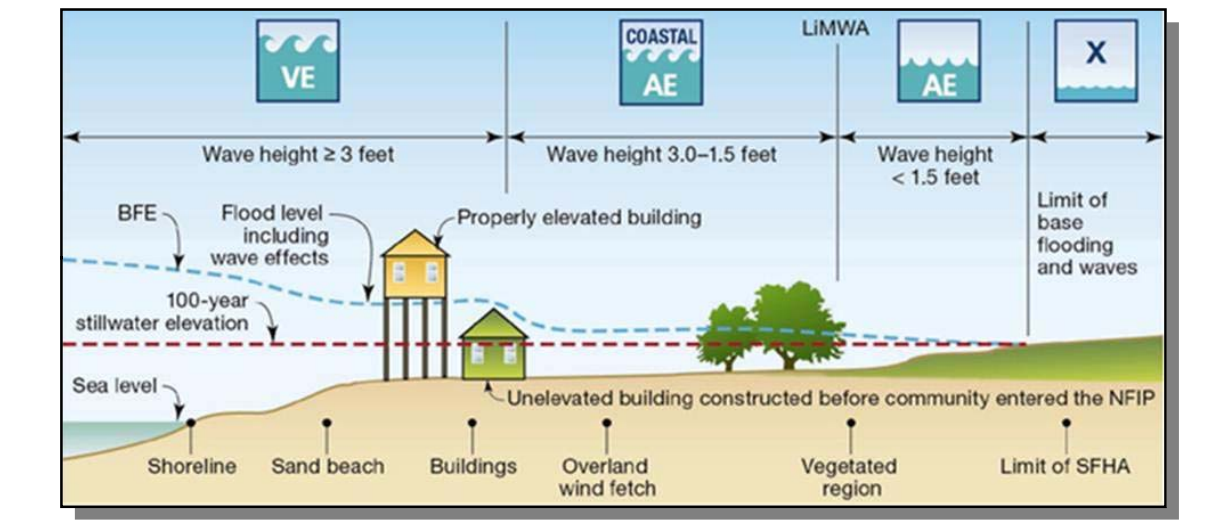


New flood studies are undertaken and flood maps are updated for a number of reasons, including: better topographic data, a longer period of record to characterize coastal flood events, improved flood modeling procedures and changes in land use and land characteristics. (shoreline erosion, construction of flood barriers etc.)

Coastal flood studies include the effects of tides, storm surges and waves with the consideration of historical coastal flood events that have affected the study area. Coastal flood studies also use historical data to validate flood, wave and erosion analyses in determining the flood level with a one-percent chance of being equaled or exceeded in any given year.

Within the Coastal Special Flood Hazard Area (SFHA), there are two primary zones: Zone VE and Zone AE. Zone VE, also known as the Coastal High Hazard Area, has a wave component that is three feet in height or greater. The coastal Zone AE has a wave component of less than three feet in height. Base Flood Elevations (BFEs) will vary in each zone. Changes in flood zones and BFEs can have a significant impact on building requirements and flood insurance costs. BFEs may differ dramatically within a small area because waves can diminish in size over a short distance upon encountering obstructions or steep ground. Some areas also have a Limit of Moderate Wave Action (LimWA) shown on the FIRM, which is the location where the one-percent-annual-chance wave height equals 1.5 feet. To communicate the higher risk that exists in the area, FEMA began showing the LIMWA on Flood Insurance Rate Maps because the 1.5-foot breaking wave in the LIMWA zone can potentially cause foundation failure. Communities are encouraged to adopt building construction standards similar to Zone VE in those areas.



For more detailed mapping information about the FEMA Preliminary Coastal Study, consult the FEMA RiskMAPS website at: <http://maps.riskmaps.com/TX/Harris>

**FEMA Glossary**

**Floodway** - A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations.

**Base Flood** - The flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood." The base flood is the national standard used by the National Flood Insurance Program (NFIP) and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. Base Flood Elevations (BFEs) are typically shown on Flood Insurance Rate Maps (FIRMs).

**Base Flood Elevation** - The computed elevation to which floodwater is anticipated to rise during the base flood. Base Flood Elevations (BFEs) are shown on Flood Insurance Rate Maps (FIRMs) and on the flood profiles. The BFE is the regulatory requirement for the elevation or flood-proofing of structures. The relationship between the BFE and a structure's elevation determines the flood insurance premium.

**Static Base Flood Elevation** - The static coastal water surface elevation of a flood having a 1% annual chance of being equaled or exceeded in any given year shown on the community Flood Insurance Rate Map (FIRM) for A or Z flood hazard zones.

**Special Flood Hazard Area** - The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA includes Zones A, AO, AE, and VE. SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

**Flood Hazard Zone** - Indicates the lettered flood zone associated with the location (if applicable):  
 • Zone V/VE: An area of high flood risk subject to inundation by the 1% annual-chance flood event with additional hazards due to storm-induced velocity wave action (a 3-foot or higher breaking wave).  
 • Zone A/AE: An area of high flood risk subject to inundation by the 1% annual-chance flood event determined by detailed methods.  
 • Zone AO: An area of high flood risk subject to inundation by 1% annual-chance shallow flooding where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone.  
 • Zone X: Areas of moderate coastal flood risk outside the regulatory 1% annual chance flood up to the 0.2% annual chance flood level.

**Limit of Moderate Wave Action (LimWA)** - The LIMWA depicts the limit of the Area of Moderate Wave Action (MOWA), the portion of the 1% annual chance coastal flood hazard area referenced by building codes and standards, where base flood wave heights are between 1.5 and 3 feet, and where wave characteristics are deemed sufficient to damage many National Flood Insurance Program (NFIP)-compliant structures on shallow or solid wall foundations.

**1 Percent Annual Chance Flood Hazard** - The flood having a one percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the "100-year flood."

**0.2 Percent Annual Chance Flood Hazard** - The flood that has a 0.2-percent chance of being equaled or exceeded in any given year. The 0.2-percent annual chance flood is also referred to as the "500-year flood."

**Zone X** - Areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood.

**Flood Insurance Rate Map (FIRM)** - The official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community. FIRM is referred to as the "regulatory product" of a study, meaning the FIRM is used to determine who must buy flood insurance and where flood plain development regulations apply. A Preliminary FIRM is not yet Effective and reflects the initial results of a flood map project performed by or for FEMA.

**Digital Flood Insurance Rate Map (DFIRM)** - The Standard DFIRM Database is a digital version of the FEMA flood insurance rate map (FIRM) that is designed for use with Geographic Information Systems (GIS) software. This type of software allows users to access, view and analyze mapping information using specialized data.

**PRELIMINARY COASTAL STUDY**

**FLOOD ZONE**

Labelled by Zone and Static BFE (if applicable)

- Zone AE - Floodway
- Zone VE - Floodway
- Zone AE
- Zone VE
- Zone A
- Zone AO
- 0.2 Pct Annual Chance Flood Hazard
- Zone X

**FLOOD ZONE RISK INCREASE**

- Zone X to 1 Pct Annual Chance Flood Hazard
- 0.2 Pct Annual Chance Flood Hazard to 1 Pct Annual Chance Flood Hazard
- Zone X to 0.2 Pct Annual Chance Flood Hazard

(Coastal Study Zone Compared to Effective Zone)

1 Percent Annual Chance Flood Hazard  
 Special Flood Hazard Area (SFHA)

**FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)**

**PRELIMINARY COASTAL STUDY**

**FLOODPLAIN MAP**

**FIRM PANEL: 1080**

**STATIC BASE FLOOD ELEVATION (BFE)**

Increase in Feet

- 8 to 9
- 7 to 8
- 6 to 7
- 5 to 6
- 4 to 5
- 3 to 4
- 2 to 3
- 1 to 2
- 0 to 1

**BASE FLOOD ELEVATION (BFE)**

Increase in Feet

- 5 to 6
- 4 to 5
- 3 to 4
- 2 to 3
- 1 to 2
- 0 to 1

- Effective Base Flood Elevation (BFE)
- Coastal Study Base Flood Elevation (BFE)
- Limit of Moderate Wave Action (LimWA)
- Channel
- Corporate Boundary
- Building Footprint

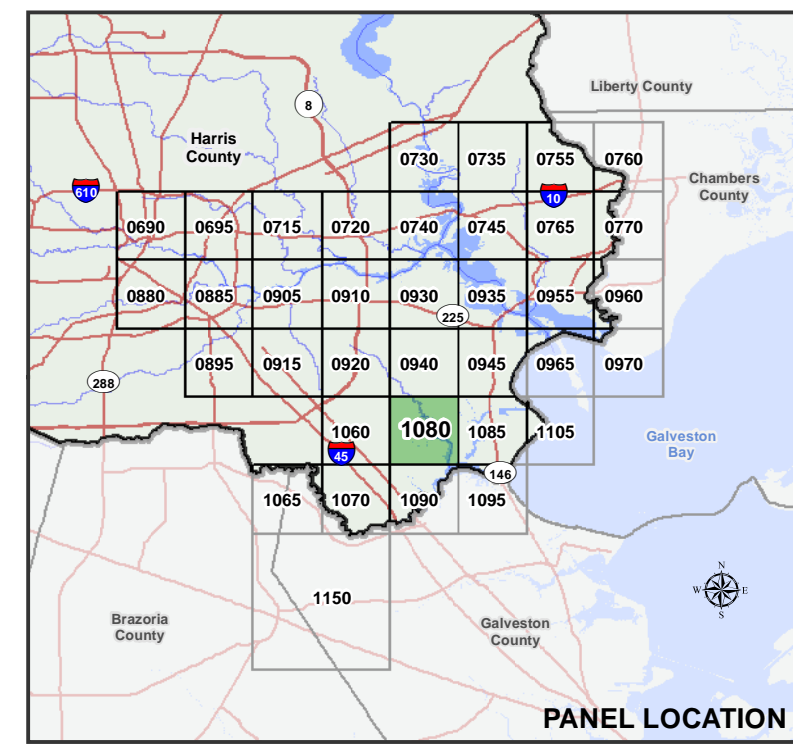
**Map Date: November 1, 2013**

**MAP PROJECTION:** Geographic Coordinate System  
 North American Datum (NAD) 1983

**DATA SOURCES:**  
 Elevation Data: Topical Storm Allowance Recovery Project  
 STARP (Last 201) NAVD83 30ft Adjustment  
 STAR Maps: The history data used in this map are derived from the STAR Maps. STAR Maps is a registered trademark of the Houston-Galveston Area Council and the Geographic Data Consortium.

**Processing Note:** "Preliminary Coastal Study Floodplain Map" created from Flood Zone (spatial) data created at the Harris County Flood Control District (HCFCD) from Zone changes due to the FEMA Preliminary Coastal Study compared with the Effective FEMA Flood Zones and Base Flood Elevation changes.

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**PANEL LOCATION**