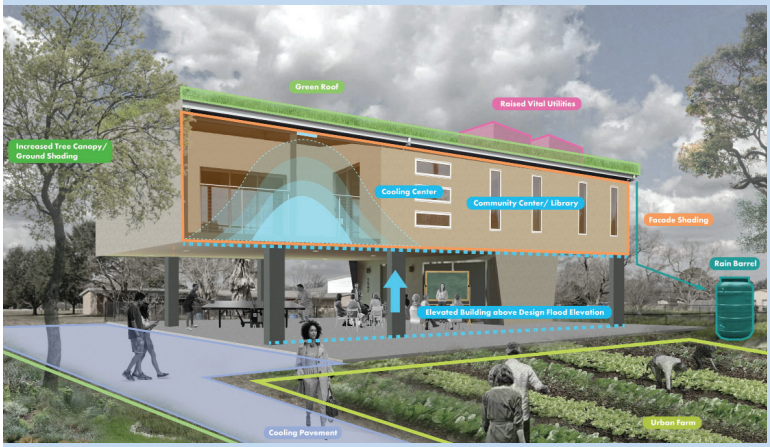
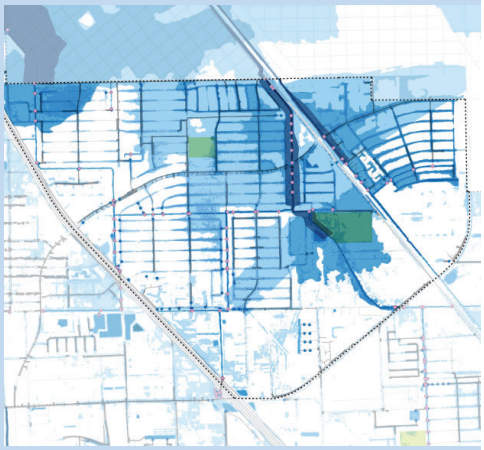
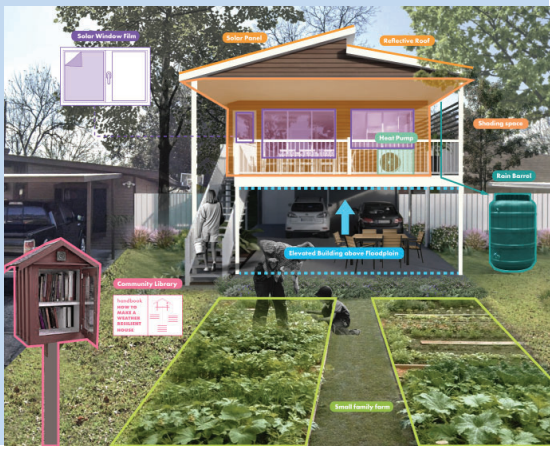
EDGEBROOK NEIGHBORHOOD RESILIENCE PLAN



CONDENSED DOCUMENT

MAY 2023





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Outside Organizations

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STATEMENT FROM THE MAYOR

The City of Houston has experienced seven federally declared disasters in the last seven years. Flooding from Hurricane Harvey, a historic freeze in 2021 and other recent catastrophic weather events had a devastating impact on our infrastructure, homes and our families. When the floodwaters cleared, what emerged was the strength and perseverance of the people who supported each other even when they had little to give. It is those same people who have guided our efforts to ensure greater resilience for the future. Even as we worked together to return to normalcy, we knew that recovery was a short-term goal. We knew these devastating events would not be the last. We knew we needed to learn from those experiences and have a plan in place to protect vulnerable neighborhoods and make them resilient for the future.

So, in 2022 we launched the Neighborhood Resilience Plan initiative in three pilot neighborhoods. This program provides community-driven strategies and policies to support neighborhood recovery from weather related disasters and vulnerability against multiple hazards - from hurricanes to extreme heat waves, and chronic stresses such as poor air quality, and flooding. The plans not only address risk reduction, but they also include strategies for improving infrastructure, empowering community leaders and bolstering economic development to bring all communities to a greater level of resilience.
These three neighborhoods are just a start.

Each plan is tailored to address needs identified by each community, but these initial efforts will establish an adaptable planning framework for the future. In these pages you will find a blueprint to guide neighborhoods across the city about how to overcome existing barriers to resiliency.

Join me, our partnering agencies, community leaders and residents to take a closer look at the needs expressed in this plan. Lend your support as we move forward to put this plan into action. We cannot control the weather, but we can rediscover the collective fortitude and the generosity of spirit that we forged in the aftermath of the storm. Let's not wait for another crisis to strengthen our neighborhoods and create a more resilient Houston. We will use this plan to make this community better starting today.

- Mayor Sylvester Turner


Powerful Movement

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Mayor Turner's *Resilient Houston* plan, published February 2020, is a direct response to the devastation and catastrophic flooding caused when one trillion gallons of rain fell on Houston during Hurricane Harvey. The plan defines 62 actions across 18 goals to enhance Houston's resilience against acute shocks and chronic stresses, and adaptation to a changing climate and energy reality.

The *Edgebrook Neighborhood Resilience Plan* implements a key target of *Resilient Houston*, to develop 50 neighborhood plans by 2030, and is the first of its kind in Houston. It serves the purpose of providing a strategic plan to achieve *Resilient Houston's* goals, actions and targets at the neighborhood scale. It provides a community-based vision of neighborhood resilience, and makes recommendations for people-based and placed-based strategies and actions to improve neighborhood resilience now and into the future. Edgebrook is one of the first three neighborhoods selected by the Mayor for a Neighborhood Resilience Plan, as a pilot project in a program led by the Houston Planning and Development Department.

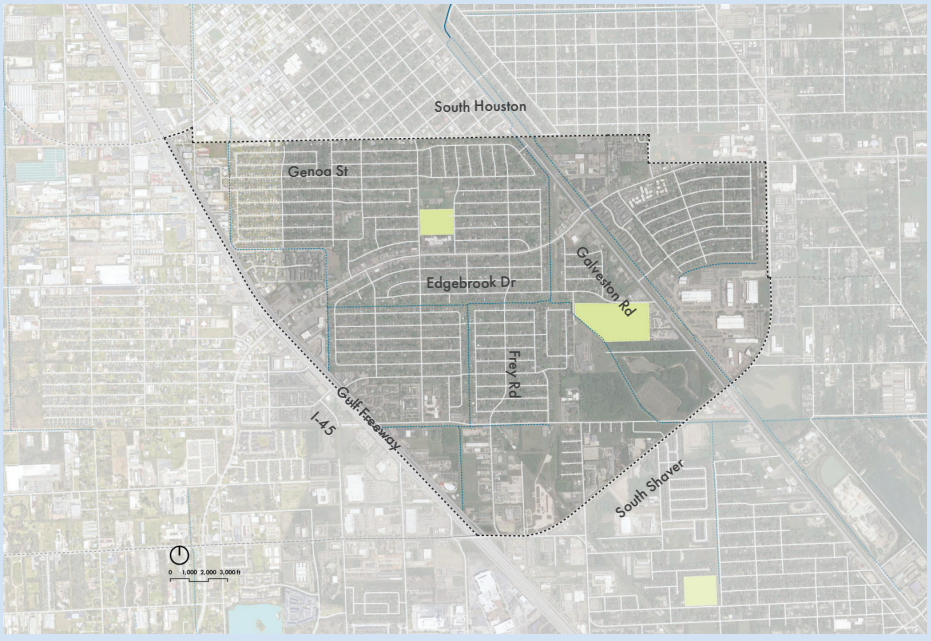
The shared purpose of *Resilient Houston* and the *Neighborhood Resilience Plans* is to reduce the impacts of shocks and stresses, and to improve preparation for—and the fastest and best recovery from—adverse events. Houstonians are consistently reminded of the urgent need for transformative change and for these changes to be built on long-term holistic, equitable, and inclusive strategies and actions, particularly in historically disadvantaged communities like Edgebrook.

The *Edgebrook Neighborhood Resilience Plan* takes direction from *Resilient Houston*

"Enshrining equity and equitable outcomes in all policies and programs is an essential step toward addressing root causes of inequity, including historical disinvestment and disproportionate negative impacts for communities of color and our most vulnerable residents"
(Resilient Houston, page 130)

by incorporating climate adaptation and risk reduction, infrastructure modernization, housing stability and security, environmental protection, social empowerment, and economic development into place-based and people-based strategies for the community. The plan provides a vision for doing things in neighborhoods that have not historically been done to create the safety and stability the community needs to face the challenges and uncertainties of today. Specifically, the plan is a tool to direct neighborhood-based investments into practical and tangible projects to reduce flooding, manage heat, and address physical and social vulnerabilities to climate and other hazards. Additionally, the plan seeks to improve the overall quality of life and support economic opportunities in the community.

The northern boundary of Edgebrook is adjacent to the City of South Houston, South Shaver sets the eastern and southern boundaries and the western boundary is the Gulf Freeway. Located



Edgebrook Super Neighborhood 79

Community residents at a public engagement meeting

in City Council District E, the Edgebrook neighborhood has been selected to receive one of three of the first City of Houston's *Neighborhood Resilience Plans* due to the severity of flood damage from Hurricane Harvey, vulnerability to climate related hazards, watershed location, the presence of active and supportive civic organizations and other demographics.

Over the course of 15 months, the planning team has been in active dialogue with the Edgebrook community as part of the formulation of the *Edgebrook Neighborhood Resilience Plan*. The team took direction from the community through traditional public meetings and surveys, focused one-on-one conversations with community leaders, and working sessions with the Neighborhood Support Team (NST) and proactive residents. The wants and needs heard in these meetings provide the basis of the plan's development and resulting recommendations. The community's goals have been vetted and coordinated with the Planning and Development Department (PD) through several Technical Advisory Committee (TAC) meetings intended to ensure the plan's feasibility, identify lead departments and agencies, and identify or allocate potential funds to implement projects.

Through conversations with the community, several neighborhood priorities have been identified that define the community's vision for their neighborhood:

- continue to activate the community around **resilience** and increase **social cohesion**;
- develop a flexible and robust **social network** that allows for quick responses and distribution of resources in the event of stresses and shocks, and that helps transform the neighborhood for the better;
- improve the **appearance and cleanliness** of the neighborhood and its natural environment;
- significantly **reduce** the risk of **flood** and its compounding effects;
- prepare **homes for extreme weather** and repair quickly and fully after events;
- improve **traffic safety** and have cool streets;
- improve neighborhood services and have a **healthy and growing economy**.

This **condensed document** provides a brief overview, highlights key points and focuses on the plan's projects. For a more comprehensive explanation and detailed information that may not be included in the summarized version, please refer to the larger *Edgebrook Neighborhood Resilience Plan*. The original version delves deeper into the planning process, explains the **Guiding Principles**, **Watershed Best Practices**, **Baseline Analysis**, **Funding Matrix**, describes the **interconnectedness of projects**, includes the full appendices, and more. The full document offers a broader context, thorough analysis, additional insights, and can address any specific questions that may arise.

The community's vision for resilience in their neighborhood and the foundational goals and targets of the Resilient Houston plan provides the basis for the strategies and actions recommended in this plan.

WHAT IS NEIGHBORHOOD RESILIENCE?

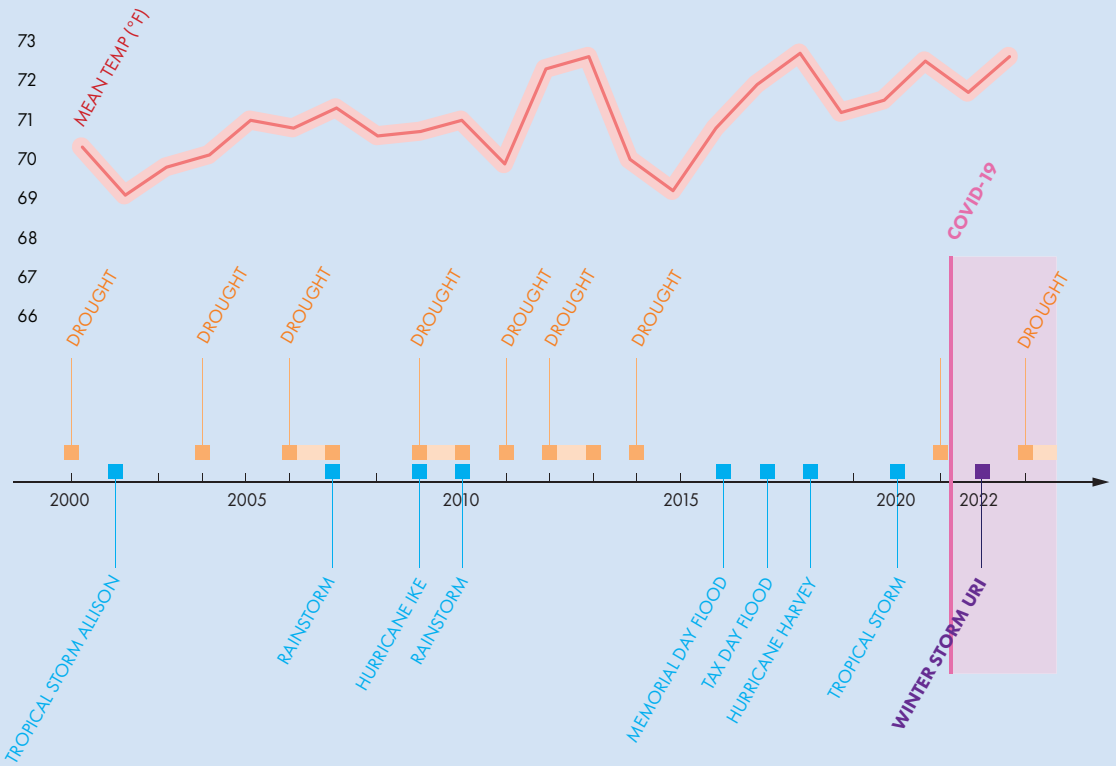
The City of Houston experienced 18 major weather events including flooding, heat, cold, drought since 2000, including the global pandemic. Lives have been lost and billions-trillions of dollars lost in damage due to these events. The scientific community projects that weather events will continue along this trajectory continuing to intensify in terms of both frequency and magnitude *(Climate Impact Assessment: 9)*, and specifically for Houston these projections mean more severe droughts, sea level rise, more intense coastal flooding and increased intensity of storms. So it is imperative that the community work consistently toward reducing the impact of future events.

In terms of climate, the neighborhood is experiencing a general warming trend and changing precipitation patterns. The City's *Climate Impact Assessment* summarizes Houston's changing climate, finding that the City has already experienced:

- Increases in the average temperature of all seasons;
- Lengthening of summer, with summer beginning earlier and ending later;
- Increases in energy demand for cooling buildings for the spring, summer, and fall seasons;
- Increases in the number of hot days per year (defined as maximum temperature above 100°F) and the number of warm nights per year (defined as minimum temperature above 80°F);
- Increases in the temperature of the hottest days experienced each year;
- Longer multi-day heatwaves;
- Little change in total annual precipitation but a decrease in summer precipitation and increase in fall precipitation; and
- Greater variability in day-to-day precipitation that includes both slight increases in number of dry days and increasing risk of drought due to soil moisture decreases resulting from higher temperatures, as well as increases in the precipitation falling during extreme precipitation events such as the wettest three-day period each year. (Climate Impact Assessment, *7*).

In addition to weather events, stresses and shocks can include other types of events such as pandemics, economic changes such as rising energy prices, sudden spikes in housing demand, and exposure to environmental toxins. Each event adds to the nature and scope of what a resilience planning effort must consider.

Given the increased likelihood of extreme weather events, and the compounding effects of repeat or multiple events on a community, it is imperative that tangible action be taken now to reduce the impact of events, and optimize the recovery from them. This plan is a key step in taking action to mitigate the impacts of climate change and other extreme events.



City of Houston's timeline of stresses + shocks between 2000 and today.

A *Neighborhood Resilience Plan* is a strategic action plan for government, community leaders and innovators looking to address core resilience issues facing their community. It has the flexibility to align both to Resilient Houston's goals and targets while also aligning to the unique physical characteristics and community priorities of the neighborhood. The plan helps to guide the community, its leaders, and its elected representatives toward decisions that reduce and mitigate neighborhood vulnerabilities, and it provides the essential foundation for forming partnerships with local government, philanthropy, community-based organizations, and other institutions and organizations.

The plan contains Community Engagement and Vulnerability Assessment findings that inform and shape the community's vision for resilience. Encapsulating the community's resilience vision, the Guiding Principles describe the high-level actions that lay the foundation for neighborhood resilience. The Guiding Principles of the plan appear broad and widely applicable across the City of Houston but are also localized to create concrete action today. Projects and programs make the Guiding Principles tangible and actionable through specific recommendations for people-specific and placed-based initiatives designed to achieve resilience in the Edgebrook neighborhood. To ensure that the community's vision and ambitions laid out in this plan are realized, ambitious performance targets, implementation timelines, and feasible funding strategies are embedded in the projects and expanded on in the plan's appendices.

The plan is designed to:

- Make sure the community is equipped with the best knowledge, skills, and resources available surrounding resilience practices.
- Enable the community to take ownership of their neighborhood by supporting the community to seek grants and private partnerships;
- Support community advocacy in local government decision making processes; and
- Describe a number of strategies and implementable projects that will create tangible change in the neighborhood.

The plan provides action items on how to prepare homes and buildings to withstand flooding, heat, and power outages through innovative building technology, harnessing nature to cool and insulate, and implementing other best building practices, while also addressing outstanding repairs from previous disasters. The plan organizes infrastructure and other major public investments across agencies and jurisdictions; it harnesses nature to manage heat and flooding at a neighborhood scale and recommends substantial investments in streets and the bayou through multiple benefit projects that result in healthy and complete streets, improved ecology and environmental health, and greater flood water capacity. It also recommends programs and projects to increase community capacity to withstand, respond to, and recover from shocks and stresses by increasing local knowledge and awareness, strengthening networks for distributing resources and other forms of support, and increasing resources in the neighborhood through economic development.

"**Temperatures** in Texas have risen almost 1.5 degrees Fahrenheit since the beginning of the 20th Century. **Historically unprecedented warming** is projected during this century, with associated increases in extreme heat events"

"Although projected changes in annual precipitation are uncertain, increases in **extreme precipitation events** are projected. Higher temperatures will increase soil moisture loss during dry spells, increasing the intensity of naturally occurring **droughts**"

"Future changes in the number of landfalling **hurricanes** in Texas are difficult to project. As the climate warms, hurricane rainfall rates, storm surge height due to sea level rise, and the intensity of the strongest hurricanes are all projects to increase."[4]

HOW TO USE THIS PLAN

The plan guides and supports decision-making around local investments in physical infrastructure, programs, and policies, which means it can be used to promote the interests of different stakeholder groups. The *Edgebrook Neighborhood Resilience Plan* provides the foundation for forming collaborative partnerships with local government, philanthropy, community-based organizations, and other institutions and organizations. The plan sets a clear vision that the community can organize around and creates a constructive interface through which various stakeholders can collaborate with the local community toward shared goals. It does so by defining projects and programs and is a tool for the community to guide decision-making, identify stakeholder roles and responsibilities, and forge the partnerships, relationships, and networks essential to realizing the ambitious resilience actions and activities in this plan. Community members should refer to the plan document to focus community-based resilience efforts and initiatives, and to understand which stakeholders to reach out to about which topics and when, and as a reference for community need and consensus-informed solutions.

Community Members + Organizations

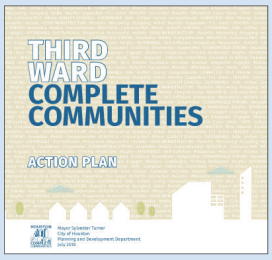
For community-based plan users, the neighborhood resilience action plan helps to engage various stakeholders productively and systematically, including local government, nonprofits, and other private interest groups. The plan provides a clear statement of what is needed to realize neighborhood resilience in Edgebrook. Having a clear statement of what is still needed in a city-led plan makes it clear to grant administrators and private partners how they can help the neighborhood. The plan also identifies roles and responsibilities that sets the foundation for coordination amongst resilience efforts as well as transparency and accountability at implementation. It also allows groups, organizations, and institutions to work relatively independently by following the plan's strategies and actions yet ensures a shared understanding of the vision and goals, and accountability as to the who, what, when, and how.

Community Advocate

Use this plan to attain procedural justice, or as a tool to advocate for community interests and priorities. Advocacy that is grounded in an agreed-on plan document

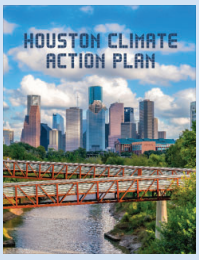
A key aspect of equity in government is procedural justice or: "being fair in processes, being transparent in actions, providing opportunity for voice, and being impartial in decision making"[9]

such as this one, carries weight in conversations with local government and other private partners. The plan can guideg decision making at Super Neighborhoods meetings, city council meetings, and other local government committees. It also serves as a means of constructively holding the community, community partners,



Complete Communities Action Plan, 2018

Resilient Houston, 2020



Houston Climate Action Plan, 2020

FLOODS: Collaborative Community Design Initiative No. 5, 2020

The basis of planning for Edgebrook Neighborhood Resilience Plan

Getting the first round of hot dogs at Public Meeting 1 on July 7, 2022.

What is Resilience?

"Resilience is the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop. It is about how humans and nature can use shocks and disturbances like a financial crisis or climate change to spur renewal and innovative thinking."[6]

"Enhanced resilience allows better anticipation of disasters and better planning to reduce disaster losses — rather than waiting for an event to occur and paying for it afterward."[7]

and local government accountable for their part in realizing this plan, by identifying project leads, timelines, and metrics for success.

The plan is designed to support community-identified priorities and therefore is intended to be used by community-based organizations and community leaders to support their advocacy efforts. Advocacy efforts might include requesting funds allocations from developing partnerships with local donors, state and federal government, developing programs, or increasing service levels from city departments and agencies, or prioritizing physical infrastructure investments made by Harris County Flood Control and other governmental agencies. In these, and other advocacy efforts, the plan serves as the basis for implementing broader change, provides assurances to organizations granting funding to CBOs such as local nonprofits, and other community-driven initiatives.

Community Partner

Partners outside the community and local government often have aligned interests, as resilience ensures property values remain stable and businesses remain active, improves the environment and ecology, builds equity, and in some cases can serve as an economic stimulus tool. In cases where business interests and resilience plan actions and projects align, there is an existing shared interest that can be leveraged to ensure timely implementation of the neighborhood resilience action plan.

Community partners should refer to the *Edgebrook Neighborhood Resilience Plan* as a cohesive community-driven vision of resilience for the neighborhood. The Guiding Principles lay out strategies and actions, along with key stakeholders and their responsibilities. Stakeholders, particularly private partners, can review to understand where additional support may be needed to realize the neighborhood's vision. Additionally, partners can review the projects and the implementation steps to find shared interests to pursue. The funding, metrics, and timelines support finding ways to optimize private interests with broader neighborhood resilience principles.

A RESILIENT EDGEBROOK

The *Edgebrook Neighborhood Resilience Plan* expands on the substantial work previously conducted through *Resilient Houston, Houston Climate Action Plan, Complete Communities,* and other Hurricane Harvey recovery projects.

With thoughtful outreach, in collaboration with local community leaders and organizations, this plan identifies compound risks and vulnerabilities, and it then offers multi-benefit strategies to address identified risks and vulnerabilities through placed-based projects. These include climate adaptation and flood risk reduction projects, aw well as infrastructure modernization, housing stability and security, healthy clean environment, social empowerment, economic development, and heat mitigation. It also provides people-based strategies that address historic and prevailing inequities, the plan collectively builds on capacity to advance neighborhood priorities, attract, and guide investment, and encourage equitable growth and redevelopment. This effort seeks to transfer agency to neighborhood advocates and community members to steward resilience efforts at the local level, while considering initiatives and impacts at the City and regional levels.

Building on the priority shocks and stressors identified in Resilient Houston, the neighborhood resilience action planning effort assesses stressors expected to affect the City of Houston at large as well as vulnerability amplifiers specific to each neighborhood.

The Edgebrook Neighborhood Resilience Planning Process includes five steps:

1. Establish a Neighborhood Support Team (NST) comprised of neighborhood leaders to guide the process and encourage community participation.
2. Establish a technical advisory committee comprised of representatives of city departments and outside organizations to help develop the action plan.
3. Create a community participation plan.
4. Conduct a vulnerability assessment.
5. Develop action items to address issues and testing them to ensure feasibility and alignment with neighborhood priorities.

The Edgebrook community was built in the 1950s as a quaint suburban neighborhood, approximately 10 miles south of downtown Houston. Since the 50s, the neighborhood has become more dense and experienced economic decline, crime, and demographic changes. Quality of life concerns and recent climate disasters have inspired individuals to build a resilient community. During severe events, like Harvey, Wintersotrm Uri and tornados that recently swept through Edgebrook, the community members generously come together to help each other, even opening their homes (some for several months) to each other when flooding made neighbor's homes uninhabitable. Bible Way Church, which runs one of the largest Food Bank Distribution hubs in the US, distributes food during severe events and continues to do so twice weekly. After Hurricane Harvey and through the COVID-19 pandemic, Bible Way has ramped up their services to respond to community need. The church made their premises available to host civic club meetings, as well as assisted in facilitating Resilience Project community meetings, helping engage the community in the process of growing, becoming stronger and more resilient together.

The history of Edgebrook has been partially shaped by environmental disasters, economic inequality, and systemic racism. However, the community has shown incredible strength and resilience in the face of these challenges, and its leaders are working to build a more equitable and sustainable future for the neighborhood.

The community's resilience vision for the neighborhood:

- continue to activate the community around **resilience** and increase **social cohesion**;
- develop a flexible and robust **social network** that allows for quick responses and distribution of resources in the event of stresses and shocks, and that helps transform the neighborhood for the better;
- improve the **appearance and cleanliness** of the neighborhood and its natural environment;
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- improve **traffic safety** and have cool streets;
- improve neighborhood services and have a **healthy and growing economy**.

View of single-family home typical of the neighborhood.

VULNERABILITY ASSESSMENT

Neighborhood Vulnerabilities Summary
The neighborhood's resilience vulnerability has been assessed by looking at three indicators: overall flood vulnerability of homes and businesses in the neighborhood; individual components of flood vulnerability related to homes in the neighborhood; and social vulnerabilities of residents living in the neighborhood.

The spatial analysis for determining relative levels of vulnerability takes into account location of parcels and structures, property use, and floodplain building requirements in place when the property was built. Despite there being properties at higher risk of flooding than others in the Edgebrook neighborhood, this should be taken in the context that virtually all of Houston is at risk of flooding.

The assessment demonstrates that large portions of Edgebrook are vulnerable to and at risk of flooding. The properties identified as at risk to flood are located in areas that are not in the floodplain, and also in locations that may not have flooded during Hurricane Harvey. Specifically, the assessment finds that approximately sixty-two percent of residential properties, thrity-five percent of city- and county-owned property, forty-six percent of commercial and industrial, and forty-nine percent of community services properties have a high vulnerability to greater than a one percent annual chance of flooding.

The flood risk to residential homes is often of greater concern when considering the overall health and safety of the neighborhood in the event of flood. There are close to 2,422 (or 61.86%) residential properties with high vulnerability to flooding. In addition, of the eighty-three or so residential parcels identified as "vacant", thirty-one are exposed to flooding (may or may not have a structure on them).

EDGEBROOK PROPERTIES HIGHLY VULNERABLE TO AND AT RISK OF FLOODPLAIN INUNDATION[2]

10 (35%) Government owned properties and utilities

2422 (62%) Residential

20 (51%) Community Services [3]

72 (42%) Undeveloped Land

33 (60%) Industrial

30 (37%) Commercial

Residential properties vulnerable to floodplain inundation

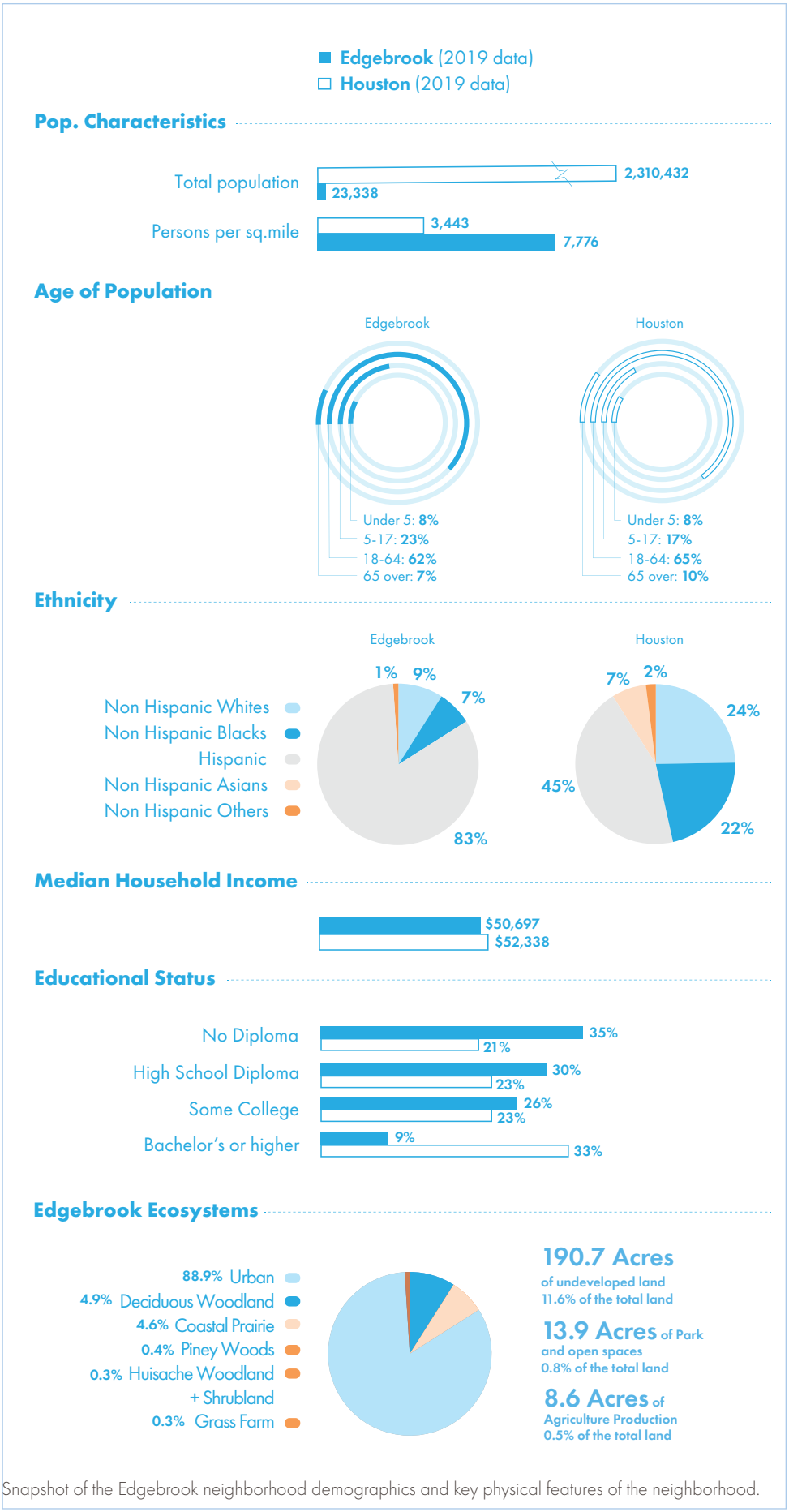
50% Multi-family

62% Single-family

Key figures and statistics describing the resilience challenges in the Edgebrook neighborhood.

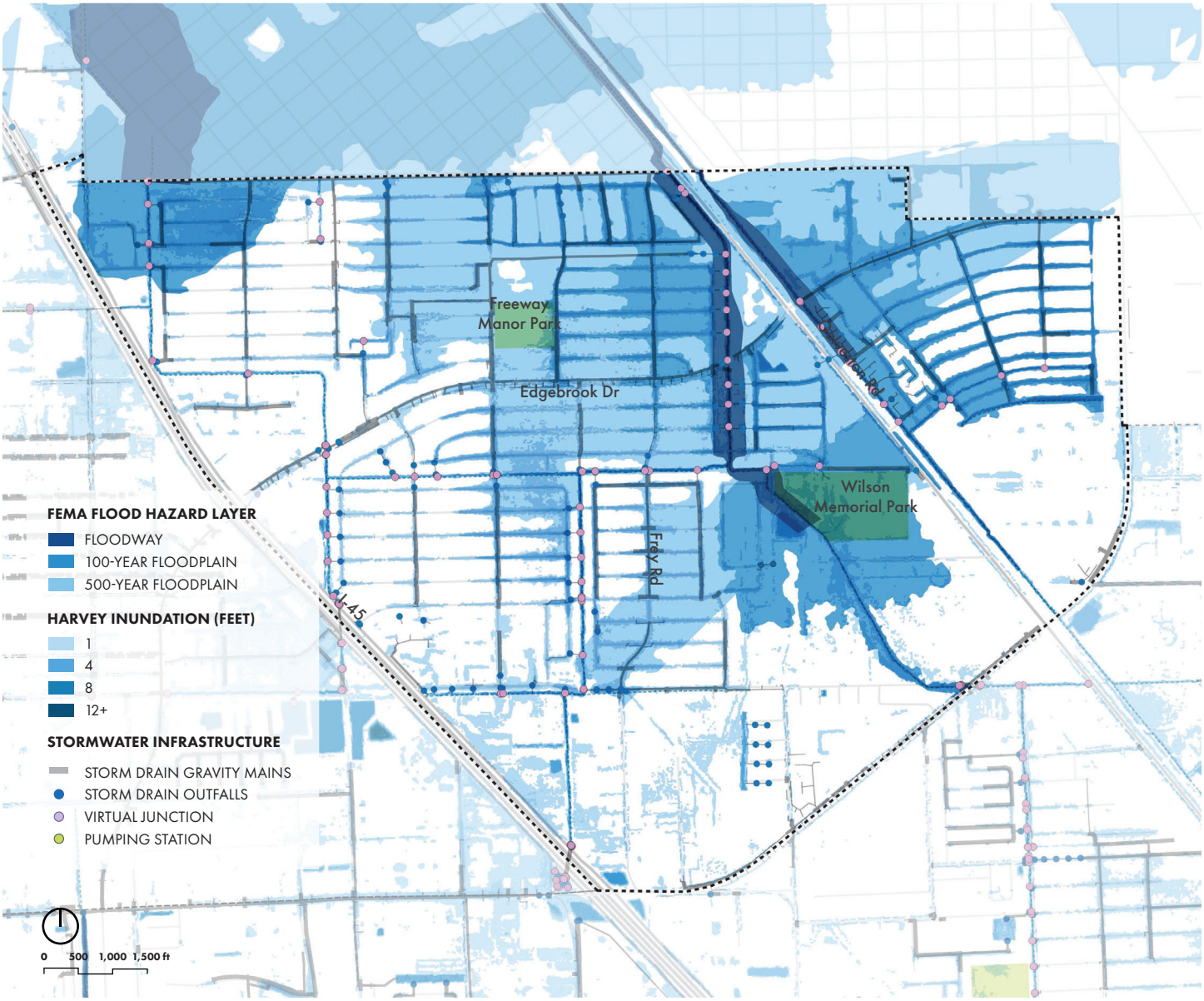
Social vulnerability indicators, based on the 2020 American Community Survey (ACS) five-year Census, identify approximately six percent of residents without access to a vehicle, and living in an area that is low-density with limited or no alternative transportation modes. This factor is visible looking at the neighborhood's development pattern, characterized by single-family residential and surrounded primarily by large-scale manufacturing and industrial property. Additionally, the median household income in the neighborhood is around $56,582, which is significantly below what the estimates as a living wage for two people with no children in the State of Texas, and just under half of a living wage for a dual income household with three children. The economic stress in this neighborhood may be further indicated by the fact that thirty percent of households in the neighborhood are considered housing burdened, or pay more than thirty percent of their income for housing. As

such, these households are more likely to have difficulty affording other necessities like healthy food or air conditioning. With less than ten percent of residents holding a college education, employment options and the types of jobs attainable are also limited.[12]



Snapshot of the Edgebrook neighborhood demographics and key physical features of the neighborhood.

VULNERABILITY FINDINGS



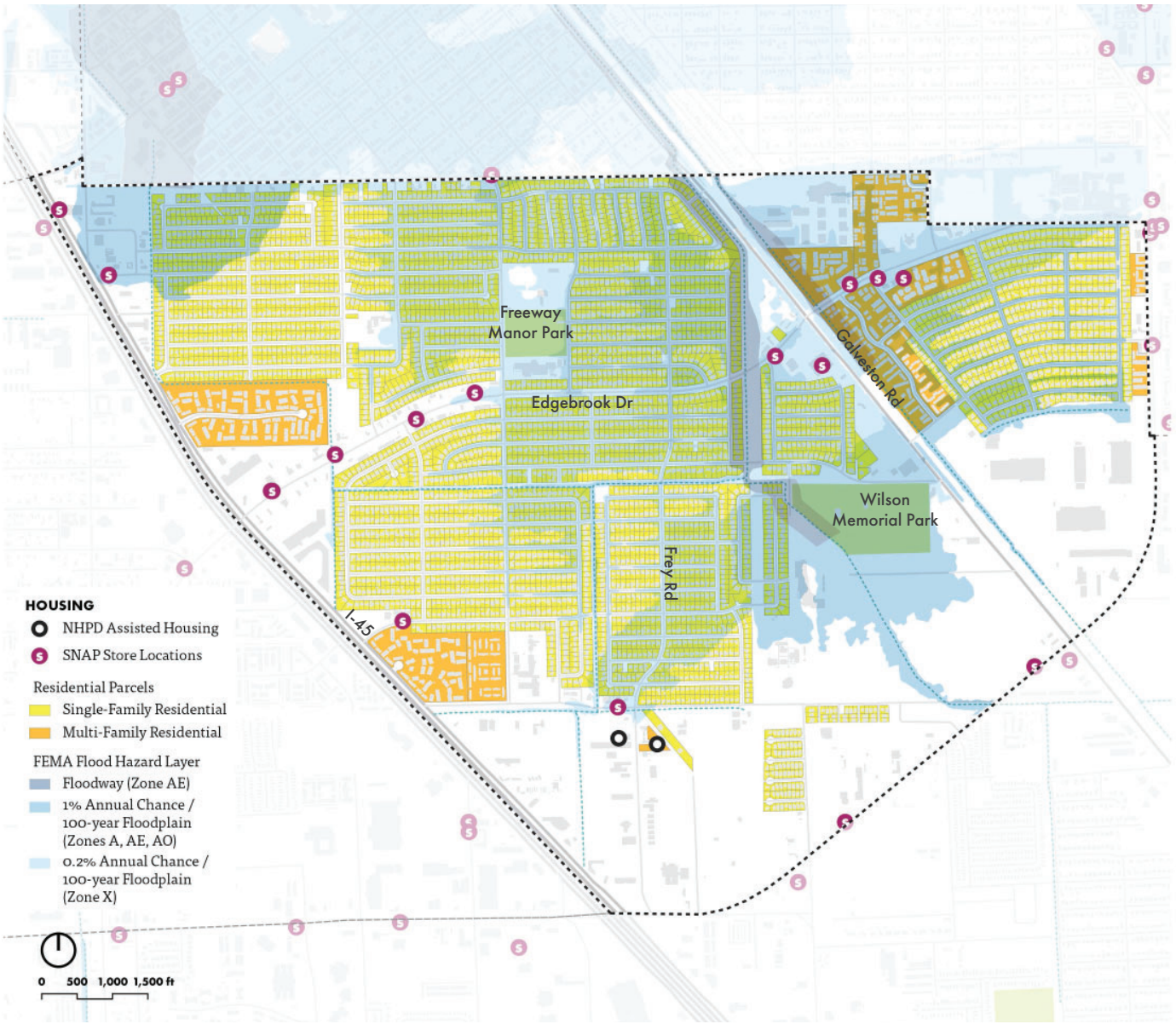
Hurricane Harvey Inundation + Recovery Services.

Flood Vulnerability

Neighborhood flooding can occur from a variety of sources, including bayou flooding, extreme rain events, tropical storms, and hurricanes.

The physical characteristics of the neighborhood in terms of geography and climate include low lying land that is experiencing subsidence, proximity to Sims and Halls Bayous and location that is downstream in the regional watershed. Edgebrook faces high flood risk given that the neighborhood is low lying with major waterways running through the neighborhood carrying regional stormwater to San Jacinto and Galveston Bay, in combination with groundwater withdrawals that cause irreversible subsidence.[13] Significant flood impacts were seen from Hurricane Harvey flooding. Extreme rain events, from weather systems, tropical depressions, and hurricanes can lead to both neighborhood flooding as well as bayou flooding.

The physical characteristics of the neighborhood contribute to vulnerabilities. Houston neighborhoods that developed before the 1990s are more



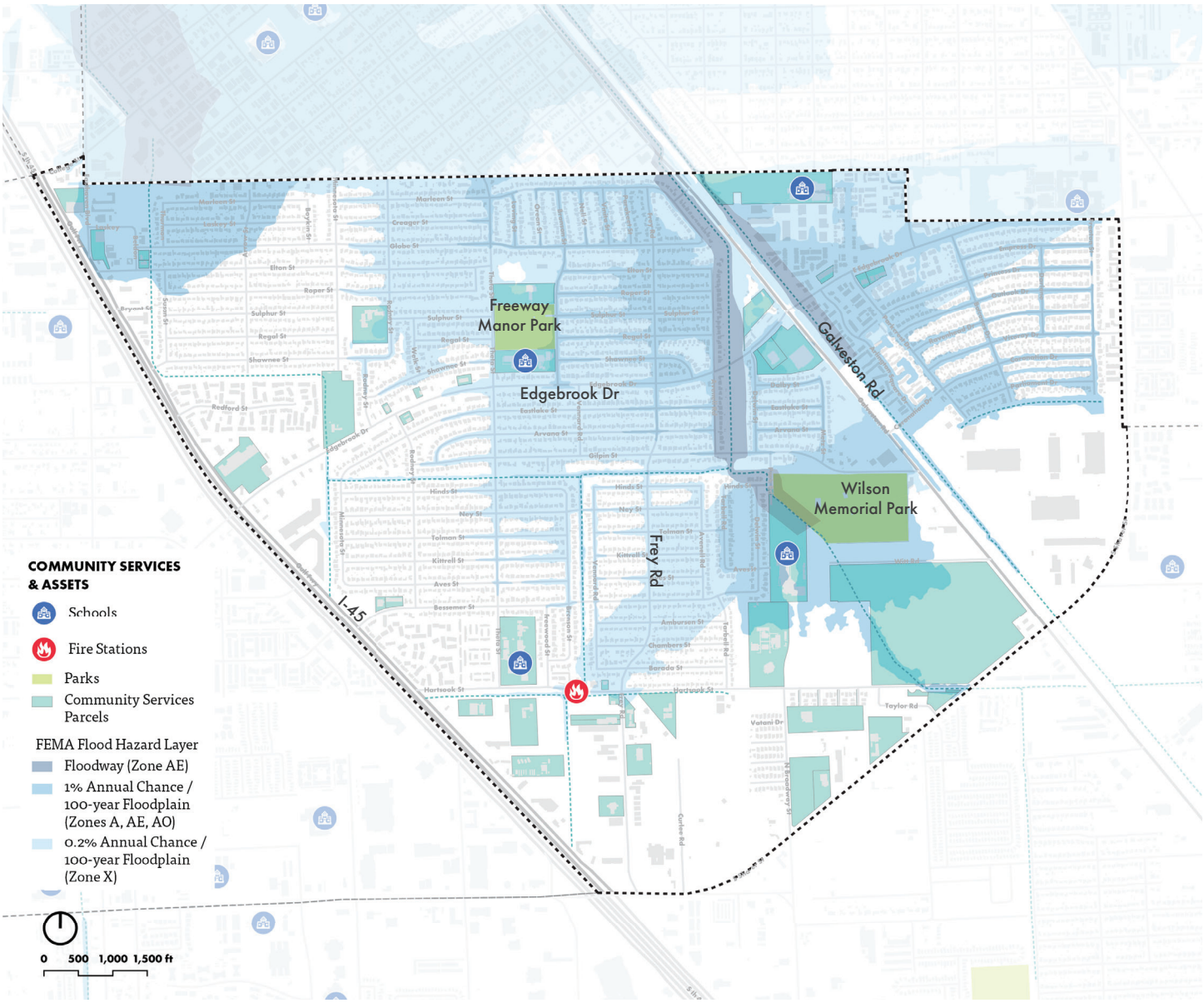
Housing typology and relationship to the floodplain.

susceptible to flooding from rainfall because the National Flood Insurance Act of 1968 did not lead to floodplain mapping in Houston until the late 1980s. After the adoption of flood maps in the 1990s, more stringent drainage design requirements and floodplain permitting requirements were implemented. As a result of decades of development prior to today's standard restrictions:

- Buildings, roads, and other infrastructure, including the neighborhood drainage system, were built to substantially lower drainage standards than would be required today.
- Homes, schools, and other critical neighborhood services have been built in the floodplain and the floodway.

Given the development pattern in the neighborhood, buildings within the 100-year and possibly 500-year flood plain are highly susceptible to flood events, and the local drainage system capacity is highly susceptible to rain events that cause neighborhood and street flooding.

VULNERABILITY FINDINGS

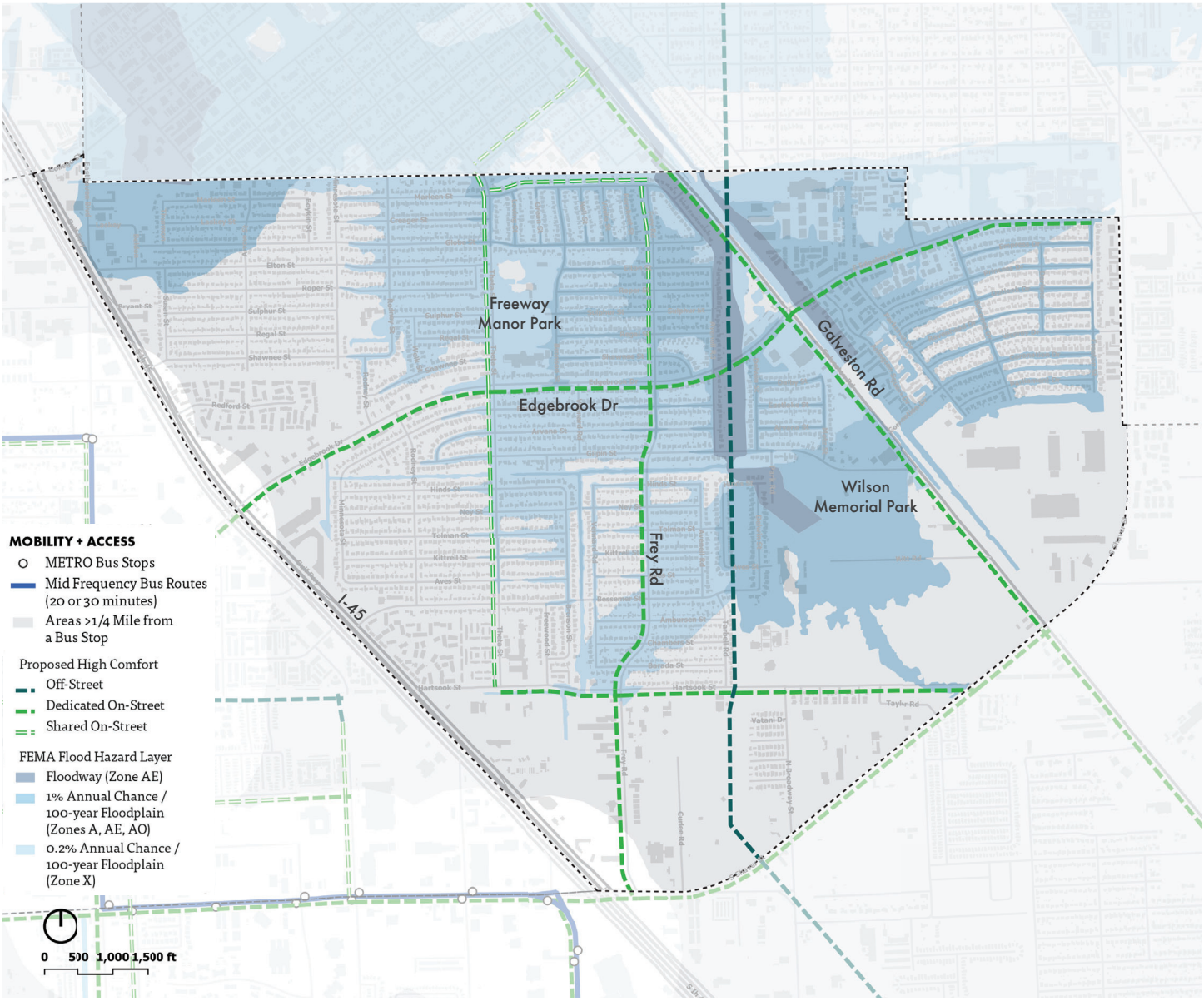


City facilities and relationship to the floodplain.

Changing rules and development patterns have also resulted in a limited tree canopy. The tendency to clear properties of trees, shrubs, and other vegetation as part of a development has reduced the ability of vegetation to slow water flow and increase water absorption. The high percentage of impervious surfaces creates an effect called sheet flow, where water moves quickly across the impervious surface, and further contributes to the amount of stormwater runoff. It also contributes to increased water speed and volume during flooding events. Impervious surfaces such as concrete, asphalt, and building roofs are the major contributors to creating sheet flow, thereby increasing stormwater runoff that depicts the existing development in the neighborhood. The low amount of undeveloped land shown in this figure indicates that stormwater runoff is higher than with undeveloped land.

Housing

Approximately sixty-two percent of residential properties in Edgebrook are classified as highly vulnerable to flooding. Highly vulnerable residential properties are predominantly single-family



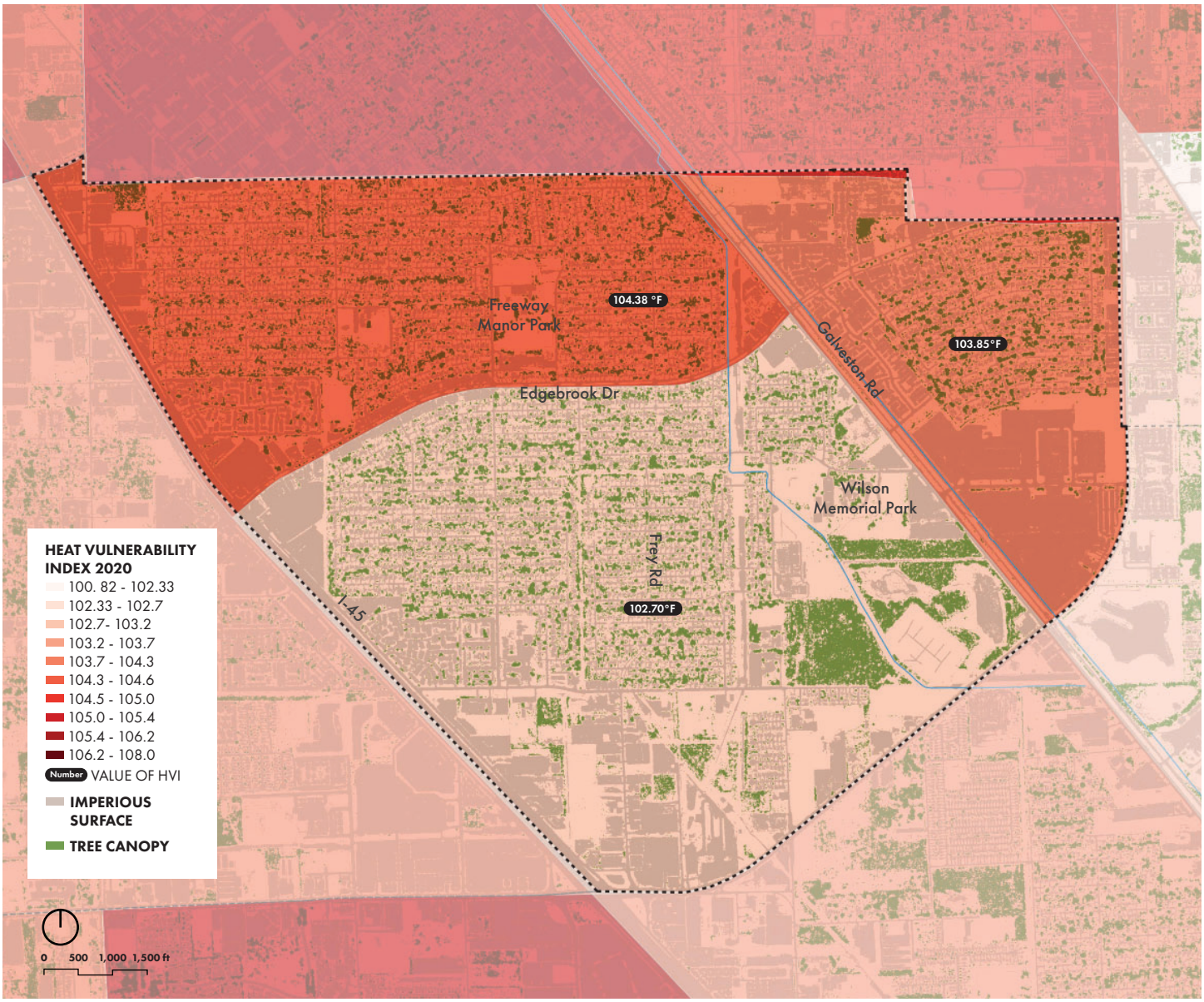
Alternative mobility infrastructure and relationship to the floodplain.

homes but do include five multifamily developments. All five of these multi-family properties are located east of Galveston Road at its intersection with East Edgebrook Drive. Roughly half the households in the census tract covering this area (Census Tract 3213.01) are cost-burdened, i.e., they pay over thirty percent of their income towards housing costs.

A driving factor of vulnerability is that the vast majority of homes (over ninety seven percent) in the neighborhood were constructed before federal regulations came into place limiting the construction of homes and other structures in the floodplain. Today federal regulations reguarly require homes built or rebuilt on land in the floodplain are elevated to remove the structures themselves from the floodplain. Housing vulnerability is exacerbated by a housing stock that is deteriorating due to slow recovery from previous disasters.

Housing vulnerability is exacerbated by a housing stock that is deteriorating due to slow recovery from previous disasters. An estimated forty-one percent of homes in Edgebrook sustained damage

VULNERABILITY FINDINGS

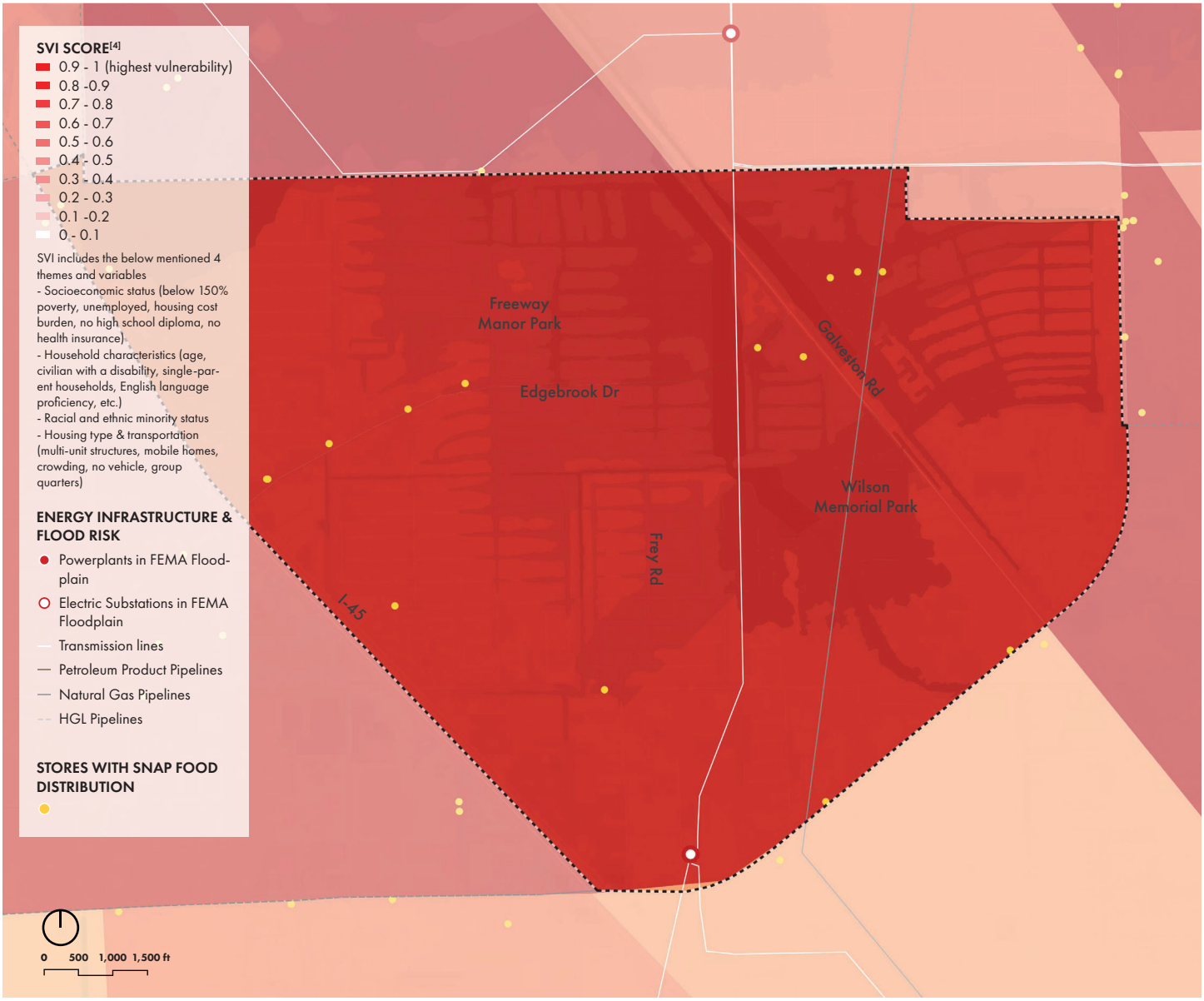


Correlation between percent tree canopy and percent impervious surface as an urban heat island estimation.

during Hurricane Harvey. Many of the structures impacted are outside of the current FEMA floodplain, which does not account for the compound flooding seen during Hurricane Harvey. Community members report many barriers to accessing recovery funds, including insurance requirements and a heavy paperwork burden that can require property titles and heirship rights. Property owners are often under- or uninsured, and do not may not have sufficient personal funds to cover the high costs of home repair. The result is that many homes have not been repaired and the funds dedicated to their repair have remained unclaimed.

Stormwater Infrastructure

The streets and local drainage systems were designed and installed prior to the adoption of more stringent drainage design requirements of the late 1990s. Relative to current design standards and the likelihood of extreme rainfall events occurring, the local drainage systems are undersized and street flooding is likely. Orphan drains, or unmaintained storm drains, are prone to clogging and flooding streets due to a lack of regular maintenance. The lack of maintenance and cleanup is



Social vulnerability index as an estimation of socio-economic stress.

not compensated by a program such as the City's Adopt-A-Drain program: very few storm drains have been adopted as part of the program in the neighborhood. Participants volunteer to remove leaves and debris at least four times a year at each location.

Community Services

Three of the five Houston Independent School District (HISD) properties in Edgebrook are highly vulnerable to floodplain inundation. Schools located on the HISD property include:

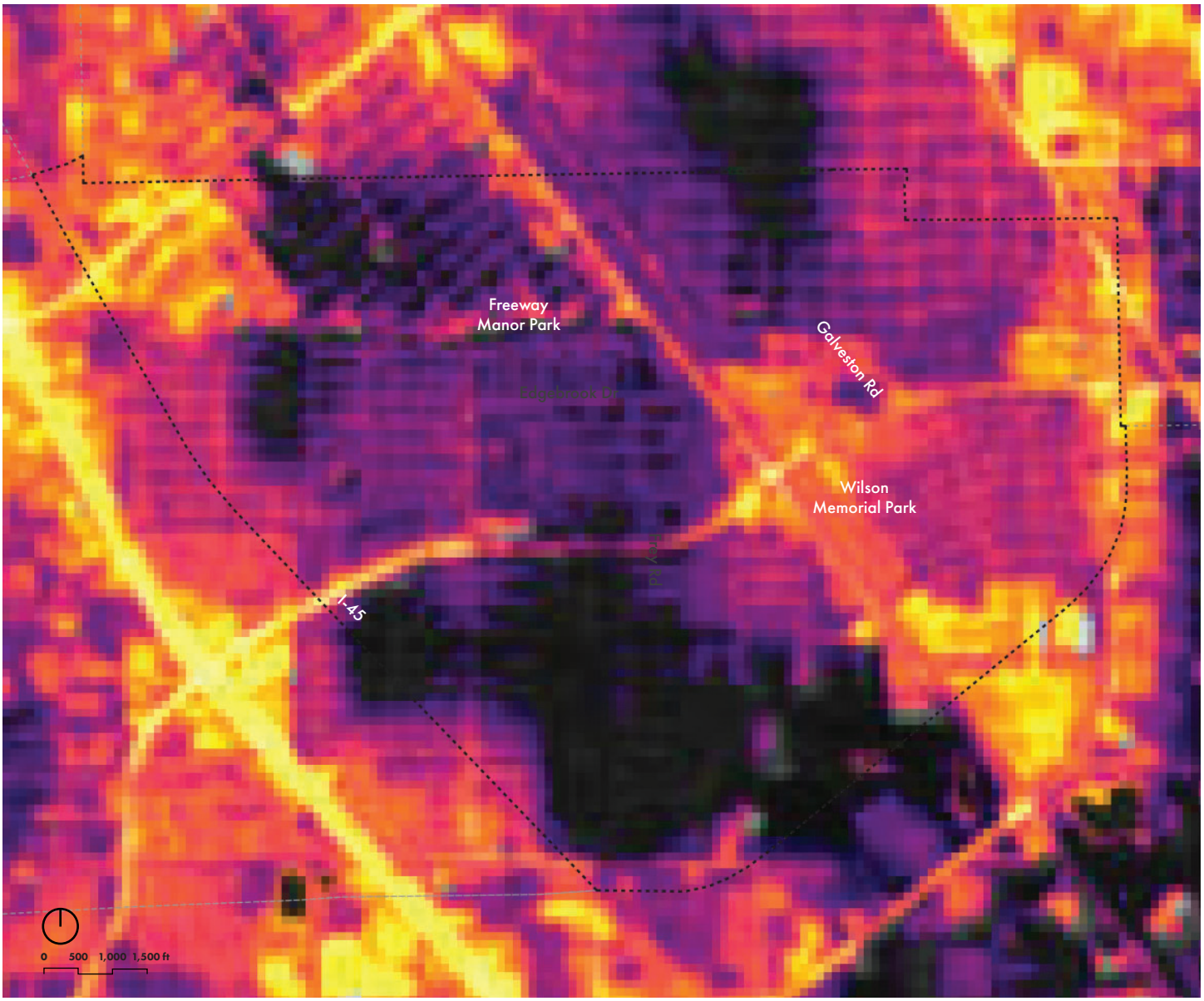
- AB Freeman Elementary School (2323 Theta Street);
- Pearl Hall Elementary School (1504 9th Street); and
- Milstead Middle School (338 Gilpin Street).

Three out of twelve churches are highly vulnerable to flooding, located at:

- Freeway Manor Community Church (2300 Rodney Street);
- Berean Christian Church (2210 Bronson Street); and
- Saint Frances Cabrini Catholic Church (10727 Hartsook Street).

Like housing, many of the community

VULNERABILITY FINDINGS



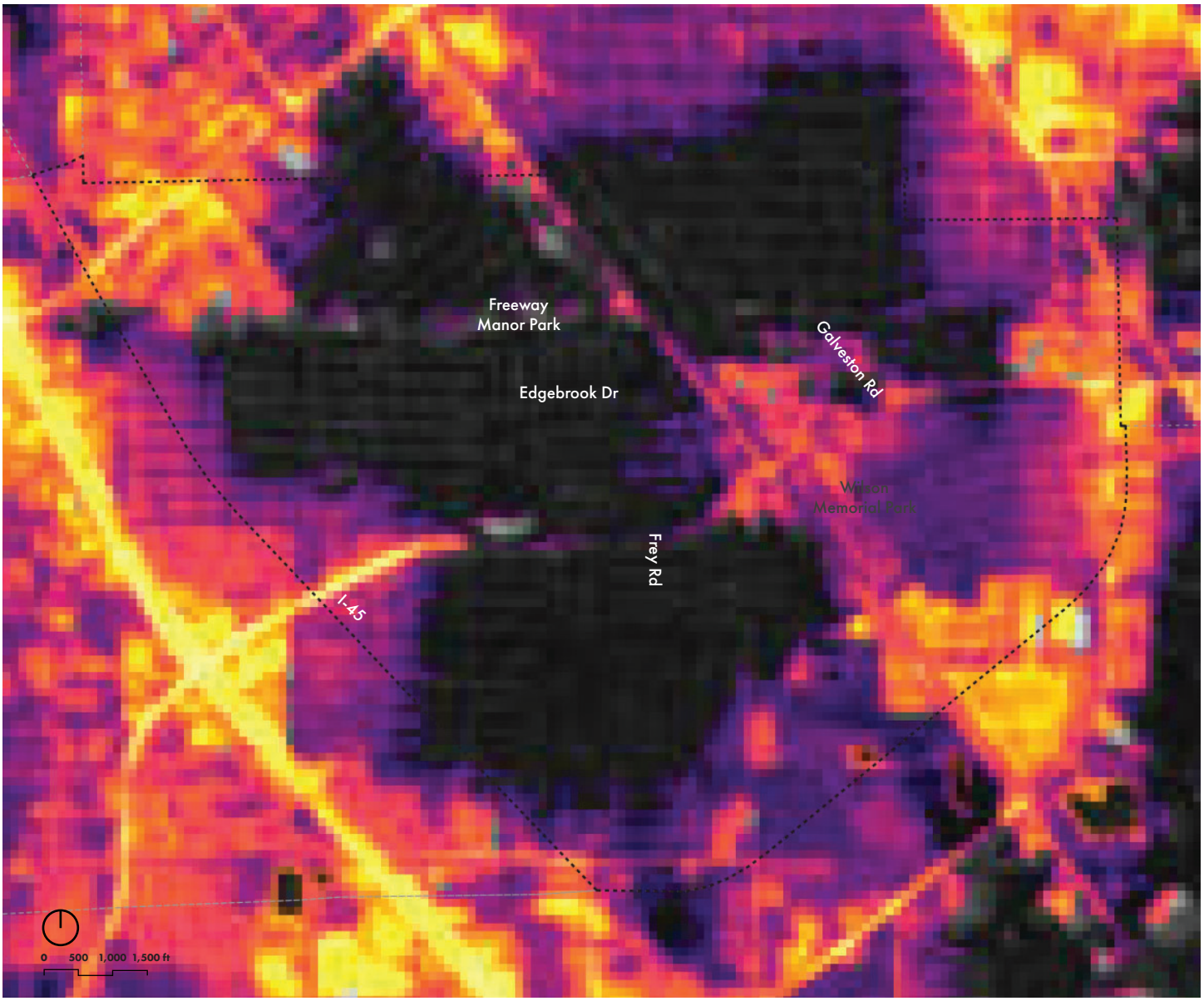
Before Winter Storm Uri power outages as visible from NASA satellites

service facilities have been constructed before elevation requirements were first put in place in 1980. In addition, some community facilities are not weatherized to the extent necessary for the types of extreme heat and cold recently experienced, or do not have backup power supplies that would allow them to operate during a power outage.

With limited public transportation options, community members are reliant on personal vehicles and ride shares to get to school, jobs, medical services, and other activities. There is not currently a designated network of dry pathways out of the neighborhood, or a robust network of services facilities and basic infrastructure designated to resilience-related emergency service provision.

Clean Neighborhoods

Replacement and refurbishment are also needed due to the age of existing infrastructure. In addition, stormwater infrastructure is largely unprotected from debris entering the system, the bayou is often overgrown increasing susceptibility to blockage, and environmental pollution is experienced due to lingering solid waste in public right-



After Winter Storm Uri power outages as visible from NASA satellites.

of-way. Bioswales and waterways, and residential and commercial properties are in proximity to industrial activity, as well as heavy freight train routes and trucking routes.

Heat Vulnerability

As part of the original Edgebrook neighborhood development, trees and vegetation were cleared to create the broad streets, such as Edgebrook Drive. Despite this development pattern, the neighborhood maintains a relatively high tree equity score of 100 for most areas, and 83 for the southern portion of th neighborhood.[15] The moderate to high tree canopy coverage in the neighborhood is at risk from clearing of undeveloped land for new development, although the neighborhood has a relatively low amount of undeveloped land. When natural land cover is replaced by buildings and other impervious surfaces that absorb and retain more heat, it causes dense urbanized areas to become hotter than surrounding rural areas when left unmitigated. The phenomenon that developed areas tend to be hotter than undeveloped areas is an effect known as Urban Heat Island

VULNERABILITY FINDINGS

(UHI). The effect, "occur[s] when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality."[16]

Though Houston is no stranger to hot weather, urban heat is a growing risk in a warming climate. Acute heat events are the deadliest weather-related risk and unusually hot days also impact public health, education, and quality of life.

The Harris County Extreme Heat Vulnerability Assessment considers many environmental and social factors and shows a high percentage of heat-vulnerable populations in the neighborhood, including those with limited access to air conditioning and living with incomes below the federal poverty line, making rising energy costs more impactful on this neighborhood, and people living with the health risk of heart disease and disabilities, and without health insurance. Community members have reported the need for cooling, particularly along transit routes and at transit stops along Edgebrook Drive, Frey Road, and Galveston Road.

Public Health

Some residential properties in the neighborhood are adjacent to heavy industrial uses creating an uneasy land use conflict. The industrial activity emits pollutants into the air, as well as water and soil. The extent to which these pollutants affect residents is unknown, however studies conducted in similar areas show higher rates of asthma and other respiratory health issues. Homes that have not recovered from Harvey pose high health risks to the potential of mold infestation, leaking roofs, and limited climate controls for heating and air conditioning. Additionally, energy insecurity poses health risks at home because it potentially increases exposure to heat and cold. For those relying on life-saving medical devices or LSMDs, energy insecurity is an even greater risk.

Chronic Social Stresses

The community has experienced chronic stresses often related to the historic socio-economic marginalized of many community members. This is manifest in such realities as reduced food and energy security, limited or no vehicle access, or limited access to public transportation. In addition to these factors, the limited amount of core services present in the neighborhood have further exacerbated the day-to-day challenges of living in the neighborhood. While the City is actively working to bring services to the community, large investments such as a community space require substantial planning to fund, design, and construct. Community members have built strong organizations in response to the local need, and the neighborhood is working hard to establish a vital component of civic infrastructure in the City of Houston: a Super Neighborhood. However, the community needs additional support from the City for existing needs and to reduce vulnerabilities to shocks that may be experienced in the future.

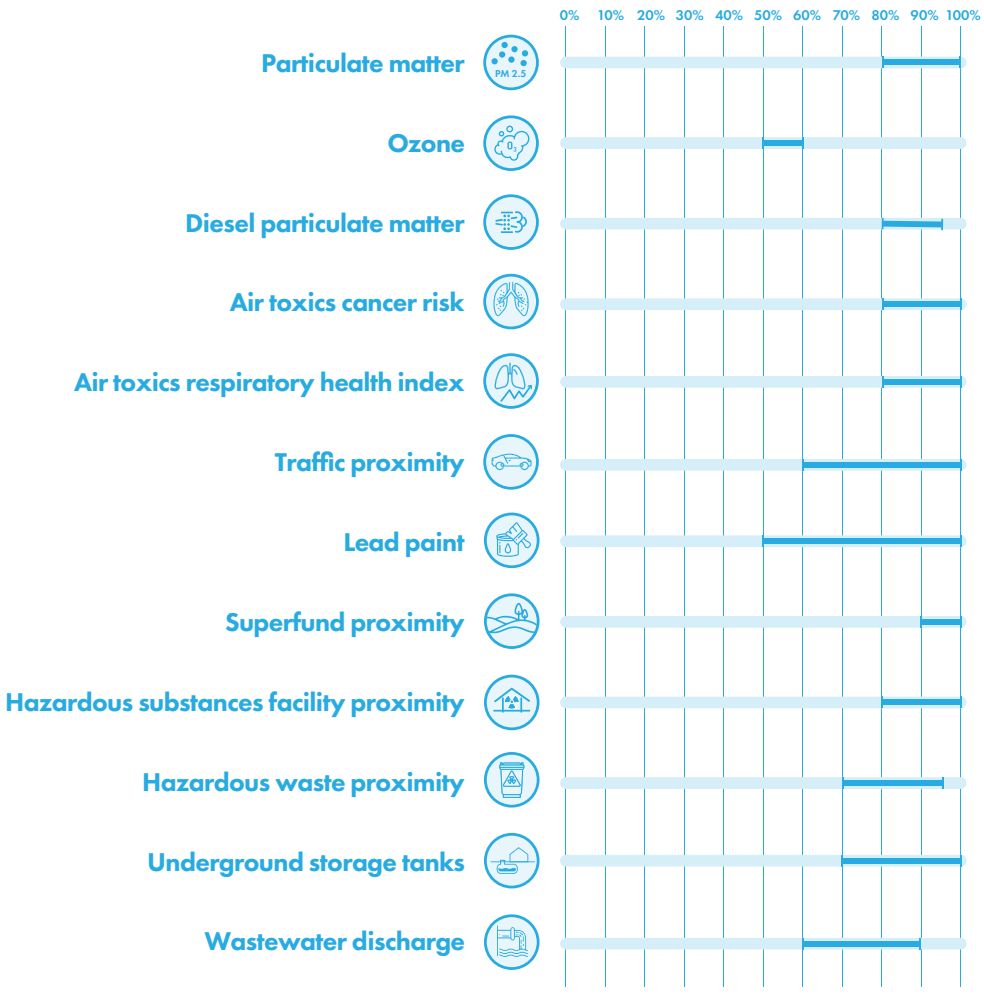
Community members described food insecurity as one of the chronic social stresses. The 2019 USDA Food Access Research Atlas identifies the northeastern Census Tract in Edgebrook as "Low Income and Low-Access" with limited access to healthy food within ten miles.

Three of the six census tracts (seven to twelve percent of households) are without access to a vehicle. Lack of car access and a lack of

bus service underscores the need for public transit options.[17] The land development pattern in the area is low density and car-oriented, with few alternative transportation options. There is a limited and disconnected sidewalk network that community members report as having inadequate ADA compliance at curbs and intersections. There is a limited existing bike path network that provides access within the neighborhood.

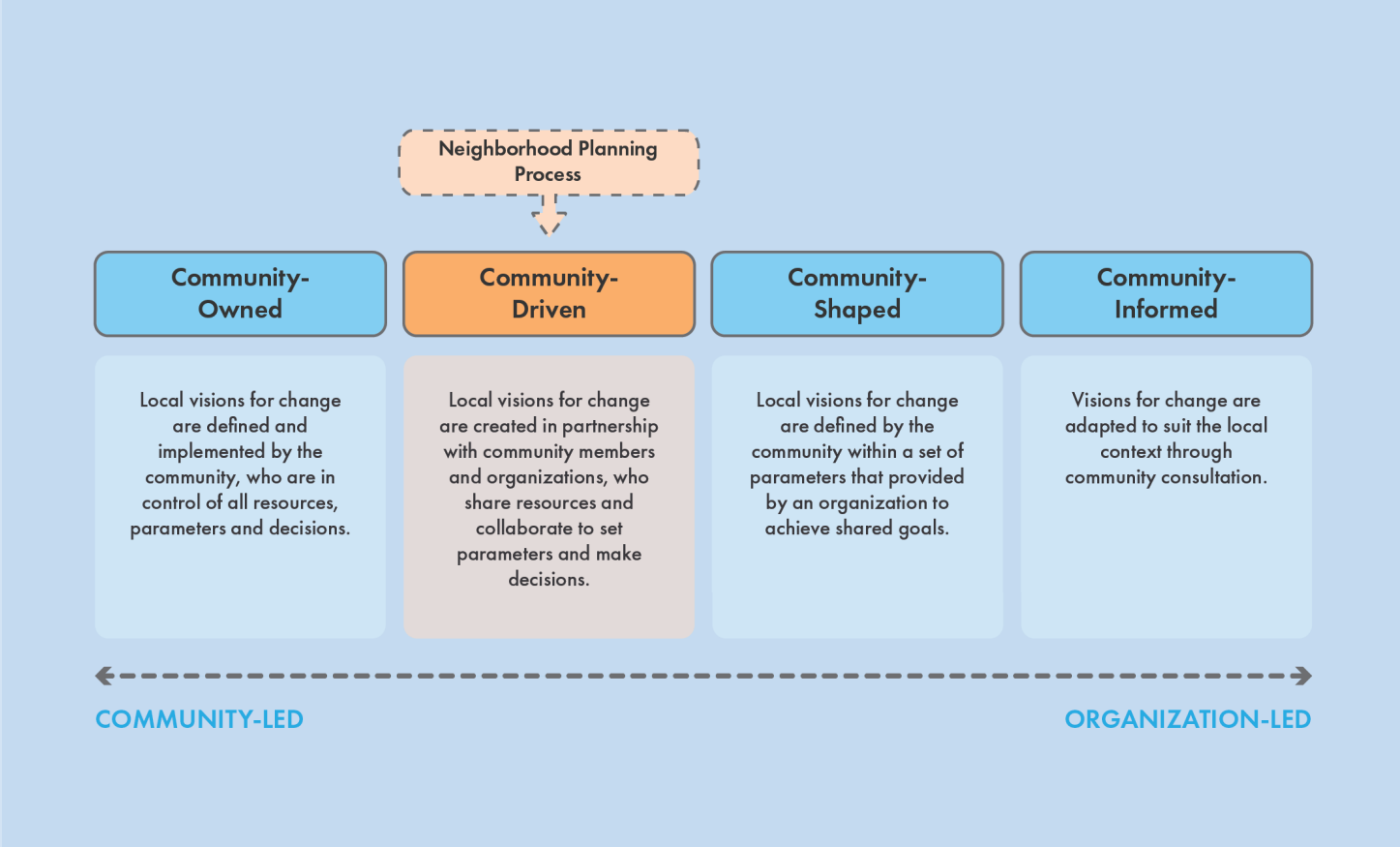
Environmental Justice

The previous sections described a variety of the resilience challenges in the neighborhood, from flood vulnerability to chronic social stresses. Factors the neighborhood experiences at a higher levels include:



Environmental Justice Indicators for Edgebrook

COMMUNITY ENGAGEMENT



The Attygale community participation spectrum that four types of interacting with the community when creating a City-adopted planning document.

The planning process is founded in the principles of environmental justice, which 'demands the right of community members to participate as equal partners at every level of decision making, including needs assessment, planning, implementation, enforcement, and evaluation'. Engagement strategies and participation opportunities have been designed to be equitable so that all community member and stakeholder voices are intentionally sought, listened to, affirmed, and incorporated in the development of the neighborhood action plan.

Community engagement took place between March 2022 to March 2023. Guided by a Neighborhood Support Team (NST) made up of nine community members based on their willingness to serve, representation of broad community interests, and experience with community-level projects, members served as ambassadors to their community and encouraged community participation in the planning process through their networks. Members participated in four NSTs meetings with the planning team, three public meetings (which included Spanish translation), four interactive planning workshops, two surveys, and countless one-on-one conversations with community members on an ongoing basis. The NST members promote planning

participation on their social media networks, through their churches and civic clubs, and with their neighbors.

The engagement process reached thousands of community members. The planning team reached out to the community through flyer distribution on social media, postings in community centers and businesses, councilmember newsletters, online and in-person surveys on Let's Talk Houston, and four meetings at the local civic club or emerging Super Neighborhood meetings. An estimated three hundred people took at least two online surveys, provided project feedback on physical project boards, or attended a virtual or in-person workshop or presentation.

A highlight of the community engagement process was a well attended National Night Out, during which over one hundred fifty local residents stopped by the residence of an NST member who hosted neighbors for the social hour in her driveway, serving hot dogs and other refreshments. During this informal event, residents were able to meet their neighbors and first responders, as well as learn about the neighborhood resilience plans, and shared their opinions and concerns about resilience issues and projects. Another achievement of the community engagement process was the formation of the Edgebrook Super Neighborhood, which emerged through collaboration with NST members and their interaction with various city departments.

National Night Out on October 4, 2022.

Participants and project boards of the public meeting on March 11, 2023.

COMMUNITY ENGAGEMENT

DATE	EVENT	DESCRIPTION AND PURPOSE	NO. OF SIGN-INS	OUTCOMES
2022 MAR. 5-MAR	NST Meeting	Project Kick Off + Feedback on Existing Conditions	9	Input and direction on existing conditions analysis
24-MAR	Interactive Workshop	Civic Club Meeting	1	Input and direction on existing conditions analysis
2022 APR. 6-APR	NST Meeting	Project Kick Off + Feedback on Existing Conditions	6	Input and direction on existing conditions analysis
2022 MAY 3-MAY	Interactive Workshop	Driving Tour	150	Raise awareness of NRP
5-MAY	Interactive Workshop	Civic Club Meeting	20-30	Raise awareness of NRP
26-MAY	Outreach	Raise awareness of public meeting + increase participation in feedback	-	Raise awareness of NRP
2022 JUL. 7-JUL	Public Meeting	Food Drive - Raise Awareness of NRP	40	Feedback on Existing Conditions
8-JUL	Outreach	Raise awareness of public meeting + increase participation in feedback	-	Raise awareness of NRP
23-JUL	Public Meeting	Project Kick Off + Feedback on Existing Conditions	25	Feedback on Existing Conditions
2022 SEP. 8-SEP	Interactive Workshop	Present Projects and Collect Feedback on the Projects	25	Feedback on Existing Conditions
14-SEP	NST Meeting	Raise awareness of public meeting + increase participation in feedback	4	Feedback and direction on projects and approach for Public Meeting 3
2022 OCT. 1-OCT	Public Meeting	Present Projects and Collect Feedback on the Projects		Raise awareness of and support for NRP
4-OCT	Outreach	National Night Out - Raise Awareness of NRP	27	Feedback and direction on projects and approach
14-OCT	Outreach	Super Neighborhoods Meeting		Raise awareness of and support for NRP
18-OCT	Outreach	Super Neighborhoods Meeting		
19-OCT	Outreach	Raise awareness of final public meeting + increase participation in feedback		Feedback and direction on draft plan
2023 FEB. 1-FEB	NST Meeting	Present Draft Plan and Collect Feedback on the Plan		Feedback and direction on draft plan
2023 MAR. 11-Mar	Public Meeting	Present Draft Plan and Collect Feedback on the Plan		Feedback and direction on draft plan

Figure 25: Timeline of Community Engagement Activities in the Edgebrook resilience planning process.

View of typical street and sidewalk adjacent to single-family homes.

Communicating risk mitigation toolkits with with a community member on Public Meeting at Bible Way on March 11, 2023.

4 Neighborhood Service Team Meetings

4 public meetings & hundreds of participants

Social media postings thru NST members

1000 flyers handed out

Tons of hot dogs!

Key community engagement statistics measuringthe extent of the community outreach.

COMMUNITY ENGAGEMENT

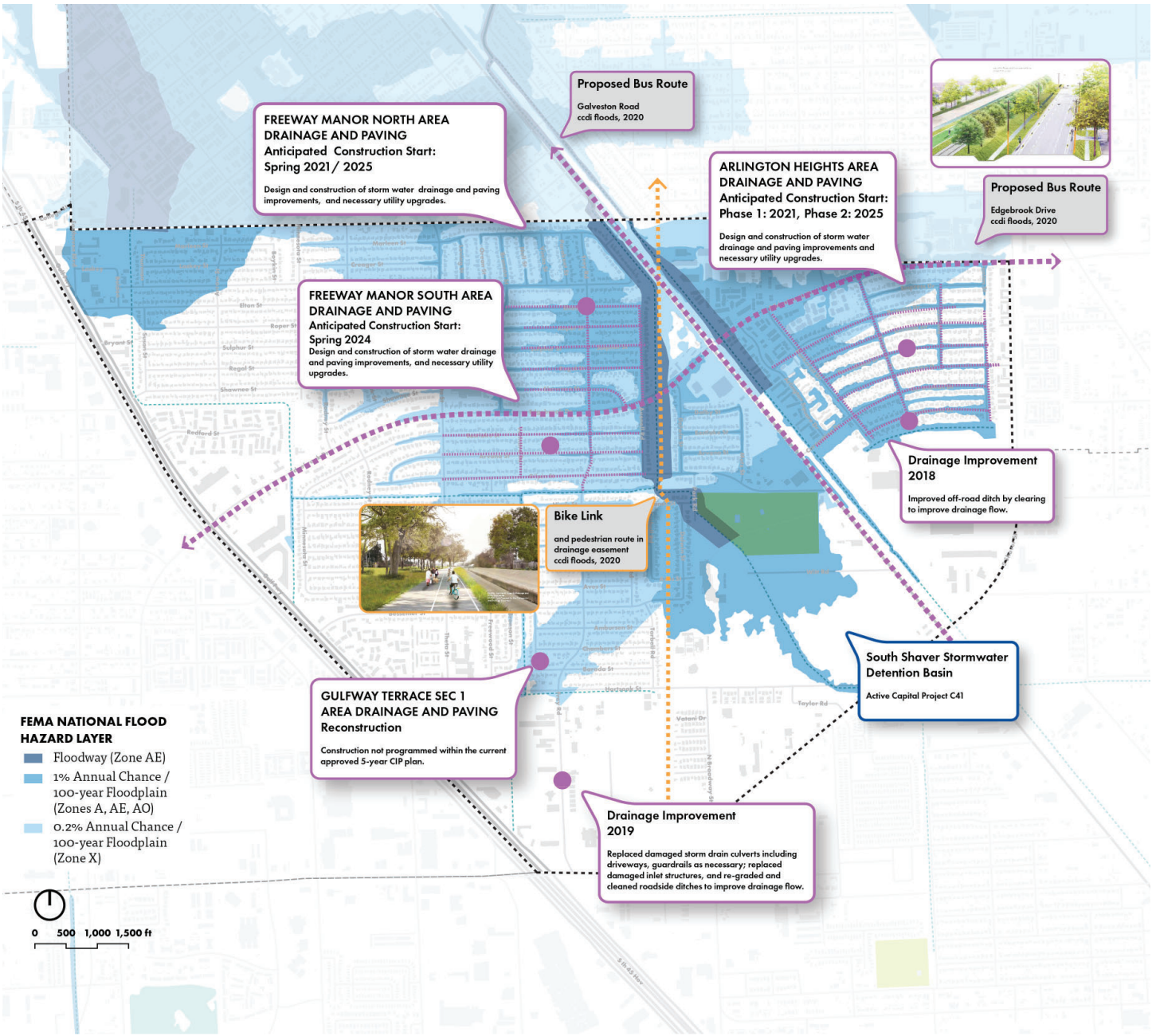
The Edgebrook Neighborhood Resilience Plan is a key organizing tool in preparing for the community's future. The plan serves as a model and method for future neighborhood planning efforts that can be replicated at the community level, either independent of the City or in partnership with the City.5

The Edgebrook community's priorities have been consistent across several recent planning efforts. Stormwater drainage improvements have been identified, as well as proposals to elevate homes located in the floodplain. These are reflected in part by the City's and Harris County Flood Control's Capital Improvements Plan that has installed, funded, and planned eight stormwater infrastructure and detention expansion projects in the neighborhood since Hurricane Harvey. Efforts that will further strengthen the resilience in the neighborhood include building community leadership and advocacy, and developing local economy along Edgebrook Drive and Frey Road.

Workshopping stormwater infrastructure in the neighborhood at Public Meeting 2 on October 1, 2022.

Workshopping streetscape improvements in the neighborhood at Public Meeting 2 on October 1, 2022.

Figure 43: Public Meeting 2 that took place at Bibleway [illegible] October 1, 2022.



Past and ongoing Edgebrook's capital improvement projects

LEGEND

CURRENT CAPITAL IMPROVEMENT PROJECTS

LEADING AGENCY
- PARKS
- BAYOU GREEN WAY
- PROPOSED CONSERVATION EASEMENTS
- PROPOSED AREAS FOR DEPAVING

PREVIOUS PLANS
- PARKS
- BAYOU GREEN WAY
- PROPOSED CONSERVATION EASEMENTS
- PROPOSED AREAS FOR DEPAVING

COMMUNITY PRIORITIES

With a community-driven neighborhood resilience action plan the strategies and actions are optimized to best address the community's resilience needs and goals and to support community advocacy and funding efforts most effectively. The community's priorities captured from the engagement process include:

Capacity Building – Community members have used the opportunity of the Neighborhood Resilience Planning process to further activate the community, which before this had limited social ties beyond the churches. Sustaining this momentum is the community's first priority. Furthermore, there is desire for more education and outreach to empower communities to take a stronger and more efficacious leadership role. Specifically, the community desires greater capacity to navigate the recovery process, improve local understanding of individual and household risk, and improve the community's ability to successfully advocate in local government.

Flood Risk + Infrastructure Improvements – Community members have many concerns about flood risk. The community desires substantial infrastructure improvements to address this risk.

Clean (and Safe) Neighborhood – Community members expressed concerns about the impacts of illegal dumping and nearby industrial activities. Illegal dumping and industrial activities have compounding effects on public health, and illegal dumping can cause blockages to stormwater conveyance. The community wants to have clean and safe streets and open spaces to encourage walking and family activities. During the Neighborhood Resilience Planning process initial steps where made to improve cleanliness, with active community members acting as sanitation ambassadors, multi-lingual communication and improved responsiveness by the City.

Housing Security – There is a desire to both fully repair housing from previous disasters and reduce future flood risk to homes.

Economic Development – The community expressed a desire for better and more employment opportunities, as well as more vibrant commercial retail activity and housing developments.

Community priorities inform the neighborhood resilience action plan. At each stage of the planning process, the NST and wider community has had an opportunity to review, comment, and direct the development of the plan.

The continued support of community-based initiatives and growing the capacity of the community to implement the projects and programs they envision needs support from outside the community. The City, non-profit, philanthropic and other non-governmental entities are essential supports to the community. This type of co-ownership of underlying resilience strategies is not just about empowerment, it's about making sure that the neighborhood is successful in achieving resilience beyond this planning process.

Up to half of the apartments had car flooded during hurricane Harvey.

Flooding street during hurricane Harvey.

Illegal dumping by the road .

View of open stormwater channel.

View of elevated pipeline crossing open channel.

View of open drainage ditch in close proximity to single family residential homes.

PROJECTS

OVERVIEW

Projects in the neighborhood bring about visible change. They encompass physical interventions, such as completing the sidewalk network to promote walkable neighborhoods, as well as people-based interventions, like supporting initiatives to increase public art and raising awareness of resilience challenges. By addressing both physical and social aspects of resilience, a holistic and comprehensive approach is taken to enhance resilience. The aim is to address the root causes of vulnerability rather than just the symptoms.

"[A]pply a neighborhood planning approach to adapt to climate change, with place-based interventions to ensure that all Houstonians live in neighborhoods that are healthy, safe, and climate ready."
(Resilient Houston, page 79)

Several projects have been identified by taking input from the community and building upon existing planning efforts, such as the *Climate Impact Assessment* and *Climate Action Plan*. These projects are categorized based on the city's current capabilities, including department budgets and staffing, as well as the city's capital improvement planning.

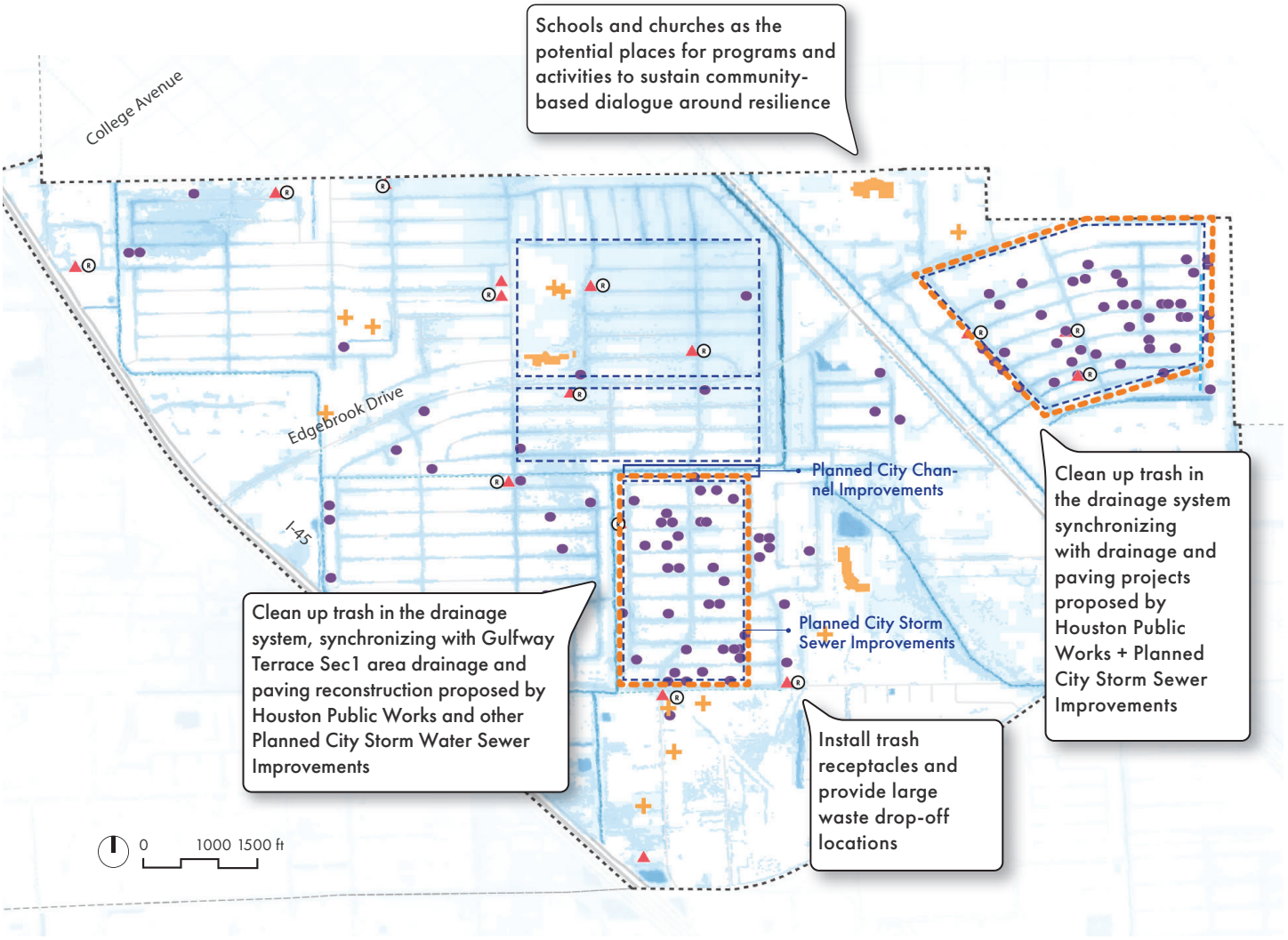
Future perspectives and resilience challenges of the neighborhood are also considered to ensure the long-term relevance of the neighborhood plan.

Public-private partnerships are anticipated to play a major role in realizing the aspirational goals of the plan. These goals may require additional staffing, funds, and expertise that are not currently unavailable. Aspirational projects have the potential to significantly community resilience, such as riparian expansion and rehabilitation, or implementing proven urban design practices to mitigate stormwater runoff and improve human health. The implementation steps of aspirational projects need additional work. Continued collaboration between the city and the community is crucial for developing implementation pathways, especially in terms of funding and ongoing maintenance.

The implementation of the plan's projects will vary in terms of schedules and timelines, depending on the complexity of each project, as well as the availability of funding and staffing. Each project includes defined steps, identifies city leads and critical non-governmental partners, outlines anticipated timelines, proposes funding pathways, and describes success metrics for achieving resilience. For city-committed projects, work should begin at the time of plan adoption or even earlier. As for aspirational projects that require non-governmental partners, efforts should commence to build relationships and establish agreements.

The projects on the following pages are linked to Resilience Houston Goals, the plan's Guiding Principles and are grouped by the overarching neighborhood resilient plan's categories. For more information on the Guiding Principles, see the full *Neighborhood Resilience Plan*. The many benefits that result from these strategies are listed in the call out box. The overarching neighborhood resilient plan's categories are explained below.

Keep the Momentum generates the adaptive capacity required to withstand and overcome stresses and shocks. It continues the work done in the neighborhood resilience action planning process by creating events and activities to bring the community together, keeping the conversation going around resilience, and helping build local adaptive capacity. For Edgebrook, this means continuing to make steps toward community governance, developing local leaders, and creating initiatives that raise awareness about resilience topics and keeps the neighborhood engaged. Capacity and relationships are built in preparation of a resilience conference which, at the end of



LEGEND

IMPROVE SOLID WASTE MANAGEMENT

- TRASH RECEPTACLE INFRASTRUCTURE
- TRASH CLEAN UP FOCUS AREAS

SOLID WASTE 311 CASES IN 2021

- HEAVY TRASH VIOLATION
- TRASH DUMPING OR ILLEGAL DUMPSITE

CAPACITY BUILDING

- RESILIENCE HUBS CANDIDATES
- RESILIENCE HUBS CANDIDATES (CHURCHES)

HARVEY INUNDATION (FEET)

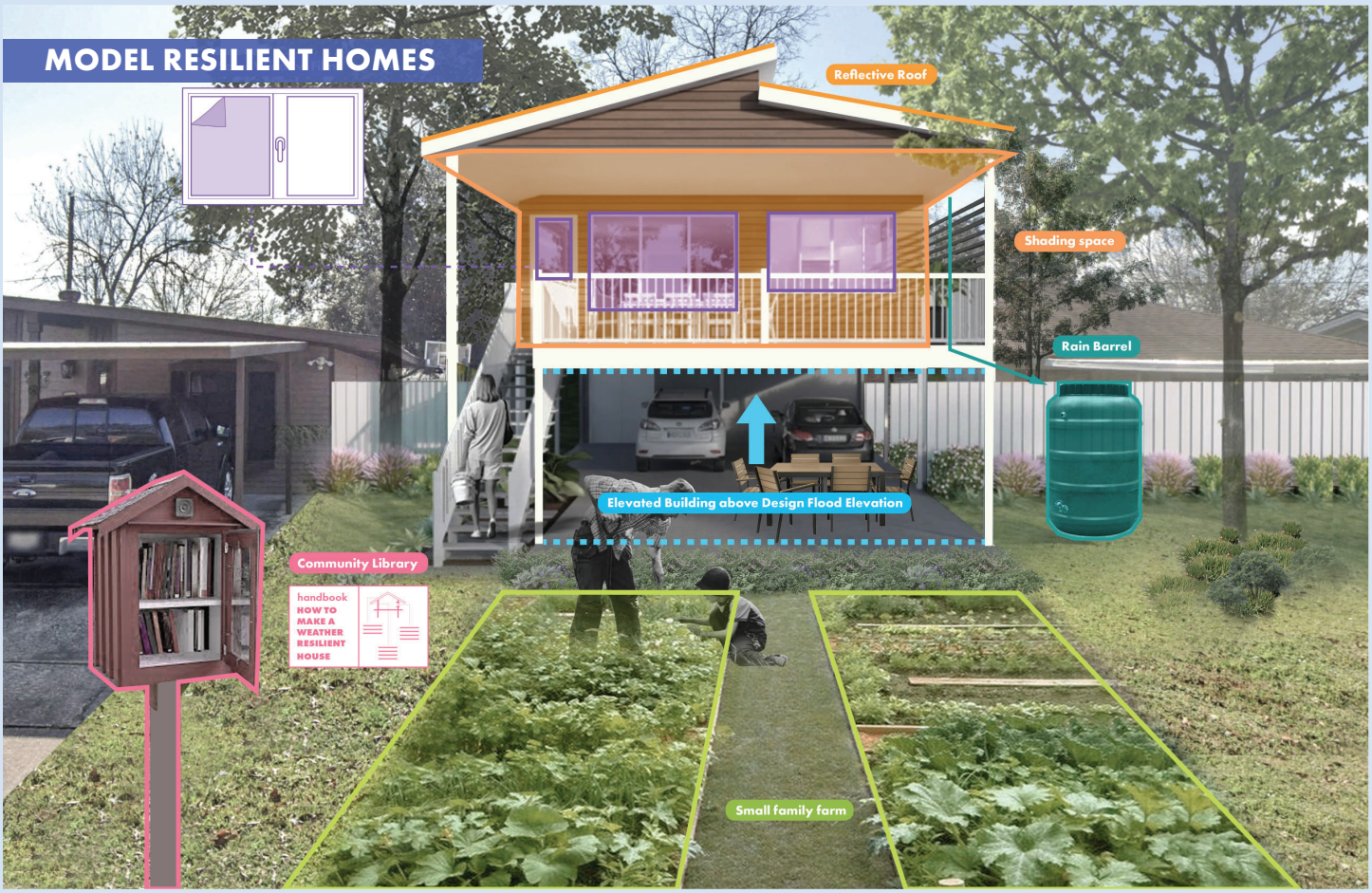
- 1
- 4
- 8
- 12

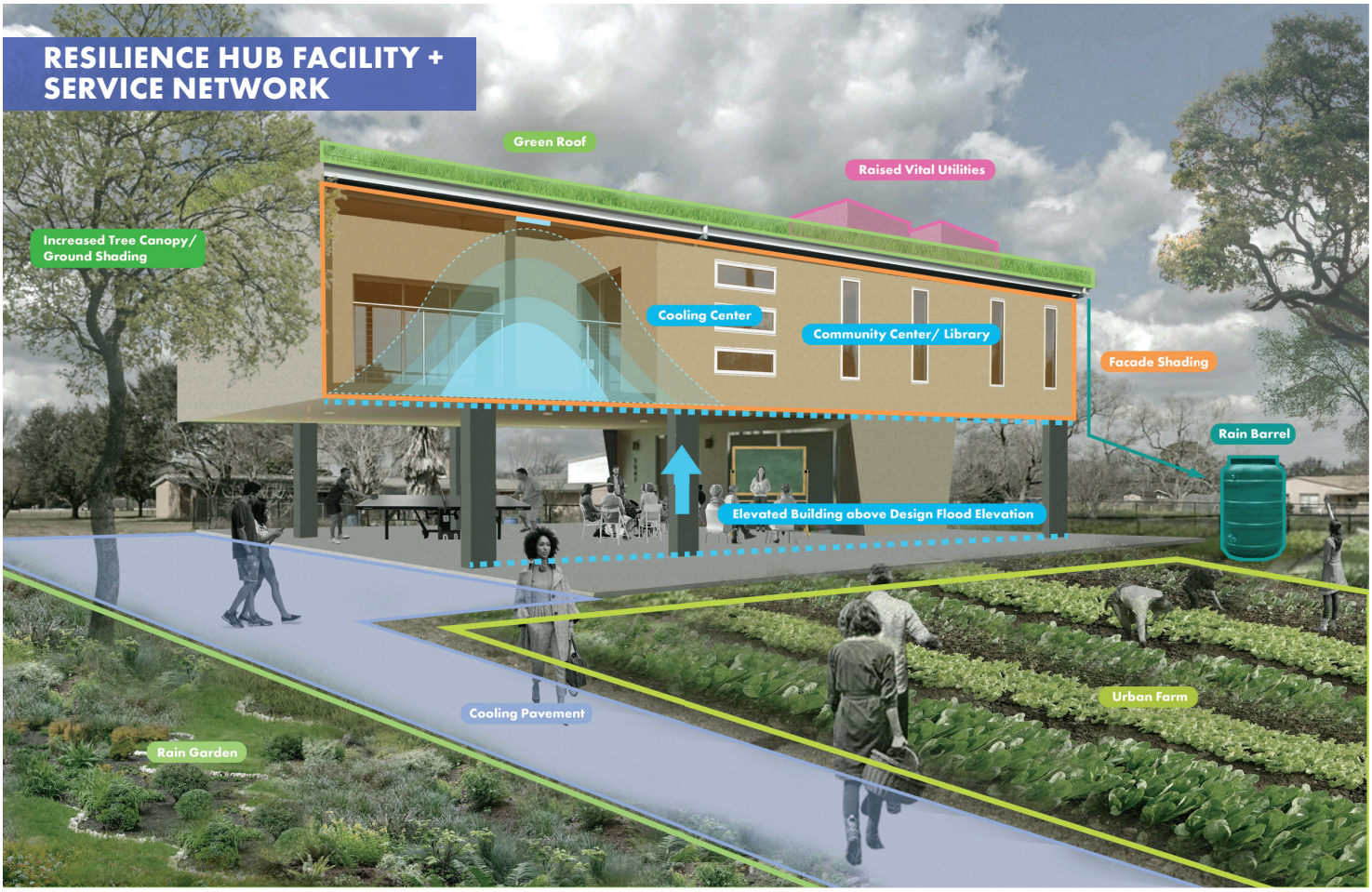
Linking neighborhood cleanup with building adapative capacity

the year, celebrates partnerships and project progress. Economic development makes sure people have access to the resources and information they need within the neighborhood.

Model Resilient Homes addresses the lack of community-based knowledge about, and resources for, housing resilience by creating pilot projects to rehabilitate and weatherize homes, and remove them from the floodplain. The "Model Adaptive Homes" project serves as an example of what is possible to implement on the typical home in Edgebrook, and provides practical tools and guides for homeowners and renters to pursue their own adaptive home improvements.

"The City will work with partners to collaboratively develop and implement an education and advocacy campaign to build Houstonians' awareness about the risks that are exacerbated by climate change and the impact they have on their health, the economy, and the built environment."
(Resilient Houston, page 50)





Resilience Hub Facility + Service Network builds on the city's Resilience Hubs project to extend the facilities and service network that support unique preparation, response and recovery from stresses and shocks in the specific neighborhood they serve. Community-based facilities, such as churches, schools and libraries, heighten the level of service and resources in a community. The associated programs that take place at such facilities strengthen community relationships and form distribution networks that work to make sure community members are informed in advance of an event, and as prepared as possible for the effects of stresses and shocks;

Edgebrook Drive Corridor Enhancements looks primarily to increase the neighborhood tree canopy, particularly along Edgebrook Drive, but also in other areas such as Frey Road. The vision for Edgebrook Drive is to become the neighborhood boulevard by planting street trees in the public right-of-way, and on the adjacent parking lots. Associated with parking lot improvements is updated site plan requirements that would support a mixed-use development pattern as part of a neighborhood economic development strategy. Increasing the urban tree canopy improves traffic safety, provides a cool corridor for safe multi-modal transportation, and reduces stormwater runoff.

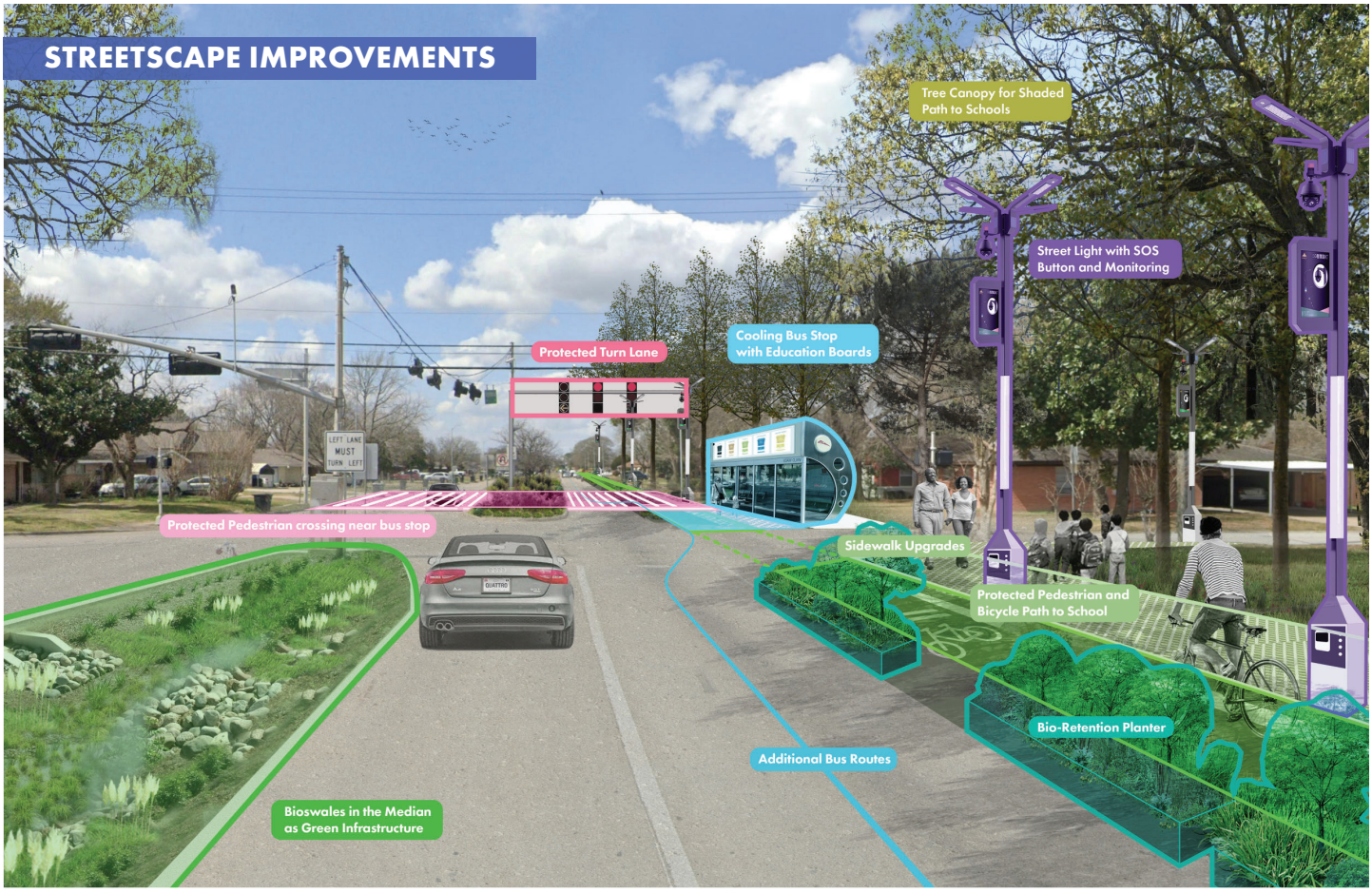
Streetscape Improvements through improved delivery and communication of projects that

address aging infrastructure through the implementation of leading-edge stormwater infrastructure practices, mobility improvements, and reduced exposure to heat in a coordinated manner.

Stormwater Conveyance Infrastructure is critical flood infrastructure that can also be an amenity to the neighborhood. Building on plans for the stormwater conveyance and detention capacity, the project proposes an integrated and community-driven approach to expanding and enhancing stormwater infrastructure to help further reduce neighborhood flood risk.

See specifics on program on the following pages.

STREETSCAPE IMPROVEMENTS



STORMWATER CONVEYANCE INFRASTRUCTURE

PROJECTS

CONTINUE TO BUILD COMMUNITY-BASED ORGANIZATIONS

KEEP THE MOMENTUM

Continue building neigborhood-wide leadership and advocacy, with a focus on reactivating the Edgebrook Super Neighborhood 79.

The Edgebrook community has shown explempliary leadership in taking up resources available to them and using those resources to build up a stronger and more active neighborhood governance. Since this planning process began, community leaders have completed the Complete Communities University and initiated the creation of a Super Neighborhood for their neighborhood. Continued support of community leaders, local governance, and civic engagement should be supported and encouraged.

Benefits Equity, Public Health, Flood Risk

Timeline Short-term

Guiding Principles Connected Community

Resilience Houston Targets GOAL 1 GOAL 2

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Staff to continue disseminating information on City-led programs such as Complete Communities University and the Super Neighborhoods process	DON	PD Community Members	n/a	# of CCU graduates
2 Community to continue investing in community leadership and adovacy efforts				

EXPAND PUBLIC ART

KEEP THE MOMENTUM

Benefits Equity, Adaptive Capacity, Public Health

Timeline Short-term

Guiding Principles Connected Community

Resilience Houston Targets GOAL 2, GOAL 5

Engage public agencies and local artists to install public art to raise risk awareness around climate change and other stresses and shocks, such as mini murals, murals, sculptures, crosswalk art or other types of art.

Art can uplift, inspire and raise awareness. In the case of resilience, art is an enjoyable way to draw the community into aspirational ways of confronting and combating the challenges of resilience. This highly visible change can create momentum and energize residents and business owners to participate in related neighborhood activities such as preparedness parties and training and educational seminars on advocacy. Supporting public art projects is important not just to develop neighborhood beautification but to keep building community resilience awareness and the community's momentum for neighborhood-level agency, advocacy and change.

"Cultural expression is a marker of the social cohesion so vital for resilient communities."
(Resilient Houston, page 77)

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Work with City, County, and regional departments along with various programs to install public art on city property **2** Seek funding to support projects **3** Work with public and/or private property owners by identifying desired locations and art projects, following City process requirements, raising required funding, installing and celebrating the final installation	MOCA HCFCD	Solel International, Up Art Studio	TBD	# of art pieces installed in neighborhood

PROJECTS

EXPAND AND ENHANCE NEIGHBORHOOD RESILIENCE ACTIVITIES

KEEP THE MOMENTUM

Benefits Equity, Public Health, Flood Risk

Timeline Short-term

Guiding Principles Connected Community

Resilience Houston Targets GOAL 1 GOAL 2 GOAL 14

Establish programs and activities to build adapative capacity by sustaining community-based dialogue around resilience.

Various activities allow communities to prepare for, withstand and emerge stronger from shocks like extreme weather events. That is enabled by creating a connected community, in a robust network of community organizations, public spaces and facilities. To enhance social resilience, the establishment of programs and activities that sustain community-based dialogue and build capacity around resilience is recommended. A community resilience conference is a good way to demonstrate progress, celebrate partnerships, and bring new partners into the conversation.

The process of preparing for such a conference will ensure the work on resilience continues, and ensure knowledge, programs, and initiatives advance measurably toward resilience goals and targets. Activities can include workshops, the development of a certificate in resilience, home energy audits, a resilience tradeshow, etc. Events of this kind keep the conversation going, raise awareness of the risks and resources to mitigate the risks.

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct a semi-annual community-led neighborhood-wide assessment to determine cleanup needs	HPW SWM HPARD	Keep Houston Beautiful	SWMD - SWMD, Illegal Dumping Penalty Fees, Philanthropy	Lower frequency of 311 complaints
2 Coordinate with City staff to capitalize on existing City programs (e.g. Adopt-a-Drain, Adopt-an-Esplanade, Adopt-a-Block, Adopt-a-Container)				
3 Organize neighborhood cleanups and beautification events				
4 Create an outreach campaign that includes how to report illegal dumping to 311, and distributes 'Trash Facts' within the community on disposal options				

CONTINUE TO IMPROVE NEIGHBORHOOD CLEANLINESS

KEEP THE MOMENTUM

Benefits Equity, Public Health, Flood Risk

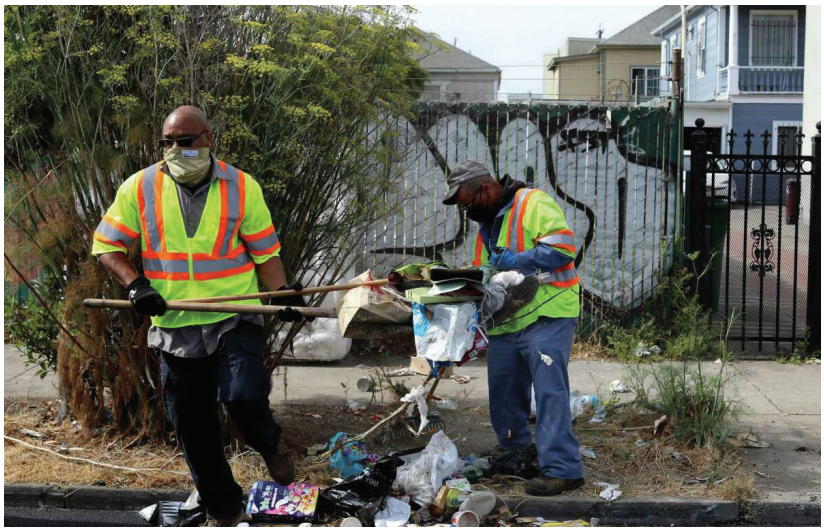
Timeline Short-term

Guiding Principles Connected Community

Resilience Houston Targets GOAL 2 GOAL 3 GOAL 6 GOAL 9 GOAL 10 GOAL 11 GOAL 12 GOAL 15

Advance neighborhood-wide collaboration around eliminating littering, illegal dumping, landscape maintenance, including tree trimming and median maintenance, to ensure the cleanest neighborhood possible.

Part of improving the streetscape involves its maintenance, and the community has been vocal about the need for improvements in cleanliness. Trash and debris from illiegal dumping can slow storm water drainage, increase the opportunity of diseases acarried by mosquitos, and increase contamination of soil from possible discarded items. This project aims to eliminate littering and illegal dumping, and provide regular tree trimming through neighborhood-led initiatives and collaborations with city services.



STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Work with various partners to establish yearound programs and activities, and sepcifically a regular Resilience Fair/Conference **2** Work with community on providing information to them, whether online, in seminars and classes, or other formats **3** Periodically review and update programs and activities	DON	OEM MORS PW (Green Resource Center) HPH HCDD HPL	OEM, OED	# of individuals + businesses reached

PROJECTS

REHABILITATE AND WEATHERIZE HOMES STILL AFFECTED

MODEL RESILIENT HOMES

Benefits Equity, Adaptive Capacity, Public Health, Flood Risk

Timeline Short-term

Guiding Principles Safe at Home

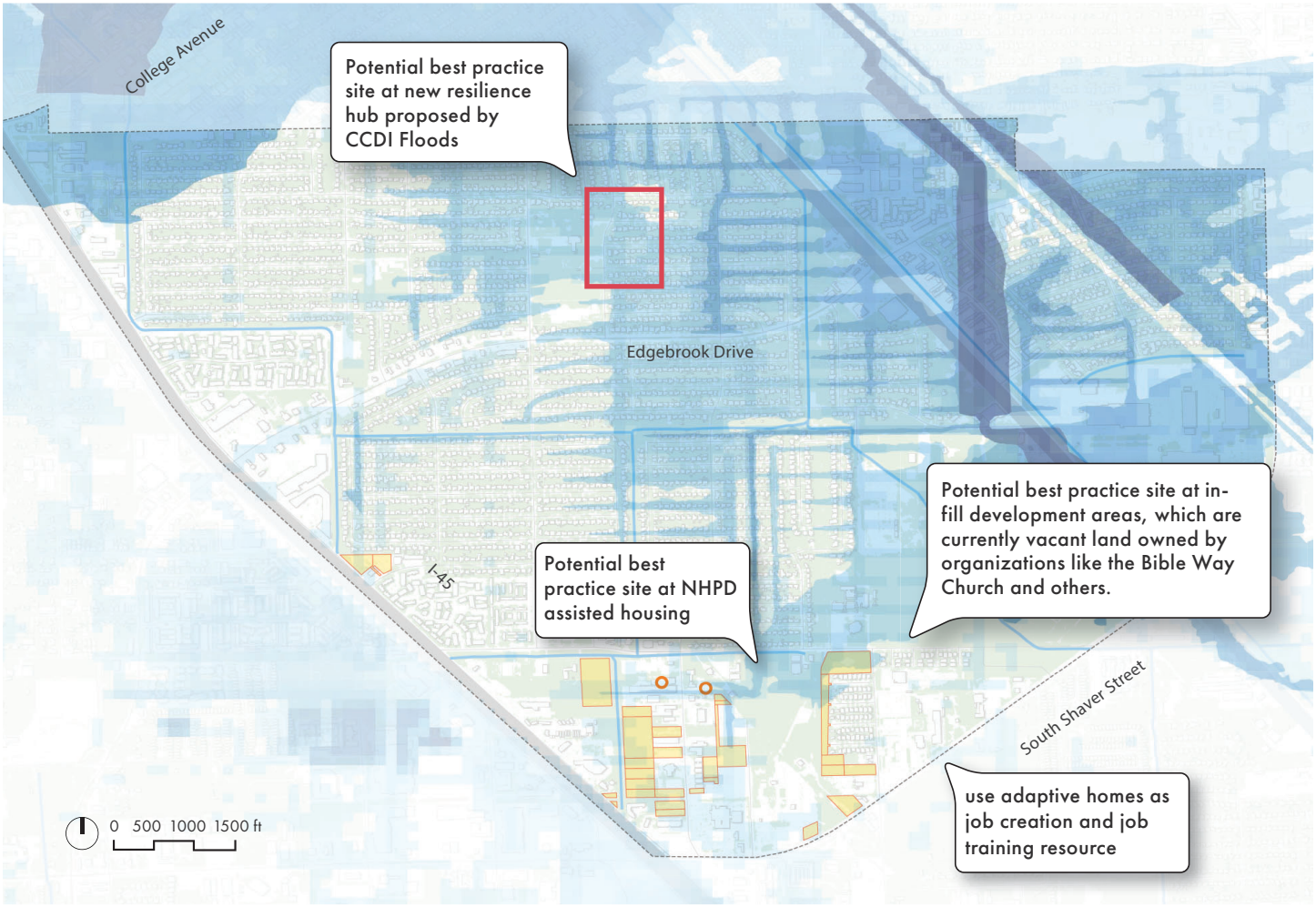
Resilience Houston Targets GOAL 1 GOAL 2 GOAL 8 GOAL 10 GOAL 11 GOAL 12 GOAL 18

Develop programs and activities to establish pathways for funding, services, and other resources. These initiatives aim to create educational courses and materials that promote best practices and pathways for floodplain removal, weatherization, and rehabilitation. The goal is to assist homeowners and business owners in safeguarding their assets by implementing and showcasing optimized approaches.

A backlog of housing repairs lingers in the recovery from Hurricane Harvey, which has left some community members displaced or living in unsafe housing. Some homes are located in the floodplain and need to be bought-out and vacated to ensure the health and safety of neighborhood residents. Other homes will need to be elevated and have critical equipment relocated to meet recommended health and safety standards.

Home solar.

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Find funding source(s) **2** Work with Houston Land Bank and other property owners to find sites **3** Establish selection criteria + find willing property owners **4** Design and plan weatherization of home or business **5** Weatherize home or business **6** Conduct associated educational activities, whether online, in seminars and classes, or other formats **7** Periodically review and update practices, programs and activities	HCD	HARC HPL Parks MSC HHD Faith-based organizations Area Schools Area Fire Station Council Member B Office	TBD (in part through existing funding of partner organziations such as HARC)	# of individuals + businesses reached; # of assets prepared and/or recovered



Safer housing locations for new homes outside of the floodplain.

LEGEND

HOUSING RESILIENCE

- POTENTIAL IN-FILL DEVELOPMENT AREAS
- NHPD ASSITED HOUSING

FEMA FLOOD HAZARD LAYER

- FLOOWAY (ZONE AE)
- 1% ANNUAL CHANCE/ 100 YEAR FLOODPLAIN(ZONE A, AE, AO)
- 0.2% ANNUAL CHANCE/ 500 YEAR FLOODPLAIN(ZONE X)

"The City will work with partners, such as CenterPoint Energy, to grow existing weatherization education efforts and implement weatherization programs, prioritizing low- to moderate-income households and neighborhoods with repeated flooding damage."
(Resilient Houston, page 50)

PROJECTS

ESTABLISH BUILDING PREPARATION AND RECOVERY BEST PRACTICES

Create floodplain removal, weatherization, and rehab best practices for Edgebrook to showcase and demonstrate best practices to community members for the weatherization of homes and businesses, to emphasize energy efficiency and energy security of building improvements.

Not all homes will flood, but all homes may face the stresses and shocks surrounding heat, cold, wind and rain. All homes–including rental homes–should be weatherized to make it easier to cool and heat, save energy, and reduce the burden of energy bills. Projects include installing solar, home backup batteries, heating and cooling pumps, adding insulation, replacing low efficiency windows, doors, and plumbing fixtures, and conducting home energy audits.26 Homeowners, landlords may raise awareness, improve local skills and increase home resiliency, by embarking on a variety of DIY projects.

Elevated home.

MODEL RESILIENT HOMES

Benefits Equity, Adaptive Capacity, Public Health, Flood Risk

Timeline Near-term

Guiding Principles Safe at Home

Resilience Houston Targets GOAL 1 GOAL 2 GOAL 8 GOAL 10 GOAL 11 GOAL 12 GOAL 18

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Work with various partners to establish yearound programs and activities **2** Work with community on providing information to them, whether online, in seminars and classes, or other formats **3** Periodically review and update programs and activities	MORS	OEM HPL Habitat for Humanity MSC HHD Faith-based organizations Area Schools Area Fire Station Council Member B Office	TBD	# of assets prepared and/or recovered

ESTABLISH NEIGHBORHOOD RESILIENCE HUB FACILITY NETWORK

Establish a resilience hub network to support community resilience preparedness and to plan for and assist with recovery following events. Such hubs would centraily house services and programming for preparedness, emergency response, and recovery in the neighborhood.

Currently, the neighborhood lacks city-owned facilities that can be readily designated as a resilience hub. Healthcare facilities, community centers, and libraries are absent from the area. However, the city is conducting a comprehensive assessment of its building and property assets in the neighborhood. The aim is to identify a suitable dedicated building that can support neighborhood resilience. This assessment is part of the Mayor's Office of Resilience and Sustainability Resilience Hub Master Plan.

One potential candidate for a Resilience Hub could be Bible Way Church, as it already serves as an important hub for neighborhood support activities. Other privately-owned facilities include faith-based centers, civic clubs, and local businesses, or potential 'resilience spots'.

RESILIENCE HUB FACILITY + NETWORK

Benefits Equity, Adaptive Capacity, Public health, Flood Risk

Timeline Near-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 1, GOAL 2, GOAL 10, GOAL 11, GOAL 12, GOAL 17, GOAL 18

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Follow guidelines established by MORS for both public- and private-ly-owned facilities to create new facilities and designate existing facilties	MORS	OEM HPL Parks MSC HHD Faith-based organizations Area Schools Area Fire Station Council Member B Office	MORS, US-EPA	Percentage of neighborhood within a defined service boundary (e.g. 1000 feet)

PROJECTS

ESTABLISH NEIGHBORHOOD RESILIENCE PROGRAMS + SERVICES

Establish a resilience hub programs and services network to help build community's adaptive capacity, specifically to improve resilience preparedness and to plan for and assist with recovery following events. Such a services network would provide support services and programming for preparedness, emergency response, and recovery.

The Resilience Hub goes beyond being a physical space. It offers neighborhood-specific educational and training programs, distributes resources before and after events, and provides additional services like heating and cooling centers and charging centers. Even during regular circumstances, community facilities serve as vital hubs, offering essential services to the neighborhood. They can support programs such as computing, continuing education, job training, and provide spaces for community organizations to hold events or meetings. They can also serve as venues for regular farmer's markets, further contributing to the community's well-being.

RESILIENCE PROGRAMS + SERVICES

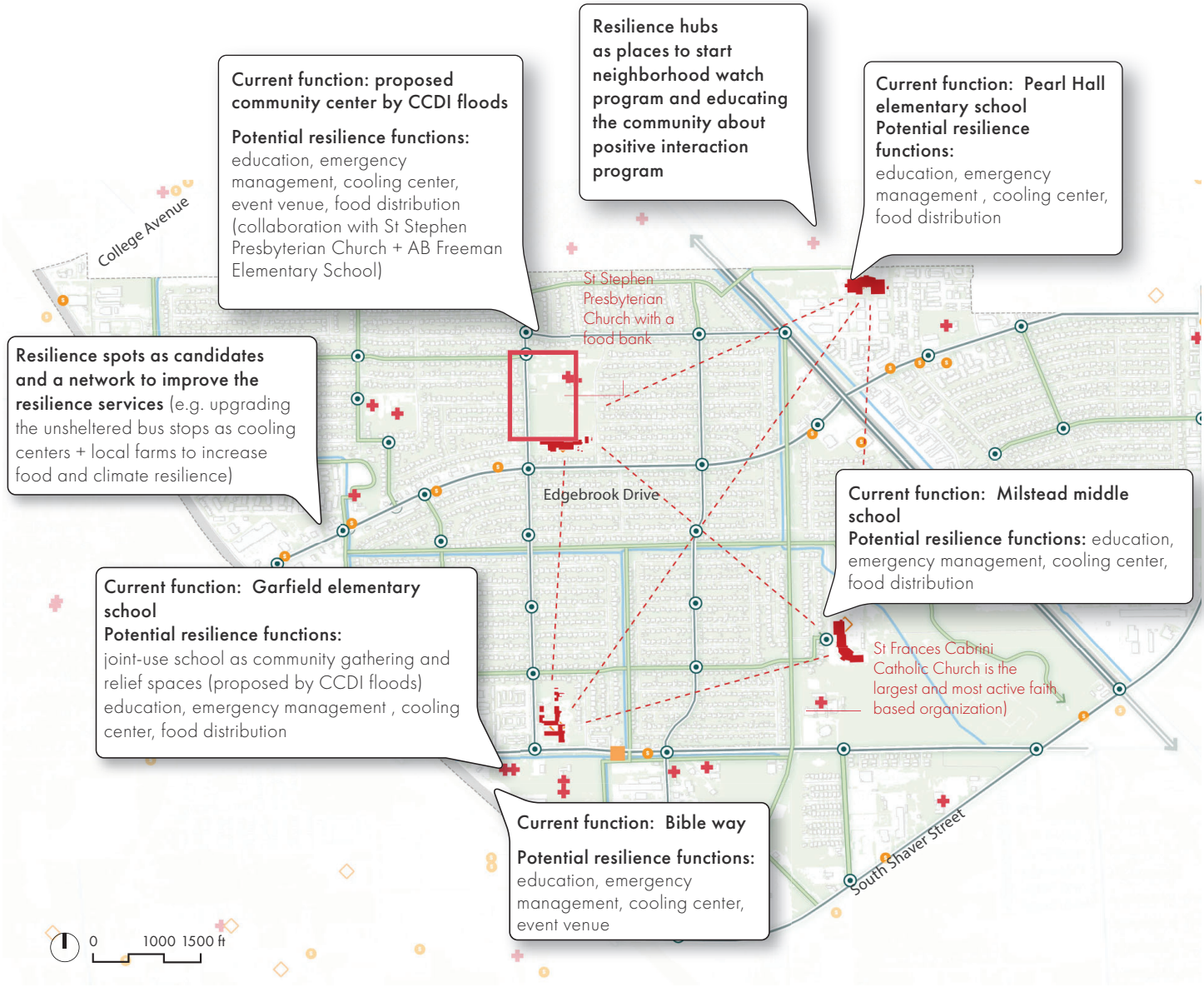
Benefits Equity, Adaptive Capacity, Public health, Flood Risk

Timeline Short-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 1, GOAL 2, GOAL 10, GOAL 11, GOAL 12, GOAL 18

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Follow guidelines established by MORS for essential services **2** Work with neighborhood leaders to create neighborhood specific programs and services	HPL	OEM HPL Habitat for Humanity Parks MSC HHD Faith-based organizations Area Schools Area Fire Station Council Member B Office	MORS, US-EPA	Quantifiable risk reduction (e.g. fewer heat strokes, fewer cases of diabetes, fewer homes without AC, etc)



Potential network of neighborhood resilience hubs

"Neighborhood Resilience Hubs are physical spaces, hosted within trusted spaces in neighborhoods, that facilitate social, climate, and economic resilience along with disaster preparedness."
(Resilient Houston, page 81)

PROJECTS

EXPAND THE TREE CANOPY

EDGEBROOK DRIVE CORRIDOR IMPROVEMENTS

Benefits Equity, Flood Risk Reduction, Public Health, Microclimate Regulation, Ecological Health

Timeline Near-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 6 GOAL 10 GOAL 11 GOAL 12 GOAL 15

Plant trees to increase beautification, reduce heat stress and improve energy security through microclimate regulation, reduce air pollution, increase water infiltration, and reduce and run-off, particularly along Frey Road, Hartsook and Giplin Streets connecting to Wilson Memorial Park.

Expanding the tree canopy in the neighborhood has significant benefits in mitigating the urban heat island effect and reduces the overall temperature. Trees provide shade and contribute to vegetative cooling, unlike concrete and asphalt which absorb and retain heat. Trees also help reduce air pollution, improve water infiltration and quality, mitigate stormwater runoff, enhance the aesthetic appeal of the neighborhood, and promote better health and well-being. Trees can also provide some physical buffer between pedestrians and cars increasing safety.

By planting trees along Edgebrook Drive to Frey Road, the community can enjoy a multiple of benefits.

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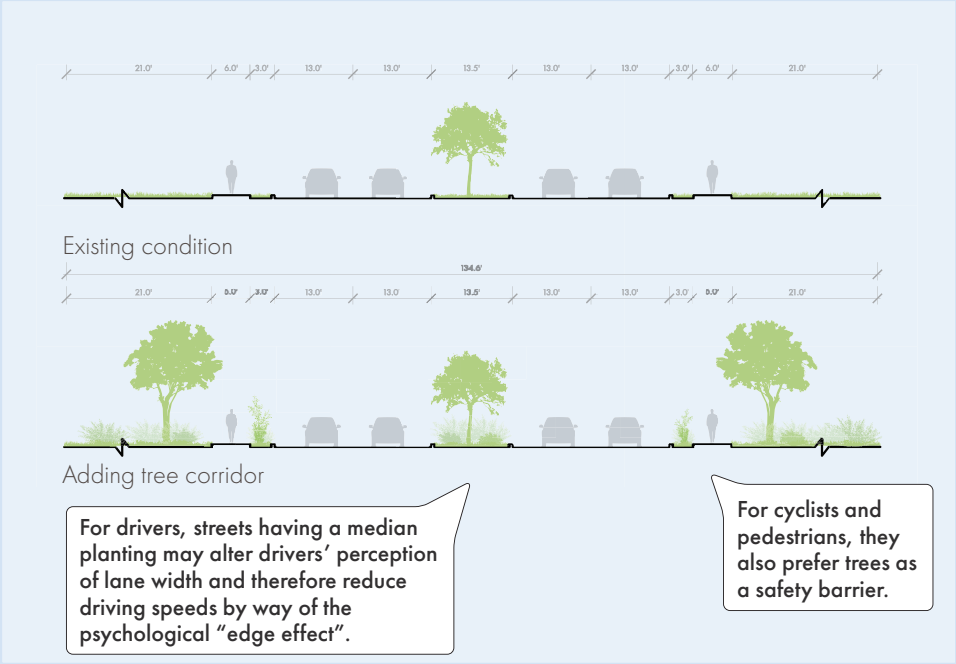
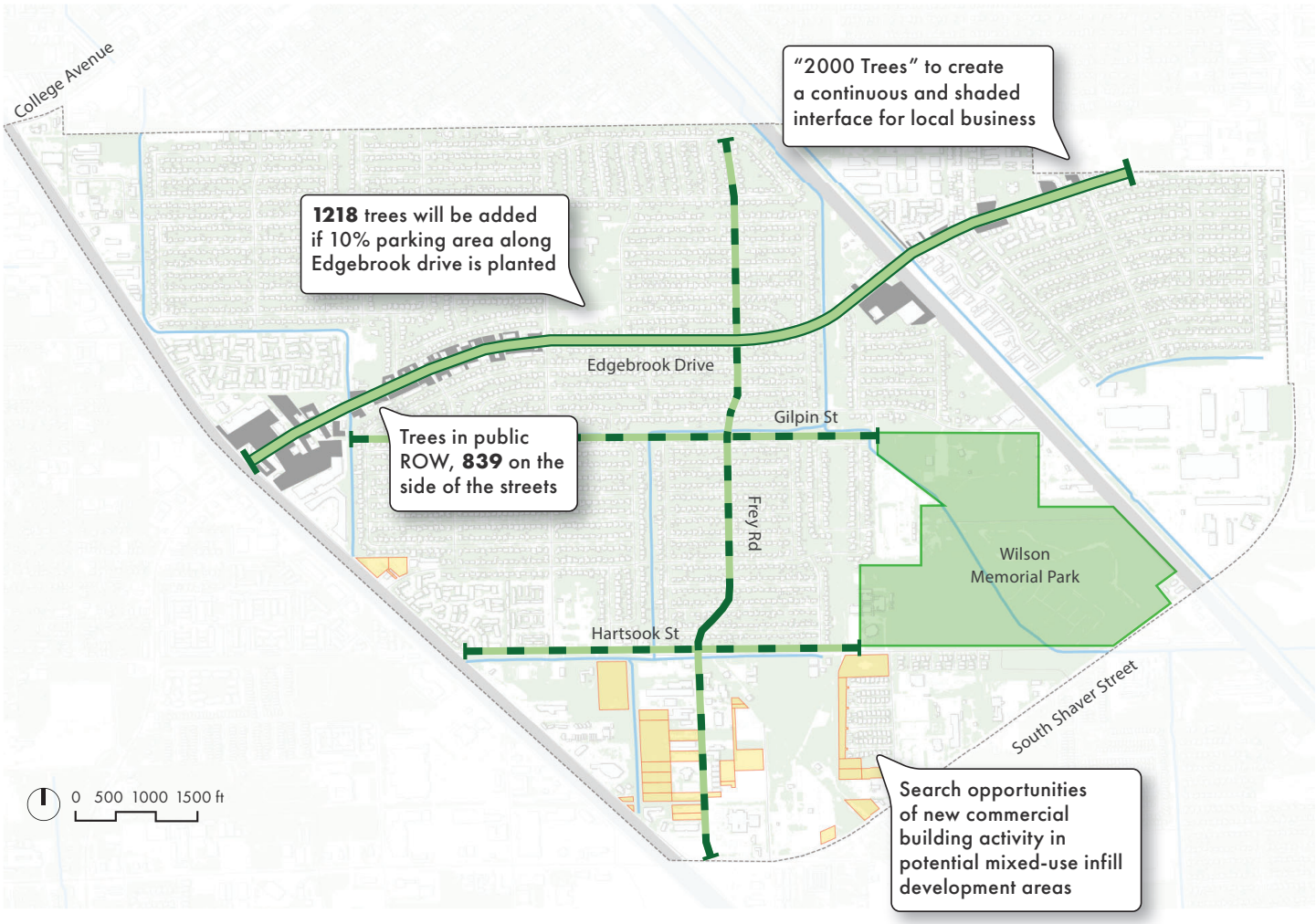


Street sections at three points along Edgebrook Drive depicting existing and proposeed conditions.

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct feasibility study to determine optimal planting plan for increasing tree canopy in tandem with optimal street design **2** Conduct community preference survey on the expansion of the tree canopy and street design options **3** Coordinate community-led tree planting **4** Work with private partner to implement street design improvements	PD	HPW Trees for Houston Houston Wilderness METRO Private Developer/ Corporation	TBD	Percent increase in neighborhood tree canopy; linear feet of shading provided along pedestrian corridors; # of bus stops and shelters shaded;

"By focusing on planting trees and vegetation in areas with minimal green space and improving shade in areas without it, Houston can also address environmental injustice and improve neighborhood equity."
(Resilient Houston, page 80)



Potential network of neighborhood resilience hubs

PROJECTS

SUPPORT NEW COMMERCIAL ACTIVITY, EXISTING LOCAL BUSINESSES AND INCUBATE NEW LOCAL BUSINESSES

EDGEBROOK DRIVE CORRIDOR IMPROVEMENTS

Benefits Equity, Adaptive Capacity, Public Health

Timeline Short-term

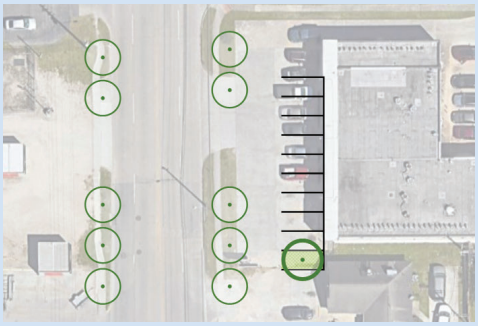
Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 14

Review and update relevant city platting and permitting requirements with the aim of incentivizing and promoting the establishment of 15-minute neighborhoods. These neighborhoods should consist of mixed-use infill developments that enhance local services and employment opportunities within the neighborhood, with a particular focus on the commercial corridor along Edgebrook Drive. Prioritize the improvement of multimodal connections, such as Hartsook and Giplin Streets, to facilitate easy access to Wilson Memorial Park.

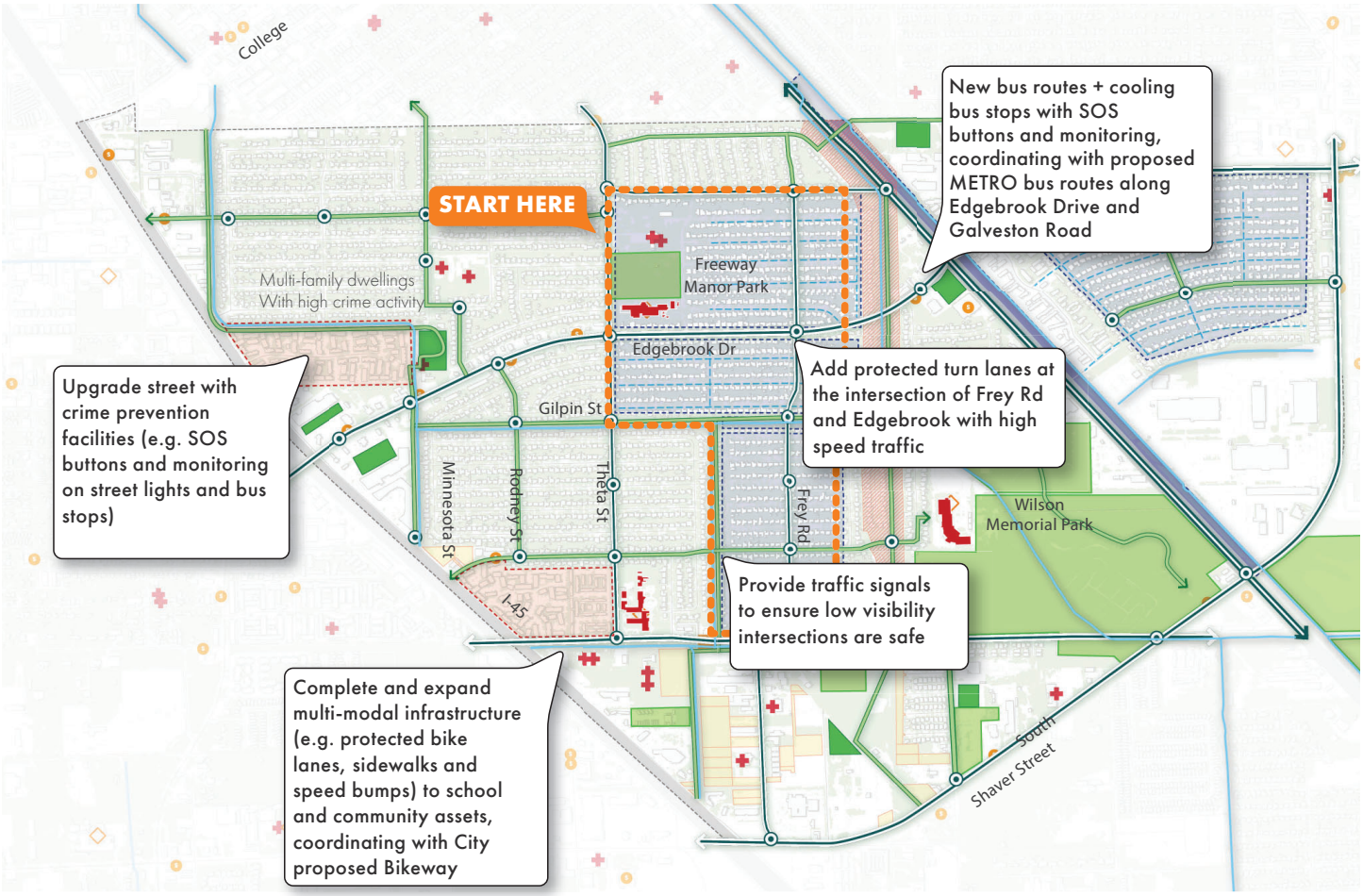
Edgebrook was primarily developed to a low-density building pattern characterized by mid-sized commercial stripe malls with anchor tenants (ranging from approximately 20,000-100,000 square feet of tenant space) wrapped by ample street-facing surface parking. To diversify the business activity and support local businesses a market study is recommended.

Smaller tenant spaces accessible to the neighborhood by foot or bike would support correspondingly smaller businesses to operate. Upper story office uses would allow for new commercial spaces which does not currently have a strong presence in the neighborhood.



Parking lot site plan with 10% landscape requirement.

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct neighborhood-wide market assessment to determine which type of commercial activity can be best sustained and at which locations, and use this to identify market goals **2** Assess locations current platting and permitting requirements for whether commercial use and building pattern is permitted **3** Revise platting and permitting requirements to align with market goals	PD	OBO Economic Development HPC Property Owner Community Members HHD	TBD	# of commercial building permits pulled; # of commercial (non-residential) plats



LEGEND

CAPACITY BUILDING

- RESILIENCE HUBS CANDIDATES
- RESILIENCE HUBS CANDIDATES (CHURCHES)
- RESILIENCE SPOTS CANDIDATES

COMMUNITY ASSETS

- SCHOOLS
- COMMUNITY CENTERS
- STORES WITH SNAP FOOD DISTRIBUTION
- STORES
- HOSPITALS
- FIRE STATIONS
- WATERWAYS

BASIC INFRASTRUCTURE UPGRADES

- PROPOSED MULTI-MODAL TRANSIT - PRIMARY
- PROPOSED MULTI-MODAL TRANSIT - SECONDARY
- PROPOSED GREENWAY
- POTENTIAL COOLING BUS STATIONS
- PROPOSED COMMUNITY GARDENS
- PROPOSED CONSERVATION EASEMENTS

Priority locations for streetscape improvements to be coordinated with infrastructure improvements at the street

PROJECTS

SUPPORT EXISTING LOCAL BUSINESSES AND INCUBATE NEW LOCAL BUSINESSES

It is thought that a shift in the way buildings are divided into tenants spaces and their relationship to the road and sidewalk would benefit from implementing site planning and urban design strategies that improve walkability and support the creation of **15-minute neighborhoods**.[36]

As with supporting new businesses on Edgebrook Drive, supporting existing businesses is a focus.

Parking lot site plan with 10% landscape requirement.

EDGEBROOK DRIVE CORRIDOR IMPROVEMENTS

Establish programs and activities that support existing local businesses (such a food truck park or fund matching digital card program), new local businesses, and incubate innovative new local business in order to improve job opportunities and services in the neighborhood

Benefits Equity, Adaptive Capacity, Public Health

Timeline Short-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 14

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct neighborhood-wide survey of existing local businesses **2** Identify gaps in service, employment gaps, and other service or location opportunities for business development in the neighborhood **3** Work with a private partner to establish a grant program to support existing local business and an incubator program that provides work space, funding, and mentoring of aspiring local businesses	OBO	MOED PD HCD Private donors Mobile Application Vendor	TBD	# of local profitting businesses; local tax revenue

COMPLETE SIDEWALK NETWORK

STREETSCAPE IMPROVEMENTS

Benefits Equity, Public health, Flood Risk

Timeline Short-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 6, GOAL 10, GOAL 11, GOAL 12, GOAL 15

Complete sidewalk network and provide panel improvements and install ADA compliant curbs, repair inlets and potholes along multi-modal routes. Routes include Minnesota St. north of Hinds; Rodney St. between Gilpain and Hinds; and, Theta St. between Gilpain and Hinds.

Improving sidewalk conditions is needed to allow for safe multi-modal transportation options. A complete sidewalk network connects neighborhood residents to neighborhood services, to public transportation, to recreational opportunities such as the bayous, and to one another. Work should include completing gaps between sidewalks, providing section improvements and replacements, installing ADA compliant curbs along key pedestrian routes to transit and retail services, as well as repairing inlets to improve drainage.

"Shift the focus to people-centric neighborhoods and away from car-centric ones."
(Resilient Houston, page 121)

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct neighborhood-wide assessment of existing sidewalks, intersections, and other features to identify network gaps and areas for improvement **2** Conduct community preference survey on the expansion and improvement of sidewalk network **3** Coordinate private partner-led improvements	HPW	PD HPW Super Neighborhood Residents	TBD	Higher walkscore

PROJECTS

PROVIDE MULTI-MODAL SUSTAINABLE MOBILITY INFRASTRUCTURE

STREETSCAPE IMPROVEMENTS

Benefits Equity, Road safety

Timeline Near-term

Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 3, GOAL 6, GOAL 9, GOAL 10, GOAL 11, GOAL 12, GOAL 15

Provide protected bus loading zones, protected pedestrian crossings, modal connections, and last mile connections, and conduct a multimodal transportation study to identify additional opportunities to enhance sustainable and healthy mobility options, to further support the development of a 15-minute neighborhood.

A general effort to improve the sidewalk conditions and sidewalk network is needed to allow for safe multi-modal transportation options. A complete sidewalk network connects neighborhood residents to neighborhood services, to public transportation, to recreational opportunities such as the bayous, and to one another. The effort should include completing gaps between sidewalks, providing improvements and replacements, installing ADA compliant curbs along key pedestrian routes to transit and retail services, and repairing inlets to improve drainage.

"Accessible sidewalks and pathways will make traveling Houston's built environment safe, comfortable, and enjoyable for all Houstonians."
(Resilient Houston, page 63)

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Conduct neighborhood-wide assessment of existing mobility network, intersections, and other features to identify network gaps and areas for improvement **2** Conduct community preference survey on the expansion and improvement of mobility network and multi-modal connections **3** Coordinate private partner-led improvements	HPW	CBOs HPCD METRO TxDOT HPRD Zipcar Houston B-Cycle Lime	TBD	# of improvement projects constructed and or programmed, funding secured

ENHANCE STORMWATER DRAINAGE CONVEYANCE

STORMWATER CONVEYANCE INFRASTRUCTURE

Continue studies and projects to address aging infrastructure and enhance stormwater drainage performance to reduce flood risk including expanding conveyance capacity of Berry Bayou. Explore options such as purchasing additional right of way, reconsider the location of the major private pipelines, and expand the large-scale application of green stormwater infrastructure.

The Harris County Flood Control District (HCFCD). HCFCD currently has planned efforts to expand detention capacity, and has funded and executed a number of projects in the neighborhood since Hurrican Harvey (as shown in the map to the right). This plan recommends seeking to further expand the stormwater infrastructure conveyance through enhancements and enlargements, such as a pipeline connecting to Barry Bayou.

The neighborhood's stormwater infrastructure would benefit from reconstruction. The costs for updating the system requires a long-term funding approach.

Benefits Equity, Flood risk reduction, Public health, Microclimate regulation, Ecological health

Timeline Long-term

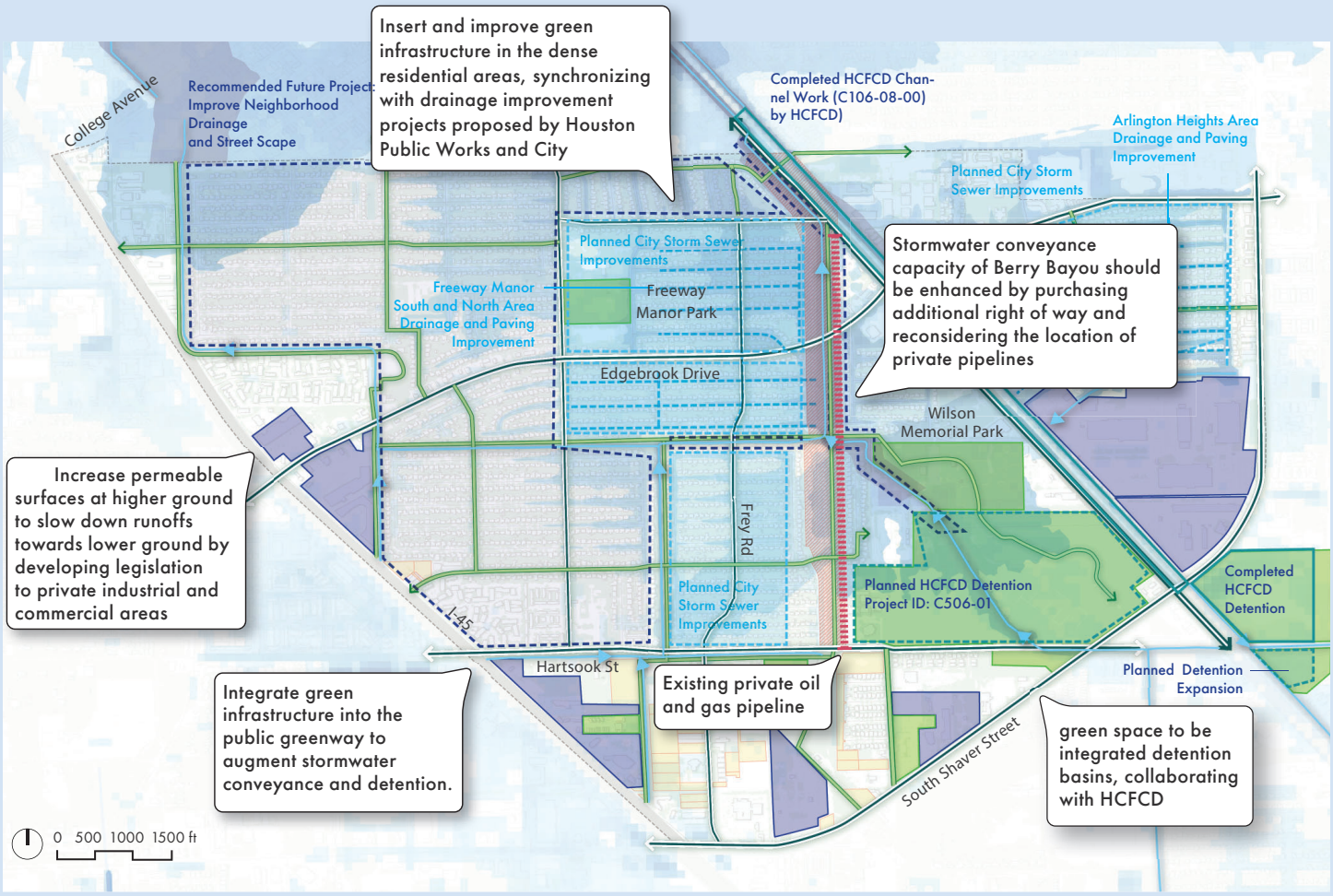
Guiding Principles Safe in the Neighborhood

Resilience Houston Targets GOAL 8 GOAL 12 GOAL 18

"A combination approach integrating low-impact development and traditional stormwater best management practices is required for a resilient and effective stormwater system."
(Resilient Houston, page 97)

STEPS	LEADS	PARTNERS	FUNDING	METRICS
1 Study possibilty for expansion and enhancement of traditional grey stormwater infrastructure **2** Research the channel improvement of the conveyance running parallel to Frey Road by purchasing additional right of way **3** Investigate the possibility for relocation of the existing private oil and gas pipeline currently in the way for creating the necessary additional conveyance	HPW	PD SWD HCFCD	FEMA Hazard Mitigation Grants, HUD CDBG-DR, HUD CDBGMIT, USACE, HCFCD partnership funding, General Revenue, Stormwater Utility Fees,Flood Control Bond,	# of improvements, miles of improvements, amount of funding spent and or obligated

PROJECTS



Location of existing and recommended stormwater drainage improvement projects.

LEGEND

BASIC INFRASTRUCTURE UPGRADES

- PROPOSED MULTI-MODAL TRANSIT - PRIMARY
- PROPOSED MULTI-MODAL TRANSIT - SECONDARY
- PROPOSED GREENWAYS
- PROPOSED AREAS FOR DEPAVING
- PROPOSED CONSERVATION EASEMENTS
- WATERWAYS (FLOW DIRECTIONS INCLUDED)
- RECOMMENDED FUTURE PROJECT: IMPROVEMENT NEIGHBORHOOD DRAINAGE AND STREET SCAPE
- PLANNED CITY STORM SEWER IMPROVEMENTS

HOUSING RESILIENCE

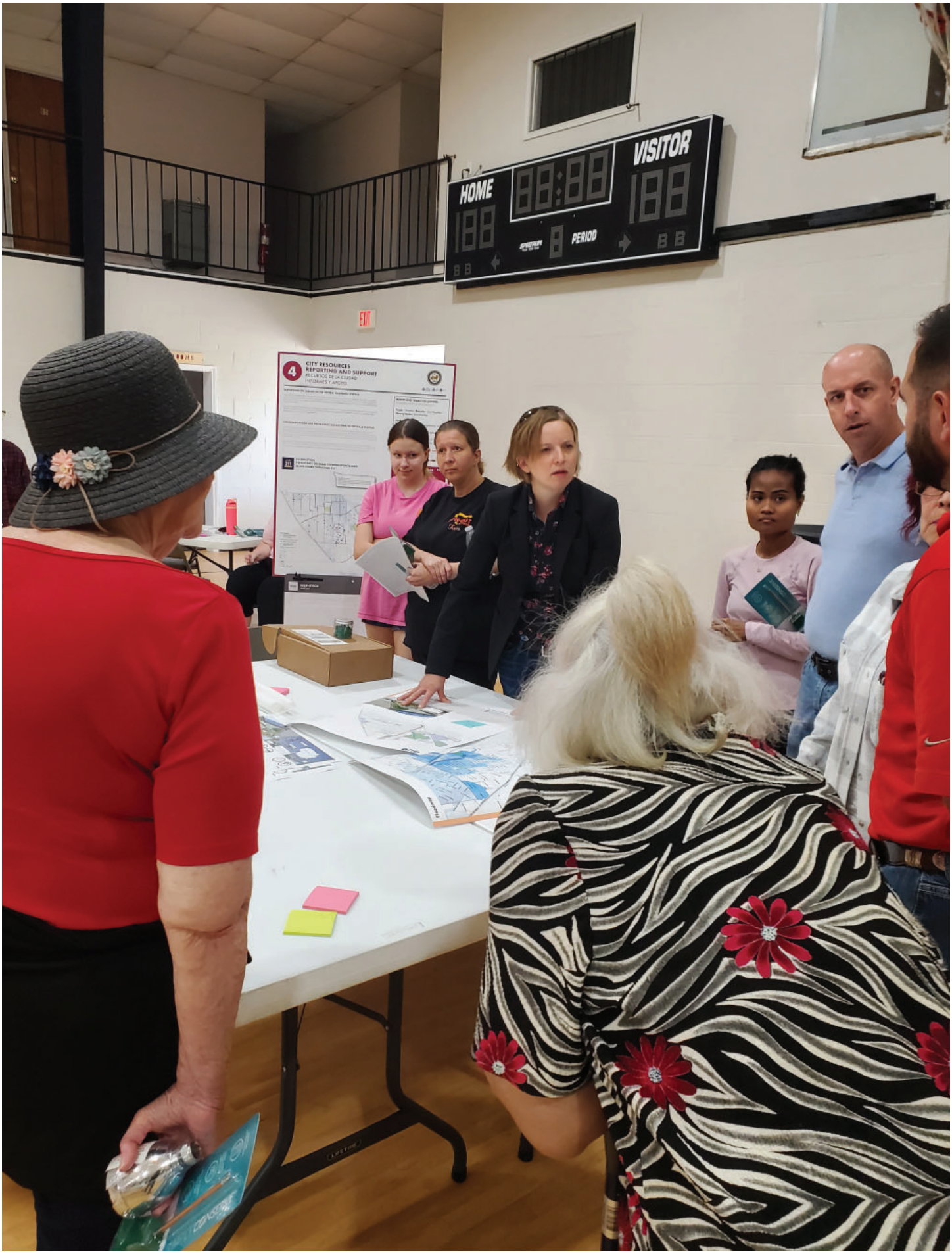
- PROPOSED BUYOUT / EASEMENT AREA
- RETROFITS FOR RESILIENT STRUCTURES
- POTENTIAL IN-FILL DEVELOPMENT AREAS

HARVEY INUNDATION (FEET)

- 1
- 4
- 8
- 12

FEMA FLOOD HAZARD LAYER

- FLOOWAY (ZONE AE)
- 1% ANNUAL CHANCE/ 100 YEAR FLOODPLAIN(ZONE A, AE, AO)
- 0.2% ANNUAL CHANCE/ 500 YEAR FLOODPLAIN(ZONE X)


HOME
VISITOR
PERIOD
4
CITY RESOURCES
REPORTING AND SUPPORT
RECURSOS DE LA CIUDAD
INFORMES Y APOYO
EXIT

NEXT STEPS & IMPLEMENTATION

With any plan, the planning work continues past plan adoption. Ongoing work is carried out—by both the community and the City—to implement the city-committed projects, and work toward realizing the aspirational projects proposed in this document.

Funding + Adoption

Once a plan is adopted, the work really begins to allocate existing funds, and secure additional funds to execute the projects and programs included in the plan. Departmental budgets, the capital improvements plan, and other sources internal to the city have been tentatively identified for "city committed" projects. Additional funding is necessary to implement "aspirational" projects. The Funding Matrix, a living document attached as an addendum to this document, outlines a number of external funding sources as well as a number of funding mechanisms, like development impact fees, TIRZ and management districts. And while city staff are a critical part in securing funding, this plan has been written to support the community and its leaders in seeking out funding for projects and programs in their neighborhoods as well.

Monitoring + Evaluation

The metrics established are designed to assess each of the plan's projects efficacy in achieving the Edgebrook neighborhood's vision for resilience, or what is also known as monitoring and evaluation.

The purpose of metrics is to tell us whether the projects and programs to improve neighborhood resiliency are working as intended. If the metrics show that progress is slower than desired or that the project is not as impactful as intended, there is an opportunity to change course and make the necessary adjustments to calibrate the projects and programs so that they will better and more quickly realize Edgebrook's vision for neighborhood resilience.

Generally there are two types of metrics, those that track progress torward a goal or objective, and those that measure outcomes and performance of a strategy or action. For Edgebrook, the plan's success is tracked according to the following metrics:

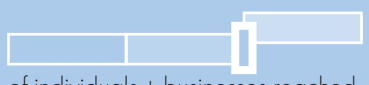
- # of assets prepared and/or recovered;
- Percentage of neighborhood within a defined service boundary (e.g. 1000 feet);
- Quantifiable risk reduction (e.g. fewer heat strokes, fewer cases of diabetes, fewer homes without AC, etc);
- Percent increase in neighborhood tree canopy; linear feet of shading provided along pedestrian corridors; # of bus stops and shelters shaded;
- # of commercial building permits pulled; # of commercial (non-residential) plats;
- # of local profitting businesses; local tax revenue;
- Higher walkscore;
- # of improvement projects constructed and or programmed, funding secured; and
- # of improvements, miles of improvements, amount of funding spent and or obligated.

METRIC 1

# of art pieces installed in neighborhood

METRIC 2

#



of individuals + businesses reached

METRIC 3

# of structures **weatherized** and/ or removed from floodplain;

# of individuals reached through **educational outreach**;

# of neighborhood residents **trained and employed**

METRIC 4

# of residents within **1000 feet of resilience hub**

# of resilience hubs secured from stressors and shocks (e.g. floodproofed)

# of resilience hubs providing programming and other services

Living Document
The plan is designed as a living document, or a document that is periodically updated to maintain its relevancy to the neighborhood and community, and to keep up with best practices in resilisence over the document's lifespan. Part of ensuring the continued resonance and relevance of the document is keeping the document up to date through periodic minor modifications for small and substantively inconsequential changes, or minor and major amendments for small to large content changes or additions.

There are two types of document updates. The first is a staff-initiated update, where city staff identify a need to update the plan document. The second is a community-initiated update, where a community leader or leaders propose a change to the plan. The process for carrying forward a proposed plan update is the same for both staff-initiated and community-initiated proposals. In both cases, proposals are presented to the Super Neighborhood and must receive majority recommendation to carry forward a proposed to city council for adoption. Community-initiated proposals must receive support from the Planning and Development Department and any other impacted city department or division for their proposed change prior to seeking a Super Neighborhood recommendation.

Minor Modification minimally affects the plan's vision and the associated projects, and is conducted to improve the plan's accuracy, efficacy, and fundability.

Major Modification is somewhat impactful to the overarching plan vision and projects, and is conducted to adjust the scope and type of work proposed so as to improve the plan's accuracy, efficacy, and fundability.

Minor Amendment is a minimal adjustment to the plan, such as a data update, that impacts but does not substantially alter the underlying assumptions of the community engagement findings, vulnerability assessment, resilience vision, or recommended projects, but is necessary to carry out for plan accuracy, efficacy, and fundability.

Major Amendment substantially adjusts the plan, such as a data update, that alters the underlying assumptions of the community engagement findings, vulnerability assessment, resilience vision, or recommended projects, and is necessary to carry out for plan accuracy, efficacy, and fundability.

Supplemental Attachment
minimally affects the plan's vision and the associated projects, and is conducted to add substantially new data, findings, or projects. A supplement expands the plan's scope and will typically be accompanied by a minor or major amendment. The attachment is intended to improve the plan's accuracy, efficacy, and fundability.

Keeping the document regularly updated will support neighborhood resilience for years, even decades, to come.

METRIC 5

percent 

increase in neighborhood tree canopy;

linear feet of shading provided;

# of bus stops and shelters shaded; economic improvements

METRIC 6

of **improvement projects** constructed and or programmed,

$ spent on improvements

METRIC 7

# of receptacles,

# of solid waste-related complaints

METRIC 8

# of people reached with **educational materials**;

# of DIY

METRIC 9

# of miles of improvements,

$ spent and/or obligated.

APPENDIX

ACRONYMS

AC or A/C	Air Conditioning
ACS	American Community Survey
ADA	American Disabilities Act
ARA	Administration & Regulatory Affairs
CASPER	Community Assessment for Public Health Emergency Response
CBO	Community-Based Organization
CCP	Community Participation Plan
CDC	Community Development Corporation
CDHO	Community Housing Development Organization
CE	Community Engagement
CEAP	*Comprehensive Energy Assistance Program*
CIP	Capital Improvements Program
CRO	Chief Resilience Officer
DON	Department of Neighborhoods
ECHO	Elder Cottage House Opportunity
GI	Green Infrastructure
GSI	Green Stormwater Infrastructure
HAP	Homeowners Assistance Program
HCD	Housing and Community Development
HFD	Houston Fire Department
HHD	Houston Health Department
HPARD	Houston Parks and Recreation
HPL	Houston Public Library
HPW	Houston Public Works
HVAC	Heating, Ventilation, and Air Conditioning
HVI	Heat Vulnerability Index
ICC	Increased Cost of Compliance
IDM	Infrastructure Design Manual
LEED	Leadership in Energy and Environmental Design
LIHTC	Low-Income Housing Tax Credit
LMI	Low- or Moderate-Income
MOCC	Mayor's Office of Complete Communities
MOED	Mayor's Office of Economic Development
MOCA	Mayors Office of Cultural Affairs
MORS	Mayor's Office of Resilience and Sustainability
NGO	Nonprofit Government Organization
NOFA	Notice of Funding Availability
NRP	Neighborhood Resilience Plan
NST	Neighborhood Support Team
OBO	Office Of Business Opportunity
OEM	Office of Emergency Management
PD	Planning and Development
PROW	Public Right-of-Way
QAP	Qualified Allocation Plan
ROW	Right-of-Way
SBA	Small Business Administration
SWAT	Stormwater Action Team
SWD	Solid Waste Management
TAC	Technical Advisory Committee
TIRZ	Tax Increment Reinvestment Zone
VAD	Vacant, Abandoned, and Deteriorated

DEPARTMENT & OFFICE ACRONYMS

311	Help and Information
CC	Civic Club
CCU	Complete Communities University
CDBG	Community Development Block Grant
CDBG-DR	Community Development Block Grant Disaster Recovery
CDBG-MIT	Community Development Block Grant Mitigation
CFRTF	Harris County Community Flood Resilience Task Force
COH	City of Houston
DC PSC	District of Columbia Public Service Commission
DC SEU	District of Columbia Sustainable Energy Utility
DOEE	Department of Energy and Environment
DON	Department of Neighborhoods
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GCPD	Gulf Coast Protection District
GLO	Texas General Land Office
HARC	Houston Advanced Research Center
HCDD	Housing and Community Development Department
HCFCD	Harris County Flood Control District
HCHA	Harris County Housing Authority
HEF	Houston Equity Fund
HHA	Houston Housing Authority
HHS	Health and Human Services
HPCD	Houston Planning and Community Development
HPRD	Houston Parks and Recreation Department
HUD	Housing and Urban Development
ISD or Houston ISD	Independent School District
LTH	Let's Talk Houston
METRO	Metropolitan Transit Authority of Harris County
MOCA	Mayor's Office of Cultural Affairs
MOR	Mayor's Office of Resilience
MORS	Mayor's Office of Resilience and Sustainability
NHPD	National Housing Preservation Database
OEM	Office of Emergency Management
PD	Planning Department
PW or HPW	Public Works
SN	Super Neighborhood
SWMD	Solid Waste Management Department
TDHCA	Texas Department of Housing and Community Affairs
TX-PACE	Texas Property Assessed Clean Energy
TxDOT	Texas Department of Transportation
US HUD	United States Housing and Urban Development

APPENDIX

ENDNOTES

EXECUTIVE SUMMARY

1 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.130

THE PROCESS

2 *Climate Impact Assessment for the City of Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Climate-Impact-Assessment-2020-August.pdf,* p. 9
3 *Ibid*: p. 7
4 Texas State Climate Summary. (2022). NOAA State Climate Summaries. Retrieved March 10, 2023, from https://statesummaries.ncics.org/chapter/tx/
5 It is recommended that the community work in partnership with the City where funding and staffing permits. Doing so establishes buy-in with a wider group of stakeholders and creates greater credibility when the City stands behind the plan.
6 What is resilience? (2019, February 2). Stockholm Resilience Centre. Retrieved March 10, 2023, from https://www.stockholmresilience.org/research/research-news/2015-02-19-what-is-resilience.html
7 National Academies of Sciences, Engineering, and Medicine www.nationalacademies.org/topics/resilience/
8 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p. 5 & 41
9 Organizational Change through Decision Making and Policy: A New Procedural Justice Course for Managers and Supervisors. (2015, April). COPS Office. Retrieved March 10, 2023, from https://cops.usdoj.gov/html/dispatch/04-2015/a_new_procedural_justice_course.asp

THE NEIGHBORHOOD

10 The Principles of Environmental Justice. (1991). Energy Justice Network. Retrieved March 10, 2023, from https://www.ejnet.org/ej/
11 Quotation from an anonymous Edgebrook resident at a Neighborhood Resilience Planning public engagement event.
12 AccelAdapt, 2023.
13 Houston Galveston Area Council Basin Highlights Report. (2017). Houston Galveston Area Council. Retrieved March 10, 2023, from https://datalab.h-gac.com/BHR2017/index.html
14 Community members voiced concern about the stormwater impacts of new development, so it's important to highlight that new development is being built to substantially higher requirements than original development, so should not have the same neighborhood wide effects that previous development activity has had. The Robin's Landing is designed to meet the City's low impact development requirements and Harris County Flood Control's Atlas 14 standards, which means the development is designed not to exacerbate stormwater flooding through design features such as on-site detention ponds and stormwater system upgrades.
15 Tree Equity Score: https://treeequityscore.org/map/#11.06/29.7811/-95.286
16 Environmental Protection Agency: https://www.epa.gov/green-infrastructure/reduce-urban-heat-island-effect
17 CDC Social Vulnerability Index (SVI 2020) dataset based on the American Community Survey (ACS)

THE PLAN

*Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.72
18 Crimmins, A., et al., Executive Summary, in The Impacts of Climate Change on Human Health in the United States: A

Scientific Assessment. 2016, U.S. Global Change Research Program: Washington, DC. p. 1–24.
19 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.141
20 *Ibid*: p. 50
21 Green infrastructure varies greatly in type, and with it the associated maintenance requirements. Generally, GSI has lower maintenance costs because GSI uses natural systems that are fundamentally self-regulating or self-sustaining. The City of Portland, for example, reports a biannual maintenance requirement for the City's urban bioretention planters in the public right-of-way. Additionally, since GSI tends not to use turf grass, the associated mowing, weeding, aeration, watering, and fertilization requirements of maintaining turf grass are eliminated.
21 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.108
22 *Ibid*: p. 79
23 https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role#:~:text=Adaptive%20capacity%20is%20the%20ability,or%20coping%20with%20the%20consequences.
24 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.50
25 *Ibid*: p. 77
26 https://www.energy.gov/energysaver/do-it-yourself-home-energy-assessments
27 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.50
28 *Ibid:* p. 81
29 Houston Public Library has partnered with Habitat for Humanity to bring a new library to the Robin's Landing. The proposed location is outside of the floodplain and more centrally within the neighborhood, and will be in a newly constructed building. The re-establishment of a neighborhood library brings back a critical public space and facility into the neighborhood, and may service some passive resilience functions such as a cooling or heating center, charging center, internet cafe, job center, and others, but cannot serve as a resilience hub. The Robin's Landing is designed to meet the City's low impact development requirements and Harris County Flood Control's Atlas 14 standards, which means the development is designed not to exacerbate stormwater flooding through design features such as on-site detention ponds and stormwater system upgrades.
30 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.81
31 *Ibid:* p. 121
32 *Ibid:* p. 50
33 *Ibid:* p. 63
34 *Ibid:* p. 97
35 City of Houston's Tree Planting Guidebook: https://www.houstontx.gov/parks/pdfs/2015/TreePlantingGuideBooklet_Eng.pdf
36 The 15-minute neighborhood is created by prioritizing pedestrian and cyclist mobility over vehicle mobility, and allowing for a mixture of uses such that residents can reach essential services, jobs, and other key destination within fifteen minutes of walking or biking from their home or workplace.
37 *Resilient Houston. (2022). City of Houston. Retrieved March 10, 2023, from https://www.houstontx.gov/mayor/Resilient-Houston-20200518-single-page.pdf,* p.80
38 *Ibid:* 96
38 *Ibid:* 104

APPENDIX

RESILIENCE DEFINITIONS & CONCEPTS

Climate Adaptation refers to changes in social, economic, and ecological systems in response to climatic risks and their effects.

Climate resilience is the ability to anticipate, absorb, accommodate and recover from adverse climate impacts.

Adaptive Capacity is the, "ability of a human or natural systems to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences."[23]

Related Terms

A **Climate Hazard** is a physical process or event that can harm human health, livelihoods, or natural resources. Examples are flooding, extreme heat, or hurricanes.

Remove from the floodplain means many things. It can mean:

- Relocating residents, demolishing buildings, and maintaining new open space;
- Elevation of the structures on the property above the floodplain elevation;
- Changing topography, providing flood barriers, and other physical barriers that remove a property from the floodplain;
- Expansion and enhancement of stormwater infrastructure that removes property from the floodplain

Flooding (also "Inundation")

Flash Flood is a sudden local flood, typically due to a heavy rainfall or other cause.

Nuisance Flooding refers to low levels of inundation (typically due to high tides) that do not pose significant threats to public safety or cause major property damage, but can disrupt routine day-to-day activities, put added strain on infrastructure systems such as roadways and sewers, and cause minor property damage.

Subsidence is the sinking of the ground because of underground material movement—is most often caused by the removal of water, oil, natural gas, or mineral resources out of the ground by pumping, fracking, or mining activities.

Extreme heat is defined as summertime temperatures that are much hotter and/or humid than average.

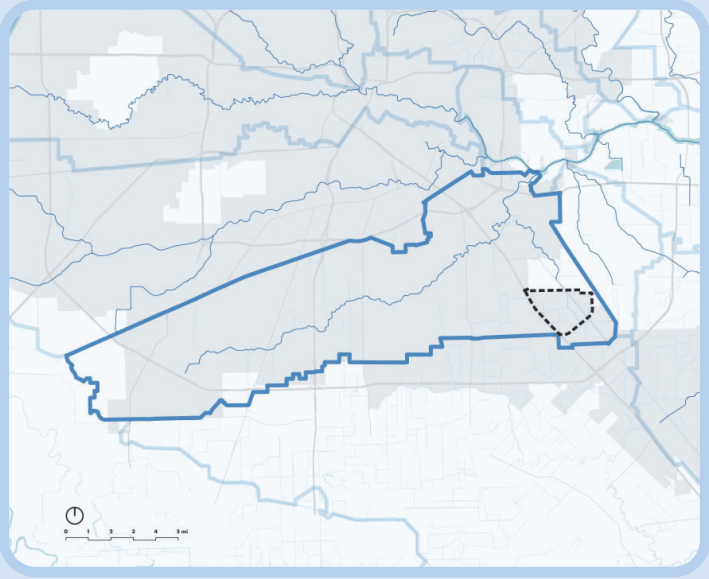


Figure 79: Map of the Sims Bayou watershed

Severe Weather

Extreme Events are occurrences of unexpected or unusually severe weather or climate conditions that can cause devastating impacts on communities and

agricultural and natural ecosystem.

An **Acute Extreme Weather Event** is an extreme weather event that takes place in a relatively short period of time, such as a tropical storm or cloudburst flooding event.

Chronic Extreme Weather Event is an extreme weather event that takes place in a relatively long period of time, such as a heat wave or drought.

A housing recovery from Hurricane Harvey involves two strategies: rehabilitation and weatherization of homes.

- **Rehabilitation** means repairing the home from damage that occurred as the result of an event. This can mean repairing or replacing the roof, removing and replacing flood damaged materials such as plasterboard and floors, and removing and replacing damaged systems such as appliances including heaters and AC units. Often rehabbing flood damaged homes requires extensive mold remediation, even in areas of the home that were not touched by floodwaters.
- **Weatherization** means improving the home's construction and systems to improve energy efficiency by updating windows, doors, wall and attic insulation; removing the home and its critical systems from the floodplain through home elevation, flood barriers, and other strategies; adding climate adaptation solutions such as backup power supplies, green infrastructure for cooling, and others. Frequently, weatherizing home improvements are carried out at the same time as post-disaster home rehabilitation.

Watershed Planning & Flooding

Watersheds (also called drainage basin, drainage areas, or catchments) are areas of land where all surface runoff that is created within that area drains to one common point. As water that is draining towards the ocean and is always conveying towards the lowest point in elevation, water will start in a large number of small streams at the top of watersheds ("tributaries"),and streams will continually combine and become rivers as the streams pick up more water along the way.

Watersheds are defined on the borders by "ridges" or hills where if a raindrop falls on the point, both elevations on either side are lower than the high point and water could drain to either side. Areas in the lower part of watersheds will have larger volumes of water in higher concentrations of volume as water accumulates as it moves toward the ocean. As watersheds are defined by the drainage area that reach one specific point, watersheds can be defined on several scales, depending on which common outlet point is picked for analysis.

Waterway is a river, canal, or other route for travel by water.

Riparian zones, or areas, are lands that occur along the edges of rivers, streams, lakes, and other water bodies.

Floodway is the channel of a river or other water course and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. The floodway is the channel of a river or stream and those portions of the floodplain adjoining

Floodplain is any land area susceptible to being inundated by floodwaters from any source. This can include coastal areas impacted by storm surge, land along a river or bayou that is flooded when that waterway rises out of its banks, or low-lying land that fills with water when it rains. Flooding occurs in a wide range of landscapes due to rainfall or storm surge. The floodplain is land that has been or may be covered by floodwater during the regional flood. The floodplain includes the floodway and flood fringe areas. These areas are labeled on the Flood Insurance Rate Maps as A, AE, A1-30, AO or AH zones.

APPENDIX

the channel required to carry the regional flood discharge. The floodway is the most dangerous part of the floodplain -- it is associated with moving water.

Base Flood Elevation or BFE is the elevation determined by FEMA to which flood water is expected to rise during the base flood.

Design Flood Elevation or DFE the elevation of the highest flood that a retrofitting method is designed to protect against. Homes are elevated to the DFE for example.

Storm sewers: typically a connected network of subsurface concrete pipes

Green Infrastructure & Nature-based Processes

Ecosystem Services are the goods and services provided by ecosystems to humans. Ecosystem Services make human life possible by, for example, providing nutritious food and clean water, regulating disease and climate, supporting the pollination of crops and soil formation, and providing recreational, cultural and spiritual benefits.

Gray Stormwater Infrastructure is a network of at-grade and below-grade drainage channels that make up a stormwater drainage system. It is referred to as "grey" infrastructure because the system is typically made out of concrete.

Green Infrastructure is the harnessing of ecological systems to improve urban ecology.

Green Stormwater Infrastructure refers to a variety of practices that restore or mimic natural hydrological processes. While "gray" stormwater infrastructure is designed to convey stormwater away from the built environment, green infrastructure uses soils, vegetation, landscape forms, and other media to manage rainwater where it falls through capture, storage, and evapotranspiration. By integrating natural processes into the built environment, green infrastructure provides a wide variety of community benefits, including reducing stormwater flooding impacts, improving water and air quality, reducing urban heat island effects, creating habitat for pollinators and other wildlife, and providing aesthetic and recreation.

Evapotranspiration is the sum of all processes by which

1% or 0.2% chance of flood: 1% or 0.2% chance of flood; The Federal Emergency Management Association (FEMA) maintains nation-wide floodplain maps that identify properties located in what they consider to be the floodplain. The floodplain is mapped in terms of a 100 year or 1% chance of flood every year, and a 500 year or a .2% chance of flood every year. Properties located in the 100-year and the 500-year floodplain, as identified by FEMA, are those referred to when we say, **"a home is located in the floodplain."** The FEMA designation carries regulatory and insurance implications, as well implications for recovery funds.

100-year floodplain means there is at least a 1% chance each year that the property will flood

500 year floodplain means there is at least a 2% chance each year that the property will flood

Drainage system: comprised of ditches, and traditional underground storm sewers. if the rainfall intensity exceeds the capacity of the local drainage system, street and neighborhood flooding can occur.

water moves from the land surface to the atmosphere via evaporation and transpiration, through in this way, trees can effectively cool the surrounding air.

Phytoremediation is a plant-based approach, which involves the use of plants to extract and remove elemental pollutants or lower their bioavailability in soil.

Heat & Energy

Urban Heat Island Effect an urban or metropolitan area that is significantly warmer than its surrounding rural areas due to the lack of shade, prevalence of heat absorbing materials, and other human actitivies such as manufacturing.

Service Network is a structure that brings together several entities to deliver a particular service. In the context of this report, service network builds on the City's Resilience Hubs project to extend the facilities and service network that support unique preparation, response and recovery from stresses and shocks in the specific neighborhood they serve.

Brownout is a drop in voltage in an electrical power supply system. Unintentional brownouts can be caused by excessive electricity demand, severe weather events, or a malfunction or error affecting electrical grid control or monitoring systems. Intentional brownouts are used for load reduction in an emergency, or to prevent a total grid power outage due to high demand.

Weatherization means improving a building's energy performance primarily by reducing heat loss or heat gain due to leakage at the building envelope. It can also include other performance improvements that reduce energy demand such as upgrading appliances and systems, reducing unwanted heat gain by installing a cool roof or planting trees along the southern building exposure, and many more.

Flood vulnerable means properties are identified as being 'highly vulnerable' to flood through a neighborhood vulnerability assessment carried out as part of the neighborhood planning process. Vulnerability is assessed by considering multiple factors, such as parcel and building location relative to the the geographic boundaries of the FEMA floodplain, type of property use and elevation requirements in place when the property was built. This is an important consideration when assessing risk in Edgebrook, whose flooding has historically been far more extensive than the FEMA floodplains indicate.

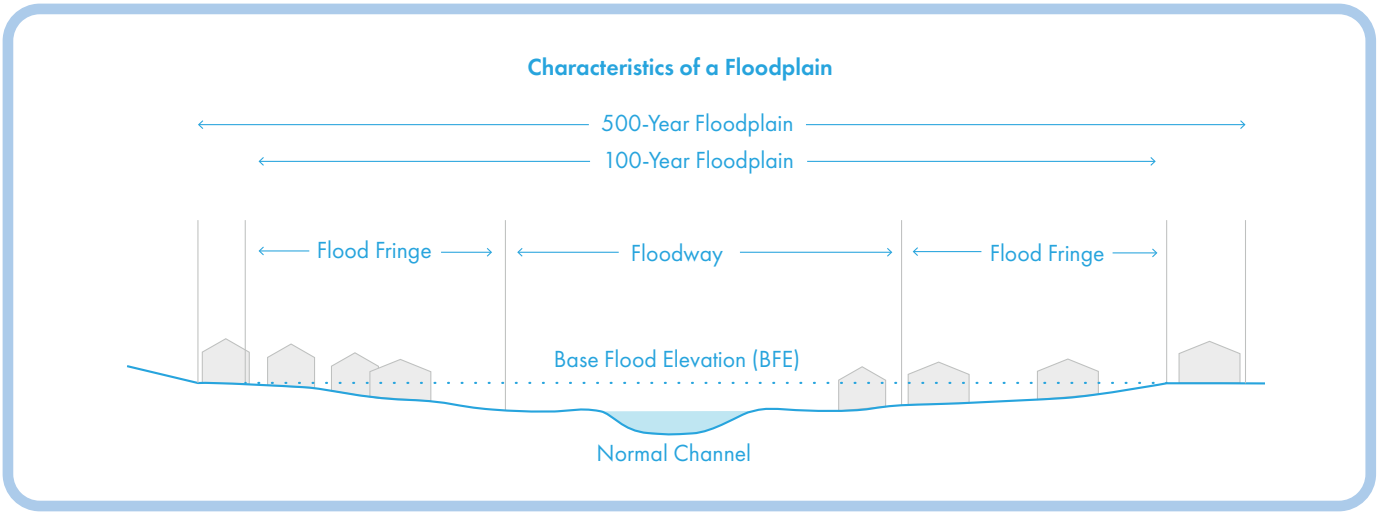


Diagram of the floodplain

APPENDIX

Social Justice

Social vulnerability is the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

Energy insecurity is a lack of access to (affordable and reliable) energy. In the context of this report, it is defined as the inability to meet basic household energy needs, especially caused by extreme event (e.g. Winter Storm Uri).

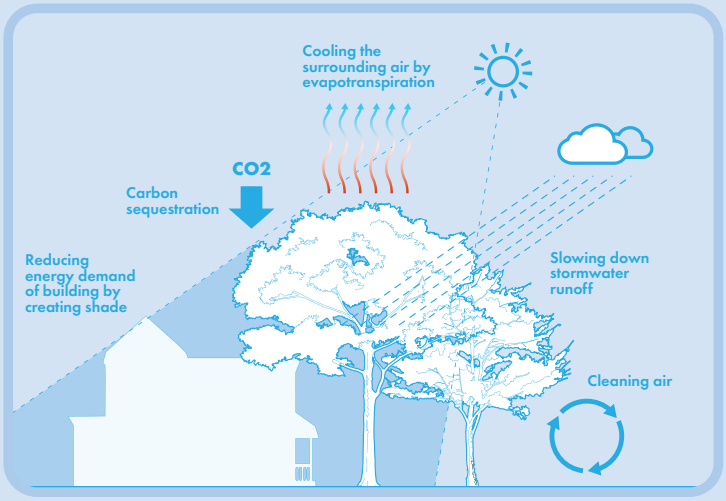
Procedural justice refers to the idea of fair processes, and how people's perception of fairness is strongly impacted by the quality of their experiences and not only the end result of these experiences.

Community Planning

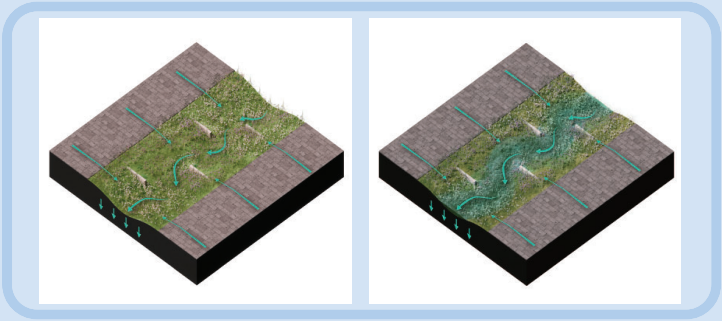
Complete Communities is to build one complete city from recovery to resilience by championing the voices of residents that have been ignored for far too long and offering every Houston resident the foundational resources needed to thrive. We work across private, public, and nonprofit sectors to collectively overcome economic, environmental, and equity challenges to transform Houston's legacy into one everyone can be proud of.

The Fifteen Minute Neighborhood is created by prioritizing pedestrian and cyclist mobility over vehicle mobility, and allowing for a mixture of uses such that residents can reach essential services, jobs, and other key destination within fifteen minutes of walking or biking from their home or workplace.

Living with Water: The City of Houston and partners hosted two Living with Water workshops in November 2018 and May 2019 as part of Houston's resilience program. Living with Water Houston brought together local, national, and Dutch experts representing multiple disciplines to solve site-specific water and resilience challenges alongside local governments, state and federal agencies, and community stakeholders.



How a tree cools

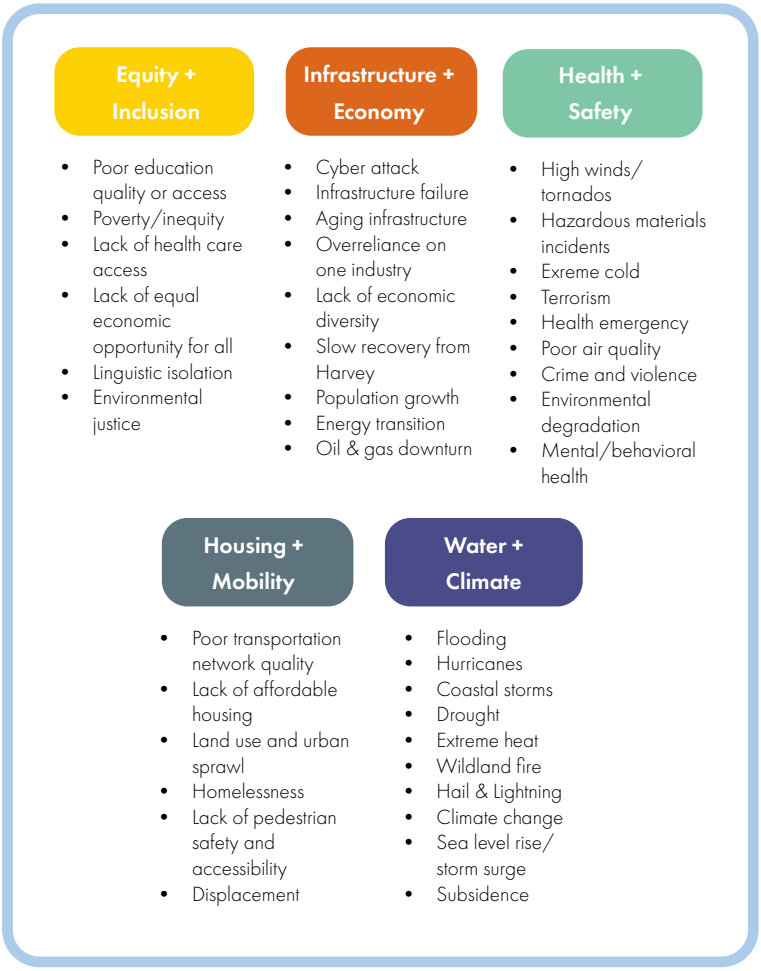


Dry or wet bioswales

Houston Municipal Context

Resilient Houston, the City's resilience strategy, was released on February 12, 2020. Resilient Houston provides a framework for collective action for every Houstonian; our diverse neighborhoods and watersheds; City departments; and local, regional, and partners. The strategy links existing efforts with new ones that will collectively work to protect Houston against future disasters—from hurricanes to extreme heat waves—and chronic stresses such as aging infrastructure, poor air quality, and flooding.

Houston Climate Action Plan provides evidenced-based



Priority Shocks and Stresses for Houston

measures to reduce greenhouse gas emissions and preventative measures to address the negative outcomes of climate change. The plan will demonstrate how the City will adapt and improve its resilience to climate hazards that impact the city today as well as risks that may increase in the coming years.

General Fund refers to revenues accruing to the state from taxes, fees, interest earnings, and other sources which can be used for the general operation of state government, including the Capital Improvements Program.

Capital Improvements Program is a list of the budgets allocated to capital projects, and the associated funding approved by the City Council. The City of Houston has a five (5) year plan updated annually, addressing the infrastructure needs.

Interventions (misc.)

Bioretention planters are stormwater infiltration cells constructed with walled vertical sides, a flat bottom area, and a large surface capacity to capture, treat, and manage stormwater runoff from the street.

Dry or wet bioswales are vegetated open channels that are designed and constructed to treat stormwater runoff within dry or wet cells formed by check dams or other structures. A dry swale is designed to prevent standing water, with or without an underdrain, while a wet swale is designed to hold water.

Detention system is an area that stores water temporarily and eventually drains into the sewer system, such as green roofs, green-blue roofs, park space, bioswales, berms, sunken basketball courts, and sunken playgrounds.

Conveyance system means that portion of a drain system that consists of a series of pipes that transport water from one area to another without providing detention.

Rain gardens are a depressed area in the landscape that collects rain water from a roof, driveway or street and allows it to soak into the ground.

Reflective Roofs are roofs that reflect the suns energy back instead of absorbing the heat. The heat absorbed is passed to the building, which translates as higher cooling costs.

Multiple Benefit Strategies + Actions refers to physical interventions, such as a street remodel, that implement a variety of different resilience solutions in a single intervention. For example, a street remodel can upgrade the stormwater drainage system, add a bike lane and traffic calming features, install ADA complaint curbs and ramps, install street trees and bioretention planters, street lighting and furniture, wayfinding and other features, all as part of a single project.

Sticky Event is a community engagement event that is designed to carry information of interest after the event takes place. For example, an event initializing awareness about a planning effort, public engagement opportunity, or resilience risk and resources.

Resilience is a process.

In the Edgebrook Neighborhood Resilience Plan you will find short-term projects that will start to create change soon, but also longer-term projects that will still take work.

Use this document to learn about your vulnerabilities, read about the projects, be inspired to develop new initiatives, and build the partnerships necessary to continue creating change in the community.

CITY OF HOUSTON HOUSING AND COMMUNITY DEVELOPMENT

PLANNING & DEVELOPMENT DEPARTMENT

RESILIENT HOUSTON

one architecture

climate adaptation partners
resilience through collaborative partnerships

COMMUNITY LATTICE

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Enterprise

FERNLEAF INTERACTIVE