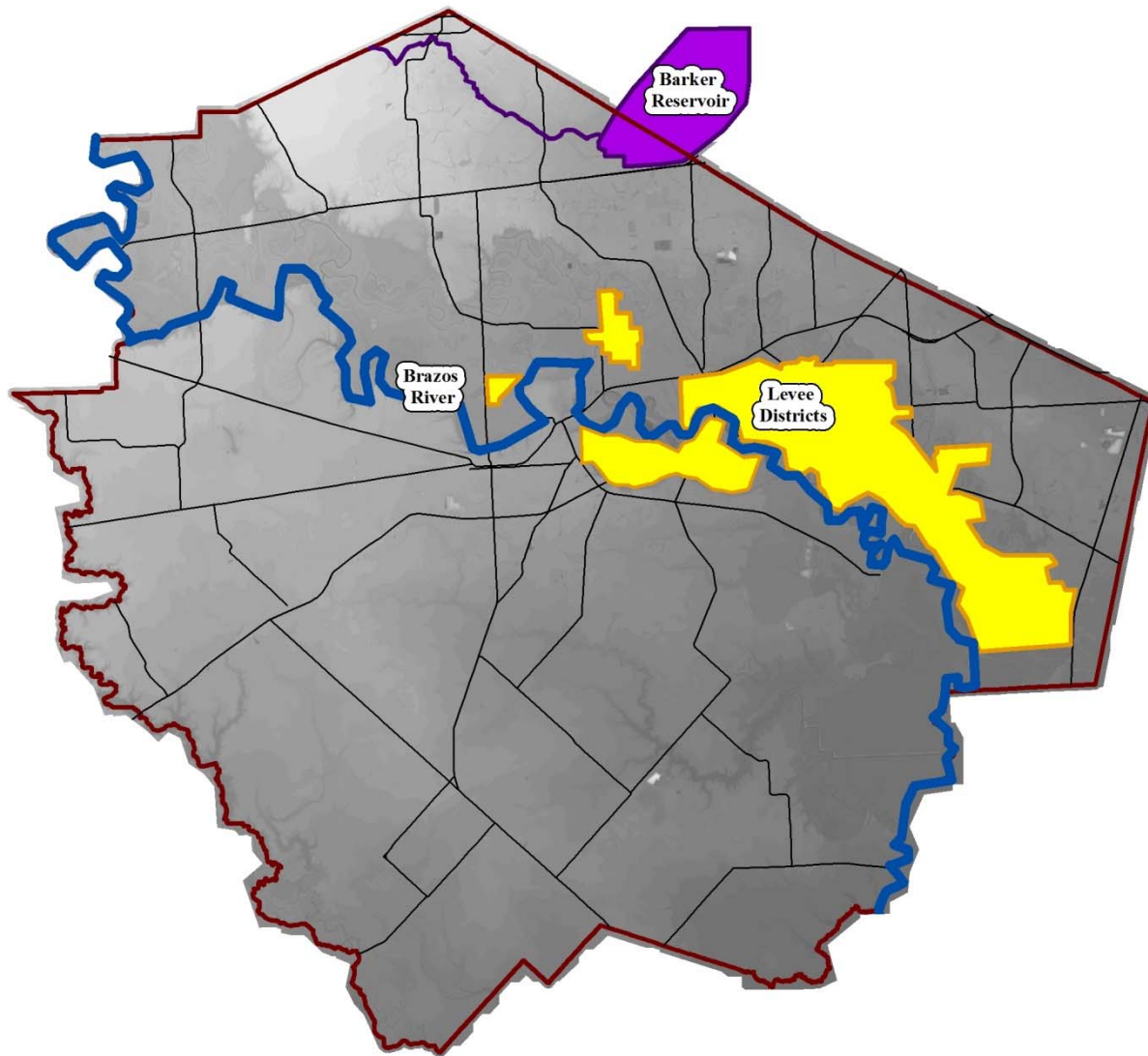


Fort Bend County

USACE Summer Stakeholder Partnering Forum





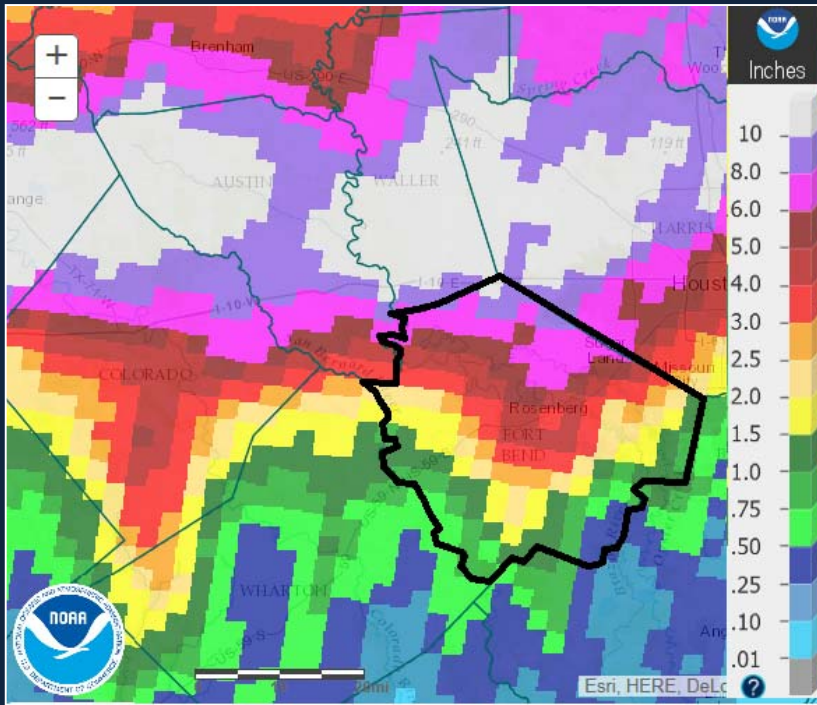
Barker Reservoir

(April 18, 2016
Flood Event)

Brazos River & Levee Districts

(May 26 -27, 2016
Flood Event)

April 18, 2016 Flood Event



Estimated rainfall totals of 8"+ across entire Barker watershed.

Willow Fork at Greenbusch Rd. peak flowrate of 5,660 cfs is 1.5 times higher than any previous measured flow!

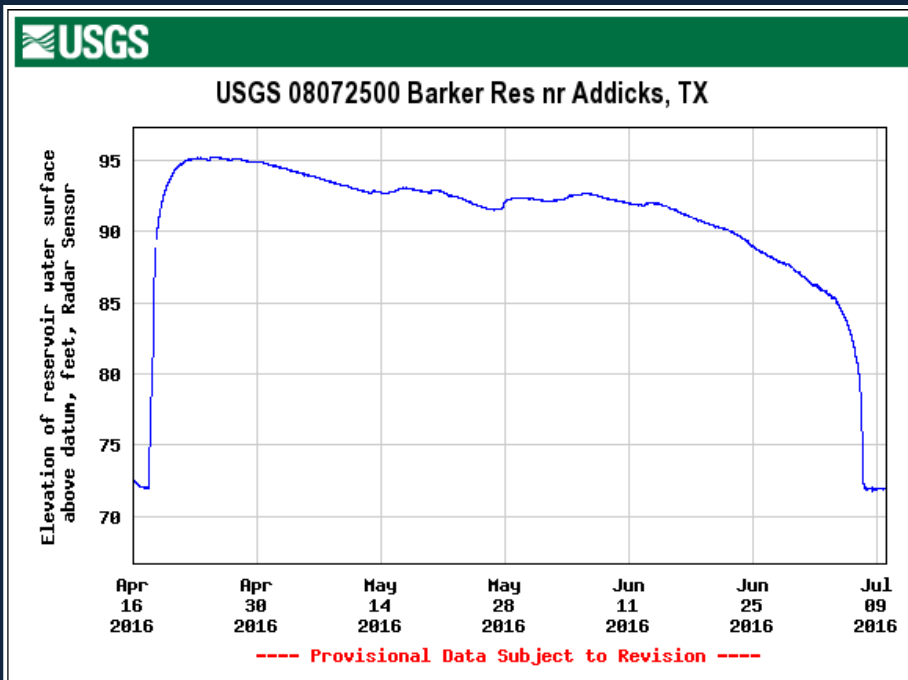
Peak Barker Reservoir Elevation
= 95.25' on 4/25/16

Estimated First Home in Fort Bend County
floods at 98.10'

Willow Fork of Buffalo Bayou near Katy USGS Peak Streamflow

	Date	Flowrate (CFS)
1	April 18, 2016	5660
2	Feb. 1994	3780
3	Sept. 2008	3610
4	Nov. 2004	3380
5	May 2015	3350
6	Apr. 2009	3030
7	Sept. 1979	2920
8	Oct. 2002	2900
9	Apr. 1991	2880
10	Oct. 2006	2700

(Period of Record = 1978 - Present)



Max Ponding within FBC Streets During April 2016 Event
6219 Santiago Mountain – 4/25/16, 10:00AM

USACE / FBC Response:

Planning exercises for a Barker Reservoir Event
over the last 8 years

USACE Officials Visited FBC EOC and
County Judge on 4/20/16

Daily Conference Calls & Email Reports

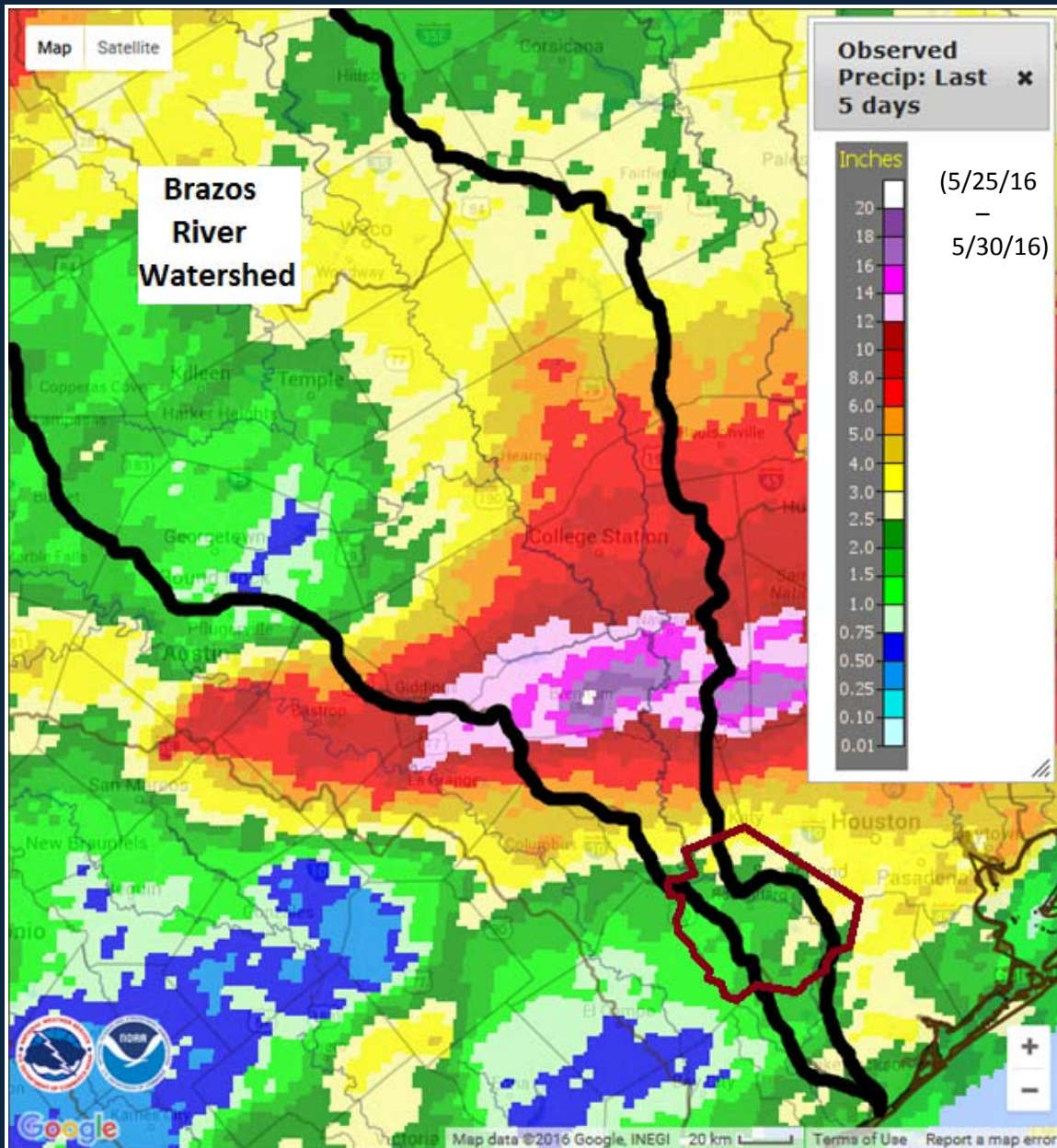
Coordination on Public Messaging

Coordination between Multiple FBC Depts.:
(OEM, Drainage Dist., Road & Bridge,
Public Health, GIS, Co. Judge, Transportation)

Fort Bend County Road & Bridge
Field Crews Monitoring Inlets

DATE	TIME	SUBDIVISION	ADDRESS	READING
April 25, 2016	1000	Canyon Gate	19722 Canyon Gate	-7.0"
		Canyon Gate	19723 Canyon Gate	-5.5"
		Canyon Gate	6226 Marina Canyon	-1.5"
		Canyon Gate	6219 Santiago Mountain	+1.0"
		Cinco Ranch Greenway Village	5106 Hollow Branch	-5.0"
April 24, 2016	1300	Canyon Gate	19722 Canyon Gate	-9.5"
		Canyon Gate	19723 Canyon Gate	-7.5"

May 2016 Brazos River Flood Rainfall Totals



NWS - Official Weather Stations

Max 24-Hour Rainfall Totals
(May 26th - 27th, 2016)

Waco	3.61"
College Station	8.54"
Brenham	18.56"
Sugar Land	1.20"

Brenham Highlights:

May 26th – 16.62"

May 27th = 1.94"

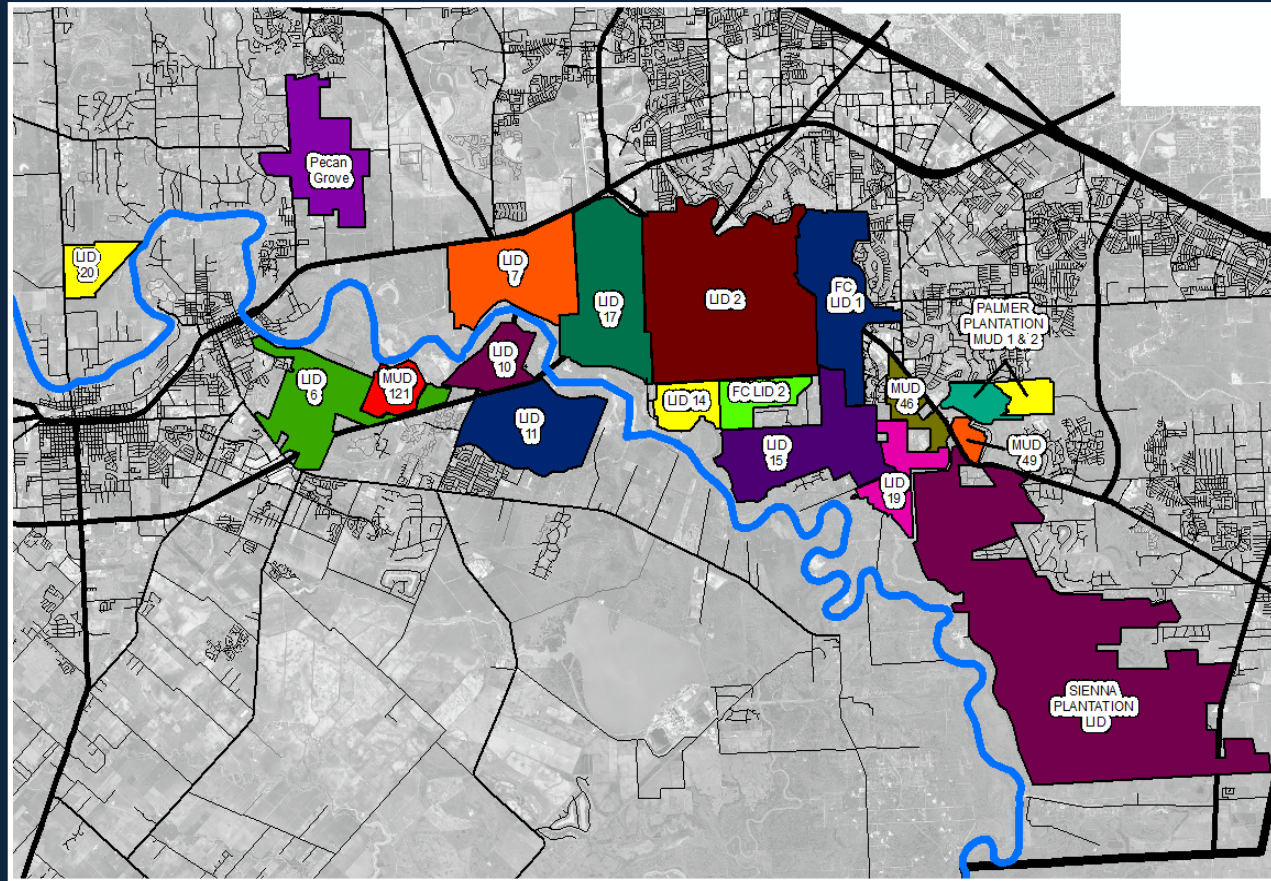
16.62" on May 26th breaks the previous one day Brenham record by more than 6"! (10.39" in Oct. 1994)

16.62" on May 26th would be the 4th highest monthly total rainfall at Brenham! (June 1899, Oct. 1994, Oct. 2002)

FBCDD Estimated Brazos at Richmond Peak Elevations since 1950

	Date	Elevation (Current USGS Datum)
1	June 2016	54.81
2	May 1957	51.06
3	Oct. 1994	50.30
4	June 2015	50.01
5	Jan. 1992	49.68
6	April 2016	49.46
7	May 1965	48.65
8	May 1968	46.36
9	June 1979	46.22
10	Oct. 1998	46.15

- June 2016 event was 3.75' higher than any event since 1950'.
- 3 of the top 6 events since 1950 have occurred in the last year.
- 7 of the 10 events have occurred in the late April – early June time period.



- 19 Individual Districts that Own and Maintain Levees
- Paid for and Funded by the Residents Living within the District
- LID Directors are appointed by Fort Bend County Commissioners Court
- Each District hires their own Attorney, Engineer and Operating Company

Fort Bend Levee Facts

Residential Developments protected by Levees include:

(Avalon, First Colony, Del Webb, Greatwood, Kingdom Heights, New Territory, Pecan Grove, Riverpark, Riverpark West, Riverstone, Telfair, Sienna Plantation, Sweetwater)

Total Appx. Value of Structures and Land Protected by FBC Levees:

\$15 Billion

(Approximately 31% of Total Taxable Value)

Total Appx. Land Area Protected by Fort Bend County Levees:

35,000 Acres

(Approximately 6% of Total Fort Bend County Land Area)

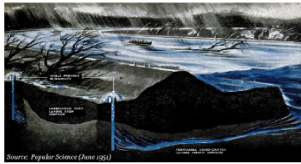
Total Appx. Population Living Behind Fort Bend County Levees:

150,000 Residents

(Approximately 23% of Total Fort Bend Population)



**Fort Bend County Drainage District &
Office of Emergency Management**



**Levee Operations & Flood
Fighting Training**

Featured Speaker: **George L. Sills, P.E.**
(Retired from the U.S. Army Corps of Engineers with 36 years
experience. He is a geotechnical engineering consultant.)

Date: **February 26, 2013**

Time: **9:00 am – 3:00 pm**

Where: **Gus George Academy**
1521 Eugene Heimann Circle
Richmond, TX 77469
(281) 341-4780
Classroom #4

Register: <http://www.fbcoem.org/go/survey/1528/12733/>
*Register for Levee Operations Flood
Fighting Training*

Contact:
FBC Drainage District
Jeffrey Janacek
(281) 342-2863
jeffrey.janacek@co.fort-bend.tx.us

**Office of Emergency
Management**
Alan Spears
(281) 238-3415
Alan.spears@co.fort-bend.tx.us

**FORT BEND COUNTY DRAINAGE DISTRICT
& OFFICE OF EMERGENCY MANAGEMENT
SPRING 2016 SEMINAR**



FRIDAY, MAY 13, 2016 - 8:00 A.M. - 11:30 A.M.
FLUOR BUILDING MAIN AUDITORIUM
1 Fluor Daniel Dr, Sugar Land, Texas 77478

**FORT BEND COUNTY LID
CONTINUING EDUCATION CREDITS**
ATTENDANCE ENTITLES ALL PARTICIPANTS TO 3 CONTINUING EDUCATION CREDITS

Mr. Jerry L. Cotter, P.E.

Chief of Water Resources
U.S. Army Corps of Engineers, Fort Worth District
Mr. Cotter's responsibilities include overseeing U.S. Army Corps of Engineers operations in the upstream Brazos watershed, including regulating reservoir releases during flood events.

Mr. Gregory Waller

Service Coordination Hydrologist
National Weather Service - West Gulf River Forecast Center
Mr. Waller manages the daily flood forecasts produced by the National Weather Service during flood events along the Brazos River and throughout the West Gulf River Forecast region.

REGISTRATION:

FBCEM.ORG/GO/SURVEY/1528/25838

FOR MORE INFORMATION:

ALAN SPEARS
ALAN.SPEARS@FORTBENDCOUNTYTX.GOV | (281) 238-3415
JEFF JANACEK
JEFFREY.JANACEK@FORTBENDCOUNTYTX.GOV | (281) 342-2863

USACE Assistance with Fort Bend County Levees:

- Rehabilitation and Inspection Program (RIP):
 - A. USACE Inspections of Participating Levee Districts
 - B. Train and Assist FBCDD with Inspections
- Presentations:
 - A. Participation in Annual Fort Bend Flood Management Association Symposium
 - B. George L. Sills, P.E., Retired USACE Engineer (Mississippi River Levee Operations and Flood Fighting)
 - C. Jerry L. Cotter, P.E., USACE Fort Worth (Brazos River Reservoir Operations)
- Brazos River Erosion Management Project (BREM)
- Supplied Sandbags during May 2016 Flood Event
- Upstream Reservoir Operations



FBCLID No. 20 at FM 723



FBCLID No. 7 & 10 at Grand Parkway



FBCLID No. 11 & 17 at Highway 59



Sienna Plantation LID

May / June 2016 Brazos River Flood Event

Fort Bend County Impacts

Total Rescues / Evacuations:	780
Number of Homes Damaged:	1,245
Number of Businesses Damaged:	5
Estimated % of Fort Bend County Land Area Inundated by Brazos Floodwater:	17%
Total Estimated Residents Impacted by the Incident:	50,000
Injuries & Deaths Reported within Fort Bend County:	0

Source: Fort Bend County Office of Emergency Management, 6/12/16

Brazos River Reservoir Operations

Brazos River Upstream Reservoir Status - 6/3/16, 7AM			
Lake Name	% Flood Pool Full	24-Hr. Change	Current Releases (cfs)
Possum Kingdom (drains to Whitney)	No Flood Control Storage	(-0.01')	19600
Granbury (drains to Whitney)	No Flood Control Storage	(-1.10')	43150
Whitney	41%	+4.69'	1586
Proctor (drains to Belton)	90%	+2.05'	3240
Belton	35%	+2.68'	0
Georgetown (drains to Granger)	14%	+2.59'	0
Granger	29%	+2.52'	0
Aquilla	9%	+1.03'	1
Waco	38%	+8.85'	1027
Stillhouse	27%	+1.95'	1
Somerville	100%	+0.02'	2331
Limestone	No Flood Control Storage	+0.43'	4600



**Total Downstream Reservoir Releases:
June 3, 2016 = 9,546 cfs**

**Peak Flood Control Storage (6/7/16)
= 2.4 million ac-ft**

**(Fort Bend County = 554,000 acres...
If stored in FBC this water would be over 4'
deep)**

**As of July 24, 2016
Brazos at Richmond Flowrate= 15,000 cfs
Lake Somerville = 48% Flood Pool Full
Lake Belton = 30% Flood Pool Full**