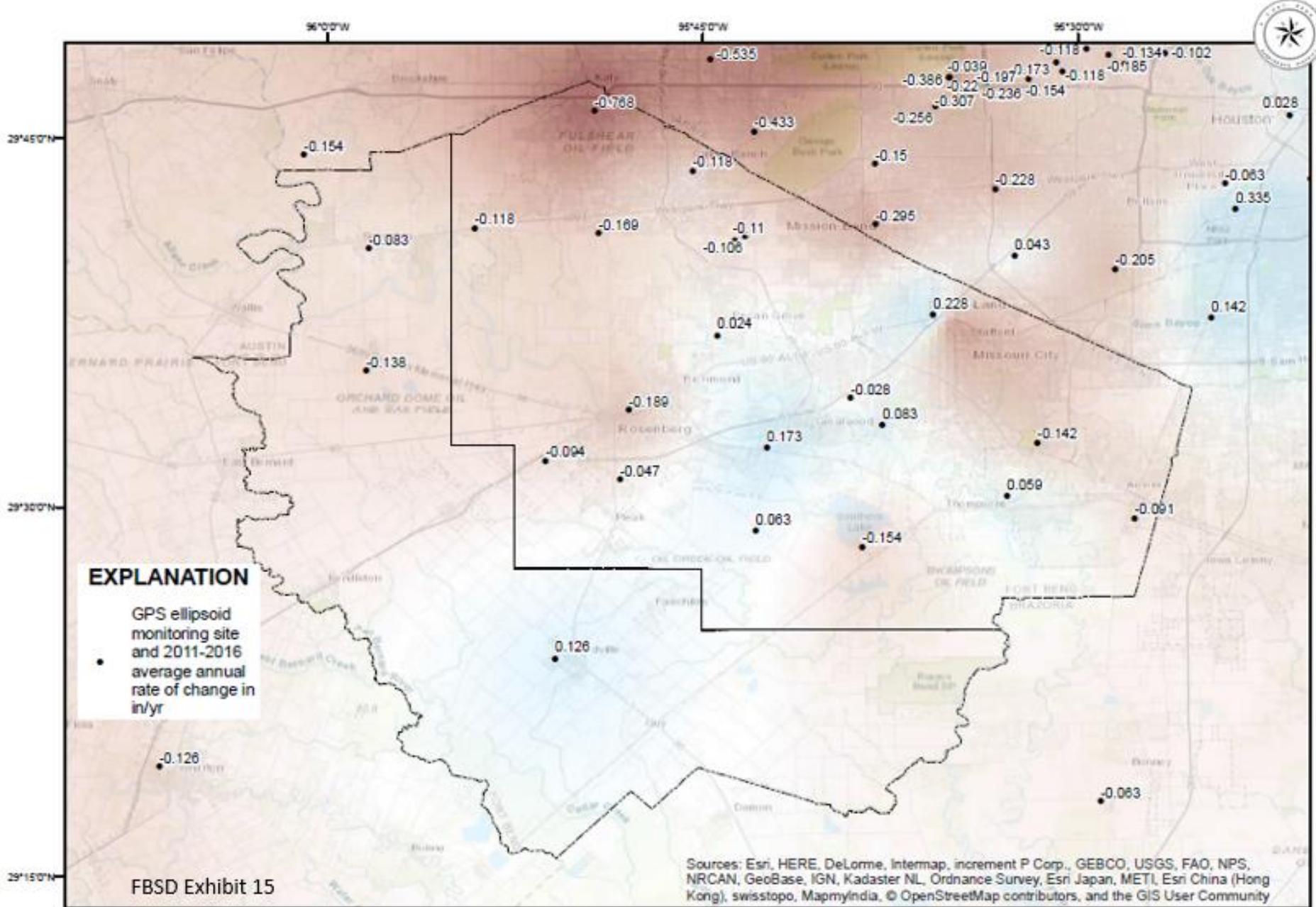


Legend

- HGSD & FBSD Network
- University of Houston Network
- TXDOT, COH, FAA







Estimated average annual rate of ellipsoid change from 2011-2016, in inches per year, at active GPS monitoring sites with more than 3 years of data, Fort Bend County, Texas.



**FORT BEND SUBSIDENCE
DISTRICT**

**SUGAR LAND GRP
PARTICIPANT MEETING
OCTOBER 25, 2017**

[HTTP://WWW.FBSUBSIDENCE.ORG/](http://www.fbsubsidence.org/)



GROUNDWATER REDUCTION PLAN IMPLEMENTATION UPDATE

Katie Clayton, P.E.
Water Resources Manager

GRP Participants

19

Public Water Systems

- ◆ **FB MUD 106 (Greatwood)**
- ◆ **FB MUD 112 (New Territory)**
- ◆ **FB MUD 192 (Greatwood Lake)**
- ◆ **Plantation MUD (Tara Plantation)**
- ◆ **Royal Valley Utilities**
- ◆ **City of Sugar Land**

Private Businesses

- ◆ **Texas Par Golf**
- ◆ **River Pointe Golf**
- ◆ **WSG Sweetwater**
- ◆ **Schlumberger**

Property Owner Assoc & Levee Dist

- ◆ **Avalon CAI**
- ◆ **Sugar Mill CAI**
- ◆ **Sugar Lakes HOA**
- ◆ **First Colony Community Assoc.**
- ◆ **First Colony Property Assoc.**
- ◆ **New Territory Res. Comm. Assoc.**
- ◆ **River Park HOA**
- ◆ **Royal Lakes Estates HOA**
- ◆ **Sugar Land Business Park**
- ◆ **LID 17 (Telfair Levee Dist.)**

GRP WATER DEMAND

MILLION GALLONS PER DAY (MGD) AVERAGE DAY

<i>FBSD Year</i>	<i>Demand</i>	<i>Conversion</i>		
		<i>Actual</i>	<i>Required</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	6.75	30%
2015-16	22.87	9.72	6.86	30%
2016-17	22.94	8.96	6.88	30%

GRP WATER SUPPLIES

- **Raw Surface Water**
 - **Oyster Creek Water Right**
 - **Gulf Coast Water Authority (GCWA)**
 - **Brazos River Authority (BRA)**
- **Reclaimed Water from WWTPs**
- **Groundwater**
 - **Wells supplement peak demands**

RAW WATER SUPPLY

- **Oyster Creek Water Right**
 - **16.3 MGD (on paper)**
 - **During drought, City will limit to 4.89 MGD**
per Settlement Agreement with GCWA

RAW WATER SUPPLY COST

Gulf Coast Water Authority

- **10 MGD Take Rate**

- **2018 Rate** \$ **221.21** per million
- **2017 Rate** \$ **204.35** per million
- **2016 Rate** \$ **192.47** per million
- **2015 Rate** \$ **141.82** per million

- **10 MGD Option Rate**

- **2018 Rate** \$ **44.24** per million
- **2017 Rate** \$ **40.87** per million
- **2016 Rate** \$ **38.49** per million
- **2015 Rate** \$ **23.69** per million

RAW WATER SUPPLY COST

Brazos River Authority (BRA)

- 6,388 acre feet
- Stored Reservoir Water
- Considered backup water for times of drought
- Rate Increases Annually
 - **2018 Rate** **\$227.10** per million
 - **2017 Rate** **\$220.96** per million
 - **2016 Rate** **\$216.36** per million
 - **2015 Rate** **\$213.29** per million

GRP IMPLEMENTATION STRATEGY

Four Implementation Strategies

- 1. Surface Water Treatment Plant**
- 2. Raw Surface Water Pump Stations**
- 3. Water Reuse / Reclaimed**
- 4. Water Conservation**

GRP IMPLEMENTATION STRATEGY

1. Surface Water Treatment Plant

- **Operational and Online November 2013**
- **9 MGD - Re-rated to 10.85 MGD**
 - *Re-rating provides operational flexibility*
- **Expand to 22 MGD in 2025**
- **Over convert dense areas (City Potable Utility) – minimize transmission lines**
- **Surface water delivered to groundwater plants for distribution and blending to minimize changes in taste**
- **Peak water demands met from groundwater**

SWTP Implementation

TRANSMISSION LINES

Completed Projects

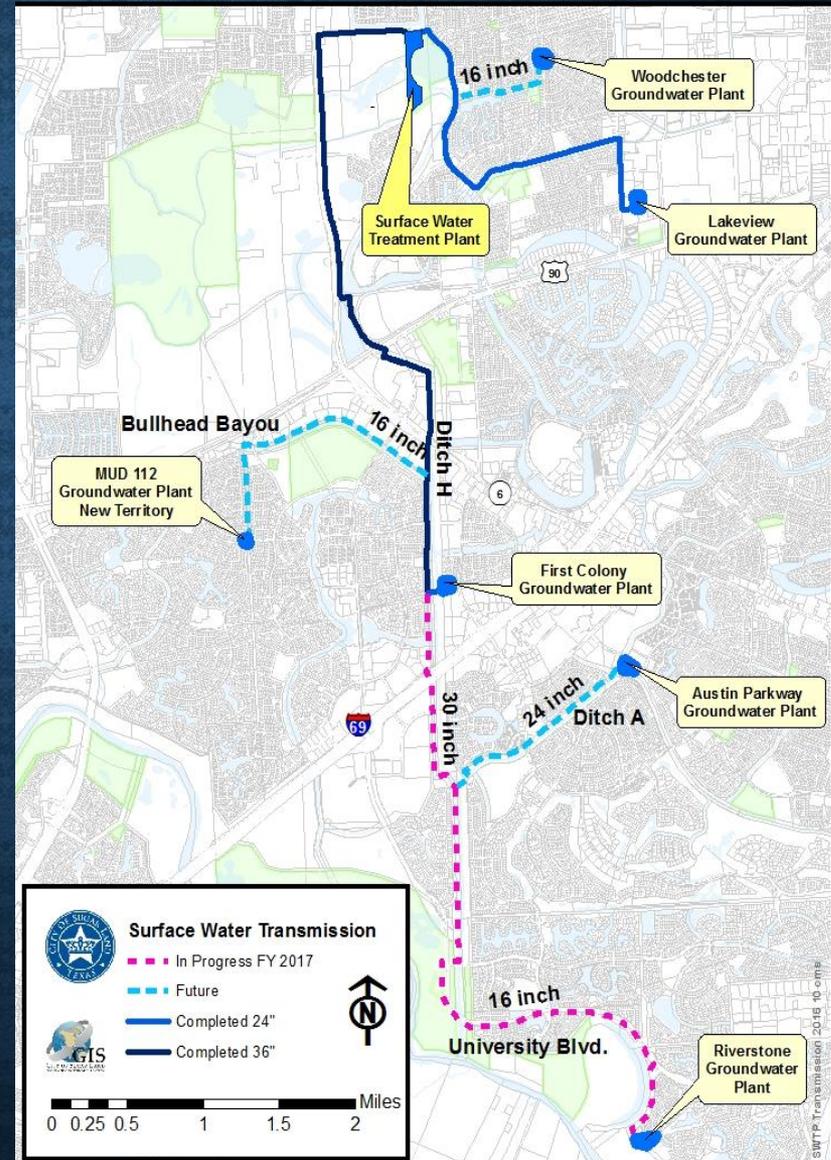
- Lakeview WP
- First Colony WP

Current Project

- Riverstone WP

Future Projects

- Austin Parkway WP
- New Territory WP
- Woodchester WP



GRP IMPLEMENTATION STRATEGY

2. Raw Surface Water Pump Stations

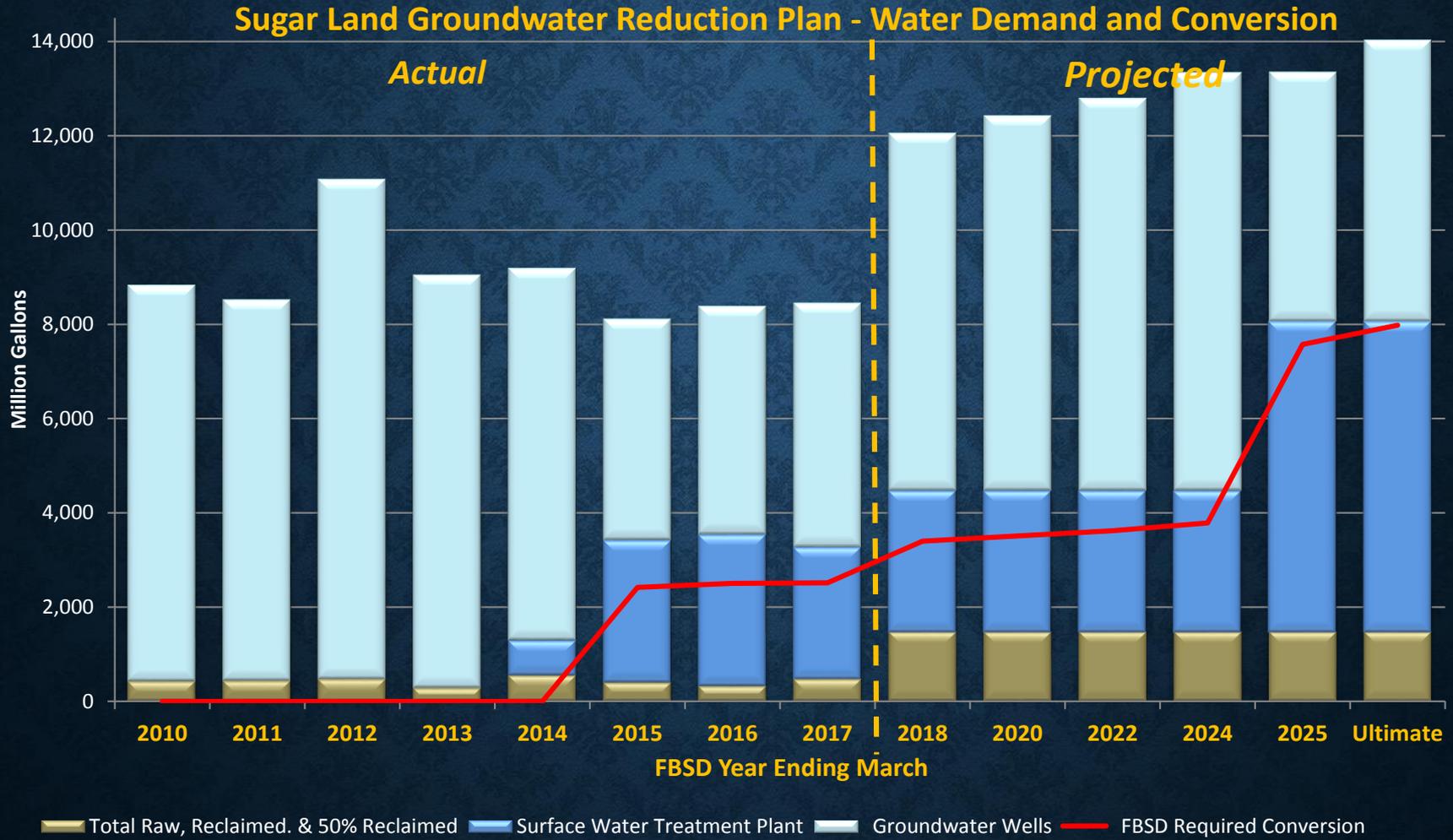
- Lake Pointe Irrigation
- Telfair Lake Filling
- Venetian Estates Lake Filling and Irrigation
- Sugar Lakes Pump Station

3. Water Reuse / Reclaimed

- South WWTP - online September 2015
- New Territory (West) WWTP – on schedule to be online December 2017
- North WWTP

4. Water Conservation

GRP CONVERSION & PROJECTION



Source Data: 2012 Water Master Plan & GRP Annual Production; Projection assumes max. 3 MGD Raw & Reclaimed Production

Water Conservation

➤ Goal:

- Partnership & Education; *Not* Restriction & Regulation
- Reduce “wasteful” outdoor use
- Reduce peak demands
- Promote water use efficiency



➤ Programs:

- Residential Irrigation System Evaluations
 - Free to Residents in the GRP Planning Area
- Water My Yard: watermyyard.org
 - FBSD & AgriLIFE Extension ET Network



Groundwater Credits Earned³¹

Strategies

1. **Early Conversion**
 - **Raw Water Projects**
 - **Surface Water Treatment Plant (Nov.-Mar.)**
2. **Over convert in Early Years**
3. **WaterWise Conservation Education**
 - **Sponsor 4th - 5th Grade Presentations**

Credits as of March 2017:

- **8.38 billion gallons**
- **One year of conversion at Ultimate Demands**
- **\$54.4 million Value (Disincentive Fee \$ 6.50/1000 gal)**

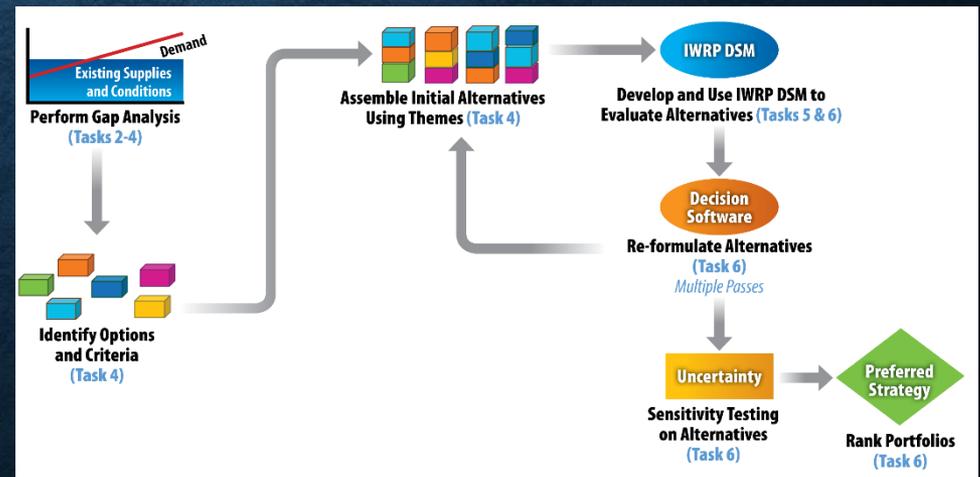
GRP PROJECTS

In Progress:

- **Transmission Line to Riverstone Water Plant**
- **Integrated Water Resource Plan**
- **Annexation**

INTEGRATED WATER RESOURCE PLAN

- Incorporates the economics, reliability, equity, environment, and social aspects of water resource management
- Identify specific objectives for our community
- Outputs can include policy recommendations, management strategies, and capital projects
- Anticipated completion- Summer 2018
- Council approval



INTEGRATED WATER RESOURCE PLAN

- **Progress to Date**

- **Council Task Force**

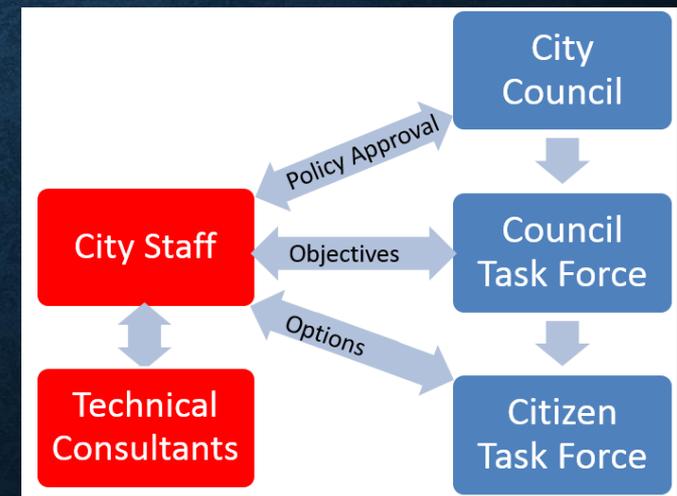
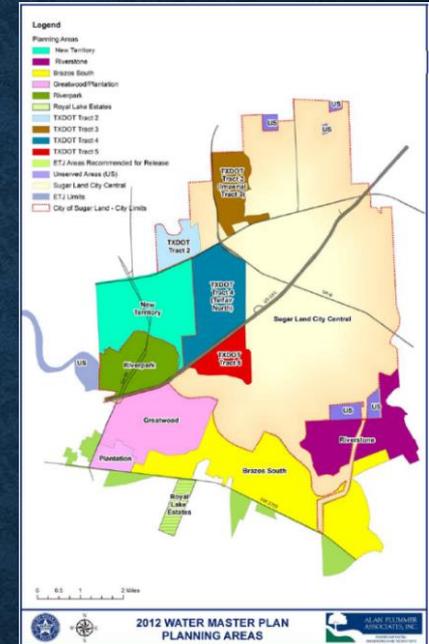
- **Citizen Task Force**

- **Consultants**

- **Water Supply Reliability Study**

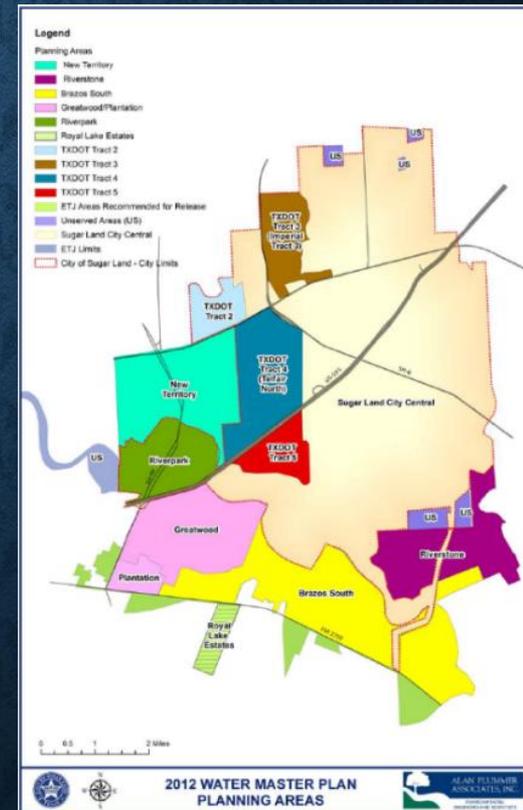
- **Reclaimed Water Supply Study**

- **IWRP**



ANNEXATION

- **Greatwood and New Territory**
- **Strategic Partnership Agreements**
- **December 12, 2017**
- **Negligible Impacts to GRP**





FINANCIAL UPDATE

**JUSTIN ALDERETE
BUDGET OFFICER**

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
 - Enterprise Fund Separate from Water Utilities
 - Only Accounts for Surface Water Activities
- 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

FINANCIAL CAPACITY - FUTURE

- GRP rate increases anticipated for at least next 5 years to build capacity for future debt
- Expand to meet 2025 conversion requirement
 - FY18 – No change to current rate
 - FY19 - \$2.00 per 1,000 gallons
 - FY20 - \$2.10 per 1,000 gallons
 - FY21 - \$2.15 per 1,000 gallons
 - FY22 - \$2.20 per 1,000 gallons

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

WHAT CAN IMPACT RATES

- FBSD Regulations & Fees
- Future Expansions
- Increased Conversion Requirements
- Dramatic Changes in Pumpage
 - Rainfall- High or Low

SURFACE WATER FUND PRIOR YEAR OPERATING RESULTS

In \$M	Revenue	Expense	Net	GRP Rate
FY 08	\$4.86	\$2.64	\$2.23	\$0.25
FY 09	2.49	1.35	1.14	0.25
FY 10	4.38	1.98	2.40	0.60
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

- Includes Bond Proceeds and Capital Project Funding
- 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
Surf Water Transmission Ln	16,900,068
Surf Water Treatment Plant	81,935,521
Water Plant Upgrades	8,337,800
SCADA Comm. Conversion	385,000

Continued...

PRIOR YEAR CAPITAL IMPROVEMENT PROJECTS

Project Name	Funding
SWTP OM Manual and SOP	417,830
SWTP Computerized Maint. 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	3,990,000
Dam 3 Flood Control Improvements	88,800
Riverstone GWP Improvements	5,950,000
Transmission line to RSGWP	10,525,000
Total	\$ 130,266,404

SURFACE WATER FUND FY17 ESTIMATES

Millions (\$)	FY17B	FY17E	Variance
Revenues	\$ 28.07	\$ 27.52	\$ - 0.44
Expenses	28.93	27.70	1.23
Net Income	-0.86	-0.19	0.67

- Note: Totals may not add due to rounding

SURFACE WATER FUND 5 YEAR FORECAST

\$ Millions	FY18	FY19	FY20	FY21	FY22
Revenues	15.17	19.02	17.80	18.48	19.04
Expenses	14.98	15.05	15.18	15.37	15.65
Net Income	0.19	3.98	2.62	3.11	3.39
End Balance	10.51	14.49	17.11	20.22	23.61

- FY18-20 revenue reflects repayment of FY16 inter-fund loan
- Note: Totals may not add due to rounding
- Ending Balance is accumulating funds for future expansion of SWTP

F18-22 CAPITAL PROJECTS

Project Name	FY21	FY22
New Territory GWP Surface Water Conversion	200,000	\$ 350,000
SWTP Expansion PER/Design	250,000	700,000
SW Transmission Line to New Territory GWP	200,000	400,000
New Territory GWPs Chloramine Conversion		200,000
Total	\$ 650,000	\$ 1,650,000

SURFACE WATER COMPARATIVE GRP FEES

Per 1,000 Gallons 2017 Rates	GRP Fee	Surface Water Fee
Sugar Land	\$1.75	\$1.88
Comparative Rates:		
Missouri City	1.65	2.12
West Harris County Water Authority	2.45	2.85
North Fort Bend Water Authority	3.05	3.40

