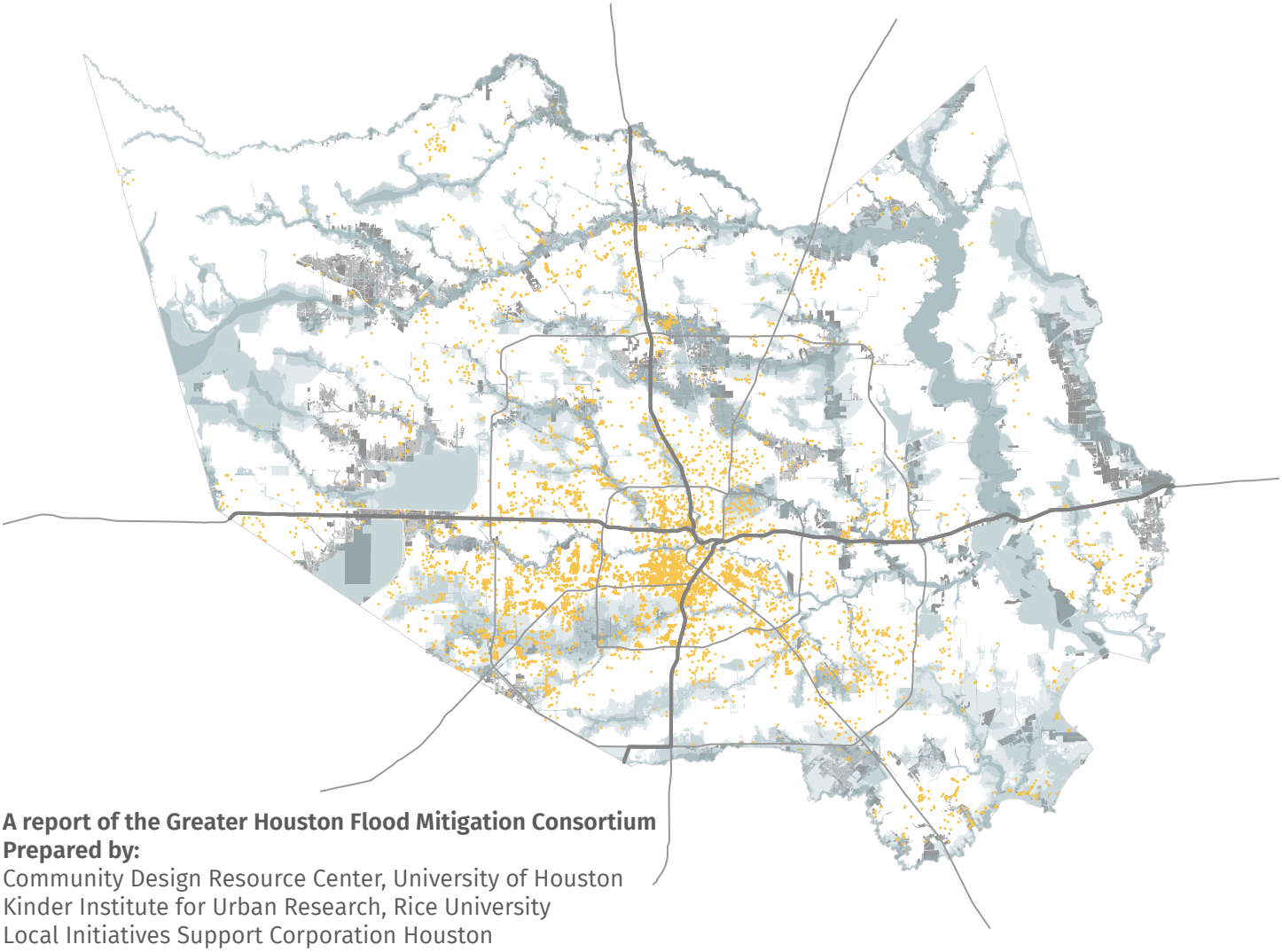
GREATER HOUSTON FLOOD MITIGATION CONSORTIUM

AFFORDABLE MULTI-FAMILY HOUSING:
RISKS AND OPPORTUNITIES



A report of the Greater Houston Flood Mitigation Consortium
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GREATER HOUSTON FLOOD MITIGATION CONSORTIUM

Through the Greater Houston Flood Mitigation Consortium, leading researchers from institutions across Texas have come together to compile, analyze, and share a rich array of scientifically-informed data about flooding risk and mitigation opportunities. We want to protect and sustain our residents, particularly those most vulnerable, as well as our environment and our economy. We believe it is critical for our public officials to have access to the best possible information available to inform their deliberations. Similarly, we think our residents also deserve access to the best information that will help them better understand and advocate for the options that work best for their families and communities.

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Hundreds of thousands of families in Houston and Harris County face a crisis of housing affordability. Half of all renters are burdened with high housing costs. The region does not have enough affordable multi-family housing to meet the need, only one of every 17 households receive some form of housing assistance, while renter families who are housing cost burdened and have incomes less than $20,000 represent one of every 11 households in Harris County.

Compounding the challenge, more than 165,000 multi-family units are vulnerable to flooding. The more than 475,000 people who live in these units often face multiple vulnerabilities. Further, updated floodplain maps will likely bring tens of thousands more of the region's residents into areas of elevated risk. Expanding efforts to identify, preserve, and build safe, affordable multi-family housing for the residents of Houston and Harris County can help to address this crisis.

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EXECUTIVE SUMMARY

In Harris County, just over 703,000 households, or 45 percent of all households, are renters. This percentage is even higher in the City of Houston, where 57 percent of all households rent, equal to just over 478,000 households.[1] Half of the renter households in Harris County spend more than 30 percent of their incomes on housing. Of those renting households spending nearly a third of their incomes on housing, 303,396, or 88 percent, make less than $49,999 per year. The rising prices of rental units, coupled with the low incomes of many renting households, makes the search for safe and affordable housing a major challenge for many of Houston's most vulnerable residents.

While affordability is an issue across income levels, this report defines affordable housing as housing units in which households making less than 80 percent of the area median income ($57,591 for Harris County) are paying less than 30 percent of their income in housing costs. The majority of the cost-burdened renters in Harris County fall within this category.

A primary reason that half of renting households struggle to find affordable homes is that the preservation and production of affordably-priced multi-family rental units lags behind the demand in both the City of Houston and Harris County. The 628,785 multi-family units in the county house the majority of the county's renters. However, the share of existing affordable units within that overall number, what is often called naturally occurring affordable housing (NOAH), is dwindling. Demolitions, renovations, and redevelopment of older apartment buildings are replacing lower-priced units with higher-priced ones. Similarly, the bulk of the new multi-family construction in the city and county is being built with higher-income renters in mind.

The damage caused across Harris County by Hurricane Harvey amplified the affordable housing challenge by rendering thousands of multi-family units unlivable and tightening an already competitive rental market. The storm also highlighted the need to understand the level of risk the housing system faces in future storms. In Harris County, 165,000 multi-family units, or 26 percent of all multi-family units, lie within a currently mapped floodplain and are vulnerable to future flood events. Further, updates to local floodplain maps are in progress and the new maps are expected to include much larger 100-year and 500-year floodplains. These changes will bring tens of thousands of additional multi-family units into higher risk categories.

Given that multi-family units house the majority of renters in the county, this report focuses on how flood risks and declining availability of affordable multi-family units are straining Harris County's housing supply.

This report includes a set of policy and programmatic considerations aimed at addressing the challenges facing Houston and Harris County in the effort to build adequate and safe housing supplies. The policy options range from securing additional streams of funding, to building more housing in areas with lower flood risks, to reducing the vulnerability of existing units.

Key Findings:

HALF A MILLION PEOPLE AT RISK. There are 165,793 multi-family units in 2,681 buildings inside the floodway, the 100-year floodplain, or the 500-year floodplain in Harris County. These multi-family units are home to over 475,000 residents. Of these, 6,851 multi-family units are directly in the floodway, with 5,874 of these located inside the City of Houston. More than half of these units are in the Greenspoint Super Neighborhood.

HALF OF ALL AFFORDABLE MULTI-FAMILY UNITS AT RISK. In 2017, there were 628,785 multi-family housing units in Harris County. This report identifies approximately 335,000 of these units as being currently affordable to households making less than 80 percent of median household income in the county, but at risk of losing that affordability in the next five years. These units are either subsidized through public funds or are naturally affordable based on the market. All are at risk for losing that affordability through the expiration of existing subsidy, demolition, or upgrade.

WIDENING GAP. The gap between the supply of affordable housing and demand is widening. Between 1990 and 2017, an average of 7,946 new renter households were established in Harris County each year. Over the same time period, a net gain of only 6,112 multi-family homes in buildings with two or more units were recorded each year. Harris County is falling behind on protecting and constructing new affordable housing, challenging the most vulnerable of families even before another disaster hits.

LOSS OF SUPPLY. Between 1990 and 2017, 1,850 multi-family units were lost each year through demolition. Moving forward, an additional 2,010 units could be lost each year through expiring affordability requirements on publicly supported units.

LOW PUBLIC SUBSIDY. In Harris County, one of every 17 families receives housing assistance through a publicly subsidized housing unit. These subsidies include local public housing units, federal housing choice vouchers, federal low-income housing tax credit units, and several other smaller U.S. Housing and Urban Development (HUD) programs. Across the same programs in the five counties that comprise New York City, one of every six receives assistance. In Fulton County, Georgia, home to the City of Atlanta, one of every seven families receives assistance. This subsidy gap is felt most by low-income families making less than 80 percent area median income. In Harris County there is one publicly subsidized unit for every four low-income families. There is one publicly subsidized unit for every three low-income families in New York and one for every two low-income families in Fulton County.

RELIANCE ON PRIVATE MARKET FOR AFFORDABLE HOUSING. Private market multi-family units comprise more than 87 percent of Harris County's multi-family housing supply. This rate is higher than New York City's 76 percent and Fulton County's 71 percent. The privately-held supply potentially creates less stability for existing affordable units.

VULNERABLE FAMILIES. In Harris County there were 140,318 renter families who made less than $20,000 per year in 2017. Representing one of every 11 households in the county, this number is nearly twice the number of families who receive housing assistance. Further analysis of those living in the most flood-vulnerable multi-family complexes shows that, on average, these households are lower income, non-white, and have less formal education than the county population as a whole.

Key Conclusions:

Affordable housing exists along a spectrum. Formally subsidized units with government funding that requires residents to meet specific income eligibility requirements anchor one end of the spectrum. At the other end is naturally occurring affordable housing, meaning that the units have no public subsidy attached and yet remain available at prices that are affordable to people making 80 percent or less of area median income. To address the complexity of this issue, this report's conclusions reflect a range of options—from federal, to local government initiatives, and from private, to philanthropic sectors. No single solution and no single actor, public or private, can solve Harris County's affordable housing challenge alone. The policy and programmatic ideas that conclude this report are intended to spark debate about what can happen across the City of Houston and Harris County, while also pointing to potential actions that could be taken by federal, state, and private actors. The strategies fall into two broad categories:

Availability—Affordable Housing Preservation and New Affordable Housing Construction: The strategies outlined here focus on the programs, projects, and policy initiatives that can be implemented and leveraged to both preserve and construct affordable housing. These include:

- Creating a comprehensive affordable housing plan for both the City of Houston and Harris County that includes a housing needs assessment.
- Supporting the construction of new affordable housing in low-risk areas.
- Protecting and preserving existing housing, especially in areas of low flood risk.
- Revising current and implementing new regulations and incentives to reduce risks and address the affordability crisis.

Risk and Resiliency—Protecting and Supporting Vulnerable Families: Given the pre-existing vulnerability of many residents in need of affordable multi-family housing, the report offers a number of recommendations focused on protecting families from loss and displacement. These include:

- Creating an eviction protection program.
- Expanding the number of housing choice vouchers and preventing discrimination against users.
- Alerting residents of flood risk.
- Implementing a more streamlined system of inspection and permitting that prioritizes rehabilitation of multi-family units.

Combined, these strategies offer options to address the challenges of providing high-quality affordable housing for all across the City of Houston and Harris County.

INTRODUCTION

This report is a collaboration between the Community Design Resource Center at the University of Houston, the Kinder Institute for Urban Research at Rice University, and Houston Local Initiatives Support Corporation (Houston LISC). The study has been generously funded by the Cullen Foundation as part of their commitment to the Greater Houston Flood Mitigation Consortium and to affordable housing across the region.

The need for affordable housing in Houston and Harris County is at a crisis point. The Urban Institute's report, "The Housing Affordability Gap for Extremely Low-Income Renters in 2014" noted that for every 100 extremely low-income renter households in Harris County, there were 27.5 adequate, affordable, and available units. Between 2000 and 2014 the number of extremely low income renter households in Harris County rose from 119,594 to 164,065, a 37 percent increase. In the same time period, the number of adequate, affordable and available units grew from 38,023 to 45,048, an 18 percent increase, or half the growth rate of renter households competing for these units. In Harris County, extremely low-income households are defined by an income limit of $22,500 for a family of four. At that income level, housing would be considered affordable if the monthly rental cost was $560 or less.

The combined risks of flooding and the accelerating loss of affordable housing across the City of Houston and Harris County point to the need to understand and consider strategies to address this crisis.

To this end, this report provides an in-depth analysis of challenges and opportunities for preserving, rehabilitating, and constructing affordable multi-family housing in Houston and Harris County, particularly in the wake of Hurricane Harvey. The report addresses a series of important questions:

- Where is affordable multi-family housing in Houston and Harris County currently concentrated?
- What are the physical and occupancy qualities of this housing? Who lives there, what condition are the units in, what risks and hazards exist, and what are the opportunities (jobs, education, recreation, transit) available in the adjacent community?
- How much affordable multi-family housing is in a flood hazard area?
- What are the strategies to mitigate flood hazards in these areas?
- What policies could simultaneously address flood risks, affordable housing, and stabilization for low-income and vulnerable families?
- What are the challenges to preserving existing affordable multi-family housing, and what strategies can be developed to assist with preservation?
- What are the funding strategies to encourage the development of new affordable multi-family housing?

To answer these questions we have adopted a scaled approach to investigate the interplay of affordable multi-family housing issues and flood risk. In addition to macro views of the situation in Harris County and the City of Houston, this work includes a neighborhood level deep dive, including four in-depth case studies. The scaled approach provides valuable insight into the development of meaningful strategies and recommendations that will guide the preservation and construction of safe and affordable multi-family housing across the region.

Finally, the work has been guided by invaluable input provided by four focus groups, facilitated by Houston LISC. Two of these focus groups were targeted to housing experts and two to multi-family housing residents and other community leaders.

AFFORDABLE MULTI-FAMILY HOUSING: An Overview

A National Crisis

Safe and affordable housing is central to ensuring the stability of a household. A stable home provides a foundation from which other essential elements of day-to-day life—employment, education, health, and enrichment—can be sought.

However, many households across America struggle to secure safe and affordable housing on a daily basis. This national crisis is most visible in large cities with rising housing costs and relatively static incomes, but it impacts communities of every shape and size. This crisis threatens the stability and livelihoods of millions of people.

The crunch is especially felt when it comes to affordable multi-family units. A growing scarcity of units leaves renting households particularly vulnerable. Much of the pressure on multi-family units comes from rising demand and a shrinking stock of affordable apartments. Property owners continue to upgrade older multi-family buildings, resulting in an increase in rents for those properties, which then "prices out" low-income households. Across the United States rents are rising, growing 42 percent between 2010 and 2017.[2] At the same time, affordable units are being demolished in favor of newly built apartments with more amenities and higher rents.[3] According to the U.S. Census Bureau, a net number of nearly 2.5 million units nationwide that rented at less than $800 were lost between 1990 and 2016.[4] Expensive housing means that families with limited incomes have to dedicate more of their income to housing, often leaving too little for utilities, food, education, and transportation.

Existing federal and state programs offer crucial subsidies, but available funds are limited and are not keeping up with demand. The National Low Income Housing Coalition estimates that only one in four eligible households that need housing assistance receive support in any form.[5] To account for this limitation, the coalition estimates that on the open market there is a need for 7.2 million more unsubsidized affordable units across the United States.[6]

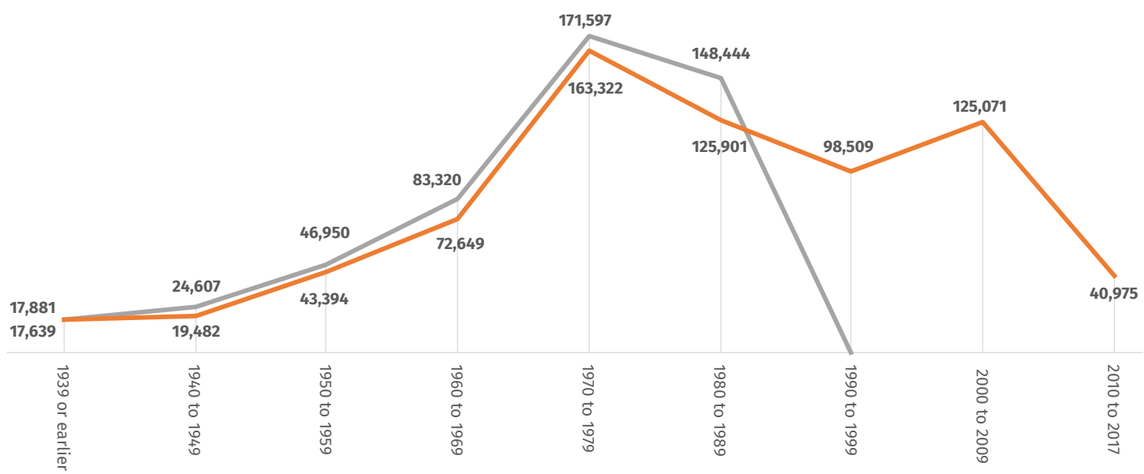
The result of a low supply of publicly subsidized units and the disappearance of affordable private units is a burden on lower-income households. In 2016, 21 million renter households were spending more than 30 percent of their income on housing and 11 million households were spending 50 percent or more.[7]

Complicating the issues of dwindling supply and growing demand in many cities is the fact that large portions of affordable units can be found in areas vulnerable to disasters such as flooding and hurricanes. Cities across the nation must confront both the lack of affordable housing and the vulnerabilities faced by the residents of the current stock.

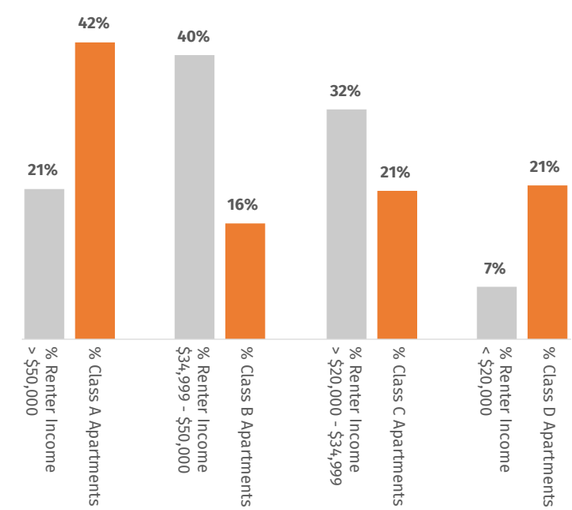
Our Region

Perhaps no city and region confronts this dual challenge more directly than Houston and Harris County. While the Houston region has a reputation for housing affordability, that notion is shaped by the relatively low cost of predominantly single-family development along the City of Houston's suburban fringes. This pattern of development has kept regional prices low, but hides the escalating cost of homes in or near key jobs centers, near high performing schools and transit, or close to sought-after amenities. In the City of Houston, many once affordable, historically non-white neighborhoods proximate to downtown now face rising rents, displacement, and redevelopment pressure.

Harris County's issues are exacerbated by the growth of renting households over the past 30 years. From 1990 to 2017 the number of renter occupied housing units grew by 44 percent, increasing from 492,557 to 707,184. The region has struggled to meet the growth in renters with a parallel expansion of affordable multi-family units. For example, as the graph on page 10 shows, between 1990 and 2017 the number of multi-family units built between 1960 and 1989 declined by 41,489. These units tend to be more affordable because of their age. The dwindling supply of older, more affordable multi-family units has further tightened the rental market across the county. Further, many of the newer units built in recent years have been targeted to higher income renters. For example, while Class "A" apartments represent 42 percent of all multi-family units in Houston, only 21 percent of renter



Renter Occupied Housing Units by Date Built, 1990 and 2017
1990 Data
2017 Data
Sources: 1990 Census and 2017 ACS (5-Yr)



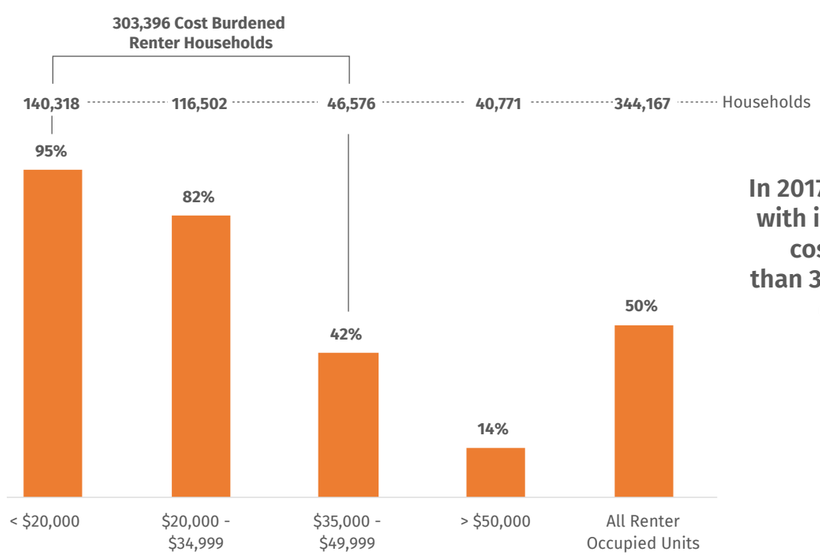
Houston/Harris County Percent Multi-Family Units by Grade Compared to Percent Renters by Median Household Income (Affordability)
Sources: ACS 2017, Market Rebuilds Report, September 2018 ApartmentData.com

households have incomes over $50,000 and are able to afford rents above $1,250 per month.[8]

The vacancy rate among multi-family units reflects this tightening as well. In 2010, across all census block groups with multi-family units, the average vacancy rate was 18 percent. By 2017, the vacancy rate had dropped to 13 percent. While this high vacancy rate might suggest there is a less acute crisis of available affordable multi-family units, vacancies are concentrated in more expensive apartments.[9] After Hurricane Harvey, multi-family vacancy rates decreased to less than 10 percent, with vacancies among luxury apartments dropping the most to around eight percent. Existing vacancies at high price points do not help address the underlying affordability challenge for low-income residents. According to the U.S. Census Bureau's 2017 American Community Survey, rents have risen to an average of $976 per month. This number is above many Harris County households' income levels and has created more competition for lower priced units.

The pressure these shifts create in the local housing market are visible in the increasing number of households spending more than 30 percent of their income on housing in Harris County. In 1990, 37 percent of renters and 18 percent of homeowners in Harris County spent more than 30 percent of their income on housing (considered the level at which households face a "housing cost burden"). In 2017, the number of burdened households increased to 50 percent of renters and 22 percent of homeowners.[11] As the chart below highlights, the bulk of these burdened renters were from low-income households, with 303,396 households making less than $49,999 per year and 140,318 making less than $20,000 a year.[12]

Beyond rising prices, Houston's affordable housing supply faces another challenge—flooding. Not only is there not enough supply of affordable housing, but much of the existing affordable options are located in areas highly vulnerable to floods. Thus some of the area's most vulnerable residents live directly in harm's way.



In 2017, 303,396 renter households with incomes under $50,000 were cost burdened (spending more than 30% of their income on rent), or 76% of these households.

Harris County Renter Households Spending >30% of Household Income on Rent, 2017
Source: ACS 2017

Looking only at multi-family units, 165,793 units, or 26 percent of all the units in Harris County, are in buildings located within a flood risk area, including the floodway or the 100- or 500-year floodplain. This number accounts for all units in the buildings, not only those on the first floor that are most susceptible to flooding inside the living space. The majority of the multi-family units in a flood hazard area were built between 1960 and 1979, before more stringent building regulations were enacted to minimize flood risks. In total, 70,966 multi-family units constructed in this era are located in a floodway or the 100- or 500-year floodplain, representing 43 percent of all apartments in a flood risk area.

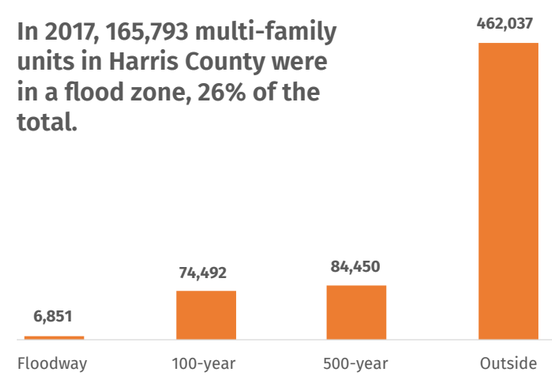
Hurricane Harvey directly damaged tens of thousands of units and impacted hundreds of thousands of residents. The City of Houston and Harris County estimated losses for renters and owners, but did not estimate multi-family damages independently. For example, the City of Houston estimated that 208,532 households had damages from Hurricane Harvey, 95,844 of which were rental units (both houses and apartments).[13] Harris County, using Federal Emergency Management Agency (FEMA) individual assistance claims, identified 65,922 claims from renting households across both single-family and multi-family units.[14] Neither jurisdiction provided a multi-family only estimate.

For the purpose of this report, researchers used FEMA's Harvey inundation models to estimate the number of flooded parcels that contained multi-family units. Using this approach, we estimate that more than 71,806 multi-family units, or 12 percent of all units in the county, were in buildings likely impacted by the storm.

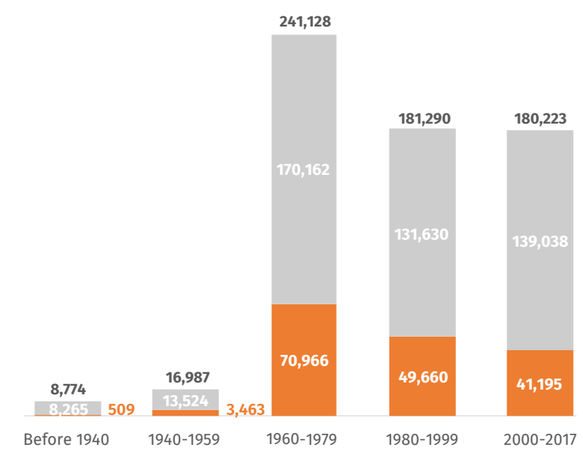
While a significant number of units were directly damaged, for renters whose apartments were not flooded, the storm was still disruptive—destroying cars, interrupting work and school routines, and amplifying existing stresses, particularly economic and social vulnerabilities.

The impacts of Harvey illustrate the need to address the risks faced by a large number of Houstonians. With the Harvey recovery and rebuilding effort now under way, the City of Houston, Harris County, and the broader region have the opportunity to make choices that acknowledge and proactively respond to both flood risk and the affordable housing crisis.

In 2017, 165,793 multi-family units in Harris County were in a flood zone, 26% of the total.



Harris County Multi-Family Housing Units by Floodplain
Source: HCAD Public Data, 2017



Year Built by Flood Risk, Number of Units
Outside of a Flood Risk Area
Inside the Floodway, 100- or 500- Year Floodplain
Source: HCAD Public Data, 2017

AFFORDABLE MULTI-FAMILY HOUSING: Risks and Opportunities

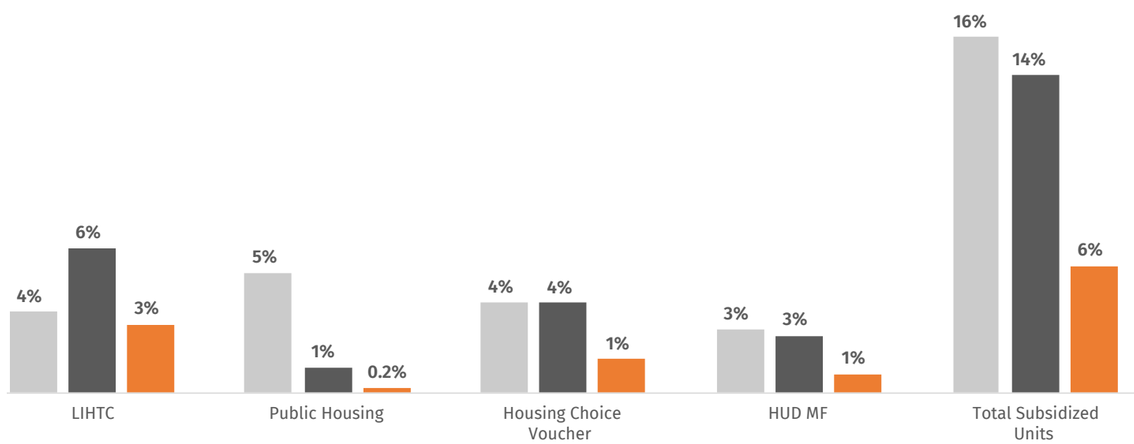
Challenges to Addressing Affordable Housing in Houston and Harris County

There are a number of factors that have shaped the provision of safe and affordable housing in Houston and Harris County. Each of these factors is discussed in detail below.

Limited number of publicly subsidized units

Compared to other major cities, Houston has a much smaller supply of public housing units. The Houston Housing Authority, the largest provider of public housing in the region, operates around 3,400 units via traditional public housing and manages several hundred more through other subsidy programs. This compares to the 166,178 units in the five counties that make up New York City and the 4,358 units in the much smaller Fulton County, Georgia. Similarly, between Harris County and the City of Houston there are approximately 23,000 housing choice vouchers, formerly known as Section 8 vouchers. These vouchers are income-based rent subsidies for low-income families provided by the public housing authority through federal funding. In comparison, New York City has 124,494 vouchers and Fulton County has 15,451.[15] Harris County has used federal low-income housing tax credits (LIHTC) for much of its subsidized housing development. There are 47,239 LIHTC units in Harris County, compared to 111,875 in New York City and 24,852 in Fulton County.[16] Compared to both New York City and Fulton County, though, Houston's ratio of subsidized units is lagging. Based on 2017 populations, New York City authorities provide housing assistance to one of every six households and Fulton County provides housing assistance for one in every seven households, and in Harris County this figure is one of every 17 households. Currently in Houston, waiting lists for both subsidized units and vouchers extend into the hundreds of thousands of families.[17]

Much of the lack of public subsidy in Harris County is connected to the timing of national public housing development, which occurred to a great extent between the 1930s and 1960s. For most of that time Houston and Harris County were growing, but still small compared to cities such as New York, Detroit, and Chicago. These established cities saw huge numbers of public housing units built. Moreover, after World War II many Sun Belt cities such as Houston did not pursue public housing, relying instead on the private market to provide needed units.[18]



Percent of Total Households Assisted through Housing Subsidies/Assistance

New York City
Fulton County, GA
Harris County, TX

Sources: National Housing Preservation Database 2018, PolicyMap

Voucher holder discrimination

Across the United States, having a housing choice voucher does not guarantee access to safe and affordable housing. Many landlords are legally able to discriminate against voucher holders and refuse to accept vouchers at their properties. Furthermore, efforts at the state level in Texas to end "source of income discrimination" in housing have been blocked. Discriminatory rental practices can force families with vouchers to rent in communities without high-quality schools, good transit, or other opportunities. In the long-term this practice could work to re-concentrate poverty, even though the housing choice voucher sought to ameliorate this condition. In addition, if a family is unable to secure housing with a voucher they are forced to return it and compete for affordable housing in the open market.

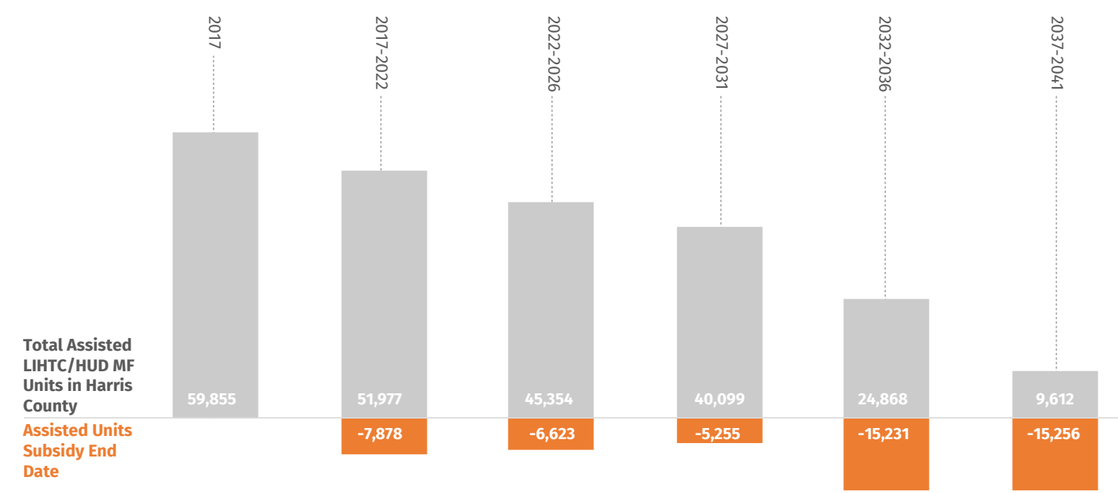
Limited history of proactive policy intervention

The jurisdictions of Houston and Harris County have historically had less robust development regulations and, as in most cities and counties across Texas, have fewer directly subsidized affordable housing units compared to other major cities outside the state. Inclusionary zoning, which some jurisdictions use to require that all developments include a certain percentage of affordable units, is not legal in the State of Texas outside of small, designated areas. In general, most economic development deals done in the city through Chapter 380 agreements and that are supported with public funds are not required to include significant amounts of affordable housing. Finally, some programs, such as the Downtown Living Initiative, led to the construction of almost exclusively luxury and high-end units due to the lack of affordability requirements in the program.[19]

Loss of existing affordable units

There are two major types of affordable units—those subsidized by public funds and NOAH. This report estimates that more than 335,000 units of multi-family in Harris County that fall into one of those categories are at risk of not being available as affordable homes for low income households in the next five years.

In the first category, between project-based Section 8 units, where specific units in buildings are designated as voucher-only units, and low-income housing tax credit projects, where projects are in part funded through the sale of federal tax credits to investors in exchange for



Total Assisted/Subsidized Units in Harris County and Subsidy End Dates

Total Subsidized Units
Expiring Subsidized Units

Source: National Housing Preservation Database, 2018

specific affordability requirements, there are about 11,000 apartments where mandated affordable rents could expire or the subsidy could be removed by 2023.

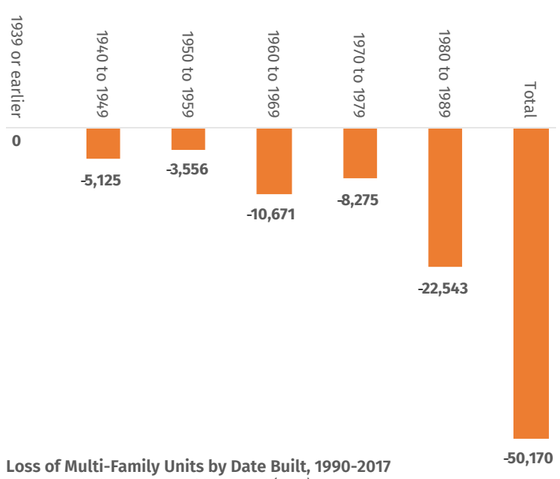
As noted above, NOAH units are affordable to low-to-moderate income households that are not supported by public subsidies such as low-income housing tax credits. NOAH units tend to be in older buildings and are usually in private ownership. These units typically would be affordable to a family of four who make less than 80 percent of the median family income (MFI) for the area as defined by HUD, which is $74,900 for Harris County. MFI, rather than AMI, was used in identifying units because it is the number HUD uses to set income requirements for funding eligibility and because it helps capture a wider range of units that accommodate differing household sizes. This report uses data compiled by Houston LISC to identify approximately 324,000 NOAH units in Harris County. Understanding the number of NOAH properties is critical because these units are most vulnerable to demolition or upgrading since they have no affordability requirements or restrictions. The typical pattern seen in Houston is that a property upgrade coincides with a significant rental rate increase, taking the property out of the affordability range for low- and moderate-income households. In addition, about 15 percent of the identified NOAH properties are located inside the 500-year floodplain and are vulnerable to future floods.

Aging multi-family stock
The average multi-family property in Harris County was built in 1986. Inside the City of Houston, the average building age is slightly older, with 1984 as the completion date. The supply of these older buildings tends to face more pressure to be upgraded or replaced by new housing. This transition has already begun—the number of units built between 1960 and 1989 declined by 10 percent between 1990 and 2017.[20] This pattern of decline is significant given that 58 percent of all the existing multi-family units in the county were built between 1960 and 1989. These older units make up the bulk of the NOAH units described above. Their loss tightens the market for affordable units and can lead to an increase in average rental rates.

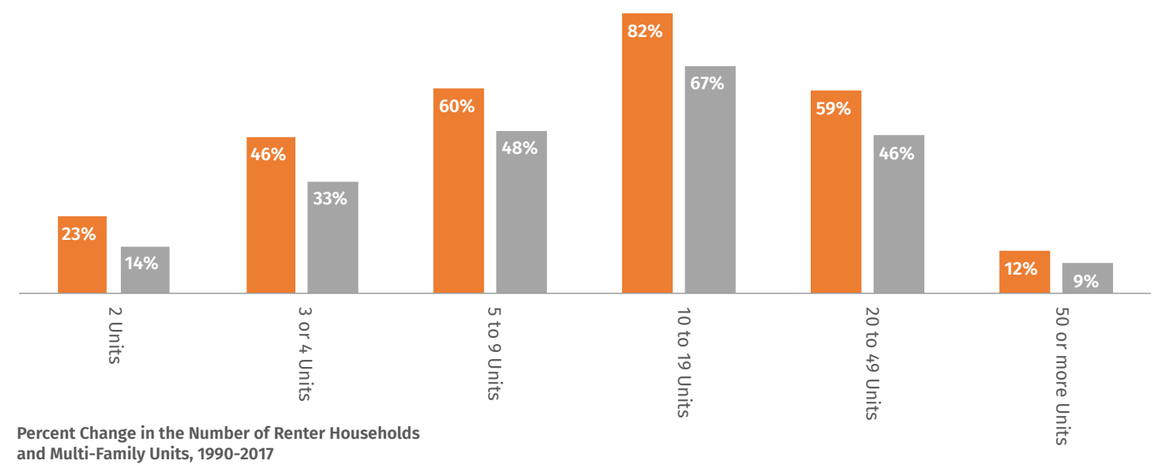
The demolition of older units also contributes to a shortfall in available multi-family units at all price points. Between 1990 and 2017 an average of 7,946 new renter households were established in Harris County each year, renting apartments, single-family homes, and other housing types. Over the same time period, there was a net gain of only 6,112 new apartments in multi-family buildings with two or more units. The gap between affordable rental units is being compounded by the demolition of aging units. Multi-family units in Harris County built prior to 1990 are disappearing at a rate of 1,850 units each year. The result is a gap between the supply of affordable multi-family rental housing and demand, challenging the most vulnerable of families.

Limited number of newly built affordable units
In addition to the loss of existing affordable units, the number of new multi-family developments at affordable rents remains relatively low based on need and demand. In 2017, a total of 1,499 income-restricted rental units in Houston had funding allocated through the city's Housing and Community Development Department.[21] At the end of that year, 220 income-restricted rental units had been completed and an additional 1,279 were under construction.[22] In the prior year, 1,437 subsidized units were constructed utilizing LIHTC in Harris County. Combining the multi-family units completed through these two programs as a representative average of the number of units constructed each year, we can assume approximately 1,650 new affordable units are added to the supply annually. Compared to the 1,850 multi-family apartments built before 1990 being demolished each year, the region is potentially experiencing a net loss of 200 units annually.

Allocating housing dollars for new affordable multi-family developments could begin to address this gap. At a state level, though, homeowner programs receive far more than renter programs. In 2017, for example, the Texas Department of Housing and Community Affairs (TDHCA) allocated $283,402,704, about one-third of its $1.7 billon annual expenditures, to Region 6, which includes Houston and Harris County. Of that funding for every $1 spent on renter programs there were $47 spent on homeowner programs.[23] In contrast, the Houston Housing and Community Development Department has devoted more of its funding to multi-family. In 2017 the department allocated $1 of HUD Community Development Block Grant (CDBG) funding to multi-family projects for every $4 for single-family projects.



Loss of Multi-Family Units by Date Built, 1990-2017
Sources: 1990 Census and 2017 ACS (5-Yr)



Percent Change in the Number of Renter Households and Multi-Family Units, 1990-2017
Percent Change in Multi-Family Units
Percent Change in Renter Households by Housing Type
Sources: 1990 Census and 2017 ACS (5-Year)

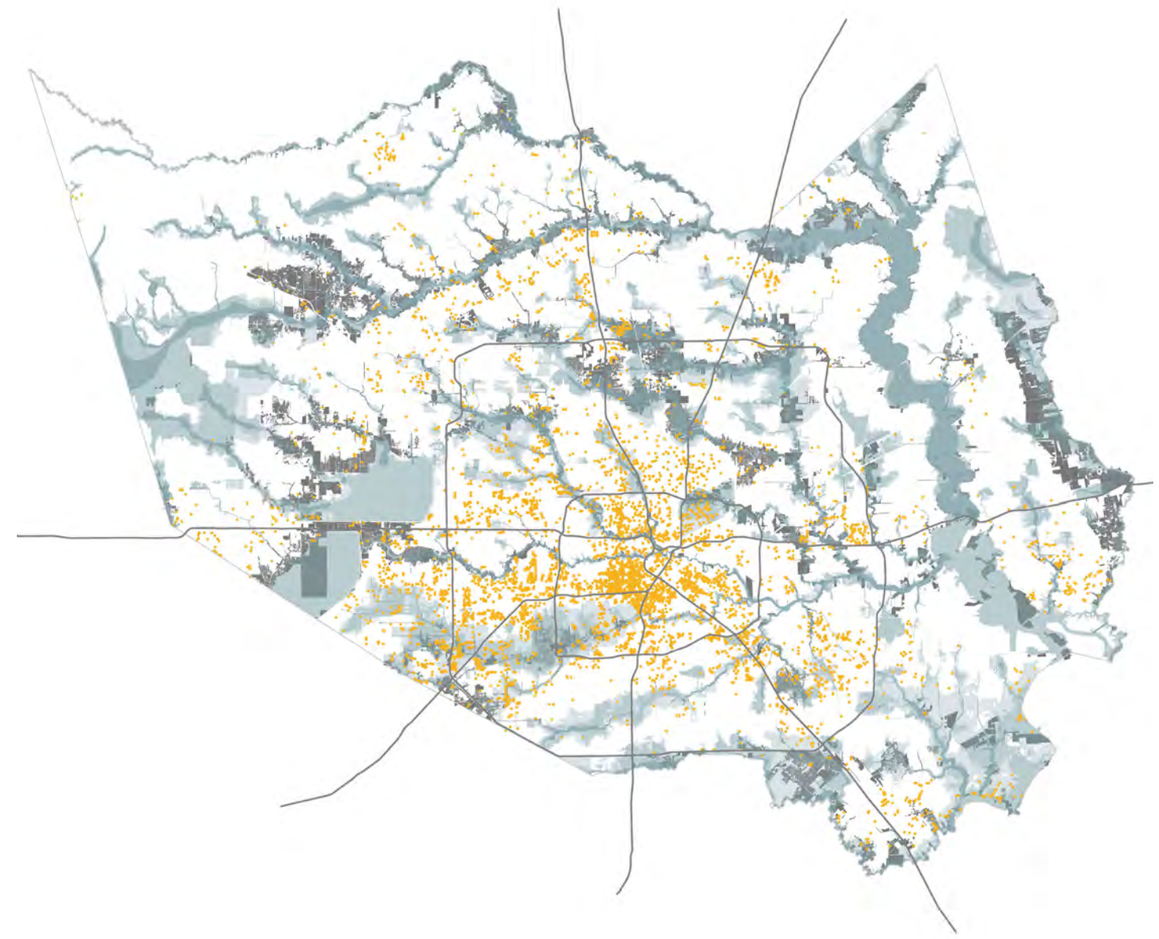
Growing, but limited nonprofit and community housing ecosystem
The City of Houston and Harris County area are home to several dozen nonprofit affordable housing developers and community development corporations (CDCs). CDCs are non-profit entities that work to support traditionally underserved or under-resourced communities through affordable housing, job training, or economic development efforts. In Harris County, however, the number of organizations with capacity to develop multi-family housing as well as maintain a production pipeline of multiple projects remains very limited. The review of the sector leads to estimates of less than five organizations that can produce more than 100 units per year consistently. Compared to the robust ecosystem of such entities in other major metropolitan areas around the U.S., Harris County lags behind. This results in large areas of the county having no active presence from a community development organization. On the whole, Houston's CDC ecosystem receives less public sector and philanthropic support and is less developed than other major cities.

Challenges of new flood regulations
In April 2018, the City of Houston passed updates to its floodplain ordinance, commonly known as Chapter 19. The City revisions occurred shortly after Harris County updated its floodplain permitting requirements. A key change in both sets of regulations consists of the requirement that all new or significantly improved structures within the 500-year floodplain be elevated at least two feet above the base flood elevation of the 500-year floodplain. While this standard is relatively easy to incorporate into new construction, older buildings in need of repairs or with plans for additions must be elevated in order to receive a building permit. In many cases, building elevation will make the cost of repairs prohibitive. Multi-family buildings in a flood risk area will be regulated by these same requirements and challenges.

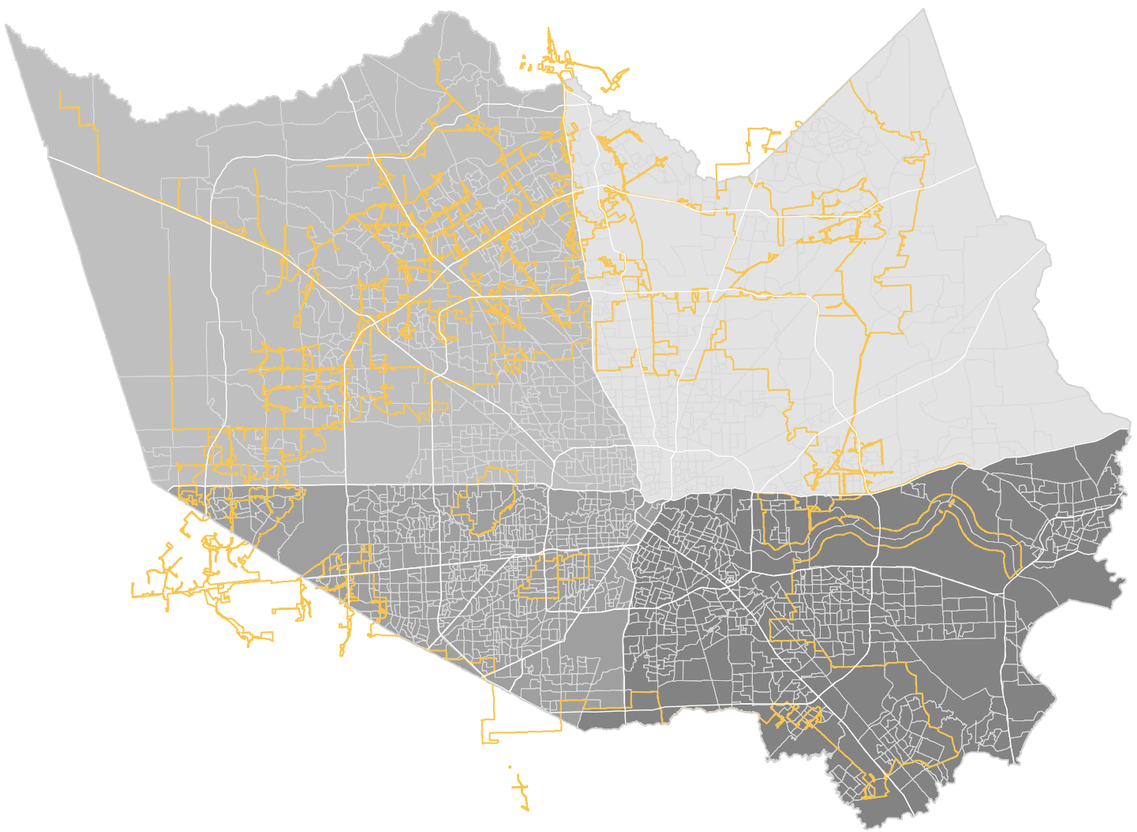
Many multi-family units and structures that flooded during Hurricane Harvey were permitted and repaired prior to the revised Chapter 19 ordinance that went into effect in September of 2018. After the next storm, however, Chapter 19 will prevent the legal repair and rebuilding of apartments significantly damaged that are located in the floodway or floodplains, as the buildings will need to be elevated to meet the new code. Focus group participants noted that the revised Chapter 19 regulations would create additional stress on affordable multi-family housing in the city in the next flood, as apartment owners lose income and face expensive, and in most cases untenable repairs. According to a report prepared by Apartment Data, 3,000 units damaged in Hurricane Harvey will not be repaired, and an additional 2,000 units remained damaged in September of 2018 when the report was published.[24] Without a major programmatic approach and effort to relocate multi-family units and/or buildings, the next major flood event will result in the loss of additional multi-family units, many of which are affordable.

Harris County's Challenge
To summarize, if the 126,659 multi-family apartments located in a flood risk area in the City of Houston substantially flood in a coming storm, all of those units could be lost. An additional 39,134 in the unincorporated area of Harris County could face a similar fate. Furthermore, 11,000 units are at risk of becoming less affordable because of expiring tax credits or project-based subsidies in just the next five years. Finally, if the current demolition rate of apartments constructed before 1990 continues into the future, more than 1,850 of these units will be lost each year, some of which are Houston and Harris County's most affordable apartments.[25]

"After the next flood, Chapter 19 will prevent the rebuilding of apartments in the floodway or floodplains as the buildings will have to be elevated to meet code, this will create displacements, owners will declare bankruptcy."
—Focus Group Participant



Harris County Floodplains, Multi-Family Units, and Estimated Flooded Parcels
Floodway
100-Year Floodplain
500-Year Floodplain
Multi-Family Units
Estimated Flooded Parcels
Sources: HCAD Public Data 2018, FEMA Inundation Models



Harris County Quadrants
City of Houston
Source: Kinder Institute for Urban Research

SCALING the STUDY: Quadrants

As a means to develop a greater understanding of the location and types of multi-family housing that are at risk for flooding, Harris County was divided into four quadrants along major freeway routes. The quadrants were then analyzed in detail.

In Harris County, there are 628,785 renter households living in multi-family complexes comprised of two or more units, which is equal to 88 percent of the total renter households in the county. Large complexes with more than 50 units make up over 91 percent of the total multi-family housing stock in the county, while duplexes, triplexes and fourplexes make up the least portion at only 2.5 percent. With a combined 452,817 units, or 72 percent, the southwest and northwest quadrants have the highest number of multi-family units. Specifically, the southwest quadrant alone has 48 percent of all multi-family housing in Harris County. This quadrant includes two of the four case study neighborhoods, Gulfton and Westwood/Alief, and other dense neighborhoods such as Sharpstown and Midwest.

The maps to the right illustrate the concentration of multi-family housing across Harris County. The map, top right, highlights the 382 census block groups with the highest concentration of multi-family units in the county. In each of the highlighted census block groups the percentage of multi-family units as a total of the residential units is larger than or equal to 75 percent. Collectively, the 382 census block groups contain 327,938 multi-family units.

The map, bottom right, highlights the 536 census block groups with the largest overall number of multi-family units in Harris County. The highlighted census block groups are those whose overall number of multi-family units place them in the top quartile, or the top 25 percent, of all county census block groups. Collectively, the 536 census block groups contain 460,891 multi-family units.

The concentration of multi-family apartments in flood-prone areas generates significant risks and vulnerabilities for thousands of renter households. There are 165,793 multi-family units, in 2,681 buildings inside the floodway, the 100-year floodplain, or the 500-year floodplain. These multi-family units are home to approximately 475,000 people. Of these, 6,851 multi-family units are directly in the floodway, with 5,874 of these inside the

Block Groups with the Highest Concentration of Multi-Family Units
Source: Kinder Institute for Urban Research

Block Groups with the Highest Number of Multi-Family Units
Source: Kinder Institute for Urban Research

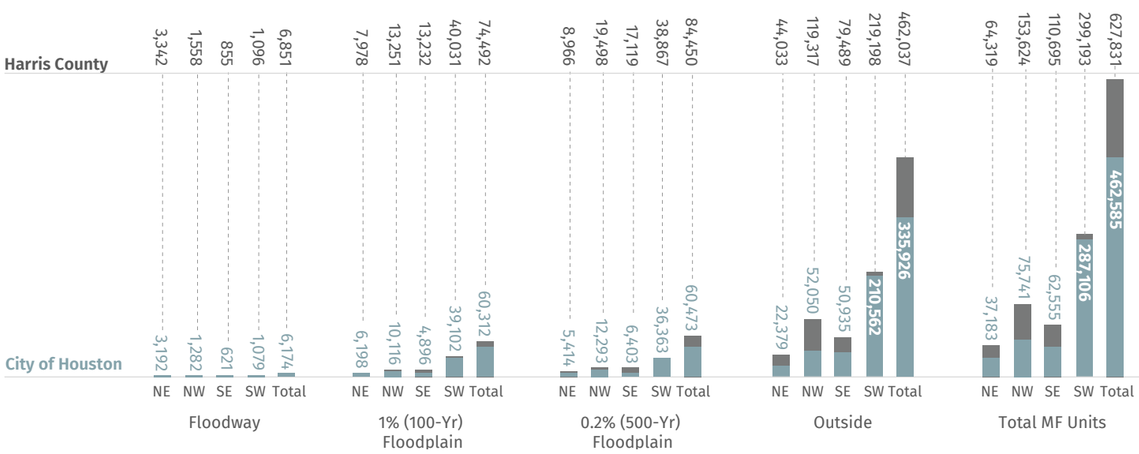
City of Houston. More than half of these units are in the Greenspoint Super Neighborhood. About 76 percent of the multi-family units within the floodway, the 100-year floodplain, or the 500-year floodplain are within the City of Houston. The graph below illustrates the flood risks for multi-family units in the City of Houston and Harris County broken down by quadrant and floodplain.

According to estimates based on FEMA inundation models, Hurricane Harvey impacted 806 apartment complexes containing more than 71,806 units. This equates to 12 percent of all the multi-family units in the county. The majority of units estimated to have been damaged by flooding from Hurricane Harvey, as a percent of total units, are in the northwest and southwest quadrants. However, 24 percent of all multi-family units in the northeast quadrant of Harris County are estimated to have been damaged by flooding. The graph on page 23 illustrates the estimated number of multi-family apartments that were flooded during Hurricane Harvey by quadrant and floodplain classification.

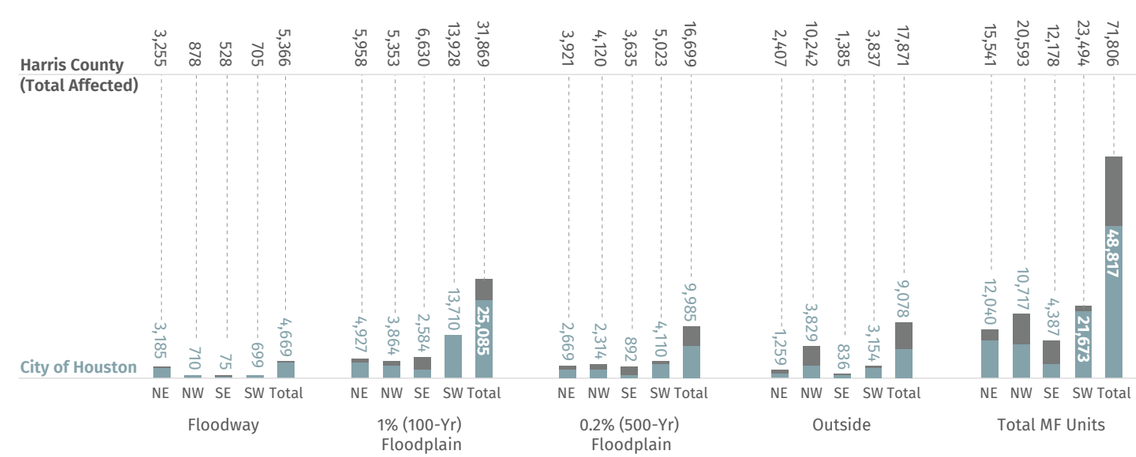
Following Hurricane Harvey, the City of Houston estimated that most of the overall damage, including that to single-family homes, happened outside of the mapped floodplains due to localized flooding.[26] To account for this reality, many local and federal authorities anticipate that the current 500-year floodplain will become the 100-year floodplain with the next iteration of flood maps. This update will bring 84,450 multi-family units into the 100-year floodplain and classify several thousand more as a part of the 500-year floodplain.

To further understand the flood risks to multi-family housing, the block groups where more than 50 percent of multi-family units were within the floodway or the 100- or 500-year floodplain were identified. The map on page 23 illustrates the 394 census block groups where more than

Block Groups with 50% of Multi-Family Housing in a Flood Hazard Area
Source: Kinder Institute for Urban Research



Multi-Family Units in Flood Risk Areas by Quadrant for Harris County and Houston
Source: HCAD 2017 Public Data
**Note: There is a discrepancy between the number of multi-family units in Harris County as calculated using HCAD Public Data and American Community Survey data from the US Census Bureau*



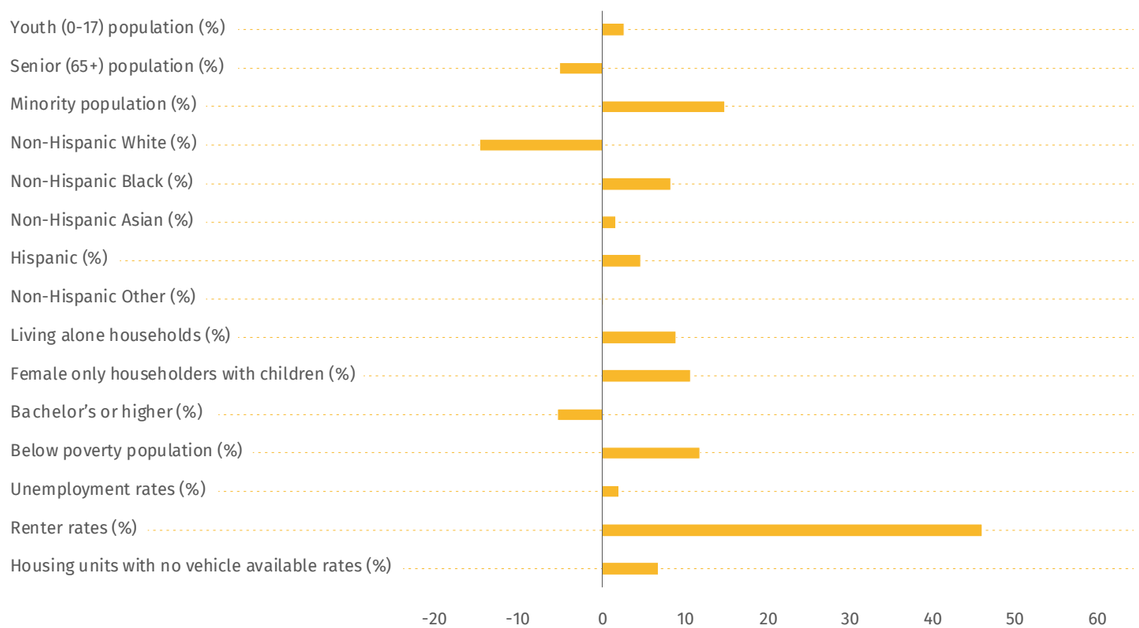
Estimated Multi-Family Units Impacted by Flooding by Quadrant and Flood Risk Area for Harris County and Houston
Sources: HCAD 2017 Public Data, FEMA Inundation Estimates

50 percent of the multi-family buildings are within a flood risk area. Collectively there are 155,146 multi-family units in the 394 census block groups.

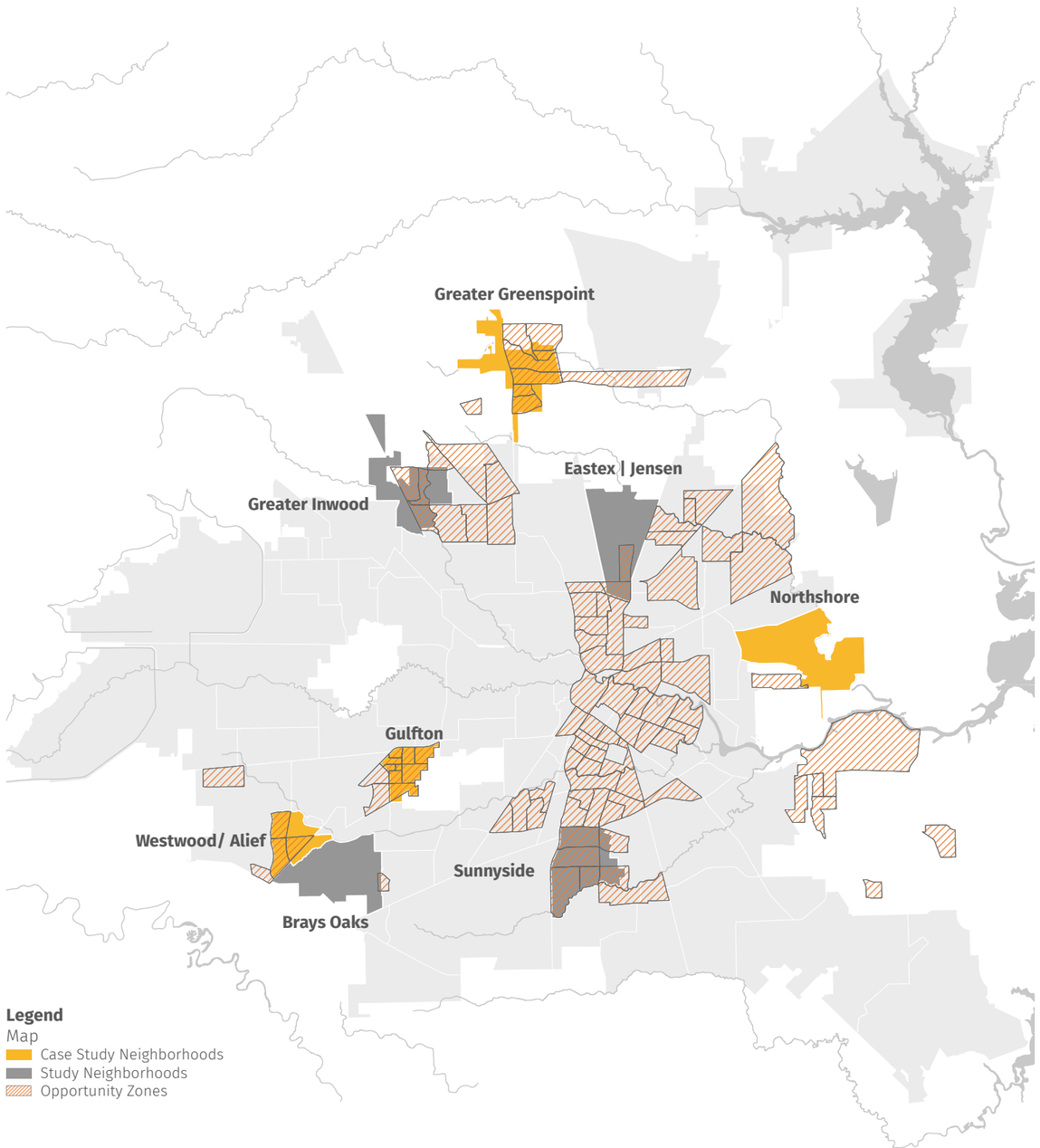
In order to identify the census block groups with the most multi-family units vulnerable to flood-risk, the previous three maps are combined in the map to the right. The 104 census block groups identified from this layering each have a housing stock that consists of more than 75 percent multi-family, are in the top quartile for overall multi-family units, and have more than 50 percent of their multi-family units within the current 500-year floodplain. Within these 104 census block groups, there are 88,279 multi-family units.

The demographic composition of the residents within these 104 block groups makes it clear that the residents concentrated in flood-vulnerable multi-family units are, on average, far more economically disadvantaged and more likely to have additional vulnerabilities. The chart on page 24 shows the average difference between residents in the at-risk multi-family heavy areas and those outside of these areas. In general, the population in these block groups tends to consist of more non-white residents, who have lower incomes, less education, and a lower rate of car ownership than residents in the remaining census block groups in Harris County. All of these are indicators of additional vulnerabilities.

Block Groups with a Concentration of Multi-Family Housing in a Flood Hazard Area
Source: Kinder Institute for Urban Research



Block Group Demographics for Areas with a Concentration of Multi-Family Housing and Flood Hazard Areas
Source: Kinder Institute for Urban Research , 2017 ACS (5 year estimates)



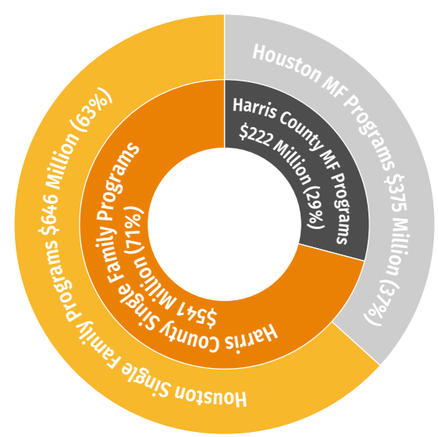
SCALING the STUDY

Overview of Study Areas

Affordable multi-family housing across Houston and Harris County is at a crisis point. The case studies provide a closer look at how the affordable housing crisis and flood risk are colliding in the region, and what the potential strategies are to alleviate the crisis. While county and city-wide data are essential to conceptualizing the overall risk confronted by the region, the case studies provide an opportunity to understand what this risk means at the neighborhood and family scale.

Eight study areas were identified based on concentrations of affordable multi-family housing and the impact of Hurricane Harvey across the region. The study areas include Greenspoint, Gulfton, Northshore, Westwood/Alief, Brays Oaks, Eastex/Jensen, Greater Inwood, and Sunnyside (see map page 26).

The study areas provided an opportunity to develop a greater understanding of the location and types of affordable multi-family housing across the region, while also providing an opportunity to understand the risks and challenges to protecting, preserving, and constructing new affordable multi-family housing in the city and county.



City of Houston and Harris County Hurricane Harvey CDBG-DR Proposed Fund Distribution for Direct Housing Assistance
Source: Houston Local Action Plan 2018; Harris County Action Plan 2018

The City of Houston Housing and Community Development Department (HCDD) has received just over $1 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) funding to support Hurricane Harvey housing recovery as of early 2019. The budget for direct housing assistance developed by HCDD provides for 63 percent of the funds to support homeowners and other single-family programs, and 37 percent of the funds for multi-family programs. Approximately $375 million will be targeted to new affordable multi-family construction, the acquisition or rehabilitation of damaged multi-family units, and strategic land acquisition for multi-family development. At a minimum, 70 percent of the CDBG-DR funds must be spent in low- to moderate-income areas.

Harris County Community Services Department (CSD) has also received federal dollars from the CDBG-DR program to support housing recovery following Hurricane Harvey. Of the $763 million allocated for housing, the County has budgeted $541 million for single-family home repair, reimbursement, and new construction; and $222 million for multi-family programs.

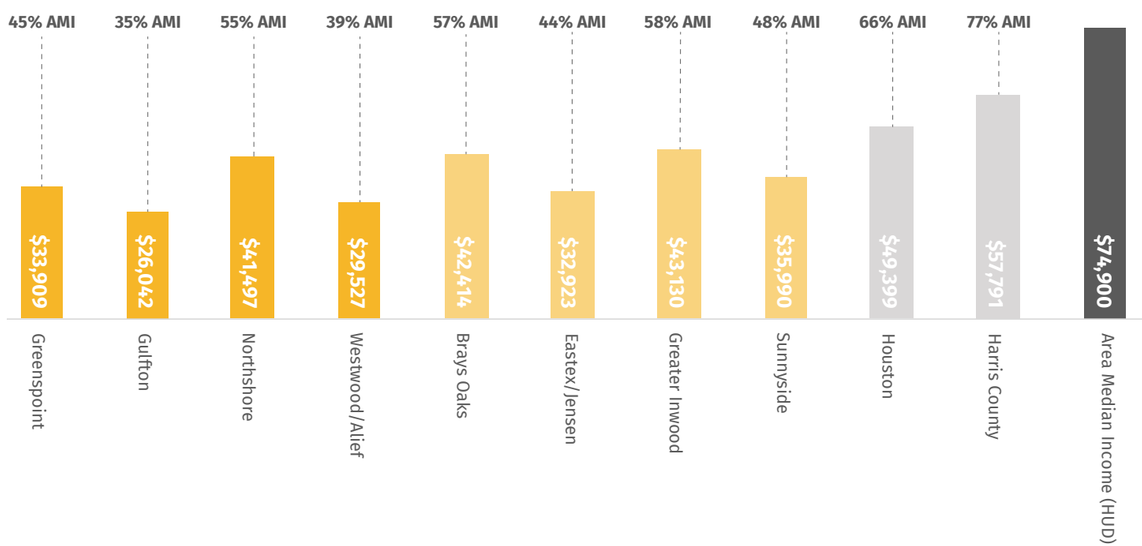
Opportunity Zones, created through the federal Tax Cuts and Jobs Act in 2017, are intended to spark investment in distressed communities across the country. Specifically, new investments in Opportunity Zones can receive preferential tax treatment. Sections of the study areas encompassing Eastex/Jensen, Greater Greenspoint, Greater Inwood, Gulfton, Sunnyside, and Westwood/Alief are located in certified Opportunity Zones. The Brays Oaks and Northshore study areas are outside of Opportunity Zones. This program could shape investment in multi-family housing over the coming years.

Recovery funds received by the City through the CDBG-DR program must meet three national objectives: benefit low- and moderate-income persons (80 percent of AMI); prevent or eliminate slum or blight through buyout or acquisition with demolition; and/or meet an urgent need by providing housing assistance to applicants making in excess of 80 percent of the AMI. The average median household income in the eight study areas is just under $36,000, or 48 percent of the AMI established by HUD for Harris County, which is $74,900.

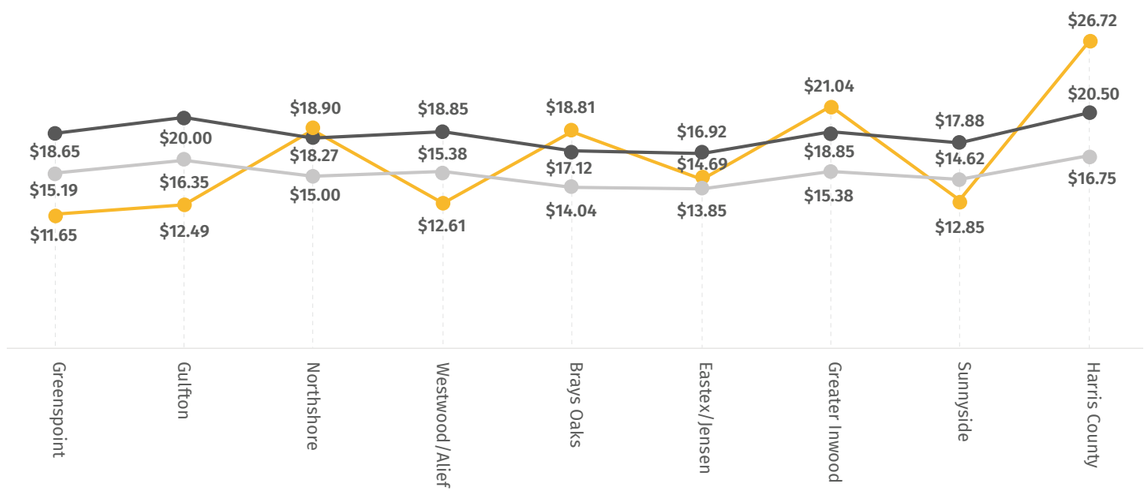
To further illustrate the needs in the eight study areas, data compiled each year by the National Low Income Housing Coalition (NLIHC) was analyzed. The data includes fair market rents for one and two-bedroom apartments by zip code and the required hourly wage to afford these apartments. Using this data, combined with median hourly wage by case study area calculated from the 2016 American Community Survey, we compared the ability of residents to pay for rent and the housing wage required in that same area (this data is based on 30 percent of income spent for housing).

The largest gaps between median hourly wage and the housing wage needed to afford fair market rent were in Greenspoint and Gulfton. In Greenspoint, families need to take home an additional $7 per hour to afford fair market rent in the neighborhood, and in Gulfton, an additional $7.50 per hour is needed. In these study areas the median hourly wage is approximately 60 percent of what is required to afford an apartment at fair market rent.

In contrast, three study areas have median wages that are higher than the needed hourly wage to afford fair market rent. These areas include Brays Oaks, Northshore, and Greater Inwood. In these three study areas housing costs are lower than in Gulfton, and in two of the areas housing costs are lower than in Greenspoint, while income is higher.



Median Household Income by Study Area Compared to AMI (HUD Area Median Income of $74,900)
Sources: ACS 2016, HUD User Data, 2017



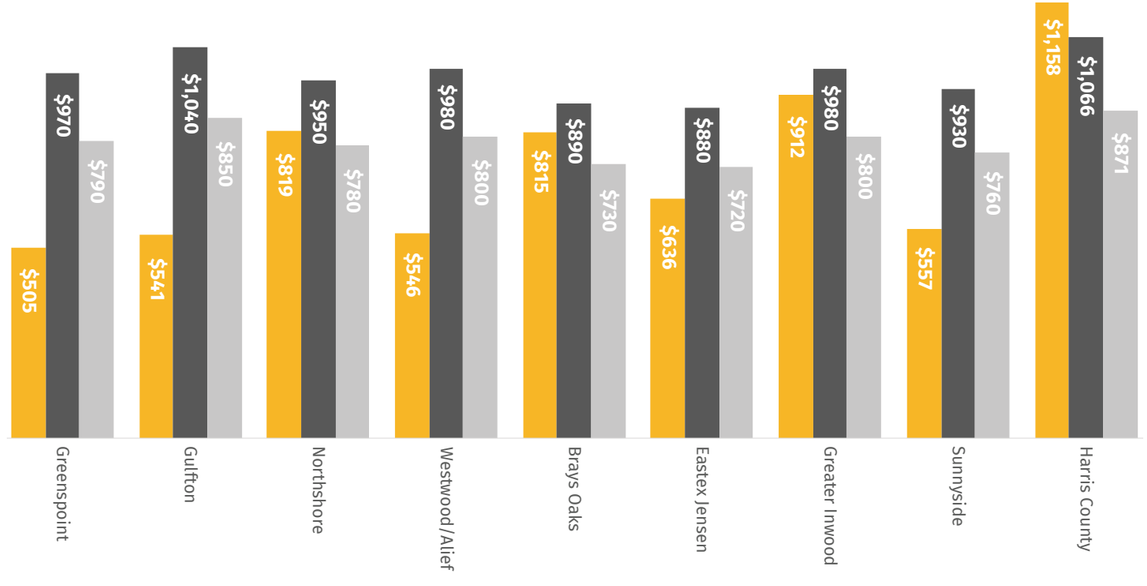
Median Wage Compared to Fair Market Housing Wage (Based on 30% of income spent on housing)
Median Hourly Wage Based on Median HH Income
Housing Wage 2BR (NLIHC)
Housing Wage 1BR (NLIHC)
Sources: ACS 2016, National Low Income Housing Coalition (NLIHC)

While fair market rent in Gulfton could reflect locational advantages, such as high quality transit, access to employment, and educational opportunities, the housing costs in Greenspoint and Westwood/Alief are difficult to understand in comparison to neighborhoods where housing is substantially more affordable, such as Brays Oaks and Eastex/Jensen.

Compared to the median hourly wage in the eight study areas, calculated using median household income, the Harris County median hourly wage is significantly higher, as is median household income. In 2016, the median wage in Greenspoint, Gulfton, Westwood/Alief and Sunnyside was less than half of what it was in Harris County.

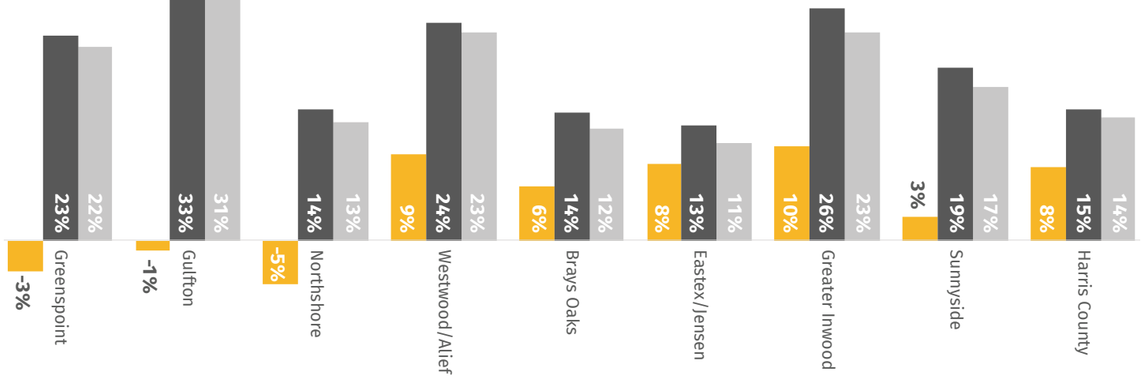
As the average median income in our study areas is low compared to the AMI established by HUD for Harris County, we also analyzed the amount families could afford to pay based on 25 percent of their annual income. This is important, as for families with higher incomes paying 30 percent for housing is appropriate, for families at the lower end of the income scale, spending 25 percent of income for housing will more likely ensure a stable and thriving household.

As illustrated in the chart below, there is a significant gap between affordable monthly rent for families in each study area and fair market rent for a one or two-bedroom apartment from the National Low Income Housing Coalition. In Gulfton, income is nearly half of what is required to afford fair market rent on a two-bedroom apartment in that zip code. In fact, there is not a single study area where fair market rent on a two-bedroom apartment is within the reach of families that live in that area, based on median household income.



Affordable Rent Compared to Fair Market Rent (Based on 25% of income spent on housing)
Affordable Monthly Rent Based on Median HH Income
Fair Market Monthly Rent 2BR (NLIHC)
Fair Market Monthly Rent 1BR (NLIHC)
Sources: ACS 2016 (5 Year), National Low Income Housing Coalition

Further, between 2011 and 2018 rents have steadily increased, while income has only grown slightly or actually declined in the individual study areas. Overall, median income increased by three percent across the eight study areas, while rents increased by 21 percent between 2011 and 2018. The result is that area housing is increasingly out of reach for families. Displacement is likely to occur in the areas where rents are increasing the most, and where median incomes are stagnant or declining. In Gulfton, for example, fair market rent on a two-bedroom apartment increased by 33 percent between 2011 and 2018 while median income declined by one percent. In Greenspoint, rents increased by 23 percent while income declined by three percent. Across every study area rents are rising far faster than median household income.

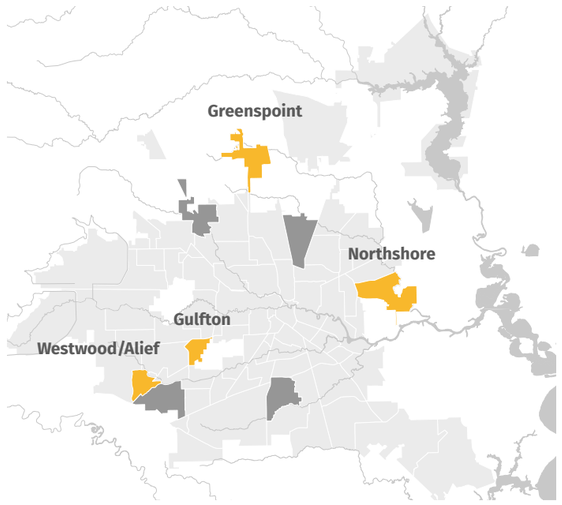


2011-2018 Change in Affordable Rent vs. Fair Market Rent (Based on 25% of income spent on housing)
Change in Affordable Monthly Rent Based on Median HH Income
Change in Fair Market Monthly Rent 2BR (NLIHC)
Change in Fair Market Monthly Rent 1BR (NLIHC)
Sources: ACS 2016 (5 Year), National Low Income Housing Coalition

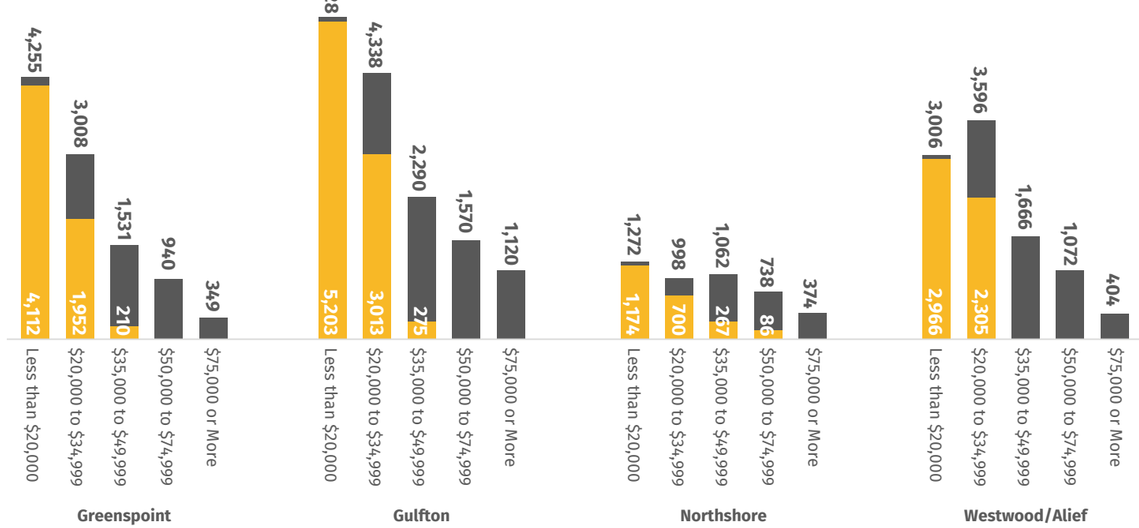
CASE STUDIES

Four of the eight study areas were identified for further analysis: Greenspoint; Gulfton; Northshore; and Westwood/Alief. These four areas have been studied in-depth to identify the current conditions, including the quality and condition of affordable units, the risk of unit loss through flooding, demolition or other factors, and the potential to preserve this housing and maintain affordability over the long term.

Combined, these four neighborhoods have a total of 46,063 multi-family apartments in buildings with five or more units, representing 14 percent of the 328,939 rental units in buildings with five or more units in the City of Houston according to data from the 2016 American Community Survey.



Map of Case Study Areas



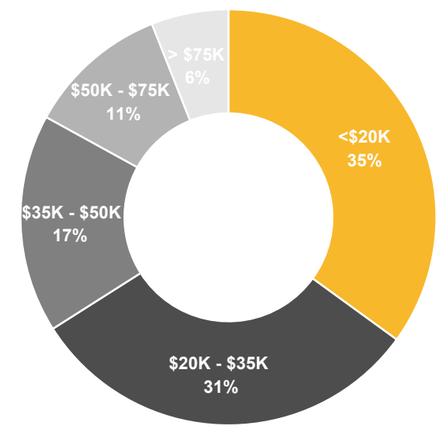
Housing Cost Burden for Renter Households 2016 (Case Study Areas)
Cost Burdened Households
All Households
Source: ACS 2016 (5-Yr)

Affordability
In the four case study areas, 58 percent of renters spent more than 30 percent of their income on housing in 2016. In Harris County, 50 percent of renters spent more than 30 percent of their income on housing in the same year. In these areas, renters making less that $20,000 per year in 2016 comprised the largest proportion of all renters, at 35 percent. In fact, two-thirds of all renters across the four case studies made less than $35,000 a year in 2016. A family making $35,000 a year can afford $875 for monthly rent at 30 percent of their gross income. Fair market rent in the greater Houston region was $1,066 per month in 2018. Fair market rents are calculated by HUD using a variety of local data points and are used to set payment standards for federal subsidy programs.

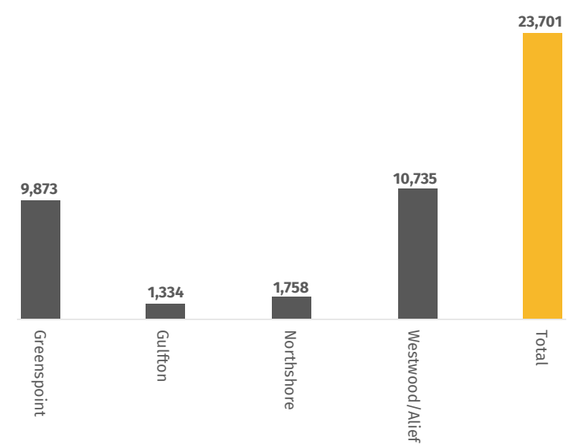
Further, across the four case study areas the average rent that families can afford is $603 per month, based on 2016 median household income. In contrast, the average fair market rent in these four areas was $805 per month for a one-bedroom apartment and $985 per month for a two-bedroom apartment (per the NLIHC). The impact is that many families are making choices between housing and other necessities, such as food, healthcare, or medicine.

Of the 46,063 units in the four case study areas, 11,571 are in a floodplain, representing 26 percent of the total units. While approximately half of these units can be assumed to be on the second floor, and not individually susceptible to flooding, families occupying these units still face potential loss and displacement in a flood. Further, the newly adopted floodplain ordinance impacts all structures in a floodplain, thus all 11,571 of the multi-family units could be at risk in the case of another major flood event. More specifically, if multi-family buildings are significantly damaged in another flood, Chapter 19 will trigger the need to elevate the structures out of the floodplain. This scenario will likely lead to the demolition of additional multi-family buildings.

Following the 2016 Tax Day Flood, Rebecca Elliot reported in the *Houston Chronicle* that 1,943 multi-family units in Greenspoint had flooded. According to data from the Harris County Appraisal District (HCAD), 1,395 units have been renovated since this time, or 72 percent of inundated units. What has happened to the additional units in Greenspoint that experienced flood damage is unclear, but anecdotal reports of mold and other health



Renters by Income Bracket 2016 (Case Study Areas)
Source: ACS 2016 (5-Yr)



Multi-Family Units in the Floodplain (Case Study Areas)
Sources: Kinder Institute for Urban Research FEMA Estimates, HCAD 2017 Public Data

concerns in flooded rental properties are emerging across the city and county post-Harvey.

The four case study neighborhoods contain 3,162 units subsidized through the LIHTC program and 487 HUD-subsidized units, totaling 3,649 low income units, which is approximately eight percent of the total. Arbor Court in Greenspoint and Coolwood Oaks in Northshore, both HUD subsidized complexes, were substantially flooded during Hurricane Harvey. Combined, these complexes contain 400 units, and in each development the ground floor apartments remain damaged as of March 2019. Based on available data provided by HUD, 25 percent of the subsidized units are at risk of expiring by 2020, or a total of 910 units.

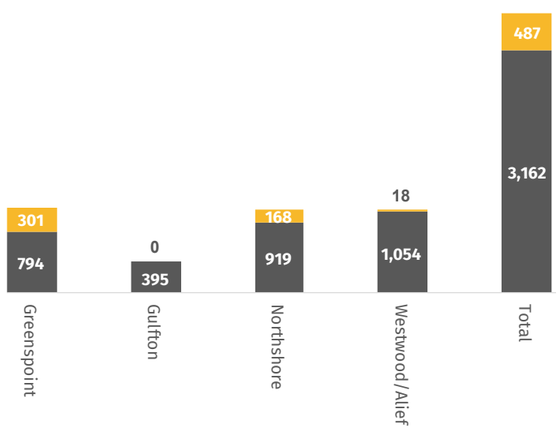
Eviction data provided by January Advisors for the four case study areas covering 2014 to 2018 indicate a higher eviction rate than in Harris County overall, at 16 percent compared to 13 percent in 2018, and an overall increase since Hurricane Harvey. Eviction rates in Greenspoint doubled between 2014 and 2018. In comparison, eviction rates in Westwood/Alief declined by 55 percent.

Multi-Family Structures: Age and Condition

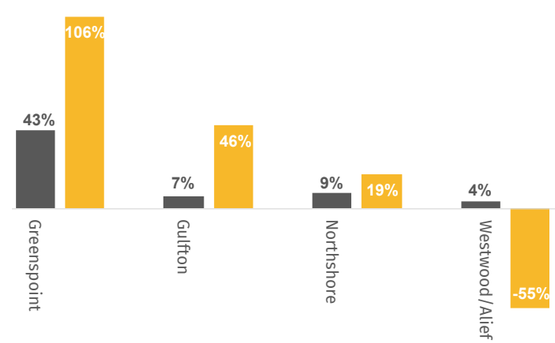
Across the four case study neighborhoods, 89 percent of all multi-family units were constructed between 1960 and 1989, with 51 percent of units constructed between 1970 and 1979, 16 percent built between 1960 and 1969 and 22 percent built between 1980 and 1989 (per 2018 HCAD public data). Apartments built in this era are experiencing the highest rates of demolitions, losing 0.4 percent of the existing units per year.(based on the number of multi-family units in 1990 compared to 2017). If this trend continues, the combined case study neighborhoods could lose over 150 units each year to demolition.

HCAD public data provides a structural assessment for all residential properties, including multi-family. The assessment is provided in grades, from A to D, with A representing high quality properties and D representing distressed properties. Based on this data for 2018, the quality of the apartments in the four case study areas range from a B to a D (this rating is distinct from the rating of apartments into classes and submarkets, which is a bell curve of rents). More specifically, 940 units, or two percent, are B Grade; 37,517, or 81 percent, are C Grade; and 7,606, or 17 percent, are D Grade.

Based on HCAD 2018 public data 3,908 multi-family units, or eight percent of the total in the four case study neighborhoods, have undergone renovations since being built. In Greenspoint, an area at high risk for flooding, 17 percent of all multi-family units have been renovated; 10 percent in Westwood/Alief; four percent in Northshore; and 0.1 percent in Gulfton. Renovation data, while incomplete, provides insight into the conditions of case study area apartment structures, and these conditions impact the chances for preserving the housing into the future. Identifying strategies for rehabilitation and renovation are important to protect this affordable housing.



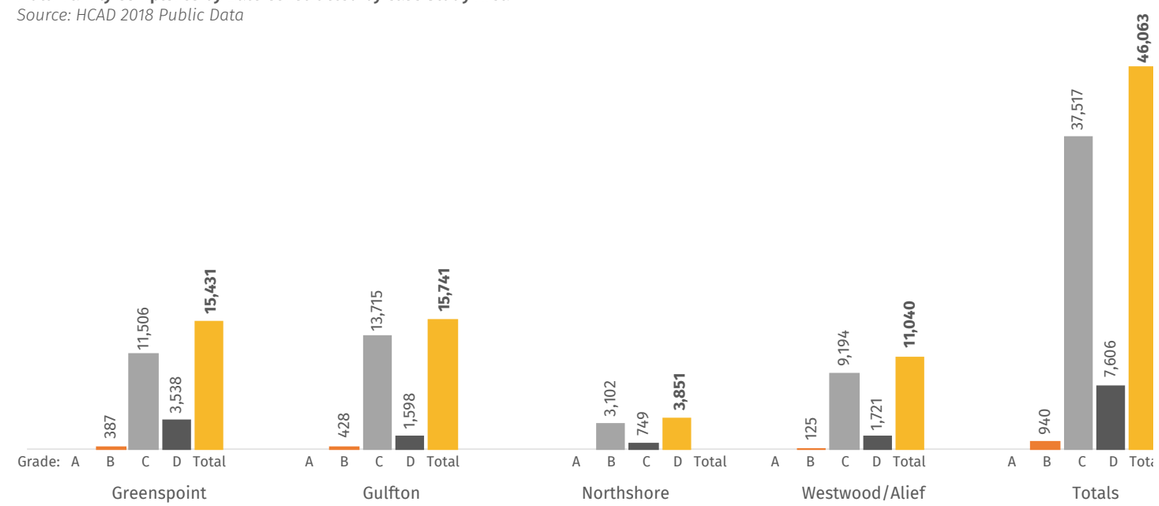
Low Income Housing Tax Credit and HUD Subsidized Units
HUD Subsidized Units
Low Income Housing Tax Credit Units
Source: Kinder Institute for Urban Research



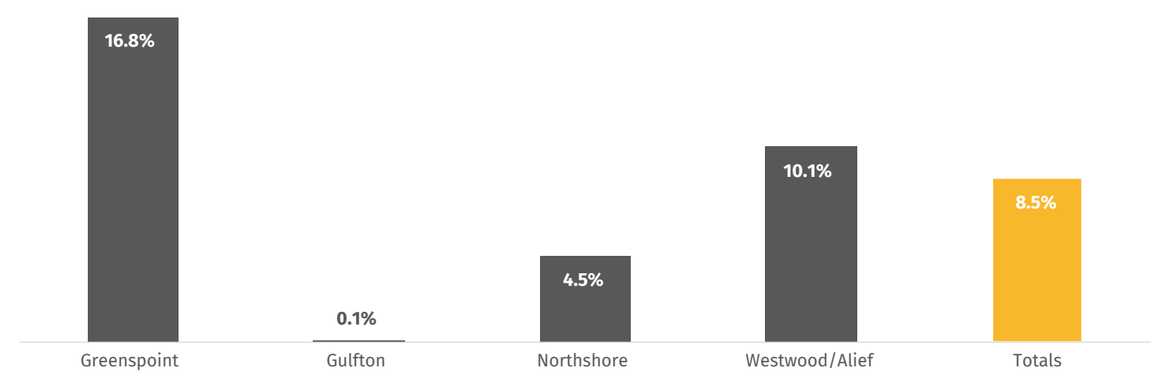
Eviction Data by Case Study Area
Eviction Rate per Rental Units, 2018
Change in Eviction Rate, 2014-2018
Source: January Advisors

Date Built	Greenspoint	Gulfton	Northshore	Westwood/Alief	Total	Percent
Before 1960	1	2	5	0	**8**	3%
1960-1969	1	37	3	0	**41**	16%
1970-1979	40	35	15	40	**130**	51%
1980-1989	30	3	1	21	**55**	22%
1990-1999	0	0	5	1	**6**	2%
2000-2009	6	2	3	4	**15**	6%
2010 or Later	0	0	0	0	**0**	0%
Total Complexes:	**78**	**79**	**32**	**66**	**255**	

Multi-Family Complexes by Date Constructed by Case Study Area
Source: HCAD 2018 Public Data



Multi-Family Units by Grade by Case Study Area
Source: HCAD 2018 Public Data



Percent of Multi-Family Units Renovated by Case Study Area
Source: HCAD 2018 Public Data

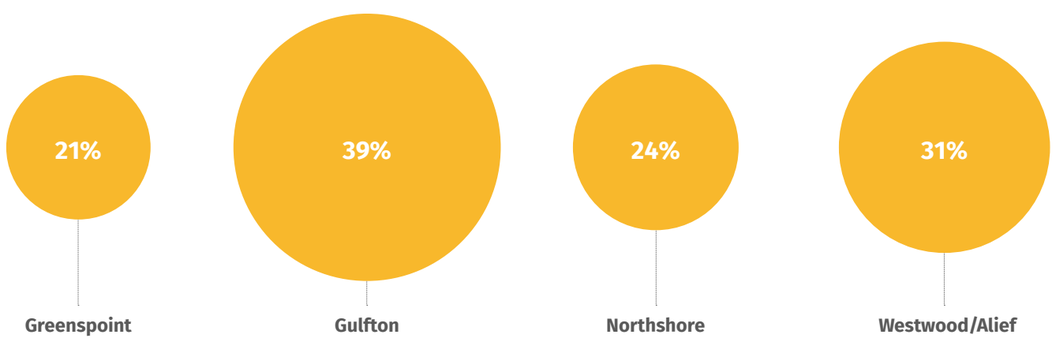
Property Valuation and Displacement
Rising property values and appraisals can impact the stability of a neighborhood and future investment. Across the four case study areas, HCAD values for multi-family complexes increased by 15 percent between 2017 and 2018, even while appraised values in Harris County are typically far below market value. The most significant increase occurred for multi-family complexes in Greenspoint, where total appraised values rose 19 percent in a single year. The increase in appraisal values in the four case study areas will increase the tax burdens for owners, and will likely increase rents.

Further, an analysis of appraised land value versus the value of buildings or improvements, based on HCAD data, was conducted for each case study area. The Gulfton neighborhood has the highest appraised land values relative to the value of buildings and improvements. In Gulfton, appraised land values are 39 percent of the total appraised value of the property. Demolition and gentrification are frequently triggered by escalating land values.

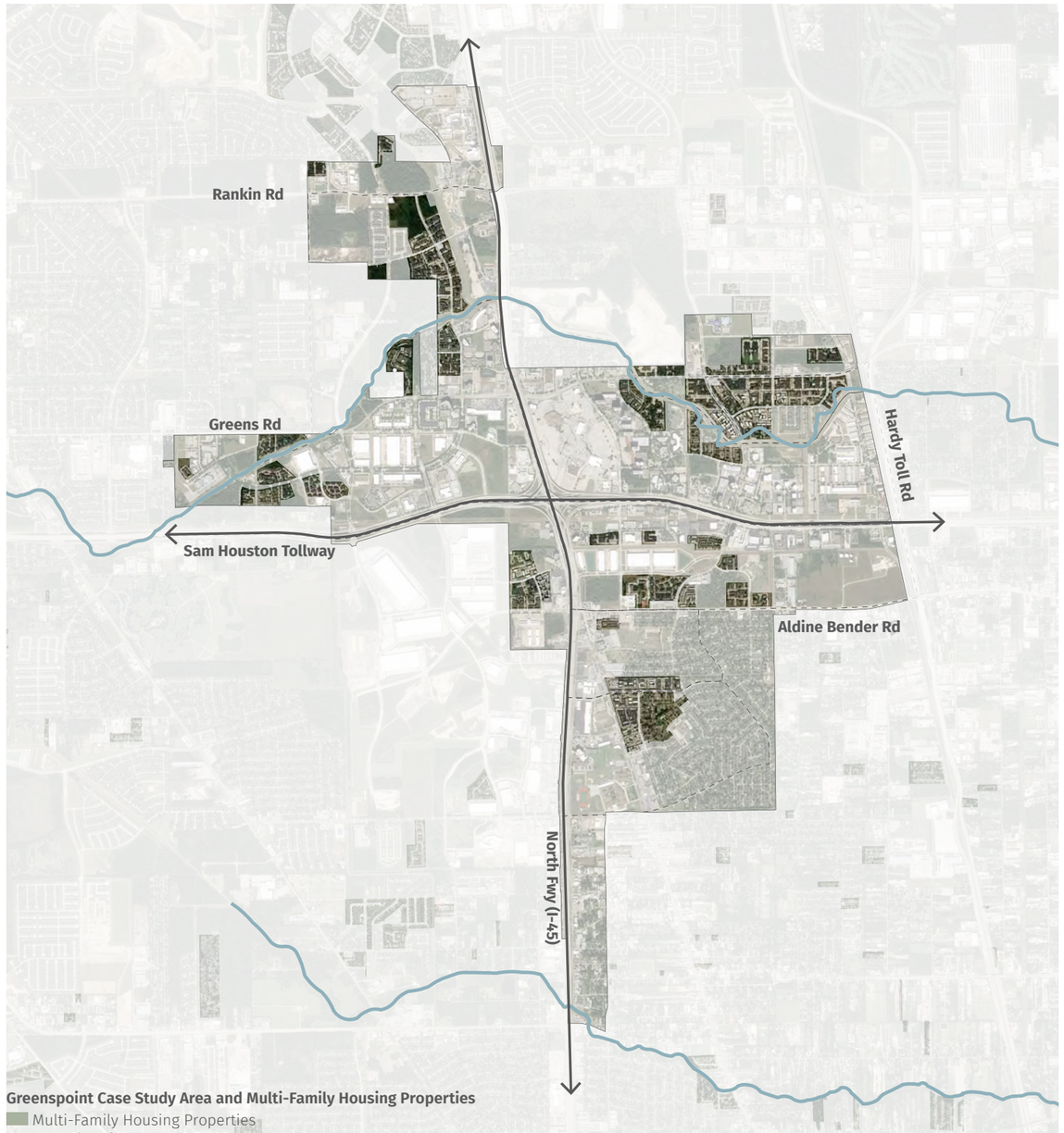
An important goal of this analysis is to identify strategies to protect, preserve, and incentivize new affordable multi-family housing to create greater stability for families. Increasing the understanding of the current need for, and risks to, affordable multi-family housing is explored in detail for each of the four case study neighborhoods in the sections that follow.

Neighborhood	Land Value	Property Value	Total Appraised Value	% Change (2017-2018)
Greenspoint	$ 81,066,689	$ 311,396,794	$ 392,891,181	19%
Gulfton	$ 215,556,308	$ 340,628,019	$ 556,209,125	12%
Northshore	$ 21,200,931	$ 79,054,410	$ 100,621,428	14%
Westwood/Alief	$ 95,284,590	$ 263,351,639	$ 358,911,616	16%
Total	$ 413,108,518	$ 994,430,862	$ 1,408,633,350	15%

2018 Appraisal Data for Multi-Family Properties by Case Study Area
Source: HCAD 2018 Public Data



Land Value as a Percent of Total Appraised Value for Multi-Family Properties
Source: HCAD 2018 Public Data



Greenspoint Case Study Area and Multi-Family Housing Properties

Multi-Family Housing Properties

Sources: City of Houston GIS, HCAD

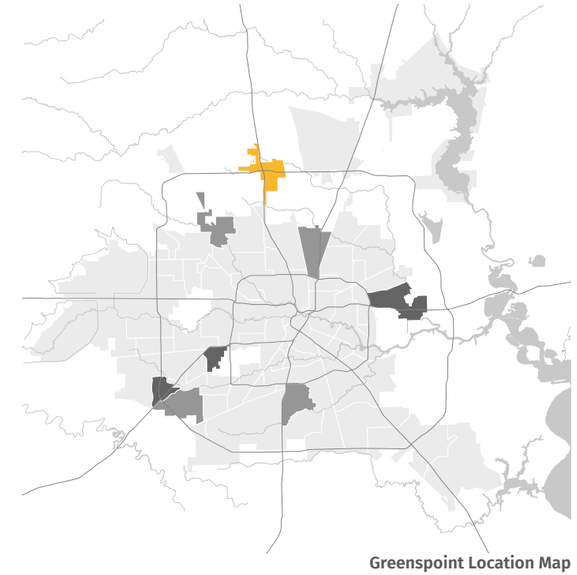
CASE STUDY: Greenspoint

Introduction

The Greenspoint Super Neighborhood is located in north Houston, bounded by the Hardy Toll Road on the east, and bisected by the North Freeway (I-45) and the North Sam Houston Tollway (Beltway 8). The neighborhood is divided into quadrants by the North Freeway and the Beltway, which simultaneously connect the area to the city and divides the area's neighborhoods.

In 2016, the Greenspoint neighborhood was mainly comprised of renters, at 88 percent of all households. In the same year, 61 percent of area renters were cost burdened, paying 30 percent or more of their income on housing, which is well above the 50 percent of renters cost burdened in Harris County.

In 2016, Greenspoint had 11,963 multi-family units distributed across 68 separate properties with 48 different owners. In Greenspoint, AMG Cityview owns 3,595 units, which is about a quarter of the units in the area. Approximately 20 percent, or 3,041 of the total units, were flooded during Hurricane Harvey. Major flooding has impacted area apartments four times since 2001, including during Tropical Storm Allison, the Tax Day Flood in 2016, and Hurricane Harvey in 2017. Over 3,000 units are in the floodway, creating a constant risk of flooding. Many of the multi-family properties were built in the 1970s and are in need of renovation.



Greenspoint Location Map

Greenspoint Multi-Family Housing, Photo

	Greenspoint			Houston		
	2000	**2010**	**2016**	**2000**	**2010**	**2016**
PEOPLE	30,127	33,549	34,535	1,953,631	2,068,026	2,240,582
Population Change		11%	3%		6%	8%
Population Density (per Sq Mile)	5,080	5,616	5,785	3,372	3,449	3,737
Age						
17 Years or Younger	34%	37%	37%	28%	26%	26%
18 - 64 Years Old	64%	60%	59%	64%	65%	66%
65 Years or Older	2%	3%	4%	8%	9%	8%
Race / Ethnicity						
White	10%	4%	5%	31%	26%	26%
Black or African American	34%	30%	28%	25%	23%	23%
Asian	1%	1%	1%	5%	6%	6%
Hispanic or Latino	54%	65%	65%	37%	44%	44%
Other	1%	0%	1%	2%	2%	1%
Place of Birth						
Born Outside the U.S.	36%	38%	34%	26%	29%	29%
Educational Attainment 25 Years +						
Less Than High School	45%	46%	45%	30%	26%	24%
High School Graduate (includes equivalency)	28%	31%	28%	20%	22%	22%
Some college	20%	18%	22%	23%	24%	24%
Bachelor's degree	5%	4%	4%	17%	17%	18%
Master's degree	1%	1%	1%	6%	7%	8%
Professional and Doctorate Degrees	1%	0%	0%	4%	4%	4%
Median Household Income	$25,874	$25,110	$24,238	$36,616	$44,124	$47,010
Percent of Houston's Median	71%	57%	52%			
Percent of Population Below Poverty	23%	41%	43%	19%	18%	19%
Means of Transportation to Work						
Drove Alone	62%	61%	70%	72%	74%	76%
Carpooled	23%	20%	11%	16%	14%	12%
Public Transportation	7%	8%	7%	6%	5%	4%
Bicycled and Walked	4%	2%	3%	3%	3%	3%
Other	2%	9%	8%	1%	2%	2%
Households without access to a vehicle	16%	22%	16%	12%	10%	9%

**Sources: Census 2000, ACS 2010, ACS 2016*

Demographic and Neighborhood Overview

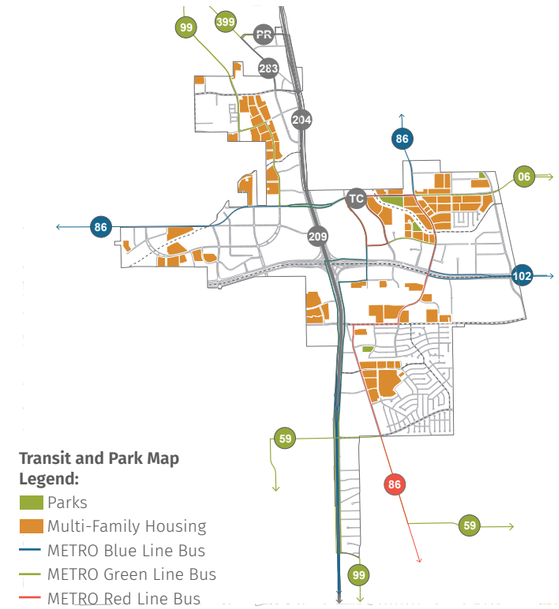
A demographic overview of the Greenspoint neighborhood provides insight into how the neighborhood has changed since 2000. Greenspoint is six square miles in area and was home to 34,535 people in 2016. Between 2000 and 2016, the neighborhood's population increased by 14 percent. The neighborhood has a high population density, which is directly related to it having one of the largest concentrations of multi-family housing in Houston. Overall, the Greenspoint population density was approximately 5,785 people per square mile in 2016, 50 percent higher than Houston's average population density of 3,737 people per square mile.

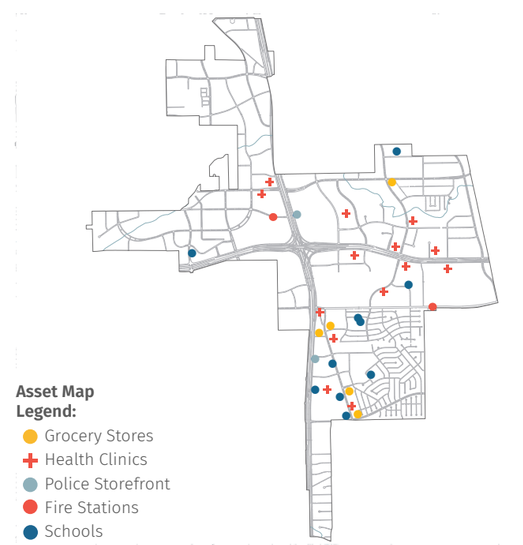
In 1990, the Greenspoint neighborhood was nearly equally divided in the percent of residents who were Hispanic or Latino, Black or African American and White. Over the last several decades this equal distribution has changed. In 2016, the neighborhood was predominantly Hispanic or Latino at 65 percent. In the same year, Black or African American residents comprised 28 percent of the population, White five percent, and Asian or other race one percent.

Since the 1990s, when families replaced young professionals in the area's apartments, the number of residents under the age of 18 increased from 7,125 in 1990 to 12,675 in 2016. Residents under the age of 18 comprised 37 percent of the area's population in 2016.

The primary means of transportation to work is driving alone or carpooling. In 2016, seven percent of residents biked, walked, or rode public transit. In the same year, the percentage of households without access to a vehicle was 16 percent, a number nearly twice as high as Houston overall, at nine percent. The neighborhood is well served by transit, with a variety of transit lines (see map to the right). In addition to this, the METRONext vision plan identifies Greens Road as the route for the extension of the Red Line light rail, connecting downtown Houston to George Bush Intercontinental Airport.

The Greenspoint neighborhood is served by the Aldine Independent School District, which has six schools in the area. There are also two charter schools. There are five grocery stores in the area, all of which are located in the southern portion of the neighborhood, and fourteen health clinics. The northeast portion of the neighborhood, where most apartments are located, is a food desert.[26]





	Tract 2225.01	Tract 2225.03	Tract 2226	Tract 2401	Tract 2405.02	Tract 5501	Tract 5502	
Socioeconomic Vulnerability								
Persons below poverty	●	●	●	●	●	●	●	*Income and poverty impact a family's capacity to prepare for, react to and recover from a disaster*
Civilian (age 16+) unemployed	○	○	○	○	○	○	○	
Per capita income	●	●	●	●	●	●	●	
Persons (age 25+) with no H.S. diploma	●	●	●	●	●	●	○	
Household Vulnerability								
Persons aged 65 and older	○	○	○	○	○	○	○	*Seniors, children and single parents are more vulnerable to a disaster than other population groups*
Persons aged 17 and younger	●	●	●	●	○	●	●	
Civilian non institutionalized population with a disability	○	○	○	○	○	○	○	
Single parent household with children under 18	●	●	●	●	●	●	●	
Minority Status and Language Vulnerability								
Minority (all persons except white, non-Hispanic)	●	●	●	●	●	●	●	*Access to information can be a challenge for those with language barriers*
Persons (age 5+) who speak English "less than well"	●	●	●	●	●	●	○	
Housing and Transportation Vulnerability								
Housing in structures with 10 or more units	●	○	●	●	●	●	●	*Access to transportation and quality housing that is outside of designated risk zones reduces vulnerability*
Mobile homes estimate	○	○	○	○	○	○	○	
At household level, more people than rooms	●	●	○	●	○	●	●	
Households with no vehicle available	○	○	○	○	○	○	●	
Persons in institutionalized group quarters	○	○	○	○	○	○	○	
Overall Social Vulnerability	●	●	○	●	○	●	○	
Vulnerability ranking	92%	94%	88%	91%	89%	97%	89%	
(Top 25% indicates social vulnerability)								

Social Vulnerability Index

- ● Tracts in the top 10%, or at the 90th percentile (Indicate high vulnerability)
- ○ Tracts below the 90th percentile
- ▬ Tracts with High Vulnerability and High Concentration of Multi-Family Housing

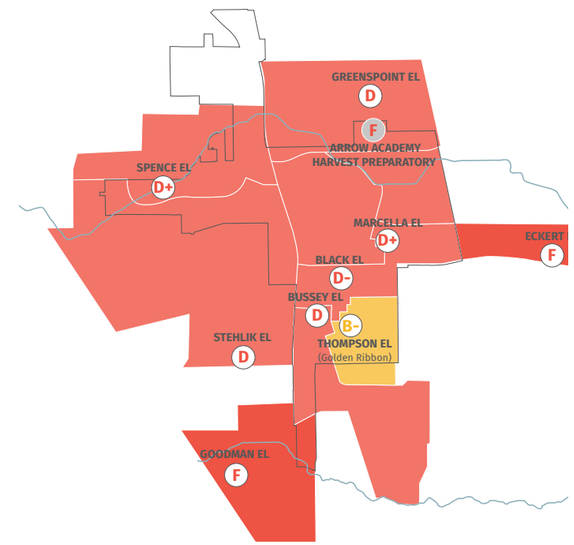
Source: Social Vulnerability Index (2014), https://svi.cdc.gov/map.aspx

The Greenspoint neighborhood has a very high Social Vulnerability Index, as defined by the U.S. Centers for Disease Control and Prevention (CDC) utilizing 2014 Census data. Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, including natural or human-caused disasters. The social vulnerability index is the "degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households."

The Greenspoint Super Neighborhood includes seven Census tracts: 2225.01, 2225.03, 2226, 2401, 2405.02, 5501, and 5502. An analysis of the specific social vulnerabilities is provided in the table on page 42. Five area Census tracts are in the highest vulnerability category, averaging 91 percent compared to tracts across the United States.

One of the most important indicators of resiliency is low poverty rates. In 2016, 43 percent of Greenspoint area families lived on incomes below the federal poverty level, this was more than double the poverty rate for families in Houston, which was 19 percent in the same year. Compounding the economic stress on families, 40 percent of renter households were headed by single parents.

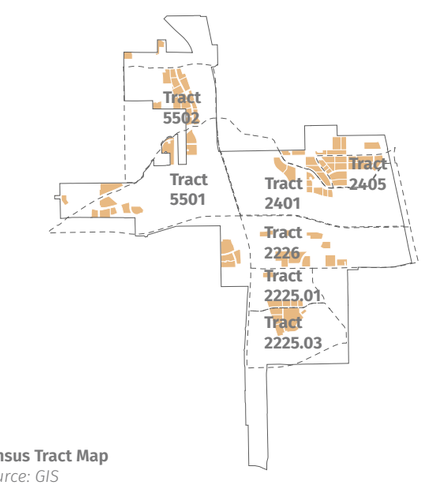
In 2016, 45 percent of Greenspoint residents over the age of 25 did not have a high school diploma. In the same year, only 24 percent of Houston residents had not graduated from high school. Based on rankings developed by Children at Risk, in 2018 only one area elementary school was rated higher than a B, while the rest of the area's schools received D and F grades. Access to high-quality schools can help to ensure that children and families have the opportunities that they need to succeed, and serve as magnets for families looking for a high-quality education for their children.



Elementary School Rankings, Children at Risk 2018

- A Grade
- B Grade
- C Grade
- D Grade
- F Grade
- Charter School (Gray Circle)

Source: 2018 Children at Risk

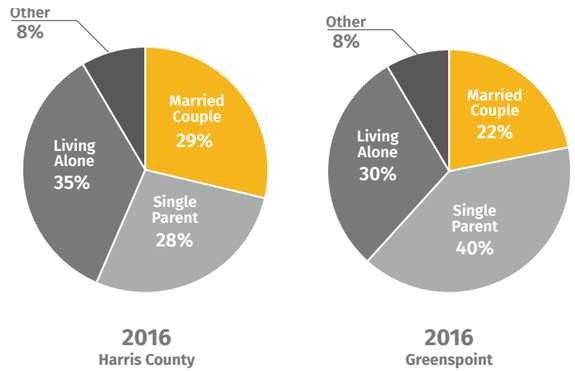


Census Tract Map

Source: GIS

Multi-Family Housing Overview
In 2016, the Greenspoint study area had a total of 14,134 housing units, with 83 percent of those units occupied. (Please note there is a discrepancy in the number of housing units calculated with the American Community Survey data and the public data from HCAD). Housing vacancy rates in Greenspoint were higher than in Houston overall in 2016, with 17 percent of area housing units vacant, compared to 11 percent in Houston. In 2016, 75 percent of the 2,456 vacant housing units in Greenspoint were for rent, a total of 1,810 units. Of the total housing units, 11,963 or 85 percent, are in multi-family developments with two or more units.

In 2016, single parents represented the majority of renter households in Greenspoint, at 40 percent of all renters. In the same year, Harris County renter households were predominantly people living alone. In 2016, the median household size in Greenspoint was 2.9 people, a number slightly higher than the 2.7 people per household in Houston overall.



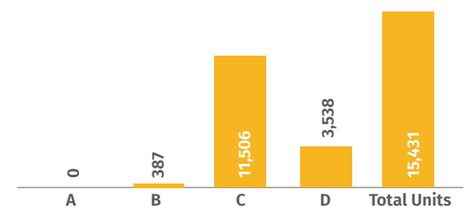
Harris County and Greenspoint Renters by Household Type
Source: ACS 2016

	Greenspoint			Houston		
	2000	2010	2016	2000	2010	2016
Housing Units						
Total Housing Units	12,469	14,041	14,134	782,009	889,489	937,245
Occupied	83%	79%	83%	92%	86%	89%
Vacant Housing Units	17%	21%	17%	8%	14%	11%
Housing Units in Structure						
Single Family (1 attached and detached)	23%	14%	13%	52%	51%	50%
Multi-Family 2 - 19	31%	60%	62%	21%	31%	27%
Multi-Family 19+	42%	24%	23%	26%	17%	22%
Other	4%	2%	3%	1%	1%	1%
Tenure						
Percent Owners	24%	13%	12%	46%	45%	43%
Percent Renters	76%	87%	88%	54%	55%	57%
Persons per Household	2.9	3.0	2.9	2.7	2.7	2.7
Housing Cost Burden (>30% of Income)						
Percent Owners		40%	45%		29%	23%
Percent Renters		58%	61%		47%	47%

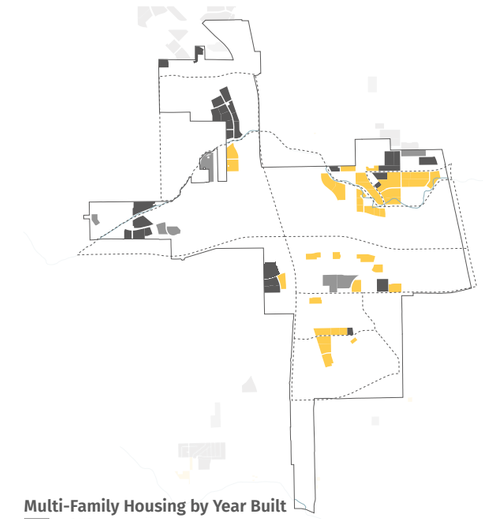
Sources: Census 2000, ACS 2010, ACS 2016

In 2016, the majority of occupied rental units in the Greenspoint neighborhood were in apartments in buildings with 2-19 units, these comprised 60 percent of all rental units. Occupied units in buildings with 20-49 units and with 50 units or more each represented approximately 11 percent of occupied rental housing.

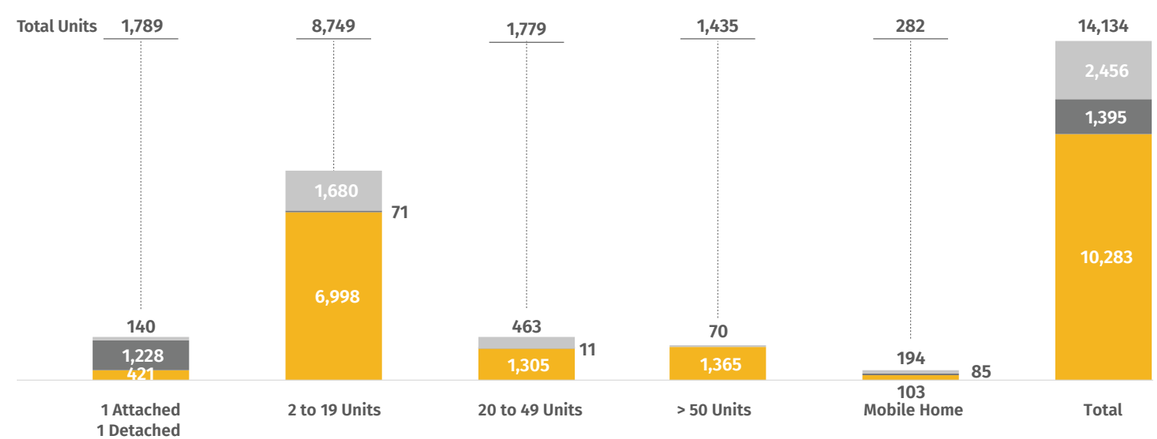
The majority, or 75 percent, of multi-family buildings in Greenspoint are described as C grade structures in the 2018 HCAD public data, D grade units comprised 23 percent, and the remaining units received a B grade. There are no multi-family structures graded A in the neighborhood.



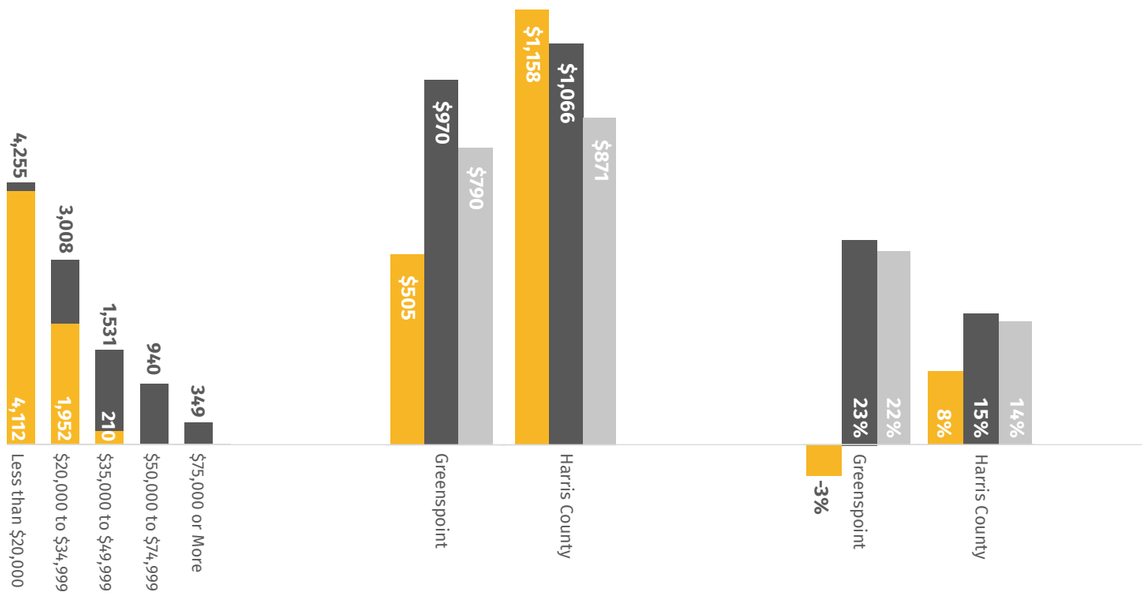
Multi-Family Housing by Grade
Source: HCAD Public Data, 2018



Multi-Family Housing by Year Built
1959 or earlier
1960-1979
1980-1999
2000-2016
Source: City of Houston GIS, HCAD



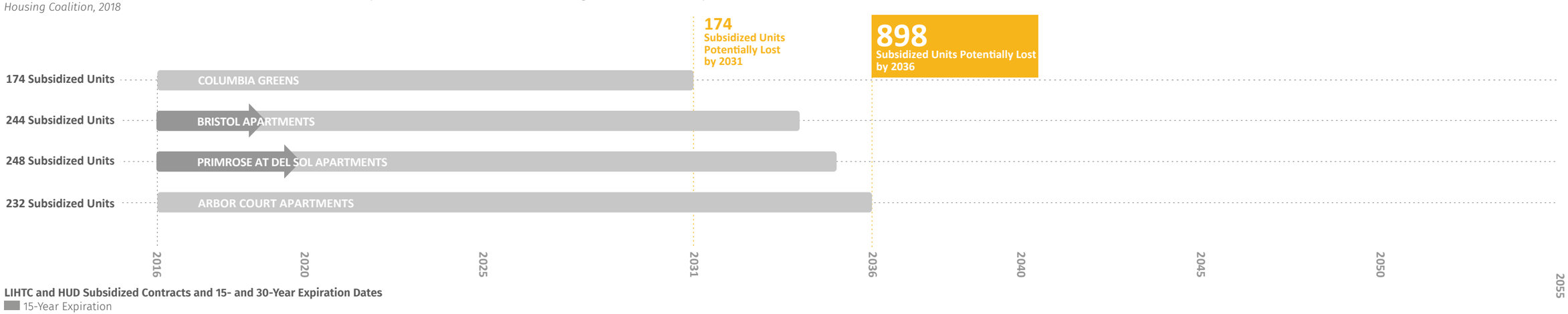
Occupied and Vacant Housing by Tenure and Type
Renter Occupied Housing
Owner Occupied Housing
Vacant Housing
Source: ACS 2016



Housing Cost Burden for Greenspoint Renter Households by Income 2016
Cost Burdened Renter Households
All Renter Households
Sources: ACS 2016 (5-Yr), National Low Income Housing Coalition, 2018

Affordable Rent Compared to Fair Market Rent 2018 (Based on 25% of income spent on housing)
Affordable Rent Based on Median HH Income
Fair Market Monthly Rent 2BR (NLIHC)
Fair Market Monthly Rent 1BR (NLIHC)

2011-2018 Change in Median Household Income and Rent
Change in Median HH Income
Change in Fair Market Monthly Rent 2BR
Change in Fair Market Monthly Rent 1BR

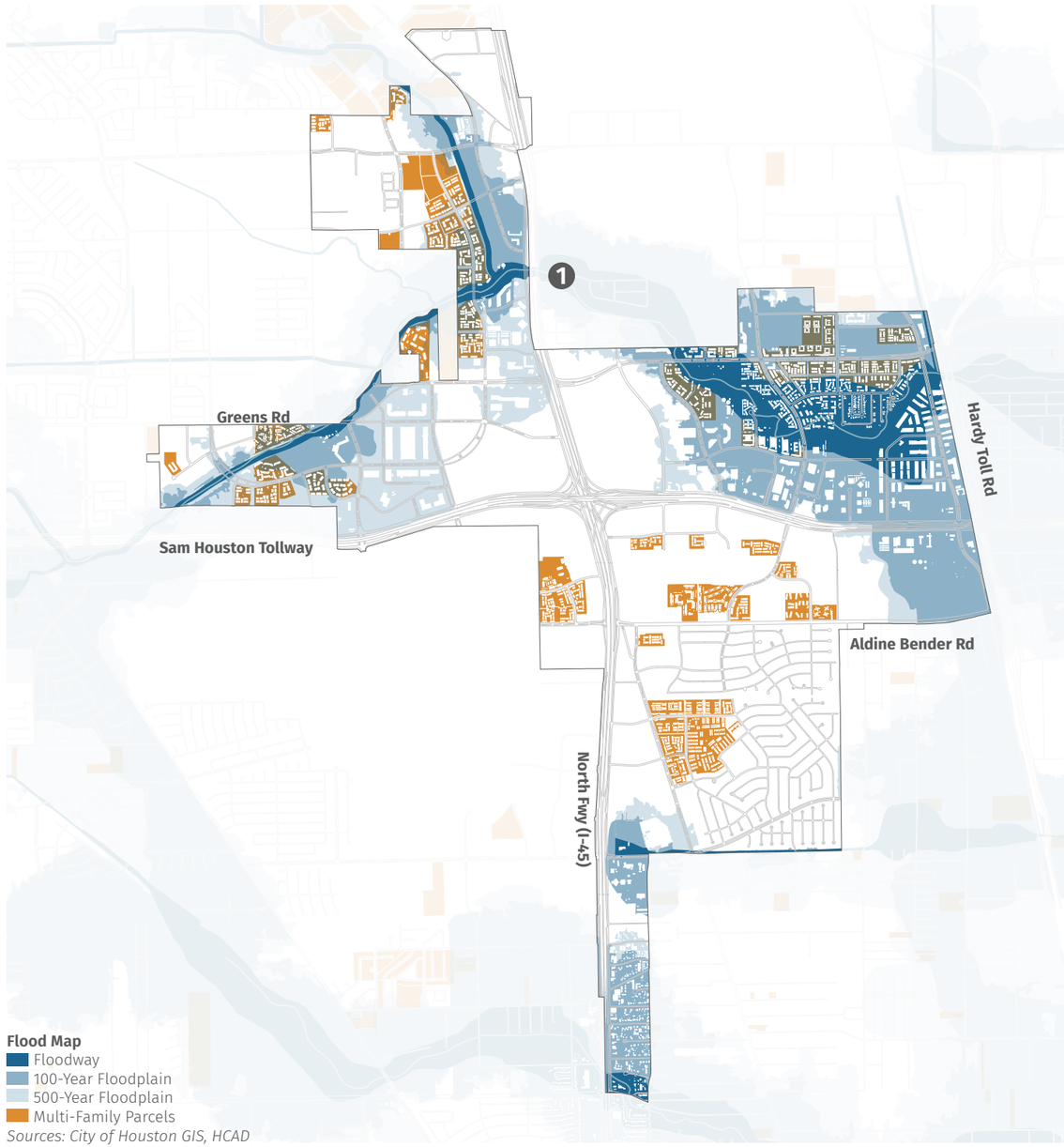


LIHTC and HUD Subsidized Contracts and 15- and 30-Year Expiration Dates
15-Year Expiration
30-Year Expiration
Source: Policy Map, LIHTC, HUD

Affordability
Renter households in Greenspoint are extremely burdened with high housing costs. In 2016, 61 percent of renters spent more than 30 percent of their household income on rent, this is the highest percentage across the four case study areas. In addition, 97 percent of households with a median household income below $20,000 are burdened, and 65 percent of those making under $35,000. Since 2011, rents in Greenspoint have increased by approximately 23 percent while median household income has declined by three percent. As the neighborhood struggles with stagnant incomes the cost of housing will increasingly become an issue for area families.

There are a total of three LIHTC properties and one HUD subsidized complex in the neighborhood. Combined, these developments contain 898 affordable housing units. Of these units, 174 could potentially be lost by 2031 through expiring subsidies, and an additional 724 units could be lost by 2036. Arbor Court, a 232-unit project-based voucher complex, has flooded twice since 2016. The ground floor units of the complex remain damaged more than a year after Harvey.

The affordable rent in Greenspoint, based on 2016 median household income, is $505 per month. In Harris County affordable rent based on 2016 income is $1,158 per month. Fair market rent on a two-bedroom apartment in Greenspoint is $970 per month, nearly twice what area families are able to pay.

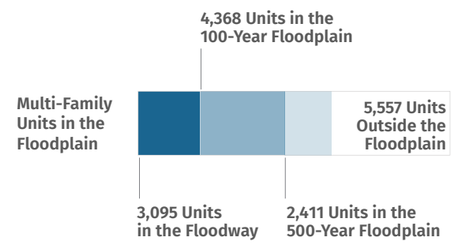


Sources: City of Houston GIS, HCAD

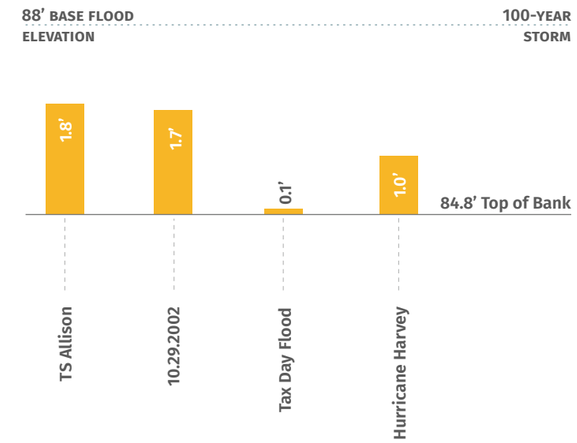
Flood Risks

Greens Bayou flows through the center of the Greenspoint study area. Historic flooding occurred during Tropical Storm Allison in 2001, 2002, the 2016 Tax Day Flood, and in Hurricane Harvey. The Greenspoint flood gage, located at Knobcrest Drive and Greens Bayou, was used to identify historic flooding in the neighborhood. During Harvey, Greens Bayou was just one foot over bank. In the 2016 Tax Day Flood, the bayou was just inches over the bank, but according to the North Houston District the storm flooded over 1,900 apartments and homes in the area, some with more than six feet of water. As a consequence of the losses incurred during the Tax Day Flood, leaders and elected officials worked with area apartment owners and residents to evacuate people prior to Hurricane Harvey, including providing parking for residents' cars at Greenspoint Mall. This preparation spared some residents from losses.

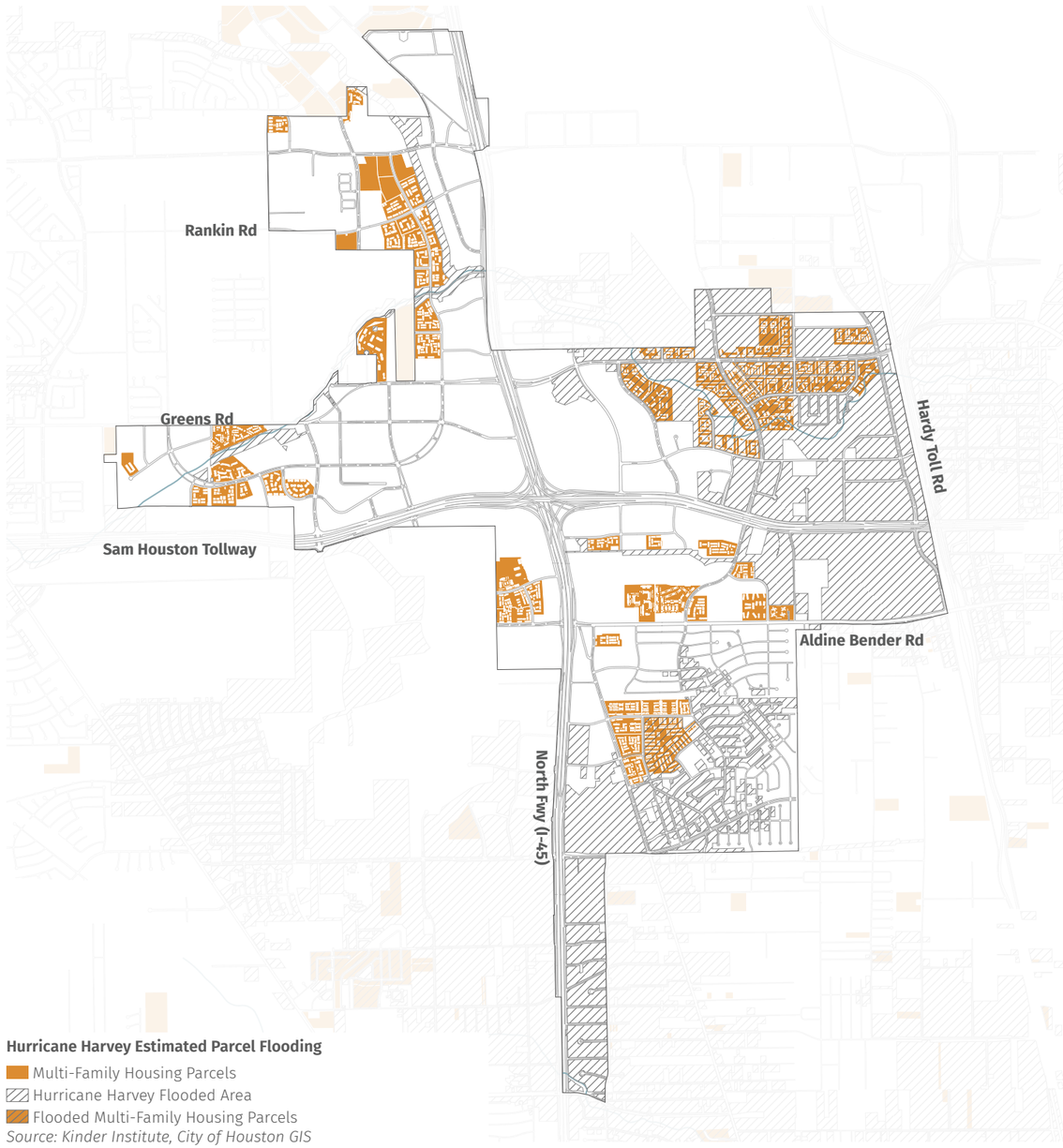
Most importantly, Greenspoint has one of the highest percentages of multi-family housing in a flood risk area in Houston and Harris County, while also housing some of our region's most vulnerable families. The number of multi-family units inside a flood risk area was calculated using HCAD data, which is more precise than Census data because of the geographic constraints of Census tracts and blocks. In 2018, HCAD recorded 15,431 total multi-family units in Greenspoint. A total of 9,570 apartments, or 62 percent of these multi-family units, are in either the floodway, the 100-year floodplain or the 500-year floodplain. Over 3,000 of these units are in the floodway, an area of moving water expected to flood during even a small rain event.



Sources: HCAD Public Data 2018, FEMA Floodplain Data



Historic Flood Levels at Gage 1160: Greens Bayou at Knobcrest Dr
Source: Harris County Flood Control District FWS



Hurricane Harvey Estimated Parcel Flooding

- Multi-Family Housing Parcels
- Hurricane Harvey Flooded Area
- Flooded Multi-Family Housing Parcels

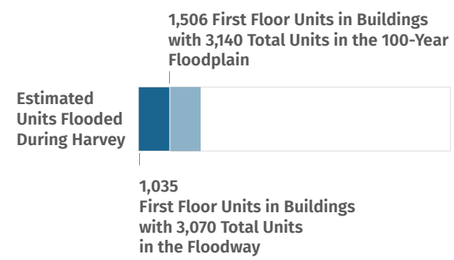
Source: Kinder Institute, City of Houston GIS

The Harris County Flood Control District (HCFCD) has compiled Hurricane Harvey rainfall data for gages across the county. In Greenspoint, the gage that most accurately depicts the flood risks to multi-family housing is located at Knobcrest Drive and Greens Bayou. As a result, this gage was used to identify maximum rainfall in Greenspoint during Hurricane Harvey. The total rainfall over the five-day event was 31 inches.

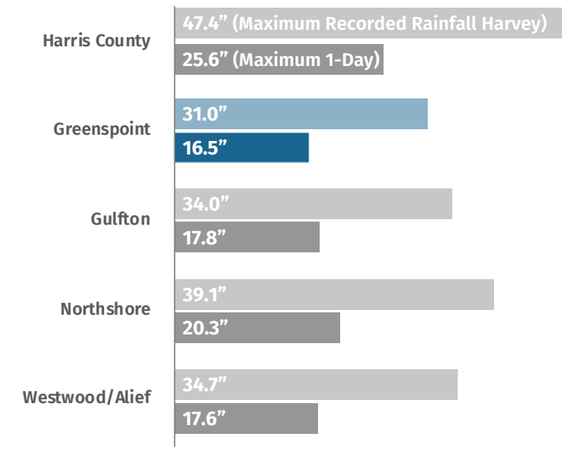
According to parcel flooding estimates provided by the Kinder Institute for Urban Research and analysis of the number of stories in area apartments, it is likely that 3,041 first floor multi-family units flooded as a result of Hurricane Harvey. These units are located in buildings with 6,210 total apartments. Flooded units represent 20 percent of the total units in the neighborhood, while impacted units represent nearly half. Of the estimated flooded units, approximately 50 percent are in the floodway and 50 percent in the 100-year floodplain.

More than one year after Hurricane Harvey, a number of area complexes remain damaged, including Arbor Courts, a 232-unit project-based voucher site subsidized through HUD.

In the event of a future flood event, Greenspoint area multi-family housing could be at risk. If any of the complexes inside an identified flood risk area are damaged enough in a future flood to require major investment it could trigger the need to elevate the structures. This is an unlikely scenario for any multi-family housing, thus increasing the odds that property owners will declare bankruptcy and the units in the complexes will be lost. The potential loss is equal to 62 percent of all of Greenspoint's multi-family housing stock.



Source: FEMA Estimated Inundation by Parcel, Kinder Institute for Urban Research



Harris County and Case Study Area Maximum Recorded Rainfall
Source: Harris County Flood Control District

ABOVE: 2017 Aerial and Multi-Family Housing Properties

Multi-Family Housing Properties

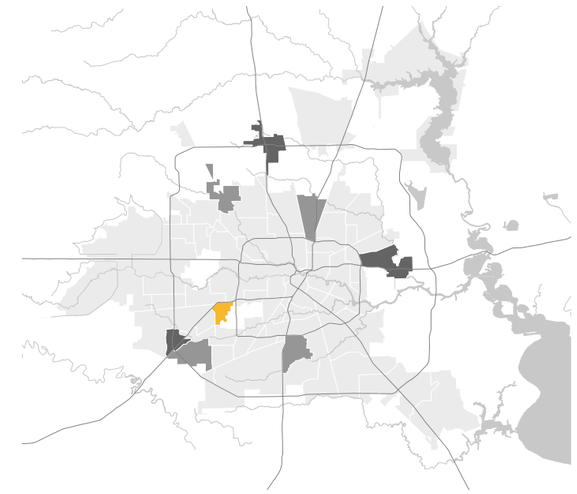
Source: City of Houston GIS, HCAD

CASE STUDY: Gulfton

Introduction

The Gulfton study area is located in southwest Houston. The study area boundaries are contiguous with the Super Neighborhood boundaries and are approximately the Southwest Freeway to the north, Bissonnet Street to the south, Hillcroft Avenue to the west, and extending past Chimney Rock to the east.

In 2016, there was a total of 17,646 housing units in Gulfton, of which 13 percent, or 2,204 units, were vacant. Renters occupied 14,813 units and owners occupied 629. Rental units are housed in 79 multi-family properties, with the majority of these complexes concentrated in the northern half of the neighborhood. Most multi-family properties were built between the 1960s and 1970s, and vary in size. In 2016, 40 percent of multi-family structures contained 20-49 units, 38 percent contained 2-19 units, and 22 percent contained 50 units or more. Renters comprise the majority of households in the area at 96 percent. In the same year, 57 percent of area renters were cost burdened, paying 30 percent or more of their income on housing, an increase of seven percent since 2000.



Gulfton Location Map

Gulfton Multi-Family Housing, Photo

	Gulfton			Houston		
	2000	2010	2016	2000	2010	2016
PEOPLE	45,106	41,520	41,975	1,953,631	2,068,026	2,240,582
Population Change		-8%	1%		6%	8%
Population Density (per Sq Mile)	16,115	14,953	15,116	3,372	3,449	3,737
Age						
17 Years or Younger	30%	31%	33%	28%	26%	26%
18 - 64 Years Old	68%	67%	64%	64%	65%	66%
65 Years or Older	2%	2%	3%	8%	9%	8%
Race / Ethnicity						
White	11%	8%	6%	31%	26%	26%
Black or African American	9%	8%	13%	25%	23%	23%
Asian	4%	5%	6%	5%	6%	6%
Hispanic or Latino	74%	78%	74%	37%	44%	44%
Other	2%	1%	1%	2%	2%	1%
Place of Birth						
Born Outside the U.S.	61%	60%	57%	26%	29%	29%
EDUCATION						
Educational Attainment 25 Years +						
Less Than High School	56%	52%	38%	30%	26%	24%
High School Graduate (includes equivalency)	16%	20%	31%	20%	22%	22%
Some college	13%	14%	16%	23%	24%	24%
Bachelor's degree	10%	8%	11%	17%	17%	18%
Master's degree	3%	3%	2%	6%	7%	8%
Professional and Doctorate Degrees	2%	3%	2%	4%	4%	4%
INCOME						
Median Household Income	$24,515	$26,287	$25,980	$36,616	$44,124	$47,010
Percent of Houston's Median	67%	60%	55%			
Percent of Population Below Poverty	30%	32%	37%	19%	18%	19%
TRANSPORTATION						
Means of Transportation to Work						
Drove Alone	77%	55%	66%	72%	74%	76%
Carpooled	n/a	27%	12%	16%	14%	12%
Public Transportation	14%	10%	9%	6%	5%	4%
Bicycled and Walked	5%	4%	5%	3%	3%	3%
Other	3%	2%	6%	1%	2%	2%
Households without access to a vehicle	20%	19%	15%	12%	10%	9%

Sources: Census 2000, ACS 2010, ACS 2016

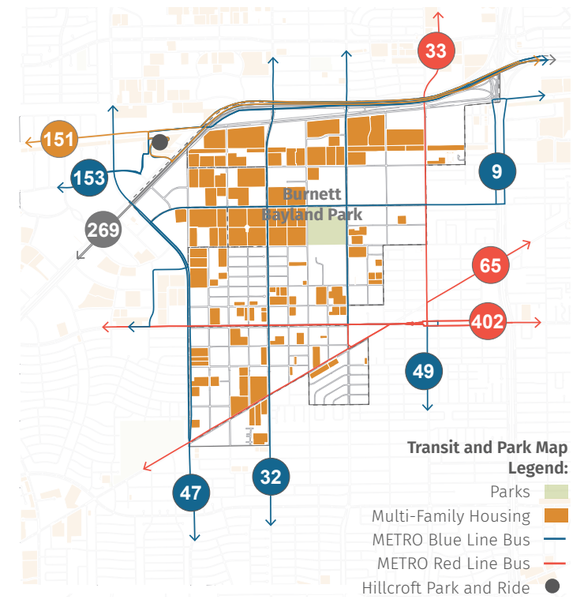
Demographic and Neighborhood Overview

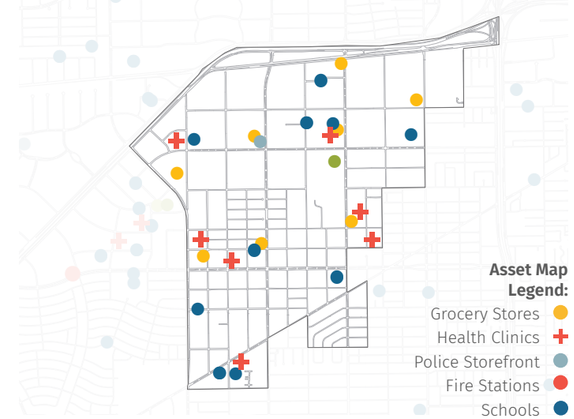
Gulfton is 2.7 square miles in area and was home to just under 42,000 people in 2016. Between 2000 and 2016, the neighborhood's population declined by seven percent, or approximately 3,000 residents. The Gulfton neighborhood has one of the highest population densities in Houston, primarily due to the concentration of multi-family apartments. In 2016, the population density of Gulfton was approximately 15,000 people per square mile, significantly higher than Houston's average population density of 3,737 people per square mile.

Between 2000 and 2016, the Hispanic or Latino population of Gulfton remained stable at around 74 percent, while the Black or African American population increased from nine to 13 percent and the White population decreased from 11 to six percent. Gulfton is home to many children and youth under the age of 18 years. This group makes up 33 percent of the total population in the neighborhood, a higher percentage than in Houston at 26 percent.

Ten METRO bus routes serve the Gulfton community, including three high frequency routes, running every 10-15 minutes, and one express route. The area is also served by the Hillcroft Transit Center, located outside of the neighborhood to the northwest. Since 2000, transit ridership for workers over the age of 16 years has declined. In 2000, 14 percent of workers rode transit, by 2016 this number had declined to nine percent. The primary means of transportation to work is driving alone or carpooling. Between 2000 and 2016 the percentage of households without access to a vehicle decreased from 20 to 15 percent, but was still higher than Houston's nine percent.

The Gulfton neighborhood has many assets. Among these are eight grocery stores, varying in size from major franchises to local shops, a number of community centers and services, a local hospital and several health clinics. Gulfton is also home to ten public and charter schools and a Houston Community College campus.





	Tract 4211.01	Tract 4211.02	Tract 4212.01	Tract 4212.02	Tract 4214.01	Tract 4214.02	Tract 4214.03	Tract 4215	Tract 4216	
Socioeconomic Vulnerability										
Persons below poverty	○	○	○	●	●	●	●	○	●	*Income and poverty impact a family's capacity to prepare for, react to and recover from a disaster*
Civilian (age 16+) unemployed	○	○	○	○	○	○	○	○	○	
Per capita income	○	●	○	●	●	●	●	○	●	
Persons (age 25+) with no H.S. diploma	○	●	●	●	●	●	●	○	●	
Household Vulnerability										
Persons aged 65 and older	○	○	○	○	○	○	○	○	○	*Seniors, children and single parents are more vulnerable to a disaster than other population groups*
Persons aged 17 and younger	○	●	○	●	●	●	●	○	●	
Civilian non institutionalized population with a disability	○	○	○	○	○	○	○	○	○	
Single parent household with children under 18	○	○	○	●	●	●	○	○	●	
Minority Status and Language Vulnerability										
Minority (all persons except white, non-Hispanic)	○	●	●	●	●	●	●	○	●	*Access to information can be a challenge for those with language barriers*
Persons (age 5+) who speak English "less than well"	●	●	●	●	●	●	●	●	●	
Housing and Transportation Vulnerability										
Housing in structures with 10 or more units	●	●	●	●	●	●	●	●	●	*Access to transportation and quality housing that is outside of designated risk zones reduces vulnerability*
Mobile homes estimate	○	○	○	○	○	○	○	○	○	
At household level, more people than rooms	●	●	○	●	●	●	●	○	●	
Households with no vehicle available	○	○	○	●	●	○	○	○	○	
Persons in institutionalized group quarters	○	○	○	○	○	○	○	○	○	
Overall Social Vulnerability	○	○	○	●	○	●	●	○	●	
Vulnerability ranking	66%	87%	69%	91%	87%	92%	92%	86%	92%	
(Top 25% indicates social vulnerability)										

Social Vulnerability Index

- ● Tracts in the top 10%, or at the 90th percentile (Indicate high vulnerability)
- ○ Tracts below the 90th percentile
- ▬ Tracts with High Vulnerability and High Concentration of Multi-Family Housing

Source: Social Vulnerability Index (2014), https://svi.cdc.gov/map.aspx

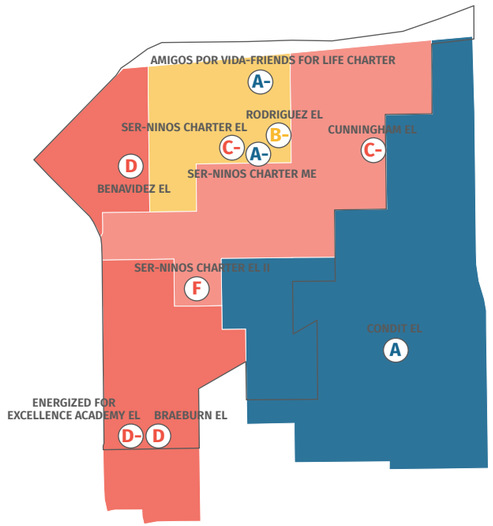
As noted before, social vulnerability refers to the resilience of communities when confronted by external stresses on human health, including natural or human-caused disasters. The CDC's social vulnerability index is the "degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households."

The Gulfton Super Neighborhood includes nine Census tracts: 4211.01, 4211.02, 4212.01, 4212.02, 4214.01, 4214.02, 4214.03, 4215, and 4216. An analysis of the specific social vulnerabilities is provided in the table on page 56. Four of the nine Census tracts are in the highest vulnerability category, averaging 92 percent compared to tracts across the United States.

One of the most important indicators of resiliency is low poverty rates. In 2016, 37 percent of Gulfton families lived on incomes below the poverty level, an increase of seven percent since 2000.

In contrast, the percent of residents over the age of 25 without a high school diploma declined between 2000 and 2016, from 56 to 38 percent. Access to high-quality schools can help to ensure that children and families have the opportunities that they need to succeed. Based on school rankings developed by Children at Risk, two public elementary schools and one charter school received A and B grades. The remaining schools received C through F grades.

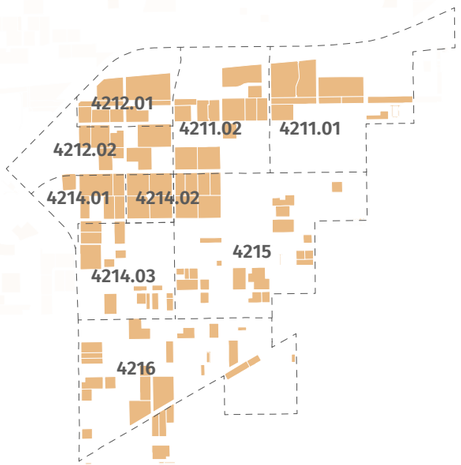
In 2016, 57 percent of Gulfton residents were born outside of the United States, a much higher percentage than in Houston overall. Language barriers can increase social vulnerability, particularly in accessing information regarding housing rights, services, and healthcare. For example, 46 percent of Gulfton residents do not have health insurance, a percent much higher than in Houston, where 25 percent of the population is uninsured.



Elementary School Rankings, Children at Risk 2018

- A Grade
- B Grade
- C Grade
- D Grade

Source: Children at Risk



Census Tract Map

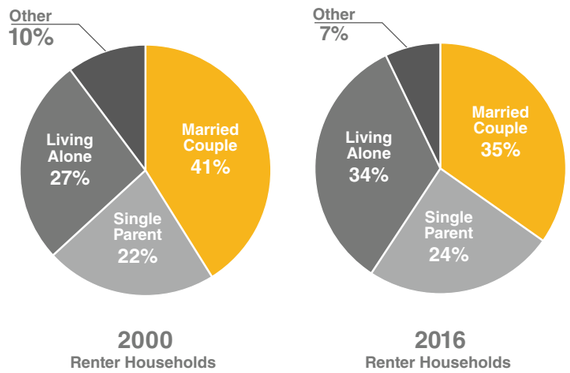
Source: GIS

Multi-Family Housing Overview
Gulfton has a total of 17,646 housing units based on 2016 data from the American Community Survey. Single-family homes represent just six percent of this total, while multi-family units comprise 94 percent of area housing. (Please note there is a discrepancy in the number of housing units calculated with the American Community Survey data and the public data from HCAD).

In 2016, married couples comprised the majority of neighborhood households at 35 percent, followed by 34 percent living alone, and 24 percent single parents.

The median household size is 2.7 people, which is the same as in Houston overall.

Compared to the other case study areas, Gulfton families face less of a risk from flooding, and more risk from economic hardship and other challenges.

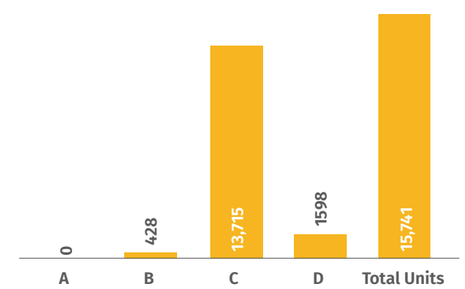


Gulfton Renters by Household Type
Sources: Census 2000, ACS 2016

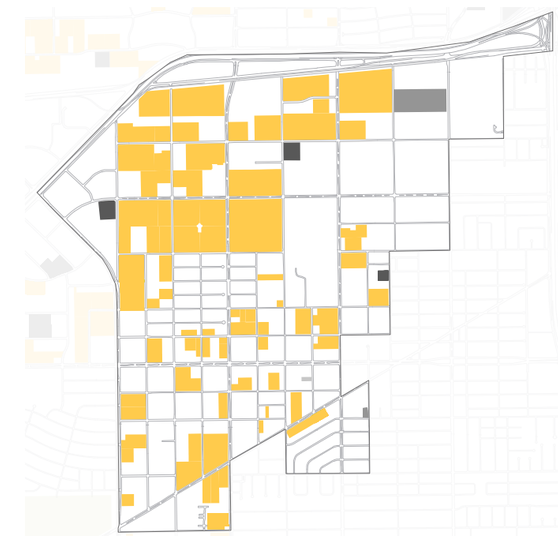
	Gulfton			Houston		
	2000	2010	2016	2000	2010	2016
Housing Units						
Total Housing Units	17,053	17,163	17,646	782,009	889,489	937,245
Occupied	90%	82%	88%	92%	86%	89%
Vacant Housing Units	10%	18%	12%	8%	14%	11%
Housing Units in Structure						
Single Family (1 attached and detached)	6%	7%	6%	52%	51%	50%
Multi-Family 2-19	17%	51%	35%	21%	31%	27%
Multi-Family 19+	77%	41%	58%	26%	17%	22%
Other	0%	0%	1%	1%	1%	1%
Tenure						
Percent Owners	5%	3%	4%	46%	45%	43%
Percent Renters	95%	97%	96%	54%	55%	57%
Persons per Household	2.9	2.9	2.7	2.7	2.7	2.7
Housing Cost Burden (>30% of Income)						
Percent Owners		10%	24%		29%	23%
Percent Renters		50%	57%		47%	47%

Sources: Census 2000, ACS 2010, ACS 2016

The most common rental units in Gulfton are medium apartments with 20-49 units, followed by small apartments with 2-19 units. The majority of multi-family housing in the neighborhood was built between 1960 and 1979. A total of 87 percent of multi-family buildings in Gulfton were graded as a C in the 2018 HCAD public data. D grade units comprised the remaining 10 percent of the neighborhood's multi-family housing. Only three percent of the structures were graded as B, and there were no A structures in the neighborhood.

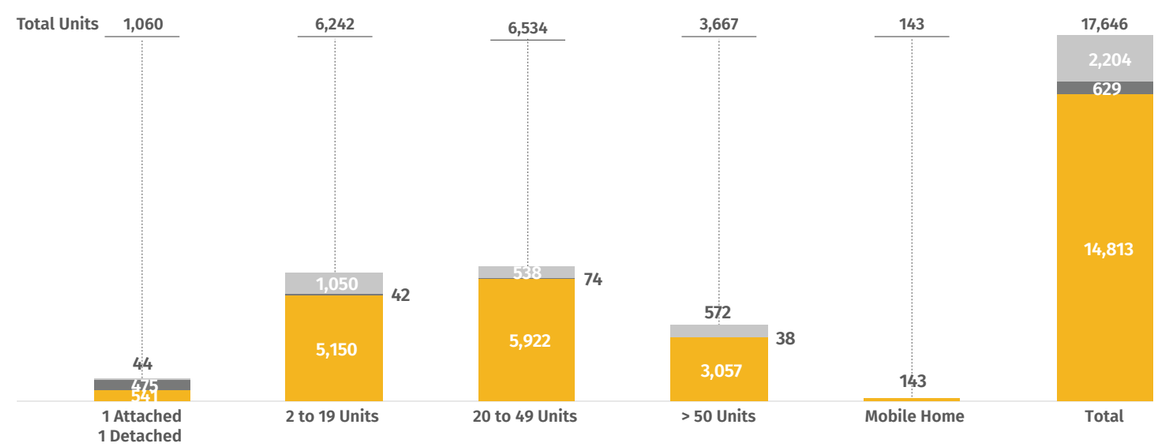


Multi-Family Housing by Grade
Source: HCAD Public Data, 2018



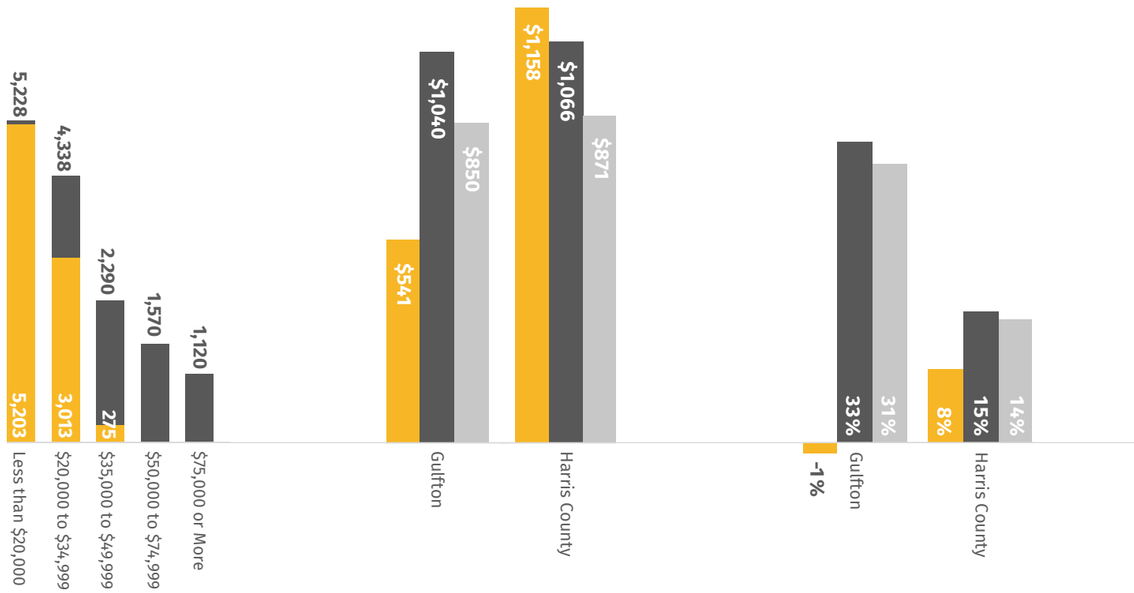
Multi-Family Housing by Year Built
- 1959 or earlier
- 1960-1979
- 1980-1999
- 2000-2016

Sources: City of Houston GIS, HCAD



Occupied and Vacant Housing by Tenure and Type
- Renter Occupied Housing
- Owner Occupied Housing
- Vacant Housing

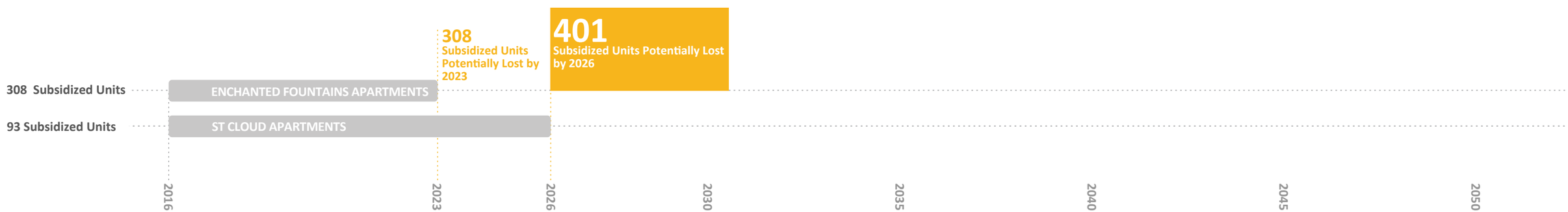
Source: ACS 2016



Housing Cost Burden for Gulfton Renter Households by Income 2016
Cost Burdened Renter Households
All Renter Households
Sources: ACS 2016 (5-Yr), National Low Income Housing Coalition, 2018

Affordable Rent Compared to Fair Market Rent 2018 (Based on 25% of income spent on housing)
Affordable Rent Based on Median HH Income
Fair Market Monthly Rent 2BR (NLIHC)
Fair Market Monthly Rent 1BR (NLIHC)

2011-2018 Change in Median Household Income and Rent
Change in Median HH Income
Change in Fair Market Monthly Rent 2BR
Change in Fair Market Monthly Rent 1BR



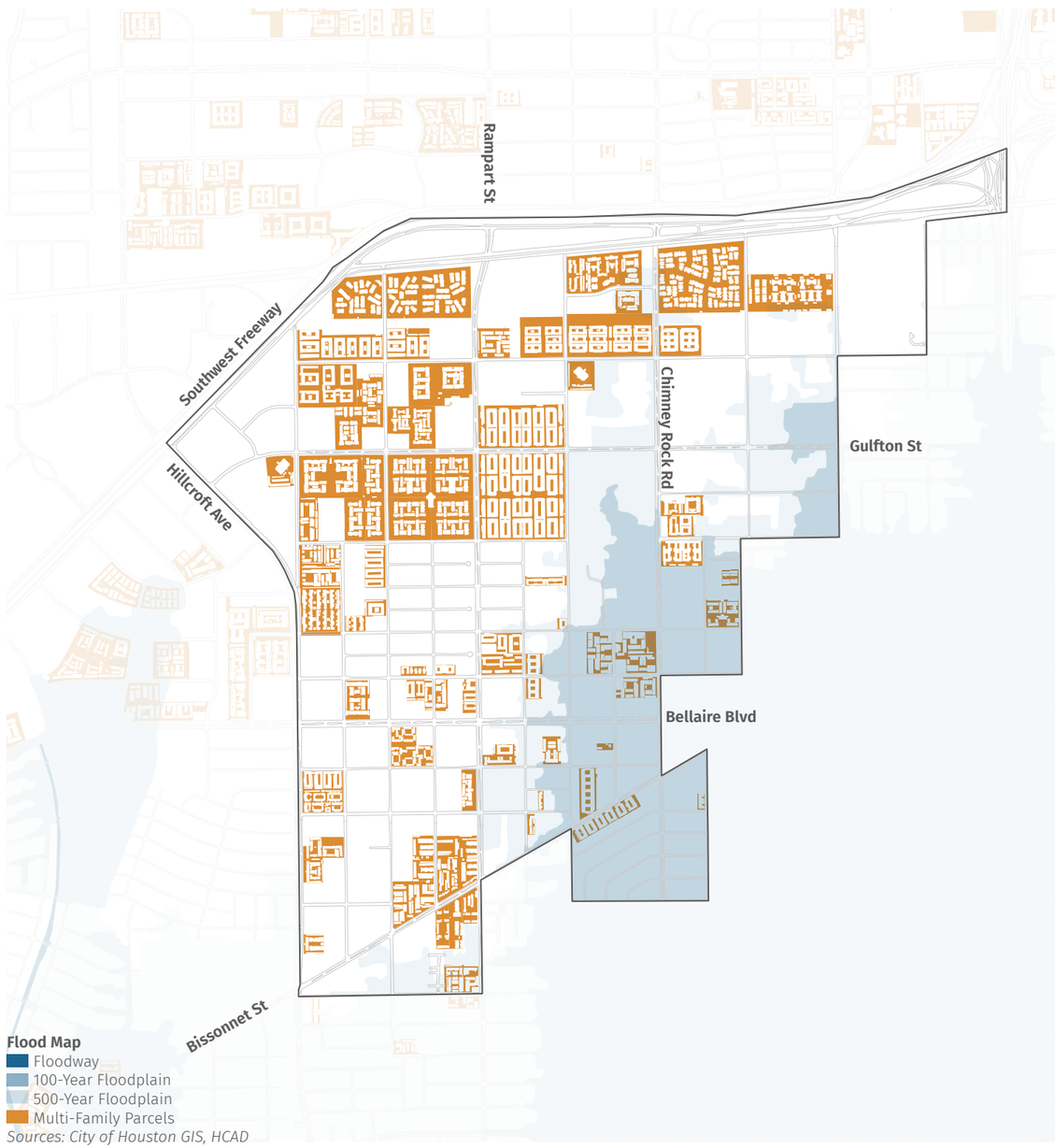
LIHTC and HUD Subsidized Contracts and 15- and 30-Year Expiration Dates
15-Year Expiration
30-Year Expiration
Source: Policy Map, LIHTC, HUD

Affordability
In 2016, 57 percent of renters living in the Gulfton neighborhood were cost burdened, a significantly higher percentage than in Harris County where 50 percent of renters were burdened in that same year. Housing cost burdens are impacting families with lower incomes the most. In 2016, 99.5 percent of renters with a median income below $20,000 were burdened, and just under 70 percent of those making under $35,000 were burdened. In 2016, those making under $35,000 a year represented 66 percent of all Gulfton households.

The affordable rent in Gulfton, based on 2016 median household income, is $541 per month. In Harris County affordable rent based on 2016 income is $1,158 per month. Fair market rent on a two-bedroom apartment in Gulfton is $1,040 per month, nearly twice what area families are able to pay. Fair market rent on a one-bedroom apartment in Gulfton is also out of reach for area families. Since 2011, rents in Gulfton have increased by approximately 33 percent while the median household income in the area has declined by one percent, a trend that makes housing increasingly out of reach for area families.

At this time, there are only two LIHTC properties in the Gulfton neighborhood. Combined, these developments contain 401 affordable housing units. In addition, 308 affordable rental units could potentially be lost by 2023, and another 93 units could be lost by 2026. These 401 units comprise less than three percent of all apartment units in Gulfton. Across the four study areas, Gulfton has the fewest subsidized and supported multi-family units.

Gulfton area apartments are currently meeting a crucial need for affordable housing in Houston and Harris County. Yet, the neighborhood faces a number of risks that are both internal and external that could lead to widespread demolition and displacement.



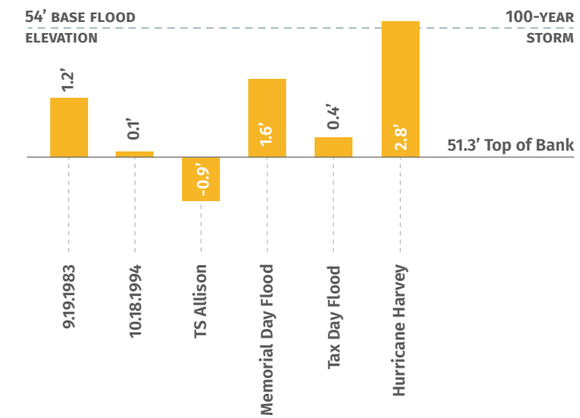
Sources: City of Houston GIS, HCAD

Flood Risks

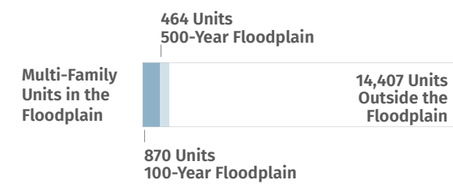
Gulfton is adjacent to the flood-prone areas of Bellaire and Meyerland. However, flooding in the Gulfton neighborhood is rare. As indicated in the flood hazard map on page 62, the southeast corner of the neighborhood is the most at risk for flooding. In total, 667 multi-family units in Gulfton are in the 100- or 500-year floodplain, representing four percent of all multi-family units.

However, Hurricane Harvey created numerous challenges in the Gulfton neighborhood, including damaged units from roof leaks and other water penetration, failed infrastructure including sanitary sewers, lost wages because of closed businesses, and reduced mobility with transit service suspended. Each of these impacts are significant, particularly to families who are already vulnerable.

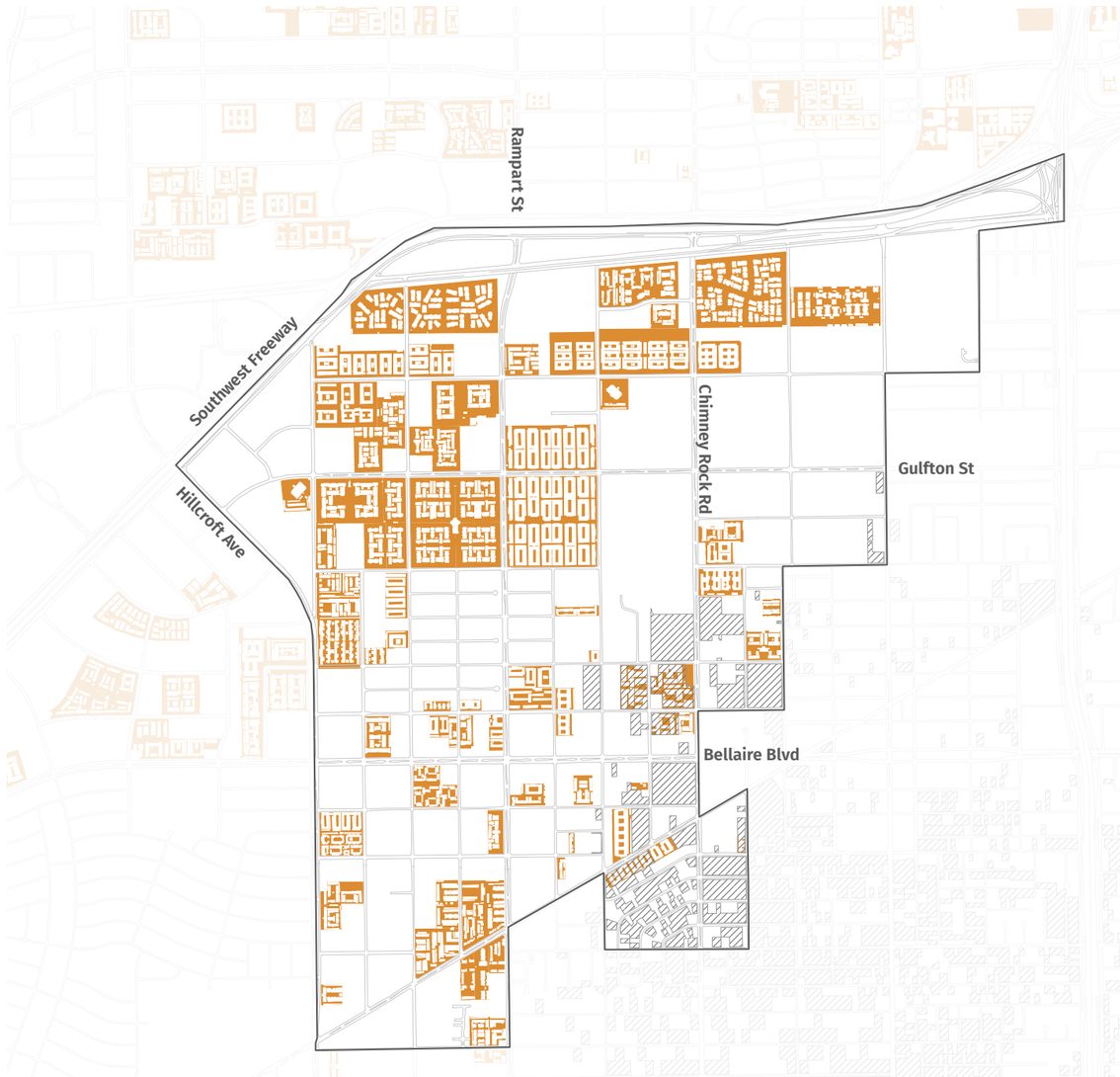
Gulfton is in the Brays Bayou Watershed, and the closest Harris County flood gage is located at Brays Bayou and Rice Avenue. Brays Bayou has experienced historic flooding over the last few years devastating nearby communities, but the Gulfton area has been spared from major flooding. Data from the Brays Bayou flood gage is provided to the right.



Historic Flood Levels at Gage 440: Brays Bayou at Rice Avenue
Source: Harris County Flood Control District FWS



Sources: HCAD Public Data, FEMA Floodplain Data



Hurricane Harvey Estimated Parcel Flooding

- Multi-Family Housing Parcels
- Hurricane Harvey Flooded Area
- Flooded Multi-Family Housing Parcels

Source: Kinder Institute, City of Houston GIS

HCFCD has compiled Hurricane Harvey rainfall data for gages across the county. In Gulfton, the gage that most accurately depicts the flood risks to multi-family housing is located at Brays Bayou and Rice Avenue. As a result, this gage was used to identify maximum rainfall in the Gulfton study area. During Hurricane Harvey, the total rainfall in Gulfton, over the five-day event, was 34 inches.

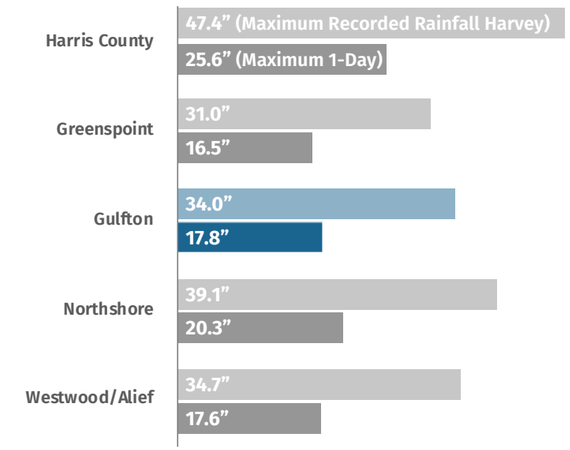
According to parcel flooding estimates provided by the Kinder Institute for Urban Research and analysis of the number of stories in area apartments, it is estimated that 269 ground floor units in Gulfton were flooded, all of which are located inside the 100-year floodplain. These units are housed in multi-family buildings with a total of 538 units.

While the Gulfton neighborhood did not experience devastating flooding, many area families experienced economic hardships because of lost wages. In any disaster, there is a toll to property, but also the ripple effects of closed businesses and schools, reduced mobility, and a shutdown of other services. These impacts hit those that are most vulnerable the hardest.

The greatest risk to Gulfton's affordable multi-family housing is demolition, redevelopment, and gentrification. The area is well-located, with good access to transit, and improving educational opportunities. In addition, on average, each multi-family housing parcel is large, comprised of 20-30 acres. The demolition and redevelopment of a single complex could potentially trigger the redevelopment of the entire area.

Estimated Units Flooded During Harvey	**269 First Floor Units in Buildings with 538 Total Units in the 100-Year Floodplain**

Source: FEMA Estimated Inundation by Parcel, Kinder Institute for Urban Research



Harris County and Case Study Area Maximum Recorded Rainfall
Source: Harris County Flood Control District

Northshore Case Study Area and Multi-Family Housing Properties

Multi-Family Housing Properties

Sources: City of Houston GIS, HCAD

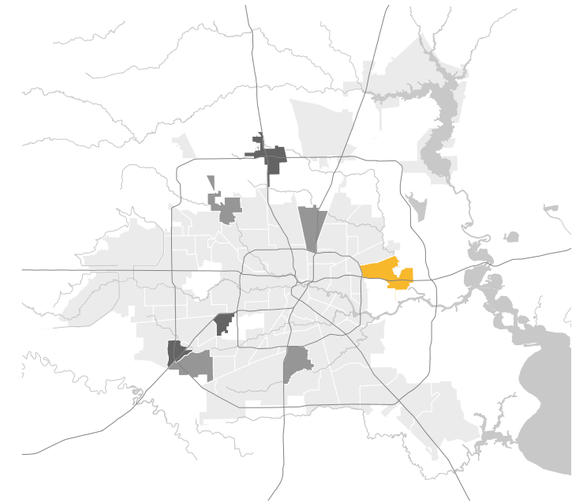
CASE STUDY: Northshore

Introduction

The Northshore neighborhood is located on the far east side of Houston, along the East Freeway. The boundaries of the case study area are the same as the Northshore Super Neighborhood, as designated by the City of Houston. More specifically, the neighborhood boundaries are approximately Wallisville Road to the north, Nadolney Street to the east, Loop 610 to the west, and I-10 to the south.

In 2016, the Northshore neighborhood was mainly comprised of renters, at 55 percent of all households. In the same year, 47 percent of area renters were cost burdened, paying 30 percent or more of their income on housing. Northshore has 3,851 multi-family units distributed across 32 separate properties. Approximately nine percent, or 360 of first floor units, were flooded during Hurricane Harvey. The estimated flooded units are located in buildings that house over 800 apartments.

Over 900 multi-family units in Northshore, or 23 percent, are subsidized through either LIHTC or HUD, this is the highest percentage of subsidized affordable housing as a total of multi-family units across the four study areas. Many of the multi-family properties were built in the 1970s and are in need of renovation.



Northshore Location Map

Northshore Multi-Family Housing, Photo

	Northshore			Houston		
	2000	2010	2016	2000	2010	2016
PEOPLE	27,017	27,332	28,849	1,953,631	2,068,026	2,240,582
Population Change		1%	6%		6%	8%
Population Density (per Sq Mile)	2,384	2,463	2,599	3,372	3,449	3,737
Age						
17 Years or Younger	34%	33%	32%	28%	26%	26%
18- 64 Years Old	59%	61%	60%	64%	65%	66%
65 Years or Older	7%	6%	8%	8%	9%	8%
Race / Ethnicity						
White	22%	12%	9%	31%	26%	26%
Black or African American	17%	12%	14%	25%	23%	23%
Asian	1%	0%	1%	5%	6%	6%
Hispanic or Latino	59%	75%	76%	37%	44%	44%
Other	1%	1%	0%	2%	2%	1%
Place of Birth						
Born Outside the U.S.	32%	38%	35%	26%	29%	29%
EDUCATION						
Educational Attainment 25 Years +						
Less Than High School	45%	44%	48%	30%	26%	24%
High School Graduate (includes equivalency)	28%	29%	26%	20%	22%	22%
Some college	20%	20%	21%	23%	24%	24%
Bachelor's degree	6%	4%	4%	17%	17%	18%
Master's degree	1%	2%	1%	6%	7%	8%
Professional and Doctorate Degrees	0%	1%	0%	4%	4%	4%
INCOME						
Median Household Income	$33,423	$41,265	$39,304	$36,616	$44,124	$47,010
Percent of Houston's Median	91%	94%	84%			
Percent of Population Below Poverty	17%	19%	20%	19%	18%	19%
TRANSPORTATION						
Means of Transportation to Work						
Drove Alone	68%	71%	76%	72%	74%	76%
Carpooled	24%	18%	17%	16%	14%	12%
Public Transportation	4%	2%	2%	6%	5%	4%
Bicycled and Walked	4%	3%	2%	3%	3%	3%
Other	0%	6%	3%	1%	2%	2%
Households without access to a vehicle	2%	1%	2%	12%	10%	9%

Sources: Census 2000, ACS 2010, ACS 2016

Demographic and Neighborhood Overview

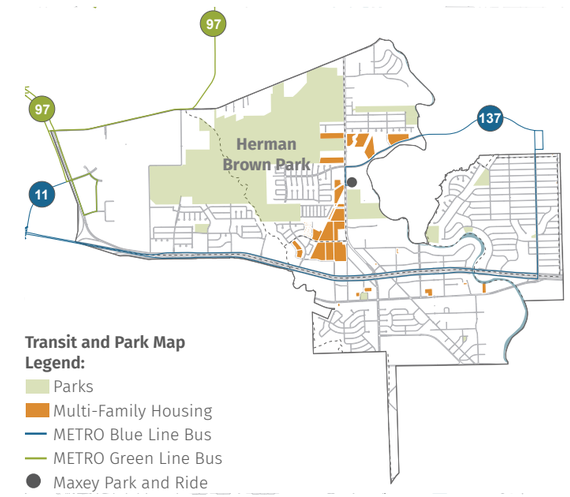
A demographic overview of the Northshore neighborhood provides insight into how the neighborhood has changed since 2000. Northshore is 9.3 square miles in area and was home to just under 29,000 people in 2016. Between 2000 and 2016, the neighborhood's population increased by seven percent. The neighborhood has a low population density, in part due to the expansive 717-acre Herman Brown Park, located in the heart of the neighborhood. Overall, the Northshore population density was approximately 2,600 people per square mile in 2016, lower than Houston's average population density of 3,737 people per square mile.

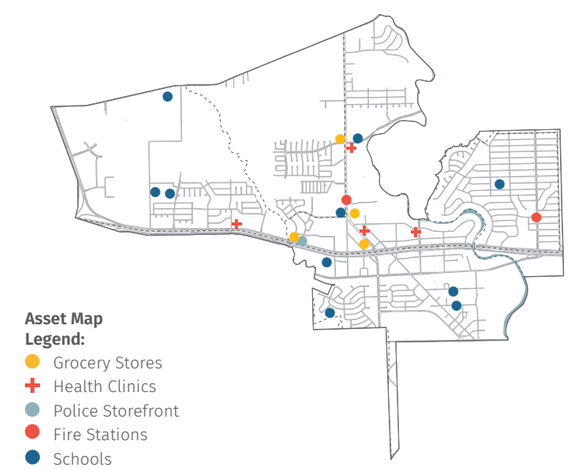
Between 2000 and 2016, the Hispanic or Latino population of Northshore grew from 59 to 76 percent. In contrast, there has been a significant drop in the White population over the same time period, in 2000 this group comprised 22 percent of the population, but decreased to nine percent by 2016.

Since 2000, the percent of residents under the age of 18 in Northshore has decreased slightly, comprising 32 percent of the area's population in 2016. Nonetheless, this percentage remains six percent higher than Houston overall where 26 percent of residents are under 18 years of age.

The primary means of transportation to work is driving alone or carpooling. The use of public transportation, biking, and walking has decreased by two percent since 2000. In 2016, the percentage of households without access to a vehicle was two percent, significantly lower than the nine percent in Houston. The neighborhood is not well-served by public transit, currently only one express route and one park and ride route serve the neighborhood.

The Northshore neighborhood is served by nine elementary schools in several school districts. There are four grocery stores, which are all concentrated along Maxey Road and I-10. The neighborhood also has four health clinics. The East Houston Regional Medical Center, a 131-bed hospital that served the area for over 40 years, was inundated with six feet of water during Hurricane Harvey and will not re-open.





	Tract 2326	Tract 2327.01	Tract 2327.02	Tract 2332	Tract 2333
Socioeconomic Vulnerability					
Persons below poverty	○	○	●	○	○
Civilian (age 16+) unemployed	○	○	○	○	○
Per capita income	○	●	●	○	●
Persons (age 25+) with no H.S. diploma	●	●	●	●	●
Household Vulnerability					
Persons aged 65 and older	○	○	○	○	○
Persons aged 17 and younger	○	●	●	○	●
Civilian non institutionalized population with a disability	○	○	○	○	○
Single parent household with children under 18	○	●	○	○	○
Minority Status and Language Vulnerability					
Minority (all persons except white, non-Hispanic)	●	●	●	○	●
Persons (age 5+) who speak English "less than well"	●	●	●	●	●
Housing and Transportation Vulnerability					
Housing in structures with 10 or more units	○	●	●	○	○
Mobile homes estimate	○	○	○	○	○
At household level, more people than rooms	●	●	●	○	●
Households with no vehicle available	○	○	○	○	○
Persons in institutionalized group quarters	○	○	○	○	○
Overall Social Vulnerability	○	●	●	○	●
Vulnerability ranking	48%	98%	95%	73%	80%
(Top 25% indicates social vulnerability)					

Income and poverty impact a family's capacity to prepare for, react to and recover from a disaster

Seniors, children and single parents are more vulnerable to a disaster than other population groups

Access to information can be a challenge for those with language barriers

Access to transportation and quality housing that is outside of designated risk zones reduces vulnerability

Social Vulnerability Index

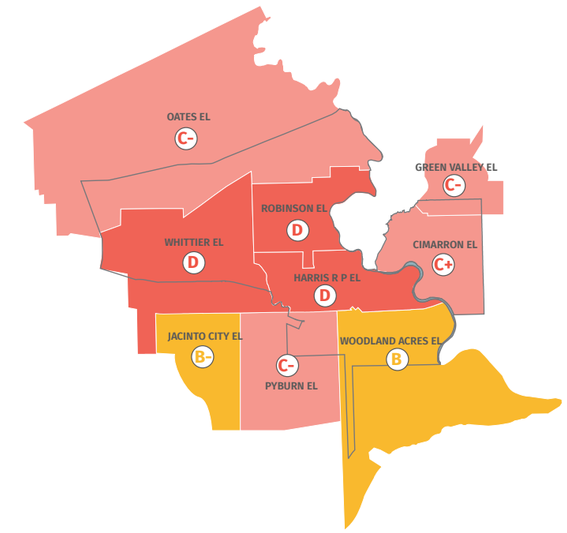
- ● Tracts in the top 10%, or at the 90th percentile (Indicate high vulnerability)
- ○ Tracts below the 90th percentile
- ▬ Tracts with High Vulnerability and High Concentration of Multi-Family Housing

Source: Social Vulnerability Index (2014), https://svi.cdc.gov/map.aspx

Social vulnerability in the Northshore study area is highest in the two Census tracts with a concentration of multi-family housing: Tract 2327.01 and 2327.02. Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, including natural or human-caused disasters. The CDC's social vulnerability index is the "degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households."

One of the most important indicators of resiliency is low poverty rates. In 2016, 28 percent of the families living in Northshore's two most vulnerable Census tracts lived on incomes below the poverty level, even while overall poverty rates in the neighborhood were much lower, at 20 percent.

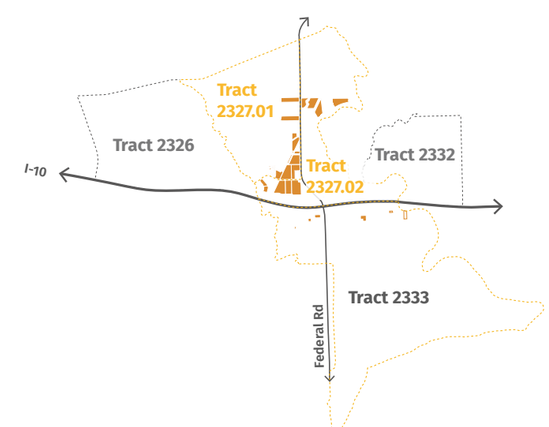
In 2016, 48 percent of Northshore residents over the age of 25 did not have a high school diploma. In the same year, only 24 percent of Houston residents had not graduated from high school. Based on rankings developed by Children at Risk, two area elementary schools are rated relatively high, with B grades. Schools serving the areas with multi-family housing received D grades.



Elementary School Rankings, Children at Risk 2018

- A Grade
- B Grade
- C Grade
- D Grade

Source: Children at Risk

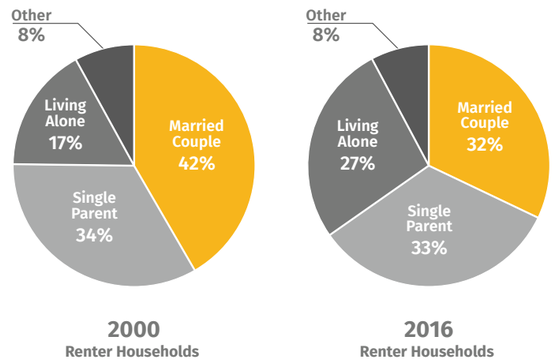


Census Tract Map

Source: GIS

Multi-Family Housing Overview
Northshore has a total of 9,274 housing units, with 93 percent of those units occupied. Of the total units, 3,851 are in multi-family developments. Housing vacancy rates in the Northshore study area were much lower than in Houston overall in 2016. Only seven percent of area housing units were vacant in this year, compared to 11 percent in Houston. Vacancy rates ranged from a low of 2.4 percent to a high of 10.7 percent across area Census tracts.

In 2000, married couples comprised the majority of neighborhood renter households at 42 percent, followed by 34 percent single parents and 17 percent of the population living alone. However, in 2016 these numbers shifted as the percentage of renter households who were married couples decreased to 32 percent, and the number of residents living alone increased to 27 percent.



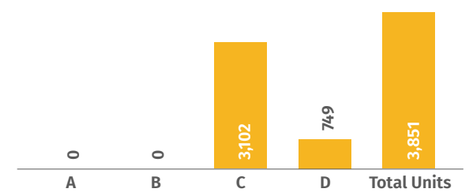
Northshore Renters by Household Type
Sources: Census 2000, ACS 2016

	Northshore			Houston		
	2000	2010	2016	2000	2010	2016
Housing Units						
Total Housing Units	8,185	9,292	9,274	782,009	889,489	937,245
Occupied	91%	86%	93%	92%	86%	89%
Vacant Housing Units	9%	14%	7%	8%	14%	11%
Housing Units in Structure						
Single Family (1 attached and detached)	60%	58%	58%	52%	51%	50%
Multi-Family 2-19	17%	25%	30%	21%	31%	27%
Multi-Family 19+	19%	13%	9%	26%	17%	22%
Other	4%	4%	3%	1%	1%	1%
Tenure						
Percent Owners	55%	51%	45%	46%	45%	43%
Percent Renters	45%	49%	55%	54%	55%	57%
Persons per Household	3.4	3.4	3.3	2.7	2.7	2.7
Housing Cost Burden (>30% of Income)						
Percent Owners		25%	21%		29%	23%
Percent Renters		52%	47%		47%	47%

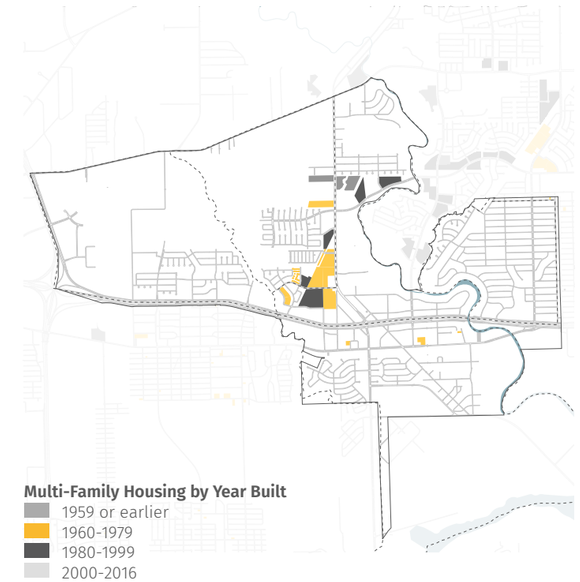
Sources: Census 2000, ACS 2010, ACS 2016

The median household size in the Northshore study area is 3.3 people, a number significantly greater than Houston overall.

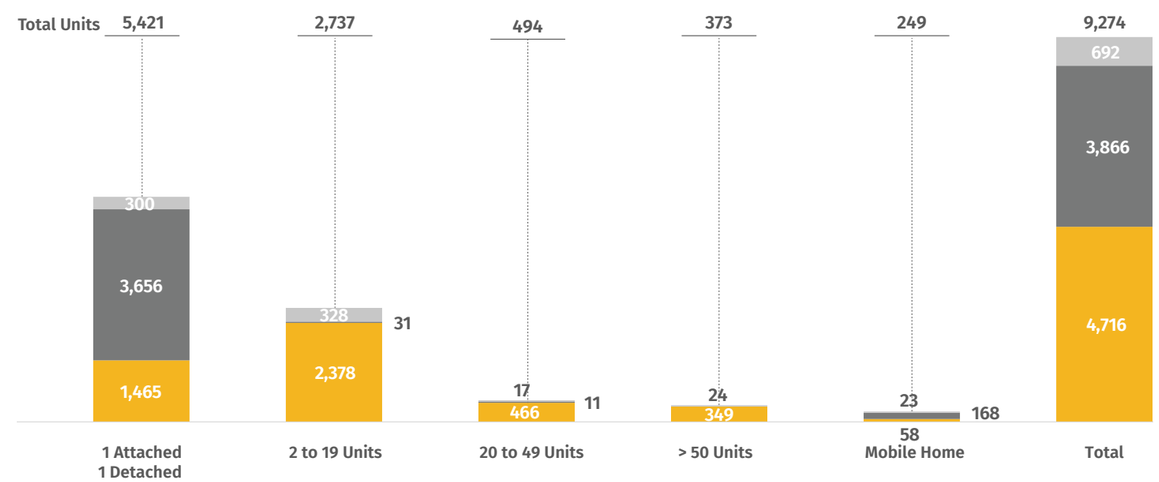
The most common rental units in Northshore are traditional single family homes and townhomes, followed by small apartment buildings with 2-19 units. The median year housing was built in the neighborhood is 1975. The majority, or 80 percent of multi-family buildings in Northshore are graded as C in the 2018 HCAD Public Data. D grade units comprise the remaining 20 percent of the neighborhood's multi-family housing, there are no structures graded as A or B in the neighborhood.



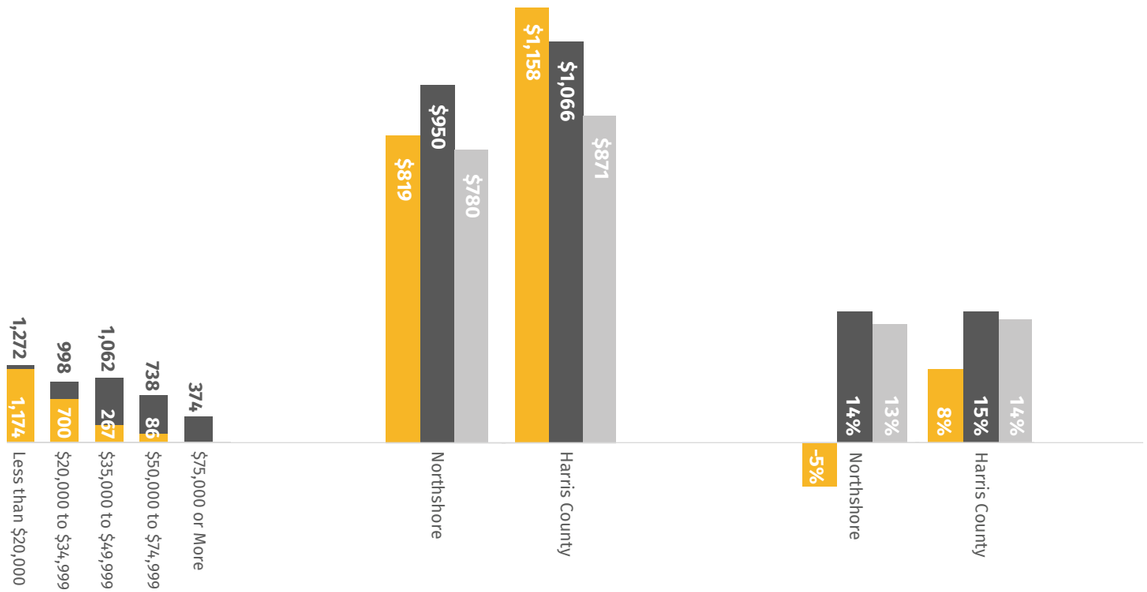
Multi-Family Housing by Grade
Source: HCAD Public Data, 2018



Sources: City of Houston GIS, HCAD



Occupied and Vacant Housing by Tenure and Type
Renter Occupied Housing
Owner Occupied Housing
Vacant Housing
Source: ACS 2016



Housing Cost Burden for Northshore Renter Households by Income 2016
Cost Burdened Renter Households
All Renter Households
Sources: ACS 2016 (5-Yr), National Low Income Housing Coalition, 2018

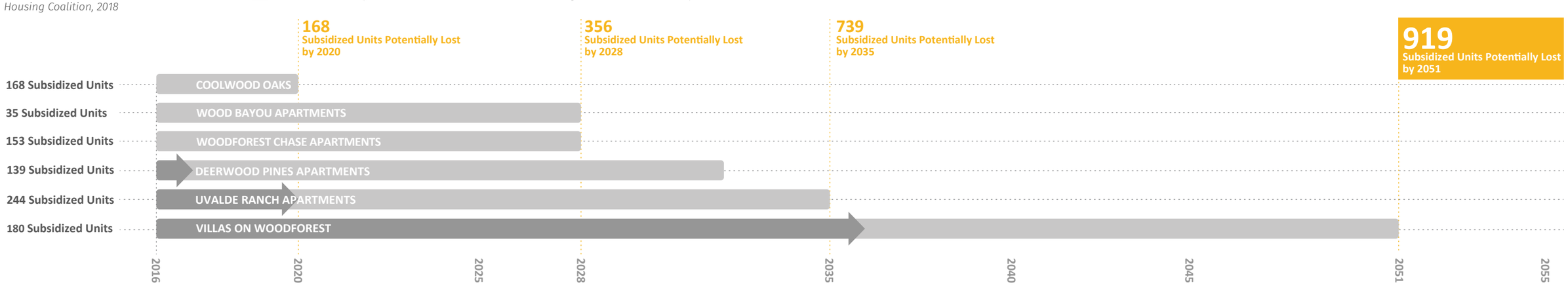
Affordable Rent Compared to Fair Market Rent 2018 (Based on 25% of income spent on housing)
Affordable Rent Based on Median HH Income
Fair Market Monthly Rent 2BR (NLIHC)
Fair Market Monthly Rent 1BR (NLIHC)

2011-2018 Change in Median Household Income and Rent
Change in Median HH Income
Change in Fair Market Monthly Rent 2BR
Change in Fair Market Monthly Rent 1BR

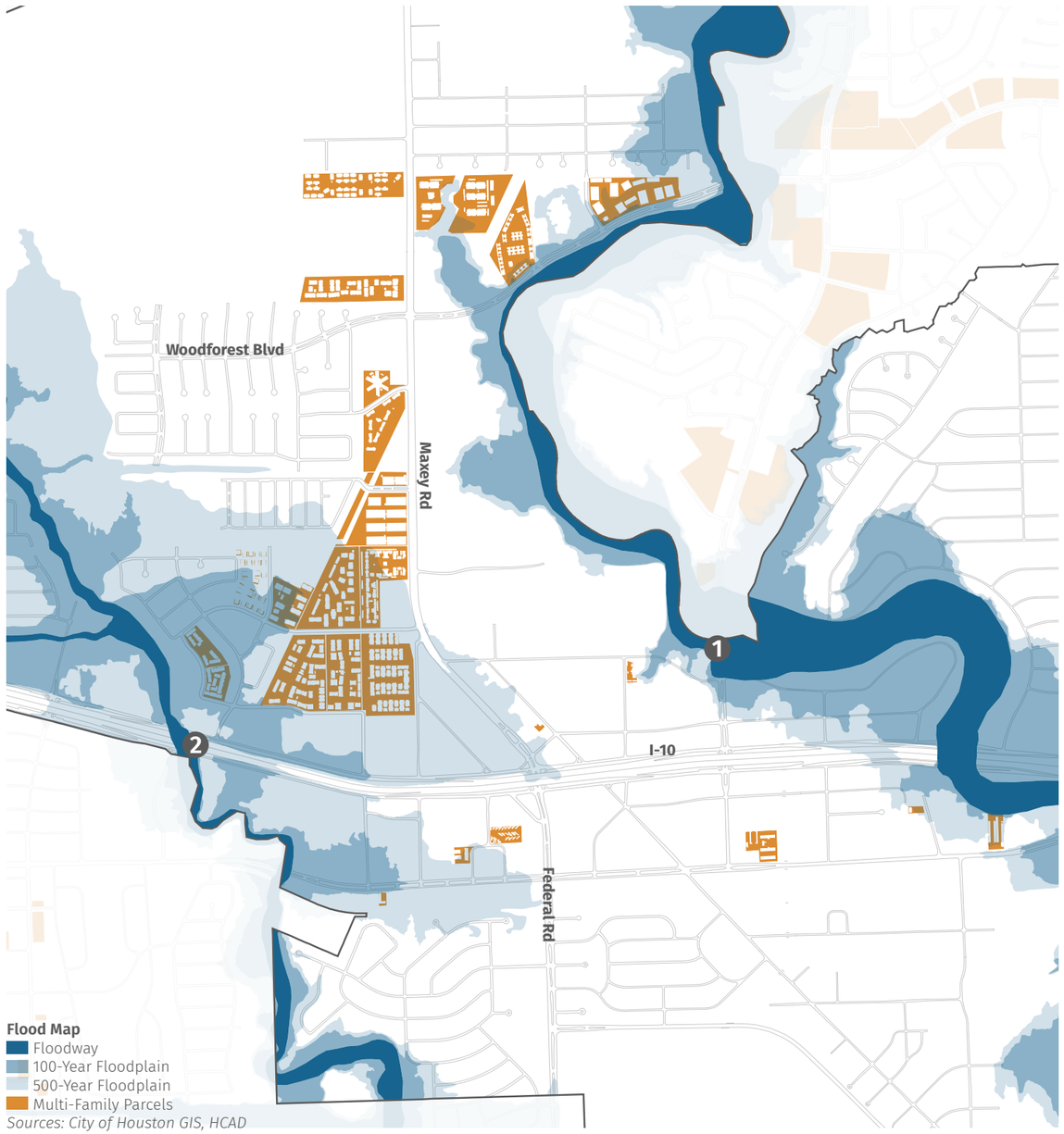
Affordability
Almost half of the renters living in the Northshore neighborhood are cost burdened, a percentage similar to Harris County overall. However, 92 percent of households with a median household income below $20,000 are burdened, and 70 percent of those making under $35,000. Since 2011, rents in Northshore have increased by approximately 14 percent while median household income has declined by five percent. As the neighborhood struggles with stagnant or declining incomes the cost of housing will increasingly become an issue for area families.

There are a total of six LIHTC properties and HUD subsidized complexes in Northshore. Combined, these developments contain 919 affordable housing units. Of these, 168 low income units will expire next year, by 2028 an additional 356 could expire, and by 2050 all contracts will have expired. These 919 affordable multi-family units comprise almost a quarter of all apartment units in Northshore.

The affordable rent in Northshore, based on median household income is $819, significantly lower than affordable rent in Harris County, which is $1,158. As shown in the chart on page 74, affordable monthly rent is not reflective of the true cost to rent a two-bedroom apartment in Northshore. Fair market rent on a two-bedroom apartment is $950, which is 15 percent higher than the affordable monthly rent. However, one-bedroom apartments are within the reach of families living in the area.



LIHTC and HUD Subsidized Contracts and 15- and 30-Year Expiration Dates
15-Year Expiration
30-Year Expiration
Source: Policy Map, LIHTC, HUD



Sources: City of Houston GIS, HCAD

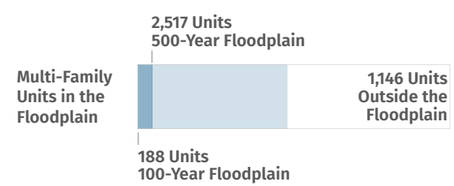
Flood Risks

Northshore is sandwiched between two bayous. Greens Bayou defines the eastern east edge of the neighborhood, and Hunting Bayou traverses the western side. Historic flooding has occurred along Greens Bayou at Normandy (as indicated by historic data for Gage 1610, see chart to the right) during both Tropical Storm Allison and Hurricane Harvey. During Harvey, Greens Bayou was 12.2 feet over the top of the bank, and 1.7 feet over the 100-year storm level. Since 1989, Greens Bayou has left its banks seven times at this location.

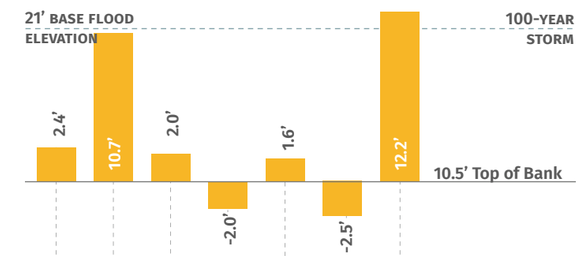
Hunting Bayou also topped its bank during Allison and Harvey, but Allison was a more significant flood event at this gage (as indicated by historic data for Gage 820, see chart to the right). Since 1989, Hunting Bayou has left its banks 12 times. The frequent flooding events in Northshore have impacted the neighborhood greatly, causing displacement, loss, and uncertainty.

Based on historic flooding in the neighborhood, the building elevation requirements outlined in the City of Houston's Chapter 19 flood ordinance will not be sufficient to protect property in the future. For example, rains from Tropical Storm Allison inundated the neighborhood at 2.9 feet above base flood elevation at I-10 and Hunting Bayou in 2001.

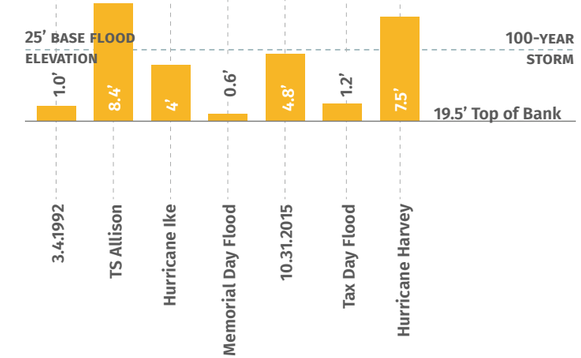
In Northshore, 70 percent of all multi-family properties are inside a flood risk area, either the 100- or 500-year floodplain. A more detailed analysis of the apartments in a flood risk area, found that 2,705 multi-family units out of the 3,851 total units are at risk for flooding and damage during a future event. More specifically, 70 percent of the total multi-family housing units in the neighborhood are located in a flood risk hazard area.



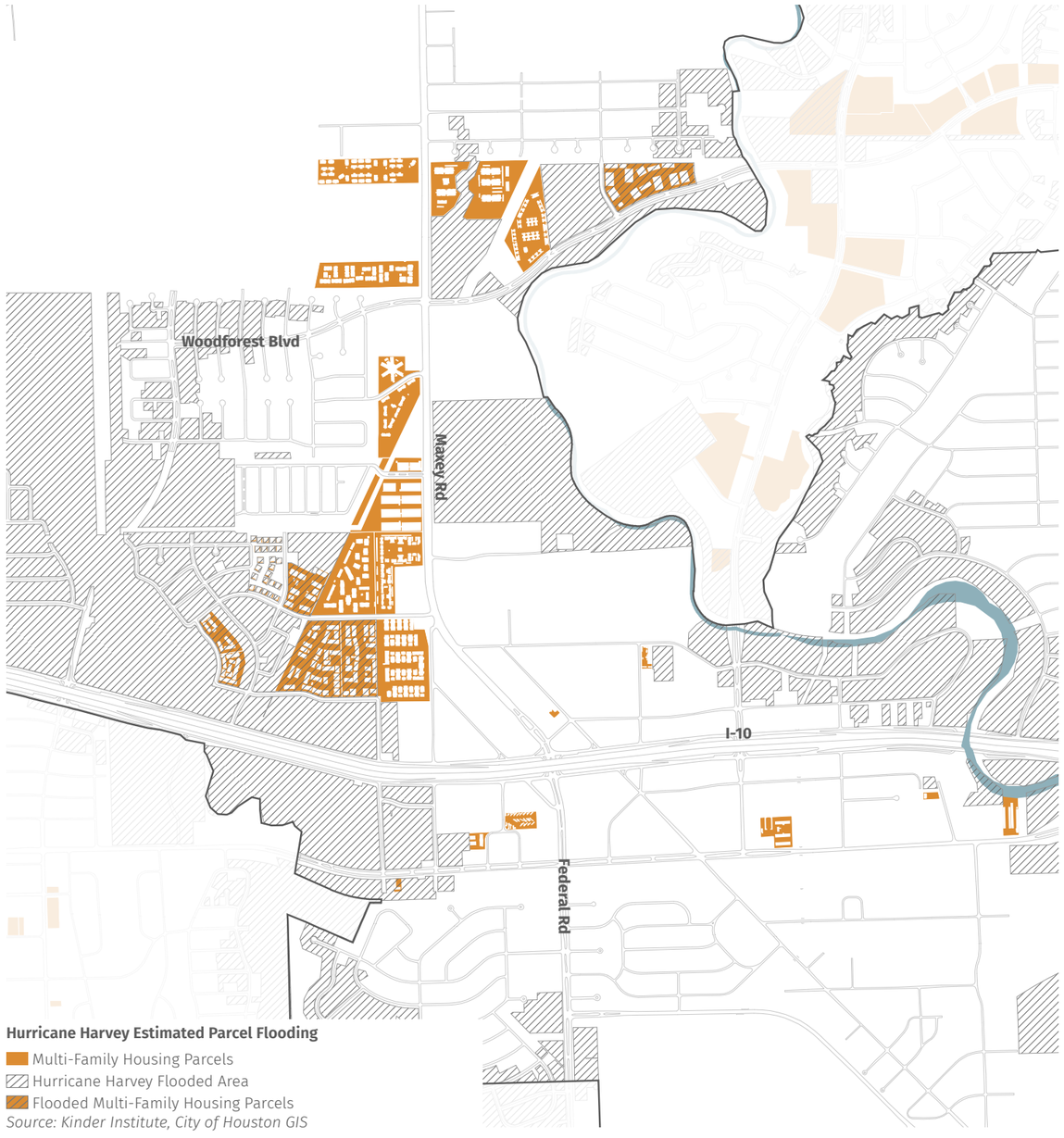
Sources: HCAD Public Data, FEMA Floodplain Data



❶ **Historic Flood Levels at Gage 1610: Greens Bayou at Normandy**



❷ **Historic Flood Levels at Gage 820: Hunting Bayou at I-10**
Source: Harris County Flood Control District



Hurricane Harvey Estimated Parcel Flooding

- Multi-Family Housing Parcels
- Hurricane Harvey Flooded Area
- Flooded Multi-Family Housing Parcels

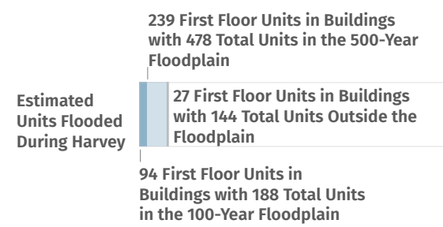
Source: Kinder Institute, City of Houston GIS

HCFCD has compiled Hurricane Harvey rainfall data for gages across the county. In Northshore, the gage located at Hunting Bayou and I-10 most accurately depicts the flood risks to multi-family housing. As a result, this gage was used to identify maximum rainfall in the Northshore study area. During Hurricane Harvey, the total rainfall in Northshore, over the five-day event, was 39.1 inches which is the largest rainfall across the four study areas. Further, over 20" fell in a single 24-hour period in Northshore.

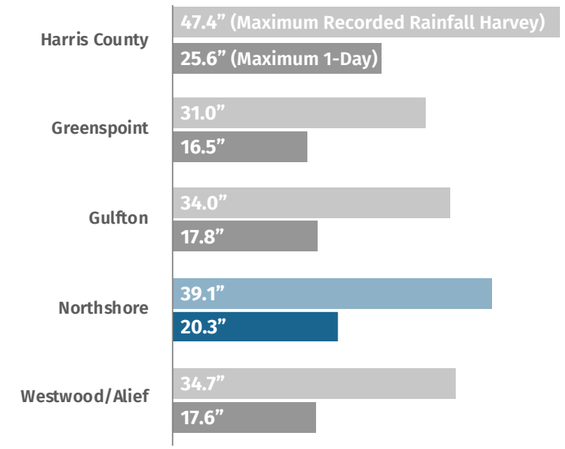
According to parcel flooding estimates provided by the Kinder Institute for Urban Research and analysis of the number of stories in area apartments, it is likely that 360 first floor multi-family units flooded as a result of Hurricane Harvey. These units were in buildings housing over 800 units. An estimated 23 percent of the impacted multi-family units were within the 100-year floodplain, 60 percent were within the 500-year floodplain, and 17 percent were outside of an identified floodplain.

More than one year after Hurricane Harvey, a number of area complexes remain damaged, these include Coolwood Oaks, Timber Ridge Apartments, Woodforest Chase Apartments, and a former senior complex.

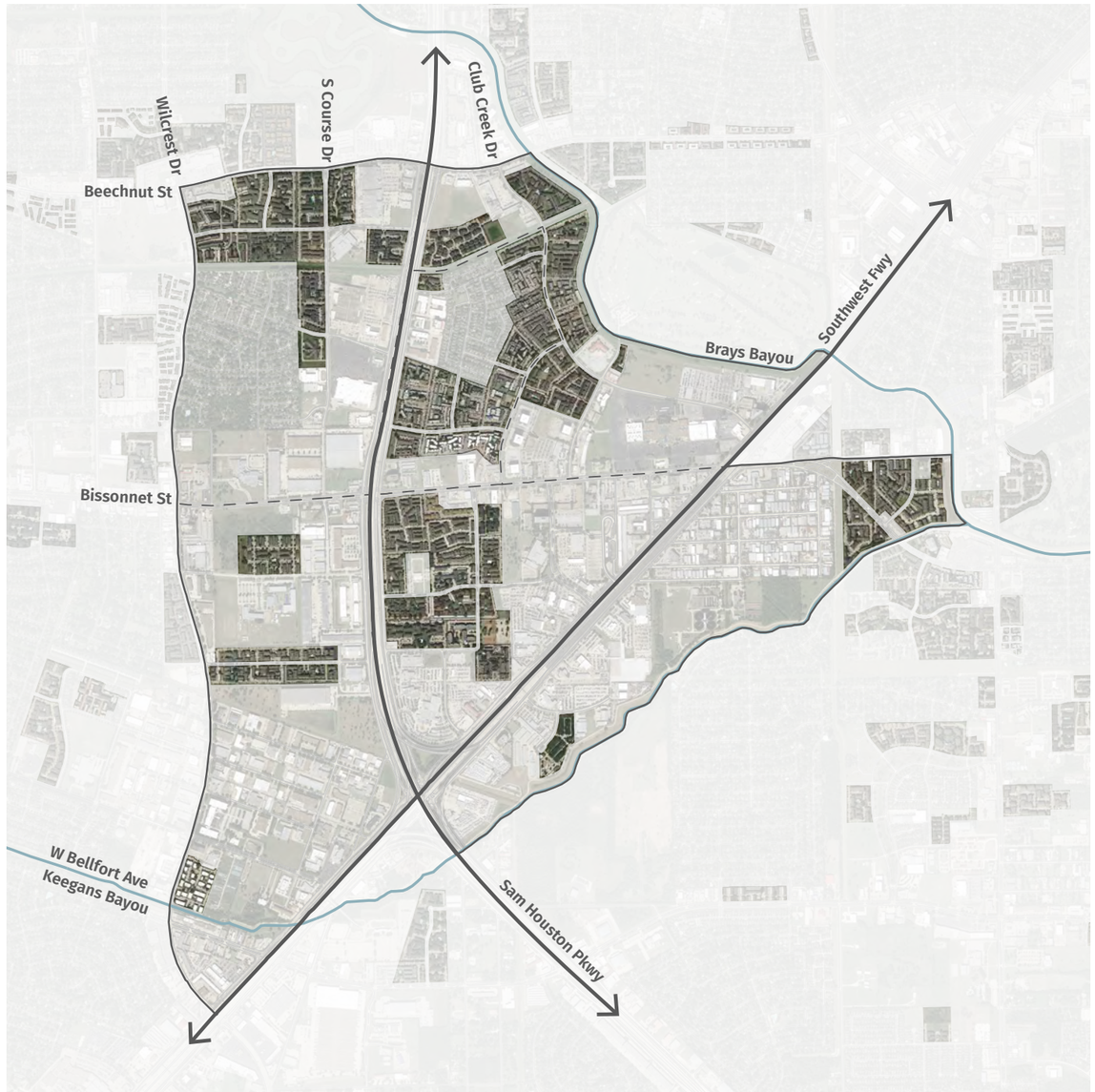
In the likely event of a future flood disaster, Northshore area multi-family housing could be at risk. If any of the complexes inside an identified floodplain, and housing 2,705 multi-family units, are damaged enough to require major investment it could trigger the need to elevate the structures. This is an unlikely scenario for any multi-family housing. The potential loss is equal to 70 percent of all of Northshore's multi-family housing stock.



Source: FEMA Estimated Inundation by Parcel, Kinder Institute for Urban Research



Harris County and Case Study Area Maximum Recorded Rainfall
Source: Harris County Flood Control District



Westwood/Alief Case Study Area and Multi-Family Housing Properties

Multi-Family Housing Properties

Sources: City of Houston GIS, HCAD

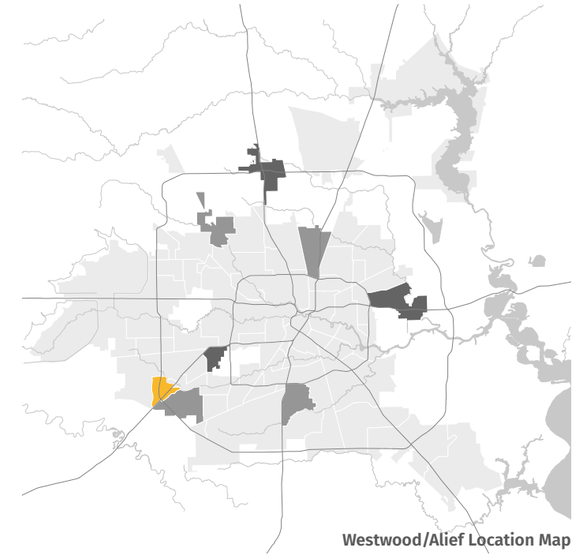
CASE STUDY: Westwood/Alief

Introduction

The Westwood/Alief combined study area is located on the far southwest side of Houston. The boundaries of the study area are approximately Beechnut Street to the north, Keegans Bayou to the south, Wilcrest Drive to the west, and Brays Bayou to the east.

In 2016, there were a total of 11,040 multi-family units in the study area, housed in 66 separate apartment complexes. Westwood/Alief has one of the highest percentages of multi-family housing in a flood risk area; in fact 100 percent of area apartments are in a flood hazard zone. Based on FEMA inundation models, it is estimated that 24 percent of multi-family apartments, or 2,615 units, were in buildings impacted by flooding from Hurricane Harvey.

The study area is mainly comprised of renters, making up 89 percent of households. Furthermore, 52 percent of area renters are cost burdened, spending 30 percent or more of their income on housing. In 2016, 98 percent of area households earning $20,000 or less were burdened by high housing costs. Currently, the Westwood/Alief study area has over 1,000 affordable units supported through either LIHTC or HUD subsidies.



Westwood/Alief Location Map

Westwood/Alief Multi-Family Housing

	Westwood/Alief			Houston		
	2000	2010	2016	2000	2010	2016
PEOPLE	31,978	29,737	32,797	1,953,631	2,068,026	2,240,582
Population Change		-7%	10%		6%	8%
Population Density (per Sq Mile)	9,456	8,631	9,521	3,372	3,449	3,737
Age						
17 Years or Younger	33%	37%	35%	28%	26%	26%
18 - 64 Years Old	65%	60%	62%	64%	65%	66%
65 Years or Older	2%	2%	4%	8%	9%	8%
Race/Ethnicity						
White	8%	5%	4%	31%	26%	26%
Black or African American	44%	33%	21%	25%	23%	23%
Asian	7%	6%	6%	5%	6%	6%
Hispanic or Latino	39%	55%	68%	37%	44%	44%
Other	2%	1%	1%	2%	2%	1%
Place of Birth						
Born Outside the U.S.	38%	42%	44%	26%	29%	29%
EDUCATION						
Educational Attainment 25 Years +						
Less Than High School	36%	43%	39%	30%	26%	24%
High School Graduate (includes equivalency)	22%	27%	31%	20%	22%	22%
Some college	27%	18%	21%	23%	24%	24%
Bachelor's degree	11%	9%	7%	17%	17%	18%
Master's degree	3%	2%	1%	6%	7%	8%
Professional and Doctorate Degrees	1%	1%	1%	4%	4%	4%
INCOME						
Median Household Income	$25,196	$23,955	$26,225	$36,616	$44,124	$47,010
Percent of Houston's Median	69%	54%	56%			
Percent of Population Below Poverty	25%	39%	41%	19%	18%	19%
TRANSPORTATION						
Means of Transportation to Work						
Drove Alone	65%	62%	61%	72%	74%	76%
Carpooled	21%	26%	25%	16%	14%	12%
Public Transportation	10%	8%	6%	6%	5%	4%
Bicycled and Walked	3%	1%	2%	3%	3%	3%
Other	1%	1%	2%	1%	2%	2%
Households without access to a vehicle	17%	21%	15%	12%	10%	9%

Sources: Census 2000, ACS 2010, ACS 2016

Demographic and Neighborhood Overview

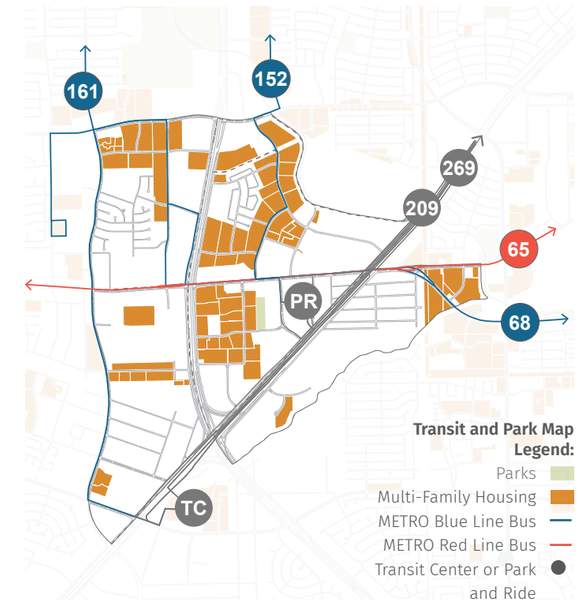
A demographic overview of the Westwood/Alief case study area provides insight into how the area has changed since 2000. The study area is 3.5 square miles in area and was home to just under 33,000 residents in 2016. The area has an extremely high population density. In 2016, there were 9,251 people per square mile, a number nearly three times higher than the average population density in Houston.

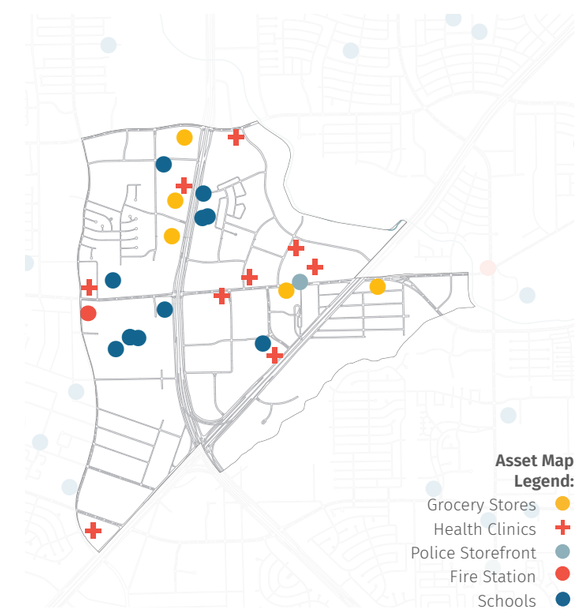
Westwood/Alief is home to many young families with children. In 2016, there were 11,362 residents under the age of 18 years, which is 35 percent of the area's population, compared to just 26 percent in Houston. Yet, there is only one small park, Forum Park, that has few amenities to serve area families.

Between 2000 and 2016, the percent of residents who were Hispanic or Latino nearly doubled, increasing from 39 to 68 percent. In the same time period, the percent of Black or African American residents declined, from almost half of the population in 2000, to 21 percent in 2016. In addition, 44 percent of the population was born outside of the United States in 2016, a six percent increase since 2000.

The study area is served by four METRO bus routes, only one of which is high frequency, running every 10-15 minutes. The area is also home to the Westwood Park and Ride and the West Bellfort Transit Center. Only six percent of area workers, over the age of 16, rode public transit to work in 2016, a number slightly higher than the four percent in Houston overall. Yet, in the same year, 15 percent of area households did not have a vehicle. The percent of workers who carpooled to work in 2016 was 25 percent, a number more than double the percent in Houston.

The study area is served by five grocery stores, ten area schools, a police storefront, and numerous health clinics. One of the greatest challenges in the area is accessibility. The boundaries created by area freeways and Brays Bayou have limited connectivity to schools, transit, and other opportunities.





	Tract 4231	Tract 4335.01	Tract 4335.02	Tract 4336	Tract 4532	Tract 4533	
Socioeconomic Vulnerability							
Persons below poverty	●	●	●	●	○	●	*Income and poverty impact a family's capacity to prepare for, react to and recover from a disaster*
Civilian (age 16+) unemployed	●	●	○	●	○	○	
Per capita income	●	●	●	●	○	○	
Persons (age 25+) with no H.S. diploma	●	●	●	○	●	○	
Household Vulnerability							
Persons aged 65 and older	○	○	○	○	○	○	*Seniors, children and single parents are more vulnerable to a disaster than other population groups*
Persons aged 17 and younger	○	●	●	●	●	○	
Civilian non institutionalized population with a disability	○	○	○	○	○	○	
Single parent household with children under 18	○	●	●	○	○	○	
Minority Status and Language Vulnerability							
Minority (all persons except white, non-Hispanic)	●	●	●	●	●	●	*Access to information can be a challenge for those with language barriers*
Persons (age 5+) who speak English "less than well"	●	●	●	●	●	○	
Housing and Transportation Vulnerability							
Housing in structures with 10 or more units	●	●	●	●	●	●	*Access to transportation and quality housing that is outside of designated risk zones reduces vulnerability*
Mobile homes estimate	○	○	○	○	○	○	
At household level, more people than rooms	●	●	●	●	●	○	
Households with no vehicle available	●	●	●	○	○	○	
Persons in institutionalized group quarters	○	○	○	○	○	○	
Overall Social Vulnerability	●	●	●	●	●	○	
Vulnerability ranking	93%	93%	92%	95%	98%	81%	
(Top 25% indicates social vulnerability)							

Social Vulnerability Index

- ● Tracts in the top 10%, or at the 90th percentile (Indicate high vulnerability)
- ○ Tracts below the 90th percentile
- ▬ Tracts with High Vulnerability and High Concentration of Multi-Family Housing

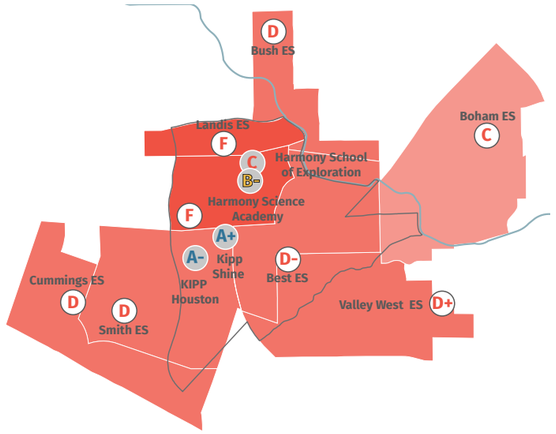
Source: Social Vulnerability Index (2014), https://svi.cdc.gov/map.aspx

Westwood/Alief has a very high social vulnerability index. Social vulnerability refers to the resilience of communities when confronted by external stresses on human health, including natural or human-caused disasters. The CDC's social vulnerability index is the "degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, or crowded households."

The Westwood/Alief study area includes six Census tracts: 4231, 4335.01, 4335.02, 4336, 4532, and 4533. Five of the six tracts have a social vulnerability index of over 90 percent, which indicates very high vulnerability, see table on page 84.

One of the most important indicators of resiliency is low poverty rates. In 2016, 41 percent of Westwood/Alief area families lived on incomes below the federal poverty level, this was more than double the poverty rate for families in Houston, which was 19 percent. Since 2000, median household income in the study area has remained virtually stagnant, rising from $25,196 in 2000 to $26,225 in 2016, without being adjusted for inflation. The 2016 median household income in Westwood/Alief was 56 percent of Houston's median income of $47,010 in the same year. In 2016, out of the 7,204 children in the neighborhood, 61 percent lived in families whose income was below the poverty line.

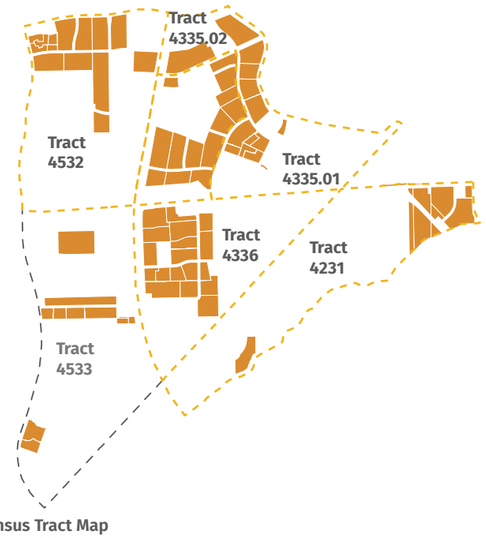
In 2000, 36 percent of Westwood/Alief residents over the age of 25 had not completed high school. By 2016, this percent had increased to 39 percent. According to Children at Risk's rankings of schools, two area charter schools received A grades, the remaining two charter schools B and C grades. The eight public schools serving area students received four D grades, two F grades, and one C grade. Providing high-quality educational opportunities to children and families can reduce social vulnerability.



Elementary School Rankings, Children at Risk 2018

- A Grade
- B Grade
- C Grade
- D Grade
- F Grade

Source: 2018 Children at Risk

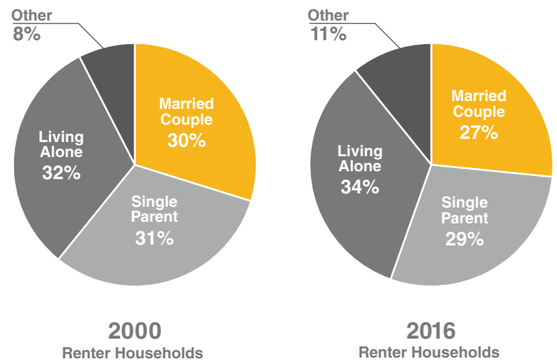


Census Tract Map

Source: GIS

Multi-Family Housing Overview
There were 13,954 housing units in the Westwood/Alief study area in 2016, of which 10,317 were renter occupied. In 2000, nine percent of all housing units in the study area were vacant, by 2016 this percentage had increased to 17 percent, a total of 2,312 vacant units. In Houston overall, 11 percent of area housing units were vacant in 2016. Overall, 89 percent of area households are renters.

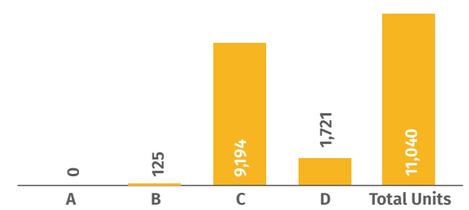
The majority of area apartment complexes are located within the boundaries of the Westwood Super Neighborhood, which is the area east of Beltway 8. In 2016, the most common multi-family housing types in the study area (as reported in the American Community Survey) were small apartment complexes with 2-19 units, these complexes comprised 58 percent of the area's total units. While the number of units in the buildings may be lower than 19, the area is primarily home to very large complexes, similar to Gulfton. The median year multi-family structures were built is 1979. However, a number of properties have been renovated in recent years.



Westwood/Alief Renters by Household Type
Sources: Census 2000, ACS 2016

According to HCAD public data, 85 percent of multi-family units in the study area are considered C grade, followed by 14 percent D grade units, and one percent B grade units, currently there are no units within the focus area with A grades.

Please note there is a discrepancy between HCAD and U.S. Census Bureau data for the number of multi-family units in the study area, this discrepancy is largely a factor of the geographic constraints of Census blocks and tracts.



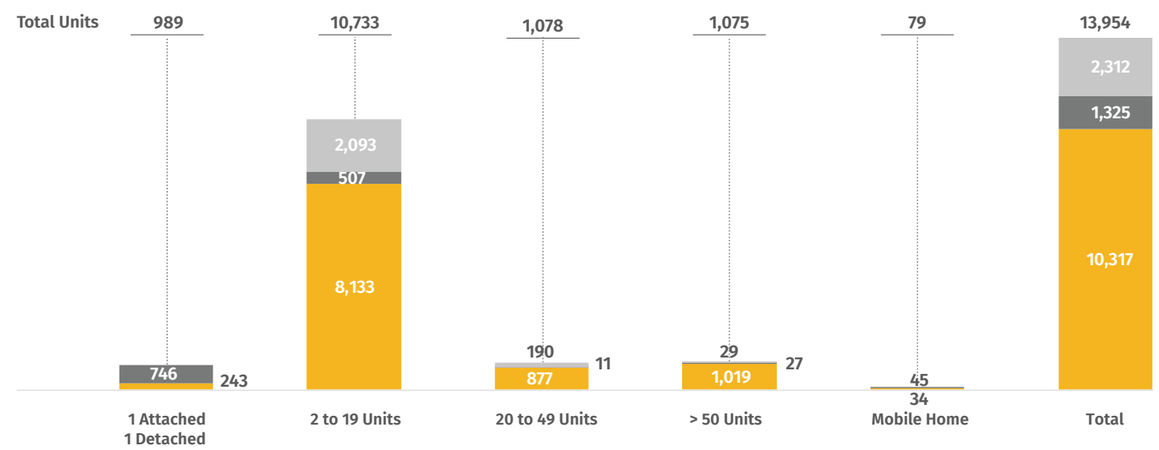
Multi-Family Units by Grade
Source: HCAD Public Data, 2018

Multi-Family Housing by Year Built
- 1959 or earlier
- 1960-1979
- 1980-1999
- 2000-2016

Source: City of Houston GIS, HCAD

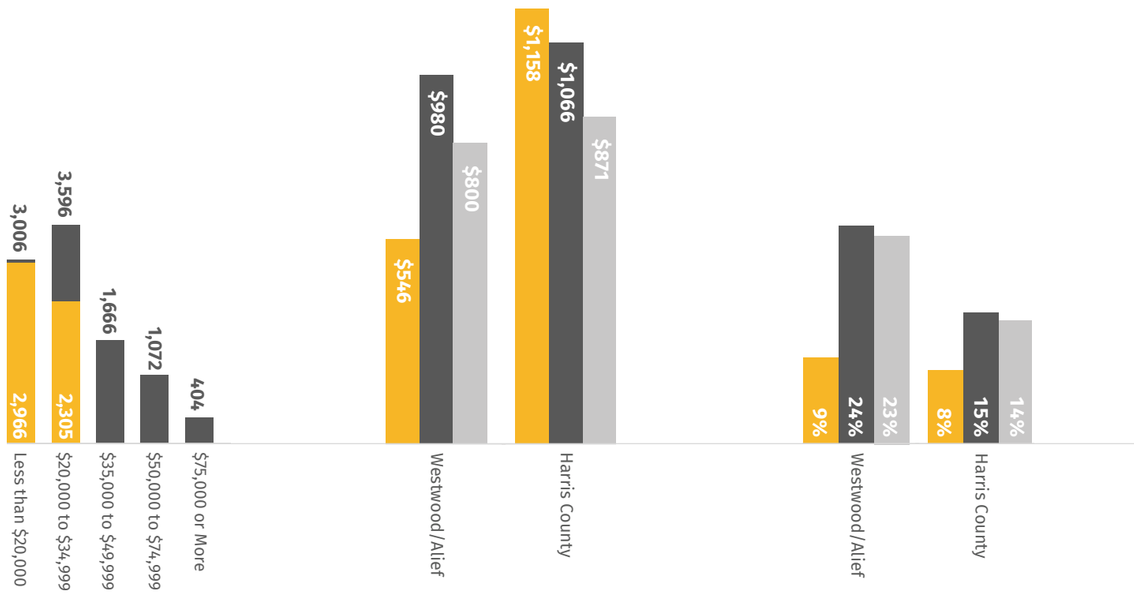
	Westwood/Alief			Houston		
	2000	2010	2016	2000	2010	2016
Housing Units						
Total Housing Units	13,236	14,250	13,954	782,009	889,489	937,245
Occupied	91%	72%	83%	92%	86%	89%
Vacant Housing Units	9%	28%	17%	8%	14%	11%
Housing Units in Structure						
Single Family (1 attached and detached)	7%	8%	7%	52%	51%	50%
Multi-Family 2-19	46%	81%	77%	21%	31%	27%
Multi-Family 19+	47%	11%	15%	26%	17%	22%
Other	0%	0%	1%	1%	1%	1%
Tenure						
Percent Owners	10%	8%	11%	46%	45%	43%
Percent Renters	90%	92%	89%	54%	55%	57%
Persons per Household	2.6	2.9	2.8	2.7	2.7	2.7
Housing Cost Burden (>30% of Income)						
Percent Owners		29%	36%		29%	23%
Percent Renters		56%	52%		47%	47%

Sources: Census 2000, ACS 2010, ACS 2016



Occupied and Vacant Housing by Tenure and Type
- Renter Occupied Housing
- Owner Occupied Housing
- Vacant Housing

Source: ACS 2016



Housing Cost Burden for Westwood/Alief Renter Households by Income 2016
Cost Burdened Renter Households
All Renter Households
Sources: ACS 2016 (5-Yr), National Low Income Housing Coalition, 2018

Affordable Rent Compared to Fair Market Rent 2018 (Based on 25% of income spent on housing)
Affordable Rent Based on Median HH Income
Fair Market Monthly Rent 2BR (NLIHC)
Fair Market Monthly Rent 1BR (NLIHC)

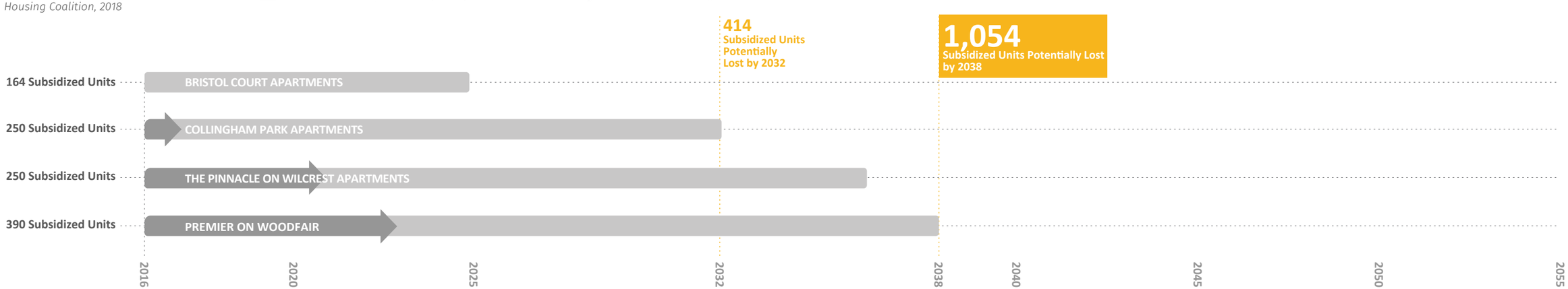
2011-2018 Change in Median Household Income and Rent
Change in Median HH Income
Change in Fair Market Monthly Rent 2BR
Change in Fair Market Monthly Rent 1BR

Affordability
In 2016, 52 percent of Westwood/Alief renters were cost burdened, spending more than 30 percent of their income on housing, a percentage higher than in Harris County. In the same year, 98 percent of households with a median household income below $20,000 and 64 percent of those making under $35,000, were cost burdened. Based on the area's median household income, affordable rent in Westwood/Alief is $546 per month, which is significantly lower than the Harris County affordable rent of $1,158 per month.

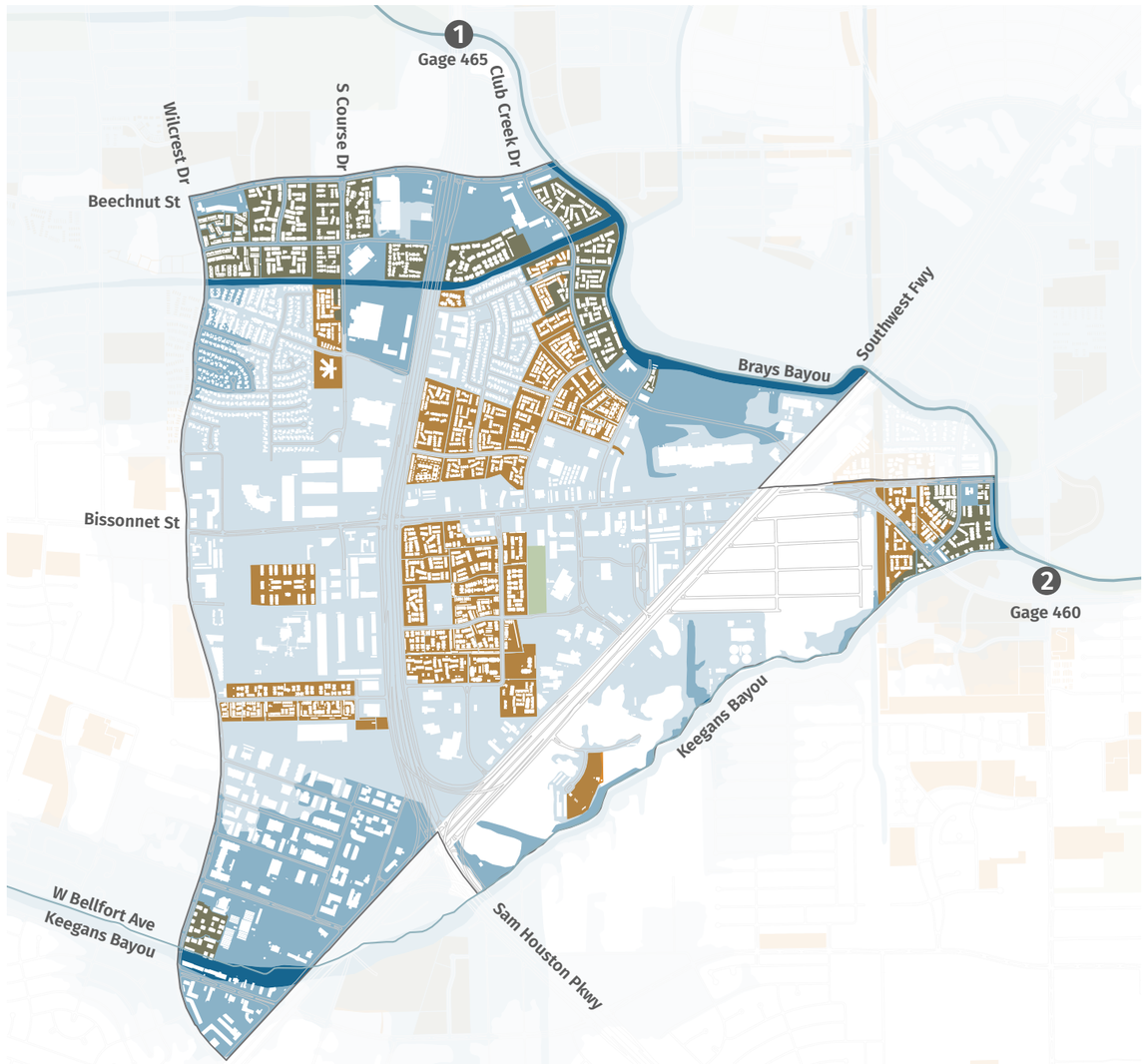
According to data provided by the National Low Income Housing Coalition, fair market rent in Westwood/Alief for a one-bedroom apartment is $800 per month, while fair market rent for a two-bedroom is $980. Based on this data, it is evident that fair market rents are higher than area families can afford.

Between 2011 and 2018, fair market rent in Westwood/Alief increased by 24 and 23 percent respectively for a two-bedroom or one-bedroom apartment. In the same time period, median household income in the area increased by only nine percent, widening the gap between income and housing affordability in the area.

There are a total of four LIHTC properties and HUD subsidized complexes in the study area. Combined, these developments make up 1,054 affordable housing units. By 2040, all affordable housing contracts will have expired.



LIHTC and HUD Subsidized Contracts and 15- and 30-Year Expiration Dates
15-Year Expiration
30-Year Expiration
Source: Policy Map, LIHTC, HUD



Flood Map
- Floodway
- 100-Year Floodplain
- 500-Year Floodplain
- Multi-Family Parcels

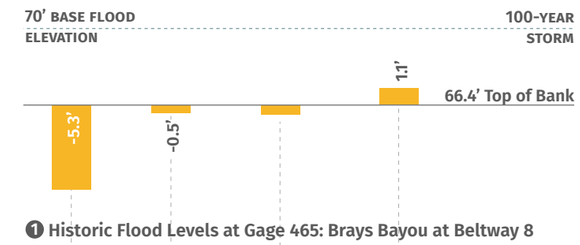
Sources: City of Houston GIS, HCAD

Flood Risks

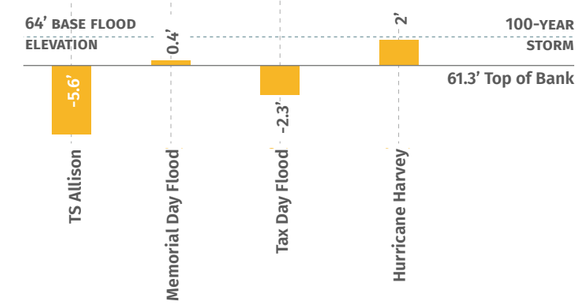
The Westwood/Alief case study area is bordered on two of its three sides by bayous. Brays Bayou defines the northern edge of the area, while Keegans Bayou defines the southern edge. An analysis of two Harris County flood gages along Brays Bayou illustrate a lack of historic flooding in the area. Recordings from gage 465, installed in 1999 at Brays Bayou and Beltway 8, recorded the bayou topping its bank for the first time during Harvey. While gage 460, installed in 1984 at Brays Bayou and Gessner Road, recorded the bayou topping its bank during Hurricane Harvey, the Memorial Day Flood in 2015, and during a storm event in 1983. Rainfall from Hurricane Harvey resulted in the highest recorded stream elevation for both gages.

In the Westwood/Alief study area, a staggering 100 percent of all multi-family properties are inside either the 100- or 500-year floodplain. In fact, a more detailed analysis of apartments in a flood risk area, including the number of stories of each building, found that 5,368 first floor multi-family units out of the 11,040 total units are at risk for direct flooding and damage during a future event. This is equal to 49 percent of all multi-family units in Westwood/Alief.

However, all of the multi-family units in the area, or 10,735 total units, are at risk of being lost due to the restrictions in the revised Chapter 19 flood ordinance. If any of the complexes inside an identified floodplain are damaged enough to require major investment it could trigger the need to elevate the structures. Elevating the complexes is an unlikely scenario for any multi-family housing.

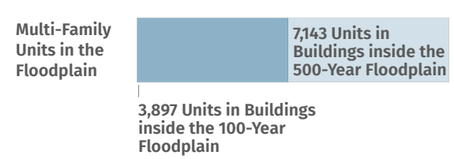


1 Historic Flood Levels at Gage 465: Brays Bayou at Beltway 8

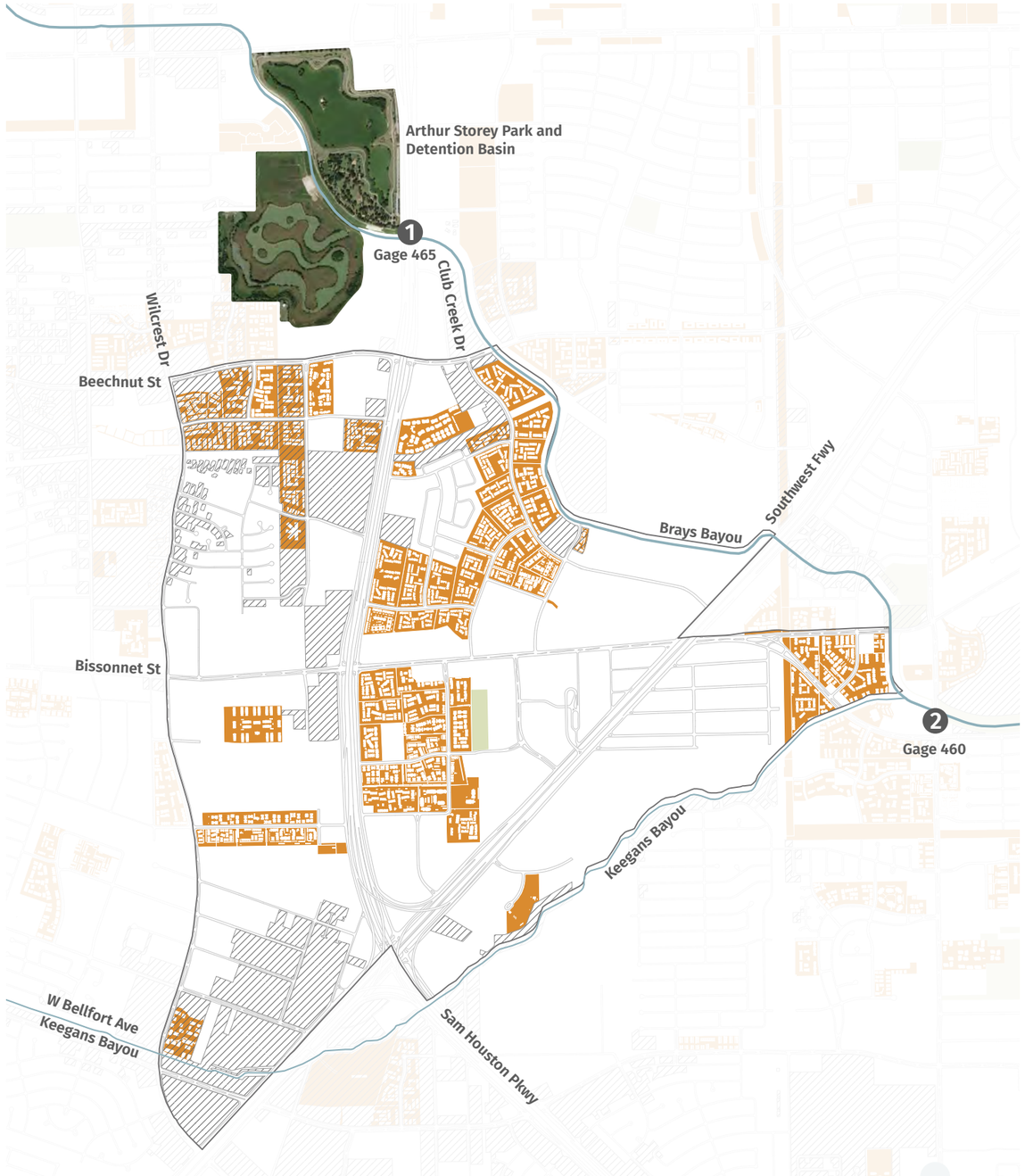


2 Historic Flood Levels at Gage 460: Brays Bayou at Gessner Rd

Source: Harris County Flood Control District



Sources: HCAD Public Data, FEMA Floodplain Data



Hurricane Harvey Estimated Parcel Flooding

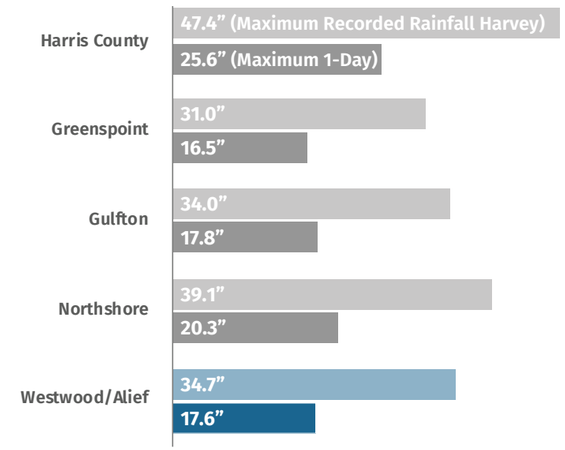
- Multi-Family Housing Parcels
- Hurricane Harvey Flooded Area
- Flooded Multi-Family Housing Parcels

Source: Kinder Institute, City of Houston GIS

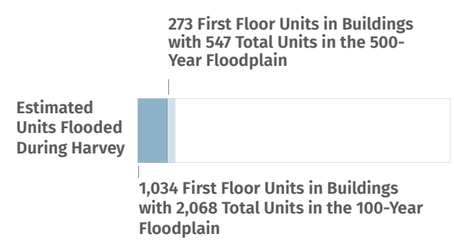
HCFCD has compiled Hurricane Harvey rainfall data for gages across the county. During Hurricane Harvey, the total rainfall in Westwood/Alief, over the five-day event, was 34.7 inches. Gauge 465 was used to calculate the total rainfall recording because of its upstream location, which would most accurately depict rainfall intensity during Harvey.

According to parcel flooding estimates, provided by the Kinder Institute for Urban Research, an in-depth analysis was completed to document the flooding impact in Westwood/Alief. Based on this analysis, it is estimated that 1,308 first floor multi-family units flooded as a result of Hurricane Harvey. These units are in buildings with a total of 2,615 apartments. Of the estimated flooded multi-family units, 79 percent were within the 100-year floodplain and 21 percent were within the 500-year floodplain. The estimated flooded units make up 12 percent of the area's multi-family apartments.

Recent flood mitigation projects in the area, particularly Arthur Storey Park and Detention Basin, likely made the difference between catastrophe and the flood damage that occurred in Westwood/Alief during Harvey. The 211-acre Arthur Storey Park and Detention Basin holds 1.1 billion gallons of water, and is located just north of the area. The basin protects Weswood/Alief's multi-family housing from upstream stormwater flow. In addition to serving as detention, the basin is used as a pilot for HCFCD's Floatables Collection Program, which traps trash and debris in Brays Bayou.



Harris County and Case Study Area Maximum Recorded Rainfall
Source: Harris County Flood Control District



Source: FEMA Estimated Inundation by Parcel, Kinder Institute for Urban Research

POLICY and ACTION CONSIDERATIONS

The policy and programmatic actions offered in this report focus primarily on strategies for getting as many residents as possible into safe, affordable housing. It is critical to note that the issues the region's population faces with flooding and access to affordable multi-family housing connect back to issues of safety, health, code enforcement, income and opportunity.

The considerations below are mainly focused on practices tied directly to housing and land use. The majority center around addressing major housing issues by monitoring the quantity and condition of the housing stock in the region, as well as finding ways to preserve existing affordable housing or make land available for the implementation of various housing solutions. Most apply directly to actions that either Harris County or the City of Houston can take to address the issue. However, it is critical to note that local public action must be supported by broader efforts of public officials at the state and federal level, as well as by private actors, to address this issue. Most of the existing public subsidies are aimed at those with the lowest of incomes. In order to address the needs of moderate-income and workforce housing, public agencies will need additional tools and partnerships with philanthropy, banks, developers, and corporations.

However, household resilience is as connected to economic stability and physical health as it is to the status of one's housing conditions. In addition to the property-related strategies provided below, the county and city should work with each other and other partners to build a robust system of supportive services for households of lower incomes that can work hand-in-hand with housing interventions. Further, actions such as ensuring a living wage could help address the affordability issues by increasing incomes for residents and helping low-income renters pay a sustainable amount of their incomes towards housing. A $15 an hour wage, for example, would make a one-bedroom apartment affordable in three of the four case studies examined above. Again, action in this realm would require coordination at both the local and state level, as well as across both the public and private sectors.

The items that follow represent a range of policies, practices and tools that local actors—in both the public and private sector—could consider to help the region address the vulnerability of its multifamily housing supply in the face of flooding risks and affordability challenges.

AVAILABILITY - Affordable Housing Preservation and New Affordable Multi-Family Housing Construction
The options in this section focus on planning strategies, development regulations, incentives, capital funds, and code of ordinances. One of the most important aspects of these considerations is that they should be a part of efforts to complete an affordable housing needs assessment and a comprehensive affordable housing plan at both the municipal and county level. An expected strategy from an assessment that would frame the plan is to ensure that no additional units of housing affordable to low to moderate income (LMI) households are lost without 1-to-1 replacement, which would require a focus on producing new units in the same price ranges for the LMI households.

Establish Housing Trust Fund for Housing Recovery
Housing Trust Funds (HTF) offer flexible sources of funding that municipalities can utilize to support a variety of affordable housing activities and design specifically to address local priorities and needs. HTFs are in use in several American cities such the City of Austin and the City of Seattle. They are usually administered either by a city or a non-profit. HTFs are typically funded by public funds collected through development taxes and fees or one-time funding inflows. However, public and private dollars can be brought together into an HTF.

In recent years, public officials and stakeholders in the housing sector have discussed using HTFs for Houston and Harris County. Notably, the housing transition report for Mayor Sylvester Turner identified a HTF as a viable option for Houston. The transition document proposed that funding could be created using a mix of Tax Increment Reinvestment Zone (TIRZ) funds, the sale of city-owned property, and other sources. Housing bonds and even future rounds of disaster recovery funding could be used to add to an HTF balance.

A HTF would give the city or county direct control over where and when the funds could be used and could include requirements such as ensuring funded housing units are outside of the floodplains.

Case Study: *The City of Austin maintains a housing trust fund supported by tax revenue from projects built on land that was previously owned by the city. Funds from the HTF support the rehabilitation and creation of new affordable housing, targeted towards neighborhoods previously identified for reinvestment.*

Establish Inventory of Available Developable Land for Multi-Family Housing Located Outside the Floodplain
The creation of a tool that can identify suitable sites for multi-family housing development, specifically outside of the floodplain, could be an asset for affordable housing developers. This inventory, potentially accessible in an online portal or public-facing document, could form the backbone of a post-Harvey affordable housing plan and action plan. Land owned by various public sector actors that would be open for development in exchange for affordability requirements on units could be a major component of this effort.

Since Houston does not use zoning, which is a tool many other cities use to reserve land for multi-family development (see the Los Angeles case study below), this approach would require an alternative that works for Houston. Options would be to include all available large assemblages of land as possible candidates or to limit the pool through a set of qualifications. These parameters could include public ownership, proximity to certain amenities or transportation infrastructure, or even a cap on price per square foot.

The City of Houston and Harris County could set up a system to provide this pertinent information to those most likely to develop affordable housing—nonprofits and mission driven for-profits. The Turner administration's housing transition team identified the need to standardize and centralize housing data. Such a centralization could be a first step toward creating a database of available land. Currently, the Houston Land Bank (HLB), formerly the Land Assemblage Redevelopment Authority, is charged with acquiring vacant, tax-forfeited, and deteriorated property in Houston to facilitate its redevelopment. One option would be for the HLB to maintain this inventory. In general, this tool could help the city shift land acquisition priorities toward sites located outside the floodway. Currently, the HLB focuses its acquisition on lots better suited for single-family home development. The HLB could also work to acquire larger parcels or prioritize assemblage opportunities that support the development of multi-family properties.

Case Study: *The City of Los Angeles maintains an inventory of sites suitable for housing development as part of its annual report on housing, as required by California law. Under this law, the city must show that it has adequate land zoned to accommodate its allocation of regional housing needs identified in the region's long-term housing needs assessment. The inventory identifies undeveloped and underdeveloped sites upon which the required number of housing units can be built under current zoning regulations, with accompanying maps for each neighborhood. The city is not required to build the units itself, but must provide this information for housing developers, particularly for sites where the city would ideally target affordable housing development and densification.*

Establish Privately-Funded Strike Fund to Assist Affordable Housing Developers and Preserve Existing Affordable Housing
Nonprofits and other affordable housing developers are at a disadvantage in acquiring land or existing affordable properties in a fast-paced real estate market because they lack ready access to acquisition capital. The city or group of private actors could create a strike fund that would offer low-cost loans to qualifying affordable housing developers to acquire either existing buildings or raw land that can then be developed. Such a fund could be critical to preserving NOAH multi-family buildings by moving it into the ownership of a non-profit or mission-driven for-profit housing provider who can renovate and manage the existing units, rather than tearing them down. Currently many affordable housing entities looking to preserve NOAH units fail in their attempts to purchase such properties because their financing is less nimble than buyers in the private market.

Creating pre-approved lines of credit, as well as having a non-governmental purchasing partner within the strike fund, facilitates quick action. If a purchasing partner model is used, the entity sells land acquired to a vetted list of nonprofits or acts as a co-investor in predetermined scenarios that align with the fund's goals.

Proceeds from the strike fund could also be used for qualifying nonprofits to acquire and improve existing affordable housing located in the floodplain in ways that mitigate flood risk and preserve housing for low-

income residents—particularly those where landlords are bankrupt, on the verge of bankruptcy, or are not rehabilitating their property following damage from Harvey.

Additionally, the fund could be used in concert with public disaster recovery funding to remove the most vulnerable homes and buildings from the floodway and 100-year floodplains. In this scenario, private funding could be used to purchase at-risk units and residents could be moved to new units in less vulnerable areas that have been built with disaster recovery dollars.

Additional financial mechanisms could be used to augment or create a strike fund, including the following:

Below-Market Debt Funds: Entities established by partnership of private, public, and philanthropic organizations provide affordable housing developers with low-cost loans, paying below-market interest rates to their senior lenders.

Private Equity Vehicles: Real estate investment entities use private capital to acquire and rehabilitate multi-family workforce and affordable housing properties, delivering a range of returns to equity investors.

Real Estate Investment Trusts (REITs): A longstanding mechanism for raising real estate capital for other product types is used expressly to develop and preserve affordable rental units, generating a range of returns.

Case Study: *The City of Austin established the Austin Housing Conservancy (AHC), a private equity strike fund managed by the nonprofit Affordable Central Texas. Funds from the AHC are used to quickly purchase and preserve middle-income housing in the city before rents are raised to market levels, displacing residents.*

Establish Transfer of Development Rights (TDR) Program to Limit Development in the Floodplain
The city could establish a TDR program to redirect development away from flood-prone areas. Under this program, owners of properties in flood-prone areas would have the opportunity to sell their development rights to owners of properties outside of the floodplain, in exchange for a suitable development bonus. These are typically density or height bonuses tied to a local zoning code.

In the absence of formal zoning in the City of Houston, incentives would need to be tailored to the local context. For instance, the city could offer an exception to the height requirement for developments directly adjacent to major activity corridors, an alteration to setback requirements, or a reduction in parking requirements in exchange for purchasing development rights away from sites located in the floodplain. A TDR approach could allow the city to avoid concerns about takings lawsuits, while also creating a way to reduce the amount of development in floodplains.

The city and county could also encourage land swaps or land purchases by public or private entities who will maintain the floodplain site as open green space as part of the TDR program. Several local government corporations that serve a public-private role have the ability and resources to help employ this type of swap. A TDR partnership between the city and county could also help preserve open space in the periphery while helping to mitigate future flooding risk within city limits.

Case Study: *King County, Washington established a targeted TDR bank in partnership with the City of Seattle. This partnership facilitates the transfer of development rights from agricultural areas in the county to three neighborhoods in downtown targeted for densification. This partnership enabled the region to encourage sustainable, affordable housing development in the city's downtown core while preserving farm and forest land in the periphery.*

Bolster Existing Incentives to Encourage Affordable Housing Development by Private Developers (For-Profit and Non-Profit) on Sites Outside the Floodplain and/or the Inclusion of Hazard Mitigation Infrastructure on Existing Sites
Additional financial and administrative incentives could be offered to developers who agree to build affordable housing on land outside of the floodplain. These incentives could also be offered to private developers who are developing market-rate housing in exchange for guaranteeing a certain percentage of units are affordable.

Incentives could also be used to ensure developers include hazard mitigation and other green infrastructure to help mitigate future flooding risks both onsite and on surrounding sites.

There are a variety of different incentives that could be pursued in tandem or separately:

Expedited permit processing for qualifying projects
San Diego provides an expedited permit program for affordable/infill housing and sustainable development projects. The program promises an aggressive processing timeline for projects in which at least 10 percent of units are set aside for affordable housing.

Tax abatements/property tax exemptions
Provincetown, Massachusetts allows multi-family property owners to claim a tax exemption for any portion of the property used for affordable housing purposes, granted on a year-to-year basis.

New York City's J-51 Tax Incentive Program provides an as-of-right tax exemption/abatement for residential rehabilitation or conversion to affordable multi-family housing. A similar tax incentive/abatement could make it possible for a landlord of affordable housing to rehabilitate their property following a natural disaster.

In general, the City of Houston uses 380 economic development agreements as its vehicle for incentives. In the agreements, the city can require developers to put in any number of community benefits or meet certain design parameters in exchange for tax incentives. The city could use these agreements more strategically to address flooding and hazard mitigation. It could also consider more abatement strategies as seen in other cities.

Reduced parking requirements (ideally located near transit to offset)
Los Angeles offers alternative parking ratios for affordable and mixed-income rental developments in which at least 11 percent of units are affordable to very low-income households—dependent upon the availability of alternative transportation options.

The City of Houston offers the reduction of parking requirements to buildings within a designated zone that contains the central business district as well as parts of the midtown and east downtown neighborhoods. Extending this to a much wider territory could allow for a larger variety of housing projects to pencil out.

Density/height bonuses
Arlington, Virginia allows developers to build at higher densities in exchange for providing low- and moderate-income affordable housing. Allowances include increases in building heights. This scheme also provides additional density bonuses tied to previously-identified revitalization zones.

The City of Houston does not have the same types of height and density limitations as traditionally zoned cities. However, the major activity corridors ordinance does establish height and step down requirements for buildings constructed adjacent to the corridors. The city could allow developers to build higher in these areas in exchange for hazard mitigation or the inclusion of affordable units.

Retrofitting Mitigation Infrastructures into Existing Multi-Family Sites
The city and county could collaborate to create appropriate green infrastructures for mitigating flooding in and around existing multi-family sites. Retrofit strategies are available for both individual properties or specified buildings, as well as at the neighborhood level. Incentivizing use of these tactics through grants or low-interest loan programs can ensure adoption at the property scale.

TIRZ Affordable Housing Set-Aside
The city has the ability to utilize TIRZ affordable housing dollars to incentivize new multi-family housing in high opportunity areas. Most TIRZ Authorities pool their resources for the City of Houston to use at its discretion. Retaining a designated amount of funds for use within the TIRZ boundaries that qualify as "high opportunity" areas as interpreted by HUD and the Texas Department of Housing and Community Affairs can facilitate the development in targeted locations.

Alone, these incentives are unlikely to encourage market-rate developers to include affordable housing or install large-scale mitigation tools, but as part of a package of incentives and qualified access to public funding opportunities, they are valuable benefits to developers.

Leverage Local Housing Authority's Tax-Exempt Status to Initiate Projects

In rapidly growing, highly-competitive cities like Houston, high land values and acquisition costs can dictate the type of residential construction most viable on the market, often high-end condos and apartments. This leaves little room for development targeting medium- and low-income residents. For some affordable housing developers, LIHTC represent a missing piece of financial feasibility; however, competition for acquiring the few competitive and higher yield tax credits awards available annually is intense. To address this challenge, private developers in high-cost cities have turned to local housing authorities that enjoy tax-exempt status as a means to bridge the financial divide. In addition to development of new units, the public housing authority's tax exempt status can aid in acquiring existing properties that are privately held to ensure longer term affordability.

Case Study: *Private developers in Colorado Springs have successfully partnered with the city's housing authority to leverage its tax-exempt status to unlock additional funding and initiate proposed mixed-income developments. As part of the partnership, private developers agree to include units targeted to low-income residents and/or accept housing choice vouchers.*

Encourage Limited Equity Cooperatives as an Alternative for Multi-Family Residences in Need of Repair or Under Bad Ownership

A limited equity cooperative (LEC) is a form of homeownership in which a group of self-governing residents own or purchase a share in a development (rather than an individual unit) and pay a monthly fee for building maintenance, property taxes, and other building expenses. Membership entitles residents to a unit within the development and a vote in the governance and management of the community. LECs are typically initiated by a nonprofit who sponsors the building or through the conversion of an existing building by the current tenants with assistance from the local government. Housing cooperatives are legal under Texas law and are used regularly for student housing.

Though financing an LEC through traditional means could be difficult, local government could subsidize the development of LECs. Assistance from local governments can come in many forms, including construction subsidies (for new developments), subsidies for upgrades and repairs (for preservation of units); low-interest financing and public grants (for conversion and down payment assistance), or property tax abatements tied to LEC properties (to ensure long-term affordability). Additionally, LECs maintain their affordability over the long-term by requiring that share owners commit to only resell their shares at a predetermined price—a pricing mechanism that keeps housing costs within reach of low- and moderate-income households. To ensure that it remains owned by households of lower incomes, an income qualification protocol may be adopted as well as including the option of sale to the cooperative so that they can ensure that it is properly resold to eligible households. This latter option also assists with the existing owner's mobility if they must move within a specific time frame.

Houston or Harris County could create a program that encourages and incentivizes nonprofits and residents to convert existing multi-family housing into cooperative housing—particularly for those developments where landlords are not responsive to residents' needs (rehabilitation and other maintenance concerns). Along with funding opportunities drawn from Harvey recovery funds for housing and down payment assistance for low-income residents to purchase shares in an LEC, this program could provide education opportunities for nonprofits and residents who are interested in this alternative model for housing. For multi-family developments that are in dire need of rehabilitation and maintenance assistance, the city could seize the properties and sell to tenants as part of an LEC—an approach taken by New York City in the 1970s (see below). Some cities combine the LEC approach with a Community Land Trust that adds an extra layer of affordability through ground leases.

Case Study: *In the 1970s, New York City's Office of Housing Preservation and Development, with funding assistance from the Housing Development Fund Corporation, seized derelict buildings, repaired them, and then sold them to tenants as LECs under the city's Tenant Interim Lease Program—allowing low-income tenants in city-owner properties to purchase their apartments with a $250 down payment. The LECs created under this program received tax breaks limiting the assessed value to about $9,000—helping with long-term affordability. Today the nonprofit Urban Homesteading Assistance Board helps organize residents to maintain these LECs, and others across the city, with technical assistance, education, and other related programs.*

Transit-Oriented Development (TOD) and Affordable Multi-Family Housing

Local governments may have to establish development incentives to help developers expedite the process of property acquisition, construction, and implementation of Transit-Oriented Development (TOD). This term usually describes mixed-use development projects (a combination of residential, commercial, and office) that are within a certain distance of a transit stop or station. Many TOD policies require the inclusion of affordable housing in order to attain incentives. In some major cities, the transit authority or other governmental entity acquires additional property around the planned stations with the intent of influencing the subsequent development. The government's role in assemblage assists in their efforts to offer incentives and ensure projects that meet the intended outcomes. The City of Houston's current request for proposals on funding for new multi-family projects using Harvey CDBG money prioritizes projects within one-quarter mile of a high-frequency METRO stop.[27]

METRO is planning to expand its transit network. The expansion of light rail lines and the redesigns of its local bus network give more opportunities to public and private entities to make neighborhood pedestrian- and bike-friendly and increase the transit use in this region. The city and county could leverage this transit planning and target disaster recovery housing spending in specific corridors with existing high-frequency service or commitments for high-frequency service. Such corridor investments could also be coupled with other incentives such as reduced parking requirements.

Case Study: *Austin's Mueller development includes 25 percent affordable homes, out of its 1,400 homes, condos, and apartments, reserved for households with lower than 60 percent of Austin's Area Median Family Income (AMFI). Mueller is the largest community offering affordable and workforce housing in Central Texas.*

The City of Austin's Safe, Mixed-income, Accessible, Reasonably-priced, and Transit-oriented (SMART) Housing program secures renters' housing units available to households making less than 60 percent of the AMFI, and the household income is certified annually. Many affordable apartment communities are predominantly targeted to seniors or working families.

Use Opportunity Zones to Build Affordable Multi-Family Units Outside of Floodplains

The U.S. Treasury Department created opportunity zones as a part of the Tax Cut and Jobs Act of 2017. More than 8,000 zones have been identified by state governors as sites that could benefit from an influx of investment. There are more than 100 zones in Harris County. The program offers capital gains tax breaks for investors who keep the property for more than 10 years.

Few concrete guidelines about what projects can or should be built, however, and local governments have little input into the process. There are a number of concerns that the program will increase gentrification and displacement pressure or incentivize projects that are not well connected to local plans or the desires of residents.[28]

The program offers a chance to incentivize meaningful, impactful development in opportunity zones outside of floodplains. To do this, however, investors and cities must work together to create a clear set of desired projects. Affordable housing could be a major focus of such an effort. There are calls from groups like the Global Resilience Institute to use the opportunity zones as a way to build resilience and sustainability practices into new development.

Encourage Community Land Trust Model for Affordable Multi-Family Housing
Similar to the LEC model, Community Land Trusts (CLTs) tie affordability into the land, which is either purchased or granted to a nonprofit or quasi-governmental organization for ongoing management. The designated CLT organization is then charged with maintaining ownership over the land and granting long-term ground leases to homeowners and/or developers who meet certain requirements (low-income residents) that address the needs of the community. Typically, CLTs comprise single-family homes, but multi-family developments are becoming more common in inner city neighborhoods as well. Under the traditional model, low-income purchasers retain ownership of the building (or individual unit within a building if a cooperative or multi-family development) and lease the land from the CLT organization at below-market rates.

The City of Houston recently launched its own CLT program that differs from the more traditional CLT models described above in the following ways: (1) typical CLTs are tied to a certain geographic area (for instance a neighborhood), but Houston's CLT covers the entire city limits focusing initially on city-owned property, and (2) the Houston CLT is directly operated and managed by the city (the mayor appoints the governing board of directors). Houston's CLT program is focused primarily on creating and preserving a permanently affordable supply of single-family homes targeted towards low-income residents. The CLT could consider including multi-family buildings for purchase and ownership by the CLT as part of an affordable housing preservation strategy or supporting the establishment of LECs on behalf of current tenants as the program evolves over time.

Case Study: *Cooper Square in New York City (a multi-block area of the Lower East Side) provides an excellent example of an LEC and CLT working hand-in-hand. In 1991, the city helped the Cooper Square Committee, a resident advocacy group, acquire 303 units of multi-family rental housing and 23 commercial units in 19 buildings and reorganize as the Cooper Square Mutual Housing Association (MHA). The cost for residents to buy into the newly created Cooper Square LEC was (and still is) $250. At the same time, the Cooper Square Community Land Trust was founded. The Land Trust owns all of the land upon which MHA buildings reside and provides ground leases to MHA to ensure long-term affordability. Since 1991, the rents have only increased once, in 1994. For example, a two-bedroom apartment in MHA rents at $431/month and is only available to low-income residents who meet certain requirements.*

RISK and RESILIENCY – Protecting and Supporting Vulnerable Families
The options that follow identify strategies to protect multi-family residents from disaster, displacement, and loss.

Create Short-Term Tenant-Based Rental Assistance Program Tied To Tenants Displaced by Disaster
The city and county could use a combination of tenant-based rental assistance and mobility counseling to help families relocate to parts of town that are outside of high-impact floodplains, particularly while existing affordable housing properties are rehabilitated post-disaster. Ideally, the city and county could establish a system that ensures those displaced by disasters have a place to live, whether it is for a long period of time outside of the floodplain or temporarily while their existing affordable units are being brought back online and retrofitted against future flooding. Any programs set up to assist displaced tenants should aim to use funds that can be immediately dispersed after a disaster and should have an approved protocol for vetting and approving clients in place before a storm. Local funding could be set up through a variety of channels. In the City of Houston, for example, TIRZ housing funds could be used. Ideally, a system could be put into place where local funds could be reimbursed by CDBG-DR or FEMA funds.

According to the city's local action plan for the $1.15 billion in disaster recovery funds, $60M is slated to address the needs of those impacted who have become homeless or are at risk of becoming homeless, which could include rental housing subsidies. A successful program would require the city to be more proactive in educating low- and moderate-income renters of this program while actively encouraging existing multi-family landlords to track tenants who are in need of immediate relocation assistance—a monumental task for many affordable housing landlords who are already stretched thin addressing rehabilitation concerns at their properties.

An alternate approach would be to create or empower a tenants council or tenant-focused non-profit to play this educational and identification role after storm events. This would centralize the process and create a single point of contact for impacted renters. It is also important that the city ensure tenants who are displaced by a proposed buyout program are then automatically connected with funding for rental assistance and mobility assistance.

Any local programs could be coupled with an effort to see federal rental assistance programs expanded. One such program, the Disaster Housing Assistance Program (DHAP), is run by HUD and uses local public housing agencies to implement. DHAP provides immediate rental assistance and support to vulnerable populations such as the elderly, people with disabilities, and families with children. In most cases, though, DHAP is not automatically activated in the event of a disaster, which leaves many vulnerable populations waiting for financial support or facing limitations on what they qualify for or can afford out of pocket. A federal change to have DHAP kick in immediately after a disaster declaration could help address transitional housing needs for vulnerable populations.

Case Study: *The State of New Jersey used CDBG-DR funds to provide tenant-based rental assistance to low- and moderate-income households affected by Hurricane Sandy as part of its reNew Jersey Stronger program. Half of the program funding was dedicated to households at or below 30 percent AMI.*

Flood Risk Disclosure
Jurisdictions could establish disclosure regulations requiring that sellers and landlords alert residents about potential flood problems and past flooding incidents. Neither the State of Texas, Harris County, or the City of Houston currently requirem property owners to directly alert either homebuyers or renters of past risk. Homebuyers are often notified within their mortgage documents and if flood insurance is required. Neither of those avenues provide sufficiently direct notification. The 2019 legislative session has two bills filed for such disclosures for both renters and homeowners.[29] Local jurisdictions could pass similar ordinances to require disclosures.

Other strategies could include the generation of flyers or other methods of regular communications, e.g. annually, to tell homeowners and renters of their risks.

Case Study: *The State of Georgia has a program that requires an alert to renters and homebuyers if a property has flooded three times in five years. Houston and Harris County could implement a more stringent threshold such as any flood impacts in the past five years.*

Streamline Inspections and Permitting to Get Rehabilitated Multi-Family Units Back Online
As part of the post-Harvey recovery, the city requires the inspection of all rehabilitated multi-family housing units affected by flooding prior to allowing residents to return. The process as it exists today in Houston is slow, tedious, and relies heavily on city inspectors who are already stretched thin.[30] Inevitably, this process delays how quickly units can be brought back online to ease the affordable housing shortage resulting from Harvey's destructive flooding.

The City of Houston is responsible for most permitting and inspection processes within Harris County because it controls a large area of extra-territorial jurisdiction. While Harris County has numerous permitting and inspection processes for new buildings and infrastructure via its floodplain management code and its HUD programs, most housing units in Harris County outside of another municipality will need permits from the City of Houston in order to complete repairs and ensure proper inspections. For this reason most of this recommendation focuses on actions that the City of Houston could take. Coordination with Harris County where possible could help streamline the process for repair.

Additionally, in the time period after a storm, residents living in properties where the landlord chooses to not address flooded units appropriately are at more risk. Recent reports indicated the very small number of code enforcement inspectors at the local governmental level. With existing resources ensuring appropriate health and safety measures are taken in multi-family properties is difficult and likely overlooked with many competing priorities for city resources and limited inspectors. As a result, numerous residents are left to live in apartments with mold and other unsafe conditions.

Without alterations to the current system, similar issues will arise after future storm events.

A streamlined process that focuses on expediting the speed at which affordable properties are inspected serves as an opportunity to return residents to their homes more quickly. For instance, the city and county could prioritize the inspection of affordable housing units over market-rate units to address the needs of the city's most vulnerable populations first, as these residents typically have fewer resources to stay elsewhere or navigate the systems for additional shelter accommodations. The city could also hire additional workers on a temporary-basis who work exclusively on inspecting multi-family properties rehabilitated following Harvey or future disasters. Funding for temporary employees could be derived from the CDBG-DG grants. Outside of disaster events, the city could create a more proactive enforcement and monitoring program for flood-prone properties.

Case Study: *The State of New Jersey used CDBG-DR funds to implement a Code Enforcement Grant Program providing financial support and overhead related to the enforcement of building codes and other development regulations. This program helped municipalities in New Jersey expand their capacity and work through inspection and zoning backlogs immediately following Sandy. The program also encouraged or assisted municipalities with the development of local emergency preparedness programs centered on a plan for hiring temporary workers in the event of another natural disaster.*

Create a Local Quick-Buy Program and Target At-Risk Multi-Family

A buyout program is perhaps the most effective tool for ensuring a quick recovery by removing vulnerable populations from the floodplain and for protecting against future flood risks through the protection of open space from future redevelopment. However, federally funded buyouts can take months, during which time residents may lose interest or opt to reconstruct their homes.

A Quick-Buy Program could be an essential tool to address future flooding. By establishing this program tied to stormwater fees or other local funding, the city and county could be more effective in buying out residents or property owners who are willing and able to be relocated immediately following a natural disaster or other flood event. This could be a critical tool for removing repetitively damaged multi-family buildings from the floodway and 100-year floodplain. For multi-family properties, it is important that this program be tied to a tenant-based voucher program to ensure that low-income residents are not immediately displaced following a buyout. In addition, including a funded case management and navigation initiative to help residents to relocate to an acceptable new apartment. The navigators help people resettle into a new apartment successfully and help to limit the disruptive obstacles that often can occur without support. Those challenges often lead to additional negative impacts on a person's ability to recover.

Case Study: *The City of Charlotte and Mecklenburg County established a rainy day fund tied to local funding in order to pay for buyouts immediately after a storm or major flooding event.*

Expand Eviction Protection Programs

Evictions disproportionately impact low-income residents who often have little choice but to move into low-opportunity neighborhoods or shelters. Although evictions occur on a daily basis in cities across the US, major disasters, such as Hurricane Harvey, can put further strain on the system, forcing landlords to grapple with damaged properties and tenants to face lost income due to the storm. To address this challenge, cities across the U.S. have established eviction protection programs that offer short-term financial assistance to cover rent, court costs, and late payment fees to eligible low-income tenants. Some programs, such as Jacksonville, Florida's Emergency Assistance Program, also provide tenants with caseworkers and legal services to help navigate the eviction process and to provide tools for budgeting and money management. A similarly-designed local program in Houston would have the potential to provide a short-term lifeline to low-income tenants in need while also encouraging long-term neighborhood and household stability. The city and county have the option to design the program to target all low-income tenants or tailor it to concentrate on neighborhoods at risk of displacement due to gentrification, flooding, and other concerns.

Reform and Expand Housing Choice Voucher Program in Houston

Funded by the federal government, the Housing Choice Voucher program (formerly Section 8) provides financial assistance to eligible low-income families to find suitable housing on the private market. Locally, the program is administered by the Houston Housing Authority (HHA) and the Harris County Housing Authority (HCHA) for the geographies outside of the city limits. Under the program, the public housing authority pays participating landlords the value of the voucher while tenants are required to contribute 30 percent of their income to cover the difference. Low-income tenants that qualify for vouchers are allowed greater choice in where they live, enabling many to find stable housing in neighborhoods with greater opportunities. The Houston Housing Authority is piloting a similar initiative with the City of Houston through a newly created nonprofit called NestQuest.

However, two major issues minimize the voucher program's success and efficacy. For one, the current level of federal funding allocated to the program is inadequate, leaving many low-income families on years-long waiting lists or overpaying for housing. For example, 112,000 families are on the current waiting list for a housing choice voucher in Houston. When the voucher waiting list was reopened in 2016, over 60,000 families applied and 30,000 were placed on the waiting list. The number of housing choice vouchers available to Houston families has remained constant, and currently serves just over 16,000 families. Special purpose vouchers (VASH, Mainstream, FUP) have seen modest increases over the years, and currently serve 18,000 Houston families.[31]

Secondly, the program does not actively prevent private landlords from discriminating against voucher holders. To address this challenge, 11 states and over 50 cities and counties have enacted laws prohibiting private landlords from discriminating against voucher holders. Without reform of existing state laws that prevent municipalities from instituting a voucher discrimination ordinance, it would be difficult for the city or county to follow the lead of other jurisdictions that have used this approach.[32] There are other approaches, though, that can improve the effectiveness of the program and provide low-income families with the opportunity to relocate to higher opportunity neighborhoods. Efforts such as the NestQuest pilot can be used to help streamline the process and overcome the logistical challenges landlords often cite in their refusal of vouchers. Nest Quest acts as an intermediary and negotiates agreements directly with landlords to streamline the administrative hurdles and reduce the issue of source of income discrimination.

Additional Federal Action Considerations

Several potential federal actions could help to streamline housing recovery after future disasters and help prepare Harris County to be more resilient in the future. These changes range from policy options to program rule modifications. Many of these actions would directly impact the public sectors' ability to protect residents, repair or buyout damaged homes, and to build new, safer homes.

Create consistent disaster recovery rules for large jurisdictions

For several months after Hurricane Harvey, City of Houston and Harris County officials negotiated with state and federal officials about how CDBG-DR funds would be allocated and managed. Because no set system was in place, a resolution took a long time and delayed the dispersal of recovery funds. Federal and state officials could work with leaders in large municipalities and counties to create a consistent set of disaster recovery rules and practices in order to quicken the pace of recovery. Annual reviews of participating jurisdictions, or similar processes already in place, may serve as a periodic confirmation of the role a local jurisdiction will be allowed to play in the aftermath of the storm.

Establish data-sharing agreements with local jurisdictions

After a disaster there is a need for quick access to federally held data about physical damage and impacted populations. Currently, the negotiation of data-sharing agreements is usually not undertaken until after a disaster. This not only slows down local jurisdictions' access to data, but also can impede their ability to enlist partners to help analyze local impacts. Creating standing data-sharing agreements and permitting local jurisdictions to do the same with trusted local partners can streamline access to data and lead to more accurate damage and impact assessments. Further, such information and agreements are critical to creating long-term housing and recovery plans.

Prioritize Low-to-Moderate Households in Funding
The current FEMA cost-benefit requirements on funding for home buyouts and other mitigation strategies prioritize property values over other considerations. This often results in low-to-moderate income areas receiving less funding. Reforming FEMA's cost-benefit requirement to account for additional factors, such as income level of an impacted area or overall impacted population could ensure that lower-income areas are receiving much needed recovery funding.

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GREATER HOUSTON FLOOD MITIGATION CONSORTIUM

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