# **BRAEBURN** RESILIENCE PLAN

**JUNE 2024** 



## TABLE OF CONTENTS

**EXECUTIVE SUMMARY** 

WHAT IS NEIGHBORHOOD RES

OTHER RESILIENCE EFFORTS

A RESILIENT BRAEBURN

HOW TO USE THIS PLAN

ASSESSMENT AND FINDINGS

COMMUNITY ENGAGEMENT

**CURRENT PROJECTS** 

PROJECTS

**NEXT STEPS & IMPLEMENTATIO** 

### **APPENDIX:**

ACRONYMS

NEIGHBORHOOD INFORMAT

**RESILIENCE DEFINITIONS AND** 

ACKNOWLEDGMENTS

	2	
SILIENCE?	4	
	6	
	8	
	10	
	12	
	22	
	24	
	28	
N	38	
	40	
ION	42	
D CONCEPTS	44	
	50	

### **EXECUTIVE SUMMARY**

Resilient Houston, a plan published February 2020, is in direct response to the devastation and catastrophic flooding caused when one trillion gallons of rain fell on Houston during Hurricane Harvey in 2017. The plan defines 62 actions across 18 goals to enhance Houston's resilience against acute shocks and chronic stresses, climate adaptation, and increasing energy demand.

The Braeburn Neighborhood Resilience Plan implements a key target of Resilient Houston, to develop 50 neighborhood plans by 2030. It provides a community-based vision of neighborhood resilience and makes recommendations for people-based and placedbased strategies and actions to improve neighborhood resilience now and into the future. Braeburn was selected because many homes and streets experienced severe flooding, and residents faced challenges related to property damage, displacement, and the need for recovery efforts.

The shared purpose of Resilient Houston and Neighborhood Resilience Plans is to reduce the impacts of stresses, and improve 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 Braeburn.

The Braeburn Neighborhood Resilience Plan takes direction from Resilient Houston by incorporating climate adaptation and risk reduction, infrastructure modernization, housing stability and security, environmental protection, social empowerment, and economic development into place-based strategies for the community. This plan is a tool to direct neighborhood-based investments into practical and tangible projects to reduce flooding, manage heat, and address



Interaction with a resident of Braeburn at the first public meeting (Council Member Pollard)

physical and social vulnerabilities to climate and other hazards. The plan works to improve the overall quality of life and economic opportunities in the community.

The Braeburn Super Neighborhood 30 is located generally between Brays Bayou and Bissonnet in southwest Houston. Braeburn is a group of subdivisions along Brays Bayou, west of Hillcroft Avenue and south of the Sharpstown community. Located in City Council District J, the Braeburn neighborhood was selected to develop a City of Houston Resilience Plan due to the severity of flood damage from the Memorial Day, Tax Day, and Hurricane Harvey floods.

Over the course of 15 months, the planning team has been in active dialogue with the Braeburn community as part of the formulation of the Braeburn Neighborhood Resilience Plan. The team took direction from the community through traditional public meetings and surveys, focused one-on-one conversations with community leaders, working sessions with the Neighborhood Support Team (NST), and with proactive residents. The meetings provided the basis of the plan's development and recommendations.



Residents at the first public meeting

# SURVIVE ADAPT THRIVE

Through the community's previous planning efforts, several neighborhood priorities have been identified that collectively define the community's vision for their neighborhood:

- enhance public safety and lighting in key areas to enhance safety and deter illegal activities
- provide strategic traffic management and barrier placement to better manage traffic flow and parking, ensuring safer pedestrian movement

- improve flood mitigation and create dual-purpose green spaces developing underutilized areas that serve both environmental protection and recreational needs
- elevate neighborhood beautification and aesthetics improvement to enhance the visual appeal of the neighborhood, including landscaping, clean-up efforts, and artistic installations
- improve economic development and support for local businesses fostering economic growth by supporting local businesses, encouraging entrepreneurship, and improving commercial areas
- and improving commercial areas
  strengthen code enforcement to address issues related to property maintenance and code violations to ensure a clean and orderly environment
  develop community-driven public spaces
- develop community-driven public spaces and recreational facilities based on local desires and needs
- create infrastructure improvements for pedestrians and cyclists
  engage residents in the design and
- planning process to ensure projects reflect the community's vision and needs



Aerial Image of the Braeburn Super Neighborhood

- enhance and connect green corridors and trails to promote recreation and sustainable transportation options
- establish community resource and recreation centers to serve as hubs for social, educational, and recreational activities, strengthening community bonds

This plan includes the vision and goals expressed by the community, a brief community history, existing conditions analysis, a description of the approach to community engagement, projects developed to further the vision and goals that will increase resilience, and the tools that lay the foundation for implementation. This plan is accompanied by several compendium documents that provide context on the importance of resiliency, scientific basis and analysis that supports this effort, global best practices to draw from, and a framework for organizations that wish to create their own neighborhood resilience plan. They include: Watershed Best Practices, Baseline Analysis, Funding Matrix, and the Neighborhood Resilience Planning Guide. These companion documents can be found on the <u>Planning & Development</u> Department's website.

"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 pg. 130

# WHAT IS NEIGHBORHOOD RESILIENCE?

Since 2000, the City of Houston has experienced 18 major weather events including flooding, extreme heat and cold, and drought. In August 2020, Houston's Climate Impact Assessment projected weather events would continue along this trajectory, or that the events would continue to intensify both in frequency and magnitude (Climate Impact Assessment: 9). These projections could mean more severe droughts, a rise in sea level, more intense coastal flooding, and increased intensity of storms. It is imperative that the community works consistently toward reducing the impact of future events.

The neighborhood is experiencing a general warming trend and changing precipitation patterns. The City of Houston's Climate Impact Assessment published in August 2020 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 here as maximum temperature above 100°F) and the number of warm nights per year (defined here 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, as well as underlying stresses, it is imperative that tangible action be taken now to reduce the impact of events and optimize recovery. This plan is a key step in taking action to mitigate the impacts of climate change and other extreme events on the community.



### 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 guides the community, its leaders, and its elected representatives toward decisions that reduce and

mitigate neighborhood vulnerabilities. It provides the essential foundation for forming partnerships with local government, philanthropy, community-based organizations, and other institutions and organizations. To ensure that the community's vision and goals outlined in this plan are realized, ambitious performance targets, implementation timelines, and feasible funding strategies are embedded in the projects section.

"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 land falling **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 projected to increase."

https://statesummaries.ncics.org/chapter/tx/

This plan is designed to:

- Ensure the community is equipped with the best resilience knowledge, skills, and resources available.
- Enable the community to take ownership of their neighborhood by seeking grants and private partnerships;
- Support community advocacy in local government decision making processes; and,
- Identify strategies and projects that will create tangible change in the neighborhood.

### **OTHER RESILIENCE EFFORTS**

Neighborhood Resilience is also supported by planning and implementation that occurs city-wide, on the state level, and includes other governmental partners also focused on the health and resilience of Houstonians. The resilience work of all levels of government work together for the well-being, safety, and prosperity of its residents and businesses. Some of the resilience resources that are available include the following:

#### **Office of Emergency Management**

The City's Office of Emergency Management (OEM) is committed to safeguarding the Houston community against all hazards and threats through coordinated planning and response. OEM is responsible for administering and keeping current the City's Emergency Management Plan, the recently updated Hazard Mitigation Action Plan (2023-28), Operational Plans, and more. As the chief coordinating office for the City of Houston during emergencies and special events, OEM operates the Emergency Oper- www.houstontx.gov ations Center where representatives from numerous agencies and stakeholders work together to ensure the safety and security of the event or operation. Through intentional and coordinated efforts, the City engaged with the most vulnerable communities to ensure their voices were represented in our hazard mitigation planning. Thanks to the diligent work of several partners under the leadership of OEM, the City of Houston is now recognized by the National Weather Service as a StormReady community, recognizing our efforts at mitigation and planning for the weather hazards in our region. The StormReady recognition has lowered insurance premiums in some communities.

#### www.houstonoem.org

#### **Preparedness Guide**

When emergencies occur, our daily lives can be disrupted, having serious effects on our families, friends, and neighbors. This is why preparedness is so important. Having knowledge, skills, and abilities to quickly respond to a disaster is everyone's job. You can be prepared by following a four-step preparedness process: make a plan, have an emergency kit, be informed about disasters, and help members of your community prepare themselves. Download your Disaster Preparedness Guide and checklist today.

- Preparedness Steps:
- 1. Make and Practice Your
- Family Emergency Plan
- 2. Build an Emergency Kit
- 3. Stay Informed
- 4. Know Your Neighbors

#### Alert Houston (get alerts)

Receiving emergency notifications keeps you informed about what's happening during an emergency and how to stay safe. The City of Houston offers emergency alerts through the AlertHouston emergency notification system. People who live or work in Houston can receive emergency notifications via email, text message and through a mobile app. To find out more information about AlertHouston, and to sign up for alerts, visit www.alerthouston.org.

Emergency information is also available online at <u>www.houstone</u>mergency.ora or www.alerthouston.org.

### **Community Emergency Response Team (CERT)**

The CERT Program was created in order to train citizens on how to help others without putting themselves in harm's way. The Federal Emergency Management Agency (FEMA) formalized the CERT program in 1993, and it is now available nationwide. Under the direction of local emergency responders, CERT teams help provide critical support by giving immediate assistance to victims, providing damage assessment information, and organizing other volunteers at a disaster site. The CERT curriculum is taught from an all-hazards approach and each community emphasizes the disasters, both natural and man-made, to which they are most vulnerable. Although preparedness steps may vary from community to community, the goal remains the same: "to do the most good for the most amount of people" in an emergency, such as in

CERT trains volunteers in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. The CERT trainings in the greater Houston area are listed on the Harris County Citizen Corps webpage. All CERT training is provided free-of-charge and is taught by local professionals. Trainees can attend the following:

• The National CERT program

the event of a natural disaster.

- The organizational structure used by government agencies in disasters • Basic first aid techniques
- Basic search and rescue techniques, and.
- Ways to ensure individuals are prepared for a disaster.

#### www.harriscountycitizencorps.com/ Training/CERT-Training

**Houston Community College** Houston Community College (HCC),



in partnership with the City of Houston, offers resilience courses focused on building sustainable capacity. Through their One College-One Community approach, HCC leverages facilities across every neighborhood to strengthen localized disaster preparedness and recovery.

HCC launched a first-in-the nation "Resiliency Center of Excellence" to connect residents, employers, civic organizations, neighborhoods, and small businesses with fast-tracked education and certification to reduce loss of life and increase well-being and economic stability through risk mitigation. HCC's Resiliency Center includes:

- Public Safety and Rescue
- Disaster Case Management
- Enhanced Facility and Infrastructure Construction
- Medical Triage
- Data Science /Internet of Things/ Drones
- Debris Removal/Reuse
- Customized employer content to address persistent challenges from weather, health, and man-made perils, and other courses.

#### www.hccs.edu

**Community Flood Resilience** Task Force (CFRTF)

Since its establishment in 2020, the Harris County Community Flood Resilience Task Force (CFRTF) has been actively developing a comprehensive Flood Resilience Plan. This plan prioritizes infrastructure enhancements, including channel and drainage improvements, and equips communities with resources for flood risk management. It incorporates advanced flood modeling and monitoring technologies for better forecasting, and advocates using green spaces and wetlands for natural flood mitigation. Emphasizing collaboration, the plan involves partnerships with local, state, and federal agencies for a unified flood management approach. The CFRTF website provides additional support through annual reports, a flood resilience repository, a framework for flood mitigation project prioritization, the Flood Mitigation Benefit Index, and guidance for the Infrastructure Resilience Team.

### cfrtf.harriscountytx.gov

State of Texas Emergency Assistance Registry (STEAR)





The State of Texas' STEAR program is a free registry that provides local emergency planners and emergency responders with information on the needs in their community. Texas communities use the registry information in different ways. Registering yourself in the STEAR registry DOES NOT guarantee that you will receive a specific service during an emergency. Available services will vary by community. For more information on how your community will use information in the STEAR registry, contact your local emergency management office.

Who Should Register?

- People with disabilities
- People who are medically fragile
- People who have limited mobility
- People who have communication barriers
- People who require additional medical assistance during an emergency event
- People who require transportation assistance
- People who require personal care assistance

www.tdem.texas.gov/response/ state-of-texas-emergency-assistance-registry

### **A RESILIENT BRAEBURN**

Braeburn Super Neighborhood, nestled in the vibrant city of Houston, Texas, is a diverse and dynamic community known for its rich cultural tapestry and evolving demographic landscape. This neighborhood has its unique story and challenges that have shaped its development over the years.

Braeburn was established in the mid-20th century, initially as a suburban development designed to accommodate Houston's rapidly growing population. It quickly became a melting pot of cultures, attracting residents from various backgrounds including a significant number of immigrants seeking the American dream. This influx has enriched Braeburn with a variety of languages, traditions, and cuisines, making it a microcosm of global culture within Houston.

The community has also faced environmental disasters including the devastating floods caused by Hurricane Harvey in 2017. The storm caused widespread damage and forced many residents to evacuate their homes. However, the local community and its risks, lessen impacts on the community, leaders responded with remarkable resilience and determination, working together to rebuild and recover. In the wake of the storm, community members came together to help those in need, providing shelter, food, and other essential resources. Local organizations and leaders played a critical role in coordinating relief efforts and advocating for the needs of the community.

In addition to their response to Hurricane Harvey, the community and its leaders continue to work to build resilience in the face of ongoing challenges and have developed significant capacity. This plan builds on the existing efforts and this strong resilience capacity in the neighborhood. For this community, working toward resilience means preparation for the types of events projected to occur. Major events like public



health pandemics, flooding events, prolonged heat waves, and various minor events are projected to occur as the result of our changing climate. Preparation may reduce neighborhood and help optimize emergency response and recovery. This effort aims to improve community safety from climate risks by addressing past flood damage and finding ways to reduce energy costs. It helps the neighborhood to update and enhance stormwater and drainage infrastructure to address street flooding, to add shade trees and pedestrian and bicycle facilities to support community members' health and safety. It also invests in building connections between community members to help each other in times of need. These activities encourage community leaders to continue to work closely with local government to improve their communities and make neighbor-

hood investments go further.

Despite the challenges, Braeburn residents have shown a remarkable capacity for resilience and perseverance. By working together and advocating for their needs, they continue to build a brighter future for themselves and their community. The Braeburn 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.

The community's resilience vision for the neighborhood includes these categories:

- Safety
- Transportation
- Housing
- Beautification

• Drainage





### **HOW TO USE THIS PLAN**

### THIS PLAN GUIDES and SUPPORTS

decision-making for local investments in physical infrastructure, programs, and policies. The Braeburn Neighborhood Resilience Plan provides the foundation for forming collaborative partnerships with local government, philanthropy, community-based groups, and other organizations. The plan establishes a clear vision that the community can use to get organized and outlines a process which

various stakeholders can use to collaborate with the community to achieve shared goals. It does so by defining projects and programs for the neighborhood to plan for resilience challenges. It is a tool for the community to guide decision-making, identify stakeholder roles and responsibilities, and forge the partnerships and networks essential for mitigation and recovery.

### **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 Greater Braeburn. 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 provides an established framework of strategies and actions to ensure shared understanding of the intended vision, goals and accountability -the who, when and how-among various stakeholders. By following the plan, these

organizations can work relatively independently within the same framework.

#### **Community Advocates**

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-upon plan document carries weight in conversations with local government and other private partners. The plan can guide decision making at Super Neighborhood Meetings, City Council Meetings, and other local government committees. It also serves as a means of constructively holding the community, partners, and local government accountable for their part in realizing this plan, by identifying



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 by partnering with local donors, state and federal government.

project leads, timelines, and metrics for

### 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."

https://www.stockholmresilience.org/

"Enhanced resilience allows better anticipation of disasters and better planning to reduce disaster lossesrather than waiting for an event to occur and paying for it afterward."

https://www.nationalacademies.org

### **RESILIENT HOUSTON**





Resilient Houston, 2020

Houston Climate Action Plan, 2020



It may also include 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 Partners**

Partners outside the community and local government often have aligned interests,

since resilience helps support property values. Resilience also strengthens local businesses, improves the environment and ecology, builds equity, and in some cases, can serve as an economic stimulus tool. Shared goals between business intests and resilience efforts can be leveraged to ensure timely implementation of the neighborhood resilience action plan. Community partners should think of the Braeburn Neighborhood Resilience Plan as a cohesive community-driven vision for how the area can endure during challenging times. The Guiding Principles lay out strategies



Hazard Mitigation Plan Update, 2023-2028



Plan Houston, 2015

and actions, along with key stakeholders and their responsibilities. Stakeholders, particularly private partners, can review the plan to better understand where additional support may be needed. 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.

The assessment and findings provide the basis for plan recommendations, in combination with the community engagement findings. The assessment findings came from:

- Spatial analysis of flooding and extreme heat impacts on community assets and people;
- Conversations with the community on the impacts of, and recovery from Hurricane Harvey; and,
- Consideration of the compounding effects exacerbating chronic social stresses.

The community-identified priorities, including flooding, housing, public safety, and neighborhood capacity, provide the context

for analyzing the Braeburn community's vulnerabilities. The findings largely align with the community's priorities, as discussed in the Community Engagement section. Heat vulnerability, and the general impacts of heat, are not as evident such as flooding or the condition of homes in the neighborhood. However, the City of Houston and HARC partnered with NOAA in 2020, to address heat, publishing resources via the H3AT program hosted by HARC. Flood vulnerability was estimated using the following assessment factors:

• Location relative to the FEMA National Flood Hazard Layer (NFHL), which

shows both the 1% and the 0.2% annual chance floodplain boundaries:

- The year the structure was constructed, which governs the nature of the floodplain regulations in affect at the time the structure was built; and,
- Whether the structure is considered a critical facility (such as a hospital, or nursing home).

"Highly vulnerable" assets are classified as having 'highly combined vulnerability and risk' to severe flooding based on the assessment factors previously outlined.



Social Vulnerability Index by Census Tract

#### Summary

The vulnerability indicators consider three factors: the overall flood vulnerability of homes and businesses in the neighborhood, the individual factors of flood vulnerability related to homes in the neighborhood, and social vulnerability 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, this should not overshadow the fact that virtually all of Houston is at risk of flooding.

At the neighborhood level, nearly the entire Braeburn area is highly vulnerable to and at risk of flood damage. Out of its 3,549 identified properties, 3,180 (90%) are subject to a 1% annual chance or higher of flooding (which exceeds the current standard of care for new development and civil infrastructure). This includes 2,927 residential properties (92%) and 127 commercial properties (4%). Of the 2,927 highly vulnerable residential properties, there are 2,356 single-family properties (80%) and 571 multi-family properties (20%).

Social vulnerability indicators, based on Census Bureau's American Community Survey (ACS) five-year estimates in 2020, identify approximately 13% of residents without access to a vehicle. Median household income in the neighborhood is about \$41,193 and about 46% of households pay more than 30% of their income for housing expenses. As such, these households are more likely to have difficulty affording other necessities like healthy food and healthcare. In fact, about 34% of residents do not have health insurance coverage. With less than 30% of residents aged 25 years and older holding a college education, employment options and the types of jobs attainable are also limited. Furthermore, approximately 28% of households are without a computer with

**3,181** Total number of vulnerable properties ,**92**7 92% of all Residential Properties 66% of all Commercial Properties 53 95% of all Government-Owned Properties 72% of all Undeveloped Properties 30% of all Industrial Properties 2 86% of all Community Service Properties 73% of all Other Properties

Industrial Other

**Braeburn properties** highly vulnerable to and at risk of floodplain inundation

**Residential properties** highly vulnerable to and at risk of floodplain inundation

98% Single-Family 2% Multi-Family



a broadband Internet subscription. When doing public outreach activities or awareness campaigns, it is important to consider other forms of communication to reach those with limited, or no digital access.

### Flood Vulnerability

Neighborhood flooding can occur from a variety of sources, including bayou flooding, extreme rain events, tropical storms, and hurricanes. Geographical and climate-related characteristics of the neighborhood include proximity to Brays and Keegans Bayous, location downstream in the did not lead to floodplain mapping in

regional watershed, and low-lying land where the ground is sinking. Significant flood impacts were seen from Hurricane Harvey, with approximately 57% of the properties within or near the flood inundated areas.

The physical characteristics of the neighborhood contribute to vulnerabilities. Houston neighborhoods that developed before the 1990s are more susceptible to flooding from rainfall because the National Flood Insurance Act of 1968

Houston until the late 1980s. After the adoption of flood maps in the 1990s, more stringent drainage 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. 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



Facilities and Flood Inundation



Flood Inundation and Storm Water Infrastructure

building roofs are the major contributors to creating sheet flow, thereby increasing stormwater runoff that impacts the existing development in the neighborhood.

#### Housing

Approximately 92% of the properties vulnerable to flooding are residential. Highly vulnerable residential properties are predominately single-family homes with over 500 multi-family developments. Several multi-family properties would be found west of Fondren Road.

On average, based on the Census tracts covering the neighborhood, about 46% of the households are cost-burdened as they pay over 30% of their income towards housing costs.

A driving factor of vulnerability is that about 98% of homes 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 regularly require homes built or rebuilt on land in the floodplain to be elevated.

Housing vulnerability is worsened by a housing stock that is deteriorating due to slow recovery from previous disasters. 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 may not have sufficient personal funds to cover the high costs of home repair. The result is a continuation of unrepaired homes

#### Stormwater Infrastructure

16 Braeburn

The streets and local drainage systems were designed and installed prior to the adoption of more stringent drainage design requirements of the late 1990s. Considering the current design standards and the likelihood of extreme rainfall events, the local drainage systems are undersized and street flooding is likely. Residents have noted the storm water drainage capacity needs to increase for Bintliff Ditch and many of the local streets. They suggested improving the streets by installing pervious materials or 12 by 12-foot drainage tiles and raising Fondren Road bridge above the floodway.

Like other neighborhoods in the City of Houston, Braeburn has a combination of opened and closed drainage systems. There are open ditches found west of Fondren Road along roads such as Wateka Drive, Brae Acres Road, Bonhomme Road, and Cadawac Road. Bintliff Ditch runs vertically through the neighborhood parallel to Bintliff Drive leading into Brays Bayou. The remainder of the neighborhood is installed with underground drainage pipes to carry out stormwater.

#### **Community Services**

Three schools and a daycare in Braeburn are highly vulnerable to floods:

- McNamara Elementary School (8714 McAvoy Drive),
- Bissonnet Elementary (8440 Bissonnet Street),
- STEP Charter Bissonnet (8282 Bissonnet Street), and
- The Shining Stars Academy (7711 Beechnut Street).

Drainage System is infrastructure designed to drain excess rain and ground water from impervious surfaces. It includes some combination of: storm drains and sewers, surface water drains and sewers, open air ditches, bioswales, and bayous. If the rainfall intensity exceeds the capacity of the local drainage system, street and neighborhood flooding can occur.

Storm Sewer is grey infrastructure, or man-made infrastructure, designed to drain excess rain and ground water from impervious surfaces such as paved streets, car parks, parking lots, footpaths, sidewalks, and roofs. Storm sewers, and other grey infrastructure are typically made of concrete channels and pipes, and are often installed under ground.



Economic Development Land use



Permitting Activity and Relationship to the Floodplain

Five churches in the neighborhood are highly vulnerable to floods:

- University Park Baptist Church (7887 Beechnut Street)
- The Episcopal Church of the Epiphany (9600 South Gessner Drive)
- United African Seventh-Day Adventist Church (9595 Braes Bayou Drive)
- Vietnamese Baptist Church (7601 Bissonnet Street), and
- Way of Life Church/Tabernaculo De Vida (8809 Bissonnet Street).

Please note that this may not be a complete list of vulnerable churches in the neighborhood as some may be joined with other land uses under common ownership.

There are two other community centers vulnerable to floods, which are a senior care center and a recreation/fitness center. The names are: Meyerland Martial Arts Center (8600 Hillcroft Avenue), and • Seven Acres Jewish Senior Care Services (6200 N. Braeswood Avenue).

Brays Bayou.

Houston Fire Department Station #68, located at 8602 Bissonnet Street, is vulnerable since it is located near

Like housing, many community service facilities have been constructed before elevation regulations were first put in place in the 1980s. 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.



Land Use and Relationship to the Floodplain

### Heat Vulnerability

As part of the original Braeburn neighborhood development, trees and vegetation were cleared to create wide streets, such as Braeswood Boulevard, Bissonnet Drive, Fondren Road, and Gessner Road. Despite this development pattern, the neighborhood maintains a relatively high tree equity score of 88 on average. Areas with an equity score between 90 and 100 are found within the middle section of the neighborhood consisting of the Braeswood Parkway, Brae Burn Country Club golf course, Bonham Family Nature Park, and Braeburn Glen Park/Lee LeClear Tennis Center. The moderate-to-high tree canopy coverage in the neighborhood is at risk from clearing

for new development, although it has a large amount of undeveloped land and greenery along Brays Bayou. Furthermore, there are former residential lots on the west side near the bayou that were bought by the Harris County Flood Control District to help mitigate the effects of flooding.

The phenomenon where developed areas exhibit higher temperatures compared to undeveloped areas is known as Urban Heat Island (UHI) effect. 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 (air conditioning), air pollution levels, heat-related illness, and mortality." (United States Environmental Protection Agency, Green Infrastructure, Reduce Urban Heat Island Effect.)

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.



Heat Vulnerability by Census Tract

Braeburn before Winter Storm Uri Outage





Braeburn after Winter Storm Uri Outage

The latest Harris County Extreme Heat Vulnerability Assessment from 2021 considers and disabilities, and many without numerous environmental and social factors. The findings reveal a significant percentage of the population in the neighborhood are highly vulnerable to heat-related issues. This includes individuals with limited access to air conditioning, and those with incomes below the federal poverty line, making the impact of rising energy costs more pronounced in this community. The assessment also identifies a significant number of people living with

health risks such as heart disease health insurance.

On the scale of 0 to 1, with 1 being the greatest vulnerability, Braeburn has on average a Heat Vulnerability Index of approximately 0.6. Although indoor temperatures are well-regulated in many households within the neighborhood, more measures need to be taken to cool down outside temperatures during

extreme heat events such as increasing tree coverage and pervious pavement materials. Community members expressed the need to plant and replace native trees around the neighborhood, including along Fondren Road, Braeburn Valley Road, and creating a dog park in Robindell Subdivision.

#### **Chronic Social Stresses**

The community has experienced chronic stresses often related to the historic



Mobility and Flood Inundation



socio-economic marginalization of many community members. Related outcomes include reduced food and energy security, limited or no vehicle access, limited access to higher-paying jobs, and lack of health insurance coverage. In addition to these factors, the limited amount of core services present in the neighborhood has 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 multi-purpose space requires 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 improve and maintain vital social services. 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 north and central census tracts (based on 2010 geographies) in Braeburn as "Low Income and Low-Access", meaning an area with limited access to healthy food in combination with limited buying power. In fact, according to the 2020 CDC's Social Vulnerability Index study, about 46% of households in the neighborhood spend more than 30% of their income on housing-related expenses. These households are more likely to experience challenges in affording other needs like healthy food and Internet access. Approximately 34% of residents don't have health insurance, making it difficult for many to receive treatment and preventative care.

Two Census tracts in the neighborhood contain some of the highest percentage of households without access to a vehicle underscoring the need for improved public transportation, according to the 2020 CDC's Social Vulnerability Index findings. Although multiple bus routes run through the area, there is still room to improve their connections to employment centers and other essential services. Like the rest of Houston, the land development pattern in the area is low-density and predominately car oriented. There is a limited and disconnected sidewalk network that community members report as having inadequate ADA compliance at curbs and intersections. There is an existing trail network for pedestrians and bicyclists along Brays Bayou, with several proposed bikeways along major roads to improve connectivity.

### **COMMUNITY ENGAGEMENT**

The planning process is founded on the principle of environmental justice, which demand 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 plan.

Community engagement took place between March 2022 and March 2023. Guided by a seven-member Neighborhood Support Team, in which members served as ambassadors and leveraged their networks to encourage community participation in the planning process. The members were selected based on their willingness to serve, broad community interest and experience with community level projects.

Members participated in three NSTs meetings, three public meetings, three surveys, and countless one-on-one conversations with community members. In total, the engagement process has informed hundreds of people in Braeburn about the planning process.

The planning team reached out to the community through flyer distribution via social media, postings in community centers and businesses, newsletters, online surveys on Let's Talk Houston, and one presentation at Braeburn Super Neighborhood 30 and a Robindell Civic Club meeting. Ultimately, an estimated 2,500 people took at least one of the three online surveys, provided project feedback on physical project boards, or attended a virtual or in-person workshop or presentation.

\*From the Principles of Environmental Justice, Delegates to the First National People of Color Environmental Leadership Summit, October 24-27, 1991, in Washington, D.C.





### Engagement Activities

**O** Coffee Klatch meetings

**3** public meetings held

4 sticky events

1,500 flyers given

400 people involved

Thousands more were reached online







### **CURRENT PROJECTS**

There are several significant projects underway in the Braeburn Super Neighborhood. These projects are designed to substantially enhance community well-being by providing major safety improvements and flood mitigation. These initiatives address critical concerns like dangerous roadways and structural flooding vulnerabilities, promising a safer, more resilient environment. They represent a proactive step toward safeguarding the community's future against natural and man-made challenges.



#### Bissonnet Corridor Safe Streets Project:

The City of Houston was awarded \$28.79 million in federal funding in 2023 through the Safe Streets and Roads for All (SS4A) program, which supports the goal of zero deaths and serious injuries on our nation's roadways. The funding will support the Bissonnet Corridor Safe Streets Project, a seven-mile rehabilitation of Bissonnet Street from South Dairy Ashford Road to Hillcroft Avenue. Bissonnet Street is currently one of the most dangerous corridors across Houston—it is on the High Injury Network and accounts for the highest number of fatal crashes and the second-highest number of serious injury crashes across all City-owned streets. The Project's goal is to improve safety for all street users.

For more information visit: www.engagehouston.org/ bissonnet-safe-streets





**Braeburn Glen Area:** This project is intended to reduce structural flooding. It will replace storm sewer pipes, install new inlets and manholes alongside the new storm sewers, and complete associated improvements. In addition, a detention pond will be constructed to mitigate the impacts on Brays Bayou.

For more information visit: www.engagehouston.org/ braeburn-glen-area\_







### **CURRENT PROJECTS**



### **Ruffino Hills Landfill Detention Analysis:**

This study analyzed detention in the former Ruffino Hills landfill for detention/mitigation. A TCEQ Type IX application has been submitted to seek approval to excavate the landfill and remove landfill material. Once complete, the site will be used for detention/mitigation associated with HCFCD's Keegan Bayou Channel Improvements.

For more information visit: www.engagehouston.org/ruffinohillslandfill



### Keegans Bayou Maintenance Project:

This project analyzed the flooding concerns in Keegans Bayou to understand the causes of flooding and recommend projects to reduce flooding risk. The study resulted in short-term and long-term recommendations and two recommendations have moved to the preliminary engineering stage. The two projects are:

**D518-03-00-E001** – Keegans Bayou Channel Conveyance Improvements and Stormwater Detention Basin on Tributary D118-14-00

D118-02-00-E001 – Keegans Bayou Stormwater Detention Basins on Tributary D118-02-00 near Beltway 8 and West Airport Road

For more information visit: www.hcfcd.org/Activity/Active-Projects/Brays-Bayou/ F-07-Keegans-Bayou-Conveyance-Improvements



single family residential, institutional, commercial, and multifamily parcels. There are approximately 4,139 parcels in the project area. The proposed project includes a trunk system in the D-133 channel from Beechnut to Brays Bayou, and an additional drainage box system under Fondren Rd from D-133-01 to Brays Bayou.

For more information visit:

hp.wgeo-ms.houstontx.gov/drainageStudy/06\_sharpstown.pdf

Neighborhood Resilience Plan 27

Communities can create tangible change with physical interventions, such as completing a sidewalk network, and programmatic activities such as promoting resilience related public art.

Building upon existing planning efforts, numerous projects have been identified by the community. These projects are categorized based on the city's current capabilities, including department budgets, staffing, and capital improvement projects. Future perspectives and resilience challenges of the neighborhood are also taken into account to ensure the long-term relevance of the neighborhood plan.

Looking ahead, the community envisions forming public-private partnerships to execute the aspirational goals of the plan, which may require additional staffing, funds, or expertise. Aspirational projects, such as riparian expansion and rehabilitation or innovative urban design practices to reduce stormwater runoff, are identified to significantly mitigate the climate threat to the community's resilience. However, the implementation

steps for these projects are not fully in place in the near term. While feasible, they will require ongoing collaboration between the City and the community to develop implementation pathways, particularly for funding and maintenance.

Projects will follow varying schedules and timelines depending on project complexity, funding, and staffing. For each project, necessary and recommended steps to realize resilience are outlined, city leads and critical non-governmental partners are identified, anticipated project timelines are established, funding pathways are proposed, and metrics for success are described. Work on the implementation of community identified projects should commence at plan adoption or earlier, including those requiring nongovernmental partners.

The following pages outline the projects identified and prioritized by the community. Project work already programmed, currently underway, or recently completed may also

BEAUTIFICA	TION				BEAUTIFICATION			
GUIDING PRINCIPLES	PROJECT	DESCRIPTION	TIMELINE	PRIORITY	STEPS	CITY DEPARTMENTS	PARTNERS	METRICS
Safe in the Neighborhood	Implement Tree Planting Projects to Increase Resiliency	Plant native trees strategically around the neighborhood to improve community pride, reduce the impact of heat, reduce pollution concentrations, and help mitigate flooding. Locations to include Metro Bus stops to provide needed shade.	Short-term (1—2 Years)	High	<ol> <li>Organize a team of volunteers</li> <li>Collect USFS Tree Canopy Cover, Lidar or other tree coverage data to identify locations that need more tree canopy</li> <li>Conduct a community survey to identify areas in need of additional tree canopy for heat mitigation and preferred tree types for planting</li> <li>Collaborate with Trees for Houston or a similar organization for support</li> <li>Borrow tools from Houston Tool Bank or other tool donation sources</li> <li>Conduct the tree planting according to season and dates</li> </ol>	Houston Public Works, Planning & Development Department	Houston Tool Bank, Trees for Houston	Number of Trees Planted, Reduction in Heat Measurements Meets Resilient Houston goals: 16.1, 16.2, 16.5
Safe at Home	Beautify the Community with Native Plants	Plant native plants strategically around the neighborhood to improve community pride. Conduct annual wildflower planting on Brays Bayou.	Short-term (1–2 Years)	High	<ol> <li>Organize a team of volunteers</li> <li>Sign up to volunteer for wildflower plantings</li> <li>Conduct a community survey to identify preferred type of plants to be planted and desired locations</li> <li>Obtain permission from landowners</li> <li>Fundraise or seek grants to support the cost of plants</li> <li>Borrow tools from Houston Tool Bank or other tool donation sources</li> <li>Conduct the plantings according to the needs of the seasonal variety. Seek information from plant and flower organizations like the Native Plant Guide</li> </ol>	Planning & Development Department	Harris County Flood Control District, Native Plant Society of Texas, Texas Wildlife Association (TWA), Volunteer Houston	Number of seed packets dispersed Meets Resilient Houston goals: 16.1, 16.2, Goal 3.1

HOUSING					HOUSING
GUIDING PRINCIPLES	PROJECT	DESCRIPTION	TIMELINE	PRIORITY	STEPS
Safe at Home	Encourage Privately Owned Apartment Improvements and Upgrades	Enhance the quality of life in local apartments through targeted renovations and upgrades by engaging residents and landlords to identify key areas needing improvement. Encourage landlords to pursue funding for necessary enhancements to apartment conditions such as local grants.	Medium-term (3-5 Years)	High	<ol> <li>Conduct surveys with residents to identify improvement areas</li> <li>Communicate with landlords about identified needs and the benefits of renovations</li> <li>Advise landlords on how to apply to various funding sources</li> <li>Partner with the City's Multi-Family Habitability Task Force and Code Enforcement to address challenges in area apartments, including maintenance, health, and safety issues</li> <li>Review Code Enforcement policies and processes to improve multi-family housing conditions</li> </ol>
Safe at Home Safe In The Neighborhood	Repair and Weatherize Homes Still Affected by Flooding	Repair and weatherize homes still affected by flood related damage with a focus on Reamer Street, Kuldell Drive, Shadow Crest Street, and McAvoy Drive. Flooding events include Tax Day, Memorial Day, and Hurricane Harvey floods. Elevate houses above the floodplain as required by recent changes to Chapter 19 in the Code of Ordinances. Improvements also make homes more resilient for possible future events (caulking, weatherstripping, energy efficient windows, wrapping exposed pipping, wall and attic insulation, cool roofs, energy saving plumbing fixtures, trees, bioswales, rain barrels).	Long-term (6+ Years)	Medium	<ol> <li>Identify homes on Reamer Street, Kuldell Drive, Shadow Crest Street, and McAvoy Drive that are still affected by flood damage; Identification can include other streets</li> <li>Connect eligible homeowners to the DR-15 program application process through HCD</li> <li>Oversee the repair process to ensure quality and adherence to timelines</li> </ol>
Safe at Home	Increase Home Insurance Savings Assistance	Empower homeowners to reduce insurance costs by actively shopping for deals, accessing discounts, and optimizing deductibles, following guidance from the Texas Department of Insurance.	Medium-term (3-5 Years)	High	<ol> <li>Organize an outreach campaign to educate homeowners about money-saving strategies for home insurance.</li> <li>Provide tools and resources for homeowners to compare insurance quotes from multiple companies.</li> <li>Organize workshops and webinars to facilitate direct discussions and share money-saving tips</li> <li>Create a dedicated online platform with resources, FAQs, and tips for homeowners, like LetsTalkHouston.org</li> </ol>

CITY DEPARTMENTS	PARTNERS	METRICS
Houston Public Works - Code Enforcement and Multi-Family Habitability Task Force, Housing & Community Development, Planning & Development Department	Braeburn Super Neighborhood, Civic Clubs	Number of housing units rehabilitated; Number of households assisted Meets Resilient Houston goals: Goal 4, Action 12
Housing & Community Development, General Services	Federal Emergency Management Agency	Number of homes repaired Meets Resilient Houston goals: 18, 58
Planning & Development Department, Department of Neighborhoods	Houston Financial Empowerment Center, Braeburn Super Neighborhood, Texas Department of Insurance	Number of households assisted Meets Resilient Houston goals: 7, 22

SAFETY	FETY				SAFETY	SAFETY			
GUIDING PRINCIPLES	PROJECT	DESCRIPTION	TIMELINE	PRIORITY	STEPS	CITY DEPARTMENTS	PARTNERS	METRICS	
Safe at Home Safe in the Neighborhood	Establish a Baby Drop- Off Box	Create a solution for mothers in crisis to safely and anonymously surrender infants. Examples include the Safe Haven Baby Boxes program.	Short-term (1–2 Years)	Medium	<ol> <li>Research Texas state laws regarding the surrender of infants.</li> <li>Identify an organization that can serve as the desired community location.</li> <li>Establish necessary procedures or required equipment at the organization.</li> <li>Raise awareness of the baby box drop off program within the community and about its safe and anonymous option for mothers in crisis.</li> </ol>	Houston Fire	Braeburn Super Neighborhood, Civic Clubs, Safe Haven Baby Boxes	Number of safe surrenders Meets Resilient Houston goals: Goal 3, Action 10	
Living in a Connected Community Safe in the Neighborhood	Increase Civic Engagement Across Neighborhoods	Collaborate with the Super Neighborhood Council (SNC) to distribute public resources aimed at addressing community concerns. Report issues and set up efficient communication channels to receive essential updates, including disaster alerts from the county	Short-term (1–2 Years)	High	<ol> <li>Encourage residents to attend meetings of Super Neighborhoods, Civic Clubs, and other community organizations</li> <li>Sign up for regular online newsletters with the Council Member's office</li> <li>Enroll in Neighborhood Leadership Training offered by the Department of Neighborhoods</li> <li>Establish a group chat through SMS text messages, Next-door, WhatsApp, GroupMe, or other social media channels to efficiently share critical information among community members</li> <li>If you come across building code violations, sign code issues, or nuisance violations, report them to 3-1-1 for resolution</li> <li>Stay informed and receive emergency alert notifications by signing up at Emergency Alerts – City of Houston Emergency Operations Center at https://houstonemergency.org/alerts/ and https://hct.ahasalerts.com/register.aspx</li> </ol>	Department of Neighborhoods, Planning & Development Department	Braeburn Super Neighborhood, Civic Clubs	Community and resident attendance numbers; Community Feedback Meets Resilient Houston goals: 1, 12	

SAFETY					SAFETY			
GUIDING PRINCIPLES	PROJECT	DESCRIPTION	TIMELINE	PRIORITY	STEPS	CITY DEPARTMENTS	PARTNERS	METRICS
Safe in the Neighborhood	Increase Public Safety	Install Solar/LED lights or other bridge lighting on Brays Bayou, as well as along Gessner Road, Fondren Road, and Hillcroft Avenue. Install emergency call boxes. Increase HPD patrol units and promote community involvement through PIP meeting reporting.	Short-term (1–2 Years)	High	<ol> <li>Submit a street lighting application to request poles and lights along streets</li> <li>Identify funding sources for emergency call boxes or Flock safety cameras along trails</li> <li>Schedule a meeting with HPD Southwest Division Unit to discuss increasing patrols on trails and on streets</li> <li>Work with the Super Neighborhood and individual civic clubs to encourage civic HPD Positive Interaction Program (PIP) participation</li> </ol>	Houston Public Works, Houston Police Department	Braeburn Super Neighborhood, Civic Clubs	Fewer calls in to 911; Number of lights installed Meets Resilient Houston goals: 3
Safe at Home Safe in the Neighborhood	Explore Developing a Resilience Spot	Establish designated locations that can serve as safe places of refuge during natural disasters or other emergencies. These spaces will provide shelter and safety to residents in times of crisis, enhancing the community's overall disaster resilience.	Short-term (1–2 Years)	High	<ol> <li>Conduct workshops, seminars, and community meetings to educate residents about disaster risks, preparedness, and response</li> <li>Enlist community-based organizations in coordinating efforts, conducting drills, and ensuring community participation</li> <li>Sign residents up for Emergency Alerts at https://houstonemergency.org/alerts/ and https://hct.ahasalerts.com/register.aspx</li> <li>Sign residents up for online newsletters from disaster preparedness organizations to stay informed about disaster resilience at https://www.SBPUSA.org and at https://www.houstonresponds.org</li> <li>Recruit local churches, community organizations, and schools to volunteer to become Resilience Spots disaster shelters</li> <li>Form or collaborate with local organizations to produce regional maps for shelters</li> </ol>	Administration & Regulatory Affairs, Office of Emergency Management	Braeburn Super Neighborhood, Civic Clubs, Harris County, local non-profit organizations	Fewer injuries and fatalities in the community during emergencies Meets Resilient Houston goals: 1

TRANSPORT	ATION				TRANSPORTATION			
GUIDING PRINCIPLES	PROJECT	DESCRIPTION	TIMELINE	PRIORITY	STEPS	CITY DEPARTMENTS	PARTNERS	METRICS
Living in a Connected Community	Improve Beechnut Street Connectivity	Connect the Southwest Medical Center, Houston Christian University, and Hillcroft Avenue through the improvement of public transportation and the construction of a hike/bike path along Beechnut Street esplanade to promote accessible and sustainable transportation options, fostering connectivity in the heart of the community.	Medium-term (3-5 Years)	High	<ol> <li>Align the Houston Bike Plan with the Beechnut Street Connectivity Project</li> <li>Involve community residents and stakeholders by encouraging their participation through Metro's community feedback website and at public engagement meetings and at https://www.ridemetro.org/about/metronext/</li> </ol>	Houston Public Works, Planning & Development Department	Harris County Precinct 4, Metropolitan Transit Authority of Harris County, Neighborhoods to Trails Southwest	Linear feet, yards, miles of completed trails Meets Resilient Houston goals: 1
Safe at Home Safe in the Neighborhood	Improve Connectivity to the Medical Center	Advocate for and educate residents about existing bus lines and METRORail as well as the METRORapid Gulfton Corridor University METRORapid projects.	Short-term (1–2 Years)	Medium	<ol> <li>Educate residents about Metrorail, MetroRapid Gulfton Corridor Project, MetroRapid University Corridor Project and bus line service</li> <li>Involve community residents and stakeholders by encouraging their participation through Metro's community feedback website, at public engagement meetings and at https://www.ridemetro.org/about/metronext/</li> </ol>	Houston Public Works, Planning & Development Department	Harris County Precinct 4, Metropolitan Transit Authority of Harris County, Neighborhoods to Trails Southwest	Linear feet, yards, miles of completed trails; Increase in ridership Meets Resilient Houston goals: 1
Living In A Connected Community	Improve Traffic Flow and Safety	Improve safety and traffic flow on major thoroughfares between 610 and US-59, especially during high peak traffic times and around public and private schools.	Long-term (6+ Years)	High	<ol> <li>Engage residents to form a task force with representatives from schools, public works, and council members</li> <li>Collaborate with the Planning Department and Public Works to conduct a traffic analysis, identify necessary improvements, and to obtain updates for the Bissonnet improvement project</li> <li>Maintain open communication channels among stakeholders for ongoing adjustments</li> <li>Educate residents about safety and traffic guidelines for active participation</li> <li>Encourage residents to follow the project online at https://www.engagehouston.org/bissonnet-safe-streets</li> </ol>	Houston Public Works, Planning & Development Department	Harris County, Metropolitan Transit Authority of Harris County, Braeburn Super Neighborhood, Neighborhoods to Trails Southwest	Change in travel time; Community satisfaction Meets Resilient Houston goals: 3, 8, & 11

### **NEXT STEPS & IMPLEMENTATION**

With any plan, the work continues long after the plan is adopted. Ongoing work is carried out—by both the Braeburn 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, existing funds are allocated and additional funds are sought to cover remaining project costs. Departmental budgets, the capital improvements project, and other internal city sources have been tentatively identified for "city committed" projects. Additional funding is necessary to implement "aspirational" projects.

The Funding Matrix, a living document provided as an addendum to this document, outlines a number of external funding sources and other funding mechanisms, like development impact fees, Tax Increment Reinvestment Zones (TIRZ) and management districts. City staff are a critical part of securing funding, but this plan will support community leaders with guidance on how to seek funding for their neighborhood projects and programs.

#### Monitoring + Evaluation

After projects have been implemented, tracking progress and the impact of the projects through metrics is important. The metrics have been identified to help evaluate and monitor the efficacy of each plan's projects in achieving the neighborhood's vision for resilience.

Metrics can show whether the neighborhood resiliency projects are working as intended. If the metrics indicated sub-optimal progress or impact, stakeholders can change course and recalibrate project priorities.

#### **Living Document**

This plan is designed as a living document intended to keep up with best practices and maintain relevancy to the neighborhood. 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 updated plan 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 Modifications** minimally affect the plan's vision and the associated projects, and are conducted to improve the plan's accuracy, efficacy, and fundability.

#### **Major Modifications** are somewhat impactful to the overarching plan vision and projects. They are conducted to adjust

the scope and type of work proposed to improve the plan's accuracy, efficacy, and fundability.

#### Minor Amendments include

minimal adjustments to the plan that impact but does not substantially alter the underlying assumptions of the community engagement findings, vulnerability assessment, resilience vision, or recommended projects, but are necessary for plan accuracy, efficacy, and fundability. An example of a minor amendment is a data update.

#### Major Amendments substantially

adjust the plan that alters the underlying assumptions of the community engagement findings, vulnerability assessment, resilience vision, or recommended projects, and are necessary to carry out for plan accuracy, efficacy, and fundability. Examples can include adding or substantially changing projects based on changes in laws, unexpected disasters, or new process and technological developments.

#### **Supplemental Attachments**

minimally affect the plan's vision and the associated projects and are provided to add substantial new data or findings. 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.











### **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
СВО	Community-Based Organization
CDC	Community Development Corporation
CE	Community Engagement
CEAP	Comprehensive Energy Assistance Program
CHDO	Community Housing Development Organization
CIP	Capital Improvements Program
СРР	Community Participation Plan
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 Department
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
LISC	Local Initiatives Support Corporation
LMI	Low-to-Moderate-Income
мосс	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 Department
PROW	Public Right-of-Way
QAP	Qualified Allocation Plan
ROW	Right-of-Way
SBA	Small Business Administration
SWAT	Stormwater Action Team
SWD	Solid Waste Department
TAC	Technical Advisory Committee
TIRZ	Tax Increment Reinvestment Zone
VAD	Vacant, Abandoned, and Deteriorated

### **DEPARTMENT & OFFICE ACRONYMS**

311	Help and Information
CC	Civic Club
CDBG	Community Development Block Grar
CDBG-DR	Community Development Block Grar
CDBG-MIT	Community Development Block Grar
CFRTF	Harris County Community Flood Resi
СОН	City of Houston
DC PSC	District of Columbia Public Service Co
DC SEU	District of Columbia Sustainable Ener
DOEE	Department of Energy and Environme
DON	Department of Neighborhoods
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Ac
GCPD	Gulf Coast Protection District
GLO	Texas General Land Office
HARC	Houston Advanced Research Center
HCDD	Housing and Community Developme
HCFCD	Harris County Flood Control District
НСНА	Harris County Housing Authority
HEF	Houston Equity Fund
HHA	Houston Housing Authority
HHS	Health and Human Services
HPCD	Houston Planning and Community De
HPRD	Houston Parks and Recreation Depar
HUD	Housing and Urban Development
ISD or Houston ISD	Houston Independent School District
LTH	Let's Talk Houston
METRO	Metropolitan Transit Authority of Harr
MOCA	Mayor's Office of Cultural Affairs
MOR	Mayor's Office of Resilience
MORS	Mayor's Office of Resilience and Sus
NHPD	National Housing Preservation Data
OEM	Office of Emergency Management
PD	Planning and Development Departme
PW or HPW	Houston Public Works
SN	Super Neighborhood
SNC	Super Neighborhood Council
SWMD	Solid Waste Management Departme
TDHCA	Texas Department of Housing and Co
TX-PACE	Texas Property Assessed Clean Energ
TxDOT	Texas Department of Transportation
US HUD	United States Housing and Urban De

Grant Grant Disaster Recovery Grant Mitigation Resilience Task Force

Commission Energy Utility nment

t Agency

nter oment Department ict

/ Development epartment

trict

Harris County

Sustainability atabase ent rtment

rtment Community Affairs nergy

n Development

### **APPENDIX** NEIGHBORHOOD INFORMATION

The Neighborhood Resilience Planning study for Braeburn is situated between Brays Bayou and Bissonnet in southwest Houston. Braeburn is a group of subdivisions along Brays Bayou, west of Hillcroft Avenue and south of the Sharpstown community. The first of these middle-class subdivisions was developed after World War II at a time when Bissonnet provided the route into the city. Data included here has been compiled from the latest American five-Community Survey five-year estimates in 2022. Many large tracts of land were developed as apartment complexes. Subdivisions found here include Robindell, Braeburn Glen, Braes Terrace, Larkwood, Braeburn Valley, and the acreage lot subdivision, Brae Acres. Braeburn is approximately 2,550 acres (4 sq. miles).



### DATA SNAPSHOT

	BRAEBURN CITY OF HOUSTON			HOUSTON
	2 Number	Percentage	Number	Percentag
Total Population	17,188	1%	2,296,253	100%
Race/Ethnicity				
White Alone	2,778	16%	541,798	23%
Black or African American Alone	1,426	8%	505,308	22%
Asian Alone	1,085	7%	156,724	7%
Hispanic or Latino	11,396	66%	1,029,429	45%
Other	503	3%	62,994	3%
Age				
17 Years or Younger	4,784	28%	549,788	24%
18-64 Years Old	10,987	64%	1,480,407	64%
65 Years or Older	1,417	8%	266,058	12%
Place of Birth				
Foreign Born Residents	8,676	50%	664,495	29%
Means of Transportation to Work 16 Years +	8,343	100%	1,105,088	100%
Drove Alone/Carpooled	6,572	79%	902,593	82%
Public Transportation (excluding taxicab)	706	8%	37,336	3%
Other (Walk, Bicycle, Work at Home, etc.)	1,064	13%	165,159	15%
Educational Attainment 25 Years +	10,651	100%	1,513,104	100%
No High School Diploma	4,294	40%	308,350	20%
High School Graduate (includes equivalency)	2,205	21%	329,224	22%
Some College (no degree)	1,104	10%	254,030	17%
Associate's Degree	494	5%	89,537	6%
Bachelor's Degree or Higher	2,554	24%	531,963	35%
Median Household Income	\$39,188		\$60,440	
Households Below Poverty	1,662	27%	157,268	18%
Housing Units	7,619	100%	1,006,392	100%
Occupied	6,256	82%	897,510	89%
Vacant Housing Units	1,363	18%	108,882	11%
Occupied Housing (owners and renters)	6,256	100%	897,510	100%
Percent Owners	1,633	26%	376,562	42%
Percent Renters	4,622	74%	520,948	58%

### **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.

### **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.

**Flooding** (also "Inundation") a great flow or overflow of water, especially over land not usually submerged

A **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, putting added strain on infrastructure systems such as roadways and sewers, and causing minor property damage.

**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.

Adaptive Capacity is the, "ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences." https://www.epa.gov



Watershed Map

**Subsidence** is the sinking of the ground because of underground material movement—it 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.

### 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 ecosystems.

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. 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. 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.

**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 a 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

**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 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** are typically a connected network of subsurface concrete pipes.

### **GREEN INFRASTRUCTURE & NATURAL 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

1% or 0.2% Chance of Flood indicates there is a 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

A **Drainage System** is 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. 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 aesthetics and recreation. Evapotranspiration is the sum of all processes by which water moves from the land surface to the atmosphere via evaporation and transpiration. It is what allows trees to 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**

**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.

**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.



Diagram of the Floodplain

**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 activities such as manufacturing.

**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. For example, reducing unwanted heat gain by installing a cool roof or planting trees along the southern building exposure.

**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 geographic boundaries of the FEMA floodplain, type of property use and elevation requirements in place when the property was built.

stics of a Floodplain	
D-Year Floodplain —— D-Year Floodplain ——	
Floodway	──→ ←─── Flood Fringe ──→
od Elevation (BFE)	••••
mal Channel	

### **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 (for example, 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**

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 destinations within 15 minutes of walking or biking from their home or workplace.

**Living with Water** refers to two workshops hosted by The City of Houston and partners 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. It documents actions that can be taken by our diverse neighborhoods, discusses how our watersheds work, and provides general guidance for City departments, as well as local and regional organizations. 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.

Equity + Inclusion	Infrastructure + Economy	Health + Safety
Poor education quality or access Poverty/inequity Lack of health care access Lack of equal economic opportunity for all Linguistic isolation Environmental justice Housin Mobi	<ul> <li>Cyber attack</li> <li>Infrastructure failure</li> <li>Aging infrastructure</li> <li>Overreliance on one industry</li> <li>Lack of economic diversity</li> <li>Slow recovery from Harvey</li> <li>Population growth</li> <li>Energy transition</li> <li>Oil &amp; gas downturn</li> </ul>	<ul> <li>High winds/tornad</li> <li>Hazardous materia incidents</li> <li>Extreme cold</li> <li>Terrorism</li> <li>Health emergency</li> <li>Poor air quality</li> <li>Crime and violence</li> <li>Environmental degradation</li> <li>Mental/behavioral health</li> </ul>
<ul> <li>Poor trans- network d</li> <li>Lack of a housing</li> <li>Land use sprawl</li> <li>Homeless</li> <li>Lack of p safety an accessibi</li> <li>Displacer</li> </ul>	sportation quality Floodir (fordable Coasta and urban Extrem sness Wildla edestrian d Climate lity Sea lev nent Subsid	ng anes al storms at e heat hd fire Lightning e change vel rise/ urge ence

Priority Shocks and Stresses for Houston

Houston Climate Action Plan provides evidenced-based activities to reduce greenhouse gas emissions and preventative measures to address the negative outcomes of climate change. The plan demonstrates how Houston will adapt and improve its resilience to climate hazards today and identifies 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 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 reflect the suns energy instead of absorbing the heat. The heat absorbed by a non-reflective roof is passed to the building, which can translate to 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.

### **APPENDIX** ACKNOWLEDGMENTS

### JOHN WHITMIRE, Mayor

Chris Hollins, Controller

### **CITY COUNCIL**

Amy Peck, District A Tarsha Jackson, District B Abbie Kamin, District C Carolyn Evans-Shabazz, District D Fred Flickinger, District E Tiffany D. Thomas, District F Mary Nan Huffman, District G Mario Castillo, District H Joaquin Martinez, District I Edward Pollard, District J Martha Castex-Tatum, District K Julian Ramirez, At-Large Position 1 Willie Davis, At-Large Position 2 Twila Carter, At-Large Position 3 Letitia Plummer, At-Large Position 4 Sallie Alcorn, At-Large Position 5

### **PROJECT STAFF**

Jennifer Ostlind, Interim Director, PD Lynn Henson, Division Manager, PD Mary Itz, Division Manager, HCD Sharon Moses, Division Manager, PD Elise Marrion, Administration Manager, PD Abraham Zorrilla, Planner IV, PD Tonya Coleman Sawyer, Planner IV, PD Marcus Tucker, Planner III, PD Jacqueline Brown, Planner III, PD Davonte Caldwell, Planner III, PD Bennie Chambers, III, Planner II, PD Eriq Glenn, Planner I, PD Jacinta Davis, Assistant Planner, PD Eddy Roberts, Sr. Communications Specialist, PD Kyle Lloyd, Sr. GIS Analyst, PD Russell Calhoun, GIS Analyst, PD Michael Griffin, GIS Analyst, PD

### **VOLUNTEERS and INTERNS**

Miguel Estrada, Sam Houston State University Brenden Ewert, Texas A&M University Emilia Flores, Texas A&M University Kaitlyn Higgins, Texas A&M University Sweta Thapa Magar, Texas A&M University John Monigold, Texas A&M University Nicolas Smothers, Texas Southern University Davian Thomas, Mayde Creek High School

#### BRAEBURN NEIGHBORHOOD SUPPORT TEAM

Brian Barragy Reis Ermis Andrew Mikelson Stephen Polnaszek Bert Ruiz Jeanie Spriggs Gena Sylvester

### **TECHNICAL ADVISORY COMMITTEE**

City of Houston Departments and Offices: Administration & Regulatory Affairs (ARA) Department of Neighborhoods (DON) Housing and Community Development (HCD) Houston Fire Department (HFD) Houston Green Building Resource Center Houston Health Department (HHD) Houston Parks and Recreation Department (HPARD) Houston Public Library (HPL) Houston Public Works (HPW) Mayor's Office of Complete Communities (MOCC) Mayor's Office of Economic Development (MOED) Mayor's Office of Cultural Affairs (MOCA) Mayor's Office of Resilience and Sustainability (MORS) Office of Business Opportunity (OBO) Office of Emergency Management (OEM) Planning and Development (PD) Solid Waste Management Department (SWMD)

### OUTSIDE ORGANIZATIONS

Special thanks to the following organizations for their participation and guidance: CenterPoint Energy Habitat for Humanity Harris County Flood Control District (HCFCD) Harris County Precinct 4 Houston Independent School District (HISD) Houston Metropolitan Transit Authority (METRO) Houston Advanced Research Center (HARC) Houston Land Bank Houston Park Bards Neighborhoods to Trails - Southwest

### **OUR THANKS**

The Neighborhood Resilience Planning initiative would not have been possible without the commitment and dedication of the Braeburn Neighborhood Support Team and the Technical Advisory Committee (TAC). The Braeburn Neighborhood Support Team comprised of community leaders and advocates, guided the planning process, and shaped the initiative at the local level. The Technical Advisory Committee, comprised of City departments, organizations and agencies, ensured that the program structure was inclusive, promoted public-private partnerships, and worked effectively and efficiently. Special thanks to the City of Houston departmental staff, interns, and the students from Texas A&M that volunteered time to support these public meetings. We thank everyone for their time and commitment to the Neighborhood Resilience Planning initiative.

Thank you to departmental staff across the City of Houston that participated in the support of this process and the public meetings. We thank everyone for their time and commitment to the Neighborhood Resilience Planning initiative.

Funds for this project were provided by the Texas General Land Office through the Housing and Urban Development's Community Development Block Grant Program.

### Resilience is a process.

In the Neighborhood Resilience Plan you will find short-term projects that will jump-start change in your community, and longer-term projects that will take more sustained efforts.

This document serves as a guide for learning about your neighborhood's vulnerabilities, information about the projects, developing new initiatives, and building the partnerships necessary to make improvements in your community.





PLANNING & DEVELOPMENT DEPARTMENT

