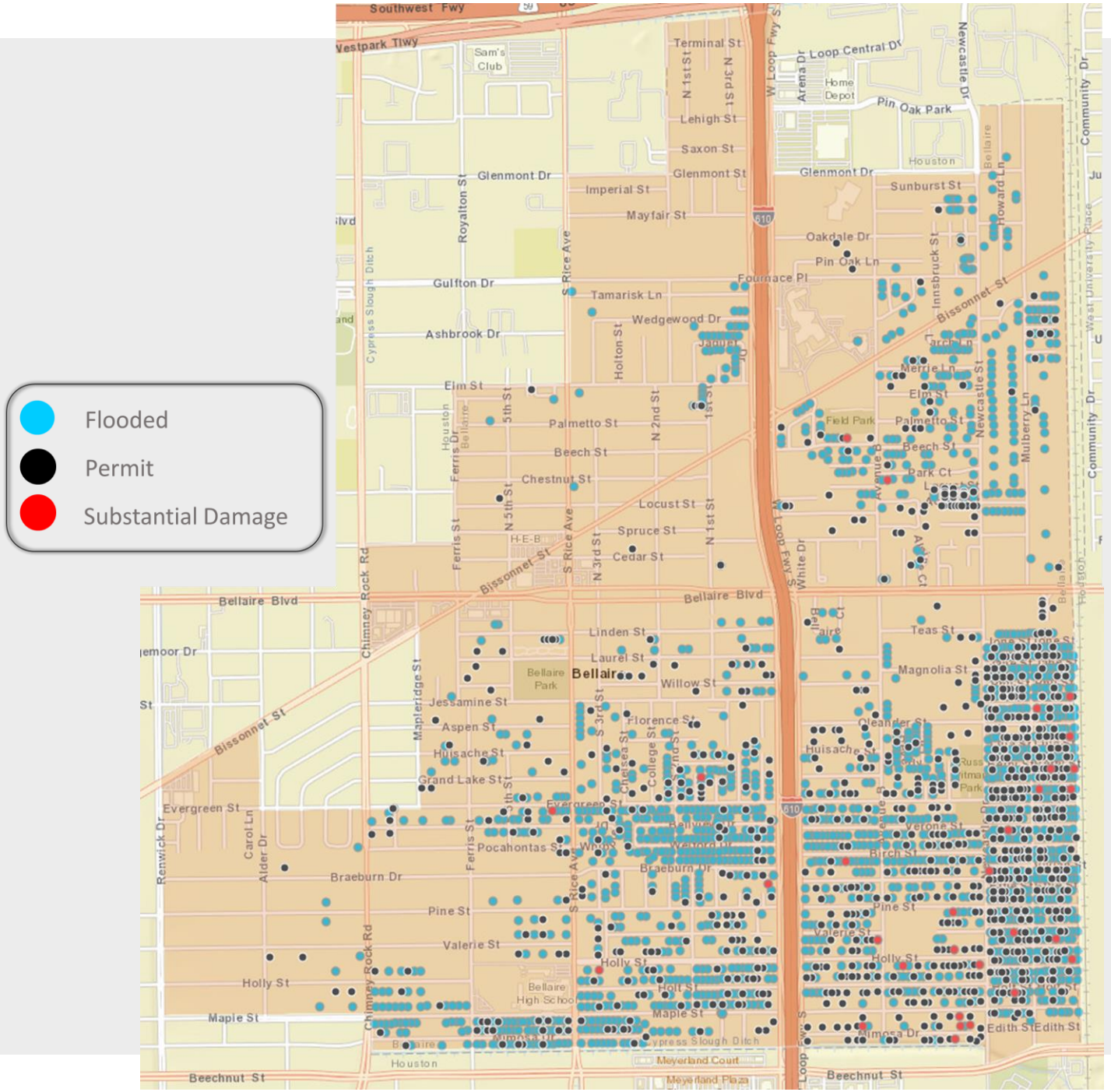
Hurricane Harvey Flooding Event Data as of 11-9-2017



Tuesday

November 14, 2017

Flood Hazard Mitigation Task Force

Review of CRS Requirements

What is CRS?

The National Flood Insurance Program (NFIP) Community Rating System (CRS) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities exceeding the minimum NFIP standards.

City of Bellaire CRS Participation

- The CRS uses a Class rating system that is similar to fire insurance rating to determine flood insurance premium reductions for residents.
- Bellaire CRS Class currently is a 7 as of 2013.
- Bellaire CRS Class trend is improving.

City of Bellaire CRS Participation

Facts

- Total Number of Policies: 4,783
- Total amount of premiums: $4,259,954

Benefits of Participation

- CRS floodplain management activities provide enhanced public safety, reduced damage to property and public infrastructure, and avoidance of economic disruption and loss.
- Communities can evaluate the effectiveness of their flood programs. The process requires resident involvement based to ensure floodplain plans meets the need of the community.

Benefits of lower CRS Class scores

- Discounted premiums (Currently 15%)

City of Bellaire CRS Participation

How it Relates to FEMA

- Strengthen and support the insurance aspects of the NFIP

How it Relates to Insurance

- Reduce flood damage to insurable property

How it Relates to Flood Mitigation Plan

- Encourage a comprehensive approach to floodplain management

Flood Mitigation Plan and CRS

Desired Outcome

- Is a part of the needed documentation that shows how the City of Bellaire will implement mitigation activities.
- Develop activities that are not about the CRS ratings but addresses the needs of the community.

How do we take all of the Task Force input and capture it all in one document?

Flood Mitigation Plan and CRS

	Assessment/History	Risk/Issues	Mitigation Options/Goal	Action/Implementation Plan
Hazard (Categories & Specifics)				

Responses from Task Force Members

What are we trying to accomplish?

With the City of Bellaire drainage improvements?

- Lower the frequency of both structural flooding and road inundation
- Protect the safety, health, & general welfare of residents
- Ensure development are compliant, which will result in proper storm water drainage & sediment control
- Minimize & mitigate the impact of flooding events
- Prevent future flooding from a Memorial Day type of event
- Systematically modernize drainage to address/replace aging infrastructure
- Reflect the changing residential improvements and commercial development objectives of the City
- Mitigate the adverse impact to residents, businesses and City property from flooding
- Any and all flood prevention measures, within our control, must be considered for implementation to mitigate our ongoing risk

From a regulatory perspective?

- Review and define minimum level of service for drainage with Bellaire and what regulatory constraints would be borne by private property development as part of this level of service
- Identify FEMA and Hazard Mitigation Grant Program (HMGP) opportunities to bring federal dollars to Bellaire for hardening
- Clarify, either through law or regulation, how to implement flood mitigation
- Need to determine maximum impervious coverage allowed
- New & Redevelopment should have onsite detention
- Discourage or prohibit development in flood prone areas
- Assess current building code requirements with potential upcoming changes of the floodplain
- Reassess participation by the City of Bellaire in the national flood insurance program
- Develop and institutionalize a guideline for the City regarding infrastructure design, code, and investment criteria regarding flood control, e.g. City infrastructure, codes and involvement with regional solutions will be based on ensuring adequate response of XXX year events
- Assess building code requirements relevant to flood mitigation for adequacy
- Review NFIP CRS regulations and make any and all changes needed so that Bellaire's approach is consistent with surrounding jurisdictions

With other jurisdictions in the region?

- Identify partnership opportunities to improve drainage retention/detention and proposed cost share
- FEMA and HMGP opportunities to bring federal dollars to Bellaire for hardening
- Evaluate pros, cons, and funding streams of Innovative regional solutions with joint benefits, such as wastewater consolidation and hardening with cost effective development of a localized detention pond/amenity park.
- Evaluate Project Brays Impact and Determine Relative Regional Versus Local Drainage Requirements to Improve Level of Service
- Coordination to would include consistency in flood plain studies and flood mitigation plans in the region
- Improved drainage to Cypress Ditch, Railroad, & IH610
- Work together to prevent future flooding
- Develop guidelines as criteria for investments of time and capital in supporting regional solutions that yield favorable progress toward City's outcomes on flood response and mitigation
- Work with jurisdictions to ensure actions do not adversely impact the City of Bellaire

City Engineer Reports

City of Bellaire

Flood Mitigation Task Force

James B. Andrews, P.E.
City Engineer

November 14, 2017
FMTF Meeting

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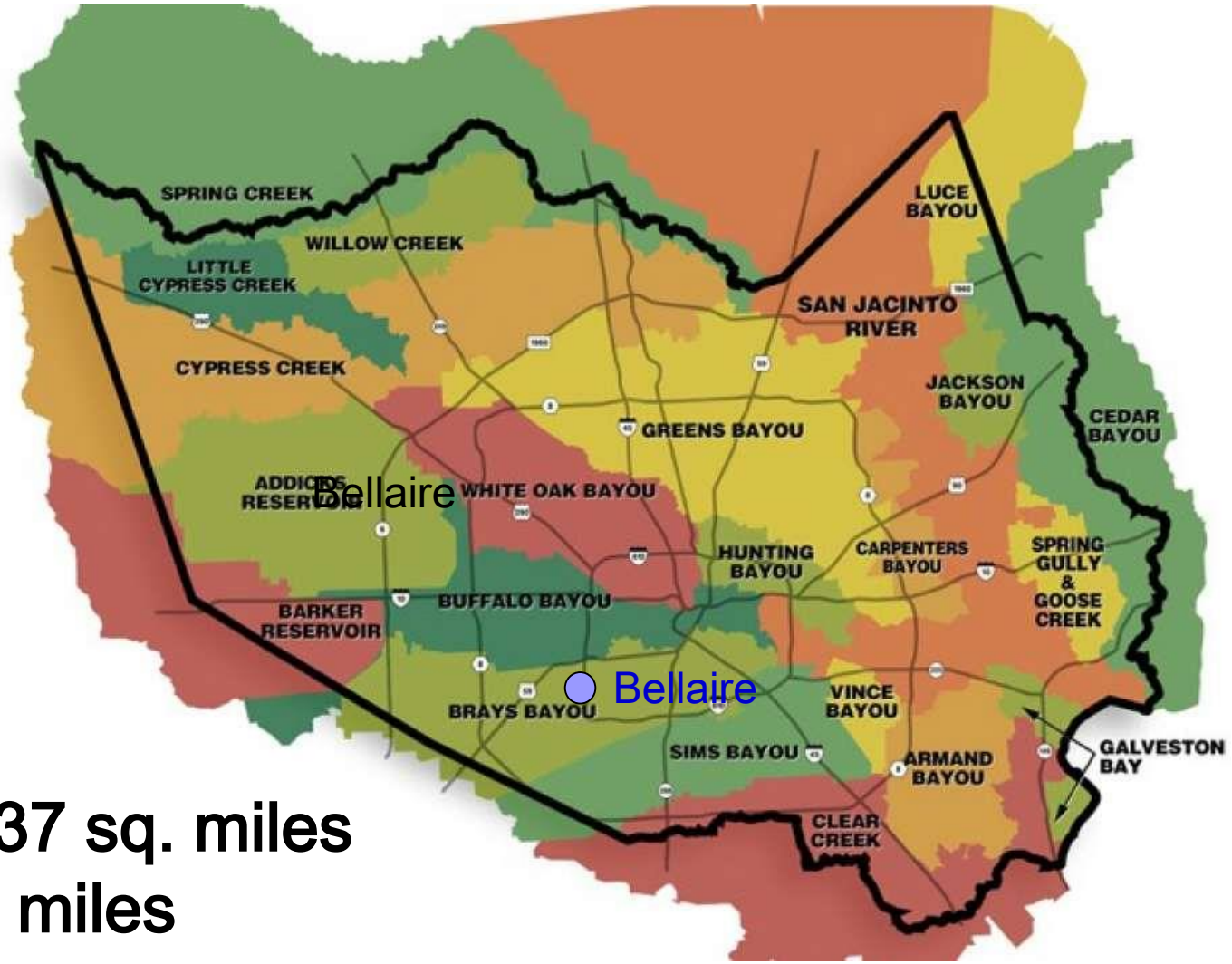

Brays Bayou 137 sq. miles
Bellaire 3.6 sq. miles

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1955

TSA June 2001

May 2015

Why does the Bellaire area flood?

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Factors Contributing To Flooding

- very high average annual rainfall of about 50 inches
- flat topography
- clay soils that do not absorb water well
- proximity to Brays Bayou
- storm water from the City of Houston flow through Bellaire from the north
- storm water runoff from Bellaire drains into undersized drainage systems owned by the City of Houston
- Below base flood finished floor elevations of homes constructed prior to the National Flood Insurance Rate Standards.
- Neighborhoods developed without a Master Drainage Plan contributing to poor overland flow
- and Extreme rainfall amounts

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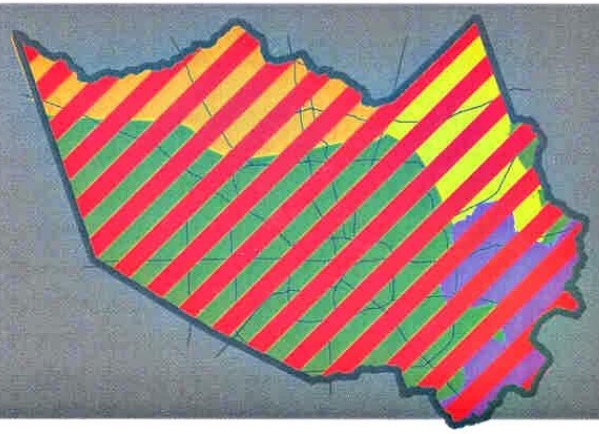
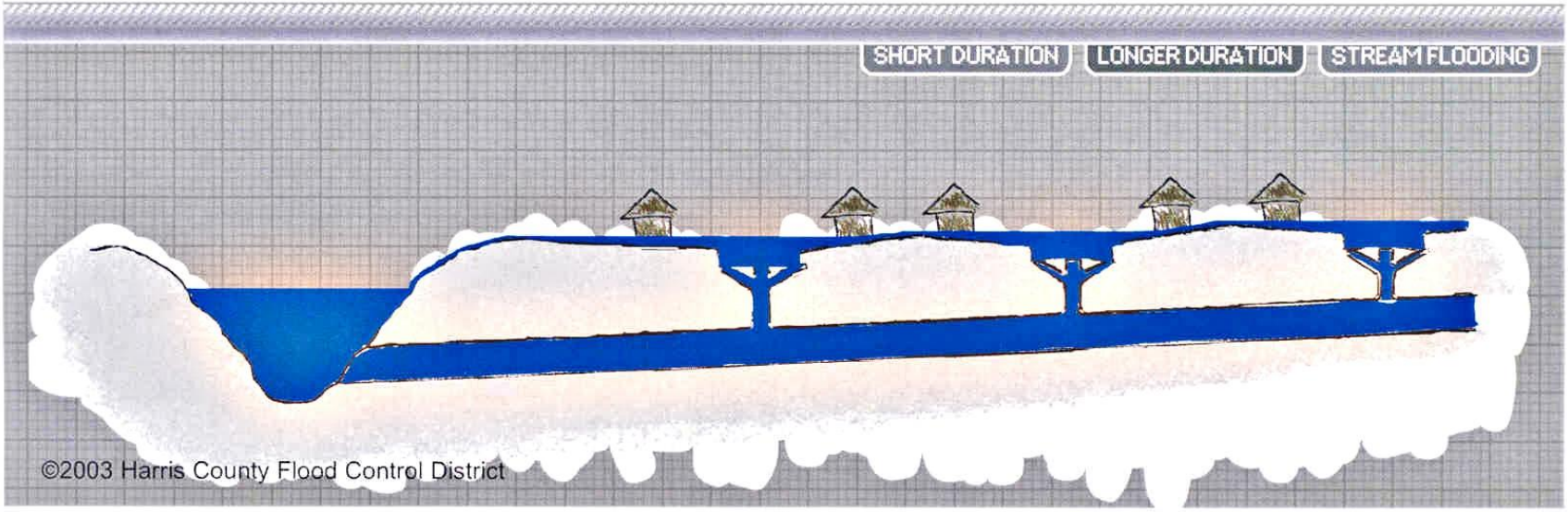
PONDING / OVERLAND FLOW

This type of flooding isn't restricted to any one area of the county. It can happen ANYWHERE. When intense local rainfall exceeds storm sewer or roadside ditch capacity, the water can "pond" in the streets deep enough to flood residences that are not even near a creek or bayou. The water will seek a path to the channel by flowing overland (sheetflow). When residences and other structures are in the path, additional flooding occurs. This type of flooding is not identified on Flood Insurance Rate Maps, which is another reason why flood insurance is so important to everyone.



VALLEY FLOODPLAIN | MAJOR RIVER FLOODPLAIN | SHALLOW FLOODPLAIN | COASTAL FLOODPLAIN | FIFTH FLOODING SCENARIO



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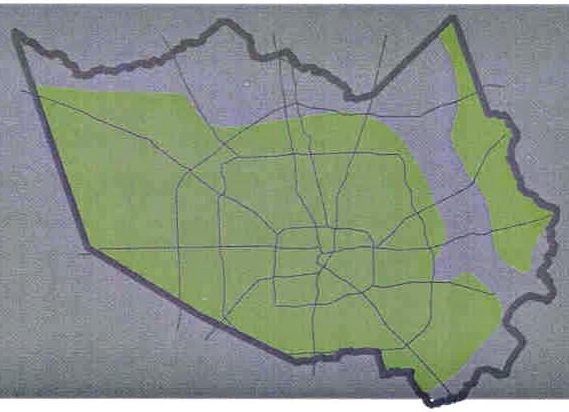
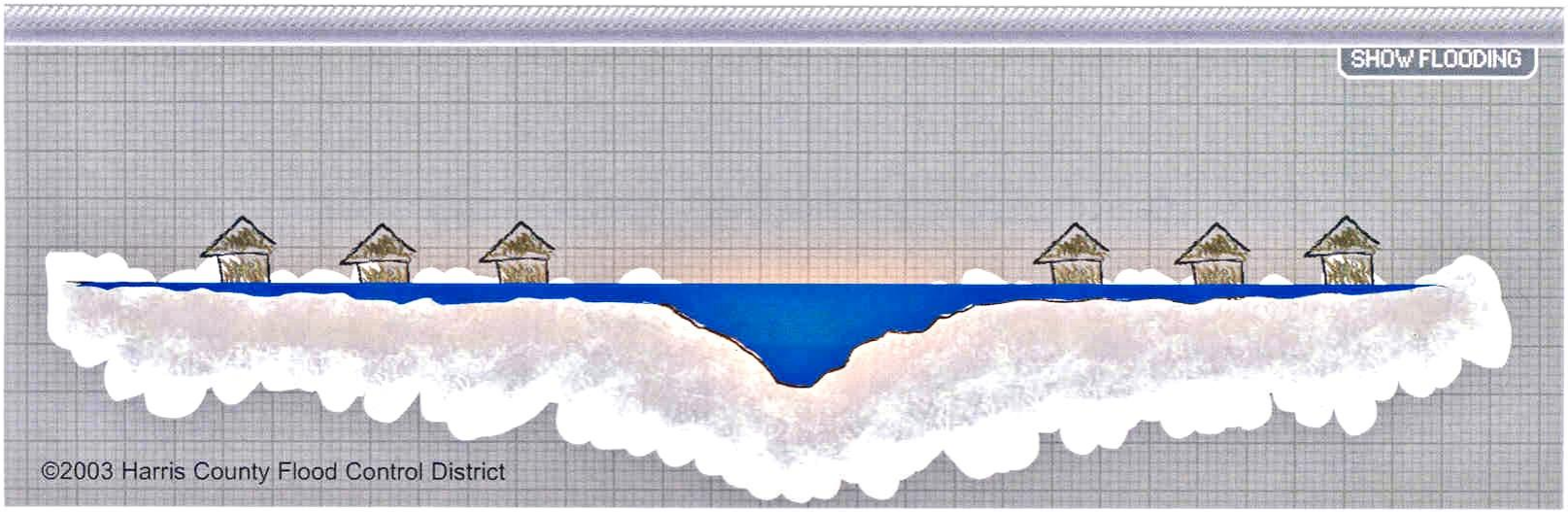
SHALLOW FLOODPLAIN

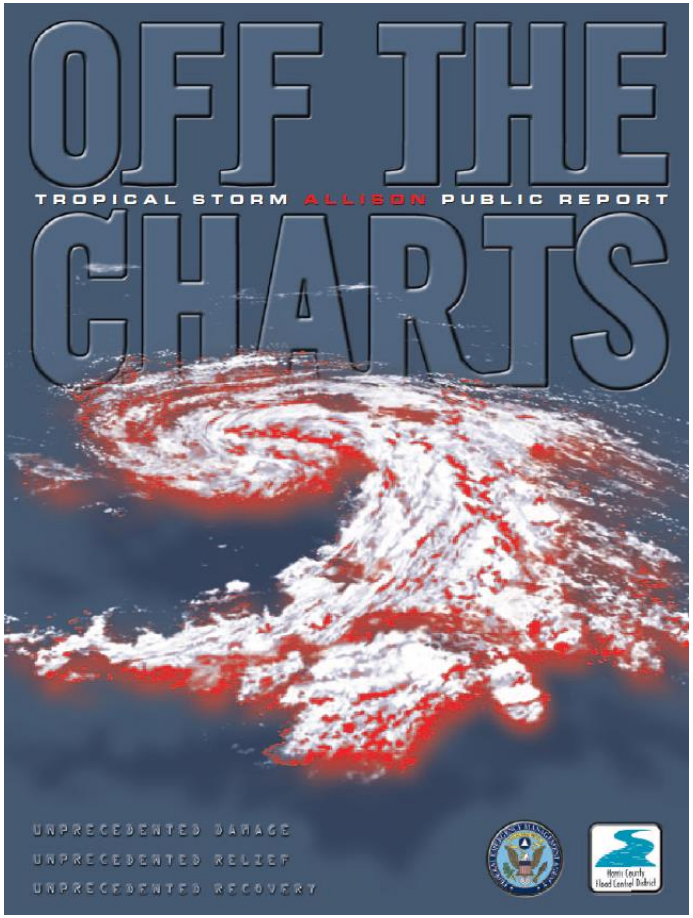
Shallow floodplains exist throughout much of the county and affect thousands of residences and businesses. When the channel capacity is exceeded, flooding begins, but usually lasts hours, rather than days.

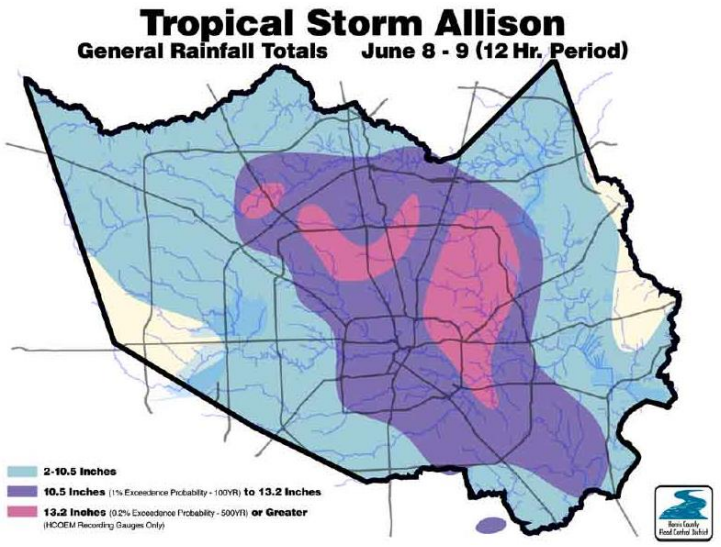


VALLEY FLOODPLAIN | MAJOR RIVER FLOODPLAIN | SHALLOW FLOODPLAIN | COASTAL FLOODPLAIN | FIFTH FLOODING SCENARIO



Tropical Storm Allison - 2001





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Magnitude of Harvey

Duration	Rainfall Amount	Return Interval – years
1-Hour		
Maximum	6.8”	1,500 (0.0667%)
Weighted Range	4-5”	50-500 (2.0% - 0.2%)
24-Hour		
Maximum	*28.6”*	*8,000 (0.0125*
Weighted Range	*16-20”*	200-1,000 (0.5%-0.1%)
2-Day		
Maximum	35.2”	9,000 (0.011%
Weighted Range	27-33”	2,500-6,000 (0.04%-0.0167%)
4-Day		
Maximum	47.4”	40,000 (0.0025%)
Weighted Range	35-43”	500-20,000 (0.2%- 0.005%)

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Harvey vs Allison vs Tax Day

Duration	Harvey	Allison June 2001	"Tax Day" 2016
1-hr	6.8	5.7	4.7
2-hr	11.9	9.9	7.3
3-hr	14.8	13.5	8.3
6-hr	18.9	21.2	13.9
12-hr	20.9	28.3	16.7
1 day	25.6	28.4	17.4
2 days	34.5	28.5	17.5
4 days	47.4	38.5	N/A

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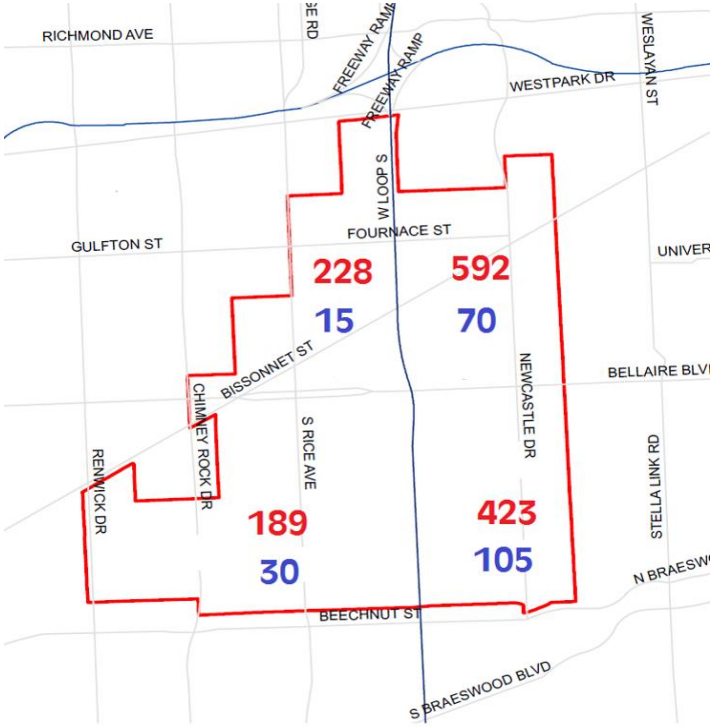
Allison May 2015 Harvey

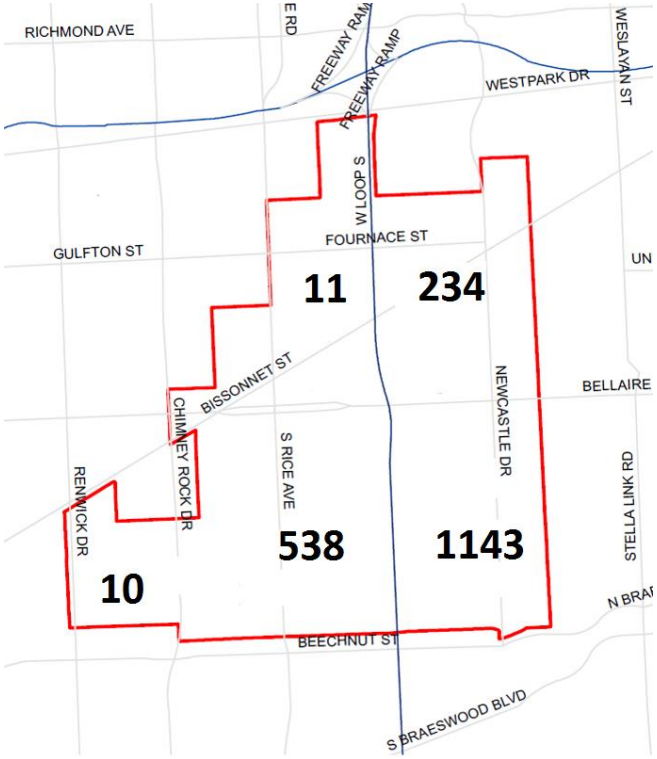
Structures Flooded



Reported Structures Flooded

Allison 1432 **May 2015 220**

JUNE 9, 2001



Homes Flooded not including garages

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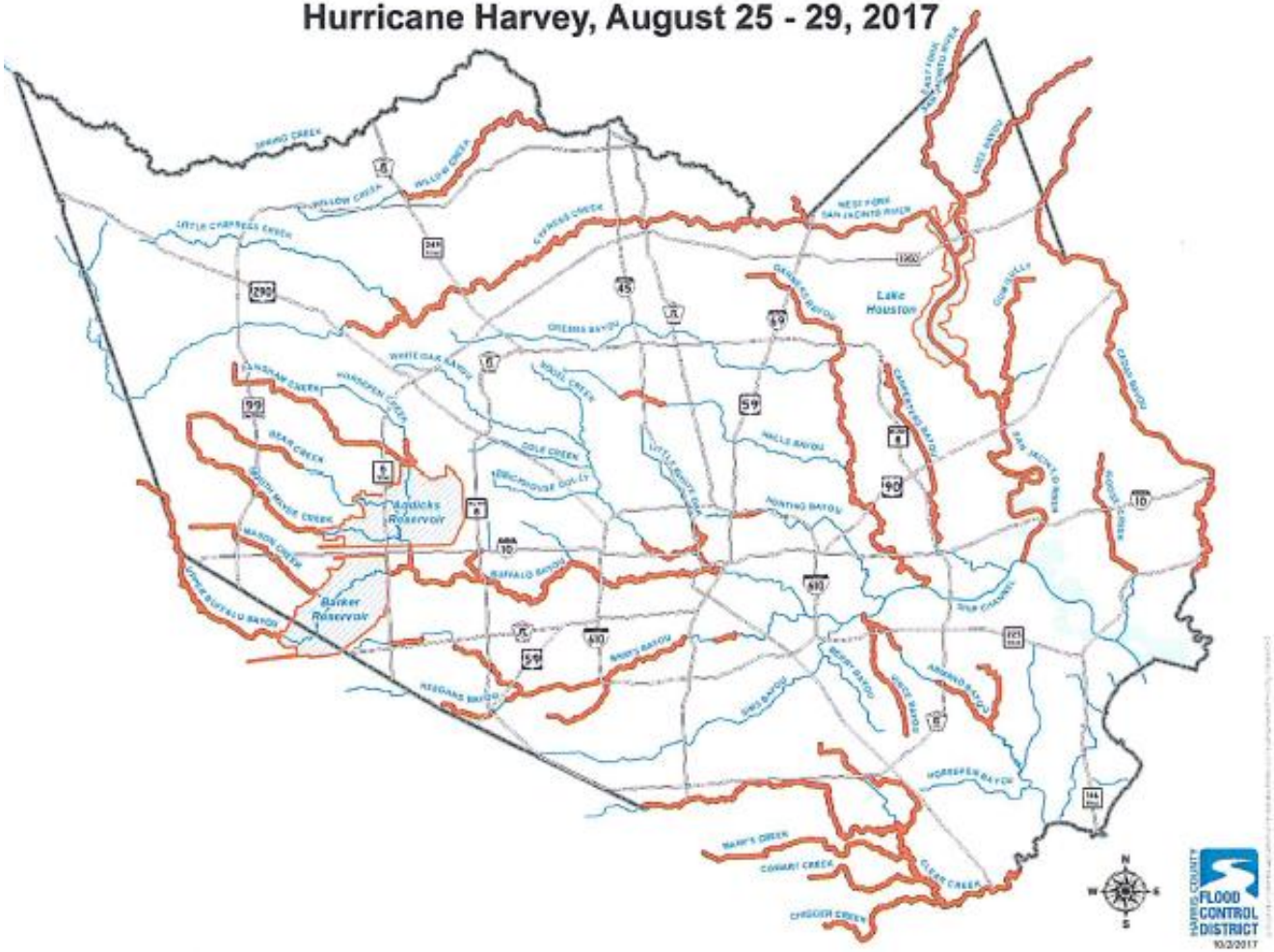
Record Flood Levels

Hurricane Harvey, August 25 - 29, 2017



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SUMMARY SHEET - HCFCD HIGH WATER MARKS 9/19/2017

BRAYS BAYOU D100-00-00 Page 1 of 2

ROAD NAME	STAGE GAGE	BRIDGE BM ELEV	78 TO '01 ADJUST	10.0%	2.0%	1.0%	0.2%	STORM EVENTS 7/30/54	6/18/73	8/31/81	ALICIA 8/18/83	CHANTAL 9/19/83	CHANTAL 8/1/89	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	HARVEY 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

High Water Marks

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High Water Marks

SUMMARY SHEET - HCFCD HIGH WATER MARKS

9/19/2017

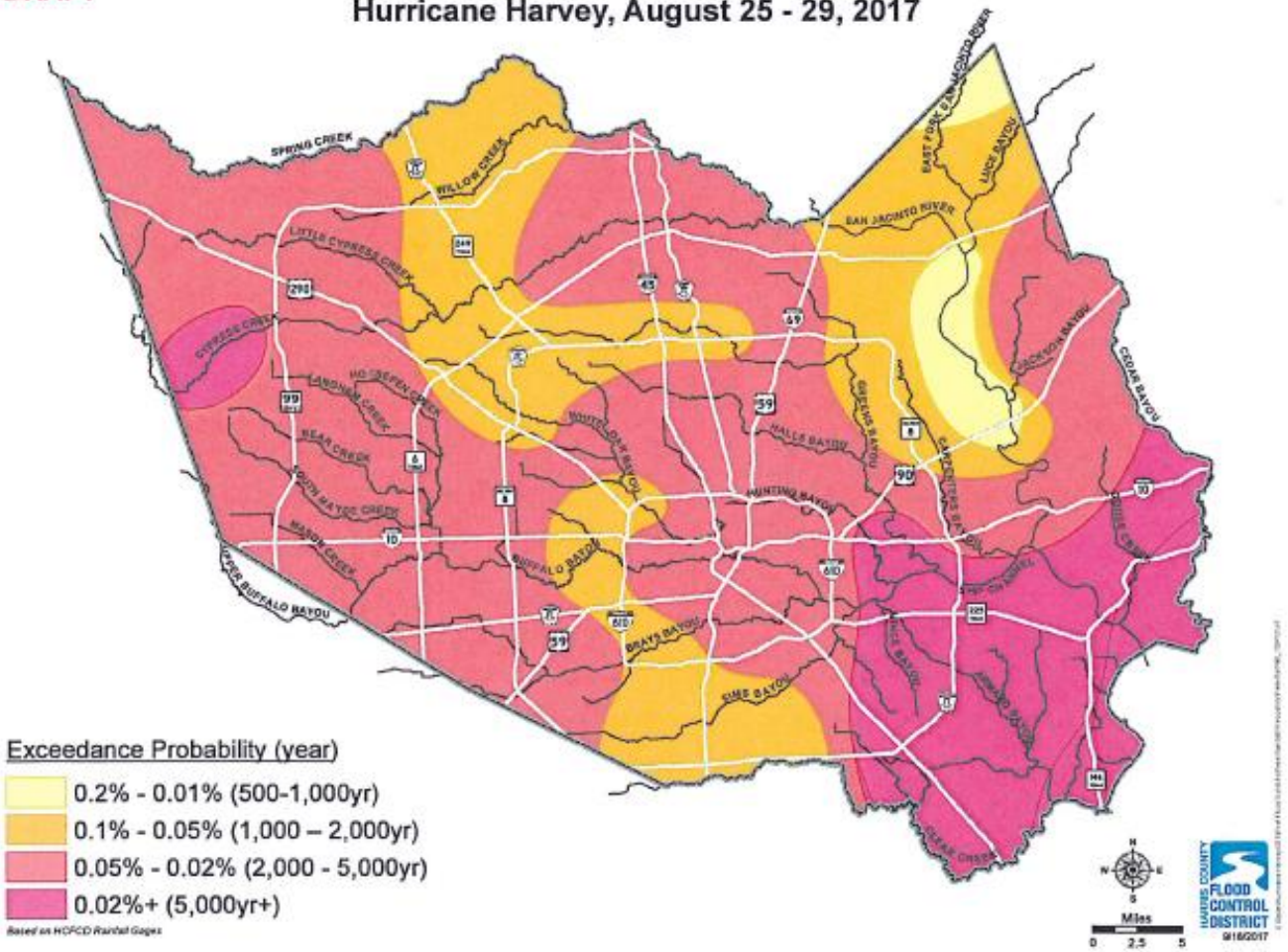
BRAYS BAYOU D100-00-00 Page 2 of 2

								STORM EVENTS																	
											ALICIA	CHANTAL				FRANCES	ALLISON		IKE						Harvey
ROAD NAME	STAGE GAGE	BRIDGE BM ELEV	78 TO '01 ADJUST	10.0%	2.0%	1.0%	0.2%	7/30/54	6/18/73	8/31/81	8/18/83	9/19/83	8/1/89	3/4/92	10/18/94	9/11/98	06/09/01	11/17/03	9/13/08	4/28/09	1/9/12	5/26/15	4/18/16	1/18/17	8/27/17
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
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DRAFT

Two Day Peak Rainfall Frequency

Hurricane Harvey, August 25 - 29, 2017



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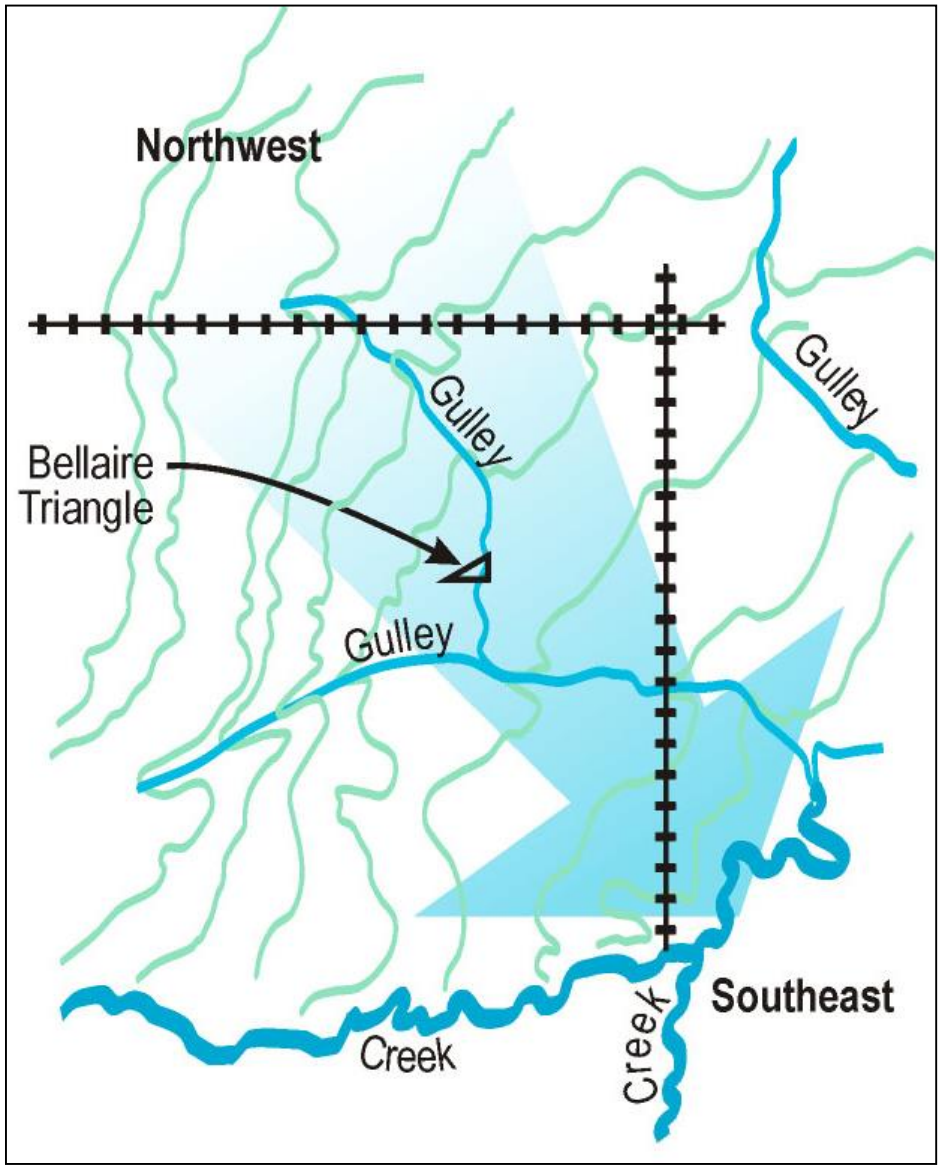
Early Drainage



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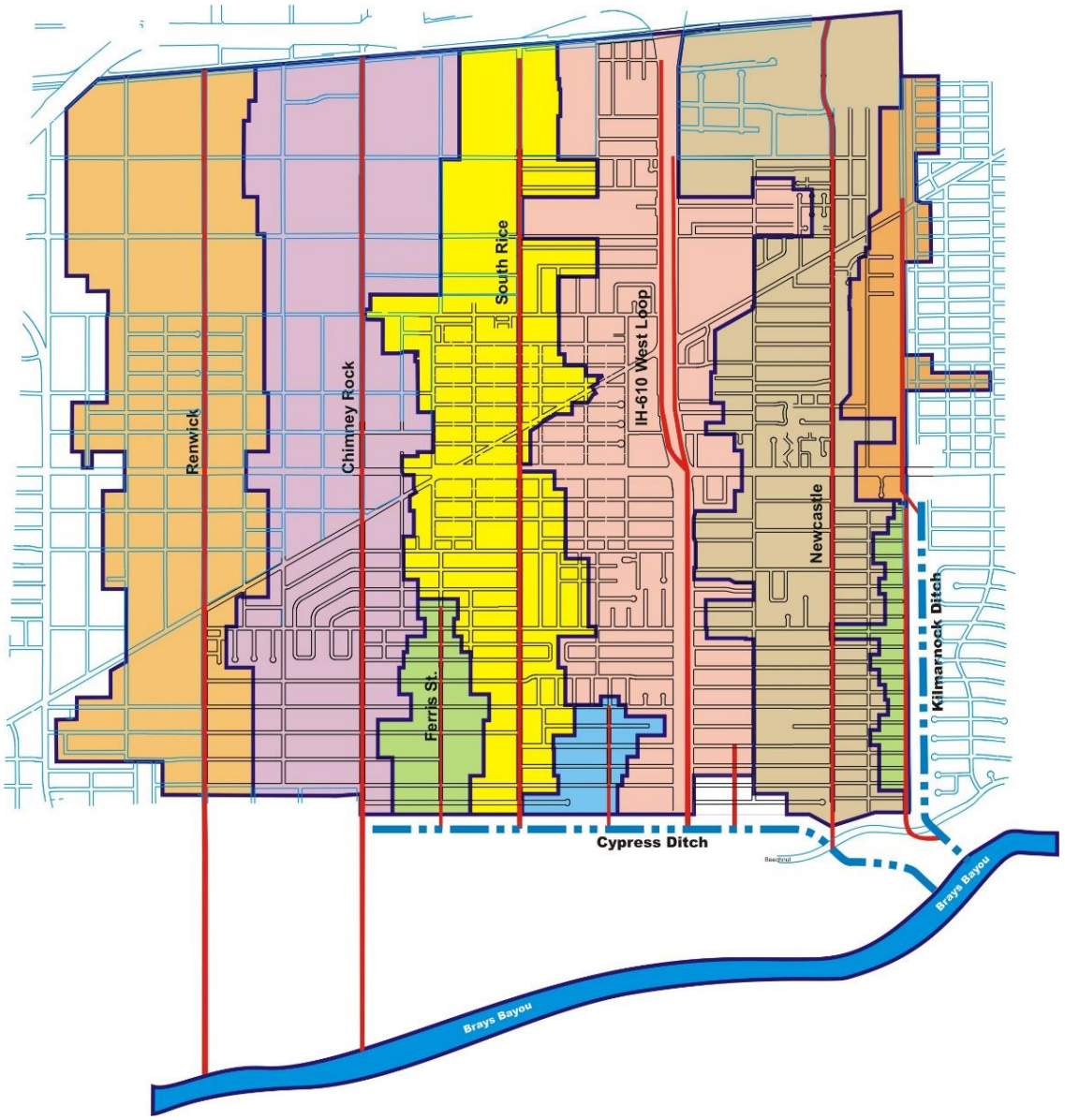
Major Drainage Systems



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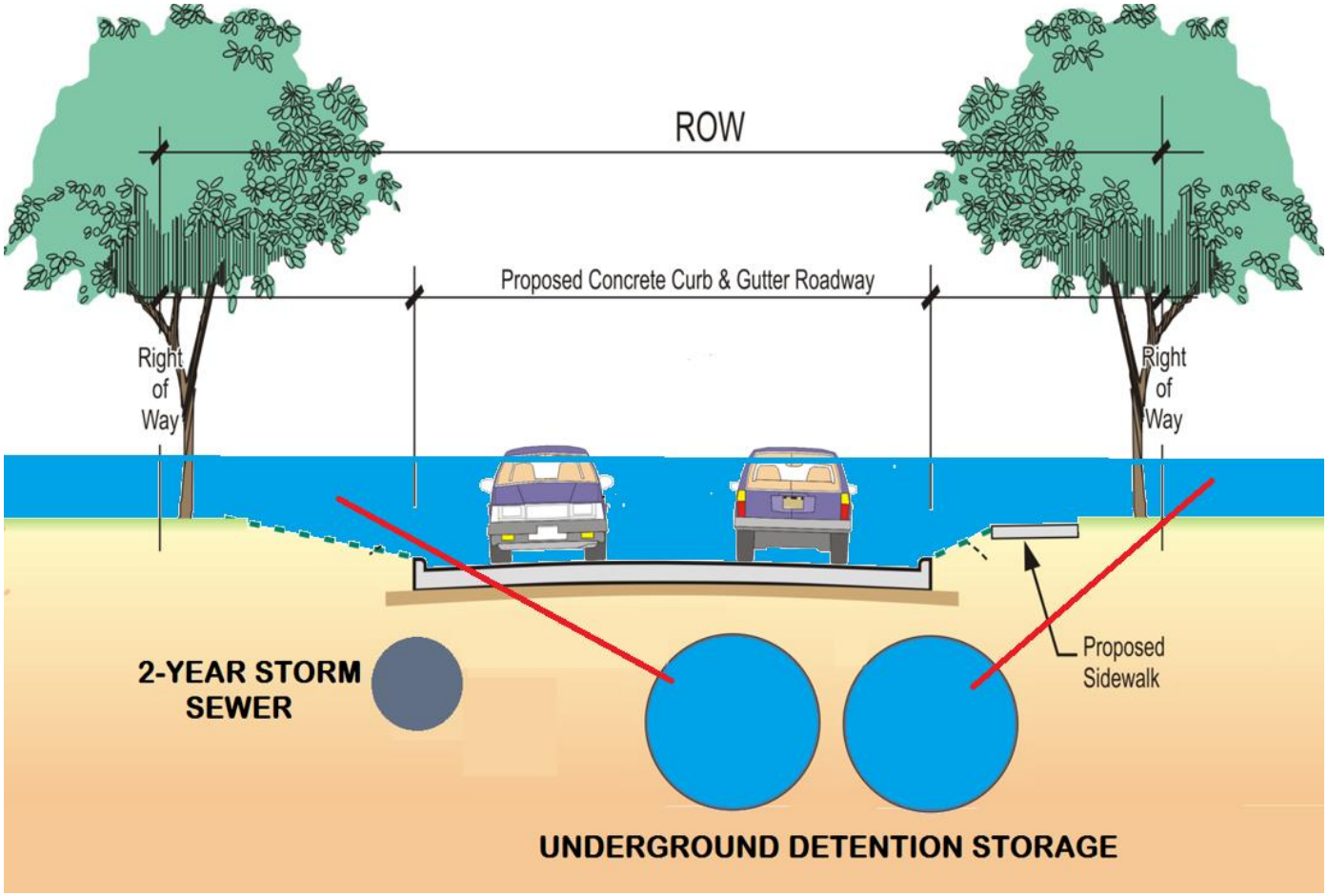
Bonds for a Better Bellaire 2016



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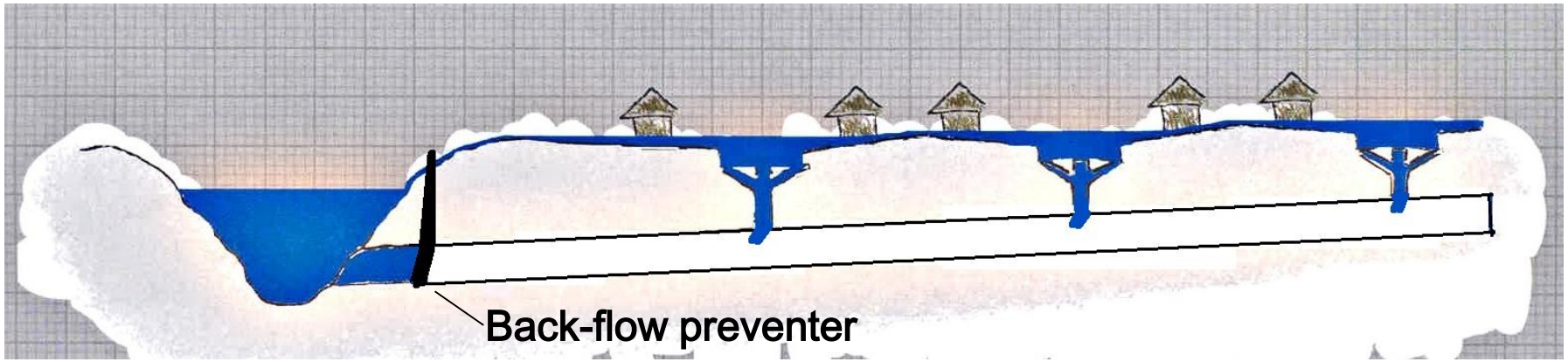
Back-flow Preventer



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Brays Bayou Project Locations

FEDERAL BRIEFING
April 2017 | Washington, D.C.

Project Brays

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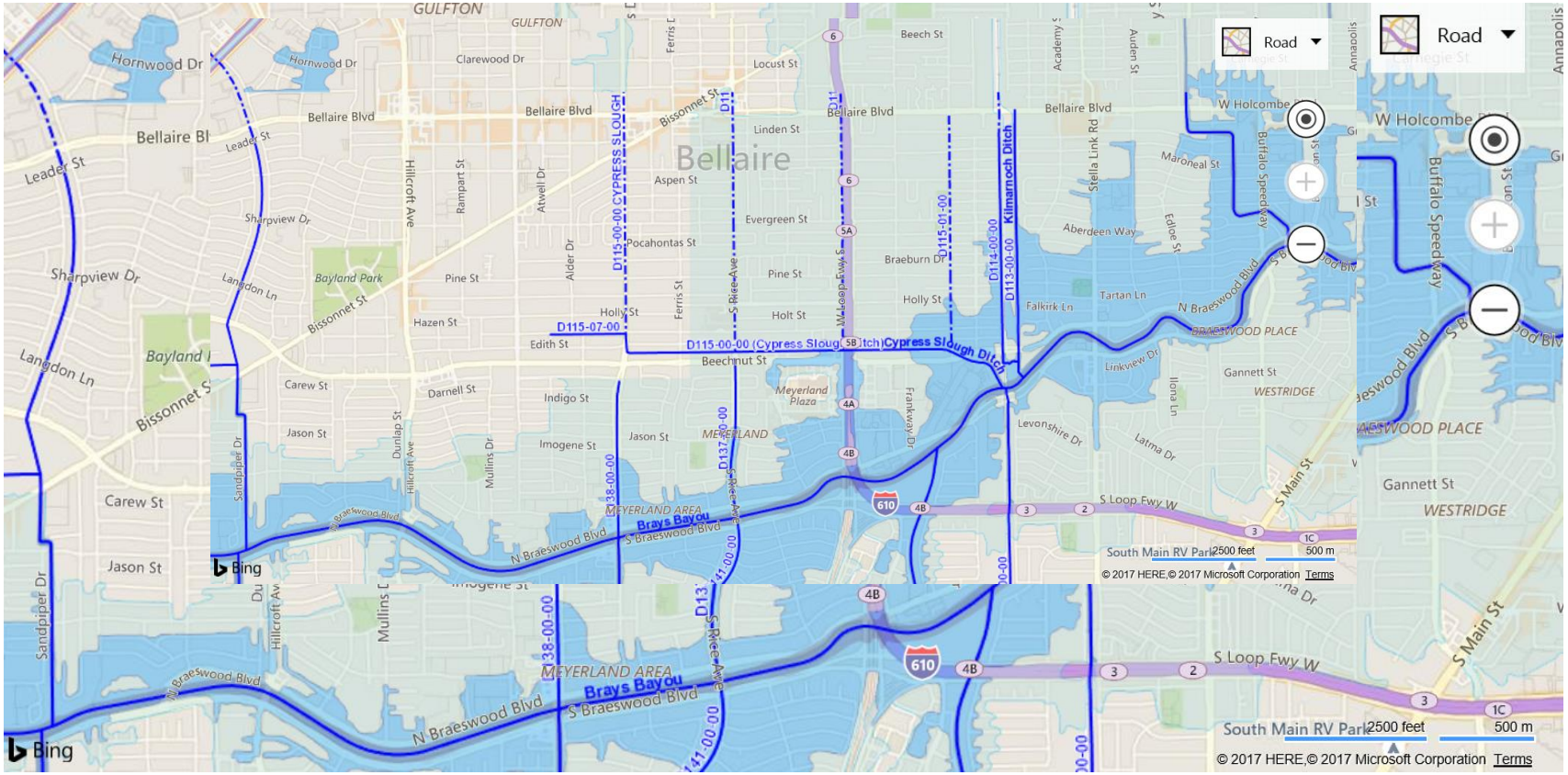
Conditional Letter Of Map Revision (CLOMR)



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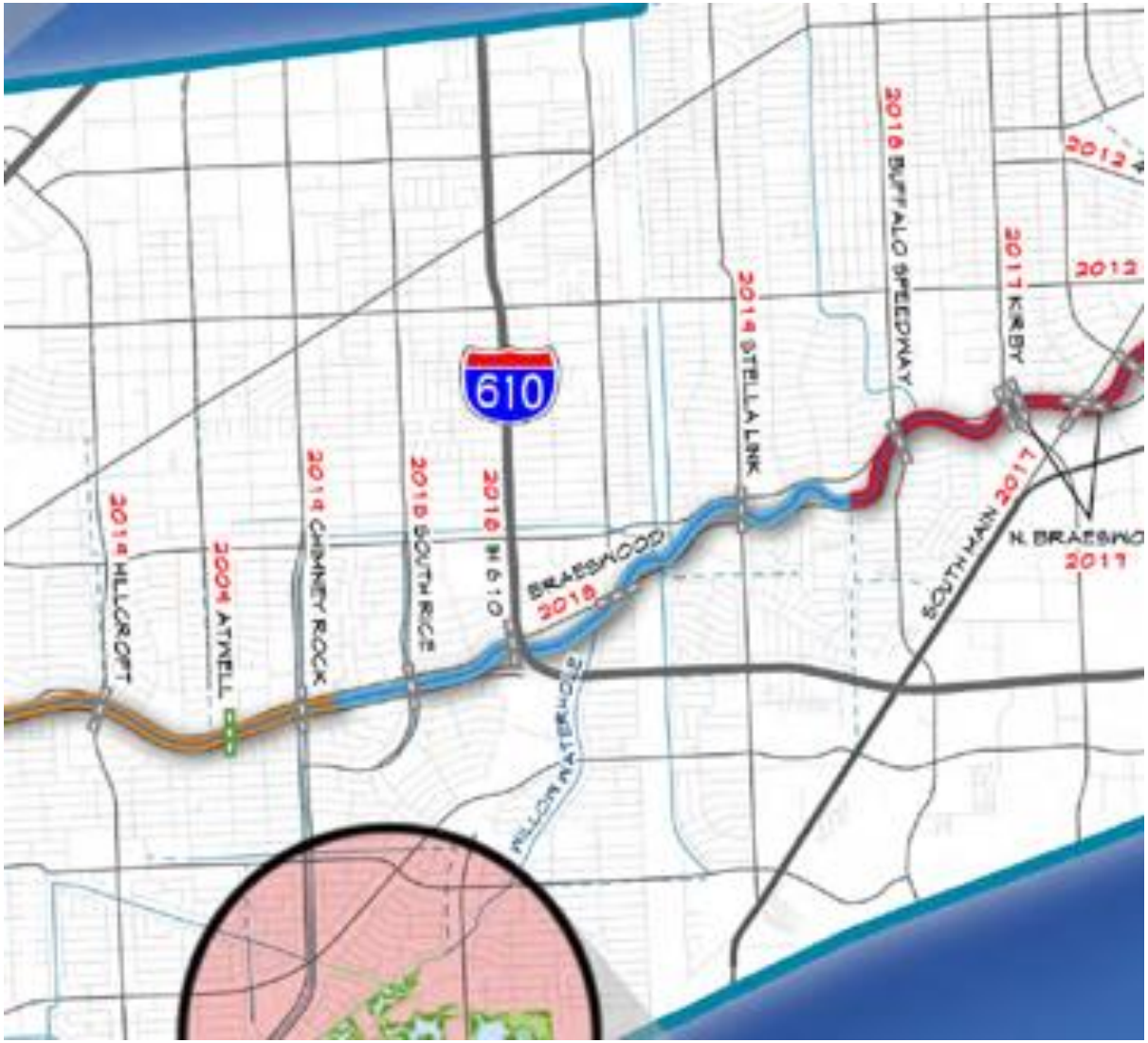
Project Brays to be completed by 2021



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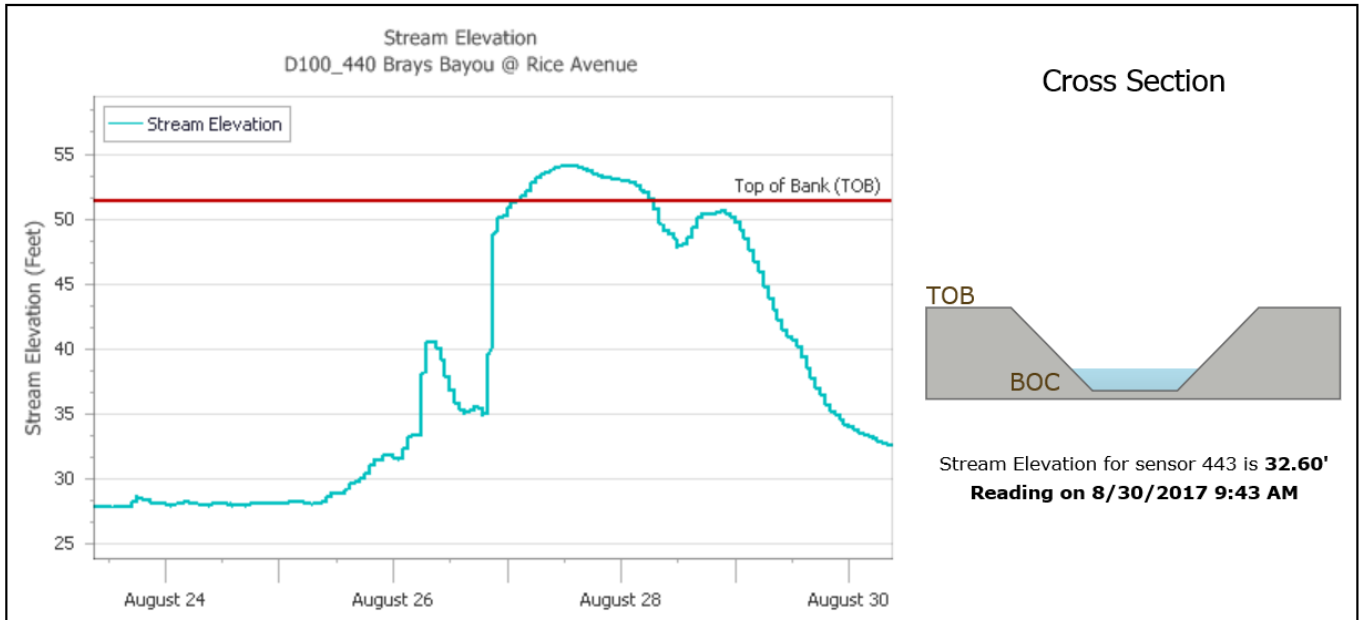
HCFCD FWS

S. Rice Ave. Gage August 2017

Stream Elevation Sensor **443**
D100_440 Brays Bayou @ Rice Avenue

Key Map 531U	
Sensor ID	**443**
Sensor Type	Bubbler
Installed	8/10/1984
Top of Bank (TOB)	51.30'
Bottom of Stream	25.97'
Tip of Orifice	27.45'
Measuring Plate	54.84'
Benchmark	53.81'

RM 040160 stamped D100 BM 20 located on the downstream sidewalk of northbound bridge at stream centerline, 1988 NAVD, 2001 adjustment. 78 to 01 Adjustment -1.99
As of July 1, 2007, the elevation datum was changed from 1929 NGVD, 1978 adjustment to the 1988 NAVD, 2001 adjustment.



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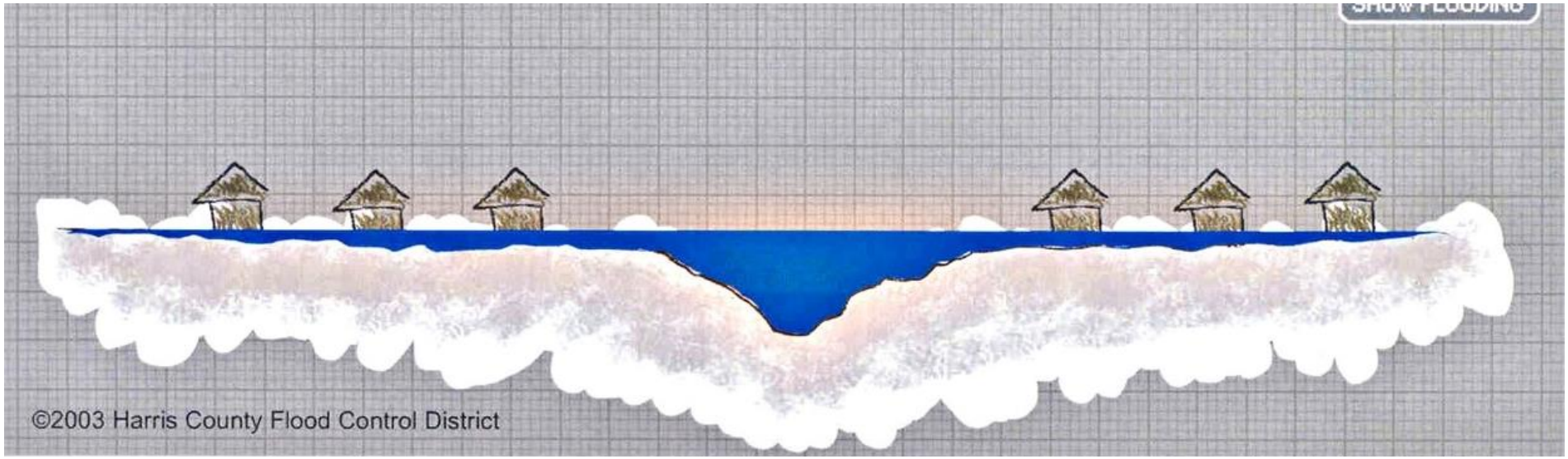
Shallow Floodplain Flood



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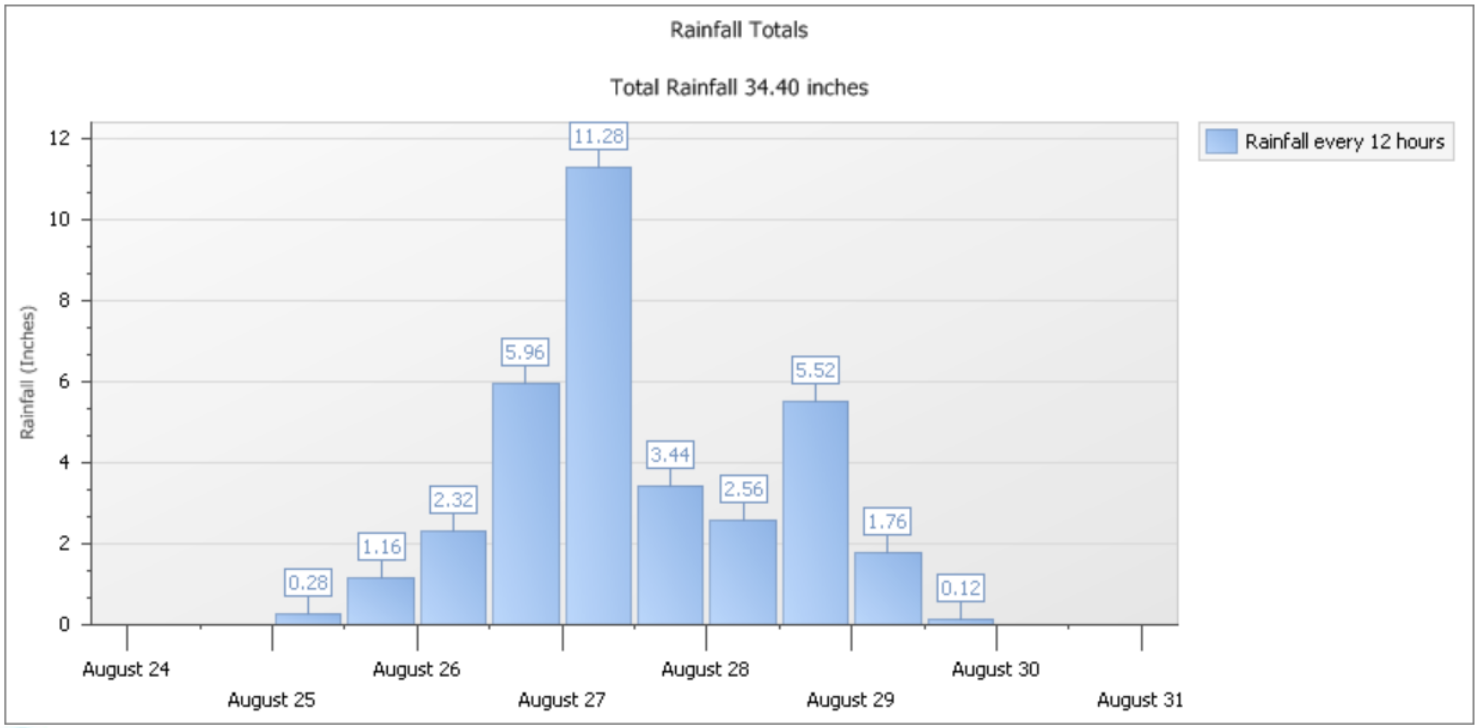
Agency: Harris County Flood Control District

Location: 440: D100_440 Brays Bayou @ Rice Avenue

Last: 7 Days Reported from: 8/30/2017 9:46 AM Show Current Conditions

Stream Elevation | Rainfall

Showing rainfall totals from 8/24/2017 12:00 AM to 8/31/2017 12:00 AM CDT



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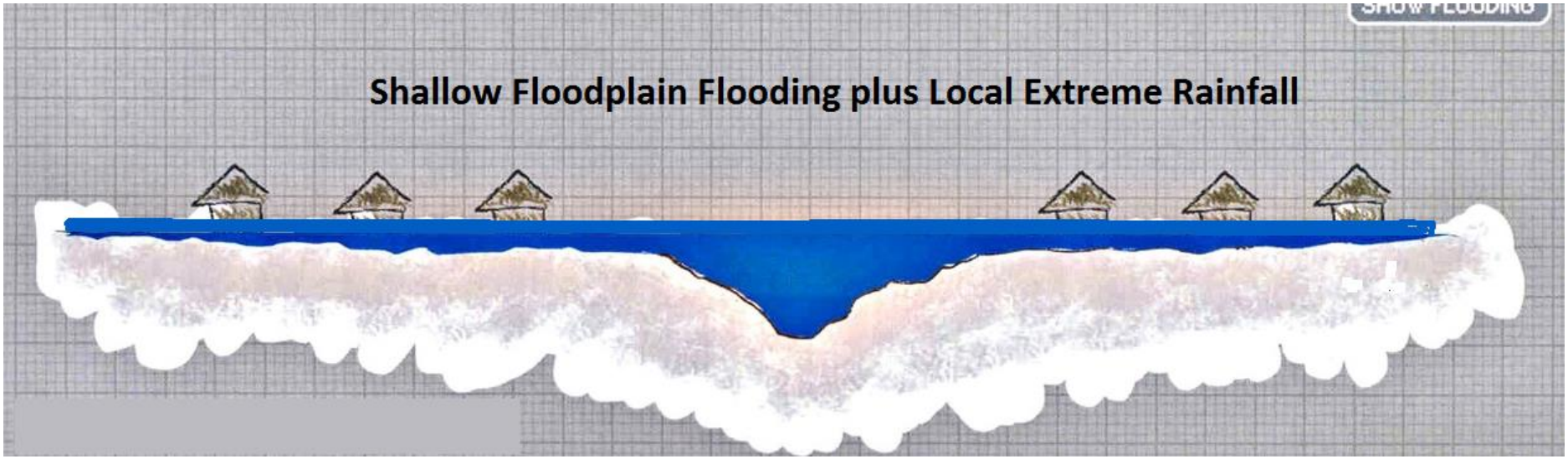
HCFCD FWS rainfall amounts



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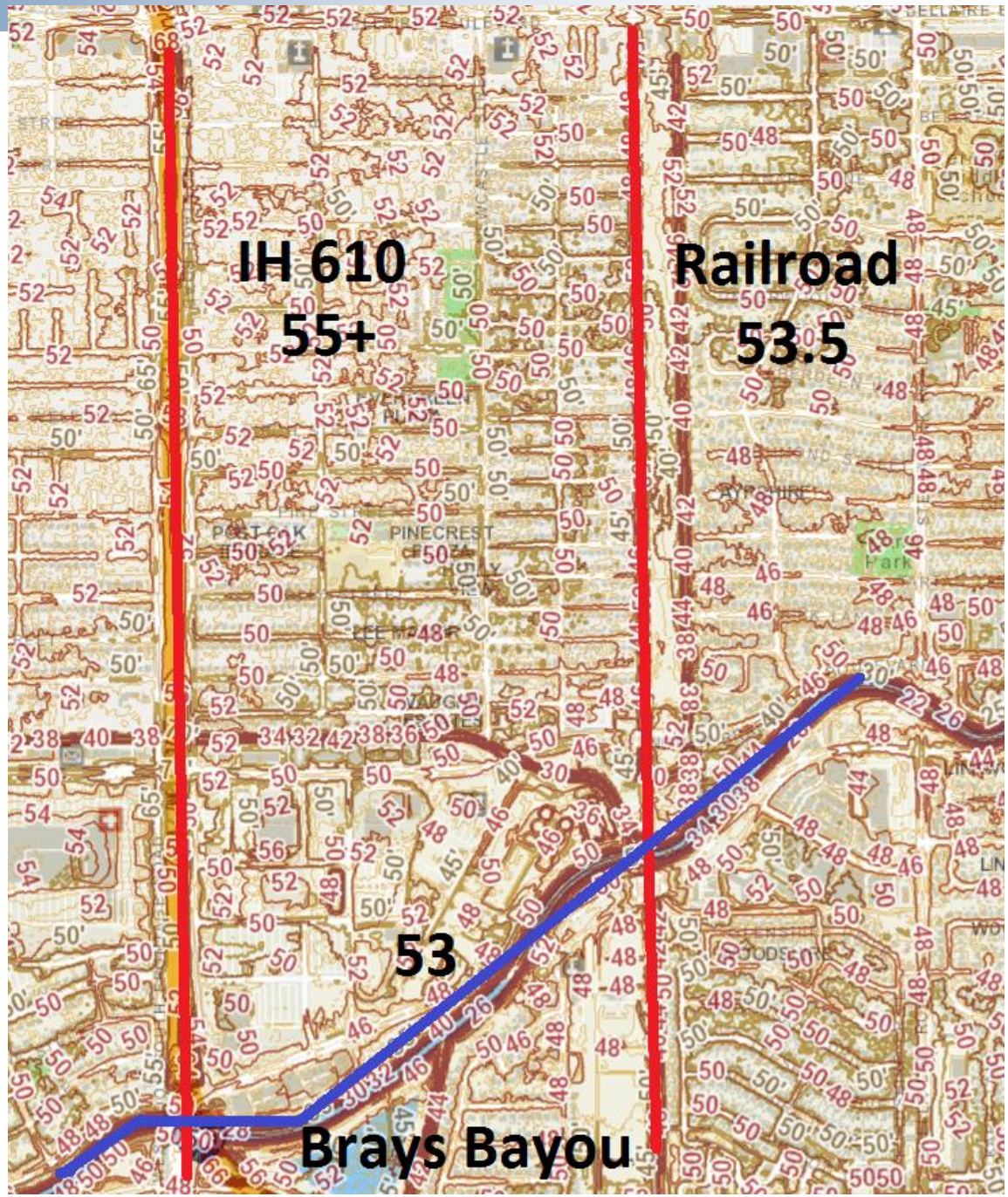
Potential Overland Flow Obstacles



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Flooded Homes by Building Standard

SUMMARY

Description		Existing Homes	May 2015 Flood		August 2017 Flood		Flooded in Both Storms
			Structural Flooding	% Flooded Homes	Structural Flooding	% Homes w/Structural Flooding	
Tier I	Pre 1980	2313	122	5%	1039	45%	80
Tier II	1980-1993	1087	32	3%	291	27%	12
Tier III	1994-2007	2348	56	2%	554	24%	30
Tier IV	2008-Present	739	16	2%	47	6%	5
	Year Build Unknown	201	2	1%	5	2%	0
	TOTAL	***6688***	***228***	***3%***	***1936***	***29%***	***127***

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Newer homes performed better

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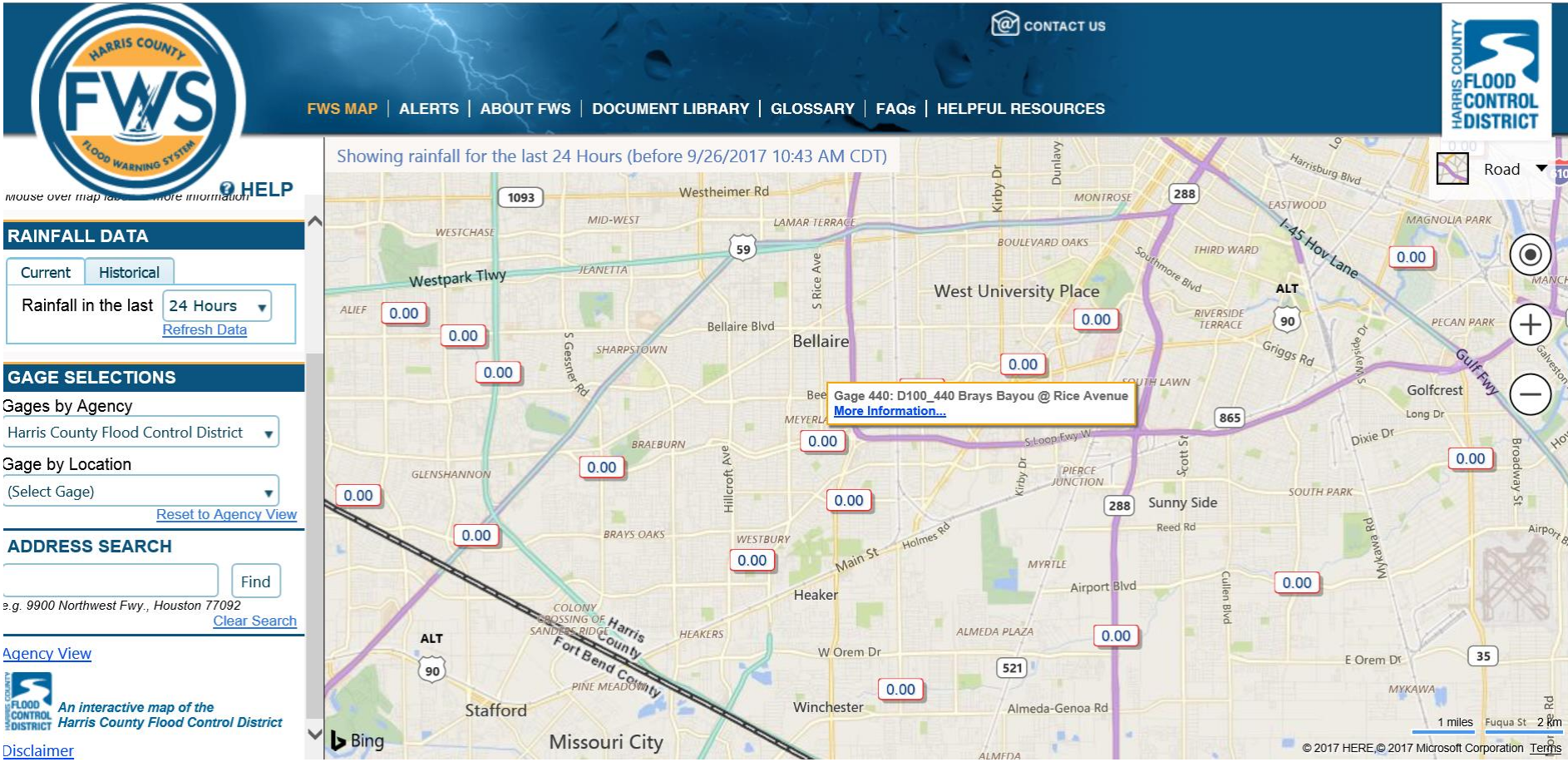
https://www.harriscountyfws.org/



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Utilities

100 Year Storm Impact

Water Production and Distribution

- Three facilities
- Elevation relative to 100 yr.
- 2 of 3 Commercial power
- Central water plant / generator / 72 hours
- Wind events / rain events
- CenterPoint critical facility priority list for power restoration
- Fueling contracts for generators
- Harvey – no service interruption or quality issues

100 Year Storm Impact

Wastewater Collection and Distribution

- Three lift stations and Wastewater Treatment Plant
- Elevation relative to 100 yr.
- 3 of 4 commercial power
- WWTP / generator / 72 hours
- Wind events / rain events
- Harvey - $300,000 damage, lift station issues (I & I), few in home back ups
- City vehicles – flooded in locations never flooded before
  - Response – manage plant
  - Split asset location – minimize likely hood of total loss

100 Year Storm Impact

Public Utilities

- CenterPoint Gas, Electric
- Fiber, Telecom, etc.
- Coordination Role
- Priority List for Critical Facilities

Emergency Operations

The City of Bellaire utilizes the National Incident Management System (NIMS) in our All Hazards approach to incidents.

- Allows Bellaire to scale personnel to the incident size
- Brings consistency to training and response approach
- Creates a National Language utilized through the US.
- Important when requesting assets and communicating with counterparts

Planning

Historic Perspective on Future Incidents

- Review of past operation and projection to future

Bellaire Office of Emergency Management Holds Annual Exercises to Plan for Events and Incidents

Table Top Exercise

- Primarily hurricane winds and floods, and hazardous material incidents
- The emphasis is on defining shortcoming and developing situational awareness based on scenarios, leading to a functional exercise

Training

Functional Exercise

- An attempt to bring reality into the training regimen.
  - Still scenario based but requires action to external stimuli.
    - Falls short of full scale exercise where units respond to a field based simulation

Adding stressors to decision making simulates the events of an open Emergency Operations Center. While nothing can simulate a “real” incident, increasing decision speed and simulation complexity helps hone the decision making process.

Responding

Act or behave in reaction to someone or something.

Normal Response

- Fire
  - Local isolated incidents
- EMS
  - Repetitive, very personal incidents
- Police
  - Local repetitive incidents, Isolated very personal incidents
- Public Works
  - Repetitive personal incidents, broad personal incidents

Everyone responds to major, local incidents affecting broad numbers of citizens.

Harvey and Similar Incidents

Historic

- No benchmark to compare
- Planning/Training was held on July 19th with a August 1st exercise follow-up
  - Focus on Hurricane impact and wind preparation

Bellaire did not plan for the scale of Harvey

- Planning did not anticipate the level of water that could fall
- Training did not prepare for the level of water that did fall
- Responding did not anticipate the number of impacted persons.

What's Next?

Planning

- Incorporate the unbelievable and use planning as chance to change the paradigm.
  - Nothing is off the table, no potential is too big.

Training

- Future training will need to utilize the response to Harvey to refine training needs.
  - Specific -- Swift water training will drive future acquisitions for response
    - Rescuer Gear – Victim Safety – Transportation Needs – Refuge After-the-Fact
  - Broad – All Hazard training must continue to train for other, more deadly hazards
    - Incorporate Citizen Training in preparation

What worked well!?

Responding

- A task force approach
  - Members from Public Works, Police and Fire all working on the same team toward the same immediate action plan
- A community approach-
  - Citizens helping each other
- A regional approach
  - Maximize regional assets when the specific incident allows
    - Boats and High Water Vehicles from surrounding jurisdictions, when available and transportation allows

Communications

Harvey Communication Lessons

- The City sent 39 distinct messages between August 24th & September 6th
- Messages referred to other information sources, Especially Harris County
- Platforms utilized:
  - Notify Me emails, Facebook, Twitter, Nextdoor Bellaire, website updates, Mayor's Blog
- 911 System and Dispatch worked extremely well
- Not everyone who needed the message received it
- All communication platforms require some amount of citizen participation

Regulatory

Ordinance 04-020

Adopted in March of 2004. This was passed in order to address drainage requirements for residential construction. The highlights of the Ordinance include:

- An approved drainage plan before the issuance of a permit.
- Prohibits water flow from one property unto an another
- Set the design requirement for how the water will be carried to the street
- Mandated an engineered sealed plan and statement before Certificate of Occupancy.
- Established a penalty for violation of the ordinance.

Ordinance 04-032

Adopted in March of 2004. This was passed to establish the Flood Damage Prevention, and Flood Hazard reduction. The highlights of the Ordinance include:

- Prohibits new homes built or Substantial improved/ Substantial *Damaged* in AE zone (100 yr. floodplain) is one foot above Base Flood Elevation (BFE).

ARTICLE II-A. - FLOOD DAMAGE PREVENTION

- *Substantial damage* means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
- *Substantial improvement* means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "start of construction" of the improvement. This includes structures which have incurred "substantial damage," regardless of the actual repair work performed.

Ordinance 05-024

Adopted in April of 2005. This was passed to establish rules that limit the amount of fill on a lot in the AE zone.

Ordinances 05-044 & 05-045

Adopted in July of 2005. These were passed to establish rules that limit the amount of fill on a lot in the X zone (500 yr. floodplain) and added a flood vent requirement for new construction.

Schedule

Work Plan:	Date:
~~• Kick Off Meeting (1)~~	~~Monday, Oct 30, 17~~
• Present Risk Assessment & Mitigation Strategy with Committee (2)	Tuesday, Nov 14, 17
• Address Task Force Comments on Risk Assessment & Mitigation Strategy (3)	Tuesday, Nov 28, 17
• Review Action Plan with Committee (4)	Tuesday, Dec 12, 17
• 2nd Review of Action Plan with Committee (5)	Tuesday, Jan 2, 18
• Action Plan Public Hearing	Monday, Jan 29, 18
• Committee 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

Before November 28

What risks and strategies are not yet addressed concerning:

- Local drainage improvements?
- Regulatory approach?
- Regional efforts?