



A COSTLY AND UNEQUAL BURDEN

POLICY BRIEF

An equity analysis on the City of Houston's revision to
its floodplain management code, Chapter 19



**TEXAS
HOUSERS**
TEXAS LOW INCOME HOUSING
INFORMATION SERVICE

An aerial photograph of a city, likely Houston, showing a large highway interchange with multiple lanes and overpasses. A river flows through the city, surrounded by greenery and residential areas. In the background, a dense urban skyline with various skyscrapers is visible under a clear sky.

INTRODUCTION

The mission of Texas Housers is to support low-income Texans' efforts to achieve the American dream of a decent, affordable home in a quality neighborhood. We carry out our mission by researching and evaluating low-income housing and community development programs, providing information to promote public understanding and support, and organizing and equipping low-income people and communities with the knowledge necessary to take the initiative to solve their housing and community development problems.

We are concerned about the changes to Houston's Chapter 19, the city's Floodplain Management Ordinance and their unintended consequences. If there is no other action taken by the city and the county, the proposed regulations could:

- Place an enormous cost on low- and moderate-income households;
- Shift the focus from public infrastructure projects to privately-funded home elevations;
- Disincentivize redevelopment in low-income communities of color that will have to contend with the heightened flood regulations that make building more costly;
- Over time, promote two divergent Houstons: one where people who can afford to comply have complied with new flood regulations and are more protected from flood risk, and one where people cannot afford the cost and remain in harm's way.



EXECUTIVE SUMMARY

This report raises concerns about how the city of Houston's modifications to Chapter 19 affect low-income neighborhoods and particularly low-income neighborhoods of color.

The Chapter 19 changes adopted by the Houston city council place an unreasonable and unbearable burden for flood protection on the residents of these neighborhoods. Instead of prioritizing funds for storm water infrastructure improvements to provide structural flood protection for low-income communities, the Chapter 19 amendment shifts responsibility for flood protection from adequate public storm water infrastructure provided by the city government to homeowners and business owners who will be required to pay more than most can afford to pay to elevate their homes and business to prevent flooding.

Texas Housers filed a civil rights complaint against the city of Houston over discriminatory actions by the city that have produced a vastly inequitable system of storm water protection to low-income neighborhoods of color. The U.S. Department of Housing and Urban Development is currently investigating this matter.

An equitable system of storm water protection for these neighborhoods would reduce the need for Chapter 19 revisions to shift the burden of the cost of flood protection from the city government to the low-income residents who cannot afford to bear this cost.

The city knows full well that residents of these neighborhoods cannot comply with the Chapter 19 elevation requirements. The city has long acknowledged the extreme levels of concentrated poverty and the financial redlining of these neighborhoods, which combine to make the Chapter 19 provisions economically unworkable as a solution to flooding in these areas.

Recommendations

City, county, state and federal funds should be prioritized for a three-pronged approach to address flooding in the low-income neighborhoods:

- 1) Design, fund and build stormwater systems to prevent flooding of these neighborhoods. This should be the top priority.
- 2) Provide grants should be provided to low-income households in these neighborhoods who choose to stay to rebuild and elevate their homes.
- 3) Establish for residents who want to move a buyout program providing sufficient benefits (not merely market value) to households to move out of flood areas and afford a quality affordable home or apartment in a neighborhood of their choice, without incurring additional debt, consistent with the governmental duty to Affirmatively Further Fair Housing.

We urge consideration of this report and a commitment to end the long-standing inequality in the provision of public services to Houston's low-income neighborhoods of color.



HOUSTON'S NEW CHAPTER 19

Chapter 19 is the section of the Houston Code of Ordinances relating to floodplain management. It contains the regulations for development in and around the floodplain as well as procedures for permitting and rebuilding after floods. On April 3, 2018, the Houston city council voted to pass a new version of Chapter 19. The measure was passed in a split council vote of 9-7, with the Mayor leading the “pro” side. Many council members offered dissenting opinions that largely focused on concerns of “over-regulation” or making decisions too hastily. A few offered concerns about the lack of current flood infrastructure. One facet of the discussion was that the current FEMA floodplain maps do not reflect the present day reality of Houston flooding. After three consecutive years of serious flooding in the 500-year floodplain, many people rightly feel the maps – and the delineated 100-year floodplain – are a bad basis for public policy. FEMA will be releasing new maps in September, but the mayor argued that the changes to Chapter 19 are a way to start preparing for flood resilience now.

In the previous version of Chapter 19, the regulated area of Houston was the 100-year floodplain. All buildings in the 100-year floodplain, whether residential or commercial, had to be elevated to one foot above the 100-year base flood elevation – the level to which flood water would be expected to rise in a 100-year flood event. Any additions to that building had to conform to the same standard. In the 100-year floodplain, any expansion of the footprint of buildings, inhibiting the land’s ability to soak up water, was disallowed. This is known as “zero net fill.”

In the revision of Chapter 19 passed on April 3rd, the regulated area was expanded to include the 500-year floodplain. All buildings in the 100- and the 500-year floodplain, whether residential or commercial, now have to be elevated two feet above the 500-year base flood elevation. Any large additions to a building have to conform to the same standard. Small additions in the 500-year floodplain are exempt. In the 100-and 500-year floodplain, the new regulation maintained the rule of “zero net fill,” but an amendment allowed for a minimal amount of net fill for smaller single family residential lots in the 500-year floodplain.

The version of Chapter 19 that passed was not the version initially proposed. The initial proposal was amended in three important ways:

- To allow some net fill if it could be shown to have no impact to existing sheet flow, or runoff from nearby properties;
- To devolve the decision on the regulated area to the recommendation of staff, pending new FEMA maps, anticipated in September of this year; and
- To delay implementation of the new regulation until September both as a compromise and to better conform to the anticipated FEMA Maps.

Considering the Impact

Buildings inside the regulated area will not be required to conform with these new regulations immediately.

They will be required to conform only when they meet certain conditions. Some triggers include: building new construction, increasing the building’s footprint by more than a third of its current square footage, or rebuilding a house after a flood if the damage is more than half the value of the house, known as substantially damaged. [1] By passing the responsibility of flood mitigation to

individual households and businesses, and relying on infrequent triggers for action, compliance with the new ordinance will be piecemeal. Of special concern is the burden this places on people with low or moderate incomes. Quotes from area builders that elevate homes estimate the cost to raise a home at about \$75 per square foot. [2] Using that figure, a modest 1,500 square foot home would cost around \$112,500 to elevate – or more than twice Houston’s household median income of \$47,000. [3]

Implementation Calendar

September 1, 2018: The regulations will take effect, regulating development in the current 500-year floodplain.

September 2018: Revised FEMA flood maps are expected.

Sixty days after new FEMA maps are issued: Regulated area may change at the Public Works Director's recommendation.

November 1, 2018: The earliest possible date for the final version of this regulation.

MAPPING THE IMPACT

At first glance, the Houston floodplain seems like a geographically dispersed hazard, affecting people across the city. Bayous snake their way across a vast area of the city, generally from west to east. Every city council district is touched, as well as people from all incomes and ethnicities. During Hurricane Harvey, mansions, small homes, apartments and multifamily public housing were flooded. But after the floodwaters receded, the burdens of recovery did not fall equally. The vast and sprawling development on the west side of Houston and Harris County funnels increasing amounts of stormwater through older, long-established neighborhoods on the east side of town that are disproportionately occupied by lower-income people of color. In considering the equity of these new regulations two questions must be answered: who is affected by the regulations; and who can and who cannot afford to bear the financial burden to elevate their home or business?

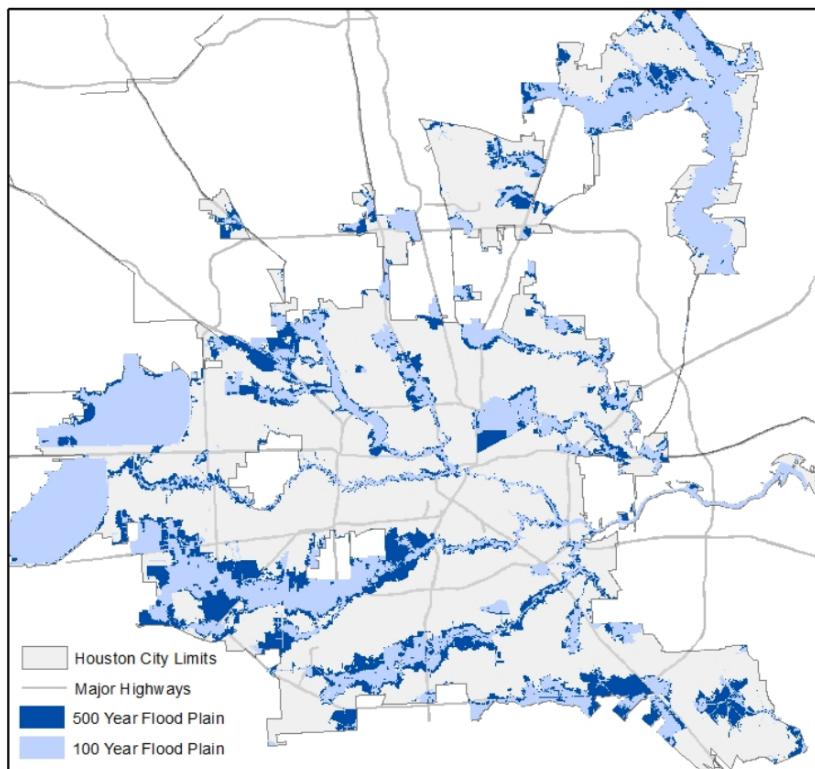


Figure 1: The Houston flood plain stretches across much of the city. New regulations will cover the combined 100- and 500-year flood plains.

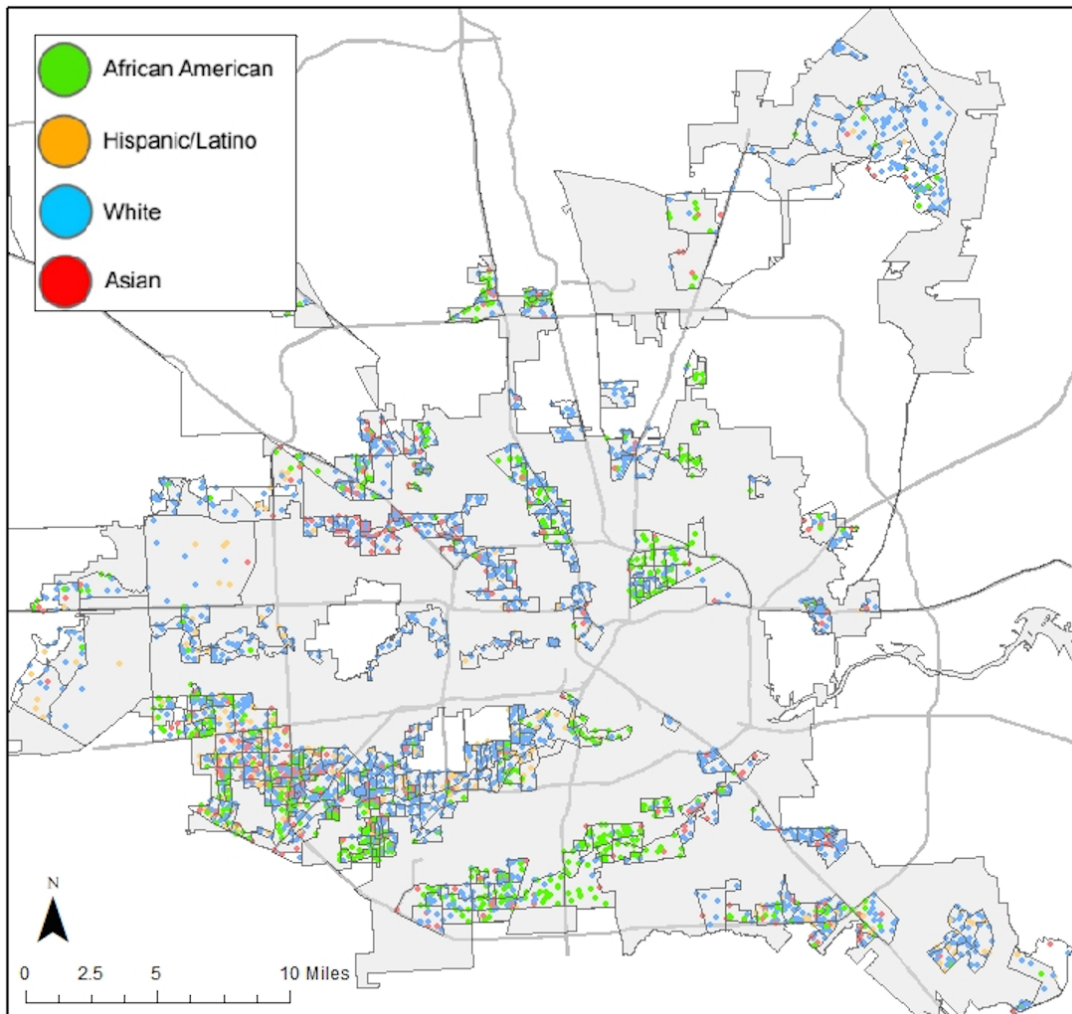


Figure 2: A dot density map of only the block groups most affected by Chapter 19 changes. One dot is 250 people. Note that some of the most affected areas are communities of color.

The Affected

The swath of Houston that is included in the footprint of the combined 100- and 500-year floodplains has a population that is racially similar to the city of Houston as a whole. Compared to the city, household median incomes are just slightly lower on average. Houses in the floodplains have a median income of about \$44,000, while Houston has a median income of about \$47,000. In these regards, the area to be regulated by a revised Chapter 19 reflects Houston at large.

Houston is a deeply segregated city and the floodplain crosses pockets of white, wealthy neighborhoods as well as African American and Latino neighborhoods with high rates of poverty. Not all of Houston can handle the burdens of complying with the new Chapter 19 regulations easily, considering there are neighborhoods in the floodplain where 40 percent to 80 percent of the households have incomes below the federal poverty line.

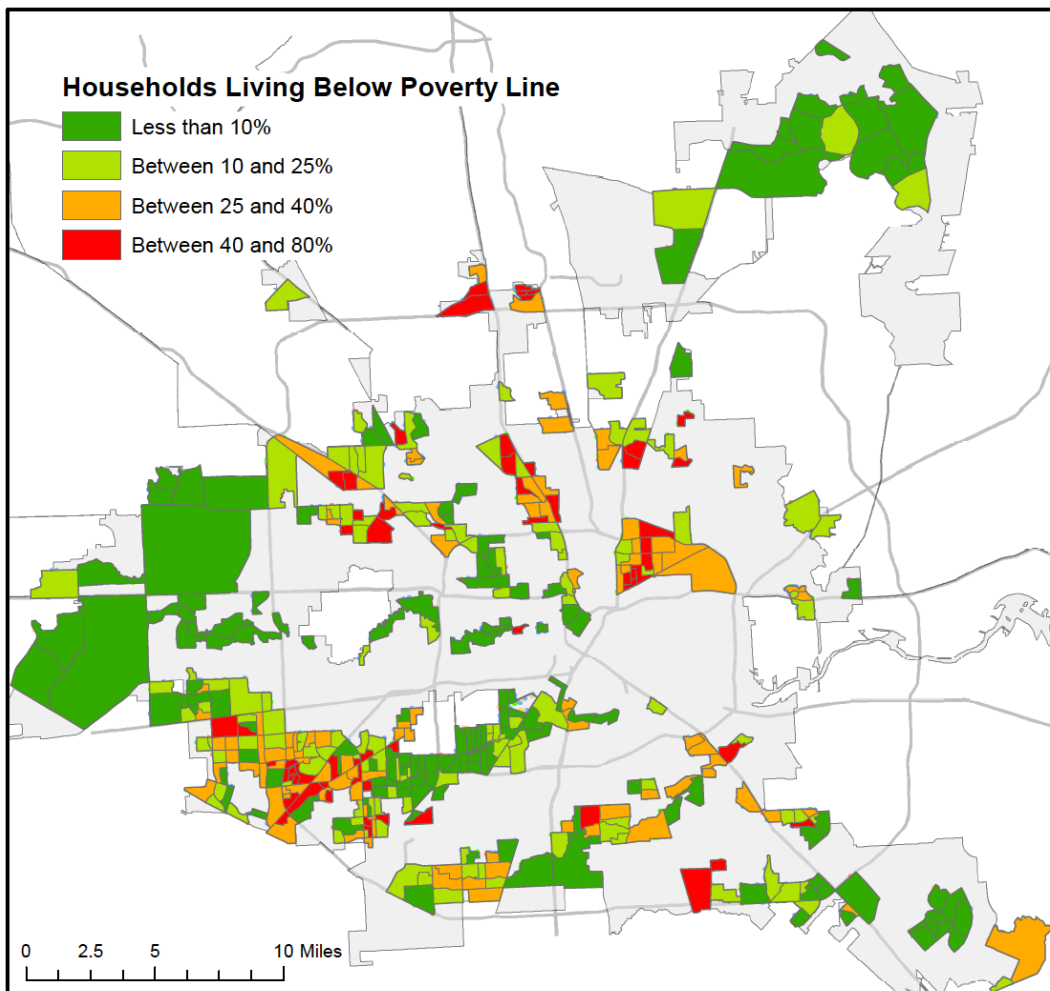


Figure 3: Percentage of households living below the poverty line in census block groups located in 100- and 500-year floodplains

Figures 2 and 3 show the census block groups that most closely follow the floodplains that will be affected by the Chapter 19 changes. Figure 2 shows the racial and ethnic makeup of the areas most affected and Figure 3 shows the percentage of households in poverty in each one of those areas. When viewed together, the maps show several areas of the city that are both low-income areas and communities of color. Low-income, historic communities of color like the Third Ward, Greenspoint, and Southwest Houston will be subject to Chapter 19 revisions. These are historically disadvantaged and disinvested communities where members will likely be unable to afford to comply with new regulations or to influence the new policy. Further, many of these areas are also not currently served by an engineered stormwater sewer system but instead by legacy open ditch drainage, which means they are susceptible to both flooding and the health risks associated with standing water.

A Basic Standard of Service

In 2014, the city of Houston commissioned a study of the city's open ditch drainage. [4] Open ditch drainage is not typical in most modern, developed

urban neighborhoods. These roadside open-ditch canals are all that many low-income neighborhoods of color rely on for drainage instead of modern engineered curbs and storm sewer drains consisting of closed pipes that run underground. The city of Houston's 2014 data shows many of these open ditches do not provide the drainage capacity to handle rainfall from even a moderate storm (see the black lines on Figure 4), let alone the multiple 500-year floods that have pummeled Houston in the last three years.

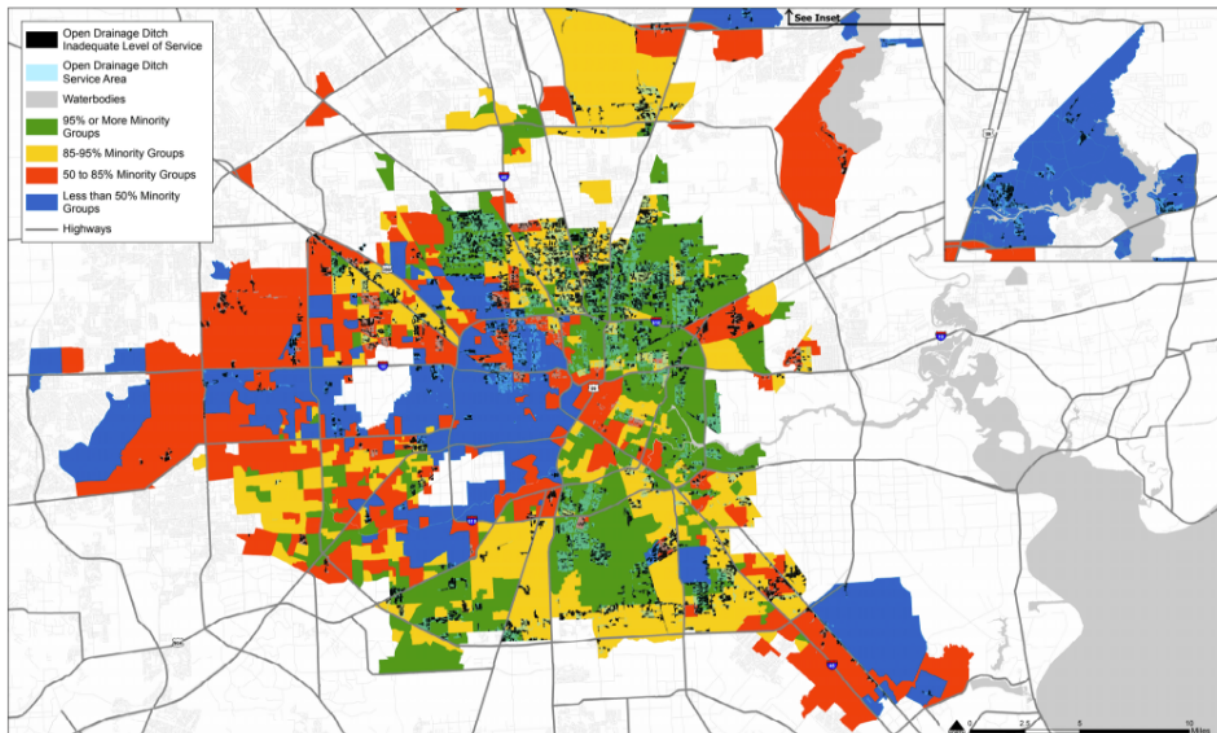


Figure 4: A map of Houston showing the overlap between neighborhoods that are primarily communities of color and known substandard street drainage.

In a complaint filed with HUD in 2018, Texas Housers alleged the city of Houston has “created and maintains a separate and unequal storm water system that results in disproportionate and preventable flooding of African American and Latino neighborhoods.” [5] According to our analysis of the city's own data, “88 percent of the open drainage ditches are located in neighborhoods with majority non-white populations.” The city's data shows that “nearly half of these ditches couldn't provide stormwater protection of homes they serve in even modest storms. [6] HUD has opened an investigation in response to Texas Housers' complaint. These neighborhoods would benefit greatly from modern flood infrastructure – infrastructure that has been provided to other neighborhoods which are largely more affluent and white. Investing in public flood infrastructure in low-income neighborhoods could shrink the floodplain there to better protect homes, reducing the need for costly home elevation. It is possible for urban areas to flood in either a flash flooding event or from riparian or coastal flooding, but one type of flooding unique to urban areas is an urban flood as a result of insufficient drainage, also called “local flooding.” Floods begin as natural events

but local flooding is artificial, resulting from a variety of factors including poorly planned development, a lack of building regulation, and insufficient infrastructure investments. In Houston, there are parts of the city that are at risk for flooding not primarily because of their proximity to a body of water, but because their storm water drainage infrastructure is insufficient to handle even regular weather events. This is a problem that is commonly associated with not just growth, but specifically with high impervious cover sprawl. FEMA points out that “local flooding problems will likely increase over time as development... continues without sufficient land use and building regulations.” [7]



An open ditch drain in a Houston neighborhood

Impervious cover sprawl is widespread in Houston. What is more, the city has denied people — mostly communities of color — a basic standard of flood protection as it addresses flood control in more recently developed higher income and whiter neighborhoods. The city has relied on a combination of local and federal funds to pay for infrastructure improvements. The use of federal funds triggers equal protection and non-discrimination requirements that the city appears to have violated.

Storm water protection in all neighborhoods should be functional to a reasonable level of flooding. If the city does not fulfill its obligation to these neighborhoods, then it is creating an artificially large floodplain, and eventually requiring more people to bear the cost of elevation requirements. Without addressing this, the city is knowingly perpetuating inequality while expecting

low-income residents to bear the economic burden of new, costly elevation requirements imposed by Chapter 19. The city not only has the means to address this localized flooding with infrastructure improvements but it has an obligation to as well.

A Costly Burden

The Chapter 19 amendments will best protect the people who will live in new, conforming construction, or those that have the resources to comply with the new regulations for older construction. The industry that elevates homes will also benefit greatly.

Estimates for raising a home range, but \$75 per square foot is a common assessment. When applied to even a modest size home of 1,500 square feet, this cost exceeds \$112,000. This is a huge burden, even to people in the middle and upper-middle class. For a low- and moderate-income household it is unbearable. The problem is made greater for people of color living in historically disinvested area to finance from savings or secure an affordable loan.

Who Will Not Be Protected

The people who will not be protected are:

- People with limited incomes living in old homes, especially those in homes built before the floodplain was considered;
- Homeowners without the financial means to elevate;
- Renters who live in properties that now have a disincentive for a landlord to invest in the property for fear of triggering the elevation requirements;
- Homeowners or renters living in properties who are in a floodplain, yet ineligible for buyouts or relocation; or
- Anyone who lives in areas that are underserved by public flood mitigation infrastructure and at risk of local flooding.

It is also crucial to note that people who comply with this regulation change may still be vulnerable if the city has not invested in proper drainage and flood infrastructure in their area. Complying completely with the revised Chapter 19 is not a guarantee against flood hazards.

If the regulation change results in widespread elevation of structures, then all Houstonians will be less exposed to the risk of flooding. However, the existence of these regulations will not help people if the regulations are not triggered or are simply cost-prohibitive. Ultimately, if people do not have the ability to comply with new regulations, the regulations will be useless during the hurricanes and floods to come.



MANAGING DEAD SPACE

Consider Mrs. Jones

Mrs. Jones* is 75 years old, living in a south Houston, predominantly Black neighborhood. She is on a fixed income and lives in a small home that she paid off years ago. She lives in the floodplain and her house is not worth much. Most of her property tax bill comes from the increasing value of her land. If her home were damaged by flooding, she would have to avoid doing major repairs or improvements in order to stay under the 51 percent of her house's limited value, as exceeding this threshold would trigger the Chapter 19 requirements and force her to pay to elevate.

A significant hurricane came and the rains left 40+ inches of water in her neighborhood. Her streets flood badly, unable to handle the storm event. Standing water greatly damaged her home. City officials deemed that the damage exceeded 51 percent of the house, and to rebuild, she had to elevate her home by five feet. Many of her neighbors had to do the same. Some were bought out, others stayed and rebuilt. Some were hesitant to take a buyout because of friends and family they know who took the money and couldn't find a comparable home. Because of the heightened costs to develop, businesses have left and new businesses avoid coming to the area, people do not build new homes, and residents stop investing money into home improvements.

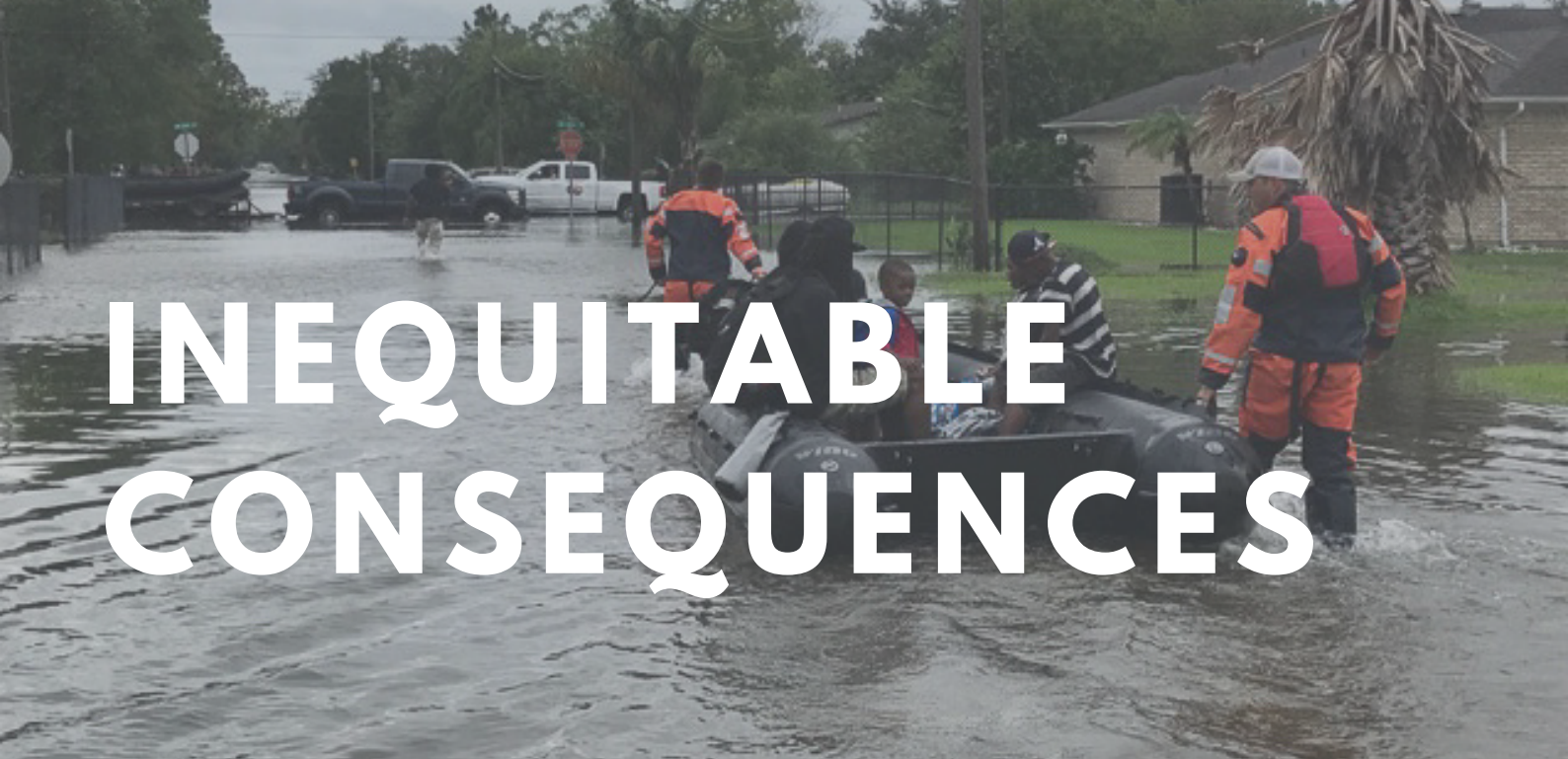
Chapter 19 was intended to protect Houstonians, especially those in the floodplain, but it meant very little to Mrs. Jones. She did not have the means to comply so the protections of a more strict Chapter 19 were ultimately useless, especially when compared to the needs her neighborhood had for adequate

drainage. What is more, the heightened restrictions had a negative impact on her neighborhood as a disincentive for new development. This is a likely result of the implementation of new Chapter 19 requirements but this will not be the same story for every part of Houston.

Two Divergent Houstons

In next year's hurricane season, some people will have complied with new regulations but others without means will have not. In the year after, some will rebuild and some will not. These inequalities will deepen over time. Year after year, flood after flood, a pattern emerges. Eventually, there will be parts of the city subjected to the checkerboard effect, as low-income people and people of color vacate and migrate, unable to comply with new regulations, leaving behind dilapidated houses and a waning sense of community.

It is possible to spot these communities at risk of this right now. In the previous maps, the areas affected by new Chapter 19 regulations intersect with many areas of high concentrations of household poverty and with communities of color who cannot bear the weight of these requirements as wealthier parts of Houston can. Added regulations that disincentivize investment in the floodplain areas, instill a fear of abandonment in certain neighborhoods that are already struggling.



INEQUITABLE CONSEQUENCES

The city of Houston knows that they do not provide a basic level of drainage infrastructure to all residents but does not use this knowledge to guide the discussion of flood preparedness or to influence policy. This regulation puts the burden of flood resilience on private home and business owners and shifts the emphasis away from public drainage infrastructure that could systematically address flooding issues. In summary these are the consequences Houston will face if local officials do not consider and address the inequality that the current floodplain ordinance revisions could perpetuate in the face of more severe and frequent floods associated with climate change:

- Low- and moderate-income people will not be able to afford to comply with the new Chapter 19 without government assistance.
- The requirement to raise a building without adding net fill to the property poses a significant challenge to accessible, adaptable or visitable design for disabled people.
- Two divergent Houstons will result: One that is affluent enough to weather future storms without help from the government and one that will be left to fend for itself in dealing with climate change and local flooding.
- Existing low-income neighborhoods of color lying in flood zones, already already facing a long history of disinvestment and physical blight, will suffer even more disinvestment and abandonment as people shun paying the added costs associated with elevation.

During debate on this issue, some council members expressed concern about heightening regulations while not simultaneously considering Houston's role in strengthening flood infrastructure, especially in underserved neighborhoods. Houston has a responsibility to protect its most vulnerable residents in the face of climate change, rapid growth, natural disasters, and a history of disenfranchisement and racism.

Two additional approaches that the city should consider, in tandem, are building equitable infrastructure that provides flood protection more fairly, and providing direct assistance to those who cannot afford to comply with costly regulations. Shifting the burden of flood protection to property owners in low-income neighborhoods is inequitable and bad public policy. If the city of Houston proceeds with the current revisions to Chapter 19, then the city will be reinforcing the inequality of two separate and unequal Houstons – one that can afford to elevate and weather the next storm and one that cannot.

References and Notes

[1] Under current regulations, "substantial damage" is determined by Houston's Office of Public Works and is a cumulative total of repairs, including assistance from PREPS. This is the office that issues permits for flood repairs and requires the elevation of homes, if damage is "substantial." Recent Chapter 19 changes do not change this.

[2] <https://www.texastribune.org/2018/03/14/harvey-elevate-homes-flood-houston-money-costs/>

[3] American Communities Survey data, 2016

[4] To our knowledge, no formal report or publication was released by the city as a result of this study. Texas Housers acquired the spatial data generated from this study and conducted its own analyses of the data.

[5] "Why Houston Remains Segregated." Houston Chronicle, Feb 16th 2017. <https://www.houstonchronicle.com/local/gray-matters/article/Why-Houston-remains-segregated-10935311.php>

[6] "Part 2 In a segregated Houston unequal neighborhoods mean unequal flood protection" Texashousers.net, March 22 2018.

[7] "Reducing Damage from Localized Flooding: A Guide for Communities" FEMA. June 2005

*Mrs. Jones is fictional. Her experience is a composite of the true experiences of several homeowners in Houston.