



DRAFT

HARRIS COUNTY Hurricane Harvey Damage Assessment Plan



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Executive Summary

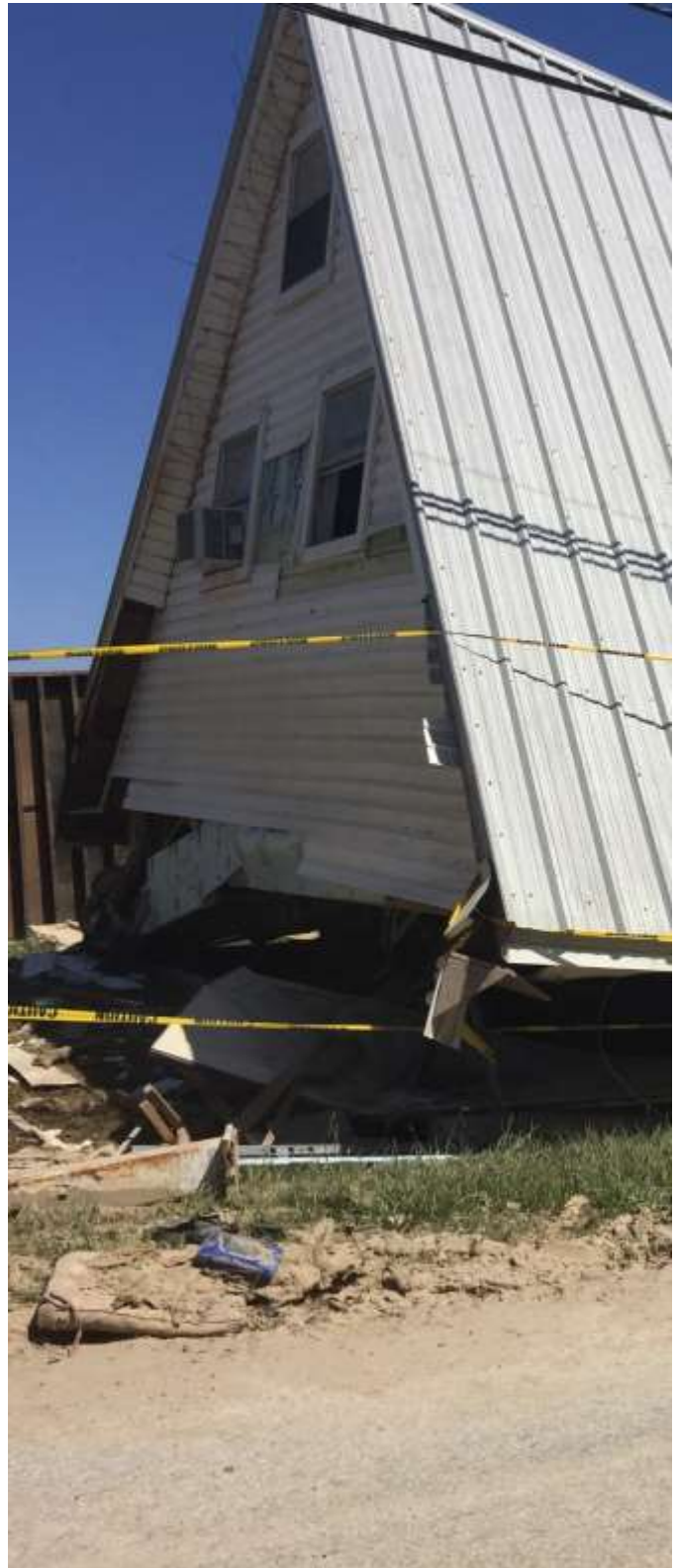
The purpose of Harris County Assessment is to document the damage and unmet needs of Harris County (outside the City of Houston) and 33 small cities as a direct result of Hurricane Harvey. One of the most important tasks of this assessment is identifying, documenting, and reporting the costs of all damages incurred by the storm and need for recovery resources. The intent of this report is to utilize the best available data obtained at the time to assess the overall damages to Harris County. Where possible, data from multiple sources is reviewed to develop the best overall assessment.

The Assessment is made up of seven section from housing to non-housing and by geography. The section are as follows:

1. Introduction

Hurricane Harvey was the second most costly tropical cyclone impacting the United States. A total of 1 trillion gallons of water fell across Harris County over the 4 day period. This record rainfall was deadly and devastating to county residents. Over 60,000 residents were rescued by government resources across the county, most of them from their homes. Over 32,000 residents would be transported to one of 65 temporary shelters in Harris County, where most would wait days until the waters receded to return to damaged homes. It is estimated that over 300,000 vehicles were flooded across Harris County. The Harris County Medical Examiner's Office confirms 36 flood related deaths in the county, including several people drowning in their home or work place.

Multiple sources were used to analyze flood damage impact for this report. Data sources included: FEMA Individual Assistance (IA) data, Harris County Engineering Department (HCED), Harris County Flood Control District (HCFCD), U.S. Army Corps of Engineers (USACE), Harris County Appraisal District (HCAD), Harris County Public Health (HCPH) and other agencies servicing Harris County. Data was also collected through various citizen engagement activities that included community meetings, surveys, small focus group meetings, social media, canvassing,



and direct mail. The goals for community engagement were to engage the public, especially vulnerable populations such as low-income and persons with a disability; housing and civil rights advocates; local community leaders; non-profit organizations; business owners; and other area stakeholders.

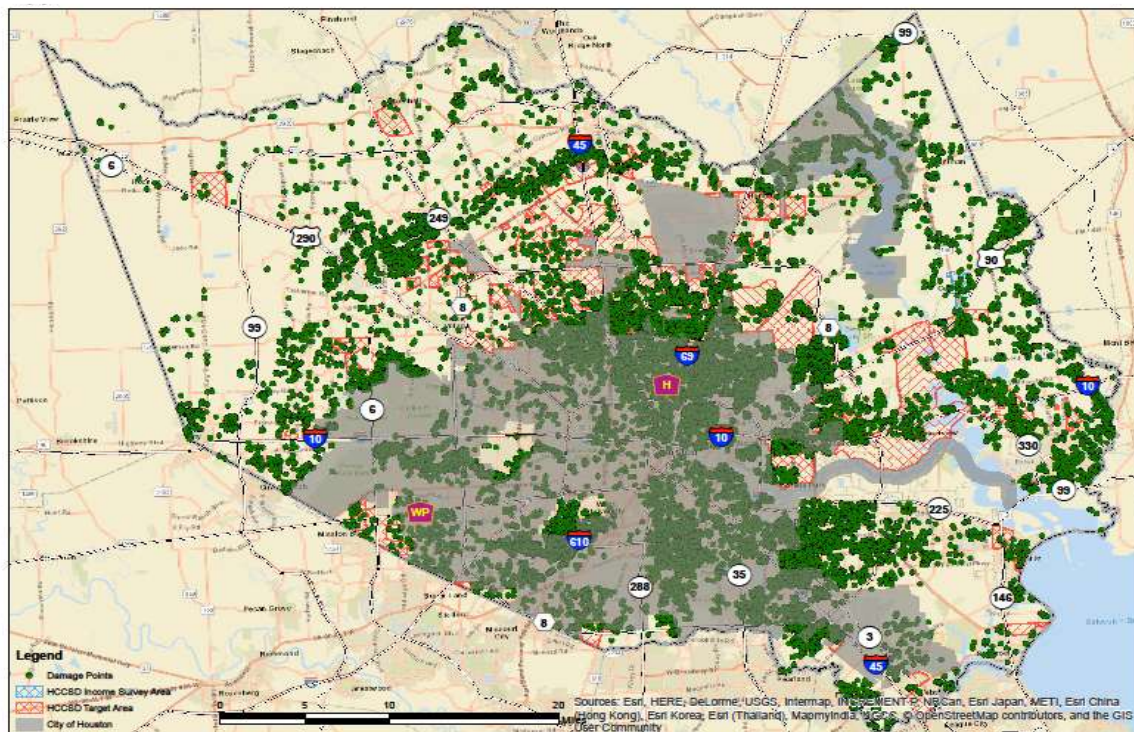
The Needs Assessment is dependent on information gathered for Unincorporated Harris County and the thirty-three (33) cities within Harris County that agreed to participate in this assessment. The sections below provide more detail on the various types of damage assessed and collected.

2. Housing

Hurricane Harvey produced the most devastating house flooding ever recorded in Harris County. Based on a house flooding assessment report by the Harris County Flood Control District (HCFCD), about 70 percent of Harris County was flooded by at least 1.5 feet of water, with an estimated 154,180 flooded homes. Of those flooded homes, 64 percent did not have a flood insurance policy in effect.

Harris County has a significant number of homes in the 100-year floodplain (184,546 units) and 500-year floodplain (230,838 units). Of those homes flooded due to Hurricane Harvey, 54.8 percent were located in the 100- or 500-year floodplains. This leaves 45.2 percent (67,670 units) outside a defined flood risk area but still experiencing flooding and unlikely possessing flood insurance.

Map A: FEMA Valid Registrations in Harris County



In the month just after the storm, the Harris County Engineering Department (HCED) conducted a house-to-house damage survey. They found that approximately 29,000 homes sustained damage due to Hurricane Harvey. During this time, residents of affected areas were registering with FEMA for damage to housing and or personal property. In the Harris County Disaster Recovery (DR)

Service Area that includes the unincorporated county and 33 small cities (outside city of Houston) within the county, 160,695 households registered with FEMA and were determined as valid applicants by FEMA (Map A). These registrants had a combined FEMA Verified Loss (FVL) of \$566,569,381.64. FEMA paid out \$416,901,867.43 in assistance to DR Service area registrants. However, this has left an unmet need for resident of over \$2.35 billion for housing.

a) Owners

The Harris County Disaster Recovery (DR) Service Area contains 750,461 (49 percent) of the county's 1,536,259 occupied housing units. Of those occupied housing units in the DR Service Area, 63.8 percent (478,794) are owner-occupied.

In the Harris County Disaster Recovery (DR) Service Area, there were a total of 160,695 valid FEMA registrants. Of the 160,695 FEMA registrants in the DR Service Area, 58.6 percent (94,208 registrants) were homeowners with over 91 percent of the total FEMA Verified Loss in the Harris County DR Service Area. Owners received 84.2 percent of FEMA assistance awarded in the service area.

FEMA IA for Owner-Occupied Housing in DR Service Area

	All FEMA Registrants	LMI Registrants
Number Registrants reporting damaged	160,695	112,753
FEMA Verified Loss (FVL)	\$566,569,381.64	\$308,563,212.90
Average FEMA Assistance	\$5,867.73	\$4,883.27
Number of Owner Registrants	94,208	56,973
Owners that Received Assistance	44,371	26,874
Owners with a FEMA Verified Loss	\$516,957,788.80	\$268,585,806.60
Owners Sum of Assistance	\$350,964,507	\$186,956,505.69
Owners Average FEMA Assistance	\$7,909.77	\$6,956.78
Owners Unmet Need	\$1,729,324,743	\$895,223,885

Out of the 94,208 owner registrants in the DR Service Area, 14.74 percent (13,885) of the housing units had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 6,915 or 7.34 percent had Minor damage levels (with up to a foot and a half of water). FEMA estimated that for most registrants with Major and Severe/Destroyed damaged housing, repair costs averaged between \$72,000 and \$100,000. These homeowners, especially LMI households will need additional resources to repair the damage, as FEMA is limited to just over \$33,000 for all forms of assistance per registrant.

Of the total FEMA registrants, 70 percent (112,753) of registrants are low-to-moderate-income (LMI) which is defined as earning less than 80 percent of the Median Family Income (MFI). LMI owners received on average almost \$1,000 less than all FEMA owner registrants in FEMA assistance. LMI registrants also only received 25 percent of the SBA loans to homeowners.

b) Renters

In the Harris County DR Service Area, there are 271,667 or 36.2 percent represent renter-occupied housing units. The median gross rent is \$937 in Harris County however, 22 percent of renters have an average income less than \$20,000 and are thus severely housing cost-burdened. These cost-

burdened households usually comprise of low-income populations, minorities, homeless, seniors, or persons with disabilities.

In the Harris County Disaster Recovery (DR) Service Area, there were a total of 160,695 valid FEMA registrants of which 41 percent are renter registrants. One out of seven renter households in Harris County may have been residing in buildings directly impacted by Hurricane Harvey. Renter FEMA Verified Loss was 8.7 percent of all verified loss in the service area. Over 80 percent of renter registrants are low- to moderate-income (LMI) households.

FEMA Individual Assistance for Renters in Harris County DR Service Area

	All FEMA Registrants	LMI Registrants
Number Registrants reporting damaged	160,695	112,753
FEMA Verified Loss (FVL)	\$566,569,381.64	\$308,563,212.90
Average FEMA Assistance	\$5,867.73	\$4,883.27
Number Renters	65,922	55,331
Renters with a FVL	\$49,558,079.05	\$39,935,825.38
Renters Average FEMA Assistance	\$2,476.35	\$2,395.65
Renters that Received Assistance	26,588	22,273
Renters Unmet Need	\$628,287,775	\$500,158,722

Out of the 65,922 renter registrants in the DR Service Area, 0.04 percent of the units had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 0.27 percent had Minor damage levels (with up to a foot and a half of water).

According to FEMA IA registrations, 65,922 renter households reported being affected by Hurricane Harvey in the Harris County DR Service Area and 35.7 percent comprised of LMI households.

Hurricane Harvey poses unique housing challenges because it affected a much larger swath of the population than had been impacted by previous storms. In Harris County, neighborhoods flooded that had never flooded before. Several months following Hurricane Harvey, the multi-family rental market in Harris County was experiencing positive absorption, with tenants desperately searching for housing and homeowners looking to sign short-term leases while their homes underwent repair and they awaited funding for permanent relocation. As a result, lower-income renters were competing for vacant units and in most cases paying higher rents than they would have before the disaster.

Renters seemed to have greater challenges to recovery, as FEMA/SBA resources were limited or non-existing, fair housing issues arose with discrimination by landlords against minority and Limited English Proficient populations regarding rental unit repair, and eviction notices to renter's post-Hurricane Harvey as properties forced out tenants.

Immediately after Hurricane Harvey, multi-family residential industry information supplier Apartment Data Services produced a report stating that over 3,000 plus rental units were affected by Hurricane Harvey across Harris County. With the decreasing number of available units and heightened demand, the gap between the housing supply and demand is greater than prior to Hurricane Harvey. The repair process for "down" units is slow, and associated costs are high, as labor and repair materials are in short supply.

3. Non-housing Infrastructure

Texas infrastructure all along the Gulf Coast was affected by Hurricane Harvey. This event caused damage to roadways, bridges, sections of the coastline, and many other infrastructure systems that is still being assessed.

Governor Greg Abbott established the Governor's Commission to Rebuild Texas (the Commission) in the immediate aftermath of Hurricane Harvey for the swift and effective restoration of damaged public infrastructure throughout disaster impacted areas. The types of identified projects include restoration and mitigation projects for roads, bridges, schools, government buildings, and public facilities, as well as projects to protect coastal infrastructure, homes, businesses, critical facilities, and national assets such as petrochemical complexes. Over 60 percent of the projects identified were for flood control projects. Over \$10 billion of the \$61 billion were projects affecting Harris County.

In addition, FEMA Public Assistance (PA) data was used to determine infrastructure needs and also serves as a statewide metric to begin the discussion on specific infrastructure needs. Each of the Harris County's 33 small cities submitted PA project worksheets and estimates for permanent work. Harris County has an overall PA project costs of over \$735 million. The categories with the highest total need are Buildings and Equipment and Emergency Protective Measures.

The Harris County Flood Control District (HCFCD) estimates the total need in Harris County for flood risk reduction projects is \$25 billion to achieve a 1 percent (100-year) level of service in Harris County. The HCFCD had developed a list of over 100 projects that address documented flooding issues in each watershed. These projects include improvements along bayous, channels, and riverine assets and also neighborhood level drainage improvements.

Property Buyout (Residential and Commercial)

The Harris County Flood Control District (HCFCD) has operated the Harris County Buyout Program since 1985 and acquired and removed approximately 3,000 houses that are hopelessly deep in the floodplain where flood damage reduction projects, like channel improvements or storm water detention basins, are not cost effective and or beneficial. Once bought out, these parcels are returned to their beneficial function aiding in the storage of floodwaters. Those homeowners who are bought out are assisted to move to an area with a reduced flood risk.

Of the 43 buyout interest areas identified by HCFCD, the county has identified 13 areas that are in low- to moderate-income areas and or in Social Vulnerable areas as a prior for CDBG-DR Buyout assistance. In addition to residential homes, these 13 buyout areas also contain commercial properties. Within the 13 areas, there are 789 commercial parcels with an average assessed value of approximately \$25,000. The goal of buyout is to assist residents and businesses to relocated to areas of reduced flood risk.

4. Unmet Need

The Unmet Need for housing repair is approximately \$2.9 billion. Add to this the need for buying homes and businesses that are hopelessly deep in the floodplain and incentives to allow vulnerable populations and businesses find comparable units in reduce flood risk area, an additional \$700 million for a total unmet need of over \$3.6 billion for Harvey recovery. Although remaining unmet housing needs exist due to the limitation of available funds, Harris County recognizes that as part of a comprehensive long-term recovery program, the repair and enhancements of local infrastructure and mitigation efforts are crucial components. Infrastructure activities are vital not only for the long-term recovery and restoration of housing but for the long-term recovery, protection, and viability of communities. In particular, drainage improvement projects in channels and bayous, as well as in local neighborhood drainage systems, are needed to reduce the flood risk in these areas. Harris County has identified a total unmet need for housing and non-housing recovery as over \$10 billion.

5. Educational Institutions

Various independent school districts and educational institutions were impacted in both unincorporated Harris County and within the cities. Much of the damages incurred was roof damage or flooding. Roof damages were likely a combination of both wind and heavy rain. Flooding damages at some locations were severe since they impacted the ability to continue educational services at these locations and would potentially warrant the need to relocate these facilities.

6. Economic Losses

The primary information gathered on economic losses for this report was based upon available data from the U.S. Small Business Administration (SBA). Data obtained for Harris County from August 1, 2017 through December 7, 2017 tracked the businesses within Harris County that received SBA loans for property and content losses. The total of loans for approximately 70 businesses amounted to \$39,287,300 throughout the unincorporated county. Since this program loans only for businesses that may have difficulty in obtaining conventional loans, it represents only a portion of the impacts to businesses from Hurricane Harvey.

In addition to the commercial businesses applying for SBA loans, Harris County provided an assessment of commercial properties impacted by Hurricane Harvey. A methodology similar to the one used to establish damages to residential properties was used for establishing business properties inundated by Harvey. Of the 437 businesses identified, the total economic losses to businesses can be assessed at \$101,634,250.

7. Appendix

The final section of the assessment is the appendices. Appendix A provides a profile for each of the 33 small cities located in Harris County (DR) Disaster Recovery Area. The profiles provide an overview of the impacts from Hurricane Harvey on housing and non-housing structures within the city. Appendix B provides an overview of Harvey impact of Low-to-Moderate-Income (LMI) areas of the Harris County (DR) Service Area. Finally, Appendix C provides information on the public review process and public comments to the Assessment.

Section 1 Introduction

Harris County is located in the southeastern part of the State of Texas near Galveston Bay. It has a population estimated at 4.7 million residents as of December 31, 2016 and continues to be the third largest county in population. Harris County is one of the fastest growing counties with a 67 percent growth rate since 1990 and over 80 percent of the growth is in the unincorporated area which represents 43 percent of the total population.

In the last 20 years, multiple devastating flood events have occurred, including Tropical Storm Allison in 2001, Hurricane Ike in 2008, the Memorial Day Flood of 2015, the Tax Day Flood of 2016, and most recently, Hurricane Harvey. As Harris County residents have recovered from each of these disasters, it is clear that flooding is and will always be a threat to the region. While Harris County cannot control flooding events, the region can work together to prepare for future flooding events.

The purpose of this document is to demonstrate the damages and unmet needs as a result of Hurricane Harvey for unincorporated Harris County and the 33 cities outside the City of Houston

Hurricane Harvey's Toll on Harris County

Hurricane Harvey quickly formed into a tropical depression on August 23, 2017 and in just 56 hours, it grew from a tropical depression over the Gulf of Mexico into a Category 4 hurricane as it made landfall near the Texas Gulf Coast late on August 25, 2017. Harvey threatened millions of residents with 130 mph winds, heavy rains, and a massive storm surge that swamped coastal areas. It stalled around southern Texas for days as a weakening hurricane, producing catastrophic flash and river flooding. Over the course of the next four days, it would bounce along the Texas coastline (Map 1) causing massive flooding and wind damage to several counties. As Hurricane Harvey moved along the coast, large quantities of rain fell in Harris County. Although the Hurricane's eye did not make landfall in Harris County, the constant repetition of rain bands made their impact.

By August 27, 2017, the slow moving storm dumped a total of 1 trillion gallons of rain across Harris County over a 4-day period. This amount of water would cover Harris County's 1,778 square miles with an average of 33 inches of water, according to the Harris County Flood Control District (HCFCD). By August 28th the U.S. Army Corps of Engineers began controlled water releases from Addicks and Barker Reservoirs in the Buffalo Bayou watershed in an attempt to manage flood levels

HURRICANE HARVEY RAINFALL DATA

- Category 4 Hurricane - Struck Texas coast three times beginning August 25, 2017
- Maximum diameter of 280 miles
- Up to 130 mph winds
- Received 50+ inches of rain
- Hurricane Harvey broke the record for the most rainfall in any tropical system
- The entire Harvey event produced 27 trillion gallons of water across 2 coastal states. Of which 1 trillion was in Harris County.
- Estimated 25-30 percent of Harris County was underwater
- Approximately 8 million cubic yards of garbage – soggy drywall, flooring, furniture, clothing etc.

Map 1: Graphic Overview of Hurricane Harvey's Track



in the immediate area. Despite attempts to alleviate the water rise, the Addicks Reservoir reached capacity on August 29, 2017, spilling out water into homes across several square miles. Harvey made its third and final landfall on August 30, 2017 near Port Arthur, Texas and Cameron, Louisiana, continuing to bring widespread catastrophic flooding.

The Harris County Flood Control District (HCFCD) estimated 70 percent of Harris County was flooded by at least 1.5 feet of water, with an estimated 154,170 flooded structures in the county alone. More than 50 inches of rain had fallen over parts of the area, the equivalent of a normal year's rainfall for the area in one week and inundating homes and requiring rescue attempts for thousands of stranded people. The Houston Police Department rescued more than 3,000 people from flooded neighborhoods. Thirty-six flood related deaths were reported in Harris County during and immediately after the storm.

While authorities and first responders handled as many as 10,000 rescue missions around the

Houston area and at least 30,000 people fled to temporary shelters. Almost 8,000 people fled to the George R. Brown Convention Center, where 1,700 received medical treatment. Another 7,500 people fled to NRG Park and other shelters around the county. FEMA moved 14,900 people into temporary housing and reported that 8,000 families had moved into over 9,000 hotel rooms.

Almost immediately, the call for needed resources from those affected was heard. Between August 25 and September 30, 2017, the 2-1-1 system operated by United Way of Greater Houston received approximately 100,000 calls. The following call summaries (Figures 1 and 2) show the top ten calls received pre-Harvey and during Harvey (August 25–September 30, 2017). The top type of calls received before Hurricane Harvey was in reference to Medicaid applications, while the top calls received during and after Hurricane Harvey were for disaster food stamps and assistance.

Figure 1: Top 10 2-1-1 Calls Pre-Harvey

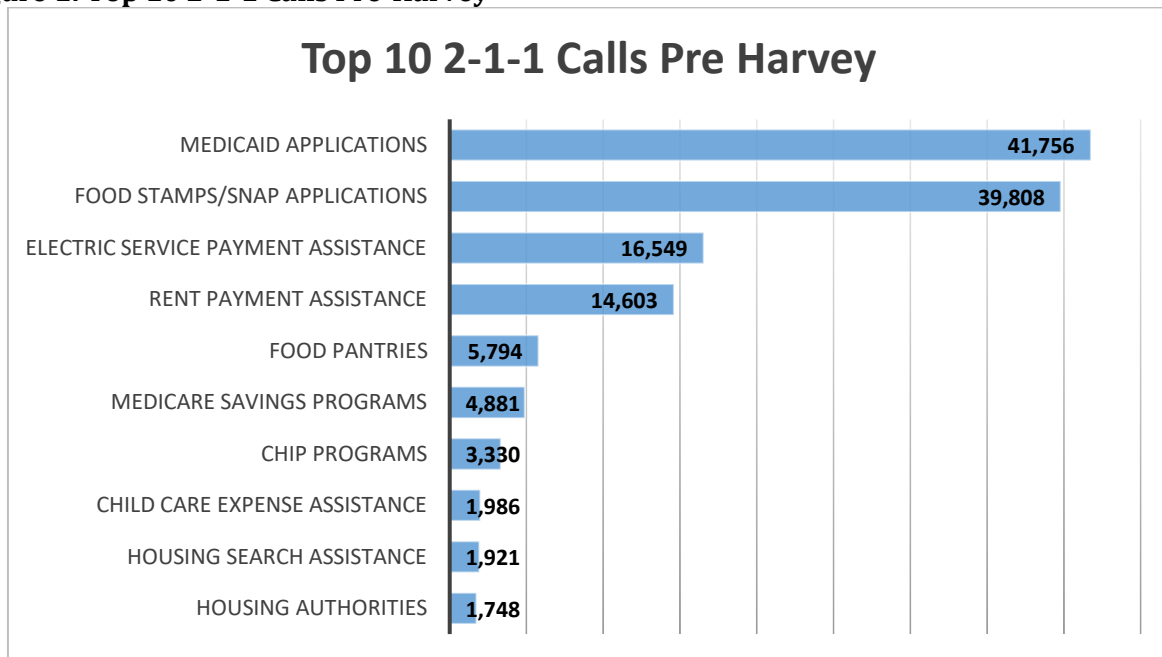
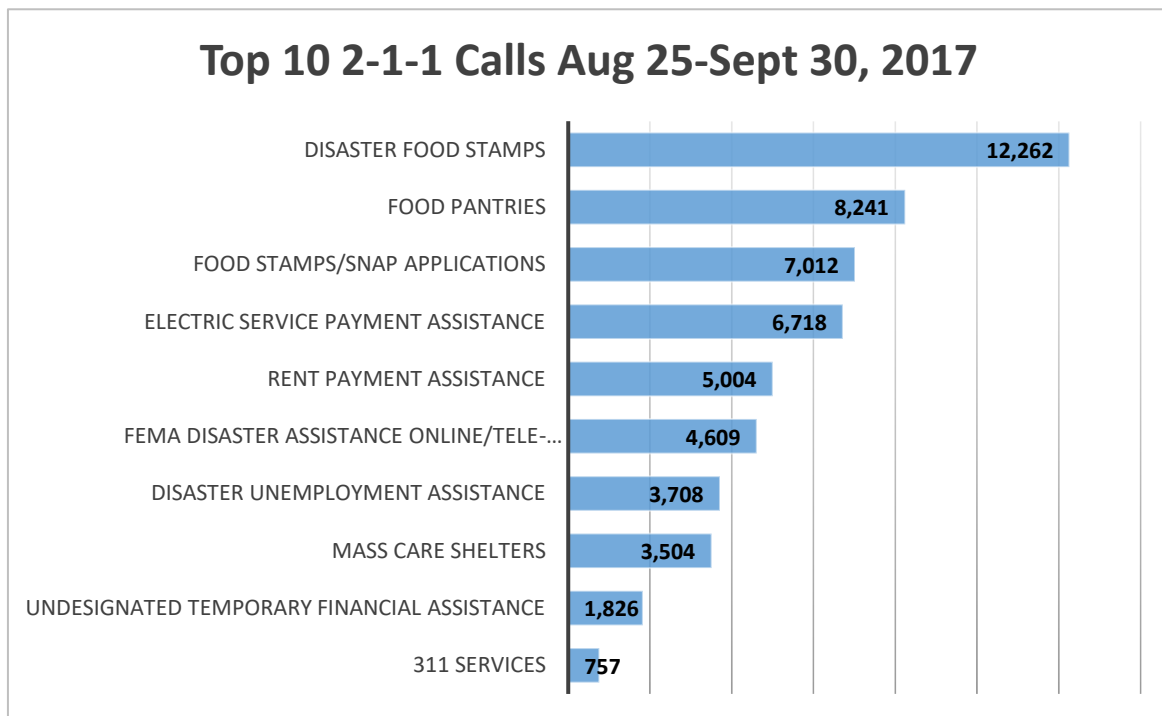


Figure 2: Top 10 2-1-1 Calls Aug. 25 to Sept. 30, 2017



Based on a Rice University Kinder Institute for Urban Research report, *Hurricane Harvey Relief Fund Needs Assessment Phase Two*, almost 90,000 calls were placed to the 211 system between October 15, 2017 and November 30, 2017. Approximately one-third of those calls were requests for assistance for a Hurricane Harvey related issue. During this time, 39 percent of calls were from callers 30 to 49 years of age, with the top requests for disaster case management, rent payment

assistance, disaster food stamps, and temporary financial assistance. For those over 65 years, comprising 13.5 percent of calls, similar requests were made with the addition of disaster specific home repair. The report highlighted that those over 50 years of age would maintain the highest call volume over the time period, showing the potential issue in securing assistance.

A. Cumulative Impact of Prior Disasters

Harris County has been impacted by six Presidentially Declared Disasters in the last ten years. On September 13, 2008, Hurricane Ike, a Category 2 storm, made landfall along the upper Texas Gulf Coast and was at the time the third most destructive hurricane and the third costliest U.S. hurricane. Harris County took a direct hit from the storm, with projected cost of \$3.58 billion in residential housing damage to over 230,502 housing units and infrastructure damage was estimated at \$582 million to repair critical infrastructure and facilities.

In 2015 and 2016, Harris County suffered four Presidentially Declared Disasters: the Memorial Day floods (DR 4223) of 2015, October floods (DR 4245) of 2015, Tax Day floods (DR 4269) of 2016, and May/June floods (DR 4272) of 2016. In the 2015 events, FEMA Individual Assistance (IA) reported \$10,553,227 in housing damage. The 2016 events were higher in severity, with \$74,642,169 in FEMA reported housing damage affecting 11,164 housing units. The unmet housing need was \$37,553,806.

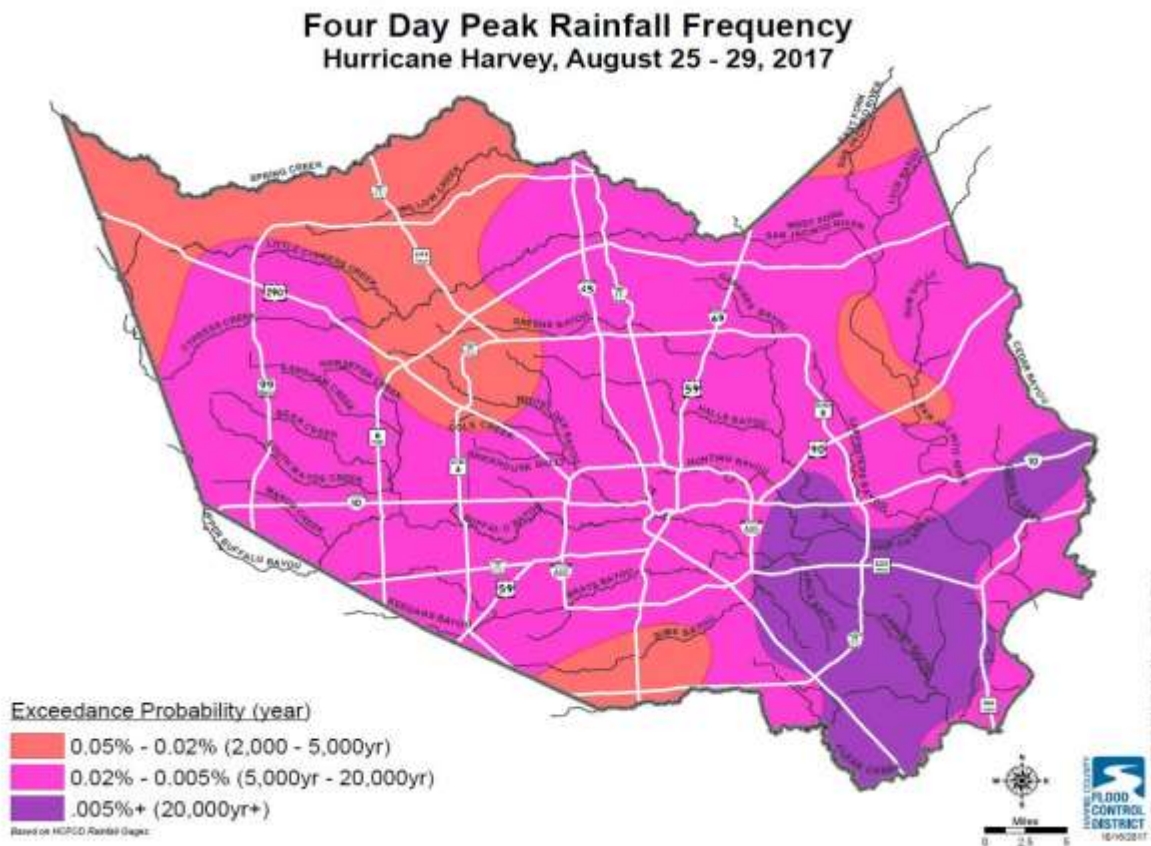
The cumulative impact of these past disasters with Hurricane Harvey has been devastating to local residents, businesses, and institutions. Recovery from one disaster has been exacerbated by those floods that followed.

B. Impact of Hurricane Harvey

Hurricane Harvey was the second most costly tropical cyclone impacting the United States. A total of 1 trillion gallons of water fell across Harris County over the 4 day period and covered Harris County's 1,778 sq. miles with an average of 33.7 inches of water. Seen in Map 2, this quantity of rain far exceeded the probability of an occurrence, as this event had a 1:20,000 year chance of occurring. This volume of water would run Niagara Falls for 15 days. Disastrous flooding occurred in many of the watersheds in the county and exceeded previous historical flooding records, including the worst storm event ever recorded for a similar square mile area in the state of Louisiana in August 1940 by 3.9 inches.

Harvey produced the largest and most devastating house flooding event ever recorded in Harris County. Structure flooding occurred from both overflowing creeks and bayous, as well as internal drainage systems being overwhelmed by the intense short duration rainfall rates. Both the Addicks and Barker Reservoirs reached their peaked on August 30, 2017 exceeding previous pool records. These two reservoirs combined impounded a total of 388,726 acre-feet of water at peak pool elevation or 126 billion gallons of water. Widespread flooding of homes, businesses, and streets occurred within the pools upstream of Addicks and Barker Reservoirs, as well as flooding of major roadways within the reservoirs. Downstream of the reservoirs, the Corps of Engineers made the decision to release a combined 16,000 cfs. This is the highest release rate since the outlets were fully gated in 1963 which caused flooding.

Map 2: Four Day Peak Rainfall Frequency, Harris County



In the three weeks after the storm, several federal relief agencies began to offer assistance. The Disaster Supplemental Nutrition Assistance Program (D-SNAP) is a short-term food assistance program to benefiting families recovering from a disaster and the Texas Health and Human Services Commission in partnership with Harris County, opened D-SNAP assistance locations in Harris County and reported the intake of over 678,000 D-SNAP applications.

The Federal Emergency Management Agency (FEMA) also opened online and co-located with Harris County in Disaster Recovery Centers (DRCs) to intake and offer application assistance to those affected by Hurricane Harvey. Per the FEMA Individual Assistance Data (IA), in Harris County (outside the City of Houston), out of the 160,695 households that applied for FEMA assistance, slightly over 53 percent were provided assistance for recovery, and many applicants were eligible for Temporary Shelter Assistance as they were displaced from their homes. Approximately 23,392 Harris County applicants checked into FEMA lodging (i.e. hotels or rental units).

C. Demographic Profile of Harris County

The demographic profile was generated using data sets from the U.S. Census Bureau and U.S. Department of Housing and Urban Development (HUD). Harris County continues to be the third largest county in terms of population and one of the fastest growing counties, with 63 percent growth since 1990.

Of the 4,434,257 million residents in Harris County, 2,148,717 live in the City of Houston and 2,285,540 persons live in Harris County's unincorporated areas and 33 small cities (Table 1) (U.S. Census, 2012-2016 ACS). This area is also the focus of the Harris County recovery effort and is called the Harris County Disaster Recovery (DR) Service Area. For vulnerable populations, such as seniors, youth, and persons with a disability, these groups gave a comparable percent to Texas as a whole.

The Harris County DR Service area's population by race/ethnicity, as seen in Figure 3, shows Hispanics as the largest population group, followed by whites. Over 16 percent of the service area comprises persons with a Limited English Proficiency, compared to the county as a whole at 9.7 percent. The minority concentration is 63.6 percent for the DR Service area, compared to the county as a whole at 68.8 percent.

The Harris County DR Service area contains 49 percent (750,461) of the county's 1,536,259 occupied housing units. Of the service area's housing units, 63.8 percent (478,794) are owner-occupied. The median value of owner-occupied housing units is \$145,600, compared to \$142,700 in the State of Texas (US Census, ACS 2012-2016). However, a recent Kinder Institute study places the median value at \$160,000 for the county. Renter-occupied housing represents 36.2 percent (271,667) of the service areas housing units with median gross rent of \$937, pre-Harvey (U.S. Census, 2012-2016 ACS). The median household income is \$55,584, compared to \$54,727 for the state of Texas. Over twelve percent of residents live in poverty in the Harris County DR Service Area.

Figure 3: Harris County Disaster Recovery (DR) Service Area by Race/Ethnicity

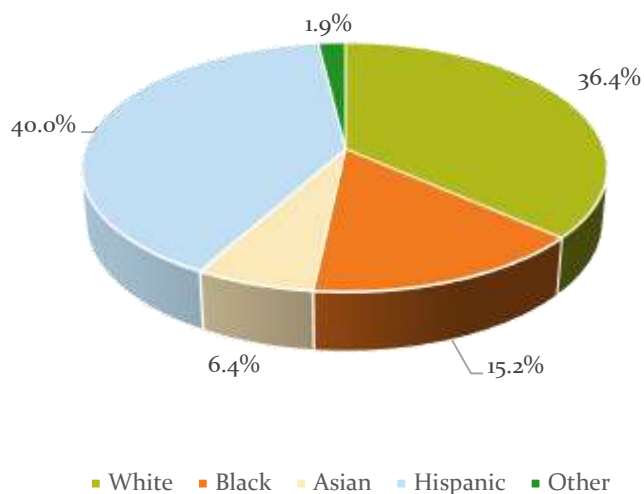


Table 1: 2016 Demographic Statistics for Harris County (outside the City of Houston) from the U.S. Census Bureau

	Texas	Harris County DR SERVICE AREA	
Fact	Estimates	Estimates	Percent
Population estimates, 2016	27,862,596	2,285,540	8.20%
Population, percent change - April 1, 2010, (estimates base) to July 1, 2016	10.80%	12.10%*	
Persons under 5 years, percent, 2016	7.20%	175,548	7.68%
Persons under 18 years, percent, 2016	26.20%	655,146	28.66%
Persons 65 years and over, percent, 2016	12.00%	213,624	9.35%
White alone, percent, 2016	79.40%	1,562,157	68.35%
Black or African American alone, percent, 2016	12.60%	346,959	15.18%
American Indian and Alaska Native alone, percent, 2016	1.00%	4,265	0.19%
Asian alone, percent, 2016	4.80%	145,033	6.35%
Native Hawaiian and Other Pacific Islander alone, percent, 2016	0.10%	2,272	0.10%
Two or More Races, percent, 2016	1.90%	37,000	1.62%
Hispanic or Latino, percent, 2016	39.10%	913,743	39.98%
White alone, not Hispanic or Latino, percent, 2016	42.60%	832,131	36.41%
Housing units, 2016	10,753,629	787,507	
Owner-occupied housing unit, 2012-2016	61.90%	478,794	63.80%
Renter-occupied housing units, 2012-2016	38.10%	271,667	36.2%
Median value of owner-occupied housing units, 2012-2016	\$142,700	\$145,600*	
Median gross rent, 2012-2016	\$911	\$937	
With a disability, under age 65 years, percent, 2012-2016	8.10%	128,052	5.6%
Median household income (in 2016 dollars), 2012-2016	\$54,727	\$55,584*	
Persons in poverty, percent, 2012-2016	15.60%	12.87%	
Land area in square miles, 2010	261,231.71	1,103.89	0.42%
Minority concentration, 2016	57.4%	1,453,375	63.6%

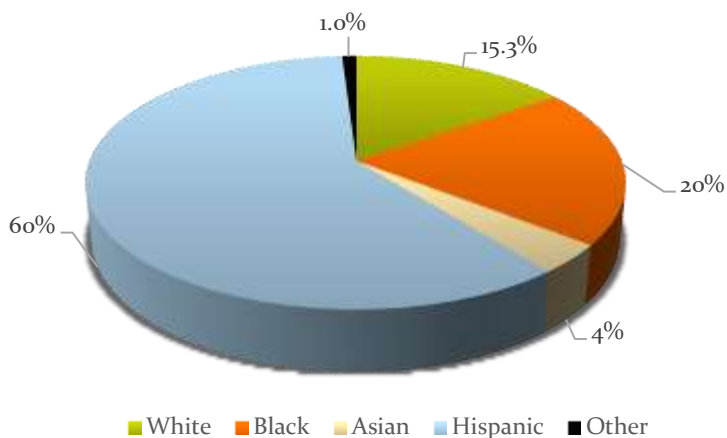
*Figure only available for all of Harris County.

D. Low- to-Moderate-Income (LMI) Analysis

The Low-to-Moderate-Income (LMI) areas of the Harris County (DR) Service Area are made up of 59 designated communities throughout Harris County's unincorporated and small cities, referred to as LMI Target Areas and one HUD-defined LMI Income Survey Area in Crosby. These LMI areas represent portions of communities in Harris County that have 51 percent or more concentration of LMI residents. The locations of the LMI area in the DR Service are seen in Map 3 below.

The Harris County DR Service Area's LMI area population is 666,748 persons. The LMI Target Area's population by race/ethnicity, as seen in Figure 4, shows Hispanics as the largest population group, followed by black at 20 percent, white at 15.3 percent, Asian at 4 percent and other races at 1 percent.

Figure 4: Harris County LMI Area by Race/Ethnicity



An estimated 13.7 percent of the LMI population has a Limited English Proficiency (LEP) compared to 16.4 percent in the Harris County DR Service Area. The LMI area has a minority concentration of 84.7 percent, higher than the State of Texas or Harris County DR Service Area (Table 1).

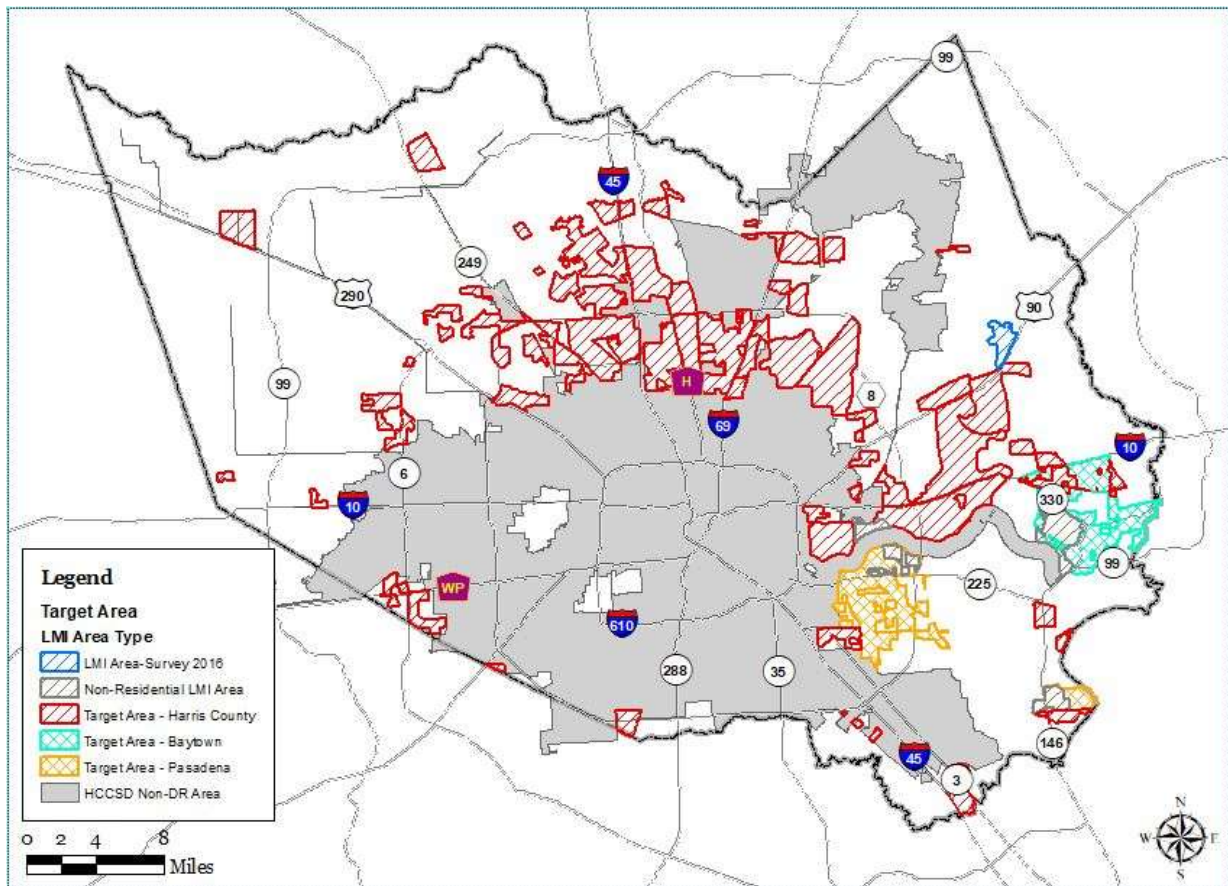
The LMI Target Areas contain 26 percent of occupied housing units (206,995) compared to 64 percent of the occupied housing units in the Harris County DR Service Area. The LMI Target Areas housing units consists of 44 percent (91,415) owner-occupied units and 56 percent (115,580) renter-occupied housing units.

Over 24 percent of the persons living in the LMI area are living in poverty compared to 12.87 percent in Harris County DR Service Area, according to the 2012-2016 American Community Survey, U.S. Census Bureau.

The following (Map 3) identifies Target Areas that have a LMI population of 51 percent or more for Harris County using 2017 LMI Summary Data (LMISD) for the State of Texas, Harris County.¹

¹ HUD Exchange. "FY 2017 LMISD by State - All Block Groups, Based on 2006-2010 American Community Survey." Webpage accessed January 10, 2018. <https://www.hudexchange.info/programs/acs-low-mod-summary-data/acs-low-mod-summary-data-block-groups-places/>

Map 3: Harris County Low- to Moderate-Income Target Area Map

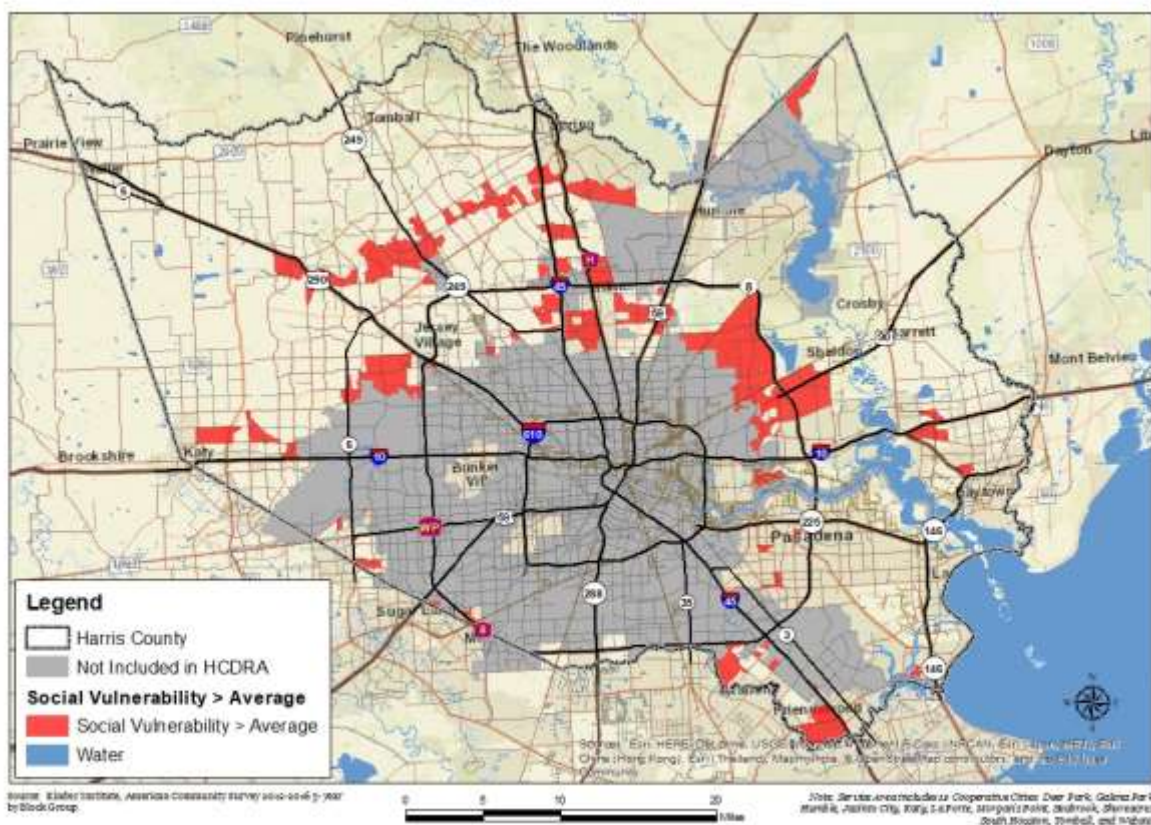


E. Social Vulnerability Index (SoVI)

An additional component to consider when looking at unmet needs is what level of social vulnerability to natural hazards the area is experiencing. This index looks at socioeconomic variables that contribute to the reduction in a community's ability to prepare, respond and recover from hazards. Additional factors used in SoVI include special needs populations, persons who are completely dependent on social services for survival, education, family structure, occupation and other demographic characteristics that help define social vulnerability for communities and individuals.

As seen in Map 4, SoVI is measured by block groups in Harris County — in particular, their vulnerability to environmental hazards. With the assistance of the Rice University Kinder Institute of Urban Research, Harris County's block groups were examined based on socioeconomic variables, which contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards. Map 4 shows those block groups with the highest vulnerability, identified in red. There are a total of 11,383 damaged units in the social vulnerability areas.

Map 4: Harris County Social Vulnerability Index by Block Group



Scope and Purpose

The purpose of this report is to document the flooding damages and unmet needs of the residents including the vulnerable population in Harris County (outside the City of Houston) and 33 small cities as a direct result of Hurricane Harvey. One of the most important tasks of this recovery is identifying, documenting, and reporting the costs of all damages incurred by the storm. To provide the best chances for a beneficial recovery, this assessment has to be performed quickly to facilitate a timely recovery process. Thus, the data to be obtained is often conceptual or preliminary in nature. The intent of this report is to utilize the best available data obtained at the time to assess the overall damages to Harris County. This data was then combined with experience gained from similar events to apply needs that may not be defined, such as home elevation or hazard mitigation needs. Where possible, data from multiple sources is reviewed to develop the best overall assessment.

The assessment varied dependent on information gathered for unincorporated Harris County and the thirty-three (33) cities within Harris County that agreed to participate in this assessment. The sections below provide more detail on methods for the various types of damage assessed and collected.

Vulnerable Populations

In the Needs Assessment, demographic analysis was conducted with a focus on the unmet needs of the vulnerable populations and used to recommend and determine the proportions of funding that should be set aside to benefit this population, to determine the activities to be offered, and the demographics to receive concentrated attention. Harris County will promote housing for vulnerable populations under the following categories: Low-to-Moderate Income (LMI), Limited English Proficiency (LEP), Minority, Senior (60+), Access or Functional Needs (AFN) and Homeless.

We have found that this population had a harder time recovering from the impacts of Harvey, faced challenges in accessing relief and recovery resources, and are least able to recovery without assistance. This population can be particularly vulnerable to the aftermath for many reasons, including they may lack the literacy necessary to navigate the systems in place to attain recovery resources, may be ineligible for benefits, face information gaps because of the ability to effectively communicate, have cultural differences, have medical problems that prevent them from attaining or accessing services, and many of the vulnerable populations identified faced barriers to applying and receiving FEMA assistance and have unmet needs.

Harris County used several methods to collect information about the recovery needs of its residents including the vulnerable populations, and was collected through various citizen engagement activities. The goals for community engagement was to engage the public, especially vulnerable populations such as low-income and persons with a disability; housing and civil rights advocates; local community leaders; non-profit organizations; business owners; and other area stakeholders. Several methods of engagement were used that included community meetings, surveys, small focus group meetings, social media, canvassing, and direct mail. As a result, residents provided input on Hurricane Harvey recovery needs, future program goals, and strategies for funding.

Harris County recognizes that many of its vulnerable populations have unmet needs and will require special circumstances in program design and ongoing outreach efforts in affected areas.

Through the Affirmative Marketing Outreach Plan, Harris County is committed to AFFH through established affirmative marketing policies. Harris County will coordinate with HUD-certified housing counseling organizations in this effort. Affirmative marketing efforts will include an affirmative marketing plan, based on HUD regulations. The goal is to ensure that outreach and communication efforts reach eligible homeowners from all racial, ethnic, national origin, religious, familial status, the disabled, "special needs," and gender groups.

The County has and will be conducting neighborhood canvassing to deliver recovery information and collect resident's comments and concerns regarding unmet needs and recovery projects. The County will perform two types of canvassing, virtual and door-to-door. 1) Under virtual canvassing, the county will send emails to those affected by Harvey in impacted areas informing them of online resources and survey and upcoming community events that County staff will be performing public engagement activities. 2) Under Door-to-Door canvassing, county staff along with community partners will go door-to-door in areas of high Harvey impact providing written resources and real-time engagement at the household level. This will allow those who may not be online to receive information and provide input. Both of the canvassing type will provide information of CDBG-DR programs and possible future projects.

Data Collection

Data was collected from FEMA, the Harris County Community Services Department (HCCSD), Harris County Engineering Department (HCED), Harris County Flood Control District (HCFCD), U.S. Army Corps of Engineers (USACE), Harris County Appraisal District (HCAD), Harris County Public Health (HCPH), Small Business Assistance (SBA) Disaster Home Loans, Insurance and other agencies servicing Harris County.

These multiple sources were used to analyze flood damage data for the needs assessment. The data was collected from the various data sources and used to estimate residential and commercial flood damaged areas in Harris County. As none of the local sources provided a complete account of the impact of the disaster, Harris County was able to combine the data sources to better estimate and define the location of flooded properties, assistance provided by FEMA, SBA, and flood insurance, number of persons affected, levels of damage, and unmet needs of the community especially our vulnerable populations. For non-housing the local sources were used to identify infrastructure damage and locations within Harris County and its smaller cities.

A. Housing

Housing impacts from Hurricane Harvey were primarily assessed in the following categories:

1. FEMA

Individual Assistance (IA) is provided by FEMA to individuals and families who have sustained losses due to a federally declared disasters. IA data is collected by FEMA for individuals and families who sustained losses due to Hurricane Harvey. Homeowners, renters and business owners who sustained damage to their homes, vehicles, personal property, businesses or inventory may apply for disaster assistance. Assistance from FEMA in the form of grants helps pay for temporary housing, emergency home repairs, uninsured and underinsured personal property losses and medical, dental and funeral expenses caused by the disaster. The State of Texas provides IA assistance claims data for the county.

IA claims available from FEMA were reviewed to establish several primary impacts from Hurricane Harvey, which included the number of residents impacted based upon claims filed, the number of residents not assisted by FEMA through unmet claims, and a general assessment of impacts to owners and renters. A review of this data was provided to assess the number of claims filed. The data was used as a basis for estimating the number of units that were displaced by Hurricane Harvey and required temporary rental assistance and other needs. Replacement of these units in areas not prone to flooding was then considered an unmet need. Residents had until November 24, 2017 to register with FEMA to receive disaster assistance.

The FEMA IA data was also used to calculate the unmet needs for housing. The unmet need for the LMI population is over \$895 million for owners. HUD requirements for this CDBG-DR allocation specify that the GLO and Harris County must expend a minimum of 70 percent to benefit LMI populations. In Harris County, approximately 59.8 percent of the unmet need population is below 80 percent in the LMI category. See Section 4: Unmet Needs and Funding Resources for the calculation method.

2. Local

Several sources of information were utilized to obtain data on existing damages to housing within unincorporated Harris County and the thirty-three (33) cities outside the City of Houston.

Data was collected from several local sources, including the (HCAD), (HCED), (HCPH) and (HCFCD) and the (USACE). These departments collected information on damaged parcels, flood levels and estimated damages for impacted properties.

3. 2-1-1

The United Way of Greater Houston serves as Harris County's 2-1-1 program administrator. The 2-1-1 system helped Harris County residents connect with local health and human services and disaster resources programs by phone or internet. 2-1-1 is a free, anonymous, social service hotline available 24 hours a day, 7 days a week and 365 days a year. State and local health and human services programs address housing/shelter, employment, food/nutrition, veteran, crisis/emergency, income/expense, legal aid/victims, criminal justice, aging/disability, health/medical, mental health, child care/education, and issues local residents are experiencing.

4. Insurance

The Texas Department of Insurance (TDI) collected data from insurance companies on the financial impact of Hurricane Harvey and monitoring of claims handling. Data collected included: number of reported claims, paid claims, claims closed without payment, claims reopened, claims with total losses, total amount of paid losses, and total amount of claims reserved. Data was collected from insurance companies which included the Texas Windstorm Insurance Association (TWIA) and National Flood Insurance Program (NFIP).

5. Small Business Assistance (SBA) Disaster Home Loans

Another resource for homeowners who sustained damage from Hurricane Harvey is the Small Business Administration's (SBA) disaster loans. These loans are the basic form of federal disaster assistance for homeowners whose private property sustained damage that is not fully covered by insurance. Homeowners and renters whose property was damaged by a declared disaster were able to apply for an SBA low-interest loan. Interest rates on these loans are determined by law and are assigned on a case by case basis.

6. Harris County Flood Control District's Buyouts (HCDCS)

HCFCD has operated the Harris County Residential Buyout Program since 1985 and acquired and removed approximately 3,000 houses hopelessly deep in the floodplain. Homes selected for buyout where flood damage reduction projects, like channel improvements or storm water detention basins and are not cost effective and or beneficial. Once bought out, these parcels are returned to their beneficial function, aiding in the storage of floodwaters. Those homeowners who are bought out are assisted to move to an area with a reduced flood risk. This assessment reviews the need for residential buyout to reduce future risk.

7. Fair Housing

Data was collected through the community engagement process designed for the Fair Housing Analysis of Impediments Plan (AI) and focused on creating opportunities to participate in whichever format resident's preferred, from a survey available online or postage-paid mail format, pop-up events where study teams engaged residents attending community events, open house public meetings and focus groups. The comprehensive resident survey included six questions about the effects of Hurricane Harvey on housing and was available in English, Spanish and Vietnamese. The community participation process provided multiple opportunities in various formats for residents and stakeholders to share their experience and opinions about fair housing choice and access to opportunity in the region.

B. Non – Housing

Non-housing impacts for Hurricane Harvey were primarily assessed in three (3) categories: public infrastructure including roads and bridges, water/wastewater, storm water/flood control and debris; impacts to public educational facilities primarily consisting of school buildings; and economic impacts to commercial businesses. The local data sources were used to identify infrastructure damage and locations within Harris County and its smaller cities. The data collection methods for these three (3) categories are described further in the following section.

1. Infrastructure

For Harris County infrastructure facilities, a detailed assessment of potential damages was provided by the HCED. An additional assessment was provided by HCFCD, which established debris costs and damages to their storm water/flood control infrastructure. Based upon this assessment a detailed listing of damaged infrastructure and estimated costs was established. These infrastructure projects were also separated by major category, and those eligible for FEMA public assistance were submitted to the Texas Division of Emergency Management (TDEM) and then by TDEM to FEMA for approval. Many of these projects required a 10 to 25 percent match from the county.

For the local cities, several available methods for determining infrastructure damages were utilized. If available, detailed damage assessments, including descriptions of the infrastructure and damage estimates, were utilized. For most locations, projects submitted to TDEM/FEMA as the City's official list of damaged infrastructure was utilized. These lists included the type of infrastructure, a description of damages, and estimated costs.

The county also obtained a report from the State of Texas with all submitted projects for FEMA public assistance as of January 2018.

2. School Districts

Data was also collected for estimated unmet needs for public school districts within unincorporated Harris County. All data for the schools/school district was obtained from TDEM/FEMA Damage Inventories. The methodology to assess unmet needs was identical to that provided for public infrastructure.

3. Economic Losses

Data was collected on economic losses to commercial businesses. The SBA collected data on the number and amount of loans obtained by commercial businesses. Since this data indicated loans to be repaid by the commercial businesses, the complete value of the loans principal and interest was considered in determining the economic impact. Estimates were also made to assess damages for approximately 400 additional commercial properties identified as substantially impacted.

C. Citizen Participation

Data was collected for citizen participation through various citizen engagement activities. The goals for community engagement were to engage the public, especially vulnerable populations such as low-income and persons with a disability; housing and civil rights advocates; local community leaders; non-profit organizations; business owners; and other area stakeholders. Harris County provided several methods of engagement that included community meetings, surveys, small focus group meetings, social media, canvassing, and direct mail.

1. Disaster Recovery Community Meetings

As a part of its disaster recovery planning and to fulfill the requirement for citizen participation under CDBG-DR funding, Harris County conducted a series of community meetings. These meetings solicited information from county residents about Hurricane Harvey recovery needs for their families and the community at large. Topics focused on housing and infrastructure needs, fair housing concerns/barriers and general community planning and discussed possible recovery programs under the CDBG-DR program.



Community Meeting at Sweet Home MB Church on June 21, 2018

Harris County Community Services Department (HCCSD) undertook the planning and facilitation of a series of community meetings held between May 30 to June 23, 2018 to solicit community input on Hurricane Harvey recovery needs and barriers to fair housing. These meetings were held throughout Harris County (outside of the City of Houston), particularly in low- to moderate-income (LMI) and/or minority concentrated communities. HCCSD used diverse methods to market and encourage residents to attend these meetings. These methods included: creating a disaster recovery blog and website; a Hurricane Harvey Impact Survey in English and Spanish; sending press releases to the media; posting the meeting flyer on social media, door to door canvassing, direct emails, calls and texts to residents, sending event flyers through school districts websites and emails to parents; emails to local non-profits organizations and direct mail. HCCSD also collaborated with BakerRipley and the Texas Organizing Project (TOP) to provide outreach

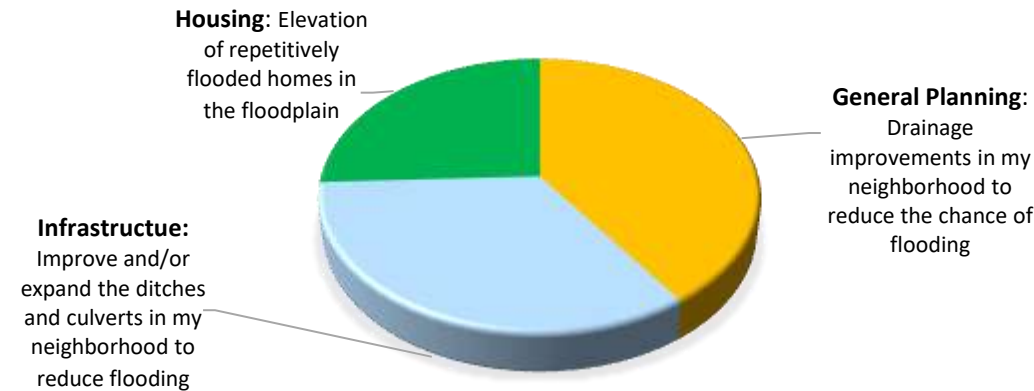
to their communities and clients. As a result, close to 1,000 residents attended the community meetings and 591 residents completed the six-question Impact Survey that provided input on Hurricane Harvey recovery needs, future program goals, and strategies for funding. In addition, HCCSD created “Meeting in a Box (MIB),” which is a toolkit to help facilitate conversations with partners and solicit input on Hurricane Harvey Disaster Recovery needs, long-term goals, and strategies for funding. Two organizations in Harris County facilitated meetings using the MIB.

HCCSD staff facilitated all meetings in coordination with Harris County precincts. Outreach materials were translated to Spanish, and the outreach flyer was translated to Spanish and Vietnamese. Meetings were held in English and Spanish, and sign language interpreters were present at each meeting. Residents were also able to obtain resources and information from FEMA, Lone Star Legal Aide, the Harris County Housing and Community Resource Center, and Harris County precincts to assist in their recovery needs.

There were 13 community meetings held throughout Harris County (outside the City of Houston), particularly in low-to-moderate income neighborhoods. At each community meeting, residents were invited to participate in interactive stations. Participants were given 3 dots per station and asked to vote on their top priorities for disaster recovery related to housing, general community planning, infrastructure needs, and fair housing concerns and barriers. These dot exercises were conducted in English and Spanish, as seen in Figure 5.

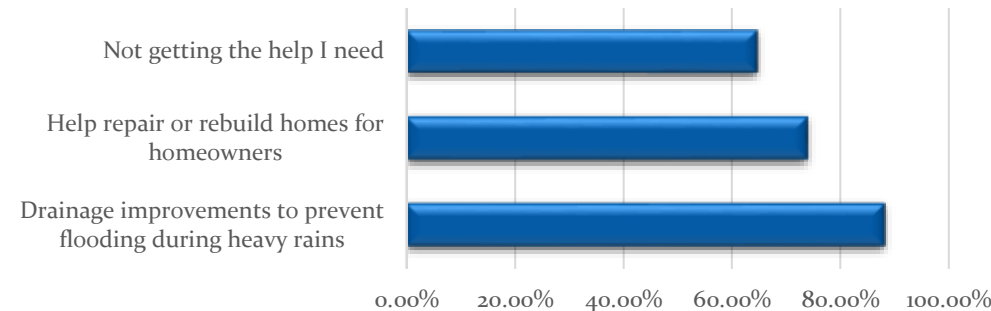
There were many issues/concerns that were discussed at the community meetings. However, regardless of the part of the county residents lived in, the issues and concerns were generally consistent across the board. After tabulating the dot priority results from the meetings, the top issues and concerns comprised drainage improvements, flooding mitigation and elevation. Residents wanted drainage improvements in their neighborhoods to reduce the chance of flooding from future events, followed by improving and/or expanding the ditches and culverts in their neighborhoods to reduce flooding, and elevation of repetitively flooded homes in the floodplain, as seen in Figure 5.

Figure 5: Community Meeting Top Issues and Concerns



Residents were also asked to complete a six question *Hurricane Harvey Impact Survey* that was available in English and Spanish. HCCSD received 591 completed surveys from residents all over Harris County. Based on the survey, residents in Harris County felt that drainage improvements to prevent flooding during heavy rains was a top priority, residents needed help or some type of assistance to repair the homes they owned, and felt they were not receiving the help needed to recover from Hurricane Harvey, as seen Figure 6.

Figure 6: Top Hurricane Harvey Impact Survey Results



Resident survey characteristics are seen in Table 2 included 65 percent of the residents were located in a minority concentrated areas in Harris County. Ten (10) percent live in Limited English-

Proficiency (LEP) concentrated areas, meaning 33 percent of residents speak something other than English as their primary language or have a limited ability to understand English. Forty-one (41) percent live in Low-to-moderate-Income (LMI) Target Areas which are communities in Harris County that have 51 percent or more concentration of LMI residents. Seventy-two (72) percent are LMI individuals which is defined as earning less than 80 percent of the Median Family Income (MFI).

Table 2: Survey Resident Characteristics

Resident Survey	%
Minority concentration	65
Limited English Proficiency (LEP)	10
LMI Target Areas	41
LMI Individuals	72

Residents that completed the surveys lived all over Harris County. Zip codes 77044, 77089, and 77084 had the greatest response to survey and ironically were the hardest hit by Hurricane Harvey flooding. These three zip codes had the most FEMA assistance, FEMA registrants, and homeowners that had flood damage but did not have flood insurance.

Residents that lived in these hardest hit zip codes live in Northeast Harris County, Copperfield area in West Harris County, the Southeast Harris County.

2. Fair Housing Plan and Meetings

Harris County entered into a Regional Collaborative Agreement to develop and submit a Regional Analysis of Impediments (AI) to Fair Housing Choice Plan. As part of the process, an extensive community participation process was created and provided multiple opportunities in various formats for residents and stakeholders to share their experiences and opinions about fair housing choice and access to opportunity in the region, including Harris County. Outreach activities included resident and stakeholder engagement opportunities and were promoted by each of the participating jurisdictions and community partners. The community engagement process designed for the AI focused on creating opportunities to participate in whichever format residents preferred, from a survey, to attending a community event, to open house meetings, or small group focus group meetings.

A fourteen page survey was created, translated in Spanish and Vietnamese and posted to the HCCSD website. It was also posted and promoted on social media sites including Facebook, Pinterest and Twitter, Next Door and in a postage-paid mail format. The survey was sent to over 500 persons representing nonprofit organizations that receive funding or were interested in receiving grant funding from HCCSD early in the process.

Hurricane Harvey questions were incorporated into the survey, allowing HCCSD to gather housing disaster recovery needs, as well. HCCSD staff distributed 1,106 paper surveys and 2,125 flyers at Harris County outreach events which included resource fairs, presentations, conferences, pop-up events, open house meeting's and Expo's. One thousand (1,000) flyers and 350 paper surveys were also distributed to the Municipal Utility Districts (MUDs) and Water Districts to place in residents water bills. Galena Park ISD also assisted and posted the flyer with the survey link to their website.

Approximately, 5,300 residents completed the regional survey and about 2,035 of those residents lived in Harris County, excluding the City of Houston. It was discovered through the results of the survey that the severity of damaged homes sustained from Hurricane Harvey varied by community. About 49 percent of Harris County residents had damage that made their homes unlivable. At the time the survey was conducted from July 2017 to December 2017, only 13 percent of those with damage to their homes had completed repairs, 45 percent had repairs underway, and 36 percent did not know when repairs to their home would begin. Of those who experienced damage to their homes, 58 percent had applied for FEMA assistance at the time of the survey, and 23 percent had applied for SBA assistance. Only 1 in 20 (5 percent) said they would like to apply for help but were not sure if they would qualify, and only 1 percent of respondents were not sure how or where to apply.

Section 2 Housing

The Harris County Disaster Recovery (DR) Service Area contains 750,461 of the county's 1,536,259 occupied housing units (49 percent). Of the service area's occupied housing units, 63.8 percent (478,794) are owner-occupied. The median value of owner-occupied housing units is \$145,600 compared to \$142,700 in the State of Texas. However, a recent Rice University Kinder Institute of Urban Research study places the median value at \$160,000 for the county. Renter-occupied housing represents 36.2 percent of the service area housing units (271,667) with median gross rent of \$937, pre-Harvey (U.S. Census, 2012-2016 ACS).

The median household income is \$55,584, compared to \$54,727 for the State of Texas, and 17.22 percent of residents live in poverty in Harris County. Over 214,000 out of 1,536,259 Harris County households make less than eighty percent of median income and spend more than fifty percent of their total income on housing, creating a severe cost burden to these households. The metropolitan area provides only 18 affordable units for every 100 households that are extremely low-income (below poverty or less than thirty percent of median income).

In a Rice University Kinder Institute of Urban Research report, *Houston and Harris County Housing Conversation*, quality, affordable housing options are highly sought by area residents, as seen in the following report excerpt.

While some population groups – especially non-white residents, low-income households, and immigrants – confront a preponderance of the problem stemming from inadequate housing, the issue extends beyond those groups. Insufficient, unaffordable housing crosses racial and ethnic lines and touches families from many income levels. It is not an urban or suburban issue, but a regional one. Housing is a keystone system, connected to many other elements of an individual's daily life from education to transportation to healthcare.

Before Hurricane Harvey, Harris County and the region were in a severe affordable housing crisis and Harvey has and will continue to compound the crisis felt by many households, especially low-income households. It is estimated that over 150,000 housing units were affected by Hurricane Harvey in the county. Public and private resource will be required to repair existing housing stock and stabilize affected neighborhoods.

Effect of Hurricane Harvey on Housing

In Harris County, 20.9 percent (353,539) of the homes were built between 1970 to 1979. According to a Meyers Research report, less than 3 percent of the houses that flooded after Harvey were built after 2009. After Tropical Storm Allison, homes were under newer drainage and detention

HOUSING STATISTICS IN DISASTER RECOVERY SERVICE AREA

- 787,507 housing units in the Harris County Disaster Recovery (DR) Service Area
- 160,695 Total FEMA Registrants
 - 94,208 Owners
 - 65,922 Renters
- Total FEMA Verified Loss was \$566,569,382
- 71,050 Registrants Received Assistance
- Total Assistance Received was \$416,901,867
- Average Assistance Received was \$5,867.73
- 69.3 percent of FEMA Registrants that received assistance are located in LMI Target Areas
- Housing Unmet Need was \$ 2.35 billion.

regulations. It should be noted that Harris County has a significant number of homes (184,546) in the 100-year floodplain with over twenty-six percent of these homes were affected by Hurricane Harvey. However, the massive destruction of Harvey also affected over 69,000 homes outside the 500-year floodplain (Table 2).

Table 2: Number of Homes by Floodplain in Harris County

	POPULATION*	STRUCTURE COUNT**	HARVEY DAMAGED STRUCTURES***	OF DAMAGED STURCTURES
Inside the 1% (100-year) FEMA floodplain	537,348	184,546	48,939	31.7%
Inside the 0.2% (500-year) FEMA floodplain	544,104	230,838	35,571	23.1%
Outside the 0.2% (500-year) FEMA floodplain	3,010,002	1,203,208	69,670	45.2%
TOTAL	4,091,454	1,618,592	154,180	

Source: *Census 2010, **HCAD 2016, ***HCFCD final estimates as of June 2018

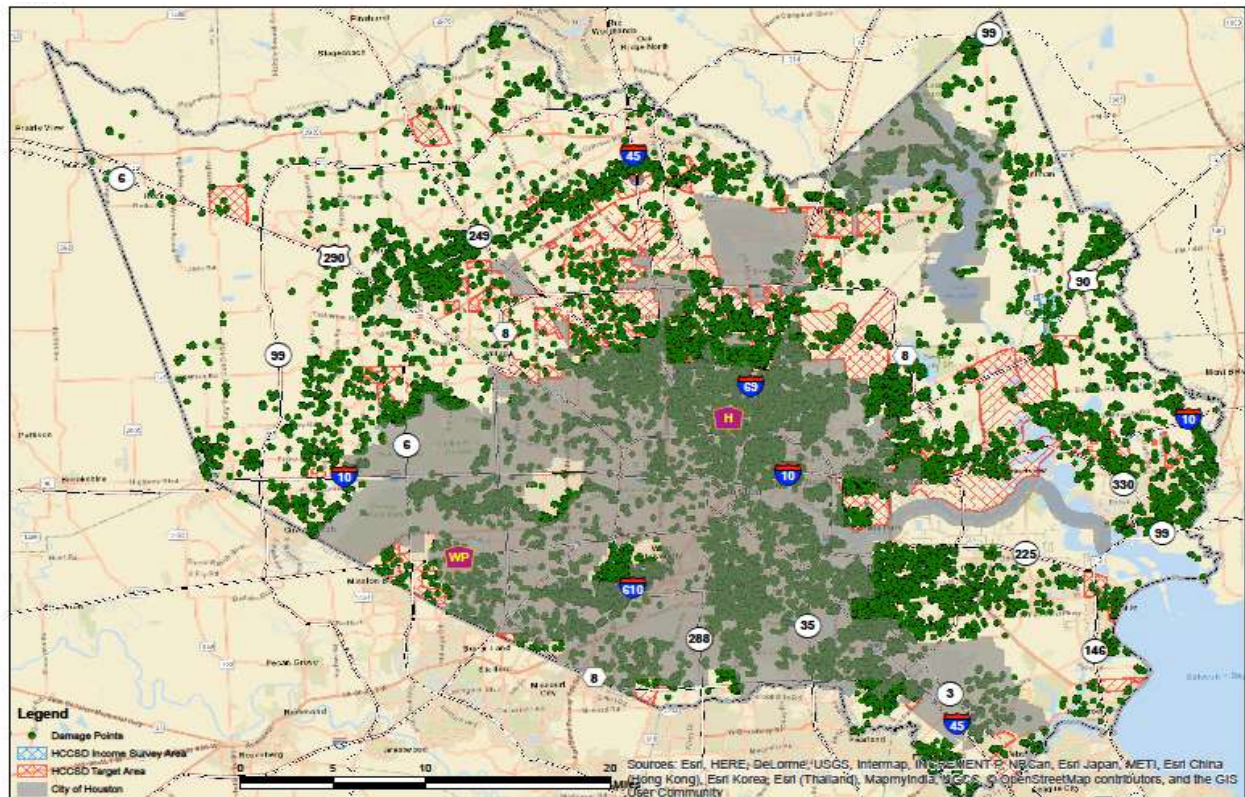
As seen in Table 3, 160,695 registrants in the Harris County DR Service Area applied for FEMA assistance. A total of 71,050 registrants received assistance totaling over \$416 million with an average assistance of \$5,868. There was an unmet need of over \$2.35 billion. Of those total registrants (160,695), 94,208 or 58.63 percent were homeowners that had an FVL of over \$566 million with an average assistance of \$7,909. There was an unmet need of over \$1.7 billion. There were 65,922 or 41.02 percent were renters that had an FVL of over \$49 million with an average assistance of \$2,476. There was an unmet need of over \$628 million.

In the Harris County DR Service Area, there were 112,753 LMI registrants that applied for FEMA assistance. Of that total, 49,228 registrants received assistance totaling over \$240 million with an average assistance of \$4,883. There was an unmet need of over \$1.39 billion. From the total registrants (112,753), 56,973 or 50.53 percent were homeowners that had an FVL of over \$268 million with an average assistance of \$6,956. There was an unmet need of over \$895 million. There were 55,331 or 49.07 percent were renters that had an FVL of over \$39 million with an average assistance of \$2,395. There was an unmet need of over \$500 thousand.

Table 3: FEMA Individual Assistance

	All FEMA Reg	All LMI Reg
Number Registrants reporting damaged	160,695	112,753
FEMA Verified Loss (FVL)	\$566,569,381.64	\$308,563,212.90
Sum of FEMA Assistance	\$416,901,867.43	\$240,393,369.51
Average FEMA Assistance	\$5,867.73	\$4,883.27
Registrants that Received Assistance	71,050	49,228
Unmet Need	\$2,357,612,518	\$1,395,382,607
Number Owners	94,208	56,973
Owners with a FEMA Verified Loss	\$516,957,788.80	\$268,585,806.60
Owners Average FEMA Assistance	\$7,909.77	\$6,956.78
Owners that Received Assistance	44,371	26,874
Owners Unmet Need	\$1,729,324,743	\$895,223,885
Number Renters	65,922	55,331
Renters with a FVL	\$49,558,079.05	\$39,935,825.38
Renters Average FEMA Assistance	\$2,476.35	\$2,395.65
Renters that Received Assistance	26,588	22,273
Renters Unmet Need	\$628,287,775	\$500,158,722

Map 5: FEMA Valid Registrations in Harris County



As displayed in Map 5, in the Harris County Disaster Recovery (DR) Service Area, there were a total of 160,695 valid FEMA registrants. Of that total, 112,753 registrants are low-to-moderate-income (LMI) which is defined as earning less than 80 percent of the Median Family Income (MFI). Of the 160,695 registrants in the DR Service Area, 58.63 percent were owners and 50.53 percent were LMI owners.

Residents reported between 6-49+ inches of flood waters in their homes and were greatly impacted by Hurricane Harvey. According to FEMA, there are four categories, or “damage levels” of flooding that residents suffered:

- Severe/Destroyed (48 or more inches): Homes are a total loss or repair is not feasible.
- Major (19-48 inches): Homes categorized as having major damage, such as structural damage, and required extensive repairs.
- Minor (7-18 inches): Minor damage that does not affect the structural integrity of the residence.
- Affected (0-6 inches): Minimal damage to the exterior and residents can remain in the home.

Out of the 94,208 owner registrants in the DR Service Area, 13,885 or 14.74 percent of the housing units had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 6,915 or 7.34 percent had Minor damage levels (with up to a foot and a half of water). In the Harris County DR Service Area, there are 25,132 LMI registrants and of that amount, 2,754 or 11 percent had damage levels from Major to Severe/Destroyed and 2,267 or 9 percent had Minor damage levels (Table 4).

Table 4: All FEMA Valid Registrants by Level of Damage in the DR and LMI Target Areas

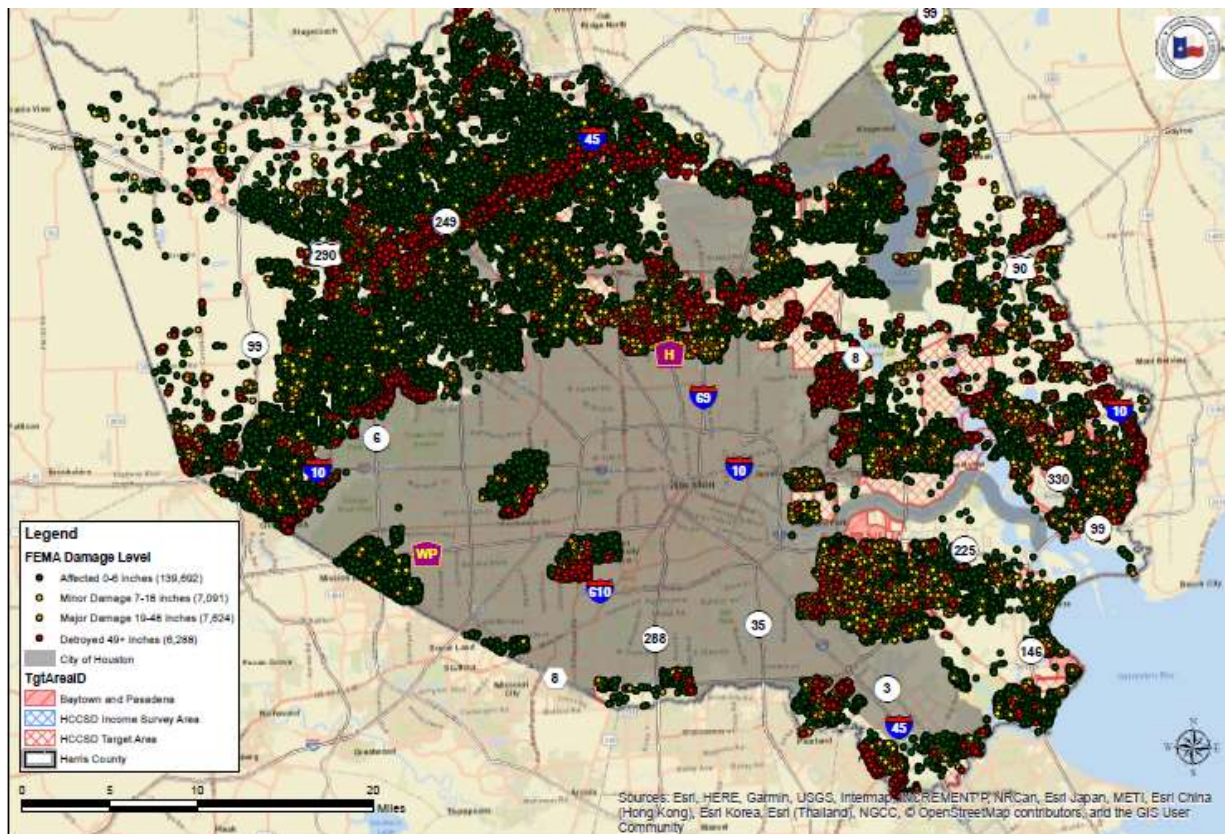
Damage Level	Number of Registrants in Harris County DR Service Area	%	Number of Owners DR Service Area	%	Number of LMI Owners	%
Affected	139,692	86.93%	73,408	77.92%	20,111	80.02%
Minor	7,091	4.41%	6,915	7.34%	2,267	9.02%
Major	7,624	4.74%	7,604	8.07%	1,776	7.07%
Severely/Destroyed	6,288	3.91%	6,281	6.67%	978	3.89%
Total	160,695	100.00%	94,208	100.00%	25,132	100.00%

FEMA estimated that for most registrants with Major and Severe/Destroyed damaged housing repair costs averaged between \$72,000 and \$100,000. These homeowners, especially LMI households will need additional resources to repair the damage, as FEMA is limited to just over \$33,000 for all forms of assistance per registrant.

As seen in Map 6, the areas with the highest damage levels (Major and Severe/Destroyed and up to) can be seen along Cypress and Spring Creeks and the neighborhoods of Riverwood, Blue Bell,

Roseberry, Allen Field, and Sequoia Estates. Cities also deeply impacted were Pasadena, Friendswood, Bellaire, Baytown, La Porte, Deer Park, Katy, Jacinto City, Galena Park and South Houston. In the (LMI) neighborhoods with the highest damage levels (Major to Severe/Destroyed with up to four feet of floodwater in their homes) can be seen along Airline, Aldine, Barrett Station, Parkway, Greensbrook Verde First, Sheldon, and Highlands.

Map 6: Level of Damage for All FEMA Valid Applicants in the Harris County DR Service Area



As seen in Table 5, the top 11 cities that reported FEMA damage levels of flooding in the Harris County DR Service Area are ranked according to FEMA Verified Loss (FVL). Based on FVL, the top 5 cities with the greatest damaged units included Pasadena (6,356), Friendswood (1,217), Bellaire (1,670), Baytown (3,585) and South Houston (1,738). This is compared to unincorporated Harris County with 65,480 damaged units and a FVL of \$167,243,263.12

Table 5: Top 11 Cities ranked by FEMA Verified Loss and Damaged Units

Jurisdiction	Units Damaged	FEMA Verified Loss	Unmet Need
Unincorporated	65,480	488,853,463.34	\$167,243,263.12
Pasadena	6,356	\$32,257,990.14	\$6,982,920.96
Friendswood	1,217	\$24,292,147.71	\$9,006,500.64
Bellaire	1,670	\$21,016,582.60	\$13,429,383.59
Baytown	3,585	\$18,619,782.06	\$5,913,891.49
South Houston	1,738	\$12,112,968.02	\$2,751,178.07
Humble	799	\$9,733,781.56	\$3,448,011.25
La Porte	1,213	\$5,284,591.35	\$1,726,018.29
Katy	423	\$4,155,600.56	\$1,763,912.24
Deer Park	791	\$3,296,325.37	\$936,959.97
Jacinto City	562	\$1,981,620.57	\$318,826.21
Galena Park	512	\$1,534,039.06	\$373,779.94

With multiple flooding events in the last several years, measures to prevent repeated flooding of single-family housing in Harris County are needed. The two options are available to homeowners to prevent these impacts in the future: 1) elevation of existing homes well above the floodplain at their current location, or 2) buyout and demolition of homes with voluntary relocations to safer places. Both of these options can improve flood risk to homeowners.

Owner Occupied Housing

A. Market for Owner-Occupied Housing

The U.S. Department of Housing and Urban Department (HUD) produced a Comprehensive Housing Market Analysis (CHAM) for the Houston-Woodland-Sugarland, TX Metropolitan Statistical Area (MSA) on August 1, 2017. Findings in this report found that the MSA's economy, which includes Harris County, showed a slight slowdown due to a narrowing in the goods producing sectors and weakness among energy-related industries. This had a minor and expected short-term effect on job growth. However, the MSA did grow by 0.8 percent during the 12 months ending July 2017, before Hurricane Harvey.

The housing market in Harris County is currently balanced with an estimated 1.4 percent vacancy rate. During the 12 months before Hurricane Harvey, a 3.5 months inventory of unsold homes was on the market². The market was showing a strong recovery from the 2010 housing market downturn. With the stronger economy, seriously delinquent loans and real estate owned (REO) properties were reduced. Building activity, however, had not returned to post-housing bubble collapse. Single-family homes permitted in the county have also seen a seven year low, a 9 percent decline in home starts since 2010. Of those homes being permitted, the majority are in master-planned communities, like Bridgeland Homes in northwest Harris County, where housing prices are \$230,000 to \$1 million not an affordable product. The CHAM report estimated that before Hurricane Harvey, the demand for new housing sales in the \$100,000 to \$199,000 affordable price range would represent 25 percent of the total market needed in the county.

Harris County was already in an affordable housing crisis. According to the Rice University Kinder Institute of Urban Research report, there is definitely a need for affordable housing in Harris County. More than 435,000 households make less than 80 percent of the median income less than \$55,440 in the Harris County region and spend more than 30 percent of their income on housing. They also live in substandard conditions, which means they live in homes lacking a kitchen or bathroom or both, and about 90,000 of those housing units are supported by public subsidies rent vouchers, low-income housing tax credits, or other means. A need for affordable housing existed in Harris County well before Hurricane Harvey and proves even more urgent now. Though the public and private sectors have collaborated to address these issues, quality affordable housing in the Harris County region is still in low supply.

² U.S. HUD Comprehensive Housing Market Analysis, August 2017.
<https://www.huduser.gov/portal/publications/pdf/HoustonTX-comp-17.pdf> accessed 9/25/2018

Post-Hurricane Harvey Housing Market

The owner-occupied housing market in the Harris County region came to a standstill after Hurricane Harvey, as homeowners had to procure temporary accommodations while they began the recovery and home rebuilding process. Many residents of single-family homes that flooded repeatedly since 2015 decided to sell their properties to avoid rebuilding or further flooding, leaving them also in need of affordable housing. Selling their properties also opened the door for investors to turn them into rental units or perform a quick repair and flip of flooded homes. Residential buyouts in low-to-moderate-income (LMI) areas are particularly needed to assist homeowners in repetitively high flood prone areas by relocating to areas that have a reduced flood risk without additional financial burden.



Home in the Aldine Community Post-Hurricane Harvey
(September 2017)

Prior to Hurricane Harvey, the county had reduced its level of seriously delinquent loans and real estate owned (REO) properties. With Harvey, county residents have the added housing burdens of repairing their homes, find and maintain temporary housing with possible rental fees and pay their mortgage as well as replacing personal property, such as furniture and vehicles. This is combined with the loss of wages or jobs during the days and weeks of Hurricane Harvey, as businesses and schools were closed and left many households in financial straits. In addition, rising mortgage rates, potential foreclosures for homeowners without enough resources to repair, lack of flood insurance, and construction labor shortages have further exacerbated the recovery of the owner-occupied housing market.

Since Hurricane Harvey, it stands to reason that prices have fallen in neighborhoods that flooded. Many neighborhoods experienced significant flooding, and houses that once were owner-occupied have become rentals. Other residents have remediated the water damage and sold their homes for a fraction of what they were worth before the storm. Inventory, while still tight, reached a 3.4-months supply in March 2018, its highest level so far this year (2018). Lower-priced homes remain in high demand. The hot part of the housing market is the very bottom,” said Gilmer, director of the Institute for Regional Forecasting at the University of Houston. “If you could get a house on the ground for under \$200,000, you can sell them all day long.”

With the heavy flooding and damage these homes sustained, affected populations faced an even greater need for affordable housing than before. In the Harris County DR Service Area, 21.4 percent



Housing damage and debris in the City of South Houston after Hurricane Harvey (September 2017)

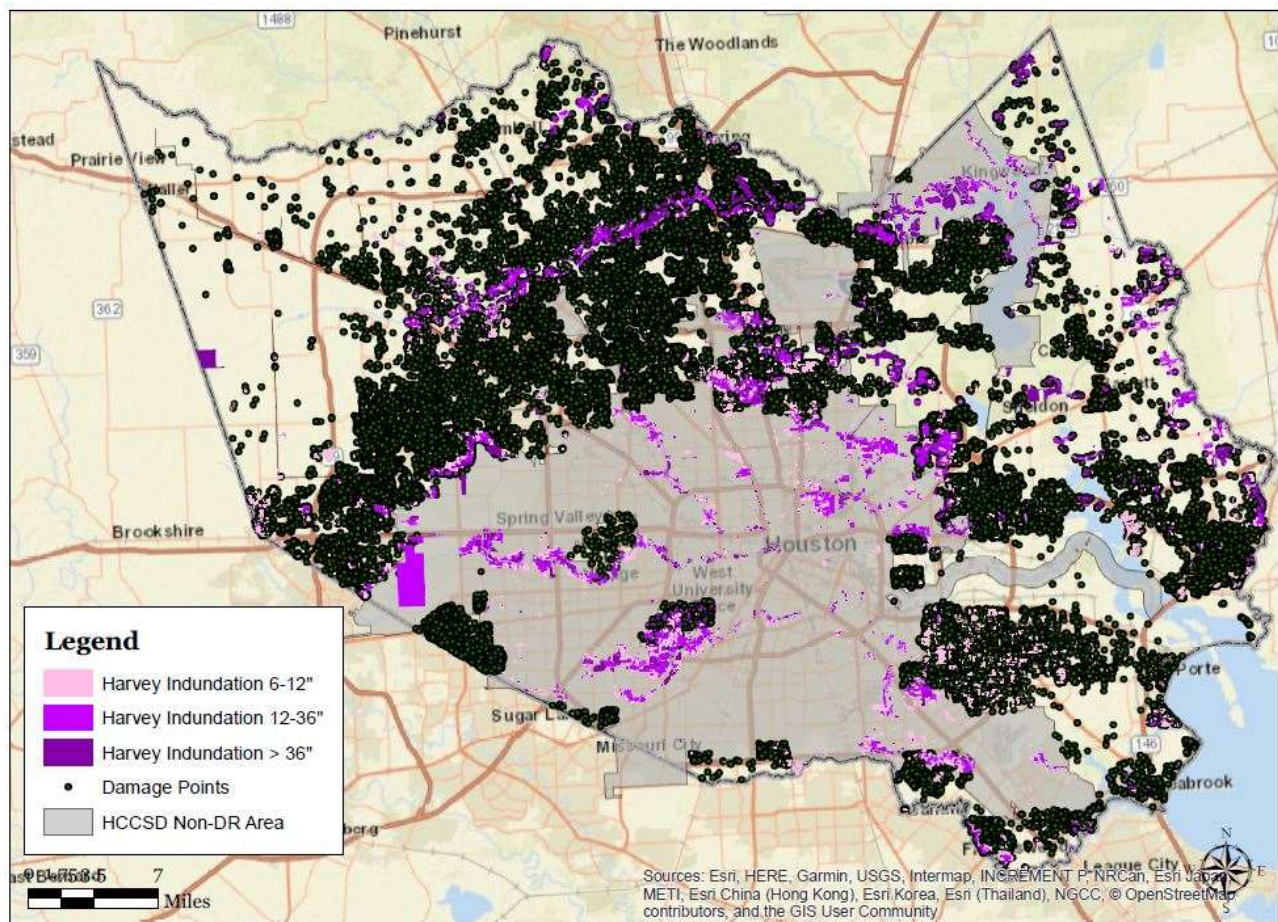
of housing units reported some type of damage to their dwelling unit to FEMA. Homeowners reported between 6-36+ inches of flood water in their homes. With so many existing owner-occupied housing affected by Hurricane Harvey and in need of quality home repair, a construction labor shortage, as well as fraudulent home repair companies preying on flood victims have stressed the system. Repair costs are still rising one year after the storm.

Hurricane Harvey produced the most devastating house flooding ever recorded in Harris County. As seen in Map 7, flood inundation levels at 3 feet or more included areas of Harris County's Low-to-Moderate-Income (LMI) Areas in Bear Creek, Addicks,

Sheldon, Cypress, Airline, Aldine, South Houston, Pasadena and Copperfield. These older, more densely populated neighborhoods comprising generally smaller, less expensive homes in the Harris County region experienced the worst of Hurricane Harvey's impact, compared to those in newer suburban developments. Ditches in these older neighborhoods ended up overflowing due to 4 days of rainfall ranging from 26 to 47 inches, leading to the accumulation of water in these older homes.

One year after Hurricane Harvey, many residents throughout Harris County remain essentially homeless in their own homes. Many are still living in moldy, rotted, dusty, and unsafe homes unfit for human habitation. Residents report they can afford only a fraction of the repairs necessary to make their homes livable. Over 140 families one year after the storm are still living in FEMA assisted temporary housing in Harris County with an assistance end date of February 28, 2019. Expenses such as for drywall, bathroom and kitchen replacement, electricity, and plumbing, can run tens of thousands of dollars. New regulations for new single-family home construction may further exacerbate the affordable housing crisis in Harris County. These new regulations require the elevation of new homes located outside the floodplain to one foot above the floodplain and those located inside the floodplain to two feet above the floodplain. This will prove costly, as the addition of elevated concrete slabs to these homes can total up to an additional \$50,000, ultimately decreasing affordability in Harris County.

Map 7: FEMA Valid Registration in Harris County by Flood Inundation



The reality of Harvey recovery has been monumentally slow due to nearly 80 percent of households affected by Harvey did not receive enough, or in some cases no assistance at all. Many residents lack the funds for repairs or did not have flood insurance, according to FEMA IA data. As a result, many are living in partially repaired homes, or are still displaced and living in temporary housing, or on a friend or relative's sofa, and some are now homeless. Affordable-housing advocates call Harvey one of the largest housing disasters in American history, next to only Hurricane Katrina, which overwhelmed New Orleans in 2005.

B. FEMA

To assess overall impacts to the community, FEMA Individual Assistance (IA) data was obtained throughout Harris County. The FEMA IA program provides financial assistance to individuals and households affected as a direct result of a Presidentially declared major disaster or emergency. Assistance is available for those who are uninsured or underinsured, have necessary expenses and serious needs, and are unable to meet those expenses or needs through other means. Up to \$33,000 is available in financial help, adjusted annually (some forms of IA assistance have other limits). This program supports the beginning of recovery efforts by providing the financial means for disaster survivors to secure adequate interim and long-term housing, in addition to funding other necessary expenses and serious needs.

Residents that can participate in the IA Program must meet the following criteria:

- Whose primary residence has been damaged or destroyed by the disaster.
- Whose disaster losses are not covered by insurance or residents who are under-insured.
- Who are citizens of the United States, a non-citizen national or a qualified alien, or is in a household where a member of the household is a citizen of the United States, a non-citizen national or a qualified alien.
- Who are located in a Special Flood Hazard Areas (SFHA) and the homeowner complies with flood insurance purchase requirements and local flood codes and requirements.

For many homeowners, FEMA Verified Loss (FVL) can under-represent actual losses due to Harvey. Reasons may include: 1) Disagreements with FEMA inspectors over real property damage caused by deferred homeowner maintenance rather than the disaster, 2) Disaster debris that had been picked up and disposed of by local authorities prior to FEMA inspection, 3) Requirement to complete the SBA loan process regardless whether a loan is ultimately originated or accessed, and 4) Cost overruns due to competition for material goods or labor, or mistakes in work performed or delays in performance until workers or resources become available.

The FEMA IA data used are aggregated and primarily composed of data from the Housing Assistance Program reporting authority from FEMA registration renters and owners within the state, county, and zip code where the registration is valid. The data is divided into data for renters and data for property owners. Additional core data elements include: number of applicants, county, zip code, severity of damage, owner or renter. Data is self-reported and as such is subject to human error.

In addition, the FEMA IA program provides disaster assistance in the form of financial assistance, direct assistance and disaster loans. Disaster assistance may be provided as financial or direct assistance to individuals and families whose property has been damaged or destroyed as a result of a federally-declared disaster, and whose losses are not covered by insurance. FEMA assistance is meant to help with critical expenses that cannot be covered in other ways and is not intended to restore damaged property to its condition before the disaster.

Table 6: FEMA IA for Owner-Occupied Housing in DR Service Area

	All FEMA Registrants	LMI Registrants
Number Registrants reporting damaged	160,695	112,753
FEMA Verified Loss (FVL)	\$566,569,381.64	\$308,563,212.90
Average FEMA Assistance	\$5,867.73	\$4,883.27
Number of Owner Registrants	94,208	56,973
Owners that Received Assistance	44,371	26,874
Owners with a FEMA Verified Loss	\$516,957,788.80	\$268,585,806.60
Owners Sum of Assistance	\$350,964,507	\$186,956,505.69
Owners Average FEMA Assistance	\$7,909.77	\$6,956.78
Owners Unmet Need	\$1,729,324,743	\$895,223,885

As seen in Table 6, homeowners make up 58.6 percent of FEMA registrants with over 91 percent of the total FEMA Verified Loss in the Harris County DR Service Area. Owners received 84.2 percent of FEMA assistance awarded in the service area. This awarded assistance did not meet the entire

need for county owners to recovery from Hurricane Harvey, leaving an unmet need of over \$1.7 billion (as discussed in the Unmet Needs Section of this document).

FEMA assistance is not the same as insurance. It only provides the basic needs for a home to be habitable, including toilets, a roof, critical utilities and doors. For the home to be considered safe, sanitary and secure, homes meet the following conditions:

- The exterior is structurally sound, including the doors, roof and windows.
- The interior's habitable areas are structurally sound, including the ceiling and floors.
- The electricity, gas, heat, plumbing, and sewer and septic systems function properly.
- The home is capable of operating for its intended purpose.

While some housing assistance funds are available through FEMA Individuals and Households Program, most disaster assistance from the Federal government is provided in the form of loans administered by the Small Business Administration. Businesses that apply to FEMA are immediately referred to the Small Business Administration for disaster assistance.

C. Small Business Administration (SBA)

Another resource for homeowners that sustained damage from Hurricane Harvey is the Small Business Administration's (SBA) disaster loans. These loans are the basic form of federal disaster assistance for homeowners and renters whose real and/or personal property sustained damage that was not fully covered by insurance. Homeowners and renters whose property was damaged by a declared disaster must apply for a SBA low-interest loan prior to FEMA consideration for Individual Assistance (IA). Interest rates on these loans are determined by law and are assigned on a case by case basis.

Specific to Hurricane Harvey, SBA loan interest rates are 1.75 percent if the applicant does not have credit or cannot get a loan from other means such as a private lender, and 3.5 percent if credit is available elsewhere. The home loans are limited to \$200,000 for the repair or replacement of real estate and \$40,000 maximum to repair or replace personal property.³

Table 7: FEMA Registrants that Received SBA Loans

	Number of SBA Registrants	SBA Loan Amount	Number of SBA Owner Registrants	SBA Loan Amount to Owners
Harris County	5,262	\$114,337,712.21	4,248	\$99,531,683.54
Harris County DR Service Area	3,060	\$67,065,960.36	2,588	\$60,151,868.97
LMI Registrants in DR Service Area	924	\$18,548,528.83	664	\$15,365,299.00
LMI Target Areas in DR Service Area	601	\$12,531,970.98	474	\$10,724,199.72

³ U.S. Small Business Administration Fact Sheet. November 7, 2017. "Disaster Loans, Texas Declaration #15274 and #15275."

As seen in Table 7, there were 5,262 registrants in Harris County that received SBA loans amounting to over \$114 million. In the Harris County DR Service Area, 3,060 registrants received SBA loans totaling over \$67 million. Although LMI owners in the Harris County DR Service Area make up approximately 60 percent of the FEMA registrations, only 30 percent or 924 LMI registrants received SBA assistance totaling over \$18 million.

D. Insurance

The Texas Department of Insurance (TDI) data request required companies to report the following:

- Number of reported claims, paid claims, claims closed without payment, reopened claims, and claims with total losses
- Total amount of paid losses
- Total amount of claim reserves

The data request required companies to report this data separately for homeowners, residential dwellings, mobile homes, farms, business owners, the business interruption portion of commercial property, all other commercial property, personal automobile, commercial automobile, Federal Flood – Write Your Own (does not include policies written directly by the NFIP), private flood, and all other lines of insurance.

Table 8: Hurricane Harvey Insurance Claims for all of Harris County, as reported August 30, 2018

	Number of Claims	Total Amount of Losses Paid	Total Amount of Losses Incurred
Personal Line of Insurance	251,757	\$1,411,214,085	\$1,644,387,050
Other Line of Insurance	59,646	\$2,220,459,246	\$5,122,382,647

TDI issued a report on Hurricane Harvey-related claims to all insurance companies – the Texas Windstorm Insurance Association (TWIA) and the Texas Fair Access to Insurance Requirement Plan (FAIR Plan). As of August 30, 2018, 251,757 claims were reported in Harris County, including all cities within the county and amounted to over \$1.4 billion of losses paid as seen in Table 8. Harris County had 629 claims from Texas Windstorm Insurance Association (TWIA), 12,480 claims from the Texas Fair Plan Association (TFPA), and 21,800 claims from the National Flood Insurance Program (NFIP). Harris County is an active participant in NFIP, whose purpose is to reduce the impacts of flooding by providing affordable insurance to property owners, renters and businesses.

Texas Windstorm Insurance Association (TWIA)

TWIA was established by the Texas Legislature in 1971 in response to regional market conditions following Hurricane Celia in August 1970. TWIA's purpose is to provide windstorm and hail insurance for the Texas seacoast. Although in Harris County, damage comprised mostly a flooding event, some wind damage was reported along the coastline. As seen in Table 9, in Harris County, there were 629 new claims, of which 615 (98 percent) were paid, 14 remained open with a total indemnity paid over \$3 million and an average indemnity paid of \$10,050.

Table 9: Windstorm Insurance within the TWIA Coverage Area (as of 8/30/18)

TWIA Harvey Claims	Harris County
New Claims	629
Closed Claims	615
Open Inventory	14
% Closed	98%
Paid Indemnity	\$3,537,720
Average Paid*	\$10,050

**Average paid = average indemnity paid, per paid claim*

Texas FAIR Plan Association (TFPA)

The Texas FAIR Plan Association (TFPA) provides coverage to residential properties denied by other insurance carriers. According to Table 10, there were 12,504 new claims made in Harris County (outside the City of Houston), 12,251 closed claims with a paid indemnity of over \$26 million and an average indemnity paid amount of \$6,677.

In the Harris County DR Service Area, there were 4,208 new claims made and 4,113 closed claims with a paid indemnity of over \$9 million and average paid amount of \$2,412.

Table 10: Mold Insurance and Wind/Hail Coverage outside TWIA Coverage Area (as of 8/30/18)

TFPA Harvey Claims	Harris County	Harris County DR Service Area
New Claims	12,504	4,208
Closed Claims	12,251	4,113
Open Inventory	253	43
% Closed	98%	98%
Paid Indemnity	\$26,540,312	\$ 9,923,578
Average Paid*	\$ 6,677	\$ 2,412

**Average paid = average indemnity paid, per paid claim*

National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is a FEMA program that works to provide affordable insurance to property owners in participating communities and encourage communities to adopt and enforce floodplain management regulations. In areas at high risk of flooding, Congress has mandated that federally regulated or insured lenders require flood insurance on mortgaged properties. The NFIP offers two types of flood insurance coverage for homeowners: building property coverage up to \$250,000 and personal property coverage (contents) up to \$100,000.

In Harris County, excluding the City of Houston, there were 47,035 NFIP claims made and \$2.9 billion were paid to Harris County residents. Residents with flood insurance whose homes flooded during Harvey received, on average more than \$100,000 more to rebuild, than neighborhoods who solely relied on just FEMA benefits. The average flood insurance payout to homeowners who flooded was \$120,000, however, homeowners who lacked flood insurance and applied for assistance through FEMA received \$4,000 to \$7,000 on average of assistance.

Figure 7: NFIP Claims in Harris County (outside City of Houston)

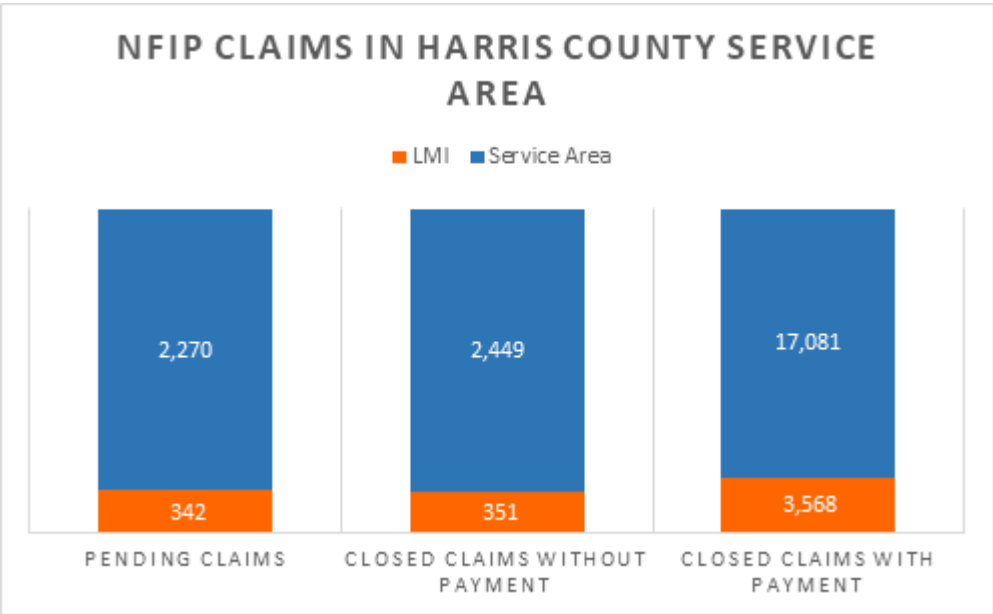
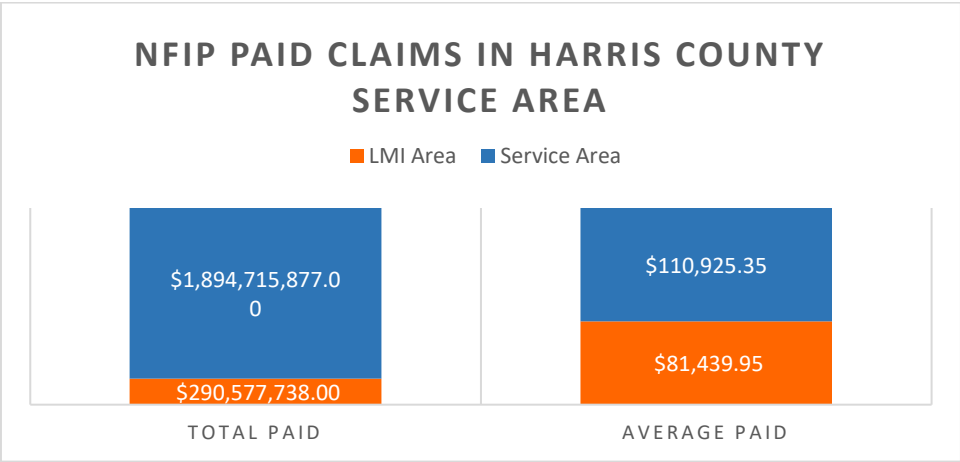


Figure 8: NFIP Paid Claims in Harris County (outside City of Houston)



While 21 percent of Harris County DR Service Area’s homeowners had active flood insurance at the time they were damaged by Hurricane Harvey, 79 percent had not purchased flood insurance because they felt it was too expensive, or could not afford the monthly premiums, and some did not think they needed it because they did not reside in a 100-year floodplain. According to Bob Hunter, with the National Flood Insurance Program, outdated floodplain maps across Harris County have deceived homeowners into believing they did not need flood insurance.

Based on a house flooding assessment report by the Harris County Flood Control District (HCFCD), of the 154,170 homes that flooded in Harris County, 55,570 (36 percent) had flood insurance policies in effect, and 64 percent did not. About 11 percent of the entire housing stock - 105,000 or

68 percent were outside the floodplain and just 36 percent of the homeowners who flooded had flood insurance.

As seen in Figures 7 and 8, flood insurance claims were paid to 17,081 homeowners with an average payment of \$110,925. In the LMI Target Areas only, 3,568 homeowners (21 percent) received payments to replace damaged personal property, repair homes, or pay for short-term rental housing. Of that total, 2,449 filed claims but were denied payment, and 2,270 have claims still pending. Claims paid in the LMI Target Areas included 3,568 residents with an average payment of \$81,439, 351 filed claims but were denied payment, and 342 have claims still pending.

As seen in Table 11, the top 5 LMI Target Areas that had claims either still active/open or pending payments include Pasadena, Aldine, Airline, Granada and Greenbranch-Gatewood and among the cities included Bellaire, Pasadena, Friendswood, La Porte and Deer Park.

Table 11: Top 5 LMI Target Areas and Cities with NFIP paid claims

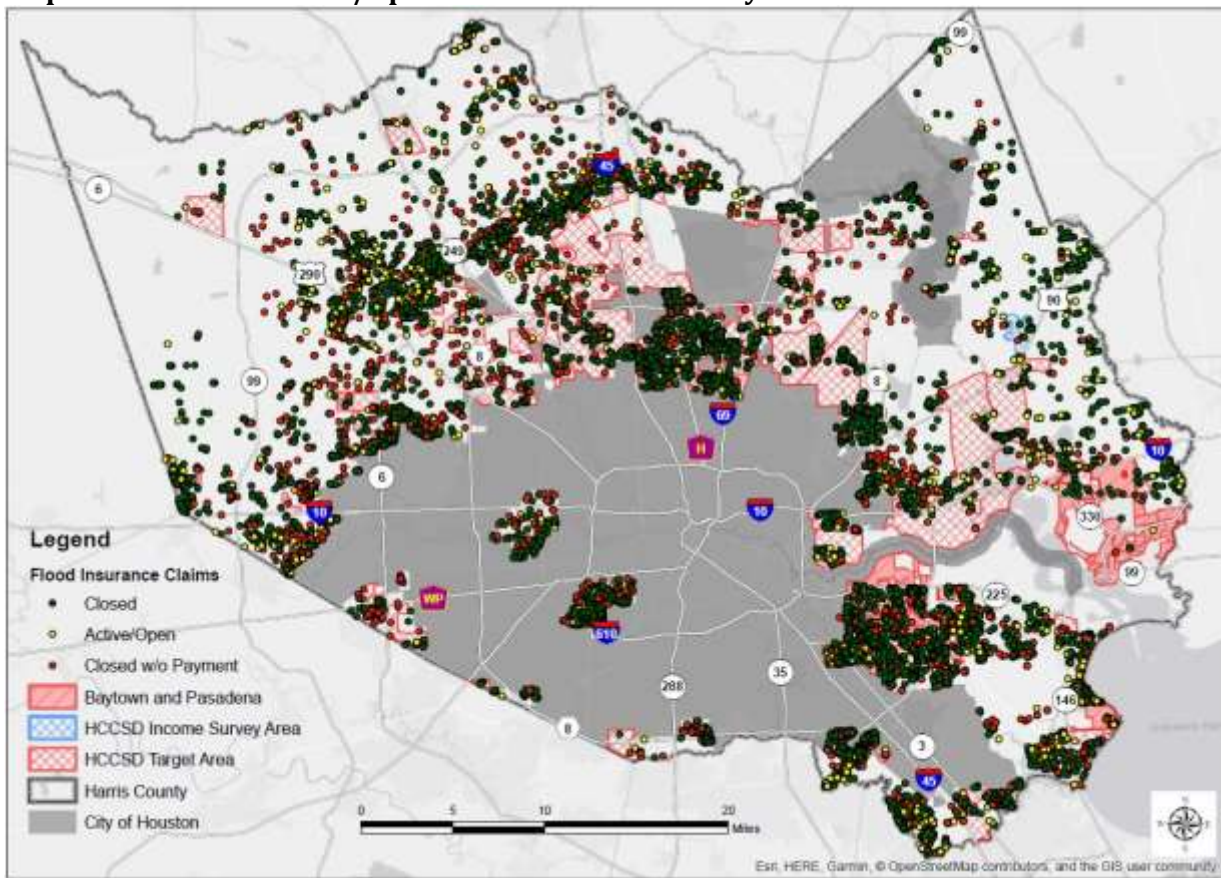
LMI Target Areas	Number of Claims	Total Paid	Average Paid
Aldine	835	\$57,585,534.00	\$68,964.71
Pasadena T. A.	507	\$32,654,507.00	\$64,407.31
Airline	440	\$28,709,179.00	\$65,248.13
Greenbranch-Gatewood	191	\$12,174,021.00	\$63,738.33
Bammel	163	\$36,808,850.00	\$225,821.17
Cities	Number of Claims	Total Paid	Average Paid
Bellaire	1690	\$185,900,085.00	\$110,000.05
Pasadena	1161	\$78,508,557.00	\$67,621.50
Friendswood	550	\$90,084,534.00	\$163,790.06
South Houston	356	\$23,662,542.00	\$66,467.81
Deer Park	331	\$16,184,034.00	\$48,894.36

As seen in Table 12, the top 5 LMI areas that have claims either still active/open or pending payments include Pasadena, Aldine, Airline, Granada and Greenbranch-Gatewood and among the cities includes Bellaire, Pasadena, Friendswood, La Porte and Deer Park as seen in Map 8.

Table 12: Top 5 LMI Target Areas and Cities with active/open or pending NFIP claims

LMI Target Areas	Number of Claims	Cities	Number of Claims
Pasadena T. A.	108	Bellaire	392
Aldine	90	Pasadena	257
Airline	75	Friendswood	129
Granada	36	La Porte	119
Greenbranch- Gatewood	33	Deer Park	79

Map 8: NFIP Claims Active/Open and Closed without Payment

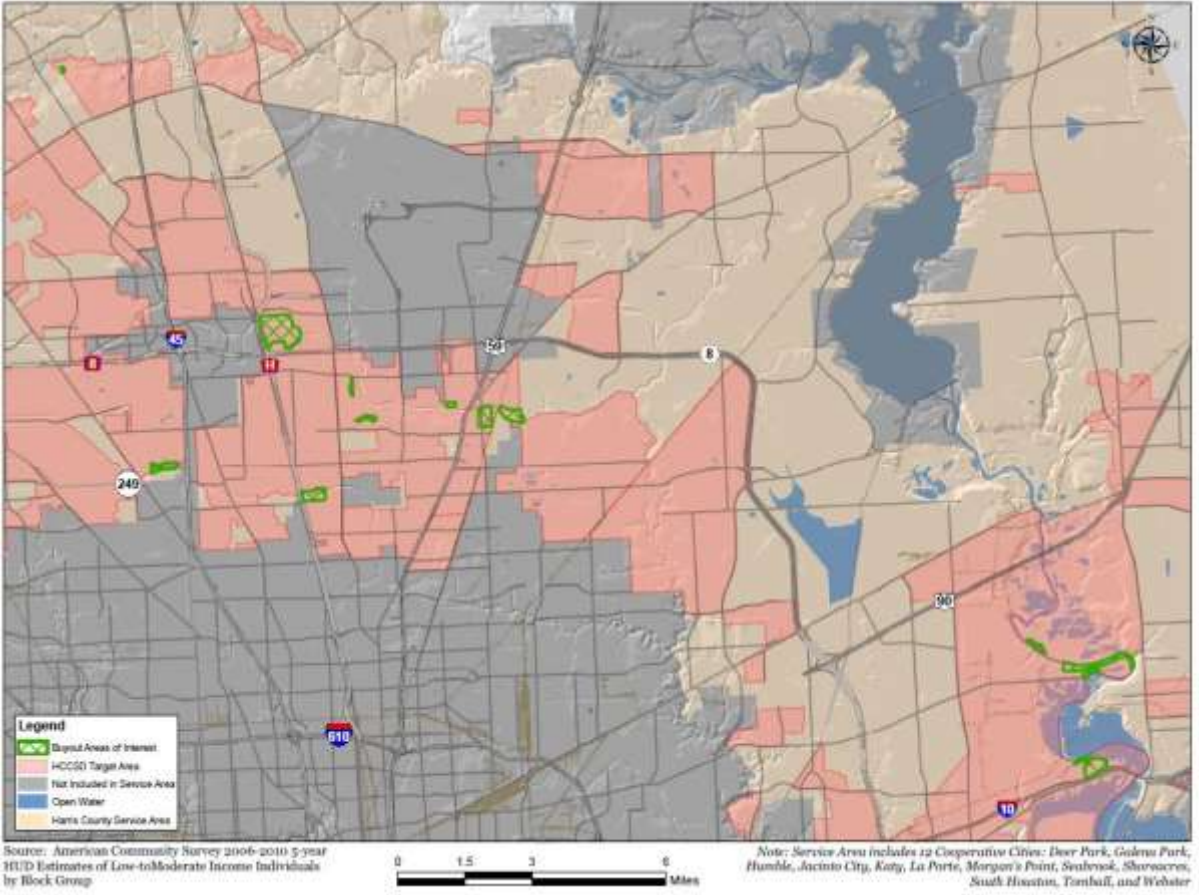


E. Residential Buyout

The Harris County Flood Control District (HCFCD) has operated the Harris County Residential Buyout Program since 1985 and acquired and removed approximately 3,000 houses located hopelessly deep in the floodplain where flood damage reduction projects, like channel improvements or storm water detention basins, are not cost-effective and/or beneficial. Once bought out, these parcels are returned to their beneficial function, aiding in the storage of floodwaters. Those homeowners who are bought out receive assistance to move to an area with reduced flood risk.

HCFCD has identified 43 areas in unincorporated Harris County or in one of the Harris County's small cities that meets this criteria. These areas contain approximately 3,300 parcels to acquire. Of the 43 buyout interest areas, Harris County has identified 13 areas located in low- to moderate-income areas and/or Socially Vulnerable areas, as shown in Map 9. Seven of the 13 areas have an average home market value of under \$85,000 with the lowest average home market value at \$27,105 in the community of Allen Field.

Map 9: Harris County Buyout Areas in Harris County Low- to Moderate-Income Areas



Renter-Occupied Housing

According to the U.S. Census Bureau, there were 1,536,259 occupied housing units in Harris County. Of which, 698,347 or 45 percent are renter-occupied housing units that are made up of apartments, condos or townhomes. In addition, there are 15,776 mobile homes and 519 units that are either boats, RVs, vans, etc. in Harris County. In the Harris County DR Service Area, there are 271,667 or 36 percent renter-occupied housing units.



Apartment flooding in Harris County during Hurricane Harvey

The median gross rent is \$937 in Harris County⁴ however, 22 percent of renters have an average income less than \$20,000 and are thus severely housing cost-burdened. These cost-burdened households usually comprise low-income populations, minorities, seniors, or persons with disabilities.

A. Rental Market

Rental Housing Market Before Hurricane Harvey

In the twelve months leading up to Hurricane Harvey, the Harris County rental housing market was soft with an estimated 10.9 percent vacancy rate⁵. Due to a strengthening economy, rents increased by one percent to \$1,028 and effective rents, which included concessions, declined less than one percent to \$997. Due to the softening market, multi-family building activity declined significantly (51 percent) the year before Hurricane Harvey. The estimated three-year demand before Hurricane Harvey was for 18,450 additional rental units in Harris County, with a high demand for affordable rental units at 26.5 percent of demand.

Nationally, the Harris County area holds a reputation as a metropolitan area with affordable housing. However, as the Rice University Kinder Institute of Urban Research reports in its assessment *Growing but Unequal: Mapping High Opportunity Areas and Implications for Affordable Housing*⁶, 30 percent of Harris County's households actually spend more than 30 percent of their annual income on housing costs. This level of spending classifies these households – especially those of low-income renters – as “housing cost-burdened” and works as an obstacle to these households paying for other non-housing-related expenses (e.g., food, clothing, transportation, and education) and adapting to financial shifts that may occur due to unexpected costs, such as from natural disasters. Despite joint efforts with public and private housing sectors to meet the demand for affordable housing in the region, an undersupply of affordable housing units still exists.

⁴ U.S. Census, American Community Survey 2012-2016

⁵ U.S. HUD Comprehensive Housing Market Analysis, August 2017.

<https://www.huduser.gov/portal/publications/pdf/HoustonTX-comp-17.pdf> accessed 9/25/2018.

⁶ Kinder Institute, *Growing but Unequal: Mapping High Opportunity Areas and Implications for Affordable Housing*

Post-Hurricane Harvey Rental Market

Hurricane Harvey poses unique housing challenges because it affected a much larger swath of the population than had been impacted by previous storms. In Harris County, neighborhoods flooded that had never before flooded. Several months following Hurricane Harvey, the multifamily rental market in Harris County was experiencing positive absorption, with tenants desperately searching for housing and homeowners looking to sign short-term leases while their homes underwent repair and they awaited funding for permanent relocation. As a result, lower-income renters were competing for vacant units and in most cases paying higher rents than they would have before the disaster. Renters seemed to have greater challenges to recovery, as FEMA/SBA resources were limited or non-existing, fair housing issues arose with discrimination by landlords against minority and Limited English Proficient populations regarding rental unit repair, and eviction notices to renters post-Hurricane Harvey as properties forced out tenants.

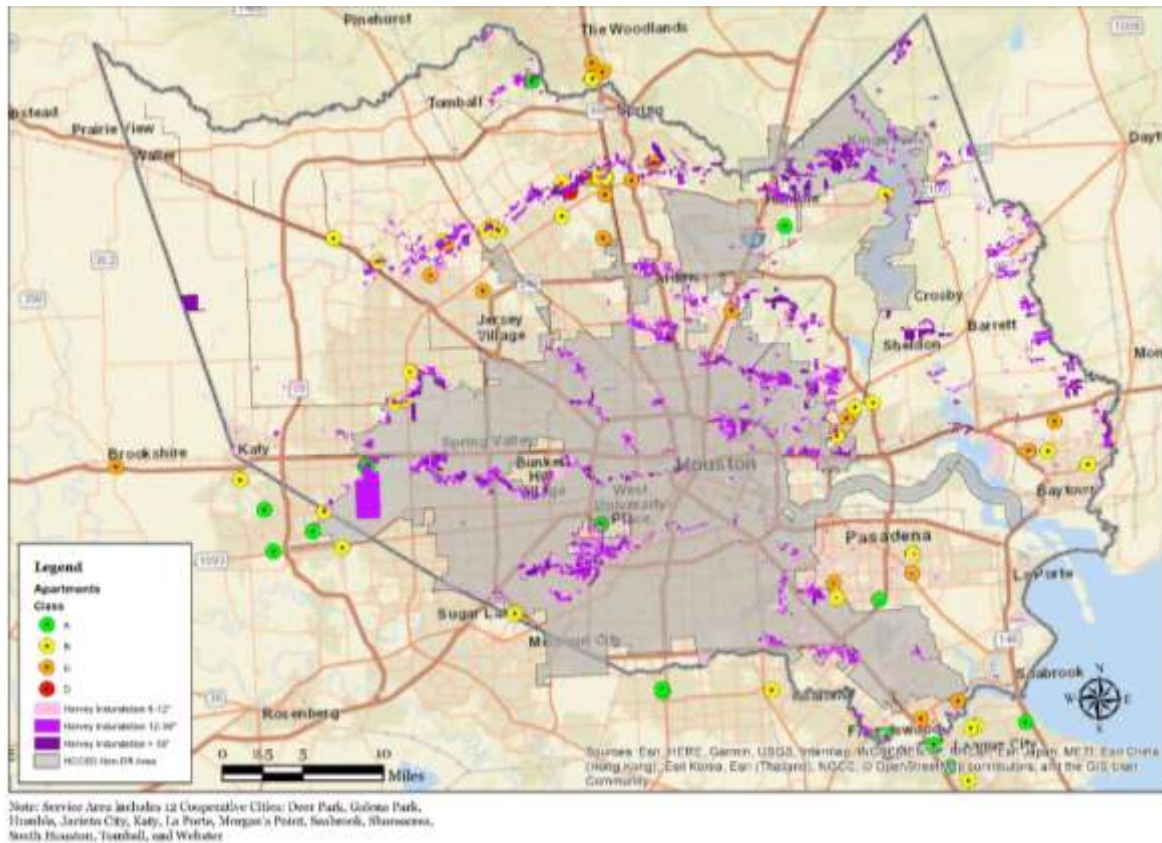
For all those in search of housing in Harris County - especially lower-income residents, persons with disabilities, and seniors - finding housing has posed a major challenge. As stated before, Harris County has a shortage of affordable housing. Many units that were vacant before the storm were located in luxury properties as a result of the oil-and-gas boom. Those units were largely spared by Hurricane Harvey, while affordable housing units suffered more damage. Lower-income residents in Harris County already faced challenges finding housing, given that the majority of new construction has taken place at the high end, and monthly rents for available units in those areas average nearly \$1,800, compared with the area median rent of \$937 for Harris County.

Apartment industry researchers report they anticipate rents could rise by as much as 10 percent over the next several months. Until recently, rents in the Harris County region remained essentially flat. Many landlords had been offering potential tenants two or even three months' rent free. These concessions will likely disappear as demand outpaces supply.

According to FEMA IA registrations, 65,922 renter registrants reported being affected by Hurricane Harvey in the Harris County DR Service Area and 55,331 or 35.43 percent comprised LMI households. One out of seven renter households in Harris County may have been residing in buildings directly impacted by Hurricane Harvey.

Immediately after Hurricane Harvey, multifamily residential industry information supplier Apartment Data Services produced a report stating that over 3,000 rental units were affected by Hurricane Harvey across Harris County. With the decreasing number of available units and heightened demand, the gap between the housing supply and demand is greater than prior to Hurricane Harvey. The repair process for "down" units is slow, and associated costs are high, as labor and repair materials are in short supply. Map 10 shows the location of damaged apartment properties in relation to flood inundation. A survey conducted by the Houston Apartment Association revealed many Class B and C complexes along Cypress Creek were flooded. For many, this was a repeat of the 2016 Tax Day Floods. The Cities of Baytown and Pasadena also had Class B and C properties reporting damage.

Map 10: Hurricane Harvey Flood Inundation and Apartment Condition Classification



B. FEMA

To assess overall impacts to the community, FEMA Individual Assistance (IA) data was obtained throughout Harris County. The FEMA IA program provides financial assistance to individuals and households affected as a direct result of a presidentially declared major disaster or emergency. Assistance is available for those who are uninsured or underinsured, have necessary expenses and serious needs, and are unable to meet those expenses or needs through other means. Up to \$33,000 is available in financial help, adjusted annually (some forms of IA assistance have other limits). This program supports the beginning of recovery efforts by providing the financial means to disaster survivors to secure adequate interim and long-term housing, in addition to funding other necessary expenses and serious needs.

Residents that can participate in the IA Program must meet the following criteria:

- Whose primary residence has been damaged or destroyed by the disaster.
- Whose disaster losses are not covered by insurance or residents who are underinsured.
- Who are citizens of the United States, a non-citizen national or a qualified alien, or is in a household where a member of the household is a citizen of the United States, a non-citizen national or a qualified alien.
- Who are located in a Special Flood Hazard Areas (SFHA) and the homeowner complies with flood insurance purchase requirements and local flood codes and requirements.

Activities funded through the IA Program include grants for Housing Assistance (HA) for either temporary housing and/or repairs assistance, multifamily lease and repair, home replacement

assistance, and Other Needs Assistance (ONA). ONA can include assistance for personal property, medical, dental, transportation, and other personal or special needs to help people recover from a disaster. Before an applicant is allowed to apply for FEMA assistance, the applicant must apply for a SBA loan.

As seen in Table 13, in the Harris County Disaster Recovery (DR) Service Area, there were a total of 160,695 valid FEMA registrants that had an FVL of over \$566 million with an average assistance of \$5,867. Of that total, 65,922 or 41.02 percent were renters.

In the Harris County DR Service Area, there were 112,753 LMI registrants that applied for FEMA assistance. Low-to-moderate-income (LMI) is defined as earning less than 80 percent of the Median Family Income (MFI). Of the LMI registrants, there was an FVL of over \$308 million with an average assistance of \$4,883. The DR Service area is made up of 55,331 or 49.07 percent LMI renters.

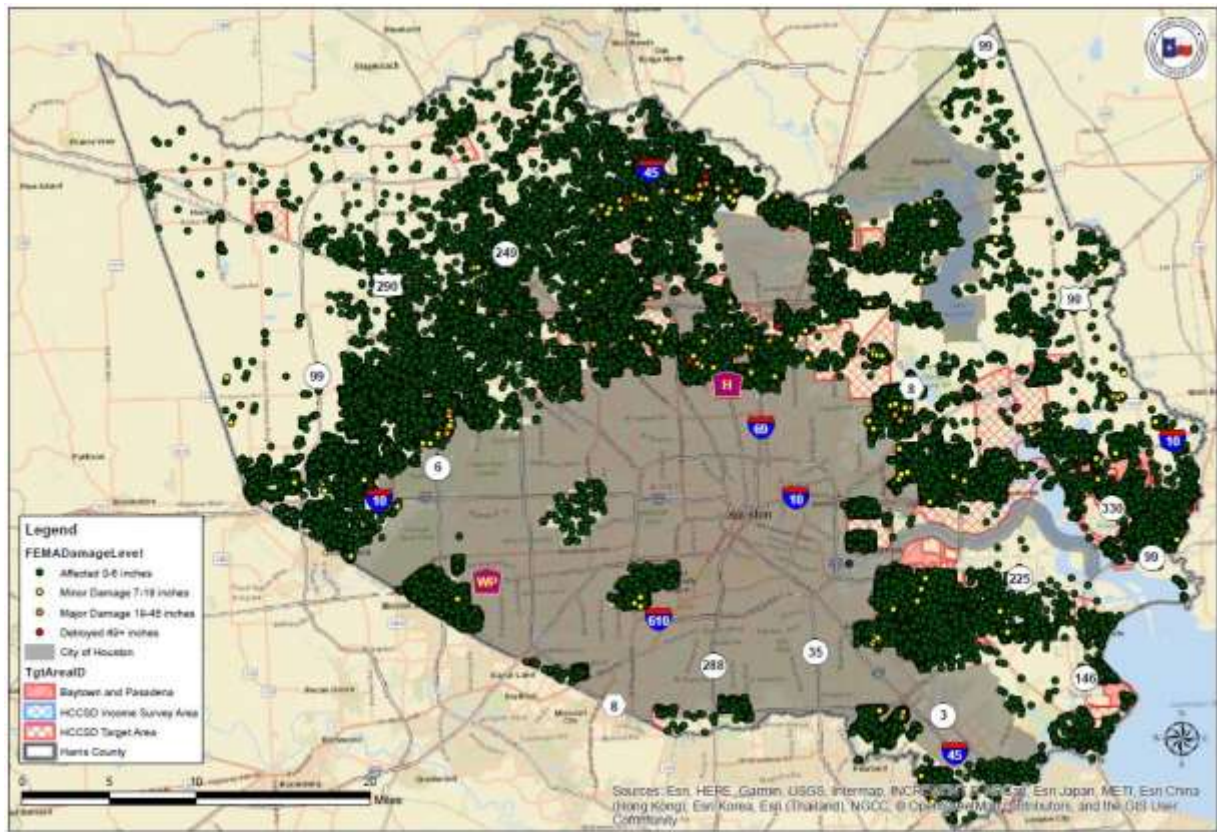
However, to note, these figures may represent an undercount of the number of rental units impacted. Renters displaced by the flooding may themselves have submitted renter claims for assistance, as they could not claim property damage due to the flooding and would have primarily requested housing assistance, etc. as a result. These renters might also been unaware they could claim these benefits.

Table 13: FEMA Registrant Assistance Received

	All FEMA Reg	All LMI Reg
Number Registrants reporting damaged	160,695	112,753
FEMA Verified Loss (FVL)	\$566,569,381.64	\$308,563,212.90
Average FEMA Assistance	\$5,867.73	\$4,883.27
Number of Renters Registrants	65,922	55,331
Renters that Received Assistance	26,588	22,273
Renters with a FEMA Verified Loss	\$49,558,079.05	\$39,935,825.38
Renters Sum of Assistance	\$65,841,193.80	\$53,358,312.45
Renters Average FEMA Assistance	\$2,476.35	\$2,395.65
Renters Unmet Need	\$628,287,775	\$500,158,722

**Non-housing unit/other reported renting storage units, storing belongings at church and other businesses and residences, or were homeless.*

Map 11: Renter FEMA Individual Assistance by Damage Level



Of the 160,695 Valid FEMA registrants in the Harris County Disaster Recovery (DR) Service Areas, 41 percent were rental units reporting some type of damage to their dwelling unit or personal property to FEMA. Renters reported between 6-49+ inches of water in their homes. Map 11 shows all the damaged rental units with a valid FEMA application recorded across Harris County, which is shaded in gray.

According to FEMA, there are four categories of flooding residents reported:

- Severe/Destroyed (48 or more inches) Homes are a total loss or repair is not feasible
- Major (19-48 inches) Homes categorized as having major damage such as structural damage and required extensive repairs.
- Minor (7-18 inches) Minor damage that does not affect the structural integrity of the residence.
- Affected (0-6 inches) Minimal damage to the exterior and residents can remain in the home.

Out of the 65,922 renter registrants in the Harris County DR Service Area, 202 or 0.31 percent of the renter housing units had damage levels from Minor, Major to Severe/Destroyed (with up to four feet of floodwater in their homes). As seen in Table 14, of the total renters (65,922) 55,331 were LMI registrants and they reported 158 or 0.29 percent damage levels from Minor, Major to Severe/Destroyed (with up to four feet of floodwater in their homes). In the LMI Target Areas, 23,410 reported 76 reported damage levels Minor, Major to Severe/Destroyed (with up to four feet of floodwater in their homes).

Table 14. FEMA Valid Registrants – Renters by Level of Damage in Harris County Disaster Recovery (DR) Service Area and LMI Target Areas

Damage Level	Number of Renters in DR Service Area	Number of LMI Renters	Number of Renters in LMI TA
Affected	65,720	55,169	23,334
Minor	176	138	66
Major	19	17	7
Severe/Destroyed	7	3	3
Total	65,922	55,331	23,410

C. Survey Data Sources for Apartment Complex Damage

After Hurricane Harvey, data was used from three sources that calculated damaged rental units in Harris County. The sources used were included the Houston Apartment Association, Apartment Data Services, and Enterprise Community Partners.

1. Houston Apartment Association Survey

Immediately after Hurricane Harvey, the Houston Apartment Association and Apartment Data Services conducted a survey of the market that revealed concentrations of 60 flooded apartment complexes, with 3,221 total damaged units in specific locations across the county, excluding the City of Houston. As seen in Table 15, the results of the survey are as follows:

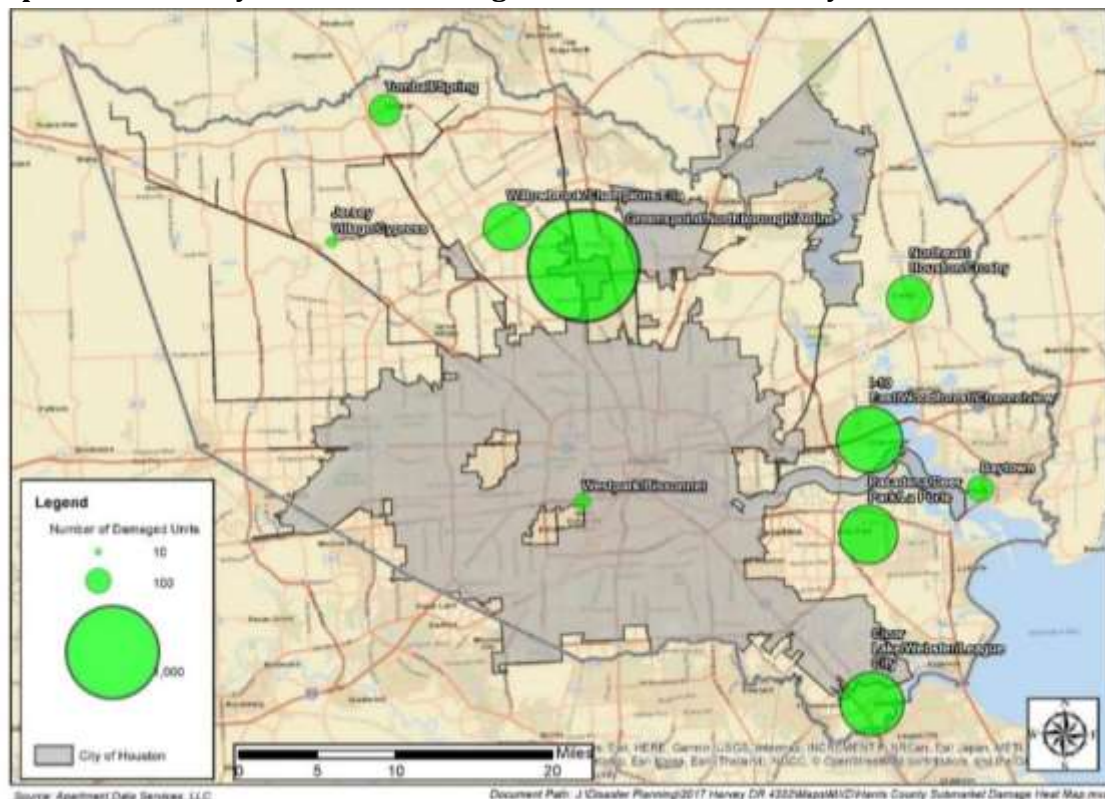
- Twenty complexes with 1,252 damaged units concentrated along the Cypress Creek floodplain between US-290 Northwest Freeway to Hardy Toll Road.
- Seven complexes with 560 damaged units clustered behind the Addicks and Barker Reservoirs.
- Eight complexes with 496 damaged units stretched across Deer Park and Pasadena.
- Six complexes with 276 damaged units concentrated along Greens Bayou.
- Five complexes with 192 damaged units found in Baytown along Goose Creek and Cedar Bayou.
- Two complexes with 150 damaged units clustered in the Cloverleaf area.
- Three complexes with 89 damaged units stretched along Clear Lake in Friendswood, Nassau Bay and Webster.
- Two complexes with 44 damaged units located near Kingwood in Humble and along Lake Houston
- Complexes in Bellaire, Missouri City and minor tributaries comprised the remainder.

Table 15: Post-Hurricane Harvey Apartment Complex Damage in Harris County

Location	# of Apartment Complexes	# of Damaged Units
Along Cypress Creek floodplain between US-290 Northwest Freeway and Hardy Toll Road	20	1,252
Behind Addicks and Barker Reservoirs	7	560
Across Deer Park and Pasadena	8	496
Along Greens Bayou	6	276
In Baytown along Goose Creek and Cedar Bayou	5	192
Cloverleaf	2	150
Along Clear Lake in Friendswood, Nassau Bay and Webster	3	89
Near Kingwood in Humble and along Lake Houston	2	44
Bellaire, Missouri City and minor tributaries	7	162
Total	60	3,221

As seen in Map 12, from the survey results that were conducted, the top three post-Harvey apartment complex damaged in Harris County included 20 complexes with 1,252 damaged units along Cypress Creek floodplain between US-290 Northwest Fwy and Hardy Toll Road, 7 complexes with 560 damaged units behind Addicks and Barker Reservoirs, and 8 complexes with 496 damaged units in Deer Park and Pasadena.

Map 12: Multifamily Submarket Damage from Hurricane Harvey



2. Apartment Data Services (ADS)

Multifamily residential industry information supplier Apartment Data Services (ADS) produced a report that included the number of “down units” after Hurricane Harvey, without qualifying the severity of damage to specific units. Damage to units ranged from minimal (i.e., carpet replacement and drying) to major (i.e., apartment fully submerged requiring total reconstruction).

ADS dedicated its entire call center to reach out to over 2,700 multifamily properties in the Harris County region. The survey included all apartment complexes with 50 units or more and several smaller complexes with fewer units. Based on this methodology, ADS was able to establish that by the end of September 2017, nearly 16,000 apartment units and 209 apartment complexes had lost occupancy in the Houston-The Woodlands-Sugar Land Metropolitan Statistical Area (Houston MSA) due to Hurricane Harvey,

Within the Harris County (non-City of Houston) submarkets:

- Greenspoint/Northborough/Aldine reported the greatest damage, with 1,366 damaged apartment units.
- I-10 East/Woodforest/Channelview followed with 544 apartment units.
- Clear Lake/Webster/League City followed with 514 apartment units.
- Following these submarkets, Pasadena/Deer Park/La Porte reported damage to 441 apartment units, Willowbrook/Champions/Ella reported 312 damaged units, Northeast Houston/Crosby observed damage to 294 units, Tomball/Spring saw damage to 150 units, Baytown reported damage to 112 units, Westpark/Bissonnet stood at 48 damaged apartment units, and Jersey Village/Cypress observed damage to 27 units (Map 12).

3. Enterprise Community Partners

Non-profit organization Enterprise Community Partners conducted an analysis on the potential impact of Hurricane Harvey’s flooding on Harris County’s multifamily rental stock. Per the 2012-2016 American Community Survey’s 5-year estimates, Harris County’s homeownership rate is 54.5 percent - 9.1 percentage points below the national rate – and renter-occupied household rate of 45.5 percent – 9.0 percentage points above the national rate. In light of these figures, Enterprise Community Partners estimated an impact on up to 105,000 units on almost 500 medium and large multifamily properties just in Harris County. In addition, possible flooding to 240 2-4-unit rental buildings could have impacted another 700 units. The analysis states that “with approximately 675,000 renter households in Harris County, the scale of the flooding means that more than one in seven renter households in Harris County might live in directly impacted buildings⁷.” Combined with the impacted 2+-unit rental properties in the neighboring counties of Brazoria, Fort Bend, Galveston, and Montgomery, the total number of potentially impacted 2+-unit rental properties increases to almost 1,000.

⁷ <https://www.enterprisecommunity.org/blog/2017/09/assessing-impact-hurricane-harvey-houstons-renters>

Vulnerable Populations

In the Needs Assessment, demographic analysis was conducted with a focus on the unmet needs of the vulnerable populations and used to recommend and determine the proportions of funding that should be set aside to benefit this population, to determine the activities to be offered, and the demographics to receive concentrated attention. Harris County will promote housing for vulnerable populations under the following categories: Low-to-Moderate Income (LMI), Limited English Proficiency (LEP), Minority, Senior (60+), Access or Functional Needs (AFN) and Homeless.

This population had a harder time recovering from the impacts of Harvey, faced challenges in accessing relief and recovery resources, and are least able to recover without assistance. This population can be particularly vulnerable to the aftermath for many reasons, including they may lack the literacy necessary to navigate the systems in place to attain recovery resources, may be ineligible for benefits, face information gaps because of the ability to effectively communicate, have cultural differences, have medical problems that prevent them from attaining or accessing services, and many of the vulnerable populations identified faced barriers to applying and receiving FEMA assistance and have unmet needs.

Harris County recognizes that many of its vulnerable populations have unmet needs and will require special circumstances in program design and ongoing outreach efforts in affected areas. Harris County will promote housing for vulnerable populations, including a description of activities that will address the following: housing for homeless and those at risk of homelessness; the prevention of low-income individuals and families with children (especially those with incomes below 30 percent of the area median income) from becoming homeless; the special needs of persons who are not homeless but require supportive housing (e.g., elderly, persons with disabilities, persons with alcohol or other drug addiction, persons with HIV/AIDS and their families, and public housing residents, as identified in 24 CFR 91.315(e)).

Harris County is committed to affirmatively furthering fair housing through established affirmative marketing policies. Affirmative marketing efforts will include an affirmative marketing plan, based on HUD regulations. The goal is to ensure that outreach and communication efforts reach eligible homeowners from all racial, ethnic, national origin, religious, familial status, disability status, "special needs", and gender groups.

A. Low-to-Moderate Income (LMI)

As a public/private partnership approach, Harris County will build on national community development and housing finance models that promote quality larger-scale neighborhood development for LMI families that is context-sensitive and aims toward implementing mixed-income/mixed-use development styles. "Low-income" is defined as earning less than 80 percent of the Median Family Income (MFI). Table 16 denotes the Harris County DR Service Area MFI limits as of 2017.

Table 16: Median Family Income (MFI) Limits

Income Levels	% of MFI	Amount
Extremely Low-Income	30%	\$24,600
Very Low-Income	50%	\$34,750
Low-Income	80%	\$57,200

In the Harris County (DR) Service Area, 112,753 LMI households registered for FEMA assistance. These registrants nearly evenly split into property owners and renters. A FEMA Verified Loss (FVL)

amount was awarded to 35,022 owner-applicants and 24,905 renter-applicants and 52,826 applicants received no FVL or FEMA assistance. The average LMI homeowner with FVL received \$7,668 compared to non-LMI population with an average FVL of \$11,374. In addition, according to FEMA IA data, 55 percent of all LMI homeowners who registered for FEMA carried private homeowner's insurance. There were 25,207 LMI registrants that lived in the Airline, Aldine, Pasadena, Baytown Pasadena, Granada, Cloverleaf, and Airline LMI areas as seen in Map 13.

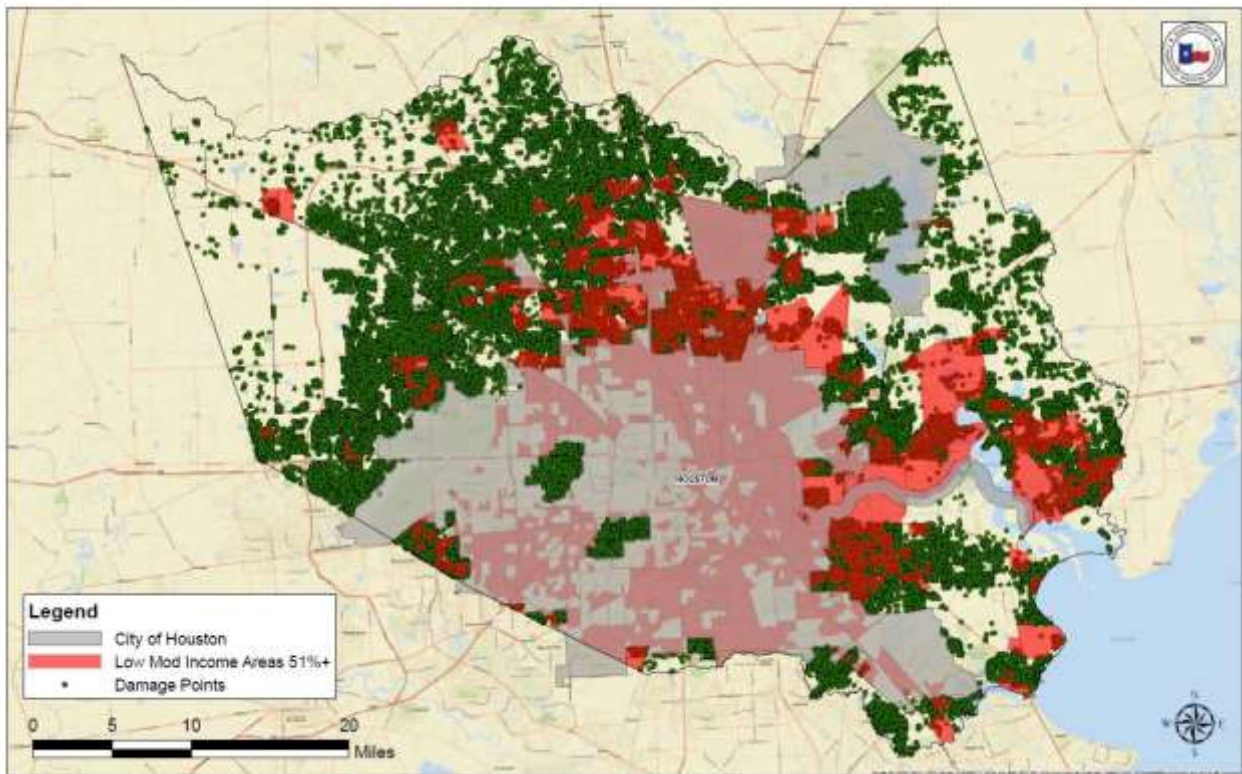
Table 17: FEMA Valid Registrants by Level of Damage in DR Service Area

Assistance Received	Number of Owners (DR Svc Area)	Average Assistance per Owner	Amount of Assistance Received	Number of Renters (DR Svc Area)	Average Assistance per Renter	Amount of Assistance Received
Affected	16,870	\$6,804.46	\$114,791,223	13,353	\$3,150.05	\$42,062,673
Minor	3805	\$29,693.25	\$112,982,810	138	\$12,023.12	\$1,659,191
Major	3880	\$40,377.45	\$156,664,500	18	\$7,076.86	\$127,384
Severe/Destroyed	2978	\$53,040.64	\$157,955,023	7	\$8,551.73	\$59,862
Total	27,533	\$19,699.76	\$542,393,557	13,516	\$3,248.68	\$43,909,110

As seen in Map 13, in the LMI Target areas, over 1 in 5 housing units were affected by flooding in the disaster. As seen in Table 17, out of the 41,049 LMI registrants in the Harris County DR Service Area, 6,883 or 17 percent had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 3,943 or 10 percent had Minor damage levels (with up to a foot and a half of water)

FEMA estimated that for most registrants with Major and Severe/Destroyed damaged, their housing repair costs averaged between \$72,000 and \$100,000. These homeowners, and especially LMI households will need additional resources to repair or replace the damage, as FEMA is limited to approximately \$33,000 for all forms of assistance per registrant.

Map 13. LMI Areas in Harris County with FEMA Reported Damage Points



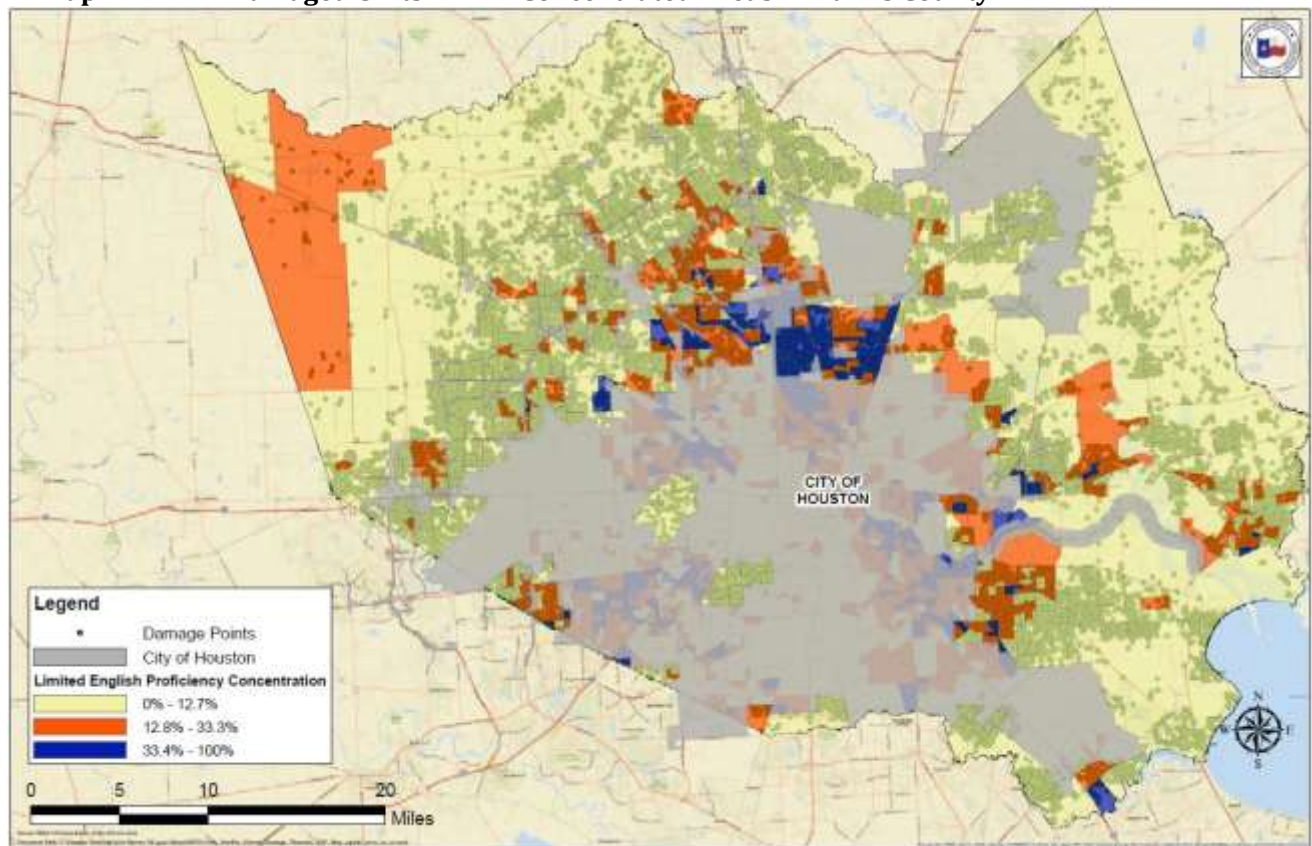
The programs for recovery will specifically link new single-family construction investments with LMI families, and the CDBG-DR eligibility requirements associated with benefiting LMI individuals earning 80 percent or less of the annual Area Median Family Income (AMFI) levels. Further, a new residential subdivision development would qualify for CDBG-DR eligible investment (e.g., land acquisition, infrastructure for residential development) if occupied by 51 percent or greater LMI by area, just as a multi-family complex would qualify if it had 51 percent or greater LMI dedicated units. Harris County will leverage its success with public/private partnerships by identifying and qualifying developer/builder interests that have the prerequisite development experience and financial capacity to mix financing, such as private equity and other non-CDBG-DR funds.

B. Limited English-Proficiency LEP

According to the U.S. Census American Community Survey, 2012-2016, 16.4 percent of Harris County DR service area population has Limited English-Proficiency (LEP). This is compared to the county as a whole at 9.7 percent. These residents speak something other than English as their primary language or have a limited ability to understand English. These populations may be especially vulnerable during disasters because of a language barrier. The predominate language (149,362 households), other than English, spoken is Spanish in Harris County.

Immediately following Hurricane Harvey, the Harris County Engineering Department (HCED) performed a house-to-house damage survey and collected data on housing damage from Hurricane Harvey. Over 29,000 homes were identified as affected by the storm. From the survey, 3,329 or over 11 percent of damaged houses were found to be located in the LEP-concentrated areas.

Map 14. FEMA Damaged Units in LEP-Concentrated Areas in Harris County



Of the total FEMA registrants (160,695) in the Harris County Disaster Recovery (DR) Service Area, 6 percent (9,847) were located in LEP-concentrated areas and more than half were homeowners. In addition, according to FEMA IA data, 90 percent of registrants in LEP-concentrated areas did not have flood insurance and only 1 percent were able to secure SBA disaster loans.

LEP populations are at an increased vulnerability during disasters and recovery efforts because they may not understand directives or react to warnings. In addition, LEP populations may have been denied FEMA assistance for many reasons:

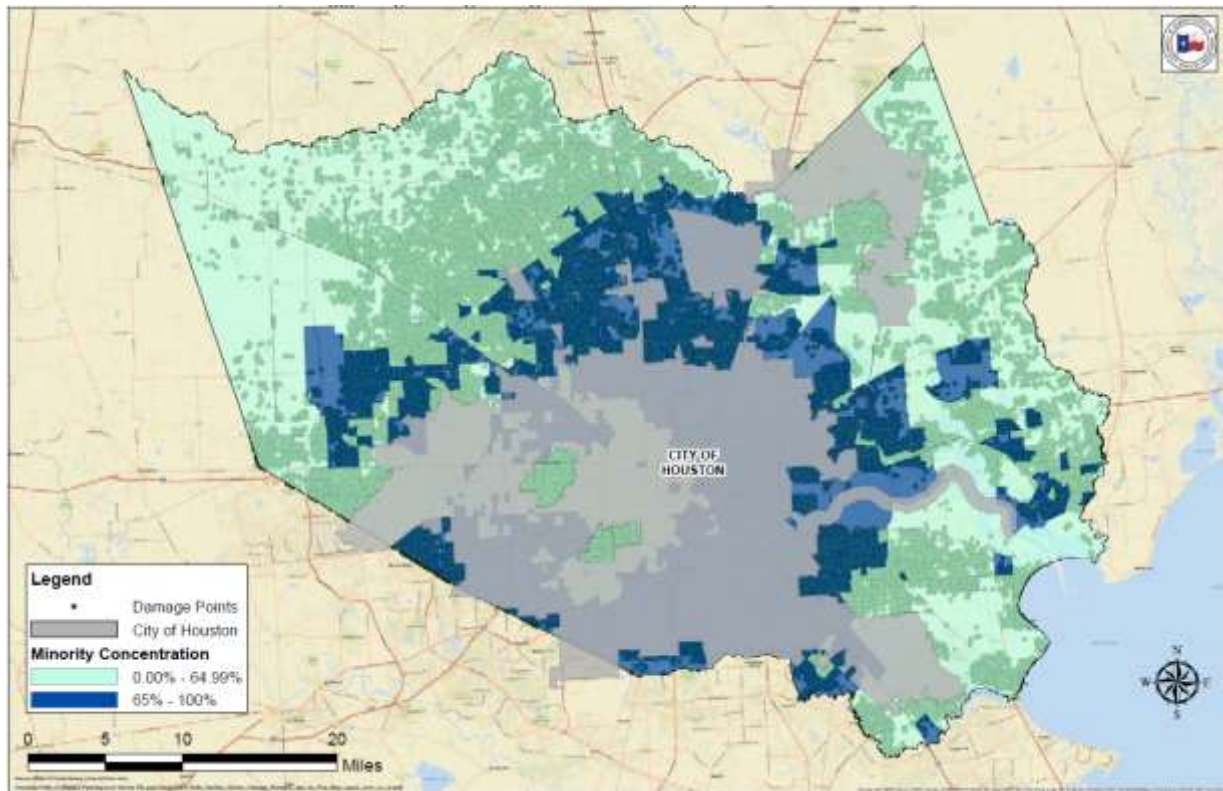
- May lack access to the tools for recovery in their communities because they may have difficulty readily accessing the internet or otherwise finding recovery assistance
- May be ineligible to apply based on immigrant status
- Some may have applied but received a denial notice
- May not have known or understood the FEMA or SBA appeal process
- Others may have had deferred maintenance in older homes
- Language barriers may have posed serious problems for inspectors
- The complexities of language and cultural differences pose serious barriers to first responders, and emergency providers in reaching LEP communities

As seen in Map 14, the concentrated areas with 33 percent or more LEP households are located in the Airline, Aldine, Baytown, Cloverleaf, Granada, Jacinto City, South Houston and Webster LMI Target Areas.

C. Minority Concentration

According to American Community Survey 2012-2016 data from the U.S. Census, in Harris County DR Service Area, 63.6 percent of the population live in minority concentrated neighborhoods, consisting of block groups with 65 percent or more minority residents. This is compared to the State of Texas which has a minority concentration of 57.4 percent. As seen in Map 15, the areas with the highest minority concentrations were located in Aldine, Airline, Barrett Station, Parkway, Granada, Greensbrook-Verde Forest LMI Target Areas and the neighborhoods of Riverwood, Blue Bell, Roseberry, Allen Field, and Sequoia Estates. Cities also deeply impacted included Pasadena, Baytown, Jacinto City, Galena Park and South Houston.

Map 15. FEMA Damaged Units with Minority Concentration Areas



The Harris County Engineering Department (HCED) performed a house-to-house damage survey and collected data on housing damage from Hurricane Harvey. Over 29,000 homes were identified as affected by the storm. The survey found that 13,545 homes or 46 percent of all damaged homes were located in minority concentrated areas. Of those who registered for FEMA Individual Assistance (160,695 households) in the DR Service Area, 53 percent lived in minority-concentrated areas. Of that total, 55 percent were owners and 45 percent were renters. In addition, 91 percent of the registrants that live in the minority-concentrated areas, did not have flood insurance and only 1.25 percent were able to secure SBA disaster loans.

Minority populations may have an increased vulnerability during disasters and recovery efforts for the following reasons:

- Could not afford or did not know they needed flood insurance premiums and thus do not have enough resources to recover
- May occupy homes in older neighborhoods with inadequate infrastructure
- May have had deferred maintenance in older homes
- Racial bias may have posed serious barriers with FEMA inspectors
- May not have understand the FEMA or SBA appeal process when applying for recovery assistance

D. Seniors

In the Harris County DR Service Area, there are 353,201 residents (15.45 percent) over the age of 60 (2017 U.S. Census ACS). A total of 47,110 or 13 percent of the senior residents over the age of 60 live in a household that registered for FEMA assistance. Of those households, there were 16,704 senior head of households that registered for FEMA assistance. In addition, according to FEMA IA data, 72 percent of all senior registrants did not have flood insurance and only 2 percent were able to secure SBA disaster loan.

Eighty-two (82) percent or 13,708 were senior head of household homeowners with an average FVL amount of \$11,690. Average FEMA assistance amount for senior homeowners was \$4,043.11. The remaining 34 percent (5,679 homeowners) received no assistance from FEMA and may have difficulties recovering from Harvey. In addition, 64 percent of the senior owners were low-to-moderate-income (LMI).

There were 17.9 percent (2,996) senior renters that registered for FEMA assistance. Forty-nine (49) percent or 1,459 had an average FVL amount of \$1,592. The average FEMA assistance amount for senior renters was \$1,075.95. The remaining 51 percent received no assistance from FEMA. In addition, 83 percent of the senior renters were low-to-moderate-income (LMI).

According to the FEMA IA data, there were 1,676 registrants that reported both senior and AFN status on their applications. Seventy (70) percent received an average FVL of \$11,909 and an average FEMA assistance of \$7,192. The remaining 30 percent (501 households) received no FEMA assistance. Of the 1,676 senior registrants, 958 households received an FVL that included real property damage and 217 households that received an FVL with personal property damage only.

As seen in Table 18, out of the 16,704 senior registrants in the DR Service Area, 2,964 or 22 percent had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 1,264 or 9 percent had Minor damage levels (with up to a foot and a half of water).

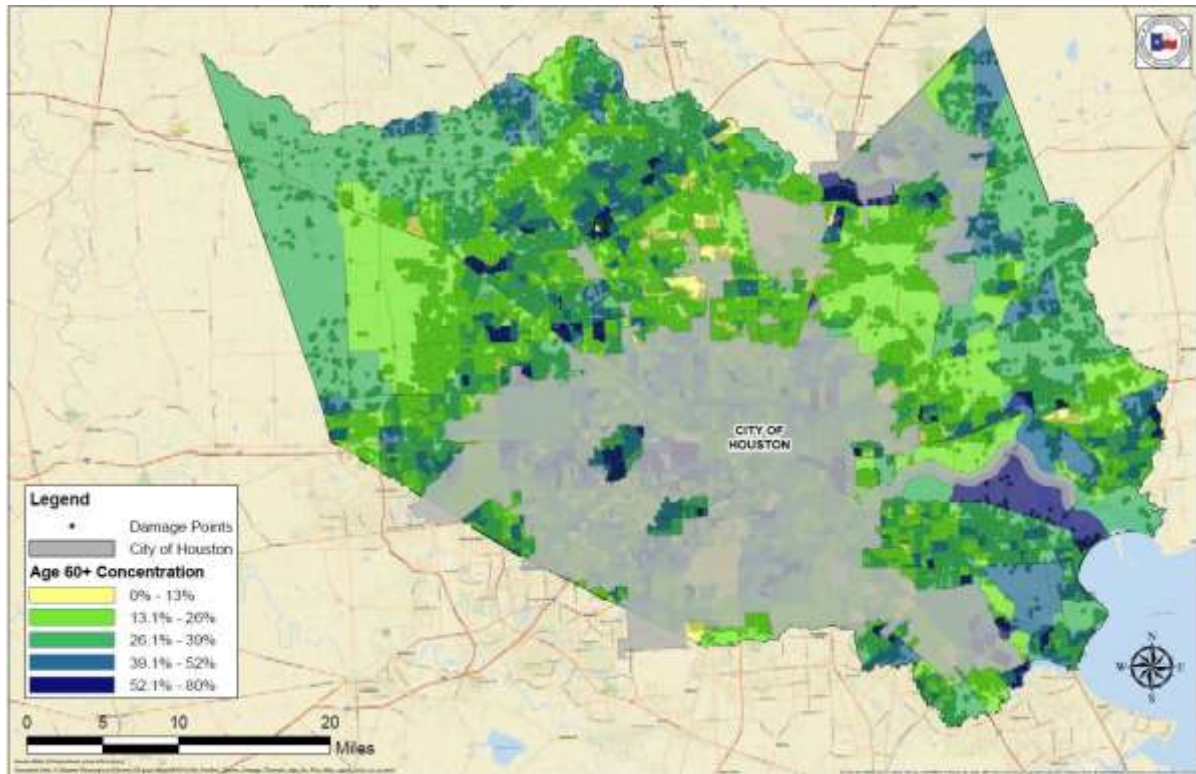
FEMA estimated that for most registrants with Major and Severe/Destroyed damaged, their housing repair costs averaged between \$72,000 and \$100,000. These homeowners, and especially LMI senior households will need additional resources to repair or replace the damage, as FEMA is limited to approximately \$33,000 for all forms of assistance per registrant.

Table 18: All FEMA Valid Registrants –Seniors by Level of Damage

Assistance Received	Number of Seniors Owners	Average Assistance per Owner	Amount of Assistance Received	Number of Senior Renters	Average Assistance per Renter	Amount of Assistance Received
Affected	9,480	\$1,032.07	\$9,784,003.53	2,994	\$1,076.51	\$3,223,059.54
Minor	1,264	\$8,387.73	\$10,602,085.67	2	\$250.00	\$500.00
Major	1,533	\$10,369.59	\$15,896,577.84	0	\$-	\$0.00
Severe/Destroyed	1,431	\$13,375.48	\$19,140,309.34	0	\$-	\$0.00
Total	13,708	\$4,043.11	\$55,422,976.38	2,996	\$1,075.95	\$3,223,559.54

As seen in Map 16, significant concentrations of FEMA registrants age 60 and over lived in Bunker Hill, Copperfield, Pasadena, Baytown, Westborough, Humble and the Cypress areas. In addition, seniors can be vulnerable during disasters and face limits in recovery efforts because many may live in older homes, are on fixed incomes that make it difficult to afford insurance premiums, may occupy homes in older neighborhoods with inadequate infrastructure, and may have had deferred maintenance in their older homes.

Map 16. FEMA Damaged Units with Harris County Senior Concentration (age 60+)



E. Access and Functional Needs (AFN)

People with “access and functional needs” include individuals who need assistance due to any condition (temporary or permanent) that limits their ability to take action. To have access and functional needs does not require that the individual have any kind of diagnosis or specific

evaluation. Individuals having access and functional needs may include, but are not limited to, individuals with disabilities, seniors, and populations having limited English proficiency, limited access to transportation, and/or limited access to financial resources to prepare for, respond to, and recover from the emergency.

Individuals with access and functional needs, including those with or without disabilities, can be accommodated with actions, services, equipment, accommodations, and modifications including physical/architectural, programmatic, and communications modifications.

In the Harris County DR Service Area, FEMA registrants with at least one AFN person in the household totaled 4,705 households. FEMA AFN registrants with FVL received an average award of \$6,274 per homeowner and \$2,164 per renter. The unmet need calculated by FEMA for registrants with at least one AFN person in the household was over \$6 million. In addition, only 11 percent had flood insurance and just 1.2 percent received SBA loans.

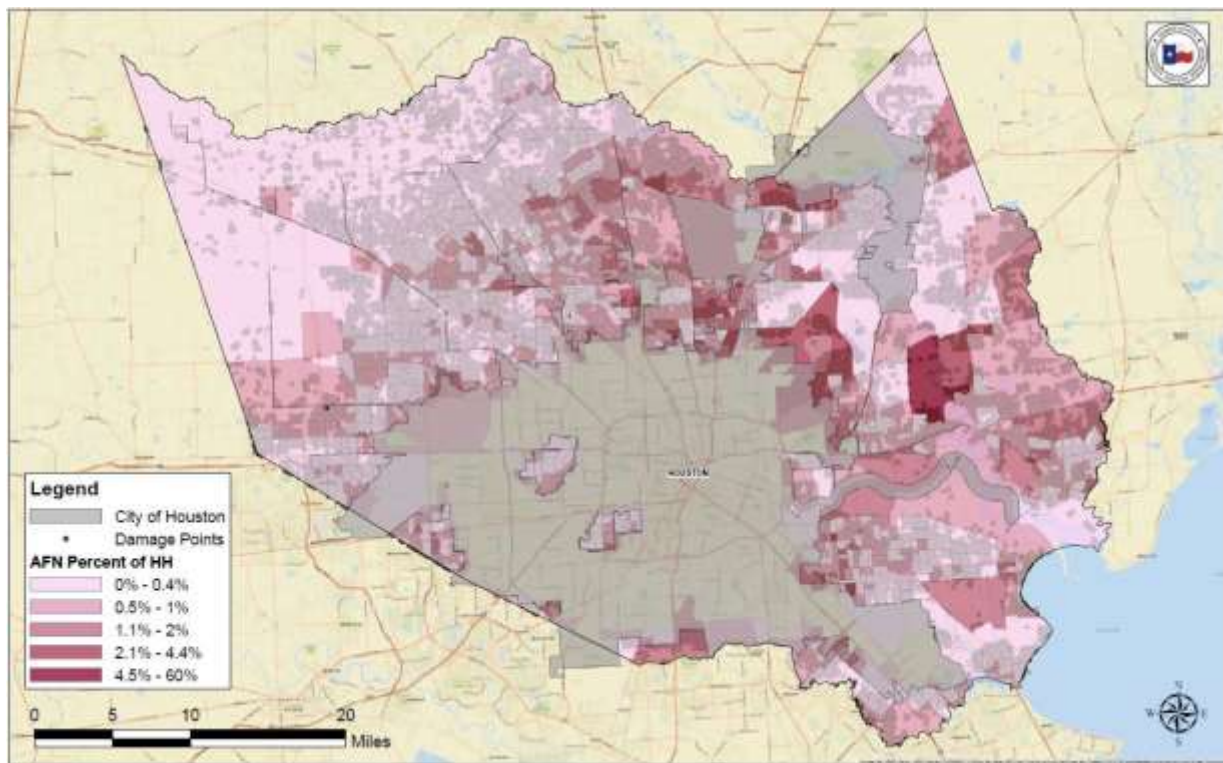
Of those total AFN households, nine percent or 426 had damage levels from Major to Severe/Destroyed (with up to four feet of floodwater in their homes) and 3 percent or 161 had Minor damage levels (with up to a foot and a half of water) as seen in Table 19. FEMA estimated that for most registrants with Major and Severe/Destroyed damaged housing repair costs averaged between \$72,000 and \$100,000. These homeowners, and especially LMI households with AFN persons will need additional resources to repair or replace the damage, as FEMA is limited to just over \$33,000 for all forms of assistance per registrant.

Table 19: FEMA Valid Registrants with AFN Status by Level of Damage in DR Service Area

Damage Level	Number of Registrants	Number of AFN Registrants	Percent of Registrants with AFN
Affected (0-6 inches)	139,692	4,118	2.95%
Minor (7-18 inches)	7,091	161	2.27%
Major (19-48 inches)	7,624	194	2.54%
Severe/Destroyed (48 or more inches)	6,288	232	3.69%
Total	160,695	4,705	2.93%

People with disabilities and others with access and functional needs may experience a greater impact from disasters because of disruptions in their support systems such as loss of equipment and supplies from flooded homes, transportation issues to get to doctors' appointments, and communication.

Map 17. FEMA Damaged Units with Harris County AFN Concentration



As seen in Map 17, higher densities of registrants with at least one AFN person in the household can be seen in the Cloverleaf, Airline, Pasadena, Bough-Lincoln Green, and Kleinwood LMI areas. However, AFN persons are widely spread throughout the entire Harris County DR Service Area.

F. Homeless

Before Hurricane Harvey affected the region, documented homelessness in Harris County was on an overall downward trend. Harris County, a member of The Way Home Continuum of Care (CoC) led by the Coalition for the Homeless and numerous other program partners coordinated to implement new ideas and programs for the CoC during this period. These new approaches, such as the Coordinated Access System, adopting a Housing First strategy and supporting Permanent Supportive Housing and Rapid Re-Housing efforts resulted in the multi-year trend of reducing documented homeless persons in Harris County.

As seen in Table 20, from 2011 to 2017, based on the annual Point in Time (PIT) Count, the total documented homeless persons within the county declined by 58 percent from 8,026 to 3,365 persons. Significant reductions in the sheltered and unsheltered populations were made during this period as unsheltered homeless persons decreased by 74 percent and sheltered homeless persons decreased by 41 percent. The table below summarizes the trends from 2011 to 2017 and the most recent results from the 2018 PIT.

Table 20. Harris County Point in Time Count Results from 2011 to 2018

Type of Homeless	2011	2012	2013	2014	2015	2016	2017	2018
Unsheltered Homeless	4,170	3,746	2,927	2,243	1,884	1,046	1,078	1,528
Sheltered Homeless	3,856	3,327	3,329	2,953	2,471	2,513	2,287	2,271
Total	8,026	7,073	6,256	5,196	4,355	3,559	3,365	3,799

Impacts from Harvey to the Continuum of Care included damage to homeless shelters, housing facilities for homeless, medical clinics, and other facilities that primarily serve the homeless population. Many unsheltered homeless were forced to relocate to escape floodwaters and in addition to those already experiencing homelessness before the storm, Harvey's devastating floods created thousands of newly homeless households. Within a few weeks of Harvey's floodwaters receding, most but not all of the displaced households returned to damaged homes and apartments or relocated to another home or apartment if available. Some have moved temporarily and some permanently, though recent data suggests not all were able to find a home.

The 2018 Point in Time Count was conducted over a three-day period from January 23-25, 2018, approximately 5 months after the catastrophic flooding from Hurricane Harvey caused widespread damage to Harris County. When the 2018 PIT was conducted an increase of 450 unsheltered persons was reported. This occurred despite numerous efforts by FEMA, the State and local governments to provide housing for those displaced by Harvey. Current County and CoC system resources available to assist the homeless in Harris County are at capacity. The documented increase in unsheltered homeless indicates there continues to be an unmet need to assist those displaced and made homeless. These numbers could increase further as many low-to-moderate income households in Harris County are unstably housed after Harvey and the possibility of becoming homeless due to limited/exhausted resources and/or an unexpected life event is a distinct possibility. The demand for increased homeless services, housing options for the homeless and increase in households that could become homeless has created additional needs within the county that are currently unmet with available resources.

Working with our surrounding jurisdictions, Harris County has been actively working to reduce the incidence of Homelessness for over 15 years. The County have utilized our HUD entitlement funding of Community Development Block Grant, Emergency Solutions Grant and HOME Investment Partnerships program grant plus local funding to provide social services and case management, housing and housing stabilization, healthcare and mental healthcare, and other services to vulnerable populations who are or are endangered of becoming homeless.

In Harris County, the Coalition for the Homeless of Houston/Harris County provides community coordination and planning for a regional homeless services system and is the lead agency for areas Continuum of Care and conducts a Point-In-Time (PIT) count of shelter and unsheltered persons in Houston, Harris County, Fort Bend County and Montgomery County. For the past 7 years, the Count has shown a decrease from 8,538 to 3,412 persons. However in the most recent Count released on May 23, 2018-, there was an increase in the Count of 15 percent. It is assumed that this increase was from Harvey, with almost one in five of the unsheltered homeless individuals reporting Hurricane Harvey as their reason for being homeless.

As a part of the closing of the NRG and George R. Brown shelters, the Coalition, City of Houston, and Harris County worked with FEMA to create a non-congregant shelter program, which assisted

those families and individual who did not have the resources to leave the shelter unaided by temporary shelter assistance. This population included families with children, elderly persons, couples and single individuals – many of whom had special needs including chronic health conditions, mobility limitations, and mental illness. Based on preliminary information, most shelter guests are low or very-low income. At the Non-congregant Shelter program's height, there were approximately 500 households in the program that received rental assistance and case management. Currently, roughly 200 households are still enrolled and benefiting from case management services.

Section 3

Non-Housing Infrastructure

A. Governor's Commission to Rebuild Texas

Texas infrastructure all along the Gulf Coast was affected by Hurricane Harvey. This event caused damage to roadways, bridges, sections of the coastline, and many other infrastructure systems that is still being assessed.

Governor Greg Abbott established the Governor's Commission to Rebuild Texas (the Commission) in the immediate aftermath of Hurricane Harvey for the swift and effective restoration of damaged public infrastructure throughout disaster-impacted areas. As stated in the Governor's Proclamation on September 7, 2017, for the establishment of the Commission, the effective restoration of damaged public infrastructure throughout the disaster area is of paramount importance to the Texas economy and the people of Texas who live and work in the communities affected by Hurricane Harvey. The Commission will assist local governmental entities and non-profit organizations to assess and identify rebuilding needs and navigate state and federal resources available for the rebuilding effort. The Commission will advocate for the interests of state and local governments on matters related to disaster response and provide expertise and assistance to local governmental entities and nonprofit organizations throughout the rebuilding process.⁸



Flooding in North Harris County during Hurricane Harvey

The "October 31, 2017, Request for Federal Assistance Critical Infrastructure Projects," stated that \$61 billion in projects were identified at state and local levels. This amount does not include current FEMA expenditures or CDBG-DR housing allocations. The \$61 billion was compiled based on information available in September and October 2017 from impacted communities that identified and prioritized their needs. This amount is expected to increase as more information becomes available.

The types of identified projects include restoration and mitigation projects for roads, bridges, schools, government buildings, and public facilities, as well as projects to protect coastal

⁸ RebuildTexas: The Governor's Commission to Rebuild Texas. "Proclamation." Webpage assessed January 10, 2018. <https://www.rebuildtexas.today/proclamation/>

infrastructure, homes, businesses, critical facilities, and national assets such as petrochemical complexes. Over 60 percent of the projects identified were for flood control projects.⁹

B. Texas Coastal Resiliency Study

With previous CDBG-DR funds, the Texas General Land Office (GLO) commissioned a Texas Coastal Resiliency Study to identify critical infrastructure within a coastal multi-county project study area that would be most vulnerable to future storm events. During this study, sites considered to be at risk were identified, and new projects were proposed to mitigate potential damage to vulnerable infrastructure. As expected, many of these sites were impacted by Hurricane Harvey, but the degree of the impact is still being determined. The improvements identified in this study should provide practical solutions communities can quickly utilize for repairs and mitigation. This study identified 2,256 projects in the coastal region.¹⁰

The GLO is also responsible for all 367 miles of Texas beaches. In 2015, GLO started the Hurricane Preparedness and Planning Initiative to pool local, state, and federal resources to begin prioritizing efforts to build a resilient Texas coast. This initiative includes a number of coast-wide studies, such as the: Texas Coastal Resiliency Master Plan, Coastal Texas Protection and Restoration Feasibility Study, Storm Surge Suppression Study, and Texas Regional Sediment Study.

C. FEMA Public Assistance

Due to the vast size of the impact area and different types of recovery that will be necessary, the FEMA Public Assistance (PA) data is the best available data set to determine infrastructure needs and also serves as a statewide metric to begin the discussion on specific infrastructure needs. Each eligible entity is at various stages of submitting project worksheets, and estimates for permanent work will continue to be forthcoming over the next several months. For this Needs Assessment Plan, given the limited availability of data, housing unmet needs have been prioritized.

The infrastructure damage presented in this report has been divided into eight (8) categories to enhance the understanding of the different types of infrastructure impacted. This will provide a better understanding of the impacts of Hurricane Harvey and the needs for full Harris County recovery. It also provides a better understanding of the hazard mitigation activities that may be required to prevent future impacts. The categories include roads and bridges; buildings, parks and recreational facilities; storm water and drainage; water and wastewater facilities; and debris removal. The following sections further describe the eight (8) categories and include examples of the projects in each category.

As seen in Table 21 provides a high-level approximation of total costs and total need for each PA category as of June 1, 2018 for Harris County and the 33 small cities. Harris County and Harris County Flood Control District are self-insured thus did not received private insurance proceeds for

⁹ Ibid. "Request for Federal Assistance Critical Infrastructure Projects." Webpage/PDF accessed January 10, 2018. <https://www.documentcloud.org/documents/4164748-Rebuild-Texas-REQUEST-FOR-FEDERAL-ASSISTANCE.html>

¹⁰ The Texas General Land Office. "Texas Coastal Resiliency Study, Final Report." Webpage/PDF accessed January 10, 2018. <http://www.glo.texas.gov/coastal-grants/documents/grant-project/texas-coastal-resiliency-study.pdf>

infrastructure projects. The county has an overall PA need of over \$191 million. The categories with the highest total need are Buildings and Equipment then Emergency Protective Measures showing a total PA need for the County. It should be noted that PA project worksheets are still under development by local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM). These amounts are expected to increase.

Table 21: Total Cost and Need by Public Assistance (PA) Category in Harris County

PA Category (49 Counties)	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$65,629,614.39	\$6,562,961.44	\$9,844,442.16	\$16,407,403.60
B - Emergency Protective Measures	\$200,492,321.33	\$20,049,232.13	\$30,073,848.20	\$50,123,080.33
C - Roads and Bridges	\$10,836,227.44	\$1,083,622.74	\$1,625,434.12	\$2,709,056.86
D - Water Control Facilities	\$72,069,272.47	\$7,206,927.25	\$10,810,390.87	\$18,017,318.12
E - Buildings and Equipment	\$339,883,959.96	\$33,988,396.00	\$50,982,593.99	\$84,970,989.99
F - Utilities	\$30,061,407.49	\$3,006,140.75	\$4,509,211.12	\$7,515,351.87
G - Parks, Recreational Facilities, and Other Items	\$7,419,760.39	\$3,741,976.04	\$5,612,964.06	\$9,354,940.10
Z - Direct Administrative Costs	\$9,184,044.43	\$918,404.44	\$1,377,606.66	\$2,296,011.11
Grand Total	\$735,576,607.90	\$76,557,660.79	\$114,836,491.18	\$191,394,151.98

(A) Debris Removal – includes removal of debris that occurred immediately after the storm.

(B) Emergency Protective Measures – includes activities to eliminate or reduce an immediate threat to life, public health or safety, or significant damage to improved public or private property.

(C) Roads and Bridges – includes all roads and bridges throughout unincorporated Harris County and the cooperative cities. This includes port facilities and similar facilities that may be under the jurisdiction of Federal Highway Administration (FHWA). Both local roads and FHWA funded roads are included; however, funding for 100% FHWA funded roads are assumed as an unmet need.

(D) Water Control Facilities – (Flood Control/Stormwater) –includes all infrastructure dealing with stormwater management and flood control, such as drainage canals, ditches, culverts, stormwater pipes, etc.

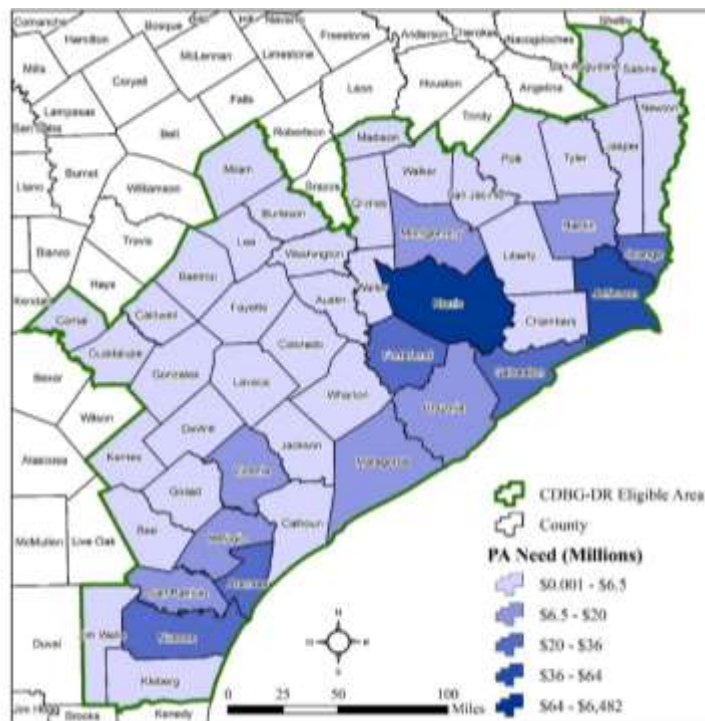
Buildings and Equipment - includes publicly owned buildings, such as City Departments, Fire Stations, Police Stations, Call Centers, Emergency Operations Centers, Community Centers, etc.

(E) Public Utilities –includes power generation facilities, natural gas, infrastructure dealing with water production, treatment, and delivery and infrastructure dealing with wastewater collection and treatment

(F) Parks, Recreational Facilities, and Other Items –includes all parks and recreational facilities.

The following Map 18 gives a high-level snapshot of each counties preliminary PA need. Harris County demonstrates the highest need, with a total of more than \$6.4 billion dollars, or over 95 percent of the total need for all 49 counties. This can be attributed to a variety of factors, including the significant impact to roads and bridges across Harris County primarily in the City of Houston. Other counties with high PA needs are Jefferson (\$63 million), Fort Bend (\$35 million), and Aransas (\$22 million).

Map 18: Total Public Assistance Need by County



D. Drainage and Water Control

The Harris County Flood Control District (HCFCF) is a special-purpose district created by the Texas legislature in 1937 after community leaders petitioned for assistance in response to devastating floods in 1929 and 1935. Since its creation, the HCFCF has successfully partnered with the U.S. Army Corps of Engineers (USACE) on many projects, and through the years, HCFCF partnerships and capabilities have expanded significantly.

The HCFCD was originally given the responsibility of overseeing rivers, streams, tributaries and flood waters in Harris County "for domestic, municipal, flood control, irrigation and other useful purposes." Additionally, the HCFCD was responsible for the reclamation and drainage of the overflow land of Harris County, the conservation of forests, and keeping navigable waters "navigable" by regulating the stormwater that flowed into them. Through the years, the HCFCD roles and responsibilities have become much more complex, but its mission remains simple: provide flood damage reduction projects that work, with appropriate regard for community and natural values. Flood damage reduction is accomplished by: 1) devising the flood damage reduction plans; 2) implementing the plans; and 3) maintaining the infrastructure¹¹.

Disastrous flooding occurred in many of the watersheds in Harris County. Historical records held by previous massive floods in October 1994, Tropical Storm Allison, and April 2016 (Tax Day) were exceeded by Harvey at many locations. Based on house flooding assessments, the estimated total number of homes flooded within Harris County is 154,170. Table 22 below indicates the number of flooded homes broken down by various watersheds and tributaries across Harris County.

Table 22: Harris County Number Homes Flooded by Watershed

Watershed	# Homes Flooded	Watershed	# Homes Flooded
Brays Bayou	23,810	Willow Waterhole	2,940
Buffalo Bayou	17,090	Vince Bayou	2,720
Greens Bayou	12,900	Ship Channel	2,370
Halls Bayou	11,830	Cedar Bayou	2,200
Cypress Creek	8,750	Barker Reservoir	1,910
Berry Bayou	8,510	Spring Gully & Goose Creek	1,890
White Oak Bayou	7,830	San Jacinto River (East Fork)	1,280
Hunting Bayou	7,420	San Jacinto River (Main Stem)	850
Turkey Creek & Mud Gully	6,500	Little Cypress Creek	700
Sims Bayou	6,370	Spring Creek	510
Addicks Reservoir	6,010	Galveston Bay	490
Clear Creek	5,480	Willow Creek	310
San Jacinto River (West Fork)	4,620	Carpenters Bayou	230
Little White Oak Bayou	4,540	Luce Bayou	190
Armand Bayou	3,790	Jackson Bayou	130

Source: HCFCD Immediate Report – Final Hurricane Harvey – Storm and Flood information

¹¹ <https://www.hcfcd.org/hurricane-harvey/hurricane-harvey-faqs/>

Table 23: Harris County Flood Gage Sites and Discharge Records

Location	Hurricane Harvey		Previous Record		
	Discharge	Stage	Discharge	Stage	Previous Record Date
Goose Creek at Baker Rd.	16,300	24.0	4,700	20.1	April-09
Spring Creek at SH 249	48,900	166.4	45,400	165.5	May-16
Willow Creek at Kuykendahl Rd.	11,200	133.9	7,200	131.2	September-08
Cypress Creek at Katy-Hockley Rd.	12,800	162.9	9,950	162.3	April-16
Cypress Creek at House-Hahl Rd.	22,600	149.3	20,800	148.2	April-16
Cypress Creek at Stuebner-Airline Rd.	23,100	113.8	14,300	110.5	April-16
Cypress Creek At I-45	31,500	97.1	26,000	94.8	May-29
Luce Bayou above Lake Houston	32,800	37.9	25,900	35.1	October-94
Buffalo Bayou at Greenbusch Rd.	17,900	118.3	5,660	111.9	April-16
South Mayde Creek at Heathergold	12,200	112.7	9,780	112.4	April-16
Langham Creek at Park Row Dr.	7,320	82.7	3,890	74.2	April-16
Buffalo Bayou at Dairy Ashford Rd.	13,800	77.3	11,200	78.1	August-45
Buffalo Bayou at W Belt Dr.	14,600	71.2	7,290	65.3	March-92
Buffalo Bayou at Piney Point Dr.	15,000	62.8	7,990	57.3	April-09
Buffalo Bayou at Shepherd Dr.	36,400	41.9	19,000	41.0	May-29
White Oak Bayou at Alabonson Rd.	15,500	77.8	13,400	78.0	June-01
White Oak Bayou at Heights Blvd.	50,600	44.3	28,100	43.9	June-01
Little White Oak Bayou at Trimble St.	9,630	44.1	8,760	44.0	May-15
Brays Bayou at Belle Park Dr.	6,300	70.5	5,090	69.6	September-83
Brays Bayou at Main St.	35,100	45.7	33,000	45.0	June-01
Sims Bayou at Hiram Clarke St.	13,500	46.8	9,030	53.0	June-01
Sims Bayou at Telephone Rd.	39,600	26.6	25,800	23.4	June-01
Berry Bayou at Nevada St.	3,630	31.3	3,580	25.9	April-09
Vince Bayou at W. Ellaine St.	8,430	22.3	6,870	20.3	June-01
Hunting Bayou at Hoffman St.	1,730	44.3	1,080	42.3	September-08
Hunting Bayou at IH 610	6,680	37.1	4,390	35.4	September-08
Greens Bayou at Cutten Rd.	5,840	111.8	5,670	112.0	June-01
Garners Bayou at Beltway 8	24,900	57.9	12,400	58.1	June-01
Greens Bayou at Ley Rd.	128,000	44.9	69,700	40.5	June-01
Clear Creek at Mykawa St.	4,490	47.4	2,000	43.6	October-06
Clear Creek at FM 528	44,100	24.3	16,900	20.3	June-01
E San Jacinto River at FM 1485	120,000	81.2	74,100	76.0	October-94
W San Jacinto River at SH 99	131,000	94.9	130,000	84.4	October-94
Cedar Bayou at US 90	10,600	59.1	7,800	58.8	October-94

Source: HCFCD Immediate Report – Final Hurricane Harvey – Storm and Flood information

The United States Geological Survey (USGS) operates 50 gage locations across Harris County. Thirty-one of the 50 sites or 62 percent recorded record flow (discharge) during Harvey. Table 23, above, lists the peak Harvey discharge and stage and the previous record.

Hurricane Harvey produced the largest and most devastating house flooding event ever recorded in Harris County. Structure flooding occurred from both overflowing creeks and bayous as well as internal drainage systems being overwhelmed by the intense short duration rainfall rates. Both the Addicks and Barker Reservoirs reached their peaked on August 30, 2017 exceeding previous pool records. These two reservoirs combined impounded a total of 388,726 acre-feet of water at peak pool elevation, or 126 billion gallons of water. Widespread flooding of homes and streets occurred within the pools upstream of Addicks and Barker Reservoirs, as well as flooding of major roadways within the reservoirs. The number of homes flooded by the two reservoirs were 6,010 for Addicks and 1,910 for Barker. Downstream of the reservoirs, the USACE made the decision to release a combined 16,000 cfs, this is the highest release rate since the outlets were fully gated in 1963 causing flooding.

HCFCF estimates the total need in Harris County for flood risk reduction projects is \$25 billion to achieve a 1 percent (100-year) level of service in Harris County. The project list developed by HCFCF includes projects that address documented flooding issues in each watershed – issues that come into play any time there is excessive rainfall takes place in those watersheds.

The Map 19 displays the approximate location of more than 100 needed drainage improvement projects. Each of these projects failed to function during Hurricane Harvey. Potential projects have been identified by HCFCF and the Harris County Engineering Department to provide flood risk reduction benefits in the watersheds where the projects are located. Potential projects represent projects that would meet the goal of recovery after previous flooding events and would make our county more resilient in the future¹².



Barker Reservoir during Hurricane Harvey flooding nearby area

Of the 22 watersheds, seven watersheds have a population of at least 51 percent or greater LMI households (seen on the Map 19 outlined in red). These watersheds include:

- Sims Bayou
- Brays Bayou
- White Oak Bayou
- Hunting Bayou
- Vince Bayou
- Spring Gully/Goose Creek Bayou
- Greens Bayou

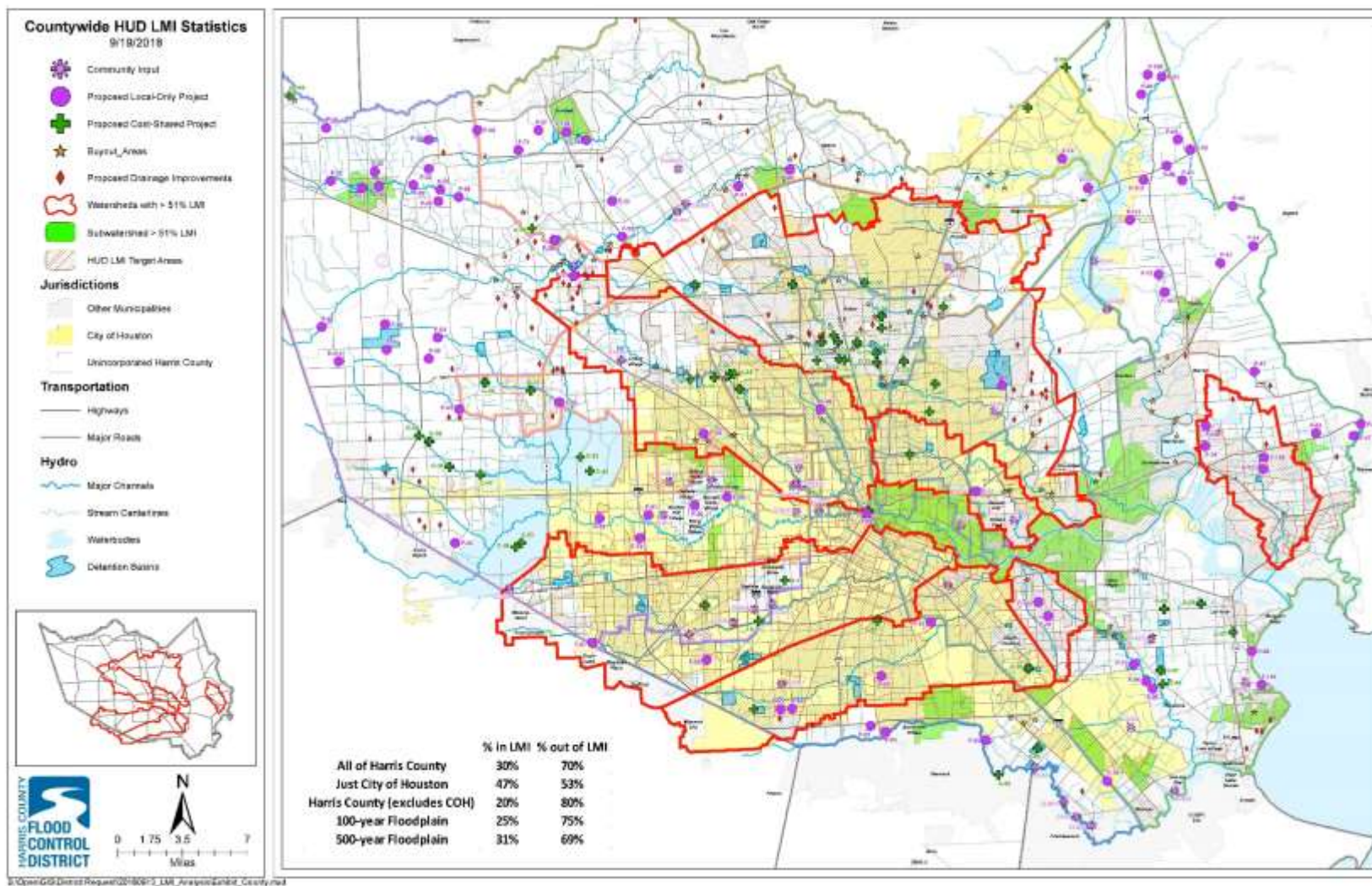
Approximately, 50 of the 100 projects are in or nearby LMI areas. These projects include improvements along bayous, channels, and riverine assets and also neighborhood level drainage improvements.

¹² <https://www.hcfcf.org/bond-program/>

The Harris County Flood Warning System suffered damage to several sites, mainly due to the rise of water to heights that flooded the gage structure and electronics housed. A total of 7 HCFCF gages were completely destroyed, with an additional 5 suffering partial damage mainly to the water level measuring devices. A total of 1,200 locations were identified damage, including erosion, slope failures, sink holes, silt deposits, concrete failures, and drainage pipe separations. A total of 106,000 cubic yards of debris has been removed from HCFCF channels, with the majority of debris removal along Spring Creek, Cypress Creek, Willow Creek, Langham Creek, and Buffalo Bayou. An additional 30,000 cubic yards of debris is currently in the process of being removed along Buffalo Bayou and Cypress Creek. To date, debris removal efforts have cost \$3.3 million.

Past voluntary buyouts throughout the county of homes deep in the floodplain were effective for this storm event. Through a partnership with FEMA, more than 2,000 homes were acquired, residents moved to higher ground, and homes were demolished. The sites are kept undeveloped, are useful as open space, and serve natural floodplain functions. In addition, HCFCF has acquired about 1,000 additional homes. Approximately 2,300 homes would have flooded had HCFCF and FEMA not purchased and removed them. As discussed in the Housing Section, of this Needs Assessment, Harris County has identified over 40 Buyout Interest areas across the county of which 13 Buyout Areas are in LMI areas that were highly impacted (4 ft. or more flooding levels) by Harvey.

Map 19: Countywide Needed Drainage Improvements



E. Commercial Buyout

Harris County has been involved in residential buyout since 1985. HCFCD has identified 43 areas in unincorporated Harris County or in one of the county's small cities that fits the buyout definition. These areas contain approximately 3,300 parcels to acquire. Some of these parcels are partial home businesses and small businesses that will also need buyout and relocation as residents relocate around these businesses. The county has identified in its 13 low-income Buyout Areas approximately 87 commercial and industrial parcels with a 2017 market value for the parcel of roughly \$10 million. This number is expected to increase, as the value of each business is evaluated in the intake process and the count does not take into effect vacant commercial/industrial lots.

F. Public Facilities

Under FEMA Public Assistance, over \$339 million in damage was reported under building and equipment across Harris County. Public buildings, such as libraries, courtroom, jury assembly building, county annexes, and healthcare facilities were damaged by Harvey.

The Harris County Library system reported over \$4.5 million in damage to four libraries - Baldwin Boettcher, Barbara Bush, Kingwood, and Katherine Tyra Libraries. Most of these locations are still closed awaiting rehabilitation or reconstruction to reduce future flood risk. The Baldwin Boettcher Library is in the Mercer HCCSD LMI Target Areas and served as the community's access point to community services.

During the storm, 44 area hospital and other health facilities evacuated over 1,500 patients, estimates the Southeast Texas Regional Advisory Council, who coordinated the regional response during Harvey. These included 24 hospitals and 20 nursing homes or assisted living centers. Harris Health System provide medical services during Hurricane Harvey, including 123 dialysis procedures, 24 births, and over 1,000 emergency care visits. The LBJ Hospital also served as a shelter to over 180 evacuees and provided 14,000+ meals. The hospital also lost medical beds to moisture from the flooding. Ben Taub Hospital also found the flooding a challenge, as its drainage system backed up into the basement. Pressure would build on a 6-inch plumbing pipe, causing it to fail. The rising water threatened food supplies, linens, pharmaceuticals, and kitchen operations.

The HCA Gulf Coast Division recently announced that due to extensive damage from Harvey and past disaster events, the East Houston Regional Medical Center would cease operations and permanently close its doors. The 131-bed hospital and its emergency care center was flooded with 6 feet of water during Harvey. The closure of this hospital endangers the lives of many county residents, including numerous LMI households, who must travel great distances for emergency care.

Several parks were also damaged. Under FEMA Public Assistance, over \$7 million in damage was reported to parks and recreational facilities. One park, Mercer Botanical Gardens, is in a LMI area and provides access to trails, gardens, and natural assets. Spring Creek flooded the park and deposited debris and sand throughout the park.

G. Roadways

Under FEMA Public Assistance, over \$10 million in damage was reported to Roads and Bridges. The Woodforest Boulevard bridge across Greens Bayou near the Cloverleaf LMI area collapsed due to Harvey. Several roadways including as two portions of Garrett Street and a portion State Highway 316. Flood waters strip away or scour the foundations of bridges and roadways. As foundations are compromised, support columns collapse, and roads wash away. Many neighborhood roads in high impact LMI areas, such as Aldine, Airline, Sheldon, Cloverleaf, Pine Trails, and Normandy Crossing and in cities such as South



Flooded roadways near Humble area during Hurricane Harvey

Houston, Pasadena, and Humble were flooded just as homes were on those streets. Roadways around the two reservoirs, including Clay Road, North Eldridge Parkway, State Highway 6, Groeschke Road, Patterson Road, Westheimer Parkway, and South Barker Cypress Road were flooded for weeks and in the case of Patterson Road, over a month.

H. Utilities

Under FEMA Public Assistance, over \$30 million in damage was reported to utility facilities. Majority of the damage claims came from city public works, Municipal Utility Districts (MUDs) and Water Districts. According to a study by the Texas Association of Water Board Directors (AWBD) of the Houston MSA's 945 utility districts, 253 districts had some flooding in their service areas. Seventy-six (76) Harris County districts issued a boil water notice, and 3 (of 627) wastewater treatment plants (WWTPS) located in the county were completely destroyed. Other damage included:

- Cypress Creek Utility District –Lake Forest WWTP was damaged, needing an estimated \$1.1 million in repairs
- Cypress Forest PUD – Water plant damaged
- Greenwood Utility District – WWTP damage
- HC MUD 102 – WWTP and several lift stations damaged
- HC MUD 109 – Lift station generator damaged
- HC MUD 18 – Water well motor damaged
- HC MUD 286 – WWTP damaged
- HC MUD 368 – Pump station damaged
- HC MUD 71 – Water truck lines collapsed

I. Hazard and Mitigation: Resiliency Solutions and Mitigation Needs

Harris County will follow the State's resiliency solutions, as stated in the State of Texas Plan for Disaster Recovery: Hurricane Harvey – Round 1.

Recognizing the State's long and well-documented history of flooding, hurricanes, wildfires, and droughts, as well as its ongoing efforts to mitigate future disaster effects in its most vulnerable areas, GLO continues its commitment to rebuilding while prioritizing resiliency. In assessing unmet needs, it is important to consider the additional costs of safeguarding housing and community infrastructure investments from future disasters. As such, Texas will not only assess projects and consider state-run programs that replace or repair lost property but will also seek to invest resources in efforts that promise to mitigate damage from a wide range of future disaster types. Although this can increase costs initially, mitigating efforts can greatly reduce the cost of future damages. The success of this long-term recovery practice was seen firsthand during Hurricane Harvey projects enhanced for resiliency from previous CDBG-DR efforts suffered less damage from Hurricane Harvey including construction projects designed to prevent future flooding, mitigate further loss, and decrease evacuation times.

Single-family home resiliency solutions are expected to add approximately 10 to 15 percent to the total cost per home, multifamily resiliency solutions add 15 to 20 percent to the total cost per project, and infrastructure resiliency solutions add 15 to 20 percent to the total cost per project. Resiliency solutions are varied and dependent on the respective area's Threat and Hazard Identification and Risk Assessment (THIRA).

Single-family home resiliency solutions may include elevating the first floor of habitable areas, breakaway ground floor walls, reinforced roofs, storm shutters, use of ENERGY STAR appliances and fixtures, and mold and mildew resistant products. Multi-family resiliency solutions include elevation, retention basins, fire-safe landscaping, firewalls, and landscaped floodwalls.

Buyout programs support hazard mitigation, floodplain management goals, and resiliency by removing homeowners from the floodplain, thus eliminating vulnerability to future flooding situations. After homes are purchased, the structures are demolished or relocated. The land reverts to a natural floodplain, converts into a retention area, or is retained as green space for recreational purposes. The buyout option serves multiple objectives and provides a resiliency option versus rebuilding within a floodplain. Buyouts help prevent repetitive loss and extreme risk to human health and safety. Buyouts conducted sooner rather than later prevent homeowners from making repairs and investing funds in properties they then may not want to sell.

In the case of infrastructure resiliency solutions, improvements may include:

- Elevating critical systems, facilities, and roadways above base flood elevation;
- Installing backup power generators for critical systems (water, sewer, etc.);
- Avoiding an increase in impervious cover by keeping projects in their original footprint and encouraging the use of building practices that allow for more pervious coverage, when possible;
- Replanting with only native vegetation to preserve the natural environment;
- Installing retention basins, larger culverts and debris guards, erosion control solutions, and back-up communication systems; and

- Supporting local community efforts to enhance building codes and regulations.

The resiliency multiplier will be a standard 15 percent for both housing and infrastructure activities to calculate unmet need, as has been previously applied in other Texas CDBG-DR programs.

HCFCF has identified 43 areas for buyout in Harris County. These areas contain approximate 3,300 flood-prone homes damaged by Hurricane Harvey. Once the structures are removed, the land will be dedicated and maintained as open space to conserve natural floodplain functions.

J. Response to U.S. Army Corps of Engineers Recovery Work Plan

On July 5, 2018, the U.S. Army Corps of Engineers (USACE) released a summary of its work plan for studies and construction projects related to funding provided in the Bipartisan Budget Act of 2018, which was passed and signed into law on February 9, 2018.

Studies, which are at full federal expense, include:

- \$3 million for the Section 216 Study led by the USACE which will evaluate the existing Addicks and Barker Reservoirs and recommend operational changes and/or physical projects to improve the effectiveness of the reservoirs in reducing flood risks upstream and downstream; and
- \$3 million for a county-wide drainage study to look at Harris County's drainage infrastructure as a system, identifying potential inadequacies and potential improvements to the overall system.

Section 4

Unmet Need & Funding Resources

To calculate estimated unmet need, the Texas General Land Office (GLO) and Harris County used multipliers provided by HUD. These multipliers, as seen in Table 24, are based on the Small Business Administration (SBA) median repair cost for the specific disaster category less the weighted average of expected SBA and FEMA repair costs. Based on FEMA individual assistance data provided to the GLO, the estimated weighted average of expected SBA and FEMA total repair costs for each category is represented in the following table.

Table 24: Unmet Need Multiplier by Damage Category

Category	Multiplier Amount
Major-Low	\$58,956
Major-High	\$72,961
Severe	\$102,046

A. Owner Unmet Need

The FEMA IA data was used to compute all housing applicants impacted by Hurricane Harvey and calculate the unmet needs for housing. The unmet need for the LMI population is over \$895 million for owners. The unmet need by income category for owner-occupied households in Harris County can be seen in Table 25. It also provides a breakdown of the total unmet needs for owner-occupied households and provides the damage category, total count, and unmet need for those three categories, as previously defined.

Table 25: Category of Unmet Needs by Owner-Occupied Households in Harris County (outside City of Houston)

Damage Category/ Multiplier	Total Count	Owner-Occupied Household Count with Unmet Need	Total Owner-Occupied Household Unmet Need
Major-Low: \$58,956	12,587	9,551	\$563,088,756
Major-High: \$72,961	14,980	10,415	\$759,888,815
Severe: \$102,046	5,121	3,982	\$406,347,172
Total	32,688	23,948	\$1,729,324,743

HUD requirements for this CDBG-DR allocation specify that the GLO and thus Harris County must expend a minimum of 70 percent to benefit LMI populations. In Harris County, approximately 59.8 percent of the unmet need population is below 80 percent in the LMI category. The unmet need by income category for Harris County can be seen in Table 26.

Table 26. Owner Unmet Need by Income Category in Harris County (outside City of Houston)

Income Category	Count	Unmet Need	% of Count	% of Unmet Need
0-30%	5,922	\$425,034,847	24.7%	24.6%
31-50%	2,805	\$197,603,740	11.7%	11.4%
51-80%	3,838	\$272,585,298	16.0%	15.8%
Not LMI	11,383	\$834,100,858	47.5%	48.2%
Not Reported	0	0	0	0
Totals	23,948	\$ 1,729,324,743	100.0%	100.0%

Only the most impacted homes will be included to calculate unmet needs. Home are determined most impacted if they have real property damage of \$8,000 or more. The following criteria was used to calculate real property damage.

Owner-Occupied Homes

To calculate the level of real property damage for owner-occupied homes, the following criteria was used:

- **Major-Low:** \$8,000 to \$14,999 of FEMA verified loss.
- **Major-High:** \$15,000 to \$28,800 of FEMA verified loss.
- **Severe:** Greater than \$28,800 of FEMA verified loss.

Owners in a Floodplain with No Flood Insurance

Low-to-moderate-income applicants in Harris County comprise 65.1 percent of total owners with unmet needs in a floodplain with no flood insurance. Those over 120 percent of AMI comprise 20.8 percent of the total owners with unmet needs in a floodplain with no flood insurance, as seen in Table 27.

Table 27: Owners in a Floodplain with No Flood Insurance by Income Category in Harris County (outside City of Houston)

Income Category	Count	% of Count
0-30%	1,320	32.0%
31-50%	678	16.4%
51-80%	690	16.7%
81-120%	579	14.0%
Over 120%	859	20.8%
Not Reported	0	0%
Total	4,126	100.0%

B. Renter Unmet Need

Table 28 displays a breakdown of total unmet needs for renter-occupied households. It provides the damage category, total count, and unmet need for those three categories, as previously defined.

Table 28: Category of Unmet Needs by Renter-Occupied Households in Harris County (outside City of Houston)

Damage Category/ Multiplier	Total Count	Rental Count	Total Rental Unmet Needs
Major-Low: \$58,956	12,587	3,036	\$178,990,416
Major-High: \$72,961	14,980	4,565	\$333,066,965
Severe: \$102,046	5,121	1,139	\$116,230,394
Totals	32,688	8,740	\$628,287,775

Rental units are determined to be the most impacted if they have real property damage of \$2,000 or more.

To calculate the level of personal property damage for renters, the following criteria was used:

- **Major-Low:** \$2,000 to \$3,499 of FEMA verified loss.
- **Major-High:** \$3,500 to \$7,499 of FEMA verified loss.
- **Severe:** Greater than \$7,500 of FEMA verified loss.

In Harris County, approximately 79.7 percent of the unmet need based on FEMA IA is below the 80 percent LMI category. The unmet need for the LMI population is over \$500 million for renters. The unmet need by income category for renters in Harris County can be seen in Table 29.

Table 29. Renter Unmet Need by Income Category in Harris County (outside City of Houston)

Income Category	Count	Unmet Need	% of Count	% of Unmet Need
0-30%	3,660	\$ 261,132,550	41.9%	41.6%
31-50%	1,693	\$122,147,793	19.4%	19.4%
51-80%	1,614	\$116,878,379	18.5%	18.6%
Not LMI	1,773	\$128,129,053	20.3%	20.4%
Not Reported	0	0	0	0
Total	8,740	\$ 628,287,775	100.0%	100.0%

C. Non-Housing Unmet Need

Although remaining unmet housing needs exist due to the limitation of available funds, Harris County recognizes that as part of a comprehensive long-term recovery program, the repair and enhancements of local infrastructure and mitigation efforts are crucial components. Infrastructure

activities are vital not only for the long-term recovery and restoration of housing but for the long-term recovery, protection, and viability of communities. In particular, drainage improvement projects in channels and bayous, as well as in local neighborhood drainage systems, are needed to reduce the flood risk in these areas. Harris County has identified a total unmet need for housing and non-housing recovery as over \$10 billion. A summary of Harris County's unmet need is identified in Table 30. Twenty-one (21) percent (\$222,519,672) of the CDBG-DR funds and a \$2.5 billion Harris County bond will address unmet needs related to infrastructure and drainage. Infrastructure/non-housing needs are discussed in Section 3 of the assessment.

Table 30: Harris County Summary of Total Unmet Need

Category	Losses/Gap	CDBG-DR Investments*	Other Known Investments	Remaining Unmet Need
Housing	\$7,458,498,829	\$837,097,816	\$3,671,644,866	\$2,949,756,147
Owner-Occupied Housing	\$1,729,324,743			
Residential Property Insurance/TX Windstorm	1,644,387,050		\$1,411,214,085	
National Flood Insurance Program	\$1,894,715,877		\$1,894,715,877	
Other Housing and Disaster-Related Expenses	\$760,850,000		\$65,000,000	
Renter-Occupied Housing	\$628,287,775			
Public Housing Authority Housing	\$933,384		\$714,904	
Harris County Buyout Program (Pub L. 115-31)	\$800,000,000		\$300,000,000	
Infrastructure	\$10,850,608,099	\$222,519,672	\$698,910,323	\$9,947,539,307
FEMA Public Assistance	\$868,774,302		\$659,018,947.11	
Rebuild Texas	\$10,000,195,000		\$19,000,000	
Grand Total (Housing and Infrastructure)	\$18,327,468,131	\$1,059,617,488	\$4,370,555,189	\$12,897,295,454

D. Funding Resources

The U.S. Department of Housing and Urban Development (HUD) has allocated \$5.024 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funding to the State of Texas in response to Hurricane Harvey, FEMA DR 4332, through the Federal Register, Vol. 83, No. 28. The Texas General Land Office (GLO) is the State's administrating agency for these funds.

In the *State of Texas Plan for Disaster Recovery: Hurricane Harvey – Round 1* CDBG-DR Action Plan, which can be found at <http://www.glo.texas.gov/recovery/reports/action-plans/index.html> on the GLO website, Harris County was identified as a “most impacted and distressed” area and was allocated by the State, along with the City of Houston, a direct allocation of \$1,115,368,830 from the State's CDBG-DR allocation.

The resulting devastation of Hurricane Harvey has left the county with an unmet need of over \$12.8 billion in housing and infrastructure damage or failure to function. The following (Table 31) provides a summary of Harris County's unmet needs. The county has elected to follow the Federal Register and State's Action Plan and provide 79 percent of funding to housing programs and 21 percent to infrastructure/non-housing programs. It should be noted that the County will be participating in the State's Economic Development Program.

Table 31: Summary of Total Unmet Need in Harris County (outside the City of Houston)

Category	Unmet Needs	% of Unmet Need	County Program Allocation Amount	% of County Program Allocation
Housing	\$2,949,756,147	23%	\$837,097,816	79%
Infrastructure	\$9,947,539,307	77%	\$222,519,672	21%
TOTAL	\$12,897,295,454	100%	\$1,059,617,488	100%

Note: Allocations do not include planning costs.

Under the Housing category, the county will administer a Homeowner Assistance Program and Reimbursement Program, a Single Family New Construction Program, a Rental Housing Development Program, and a Residential Buyout/Acquisition and Homebuyer Assistance Programs. The County's Supplemental Action Plan available on the Harris County Community Services department website at <https://csd.harriscountytexas.gov/Pages/DisasterRecovery.aspx>.

For the Homeowner Assistance Programs, the County has allocated \$214,000,000 to assist homeowners to repair their damaged home. Based on FEMA IA data, the following funding targets by income have been determined (Table 32 and 33). The data represents FEMA valid owner registrants with a reported gross income. As not all registrants reported a valid gross income the total number of registrants is less than the total number of owner registrants reported in earlier sections.

Table 32: Homeowner Assistance Program Funding Targets (%) by Income Category - Harris County – OWNERS

Income Category	Count*	% of Count	Minimum Target	Maximum
Greater of 0-30% AMI or Federal Poverty Level	2,016	11.00%	11.00%	
31-50% AMI	2,227	12.15%	12.15%	
51-80% AMI	3,384	18.46%	18.46%	
0-80% AMI (Non-Targeted)			28.39%	
Above 80% AMI	10,701	58.39%		30.00%
Total	18,328	100.00%	70.00%	30.00%
Total LMI	7,627	41.61%	70.00%	100.00%

*FEMA IA Registrants (owners, primary residence) with Real Property FEMA Verified Loss > \$8,000 and Gross Income \$9,000 or more.

Table 33: Homeowner Assistance Program (HAP) Funding Targets (\$) by Income Category - Harris County - OWNERS

	Minimum Target	Maximum
<i>HAP Budget</i>	\$ 214,000,000.00	
Greater of 0-30% AMI or Federal Poverty Level	\$ 23,539,065.91	
31-50% AMI	\$ 26,002,728.07	
51-80% AMI	\$ 39,512,003.49	
0-80% AMI (Non-Targeted)	\$ 60,746,202.53	
Above 80% AMI	\$ -	\$ 64,200,000.00
Total	\$ 149,800,000.00	\$ 64,200,000.00
Total LMI	\$ 149,800,000.00	\$ 214,000,000.00

Section 5 Educational Institutions

Various independent school districts and educational institutions were impacted in both unincorporated Harris County and within the cities. Much of the damages incurred was roof damage or flooding. Roof damages were likely a combination of both wind and heavy rain. Flooding damages at some locations were severe since they impacted the ability to continue educational services at these locations and would potentially warrant the need to relocate these facilities.

A. Unincorporated Harris County

Data on damages within the school districts in Harris County are provided in Table 34. Damages amounts were obtained from a FEMA Public Assistance summary by entity obtained January 18, 2018. This includes the total value of repair projects identified within the County for these schools. Excluded from this list at this time were private educational institutions within unincorporated Harris County. 90 percent was added to these costs due to their preliminary nature and historic increases experienced from similar events. Table 34 also includes an estimate of the 406 and 404 Hazard Mitigation needs for each category. Without the identification of specific mitigation projects by the cooperative entities, the hazard mitigation costs are set at 15 percent of the repair costs for 406 and 404 Hazard Mitigation needs, respectively.

Table 34: Total Educational Institution Damages within Harris County

School	Assessed Damages	Historic Cost Increase 90%	Anticipated 406 Mitigation	Anticipated 404 Mitigation	FEMA Funding	Potential Unmet Need
Aldine Independent School District (201-07A62-00)	\$2,687,847	\$2,419,062	\$651,131	\$651,131	\$4,981,152	\$1,428,020
Alief Independent School District (ISD) (201-09B71-00)	\$470,142	\$423,128	\$113,892	\$113,892	\$871,273	\$249,781
Channelview Independent School District (201-U54QL-00)	\$35,758	\$32,182	\$8,662	\$8,662	\$66,267	\$18,998
Cypress Fairbanks Independent School Dist. (201-065CC-00)	\$10,473,132	\$9,425,819	\$2,537,116	\$2,537,116	\$19,408,939	\$5,564,244
Goose Creek Consolidated Independent School District (ISD) (201-UOYYK-00)	\$6,169,801	\$5,552,821	\$1,494,634	\$1,494,634	\$11,433,952	\$3,277,938
Harris County Department of Education (201-06517-00)	\$33,785	\$30,407	\$8,184	\$8,184	\$62,611	\$17,950
Huffman Independent School District (201-02B4D-00)	\$10,730,000	\$9,657,000	\$2,599,343	\$2,599,343	\$19,884,970	\$5,700,715

School	Assessed Damages	Historic Cost Increase 90%	Anticipated 406 Mitigation	Anticipated 404 Mitigation	FEMA Funding	Potential Unmet Need
Klein Independent School District (201-02CC6-00)	\$4,939,803	\$4,445,823	\$1,196,667	\$1,196,667	\$9,154,505	\$2,624,456
Pasadena Independent School District (201-0B779-00)	\$3,644,914	\$3,280,423	\$882,980	\$882,980	\$6,754,800	\$1,936,497
Sheldon Independent School District (201-0E7F4-00)	\$18,972,394	\$17,075,155	\$4,596,062	\$4,596,062	\$35,159,878	\$10,079,796
Spring Branch Independent School District (201-UDT8V-00)	\$425,890	\$383,301	\$103,172	\$103,172	\$789,265	\$226,270
Spring Independent School District (201-0649F-00)	\$660,575	\$594,518	\$160,024	\$160,024	\$1,224,186	\$350,955
YES Prep Public Schools, Inc (201-UJ8XG-00)	\$161,994	\$145,795	\$39,243	\$39,243	\$300,209	\$86,065
Clear Creek Independent School District	\$18,791,807	\$16,912,626	\$4,552,315	\$4,552,315	\$34,825,212	\$9,983,852
La Porte Independent School District	\$590,233	\$531,210	\$142,984	\$142,984	\$1,093,827	\$313,583
Katy Independent School District	\$36,782,092	\$33,103,883	\$8,910,462	\$8,910,462	\$68,165,033	\$19,541,866
Humble Independent School District	\$64,864,937	\$58,378,443	\$15,713,531	\$15,713,531	\$120,208,512	\$34,461,930
Galena Park Independent School District	\$1,820,822	\$1,638,740	\$441,094	\$441,094	\$3,374,370	\$967,380
Deer Park Independent School District	\$423,684	\$381,316	\$102,637	\$102,637	\$785,176	\$225,098
ComQuest Academy	\$42,000	\$37,800	\$10,175	\$10,175	\$77,835	\$22,314
Aristoi Classical Academy, Inc.	\$30,000	\$27,000	\$7,268	\$7,268	\$55,596	\$15,939
Total	\$182,751,610	\$164,476,450	\$44,271,578	\$44,271,578	\$338,677,568	\$97,093,646

Major damage was experienced at multiple school locations due to severe flooding as listed. These locations may be candidates for relocation, etc., which may surpass the mitigation costs anticipated in Table 34 above.

List of Schools with damage by School District:

Sheldon ISD

C.E. King High School, \$10,670,636

C.E. King Middle Main Building, \$4,663,895

Cypress Fairbanks ISD

Moore Elementary School, \$10,000,000

Klein ISD

Strack Intermediate School, \$3,970,528

Goose Creek Consolidated ISD

Technology Center - Building Damages, \$3,576,750

Huffman ISD

Huffman Middle School, \$5,425,000

Humble ISD

Kingwood High School, \$45,000,000

Welcome Center Annex Building, \$4,200,000

Katy ISD

Sue Creech Elementary School, \$15,511,275

Education Support Complex, \$6,126,253

Education Support Center/Leonard Merrell Center, \$11,500,000

Clear Creek ISD

Brookside Intermediate, \$5,311,166

Clear Springs High School, \$3,646,080

B. Total Educational Facility Unmet Needs

Table 35 summarizes the unmet educational facility needs for unincorporated Harris County and the twelve (12) cities cooperative in this study. Required repairs are estimated at \$182,751,610 and current unmet needs are estimated at \$97,093,646, which may be higher if school relocation needs are considered.

Table 35: Total Educational Facility Unmet Needs from Hurricane Harvey

Entity	Assessed Damages	Historic Cost Increase -90%	Anticipated 406 Mitigation	Anticipated 404 Mitigation	FEMA Funding	Potential Unmet Need
Unincorporated Harris County	\$59,406,035	\$53,465,432	\$14,391,112	\$14,391,112	\$110,092,007	\$31,561,684
Cooperative Cities	\$123,345,575	\$111,011,018	\$29,880,466	\$29,880,466	\$228,585,561	\$65,531,962
Total	\$182,751,610	\$164,476,449	\$44,271,578	\$44,271,578	\$338,677,568	\$97,093,646

Section 6

Economic Losses

The primary information gathered on economic losses for this report was based upon available data from the U.S. Small Business Administration (SBA). Data obtained for Harris County from August 1, 2017 through December 7, 2017 tracked the businesses within Harris County that received SBA loans for property and content losses. The total of loans for approximately 70 businesses amounted to \$39,287,300 throughout the unincorporated county. Since this program loans only for businesses that may have difficulty in obtaining conventional loans, it represents only a portion of the impacts to businesses from Hurricane Harvey. It also does not include additional costs that are more difficult to quantify, such as business interruption impacts and other types of lost income. However, since it is a loan program and not a grant program, the loans obtained should be considered the minimum economic business impact from this event. Map 20 indicates the location of the impacted businesses.

In addition to the commercial businesses applying for SBA loans, Harris County provided an assessment of commercial properties impacted by Hurricane Harvey. A methodology similar to the one used to establish damages to residential properties was used for establishing business properties inundated by Harvey. The Army Corps of Engineers Damage Assessment Curves were applied to establish the level of damages. The location of the 437 businesses identified and their relation to the SBA business locations are provided in Map 21. The total amount of assessed damage to properties was \$62,346,950. It should be noted this is an assessment of property damage only and does not account for loss revenue and other business interruption impacts. Accordingly, it should be assumed the total economic losses to businesses can be assessed at \$101,634,250.

As discussed in the Section 3 Non-housing section, the HCA Gulf Coast Division recently announced that due to extensive damage from Harvey and past disaster events, the East Houston Regional Medical Center would cease operations and permanently close its doors. The 131-bed hospital and its emergency care center was flooded with 6 feet of water during Harvey. The closure of this hospital endangers the lives of many county residents, including numerous LMI households, who must travel great distances for emergency care. Secondly, the loss of the medical center has caused the laying off of approximately 480 employees. The closure has also affected secondary

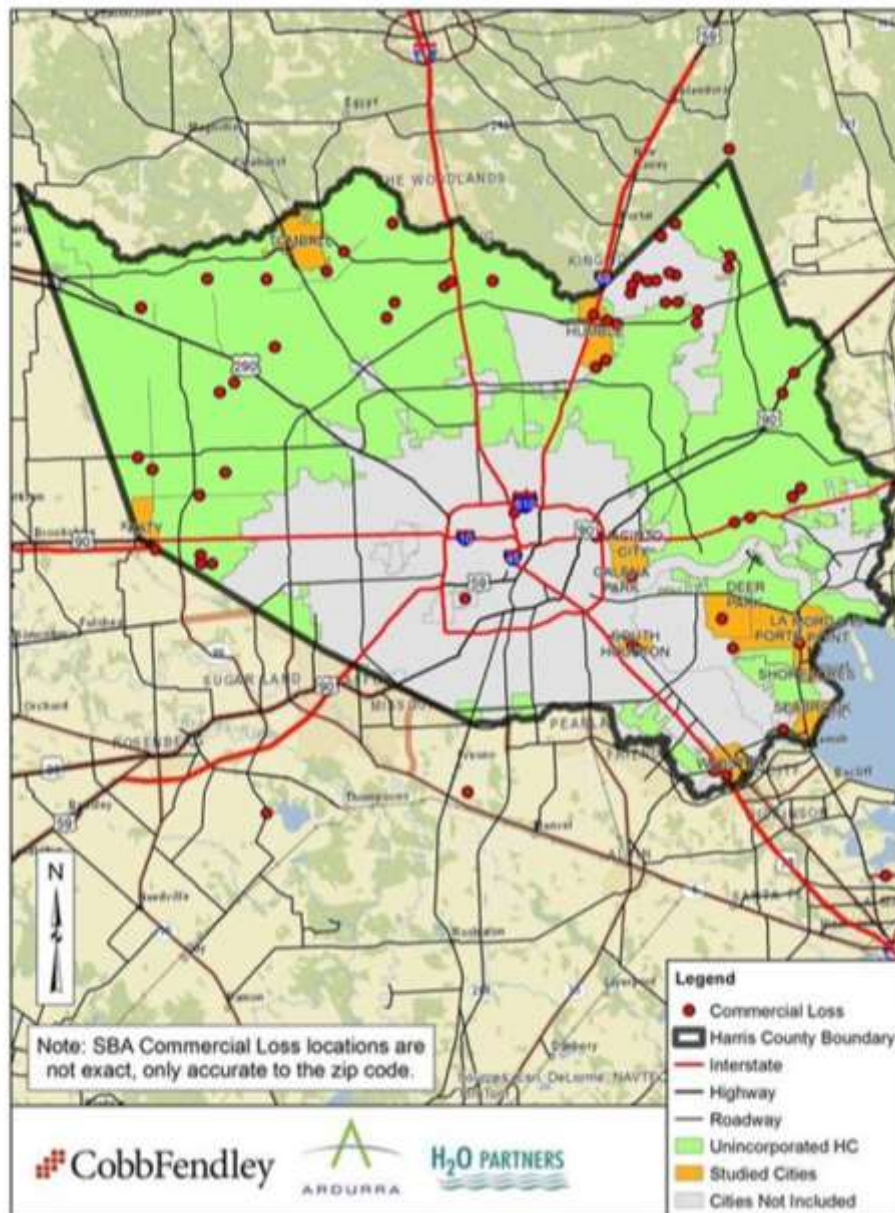
HURRICANE HARVEY ECONOMIC DATA

- Hobby and Bush Intercontinental airports were shut down several days resulting in \$32 million in lost revenue.
- \$2.7 to \$4.9 billion in losses to vehicles in Harris County (up to 1 million vehicles were lost-including those on dealership lots)
- Debris removal cost \$3.3 million, according to HCFCD.
- SBA loans and business loans in Unincorporated Harris County accounted for \$39,287,300 for property and content losses
- In Sept 2017 the Insurance Council of Texas estimated total insured losses from Harvey at \$19 billion
 - \$11 billion in flood losses insured by the NFIP
 - \$3 billion in insured windstorm/storm related losses
 - \$4.75 billion in insured private/commercial vehicle losses
- 5 refineries in and surrounding Harris County, were shut down for several days following Hurricane Harvey, raising gas prices by up to 8% a gallon.

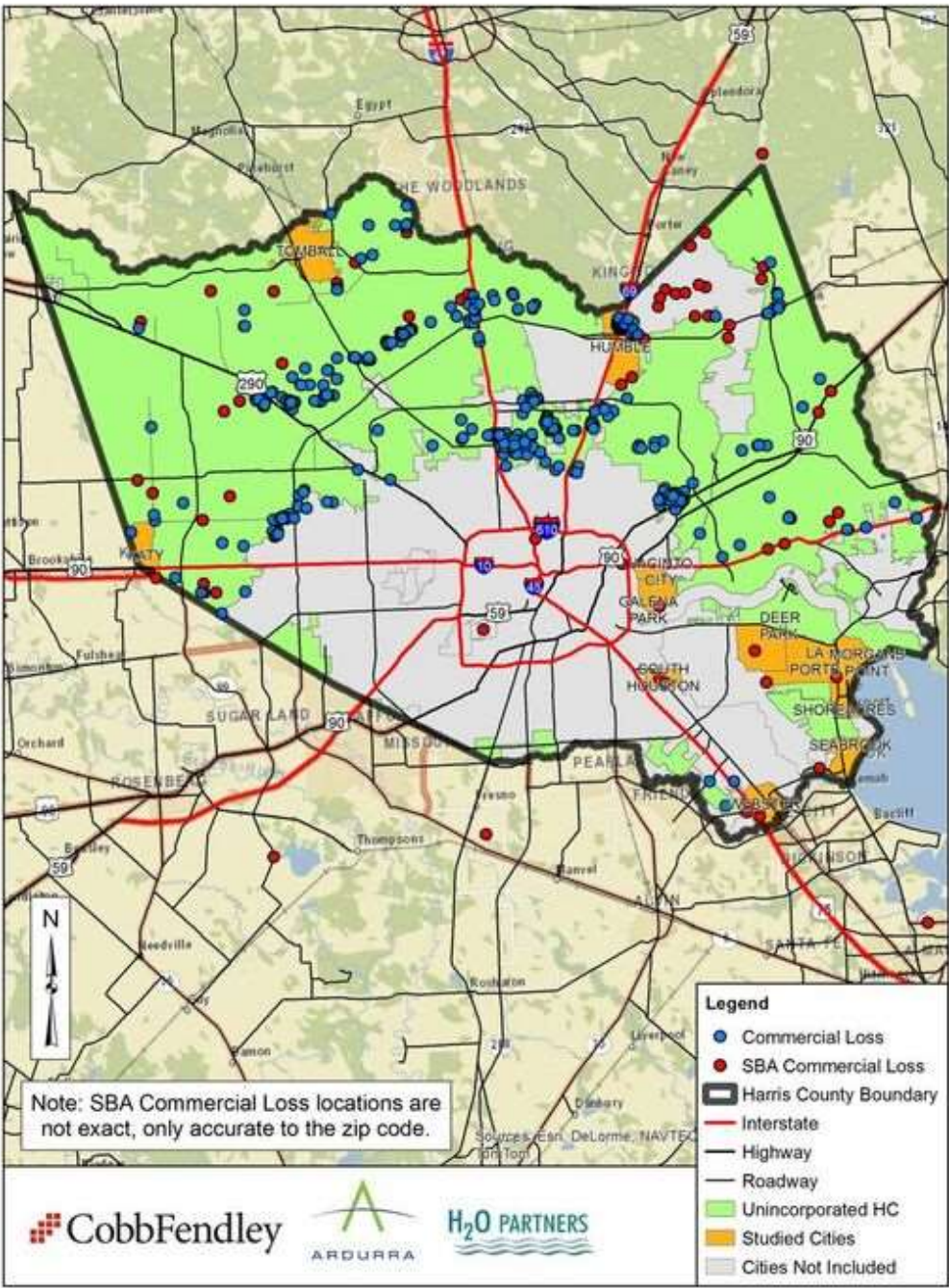
businesses which provide medical equipment sells and repair and other medical care services and local businesses who provide retail services to medical staff, patients, and other visitors to the center.

Another essential economic impact of Hurricane Harvey is the population growth of the region by more than a million residences since Hurricane Ike in 2008, which has also caused property values to rise and business infrastructure to grow. Hurricane Harvey's impact was greater than that of Hurricane Ike's due to the economic growth and Hurricane Ike being a wind event, versus Harvey being a rain-driven event. While Hurricane Harvey is said to be the nation's third largest economic disaster behind Hurricane Katrina and September 11, 2001, total economic losses are still hard to quantify. The loss of jobs in Harris County during September 2017 were significant; the City of Houston alone lost 25,000 jobs, the Texas Workforce Commission reported. The majority of these jobs from the service industry. During the disaster period, George Bush Intercontinental Airport (IAH), the fifth-largest metropolitan airport in the United States, was shut down for nearly five days. Flight Aware, a flight tracking system, reported that 9,400 commercial flights were canceled between IAH and Houston (HOU) airports through the time period of the disaster.

Map 20: Businesses Applying for SBA Loans



Map 21: Commercial Locations Flooded by Harvey



Appendix A

Harris County Small Cities

This section provides a profile for each of the 33 small cities located in Harris County (DR) Disaster Recovery Area. The profiles provide an overview of the impacts from Hurricane Harvey on housing and non-housing structures within the city.

There are 21,061 FEMA registrants with a FEMA Verified Loss (FVL) of over \$144 million and an unmet need of \$52 million. The total FEMA assistance received in the 33 cities totaled over \$94 million with an average assistance of \$4,466.07.

Within the 33 cities, 14,148 owners received an average assistance of \$5,477.49 and renters received an average assistance of \$2,395.84 in FEMA assistance. There were 14,427 Low-to-Moderate Income (LMI) registrants that had an average assistance of \$3,784.66. In addition, there were 6,507 households that reported having at least one member over the age of 60 with an average assistance of \$5,133.46 and 585 AFN registrants had an average assistance of \$4,247.65.

As seen in Table 36, includes the top twelve (12) cities with the highest damage based on total FVL from Hurricane Harvey. The city with the greatest number of registrants is Pasadena (6,356) with an FVL amount of over \$32 million and an unmet need of over \$6 million.

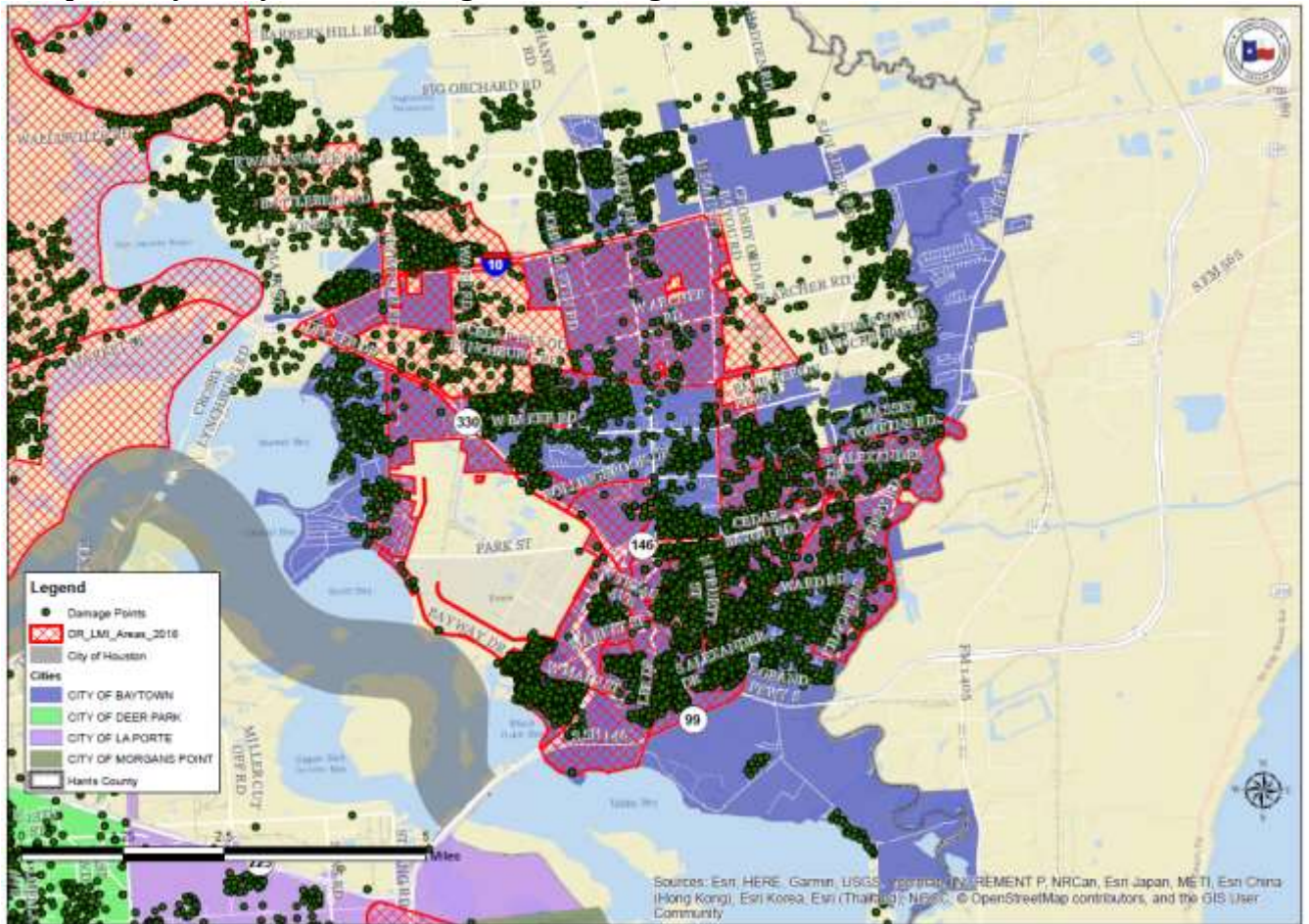
Table 36: Top 12 Cities in Harris County by Total FEMA IA Registrants

City	Number of Registrants with FVL	FVL Amount	Average Assistance	Unmet Need
Pasadena	6,356	\$32,257,990.14	\$4,178.41	\$6,982,920.96
Friendswood	1,217	\$24,292,147.71	\$11,335.53	\$9,006,500.64
Bellaire	1,670	\$21,016,582.60	\$4,151.44	\$13,429,383.59
Baytown	3,585	\$18,619,782.06	\$3,869.78	\$5,913,891.49
South Houston	1,738	\$12,112,968.02	\$5,514.84	\$2,751,178.07
Humble	799	\$9,733,781.56	\$7,401.42	\$3,448,011.25
La Porte	1,213	\$5,284,591.35	\$3,158.58	\$1,726,018.29
Katy	423	\$4,155,600.56	\$5,751.29	\$1,763,912.24
Deer Park	791	\$3,296,325.37	\$3,177.06	\$936,959.97
Jacinto City	562	\$1,981,620.57	\$3,096.76	\$318,826.21
Galena Park	512	\$1,534,039.06	\$2,432.79	\$373,779.94
Nassau Bay	173	\$1,363,387.89	\$2,398.94	\$973,714.16

Baytown

According to the 2016 U.S. Census, the City of Baytown has an estimated population of 75,310 with 57 percent of the population living in Low-to-Moderate Income (LMI) areas of the Harris County Disaster Recovery (DR) LMI Areas. The median household income is \$49,930 and 16.4 percent of the residents of Baytown are below the poverty level. Approximately 16.5 percent of the population is over the age of 60. The population by race/ethnicity is 45.5 percent Hispanic, 35.6 percent white, 14.8 percent black, 2.3 percent Asian and 1.8 percent other or two or more races.

Map 22: City of Baytown FEMA registered damaged units



The City of Baytown is located in East Harris County, North of Trinity Bay and South of Interstate 10, and portions of the city limits of Baytown are in Chambers County as seen in Map 22. During Hurricane Harvey, excessive rainfall from August 25 through September 1, 2017 resulted in major flooding and historic High River stages throughout the county. The Harris County Flood Warning System rain gage nearest Baytown, Gage 1520, recorded an average of 37.80" of rain from August 25 to August 31, 2017.

Housing

The City of Baytown has 29,419 housing units, which includes single-family, multi-family and mobile homes. A total of 3,585 FEMA registrants applied for assistance with a FEMA Verified Loss

(FVL) amount of \$18,619,782.06. The total amount awarded was \$13,871,351.47 with an average paid amount of \$3,869.78. The unmet need totaled \$5,913,981.49 for the city.

a. Owners

There were 2,203 FEMA registrants that reported themselves as owners with a FVL amount of \$16,638,414.03 and an unmet need of \$5,909,596.83. There was \$10,787,856.38 in awarded assistance with an average award of \$4,896.89 received.

b. Renters

There were 1,382 FEMA registrants that reported themselves as renters with a FVL amount of \$1,981,368.03 and an unmet need of \$4,294.66. There was \$3,085,295.09 in awarded assistance with an average award of \$2,232.49 received.

c. Low-to-Moderate Income (LMI)

The City of Baytown has a prominent LMI community with over 50 percent of the population classified as LMI. There were 2,597 LMI households that registered with FEMA and had a FVL of \$7,973,057.91. The total assistance paid was \$7,476,259.87 with an average of \$2,878.81 paid to registrants and leaving an unmet need of \$976,279.85.

d. Seniors

The population of Baytown that is over the age of 60 is 12,391. There were 958 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$7,387,699.45 for those households and the unmet need was \$3,045,541.57. The average assistance paid was \$4,604.59 with the total awarded amount of \$4,411,198.21 to the households that registered with at least one member over the age of 60.

e. Access and Functional Needs (AFN)

The City of Baytown has an AFN population of 10,161. There were 101 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$465,067.34 with an unmet need of \$196,162.78. The total assistance awarded was \$322,757.64 with an average of \$3,195.62 paid to registrants.

Non-Housing

Table 37 summarizes the damages for the City of Baytown and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Baytown had an approximate public assistance cost of \$7,363,213.22. The categories with the highest total need are Debris Removal and Buildings and Equipment, followed by Utilities. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and the Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

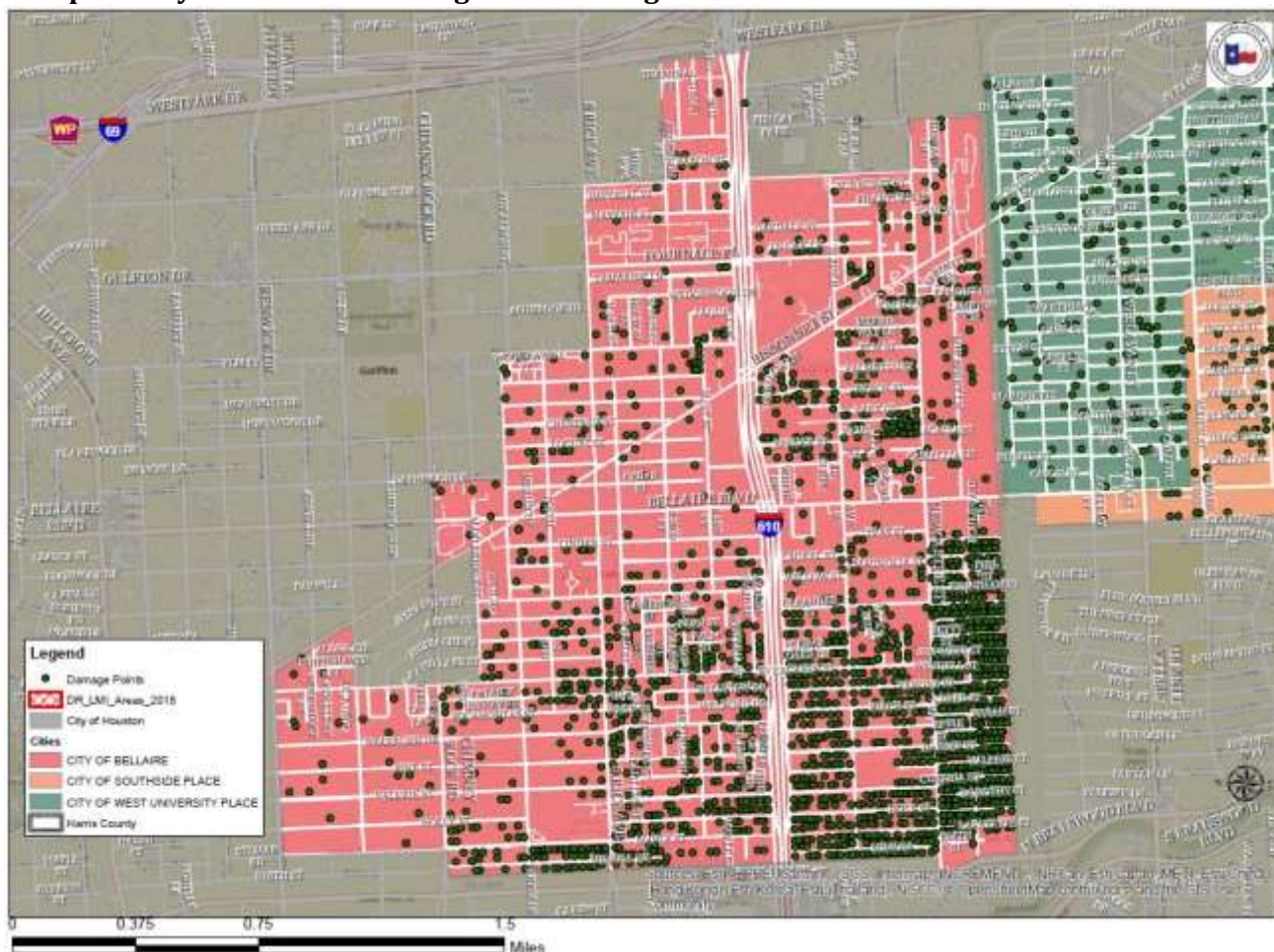
Table 37: Total Cost and Need by PA Category in City of Baytown

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$3,225,816.56	\$322,581.66	\$483,872.48	\$806,454.14
B - Emergency Protective Measures	\$580,763.32	\$58,076.33	\$87,114.50	\$145,190.83
C - Roads and Bridges	\$432,788.04	\$43,278.80	\$64,918.21	\$108,197.01
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$1,460,519.20	\$146,051.92	\$219,077.88	\$365,129.80
F - Utilities	\$1,387,666.00	\$138,766.60	\$208,149.90	\$346,916.50
G - Parks, Recreational Facilities, and Other Items	\$275,660.10	\$27,566.01	\$41,349.02	\$68,915.03
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$7,363,213.22	\$736,321.32	\$1,104,481.98	\$1,840,803.31

Bellaire

According to the 2016 U.S. Census, the City of Bellaire has an estimated population of 18,140. The median household income is \$187,805 and 1.7 percent of the residents of Bellaire are below the poverty level. Approximately 19.8 percent of the population is over the age of 60. The population by race/ethnicity is 8.3 percent Hispanic, 67.7 percent white, 0.9 percent black, 20.7 percent Asian and 2.4 percent other/two or more races.

Map 23: City of Bellaire FEMA registered damaged units



The City of Bellaire is located in Southwest Harris County, South of Interstate 69 to Beechnut Street, along Interstate 610, as seen in Map 23. The Harris County Flood Warning System rain gages nearest Baytown, Gage 440 and 430 recorded 33.76" and 29.64" respectively for an average of 31.70" of rain from August 25 to August 31.

Housing

The City of Bellaire has 6,324 housing units, which includes single-family, multi-family and mobile homes. A total of 1,670 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$21,016,582.60. The total amount awarded was \$6,925,149.21 with an average paid amount of \$4,151.44. The unmet need totaled to \$13,429,383.59 for the city, which was the highest FEMA unmet need for the 33 cities in Harris County.

a. Owners

There were 1,376 FEMA registrants that reported themselves as owners with a FVL amount of \$19,842,406.46 and an unmet need of \$13,429,383.59. There was \$6,017,569.24 awarded assistance with an average of \$4,373.23 received.

b. Renters

There were 293 FEMA registrants that reported themselves as renters with a FVL amount of \$1,172,452.52 and no unmet need calculated. There was \$911,179.97 awarded assistance with an average of \$3,109.83 received.

c. Seniors

The population of Bellaire that is over the age of 60 is 3,585. There were 685 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$9,575,133.76 for those households and the unmet need was \$5,737,778.54. The average assistance paid was \$5,066.88 with the total awarded \$3,470,811.19 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Bellaire has an AFN population of 1,175. There were 24 FEMA registrants that are classified as AFN in city. Registrants had a FVL of \$284,789.38 with an unmet need of \$194,373.64. The total assistance awarded was \$63,736.99 with an average of \$2,655.71 paid to registrants.

Non-Housing

Table 38 summarizes the damages for the City of Bellaire and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Bellaire had an approximate public assistance cost of \$4,518,699.70. The categories with the highest total need are Debris Removal and Buildings and Equipment, followed by Emergency Protective Measures. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

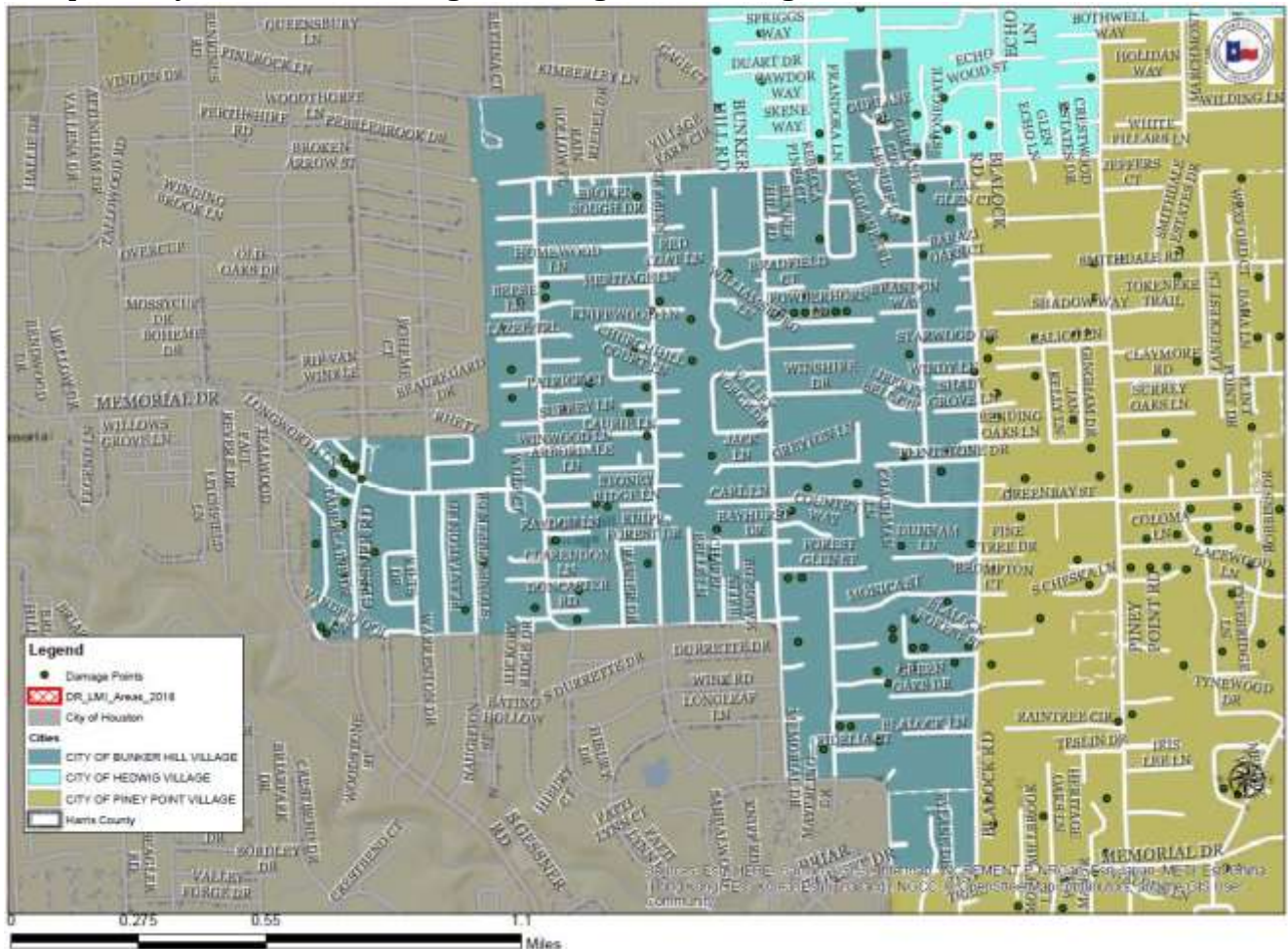
Table 38: Total Cost and Need by PA Category in City of Bellaire

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$1,620,000.00	\$162,000.00	\$243,000.00	\$405,000.00
B - Emergency Protective Measures	\$688,277.70	\$68,827.77	\$103,241.66	\$172,069.43
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$1,503,091.80	\$150,309.18	\$225,463.77	\$375,772.95
F - Utilities	\$278,919.90	\$27,891.99	\$41,837.99	\$69,729.98
G - Parks, Recreational Facilities, and Other Items	\$190,584.00	\$19,058.40	\$28,587.60	\$47,646.00
Z - Direct Administrative Costs	\$237,826.30	\$23,782.63	\$35,673.95	\$59,456.58
Grand Total	\$4,518,699.70	\$451,869.97	\$677,804.96	\$1,129,674.93

Bunker Hill Village

According to the 2016 U.S. Census, the City of Bunker Hill Village has an estimated population of 3,909. The median household income is \$221,824 and 3.3 percent of the residents of Bunker Hill Village are below the poverty level. Approximately 22.5 percent of the population is over 60. The population by race/ethnicity is 8 percent Hispanic, 75.1 percent white, 0.5 percent black, 15 percent Asian and 1.4 percent other/two or more races.

Map 24: City of Bunker Hill Village FEMA registered damaged units



The City of Bunker Hill Village is located in West Harris County, South of Interstate 10 and East of Beltway 8 and is one of four cities in the area of Harris County known as The Villages, as seen in Map 24. The Harris County Flood Warning System rain gages nearest Bunker Hill Village, Gage 2260 and 2270 recorded 29.56" and 36.64" respectively an average of 33.10" of rain from August 25 to August 31.

Housing

The City of Bunker Hill Village has 1,190 housing units, which includes single-family, multi-family and mobile homes. A total of 67 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$40,342.77. The total amount awarded was \$63,255.58 with an average paid amount of \$958.42. The unmet need totaled to \$3,219.43 for the city.

a. Owners

There were 58 FEMA registrants that reported themselves as owners with a FVL amount of \$40,342.77 and an unmet need of \$3,219.43. There was \$59,255.58 awarded assistance with an average of \$1,021.65 received.

b. Renters

There were eight (8) FEMA registrants that reported themselves as renters without a FVL or unmet need calculated by FEMA. However, there was \$4,000 awarded assistance with an average of \$500 received.

c. Seniors

The population of Bunker Hill Village that is over the age of 60 is 879. There were 37 FEMA registrants with at least one member of the household over the age of 60. The total FVL was \$24,374.49 for those households and the unmet need was \$3,185.07. The average assistance paid was \$956.47 with the total awarded \$35,389.30 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Bunker Hill Village has an AFN population of 111. There was one (1) FEMA registrant classified as AFN in the city. That registrant did not have a FVL or unmet need calculated by FEMA. The total assistance awarded was \$500 to the registrant.

Non-Housing

Table 39 summarizes the damages for the City of Bunker Hill Village and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Bunker Hill Village had an approximate public assistance cost of \$218,837.26. The categories with the highest total need are Utilities and Buildings and Equipment, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

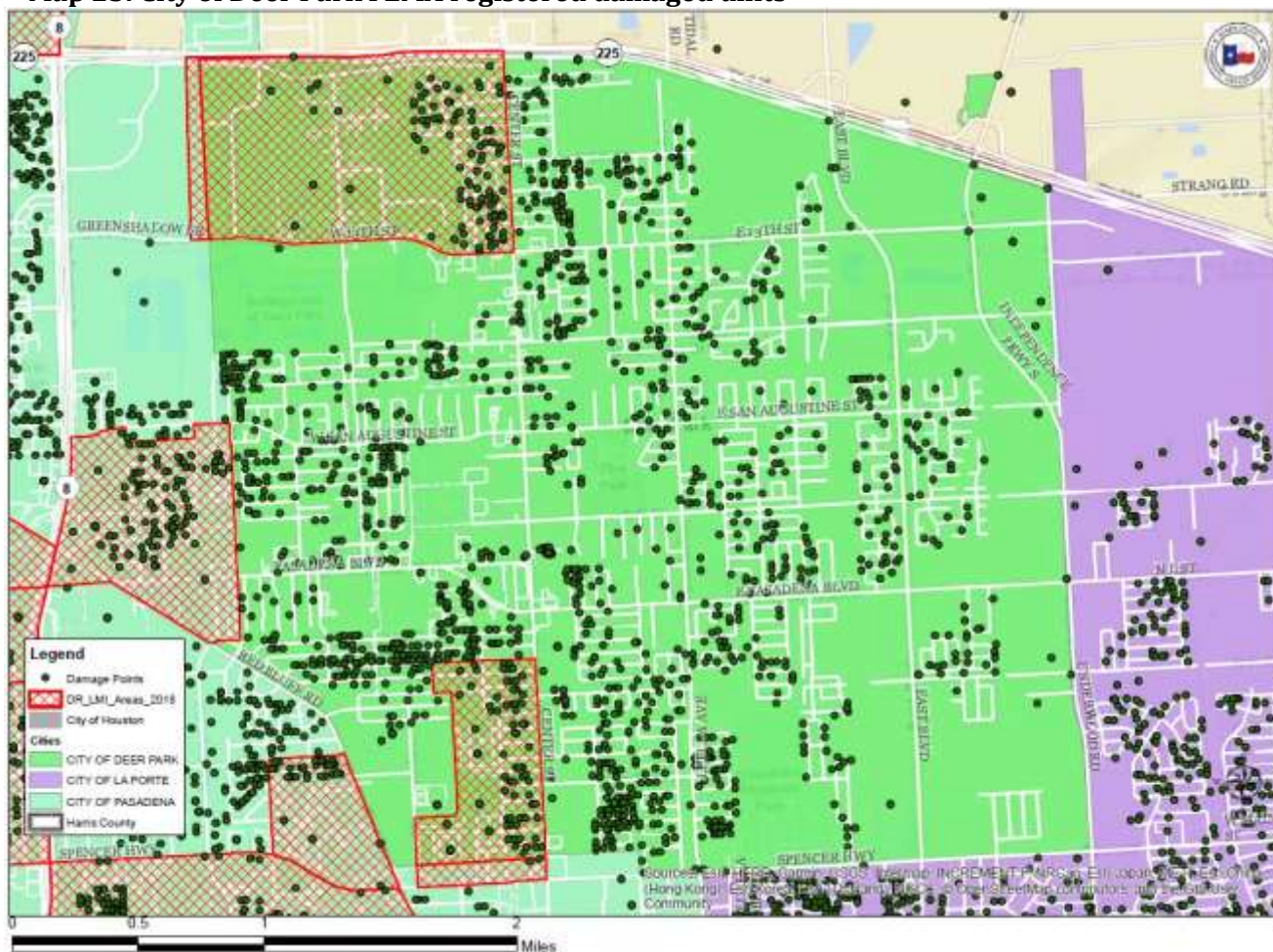
Table 39: Total Cost and Need by PA Category in City of Bunker Hill Village

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$10,125.00	\$1,012.50	\$1,518.75	\$2,531.25
B - Emergency Protective Measures	\$7,230.00	\$723.00	\$1,084.50	\$1,807.50
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$1,056.26	\$105.63	\$158.44	\$264.07
E - Buildings and Equipment	\$24,000.00	\$2,400.00	\$3,600.00	\$6,000.00
F - Utilities	\$176,426.00	\$17,642.60	\$26,463.90	\$44,106.50
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$218,837.26	\$21,883.73	\$32,825.59	\$54,709.32

Deer Park

According to the 2016 U.S. Census, the City of Deer Park has an estimated population of 33,517. The City of Deer Park has a Low-to-Moderate Income (LMI) population of 2,615 and is included in Harris County's Target Areas. The median household annual income is \$78,703 and 8.6 percent of the residents of Deer Park are below the poverty level. Approximately 16.8 percent of the population is over 60. The population by race/ethnicity is 31.5 percent Hispanic, 64.5 percent white, 0.8 percent black, 1.7 percent Asian and 1.5 percent other/two or more races.

Map 25: City of Deer Park FEMA registered damaged units



The City of Deer Park is located predominantly South of Highway 225, West of Pasadena, as seen in Map 25. The Harris County Flood Warning System rain gages nearest Deer Park, Gage 240 and Gage 270, recorded 43.36" and 43.68" respectively for an average 43.52" of rain from August 25 to August 31.

Housing

The City of Deer Park has 11,166 housing units, which includes single-family, multi-family and mobile homes. A total of 791 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$3,296,325.37. The total amount that was awarded to the FEMA registrants was

\$2,512,455.43 with an average paid amount of \$3,177.06. The unmet need totaled to \$936,959.97 for the city.

a. Owners

There were 500 FEMA registrants that reported themselves as owners with a FVL amount of \$2,768,861.51 and an unmet need of \$936,959.97. There was \$1,894,429.10 awarded assistance with an average of \$3,788.86 assistance received.

b. Renters

There were 291 FEMA registrants that reported themselves as renters with a FVL \$527,463.86 and no unmet need calculated by FEMA. There was \$618,126.33 awarded assistance with an average of \$2,125.86 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Deer Park has a LMI community that is a part of Harris County's Target Areas. In the LMI population of Deer Park, 481 FEMA registrants sustained damage. They had a FVL of \$255,468.71 with a total assistance paid of \$208,559.11, which averages to \$883.73 assistance received, leaving an unmet need of \$69,864.80.

d. Seniors

The population of Deer Park that is over the age of 60 is 5,643. There were 216 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$979,240.32 for those households and the unmet need was \$355,826.43. The average assistance paid was \$3073.66 with the total awarded \$663,910.05 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Deer Park has an AFN population of 3,865. There were 18 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$33,634.49 with an unmet need calculated by FEMA of \$3,501.92. The total assistance awarded was \$27,993.66 with an average of \$1,555.20 paid to registrants.

Non-Housing

Table 40 summarizes the damages for the City of Deer Park and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Deer Park had an approximate public assistance cost of \$1,232,831.00. The categories with the highest total need are Roads and Bridges and Buildings and Equipment, followed by Emergency Protective Measures. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

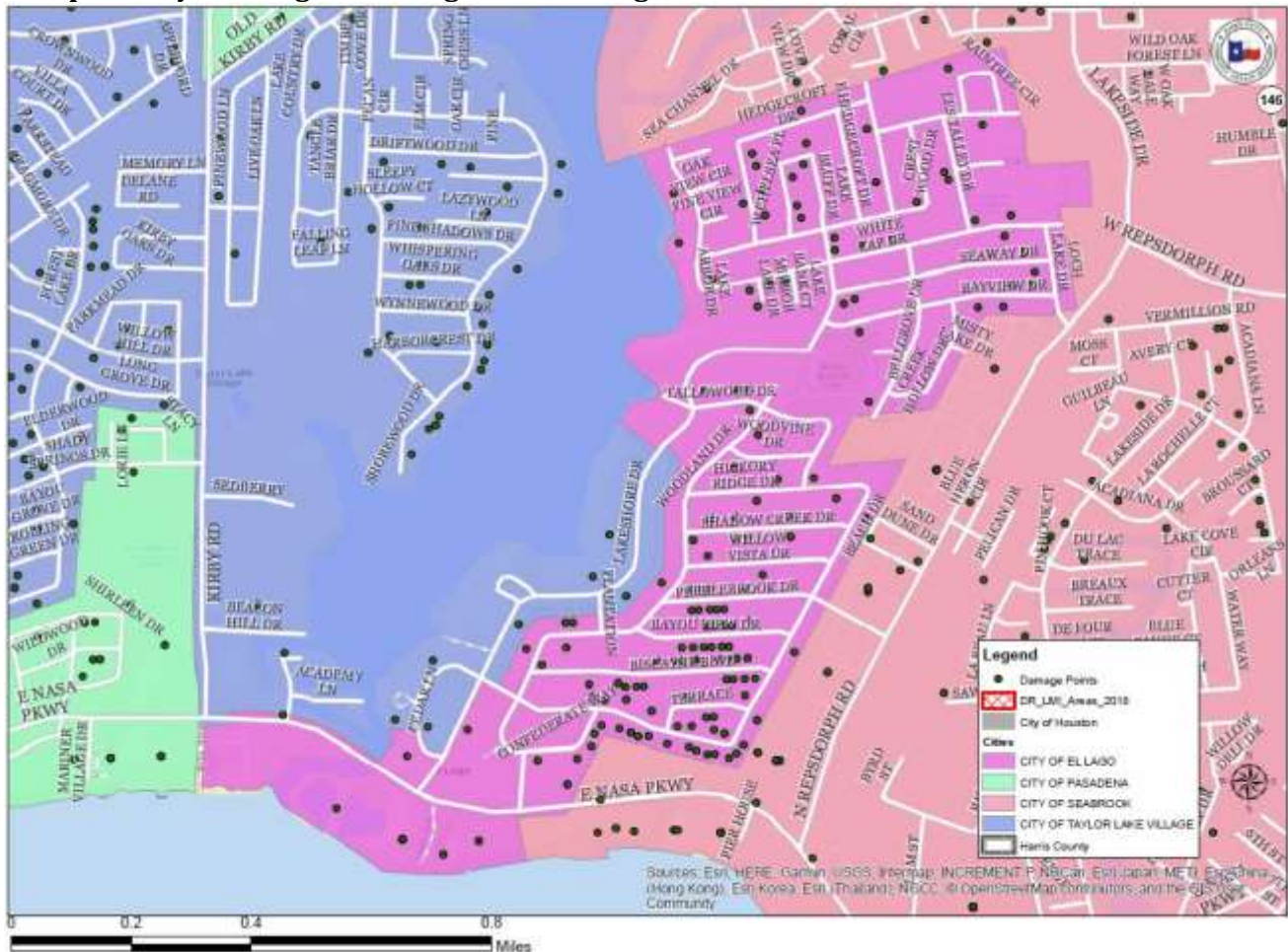
Table 40: Total Cost and Need by PA Category in City of Deer Park

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$150,000.00	\$15,000.00	\$22,500.00	\$37,500.00
B - Emergency Protective Measures	\$250,000.00	\$25,000.00	\$37,500.00	\$62,500.00
C - Roads and Bridges	\$425,500.00	\$42,550.00	\$63,825.00	\$106,375.00
D - Water Control Facilities	\$19,600.00	\$1,960.00	\$2,940.00	\$4,900.00
E - Buildings and Equipment	\$283,931.00	\$28,393.10	\$42,589.65	\$70,982.75
F - Utilities	\$3,800.00	\$380.00	\$570.00	\$950.00
G - Parks, Recreational Facilities, and Other Items	\$100,000.00	\$10,000.00	\$15,000.00	\$25,000.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$1,232,831.00	\$123,283.10	\$184,924.65	\$308,207.75

El Lago

According to the 2016 U.S. Census, the City of El Lago has an estimated population of 2,778. The median household annual income is \$86,000 and 5.3 percent of the residents of El Lago are below the poverty level. Approximately 19.3 percent of the population is over 60. The population by race/ethnicity is 12.8 percent Hispanic, 79.8 percent white, 1.1 percent black, 2.3 percent Asian and 4 percent other/two or more races.

Map 26: City of El Lago FEMA registered damaged units



The City of El Lago is located North of Clear Lake and West of Highway 146, as seen in Map 26. The Harris County Flood Warning System rain gages nearest El Lago, Gage 200 recorded an average of 39.44" of rain from August 25 to August 31.

Housing

The City of El Lago has 1,074 housing units, which includes single-family, multi-family and mobile homes. A total of 103 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$956,541.28. The total amount awarded to the FEMA registrants was \$350,966.74 with an average paid amount of \$3,423.61. The unmet need totaled to \$618,183.92 for the city.

a. Owners

There were 84 FEMA registrants that reported themselves as owners with a FVL amount of \$942,578.35 and an unmet need of \$618,183.92. There was \$319,623.54 awarded assistance with an average of \$3,805.04 assistance received.

b. Renters

There were 19 FEMA registrants reported themselves as renters with a FVL \$13,962.93 and no unmet need calculated by FEMA. There was \$33,008.13 awarded assistance with an average of \$1,737.27 assistance received.

c. Low-to-Moderate Income (LMI)

In the LMI population of El Lago, 46 FEMA registrants sustained damage. They had a FVL of \$252,522.47 with a total assistance paid of \$79,142.45, which averages to \$1,720.49 assistance received.

d. Seniors

The population of El Lago that is over the age of 60 is 536. There were 38 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$439,650.86 for those households and the unmet need was \$291,360.55. The average assistance paid was \$3,839.15 with the total awarded \$145,887.85 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of El Lago has an AFN population of 296. There were no FEMA registrants classified as AFN in the city.

Non-Housing

Table 41 summarizes the damages for the City of El Lago and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of El Lago had an approximate public assistance cost of \$18,500.00 under the Debris Removal and Emergency Protective Measures PA categories. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

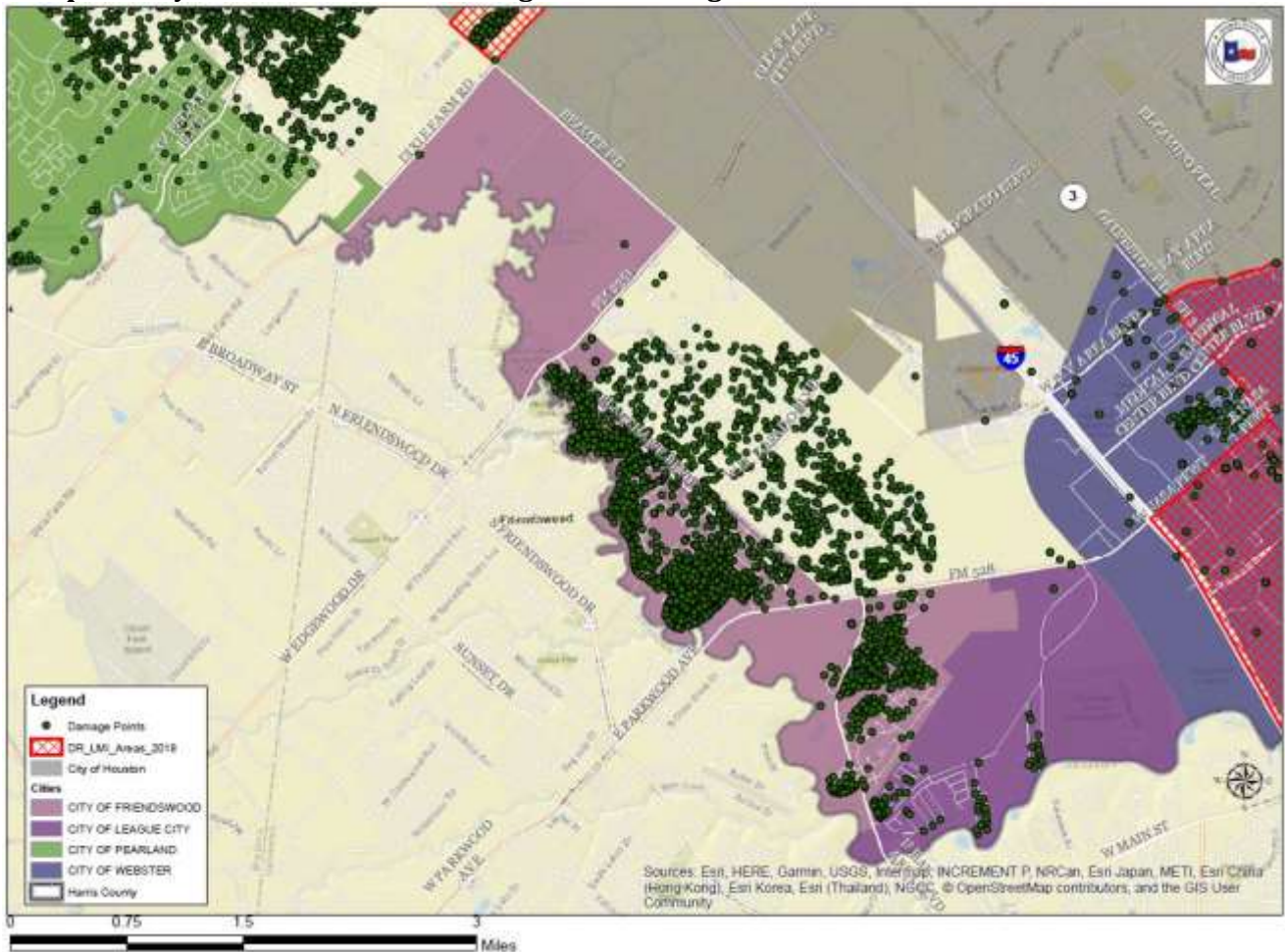
Table 41: Total Cost and Need by PA Category in City of El Lago

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$15,000.00	\$1,500.00	\$2,250.00	\$3,750.00
B - Emergency Protective Measures	\$3,500.00	\$350.00	\$525.00	\$875.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$18,500.00	\$1,850.00	\$2,775.00	\$4,625.00

Friendswood

According to the 2016 U.S. Census, the City of Friendswood has an estimated population of 38,272. The median household annual income is \$95,241 and 4.3 percent of the residents of Friendswood are below the poverty level. Approximately 20.2 percent of the population is over 60. The population by race/ethnicity is 15.2 percent Hispanic, 73.2 percent white, 2.7 percent black, 6.3 percent Asian and 2 percent other/two or more races.

Map 27: City of Friendswood FEMA registered damaged units



The City of Friendswood is located South of Beltway 8, between Highway 35 and Interstate 45, as seen in Map 27. The Harris County Flood Warning System rain gages nearest Friendswood, Gage 105, 135, 115 and 120 recorded 48.92", 10.32", 34.72" and 42.24" respectively an average of 34.05" of rain from August 25 to August 31.

Housing

The City of Friendswood has 13,227 housing units, which includes single-family, multi-family and mobile homes. A total of 1,217 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$24,292,147.71. The total amount that was awarded to the FEMA registrants was \$13,794,143.40 with an average paid amount of \$11,335.53. The unmet need totaled to \$9,006,500.64 for the city.

a. Owners

There were 943 FEMA registrants that reported themselves as owners with a FVL amount of \$22,887,376.25 and an unmet need of \$9,006,500.64. There was \$12,598,303.03 awarded assistance with an average of \$13,359.81 assistance received.

b. Renters

There were 274 FEMA registrants that reported themselves as renters with a FVL \$1,404,771.46 and no unmet need calculated by FEMA. There was \$1,197,040.37 awarded assistance with an average of \$4,368.76 assistance received.

c. Seniors

The population of Friendswood that is over the age of 60 is 7,746. There were 475 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$10,211,071.49 for those households and the unmet need was \$5,038,196.74. The average assistance paid was \$9,754.70 with the total awarded \$4,633,482.73 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Friendswood has an AFN population of 3,274. There were 40 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$783,450.52 and an unmet need of \$352,915.25 calculated by FEMA. The average assistance received by the AFN registrants was \$9,600.22 and a total of \$384,008.93.

Non-Housing

Table 42 summarizes the damages for the City of Friendswood and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Friendswood had an approximate public assistance cost of \$28,150,935.91. The categories with the highest total need are Roads and Bridges and Buildings and Equipment, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

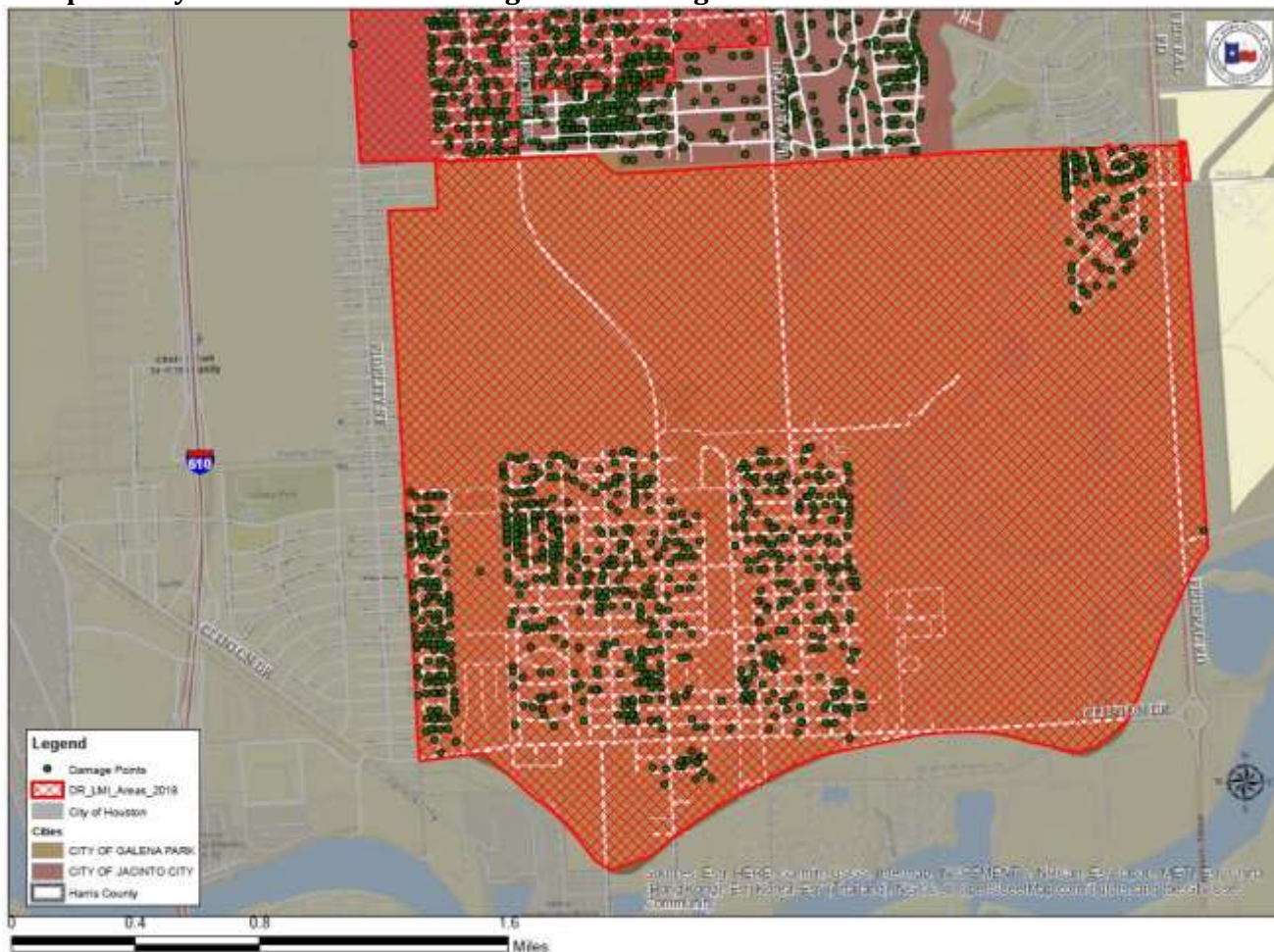
Table 42: Total Cost and Need by PA Category in City of Friendswood

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$5,650,000.00	\$565,000.00	\$847,500.00	\$1,412,500.00
B - Emergency Protective Measures	\$1,000,000.00	\$100,000.00	\$150,000.00	\$250,000.00
C - Roads and Bridges	\$10,000,000.00	\$1,000,000.00	\$1,500,000.00	\$2,500,000.00
D - Water Control Facilities	\$5,000,000.00	\$500,000.00	\$750,000.00	\$1,250,000.00
E - Buildings and Equipment	\$6,000,000.00	\$600,000.00	\$900,000.00	\$1,500,000.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$100,935.91	\$10,093.59	\$15,140.39	\$25,233.98
Z - Direct Administrative Costs	\$400,000.00	\$40,000.00	\$60,000.00	\$100,000.00
Grand Total	\$28,150,935.91	\$2,815,093.59	\$4,222,640.39	\$7,037,733.98

Galena Park

According to the 2016 U.S. Census, the City of Galena Park has an estimated population of 11,119. The Low-to Moderate Income (LMI) population of the City of Galena Park consists of 99.8 percent of the total population. The median household annual income is \$44,467 and 17.9 percent of the residents of Galena Park are below the poverty level. Approximately 10.8 percent of the population is over 60. The population by race/ethnicity is 83.8 percent Hispanic, 10.7 percent white, 5.4 percent black, 0.1 percent Asian and 0.05 percent other/two or more races.

Map 28: City of Galena Park FEMA registered damaged units



Galena Park, as seen in Map 28, is east of the 610 Loop, north of the Houston Ship Channel, and adjacent to the City of Jacinto City as well as the Clinton Park neighborhood of Houston. Clinton Drive is the main arterial road for Galena Park and traffic to and from the ship channel and the Port of Houston uses this road. The Harris County Flood Warning System rain gages nearest Galena Park, Gage 820 and Gage 940, recorded 39.44" and 42.4" respectively for an average 40.92" of rain from August 25 to August 30.

Housing

The City of Galena Park has 3,017 housing units, which includes single-family, multi-family and mobile homes. A total of 512 FEMA registrants applied for assistance, all of which are LMI and

located in Harris County's Target Area. The registrants had a FEMA Verified Loss (FVL) amount of \$1,534,039.06. The total amount that was awarded to the FEMA registrants was \$1,243,321.20 with an average paid amount of \$2,432.79. The unmet need totaled to \$373,779.94 for the city.

a. Owners

There were 341 FEMA registrants that reported themselves as owners with a FVL amount of \$1,240,239.58 and an unmet need of \$373,779.94. There was \$898,972.10 awarded assistance with an average of \$2,636.28 assistance received.

b. Renters

There were 171 FEMA registrants that reported themselves as renters with had a FVL \$273,599.48 and an unmet need calculated by FEMA of \$293,799.48. There was \$346,616.86 awarded assistance with an average of \$2,027 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Galena Park is a LMI community that is a part of Harris County's Target Areas. All of Galena Park's FEMA registrants who sustained damage are in the LMI area, but 449 are classified as LMI. The registrants had a FVL amount of \$1,460,539.06. The total amount that was awarded to the FEMA registrants was \$1,243,321.20 with an average paid amount of \$1,360.31. The unmet need totaled to \$373,779.94 for the city.

d. Seniors

The population of Galena Park that is over the age of 60 is 1,204. There were 144 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$455,021.40 for those households and the unmet need was \$118,036.02. The average assistance paid was \$2,761.36 with the total awarded \$397,636.09 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Galena Park has an AFN population of 1,168. There were 12 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$35,632.11 and an unmet need of \$323.48 calculated by FEMA. The average assistance received by the AFN registrants was \$3,572.36 and a total of \$42,868.30.

Non-Housing

Table 43 summarizes the damages for the City of Galena Park and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Galena Park had an approximate public assistance cost of \$1,862,100.00. The categories with the highest total need are Buildings and Equipment and Emergency Protective Measures, followed by Parks, Recreational Facilities, and Other Items. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

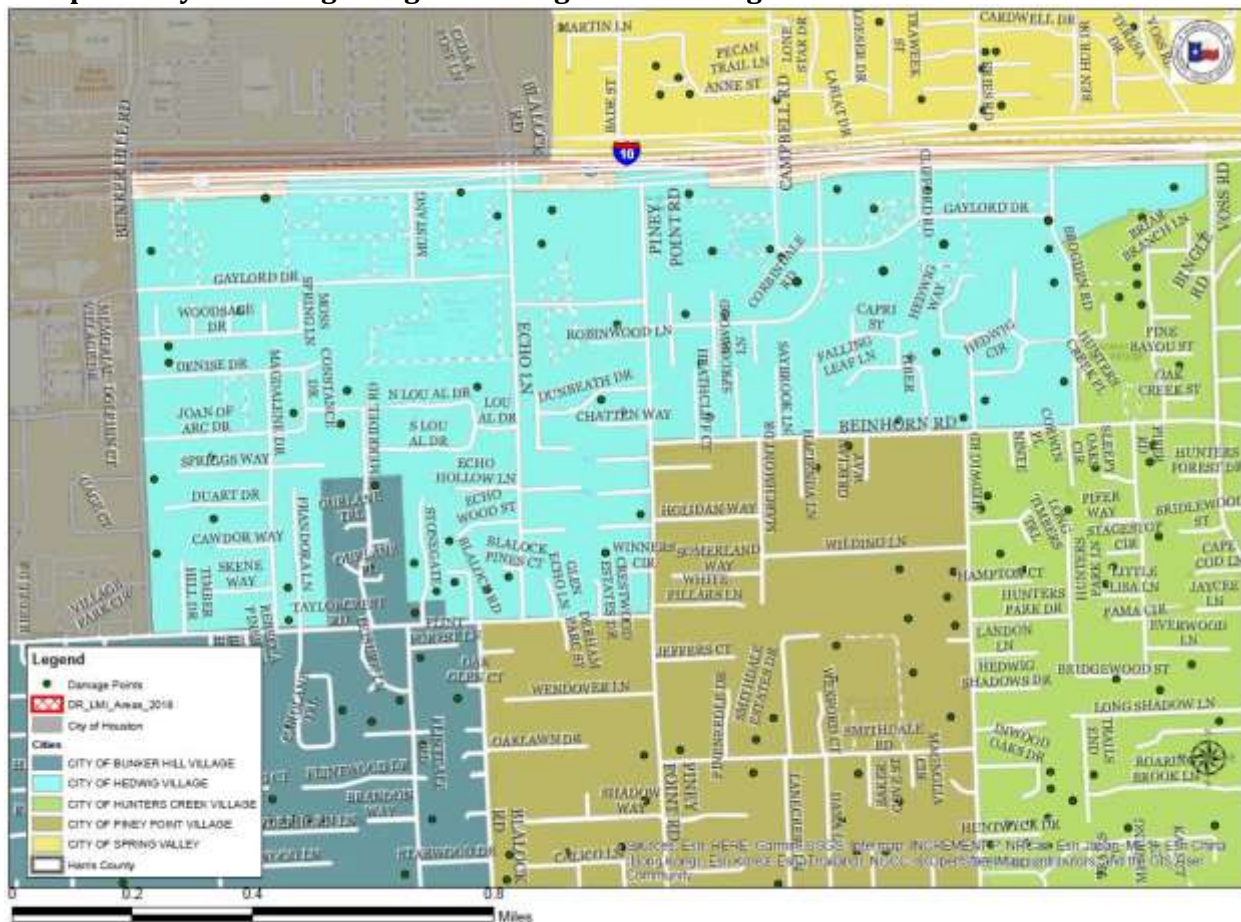
Table 43: Total Cost and Need by PA Category in City of Galena Park

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$20,000.00	\$2,000.00	\$3,000.00	\$5,000.00
B - Emergency Protective Measures	\$579,100.00	\$57,910.00	\$86,865.00	\$144,775.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$1,226,000.00	\$122,600.00	\$183,900.00	\$306,500.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$37,000.00	\$3,700.00	\$5,550.00	\$9,250.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$1,862,100.00	\$186,210.00	\$279,315.00	\$465,525.00

Hedwig Village

According to the 2016 U.S. Census, the City of Hedwig Village has an estimated population of 2,655. The median household annual income is \$ 91,176 and 8.3 percent of the residents of Hedwig Village are below the poverty level. Approximately 19.5 percent of the population is over 60. The population by race/ethnicity is 12.7 percent Hispanic, 67.7 percent white, 2.1 percent black, 16.1 percent Asian and 1.5 percent other/two or more races.

Map 29: City of Hedwig Village FEMA registered damaged units



The City of Hedwig Village is another city located in the area known as The Villages in West Harris County, South of Interstate 10 and East of Beltway 8, as seen in Map 29. The Harris County Flood Warning System rain gages nearest Hedwig Village, Gage 2255 recorded an average of 30.16" of rain from August 25 to August 31.

Housing

The City of Hedwig Village has 968 housing units, which includes single-family, multi-family and mobile homes. A total of 37 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$46,467.16. The total amount that was awarded to the FEMA registrants was \$62,332.29 with an average paid amount of \$1,684.66. The unmet need totaled to \$2,800.27 for the city.

a. Owners

There were 23 FEMA registrants that reported themselves as owners with a FVL amount of \$45,951.71 and an unmet need of \$2,800.87. There was \$55,266.84 awarded assistance with an average of \$2,402.91 assistance received.

b. Renters

There were 14 FEMA registrants reported themselves as renters with a FVL \$515.45 and no unmet need calculated by FEMA. There was \$7,065.45 awarded assistance with an average of \$504.68 assistance received.

c. Seniors

The population of Hedwig Village that is over the age of 60 is 517. There were 13 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$27,457.02 for those households and the unmet need was \$2,457.02. The average assistance paid was \$2,346.15 with the total awarded \$30,500 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Hedwig Village has an AFN population of 158. There were no FEMA registrants classified as AFN in the city.

Non-Housing

Table 44 summarizes the damages for the City of Hedwig Village and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Hedwig Village had an approximate public assistance cost of \$43,075.75 under the Emergency Protective Measures PA category. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 44: Total Cost and Need by PA Category in City of Hedwig Village

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$43,075.75	\$4,307.58	\$6,461.36	\$10,768.94
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$43,075.75	\$4,307.58	\$6,461.36	\$10,768.94

Hilshire Village

According to the 2016 U.S. Census, the City of Hilshire Village has an estimated population of 852. The median household annual income is \$159,844 and none of the residents of Hilshire Village are below the poverty level. Approximately 30.4 percent of the population is over 60. The population by race/ethnicity is 12.7 percent Hispanic, 76.4 percent white, 8.2 percent Asian and 2.7 percent other/two or more races.

Map 30: City of Hilshire Village FEMA registered damaged units



The City of Hilshire Village is another city located in the area known as The Villages in West Harris County, South of Interstate 10 and East of Beltway 8, as seen in Map 30. The Harris County Flood Warning System rain gage nearest Hillshire Village, Gage 2250 recorded an average of 32.20" of rain from August 25 to August 31.

Housing

The City of Hilshire Village has 321 housing units, which includes single-family, multi-family and mobile homes. A total of seven (7) FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$784.45. The total amount awarded to the FEMA registrants was \$2,500 with an average paid amount of \$357.14. The unmet need totaled to \$784.45 for the city.

a. Owners

There were six (6) FEMA registrants that reported themselves as owners with a FVL amount of \$784.45 and an unmet need of \$784.45. There was \$2,000 awarded assistance with an average of \$333.33 assistance received.

b. Renters

There was one (1) FEMA registrant that reported himself or herself as a renter. That registrant did not have a FVL or unmet need calculated by FEMA. There was \$500 awarded assistance received.

c. Seniors

The population of Hilshire Village that is over the age of 60 is 259. There were five (5) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$557 for those households and the unmet need was \$557. The average assistance paid was \$400 with the total awarded \$2,000 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Hilshire Village has an AFN population of 67. Of the AFN population for the City of Hilshire Village, none registered for assistance from the Federal Emergency Management Agency (FEMA).

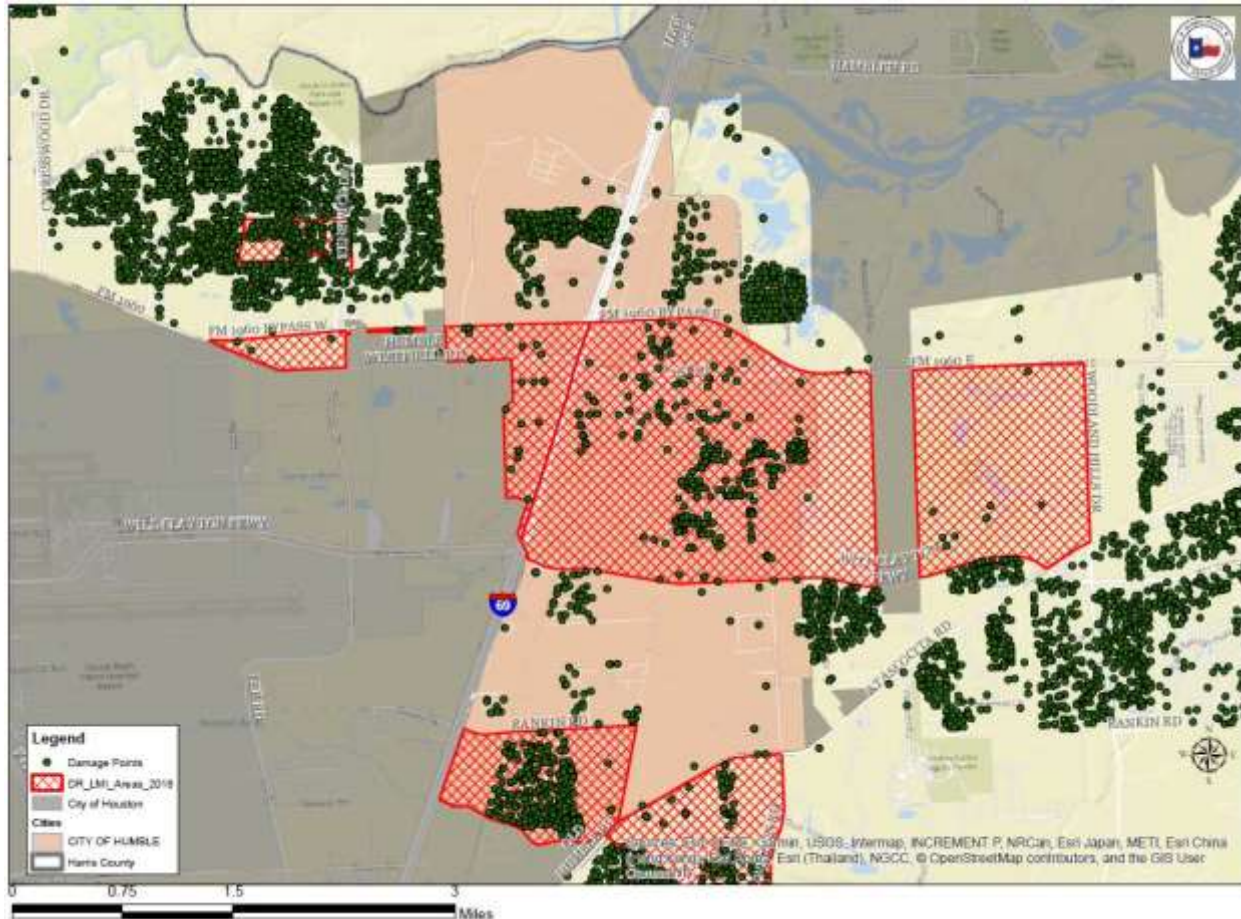
Non-Housing

FEMA PA data is currently unavailable for the City of Hunter's Creek Village.

Humble

According to the 2016 U.S. Census, the City of Humble has an estimated population of 15,569. The Low-to-Moderate Income (LMI) population of the City of Humble consists of 71.5 percent of the total population and is included in Harris County's Target Areas. The median household annual income is \$37,257 and 16.1 percent of the residents of Humble are below the poverty level. Approximately 14.9 percent of the population is over 60. The population by race/ethnicity is 41.9 percent Hispanic, 22 percent white, 31.7 percent black, 1.5 percent Asian and 2.9 percent other/two or more races.

Map 31: City of Humble FEMA registered damaged units



Humble, as seen in Map 31, is in North Harris County, East of Bush Intercontinental Airport at FM 1960 and Interstate 69. The Harris County Flood Warning System rain gage nearest Humble (Gage 760) recorded 32.96" of rain from August 25 to August 30.

Housing

The City of Humble has 5,387 housing units, which includes single-family, multi-family and mobile homes. A total of 799 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$9,733,781.56. The total amount that was awarded to the FEMA registrants was \$5,888,000.05 with an average paid amount of \$7,401.42. The unmet need totaled to \$3,448,011.25 for the city.

a. Owners

There were 436 FEMA registrants that reported themselves as owners with a FVL amount of \$8,936,844.47 and an unmet need of \$3,448,011.25. There was \$5,012,393.45 awarded assistance with an average of \$11,496.32 assistance received.

b. Renters

There were 362 FEMA registrants that reported themselves as renters with a FVL \$796,937.09 and no unmet need calculated by FEMA. There was \$893,439.66 awarded assistance with an average of \$2,469.45 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Humble has a LMI population of 11,125 that is a part of Harris County's Target Areas. There were 567 registrants that reported damages to FEMA. The registrants had a FVL amount of \$798,225.22. The total amount that was awarded to the FEMA registrants was \$695,241.61 with an average paid amount of \$776.81. The unmet need totaled to \$362,518.19 for the city.

d. Seniors

The population of Humble that is over the age of 60 is 2,323. There were 246 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$5,242,130.07 for those households and the unmet need was \$2,230,450.34. The average assistance paid was \$11,003.29 with the total awarded \$2,706,809.49 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Humble has an AFN population of 1,737. There were 40 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$608,768.21 and an unmet need of \$222,497.28 calculated by FEMA. The average assistance received by the AFN registrants was \$9,088.91 and a total of \$363,556.56.

Non-Housing

Table 45 summarizes the damages for the City of Humble and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Humble had an approximate public assistance cost of \$7,688,896.29. The categories with the highest total need are Buildings and Equipment and Parks, Recreational Facilities, and Other Items; followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

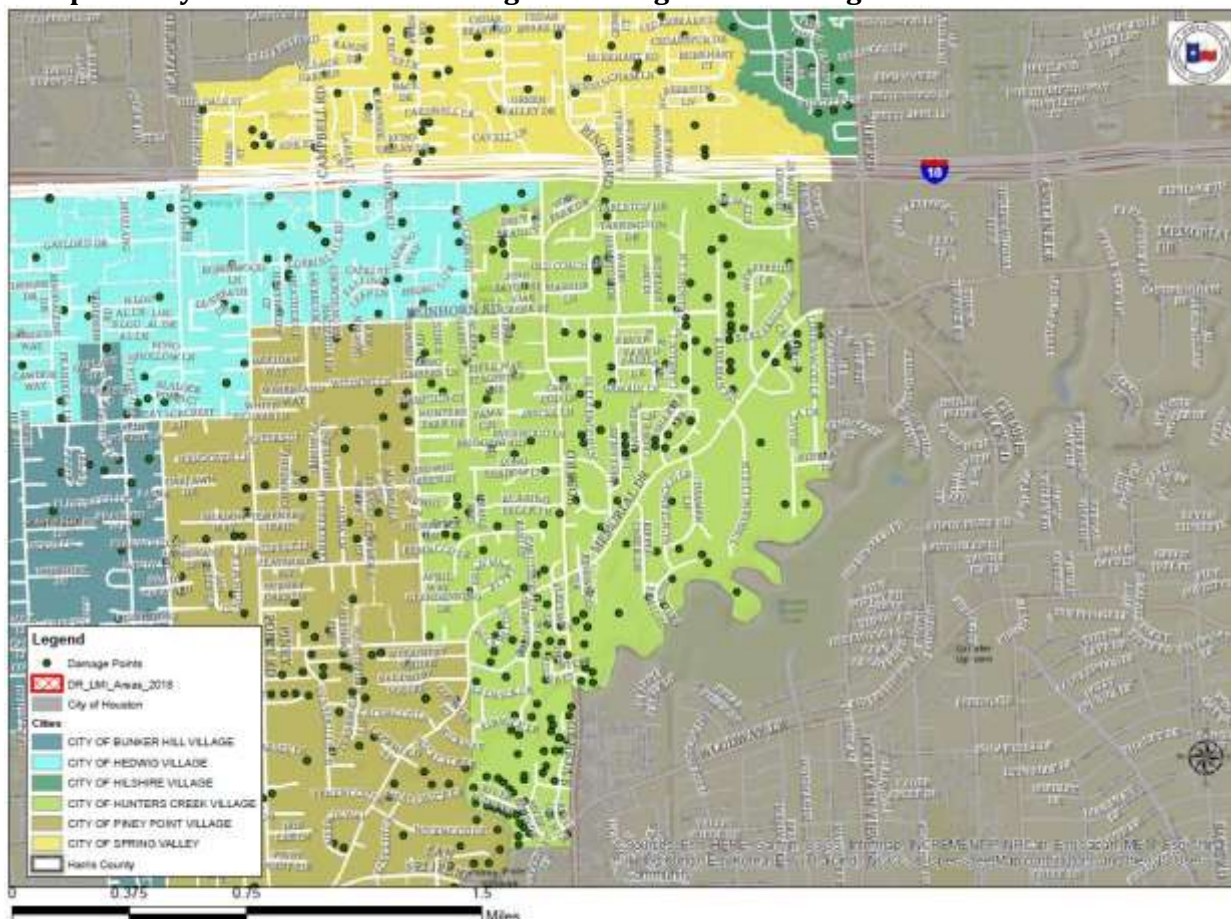
Table 45: Total Cost and Need by PA Category in City of Humble

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$645,000.00	\$64,500.00	\$96,750.00	\$161,250.00
B - Emergency Protective Measures	\$250,000.00	\$25,000.00	\$37,500.00	\$62,500.00
C - Roads and Bridges	\$131,081.00	\$13,108.10	\$19,662.15	\$32,770.25
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$5,304,691.00	\$530,469.10	\$795,703.65	\$1,326,172.75
F - Utilities	\$358,124.29	\$35,812.43	\$53,718.64	\$89,531.07
G - Parks, Recreational Facilities, and Other Items	\$1,000,000.00	\$100,000.00	\$150,000.00	\$250,000.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$7,688,896.29	\$768,889.63	\$1,153,334.44	\$1,922,224.07

Hunter's Creek Village

According to the 2016 U.S. Census, the City of Hunter's Creek Village has an estimated population of 4,688. The median household annual income is over \$250,000. Approximately 23.9 percent of the population is over 60. The population by race/ethnicity is 6.4 percent Hispanic, 82.5 percent white, 1.8 percent black, 6.1 percent Asian and 3.3 percent other/two or more races.

Map 32: City of Hunter's Creek Village FEMA registered damaged units



Hunter's Creek Village, as seen in Map 32, is the fourth city located in the area known as The Villages in West Harris County, South of Interstate 10 and East of Beltway 8. The Harris County Flood Warning System rain gages nearest Hunter's Creek Village, Gage 2250 and 2255 recorded 31.20" and 30.16" respectively for an average of 30.68" of rain from August 25 to August 31.

Housing

The City of Hunter's Creek Village has 1,563 housing units, which includes single-family, multi-family and mobile homes. A total of 166 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$1,300,036.93. The total amount that was awarded to the FEMA registrants was \$795,060.87 with an average paid amount of \$4,796.09. The unmet need totaled to \$1,097,287.50 for the city.

a. Owners

There were 151 FEMA registrants that reported themselves as owners with a FVL amount of \$1,890,661.29 and an unmet need of \$1,097,287.50. There was \$783,376.78 awarded assistance with an average of \$5,187.93 assistance received.

b. Renters

There were 15 FEMA registrants that reported themselves as renters with a FVL \$9,375.64 and no unmet need calculated by FEMA. There was \$12,774.02 awarded assistance with an average of \$851.60 assistance received.

c. Seniors

The population of Hunter's Creek Village that is over the age of 60 is 1,121. There were 80 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$1,100,778.22 for those households and the unmet need was \$559,203.67. The average assistance paid was \$6,415.83 with the total awarded \$513,266.41 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Hunter's Creek Village has an AFN population of 328. There were four (4) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$67,447.30 and an unmet need of \$34,203.34 calculated by FEMA. The average assistance received by the AFN registrants was \$9,420 and a total of \$37,680 assistance paid.

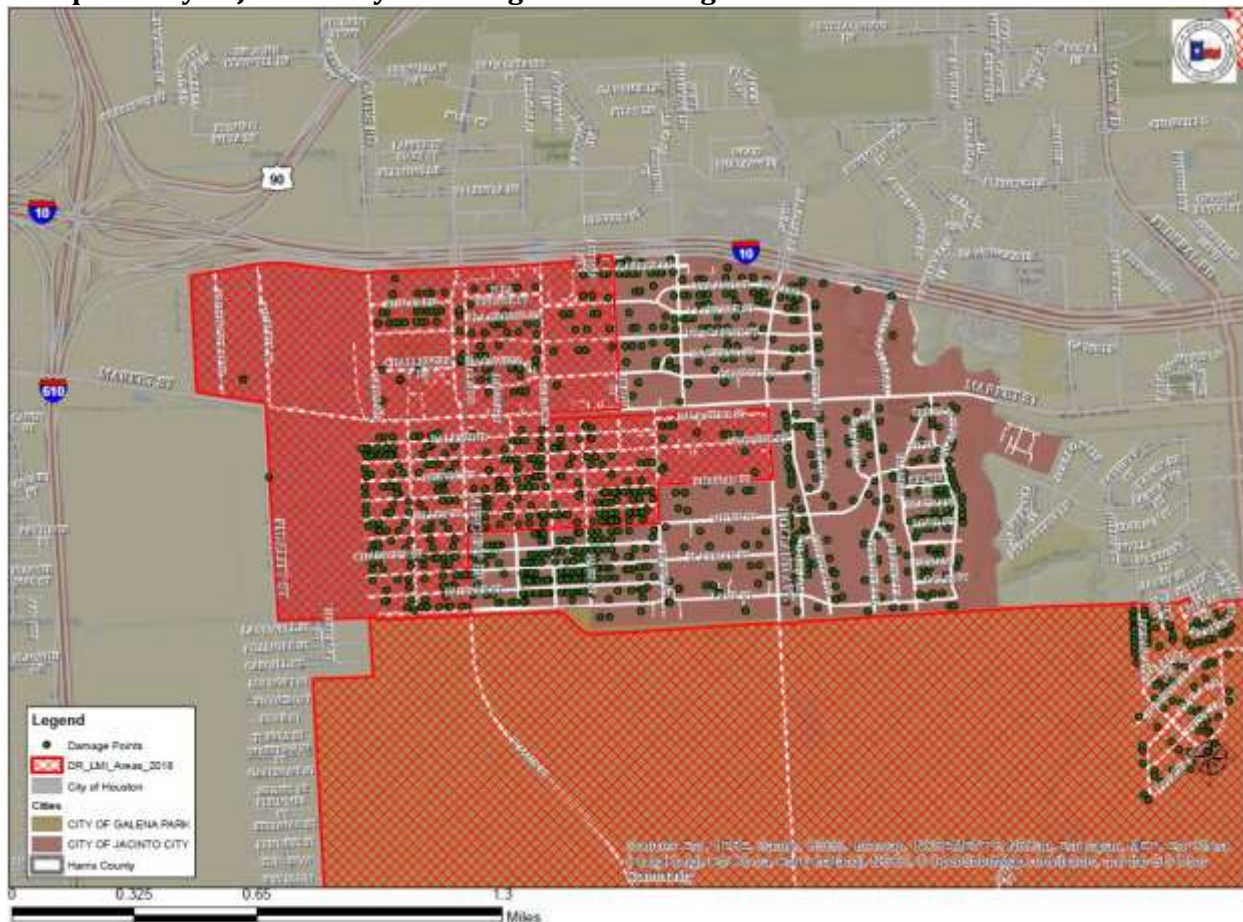
Non-Housing

FEMA PA data is currently unavailable for the City of Hunter's Creek Village.

Jacinto City

According to the 2016 U.S. Census, the City of Jacinto City has an estimated population of 10,753. The median household annual income is \$31,440, with 33.7 percent of the population below the poverty level. Approximately 14.9 percent of the population is over 60. The population by race/ethnicity is 85.8 percent Hispanic, 9.9 percent white, 4 percent black, 0.2 percent Asian and 0.1 percent other/two or more races. The Low-to-Moderate Income (LMI) population of Jacinto City makes up 45 percent of the total population and is included in Harris County's Target Areas.

Map 33: City of Jacinto City FEMA registered damaged units



Jacinto City, as seen in Map 33, is located in Central Harris County, along the Missouri Pacific Railroad and at the intersection of U.S Highway 90, Interstate 610, and Interstate 10. It is in close proximity to the San Jacinto Battleground. The Harris County Flood Warning System rain gage nearest Jacinto City (Gage 820) recorded 39.44" of rain from August 25 to August 30.

Housing

The City of Jacinto City has 3,176 housing units, which includes single-family, multi-family and mobile homes. A total of 562 FEMA registrants that applied for assistance with a FEMA Verified Loss (FVL) amount of \$1,981,620.57. The total amount that was awarded to the FEMA registrants was \$1,727,345.28 with an average paid amount of \$3,096.76. The unmet need totaled to \$318,826.21 for the city.

a. Owners

There were 397 FEMA registrants that reported themselves as owners with a FVL amount of \$1,694,481.90 and an unmet need of \$318,826.21. There was \$1,401,751.20 awarded assistance with an average of \$3,530.86 assistance received.

b. Renters

There were 165 FEMA registrants that reported themselves as renters with a FVL \$287,138.67 and no unmet need calculated by FEMA. There was \$338,626.15 awarded assistance with an average of \$2,052.28 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Jacinto City has a LMI population of 4,831 that is a part of Harris County's Target Areas. There were 488 registrants that reported damages to FEMA. The registrants had a FVL amount of \$497,119.21. The total amount that was awarded to the FEMA registrants was \$538,416.47 with an average paid amount of \$1,269.85. The unmet need totaled to \$140,231.40 for the city.

d. Seniors

The population of Jacinto City that is over the age of 60 is 1,601. There were 166 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$582,554.65 for those households and the unmet need was \$144,082.10. The average assistance paid was \$2,790.21 with the total awarded \$463,174.73 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Jacinto City has an AFN population of 1,396. There were fourteen (14) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$34,360.44 and an unmet need of \$18,495.40 calculated by FEMA. The average assistance received by the AFN registrants was \$1,195 and a total of \$16,729.98 assistance paid.

Non-Housing

Table 46 summarizes the damages for the City of Jacinto City and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Jacinto City had an approximate public assistance cost of \$9,322,000.00. The categories with the highest total need are Utilities and Debris Removal, followed by Parks, Recreational Facilities, and Other Items. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

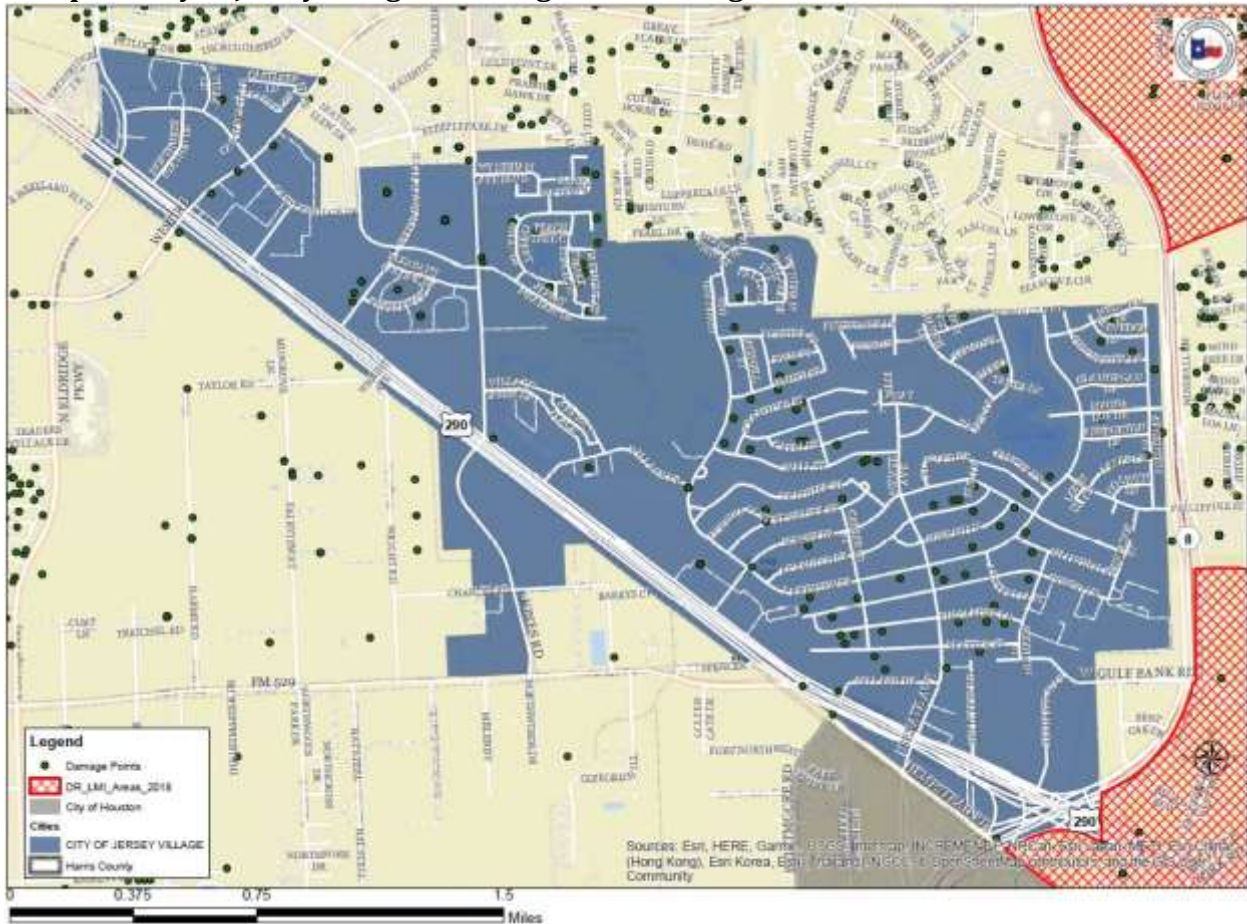
Table 46: Total Cost and Need by PA Category in City of Jacinto City

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$750,000.00	\$75,000.00	\$112,500.00	\$187,500.00
B - Emergency Protective Measures	\$0.00	\$0.00	\$0.00	\$0.00
C - Roads and Bridges	\$540,000.00	\$54,000.00	\$81,000.00	\$135,000.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$485,000.00	\$48,500.00	\$72,750.00	\$121,250.00
F - Utilities	\$6,925,000.00	\$692,500.00	\$1,038,750.00	\$1,731,250.00
G - Parks, Recreational Facilities, and Other Items	\$622,000.00	\$62,200.00	\$93,300.00	\$155,500.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$9,322,000.00	\$932,200.00	\$1,398,300.00	\$2,330,500.00

Jersey Village

According to the 2016 U.S. Census, the City of Jersey Village has an estimated population of 7,871. The median household annual income is \$65,345, with 3.8 percent of the population below poverty level. Approximately 26.5 percent of the population is over 60. The population by race/ethnicity is 18.6 percent Hispanic, 63.2 percent white, 10.1 percent black, 6.4 percent Asian and 1.8 percent other/two or more races.

Map 34: City of Jersey Village FEMA registered damaged units



Jersey Village, as seen in Map 34, is located in west-central Harris County at Highway 290, Farm to Market Road 529 and the Southern Pacific Railroad. The Harris County Flood Warning System rain gages nearest Jersey Village, Gage 550 recorded an average of 29.88" of rain from August 25 to August 31.

Housing

The City of Jersey Village has 3,558 housing units, which includes single-family, multi-family and mobile homes. A total of 77 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$36,948.63. The total amount that was awarded to the FEMA registrants was \$71,587.65 with an average paid amount of \$929.71. The unmet need totaled to \$7,547.98 for the city.

a. Owners

There were 32 FEMA registrants that reported themselves as owners with a FVL amount of \$20,517.15 and an unmet need of \$7,547.98. There was \$24,224.07 awarded assistance with an average of \$757 assistance received.

b. Renters

There were 45 FEMA registrants that reported themselves as renters with a FVL \$16,431.48 and no unmet need calculated by FEMA. There was \$47,363.58 awarded assistance with an average of \$1,052.52 assistance received.

c. Seniors

The population of Jersey Village that is over the age of 60 is 2,082. There were eleven (11) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$4,532.20 for those households and the unmet need was \$1,491.35. The average assistance paid was \$694.08 with the total awarded \$7,634.85 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Jersey Village has an AFN population of 879. There were three (3) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$826.25 and an unmet need of \$826.25 calculated by FEMA. The average assistance received by the AFN registrants was \$333.33 and a total of \$1,000 assistance paid.

Non-Housing

Table 47 summarizes the damages for the City of Jersey Village and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Jersey Village had an approximate public assistance cost of \$85,223.64 under the Emergency Protective Measures PA category. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

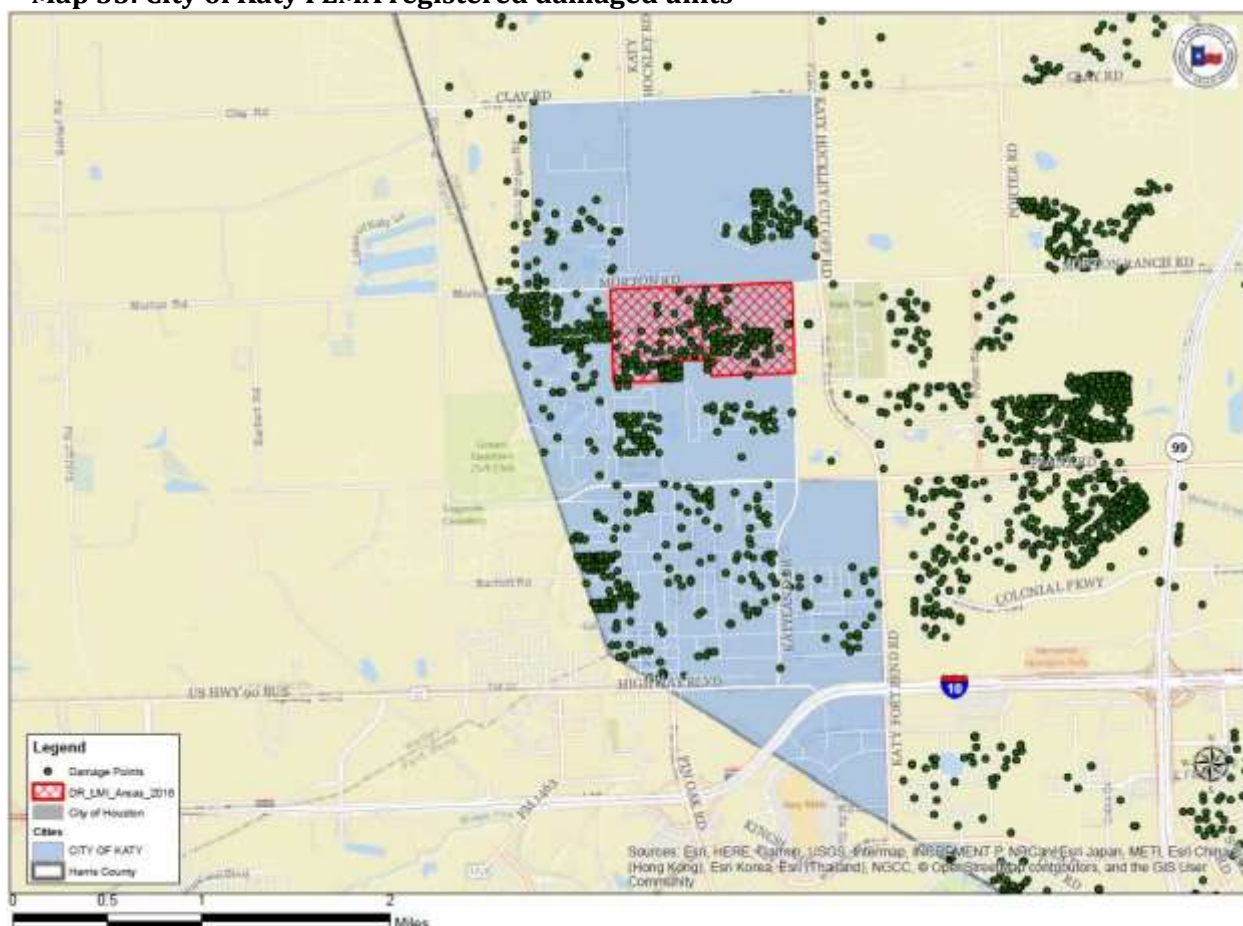
Table 47: Total Cost and Need by PA Category in City of Jersey Village

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$85,223.64	\$8,522.36	\$12,783.55	\$21,305.91
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$85,223.64	\$8,522.36	\$12,783.55	\$21,305.91

Katy

According to the 2016 U.S. Census, the City of Katy has an estimated population of 16,632. The median household annual income is \$71,739, with 4.8 percent of the population below the poverty level. Approximately 18.7 percent of the population is over 60. The population by race/ethnicity is 30 percent Hispanic, 61.4 percent white, 6.4 percent black, 1.5 percent Asian and 0.7 percent other/two or more races. The Low-to-Moderate Income (LMI) population of Katy makes up 17.4 percent of the total population and is included in Harris County's Target Areas.

Map 35: City of Katy FEMA registered damaged units



The City of Katy is located at the three-border intersection of Harris, Fort Bend, and Waller counties, along Interstate 10, 29 miles (47 km) west of downtown Houston and 22 miles (35 km) east of Sealy, as seen in Map 35. The Harris County Flood Warning System rain gage nearest Katy (Gage 2050) recorded 32.8" of rain from August 25 to August 30.

Housing

The City of Katy has 5,680 housing units, which includes single-family, multi-family and mobile homes. A total of 423 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$4,155,600.56. The total amount awarded to the FEMA registrants was \$2,420,371.51 with an average paid amount of \$5,751.29. The unmet need totaled to \$1,763,912.24 for the city.

a. Owners

There were 349 FEMA registrants that reported themselves as owners with a FVL amount of \$4,037,619.53 and an unmet need of \$1,763,912.24. There was \$2,295,097.31 awarded assistance with an average of \$6,576.21 assistance received.

b. Renters

There were 74 FEMA registrants that reported themselves as renters with a FVL \$117,981.03 and no unmet need calculated by FEMA. There was \$137,696.94 awarded assistance with an average of \$1,860.77 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Katy has a LMI population of 2,892 that is a part of Harris County's Target Areas. There were 210 registrants that reported damages to FEMA. The registrants had a FVL amount of \$681,183.68. The total amount that was awarded to the FEMA registrants was \$677,307.26 with an average paid amount of \$3,762.82. The unmet need totaled to \$158,333.09 for the city.

d. Seniors

The population of Katy that is over the age of 60 is 3,118. There were 174 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$2,089,178.34 for those households and the unmet need was \$1,110,782.97. The average assistance paid was \$5,383 with the total awarded \$936,642.76 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Katy has an AFN population of 1,528. There were eleven (11) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$98,341.62 and an unmet need of \$43,826.66 calculated by FEMA. The average assistance received by the AFN registrants was \$5,658.46 and a total of \$62,243.01 assistance paid.

Non-Housing

Table 48 summarizes the damages for the City of Katy and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Katy had an approximate public assistance cost of \$18,265,239.00. The categories with the highest total need are Buildings and Equipment and Debris Removal, followed by Emergency Protective Measures. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 48: Total Cost and Need by PA Category in City of Katy

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$721,000.00	\$72,100.00	\$108,150.00	\$180,250.00
B - Emergency Protective Measures	\$501,000.00	\$50,100.00	\$75,150.00	\$125,250.00
C - Roads and Bridges	\$7,500.00	\$750.00	\$1,125.00	\$1,875.00
D - Water Control Facilities	\$291,835.00	\$29,183.50	\$43,775.25	\$72,958.75
E - Buildings and Equipment	\$16,375,065.00	\$1,637,506.50	\$2,456,259.75	\$4,093,766.25
F - Utilities	\$308,512.00	\$30,851.20	\$46,276.80	\$77,128.00
G - Parks, Recreational Facilities, and Other Items	\$52,139.00	\$5,213.90	\$7,820.85	\$13,034.75
Z - Direct Administrative Costs	\$8,188.00	\$818.80	\$1,228.20	\$2,047.00
Grand Total	\$18,265,239.00	\$1,826,523.90	\$2,739,785.85	\$4,566,309.75

According to the 2016 U.S. Census, the City of La Porte has an estimated population of 34,922. The median household annual income is \$70,681, with 7.7 percent of the population below the poverty level. Approximately 16.9 percent of the population is over 60. The population by race/ethnicity is 31.7 percent Hispanic, 59.6 percent white, 4.6 percent black, 1 percent Asian and 3.1 percent other/two or more races. The Low-to-Moderate Income (LMI) population of La Porte makes up 6.7 percent of the total population and is included in Harris County's Target Areas.

Housing

The City of La Porte has 12,488 housing units, which includes single-family, multi-family and mobile homes. A total of 1,213 FEMA registrants that applied for assistance with a FEMA Verified Loss (FVL) amount of \$5,284,591.35. The total amount that was awarded to the FEMA registrants was \$3,791,784.14 with an average paid amount of \$3,158.58. The unmet need totaled to \$1,726,018.29 for the city.

a. Owners

There were 879 FEMA registrants that reported themselves as owners with a FVL amount of \$4,800,060.69 and an unmet need of \$1,726,016.29. There was \$3,210,816.25 awarded assistance with an average of \$3,652.81 assistance received.

b. Renters

There were 334 FEMA registrants that reported themselves as renters with a FVL \$381,296.21 and an unmet need of \$484,530.66 calculated by FEMA. There was \$620,538.24 awarded assistance with an average of \$1,857.90 assistance received.

c. Low-to-Moderate Income (LMI)

The City of La Porte has a LMI population of 2,346 that is a part of Harris County's Target Areas. There were 815 registrants that reported damages to FEMA. The registrants had a FVL amount of \$280,868.82. The total amount that was awarded to the FEMA registrants was \$300,205.79 with an average paid amount of \$1,163.59. The unmet need totaled to \$109,233.58 for the city.

d. Seniors

The population of La Porte that is over the age of 60 is 5,911. There were 335 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$1,715,820.42 for those households and the unmet need was \$696,385.57. The average assistance paid was \$3,388.90 with the total awarded \$1,135,282.44 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of La Porte has an AFN population of 1,528. There were 38 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$180,110.44 and an unmet need of \$85,780.46 calculated by FEMA. The average assistance received by the AFN registrants was \$2,823.12 and a total of \$107,278.63 assistance paid.

Non-Housing

Table 49 summarizes the damages for the City of La Porte and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of La Porte had an approximate public assistance cost of \$1,471,905.00. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

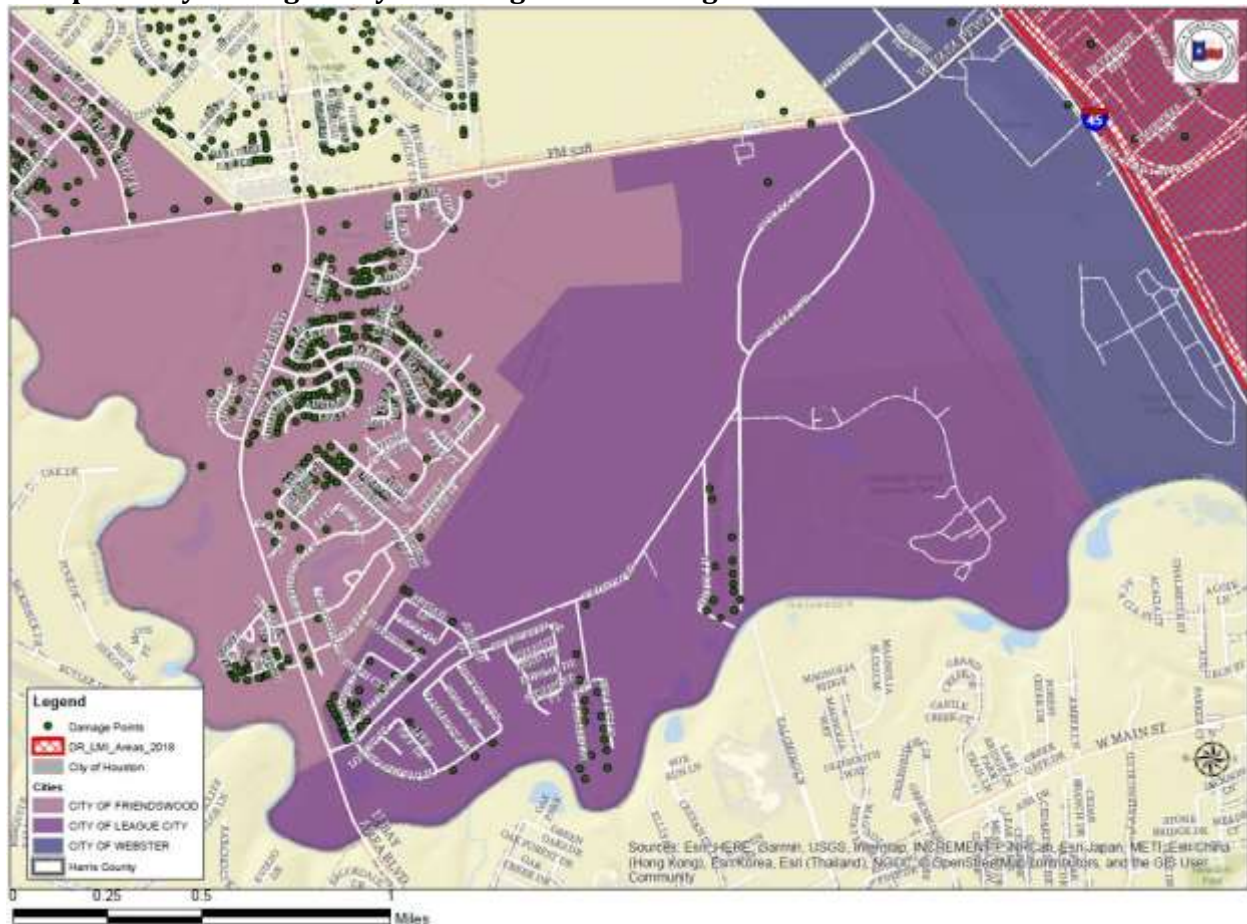
Table 49: Total Cost and Need by PA Category in City of La Porte

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$200,000.00	\$20,000.00	\$30,000.00	\$50,000.00
B - Emergency Protective Measures	\$600,000.00	\$60,000.00	\$90,000.00	\$150,000.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$455,005.00	\$45,500.50	\$68,250.75	\$113,751.25
F - Utilities	\$31,500.00	\$3,150.00	\$4,725.00	\$7,875.00
G - Parks, Recreational Facilities, and Other Items	\$155,000.00	\$15,500.00	\$23,250.00	\$38,750.00
Z - Direct Administrative Costs	\$30,400.00	\$3,040.00	\$4,560.00	\$7,600.00
Grand Total	\$1,471,905.00	\$147,190.50	\$220,785.75	\$367,976.25

League City

According to the 2016 U.S. Census, the City of League City has an estimated population of 94,976. The median household annual income is \$97,087, with 3.4 percent of the population below poverty level. Approximately 13.8 percent of the population is over 60. The population by race/ethnicity is 19.4 percent Hispanic, 65.6 percent white, 7.2 percent black, 5.4 percent Asian and 2.3 percent other/two or more races.

Map 37: City of League City FEMA registered damaged units



League City, as seen in Map 37, is located in Harris and Galveston counties, south of Friendswood, Webster and Clear Lake. The Harris County Flood Warning System rain gages nearest League City, Gage 110 recorded an average of 47.96" of rain from August 25 to August 31.

Housing

The City of League City has 34,092 housing units, which includes single-family, multi-family and mobile homes. A total of thirty-nine (39) FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$788,944.75. The total amount that was awarded to the FEMA registrants was \$418,717.12 with an average paid amount of \$10,736.34. The unmet need totaled to \$347,154.31 for the city.

a. Owners

There were 37 FEMA registrants that reported themselves as owners with a FVL amount of \$785,216.55 and an unmet need of \$347,154.31. There was \$417,241.12 awarded assistance with an average of \$417,241.12 assistance received.

b. Renters

There were two (2) FEMA registrants that reported themselves as renters with a FVL \$3,728.20 and no unmet need calculated by FEMA. There was \$1,476 awarded assistance with an average of \$738 assistance received.

c. Seniors

The population of League City that is over the age of 60 is 13,121. There were eleven (11) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$264,129.17 for those households and the unmet need was \$118,921.95. The average assistance paid was \$12,429.92 with the total awarded \$136,729.08 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of League City has an AFN population of 8,298. There were no FEMA registrants that are classified as AFN in the city.

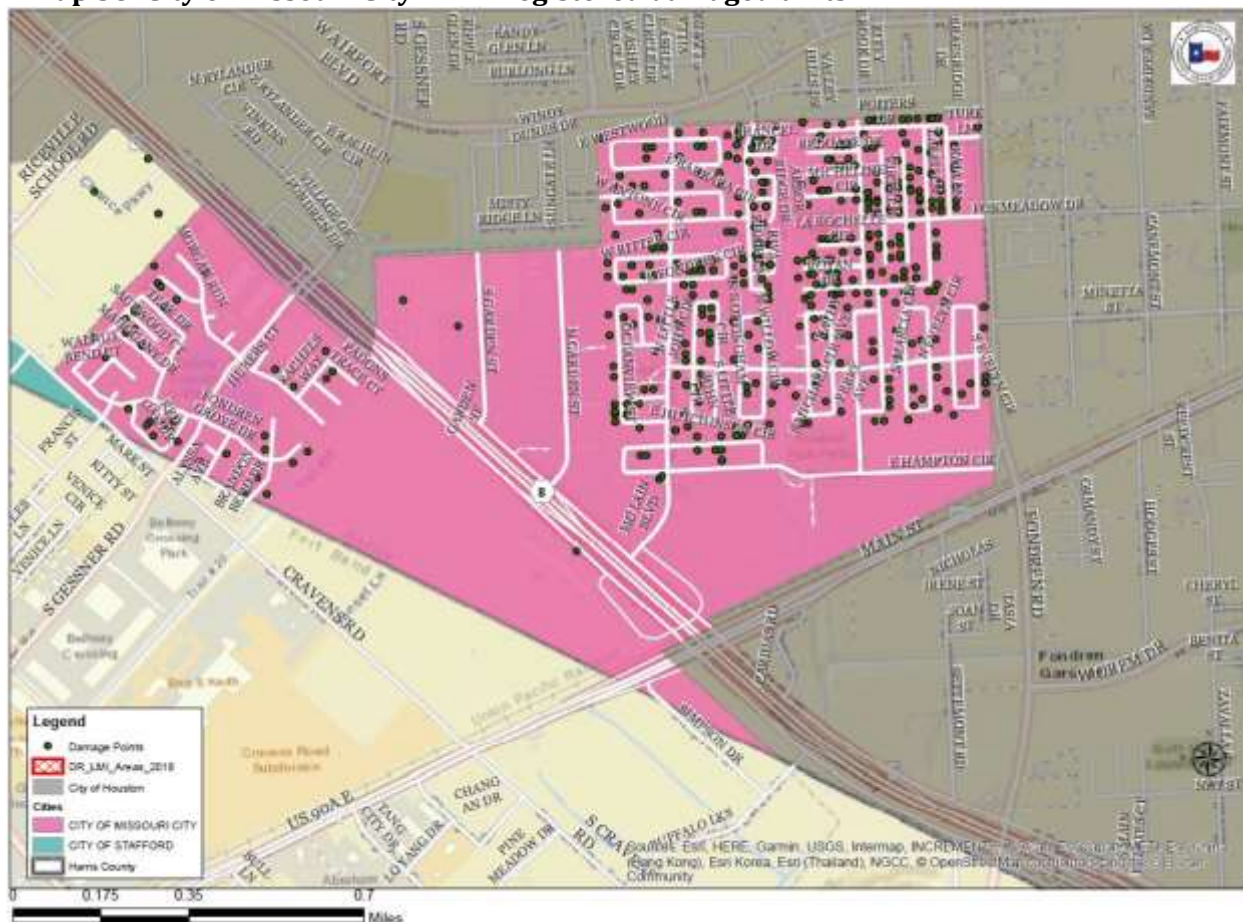
Non-Housing

FEMA PA data is currently unavailable for the City of League City.

Missouri City

According to the 2016 U.S. Census, the City of Missouri City has an estimated population of 71,732. The median household annual income is \$88,591, with 3.7 percent of the population below poverty level. Approximately 19.2 percent of the population is over 60. The population by race/ethnicity is 15.8 percent Hispanic, 24 percent white, 41.6 percent black, 15.7 percent Asian and 2.9 percent other/two or more races.

Map 38: City of Missouri City FEMA registered damaged units



Missouri City, as seen in Map 38, is located in Harris and Fort Bend Counties from Beltway 8 to the Brazos River and is included in the Houston-The Woodlands-Sugar Land metropolitan area. The Harris County Flood Warning System rain gages nearest Missouri City, Gage 445, 380 and 480 recorded 33.68", 29.32" and 35.48" respectively for an average of 32.83" of rain from August 25 to August 31.

Housing

The City of Missouri City has 23,805 housing units, which includes single-family, multi-family and mobile homes. A total of 185 FEMA registrants that applied for assistance with a FEMA Verified Loss (FVL) amount of \$202,275.88. The total amount that was awarded to the FEMA registrants was \$196,170.11 with an average paid amount of \$1,078.25. The unmet need totaled to \$51,502.22 for the city.

a. Owners

There were 130 FEMA registrants that reported themselves as owners with a FVL amount of \$185,827.81 and an unmet need of \$51,502.22. There was \$161,653.51 awarded assistance with an average of \$1,243.49 assistance received.

b. Renters

There were 55 FEMA registrants that reported themselves as renters with a FVL \$16,448.07 and no unmet need calculated by FEMA. There was \$37,822.49 awarded assistance with an average of \$687.68 assistance received.

c. Seniors

The population of Missouri City that is over the age of 60 is 13,799. There were 57 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$75,344.97 for those households and the unmet need was \$23,308.61. The average assistance paid was \$1,094.61 with the total awarded \$62,392.70 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Missouri City has an AFN population of 6,038. There were six (6) FEMA registrants that are classified as AFN in the city and FEMA calculated \$617.81 in FVL for them. They received \$1,500 in assistance with an average of \$250 per registrant. The unmet need for the AFN population of the City of Missouri City is \$671.81.

Non-Housing

Table 50 summarizes the damages for the City of Missouri City and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Missouri City had an approximate public assistance cost of \$839,008.82. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment, followed by Utilities. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 50: Total Cost and Need by PA Category in City of Missouri City

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$540,000.00	\$54,000.00	\$81,000.00	\$135,000.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$223,210.82	\$22,321.08	\$33,481.62	\$55,802.70
F - Utilities	\$70,650.00	\$7,065.00	\$10,597.50	\$17,662.50
G - Parks, Recreational Facilities, and Other Items	\$5,148.00	\$514.80	\$772.20	\$1,287.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$839,008.82	\$83,900.88	\$125,851.32	\$209,752.20

Morgan's Point

According to the 2016 U.S. Census, the City of Morgan's Point has an estimated population of 319. The median household annual income is \$77,159, with 11.5 percent of the population below poverty level. Approximately 19.2 percent of the population is over 60. The population by race/ethnicity is 22.6 percent Hispanic, 59.6 percent white, 13.5 percent black and 4.4 percent other/two or more races.

Map 39: City of Morgan's Point FEMA registered damaged units



Morgan's Point is bordered to the north and west by the city of La Porte, and to the southeast by Galveston Bay, as seen in Map 39. The city limits extend out into Galveston Bay, within Chambers County. The Harris County Flood Warning System rain gage nearest Morgan's Point (Gage 620) recorded 41.88" of rain from August 25 to August 30.

Housing

The City of Morgan's Point has 109 housing units, which includes single-family, multi-family and mobile homes. A total of nine (9) FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$50,769.98. The total amount that was awarded to the FEMA registrants was \$49,617.42 with an average paid amount of \$5,567.21. The unmet need totaled to \$4,468.86 for the city.

a. Owners

There were seven (7) FEMA registrants that reported themselves as owners with a FVL amount of \$50,769.58 and an unmet need of \$4,468.86. There was \$49,104.92 awarded assistance with an average of \$7,014.99 assistance received.

b. Renters

There were two (2) FEMA registrants that reported themselves as renters. Those registrants did not have a FVL or unmet need calculated by FEMA. There was \$1,000 awarded assistance with an average of \$500 assistance received.

c. Seniors

The population of Morgan's Point that is over the age of 60 is 87. There were four (4) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$3,876.79 for those households and the unmet need was \$3,389.29. The average assistance paid was \$371.88 with the total awarded \$1,487.50 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Morgan's Point has an AFN population of 42. There were no FEMA registrants that are classified as AFN in the city.

Non-Housing

Table 51 summarizes the damages for the City of Morgan's Point and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Morgan's Point had an approximate public assistance cost of \$244,096.00. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment, followed by Utilities. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

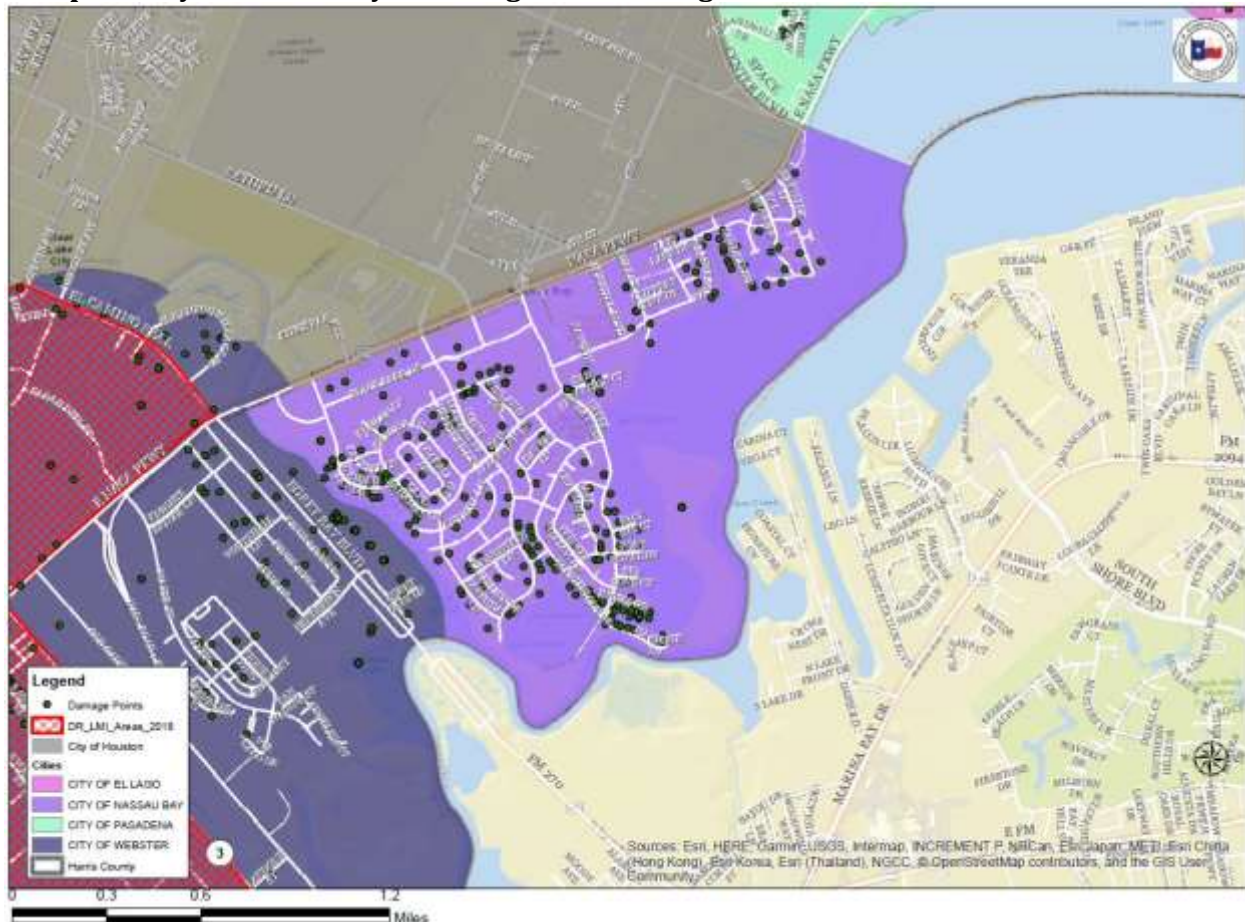
Table 51: Total Cost and Need by PA Category in City of Morgan's Point

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$145,700.00	\$14,570.00	\$21,855.00	\$36,425.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$88,027.00	\$8,802.70	\$13,204.05	\$22,006.75
F - Utilities	\$10,369.00	\$1,036.90	\$1,555.35	\$2,592.25
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$244,096.00	\$24,409.60	\$36,614.40	\$61,024.00

Nassau Bay

According to the 2016 U.S. Census, the City of Nassau Bay has an estimated population of 4,091. The median household annual income is \$69,070, with 7.1 percent of the population below poverty level. Approximately 25 percent of the population is over 60. The population by race/ethnicity is 18.6 percent Hispanic, 76.3 percent white, 2.3 percent black, 2.3 percent Asian and 0.5 percent other/two or more races.

Map 40: City of Nassau Bay FEMA registered damaged units



Nassau Bay, as seen in Map 40, is located in Southeast Harris County, bordered by the Johnson Space Center to the north and Clear Lake to the South. The Harris County Flood Warning System rain gages nearest Nassau Bay, Gage 170 and 210 recorded 36.84" and 41.00" respectively for an average of 38.92" rain from August 25 to August 31.

Housing

The City of Nassau Bay has 1,912 housing units, which includes single-family, multi-family and mobile homes. A total of 173 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$1,363,387.89. The total amount that was awarded to the FEMA registrants was \$411,914.94 with an average paid amount of \$2,398.94. The unmet need totaled to \$973,714.16 for the city.

a. Owners

There were 113 FEMA registrants that reported themselves as owners with a FVL amount of \$1,285,594 and an unmet need of \$973,714.16. There was \$302,193.05 awarded assistance with an average of \$2,674.27 assistance received.

b. Renters

There were 60 FEMA registrants that reported themselves as renters with a FVL \$77,793.89 and no unmet need calculated by FEMA. There was \$112,824.36 awarded assistance with an average of \$1,880.41 assistance received.

c. Seniors

The population of Nassau Bay that is over the age of 60 is 1,024. There were 61 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$516,245.21 for those households and the unmet need was \$416,924.07. The average assistance paid was \$1,590.38 with the total awarded \$97,013.25 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Nassau Bay has an AFN population of 375. There were five (5) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$32,697.84 with an unmet need of \$24,997.36. The average assistance paid was \$1,218.28 and totaled to \$6,091.39 assistance received by the AFN registrants.

Non-Housing

Table 52 summarizes the damages for the City of Nassau Bay and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Nassau Bay had an approximate public assistance cost of \$1,791,500.00. The categories with the highest total need are Utilities and Emergency Protective Measures, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

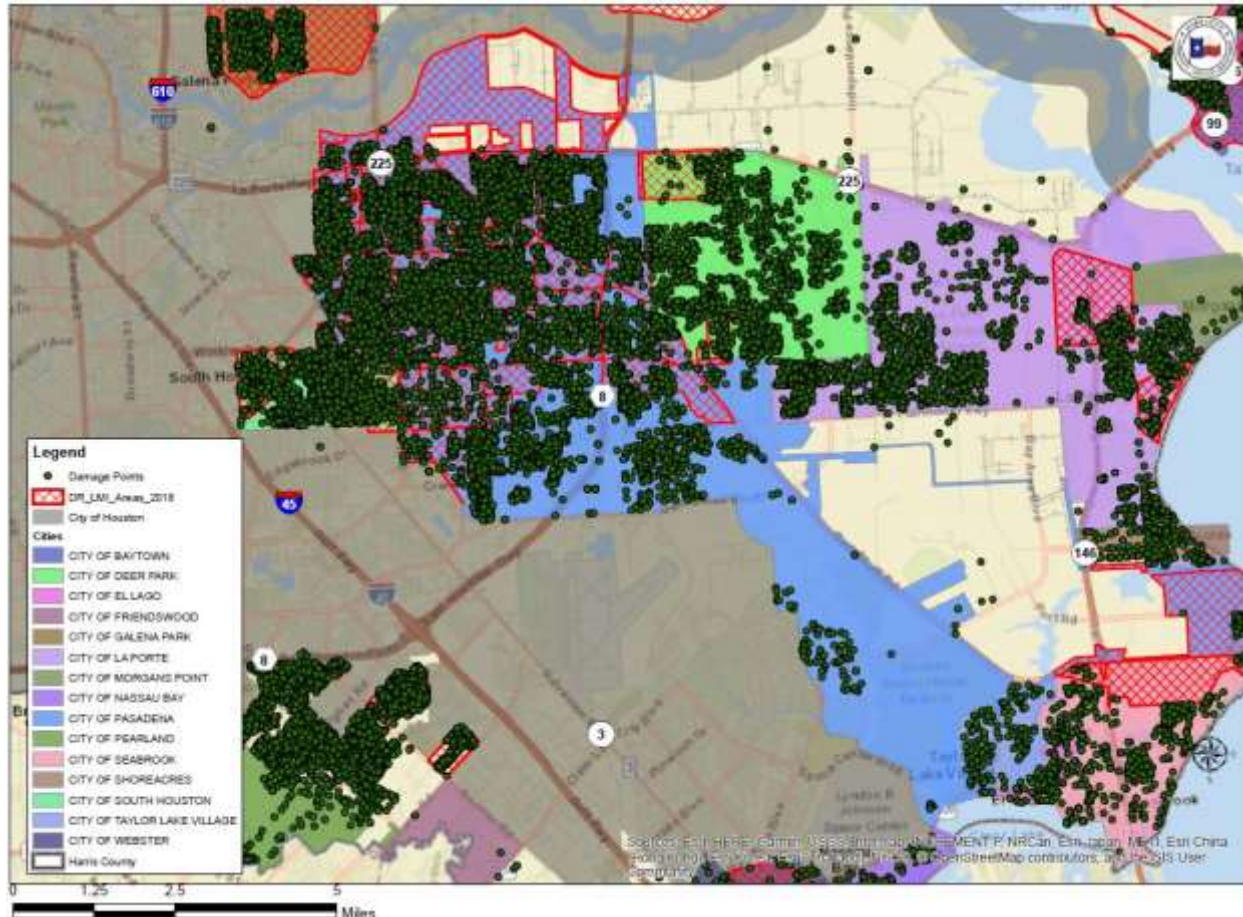
Table 52: Total Cost and Need by PA Category in City of Nassau Bay

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$384,800.00	\$38,480.00	\$57,720.00	\$96,200.00
B - Emergency Protective Measures	\$477,750.00	\$47,775.00	\$71,662.50	\$119,437.50
C - Roads and Bridges	\$120,000.00	\$12,000.00	\$18,000.00	\$30,000.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$28,000.00	\$2,800.00	\$4,200.00	\$7,000.00
F - Utilities	\$705,950.00	\$70,595.00	\$105,892.50	\$176,487.50
G - Parks, Recreational Facilities, and Other Items	\$75,000.00	\$7,500.00	\$11,250.00	\$18,750.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$1,791,500.00	\$179,150.00	\$268,725.00	\$447,875.00

Pasadena

According to the 2016 U.S. Census, the City of Pasadena has an estimated population of 153,286. The median household annual income is \$48,607, with 16.4 percent of the population below the poverty level. Approximately 13.9 percent of the population is over 60. The population by race/ethnicity is 66.5 percent Hispanic, 28.2 percent white, 2.3 percent black, 1.9 percent Asian and 1.3 percent other/two or more races. The Low-to-Moderate Income (LMI) population of Pasadena makes up 68.5 percent of the total population and is included in Harris County's Disaster Recovery (DR) Low-to-Moderate Income (LMI) Areas.

Map 41: City of Pasadena FEMA registered damaged units



Pasadena is located in East Harris County South of Highway 225 and East of Old Galveston Road (Highway 3), as seen in Map 41. The Harris County Flood Warning System rain gages nearest Pasadena, Gage 920, 940 and 240 recorded 42.28", 42.48 and 43.04" respectively for an average of 42.60" rain from August 25 to August 31.

Housing

The City of Pasadena has 49,250 housing units, which includes single-family, multi-family and mobile homes. A total of 6,356 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$32,257,990.14. The total amount that was awarded to the FEMA registrants was

\$26,362,847.86 with an average paid amount of \$4,178.41. The unmet need totaled to \$6,982,920.96 for the city.

a. Owners

There were 4,114 FEMA registrants that reported themselves as owners with a FVL amount of \$27,949,098.75 and an unmet need of \$6,980,171.36. There was \$21,306,506.89 awarded assistance with an average of \$5,179.02 assistance received.

b. Renters

There were 2,240 FEMA registrants that reported themselves as renters with a FVL \$4,303,114.89 and an unmet need of \$2,749.60 calculated by FEMA. There was \$5,236,638.63 awarded assistance with an average of \$2,340.69 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Pasadena has a LMI population of 104,934 that is a part of Harris County's DR LMI Areas. There were 4,928 registrants that reported damages to FEMA. The registrants had a FVL amount of \$15,104,042.80. The total amount that was awarded to the FEMA registrants was \$3,125,327.48 with an average paid amount of \$2,366.62. The unmet need totaled to \$14,370,107.61 for the city.

d. Seniors

The population of Pasadena that is over the age of 60 is 21,236. There were 1,735 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$10,492,627.96 for those households and the unmet need was \$2,863,677.93. The average assistance paid was \$4,595.51 with the total awarded \$7,973,214.90 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Pasadena has an AFN population of 17,299. There were 170 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$628,042.71 and an unmet need of \$112,210.86 calculated by FEMA. The average assistance received by the AFN registrants was \$3,445.02 and a total of \$585,653.71 assistance paid.

Non-Housing

Table 53 summarizes the damages for the City of Pasadena and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Pasadena had an approximate public assistance cost of \$7,663,418.93. The categories with the highest total need are Utilities and Emergency Protective Measures, followed by Buildings and Equipment. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

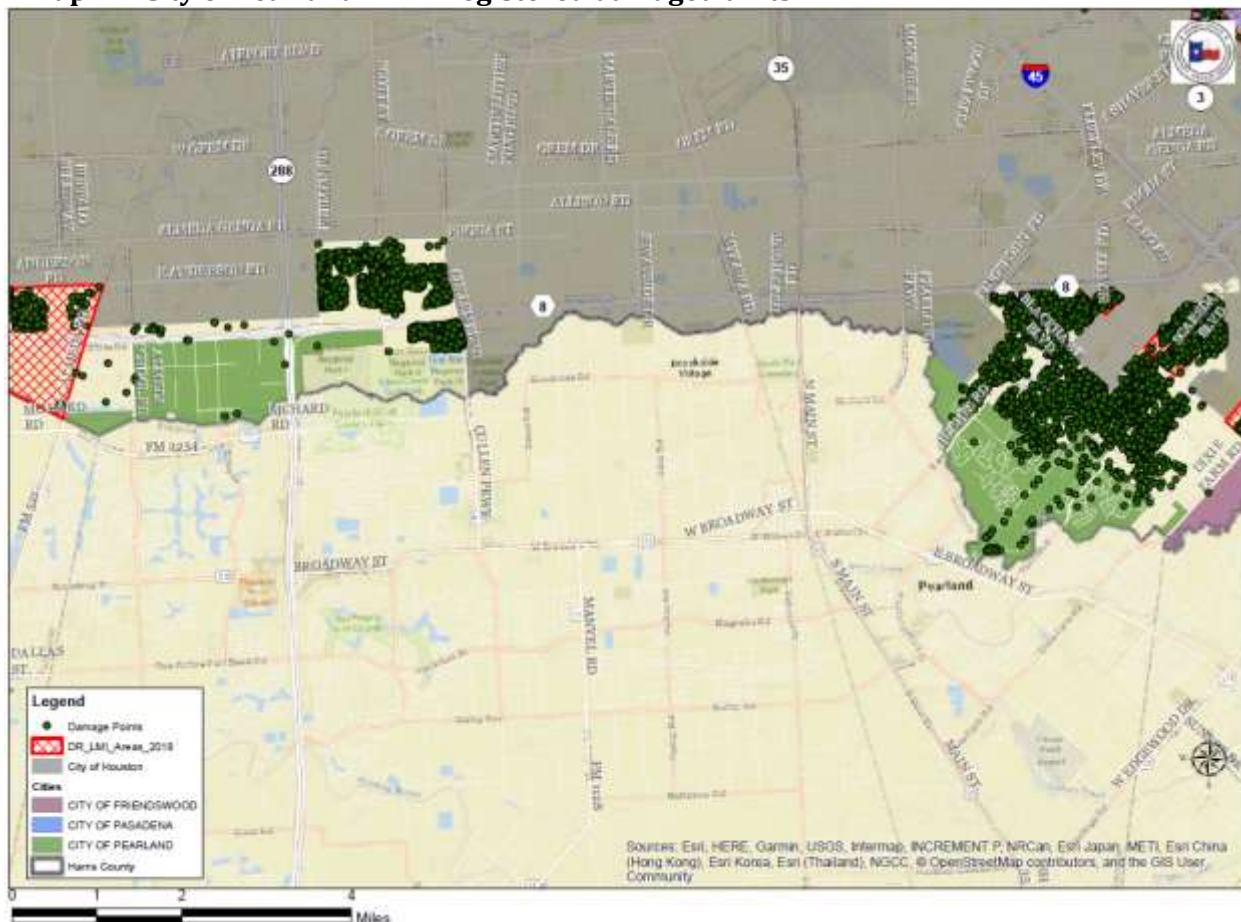
Table 53: Total Cost and Need by PA Category in City of Pasadena

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$2,500,000.00	\$250,000.00	\$375,000.00	\$625,000.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$24,900.00	\$2,490.00	\$3,735.00	\$6,225.00
E - Buildings and Equipment	\$1,706,501.93	\$170,650.19	\$255,975.29	\$426,625.48
F - Utilities	\$2,876,032.00	\$287,603.20	\$431,404.80	\$719,008.00
G - Parks, Recreational Facilities, and Other Items	\$555,985.00	\$55,598.50	\$83,397.75	\$138,996.25
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$7,663,418.93	\$766,341.89	\$1,149,512.84	\$1,915,854.73

Pearland

According to the 2016 U.S. Census, the City of Pearland has an estimated population of 106,238. The median household annual income is \$96,954, with 3.6 percent of the population below the poverty level. Approximately 13.6 percent of the population is over 60. The population by race/ethnicity is 21.4 percent Hispanic, 44.5 percent white, 18.1 percent black, 13.4 percent Asian 2.7 percent other/two or more races.

Map 42: City of Pearland FEMA registered damaged units



Pearland is located south of Beltway 8 in two areas in South Harris County and predominantly in North Brazoria County, as seen in Map 42. The Harris County Flood Warning System rain gages nearest Pearland, Gage 190 and Gage 150 recorded an average of 29.04" and 37.16" of rain respectively from August 25 to August 31.

Housing

The City of Pearland has 35,654 housing units, which includes single-family, multi-family and mobile homes. A total of 65 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$579,674.45. The total amount that was awarded to the FEMA registrants was \$247,902.50 with an average paid amount of \$3,906.10. The unmet need totaled to \$328,420.53 for the city.

a. Owners

There were 59 FEMA registrants that reported themselves as owners with a FVL amount of \$567,578.77 and an unmet need of \$328,420.53. There was \$242,208.27 awarded assistance with an average of \$4,105.22 assistance received.

b. Renters

There were five (5) FEMA registrants that reported themselves as renters with a FVL \$11,120.70 and no unmet need calculated by FEMA. There was \$7,782.00 awarded assistance with an average of \$1,556.40 assistance received.

c. Seniors

The population of Pearland that is over the age of 60 is 14,409. There were 19 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$255,532.87 for those households and the unmet need was \$128,013.03. The average assistance paid was \$6,750.61 with the total awarded \$128,261.56 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Pearland has an AFN population of 7,525. There were three (3) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$2,515.34 and an unmet need of \$116.71 calculated by FEMA. The average assistance received by the AFN registrants was \$864.67 and a total of \$2,594 assistance paid.

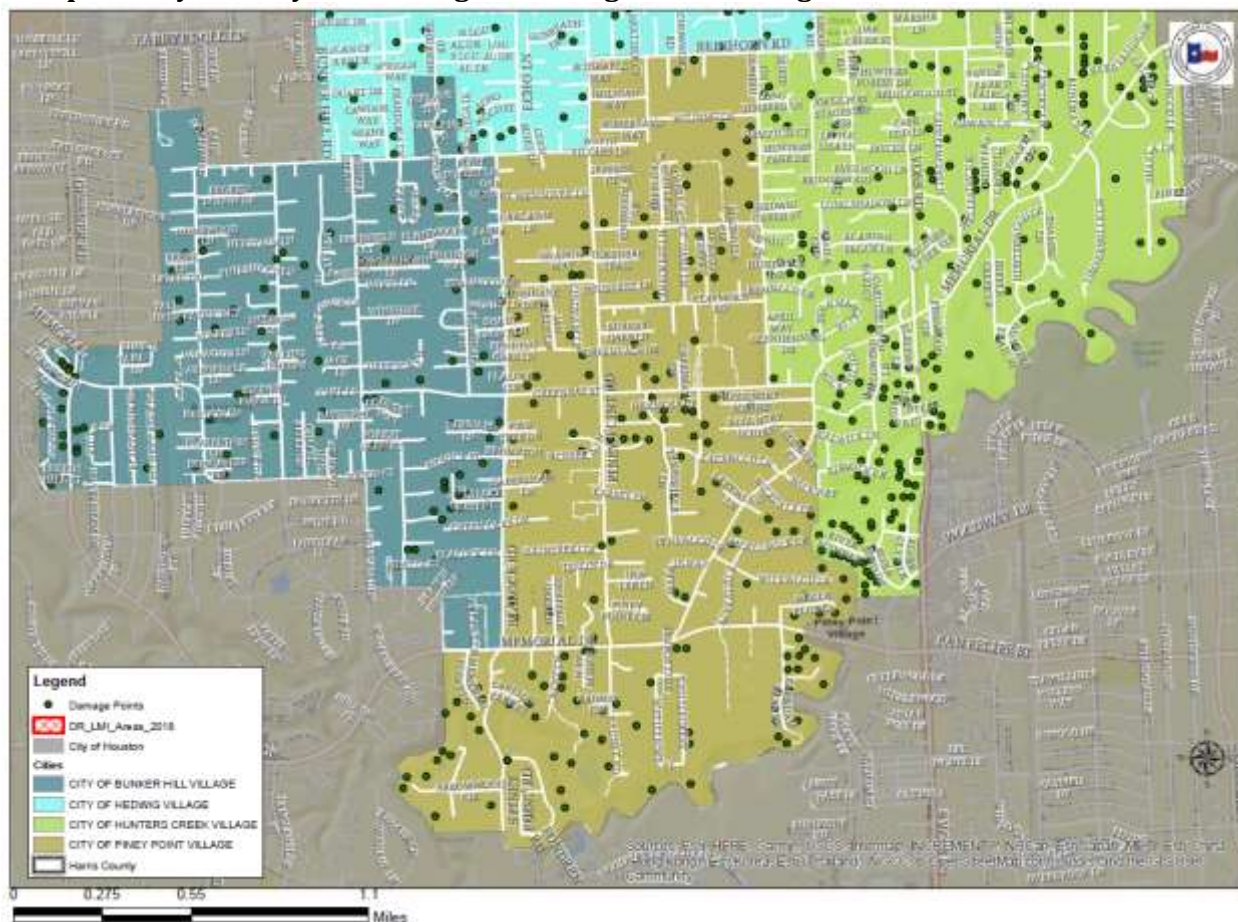
Non-Housing

FEMA PA data is currently unavailable for the City of Pearland.

Piney Point Village

According to the 2016 U.S. Census, the City of Piney Point Village has an estimated population of 3,312. The median household annual income is over \$250,000 with 3.6 percent of the population below the poverty level. Approximately 34.2 percent of the population is over 60. The population by race/ethnicity is 9.9 percent Hispanic, 74.6 percent white, 0.6 percent black, 14.2 percent Asian and 0.7 percent other/two or more races.

Map 43: City of Piney Point Village FEMA registered damaged units



Piney Point Village is located between Beltway 8 and Interstate 610 in West Harris County, as seen in Map 43. Piney Point Village is another city that makes up the area known as The Villages in Harris County. The Harris County Flood Warning System rain gages nearest Piney Point Village, Gage 2260 recorded an average of 29.88" of rain from August 25 to August 31.

Housing

The City of Piney Point Village has 1,163 housing units, which includes single-family, multi-family and mobile homes. A total of 114 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$919,100.46. The total amount that was awarded to the FEMA registrants was \$361,586.57 with an average paid amount of \$3,174.72. The unmet need totaled to \$589,135.43 for the city.

a. Owners

There were 105 FEMA registrants that reported themselves as owners with a FVL amount of \$915,308.78 and an unmet need of \$589,135.43. There was \$347,423.86 awarded assistance with an average of \$3,308.80 assistance received.

b. Renters

There were nine (9) FEMA registrants that reported themselves as renters with a FVL \$3,791.68 and no unmet need calculated by FEMA. There was \$14,493.70 awarded assistance with an average of \$1,610.41 assistance received.

c. Seniors

The population of Piney Point Village that is over the age of 60 is 1,134. There were 69 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$715,712.13 for those households and the unmet need was \$798,062.09. The average assistance paid was \$3,205.51 with the total awarded \$221,179.87 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Piney Point Village has an AFN population of 211. There were four (4) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$34,848.07 and an unmet need of \$2,348.47 calculated by FEMA. The average assistance received by the AFN registrants was \$7,344.13 and a total of \$29,376.50 assistance paid.

Non-Housing

Table 54 summarizes the damages for the City of Piney Point Village and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Piney Point Village had an approximate public assistance cost of \$442,500.00. The categories with the highest total need are Debris Removal and Roads and Bridges, followed by Buildings and Equipment. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

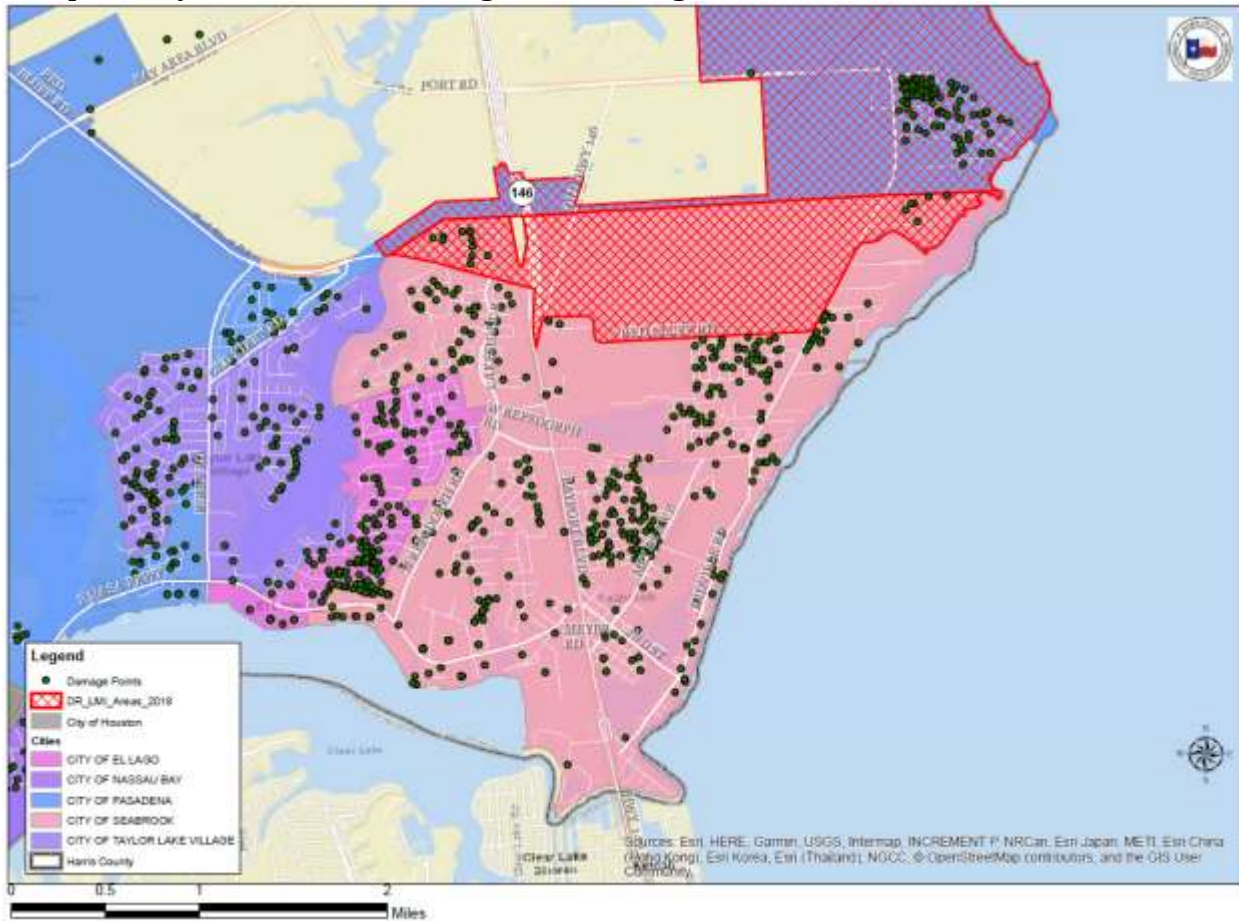
Table 54: Total Cost and Need by PA Category in City of Piney Point Village

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$403,500.00	\$40,350.00	\$60,525.00	\$100,875.00
B - Emergency Protective Measures	\$0.00	\$0.00	\$0.00	\$0.00
C - Roads and Bridges	\$35,000.00	\$3,500.00	\$5,250.00	\$8,750.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$4,000.00	\$400.00	\$600.00	\$1,000.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$442,500.00	\$44,250.00	\$66,375.00	\$110,625.00

Seabrook

According to the 2016 U.S. Census, the City of Seabrook has an estimated population of 13,038. The median household annual income is \$84,764, with 5.8 percent of the population below the poverty level. Approximately 14.8 percent of the population is over 60. The population by race/ethnicity is 15.7 percent Hispanic, 76.2 percent white, 3.1 percent black, 3.3 percent Asian and 1.7 percent other/two or more races. The Low-to-Moderate Income (LMI) population of Seabrook makes up 11.7 percent of the total population and is included in Harris County's Target Areas.

Map 44: City of Seabrook FEMA registered damaged units



Seabrook is located on Galveston Bay at Clear Lake, southeast of Houston near Pasadena and La Porte, as seen in Map 44. The Harris County Flood Warning System rain gages nearest Seabrook, Gage 200 and Gage 100, recorded 40.28" and 34.16" respectively for an average 37.22" of rain from August 25 to August 30.

Housing

The City of Seabrook has 5,033 housing units, which includes single-family, multi-family and mobile homes. A total of 196 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$637,101.01. The total amount that was awarded to the FEMA registrants was \$321,823.95 with an average paid amount of \$1,667.72. The unmet need totaled to \$381,560.93 for the city as calculated by FEMA.

a. Owners

There were 110 FEMA registrants that reported themselves as owners with a FVL amount of \$587,343.93 and an unmet need of \$381,560.93. There was \$246,922.91 awarded assistance with an average of \$2,244.75 assistance received.

b. Renters

There were 86 FEMA registrants that reported themselves as renters with a FVL \$49,757.08 and no unmet need calculated by FEMA. There was \$79,951.11 awarded assistance with an average of \$929.66 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Seabrook has a LMI population of 1,523 that is a part of Harris County's Target Areas. There were 115 registrants that reported damages to FEMA. The registrants had a FVL amount of \$28,069.90. The total amount that was awarded to the FEMA registrants was \$8,646 with an average paid amount of \$508.59. The FEMA calculated unmet need totaled to \$21,791.30 for the city.

d. Seniors

The population of Seabrook that is over the age of 60 is 1,933. There were 40 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$262,072.92 for those households and the unmet need was \$262,072.92. The average assistance paid was \$1,924.74 with the total awarded \$76,989.41 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Seabrook has an AFN population of 1,105. There were six (6) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$25,706.31 and no unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$5,283.39 and a total of \$31,700.31 assistance paid.

Non-Housing

Table 55 summarizes the damages for the City of Seabrook and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Seabrook had an approximate public assistance cost of \$761,361.00. The categories with the highest total need are Emergency Protective Measures and Utilities, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 55: Total Cost and Need by PA Category in City of Seabrook

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$75,000.00	\$7,500.00	\$11,250.00	\$18,750.00
B - Emergency Protective Measures	\$345,000.00	\$34,500.00	\$51,750.00	\$86,250.00
C - Roads and Bridges	\$17,000.00	\$1,700.00	\$2,550.00	\$4,250.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$261,096.00	\$26,109.60	\$39,164.40	\$65,274.00
G - Parks, Recreational Facilities, and Other Items	\$63,265.00	\$6,326.50	\$9,489.75	\$15,816.25
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$761,361.00	\$76,136.10	\$114,204.15	\$190,340.25

According to the 2016 U.S. Census, the City of Shoreacres has an estimated population of 1,759. The median household annual income is \$103,816 with 1.3 percent of the population below the poverty level. Approximately 17.4 percent of the population is over 60. The population by race/ethnicity is 19.6 percent Hispanic, 78.3 percent white, 0.2 percent black, 0.5 percent Asian and 1.5 percent other/two or more races.

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Housing

The City of Shoreacres has 606 housing units, which includes single-family, multi-family and mobile homes. A total of 88 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$574,297.75. The total amount that was awarded to the FEMA registrants was \$234,037.23 with an average paid amount of \$2,719.13. The unmet need totaled to \$345,908.89 for the city.

a. Owners

There were 68 FEMA registrants that reported themselves as owners with a FVL amount of \$527,597.38 and an unmet need of \$345,908.89. There was \$180,415.42 awarded assistance with an average of \$2,653.17 assistance received.

b. Renters

There were 20 FEMA registrants that reported themselves as renters with a FVL \$46,700.37 and no unmet need calculated by FEMA. There was \$58,868.27 awarded assistance with an average of \$2,943.41 assistance received.

c. Seniors

The population of Shoreacres that is over the age of 60 is 306. There were 23 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$207,536.23 for those households and the unmet need was \$101,610.66. The average assistance paid was \$4,374.92 with the total awarded \$100,623.08 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Shoreacres has an AFN population of 196. There were two (2) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$8,709.21 and no unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$5,810.61 and a total of \$11,621.21 assistance paid.

Non-Housing

FEMA PA data is currently unavailable for the City of Shoreacres.

South Houston

According to the 2016 U.S. Census, the City of South Houston has an estimated population of 17,474. The median household annual income is \$42,016, with 21.5 percent of the population below the poverty level. Approximately 11.3 percent of the population is over 60. The population by race/ethnicity is 88.8 percent Hispanic, 8.7 percent white, 1.4 percent black, 0.5 percent Asian and 0.5 percent other/two or more races. The Low-to-Moderate Income (LMI) population of South Houston makes up 73.1 percent of the total population and is included in Harris County's Target Areas.

Map 46: City of South Houston FEMA registered damaged units



South Houston is located on Galveston Bay at Clear Lake, southeast of Houston near Pasadena and La Porte. City of South Houston is adjacent to Pasadena, two miles southeast of the intersection of Interstate Highway 45 and State Highway 3, in southeastern Harris County, as seen in Map 46. The Harris County Flood Warning System rain gages nearest South Houston, Gage 310 and Gage 320, recorded 44.60" and 44.88" respectively for an average 44.74" of rain from August 25 to August 31.

Housing

The City of South Houston has 4,648 housing units, which includes single-family, multi-family and mobile homes. A total of 1,738 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$12,112,968.02. The total amount that was awarded to the FEMA registrants was

\$9,536,550.86 with an average paid amount of \$5,514.84. The unmet need totaled to \$2,751,178.07 for the city as calculated by FEMA.

a. Owners

There were 1,139 FEMA registrants that reported themselves as owners with a FVL amount of \$10,261,594.79 and an unmet need of \$2,732,938.22. There was \$7,663,028.39 awarded assistance with an average of \$6,727.86 assistance received.

b. Renters

There were 599 FEMA registrants that reported themselves as renters with a FVL \$1,851,373.23 and an unmet need of \$13,382.40 calculated by FEMA. There was \$1,921,768.01 awarded assistance with an average of \$3,208.29 assistance received.

c. Low-to-Moderate Income (LMI)

The City of South Houston has a LMI population of 12,774 that is a part of Harris County's Target Areas. There were 1,429 registrants that reported damages to FEMA. The registrants had a FVL amount of \$4,955,588.24. The total amount that was awarded to the FEMA registrants was \$4,859,318.07 with an average paid amount of \$3,508.53. The FEMA calculated unmet need totaled to \$738,923.11 for the city.

d. Seniors

The population of South Houston that is over the age of 60 is 1,977. There were 615 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$5,356,078.28 for those households and the unmet need was \$1,193,010.19. The average assistance paid was \$7,080.90 with the total awarded \$4,354,751.96 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of South Houston has an AFN population of 2,229. There were 56 FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$417,952.31 and an unmet need of \$104,760.46 calculated by FEMA. The average assistance received by the AFN registrants was \$5,844.92 and a total of \$327,315.38 assistance paid.

Non-Housing

Table 56 summarizes the damages for the City of South Houston and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of South Houston had an approximate public assistance cost of \$9,275,000.00. The categories with the highest total need are Roads and Bridges and Debris Removal, followed by Direct Administrative Costs. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

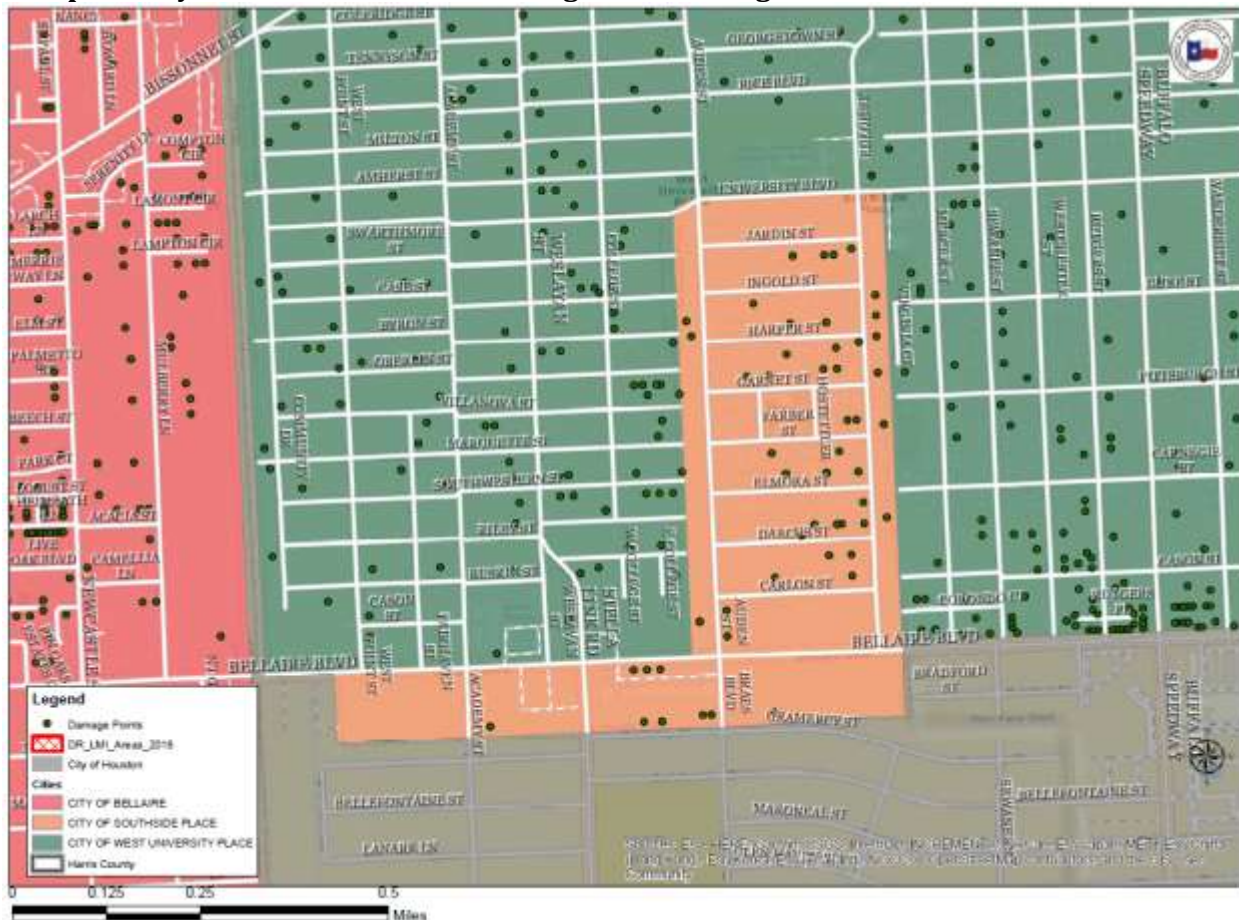
Table 56: Total Cost and Need by PA Category in City of South Houston

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$2,700,000.00	\$270,000.00	\$405,000.00	\$675,000.00
B - Emergency Protective Measures	\$500,000.00	\$50,000.00	\$75,000.00	\$125,000.00
C - Roads and Bridges	\$3,500,000.00	\$350,000.00	\$525,000.00	\$875,000.00
D - Water Control Facilities	\$500,000.00	\$50,000.00	\$75,000.00	\$125,000.00
E - Buildings and Equipment	\$200,000.00	\$20,000.00	\$30,000.00	\$50,000.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$100,000.00	\$10,000.00	\$15,000.00	\$25,000.00
Z - Direct Administrative Costs	\$1,775,000.00	\$177,500.00	\$266,250.00	\$443,750.00
Grand Total	\$9,275,000.00	\$927,500.00	\$1,391,250.00	\$2,318,750.00

Southside Place

According to the 2016 U.S. Census, the City of Southside Place has an estimated population of 1,746. The median household annual income is \$153,250, with 6.4 percent of the population below the poverty level. Approximately 18.8 percent of the population is over 60. The population by race/ethnicity is 10.1 percent Hispanic, 71.9 percent white, 0.7 percent black, 14.8 percent Asian and 2.5 percent other/two or more races.

Map 47: City of Southside Place FEMA registered damaged units



Southside Place is located, north of Bellaire Blvd and is surrounded by West University Place, as seen in Map 47. The Harris County Flood Warning System rain gages nearest Southside Place, Gage 2260 recorded an average of 29.88" of rain from August 25 to August 31.

Housing

The City of Southside Place has 628 housing units, which includes single-family, multi-family and mobile homes. A total of 30 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$378.22. The total amount that was awarded to the FEMA registrants was \$14,194.95 with an average paid amount of \$479.66. The unmet need totaled to \$183.27 for the city as calculated by FEMA.

a. Owners

There were 28 FEMA registrants that reported themselves as owners with a FVL amount of \$378.22 and an unmet need of \$183.27. There was \$13,389.90 awarded assistance with an average of \$478.21 assistance received.

b. Renters

There were two (2) FEMA registrants that reported themselves as renters. Those registrants did not have a FVL or unmet need calculated by FEMA. However, there was \$1,000 awarded assistance with an average of \$500 assistance received.

c. Seniors

The population of Southside Place that is over the age of 60 is 328. There were 16 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$183.27 for those households and the unmet need was \$183.27. The average assistance paid was \$468.75 with the total awarded \$7,500 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Southside Place has an AFN population of 83. There were two (2) FEMA registrants that are classified as AFN in the city. Registrants did not have a FVL or unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$500 and a total of \$1,000 assistance paid.

Non-Housing

Table 57 summarizes the damages for the City of Southside Place and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Southside Place had an approximate public assistance cost of \$81,172.64. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment; followed by Parks, Recreational Facilities, and Other Items. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

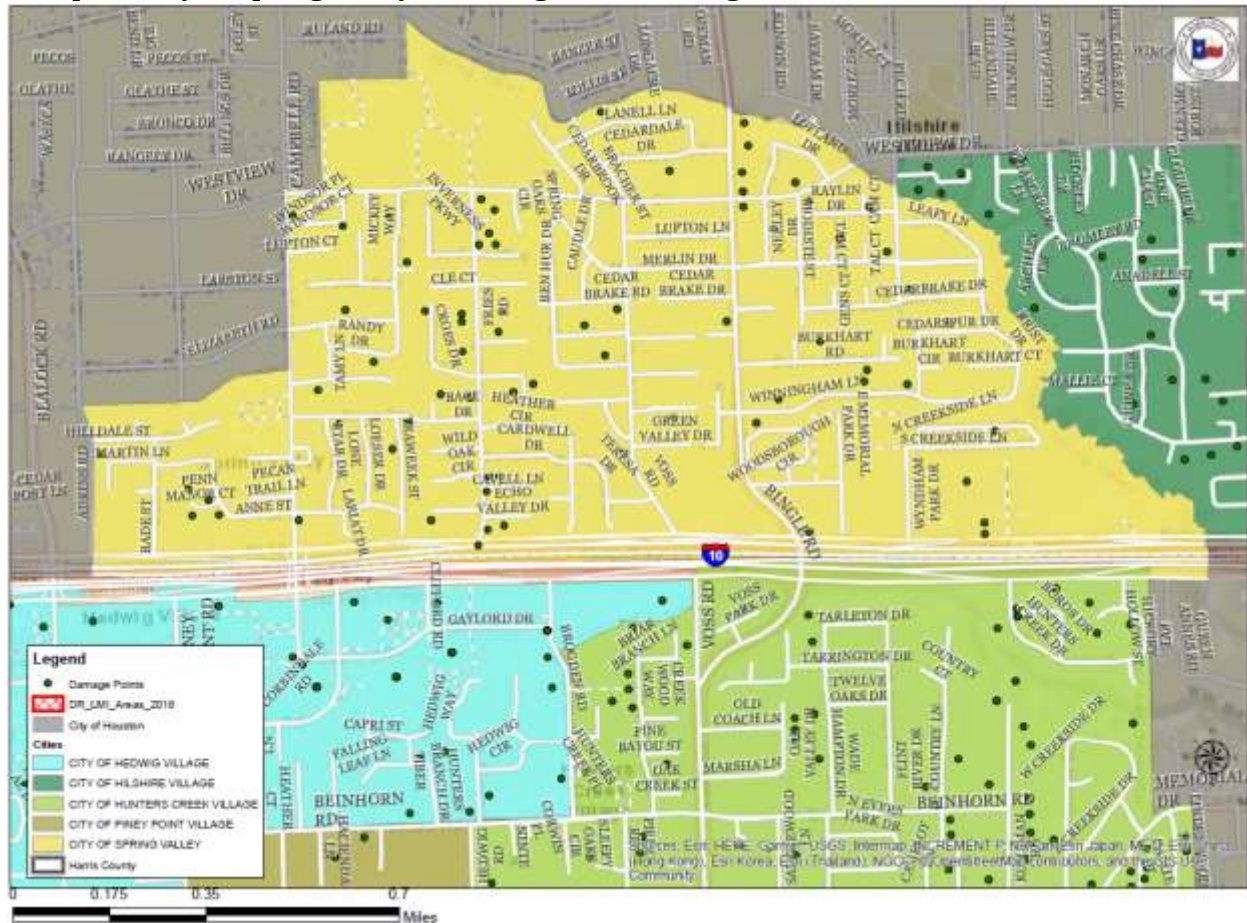
Table 57: Total Cost and Need by PA Category in City of Southside Place

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$35,401.30	\$3,540.13	\$5,310.20	\$8,850.33
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$31,116.62	\$3,111.66	\$4,667.49	\$7,779.16
F - Utilities	\$3,334.72	\$333.47	\$500.21	\$833.68
G - Parks, Recreational Facilities, and Other Items	\$11,320.00	\$1,132.00	\$1,698.00	\$2,830.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$81,172.64	\$8,117.26	\$12,175.90	\$20,293.16

Spring Valley

According to the 2016 U.S. Census, the City of Spring Valley has an estimated population of 4,098. The median household annual income is \$173,966, with 0.8 percent of the population below the poverty level. Approximately 18.8 percent of the population is over 60. The population by race/ethnicity is 7.3 percent Hispanic, 84.2 percent white, 7.2 percent Asian and 1.4

Map 48: City of Spring Valley FEMA registered damaged units



Spring Valley is located, north of Interstate 10 and The Villages, east of Hilshire Village, as seen in Map 48. The Harris County Flood Warning System rain gages nearest Spring Valley, Gage 2255 recorded an average of 30.52" of rain from August 25 to August 31.

Housing

The City of Spring Valley has 1,478 housing units, which includes single-family, multi-family and mobile homes. A total of 36 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$27,571.49. The total amount that was awarded to the FEMA registrants was \$40,000 with an average paid amount of \$1,111.11. The unmet need totaled to \$1,556.03 for the city as calculated by FEMA.

a. Owners

There were 35 FEMA registrants that reported themselves as owners with a FVL amount of \$27,571.49 and an unmet need of \$1,556.03. There was \$39,500 awarded assistance with an average of \$1,128.57 assistance received.

b. Renters

There was one (1) FEMA registrant that reported themselves as renters. That registrant did not have a FVL or unmet need calculated by FEMA. However, there was \$500 awarded assistance to that registrant.

c. Seniors

The population of Spring Valley that is over the age of 60 is 799. There were 16 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$821.75 for those households and the unmet need was \$821.75. The average assistance paid was \$468.75 with the total awarded \$7,500 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Spring Valley has an AFN population of 278. There were two (2) FEMA registrants that are classified as AFN in the city. Those registrants did not have a FVL or unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$500 and a total of \$1,000 assistance paid.

Non-Housing

Table 58 summarizes the damages for the City of Spring Valley and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Spring Valley had an approximate public assistance cost of \$145,297.91 under the Emergency Protective Measures and Buildings and Equipment PA categories. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 58: Total Cost and Need by PA Category in City of Spring Valley

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$137,112.00	\$13,711.20	\$20,566.80	\$34,278.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$8,185.91	\$818.59	\$1,227.89	\$2,046.48
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$145,297.91	\$14,529.79	\$21,794.69	\$36,324.48

a. Owners

There were four FEMA registrants that reported themselves as owners with a FVL amount of \$23,697.73 and an unmet need of \$9,822.17. There was \$14,843.28 awarded assistance with an average of \$3,710.82 assistance received.

b. Renters

There were two FEMA registrants that reported themselves as renters. Those registrants had a FVL amount \$17,139.17 and no unmet need calculated by FEMA. However, there was \$15,066 awarded assistance with an average of \$7,533 assistance received.

c. Seniors

The population of Stafford that is over the age of 60 is 2,980. There were three FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$18,949.68 for those households and the unmet need was \$9,822.17. The average assistance paid was \$3,365.08 with the total awarded \$10,095.23 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Stafford has an AFN population of 1,682. There were two FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$7,887.22 and no unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$2,907.03 and a total of \$5,814.05 assistance paid.

Non-Housing

Table 59 summarizes the damages for the City of Stafford and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) categories as of June 1, 2018. The City of Stafford had an approximate public assistance cost of \$1,023,150.00. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment, followed by Direct Administrative Costs. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

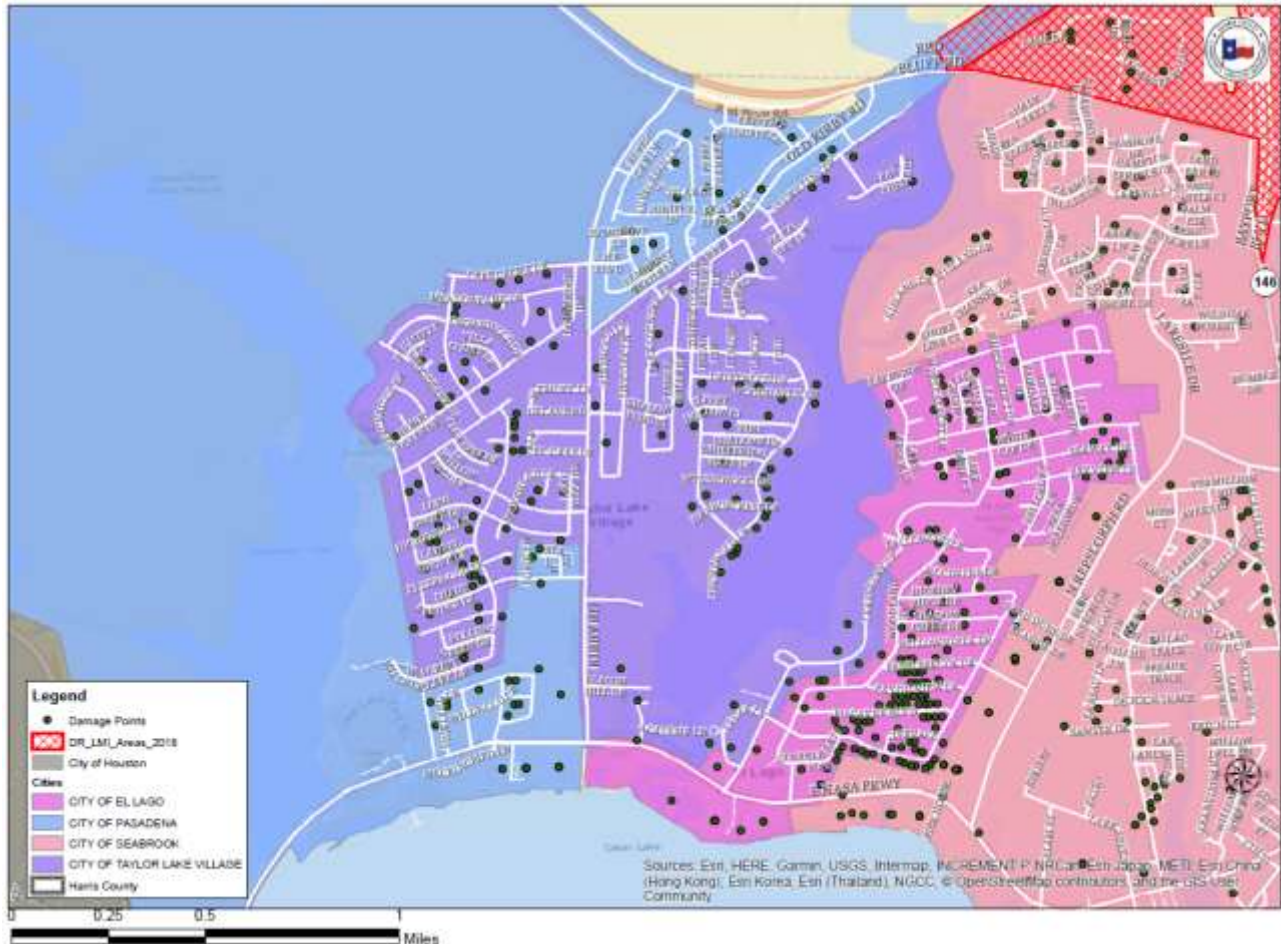
Table 59: Total Cost and Need by PA Category in City of Stafford

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$52,200.00	\$5,220.00	\$7,830.00	\$13,050.00
B - Emergency Protective Measures	\$450,000.00	\$45,000.00	\$67,500.00	\$112,500.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$450,000.00	\$45,000.00	\$67,500.00	\$112,500.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$17,100.00	\$1,710.00	\$2,565.00	\$4,275.00
Z - Direct Administrative Costs	\$53,850.00	\$5,385.00	\$8,077.50	\$13,462.50
Grand Total	\$1,023,150.00	\$102,315.00	\$153,472.50	\$255,787.50

Taylor Lake Village

According to the 2016 U.S. Census, the City of Taylor Lake Village has an estimated population of 3,662. The median household annual income is \$126,250, with 3.4 percent of the population below the poverty level. Approximately 29.7 percent of the population is over 60. The population by race/ethnicity is 10.3 percent Hispanic, 84.8 percent white, 2.6 percent black, 1.1 percent Asian and 1.2 percent other/two or more races.

Map 50: City of Taylor Lake Village FEMA registered damaged units



Taylor Lake Village is located in East Harris County, north of Clear Lake and bordered by Pasadena, El Lago and Seabrook, as seen in Map 50. The Harris County Flood Warning System rain gages nearest Taylor Lake Village, Gage 210 and 200 recorded 41.00" and 40.36" respectively for an average of 40.68" rain from August 25 to August 31.

Housing

The City of Taylor Lake Village has 1,310 housing units, which includes single-family, multi-family and mobile homes. A total of 64 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$395,273.12. The total amount that was awarded to the FEMA registrants was \$175,945.46 with an average paid amount of \$2,778.10. The unmet need totaled to \$228,413.74 for the city as calculated by FEMA.

a. Owners

There were 56 FEMA registrants that reported themselves as owners with a FVL amount of \$356,870.56 and an unmet need of \$228,413.74. There was \$142,044.35 awarded assistance with an average of \$2,536.51 assistance received.

b. Renters

There were eight (8) FEMA registrants that reported themselves as renters with a FVL amount \$38,402.56 and no unmet need calculated by FEMA. However, there was \$35,753.90 awarded assistance with an average of \$4,469.24 assistance received.

c. Seniors

The population of Taylor Lake Village that is over the age of 60 is 1,086. There were 22 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$111,179.28 for those households and the unmet need was \$99,369.78. The average assistance paid was \$699.97 with the total awarded \$15,399.41 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Taylor Lake Village has an AFN population of 445. There were three (3) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$8,508.99 and an unmet need of \$7,509.01 calculated by FEMA. The average assistance received by the AFN registrants was \$1,387.33 and a total of \$4,161.99 assistance paid.

Non-Housing

Table 60 summarizes the damages for the City of Taylor Lake Village and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Taylor Lake Village had an approximate public assistance cost of \$54,969.80. The categories with the highest total need are Debris Removal and Parks, Recreational Facilities, and Other Items; followed by Emergency Protective Measures. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

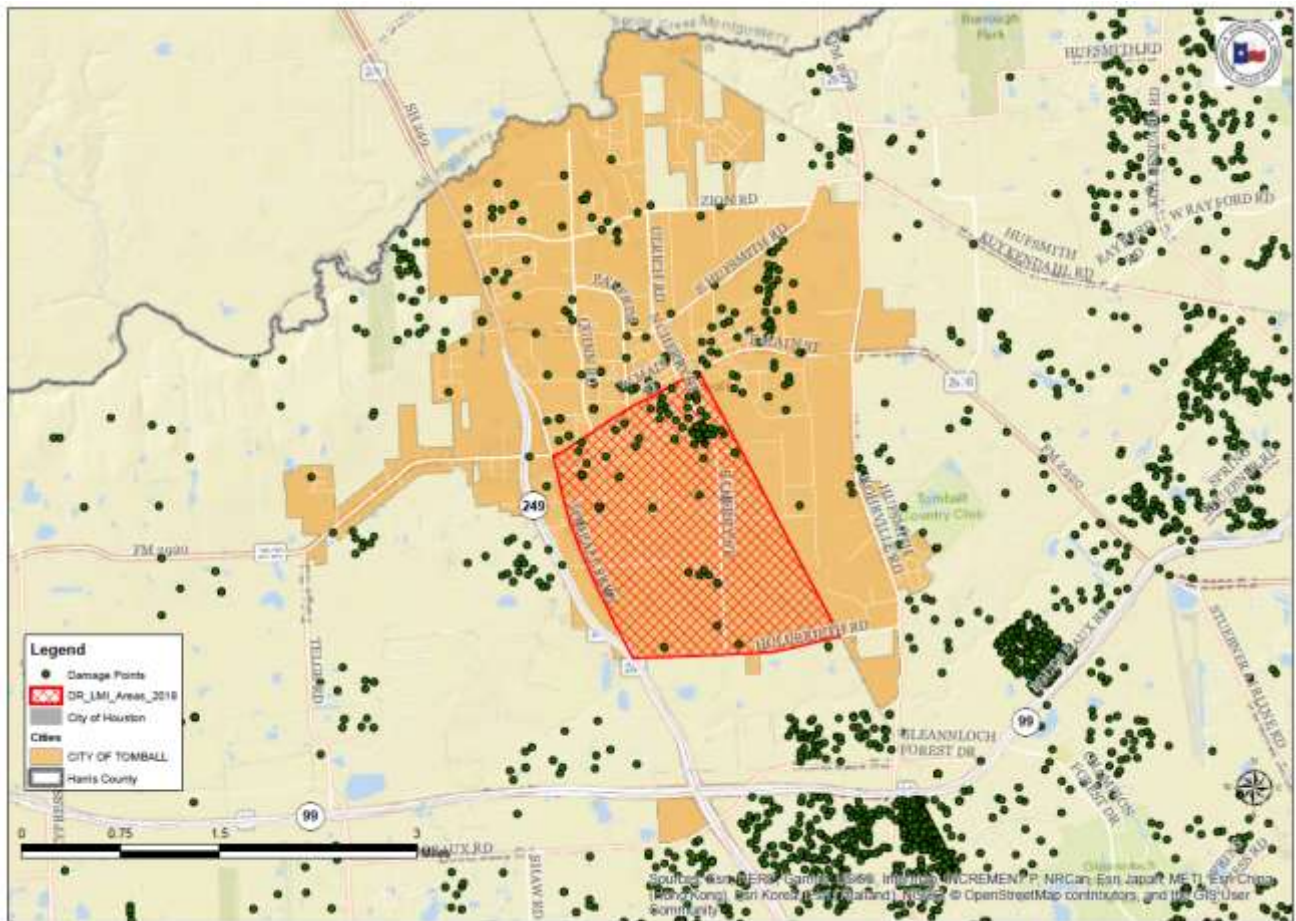
Table 60: Total Cost and Need by PA Category in City of Taylor Lake Village

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$44,992.23	\$4,499.22	\$6,748.83	\$11,248.06
B - Emergency Protective Measures	\$3,134.76	\$313.48	\$470.21	\$783.69
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$6,842.81	\$684.28	\$1,026.42	\$1,710.70
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$54,969.80	\$5,496.98	\$8,245.47	\$13,742.45

Tomball

According to the 2016 U.S. Census, the City of Tomball has an estimated population of 11,353. The median household annual income is \$49,531, with 12.5 percent of the population below the poverty level. Approximately 29.7 percent of the population is over 60. The City of Tomball has a Low-to-Moderate Income (LMI) population that makes up 31.2 percent of the total population and is included in Harris County's Target Areas. The population by race/ethnicity is 24.9 percent Hispanic, 64.2 percent white, 7.8 percent black, 1.9 percent Asian and 1.3 percent other/two or more races.

Map 51: City of Tomball FEMA registered damaged units



Tomball is located in northwest Harris County along State Highway 249 and 11 miles east of Interstate 45, as seen in Map 51. The Harris County Flood Warning System rain gages nearest Tomball, Gage 1340 and Gage 1040, recorded 26.6" and 26.88" respectively for an average 26.74" of rain from August 25 to August 30.

Housing

The City of Tomball has 4,145 housing units, which includes single-family, multi-family and mobile homes. A total of 101 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$89,219.19. The total amount that was awarded to the FEMA registrants was

\$125,988.14 with an average paid amount of \$1,260.63. The unmet need totaled to \$12,691.67 for the city as calculated by FEMA.

a. Owners

There were 40 FEMA registrants that reported themselves as owners with a FVL amount of \$80,101.72 and an unmet need of \$12,691.72. There was \$81,012.22 awarded assistance with an average of \$2,025.31 assistance received.

b. Renters

There were 61 FEMA registrants that reported themselves as renters with a FVL amount \$9,117.47 and no unmet need calculated by FEMA. There was \$46,310.97 awarded assistance with an average of \$759.20 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Tomball has a LMI population of 3,536 that is a part of Harris County's Target Areas. There were 86 registrants that reported damages to FEMA. The registrants had a FVL amount of \$42,915.03. The total amount that was awarded to the FEMA registrants was \$60,685.37 with an average paid amount of \$551.69. The FEMA calculated unmet need totaled to \$9,041.05 for the city.

d. Seniors

The population of Tomball that is over the age of 60 is 2,678. There were fourteen (14) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$11,710.14 for those households and the unmet need was \$5,635.74. The average assistance paid was \$857.45 with the total awarded \$12,004.34 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Tomball has an AFN population of 1,810. There were three (3) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$420.28 and no unmet need calculated by FEMA. The average assistance received by the AFN registrants was \$613.52 and a total of \$1,840.56 assistance paid.

Non-Housing

Table 61 summarizes the damages for the City of Tomball and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Tomball had an approximate public assistance cost of \$422,508.00 under the Emergency Protective Measures and Direct Administrative Cost PA categories. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

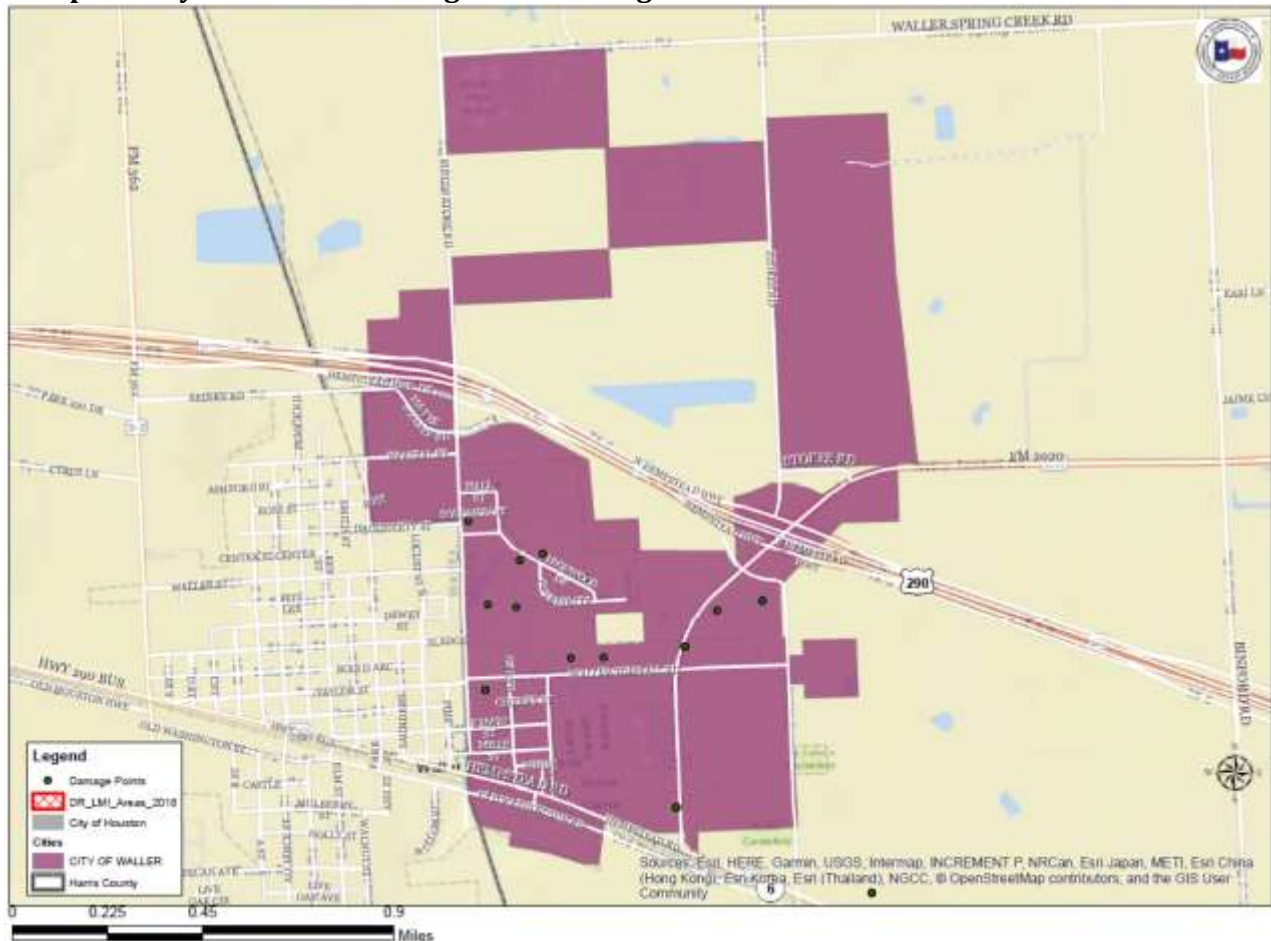
Table 61: Total Cost and Need by PA Category in City of Tomball

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$0.00	\$0.00	\$0.00	\$0.00
B - Emergency Protective Measures	\$402,508.00	\$40,250.80	\$60,376.20	\$100,627.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$0.00	\$0.00	\$0.00	\$0.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$20,000.00	\$2,000.00	\$3,000.00	\$5,000.00
Grand Total	\$422,508.00	\$42,250.80	\$63,376.20	\$105,627.00

Waller

According to the 2016 U.S. Census, the City of Waller has an estimated population of 2,459. The median household annual income is \$34,734, with 18.2 percent of the population below the poverty level. Approximately 21.4 percent of the population is over 60. The City of Waller has a Low-to-Moderate Income (LMI) population that makes up 31.2 percent of the total population and is included in Harris County's Target Areas. The population by race/ethnicity is 32.1 percent Hispanic, 49.9 percent white, 15.2 percent black, 2.1 percent Asian and 0.7 percent other/two or more races.

Map 52: City of Waller FEMA registered damaged units



Waller is located in Northwest Harris County and East Waller County at Highway 290 and Farm to Market Road 2920, as seen in Map 52. The Harris County Flood Warning System rain gages nearest Waller, Gage 1195 recorded an average of 25.84" of rain from August 25 to August 31.

Housing

The City of Waller has 860 housing units, which includes single-family, multi-family and mobile homes. A total of five (5) FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$20,973.13. The total amount that was awarded to the FEMA registrants was \$21,274.76 with an average paid amount of \$4,413.21. The unmet need totaled to \$1,149.06 for the city as calculated by FEMA.

a. Owners

There were four (4) FEMA registrants that reported themselves as owners with a FVL amount of \$20,973.13 and an unmet need of \$1,149.06. There was \$21,566.07 awarded assistance with an average of \$5,391.52 assistance received.

b. Renters

There were one (1) FEMA registrants that reported themselves as renters. That registrant did not have a FVL or unmet need and that one registrant received assistance in the amount of \$500.

c. Seniors

The population of Waller that is over the age of 60 is 527. There were two (2) FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$20,805.68 for those households and the unmet need was \$981.61. The average assistance paid was \$10,783.03 with the total awarded \$21,566.07 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of Waller has an AFN population of 341. There were no FEMA registrants that are classified as AFN in the city.

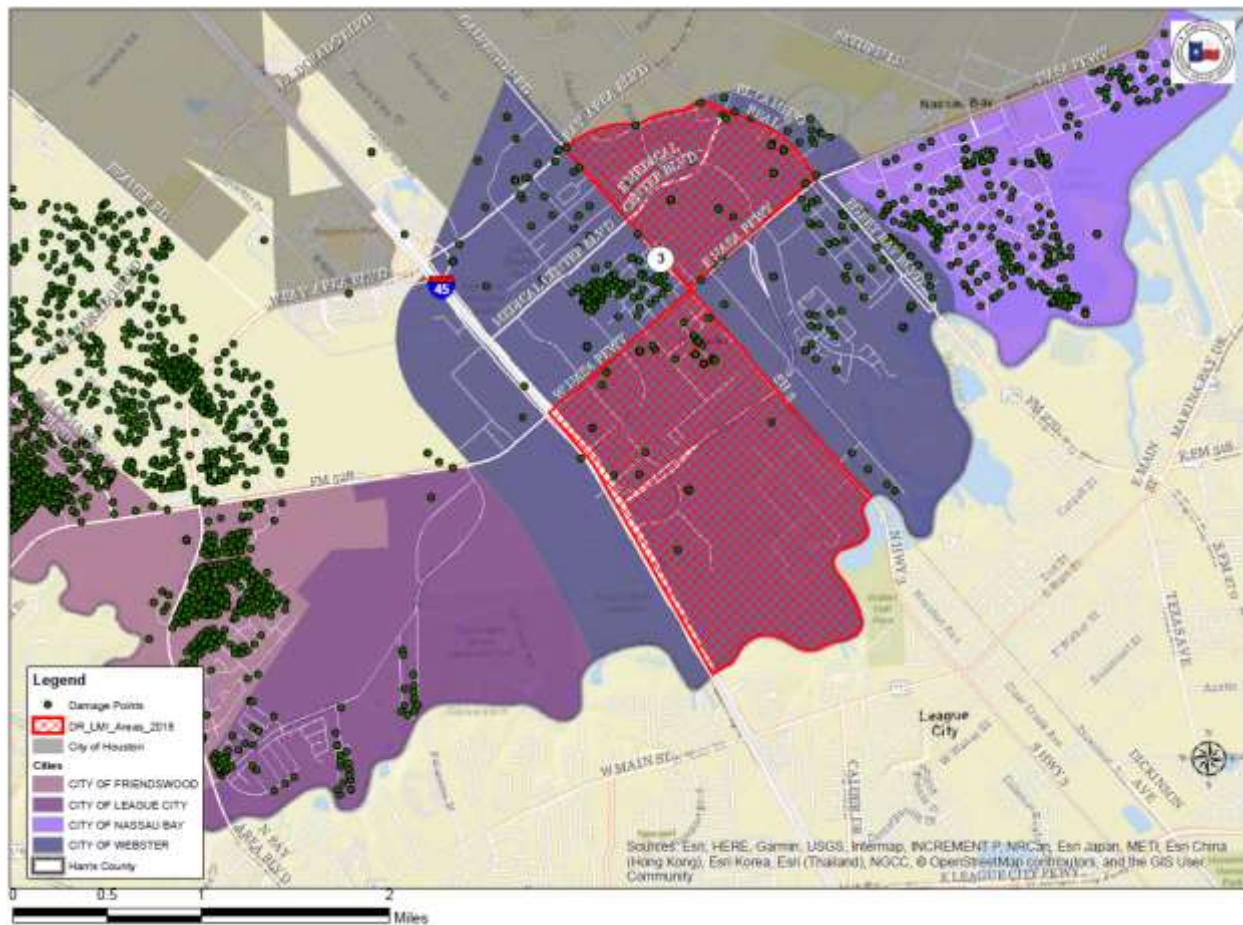
Non-Housing

FEMA PA data is currently unavailable for the City of Waller.

Webster

According to the 2016 U.S. Census, the City of Webster has an estimated population of 11,041. The median household annual income is \$46,829, with 14.1 percent of the population below the poverty level. Approximately 13.3 percent of the population is over 60. The City of Webster's Low-to-Moderate Income (LMI) population makes up 38.3 percent of the total population and is included in Harris County's Target Areas. The population by race/ethnicity is 30 percent Hispanic, 48.8 percent white, 16.3 percent black, 3.8 percent Asian and 1.1 percent other/two or more races.

Map 53: City of Webster FEMA registered damaged units



Webster is located in southeastern Harris County, as seen in Map 53. It is bordered to the north by the City of Houston and to the northeast by Nassau Bay. Clear Creek forms the southeastern border of Webster and is the Harris County / Galveston County line. League City borders Webster to the south and southwest, in both counties. Interstate 45 runs through the western side of Webster, with access from Exits 23 through 25. The Harris County Flood Warning System rain gages nearest Webster, Gage 170 and Gage 110, recorded 36.84" and 47.92" respectively for an average 42.38" of rain from August 25 to August 30.

Housing

The City of Webster has 4,689 housing units, which includes single-family, multi-family and mobile homes. A total of 327 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$1,117,348.37. The total amount that was awarded to the FEMA registrants was \$1,228,058.65 with an average paid amount of \$3,771.26. The unmet need totaled to \$178,345.41 for the city as calculated by FEMA.

a. Owners

There were 70 FEMA registrants that reported themselves as owners with a FVL amount of \$702,797.76 and an unmet need of \$178,345.41. There was \$543,175.15 awarded assistance with an average of \$7,759.65 assistance received.

b. Renters

There were 257 FEMA registrants that reported themselves as renters with a FVL amount \$414,550.61 and no unmet need calculated by FEMA. There was \$690,027.24 awarded assistance with an average of \$2,684.93 assistance received.

c. Low-to-Moderate Income (LMI)

The City of Webster has a LMI population of 4,227 that is a part of Harris County's Target Areas. There were 245 registrants that reported damages to FEMA. The registrants had a FVL amount of \$265,666.34. The total amount that was awarded to the FEMA registrants was \$460,642.90 with an average paid amount of \$2,678.16. The FEMA calculated unmet need totaled to \$1,474.76 for the city.

d. Seniors

The population of Webster that is over the age of 60 is 1,473. There were 76 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$480,759.55 for those households and the unmet need was \$83,504.14. The average assistance paid was \$5,965.13 with the total awarded \$453,350.08 to the registrants that reported at least one member over 60 in their household.

e. Access and Functional Needs (AFN)

The City of Webster has an AFN population of 1,327. There were nine (9) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$16,723.94 with an unmet need of \$8,245.12 calculated by FEMA. The average assistance received by the AFN registrants was \$1,388.17 and a total of \$12,493.49 assistance paid.

Non-Housing

Table 62 summarizes the damages for the City of Webster and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of Webster had an approximate public assistance cost of \$1,059,212.00. The categories with the highest total need are Buildings and Equipment and Emergency Protective Measures, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 62: Total Cost and Need by PA Category in City of Webster

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$100,000.00	\$10,000.00	\$15,000.00	\$25,000.00
B - Emergency Protective Measures	\$409,212.00	\$40,921.20	\$61,381.80	\$102,303.00
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$550,000.00	\$55,000.00	\$82,500.00	\$137,500.00
F - Utilities	\$0.00	\$0.00	\$0.00	\$0.00
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$1,059,212.00	\$105,921.20	\$158,881.80	\$264,803.00

West University Place

According to the 2016 U.S. Census, the City of West University Place has an estimated population of 15,318. The median household annual income is \$220,868, with 2 percent of the population below the poverty level. Approximately 20.2 percent of the population is over 60. The population by race/ethnicity is 5.7 percent Hispanic, 82.8 percent white, 0.8 percent black, 8.9 percent Asian and 1.9 percent other/two or more races.

Map 54: City of West University Place FEMA registered damaged units



West University Place is surrounded by Southside Place and neighbors Bellaire to the east, as seen in Map 54. Bellaire Blvd/W Holcombe Blvd borders West University Place to the south, Kirby Drive to the east and Bissonnet Street to the north. The Harris County Flood Warning System rain gages nearest Nassau Bay, Gage 420 and 430 recorded 29.32" and 30.16" respectively for an average of 29.74" rain from August 25 to August 31.

Housing

The City of West University Place has 5,471 housing units, which includes single-family, multi-family and mobile homes. A total of 310 FEMA registrants applied for assistance with a FEMA Verified Loss (FVL) amount of \$637,775.24. The total amount that was awarded to the FEMA registrants was \$402,889.53 with an average paid amount of \$1,320.75. The unmet need totaled to \$349,518.58 for the city as calculated by FEMA.

a. Owners

There were 251 FEMA registrants reported themselves as owners with a FVL amount of \$619,767.55 and an unmet need of \$349,518.58. There was \$362,378.84 awarded assistance with an average of \$1,443.74 assistance received.

b. Renters

There were 55 FEMA registrants that reported themselves as renters with a FVL amount \$17,507.69 and no unmet need calculated by FEMA. There was \$41,771.88 awarded assistance with an average of \$759.49 assistance received.

c. Seniors

The population of West University Place that is over the age of 60 is 3,100. There were 141 FEMA registrants that had at least one member of the household over the age of 60. The total FVL was \$304,743.82 for those households and the unmet need was \$178,739.02. The average assistance paid was \$1,203.94 with the total awarded \$169,755.91 to the registrants that reported at least one member over 60 in their household.

d. Access and Functional Needs (AFN)

The City of West University Place has an AFN population of 712. There were six (6) FEMA registrants that are classified as AFN in the city. Registrants had a FVL of \$67,067.86 with an unmet need of \$29,972.01 calculated by FEMA. The average assistance received by the AFN registrants was \$5,393.25 and a total of \$32,359.50 assistance paid.

Non-Housing

Table 63 summarizes the damages for the City of West University Place and provides a high-level approximation of the total costs and total needs for each Public Assistance (PA) category as of June 1, 2018. The City of West University Place had an approximate public assistance cost of \$571,276.32. The categories with the highest total need are Emergency Protective Measures and Buildings and Equipment, followed by Debris Removal. It should be noted that PA project worksheets are still under development by the local jurisdictions and under review by FEMA and Texas Division of Emergency Management (TDEM) and these amounts are expected to increase.

Table 63: Total Cost and Need by PA Category in City of West University Place

PA Category	Approx. PA Cost	10% Local Match	15% Resiliency on Approx. Cost	Total Need (Local Match + Resiliency)
A - Debris Removal	\$65,154.08	\$6,515.41	\$9,773.11	\$16,288.52
B - Emergency Protective Measures	\$322,554.18	\$32,255.42	\$48,383.13	\$80,638.55
C - Roads and Bridges	\$0.00	\$0.00	\$0.00	\$0.00
D - Water Control Facilities	\$0.00	\$0.00	\$0.00	\$0.00
E - Buildings and Equipment	\$153,750.70	\$15,375.07	\$23,062.61	\$38,437.68
F - Utilities	\$29,817.36	\$2,981.74	\$4,472.60	\$7,454.34
G - Parks, Recreational Facilities, and Other Items	\$0.00	\$0.00	\$0.00	\$0.00
Z - Direct Administrative Costs	\$0.00	\$0.00	\$0.00	\$0.00
Grand Total	\$571,276.32	\$57,127.63	\$85,691.45	\$142,819.08

Appendix B

Harris County Target Areas

The Low-to-Moderate-Income (LMI) areas of the Harris County (DR) Service Area are made up of 59 designated communities throughout Harris County's unincorporated and small cities, referred to as LMI Target Areas and one HUD-defined LMI Income Survey Area in Crosby. These LMI areas represent portions of communities in Harris County that have 51 percent or more concentration of LMI residents.

In the Harris County Disaster Recovery (DR) Service Area, there were a total of 160,695 valid FEMA registrants. Of that total, 48,883 FEMA registrants were located in the LMI Target Areas. Approximately 23,566 registrants received assistance with an average FVL amount of over \$146 million with an average assistance of \$5,261 and leaving them with an unmet need of over \$42 million (Table 64).

Out of the 48,883 registrants, 25,132 were owners and 23,410 were renters. Over \$416 million in FEMA/SBA assistance was granted to Harris County registrants with an average FEMA/SBA assistance of \$5,768. Over \$240 million in FEMA/SBA assistance was granted to LMI registrants with an average FEMA/SBA assistance \$4,883 (Table 65).

Table 64: LMI Target Areas with FEMA Assistance

Target Area	2016 Population	Total Occupied Housing Units	% LMI	FEMA Registrants	FVL (\$)	Average Assistance (\$)	Unmet Need (\$)
Airline	21,575	5,501	67.4%	1,852	\$10,553,006.53	\$3,592.01	\$3,917,514.93
Aldine	51,307	14,026	70.3%	4,433	\$20,526,957.80	\$3,154.25	\$7,628,070.95
Alief 6	21,407	6,069	61.2%	793	\$258,088.67	\$383.38	\$76,195.34
Bammel	29,510	11,315	66.8%	1,763	\$8,007,879.68	\$2,312.91	\$4,251,602.50
Barrett Station	2,402	749	73.4%	549	\$2,280,147.11	\$2,116.44	\$1,097,916.37
Bordersville	4,473	1,563	66.0%	228	\$32,190.58	\$338.12	\$9,622.62
Bough- Lincoln Green	16,511	4,953	64.5%	1,175	\$262,168.23	\$372.86	\$62,095.46
Braeburn Gardens	1,754	542	95.6%	17	\$13,578.65	\$210.43	\$11,206.48
Breen	13,590	4,576	67.7%	528	\$306,332.98	\$542.53	\$122,162.99
Champions Point	14,198	4,113	65.4%	740	\$589,603.84	\$1,129.63	\$30,039.07
Channelview	11,679	19,007	68.0%	1,048	\$4,355,556.53	\$1,859.89	\$2,552,474.43
City of Baytown	35,735	15,786	65.9%	3,403	\$4,011,094.54	\$1,551.26	\$976,279.85
City of Pasadena	96,252	31,435	68.2%	6,072	\$15,104,042.80	\$2,366.62	\$3,125,327.48
Clear Creek	6,002	1,546	73.0%	197	\$128,442.71	\$800.06	\$50,194.19
Cloverleaf	20,436	5,691	68.5%	1,222	\$1,328,419.72	\$1,095.27	\$290,581.66
College Park	8,262	2,579	58.9%	592	\$1,626,893.19	\$2,470.93	\$578,357.00
Copperfield	28,317	8,954	65.5%	2,127	\$6,529,957.87	\$2,601.96	\$1,632,650.70
Crosby	2,893	1,129	74.6%	250	\$349,940.30	\$1,584.02	\$102,931.40

Cypress Valley-Northpark	16,155	6,395	76.2%	846	\$2,866,809.22	\$2,649.56	\$843,861.36
Danish	3,793	1,500	68.4%	91	\$72,337.64	\$733.68	\$7,570.36
Deer Park	5,113	1,585	59.5%	236	\$255,468.71	\$883.73	\$69,864.80
Deer Trails	553	212	73.2%	56	\$147,405.08	\$3,457.46	\$28,798.79
El Dorado	3,463	1,086	73.0%	204	\$1,262,949.79	\$4,558.30	\$375,460.21
Emerald Forest	2,635	997	54.7%	280	\$1,496,155.76	\$4,488.92	\$542,755.34
Fairbanks Railway	1,889	498	67.9%	115	\$17,395.54	\$324.35	\$5,850.42
Galena Park	11,095	3,005	68.4%	914	\$1,460,539.06	\$1,360.31	\$373,779.94
Granada	37,039	10,158	64.9%	2,318	\$3,524,689.71	\$1,435.53	\$775,302.63
Grant Mills	5,696	2,043	60.9%	103	\$26,476.06	\$234.00	\$16,483.00
Greenbranch-Gatewood	4,306	1,145	72.1%	743	\$3,916,321.82	\$3,876.86	\$1,643,121.99
Greensbrook-Verde Frst	11,556	3,397	66.9%	2,572	\$15,782,923.85	\$6,166.25	\$1,896,146.82
Highlands	2,355	837	52.8%	193	\$294,039.16	\$1,684.35	\$73,290.61
Humble	11,125	3,792	64.8%	895	\$798,225.22	\$776.81	\$362,518.19
Jacinto City	4,831	1,508	68.8%	424	\$497,119.21	\$1,285.07	\$140,231.40
Katy	2,892	888	54.2%	180	\$681,183.68	\$3,762.82	\$158,333.09
Kleinwood	1,583	579	65.5%	52	\$503,374.18	\$6,658.77	\$180,047.75
La Porte	2,346	813	61.6%	258	\$280,868.82	\$1,163.59	\$109,233.58
Linus	9,234	2,799	62.5%	230	\$637,797.84	\$2,815.97	\$153,249.86
Maple	2,547	785	67.5%	96	\$62,914.83	\$731.25	\$8,552.85
Marwood-DeZavalla	3,644	1,083	67.8%	352	\$398,000.65	\$1,163.85	\$83,321.34
McDougle	9,627	2,709	70.0%	356	\$58,590.37	\$415.39	\$13,329.02
McNair	1,896	675	66.3%	418	\$1,289,605.55	\$2,721.71	\$365,249.82
Mercer	5,253	1,665	65.0%	1,224	\$8,440,776.86	\$6,502.83	\$1,753,183.42
Normandy Crossing	3,285	1,088	69.6%	379	\$1,911,025.57	\$3,330.01	\$688,989.09
North Belt	7,439	2,109	51.0%	602	\$432,754.03	\$824.07	\$121,224.19
Northington-Kenwood	3,196	1,193	67.2%	447	\$2,280,611.98	\$3,244.61	\$820,645.63
Oakhollow	8,759	3,401	60.4%	156	\$81,731.61	\$671.46	\$25,429.25
Parkway	4,945	1,294	62.6%	1,105	\$9,948,991.84	\$8,024.19	\$1,532,643.73
Pine Trails	6,542	1,982	59.7%	867	\$1,472,408.38	\$1,713.50	\$285,514.07
Ranch Country	4,244	1,226	54.0%	232	\$185,688.97	\$837.70	\$58,671.62
Riverwood	3,827	1,040	64.0%	326	\$2,622,120.89	\$4,227.86	\$1,145,962.63
Seabrook	4,569	534	52.8%	17	\$28,069.90	\$508.59	\$21,791.30
Sheldon	1,028	368	60.7%	140	\$198,784.02	\$1,018.63	\$66,401.33
Sherwood Place	3,414	757	64.5%	342	\$625,802.43	\$1,444.20	\$243,362.68
South Houston	17,979	4,687	66.8%	1,385	\$4,955,588.24	\$3,508.53	\$738,923.11
Tomball	3,536	1,489	67.0%	110	\$42,915.03	\$551.69	\$9,041.05
Waterford	2,402	1,080	53.1%	43	\$15,003.88	\$670.56	\$340.20

Wayforest	22,789	6,665	65.8%	1,313	\$224,399.70	\$379.51	\$51,448.56
Webster	4,227	1,674	72.8%	172	\$265,666.34	\$2,678.16	\$1,474.76
Westborough	2,149	660	67.7%	173	\$27,053.26	\$458.69	\$10,622.43
Westpark	14,241	4,751	58.8%	566	\$126,194.88	\$531.16	\$35,587.48
Windfern	9,105	2,653	56.5%	363	\$71,345.42	\$271.48	\$27,807.08

Table 65: Target Areas with FEMA Assistance for Owners and Renters

Target Area	FEMA Registrants Owners	FVL (\$) Owners	Average Assistance (\$) Owners	FEMA Registrants Renters	FVL (\$) Renters	Average Assistance (\$) Renters
Airline	1,219	\$9,256,349.33	\$4,535.89	621	\$1,296,657.20	\$1,774.33
Aldine	2,809	\$18,571,653.45	\$4,203.70	1,597	\$1,955,304.35	\$1,339.04
Alief 6	355	\$148,738.29	\$354.76	436	\$109,350.38	\$406.57
Bammel	580	\$6,922,882.56	\$4,707.38	1,181	\$1,084,997.12	\$1,138.95
Barrett Station	346	\$2,120,854.77	\$2,886.33	199	\$159,292.34	\$804.21
Bordersville	104	\$31,092.29	\$530.02	123	\$1,098.29	\$177.18
Bough- Lincoln Green	586	\$213,748.77	\$485.72	585	\$48,419.46	\$260.57
Braeburn Gardens	10	\$11,436.43	\$50.00	7	\$2,142.22	\$439.60
Breen	259	\$204,528.62	\$528.17	267	\$101,804.36	\$556.36
Champions Point	343	\$499,718.74	\$1,947.69	393	\$89,885.10	\$422.85
Channelview	654	\$4,126,536.27	\$2,531.19	392	\$229,020.26	\$745.60
City of Baytown	1,636	\$2,941,126.88	\$1,905.16	1,747	\$1,069,967.66	\$1,223.58
City of Pasadena	3,297	\$12,267,690.71	\$3,243.03	2,748	\$2,836,352.09	\$1,364.38
Clear Creek	142	\$120,283.42	\$1,026.70	55	\$8,159.29	\$214.92
Cloverleaf	608	\$1,104,147.26	\$1,641.28	609	\$224,272.46	\$554.60
College Park	270	\$1,076,356.88	\$2,478.05	320	\$550,536.31	\$2,464.96
Copperfield	1,067	\$5,584,652.22	\$4,083.95	1,046	\$945,305.65	\$1,110.17
Crosby	131	\$261,260.14	\$2,157.70	118	\$88,680.16	\$952.50
Cypress Valley-Northpk	132	\$1,699,721.01	\$5,624.44	714	\$1,167,088.21	\$2,099.59
Danish	30	\$43,413.58	\$948.38	61	\$28,924.06	\$628.09
Deer Park	106	\$162,785.46	\$1,665.34	130	\$92,683.25	\$1,929.62
Deer Trails	36	\$135,265.01	\$4,953.05	20	\$12,140.07	\$765.41
El Dorado	125	\$1,075,201.85	\$5,770.64	77	\$187,747.94	\$2,640.05

Emerald Forest	163	\$1,428,080.51	\$7,171.14	114	\$68,075.25	\$752.14
Fairbanks Railway	61	\$8,610.87	\$300.35	53	\$8,784.67	\$351.45
Galena Park	537	\$1,186,939.58	\$1,674.06	374	\$273,599.48	\$919.41
Granada	1,083	\$2,993,370.17	\$2,387.73	1,225	\$531,319.54	\$600.53
Grant Mills	52	\$21,795.03	\$193.50	51	\$4,681.03	\$275.30
Greenbranch-Gatewood	324	\$2,953,136.38	\$4,522.65	416	\$963,185.44	\$3,377.50
Greensbrook- Verde Frst	1,403	\$14,119,148.89	\$9,824.22	1,160	\$1,663,774.96	\$1,776.06
Highlands	120	\$266,220.44	\$2,383.27	72	\$27,818.72	\$535.45
Humble	289	\$623,594.53	\$1,399.63	605	\$174,630.69	\$502.96
Jacinto City	264	\$409,527.18	\$1,640.20	159	\$87,592.03	\$699.11
Katy	105	\$643,693.21	\$5,960.97	74	\$37,490.47	\$728.82
Kleinwood	33	\$483,216.12	\$9,784.28	19	\$20,158.06	\$1,230.26
La Porte	123	\$193,730.19	\$1,498.07	133	\$87,138.63	\$932.48
Linus	145	\$579,406.89	\$3,683.24	84	\$58,390.95	\$1,336.52
Maple	52	\$56,767.10	\$1,163.94	44	\$6,147.73	\$219.90
Marwood-DeZavalla	160	\$341,755.16	\$2,291.46	190	\$56,245.49	\$224.18
McDougle	165	\$31,520.16	\$428.78	190	\$27,070.21	\$403.83
McNair	232	\$1,012,858.40	\$3,126.50	183	\$276,747.15	\$2,216.82
Mercer	420	\$6,571,054.10	\$12,367.83	804	\$1,869,722.76	\$3,439.02
Normandy Crossing	154	\$1,336,179.18	\$4,483.58	217	\$574,846.39	\$2,540.45
North Belt	313	\$395,075.95	\$1,263.41	286	\$37,678.08	\$348.24
Northington-Kenwood	263	\$2,031,997.59	\$4,500.69	182	\$248,614.39	\$1,449.24
Oakhollow	74	\$64,110.62	\$689.37	81	\$17,620.99	\$655.30
Parkway	696	\$8,674,973.72	\$10,890.70	408	\$1,274,018.12	\$3,146.22
Pine Trails	445	\$1,215,665.95	\$2,560.59	420	\$256,742.43	\$820.25
Ranch Country	113	\$171,865.82	\$1,408.97	119	\$13,823.15	\$295.23
Riverwood	243	\$2,483,682.46	\$5,134.80	82	\$138,438.43	\$1,572.62
Seabrook	8	\$23,791.30	\$494.00	8	\$4,278.60	\$577.11
Sheldon	96	\$187,086.22	\$1,355.97	43	\$11,697.80	\$282.61
Sherwood Place	207	\$540,949.65	\$1,782.39	130	\$84,852.78	\$925.64
South Houston	805	\$3,978,583.39	\$4,718.83	575	\$977,004.85	\$1,888.84
Tomball	32	\$39,118.29	\$1,193.11	77	\$3,796.74	\$291.35
Waterford	19	\$1,723.79	\$209.35	24	\$13,280.09	\$1,035.69
Wayforest	588	\$133,081.11	\$497.61	721	\$91,543.59	\$283.33

Webster	9	\$43,240.95	\$7,856.04	161	\$222,425.39	\$2,400.27
Westborough	48	\$24,548.95	\$1,405.39	125	\$2,504.31	\$95.15
Westpark	267	\$84,718.92	\$749.61	299	\$41,475.96	\$336.08
Windfern	176	\$57,335.23	\$363.48	186	\$14,010.19	\$184.89

Appendix C Public Review and Public Comments

Appendix C: Public Review and Public Comments

Summary of Public Comments for Hurricane Harvey Round One Draft Needs Assessment

The public comment period was from September 24, 2018 to October 23, 2018. The following comments were received.

- 1. Commenter Name: Chrishelle Palay and Madison Sloan
Organization: HOME Coalition and Texas Appleseed
Date Commented: October 23, 2018
Comment Received via email: Letter is attached below followed by County Response.**
- 2. Commenter Name: Garth D. MacDonald
Organization: U.S. Small Business Administration
Date Commented: October 12, 2018
Comment Received via email: Email is attached below followed by County Response.**

October 23, 2018

HCCSD

Attn: Disaster Recovery

8410 Lantern Point Drive

Houston, Texas 77054

Via email to plancomments@csd.hctx.net

Dear Community Services Department:

The Houston Organizing Movement for Equity (HOME) Coalition recognizes and appreciates the opportunity to provide comments on Harris County's Hurricane Harvey Needs Assessment as engagement is critical in achieving the goal of an equitable recovery.

I. Citizen Participation

We appreciate that Harris County conducted a citizen participation process that conducted different types of outreach including social media, door to door canvassing, and coordinating with community groups to reach the most vulnerable populations and groups that are often excluded from participation in planning resource allocations and program targets.

We would recommend that the survey respondents be broken down by demographics and geographic location in order to ensure that the results can be accurately assessed.

II. Low- and moderate income (LMI) Target Areas, Socially Vulnerable Areas (SOVI), and Minority Concentration

Harris County's analysis of this data is important both for compliance with the Federal Register Notice Needs Assessment requirements, and for accurate assessment of remaining unmet needs. It would be helpful to have a map that layers these data sets in order to see where all these conditions come together, although it is fairly clear from looking at the separate maps that there is a great deal of overlap.

For the reasons described in the "Methodology" section of these comments, these are the areas that almost certainly have both the greatest unmet and the most urgent unmet need. Not only have these families and communities been disproportionately excluded from immediate disaster recovery benefits from FEMA and SBA, they were disproportionately vulnerable to disaster in the first place. One of the legacies of segregation is that historically underserved

populations—the poor, people of color, persons with disabilities—often live in areas most vulnerable to flooding and other impacts of natural disasters, in part because of historical disinvestment in protective infrastructure.¹ The wealth gap (median White wealth is twelve times median Black wealth) is also a disparity that can be traced to the history of segregation and discrimination in the United States, from government redlining to current lending discrimination, and the location of environmental hazards in low-income neighborhoods of color. An equitable recovery that produces a more resilient Harris County must take these issues into account.

This is particularly critical to the County's long-term recovery and and resiliency. Natural disasters contribute to wealth inequality. And estimate \$87,000 increase in the White-Black wealth gap in the City of Houston, for example, between 1999 and 2013, is attributable to natural disasters.² Disproportionate FEMA awards to wealthier White homeowners are a key piece of this effect.

It is unclear from the Needs Assessment how the identification of LMI, SOVI, and minority-concentrated areas is being used. Will these areas be prioritized for assistance?

III. Methodology

"FEMA Administrator Brock Long said the agency had "armies" of employees registering residents for assistance, but that its key focus was getting private businesses and infrastructure back up and running."³

*"The system is really designed for the middle class."
Craig Fugate, former FEMA Director*

As FEMA itself admits, it's main focus is not housing recovery, and the housing recovery programs it does implement leave out lower income households. FEMA's damage calculations

¹ See, e.g., Thomas Gabe, Gene Falk, Maggie McCarty, and Virginia Mason, Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas, Congressional Research Service Report to Congress (November 5, 2005); Alice Fothergill and Lori Peek, Poverty and Disasters in the United States: A Review of Recent Sociological Findings, *Natural Hazards* 32: 89–110, 2004; and, Shannon Van Zandt, Walter Gillis Peacock, Wesley E. Highland, and Samuel D. Brody, "Mapping social vulnerability to enhance housing and neighborhood resilience", *Housing Policy Debate* 22(1):29-55 (January 2012).

² Source: Howell, Junia and James R. Elliott. "Damage Done: The Longitudinal Impacts of Natural Hazards on Wealth Polarization in the United States." *Social Problems*. DOI: 10.1093/socpro/spy016

³ Tyler Adkisson, "FEMA Says Past Mistakes Informed New Hurricane Strategies", *newsy (WTMJ)*, October 15, 2018. Available: <https://www.wtmj.com/newsy/fema-says-past-mistakes-informed-new-hurricane-strategies>

dramatically undercount damage to low- and moderate-income (LMI) households and communities.

However, CDBG-DR funding is not intended to address damage, it is intended to address unmet need. *Is this in legislation?* HUD's Federal Register Notice allocating CDBG-DR funds for Hurricane Harvey requires "each grantee to primarily consider and address its **unmet housing recovery needs**." (83 F.R. 5884 (February 9, 2018)) (emphasis added) It is critical that the County ensure that unmet needs are the focus of its Needs Assessment; over a year after the hurricane, higher income survivors are less likely to have unmet needs because they are more likely to get help from FEMA, afford SBA loans, and have other resources with which to recover. While the path of a natural disaster does not discriminate, disasters disproportionately affect vulnerable populations and those families and communities have a much harder time recovering.⁴ At this point, the greatest concentration of unmet need is in the lower-income homeowner and renter categories that FEMA systemically undercounts.

Given the County's collection of substantial data beyond FEMA and HUD provided data, we are confused by the County's decision to determine unmet need solely with the FEMA/HUD methodology. The Federal Register Notice allocating Hurricane Harvey CDBG-DR funds states that "[e]ach Grantee must develop a needs assessment to understand the type and location of community needs and to target limited resources to those areas with the greatest need." (83 Fed.Reg., 5844, 5849) Nowhere in the notice does HUD mandate the use of its own allocation

⁴ See, e.g.: A study conducted by the Episcopal Health Foundation and the Kaiser Family Foundation three months after Hurricane Harvey, found that lower-income families and Black and Latinx Texans were less likely to have homeowners', renters', or flood insurance, and that, "[n]early half (46%) say they or someone else in their household lost job-related income as a result of the storm, such as getting fewer hours at work (32%), losing a job entirely (12%) or losing income from a small business or unpaid missed days (32%). These income disruptions affected a greater share of Hispanic (65%) and Black (46%) residents compared to White residents (31%)."; and, 2015 Pew Charitable Trust study found that less than half (45%) of American households have even one month's income in savings in case of an emergency.^[2] Lower income households are in an even more precarious situation, with only two weeks of savings. Those at the bottom of the income scale could only survive 9 days on their liquid assets. The study also indicates that even middle income households could only scrape together about four months of income; it has been nearly 10 months since Hurricane Harvey. Pew also looked at disparities in liquid savings among various racial and ethnic groups and found that, "[t]he typical white household has slightly more than one month's income in liquid savings, compared with just 12 days for the typical Hispanic household and only five days for the typical African-American household. In fact, a quarter of black households would have less than \$5 if they liquidated all of their financial assets, compared with \$199 and \$3,000 for the bottom 25 percent of Hispanic and white households, respectively." ("What Resources Do Families Have for Financial Emergencies?" The Pew Charitable Trusts. November 18, 2015. Accessed February 20, 2018. <http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2015/11/emergency-savings-what-resources-do-families-have-for-financial-emergencies>.)

formula. In fact, HUD makes clear that grantees are expected to use other sources of data in their Needs Assessment, and that “grantees are expected to amend the needs assessment and action plan as conditions change, additional needs are identified, and additional resources become available.” (83 Fed. Reg. 5844, 5849) Basing unmet needs calculations on a static number produced by FEMA based on conditions in the immediate aftermath of the storm does not reflect the Federal Register Notice or comply with funding certifications related to LMI benefit and civil rights.

The failure to use the LMI Target Area and SOVI Target Area analyses, along with data on vulnerable populations to document the areas and populations with the greatest, and most urgent, unmet need results in an unfinished and inaccurate Needs Assessment.

We appreciate that Harris County has recognized the overwhelming need for housing assistance, particularly for LMI families that have been left out of the recovery so far. In order to accurately allocate its funding to the greatest unmet needs, however, the County not rely on FEMA data, it must use additional data to more accurately identify unmet need and first allocate this funding specifically to the housing needs of LMI households, and set aside specific funding amounts for each LMI income category based on that category’s proportional unmet need. This is also critical to its civil rights compliance, as the LMI Target Areas identified in the Needs Assessment have a racial/ethnic concentration of 84.7%, and higher levels of LEP concentration as well. (NA at 10)

Harris County has used HUD’s methodology to determine unmet housing need by income category. HUD’s methodology, however, uses FEMA Verified Loss (FVL) of real property (owners) or personal property (renters). Concluding, based on FEMA data, that families making less than 30% of Area Median Income (AMI), which is \$18,000 for two people in the Houston MSA, have been better able to recover than families making more than double that amount is simply not credible.⁵ Low- and moderate-income families are less likely to have the savings and access to credit that let them access safe housing (including more immediate repairs) and are more likely to be forced to relocate far from jobs and schools, to live in overcrowded housing or double up with or friends, remain in unsafe housing, or become homeless.

The primary purpose of the CDBG program is to benefit LMI populations, yet the HUD/FEMA methodology Harris County is using disproportionately excludes LMI populations from the Needs Assessment. FEMA’s “severe/destroyed” category, for example, would not count homes in Allen Field because they were (on average) worth less than \$28,000, even if those homes were completely destroyed. The County should also consider that homes which had “minor”

⁵ Income figures from HUD’s FY 201 Median Family Income (MFI) estimates. Available: <https://www.huduser.gov/portal/datasets/il.html#2017>

damage over a year ago may now fall into the “major” or “severe/category” because families did not have the resources to make repairs that would have prevented or minimized further damage and deterioration.

Harris County must set aside funding amounts based proportionately on the homeowner unmet need income categories within the LMI category. Eighty percent of homeowner program funds must be set aside for LMI applicants. Within that 80%, no less than 47.5% of homeowners assisted must be 0-30% of AMI, 22% of homeowners at 31-50% of AMI, and 36.5% of homeowners at 51-80% AMI. Any category with unused funding, including from the non-LMI funding, can be used only to build units with deeper affordability.

Basing damage level on the estimated loss amount, as FEMA’s methodology does, also disadvantages low-income renters. FEMA does not inspect rental units for damage; it uses personal property damage as a proxy for unit damage. Rental units are only “most impacted” if there is a FEMA personal property assessment of \$2000 or more or over one foot of flooding. Low-income families may have lost everything, but if a FEMA inspector does not think their personal property was worth \$2000 or there was less than one foot of water in the unit, that unit will not be included in damage estimates. Calculating a damage amount based on personal property loss rather than unit loss results in an entirely inaccurate amount of unmet need for rental housing. The cost of replacing personal property in no way corresponds to the cost of replacing a housing unit, and as the Needs Assessment acknowledges, “FEMA/SBA resources were limited or non-existing to renters, fair housing issues arose with landlords discriminating against minority or limited English proficient populations regarding repairing the rental unit and eviction notices post-Harvey to renters as properties forced out tenants.” (NA at 37)

The County’s Needs Assessment incorporates other data on the number of multifamily units damaged and destroyed by Hurricane Harvey, including studies by Apartment Data Services (ADS) the Houston Apartment Association, and Enterprise Community Partners. Enterprise found that up to 105,700 units, and that “the scale of the flooding means that more than one in seven renter households in Harris County might live in directly impacted buildings.” FEMA’s conclusion that only 8,740 renter households had more than de minimis damage (and therefore, unmet need) is ludicrous. Almost 66,000 renters applied for help from FEMA, but almost 60% of those families got no assistance. Over 62% of applicants who did get FEMA assistance received “Other Needs” Assistance (ONA) and not housing assistance. In other words, almost 85% of renters who applied for FEMA assistance go no help with housing. The Needs Assessment is also clear that FEMA data “may represent an undercount of the number of rental units impacted. Renters “might also not have been aware that they could claim these benefits.” (NA at 40)

According to the Needs Assessment, 79.7% of unmet rental need is LMI. (NA at 48) Given FEMA's significant renter undercount, and the pre-storm affordable housing crisis in Harris County (which has been exacerbated by the hurricane) Harris County should spend 80% of its affordable housing program funds on affordable units, not merely on multifamily rental housing that is 51% affordable at 80% of AMI or less. Harris County must set aside funding amounts based on the renter unmet need income categories within the LMI category in order to prevent more affordable units from being replaced by less affordable units. No less than 52.3% of the units produced by the affordable housing program must be affordable to families at 0-30% of AMI, 24.5% to families at 31-50% of AMI, and 23.3% to families at 51-80% AMI. Any category with unused funding can be used only to build units with deeper affordability.

We strongly recommend, as a starting point, that the County map FEMA awards and denials with LMI, SOVI, and minority concentrated area. We also recommend that the numbers for insurance awards and SBA loans be broken out by demographic category. This would give the County a better sense of which income categories and geographic areas have more unmet need. The County should get similar demographic breakdowns for the multifamily complexes that were affected by the storm, and the neighborhoods in which they were located.

V. Vulnerable Populations

While it is important and required by the FR Notice and federal regulations to address the needs of vulnerable populations, we remind the County that "vulnerable populations" are not congruent with protected classes under the Fair Housing Act. For example, families with children are not explicitly classified as a vulnerable population, although the County identifies these families as a priority for homelessness prevention.

We appreciate Harris County's commitment to affirmatively furthering fair housing (AFFH). However, affirmative marketing policies are not the only way in which Harris County can carry out its obligation to AFFH, nor would affirmative marketing activities, no matter how well conducted, satisfy that obligation. AFFH requires both free housing choice for all residents, and remediating conditions in historically disinvested communities in order to ensure that everyone can live in an inclusive community with equitable access to opportunity. *Regional AI*

In order to truthfully certify that it is eligible for CDBG-DR funds, the County must ensure that its programs AFFH. To return to the families with children example, the multifamily rental housing program must rebuild larger units with room for families, and not just one-bedroom or age-restricted units. The County must ensure that its housing programs are not perpetuating segregation and reconcentrating protected classes and vulnerable populations in disaster-

vulnerable areas by offering families the choice to move to a safer area, and evaluating all proposed multifamily and new construction programs for fair housing compliance.⁶ The County must also ensure that its infrastructure and economic development programs are addressing issues like substandard neighborhood infrastructure in historically disinvested areas.

We commend Harris County's Flood Buyout program, which ensures that LMI families will have enough resources to move to a less vulnerable area and be able to make a real choice. The fact that seven of the LMI or SOVI areas targeted for buyouts have an average home market value of less than \$85,000, and one community, Allen Field, has an average home value of approximately \$27,000 reinforces the needs for this program and for prioritizing these areas. We were also pleased to see the County's commitment to moving neighbors and communities together, although we note, again, that the program must not recreate concentrated poverty or segregation in another area, and the new construction program must ensure that its sites comply with the Fair Housing Act.

VI. Housing

For the reasons set out above, Harris County must reserve x% of funding for LMI families, and set aside funding amounts based on the proportion of unmet need in each of the income categories within the LMI category. Any unused funding can only be reallocated to lower income categories. All rental units should have a minimum of 40 years of affordability.

We appreciate the County's recognition that stabilizing neighborhoods should be a housing program goal. (NA at 19) For the reasons stated above, we urge the County to concentrate funding in LMI, socially vulnerable, communities of color, including infrastructure funding to protect these neighborhoods from future flooding and make them more resilient. As the Needs Assessment points out, "older, more densely populated neighborhoods, comprising generally smaller, less expensive homes . . . experienced the worst of Hurricane Harvey's impact, compared to those in newer suburban developments. Ditches in these older neighborhoods ended up overflowing." (NA at 25) Similarly luxury rental units "were largely spared by Harvey while affordable housing units suffered more damage." (NA at 37)

The Needs Assessment asserts several times that Harris County has collaborated with the private sector to address the supply of affordable housing, but it fails to acknowledge the County's role in limiting and excluding affordable housing based on NIMBYism, and often open

⁶ Attached please find the General Land Office's Fair Housing/AFFH Review Data & Information as an example of this type of review.

racial animus and other discriminatory animus against protected classes.⁷ Following Hurricane Ike there was opposition to rebuilding public housing for families, and the Commissioner's Court has long steered affordable housing into only two precincts. Harris County will need to address its own role in blocking affordable housing in order to ensure that units are built in safer and less disaster-vulnerable areas, and that the County complies with its civil rights obligations.

VII. Non-Housing Infrastructure

Infrastructure is, as the Needs Assessment states, a key component of housing recovery. However, the location and type of non-housing infrastructure projects are central to this linkage. Neighborhood drainage was also identified as a priority in the community participation process. Residents identified the following priority at meeting and through surveys:

- Neighborhood drainage improvements
- Improving/expanding ditches and culverts to reduce flooding
- Elevation of repeatedly flooded homes in floodplains
- Drainage improvements to reduce flooding during heavy rains
- Home repair

Not all of the other data cited in the Needs Assessment is necessarily useful to assessing unmet non-housing need. For example, the Governor's Commission Report relied on projects submitted by jurisdictions, and included a number of projects that were not CDBG-DR eligible but proposed for FEMA or USACE funding. Similarly, some FEMA PA data is useful (although it may often reflect submission capacity as well as unmet need), but it is hard to see how there is remaining need for debris removal over a year from the disaster, or why the debris removal and administrative categories have a resiliency multiplier.

Harris County must prioritize categories of eligible non-housing projects, in addition to ensuring that they are connected to and supporting housing recovery. The community has identified drainage, including neighborhood level drainage, as a priority. The selection and distribution of these projects must incorporate an equity analysis in order to set priorities.

VIII. Economic Losses

Economic development projects must also target historically disinvested areas and be combined with housing repair and infrastructure investment in order to help LMI families (who

⁷ See, e.g.: <https://www.texasobserver.org/affordable-housing-house-wins/>

experienced the greatest level of job loss) and communities. We encourage Harris County to leverage CDBG-DR funds by funding job training and placement projects that train LMI workers for disaster recovery housing and infrastructure projects.

Conclusion

The HOME Coalition appreciates Harris County's work on this Needs Assessment and disaster recovery, and looks forward to ongoing conversations on how best to achieve a just and sustainable recovery for all Harris County residents.

Sincerely,

Chrishelle Palay
Executive Director
HOME Coalition

Madison Sloan
Director, Fair Housing and Disaster Recovery Project
Texas Appleseed

County Response: We thank the HOME Coalition and Texas Appleseed for their comments.

- As part of the Citizen Participation process, *The Regional Assessment Fair Housing Resident/Hurricane Harvey Survey* captured the demographics (i.e. race, ethnicity, age, income, etc.) as well as the address and/or zip code of the surveyor. Harris County received over 2,000 surveys from all over Harris County. You can find more information about the survey and its Citizen Participation process on pages 21-24. The County also added Appendix D regarding methods of its citizen participation and respondent characteristics.
- Harris County has a priority to promote housing for low-to-moderate-income households and communities. A minimum of 70 percent of all CDBG-DR funding will be used to benefit LMI populations. In viewing the FEMA IA data, 70% of 160,695 total valid registrants reported a gross income that determine them to be low- to moderate-income populations. The County understands the short comings of the FEMA data and used data from other sources to determine need as discussed in the assessment.
 - The Needs Assessments does identify LMI areas for Housing recovery. For example, the Buyout program targeted areas are located in areas with 51% or greater LMI populations and are hopelessly deep in the floodplain and repetitively flooding. On page 78-79, the assessment describes income targeting (for those households that are 30%, 50% and 80% of AMI) for its Homeowner Assistance Program.
 - In the vulnerable populations section of the Needs Assessment (pgs. 50-60) includes the numbers from the HC Engineering Dept housing survey and FEMA registrants in Harris County. The section also includes the percentage of residents that received a SBA loan and data from NFIP reporting the percentage that did not have flood insurance.
 - The county also used data from the Houston Apartment Association and Apartment Data Services to determine the number of damage units in the county and estimating the number of displaced renter households. This data is very much missing from FEMA data. Immediately after Hurricane Harvey, damage data was collected that identified damaged multi-family complexes, units and their locations in Harris County. For more information see pages 47-49.
- Harris County is committed to promoting fair housing through Housing so that households will have the resources to move to less vulnerable areas. The Residential Buyout program prioritizes LMI communities for buyout efforts as seen in the Harris County Residential Buyout Guidelines. Further discussion can be found on pages 75-80. In addition, Harris County is committed to Fair Housing and Affirmatively Furthering fair Housing for all racial, ethnic, national origin, religious, familial status, the disabled, "special needs", and gender groups.
- Although remaining unmet housing needs exist due to the limitation of available funds, Harris County recognizes that as part of a comprehensive long-term recovery program, the repair and enhancements of local infrastructure and mitigation efforts are crucial components. Also, infrastructure activities that include drainage improvements are vital for the long-term recovery and restoration of housing for long-term recovery, protection, and viability of communities. In particular, drainage improvement projects in channels and bayous, as well as in local neighborhood drainage systems, are needed to reduce the flood risk in these areas. The county has prioritized in its competitive non-housing application projects that repair damage from Harvey and that reduce future flood risk.
- The county will investigate job creation opportunities under the CDBG-DR program and work with Federal, State and local partners. It is expected that the county will establish a

robust Section 3 program under its CDBG-DR program to ensure jobs are made available to low-income persons, and Section 3 businesses in construction projects that receive funding from Harris County's CDBG-DR allocation. Project partners under the CDBG-DR program will be required to comply with Section 3.

Spates, Janeen (CSD)

From: MacDonald, Garth D. <garth.macdonald@sba.gov>
Sent: Friday, October 12, 2018 10:09 AM
To: CSD Plan Comments (CSD)
Subject: Comment from Stakeholder on correction needed on Draft Harvey Damage Assessment Plan

To HCCSD Planning & Development staff,

Please address a typo error in your draft of the "Harris_County_Needs_Assessment_DRAFT_092818.pdf" document.

In the "Table of Contents" and on Pg. 29, our organization is referred to as the "Small Business Association (SBA)"

Please change that title to:

U.S. Small Business Administration (SBA)

And please correct any other references to our organization name as appropriate.

Best Regards,

Garth D. MacDonald
Public Information Officer
Office of Disaster Assistance, Field Operations Center - West
U.S. Small Business Administration
(916) 735-1500
Cell (916) 200-6720
Fax (916) 735-1681
garth.macdonald@sba.gov



U.S. Small Business
Administration

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County Response: We thank Garth D. MacDonald, U.S. Small Business Administration for his comment.

- We have changed the title throughout the Harris County Needs Assessment to U.S. Small Business Administration (SBA).



HARRIS COUNTY, TEXAS

COMMUNITY SERVICES DEPARTMENT

Daphne Lemelle
Executive Director

8410 Lantern Point Drive
Houston, Texas 77054
Tel (713) 578-2000
Fax (713) 578-2090

October 12, 2018

County Judge Emmett and
Commissioners Ellis, Morman, Radack, and Cagle

Vote of the Court:

	Yes	No	Abstain
Judge Emmett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Ellis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Morman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Radack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Cagle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Agenda Letter

Please consider the following item on the Commissioners Court Agenda for October 23, 2018:

Approval to submit the Harris County Needs Assessment Plan regarding Hurricane Harvey Community Development Block Grant Disaster Recovery (CDBG-DR) Round One funding to the Texas General Land Office.

Thank you for your assistance with this request.

Daphne Lemelle, Executive Director
Community Services Department
DL/cl/js

Presented to Commissioners' Court

OCT 23 2018

APPROVE m/c
Recorded Vol. _____ Page _____

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HARRIS COUNTY
BUDGET MANAGEMENT
DEPARTMENT

**Harris County Community Services Department
Executive Summary**

**Harris County Needs Assessment Plan
October 23, 2018**

Background

The U.S. Department of Housing and Urban Development (HUD) has allocated \$5.024 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the state of Texas in response to Hurricane Harvey, DR-4332, through the publication of the Federal Register, Vol. 83, No. 28, Friday, February 9, 2018. This allocation was made available through the Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Act, 2017 that allocated \$7.4 billion in CDBG-DR funds in response to major disasters declared in 2017.

In their Action Plan submitted to U.S. HUD on May 8, 2018, the State of Texas, under their program administrator, the Texas General Land Office (GLO), made a direct allocation of \$1,115,386,830 in Community Development Block Grant Disaster Recovery (CDBG-DR) funding to Harris County. The Federal Register and the State's Action Plan set the requirement that 79 percent (\$881,155,596) will support housing activities and 21 percent (\$234,231,234) will support infrastructure/non-housing activities. It should be noted that all allocations of CDBG-DR must meet the 70% low- to moderate-income benefit requirement. The GLO on May 9, 2018 notified Harris County to complete a Supplemental Action Plan, which will be amended into the State's Action Plan and submit by July 16, 2018.

The Harris County Needs Assessment Plan was created as an addendum to the Supplemental Action Plan. The plan further discusses the levels of damage, levels of assistance and resources available and unmet needs to recovery. It also includes data and reports from FEMA Individual Assistance, Harris County Engineering, Flood Insurance Claims, Harris County Flood Control and information collected by the Long-term Recovery Committee partners and United Way 211.

A copy of the Harris County Needs Assessment Plan can be found at the Harris County Community Service Department website at www.csd.hctx.net or located at 8410 Lantern Point Drive, Houston, Texas 77054. The public comment period regarding the Harris County Needs Assessment Plan is from September 24 through October 23, 2018.

Recommendation

It is recommended that Commissioners Court approve the submittal of the Harris County Needs Assessment Plan to the Texas General Land Office on behalf of the Harris County Community Services Department.

Presented to Commissioners' Court

OCT 23 2018

APPROVE M/C
Recorded Vol. _____ Page _____

STATE OF TEXAS §
 §
COUNTY OF HARRIS §

The Commissioners Court of Harris County, Texas, convened at a meeting of said Court at the Harris County Administration Building in the City of Houston, Texas, on the _____ day of _____, 2018 with the following members present, to-wit:

OCT 23 2018

Ed Emmett	County Judge
Rodney Ellis	Commissioner, Precinct No. 1
Jack Morman	Commissioner, Precinct No. 2
Steve Radack	Commissioner, Precinct No. 3
Jack Cagle	Commissioner, Precinct No. 4

and the following members absent, to-wit: None, constituting a quorum, when among other business, the following was transacted:

**APPROVAL TO SUBMIT THE HARRIS COUNTY NEEDS ASSESSMENT PLAN
REGARDING HURRICANE HARVEY COMMUNITY DEVELOPMENT BLOCK
GRANT DISASTER RECOVERY ROUND ONE FUNDING TO THE TEXAS
GENERAL LAND OFFICE.**

Commissioner Morman introduced an order and made a motion that the same be adopted. Commissioner Cagle seconded the motion for adoption of the order. The motion, carrying with it the adoption of the order, prevailed by the following vote:

	Yes	No	Abstain
Judge Emmett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Ellis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Morman	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Radack	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comm. Cagle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The County Judge thereupon announced that the motion had duly and lawfully carried and that the order had been duly and lawfully adopted. The order thus adopted follows:

RECITALS

WHEREAS, On August 25, 2017 Hurricane Harvey made landfall as a Category 4 hurricane and over the next four days dropped as much as 60 inches of rain along the Gulf Coast including Harris County. The event resulted in a Presidential Declared Disaster; and

WHEREAS, The U.S. Department of Housing and Urban Development (HUD) has allocated \$5.024 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the State of Texas in

response to Hurricane Harvey, DR-4332, through the publication of the Federal Register, Vol. 83, No. 28, Friday, February 9, 2018; and

WHEREAS, In the State of Texas Action Plan submitted to U.S. HUD on May 8, 2018 by the Texas General Land Office (GLO), the State made a direct allocation of \$1,115,386,830 in Community Development Block Grant Disaster Recovery (CDBG-DR) funding to Harris County; and

WHEREAS, The GLO on May 9, 2018 notified Harris County to complete a Supplemental Action Plan, for Hurricane Harvey Round 1 CDBG-DR funding, which will be amended into the State's Action Plan and submitted by July 16, 2018; and

WHEREAS, The Harris County Needs Assessment Plan was created as an addendum to the Supplemental Action Plan and discusses in detail the levels of damage, levels of assistance and resources available and unmet needs to recovery; and;

WHEREAS, The Harris County Needs Assessment Plan will be submitted to the Texas General Land Office on or about October 26, 2018 on behalf of the Harris County Community Services Department.

ORDER:

NOW, THEREFORE, BE IT ORDERED BY THE COMMISSIONERS COURT OF HARRIS COUNTY, TEXAS THAT:

Section 1: The recitals set forth in this order are true and correct.

Section 2: The Commissioners Court of Harris County, Texas shall approve the submittal of the Harris County Needs Assessment Plan to the Texas General Land Office. The Executive Director of the Harris County Community Services Department or her designee is authorized to submit and add comment responses to the plan.



AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

HARRIS CTY.COMMUNITY SVCS
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Houston Chronicle

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Victoria Bond *AIR Clerk*

NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this 24th Day of September A.D. 2018



Charles E. Walichowski

Notary Public in and for the State of Texas

**Solicitation for Public Comment and Public Hearing
September 24, 2018**

Notice is hereby given that Harris County is seeking public comments to its Draft Harris County Needs Assessment Plan regarding Hurricane Harvey recovery and unmet needs and will be submitted to the Texas General Land Office. This plan will assist the county to develop programs utilizing Community Development Block Grant - Disaster Recovery (CDBG-DR) Round 1 funds in the amount of \$1,115,386,830. The Harris County Needs Assessment Plan will be available for review on the Harris County Community Services Department (HCCSD) website from September 24 - October 23, 2018.

Planning Meeting and Public Hearing regarding community needs and method of distribution of CDBG-DR funding will be held Thursday, October 18, 2018, at 10:30 am at the Harris County Community Services Department (HCCSD) located at 8410 Lantern Point Drive, Houston, Texas, 77054. Written comments must be received by Harris County by 5:00 pm on October 23, 2018. Comments should be addressed to Attn: Planning and Development, 8410 Lantern Point Drive, Houston, Texas 77054 or submitted to plancomments@csd.hctx.net.

The draft document is posted on the HCCSD's website <https://csd.harriscountytexas.gov/Pages/DisasterRecovery.aspx> and will be available at the Harris County Community Services Department located at 8410 Lantern Point Drive, Houston, Texas 77054.



AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas, and generally circulated in the Counties of: HARRIS, TRINITY, WALKER, GRIMES, POLK, SAN JACINTO, WASHINGTON, MONTGOMERY, LIBERTY, AUSTIN, WALLER, CHAMBERS, COLORADO, BRAZORIA, FORT BEND, GALVESTON, WHARTON, JACKSON, and MATAGORDA and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

HARRIS CTY.COMMUNITY SVCS

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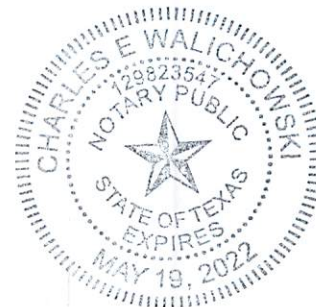
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Victoria Bond A R Clark
NEWSPAPER REPRESENTATIVE

Sworn and subscribed to before me, this 16th Day of September A.D. 2018



Charles E. Walichowski
Notary Public in and for the State of Texas

Solicitud para Comentario Público**Septiembre 24, 2018**

Se notifica por este medio que el Condado de Harris está solicitando comentarios sobre el Borrador del Plan de Evaluación de Necesidades del Condado de Harris con respecto a la recuperación del Huracán Harvey y las necesidades no satisfechas que se enviarán a la Oficina de Texas General Land Office (GLO). Este plan ayudará al condado a desarrollar programas que utilicen fondos de la Ronda 1 de la Subvención del Bloque de Desarrollo de la Comunidad - Recuperación ante Desastres (CDBG-DR) por la cantidad de \$ 1,115,386,830. El Plan de Evaluación de Necesidades del Condado de Harris estará disponible para su revisión en el sitio web del Departamento de Servicios Comunitarios del Condado de Harris (HCCSD) del 24 de Septiembre al 23 de Octubre del 2018.

El condado de Harris debe recibir los comentarios escritos antes de las 5:00 p.m. del 23 de Octubre del 2018. Los comentarios deben dirigirse a Attn: Planning y Development, 8410 Lantern Point Drive, Houston, Texas 77054 o enviarse a plancomments@csd.hctx.net.

El borrador del documento se publica el 24 de Septiembre del 2018 en el sitio web del HCCSD <https://csd.harriscountytexas.gov/Pages/DisasterRecovery.aspx> y estará disponible en el Departamento de Servicios Comunitarios del Condado de Harris, 8410 Lantern Point Drive, Houston, Texas 77054.

**HCCSD 8410 Lantern Point Dr.
Houston, Texas 77054**

~~10:00 AM~~ 10:30 AM

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Harris County

Community Services Department

A-Z

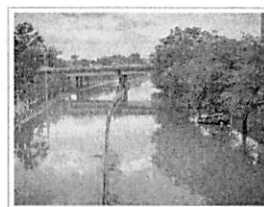
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Programs and Services - Disaster Recovery

American
Recovery and
Reinvestment
Act of 2009
(ARRA)

Disaster Recovery information
can be found below:



Community
Housing
Development
Organization
(CHDO)

▶ Disaster Recovery Housing
Guidelines

▼ 2017 Flood Event - Hurricane Harvey

Disaster
Recovery

Downpayment
Assistance
Program
(DAP)

On August 23 to September 15, 2017, Harris County sustained significant damage from the major flooding that resulted from torrential rainfall associated with the landfall and slow movement of Hurricane Harvey. As a result, a Presidential Disaster Declaration was declared on

Funding Guidelines	August 25, 2017, (FEMA DR-4332) that included Harris County.
Funding Opportunities (RFP)	<u>DRAFT Harris County Needs Assessment Plan</u>
Home Repair Program	The Draft Harris County Needs Assessment Plan regarding Hurricane Harvey recovery and unmet needs will be submitted to the Texas General Land Office. This plan will assist the county to develop programs utilizing Community Development Block Grant – Disaster Recovery (CDBG-DR) Round 1 funds in the amount of \$1,115,386,830. The Harris County Needs Assessment Plan will be available for review on the Harris County Community Services Department (HCCSD) website from September 24 – October 23, 2018.
Housing Resource Center	
LIHTC	
Neighborhood Stabilization Program	
Subrecipient Services	Written comments must be received by Harris County by 5:00 pm on October 23, 2018. Comments should be addressed to Attn: Planning and Development, 8410 Lantern Point Drive, Houston, Texas 77054 or submitted to plancomments@csd.hctx.net .

DRAFT Harris County Needs Assessment Plan

Public Notice: Draft Harris County Needs Assessment Plan – 9/24/2018

Harris County Supplemental Action Plan

The U.S. Department of Housing and Urban Development (HUD) has allocated \$5.024 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the state of Texas in response to Hurricane Harvey, DR-4332, through the publication of the Federal Register, Vol. 83, No. 28, Friday, February 9, 2018. This allocation was made available through the Continuing Appropriations Act, 2018 and

Supplemental Appropriations for Disaster Relief Act, 2017 that allocated \$7.4 billion in CDBG-DR funds in response to major disasters declared in 2017. In their Action Plan submitted to U.S. HUD on May 8, 2018, the State of Texas, under their program administer the Texas General Land Office (GLO), made a direct allocation of \$1,115,386,830 in Community Development Block Grant Disaster Recovery (CDBG-DR) funding (Round 1) to Harris County. A Draft Supplemental Action Plan has been developed by Harris County to program these funds. Harris County encourages all interested parties to review the *DRAFT Supplemental Action Plan* posted below and is seeking public comment on the Supplemental Action Plan for 2017 CDBG-DR funds (Round 1) to be submitted to the GLO.

Draft Supplemental Action Plan

Texas GLO Announces Public Comment Period for Harris County and City of Houston Local Plans:

<http://www.glo.texas.gov/the-glo/news/press-releases/2018/september/texas-glo-announces-public-comment-period-for-harris-county-and-city-of-houston-local-plans.html>

Method of Distribution

Harris County will receive a direct allocation of Hurricane Harvey Round 1 CDBG-DR funding from the Texas General Land Office (GLO). A methodology for the distribution and calculation to cities within Harris County, who do not receive an allocation directly from the GLO as described by the GLO in their Action Plan, will be established for CDBG-DR infrastructure funding. This method of distribution (MOD) will balance relative impact of Hurricane Harvey on the jurisdiction's population, percentage of the jurisdiction's population that is low-to-

moderate-income, and the ability to recover and total unmet need.

DRAFT Harris County Hurricane Harvey CDBG-DR Round One Method of Distribution Summary Form

DRAFT Method of Distribution for Hurricane Harvey CDBG-DR Round One Public Notice for Public Comment

Community Meeting/Hearings dates and times are as follows:

- September 24, 2018, at Katy City Hall at 6:00 pm – 901 Avenue C, Katy, Texas 77493 – Notice of Community Meeting
- September 24, 2018, at City Hall Council Chambers at 6:00 pm – 604 W Fairmont Parkway, La Porte, Texas 77571 – Notice of Community Meeting
- September 27, 2018, State Representative Ana Hernandez's Office at 5:30 pm – 10301 Market Street, Houston, Texas 77029 – Notice of Community Meeting
- October 1, 2018, City Hall – Council Chambers at approximately 6:30 pm – 910 S. Friendswood Drive, Friendswood, Texas 77546 – Notice of Community Meeting
- October 3, 2018, at Pasadena Public Library - Central at 10:00 am – 1201 Jeff Ginn Memorial Drive, Pasadena, Texas 77506 – Notice of Community Meeting
- **Thursday, October 18, 2018, 2017, at 10:30 am the Harris County Community Services Department (HCCSD) located at 8410 Lantern Point Drive, Houston, Texas, 77054.**
- **Thursday, October 18, 2018, 2017, at 5:30 pm at the Harris County Community Services Department (HCCSD) located at 8410 Lantern**

Point Drive, Houston, Texas, 77054.

Additional written comments must be received at Harris County by 5:00pm on October 23, 2018. Comments should be addressed to Attn: HCCSD Planning & Development, 8410 Lantern Point Drive, Houston, TX 77054 or submitted by email to plancomments@csd.hctx.net.

Hurricane Harvey 1st Allocation Residential Buyout Project Application

The U.S. Department of Housing and Urban Development (HUD) has allocated \$57.8 million in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the state of Texas, to be administered by the Texas General Land Office (GLO) in response to Hurricane Harvey, FEMA-DR-4332, through the publication of the Federal Register, Vol. 82, No. 247, Wednesday, December 27, 2017. This first allocation is the remaining amount from \$400 million appropriated under Public Law 115-31 that allocated CDBG-DR funds to Texas for the 2015 and 2016 flood events.

The Texas GLO has approved the Residential Buyout Project Application and a contract was approved and executed by Harris County Commissioners Court on July, 10, 2018.

Residential Buyout Project Application**Harris County SF-424 Resident Buyout Project**

[Top of Page]

▶ 2017 Inundación - El Huracán Harvey

▶ 2016 Flood Disaster Events

▶ Disaster Recovery Program

▶ Hurricane Ike

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Translation Disclaimer

For suggestions or comments regarding this site please email us at webcomments@hctx.net.



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Briggs, Jared (CSD)

From: P&D (CSD)
Sent: Friday, October 12, 2018 2:57 PM
To: Tindall, Mamie (CSD)
Subject: Draft Harris County Needs Assessment Plan/Solicitation for Public Comment September 24, 2018



To All Interested Parties and the General Public in Harris County:

DRAFT Harris County Needs Assessment Plan

Solicitation for Public Comment September 24, 2018

Solicitation for Public Comment and Public Hearing September 24, 2018 Notice is hereby given that Harris County is seeking public comments to its Draft Harris County Needs Assessment Plan regarding Hurricane Harvey recovery and unmet needs and will be submitted to the Texas General Land Office. This plan will assist the county to develop programs utilizing Community Development Block Grant – Disaster Recovery (CDBG-DR) Round 1 funds in the amount of \$1,115,386,830. The Harris County Needs Assessment Plan will be available for review on the Harris County Community Services Department (HCCSD) website from September 24 – October 23, 2018.

Planning Meeting and Public Hearing regarding community needs and method of distribution of CDBG-DR funding will be held Thursday, October 18, 2018, at 10:30 am at the Harris County Community Services Department (HCCSD) located at 8410 Lantern Point Drive, Houston, Texas, 77054.

Written comments must be received by Harris County by 5:00 pm on October 23, 2018. Comments should be addressed to Attn: Planning and Development, 8410 Lantern Point Drive, Houston, Texas 77054 or submitted to plancomments@csd.hctx.net.

The draft document is posted on the HCCSD's website <https://csd.harriscountytexas.gov/Pages/DisasterRecovery.aspx> and will be available at the Harris County Community Services Department located at 8410 Lantern Point Drive, Houston, Texas 77054.

Solicitud para Comentario Público Septiembre 24, 2018

Se notifica por este medio que el Condado de Harris está solicitando comentarios sobre el Borrador del Plan de Evaluación de Necesidades del Condado de Harris con respecto a la recuperación del Huracán Harvey y las necesidades no satisfechas que se enviarán a la Oficina de Texas General Land Office (GLO). Este plan ayudará al condado a desarrollar programas que utilicen fondos de la Ronda 1 de la Subvención del Bloque de Desarrollo de la Comunidad - Recuperación ante Desastres (CDBG-DR) por la cantidad de \$ 1,115,386,830. El Plan de Evaluación de Necesidades del Condado de Harris estará disponible para su revisión en el sitio web del Departamento de Servicios Comunitarios del Condado de Harris (HCCSD) del 24 de Septiembre al 23 de Octubre del 2018.

El condado de Harris debe recibir los comentarios escritos antes de las 5:00 p.m. del 23 de Octubre del 2018. Los comentarios deben dirigirse a Attn: Planning y Development, 8410 Lantern Point Drive, Houston, Texas 77054 o enviarse a plancomments@csd.hctx.net.

El borrador del documento se publica el 24 de Septiembre del 2018 en el sitio web del HCCSD <https://csd.harriscountytexas.gov/Pages/DisasterRecovery.aspx> y estará disponible en el Departamento de Servicios Comunitarios del Condado de Harris, 8410 Lantern Point Drive, Houston, Texas 77054.

Appendix D

Citizen Participation and Survey Characteristics

Engagement Report

Citizen Participation Survey Characteristics

Engagement Report

Harris County Community Services Department



Introduction

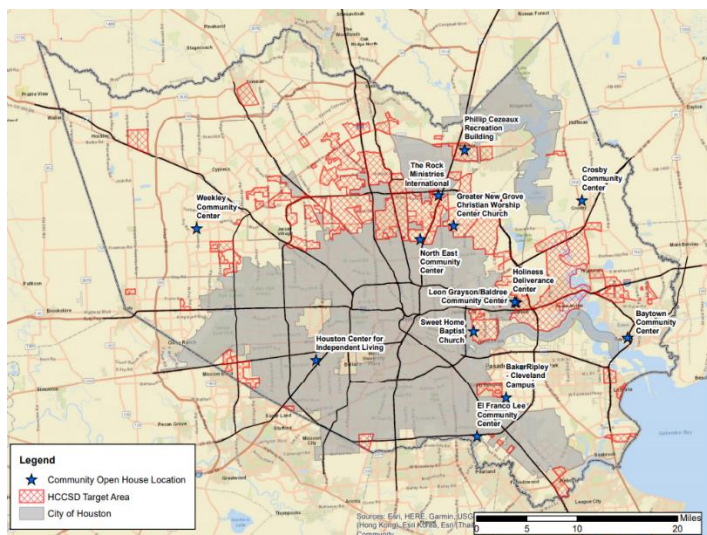
On August 25, 2017, Hurricane Harvey made landfall as a Category 4 hurricane and over the next four days dropped as much as 50 inches of rain along the Gulf Coast including Harris County. The U.S. Department of Housing and Urban Development (HUD) has allocated \$5.024 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funds to the state of Texas in response to Hurricane Harvey, DR-4332, through the publication of the Federal Register, Vol. 83, No. 28. This allocation was made available through the Continuing Appropriations Act, 2018 and Supplemental Appropriations for Disaster Relief Act, 2017 that allocated \$7.4 billion in CDBG-DR funds in response to major disasters declared in 2017. In their Action Plan submitted to U.S. HUD on May 8, 2018, the State of Texas, under their program administrator the Texas General Land Office (GLO), made a direct allocation of \$1,115,386,830 in CDBG-DR funding to Harris County.



Hurricane Harvey - Harris County, Texas

As a part of its disaster recovery planning and to fulfill the requirement for citizen participation under the CDBG-DR funding, Harris County has conducted a series of community meetings from May 30 to June 23, 2018. These meetings solicited information from county residents about Harvey recovery needs for their families and the community at large. Topics focused on housing and infrastructure needs, fair housing concerns/barriers, general community planning, and discussed possible recovery programs under the CDBG-DR. Results of these meetings will be published and included in the county's Needs Assessment. Results will also be incorporated into the county CDBG-DR program design.

Highlights of the Citizen Engagement



Harris County Hurricane Harvey
Community Open House Locations

As Harris County's administrator of CDBG-DR funding, Harris County Community Services Department (HCCSD) undertook the planning and facilitation of a series of community meetings to solicit community input on Hurricane Harvey recovery needs and barriers to fair housing. These meetings were held throughout Harris County (outside of the city of Houston, who will receive their own CDBG-DR funding), particularly in low-to moderate-income (LMI) and/or minority concentrated communities. HCCSD used diverse methods to market and encourage residents to attend meetings. These methods included creating a recovery blog and website; sending press releases to media; posting the meeting flyer on social media, door to door canvassing, direct emails, calls and texts to residents, sending event flyers through school districts websites and emails to parents; emails to local non-profits; and direct mail; created a six question *Hurricane Harvey Impact Survey* that was available in English and Spanish; provided a map exercise at each community meeting;

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comment cards and a graffiti wall were also provided at each meeting so that residents could provide additional comments. We collaborated with BakerRipley and Texas Organizing Project (TOP) to provide outreach to their communities and clients. As a result, close to 1,000 residents attended the community meetings and provided input on Hurricane Harvey recovery needs, future program goals, and strategies for funding.

HCCSD staff facilitated all meetings in coordination with are County Precincts. Outreach materials were translated in Spanish and the outreach flyer was translated in Spanish and Vietnamese. Meetings were held in English and Spanish and sign language interpreters were present at each meeting. Residents were also able to obtain resources and information from FEMA, Long Star Legal, Harris County Housing Resource Center, and Harris County Precincts to assist in their recovery needs. In addition, HCCSD created “Meeting in a Box (MIB),” which is a toolkit to help facilitate conversations with partners and solicit input on Hurricane Harvey Disaster Recovery needs, long-term goals, and strategies for funding. Two organizations in Harris County facilitated meetings using the MIB.

Marketing

Harris County used diverse methods to market and encourage residents to attend and participate in recovery efforts. Harris County conducted community meetings throughout Harris County in every County Precinct, particularly in low-to moderate-income (LMI) and/or minority concentrated communities. In an effort to reach out to persons affected by the Hurricane Harvey flooding, HCCSD initiated the following activities:



**El Franco Lee Community Center Meeting on
June 12, 2018**

1. **Press Release:** To advertise the community meetings, press releases were sent to the Regional Newspapers, 12 Hispanic Newspaper/radio/television outlets, 55 Suburban Newspapers, 84 Houston Regional Outlets, Social Media outlets such as Next Door, Facebook and Twitter, websites, and to other Harris County Departments and elected officials.
2. **Direct Contact:** HCCSD and their partner agencies performed direct contact outreach methods to inform residents about upcoming community engagement events. These included door to door canvassing and emails, calls, and texts made to residents. Community meeting flyers were distributed in English and Spanish to local schools/districts, utility districts, and local non-profits to be distributed to clients/customers, and posting in community buildings.
3. **Social Media:** HCCSD used Social Media sites such as Next Door, Facebook and Twitters to distribute engagement information and event flyers.
4. **Website Blog:** The website recovery blog was created to provide immediate information to the public in a user-friendly format. The blog announced each community meeting and provided downloadable, printable flyers for each meeting so that residents and community leaders could share with their neighbors. Additionally, all individuals interested in Harris County Disaster Recovery assistance were asked to fill out an interest survey on the blog with their contact information for follow-up as recovery programs are released.
5. **Welcome Video:** A professionally produced video narrated in English and Spanish was created and presented at the community meetings. The video was used as a welcome and provided an introduction to Harris County Recovery efforts.

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Community Meetings

There were 13 community meetings held throughout Harris County (outside the city of Houston) particularly in low-to-moderate income neighborhoods. As residents entered the engagement event they were invited to visit interactive stations and vote on their top priorities for topics: housing, fair housing, infrastructure needs, general community planning, and possible CDBG-DR program design. For the results of the issue/concerns boards see Harris County Needs Assessment, Citizen Participation, pages 21-24.

Surveys

Residents completed the six question *Hurricane Harvey Impact Survey* that was available in English and Spanish. Residents were encouraged to complete the survey for a chance to win door prizes. There were 569 completed surveys from residents all over Harris County. For the results of the survey, please see the Harris County Needs Assessment, Citizen Participation section on pages 21-24.

Resident survey characteristics are seen in Table 2 included 65 percent of the residents were located in a minority concentrated areas in Harris County. Ten (10) percent live in Limited English-Proficiency (LEP) concentrated areas, meaning 33 percent of residents speak something other than English as their primary language or have a limited ability to understand English. Forty-one (41) percent live in Low-to-moderate-Income (LMI) Target Areas which are communities in Harris County that have 51 percent or more concentration of LMI residents. Seventy-two (72) percent are LMI individuals which is defined as earning less than 80 percent of the Median Family Income (MFI).

Table 2: Survey Resident Characteristics

Resident Survey	%
Minority concentration	65
Limited English Proficiency (LEP)	10
LMI Target Areas	41
LMI Individuals	72

Residents that completed the surveys lived all over Harris County. Zip codes 77044, 77089, and 77084 had the greatest response to survey and ironically were the hardest hit by Hurricane Harvey flooding. These three zip codes had the most FEMA assistance, FEMA registrants, and homeowners that had flood damage but did not have flood insurance.

Residents that lived in these hardest hit zip codes live in Northeast Harris County, Copperfield area in West Harris County, the Southeast Harris County.

Table 1: Top 3 Issues/Concerns Exercise Boards

Issue/Concerns Board Exercise
Housing
Elevation of repetitively flooded homes in the floodplain.
Rehabilitation for single-family housing.
Buyout of repetitively flooded homes in the floodplain
Fair Housing
Deceptive practices and or fraud by contractors for home repairs.
Need assistance with FEMA claims for people with disabilities, elderly, and/or have limited English language proficiency.
Denial of FEMA claim due to FEMA inspector's determination that damage was from deferred maintenance by the homeowner.
Infrastructure
Improve and/or expand the ditches and culverts in my neighborhood to reduce flooding.
Improvements to streets, lighting and/or sidewalks in my neighborhood.
Expand and/or construct flood basins, detention ponds and levees to control flooding in my area.
General Community Planning
Drainage improvements in my neighborhood to reduce the chance of flooding.
Improvements to streets, lighting and/or sidewalks in my neighborhood.
Increased police presence and outreach in my neighborhood crime reduction.

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Map Exercise

Amenities maps of the each community were displayed at each meeting. The maps identified the locations of the libraries, community centers, fire stations, streets, and schools in the community as well as the locations of homes that flooded. Residents were given multi-colored stars and asked to place a star on the map where they wanted improvements such as improved drainage and where they saw a need. This exercise was conducted in English and Spanish. The majority of the stars were placed in areas where residents felt they needed drainage improvements on residential streets, police presence in their neighborhoods to reduce crime, and streets and neighborhoods where more sidewalks and trails were needed.

Comment Cards/Graffiti Wall

Comment cards and a Graffiti Wall were provided at each meeting so that residents could provide additional comments for areas that were not covered or if they wished to provide additional information. Some of the comments that we received were: contractors are engaging in fraud/deceptive practices when rebuilding homes, permits are too hard to obtain due to higher cost, need quicker repair of damaged public schools so that children can go back to schools in their neighborhoods, and the need for more notice on dam water release so people can get prepared and know what to expect.



Baker Ripley Cleveland Campus
June 5, 2018



Sweet Home MBC (TOP)
June 21, 2018

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All Harris County Community Meetings – Issues/Concerns Board Exercise

Housing	# Responses	% of Total
1. Buyout of repetitively flooded homes in the floodplain.	229	15.1%
2. Rehabilitation for single-family housing.	286	18.9%
3. New construction of affordable single-family housing	102	6.7%
4. Rehabilitation of damaged multi-family/apartments in my neighborhood.	74	4.9%
5. New construction of affordable multi-family/apartments or rental housing.	70	4.6%
6. Elevation of repetitively flooded homes in the floodplain.	324	21.4%
7. Rental housing with rents between \$800 - \$1,000 for 2 bedrooms.	57	3.8%
8. Rental housing with rents between \$1,200 - \$1,300 for 3+ bedrooms.	16	1.1%
9. Accessible housing for persons with a disability and/or elderly.	189	12.5%
10. Down payment/closing cost assistance to buy a replacement home.	168	11.1%
Total Responses	1515	

Fair Housing	# Responses	% of Total
1. Renters repairing damaged units without any compensation from their landlord (i.e. lowering rent for a month).	43	5.1%
2. Landlords restricting FEMA inspectors access to damaged units.	8	1.0%
3. Homeowner FEMA claim denial due to FEMA inspector bias against a person's race, age or orientation.	127	15.1%
4. Denial of FEMA claim due to immigration status.	25	3.0%
5. Denial of FEMA claim due to FEMA inspector's determination that damage was from deferred maintenance by the homeowner.	148	17.6%
6. Renter denied lease by landlord due to the presence of children in the household.	10	1.2%
7. Renter denied reasonable accommodations or modifications by landlord.	25	3.0%
8. Deceptive practices and or fraud by contractors for home repairs.	271	32.2%
9. Evicted or lease terminated by landlord from a storm damaged rental unit.	15	1.8%
10. Need assistance with FEMA claims for people with disabilities, elderly, and/or have limited English language proficiency.	170	20.2%
Total Responses	842	

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General Community Planning	# Responses	% of Total
1. Drainage improvements in my neighborhood to reduce the chance of flooding.	509	33.2%
2. Improvements to streets, lighting and/or sidewalks in my neighborhood.	227	14.8%
3. Increased social services, activities and skills programs for the elderly and youth at neighborhood community centers.	125	8.2%
4. Increased transportation options nearest to my home for work and play.	99	6.5%
5. Community centers/parks with spaces for playgrounds and sports fields in my neighborhood.	60	3.9%
6. Increased police presence and outreach in my neighborhood crime reduction.	182	11.9%
7. Construction of new affordable housing in my neighborhood.	43	2.8%
8. Down payment and closing cost assistance to buy a home.	65	4.2%
9. Services and housing options to assist homeless persons.	83	5.4%
10. Accessible housing for persons with disabilities and/or the elderly.	139	9.1%
Total Responses	1532	

Infrastructure	# Responses	% of Total
1. Improve and/or expand the ditches and culverts in my neighborhood to reduce flooding.	429	24.3%
2. Expand and/or construct flood basins, detention ponds and levees to control flooding in my area.	288	16.3%
3. Reconstruct and/or reinforce creek, channel or bayou banks from continued erosion.	244	13.8%
4. Repair flood damage to utility systems (i.e. water, sewer, electric, etc.)	119	6.7%
5. Repair flood damage to roads and bridges.	89	5.0%
6. Repair, relocate or replace flood damaged public facilities (i.e. libraries, community facilities, parks, schools, etc.).	55	3.1%
7. Buyout of repetitively flooded businesses from floodway and flood plain.	60	3.4%
8. Use buy-out properties for drainage improvements and recreational facilities (i.e. parks)	79	4.5%
9. Repair or replace sidewalks and trails in my neighborhood.	88	5.0%
10. Improve overall drainage in my neighborhood.	318	18.0%
Total Responses	1769	

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Hurricane Harvey Impact Survey

		Responses	Ratio	Total Responses
1. Overall, do you feel like you are getting the help you need to recover from Hurricane Harvey?				
	A. Not getting the help I need	299	64.7%	462
	B. Getting the help I need	84	18.2%	462
	C. I was not affected directly, but my community was affected	65	14.1%	462
	D. No affect to me or my community	15	3.2%	462
2. As a result of Harvey...				
	I have been living in transitional housing (e.g. hotel, rental apartment, shelter)	111	24.0%	462
	I have been living with family or friends	147	31.8%	462
	I have been living in a house or apartment that has mold	85	18.4%	462
	I have been living in a house or apartment that still needs repairs from the impacts of Harvey	178	38.5%	462
	All repairs to my home or apartment have been completed	53	11.5%	462
	There has been damage to infrastructure (e.g. street, sidewalks, park) in my neighborhood	100	21.6%	462
	I or someone in my household have/has overtime or regular hours cut back at work	63	13.6%	462
	I or someone in my household have/has other loss of income	106	22.9%	462
	I or someone in my household have/has been laid off or lost a job	68	14.7%	462
	I or someone in my household have/has health conditions that are new or have gotten worse	115	24.9%	462
	I feel my mental health has suffered	145	31.4%	462
	Other: _____	74	16.0%	462

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3. What type of help do you need? Circle all that apply.			
A. Repairing damage to the home I own	284	59.2%	480
B. Repairing damage to the home or apartment I rent	28	5.8%	480
C. Repairing damage to the rental property that I own	15	3.1%	480
D. Finding permanent housing	35	7.3%	480
E. Getting health care	43	9.0%	480
F. Finding temporary housing	22	4.6%	480
G. Finding a job or getting job training	41	8.5%	480
H. Getting transportation	34	7.1%	480
I. Navigating the available disaster recovery programs	120	25.0%	480
J. Housing counseling to review my mortgage or address eviction/foreclosure concerns	29	6.0%	480
K. Other: _____	72	15.0%	480
L. I do not need help.	71	14.8%	480
4. Which of the following housing activities should be top priorities for Hurricane Harvey Recovery funding? (Select only three)			
A. Help repair or rebuild homes for homeowners	330	74.0%	446
B. Help repair or rebuild single family homes for renters	74	16.6%	446
C. Help repair or reconstruct multifamily homes for renters	48	10.8%	446
D. Construct new single family homes for purchase	38	8.5%	446
E. Construct new apartments for renters	23	5.2%	446
F. Buyout homes in the floodplain remove residents from areas that flood	132	29.6%	446
G. Help raise homes in the floodplain to protect residents from future flooding	176	39.5%	446
H. Help renters with their rent payments	55	12.3%	446
I. Help homeowners with their mortgage payments	93	20.9%	446
J. Help homebuyers purchase a home through downpayment or closing costs assistance	59	13.2%	446

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K. Other housing activities:	37	8.3%	446
5. Which of the following NON-housing activities should be top priorities for future Hurricane Harvey Disaster Recovery funding? (Select only three)			
A. Drainage improvements to prevent flooding during heavy rains	391	88.3%	443
B. Large scale flood retention/detention improvements to hold water runoff (ponds or basins)	237	53.5%	443
C. Small scale flood retention to hold water runoff (bioswale, permeable pavement)	82	18.5%	443
D. Repairing, replacing or building new infrastructure such as roads, sidewalks, waterlines	157	35.4%	443
E. Repairing, replacing, or building new public facilities such as parks, community centers, health centers	57	12.9%	443
F. Supportive services such as health and mental health services, legal services, housing counseling	134	30.2%	443
G. Other:	32	7.2%	443
6. Do you believe you have been discriminated against in the process of rebuilding/relocating after Hurricane Harvey or other previous storm events? (Select all that apply)			
A. No discrimination due to a disaster	262	72.0%	364
B. Racial minority	52	14.3%	364
C. Skin color	21	5.8%	364
D. Disability	45	12.4%	364
E. Gender identity	7	1.9%	364
F. Family status (family with children)	28	7.7%	364
G. Country of origin	6	1.6%	364
H. Age	42	11.5%	364
I. Religious Affiliation	4	1.1%	364
J. Sexual orientation	4	1.1%	364