



WEST H★USTON -2060-

DEVELOP A BETTER FUTURE

-Credits-

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"When you come to WHA and you look at our membership - developers, engineers, demographers - they live here; they're vested in Houston and our region; and they want to do what is right."

Marlene Gafrick
Chairman of the Regional Mobility Committee

Graphic Design/Formatting:

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"People are demanding a different kind of solution and we don't want to give a 1950s solution that we're going to live with 100 years from now. This is a call to action - its time to roll up our sleeves and address it."

John S. Moody, Sr.
Chairman of the Board of Directors
Co-Chairman of the 2060 Plan

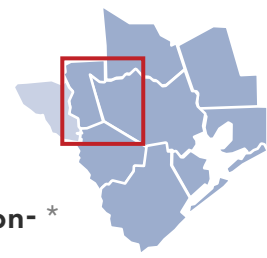
Quality Growth Partners 2018



-Greater West Houston in 2060-

The West Houston Association's Role and Vision, Past and Future

The West Houston Association (WHA) was formed in 1979 as a not-for-profit group to promote high quality, sustainable growth. WHA advocates for an area of 1,000 square miles in the western portion of Harris County and parts of Fort Bend and Waller Counties ("Greater West Houston"). Over the past 40 years, Greater West Houston transformed from a few sleepy suburban and rural communities bisected by the Katy Freeway into an international, connected, and vibrant destination. The leadership of the West Houston Association has been instrumental in the manner and type of development, infrastructure, and educational offerings across this region.



-Greater West Houston-

-8 County Houston Region- *

Year	Population	Households	Jobs
1990	709,160	262,312	242,626
2000	994,296	356,579	318,378
2010	1,470,456	508,516	450,288
2015	1,714,435	589,862	538,314
2020	1,809,630	627,423	566,843
2025	1,981,613	692,162	626,918
2030	2,155,584	757,995	692,796
2035	2,329,936	824,493	761,463
2040	2,523,515	898,963	831,432
2045	2,632,117	941,112	881,365
2050	2,892,286	1,044,455	1,018,258
2055	3,080,689	1,117,846	1,103,445
2060	3,260,149	1,188,682	1,160,600

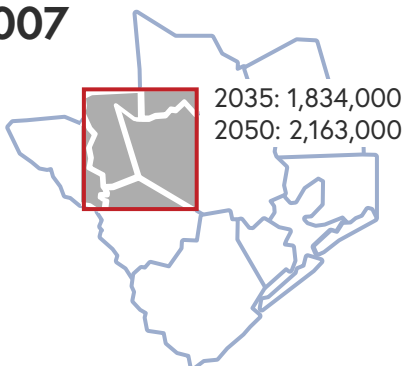
Year	Population	Households	Jobs
1990	3,701,661	1,327,550	1,531,300
2000	4,595,847	1,639,401	1,965,600
2010	5,837,975	2,060,594	2,477,162
2015	6,570,900	2,300,200	2,883,261
2020	6,897,086	2,428,600	2,998,733
2025	7,540,576	2,670,820	3,278,511
2030	8,244,104	2,937,198	3,584,393
2035	9,013,269	3,230,144	3,918,812
2040	9,854,197	3,552,307	4,284,433
2045	10,385,459	3,750,538	4,512,898
2050	11,379,515	4,126,812	5,028,162
2055	12,168,264	4,425,702	5,397,945
2060	12,939,620	4,716,833	5,769,116

Source: CDS, U.S. Census Bureau

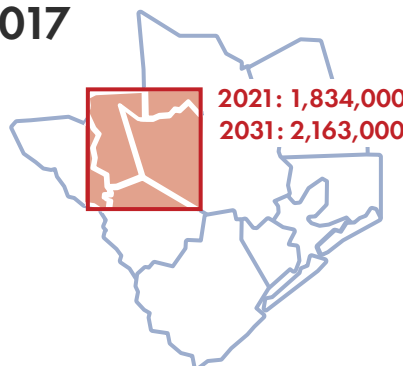
* Data for the 8 County Houston Region includes: Brazoria, Chambers, Fort Ben, Harris, Liberty, Montgomery and San Jacinto Counties.

As forecasted in our West Houston Plan 2050 (published in 2007), historic growth has brought increased levels of population, jobs, and income to the region. Greater West Houston absorbed 36 percent of the population growth of the Houston Metropolitan Statistical Area (Houston MSA) between 2000 and 2015.

-Houston MSA- 2007



-Houston MSA- 2017



While the absolute numbers may not be certain, continued growth appears extremely likely.



**1,000 SQUARE MILES
3 COUNTIES
19 CITIES
1.75 MILLION PEOPLE
3.2 MILLION PEOPLE by 2060**

**"A population the size of
San Antonio is coming to West
Houston over the next 40 years
- that is a huge challenge."**

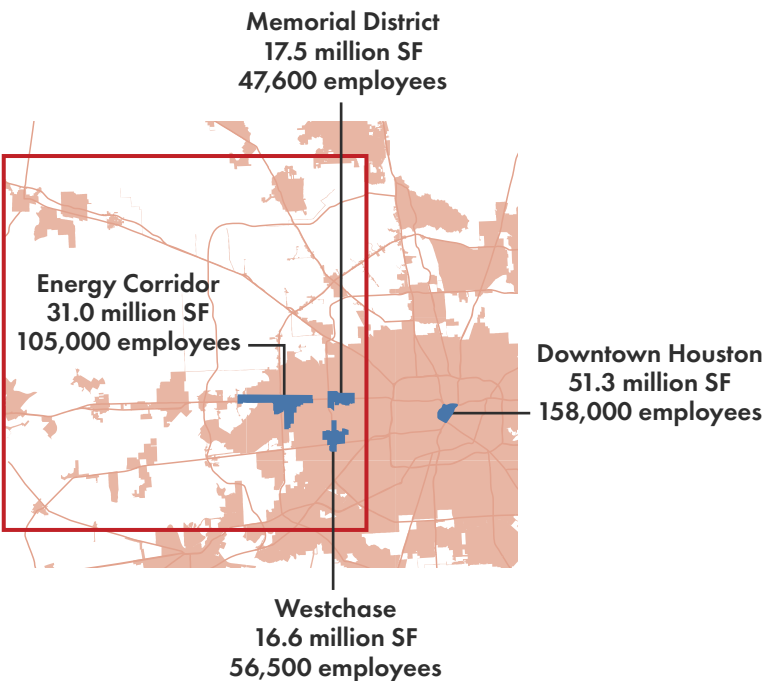
Augustus Campbell
President and CEO of the West Houston Association

-Greater West Houston in 2060-

Growth is coming despite recent storms, including the largest rain event in the history of the Continental U.S.; and economic events, such as the 2008 Great Recession and 2015 Oil Crash. Greater West Houston's continued growth is an indicator of its resiliency. The private and public sectors must continue working together to improve resiliency and other challenges. WHA is working to offer solutions and support so that Greater West Houston provides enhanced safety, opportunity, and resiliency to all of its residents.

Greater West Houston's Energy Corridor, Westchase, and Memorial District employment centers contain in the aggregate more square footage of space and more employees than downtown Houston. These regional centers, and others, are well planned, well maintained, and provide mixed use environments with first rate infrastructure and amenities. These regional centers are served by major roads, buses, and bike-pedestrian corridors. As jobs continue to concentrate in these markets, employees work closer to where they live and play, which enhances quality of life and productivity.

Greater West Houston's Energy Corridor, Westchase, and Memorial District employment centers contain in the aggregate more square footage of space and more employees than downtown Houston.



-Top Ten Employers in Greater West Houston -




Employers	Total West Houston Employees	Business Description
Wood Group	11,960	Energy Engineering Company
BP North America	9,537	Energy Production Company
Katy ISD	8,000	Public School District
Shell Oil Co. - Woodcreek	6,000	Energy Production Company
TechnipFMC	4,300	Energy Production & Transport Co.
ConocoPhillips Co.	3,000	Energy Exploration & Prod. Co.
Academy Sports + Outdoors	2,900	Sports and Athletic Equip. Retailer
Phillips 66	2,000	Energy Manufacturing & Logistics Co.
The Freidkin Group	2,000	Retail Car Dealership
Jacobs Engineering	1,800	Engineering & Construction Firm
Sysco Corp.	1,800	Food Marketing & Distribution Co.

Source: Houston Business Journal, March 16-22, 2018

Many of the WHA's founding members were pioneers in the development of Master Planned Communities (MPCs), and Greater West Houston is home to over 30 MPCs. These "built communities" are located on large tracts of land and include infrastructure that generally far exceeds standard requirements. Over the last 25 years, a majority of new single-family residences in Greater West Houston were built in MPCs. MPCs, such as Cinco Ranch, Telfair, Aliana, Cross Creek Ranch, Towne Lake, Riverstone, Cypress Creek Lakes, Bridgeland, Elyson, and others, offer an array of housing choices and provide access to amenities (including recreation centers, pools, and pedestrian and bike paths), retail, major employment centers, and first-rate schools. These elements are the fabric of MPCs. Smaller planned communities seek to emulate and locate near MPCs and regional centers to provide competitive offerings to homebuyers.

-Additional Residential Acreage for Projected Population-

Source: MetroStudy Company



	Additional Acreage Needed (at 12 Dwelling Units per Acre)	Total Acreage Needed for Single- and Multi-Family Housing Units	Total Square Miles Needed for Single- and Multi-Family Housing Units
2030	3,041	30,484	48
2040	3,131	31,381	49
2050	3,220	32,277	50
2060	3,309	33,174	52
Total Needed by 2060		160,489 acres	251 square miles



Queenston Manor Apartment Homes
Low Impact Multi-family Development



City Centre, Mixed-Use Walkable Development

Affordable home prices, top-ranked schools, proximity to jobs, and outstanding quality of life are essential to growth—past, present, and future. In 2018, five of the top ten Houston area public high schools were in Greater West Houston. The largest City of Houston park (Cullen Park—9,270 acres) and the largest Harris County park (George Bush Park—7,800 acres) are both located in Greater West Houston. Top-ranking retail destinations are dotted throughout the Region. Between 2000 and 2020, Greater West Houston will have added 270,000 jobs. The proximity of Greater West Houston residents to employment opportunities in a variety of fields, such as healthcare, energy, education, manufacturing, logistics, and service sectors, provides more sustainable and efficient communities. With vision and dedication, Greater West Houston's best days are ahead.

“The 2060 Plan will help find a way to make the right public investments so people are better off, so government is better off, and the private sector is better off.”

Augustus Campbell
President and CEO of the West Houston Association

-WHA Committees-



-Regional Mobility-

p.12

Marlene Gafrick, Committee Chair—MetroNational and Delvin Dennis, Vice Chair—RPS.

Peter Boecher—RVI Planning + Landscape Architecture, Shelly deZevallos—West Houston Airport, Edwin C. Friedrichs—Walter P Moore, Alex Kamkar—Toll Brothers, William Papadopoulos Delta Troy Interests, Greg Turner—Turner Duran Architects, LP, and A.J. Widacki—Parsons Transportation Group.



-Water Resources-

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Jack Miller, Committee Chair—R.G. Miller Engineers, Inc. and Alia Vinson, Vice Chair—Allen Boone Humphries Robinson.

Wayne Ahrens—Dannenbaum Engineering, Connie Curtis—Kimley-Horn and Associates, Jennifer Elms—EHRA Engineering, Yvonne Rivera—Costello, Inc., Charles M. Shumate—Lockwood, Andrews & Newnam, Inc., Melinda Silva—Dannenbaum Engineering, and Mike Thornhill—Si Environmental.



-Flood Control, Drainage, & Wetlands- p.18

Lee Lennard, Committee Chair—BGE, Inc. and Tim Buscha, Vice Chair—IDS Engineering Group.

Terry Barr—Halff Associates, Alan Bauer—Newland Communities, Bill Callegari—TNC, Al Flores—Dannenbaum Engineering, Tanya Foster—BGE, Inc., Rich Gallego—Costello, Inc., Mark Gehringer—Howard Hughes Corporation, John Grounds — LJA Engineering & Surveying, Inc., Bob Jones — Jones Engineering, Alex Kamkar—Toll Brothers, David Keel—DAC Engineering, Lance LaCour—Katy EDC, John Moody—Parkside Capital, Andrew Paderanga—R.G. Miller Engineers, Inc., Andy Palermo—EHRA Engineering, Scott Saenger—Jones|Carter, Andres Salazar—Walter P Moore, and Gary Struzick—RPS.



-Education & Workforce Development- p.22

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Bryant Black—Greater Houston Partnership, Karla DeCuir—University of Houston - Victoria, Phillips Dick—University of Houston, Destry Dokes—Houston Community College, Sara Montenegro—Texas Children's Hospital, Jay Neal—University of Houston - Katy, and Glenn Sampson—Consolidated Communications.



-Parks, Recreation & Open Space-

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Chris Patterson, Committee Chair—RVI Planning + Landscape Architecture.

Adam McGovern—EHRA Engineering and Robert Whittemore—RVI Planning + Landscape Architecture.



-Quality Planned Development-

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Collins Pier, Chairman—Trendmaker.

Rob Bamford—Johnson Development Corporation, Chris Browne—EHRA Engineering, David Corbin—Costello, Inc., Lawrence Dean—MetroStudy, Mark Gehringer—Howard Hughes Corporation, Rodney Heisch—BGE, Inc., Alan Hirshman—Dannenbaum Engineering, Kenneth Martinec—Jones|Carter, Heath Melton—Howard Hughes Corporation, John Moody—Parkside Capital, Andrew Paderanga—R.G. Miller Engineers, Inc., Pam Puckett—Costello, Inc., Terry Reeves—Jones|Carter, Glenn Sampson—Consolidated Communications, James Shanks—Halff Associates, and Brian Stidham—Hines.



-Sustainable Infrastructure-

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Jim Russ, Committee Chair—EHRA Engineering and Travis Sellers, Vice Chair—IDS Engineering Group.

Michael Bloom—R.G. Miller Engineers, Inc., Edwin Friedrichs—Walter P Moore, Mark Gehringer—Howard Hughes Corporation, Peter Huinker—HR Green, Mark Janzer—Costello, Inc., Maurice Mullaly—DAC Engineering, Jon Polley—Radcliffe Bobbitt Adams Polley, Randy Randermann—BGE, Inc., Scott Saenger—Jones|Carter, Brian Stidham—Hines, Greg Turner—Turner Duran Architects, LP, Natalie Weiershausen—RPS, and A.J. Widacki—Parsons Transportation Group.

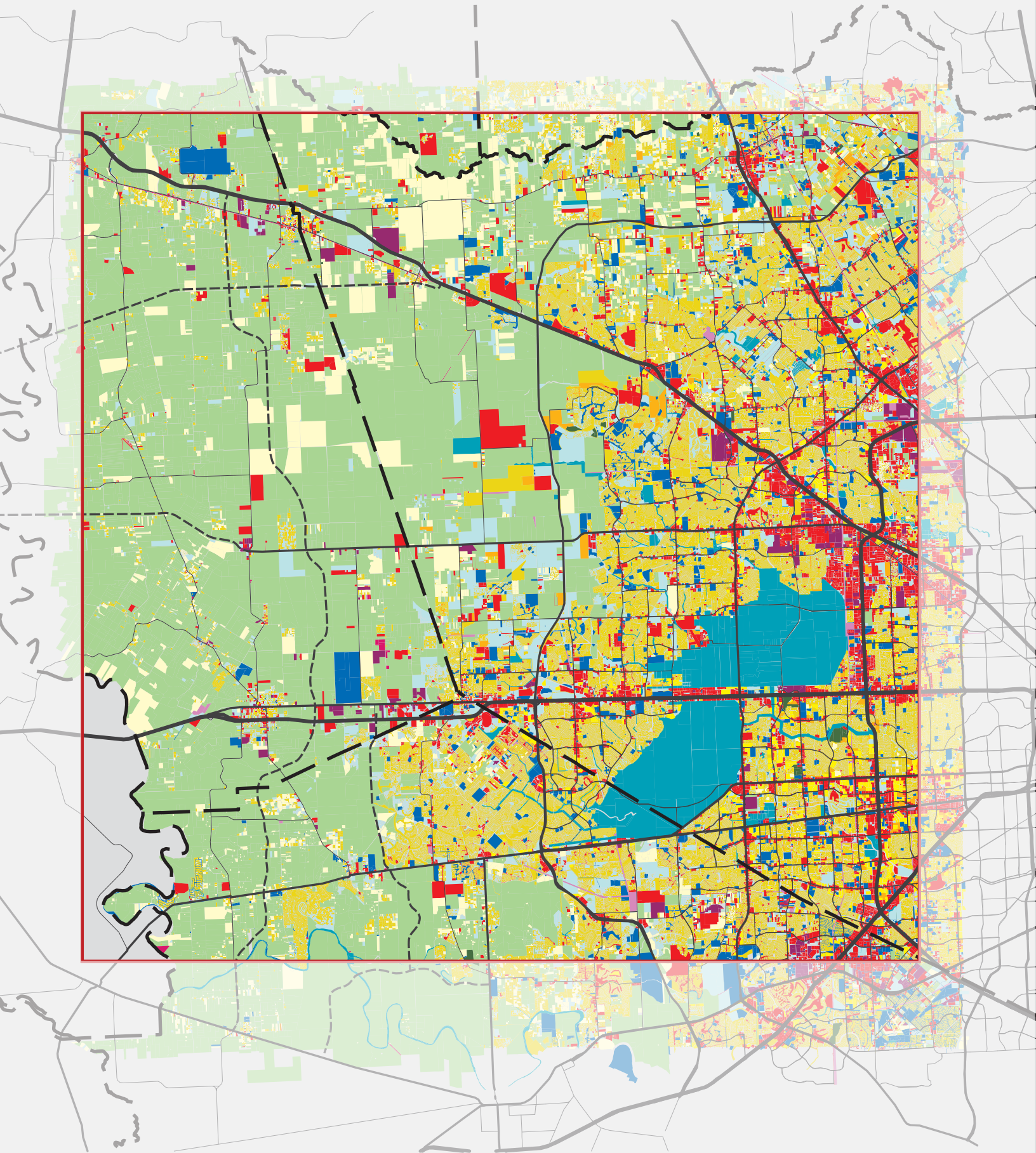
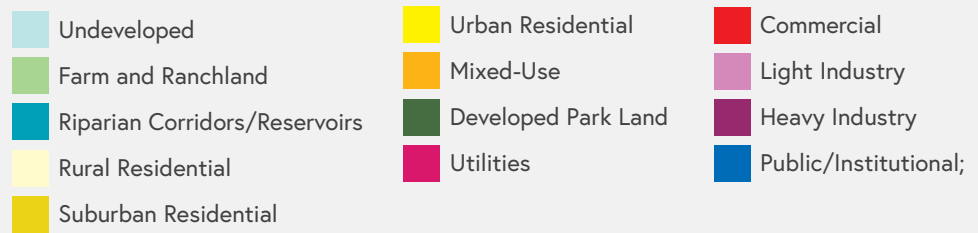


-Maps & Demographics-

David Hightower, Committee Chair—Midway Companies.

Scott Davis—Meyers Research, Lawrence Dean—MetroStudy, Duane Heckman—Land Advisors Organization, Ty Jacobsen—CDS Community Development Strategies, Kirk Laguarta—Land Advisors Organization, Steve Spillette—CDS Community Development Strategies, and Brett Walker —Parkside Capital.

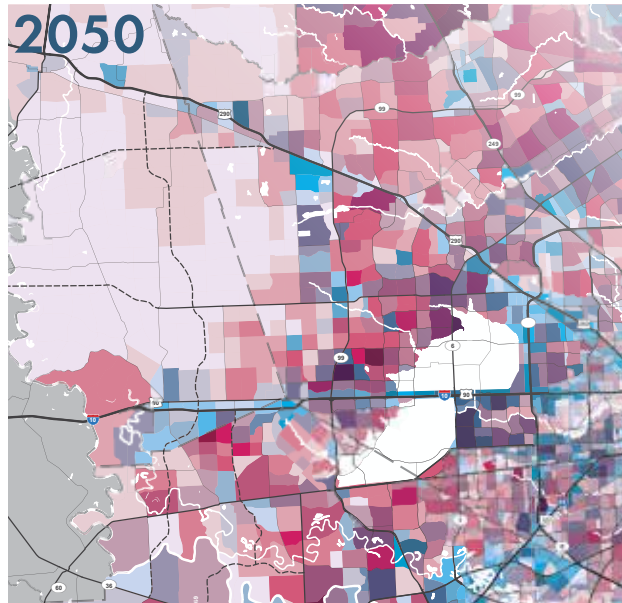
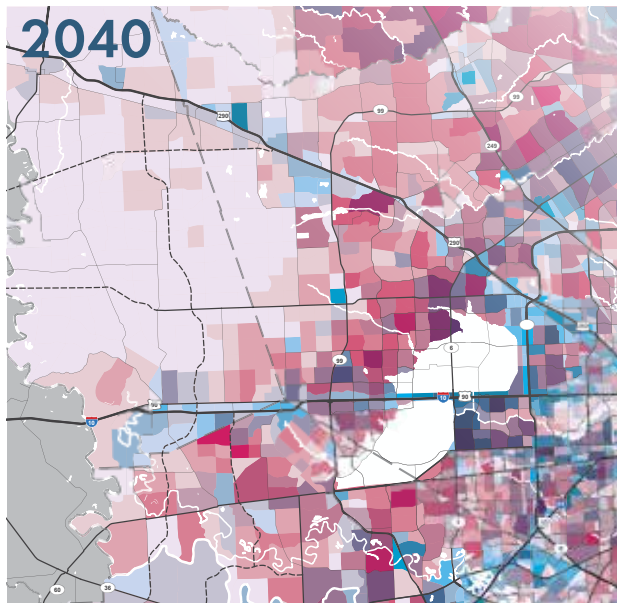
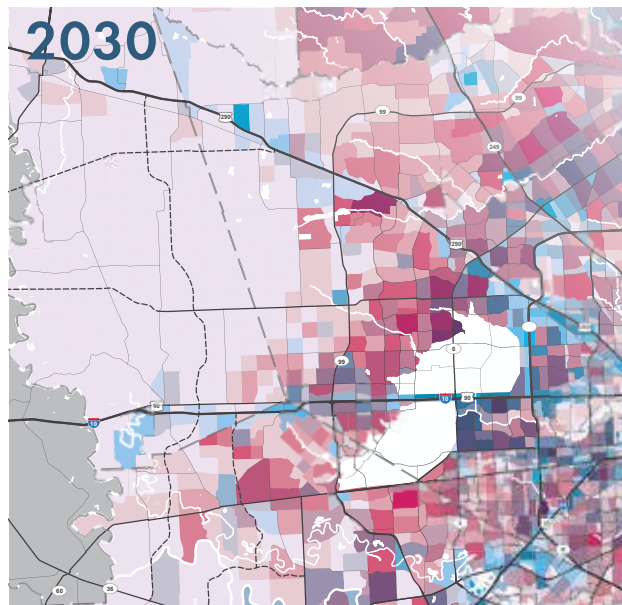
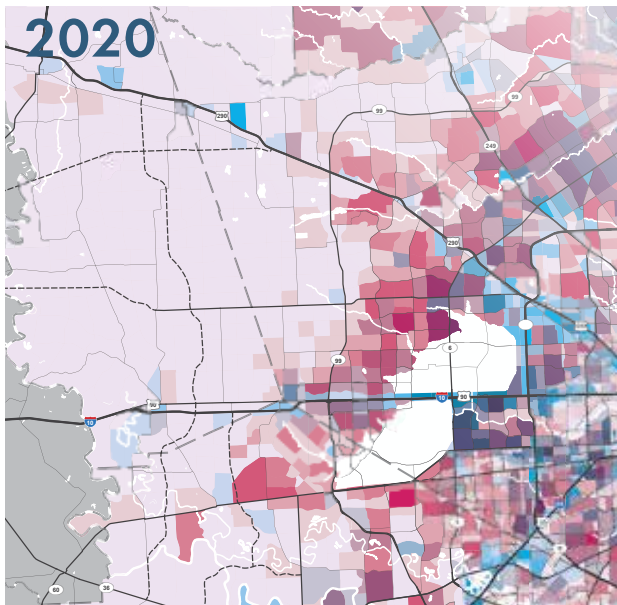
GWH Existing Land Use



-Population and Jobs Trends-

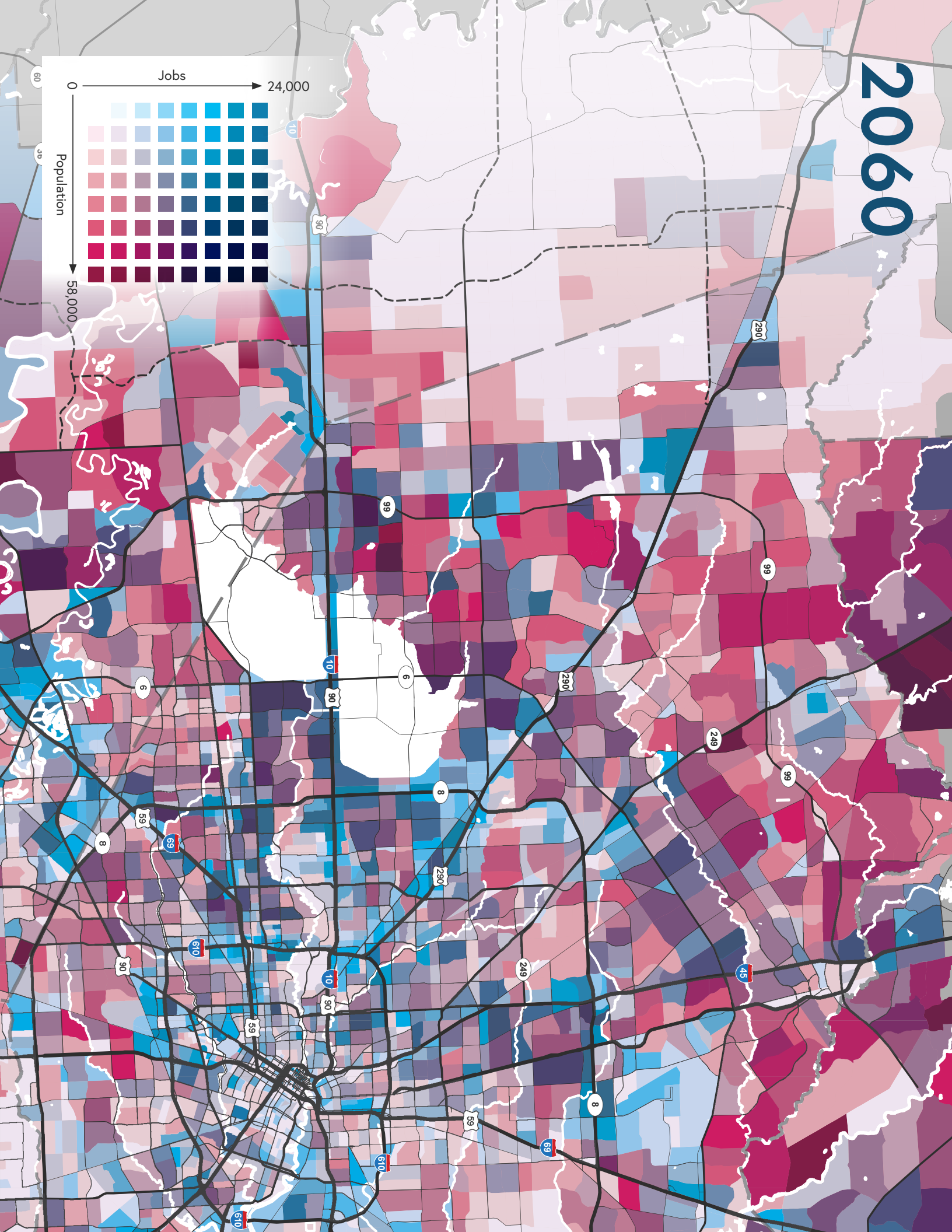
Future growth is trending west and north with densification and the highest growth rates occurring along major transportation corridors, especially the Grand Parkway. Mobility issues are driving the growth of regional centers located near the intersections of major transportation corridors. New flood control and development standards will likely lead to denser new development with more green space. Without major investments in infrastructure and innovation, housing prices and commute times are likely to increase significantly.

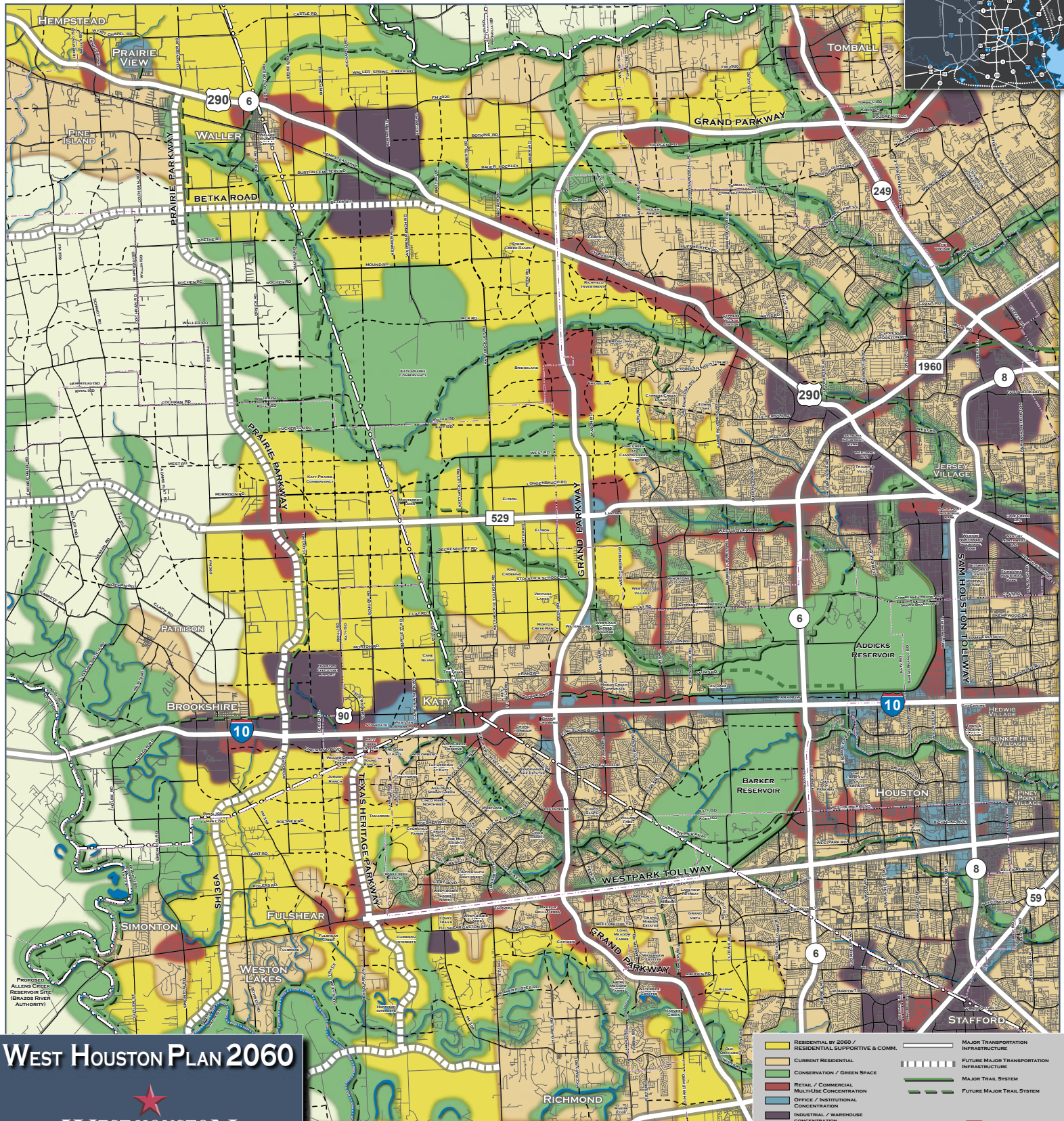
A traffic analysis zone (TAZ) is a special area delineated by state and/or local transportation officials for tabulating and modeling vehicular trip-related data, especially journey-to-work and place-of-work statistics; for the purposes of long-range transportation planning. A TAZ usually consists of one or more census blocks, block groups, or census tracts. The maps, *Projected Population and Jobs by Traffic Analysis Zones 2020–2060*, depict projected population and employee estimates for each TAZ for 2020, 2030, 2040, 2050, and 2060. The TAZs with the darkest color represent the areas of highest population and employment thus the greatest level of trip generation. Transportation planners will input Base Year TAZ data, based on existing land uses, and compare it with Future Year TAZ estimates to analyze and model trip generation, thoroughfare capacities and levels of service (LOS); in order to estimate the likelihood of needed roadways and roadway expansion in the future, based on anticipated development trends.



Projected Population and Jobs by Traffic Analysis Zones, 2020–2060

2060





West Houston Plan 2060

WEST HOUSTON
ASSOCIATION
Leadership in Quality Growth

LEGEND

- RESIDENTIAL BY 2060 / RESIDENTIAL SUPPORTIVE & COMM.
- CURRENT RESIDENTIAL
- CONSERVATION / GREEN SPACE
- RETAIL / COMMERCIAL MULTIPLE CONCENTRATION
- OFFICE / INSTITUTIONAL CONCENTRATION
- INDUSTRIAL / WAREHOUSE CONCENTRATION
- RURAL
- MAJOR TRANSPORTATION INFRASTRUCTURE
- FUTURE MAJOR TRANSPORTATION INFRASTRUCTURE
- MAJOR TRAIL SYSTEM
- FUTURE MAJOR TRAIL SYSTEM

Scale: 1" = 1 mile
0 1/2 mile 1 mile 2 miles

Prepared by: **BCE**

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-The Quality Growth Initiative-

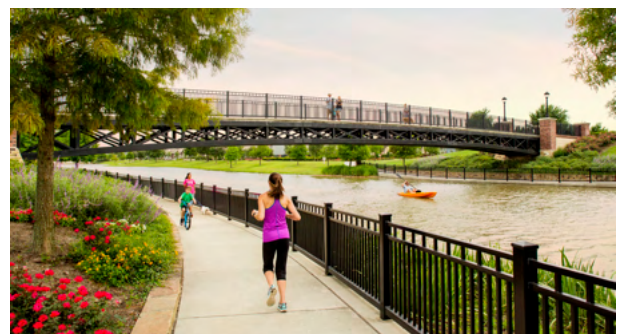
Growth is Certain. Quality Growth takes Planning.

WHA's Quality Growth Initiative aims to promote public and private investments that improve Greater West Houston's standing as a global destination to live, raise a family, work, shop, play, and locate a business. As we said in 2007, "we believe each resident and employee should be afforded the highest possible quality of life and work experience." Creating sustainable communities requires connecting educational and employment opportunities in attractive, accessible, and resilient settings. These settings support stable families and businesses so they are likely to stay and grow in our area.

Advocating for standards to support the Quality Growth Initiative provides better outcomes for residents of Greater West Houston. Several factors make quality growth more challenging. Increased land prices, reduced supply of large tracts, increasingly expensive and uncertain entitlements, and increasing opposition to business-as-usual growth and development will shape how and where people live and work. The West Houston Association will continue to encourage higher quality development standards and policies. We must continue to engage in public discourse with both our elected officials and the public to provide accurate and accessible information that best serves the community.


"We believe each resident and employee should be afforded the highest possible quality of life and work experience."

West Houston Association



We must advance bold ideas to address rapid growth, aging infrastructure, and changing needs. In light of three major flood events in three consecutive years, businesses and residents will prioritize resiliency in buying and building decisions. Long-term growth in Greater West Houston is not sustainable unless we address these issues over the next decade. Simply operating on a "business as usual" basis is not possible.

This West Houston 2060 Plan addresses a number of elements that are critical to the quality of life, resiliency, and sustained viability of Greater West Houston: Transportation, Water Supply & Quality, Flood Control & Drainage, Education, Parks & Open Space, Quality Planned Development, and Sustainable Infrastructure.

An aerial night photograph of a city, likely Houston, showing a dense grid of city lights and highways. A large, semi-transparent red speech bubble is overlaid on the right side of the image, containing white text. The background image shows the city's layout with a prominent body of water on the left side.

"If we do nothing it costs us. The 2060 Plan is a desire to really pull together issues that range from:

**TRANSPORTATION,
WATER SUPPLY & QUALITY,
FLOOD CONTROL & DRAINAGE,
EDUCATION,
PARKS & OPEN SPACE,
QUALITY PLANNED DEVELOPMENT,
SUSTAINABLE INFRASTRUCTURE,**

and how all these things can be configured on a map to better impact people's lives."

Augustus Campbell
President and CEO of the West Houston Association

Source: ISS Crew Earth Observations experiment and Image Science & Analysis Laboratory, Johnson Space Center.

-Focus-



TRANSPORTATION

-Issue-

Continued growth projected for Greater West Houston will place pressure on our region's mobility infrastructure for residents, delivery of goods, products and services, and resiliency during extreme events. Funding new transportation improvements and simply maintaining existing infrastructure under current conditions will be challenging.

-Goal-

The West Houston Association encourages coordinated, reliable, and safe multimodal transportation systems that connect neighborhoods to employment, retail, entertainment, and education centers and that connect the region to national and international trade, commerce, and opportunities.

GROWTH

Growth. Regional mobility remains a critical challenge facing Greater West Houston. Our region requires major upgrades to its transportation infrastructure. Adequate funding for this infrastructure is critical.

Protect Funding. Billions of dollars will be needed to expand and build new facilities as well as maintain our investment in existing mobility infrastructure. While state and federal leaders recently provided more funding, traditional financing sources will not be sufficient to build needed infrastructure.

Public-Private Partnerships. Public-private partnerships are providing a way to augment the delivery and quality of roadway improvements. Park Row from Dairy Ashford to Barker Cypress was completed through a "380 Agreement" between the City of Houston, the Energy Corridor Management District, and area developers. Kingsland Boulevard (substantially complete) is also a public-private project. These two roads provide vital east-west transit parallel to I-10 on both the north and south sides of the Interstate. Texas Heritage Parkway is a public-private partnership that boasts roundabouts, pedestrian tunnels, and other design features. It will provide a safe, attractive, and efficient north-south corridor to drastically improve residential mobility in Fort Bend County.

Dynamic Pricing. As noted in the 2050 Plan and demonstrated by regional tollways, many users are willing to carpool and pay for mobility improvements. Dynamic pricing for programmed lanes provides a market-based approach that helps ease congestion and generate revenue for projects that could not be built otherwise.

REGIONAL

Regional Challenge. Multiple transportation providers focused on their own service areas present a challenge for regional planning.

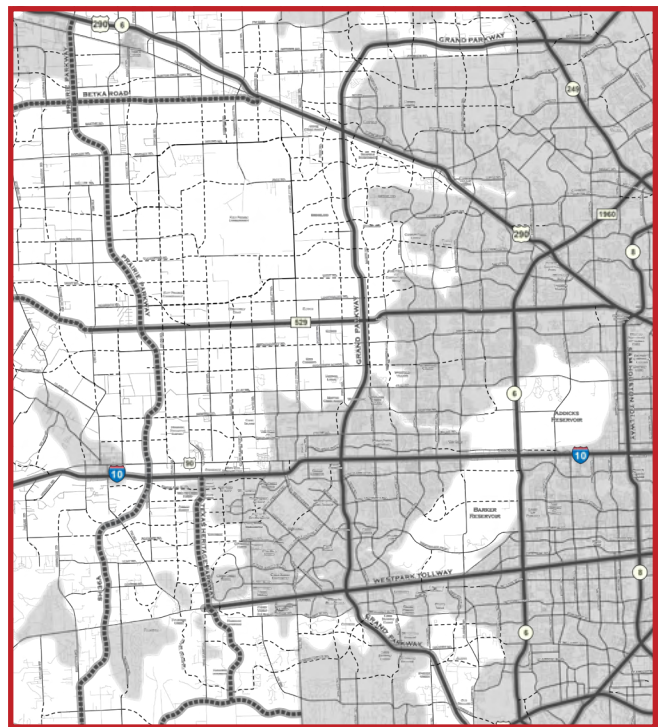


Energy Corridor District's master plan for Energy Corridor Park and Ride

Regional Vision. We need stronger regional coordination of all transportation providers, including TxDOT, METRO, counties, and cities. This vision requires stronger and more responsive leadership to maximize public investment. Partnerships between METRO and other transit service providers, like the Woodlands Township and Fort Bend County have been successful and can improve regional mobility.

ROADS

Road Network. Our traditional spoke-and-wheel system worked well as a solution for areas closer to the city. The effectiveness of the spoke-and-wheel system diminishes as the distance increases and lateral connectors become less robust or non-existent. As growth continues outward from the city more transportation connectors and transit options are needed. Major thoroughfares such as FM 529, FM 1463, Spring Green Boulevard, Betka Road, and Texas Highway 36A are key roadway connectors that can fill the gaps in the spoke-and-wheel system.



Preserve Corridors. The public sector should work cooperatively with property owners to expand rights-of-way and facility options along key roadways and at key intersections ahead of development. The public sector should also consider the width of these corridors to allow for multiple modes of transportation. Planners must responsibly work with and around sensitive areas such as reservoirs and the Katy Prairie to preserve the environment and mobility. Elevating key roadways, such as Eldridge, through reservoirs will reduce impacts and maintain the reservoir capacity and mobility during extreme weather events.

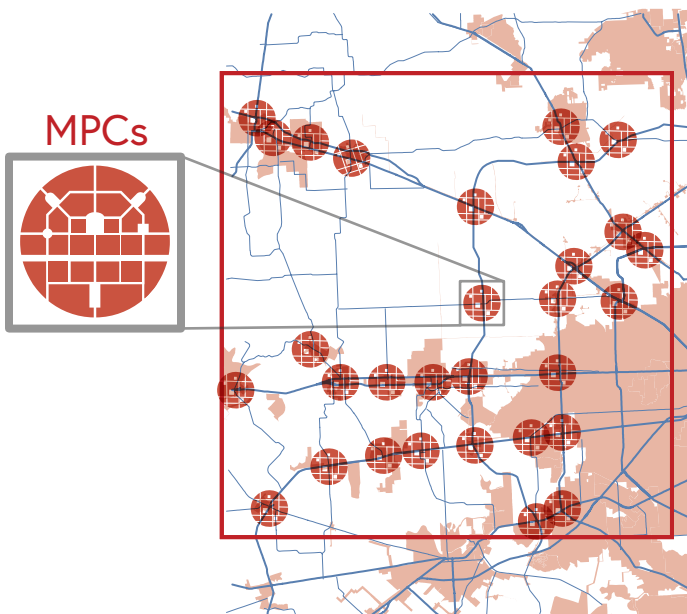
URBAN FABRIC

Dense But Dispersed. Concentrated growth is likely to continue around existing regional centers like Westchase, Memorial City, and the Energy Corridor. This trend will likely continue along the I-10, Beltway 8, and Grand Parkway corridors, especially at major intersections. Many Master Planned Communities (MPCs) are creating town centers at or near key intersections. Concentrated growth will require enhanced transit connection.

Regional Center Connections. Greater West Houston needs a variety of transportation choices (high-capacity transit, circulators, bikes). Encouraging regional centers with mixed-uses, recreational amenities, hospitals, jobs, colleges, and well-planned multi-modal connections will reduce congestion on major routes and improve safety and quality of life. Management Districts and economic development corporations are important facilitators of regional centers, providing planning and services that attract businesses and residents. Reliable last-mile transit service is critical for the success of high-capacity transit systems.

Improved Routes & Intersections. Improving major thoroughfares with smart signalization, lane programming, and grade separations at key intersections will relieve pressure near neighborhoods and along major routes that connect to these centers.

Integrated Public Transit. Reliable transit options, preferably offered by both the public and private sectors, should promote enhanced connectivity between home to work and other destinations. Transit providers should improve connectivity between and within regional centers with first-mile/last mile options that connect to mass transit.



FREIGHT

Freight Conflict. Incidents involving freight traffic, both wheeled and rail, account for over 30 percent of non-recurring traffic delays in the Houston area. Regional growth will continue to create conflict with freight rail due to accidents and delayed vehicle mobility at road crossings at grade.

Freight Fixes. Investments to improve freight mobility can greatly reduce congestion and improve air quality. Elevated road crossings at key rail intersections must be given a preference to reduce conflicts and maintain mobility. Improving incident response and altering delivery schedules are among the most cost-effective mobility improvements available.

TRANSIT

High-Capacity Transit Conflict. High-capacity transit options, such as high-speed rail, commuter rail, bus rapid transit, and conceivably the hyperloop, can provide tremendous support to quality growth. The desirability of high capacity transit must be planned and operated to minimize conflicts with other transit modes and land uses.

Higher Grade Transit. High-capacity transit should be elevated or on a different grade at major thoroughfare crossings and in heavily urbanized areas. Grade separations increase safety, reduce travel times, preserve urban connectivity, and minimize potential drainage issues sufficiently to justify their costs.

AVIATION

Aviation Issues. Greater West Houston's airports, such as West Houston Executive Airport and West Houston Airport, provide substantial economic benefits but are also critical in disasters. Development around Greater West Houston and limited funding may impact their long term viability to serve our area.

Aviation Opportunities. The investments made in the Greater West Houston airports must be protected and expanded for continued economic growth and recovery efforts for our area. Protecting the integrity of airspace around these airports will ensure that they provide both economic and strategic value. Optimizing these assets for future use is critical. Extending the West Houston Airport's runway would likely increase its \$25 million in annual economic benefit by approximately 50 percent within three years, meaning that the project would pay for itself in two to five years. These airports may also provide space for drones and emerging aviation options, which have the potential to disrupt traditional freight and mobility industries.





WATER SUPPLY & QUALITY

-Issue-

Population growth, subsidence, conveyance, and regulation have triggered billions of dollars in investments in regional water and wastewater infrastructure in the Houston region. Building and maintaining this infrastructure will take continued effort and vigilance from public leaders.

-Goal-

Greater West Houston should have clean, safe, reliable, and reasonably-priced public water supplies and clean water flowing through its waterways that are sustainably sourced and managed. The public should understand the commitment and effort needed to continue providing safe, clean water.

Challenges & Opportunities

-Water Supply- SUPPLY

Supply & Subsidence. Greater West Houston has substantial reliable surface water resources, but development of these resources hinges on critical infrastructure projects in the 2016 Region H Water Plan. The Houston region's reliance on groundwater caused subsidence, which has required conversion to surface water.

Surface Water Infrastructure. The City of Houston and the regional water authorities (with financing from the Texas Water Development Board) are currently building more than \$3 billion in projects to provide adequate regional surface water supplies through 2060, including supplies for Greater West Houston. The West Houston Association has supported this investment in surface water resources, which prevents subsidence and associated increased flood risks.

INVESTMENTS

Regulatory Challenges. Funding for water infrastructure may be jeopardized by proposed changes to the regulatory framework. These changes could undermine the billions of dollars invested in critical water supply projects and the successful development of Greater West Houston.

Continued Support & Outreach. Explaining to the public the benefits of investments in our water resources and infrastructure is as critical as explaining the consequences of failing to make these investments. These regional water supply projects are a model for long-range planning, regional cooperation, and successful and innovative financing.

CONSERVATION

Demand Peaks. Water facilities must be sized to meet peak demand. This is complicated by extremely hot summer months and the resulting need to irrigate landscaping.

Conservation. By conserving current water resources and investing in re-use systems, utilities can reduce peak demand and delay major capital investments to bring in new water supplies. Well-crafted and implemented conservation strategies, tools, and techniques can help defer capital investments in new water supplies, or at least make such investments more predictable. Regional cooperation on public outreach further enhances conservation opportunities. By conserving water resources, the Houston region can extend the expected lifespan of its water supply investments.

-Water Quality-

EDUCATION

Growth. Greater West Houston enjoys relatively high water quality, which is essential to attracting large numbers of businesses and families. Municipal Utility Districts (MUDs) must monitor and manage the capacity of treatment facilities. MUDs in general, with help from groups such as Houston-Galveston Area Council's (HGAC's) Bacteria Implementation Group (BIG) and the TCEQ's Advisory and Implementation Groups, have managed capacity and outflows well and helped improve regional water quality. Growth contributes to increasing water and wastewater prices, which concern consumers.

Public Outreach. Municipalities and MUDs can take advantage of educational and public awareness materials from other regional and state agencies that have already invested in developing these resources. MUD operators can "get the word out" to the general public and end users. We encourage state officials to work with their communities to understand the critical role that MUDs play in providing public services and how consumers can make better decisions to help control prices.

STANDARDS

Reliance on MUDs. Over 300 MUDs collectively provide water service and wastewater treatment for most residents and businesses in Greater West Houston. Originally conceived as entities that would be annexed into municipalities, MUDs are providing more service for longer durations due to policy changes. These policy changes include a shift in the City of Houston's annexation policy and changes to state law regarding annexation.

Professional Standards. Most water and wastewater facilities within MUDs in Houston are administered by private operators and engineering firms that adhere to "best practices," which are rigorous standards that exceed state requirements.

These operators and firms compete and continually improve standards while keeping service costs low to retain MUD customers, who are represented by local boards. We encourage continued conversation on existing standards and best practices.

FACILITY INFRASTRUCTURE

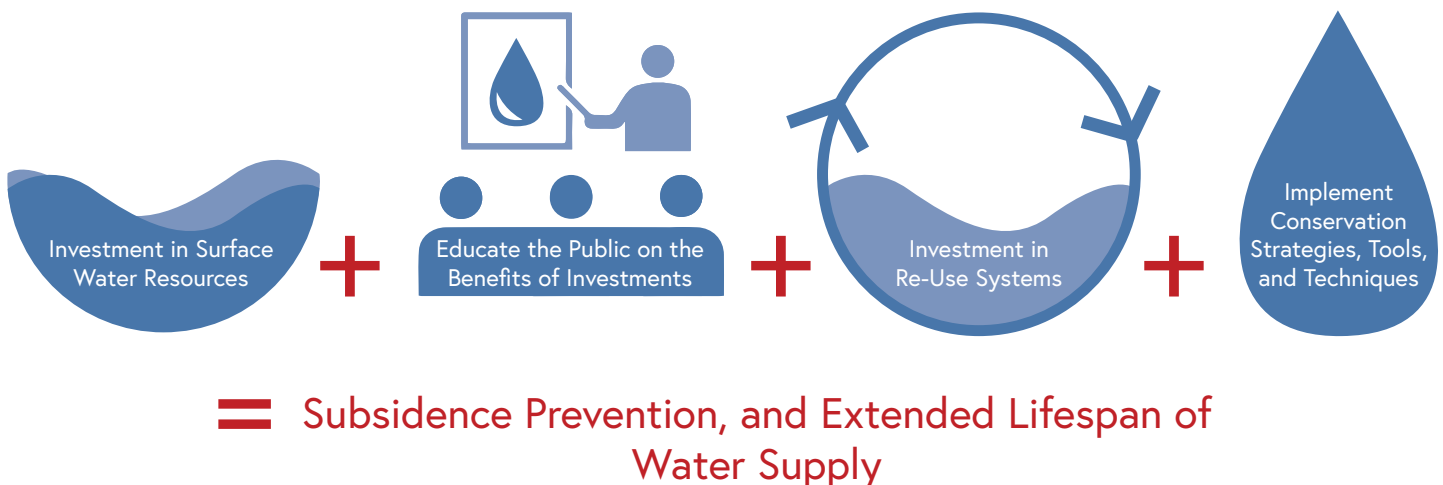
Aging Infrastructure. The useful life of many of the wastewater facilities within MUDs is generally between 40 and 50 years. Temporary treatment facilities may have useful lives closer to 25 years. Established municipalities and MUDs will need to invest in rehabilitation or replacement of aging facilities.

CMOM Programs. Utility operators should keep their governing entities well informed of facility capacity limitations and anticipated costs of increasing capacity. Preparing Capacity, Management, Operations, and Maintenance (CMOM) Programs in the fashion recommended by the Environmental Protection Agency is especially helpful for municipalities and MUDs with aging infrastructure. Utility providers with newer facilities should organize records so that implementing a CMOM program is much less burdensome.

POLICY

Inconsistent Regulation. With each new Presidential administration the Environmental Protection Agency (EPA) seems to substantially change its water quality enforcement and permitting policy. State and local regulators can also complicate the regulatory environment in ways that do not always lead to optimal outcomes.

Consistent Standards. Consistent, fair standards are important for stable, sustainable development. Providing some flexibility for local variation is important to address differences between regions and communities.



-Focus-



FLOOD CONTROL & DRAINAGE

-Issue-

-The Houston region is flat, near the coast, and has clay soils, which create substantial yet manageable flood risks.

-Storms have inflicted billions in flood damages, including over \$230 billion between 2001 and 2017.

-Current infrastructure and flood control funding for flood control will not adequately address intense rainfall events.

-Goal-

-Invest \$2.0 billion per year regionally and \$500 million per year in the WHA service area from Federal, State, County and City sources.

-Create a regional master drainage plan to provide a level of service that will safely convey 14 inches of rainfall runoff in a 24 hour period.

-Enhance the environment using green infrastructure corridors and natural channel design.

FUNDING

Local Funding Shortages. Between 2001 and 2015 Harris County reduced the increment levied on homeowners for flood control from \$0.08 per \$100 of assessed value to \$0.02829. Homeowners in Harris County with a property value of \$250,000 (with an exemption of \$100,000) currently pay \$3.50 per month for flood control—less than the cost of a large coffee. Harris County is currently authorized to assess up to \$0.30, or roughly ten times the current rate, for flood control. City of Houston voters approved Rebuild Houston in 2010, which created a dedicated funding source for street and drainage improvements. The pay-as-you-go fund will provide \$20B in funding through the year 2040 for projects that benefit the City's service area, but only if it is reapproved by City of Houston voters.

Local Funding Solutions. WHA supports Harris County's efforts to address these issues through a bond election scheduled for August 25, 2018 to obtain provide \$2.5 billion. Approximately \$900 million of the \$2.5 billion is intended to complete ongoing projects on Brays, White Oak, and Hunting Bayous and on Clear Creek as well as approximately 270 other projects. Remaining funds will go towards other projects identified by HCFCD, such as buyouts, linear detention, and potentially a third reservoir. Assuming a 3 percent growth rate and rapid issuance of funds, the bond will increase property taxes by no more than \$0.04 cents per \$100 of assessed value.

Harris County will require approximately \$35 billion to increase capacity so all 23 of its major channels can convey 12 inches of rainfall in a 24-hour period. Some of these funds will be provided through federal funding from the Bipartisan Budget Act of 2018. The Act provided \$89.4 billion for resiliency related projects, in Texas, Florida, Puerto Rico, and 19 other states and territories. Local drainage inadequacies (storm sewers, roadside ditches, and sheet flow) require an additional \$10 billion to \$15 billion in capital investment through 2060.

State Funding. HCFCD and other local jurisdictions currently leverage state and federal funding programs for drainage infrastructure. The State of Texas should expand programs run by the Texas Water Development Board to provide more funding options for drainage and flood control projects more like those available for water supply projects. This would allow jurisdictions with dedicated funding sources to draw on state funds, build projects and save lives sooner, as well as avoid wasting tax dollars on interest payments. Federal programs should accelerate flood control project studies, funding, and approvals. Such a move would likely save lives, private property, and hundreds of billions of dollars in federal tax dollars.

Federal Funding. In 2018, the Federal Government allocated approximately \$89.4 billion (as part of the Bipartisan Budget Act of 2018), some of which can be used to buy out flooded homes and improve infrastructure in regions damaged by the three major storms in 2017. The Federal Government is likely to allocate additional funds through the Water Resources Development Act after the U.S. Army Corps of Engineers (the "Corps") completes studies. Local and state leaders must work diligently with local Congressional Representatives and the Corps' local staff to secure these federal funds to address local and regional needs.

COSTS

Harris County requires \$35 billion to increase conveyance and detention.

Local Drainage inadequacies require an additional \$6 billion.

Houston Stronger Flood Protection Plan project costs total \$57.97 billion.

FUNDING

-Local-

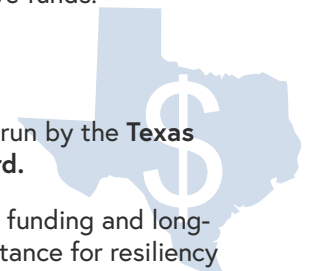
- Rebuild Houston, a cash-only, pay-as-you-go model, will provide **\$20 billion** for street and drainage repairs and improvements.
- Harris County Bond Election **\$2.5 billion**, **\$900 million** of which in addition to federal grants will go to complete Brays, White Oak, Hunting Bayous, Clear Creek, and other projects, **\$736.5 million** buyouts, **\$100.4 million** for repairs, **\$0.12 billion** new projects, and **\$500 million** in reserve funds.

-State-

- Expand funding programs run by the **Texas Water Development Board**.
- Provide **\$1 billion** in initial funding and long-term dedicated fund assistance for resiliency projects.

-Federal-

- Bipartisan Budget Act of 2018 allocated **\$89.4 billion** across the country.
- Additional funds to be allocated through the **Water Resources Development Act, State Revolving Fund**, and other federal sources.



DRAINAGE CORRIDORS

Blocked Drainage Corridors. Prior to 1984, Harris County did not have detailed flood maps or regulations that prohibited development in the floodplain or preserved drainage corridors. Consequently, a number of communities built between the 1950s and early 1980s did not preserve drainage corridors. These communities have flooded, and remain vulnerable to flooding.

Acquire Corridors. Our local government entities should proactively and strategically acquire land in developed areas for future drainage corridors and retention areas. Jurisdictions should prioritize acquisition of (a) overburdened corridors that include large numbers of homes that qualify for voluntary buyout programs, and (b) undeveloped corridors in watersheds where development is projected. Developers should construct drainage facilities necessary to serve the needs of their development and dedicate land necessary for future growth. All jurisdictions should require a minimum corridor width of 150-feet, which will provide for future outfall depth, eliminate the need for shallow pumped detention solutions, and put in place the road map for smart growth in the region. Creating these corridors provides a platform on which a variety of tools and techniques can bring about robust flood protection, connectivity, mobility during severe storms, environmental stewardship, and greater quality of life.

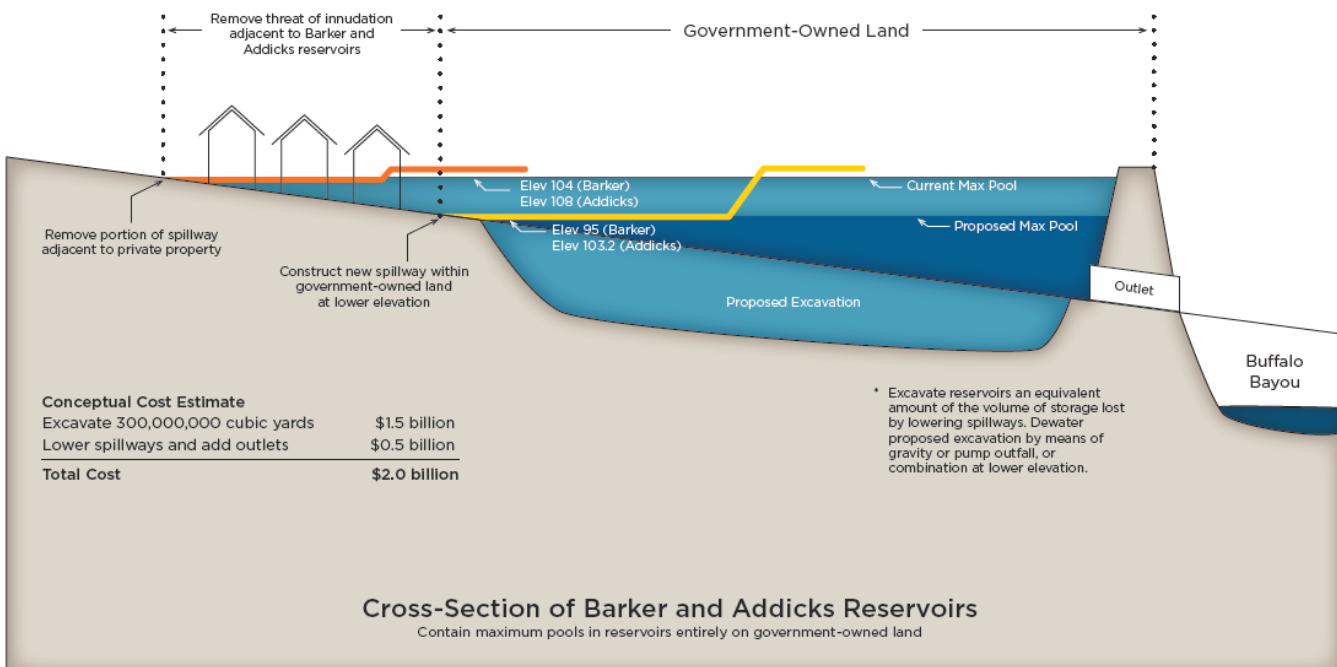
FLOOD CONTROL PLANNING

Incomplete Planning. Floodwaters know no political boundaries. Regional flood mitigation planning is critical. Major thoroughfare plans have improved regional mobility coordination and preserved transportation corridors. The Houston Galveston Area Council coordinates policy and project funding for issues like transportation, water quality, and air quality. While flood control coordination has improved recently, no comprehensive regional coordination for flood control exists.

"Drainage Thoroughfare Plan." County and City leaders should apply transportation planning lessons to drainage and flood control. A regional drainage plan similar to the City of Houston Major Thoroughfare Plan would prevent loss of critical rights-of-way and guide floodwaters and quality growth to benefit all in and between Greater West Houston and Galveston Bay. The plan should also be modeled to benefit the greatest number of people, with robust elements of flood damage reduction, improved mobility, and emergency response. Flood control projects should create connected corridors, multi-use greenspace, trails, and public facilities. The plan should prioritize projects based on modeled risk reduction and benefit to the largest affected populations across the region. Publishing and updating this "Drainage Thoroughfare Plan" should guide improvements and development activity so that the region "fits together" in a comprehensive way. For major investments, such as the contemplated Cypress Creek Reservoir, leaders must establish regional partnerships for flood control that work to coordinate funding and inform the public.



A Flood Protection Plan for Harris and Surrounding Counties






A Flood Protection Plan for Harris and Surrounding Counties




FLOOD PROTECTION PLAN COSTS

Harris County

A. Finish USACE 1940 Plan

	1. Construct third reservoir	\$ 0.50 B
	2. Restore/add Addicks storage capacity	\$ 1.25 B
	3. Restore/add Barker storage capacity	\$ 1.25 B

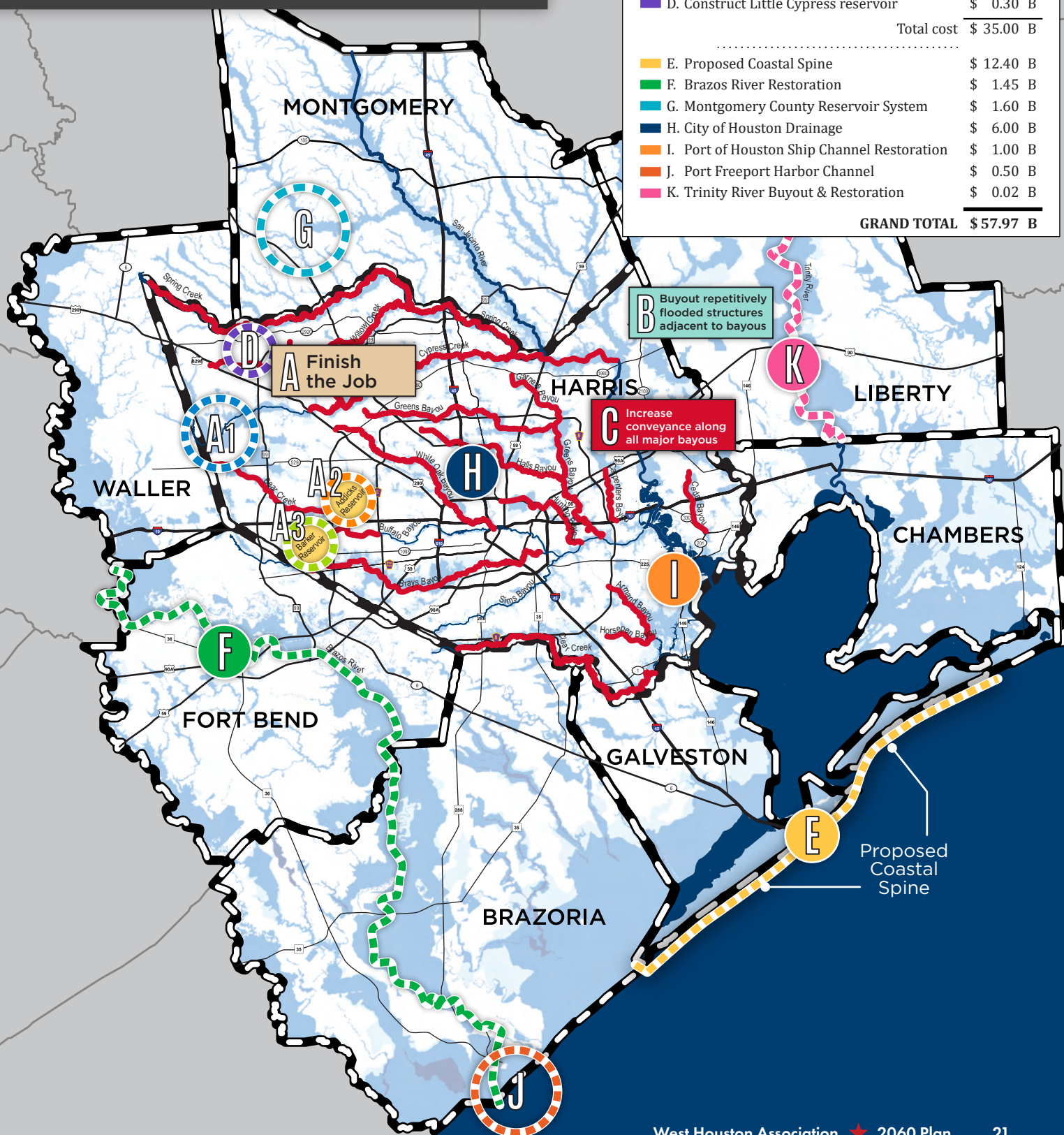
Subtotal \$ 3.00 B

	B. Strategic buyout for conveyance	\$ 8.50 B
	C. Increase bayou conveyance	\$ 23.20 B
	D. Construct Little Cypress reservoir	\$ 0.30 B

Total cost \$ 35.00 B

	E. Proposed Coastal Spine	\$ 12.40 B
	F. Brazos River Restoration	\$ 1.45 B
	G. Montgomery County Reservoir System	\$ 1.60 B
	H. City of Houston Drainage	\$ 6.00 B
	I. Port of Houston Ship Channel Restoration	\$ 1.00 B
	J. Port Freeport Harbor Channel	\$ 0.50 B
	K. Trinity River Buyout & Restoration	\$ 0.02 B

GRAND TOTAL \$ 57.97 B





EDUCATION

-Issue-

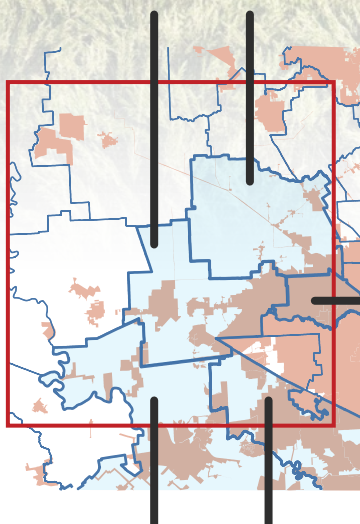
Greater West Houston must continue to create and maintain high-quality educational infrastructure and programs ("Pipelines") to provide an educated workforce needed to maintain and grow the local economy. The area must also address how to sustain and expand educational quality in our region to ensure that families desire to live in West Houston ("Rooftops"). Most families in Greater West Houston have access to quality primary education, yet four-year college degrees appear increasingly unaffordable and unattainable. Greater West Houston has 15 school districts and multiple higher education providers within its boundaries. Many of these school districts — Katy ISD (72,725 students), CyFair ISD (113,656 students), Spring Branch ISD (35,246 students), Ft. Bend ISD (72,910 students) and Lamar Consolidated ISD (29,631 students) — provide quality education in K-12.

-Goal-

These school districts and others must maintain very high standards to continue to drive residential and job growth in Greater West Houston. Greater West Houston should maintain and extend its educational advantage. Its primary and secondary educational institutions should compete on a national and international stage.

Katy ISD
72,725 students

CyFair ISD
113,656 students



Spring Branch ISD
35,246 students

Lamar CISD
29,631 students

Ft. Bend ISD
72,910 students

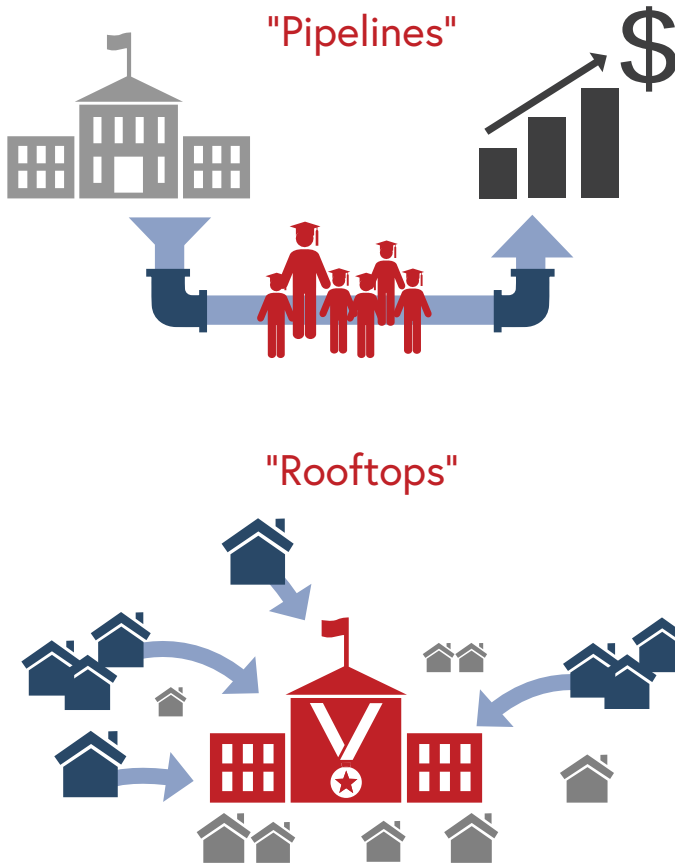
Challenges & Opportunities

INFRASTRUCTURE

Costs & Quality. Amid state budget challenges, educational institutions at all levels struggle to adapt to shifting budgets and curriculum demands. The quality of primary and secondary education available in West Houston varies widely. Struggling school districts not only limit educational opportunities for families but also limit opportunities to develop high-quality housing and the broader economy.

Investment for the Future. Improving these "Pipelines" and "Rooftops" initiatives are among the best ways to promote Quality Growth. Few public investments provide greater returns for the community as high-quality educational infrastructure. New educational infrastructure must be built to serve Greater West Houston's future growth. The chance to create iconic,

-Initiatives-



focused campuses that are connected to the community will make a lasting, positive impact on our region. Schools built within Master Planned Communities (MPCs) provide exceptional settings and connectivity, and schools outside of MPCs must be built or improved to match. Public support of primary and secondary education is essential to maintaining nationally and internationally competitive educational programs. The University of Houston—Katy Campus and the Houston Community College (HCC) West Houston Institute will provide local, high quality Pipelines, focusing on skills that are sure to contribute to the success of Greater West Houston and the global economy.

PROGRAMS

Left Behind. School districts that are struggling are often those that have inadequate tax bases. These districts lack financial resources to build new schools, to maintain existing schools and programs, and to compete for teachers and new technology. Greater West Houston must encourage and promote growth within these school districts to improve their competitiveness while maintaining the other districts' generally high standards.

Collaboration. School districts should expand dual credit programs and articulation agreements. Early college high schools, like the partnership between Alief ISD and HCC, provide exceptional educational opportunities that accelerate learning and help improve communities' expectations of educational excellence. The Houston GPS Program coordinates curriculum so students at seven local community colleges can transfer seamlessly to five local universities, which will put opportunity in reach. Partnerships like those between HCC and the University of Houston allow local graduates to obtain high-quality degrees in fields such as engineering for as little as \$20,000. High-quality secondary education will require support from industry and the community. In terms of support, infrastructure, and curriculum, the private sector and community should play an increased role in education in Greater West Houston.

COLLABORATION

Changing Demands. The skills that employers and customers are seeking are rapidly changing and education must quickly evolve to meet those needs. Career readiness and the means and methods used to educate students are changing—learning can occur anywhere and some students, schools, and employers are missing opportunities to try new approaches. Educators and employers are often cautious in adopting new technologies and methodologies that will be critical to ensure that students are ready to work and workers are ready for the future.

Sharing Information & Space. WHA is helping educators and employers work together to improve educational and career programs to provide students and employees with deep knowledge and the ability to continue learning. The best employers are seeking to attract and retain employees who are highly productive, creative, entrepreneurial, and motivated. Working with established educational providers can help these employers identify, motivate, and prepare new and existing employees. Re-educating good employees is often much more efficient for companies than trying to find new ones.

Thinking Ahead. The best education providers are thinking like the best healthcare providers and planning for Greater West Houston's growing population. They are also looking for ways to collaborate, including sharing facilities. HCC's West Houston Institute, which is collaborating with Apple on a coding academy and a maker space, will help develop a future IT and manufacturing workforce. Lone Star College's Westway Park Technology Center supports programs for visual communications, cybersecurity, a CISCO Networking Academy, and other programming and information technology offerings. Facilities must also remain adaptable—the space must accommodate future demands while keeping an inviting aesthetic.



PARKS & OPEN SPACE

-Issue-

Greater West Houston is anticipated to reach a population of 3.26 million by 2060. As a result, the demand for parks and open space will be greater than ever before. However, parks and open spaces are often an afterthought in terms of planning, coordination, and funding which could lead to a failure to meet the anticipated need created by the imminent growth.

-Goal-

Research shows that quality parks and open space improve the quality of life for citizens and increase surrounding land values. In order for Greater West Houston to remain competitive and meet the demands of population growth we must ensure that we provide a comprehensive park and open space system that will meet the needs of the community for future generations while creating sustainable benefits in terms of connectivity, mobility, drainage and quality of life.

Challenges & Opportunities

CONNECTIONS

Isolated Spaces. While Greater West Houston currently enjoys many great parks and open spaces, it is critical that we continue to provide meaningful, high-quality facilities to keep up with anticipated population growth. Many of the existing facilities are isolated from other parks as well as residential areas, schools, community facilities, and commercial areas where citizens spend the majority of their time.

Greater West Houston is home to the City of Houston's largest park (Cullen Park) and Harris County's largest park (George Bush Park) in addition to hundreds of other park spaces including the more than 20,000 acres of land preserved by the Katy Prairie Conservancy. Unfortunately, many of the region's parks are isolated or are only connected via roads to neighborhoods, schools, retail spaces, transit stops or other parks and open spaces. The lack of green corridors connecting the various destinations of our everyday lives increases the demand on vehicles and roadways.

Connecting the Dots. We must identify opportunities to connect areas in order to create a more cohesive park and open space system throughout the region. Providing a relevant network of parks and trails throughout Greater West Houston will promote quality sustainable growth and significantly benefit the people, environment, and economics of the region.

The system of creeks and bayous throughout the region provides the best opportunity to connect many of the existing facilities. Efforts like Harris County Flood Control District's Frontier Program and the Energy Corridor and National Parks Service's West Houston Trails Master Plan will greatly improve connectivity to Greater West Houston's signature spaces. Additional corridors along drainageways should be identified and programmed accordingly to create a regional greenway system. However, because our drainageways typically run west to east, pipeline and utility easements should also be considered as a means to provide north/south connectivity.





COORDINATION

Adequate Funding. One of the greatest challenges every community faces with respect to parks and open space facilities is funding. Having adequate funding to construct and maintain these facilities is critical. Greater West Houston is fortunate to have a variety of sponsors including municipalities, counties, utility districts, management districts, land conservancies, private organizations, and federal and state grants all of whom contribute to the creation and maintenance of parks and open space resources in the area. However, having multiple entities focused on different objectives can lead to missed opportunities due to a lack of coordination among the various groups.

Funding & Various Engaged Entities. Cities, counties, special districts, and elected officials must engage with communities, non-profits, property-owners, developers and the business community as a whole to coordinate funding as well as connectivity. Thoughtful coordination is necessary to connect the open spaces across Greater West Houston and to help avoid overlooking underserved areas and duplicating efforts. Improved coordination and attention to connectivity will result in a more cohesive parks and open space system and higher quality of parks throughout the region. Such coordination should pay particular attention to connecting schools and retail to neighborhoods, connecting underserved neighborhoods, and preserving natural resources. The use of public-private partnerships can leverage traditional public infrastructure projects to include natural and recreational amenities that enhance project benefits. Projects like Conrad Sauer Detention Basin, Rick Rice Park, the Mischer-Kickerillo Preserve, and the Westchase CenterPoint Trail illustrate how parties can combine land uses to incorporate parks and trails that enhance the community. The ability to provide a unified system is critical to the region's continued success.

MEETING THE DEMAND

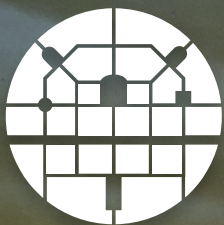
Population Growth. As the region continues to grow, it is important that park and open space resources keep pace with the increase in population. The National Recreation and Park Association (NRPA) has established metrics to assist with the effective planning and management of park and open space areas. These standards should be used as a guideline to identify best practices for the development of parks and open spaces and ensure that the needs of the community are being met.

Opportunities. Greater West Houston has demonstrated a tradition of quality growth. The region is well prepared to meet the task of providing quality outdoor recreation facilities as well as promoting alternative transportation avenues via a cohesive linked parks and open space system. Enhancing recreation, conservation, and active transportation within the region can have a positive impact on the public health and environment of Greater West Houston. Natural spaces have a beneficial influence on cognitive development of children and can be a place for adults to become active and mentally recharge from the demands of everyday life.

Natural areas should be preserved where appropriate and utilized as natural habitats for plants and animals allowing them to thrive for future generations. The risk of flooding can be minimized, and in some instances prevented, by limiting development along natural drainage corridors and floodplains by utilizing the corridors as detention areas during storm events. Tracts of medium to large open spaces can potentially help to reduce CO₂ and heat island effects as well as pollution from increased development. On smaller tracts of land Low Impact Development (LID) strategies can be incorporated to provide enhanced stormwater management and treatment through a network of vegetative landscapes located on site.

Economics. People often enjoy seeking the refuge of natural open spaces as a retreat from the City. Making it a priority to plan parks and open spaces that are thoughtfully incorporated into future development will increase the appeal of the land adjacent to the parks and open spaces and therefore increase the value of the area. The value of land adjacent to parks is perceived to be of higher value than land located farther distances away. Many large corporations across the U.S. have begun integrating open green spaces into their campus designs. Studies have shown that providing such outdoor spaces increases the appeal to potential employees as well as the productivity of employees.

By providing parks and open spaces in terms of not only traditional parks but also green corridors that connect destinations, Greater West Houston will attract new residential developments and businesses with commercial development following closely behind, all of which will result in a positive impact on the economy of the region.



QUALITY PLANNED DEVELOPMENT

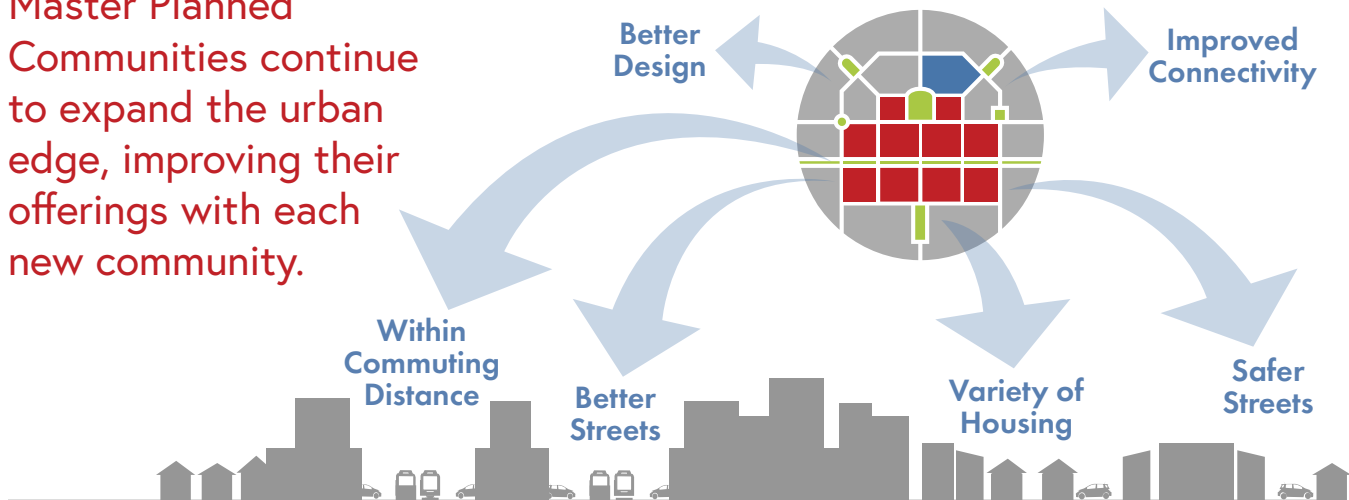
-Issue-

In order to maintain its development pace, Greater West Houston has employed the full toolbox of options. Regional centers are developing with increasing density. Master Planned Communities (MPCs) continue to expand the urban edge, improving their offerings with each new community. Efficient highways and major roads that provide reliable, safe connections from these MPCs and communities to regional centers have been a key to growth in Greater West Houston. Special Districts have been a key part of development and redevelopment across the region.

-Goal-

Both the public and private sectors should become more cooperative, creative, and adaptable, working to ensure that the built environment improves its appeal, value, and resiliency.

Master Planned Communities continue to expand the urban edge, improving their offerings with each new community.



SAFETY

Mobility & Safety. Our region's future development foot print will be heavily influenced by the speed, reliability, and safety of our transportation system. People will typically commute no more than approximately 30 minutes one way and will not travel to areas that are reputedly unsafe. As discussed in the Transportation and Parks & Open Space Focus Areas, with increased growth Greater West Houston's mobility and open space advantages will face formidable challenges.

Connected, Safe Spaces. Creating safe, connected, inviting spaces is key for families and businesses. Within MPCs and management districts, walkability and connectivity are increasingly important. Work by Greater West Houston's cities and counties and organizations like Transportation Advocacy Group (TAG)—Houston and Houston Parks Board to create connected, safe public spaces has improved the urban environment and land values.

Special Districts. Most special districts are accountable to cities, counties, state agencies, and local property owners. These districts derive income from increasing value within their boundaries, making them ideal for balancing varied interests. From better streets to safer streets, special districts generally bring better design, maintenance, operations, and services to the areas that they represent. Virtually all management districts and Municipal Utility Districts (MUDs) (often with homeowners' associations) provide additional security within their boundaries. MUDs are building amenities like Rick Rice Park that help improve connectivity and increase property values. Management districts, like the Energy Corridor District are developing ambitious transportation plans that will keep these districts within commuting distance of millions of people in the region.

HOUSING

Affordability. Despite being one of the most dynamic housing markets in the United States, Houston is still one of the most affordable. Even so, the median price of homes in the Houston

area doubled between 2000 and 2015. This increase is partially due to high demand, but other factors are increasing prices. The price of land, concrete, labor, and other components will continue to increase. Overly stringent design standards and unproductive complications associated with permitting and project review add avoidable time and costs to projects that ultimately increase the cost of housing.

Density. Increasingly, consumers are looking inside both MPCs and cities for a variety of housing products. Smaller lot sizes and smaller homes are increasingly popular, and condominiums can provide another value proposition in the market. Cities and counties should work with developers to permit reasonable high density residential options.

Efficient Permitting & Building. Some public and private institutions are applying new process improvement approaches to permitting and project delivery. These approaches and associated technological applications can greatly reduce time and costs, which benefit all parties involved, including taxpayers and homebuyers. For example, CenterPoint Energy is implementing an online "iTrack" system that allows parties to see project schedules, documents, and activities for electricity delivery, which has improved completion times and reduced costs.

LAND AVAILABILITY

Land Assemblage. Over the next forty years finding the land, funding, and mobility improvements to build high-quality, large-scale development in Greater West Houston will be difficult. To accommodate another 1.75 million residents, the public and private sector face challenges that are more complicated than forty years earlier.

Redevelopment. Older sites in Greater West Houston provide attractive redevelopment opportunities. Some sites require mitigation. Brownfield redevelopment programs, like the one administered by the City of Houston, incentivize mitigation and redevelopment, which benefits both the public and private sectors.



SUSTAINABLE INFRASTRUCTURE

-Issue-

Prior development in our area used traditional approaches to design and implement infrastructure that was functional and relevant, improving the quality of life in West Houston. Population growth, increasing resource constraints, aging and failing infrastructure, and environmental and climatic changes pose new challenges for the Greater West Houston region. Infrastructure designers and owners must now innovate to construct projects that provide better economic, social, and environmental outcomes.

-Goal-

The traditional infrastructure development paradigm will shift as planners, designers, and project sponsors partner with elected officials and other policy-makers to create and implement new policies and strategies to promote a network of sustainable, resilient infrastructure in the region.

Challenges & Opportunities

PROJECT SPONSORS

Low Risk Tolerance. Project sponsors generally seek a low level of risk and only occasionally try new planning and design approaches.

Public Education & Outreach. Organizations, like WHA should work with project sponsors on sustainable planning and design approaches. Programming and awards that celebrate and recognize early success will increase knowledge and the region's willingness to try new things.

INFRASTRUCTURE

Aging Infrastructure. Many existing public and private infrastructure projects are nearing the end of, or in many cases, have exceeded, their design lives impairing the levels of service, quality of life, and economic performance of the region.

Asset Management & Life Cycle Considerations. Project owners must quickly adopt asset management programs that facilitate preventative and predictive maintenance and rehabilitation that extend the life of existing infrastructure. Going forward, public and private project owners should build more adaptable, resilient, and sustainable infrastructure, which lasts longer and performs better throughout its life cycle.



CONSERVATION

Finite Resources. There are finite fundamental resources, such as water, energy, and land. Across the United States, the price of water is rising faster than any other commodity. Contiguous greenfield development is becoming costlier in Greater West Houston.

Conservation & Reuse. Conservation, innovation, and thoughtful design must be built into developments throughout our region. Redeveloping brownfields and buildings at the end of their useful life will be a critical and potentially lucrative strategy in coping with demand for residential and commercial development in Greater West Houston. Innovative design and use (and re-use) of materials can reduce costs and harm to the environment, making conservation business as usual.

COSTS

Funding / Investment Constraints. Current approaches to funding infrastructure are practiced with limited initial capital cost, delayed maintenance, and costly replacements.

Triple-Bottom Line. Putting more thought into infrastructure procurement may increase initial costs but provide considerable saving and returns over life-cycles. Project sponsors, especially in the public sector, should evaluate projects using a present value analysis over the entire project lifespan. Project decisions should consider internal and external social, economic, and environmental costs and benefits (the Triple Bottom Line).

REGULATIONS

Regulatory & Design Constraints. Prescriptive requirements often frustrate planning, design creativity, project delivery, and taxable values. Some current legal and regulatory mandates constrain and prohibit sustainable infrastructure. An example is natural drainage stormwater improvements, which face difficulty obtaining bond reimbursement approval from the TCEQ because of unclear language in the Texas Water Code. Another example is the City of Houston's stormwater fee, which is determined using solely impermeable cover as opposed to post-development run-off volumes.

Improve Standards & Policy. Permitting authorities should use continuous improvement to update and enhance codes and standards that allow for reasonable flexibility and innovation. Correctly implemented, performance-based standards instead of prescriptive regulations lead to improved project delivery, life-cycles, perceptions of regulators, and tax revenue. The Texas Water Code should be clearer. The City of Houston could impose a detention requirement using a more nuanced approach that considers the pre- and post-development runoff flows and volumes. This would serve to encourage the use of natural drainage systems.

-Planning for 2060-

As West Houston anticipates significant population growth in the near- and long-term, the 2060 Plan will serve as a living document that prepares the regional community for future development, redevelopment, and enhancement within an area of approximately 1,000 square miles.

The objectives of the planning process and prepared 2060 Plan include:

- unifying the region's vision and associated goals regarding the character of future growth;
- strengthening partnerships, communication channels, and sense of unified direction across public, non-profit, and private community stakeholders;
- enabling widespread citizen involvement in identifying and prioritizing leading community issues, challenges, and opportunities;
- guiding regulatory strategies to ensure community values and desired outcomes are managed and promoted; and
- providing greater predictability for residents, land owners, developers, and potential investors.

"We believe each resident and employee should be afforded the highest possible quality of life and work experience."

West Houston Association



westhouston.org | westhouston2060.org