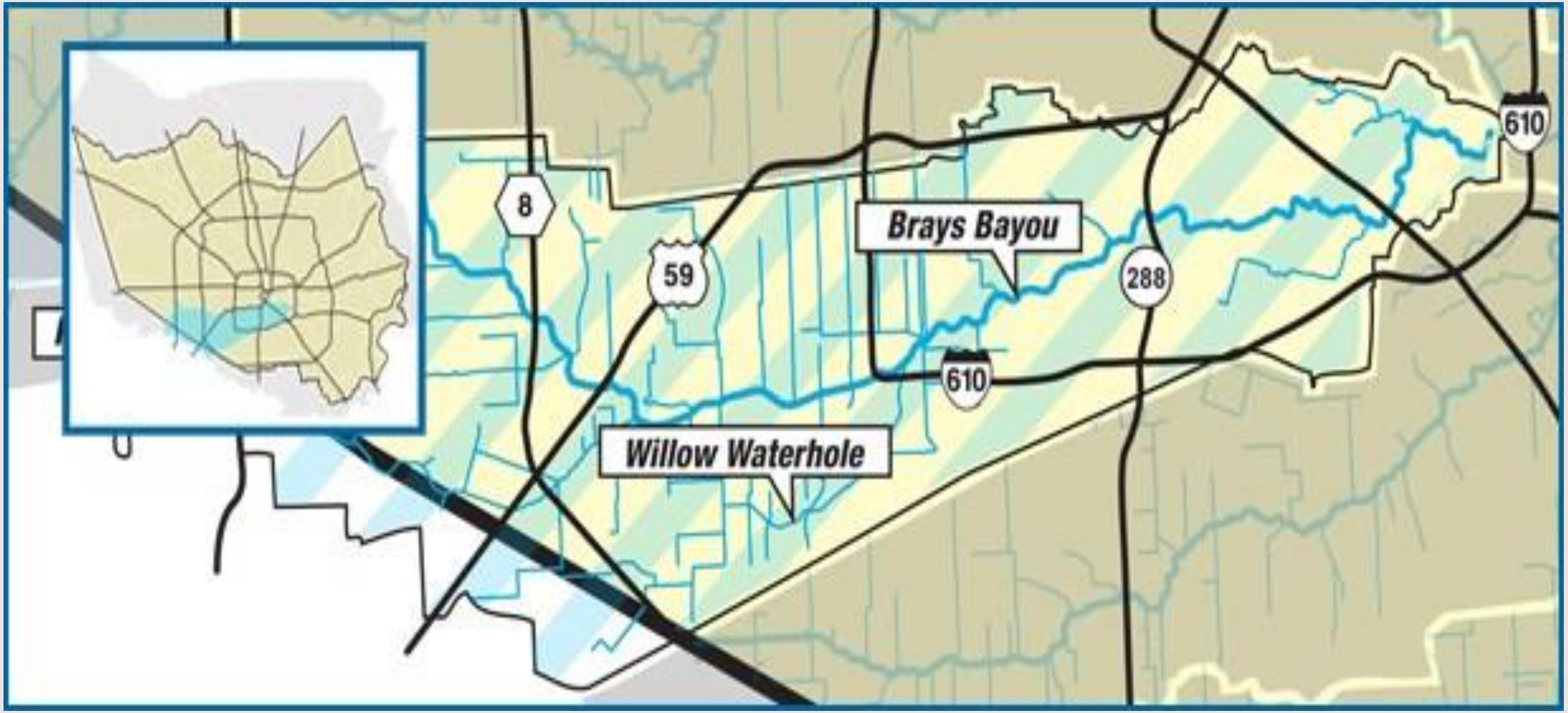
Tuesday

December 19, 2017

Flood Hazard Mitigation Task Force

Overview of Base Flood Elevations

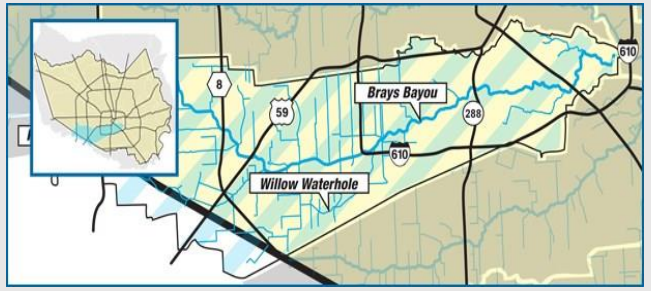
Brays Bayou Watershed



Brays Bayou Watershed

The Brays Bayou watershed is located in southwest Harris County and portions of Ft. Bend County and drains parts of the cities of Houston, Missouri City, Stafford, Bellaire, West University, Southside Place and Meadows Place. The bayou flows eastward from Fort Bend County to its confluence with Buffalo Bayou.

This heavily urbanized watershed covers approximately 127 square miles and includes three primary streams: Brays Bayou, Keegans Bayou and Willow Waterhole Bayou. There are about 121 miles of open streams within the watershed, including the primary streams and tributary channels.



1% (100-year) Floodplain

The area of land that has a 1% chance of being inundated by flood waters from a bayou, stream or creek in a given year. It is commonly referred to as the 100-year floodplain. This is a regulatory standard used to administer floodplain management programs, the National Flood Insurance Program (NFIP) and to set building requirements for new construction.

The 1% (100-year) floodplain is the Base Flood or Special Flood Hazard Area. It is referred to as Zones AE, AO, A, or VE for insurance purposes on Flood Insurance Rate Maps (FIRMs). Properties located in these mapped zones are required to have flood insurance if the owner has a federally backed mortgage on the property.

1% (100-year) Rainfall

An amount of rain having a 1% chance of being equaled or exceeded in any given year. For Harris County this amount of rainfall is just over 13 inches in 24 hours.

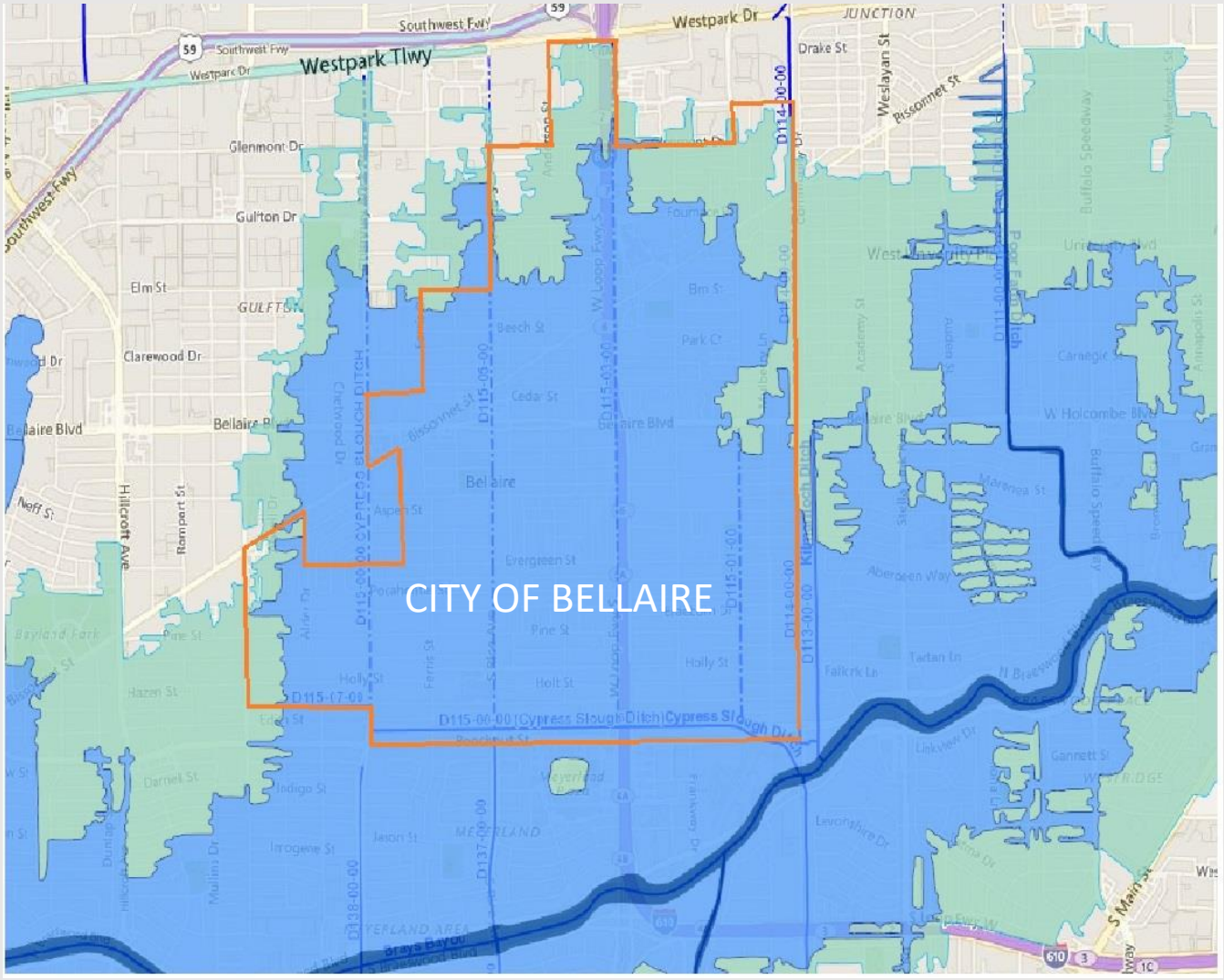
Base Flood Elevation

The BFE is the regulatory requirement for the elevation or floodproofing of structures. The relationship between the BFE and a structure's elevation determines the flood insurance premium.

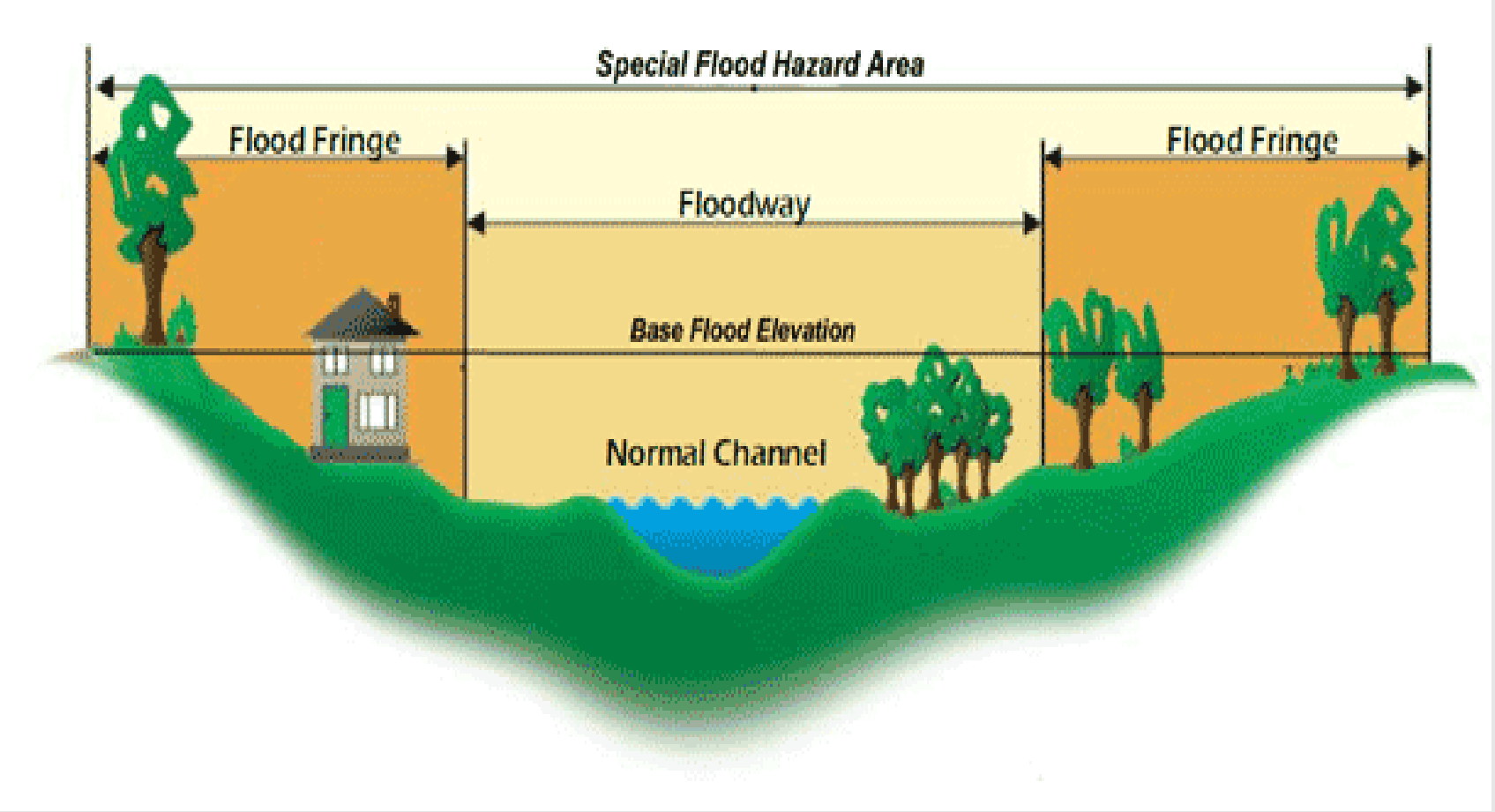
This is the elevation above the average sea level that waters from a 1% (100-year) flood will reach at a given point along a creek or bayou. These elevations are determined by FEMA and its consultants using hydrology and hydraulic computer models. The elevations are then mapped on the topographic data for the agency to produce the 1% (100-year) floodplain.

1% (100-year) Floodplain

http://www.harriscountyfemt.org/



Base Flood Elevation



SUMMARY SHEET - HCFCD HIGH WATER MARKS

9/19/2017

BRAYS BAYOU D100-00-00

ROAD NAME	STAGE GAGE	BRIDGE BM ELEV	78 TO '01 ADJUST	10.0%	2.0%	1.0%	0.2%	STORM EVENTS																HARVEY
								7/30/54	6/18/73	8/31/81	ALICIA 8/18/83	CHANTAL 9/19/83	CHANTAL 8/1/89	CHANTAL 3/4/92	10/18/94	FRANCES 9/11/98	ALLISON 6/9/01	11/17/03	IKE 9/13/08	4/28/09	1/9/12	5/26/15	4/18/16	1/18/17	8/27/17
75 TH		20.35	-0.5	14.4	17.1	18.3	21.5				13.4	12.7			11.9	13.6	16.5	8.8	16.8	N/A	10.1	12.4	11.9	8.1	16.1
LAWNDALE	410	21.97	-0.6	18.1	20.7	21.9	24.7				16.7	17.0	13.9		17.6	17.9	22.8	14.9	17.0	9.2	15.6	18.4	18.0	13.4	20.7
IH 45 (IN BOUND)		31.49	-0.6	21.7	24.4	25.6	28.3		20.1			20.8			21.7	20.7	27.6	20.0	21.6	N/A	18.4	21.6	18.5	16.9	25.5
TELEPHONE RD		25.65	-0.6	23.4	26.0	27.3	30.2	22.4	21.7	20.2	18.7				22.1	21.8	27.8	15.7	22.9	14.8	19.9	22.2	21.0	18.2	25.0
WAYSIDE		32.17	-0.6	24.9	27.8	29.2	32.0		23.5						23.0	16.8	20.4 [1]			14.2	21.0	23.3	22.5	18.2	26.9
OLD SPANISH TRAIL (OST)		28.47	-0.7	25.4	28.3	29.9	32.8								26.3		27.8	16.6	25.0	15.7	20.9	23.8	22.5	16.3	27.3
MARTIN LUTHER KING		36.47	-0.8	29.7	32.4	33.7	36.1				24.9	26.8			26.0	29.5	32.8	26.6	29.9	20.9	26.2	29.3	26.4	18.2	32.3
CALHOUN		33.41	-0.8	30.3	32.8	34.0	36.5	31.9	29.2	29.0					29.5	30.1	32.8	27.8	30.7	22.0	28.2	28.9	28.8	26.2	33.7
SCOTT		37.92	-1.0	31.6	34.4	35.7	37.9								31.3	32.3	32.4	29.7	31.5	24.0	29.4	32.1	30.5	28.4	35.2
ARDMORE		37.36	-1.1	32.8	35.4	36.6	38.9								33.9		38.0	31.9	32.8	25.8	31.2	34.3	29.1 [1]	30.6	37.4
SH 288		51.01	-1.2	33.6	36.4	37.8	40.1				30.4				34.8	35.2	39.3	33.9	33.6	26.7	33.0	35.2	34.2	31.7	39.2
ALMEDA RD		41.10	-1.2	34.4	37.6	39.1	41.9		35.1	34.5					36.2	34.7	37.5	33.9	35.0	27.1	33.7	37.0	36.0	32.3	40.4
D109 @ MACGREGOR	400	39.11	-1.2	34.9	38.2	39.9	43.0												34.0	N/A	36.1	38.0	37.4	35.3	41.5
HOLCOMBE BLVD		43.31	-1.2	36.3	39.4	41.1	43.9		37.4	37.3	33.8	38.4			38.2	36.7	40.3	36.7	37.2	30.7	36.5	38.2	37.7	34.9	41.7
S. BRAESWOOD BLVD.		43.68	-1.2	37.1	40.0	41.9	44.8								39.4		42.9	38.0	38.7	32.0	37.3	39.9	38.2	36.4	42.0
FANNIN		45.81	-1.3	38.4	41.2	43.3	46.6			38.9	34.7				41.0	38.5	44.0	37.8	39.4	34.0	37.9	40.1	39.5	37.5	43.5
GREENBRIAR		45.11	-1.3	39.2	41.7	43.8	47.4								40.7		42.2	39.9	39.4	35.0	38.7	41.3	40.4		44.4
N. BRAESWOOD BLVD.		47.58	-1.4	40.2	42.4	44.9	48.6								41.7		44.5	46.5	40.8	N/A	40.6	42.2	41.0		45.7
SOUTH MAIN	420	46.53	-1.4	41.0	43.1	45.7	50.0		41.2	41.5	37.4	42.4	38.8		42.2	39.6	42.9	40.6	41.3	36.5	40.5	42.9	42.1		45.7
S. BRAESWOOD		49.74	-1.3	41.4	43.7	46.6	50.1								42.7		44.3	42.0	41.9	36.3	39.9	43.1	42.4	40.5	45.9
KIRBY		44.30	-1.3	42.1	44.3	47.1	50.7		41.6	42.5					42.7	40.6	47.2	42.1	41.8	37.4	41.6	43.9	43.0		46.3
BUFFALO SPEEDWAY		49.48	-1.3	43.7	46.1	48.4	51.1		42.8		40.9				44.4	43.1	47.4	43.7	43.3	39.3	43.7	45.5	44.1	42.7	47.9
STELLA LINK	430	49.55	-1.7	45.5	47.5	49.6	51.8		45.1	46.1	42.7			45.0	46.0	44.3	48.4	46.4	45.9	43.0	45.7	48.3	47.1	45.7	49.7
SPRR		53.36	-1.7	47.2	49.5	51.3	52.6								47.8	46.3	49.4	47.1	46.5	44.0	47.2	49.1	47.7	46.8	50.7

NOTE: BRIDGE AND HIGH WATER ELEVATIONS ARE ON 1988 NAVD; 2001 ADJ

NOTE: D109 @ MacGregor added as a HWM location in summer of 2005

[1] = Suspect elevation, low confidence in field

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9/19/2017

BRAYS BAYOU D100-00-00 Page 2 of 2

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SOUTH POST OAK		50.45	-2.1	49.9	52.1	53.6	55.0					47.4			50.2	46.7	50.8	50.8	47.3	46.3	48.9	51.4	49.6	48.9	53.7
RICE BLVD	440	53.81	-2.0	50.8	52.9	54.3	55.7		49.1		47.4	52.5	49.0		51.5	47.5	50.4	51.0	47.9	47.6	50.3	52.9	51.7	49.8	54.1
CHIMNEY ROCK		54.05	-2.1	52.4	54.6	55.5	56.8		50.9	50.8		53.7		51.4	52.5	50.6	52.5	53.3	48.4	49.0	51.2	53.6	52.8	50.9	54.9
HILLCROFT		59.78	-2.2	55.1	57.2	57.4	58.7		52.3	53.3	51.0	56.4			54.5	52.6	53.7	55.1	51.5	51.6	53.8	55.9	47.7 [1]	53.3	57.2
N. BRAESWOOD		58.37	-2.2	56.2	58.7	59.1	60.5								55.7			56.5	52.8	52.9	55.0	57.1	56.8	54.3	57.9
FONDREN		59.28	-2.4	58.5	61.1	61.5	62.7		53.7	55.5	52.5	58.4			57.3	52.9	55.4		53.4	54.6	56.5	59.0	55.3	56.0	60.7

Overarching Goals

What is the Flood Hazard Mitigation Task Force trying to accomplish?

Safety & Assurance

- Bellaire residents and property owners should not need to **unreasonably** worry about flooding
- Bellaire residents and property owners should be prepared and equipped to deal with flooding
- During a flood event, communication between rescue agencies and residents needs to be meaningful and reliable
- Rescue agencies should have sufficient training, equipment, and access to resources

Planning & Implementation of Drainage Improvements

- The cost/benefit of level of protection options needs to be determined, and the level of protection to be provided by local drainage improvements needs to be established
- The City of Bellaire needs to be positioned to secure adequate funding for local capital drainage projects
- The City of Bellaire needs to be positioned to secure funding and implementation of regional projects that benefit the City of Bellaire
- The relationship between drainage maintenance (e.g. storm sewer repairs, inlet cleaning) and level of protection should be established
- Sufficient resources for ongoing drainage maintenance needs to exist

Floodplain Regulation: Policy & Management

- The current approach to regulating the flood plain needs to be evaluated with regard to future base flood elevation calculations (elevation requirements, impervious cover, management of flood repair permits)
- The feasibility and effectiveness of property acquisitions for the purpose of drainage improvements should be evaluated
- The City of Bellaire should be positioned to advocate for strict upstream development standards

Draft Hazard/Risk Assessment Matrix

Schedule

Work Plan:	Date:
~~• Kick Off Meeting (1)~~	~~Monday, Oct 30, 17~~
~~• Present Risk Assessment & Mitigation Strategy with Task Force (2)~~	~~Tuesday, Nov 14, 17~~
~~• Address Task Force Comments on Risk Assessment & Mitigation Strategy (3)~~	~~Tuesday, Dec 5, 17~~
• Review Action Plan with Task Force (4)	Tuesday, Dec 19, 17
• 2nd Review of Action Plan with Task Force (5)	Tuesday, Jan 9, 18
• Action Plan Public Hearing	Monday, Jan 29, 18
• Task Force Review of Public Hearing Comments (6)	Tuesday, Feb 6, 18
• Finalize Action Plan (7)	Tuesday, March 6, 18
• Adopt and Implement Action Plan	Monday, March 19, 18