

2018

# HOUSTON FACTS

GREATER HOUSTON PARTNERSHIP



DISCOVER THE  
HOUSTON REGION

The facts speak for themselves.

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# HOUSTON FACTS

## About the Greater Houston Partnership

The mission of the Greater Houston Partnership is to make Houston one of the world's best places to live, work and build a business. The Partnership works to make Houston greater by promoting economic development, foreign trade and investment, and by advocating for efficient and effective government that supports, rather than impedes, business growth. The Partnership also convenes key stakeholders to solve the region's most pressing issues.

The Partnership was formed in 1989 in a merger of the Greater Houston Chamber of Commerce, the Houston Economic Development Council and the Houston World Trade Association. Today, the Partnership serves the 11-county greater Houston region and represents a member roster of more than 1,000 businesses and institutions. Members of the Partnership account for one-fifth of all jobs in Houston. They engage in various initiatives, committees and task forces to work toward our goal of making Houston greater.



GREATER HOUSTON  
**PARTNERSHIP**®

Making Houston Greater.

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Houston Facts 2018 was compiled by the research team of the Greater Houston Partnership, including Patrick Jankowski, Roel Gabe Martinez, Josh Pherigo, Jenny Philip, Nadia Valliani and Melissa Verhoef with assistance from our interns, Sara Moran and Annabel Sweeney. This publication was designed by Marc Keosayan and Suzanne Morgan.

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# INTRODUCTION

## THE HOUSTON REGION: THE FACTS SPEAK FOR THEMSELVES

### HOUSTON FACTS.

THE TITLE SAYS MUCH ABOUT THIS PUBLICATION. NO SPIN. NO FRILLS. NO HYPERBOLE. JUST PAGE AFTER PAGE OF STRAIGHTFORWARD INFORMATION FROM HUNDREDS OF SOURCES TO ANSWER QUESTIONS FREQUENTLY ASKED ABOUT THE HOUSTON REGION.



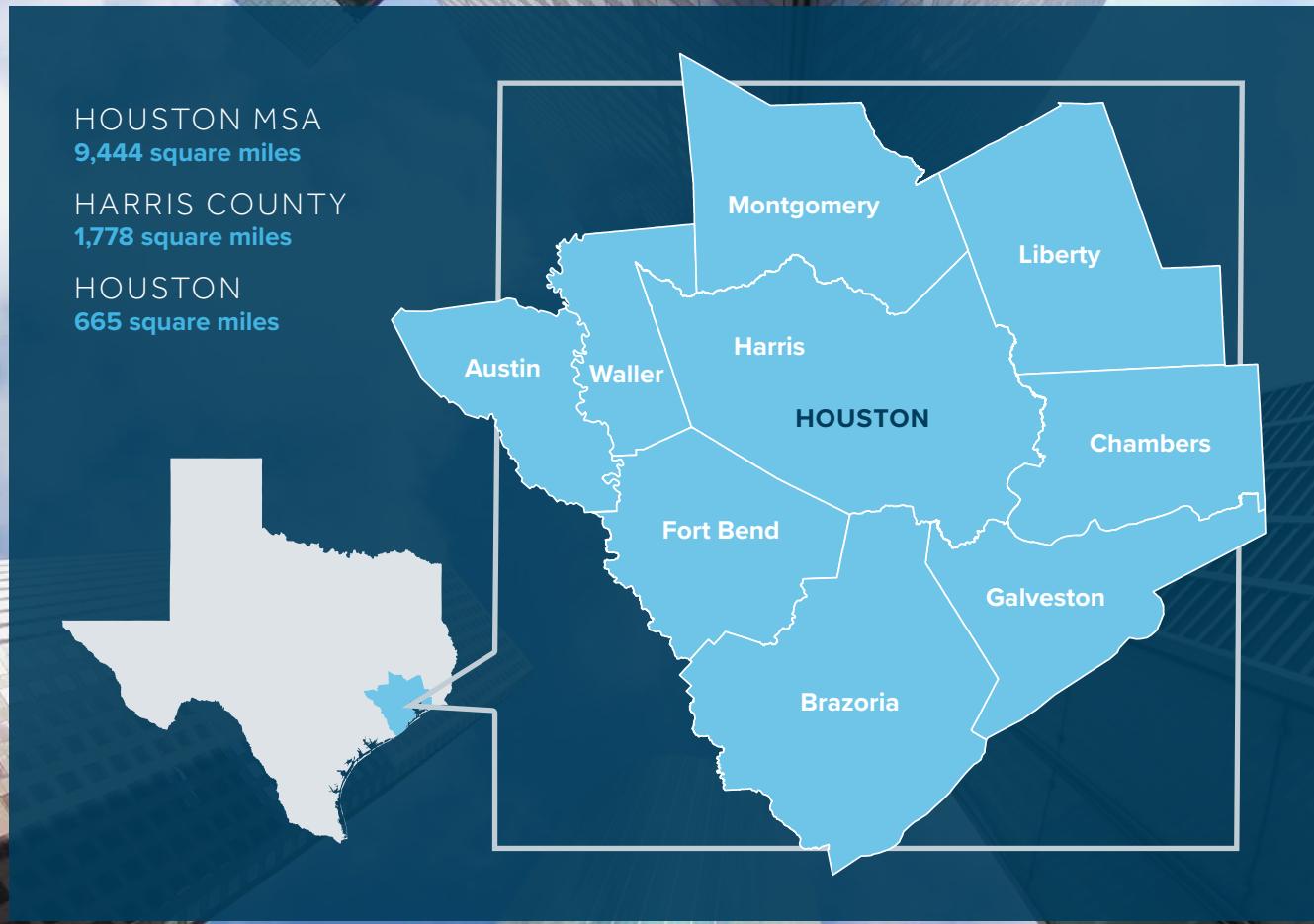
Houston Facts has presented unvarnished information about the Houston region since 1959, and its predecessor publications—under different names, but with the same objective—date to 1906. Over the decades, Houston Facts has grown well beyond its original four pages so that we could expand the range and depth of coverage, bringing you more information about parks, museums, schools, living costs, the regional economy and a host of other topics. It has evolved into a concise almanac for the Houston region. Corporate planners, market analysts, students, relocation and site selection consultants, real estate professionals, government agencies and myriad others turn to it for authoritative information on this region.

Of course, we believe the Houston region is one of the nation's most attractive major metropolitan areas—an outstanding place to live, work and build a business. We would like you to share that view. But we won't try to persuade you. The facts need no embellishment. They speak for themselves.

You may find in these pages facts that you never knew about the Houston region. For example:

- **More than 1.5 million Houstonians, or roughly one in four, were born outside the U.S.**
- **If Houston were a country, it would rank as the 24th largest economy in the world—exceeding Poland's and Belgium's Gross Domestic Product.**
- **Metro Houston has the third largest number of Fortune 1000 companies in the nation.**
- **More than 500 institutions are devoted to the performing and visual arts, science and history in the Houston area.**

# GEOGRAPHY



The Houston-The Woodlands-Sugar Land Metropolitan Statistical Area (MSA) contains nine Texas counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller.<sup>1</sup> Within these nine counties are 124 incorporated cities.

The county seat, or administrative center, of Harris County is the City of Houston. Harris County contains the bulk of the city in addition to all or part of 34 incorporated cities. Small portions of Houston spread into adjacent Montgomery and Fort Bend counties, which encompass The Woodlands and Sugar Land, respectively.

<sup>1</sup> The longer title is shortened to “Houston MSA,” “metro Houston,” “Greater Houston,” “Houston area” or simply “Houston” in Houston Facts. MSAs are geographic delineations defined by the Office of Management and Budget (OMB) for use by federal statistical agencies in collecting, tabulating and publishing data.

# REGION IN PERSPECTIVE

## AREA

The nine-county **Houston-The Woodlands-Sugar Land Metropolitan Statistical Area (MSA)** covers 9,444 square miles, an area larger than five states, including New Hampshire, New Jersey, Connecticut, Delaware and Rhode Island.

**Harris County** covers 1,778 square miles, enough space to fit the cities of Austin, Boston, Chicago, Dallas, New York and Seattle with room still to spare.

At 665 square miles, the **City of Houston** is larger than the cities of Chicago, Dallas, Los Angeles, New York, Phoenix and San Diego.



## POPULATION

The nine-county **Houston MSA** had a population of 6,892,427 residents as of July 1, 2017, according to estimates by the U.S. Census Bureau. If metro Houston were a state, it would have the 15th largest population in the U.S., behind Arizona (7,016,270) and ahead of Massachusetts (6,859,819) and Tennessee (6,715,984).

**Harris County** had a population of 4,652,980 residents as of July 1, 2017, according to estimates by the U.S. Census Bureau. If Harris County were a state, it would have the 26th largest population in the U.S., behind Louisiana (4,684,333) and ahead of Kentucky (4,454,189) and Oregon (4,142,776).

The **City of Houston** had a population of 2,312,717 residents as of July 1, 2017, according to estimates by the U.S. Census Bureau. If the city were a state, it would rank 36th in population in the U.S., behind Kansas (2,913,123) and ahead of New Mexico (2,088,070) and Nebraska (1,920,076).

## ECONOMY

The U.S. Bureau of Economic Analysis estimates the Houston MSA's Gross Domestic Product (GDP) at \$478.6 billion in '16, making it the sixth largest U.S. metro economy. If Houston were a state, its GDP would rank 14th, behind Michigan (\$486.9 billion) and ahead of Washington (\$476.9 billion) and Maryland (\$380.8 billion).

If the MSA were an independent nation, it would rank as the world's 24th largest economy, behind Sweden (\$514.5 billion) and ahead of Poland (\$471.2 billion) and Belgium (\$468.1 billion), according to the International Monetary Fund.

### Selected Key Economic Indicators for '17

- **The Houston Association of Realtors Multiple Listing Service recorded closings on 94,705 properties (includes single-family homes, townhomes, condos, high rises, etc.), an average of one every 5.6 minutes.**
- **Houston MSA automobile dealers sold 290,354 new cars, trucks and SUVs, an average of one every 1.8 minutes.**
- **The Houston Airport System handled 54,168,938 passengers, an average of 103 passengers per minute.**
- **The City of Houston issued building permits for construction valued at \$6.1 billion, an average of \$193 per second.**

# DEMOGRAPHICS

## DECENNIAL CENSUS AND INTERCENSAL POPULATION

Year	Metro Houston	Harris County	City of Houston
2017	<b>6,892,427</b>	4,652,980	2,312,717
2010	<b>5,920,416</b>	4,092,459	2,099,451
2000	<b>4,693,161</b>	3,400,578	1,953,631
1990	<b>3,750,411</b>	2,818,199	1,630,553
1980	<b>3,135,806</b>	2,409,544	1,595,138
1970	<b>2,195,146</b>	1,741,912	1,233,505
1960	<b>1,594,894</b>	1,243,158	938,219
1950	<b>1,083,100</b>	806,701	596,163
1940	<b>752,937</b>	528,961	384,514
1930	<b>545,547</b>	359,328	292,352
1920	<b>348,661</b>	186,667	138,276
1910	<b>252,066</b>	115,693	78,800
1900	<b>202,438</b>	63,786	44,633
1890	<b>137,800</b>	37,249	27,557
1880	<b>112,053</b>	27,985	16,513
1870	<b>80,866</b>	17,375	9,332
1860	<b>55,317</b>	9,070	4,845
1850	<b>27,984</b>	4,668	2,396

Source: U.S. Census Bureau, Texas Almanac

## POPULATION AND PEOPLE

The **Houston-The Woodlands-Sugar Land MSA**'s population of 6,892,427 residents on July 1, 2017 ranks fifth among the nation's metropolitan areas. The Houston MSA had the second largest numeric increase (94,417) in population of any U.S. metro from July 1, 2016 to July 1, 2017, reflecting 1.4 percent growth.

**Harris County**, population of 4,652,980 on July 1, 2017, is the third most populous county in the nation. Among all U.S. counties, Harris County had the fourth highest numeric population increase between July 1, 2016 and July 1, 2017, gaining 35,939 new residents. The county led the nation in population growth each year from '11 to '15, slipping to second in '16.

The **City of Houston**, the fourth most populous U.S. city, had a population of 2,312,717 on July 1, 2017. Houston added 8,235 residents from July 1, 2016 to July 1, 2017, the smallest increase for the city since '07. Slower growth for the city was expected, given the persistent weakness in the local economy during that period.

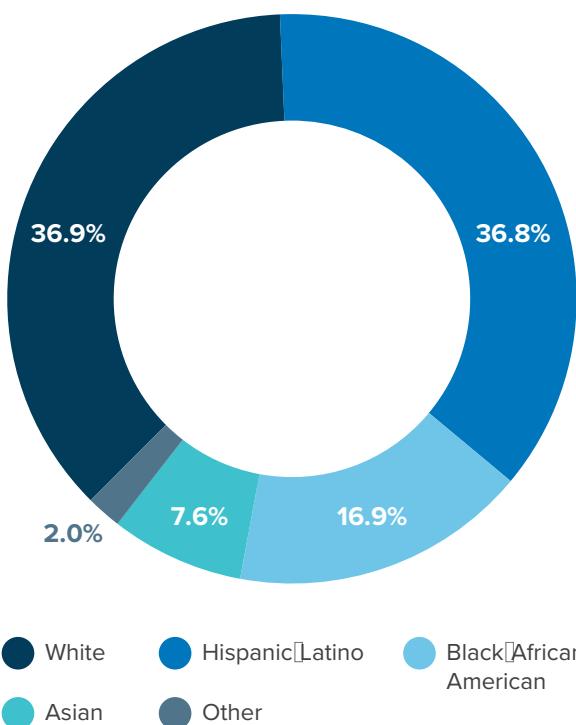
Nearly one in four Houstonians was born outside the U.S. Among the 1,588,661 foreign-born in the Houston metro area, 78.6 percent entered the U.S. before 2010.

Top regions of birth for the Houston MSA's foreign-born are: Latin America (63.4 percent), Asia (25.2 percent), Africa (5.8 percent) and Europe (4.2 percent).



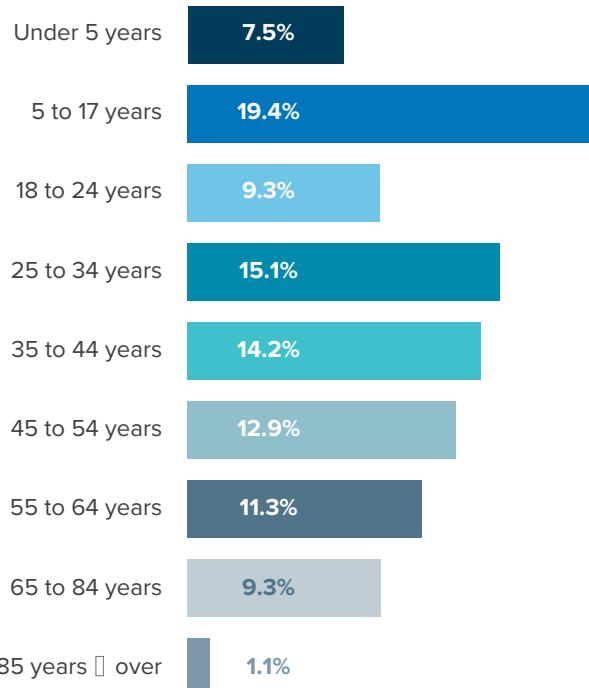
## RACE AND ETHNICITY

Houston MSA | 2016



## AGE DISTRIBUTION

Houston MSA | 2016



Note: Hispanic/Latino includes all races. Sums may not total due to rounding.

Source: U.S. Census Bureau | 2016 American Community Survey

Note: Sums may not total due to rounding.

Source: U.S. Census Bureau | 2016 American Community Survey

## COMPONENTS OF POPULATION CHANGE

Metro Houston, 2010 – 2017

Geography	Population		Population Change Since '10				
	'10	'17	Migration		Natural Increase		Total Population Change
			Net International Migration	Net Domestic Migration	Births	Deaths	
<b>Houston MSA</b>	<b>5,920,486</b>	<b>6,892,427</b>	<b>260,385</b>	<b>273,005</b>	<b>703,048</b>	<b>266,717</b>	<b>971,941</b>
Austin County	28,411	29,786	220	637	2,489	1,958	1,375
Brazoria County	313,127	362,457	4,061	26,457	34,496	15,834	49,330
Chambers County	35,099	41,441	561	4,111	3,550	1,920	6,342
Fort Bend County	584,638	764,828	32,077	102,225	64,700	20,305	180,190
Galveston County	291,303	335,036	4,469	27,806	29,404	18,183	43,733
Harris County	4,093,244	4,652,980	209,008	21,860	506,425	176,727	559,736
Liberty County	75,641	83,658	393	5,255	7,841	5,463	8,017
Montgomery County	455,752	570,934	9,294	79,278	49,732	24,212	115,182
Waller County	43,271	51,307	302	5,376	4,411	2,115	8,036

Note: In some cases, the increase due to migration and the natural increase will not sum to the change in population due to rounding and the Bureau's use of residual values in generating the estimates.

Source: U.S. Census Bureau, 2017 Population Estimates

## SELECTED DEMOGRAPHIC CHARACTERISTICS

Metro Houston, 2016

Geography	Median Age	Total Households	Average Household Size	Percent of Adults with Bachelor's Degree or Higher	Foreign-Born Percent of Total Population
<b>Houston MSA</b>	<b>34.2</b>	<b>2,333,038</b>	<b>2.9</b>	<b>32.0</b>	<b>23.5</b>
Austin County	40.8	11,222	2.6	21.0	9.9
Brazoria County	35.5	114,290	2.9	28.7	13.3
Chambers County	35.5	12,967	2.9	21.1	10.5
Fort Bend County	35.7	214,126	3.2	44.6	27.1
Galveston County	37.5	115,685	2.7	28.9	9.7
Harris County	32.9	1,536,259	2.9	30.1	25.7
Liberty County	36.2	25,611	2.8	10.0	7.6
Montgomery County	36.6	179,587	2.9	33.0	12.9
Waller County	28.8	14,082	3.0	18.7	14.4

Note: County data may not sum to Houston MSA total due to a difference in survey methods.

Source: MSA data from U.S. Census Bureau, 2016 American Community Survey; County data from U.S. Census Bureau, 2012-16 American Community Survey



Metro Houston accepted 764 refugees in '17, about one-fourth of all refugees resettled in Texas that year and 2.3 percent of those in the U.S. They came from 18 countries with the top 10 comprising 92.9 percent of all newly-resettled refugees in the region.

The number of refugees resettled in the Houston region in '17 declined 68.9 percent from the 2,454 received the previous year. The number of refugees resettled in the U.S. overall declined 190 percent during the same period.

## INCOME

### Per Capita Personal Income

The nine-county Houston MSA pretax per capita personal income (PCPI) in '16 was \$51,913, 20.3 percent above the U.S. average of \$43,157, according to the latest data available by the U.S. Bureau of Economic Analysis (BEA). PCPI declined 3.6 percent in the Houston MSA and increased 1.9 percent nationwide from '15 to '16.

### Total Personal Income

Total personal income, defined as income received from all sources, in the nine-county Houston MSA in '16 was \$351.6 billion, down 1.8 percent from '15, according to BEA data.

## WAGES

The average weekly wage in metro Houston was \$1,250 in '17, according to the Texas Workforce Commission. Total wages for the metro area were \$188.4 billion in the same year.



## EDUCATIONAL ATTAINMENT

Houston MSA, 2016

Highest Education Level Attained	Population Age 25 or Older	
	Number	Percent
No High School Diploma	<b>722,059</b>	<b>16.7</b>
High School Graduate or Higher	<b>3,603,280</b>	<b>83.3</b>
High School Diploma or GED	1,023,978	23.7
Some College, No Degree	890,162	20.6
Associate Degree	305,043	7.1
Bachelor's Degree or Higher	<b>1,384,097</b>	<b>32.0</b>
Graduate or Professional Degree	499,805	11.6
Bachelor's Degree	884,292	20.4
Total population age 25 or older	<b>4,325,339</b>	<b>100.0</b>

Note: Sums may not total due to rounding.

Source: U.S. Census Bureau, 2016 American Community Survey

## TOTAL WAGES

Metro Houston, 2017, (\$ Millions)

<b>Houston MSA</b>	<b>188,382.5</b>
Austin County	<b>462.9</b>
Brazoria County	<b>6,059.6</b>
Chambers County	<b>856.1</b>
Fort Bend County	<b>9,086.6</b>
Galveston County	<b>5,267.2</b>
Harris County	<b>155,695.4</b>
Liberty County	<b>736.3</b>
Montgomery County	<b>9,503.5</b>
Waller County	<b>714.8</b>

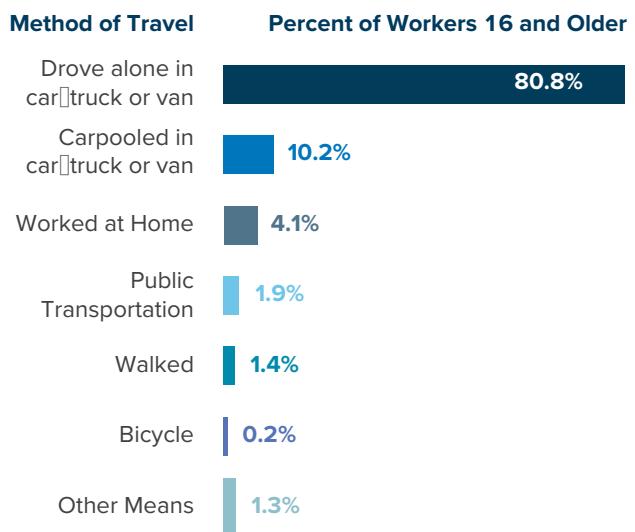
Note: Sums may not total due to rounding.

Source: Texas Workforce Commission, Quarterly Census of Employment and Wages

## COMMUTING TO WORK

Houston MSA, 2016

Average travel time to work **30 minutes**

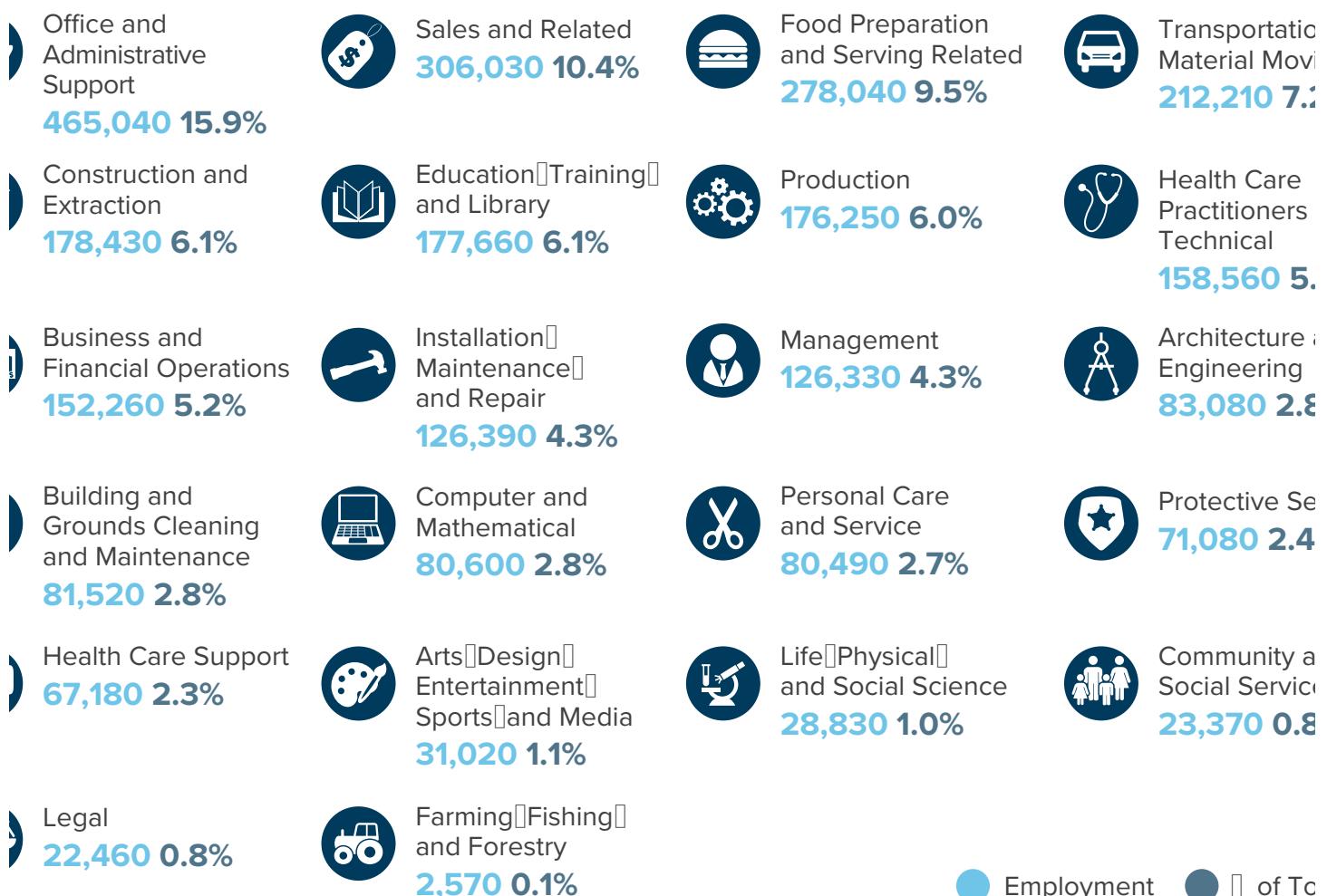


Note: Sums may not total due to rounding.

Source: U.S. Census Bureau, 2016 American Community Survey



## Total Occupation Employment **2,929,400**



# HOUSTON ECONOMY

Three factors primarily contribute to Houston's economic growth: the health of the oil and gas industry, expansion of the U.S. economy and Houston's ability to sell goods and services overseas.

From mid-'14 to mid-'16, the oil and gas industry struggled through one of the worst downturns in history. The price of West Texas Intermediate (WTI) fell from \$108 per barrel in June '14 to \$26 in February '16. The number of active U.S. drilling rigs traced the same path, falling from a high of 1,931 rigs in September '14 to a historic low of 404 in May '16. Energy industry layoffs began in January '15 and by December '16, Houston's upstream energy sector shed 86,200 jobs, equivalent to one in every four jobs in the sector.<sup>2</sup>

The U.S. economy continued to perform well, however. From Q1/10 to Q4/17, U.S. gross domestic product grew in 30 out of 32 quarters. The nation's employers added 200,000 jobs each month. Global growth averaged 2.6 percent. Momentum from the fracking boom also helped carry Houston forward. The metro area built 72,000 single-family and 28,000 multi-family homes in '15 and '16 combined. And construction was well underway on more than \$60 billion in petrochemical plants in the area.

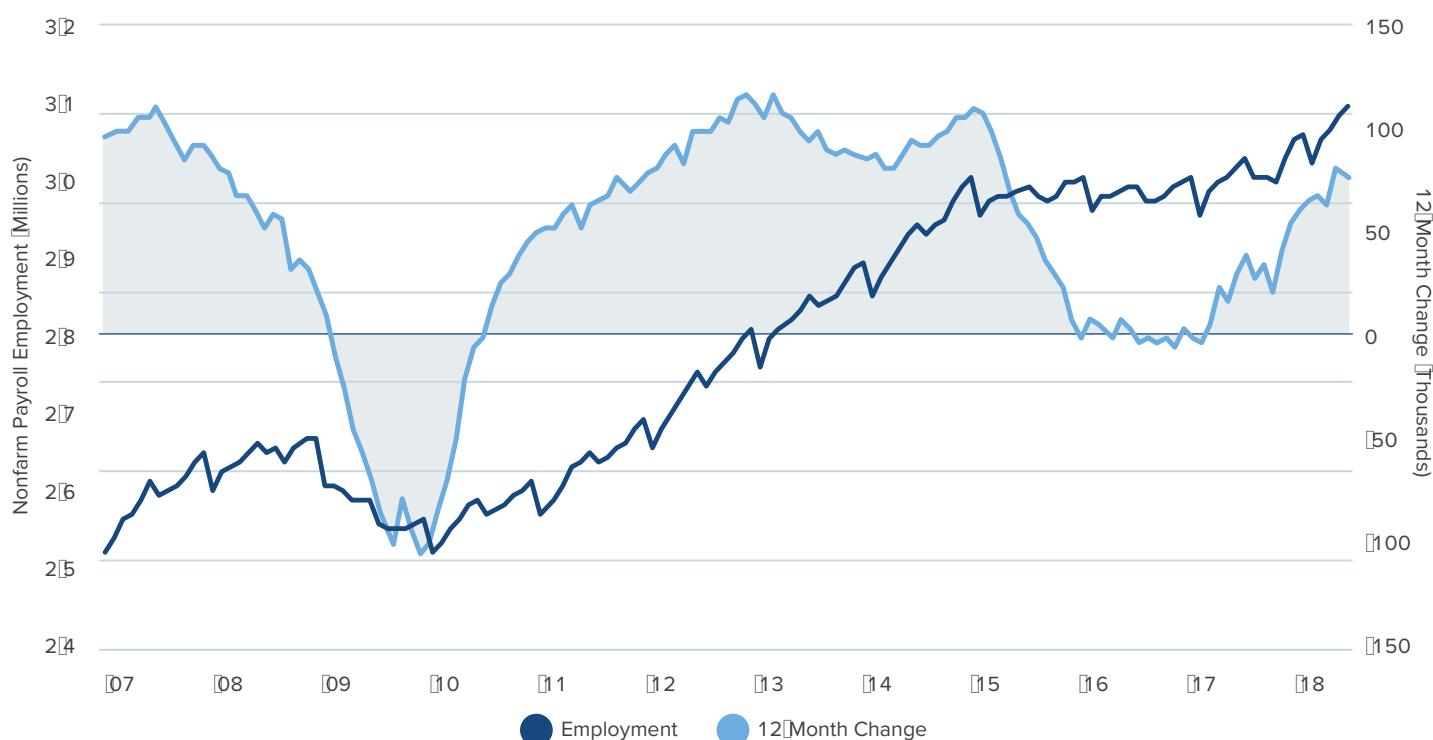
Growth in sectors serving the U.S. and global economies, plus impetus from the fading boom, helped offset job losses in the oil patch. Though Houston lost nearly 52,500 energy jobs in '15, the region lost only 2,300 jobs overall. Houston lost another 33,600 energy jobs in '16, yet loss for the region as a whole totaled only 2,500 that year. In an economy with more than 3.0 million payroll jobs, the combined losses of '15 and '16 represented less than 0.2 percent of all jobs in the region.

Oil prices began to rally in early '16, reaching \$40 per barrel mid-year and \$50 by early '17. The rig count bottomed out in May '16 and was up 60 percent from its recession trough by December. Job growth resumed in oil field services and equipment manufacturing but oil and gas extraction continued to whittle away at payroll.

In August and September '17, Hurricane Harvey temporarily shut down the region's economy, but by October most businesses were up and operating at pre-hurricane capacity. Reconstruction associated with Harvey boosted jobs in construction, wholesale trade, restaurants, retail and employment services. The '17 year finished with a net gain of 62,000 jobs, about half of which were due to Harvey.

## PAYROLL EMPLOYMENT

Metro Houston



Source: Texas Workforce Commission Employment Estimates

<sup>2</sup> As defined here, the upstream energy sector includes exploration and production, oilfield services, oil field equipment manufacturing, fabricated metal products and engineering.

## EMPLOYMENT BY INDUSTRY

Houston MSA, 2017

Industry	Jobs (000)	% of Total
<b>GOODS PRODUCING</b>	<b>513.3</b>	<b>17.0</b>
Mining and Logging	77.5	2.6
Oil and Gas Extraction	37.7	1.2
Support Activities for Mining	38.5	1.3
<b>CONSTRUCTION</b>	<b>216.4</b>	<b>7.2</b>
<b>MANUFACTURING</b>	<b>219.3</b>	<b>7.3</b>
Durable Goods	137.1	4.5
Non-Durable Goods	82.3	2.7
<b>TRADE, TRANSPORTATION AND UTILITIES</b>	<b>617.5</b>	<b>20.4</b>
Wholesale Trade	165.2	5.5
Retail Trade	310.2	10.3
Transportation, Warehousing and Utilities	142.2	4.7
<b>SERVICE PROVIDING</b>	<b>2,508.1</b>	<b>83.0</b>
<b>INFORMATION</b>	<b>32.1</b>	<b>1.1</b>
<b>FINANCIAL ACTIVITIES</b>	<b>159.0</b>	<b>5.3</b>
Finance and Insurance	100.7	3.3
Real Estate and Rental and Leasing	58.4	1.9
<b>PROFESSIONAL AND BUSINESS SERVICES</b>	<b>481.4</b>	<b>15.9</b>
Professional, Scientific, and Technical Services	221.7	7.3
Management of Companies and Enterprises	42.5	1.4
Admin and Support and Waste Mgmt.	217.2	7.2
<b>EDUCATIONAL AND HEALTH SERVICES</b>	<b>384.2</b>	<b>12.7</b>
Educational Services	59.0	2.0
Health Care and Social Assistance	325.2	10.8
<b>LEISURE AND HOSPITALITY</b>	<b>317.7</b>	<b>10.5</b>
Arts, Entertainment, and Recreation	34.2	1.1
Accommodation and Food Services	283.5	9.4
<b>OTHER SERVICES</b>	<b>109.4</b>	<b>3.6</b>
<b>GOVERNMENT</b>	<b>406.8</b>	<b>13.5</b>
<b>TOTAL NONFARM</b>	<b>3,021.3</b>	<b>100.0</b>

Note: The table above uses estimates from the Current Employment Statistics while the industry profiles on the following pages uses data from the Quarterly Census of Employment and Wages. Figures will differ. Sums may not total due to rounding.

Source: Texas Workforce Commission, 2017 Current Employment Statistics



By mid-'18, oil prices settled in above \$60 per barrel, the North American drilling fleet held above 1,000 rigs, and U.S. crude production continued to grow. The U.S. Energy Information Administration (EIA) projects that U.S. crude oil production will average 10.8 million barrels per day (b/d) in '18, a record for U.S. production.

The consensus among forecasters is that the U.S. economy will grow at a rate of 2.6 percent or better through mid-'19. The outlook for global trade, however, remains less certain. The Trump Administration has proposed tariffs on imports from China, as well as steel, aluminum, automobiles and various goods from other countries. Should the nations subjected to the tariffs retaliate with tariffs on U.S. exports, Houston's economic growth could be impeded. Otherwise, it should be smooth sailing for Houston's economy.

## CORPORATE ECONOMY

Metro Houston, a major corporate center, ranks third in the nation in the number of major corporate headquarters, according to the 2018 Fortune 1000 list and fourth according to the 2018 Fortune 500 list. Many other Fortune 500 firms maintain U.S. offices in Houston.

Metro Houston ranks fifth on the 2017 Fortune Global 500 list, and among the 100 largest non-U.S.-based corporations on the list, 58 have a presence in Houston.

### HOUSTON-HEADQUARTERED COMPANIES

	Number of Companies	Metro Rank
2018 Fortune 500	21	4
2018 Fortune 1000	44	3
2018 Forbes Global 2000	23	5
2017 Fortune Global 500	5	6

Source: Fortune, Forbes

County Business Patterns, an annual series that provides subnational economic data, shows that the Houston MSA had 139,010 business establishments in '16, the latest available. More than half of those establishments employ between one and four workers.

## ESTABLISHMENTS BY EMPLOYMENT SIZE

Houston MSA, 2016

Employment Size	Number of Establishments	Percent of Establishments
1 to 4	72,327	52.0
5 to 9	25,176	18.1
10 to 19	18,113	13.0
20 to 49	13,980	10.1
50 to 99	5,142	3.7
100 to 249	3,012	2.2
250 to 499	836	0.6
500 to 999	274	0.2
1,000 or more	150	0.1
<b>TOTAL</b>	<b>139,010</b>	<b>100.0</b>

Source: U.S. Census Bureau, 2016 County Business Patterns

H[E]B  
Houston Methodist  
Memorial Hermann Health System

UT MD Anderson Cancer Center  
Walmart

ExxonMobil  
Kroger  
Schlumberger

## 5,000 to 9,999 Employees

Academy Sports & Outdoors	Chevron	Home Depot
Aramark	CHI St. Luke's Health	Houston Community College
Archdiocese of Galveston-Houston	Daikin Goodman	JPMorgan Chase
AT&T	Dow Chemical	Landry's
Baker Hughes-a GE Company	Fluor	Lone Star College
Baylor College of Medicine	Harris Health System	Macy's
BP America	HCA	National Oilwell Varco
	Hewlett Packard Enterprise	Pappas Restaurants

## 2,000 to 4,999 Employees

AIG	Dril-Quip	Lowe's
Anadarko Petroleum	Enterprise Products	LyondellBasell
Bank of America	Equistar Chemicals	Mariner Post-Acute Network
Bechtel	FedEx	Mexican Restaurants
Brinker International	Fiesta Mart	Michael E-DeBakey VA Medical Center
Brock Group	Friedkin Group	NASA-Johnson Space Center
Cameron-a Schlumberger Company	Grocers Supply Company	NRG
CB&I	Jacobs	Occidental Petroleum

## INTERNATIONAL BUSINESS

Houston is the base of operations for the international oil and gas exploration and production industry as well as for many of the nation's largest international engineering and construction firms.

A key center for international finance, Houston leads the Southwest U.S. with 20 foreign banks from 10 nations.

Houston's economy is deeply tied to global trade and foreign investment. The region has trading relationships with more than 200 countries. According to WISERTrade, the Houston/Galveston Customs District handled 160.8 million metric tons in exports valued at \$109.2 billion in '17. These exports accounted for 56.8 percent of the value of total trade that passed through the region.

The Brookings Institution estimates that in '17, 17.3 percent of Houston's economy was tied to exports, and that exports supported 330,340 jobs (indirect and direct).

Ninety-one nations have consular representation in the city, ranking Houston's consular corps third largest in the nation.

Fifteen foreign governments maintain trade and commercial offices here, and the city has 35 active foreign chambers of commerce and trade associations.

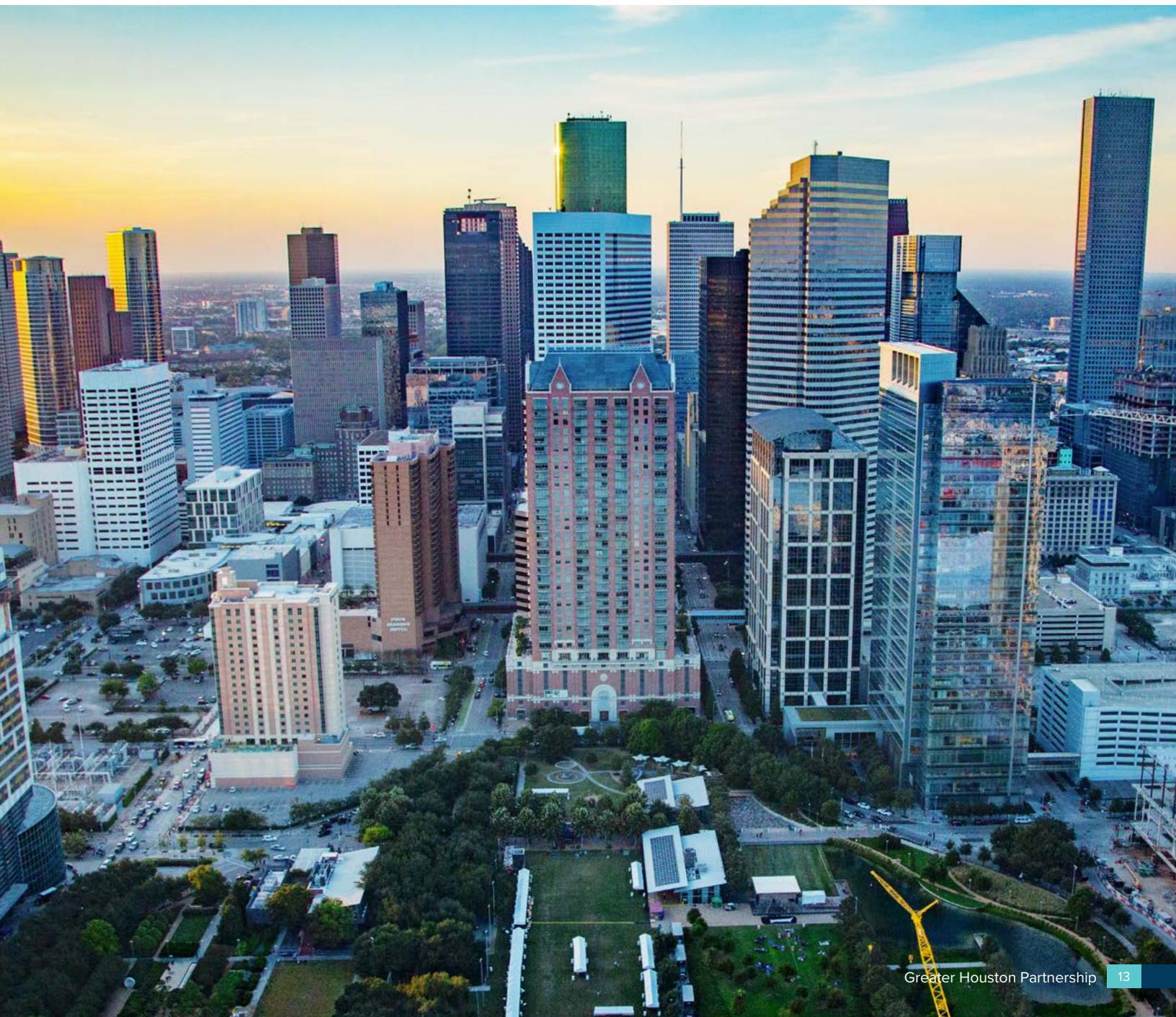
Houston has 18 sister-city relationships promoting business opportunities across five continents: Asia (7), Europe (7), Americas (2), Africa (1), and Australia (1). Houston's oldest sister-city relationship was established in 1961 with Taipei, Taiwan, and its most recent relationship with Basrah, Iraq was established in '15.

At least 115 Houston companies operate subsidiary locations around the world. These firms account for 3,000 offices in more than 115 countries.

More than 1,000 firms in Houston report foreign ownership. In '17, at least 40 foreign-owned firms invested in office expansions, new plants and expanded distribution facilities in Houston. More than \$3.3 billion in capital investments were made by foreign-owned firms in Houston.

Nearly 5,000 Houston-area firms are engaged in global commerce, including more than 2,300 local manufacturers.

Eleven of Houston's 32 skyscrapers (at least 150 meters tall) are owned, co-owned, or financed by foreign investors.



# TOP INDUSTRIES AND SECTORS

## CONSTRUCTION AND REAL ESTATE

### Employment

The construction industry in Houston employed 212,610 people in '17, according to the Texas Workforce Commission. Half of all construction employment occurred as specialty trade contractors (e.g., electrical work, plumbing, site preparation, painting). Building construction accounted for 24.9 percent and heavy and civil engineering construction accounted for 24.1 percent of construction employment. Annual wages in the industry averaged \$72,300.

Construction employment posted year-over-year declines through most of '17 until recovery and rebuilding efforts began after Hurricane Harvey. From January '17 to September '17, monthly construction employment averaged 214,900. For the rest of '17, the average monthly construction employment jumped to 221,100.

### Establishments

The Houston metro area was home to nearly 10,800 construction establishments in '17. Of that total, 61.6 percent were specialty trade contractors, 28.9 percent were in building construction, and 9.5 percent were heavy and civil engineering establishments.

### Top Employers

Bechtel, Bellows Construction, D.E. Harvey Builders, E.E. Reed Construction, Fluor, Gilbane Building, Jacobs, Linbeck Group, McCarthy Building Companies, S & B Engineers and Constructors, SpawGlass Construction, Tellepsen, Turner Construction, Turner Industries, Williams Brothers Construction and Zachary.

### Building Permits

City of Houston building permits totaled \$6.1 billion in '17—\$2.4 billion for residential and \$3.7 billion for commercial building permits, according to city data.

### Petrochemical Plant Construction

Approximately \$60 billion in chemical plant construction announced since '12 has been completed or is nearing completion. Companies investing in petrochemical plant expansions include Braskem, Chevron Phillips, Dow, ExxonMobil, Flint Hill Resources, Ineos/Sasol, LyondellBasell, Phillips 66, and a joint venture by Borealis, Nova Chemicals and Total.

### Office

At the close of '17, CBRE reports that the Houston area, the nation's fifth largest office market, counted 1,276 general-purpose office buildings containing 213.2 million-square-feet (msf) of completed net rentable space (42.3 msf in the Central Business District, or CBD).

Net absorption (net change in leased space in completed buildings) for all general-purpose office space was negative 2.0 msf in '17. The vacancy rate for the entire Houston market was 21.7 percent at the end of '17.

Average asking rent for the entire Class A office market was \$38.10 per square foot (\$45.54 for CBD Class A and \$35.03 for suburban Class A).



## Industrial

Houston's 510.3 msf of industrial space in buildings of 10,000 square feet or more rank it as the sixth largest U.S. industrial market. CBRE reported year-end '17 occupancy remained tight at 94.6 percent. During '17, construction of 9.1 msf was completed and 7.0 msf was absorbed. Across the market, average monthly asking rates were \$0.61 per square foot in '17.

## Retail

The Houston retail market recorded 2.0 million square feet of net absorption in '17. The region is home to 3,488 retail centers with 214.3 msf of net rentable area. The year ended with a vacancy rate of 5.9 percent and the average annual rental rate was \$25.30 per square foot.

## Single-Family

According to the Houston Association of Realtors, single-family closings (largely resale homes) in the Houston area totaled 79,095 in '17. An additional 15,610 townhomes, condos and high rises were sold that year. The median sales price for a resale single-family detached home was \$229,000. Single-family starts in '17 numbered 27,307, according to Metrostudy.

## Multi-Family

Apartment Data Services reported that Houston area multi-family occupancy was 89.5 percent in December '17, with an inventory of 638,305 units in 2,722 complexes. Rental rates averaged \$1.15 per square foot per month.

- Class A apartments recorded 85.3 percent occupancy at \$1.57/sf/mo

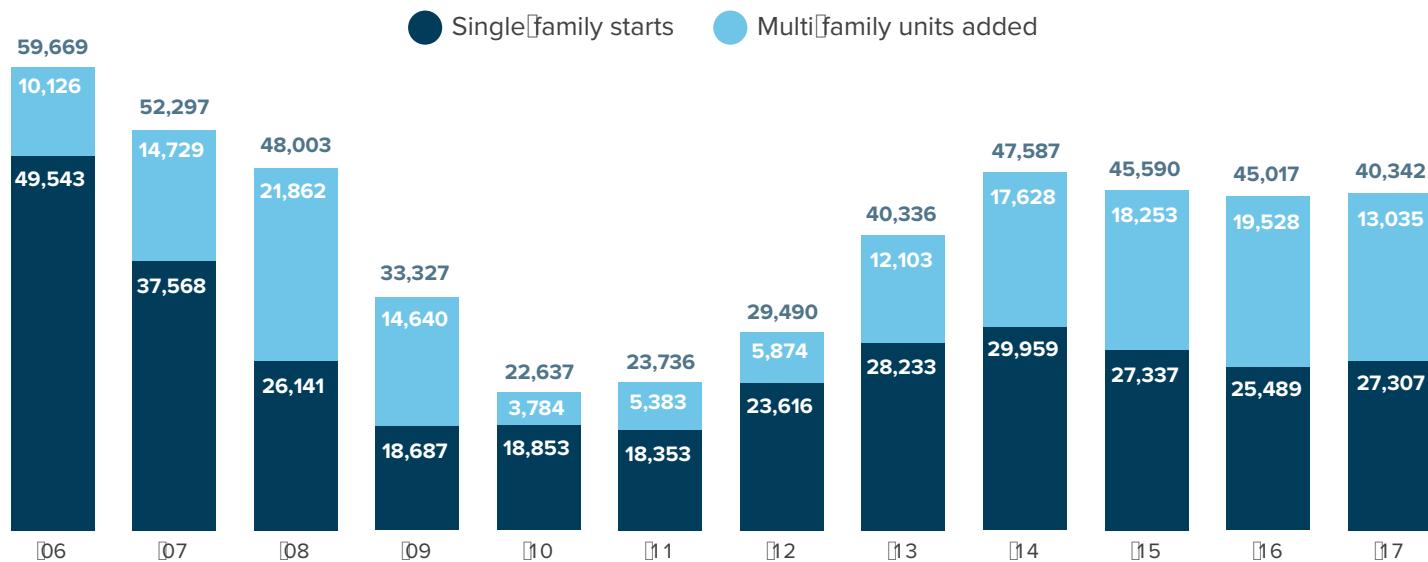


- Class B recorded 91.5 percent occupancy at \$1.13/sf/mo
- Class C recorded 90.1 percent occupancy at \$0.78/sf/mo
- Class D recorded 87.8 percent occupancy at \$0.64/sf/mo

An additional 13,035 new units were added to the market in '17 while 18,026 were absorbed. Most of the absorption occurred in the latter part of the year as residents dislocated by Hurricane Harvey sought temporary housing. As of June '18, 36 communities with 9,686 units are under construction and 63 communities with 17,958 units were proposed, according to Apartment Data Services.

## SINGLE-FAMILY STARTS AND MULTI-FAMILY UNITS DELIVERED

Houston MSA



Source: Metrostudy and Apartment Data Services

# HEALTH CARE AND SOCIAL ASSISTANCE

## Employment

Health care and social assistance employed 360,742 people in '17, almost one in eight Houston workers, according to the Texas Workforce Commission. Ambulatory health care accounts for 43.4 percent of the sector employment, hospitals for 32.9 percent and social assistance, nursing and residential care for 23.8 percent. Average annual wage for the entire industry was \$54,100 in '17.

According to the Texas Medical Board, 17,986 physicians are licensed in the Houston region, 80.8 percent of which are in Harris County alone. Houston is home to a concentration of anesthesiologists, nurse anesthetists, cardiovascular technologists and technicians, respiratory therapy technicians, and occupational health and safety specialists/technicians larger than the national average.

## Establishments

Houston's 19,688 health care and social assistance establishments included 12,917 ambulatory health care providers, 5,908 social assistance establishments, 676 nursing and residential care facilities and 187 hospitals in '17.

## Top Employers

CHI St. Luke's, HCA, Harris Health System, Houston Methodist, MD Anderson Cancer Center, Memorial Hermann Healthcare System, Michael E. DeBakey Veterans Affairs Medical Center, Texas Children's Hospital and UTMB Health.

## Texas Medical Center

Houston's Texas Medical Center is the world's largest medical complex by multiple measures: number of hospitals, number of physicians, square footage and patient volume. The Texas Medical Center's 61 member institutions have been consistently recognized as some of the best hospitals and universities in the nation by U.S. News and World Report.

<b>\$3 Billion in</b> construction projects underway	<b>50 Million</b> developed square feet
<b>10 Million</b> patient visits per year	<b>T M C</b> TEXAS MEDICAL CENTER
<b>180,000 +</b> Surgeries	<b>750,000</b> visits per y
<b>13,600 +</b> total heart surgeries	<b>106,000</b> Employee
<b>8th largest</b> business district in U.S. with <b>1,345</b> total acres and <b>\$25 billion</b> in GDP	

## Some prominent members include:

Baylor College of Medicine, CHI St. Luke's Health, Harris Health System, Houston Methodist Hospital, Memorial Hermann, Michael E. DeBakey Veterans Affairs Medical Center, Rice University, Texas A&M University Health Science Center, Texas Children's Hospital, Texas Heart Institute, The University of Texas Health Science Center, The University of Texas MD Anderson Cancer Center, UTMB Health and the University of Houston.

The Texas Medical Center is working to develop five institutes that foster collaboration across all member institutions:

- **Clinical Research:** To be the world leader in clinical research by more efficiently translating research discoveries into breakthrough therapies and cures.
- **Genomics:** To create the world's premier clinical genomics program.
- **Health Policy:** To develop the most effective policy solutions to improve the health of diverse populations in Houston and Texas that will serve as models for the world.
- **Innovation:** To become the global leader in health and life sciences innovation. The TMC Innovation Institute houses TMCx, an accelerator that advances the development of health and medical technology companies, and TMCx+, an incubator for health startups.
- **Regenerative Medicine:** To lead the world in discovering, developing and delivering curative regenerative therapies.

In April '18, TMC announced the creation of TMC3, a multi-institutional 30-acre research campus that brings together the best institutions in clinical care, research and industry. The campus is projected to be complete in '22, create nearly 30,000 jobs and bring \$5.2 billion to Houston's economy.



# MANUFACTURING

The 6,400 manufacturing establishments in the Houston region employed 219,159, or about 1 in 13 Houston-area workers in '17 , according to the Texas Workforce Commission. Average annual wage was \$87,464. The value of goods manufactured in metro Houston topped \$80.2 billion in '16 and accounted for 16.8 percent of the region's total GDP, according to the Bureau of Economic Analysis.

## MANUFACTURING OVERVIEW

Houston MSA, 2017

Manufacturing Industry	Employment	Establishments
Fabricated Metal Products	48,101	1,758
Machinery	41,551	788
Chemical	38,301	578
Computer and Electronic Products	14,415	323
Food	11,773	413
Petroleum and Coal Products	10,138	97
Plastics and Rubber Products	10,034	220
Nonmetallic Mineral Products	6,446	263
Electrical Equipment and Appliances	5,713	156
Transportation Equipment	4,981	139
Other Manufacturing	27,706	1,665
<b>Total Manufacturing</b>	<b>219,159</b>	<b>6,400</b>

Source: Texas Workforce Commission, Quarterly Census of Employment and Wages

## Chemicals

The Houston region was home to 578 chemical plants employing 38,300, equivalent to 17.5 percent of Greater Houston's total manufacturing workforce in '17, according to the Texas Workforce Commission. The region has 40.8 percent of the nation's overall base petrochemicals manufacturing capacity which includes 55.6 percent of butadiene produced in the country, 43.6 percent of ethylene, 42.0 percent of propylene, 36.5 percent of xylenes, 35.3 percent of benzene and 33.7 percent of toluene.

Base petrochemicals are the raw materials for producing some of the more important plastics and resins. The Houston MSA also dominates U.S. production of three



## BASE CHEMICAL PRODUCTION CAPACITY

Houston MSA, 2018

	Million Metric Tons per year	% of U.S. Total
Butadiene	1.3	55.6
Ethylene	12.7	43.6
Propylene	12.3	42.0
Xylenes	4.5	36.5
Benzene	3.4	35.3
Toluene	2.0	33.7
<b>Total</b>	<b>36.1</b>	<b>40.8</b>

Note: Sums may not total due to rounding.

Source: IHS Markit

major resins, producing 49.5 percent of the country's capacity of polypropylene, 42.0 percent of polyethylene and 33.3 percent of polyvinyl chloride.

## Petroleum Refining

The Spaghetti Bowl is a complex of several thousand miles of product pipeline connecting hundreds of chemical plants, refineries, salt domes and fractionation plants along the Texas Gulf Coast. It gives the Houston area an economic advantage through convenient and low-cost transfer of feedstocks, fuel and chemical products among plants, storage terminals and transportation facilities.

In '18, the Houston metro had a crude operating capacity of 2.6 million barrels of refined petroleum products per calendar day, representing 13.8 percent of overall U.S. capacity, according to the U.S. Energy Information Administration. Oil refiners in the region employed 9,500 in '17, equivalent to 4.3 percent of the Houston region's total manufacturing workforce.

### PETROLEUM REFINING CAPACITY

Metro Houston, 2018

Company	Barrels Per Calendar Day	City
Marathon Petroleum Co	571,000	Galveston Bay
ExxonMobil Refining & Supply	560,500	Baytown
Deer Park Refining	275,000	Deer Park
Houston Refining	263,776	Houston
Phillips 66 Company	256,000	Sweeny
Valero Refining Co Texas	225,000	Texas City
Valero Refining Co Texas	199,000	Houston
Pasadena Refining Systems	112,229	Pasadena
Kinder Morgan Crude & Condensate	84,000	Galena Park
Petromax Refining Co	25,000	Houston
<b>Total Metro Houston Capacity</b>	<b>2,571,505</b>	
<b>Percent of U.S. Capacity</b>	<b>13.8</b>	

Source: U.S. Energy Information Agency, Refinery Capacity Report  
January 1, 2018

## PROFESSIONAL AND TECHNICAL SERVICES

### Employment

Metro Houston employed 211,053 professional, scientific and technical service workers in '17. Architectural and engineering services, with 64,691 workers, represents nearly a third of the sector's total employees. The second and third largest industry subsectors include management and technical consulting (36,104 employees) and computer systems design services (28,514 employees).

Houston has one of the highest concentrations of engineering talent in the nation. For every 100,000 workers in the Houston MSA, there are 1,920 engineers. In comparison, for every 100,000 workers in the U.S., there are 1,168 engineers.

### Establishments

The Houston MSA had 21,593 establishments in professional, scientific and technical services in '17. The sector includes 5,253 management and technical consulting establishments, 3,884 computer systems design companies and 3,799 establishments that provide legal services. Thirty-six of the nation's top 100 engineering and design firms are located in Houston, according to Engineering News-Record.



## ENGINEERS

Houston MSA vs. U.S., 2017

Engineering Concentration	Engineers in Houston	Per 100,000 Workers Houston	Per 100,000 Workers U.S.
Aerospace	2,720	92.7	46.1
Biomedical	300	10.3	14.1
Chemical	5,170	176.3	23.5
Civil	10,030	342.3	209.7
Computer Hardware	560	19.2	46.8
Electrical	3,870	132.1	128.6
Electronics	2,670	91.1	94.7
Environmental	920	31.5	36.9
Health and Safety	1,540	52.6	18.3
Industrial	4,820	164.7	186.3
Marine Engineers and Naval Architects	520	17.9	7.7
Materials	970	33.2	19.1
Mechanical	7,530	257.1	204.3
Petroleum	10,950	373.9	22.5
All Other Engineers	3,690	126.1	92.2
<b>Total Engineers</b>	<b>56,260</b>	<b>1,920</b>	<b>1,168</b>

Source: U.S. Bureau of Labor Statistics, 2017 Occupational Employment Statistics



## Finance

Metro Houston 97 Federal Deposit Insurance Corporation (FDIC)-insured institutions had 1,450 offices and branches with \$240.9 billion in local deposits, according to June '17 FDIC data. Houston ranked 10th among U.S. metros in total deposits in '17.

Houston's 10 largest banks (ranked by local deposits) include JPMorgan Chase Bank, Wells Fargo Bank, Bank of America, BBVA Compass Bank, Amegy Bank, Prosperity Bank, Capital One, Frost Bank, Comerica Bank and Woodforest National Bank.

A key center for international finance, Houston leads the Southwest U.S. with 20 foreign banks from 10 nations.

Five of the nation's 10 largest FDIC-insured banks, as measured by domestic deposits, operate full-service branches or commercial loan offices in the Houston region. These five include the three largest banks in the nation.

## WHOLESALE AND RETAIL TRADE

### Employment

Wholesale trade employed 153,806 in the Houston MSA, including 90,938 in durable goods, 44,033 in nondurable goods and 18,835 in electronic markets in '17. Retail trade employed 305,536, including 67,217 in food and beverage and 60,167 in general merchandise. Average annual wage in '17 was \$83,800 for wholesale workers and \$32,263 for retail workers.

### Establishments

Metro Houston contained 10,981 wholesale trade establishments, including 6,208 durable goods wholesalers and 2,368 nondurable goods wholesalers in '17. There were 17,930 retail establishments, including 2,567 food and beverage stores, 2,383 gas stations and 2,362 clothing stores.

### Top Employers

Academy Sports & Outdoors, CVS Health, FedEx, Fiesta Mart, Home Depot, Kroger, Lewis Food Town, Lowe's, Macy's, Randalls Food Markets, Sam's Club, Sysco, Target and Walgreens.

## GROSS RETAIL SALES

Metro Houston, 2016-2017 (\$ Millions)

Geography	'16	'17	% Change from '16
<b>Houston MSA</b>	<b>116,238.2</b>	<b>120,360.6</b>	<b>3.4</b>
Austin County	287.8	304.3	5.4
Brazoria County	4,288.5	4,577.5	6.3
Chambers County	356.1	386.9	8.0
Fort Bend County	7,955.9	8,215.8	3.2
Galveston County	4,305.9	4,131.3	-4.2
Harris County	90,030.7	93,402.7	3.6
Liberty County	833.5	882.8	5.6
Montgomery County	7,683.0	7,875.6	2.4
Waller County	496.8	583.7	17.5

Source: Texas Comptroller's Office

## ENERGY

Houston is the leading domestic and international center for virtually every segment of the energy industry—exploration and production, transmission, marketing, service, trading, supply, offshore drilling and technology.

More than 4,600 energy-related firms are located within the Houston metro area, including over 500 exploration and production firms, nearly 800 oilfield service companies, more than 90 pipeline transportation firms, and hundreds of manufacturers and wholesalers of energy-sector products.

Houston is home to 39 of the nation's 138 publicly traded oil and gas exploration and production firms, including 11 of the top 25; seven more among the top 25 have subsidiaries, major divisions or other significant operations in Houston.

Two-thirds of the global-integrated oil companies (e.g., ExxonMobil, Shell, Chevron) have operations here, including eight of the 10 largest.

Of the 167 oil field service firms based outside of North America (e.g., TechnipFMC, Aker, Subsea 7), more than half have offices in Houston, including 21 of the 25 largest.

Around one-fifth of the world's national oil companies (e.g., Saudi Aramco, PetroChina, Gazprom) have operations in Houston, including seven of the 10 largest.

The 10 refineries in the Houston region process nearly 2.6 million barrels of crude oil per calendar day—approximately 45.1 percent of the state's total production and 13.8 percent of total U.S. capacity.

The logistics for moving much of the nation's petroleum and natural gas across the country are controlled from Houston. According to '16 data, the latest available, from the Federal Energy Regulatory Commission, 12 of the nation's 20 largest oil pipeline operators have corporate or divisional headquarters or ownership interests based in Houston. These 12 pipeline companies control 52,726 miles, or 32 percent of all U.S. oil pipeline capacity. Fourteen of the nation's top 20 natural gas transmission companies have corporate or divisional headquarters in Houston, controlling 103,971 miles of U.S. pipeline, which is 54.0 percent of the total U.S. natural gas pipeline capacity.

In '17, according to the U.S. Bureau of Labor Statistics, the Houston MSA held 25.8 percent of the nation's jobs in oil and gas extraction (37,700 of 146,000), and 16.8 percent of jobs in support activities for oil and gas extraction (38,500 of 228,700).

### Defining “Energy”

Defining the “energy” sector and its related industries is a challenging task. There are multiple approaches, and the table which follows serves as one interpretation. Given this definition, Houston's energy sector in '17 accounted for 8.2 percent of the region's employment and 3.7 percent of its firms. The average job in an energy-related industry paid approximately \$140,700 per year, more than double the metro average of \$65,000.

## ENERGY-RELATED INDUSTRIES

Houston MSA, 2017

Industry	Employment	Firms	Avg. Annual Wage (\$)
Engineering services	45,206	1,783	122,044
Chemical manufacturing	38,301	433	130,546
Oil and gas extraction	37,510	529	218,842
Oil and gas field machinery and equipment	26,717	234	119,132
Support activities for oil and gas operations	26,463	806	125,554
Oil and gas pipeline construction	17,754	189	93,444
Pipeline transportation	11,669	95	187,304
Drilling oil and gas wells	10,648	160	154,713
Petroleum refineries	9,206	39	156,429
Fabricated pipe and pipe fitting mfg.	4,929	89	65,819
Industrial valve manufacturing	3,637	65	83,577
Geophysical surveying and mapping services	3,317	151	125,632
Pump and compressor manufacturing	1,808	51	88,933
<b>Total Energy-Related</b>	<b>237,164</b>	<b>4,622</b>	<b>140,700</b>
<b>Share of Metro Houston Total</b>	<b>8.2%</b>	<b>3.7%</b>	

Note: Due to the pervasiveness of the energy industry in Houston, portions of several other industries (e.g., utilities, accounting, real estate) could be added to this definition.  
Source: Texas Workforce Commission, Quarterly Census of Employment and Wages

## TOP ENERGY EMPLOYERS

Anadarko Petroleum	Nabors Industries
Apache Corporation	National Oilwell Varco
Baker Hughes	Newfield Exploration
BP	Occidental
Chevron	Oceaneering International
ConocoPhillips	Oil States International
EOG Resources	Schlumberger
ExxonMobil	Shell
Halliburton	Southwestern Energy
Hess Corporation	Superior Energy Services
Marathon Oil	Weatherford International





## NASA AND AEROSPACE

Houston established itself as a global hub for aerospace in 1961 with the arrival of NASA's human space program. Since then, the Johnson Space Center (JSC) has anchored a thriving aviation industry that includes the world's leading aerospace companies.

NASA's presence provides a dense concentration of skilled talent that makes Houston a worldwide leader in commercial space flight. In '15, the Federal Aviation Administration (FAA) designated Ellington Field as an official spaceport, clearing the way for commercial space flight in Houston. The Space Commerce Conference and Expo (SPACECOM) is an annual event to promote the commercialization of space flight in the U.S. In '17, the two-day event drew 2,000 attendees to Houston's George R. Brown Convention Center.

JSC, along with support from dozens of Houston-based businesses, manages the design, development and assembly of the International Space Station; serves as NASA's lead center for life sciences research and application; selects and trains astronauts; controls human

space flights; directs industrial efforts to design, develop, build and upgrade piloted space craft; and oversees many medical, scientific and engineering experiments conducted aboard the space shuttle.

JSC manages an annual budget of approximately \$4.4 billion in contracts, grants, civil service payroll and procurements. In '17, NASA awarded service contracts and grants to 161 companies and research organizations in the Houston region. Space Center Houston, the official visitor center of JSC, attracts over one million visitors and generates \$73.0 million in economic impact annually.

Houston is home to more than 250 companies involved in aircraft or space vehicle manufacturing, research and technology, or other air transportation support activities. Of the 50 largest aerospace manufacturing companies in the U.S., 32 have a presence in the Houston region. Houston's total trade in aircraft, spacecraft and parts totaled \$2.1 billion in '17, and aircraft, spacecraft, and related parts are Houston's 17th largest internationally traded commodity.

# INNOVATION

As the home of NASA's human space program and headquarters to the global energy industry, Houston has long been known for its engineering prowess. Inventions like the tri-cone drill bit and the artificial heart pump have helped change the world, and while the city's most recognized achievements have come from its institutions, tech-focused entrepreneurs have also achieved record-breaking success.

From '15 to '17, Houston enterprises received nearly \$5.2 billion in venture funding, according to PrivCo, a business intelligence database. Clean energy accounted for 36.8

percent of that total, the largest share for any sector. Sunnova Energy, a residential solar power company, has raised more than \$1.6 billion since its '12 founding, making it the most well-funded solar startup in the world, according to CB Insights, a database of private company investments.

Houston's top recipients for venture funding in '17 were Sunnova Energy (\$915 million), Greenfield Midstream (\$300 million), Tally Energy Services (\$130 million), Sierra Resources (\$100 million), Elevate Midstream (\$100 million), Alert Logic (\$70 million), HighRadius (\$50 million) and Riversand Technologies (\$35 million).

## VENTURE FUNDING

Greater Houston, 2015-2017,

Ranked by three-year total (\$ Millions)

Industry	'15	'16	'17	Total	% of Total
Clean Energy	801.1	175.0	926.5	1,902.6	36.8
Energy & Utilities (Conventional)	478.7	707.1	406.0	1,591.7	30.8
Manufacturing & Industrial	771.0	6.1	145.0	922.1	17.9
Internet, Technology and Services	155.5	167.4	163.1	486.1	9.4
Healthcare	31.7	59.3	45.0	136.0	2.6
Consumer Products and Retail	-	4.6	100.0	104.6	2.0
Other	1.8	18.5	-	20.3	0.4
<b>Total</b>	<b>2,239.7</b>	<b>1,138.0</b>	<b>1,785.6</b>	<b>5,163.3</b>	<b>100.0</b>

Note: Funding sources include venture capital, private equity and debt financing. Sums may not total due to rounding.

Source: PrivCo, June 2018

## Houston's Startup Ecosystem

Houston is home to more than 500 technology startups in the consumer and business service, health care, data analytics, software development and clean energy sectors. Houston companies received \$1.8 billion in venture funding in '17, according to PrivCo.

## Biotech and Life Science

The Houston region is home to more than 19,400 biotech specialists and 6,650 of the world's top medical researchers. Nearly 4,200 clinical trials were active in the Houston region in '17, representing 13.4 percent of all trials in the country. Houston is a hub for medical device manufacturing, pharmaceuticals, and research and development services.

In the field of health and medical technology, the **Texas Medical Center's Innovation Institute** coordinates the efforts of several life science-focused incubator and accelerator programs. The organization aims to help startup companies commercialize new medical technologies by providing access to the vast resources of the world's largest medical center.

The Innovation Institute's accelerator program, **TMCx**, focuses on early-stage companies making breakthroughs in medical devices, digital health care services, diagnostics and therapeutics. A related program, **TMCx+**, is an incubator that targets seed-stage companies in the same sectors. To date, 84 companies are enrolled in the TMCx program and a total of \$157 million funding is raised. The Texas Medical Center launched the **TMC Venture Fund** in '17, which aims to invest \$25 million in early stage health care tech companies in Houston.



TMC Innovation partners with two industry-backed programs supporting health innovation. Johnson & Johnson's **JLABs @TMC** provides lab space and support to companies developing promising technologies in consumer health, medical devices and pharmaceuticals, while the **AT&T Foundry** supports companies developing digital health services.

### Startup Hubs and Coworking Space

**Station Houston**, which opened downtown in '16, is one of a growing number of coworking spaces providing affordable office space, mentorship and a full range of support services to early stage companies with high growth potential. Other startup hubs and coworking spaces include **The Cannon** in Spring Branch, **The Headquarters** in the Second Ward, **Level Office** in Downtown, **Techspace Houston** in Uptown, **WeWork** in downtown and west Houston, and **Work Lodge** in northwest Houston.

### University Programs

The entrepreneurship programs at Rice University and University of Houston are consistently ranked two of the nation's best, according to the Princeton Review. Rice University's entrepreneurship program at the Jones Graduate School of Business supports student innovation through the **Rice Alliance for Technology and Entrepreneurship**. The organization sponsors programs involving technology commercialization, entrepreneurship education and the launch of student-run technology companies. Rice's **Owlspark Accelerator** has helped launch dozens of companies and the **Rice Business Plan Competition** is the richest pitch competition in the country, annually awarding \$1.5 million in prizes. Participating companies have raised a combined \$1.2 billion in capital during the competition's 18-year history.

The University of Houston's **Cyvia and Melvyn Wolff Center for Entrepreneurship** at the Bauer College of Business aims to teach students how to run their own businesses

from the inception of an idea through its implementation. Students with promising concepts are accepted into **Red Labs**, the University of Houston's startup incubator/accelerator program. Since '13, 64 founders have launched 24 companies at RED Labs. The Center also holds business plan, pitch and case competitions. At the graduate level, students manage the million-dollar **Cougar Venture Fund**, working with an advisory board of entrepreneurs, angel investors and venture capitalists to analyze and invest in early stage technology companies.

### Civic Initiatives

Houston business and civic leaders created the non-profit organization **Houston Exponential (HX)** in '17 to coordinate efforts to grow the city's digital startup ecosystem. The organization was formed through a partnership among the Houston Technology Center (HTC), the Greater Houston Partnership's Innovation Round Table and the City of Houston's Innovation and Technology Task Force. Through its \$50 million **HX Venture Fund**, the organization hopes to invest in promising startups to foster digital innovation in Houston and bolster the region's tech sector. In '18, Rice University along with a coalition of community leaders announced plans to form an **Innovation District** in Midtown Houston. The first building in the district, a historic Sears department store, will house the Houston Exponential offices and offer coworking space to tech companies in the area.

### Industry Backing

Oil and gas startups continue to be the most frequent destination for VC and private equity funding in Houston, with investments flowing from both outside financial services firms and the industry itself. Many of the major oil and gas companies have business units dedicated to finding and funding innovative ideas in the sector. A few of these include: **Shell Technology Ventures**, **Chevron Technology Ventures**, **BP Ventures**, and **ConocoPhillips Technology Ventures**.

# GOVERNMENT

## CITY OF HOUSTON

The City of Houston is a home rule municipality, which provides the city with inherent powers to manage their own affairs with minimal interference from the state.

The city's elected officials, serving concurrent two-year terms, are: the mayor, Sylvester Turner; the city controller, Chris Brown; and the 16 members of City Council. Eleven council members are elected from single-member districts

and five are elected citywide or "at-large." No elected city official may serve in one position for more than three terms.

The city's adopted General Fund budget for fiscal year (FY) '18 is \$2.4 billion, a \$35 million increase from the previous fiscal year. Property and sales taxes compose 70 percent of revenue for the General Fund, with property taxes expecting to total \$1.2 billion and revenue from sales tax estimated at \$627 million.

## COUNTIES

Each county in Texas is run by a five-member Commissioners Court consisting of four commissioners elected from single-member districts, called commissioner precincts, and a

county judge elected "at-large" or countywide. The county commissioners and county judge serve staggered four-year terms and are not term-limited.





## STATE GOVERNMENT

The chief executive of the State of Texas is the governor. Other elected officials with executive responsibilities include the lieutenant governor, attorney general, comptroller of public accounts, commissioner of the General Land Office and commissioner of agriculture. These elected offices have a term of four years.

The Texas Legislature has 181 members: 31 in the State Senate, who are elected to four-year overlapping terms, and 150 in the State House of Representatives, who are elected to two-year terms. Regular sessions of the state legislature convene on the second Tuesday of January in odd-

numbered years. The Texas Constitution limits the regular session to 140 calendar days, however, the governor may call a special 30-day session.

State legislative districts partly or entirely within the Houston MSA:

- State Senate Districts: 3, 4, 5, 6, 7, 11, 13, 15, 17, 18
- State House of Representatives Districts: 3, 13, 15, 16, 18, 23, 24, 25, 26, 27, 28, 29, 85, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150

## UNITED STATES CONGRESS

U.S. House of Representatives legislative districts partly or entirely within the Houston MSA:

- District 2 (Harris County)
- District 7 (Harris County)
- District 8 (Harris and Montgomery Counties)
- District 9 (Brazoria, Fort Bend and Harris Counties)

- District 10 (Austin, Harris and Waller Counties)
- District 14 (Brazoria and Galveston Counties)
- District 18 (Harris County)
- District 22 (Brazoria, Fort Bend and Harris Counties)
- District 29 (Harris County)
- District 36 (Chambers, Harris and Liberty Counties)

## COUNCIL OF GOVERNMENTS

The Houston-Galveston Area Council (H-GAC) is a voluntary association of local governments in the 13-county Gulf Coast Planning Region. Organized in 1966, H-GAC is comprised of 35 elected officials that represent 13 counties (Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller and Wharton), 107 cities and 11 school districts.

H-GAC is not an additional level of government, a regulatory agency or a taxing authority. Its activities are

financed by local government dues; state appropriations; and through grants and contracts with local, state and federal entities.

The council's mission is to serve as the instrument of local government cooperation, promoting the region's orderly development and the safety and welfare of its citizens.

# TAXATION

Sales and use tax in the State of Texas is 6.25 percent. The City of Houston levies an additional 1.0 percent. The Harris County Metropolitan Transit Authority levies an additional 1.0 percent in areas it serves, which includes the entire City of Houston and many of the unincorporated parts of Harris County.

## TYPICAL PROPERTY TAXES, 2017

Jurisdiction	Tax Rate per \$100 Taxable Value
City of Houston	0.58
Harris County	0.64
Houston Independent School District	1.21
Houston Community College	0.10
<b>Total Property Tax Rate</b>	<b>2.53</b>

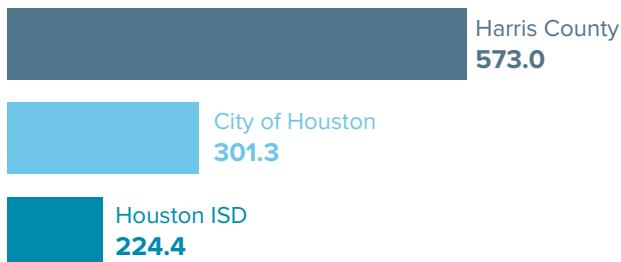
Source: Harris County Appraisal District

The table to the left shows typical tax rates for property located within Houston city limits. The tax rates are expressed as dollars per \$100 taxable value.

Ad valorem property tax is the primary source of local government revenue in the Houston region.

## FULL MARKET VALUE OF TAX ROLL

2017 (Billions)



Source: Harris County Appraisal District

# PUBLIC SAFETY

## Houston Police Department (HPD)

- HPD's budget for FY '18 is \$827.3 million.
- The budget calls for a total of 6,296 full-time-equivalent (FTE) police personnel, of which 5,118 are classified, 1,040 civilian and 138 police cadets in training.
- HPD's estimated average response time was 5.5 minutes for priority one calls and 10.1 minutes for priority two calls in '17.
- For '18, HPD has budgeted to respond to 1,160,360 dispatched calls.

## Harris County Sheriff's Office (HCSO)

- HCSO is the largest sheriff's office in Texas and the third largest in the United States.
- HCSO's FY '18 operating budget is \$489.8 million.
- The Harris County Sheriff's Office provides law enforcement protection in the unincorporated parts of the county, which is home to 2.3 million residents.
- HCSO employs 5,418 salaried personnel, comprised of

2,103 certified peace officers, 1,795 administrative and support staff, and 1,520 detention officers that work in the jails. The department also has 210 volunteer reserve deputies.

## Houston Fire Department (HFD)

- HFD is the largest fire department in the U.S. to possess a class 1 rating from the Insurance Service Organization and is the world's largest fire department to receive accreditation from the Commission on Fire Service International, with more than 100 fire stations equipped with 87 engine companies, 92 ambulances and advanced life support units, 11 boosters, 4 cascade units, 32 aerial ladder trucks, and 13 evacuation and rescue boats.
- According to FY '17 estimates, HFD performed 285,000 fire responses with an average response time of 7.3 minutes and 345,552 emergency medical service responses with an average response time of 7.3 minutes.
- HFD's FY '18 budget is \$481.2 million and calls for 4,291 FTE employees, of whom 110 are civilians.

# LIBRARIES

The Houston Public Library (HPL) is comprised of 44 branches including 31 Neighborhood Libraries, four Regional Libraries, four Express Libraries, three Special Collection Libraries, the HPL Mobile Express and a satellite library located at the Children's Museum of Houston. The system has a total collection of 3.0 million items. In '17,

1.3 million borrowers checked out 5.7 million books, e-books, audiobooks, DVDs and CDs.

The Harris County Public Library (HCPL) system is a network of 26 branches with 2.3 million items in its collection. In '17, 1.5 million borrowers checked out 9.1 million books, e-books, audiobooks, DVDs and CDs.

# EDUCATION

## SCHOOLS

The Houston MSA contains 60 independent school districts (ISDs) and 40 state-approved charter management organizations. Charter schools and ISDs in the Houston metro area enrolled more than 1.3 million students, approximately one out of every four school-aged children in the state, in Fall '16.

Houston Independent School District (HISD) is the seventh largest public school system in the nation and the largest in Texas. Encompassing 333 square miles within Greater Houston, HISD has more than 280 campuses and enrolled more than 215,000 students during the '16-'17 academic year.

### SELECTED HOUSTON-AREA INDEPENDENT SCHOOL DISTRICTS

2016-2017 Academic Year

Independent School District	Campuses	Fall '16 Total Students	Student-Teacher Ratio	Expenditures per Student (\$)	County
Houston	285	215,408	18.7	7,889	Harris
Cypress-Fairbanks	84	114,633	16.4	7,737	Harris
Katy	63	75,231	15.1	8,677	Harris
Fort Bend	75	73,750	16.5	8,094	Fort Bend
Aldine	78	69,671	15.0	8,494	Harris
Conroe	56	59,489	16.4	8,113	Montgomery
Pasadena	65	56,137	14.6	8,374	Harris
Klein	48	51,650	15.3	8,018	Harris
Alief	46	46,331	13.7	9,092	Harris
Clear Creek	46	41,679	16.9	7,871	Galveston
Humble	44	41,125	15.4	8,746	Harris
Spring	40	36,654	17.0	8,183	Harris
Spring Branch	47	35,016	15.6	8,789	Harris
Lamar	41	30,744	16.4	8,175	Fort Bend
Goose Creek	29	23,837	16.1	9,089	Harris
Alvin	27	23,466	15.3	9,977	Brazoria
Galena Park	24	22,751	16.2	9,222	Harris
Pearland	24	21,516	16.0	7,844	Brazoria
Tomball	19	14,882	15.9	8,068	Harris
New Caney	18	14,640	15.3	8,648	Montgomery
Deer Park	14	13,060	15.8	8,803	Harris
Magnolia	14	12,766	15.1	8,367	Montgomery
Brazosport	21	12,441	15.5	8,691	Brazoria
Dickinson	17	10,976	14.9	8,309	Galveston
Waller	9	6,839	17.1	8,892	Waller
Barbers Hill	9	5,254	14.5	11,168	Chambers
Sealy	4	2,813	14.2	8,230	Austin
Dayton	7	5,400	16.3	7,890	Liberty

Note: List includes all ISDs with enrollment greater than 10,000, plus the largest ISD in each Houston MSA county if each ISD had enrollment less than 10,000. Expenditures per student refers to operating expenditures from General Fund. Fall '16 total students include the total number of public school students who were reported in membership (students who are served for more than two hours per day) on October 28, 2016.

Source: Texas Education Agency, 2016–17 Texas Academic Performance Reports

## HIGHER EDUCATION

More than 430,000 students enrolled in more than 30 two-year community colleges and four-year or above universities in the Houston region in the Fall '17 semester. Undergraduates make up 87.1 percent of enrolled students.

The region also has 50 trade, vocational and business schools specialized for acupuncture, art, law, health care, funeral, religious and various other disciplines that enroll

an additional 20,000 students, according to the National Center for Education Statistics.

Two institutions in Houston MSA are designated as "Tier I," the highest ranking for research activity, according to the Carnegie Classification: Rice University and University of Houston.

### HIGHER EDUCATION ENROLLMENT IN GREATER HOUSTON, FALL 2017

Institution	Undergraduate	Graduate	Total
<b>Two-Year Community Colleges</b>	<b>207,779</b>	-	<b>207,779</b>
Lone Star College System	69,452	-	69,452
Houston Community College	49,782	-	49,782
San Jacinto Community College District	35,455	-	35,455
Blinn College District	18,465	-	18,465
Lee College	7,717	-	7,717
Wharton County Junior College*	7,050	-	7,050
Alvin Community College	5,709	-	5,709
College of the Mainland Community College District	4,328	-	4,328
Brazosport College**	4,229	-	4,229
Lamar Institute of Technology*	2,983	-	2,983
Galveston College	2,197	-	2,197
Texas State Technical College-Fort Bend	412	-	412
<b>Four-Year or Above Universities</b>	<b>167,345</b>	<b>55,519</b>	<b>222,864</b>
Texas A&M University-College Station*	50,707	12,095	62,802
University of Houston	36,092	9,272	45,364
Sam Houston State University*	18,416	2,522	20,938
Lamar University*	9,129	4,800	13,929
University of Houston-Downtown	12,079	1,834	13,913
Texas Southern University	7,967	2,270	10,237
Prairie View A&M University	7,974	1,151	9,125
University of Houston-Clear Lake	5,798	2,744	8,542
Rice University	3,970	2,934	6,904
UT Health Science Center-Houston	709	4,533	5,242
University of Houston-Victoria, Katy Campus	3,317	1,034	4,351
Houston Baptist University	2,316	1,009	3,325
UT Medical Branch-Galveston	733	2,569	3,302
University of St. Thomas	1,864	1,373	3,237
Texas A&M Health Science Center	485	2,295	2,780
University of Phoenix-Texas***	2,256	341	2,597
Texas A&M University at Galveston	1,848	150	1,998
Baylor College of Medicine	-	1,577	1,577
Art Institute of Houston***	1,364	-	1,364
South Texas College of Law Houston	-	980	980
UT M.D. Anderson Cancer Center	321	36	357
<b>Total</b>	<b>375,124</b>	<b>55,519</b>	<b>430,643</b>

\* While not located within Houston MSA, within 100 miles of the City of Houston. \*\* Brazosport also awards bachelor's degrees. \*\*\*Data for Fall '16.  
Sources: College and University websites; National Center for Education Statistics, Integrated Postsecondary Education Data System; Texas Higher Education Coordinating Board

# INFRASTRUCTURE

## UTILITIES

### Electricity and Natural Gas

Headquartered in Houston, CenterPoint Energy (CNP) is a domestic energy delivery company that includes electric transmission and distribution, natural gas distribution, competitive natural gas sales and services, interstate pipelines, and field services operations. According to CNP's '17 Annual Report:

- CNP's assets total more than \$22.7 billion.
- The company employs 7,977, of which approximately 5,000 work in Houston.
- CNP delivered 88.6 million megawatt hours of electricity to 2,444,299 customers (2,164,073 residential and 280,226 commercial/industrial).
- CNP owns and operates 3,688 overhead and 26 underground electric transmission lines, 28,883 pole miles of overhead distribution lines, 24,662 circuit miles of underground distribution lines, 235 major substation sites with a capacity of 64,924 megavolt amperes and 14 regional service centers.
- CNP delivered 412 billion cubic feet (bcf) of natural gas to 3,469,791 customers (3,213,140 residential and 256,651 commercial/industrial).
- CNP's natural gas division owns and operates an underground natural gas storage facility with a capacity

of 7.0 bcf, eight propane-air plants with a production rate of 180,000 dekatherms (dth) per day, and a liquefied natural gas (LNG) plant facility with a 12 million-gallon LNG storage tank and production rate of 72,000 dth per day.

### Telecommunications

Seven overlaid area codes serve the Houston area: 281, 346, 409, 713, 832, 936 and 979.

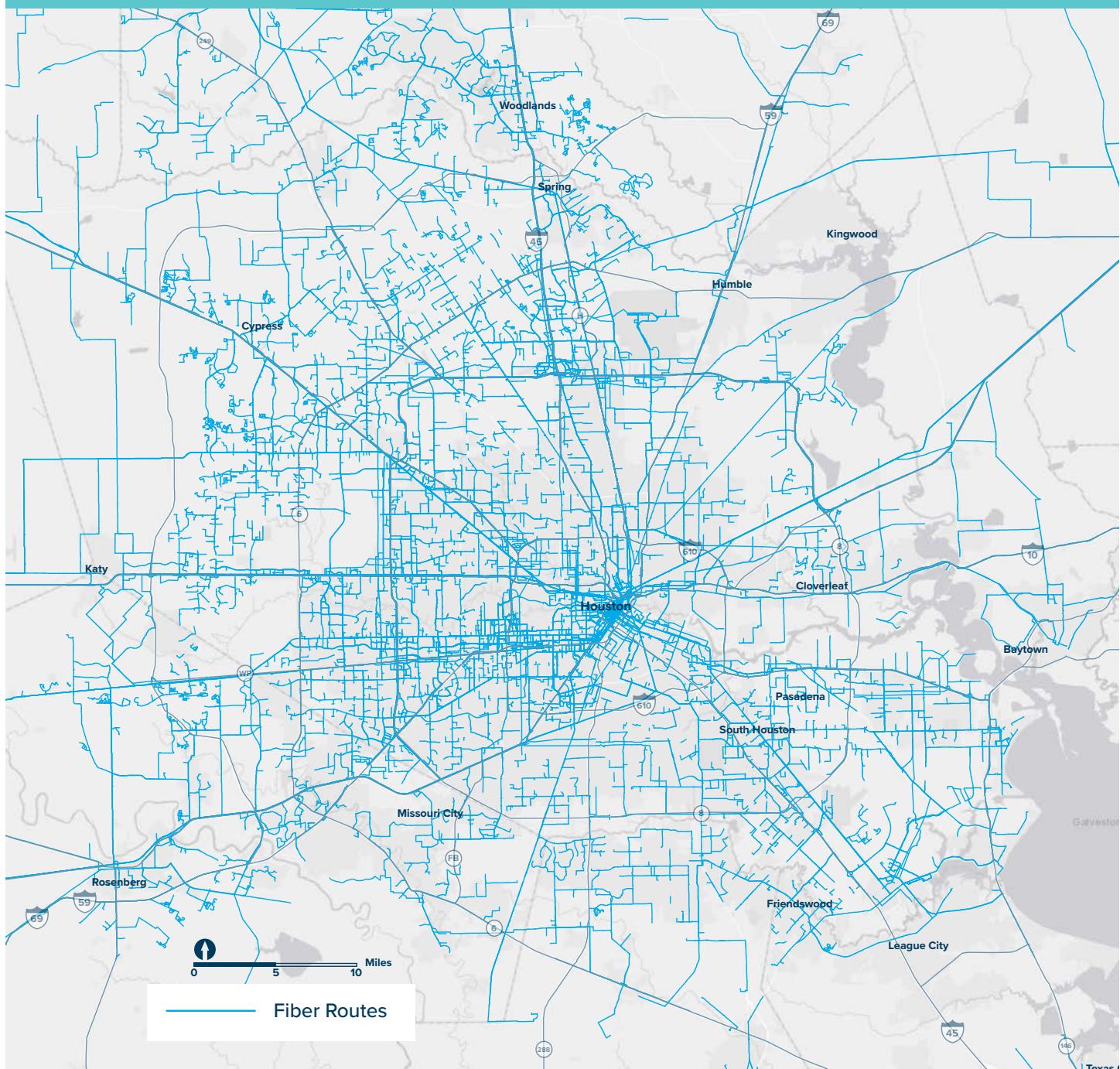
- The Public Utilities Commission of Texas (PUC) has certified 293 active Competitive Local Exchange Carriers to provide local phone service in the state.
- The Texas PUC has registered 244 active long distance Interexchange Carriers.
- More than a dozen cellular service providers offer mobile voice and data communications in the Houston MSA.

### Fiber-Optic Telecommunications

The Houston metro has 11,617 installed fiber carrier miles, the equivalent of 7,351 fiber route miles, operated by 22 fiber carriers. Fiber carrier miles are measured by strand length, while fiber route miles are measured by conduit length. A conduit can have up to 12-1,024 fiber strands inside it, and carriers can own multiple strands within each conduit.



## FIBER ROUTE NETWORK, GREATER HOUSTON



Source: Greater Houston Partnership Research analysis of GeoTel and U.S. Census Bureau data

## Water

The City of Houston is the regional water provider for Harris County and portions of the seven surrounding counties. At projected usage rates, the City has sufficient water supplies for its wholesale and retail customers through the year 2050.

The City owns water rights to over 1.2 billion gallons per day of reliable surface water and over 200 million gallons per day of available groundwater supplies.

The City of Houston owns a 70 percent share of Lake Livingston, 70 percent of Lake Conroe and 100 percent of Lake Houston. The City of Houston is also promised 70 percent of the water rights for Allens Creek Reservoir, a proposed lake in Austin County.

Houston's Drinking Water Operations produced and distributed more than 160 billion gallons of water in '17 through a 7,000-mile pipeline distribution system.

The City of Houston treated an average of 449 million gallons of water per day in '17. Most of this water is used for industrial and manufacturing purposes.

The City has four purification plants: Northeast Water Plant, East Water Plant, Southeast Water Plant and the Ground Water Treatment Process facility.

The City of Houston's drinking water system maintains a "Superior" rating, the highest rating for water quality issued by the Texas Commission on Environmental Quality (TCEQ).

## Wastewater

The City of Houston operates 39 wastewater treatment facilities, three wet weather facilities, 18 storm water underpass pump stations and over 380 sanitary lift stations. The City treats an average of 250 million gallons per day (MGD) of raw sewage with an overall permitted capacity of 564 MGD. It maintains 6,100 miles of sewer pipelines with over 127,000 manholes.

# LAND TRANSPORTATION

## Motor Freight Lines

929 long-distance trucking establishments operate in the Houston MSA.

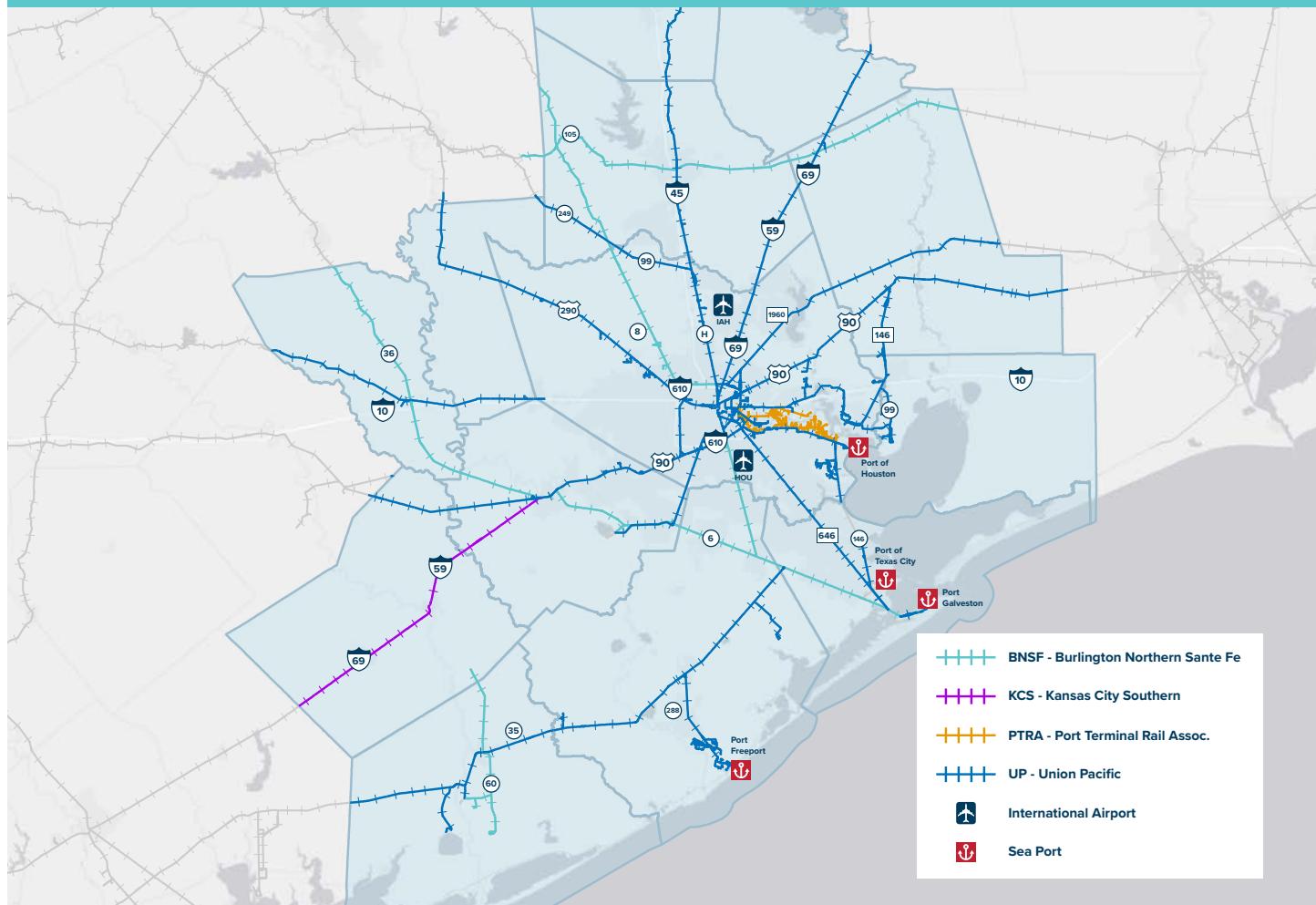
## Railroads

The Houston area is served by BNSF Railway Company, Kansas City Southern Railway Company and Union Pacific

Railroad Company. Businesses along the Houston ship channel are served by the Port Terminal Railroad Association. Fourteen mainline tracks radiate from Houston.

Amtrak provides passenger service in Houston via the New Orleans-San Antonio-Los Angeles route.

## RAIL ROADS, HIGHWAYS AND PORTS, GREATER HOUSTON



Source: Greater Houston Partnership Research

## Intracoastal Waterway

The Texas portion of the Gulf Intracoastal Waterway stretches 406 miles. The main channel is 12 feet deep and 125 feet wide. The entire Gulf Intracoastal Waterway spans 1,300 miles from Brownsville, Texas to St. Mark's, Florida.

Texas' portion of the Gulf Coast Intracoastal Waterway facilitated the transportation of 72.6 million metric tons of internal domestic cargo in '16, the latest data available.

## Freeways, Highways and Toll Roads

Within the Texas Department of Transportation (TxDOT) Houston District, 3,315 centerline miles of freeways and expressways, representing 10,767 lane miles, are in operation.

- Corridors:** Houston's major thoroughfares include I-610 Loop, I-10, I-45, SH 288, SH 6, SH 225, SH 146, US 59/I-69, US 290, US 90, Beltway 8, Fort Bend Tollway, Grand Parkway 99, Hardy Tollway and the Westpark Tollway.
- Highway Spending:** In FY '17, the TxDOT Houston District spent \$1.3 billion on construction and maintenance projects, with a 82.8 percent on-time completion rate.
- Vehicle Miles Traveled (VMT):** Motorists traveled a total of 95,724,036 vehicle miles per day in the Houston region in '17. The average daily VMT per vehicle was 17.9 miles based on the 5,356,005 vehicles registered in the region.

## PORTS

### Sea Ports

The Houston region has four seaports which handled 206.4 million metric tons of trade in '17.

### Port Houston

Among U.S. ports, the Port of Houston ranked second in total tonnage (domestic and foreign) for the 25th consecutive year and first in foreign tonnage (exports and imports) for the 21st consecutive year in '16, the most recent data

#### SEAPORTS RANKED BY FOREIGN TRADE 2017

U.S. Rank	Port	Total Trade (Metric Tons)
1	Houston	164,069,282
20	Texas City	20,263,263
23	Freeport	17,741,643
53	Galveston	4,330,479

Source: WISERTrade

## Metropolitan Transit Authority (METRO)

Created and funded with a one-cent sales tax in a 1978 voter referendum, the Metropolitan Transit Authority of Harris County began operations in January 1979.

- METRO serves an area of 1,303 square miles with 21 transit centers, 9,050 bus stops and 27 Park & Ride lots that offer 35,690 parking spaces.
- METRO's fleet included 1,245 buses, 162 paratransit vans and 76 light-rail train cars in FY '17. METRO operates 114 routes and three light-rail lines that travel 22.7 track miles.
- Total system ridership in FY '17, including fixed route buses and METRORail, METROLift, STAR Vanpool, HOV vanpools/carpools, totaled 113.4 million, down 2.6 percent from FY '16.
- Passenger boardings in FY '17 averaged 9.45 million per month.
- Daily fixed-route weekday ridership in FY '17 averaged 278,928 boardings.
- All buses on METRO's 114 bus routes and all METRORail vehicles are fully accessible to disabled patrons. METROLift offers prescheduled curb-to-curb service for disabled patrons who cannot use METRO's fixed-route service.

available from the U.S. Army Corps of Engineers. Globally, the Port of Houston ranked as the 16th largest port in the world by total tonnage.

Container service was initiated in Houston in 1956. Today the Port of Houston is the largest Gulf Coast container port, handling 68 percent of U.S. Gulf Coast container traffic and 96 percent of Texas container traffic.

The Port of Houston handled 29.1 million metric tons of containerized cargo and hauled in 2.5 million TEUs (twenty-foot equivalent units) in '17, setting new port records for both tonnage and containers handled in a year. The Port ranked as the sixth busiest U.S. container port in '17, based on total TEUs.

Foreign shipments in '17 totaled 164.1 million metric tons valued at \$131.8 billion. Foreign imports were 65.1 million metric tons, valued at \$59.9 billion. Foreign exports were 98.9 million metric tons, valued at \$71.9 billion.

The Port of Houston traded with 215 countries in '17. Of those, trade with 29 countries exceeded one billion dollars each, and trade with 176 countries exceeded one million dollars. Mexico was the Port's top trading partner by both value and weight.

## N TOTAL TRADE VALUE AND WEIGHT BY TRADING PARTNER, 2017

nd By Weight (Metric Tons) (Thousands)

Trading Partners	Value	Rank	Trading Partners	Weight
Mexico	13,527.5	1	Mexico	32,188.0
Brazil	13,198.6	2	Brazil	12,904.4
China	9,284.8	3	China	11,335.5
Japan	7,117.9	4	Japan	7,278.5
Colombia	5,690.5	5	Colombia	5,705.0
<b>Total Top 5 Trading Partners</b>	<b>48,865.0</b>			<b>69,411.4</b>
All Other Trading Partners	82,920.8			94,657.8

### Houston Ship Channel

The Houston Ship Channel, a 52-mile inland waterway, connects Houston with the sea lanes of the world. Its turning basin is eight miles east of Houston's central business district.

Most of the channel has a minimum width of 530 feet and a depth of 45 feet at mean low tide.

330 public and private terminals, owned by more than 150 companies, line both sides of the channel and serve one of the world's largest petrochemical industrial complexes.

To handle growing traffic, the Harris County Toll Road Authority has begun to replace the bridge across the ship channel. The \$962 million project should be complete in '24.

## N TOTAL TRADE VALUE AND WEIGHT BY COMMODITY, 2017

nd By Weight (Metric Tons) (Thousands)

Commodity	Value	Rank	Commodity	Weight
Mineral fuels\oil\refined products	44,602.3	1	Mineral fuels\oil\refined products	108,560.8
Organic chemicals	13,774.9	2	Organic chemicals	15,071.6
Cereals	12,162.5	3	Cereals	6,048.2
Articles of iron or steel	7,989.1	4	Articles of iron or steel	5,349.1
Plastics and plastic products	6,968.7	5	Plastics and plastic products	5,157.3
<b>Total Top 5 Commodities</b>	<b>85,497.5</b>			<b>140,186.9</b>
All Other Commodities	46,288.3			23,882.4

# AIR TRANSPORTATION

Houston is the international air gateway to South Central United States and Latin America. With the addition of international air service at Hobby Airport in '15, Houston became the only city in Texas with two airports offering international service and one of only eight such cities nationwide. Direct flights from Houston to Sydney, Australia began in January '18.

## Houston Airport System (HAS) Aviation Statistics

- HAS served 54,168,938 passengers in '17, down 0.8 percent from '16.
- International traffic decreased 3.4 percent to 11,236,597 passengers in '17. Domestic passenger totals declined 0.1 percent to 42,932,341 in '17.
- At George Bush International (IAH), domestic passengers numbered 30.4 million in '17, down 1.5 percent from '16.

- At William P. Hobby Airport (HOU), domestic traffic rose 3.7 percent to 12.6 million passengers in '17.
- The Houston Airport System handled a total of 461,425 metric tons of air freight in '17, excluding airmail. Domestic cargo accounted for 51.5 percent of total air freight, while international cargo accounted for 48.5 percent.
- In addition to IAH, HOU and Ellington Airport (EFD), the FAA lists 35 public-use airports and heliports located in the nine counties that comprise the Houston MSA: Austin County (1), Brazoria (8), Chambers (3), Fort Bend (6), Galveston (3), Harris (9), Liberty (2), Montgomery (2) and Waller (1).

Houston offers scheduled passenger air service to 118 domestic and 71 international destinations; 28 airlines provide scheduled passenger service from Houston.



## AIR CARRIERS SERVING THE HOUSTON AIRPORT SYSTEM

### George Bush Intercontinental (IAH)

#### Airlines Offering Direct Domestic Flights

Alaska Airlines, American Airlines, Delta Air Lines, Frontier Airlines, Spirit Airlines, United Airlines

#### Airlines Offering Direct International Flights

Aeromexico, Air Canada, Air China, Air France, Air New Zealand, All Nippon Airways, AVIANCA, British Airways, Emirates, EVA Air, InterJet, KLM Royal Dutch Airlines, Lufthansa, Qatar Airways, Singapore Airlines, Spirit Airlines, Turkish Airlines, United Airlines, VivaAerobus, Volaris, Westjet

### William P. Hobby Airport (HOU)

#### Airlines Offering Direct Domestic Flights

American Airlines, Delta Air Lines, JetBlue Airways, Southwest Airlines

#### Airline Offering Direct International Flights

Southwest Airlines

Note: Ellington Field Airport (EFD) was added to the Houston Airport System in 1984. It supports the operations of the U.S. military, NASA, and a variety of general aviation tenants. No major commercial airline operates at this airport; thus, it is not listed here.

Source: Houston Airport System

# COMMUNICATIONS AND MEDIA

Houston has 281 professional media outlets, including 194 print and online publications, 42 television stations and 46 radio stations. The Houston Chronicle, with nearly 1,000 employees, is the region's largest media employer. The University of Houston's KUHT, which aired its first broadcast May 25, 1953, is the oldest public television station in the U.S.

## BROADCAST

Houston's 42 television stations accounted for 1,487 jobs in '17. Top broadcast employers include: NBC-affiliate KPRC (Channel 2), CBS-affiliate KHOU (Channel 11), ABC-affiliate KTRK (Channel 13) and Fox-affiliate KRIV (Channel 26).

Houston's 46 radio stations broadcast to 69 frequencies in the region: 30 on the A.M. dial and 33 on F.M.

## DIGITAL AND PRINT

Houston's major daily newspaper is the Houston Chronicle, which was founded in 1901. The paper has the second highest readership in Texas and consistently ranks among the 15 most widely read newspapers in the country.

Other top print and digital outlets in Houston include: Bisnow, Community Impact, Culture Map Houston, Houston Business Journal, Houston Chronicle, Houston

### COMMUNICATIONS MEDIA BY TYPE

Houston MSA, 2017

	Establishments	Employment	Avg. Annual Wage (\$)
TV	42	1,487	93,510
Radio	46	991	81,036
Print	194	3,558	68,501

Source: Texas Workforce Commission, Quarterly Census of Employment and Wages

Press, Houston Public Media, Houstonia Magazine, Houston Style Magazine, Intown Magazine, Local Houston, PaperCity, Realty News Report and Swamplot.



# LIFE IN HOUSTON

## COST OF LIVING

Houston's living costs are 25.3 percent below the average of the nation's 20 most populous metropolitan areas, ranking it fourth most affordable, according to Cost of Living Index from the Council for Community and Economic Research (C2ER). Houston's overall living costs are 3.1 percent below the average for all U.S. metros.

Houston's housing costs are 44.8 percent below the average for the nation's 20 most populous metro areas and 0.1 percent below the average for all U.S. metros. Excluding the two most expensive housing markets, New York and San Francisco, which tend to skew the average, Houston's housing costs are 33.3 percent below the major metro average.

### COST OF LIVING COMPARISONS: 20 MOST POPULOUS U.S. METROS\*

Q1/2018

(Average for 263 Urban Areas = 100)

Urban Area	Composite	Grocery Items	Housing	Utilities	Transportation	Health Care	Misc.
New York (Manhattan), NY	245.4	137.3	529.0	115.6	131.0	115.7	141.8
San Francisco, CA	195.7	129.5	366.0	126.0	127.7	127.1	130.2
Washington, DC	161.8	112.4	269.8	116.4	111.9	99.8	127.6
Seattle, WA	153.0	127.8	211.6	110.8	133.2	122.0	136.5
Los Angeles, CA	147.1	108.6	238.8	111.7	121.6	106.9	110.0
Boston, MA	146.5	105.9	206.5	120.0	115.3	137.4	130.5
San Diego, CA	144.3	110.4	229.6	122.2	122.3	108.3	105.3
Chicago, IL	124.1	107.3	159.7	94.6	127.1	102.0	112.5
Baltimore, MD	117.9	111.8	148.3	108.7	108.7	89.8	104.4
Miami, FL	115.2	107.1	147.0	100.4	104.9	95.3	102.1
Philadelphia, PA	113.9	116.4	127.0	108.9	116.4	103.9	104.6
Denver, CO	111.5	96.0	135.8	85.7	97.9	105.7	109.6
Dallas, TX	106.3	114.8	105.7	107.7	96.5	106.3	105.6
Minneapolis, MN	105.0	105.8	104.2	96.1	108.1	107.0	106.8
Atlanta, GA	99.0	97.8	101.2	87.9	97.4	107.3	100.2
<b>Houston, TX</b>	<b>96.9</b>	<b>84.8</b>	<b>99.9</b>	<b>112.9</b>	<b>97.9</b>	<b>91.5</b>	<b>95.2</b>
Phoenix, AZ	96.0	99.9	95.0	109.2	95.5	97.7	91.4
Detroit, MI	95.7	89.8	92.8	91.3	106.9	94.6	98.7
Tampa, FL	90.1	103.2	72.7	91.0	101.0	96.6	95.1

\*Metro areas represented by most dominant urban area. Riverside, California, is among the 20 most populous metros, but did not submit COLI data.  
Source: Council for Community and Economic Research, Cost of Living Index, Q1/18

# WEATHER

## Temperature and Humidity

- Normal (30-year average) daily maximum temperatures: January 62.9° F; April 79.6° F; July 93.7° F; October 82.0° F.
- Normal (30-year average) daily minimum temperatures: January 43.2° F; April 59.5° F; July 75.1° F; October 60.9° F.
- Record extremes: 109°F on August 27, 2011 and September 4, 2000; 5°F on January 18, 1930.
- Humidity averaged 82 percent at midnight; 87 percent at 6:00 a.m.; 58 percent at noon; 63 percent at 6:00 p.m. in '17.
- The Houston MSA lies in a zone with 260-275 frost-free days per year.

## Precipitation

- Houston had 79.7 inches of rain in '17, significantly higher than the ten-year annual average of 50.3 inches.
- Thunderstorms occurred on 61 days in '17, higher than the ten-year average of 49.4 days per year.
- Record monthly rainfall: 39.1 inches in August '17, breaking the previous record of 19.2 inches in June '01.
- Highest daily total: 16.1 inches fell on August 27, 2017, breaking the previous record of 10.3 inches on June 26, 1989.
- Houston has had 16 measurable snowfalls since 1939.
- Record monthly snowfall: 2.8 inches in February 1973.
- Record daily snowfall: 2.0 inches in January 1973.

## Sunshine

- Houston averages 59 percent of possible sunshine annually, ranging from 45 percent in January to 70 percent in July.
- Related Normal (27-year) averages:
  - "Clear" on 90.3 days, concentrated in September, October and November.
  - "Partly cloudy" on 114.5 days, typical of June through September.
  - "Cloudy" on 160.3 days, common in December and January.
  - Fog limiting visibility to a quarter of a mile or less occurs on average 24.2 days per year.

## Wind

Prevailing wind in '17 was south-southeasterly at a mean speed of 8.0 miles per hour—slightly above the Normal (34-year average) speed of 7.5 mph.

## HOUSTON WEATHER

2017

	Average High Temperature (°F)	Average Low Temperature (°F)	Total Precipitation (inches)
January	69.4	50.4	6.1
February	76.7	56.1	2.4
March	77.9	58.5	5.6
April	82.2	61.2	1.7
May	86.5	66.2	2.4
June	90.4	73.9	7.2
July	94.5	76.2	6.3
August	91.3	76.0	39.1
September	89.9	69.7	1.2
October	83.4	60.7	3.4
November	77.9	56.5	0.5
December	63.4	44.0	3.7
<b>Annual</b>	<b>82.0</b>	<b>62.4</b>	<b>79.7</b>

Note: Recorded at George Bush Intercontinental Airport's weather station.

Source: National Oceanic and Atmospheric Administration

## Hurricane Harvey

Hurricane Harvey made landfall as a Category 4 hurricane (sustained winds of 130–156 mph) around 10 p.m., Friday, August 25, 2017 near Rockport, Texas. The storm tracked northwest, stalled, then slowly meandered south and east of Harris County for four days. Harvey made landfall three times while meandering.

Rainfall occurred over seven days, but flooding was due to an extraordinarily high four-day rainfall event of 28 to 44 inches across the county, with an isolated 47.4-inch peak at Interstate 45 and Clear Creek, according to the Harris County Flood Control District.

The four-day rainfall volume was about one trillion gallons, which would fill the Astrodome 3,200 times or run Niagara Falls for 15 days.

During the course of the storm, government agencies rescued over 60,000 people from rising waters. Tens of thousands of additional residents were rescued by civilians with boats and high-water vehicles. Nearly 34,000 residents sought refuge in the region's 65 shelters. At one point, sections of each of the region's 22 major freeways were impassable. The Harris County Flood Control District estimates 140,000 to 160,000 homes/businesses and 300,000 vehicles were flooded.

As of May '18, the Federal Emergency Management Agency had paid over 47,000 flood insurance claims (\$2.9 billion), issued nearly 16,000 small business loans (\$1.2 billion) and approved 177,600 individual requests for assistance (\$4.8 billion). The cost of the storm across its entire track is currently estimated at \$125 billion, second behind Hurricane Katrina (\$160 billion) but ahead of Hurricane Sandy (\$70 billion). The storm caused 36 fatalities in Harris County and at least 32 more across the state.



## LODGING

According to CBRE Hotels, in Q1/18, the Houston MSA had 893 major hotels and motels, with 88,293 total rooms. There were 4,484 hotel and motel rooms under construction at the time. Annual room occupancy was 66.7 percent in '17 with an average room rate of \$107.94 per night.

Houstonians offered 1,062,497 units (any space, such as an entire home, private room, or shared room listed for rent) on Airbnb in '17, of which almost half were rented out.

These 500,671 rental bookings created \$74.0 million in revenue for their owners. The average daily Airbnb rate in '17 was \$148.96. Bookings for entire homes or apartments accounted for 88.3 percent of all transactions, followed by private rooms (11.4 percent) and shared rooms (0.3 percent). The highest number of active units (at least one night sold within a month) was reached in February '17, when Houston hosted Super Bowl LI.

## DINING

Houston restaurants feature outstanding regional dishes as well as diverse international cuisine. The Houston MSA was home to 10,996 foodservice and drinking establishments that employed more than 254,000 in '17. These establishments included: 4,231 full-service restaurants, 4,206 limited-service eating places and 638 drinking establishments.

Houston MSA's food service and drinking establishments had sales of \$18.6 billion in '17, according to the State Comptroller's office.

In '18, Yelp.com listed over 80 categories of cuisine, more than 90 farm-to-table restaurants and 950 food trucks in Houston. In March '18, Houston was ranked sixth among

top food truck cities in the U.S. by the U.S. Chamber of Commerce Foundation.

In December '17, Houston was named among the country's most exciting food cities by Zagat. This ranking is echoed in Yelp's "Top 100 Places to Eat for 2018" that includes three greater Houston eateries, as well as in Texas Monthly's "2018's Best New Restaurants in Texas," of which four out of 10 restaurants are from Houston. Food & Wine's "2018 Restaurants of the Year" also lists one Houston restaurant, just as OpenTable's "100 Best Brunch Spots." One Houston-area bar was among the finalists in the Outstanding Bar Program category of the '18 James Beard Awards. In February '18, Houston chef Alex Padilla won the national TV competition "The Best Chef of the Block."

## ARTS AND CULTURE

### Performance Arts

Resident companies in drama, ballet, opera and orchestra perform year-round in Houston. More than 500 institutions are devoted to the performing and visual arts, science and history in the Houston area. Houston's nonprofit arts and culture industry generated over \$1.1 billion in total economic activity, according to the '17 Arts & Economic Prosperity report. This spending, \$579.4 million by nonprofit arts and culture organizations and an additional \$538.0 million in event-related spending by their audiences, supports 25,817 full-time equivalent jobs, generates \$801.6 million in household income to local residents and delivers \$119.3 million in local and state government revenue.

### Theater District and Venues

Houston's Theater District, located in downtown Houston, features seven renowned performing arts organizations and many smaller ones in four venues: Alley Theatre, Hobby Center for the Performing Arts, Jones Hall and Wortham Theater Center. The Theater District also includes one venue dedicated solely to dance: Houston Ballet's Center of Dance.

**Alley Theatre**, home to Houston's leading repertory company, offers two stages, the 774-seat Hubbard Stage and the 310-seat Neuhaus Stage and more than 450 annual performances in '18. Established in 1947, the theater company presents a wide-ranging repertoire of eight productions

each season. Backed by private and public contributions, the theatre underwent a \$46.5-million renovation in '14-'15.

**Hobby Center for the Performing Arts**, opened in '02, is home to Theatre Under the Stars (TUTS), Broadway Across America, the Humphreys School of Musical Theatre and Uniquely Houston (a program that provides a home venue for Houston's smaller and mid-sized nonprofit performing arts organizations in the Theater District). Its two stages have seating for 2,650 and 500.

**Houston Ballet's Center for Dance**, opened in April '11, is a 115,000-square-foot, \$47 million, six-story structure, the largest professional dance company facility of its kind constructed in the U.S.

**Jesse H. Jones Hall for the Performing Arts**, opened in 1966, is home to the Houston Symphony and the Society for the Performing Arts. The hall offers 250 events annually and seats 2,912.

**Wortham Theater Center**, built entirely with private funds at the height of the 1980's oil bust on land provided by the city, opened in 1987. The Theater is home to the opera and ballet companies, and its two halls, the Alice and George Brown Theater and the Lillie and Roy Cullen Theater, seat 2,405 and 1,100, respectively.

## Other Venues

**Berry Center**, located in Northwest Houston, includes two 11,000-seat athletic stadiums, a conference center, an 8,300-seat arena and a 456-seat theater.

**Cynthia Woods Mitchell Pavilion**, located in The Woodlands, offers outdoor performance space and accommodates approximately 16,500. Established in 1990, it presents an eclectic range of programs featuring nationally and internationally recognized artists.

**Midtown Arts & Theater Center Houston (MATCH)**, opened in '15, was formed to create a new space for Houston artists to collaborate and present their work. Over 40 arts groups provided input for the design of the venue, which offers three rehearsal studios, a 300 square-foot art gallery, offices for up to 60 arts professionals and four performance spaces varying in size from 100 to 329 seats.

**Miller Outdoor Theatre in Hermann Park** offers free performances by Houston's performing arts organizations. The city-owned theatre is located on 7.5 acres of land in Hermann Park, site of the Houston Zoo and the Garden Center. Seating is provided for 1,700 patrons under the covered pavilion. A sloping lawn accommodates approximately 4,500 more on blankets or lawn chairs.

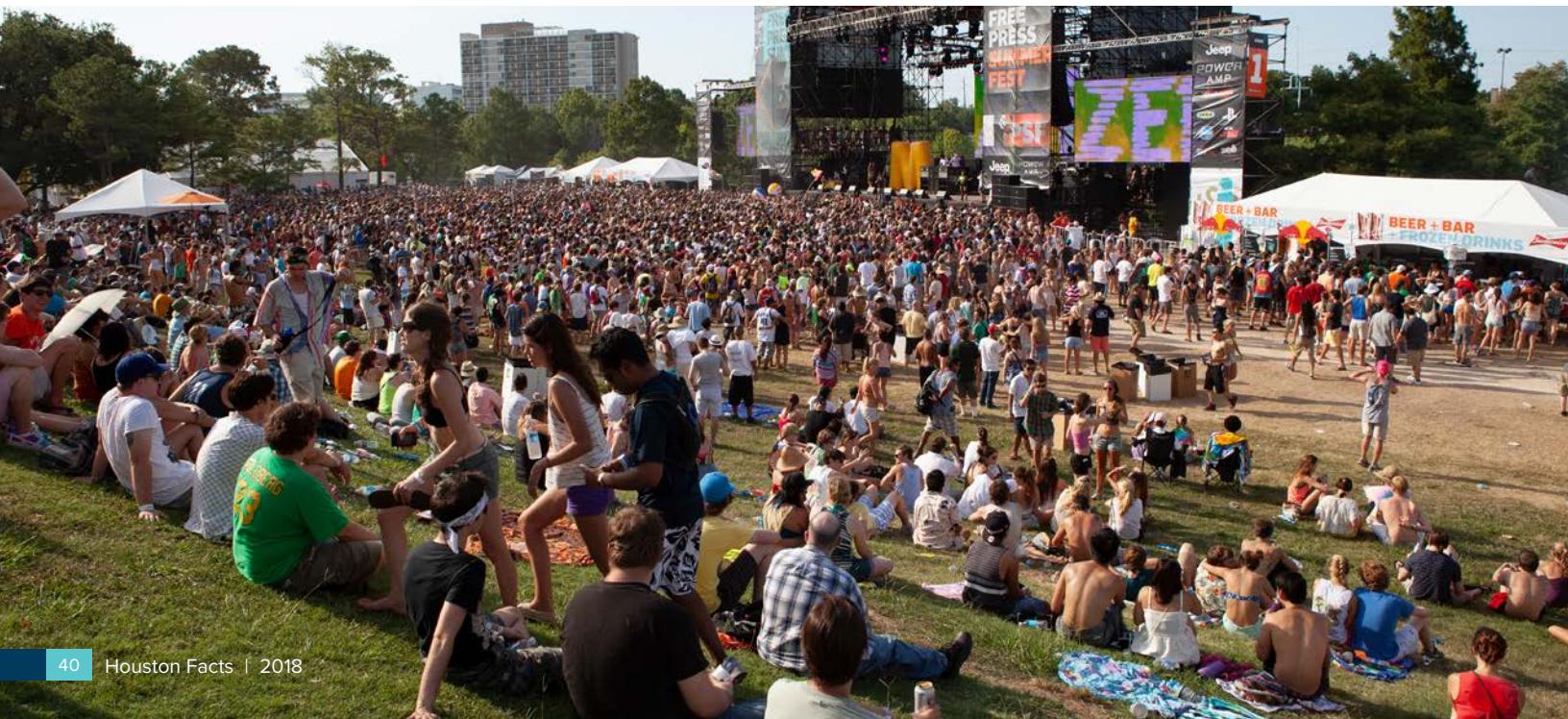
**Revention Music Center**, formerly known as the Bayou Music Center, seats 2,800 inside the 130,000-square-foot Bayou Place entertainment complex in downtown Houston.

**Smart Financial Centre**, located in Sugar Land, Texas, opened in January '17 and is a premier venue for a wide variety of performances and programs. This state-of-the-art indoor hall can seat up to 6,400.

**Stafford Centre**, located in Stafford, Texas, includes a performing arts theater with seating for 1,154 and more than 24 acres of outdoor festival green space.

**The Grand 1894 Opera House**, listed in the National Register of Historic Places, presents more than 28 productions annually. The Romanesque Revival style theater is located in Galveston and has seating for 1,040.

**White Oak Music Hall**, opened in '16, hosts over 400 live music events per year, from a diverse array of musical acts and genres, including rock, country, hip-hop, R&B and more. The venue provides two indoor performance stages, supporting 200 and 1,000 attendees, and an outdoor amphitheater that can fit over 3,000 people.



# ORGANIZATIONS

## Dance

**Houston Ballet**, founded in 1955 and established as a professional company in 1969, is the nation's fifth largest ballet company, with annual operating expenses of more than \$33.2 million and 59 dancers, many of whom have won medals at major international competitions. Houston Ballet has toured extensively over the past 15 years, appearing in Europe, Canada, Australia and cities throughout the U.S. The company gave 106 performances during the '16-'17 season. Through its Education and Outreach Program, the Houston Ballet is committed to providing high-quality, community-sponsored educational programming to the diverse populations of Houston and its surrounding areas.



## Literature

**Inprint**, founded in 1983, is a literary arts nonprofit organization that provides literary performances, writing workshops, and financial support for emerging writers. Inprint has featured more than 300 notable writers, including winners of seven Nobel Prizes, 56 Pulitzer Prizes, 53 National Book Awards, 44 National Book Critics Circle Awards, and 12 Man Booker Prizes, as well as 17 U. S. Poets Laureate at the city's top downtown performance venues and at almost no cost to the public.

## Music

**Da Camera**, founded in 1987, has established itself as one of America's leading presenters and producers of chamber music and jazz. Each year in April, Da Camera celebrates Jazz Appreciation Month by performing a series of free concerts. Da Camera provides several educational programs, to not only bring classical music and jazz in classrooms, but also to support emerging artists. In '17, Sarah Rothenberg, Da Camera's Artistic and General Director, was named among "Houston's 50 Most Influential Women."

**Houston Symphony**, founded in 1913, has an annual budget of more than \$33.9 million and maintains an internationally acclaimed orchestra of nearly 90 full-time musicians. In addition to its nearly 170 annual concerts, the musicians of the symphony offer more than 900 community-based performances each year. The symphony's long tradition of touring in recent years has included Europe, Japan, Russia, Singapore and many U.S. cities. By offering music education and community engagement programs, the symphony is committed to increase the quality of life in Houston through music and will serve over 50,000 Houstonians during the '17-'18 season. In '18, the Houston Symphony won their first ever Grammy award for Best Opera Recording of Alban Berg's Wozzeck.

**Houston Grand Opera** founded in 1955, is known worldwide and enjoys a reputation for commissioning and presenting new works by important contemporary composers,

including 66 world premieres to date. HGO presents six to eight productions per season and has an operating budget of \$27 million. Its tours have included the U.S., Europe, Japan, Italy and Egypt. The opera offers diverse, innovative and wide-reaching community and education projects. HGO has won a Tony Award, two Grammy Awards and two Emmy Awards—the only opera company in the world to have won all three honors. In '17, HGO was the only American finalist for Opera Company of the Year at the International Opera Awards.

## Performing Arts

**Society for the Performing Arts (SPA)**, founded in 1966, is the largest nonprofit presenting organization of its kind in the Southwest. SPA presents internationally acclaimed artists from the entire performing arts spectrum, traditional to avant-garde alike, from large orchestras and dance companies to recitalists and solo performers, for an entire season of events. Via their education and community engagement programs SPA creates affordable opportunities for the discovery, development and celebration of creativity on and off stage.

## Theater

**A.D. Players**, founded in 1967, is one of Houston's largest resident theater companies, which offers a unique style of theater committed to producing plays and programs that uphold human value, offer creativity and promote literacy and education. The A.D. Players offer six mainstage shows and four children's theater performances annually. In '17, the company moved to its new \$18 million 35,000-square-foot theater, now able to host 440 people.

**Ensemble Theatre**, located in midtown Houston and established in 1976, is one of the only professional theaters in the Southwest devoted to the African-American experience. Ensemble Theatre is one of the nation's largest African American theatres owning and operating its own facility and producing in-house. The theatre not only offers six

contemporary and classical works annually, but also provides education through their Performing Arts Education Program, as well as intensive youth training with their Young Performers Program. The theatre offers a 200-seat main stage, a 125-seat arena and a 500-seat grand performance hall.

**Main Street Theater (MST)** provides stimulating opportunities for Houstonians of all ages to engage with the performing arts while providing meaningful and challenging professional work for Houston theater artists. Since its opening in 1975, MST has presented 42 world premieres. Apart from MainStage productions for adults, MST offers Theater for Youth that produces plays directed to young audiences.

**Stages Repertory Theatre** founded in 1978, offers both new and classic comedies, dramas and musicals on two stages – the 171-seat Yeager Theater and the 229-seat

Arena Theater. Stages has received national recognition for its work, including coverage in The New York Times, The Wall Street Journal, Variety, Vogue and American Theatre magazine. In addition to its plays, Stages also offers education and community outreach programs to benefit youth, educators and arts professionals. Starting the '19-'20 season, Stages will move to their new \$30.5 million three-stage theater complex.

**Theatre Under the Stars (TUTS)** offers a mix of touring musicals and self-produced shows, both new works and revivals, in a winter subscription season and in popular free summer productions at Hermann Park's Miller Outdoor Theatre. It also operates the Humphreys School of Musical Theatre. The theater celebrates its 50th anniversary during the '18-'19 season.

## MUSEUMS

### Houston Museum District

The Houston Museum District is one of the country's most visited and diverse cultural centers with 19 museums within close proximity. These museums provide rich experiences in art, history, culture, nature and science. The district is divided in four walkable zones, each of which includes a group of museums.

**Asia Society Texas Center**, opened in '12, houses two art galleries along with a theater and an education center. One of only 12 Asia Society locations throughout the world, the center fosters common understanding and alliances between individuals and organizations in Asia and the West.

**Buffalo Soldiers National Museum**, founded in '01, is the only U.S. museum dedicated to preserving the legacy and honor of the African-American soldiers that served on behalf of the United States of America.

**Children's Museum of Houston**, founded in 1980, receives more than 800,000 visits annually, has hands-on galleries and offers a multitude of exhibits and programs for children through age 12.

**Contemporary Arts Museum Houston**, founded in 1948, is one of the oldest non-collecting museums in the U.S. The museum is dedicated to presenting regional, national and international art of the past 40 years through exhibitions accompanied by publications and educational programming.

**Czech Center Museum Houston**, opened in 1996, is dedicated to the exploration and preservation of Czech and Slovak heritage, including the language and arts of Bohemia, Moravia, Silesia and Slovakia. The center features a wide array of cultural events, film screenings, art exhibitions and lectures.

**DiverseWorks**, founded in 1982, presents and commissions performing, visual and literary contemporary art. DiverseWorks is a leader in the nationwide movement of artist-centered

organizations and is a vital presence in national organizations such as the National Performance Network, the Visual Artists Network and the National Dance Project.

**Holocaust Museum Houston**, opened in 1996, is dedicated to educating people about the Holocaust, remembering the six million Jews and other innocent victims, and honoring the survivors' legacy. The museum currently operates out of a temporary location while their facility is undergoing a \$50 million expansion to 57,000 square feet. The expanded and renamed Holocaust Museum Houston, Lester and Sue Smith Campus, is expected to open in spring '19.

**Houston Center for Contemporary Craft**, founded in '01, is a nonprofit arts organization dedicated to advancing education about the process, product and history of craft – it is one of the few venues in the country dedicated exclusively to craft at the highest level.

**Houston Center for Photography**, founded in 1981, brings together a community of people interested in photography and lens-based work. The center is home to an on-site library housing more than 3,800 books on photography and also offers over 300 photography classes and workshops annually.





**Houston Museum of African American Culture (HMAAC)**, established in '12, exhibits the material and intellectual culture of Africans and African Americans in Houston, the state of Texas, the Southwest and the African Diaspora.

**Houston Museum of Natural Science**, established in 1909, houses four floors of 16 permanent exhibits, the Burke Baker Planetarium, Cockrell Butterfly Center and the Wortham IMAX® 3D Theatre. The museum also maintains the George Observatory in Fort Bend County, and a satellite facility in Sugar Land. Over half a million school children visit the museum annually, including every fourth grade and seventh grade class in the Houston Independent School District.

**Houston Zoo** seeks to provide a fun and inspirational experience fostering appreciation, knowledge and care for the natural world. Currently there are over 6,000 animals attracting over 2 million guests each year.

**Health Museum**, founded in 1996, is an interactive science center and a member institution of the world-renowned Texas Medical Center. As the most visited health museum in the country, the museum currently serves more than 180,000 annual visitors. In '17, the museum was named a Smithsonian Affiliate.

**Jung Center of Houston** was founded in 1958 in honor of Carl Gustav Jung, the revolutionary psychologist. The center displays new art exhibits each month. Much of the featured artwork is generated by local and regional artists.

**Lawndale Art Center**, founded in 1979, is one of the only institutions in Houston that is dedicated to the presentation of contemporary art with an emphasis on work by regional artists.

**Menil Collection**, opened in 1987, features a highly acclaimed collection of some 17,000 works of art concentrated in four areas: antiquities, Byzantine and medieval treasures, worldwide tribal art, and paintings and sculpture. The museum includes the Cy Twombly Gallery and Richmond Hall. The museum is currently undergoing a renovation, funded through the museum's \$115 million capital campaign and will reopen in fall'18.

**Moody Center for the Arts**, completed in '17, has as its mission to encourage creative thinking and original expression, enrich curricular innovation and promote cross-campus and community collaboration through transformative encounters with the arts. In '17, the Moody received a Design Honor Award from the American Institute of Architects, California Council.

**Museum of Fine Arts, Houston (MFAH)**, was the first art museum in Texas, opened in 1924. Today, it houses nearly 65,000 works from antiquity to the present and ranks as the largest art museum in the Southwest. MFAH includes the Audrey Jones Beck Building, the Caroline Wiess Law Building, the Glassell School of Art and the Lillie and Hugh Roy Cullen Sculpture Garden. Other MFAH facilities include the Bayou Bend Collection and Gardens and Rienzi. The museum began construction of a new master planned campus transformation in summer '15. Set for completion in '19, this \$450 million expansion will include a state-of-the-art conservation center and a new tunnel system connecting various buildings.

**Rothko Chapel**, founded in 1971, is a non-denominational place of meditation and reflection that welcomes over 100,000 visitors each year. Concerts and lectures also take place here. The chapel contains 14 canvases by the painter Mark Rothko and is lit only by skylight.

## Outside the Houston Museum District

**Alliance Gallery**, managed by the Houston Arts Alliance, showcases recent work by contemporary Houston artists.

**Art League Houston**, founded in 1948, is one of Houston's longest-running nonprofits and is dedicated to showcasing local contemporary art. Art League Houston also provides art education and outreach to under-served communities.

**Blaffer Art Museum, University of Houston** established in 1973, is dedicated to furthering the understanding of contemporary art.

**Bryan Museum**, opened in '15 in Galveston, is home to the world's largest collection of historical artifacts, documents and artwork relating to the Southwestern U.S, covering some 20,000 square feet.

**Fort Bend Art Center**, opened in '18, is a multi-arts center with more than a dozen working artist-in-residence studios, an arts training and workshop space and fine art gallery.

**Harris County Heritage Society** operates ten historic buildings that date from 1823 to 1905, which the organization authentically restored and moved to Sam Houston Park. Together with the Museum Gallery, these buildings serve as historic reference points and exhibition spaces for more than 23,000 artifacts that document life in historic Houston.

**O'Kane Gallery, University of Houston—Downtown** established in 1970, annually offers about six exhibitions representing a diversity of artists, themes and mediums.

**Orange Show Center for Visionary Art** is a nonprofit organization founded in 1980 that preserves, promotes and documents visionary art environments. The center has been the producer of the annual Houston Car Parade for the past 25 years.

**San Jacinto Monument and Museum of History**, located at San Jacinto Battleground State Historic Site, features a wealth of artifacts and documents covering four centuries of Texas history. This 1,200-acre site is also a National Historic Landmark and consists of the San Jacinto battleground, the monument with observation floor, the museum of history and Battleship Texas.

## RECURRING EVENTS AND FESTIVALS

January	February	March
Chevron Houston Marathon MLK Grande Parade "Original" MLK, Jr. Birthday Parade	Mardi Gras! Galveston Texas Lunar New Year Celebration World's Championship Bar-B-Que Contest	Azalea Trail Bayou City Art Festival Memorial Park Buffalo Bayou Regatta Hermann Park Kite Festival Houston Holi: Festival of Colors Houston Livestock Show and Rodeo Houston Open In Bloom Music Festival Sugar Land Cultural Kite Festival Tour de Houston
April	May	June
BP MS 150 Houston Art Car Parade Houston Barbecue Festival Japan Festival Houston McDonald's Houston Children's Festival San Jacinto Day Festival and Battle Reenactment Southwest International Boat Show The Woodlands Waterway Arts Festival U.S. Men's Clay Court Championship WorldFest: Houston International Film Festival	Cinco de Mayo Parade and Celebration Comicpalooza Dragon Boat Festival Houston Polish Festival Houston Press Brewfest Keels & Wheels Concours d'Elegance Pasadena Strawberry Festival Rails & Tails Mudbug Festival	Caribbean Heritage Month Festival Juneteenth Celebration Pride Houston Texas Outlaw Challenge
July	August	September
Freedom Over Texas Festival Great Texas Mosquito Festival Houston Shakespeare Festival Star-Spangled Salute	AIA Sandcastle Competition Houston Black Heritage Festival Houston International Jazz Festival Houston Restaurant Weeks Theater District Open House White Linen Night in the Heights	AdvoCare Texas Kickoff Fiestas Patrias Index Fest Oktoberfest Houston
October	November	December
Bayou City Art Festival Downtown Grito Fest Houston Egyptian Festival Houston Italian Festival Original Greek Festival Pearland Art & Crafts on the Pavilion Puerto Rican and Cuban Festival Texian Market Days Texas Renaissance Festival Wings Over Houston Airshow	Day of the Dead Houston Salutes American Heroes Veterans Day Celebration Houston Turkish Festival Interfaith Thanksgiving Service at Rothko Chapel International Quilt Festival Lone Star Rally H-E-B Thanksgiving Day Parade Moody Garden's Festival of Lights & Ice Land The Nutcracker Market Texas Championship Native American Pow Wow Via Colori Zoo Lights	Candlelight Tour in the Park Christmas Boat Lane Parade Christmas Village at Bayou Bend Day for Night Dickens on the Strand Fiesta Guadalupana Mayor's Official Downtown Houston Holiday Celebration Tamale Festival Houston Texas Bowl Tomball German Christmas Market & Festival

**Space Center Houston**, the \$75-million, Disney-designed visitors' center for Johnson Space Center opened in 1992 and attracts more than one million visitors per year. It features an IMAX theater, Kids Space Place, live demonstrations, Apollo, Mercury and Gemini capsules, a space suit collection and the world's largest collection of moon rocks.

**Station Museum of Contemporary Art**, is an exhibition forum for local, national and international artists, with an emphasis on fine arts that reflects the cultural diversity of Houston's communities.

**Texas Seaport Museum** is home to the 1877 tall ship Elissa, a National Historic Landmark that has also been designated as an American Treasure by the National Trust for Historic Preservation. The museum displays information on seaborn commerce and immigration, including a database containing names of over 133,000 immigrants who entered the U.S. through Galveston.

**University Museum at Texas Southern University**, opened in 2000, exhibits both past and present art and artifacts, as



well as the vast collections of Texas Southern University. The museum has established itself as an authority on art from African American legacies.

## RELIGIOUS AND CULTURAL DIVERSITY

According to the Kinder Institute for Urban Research's 36th Annual '17 Houston Area Survey, 84.5 percent of Harris County residents report that religion is "somewhat" or "very" important to them. Among those surveyed, 44.7 percent identify as Protestant and 28.8 percent identify as Catholic. Yet, as the nation's most diverse city, Houston is also home to a wide array of faith traditions. One can experience Houston's religious diversity through the numerous mosques, synagogues, Hindu temples and even a Zoroastrian cultural center spotted across the region.

**Al-Noor Mosque** boasts a large gold dome that can be seen from I-69 and the Westpark Tollway. It is located in Houston's Hillcroft region, a vibrant center of South Asian culture within the city.

**Antioch Missionary Baptist Church**, uniquely located in the heart of downtown, is a predominantly African American church that was founded by freed slaves in 1866 and occupies an important place in Houston's history.

**BAPS Shri Swaminarayan Mandir**, is the first traditional Hindu Mandir of its kind in the U.S., located in the Stafford area. The stones used to build the temple were quarried in Turkey and Italy, and then shipped to India where 2,000 traditional artisans hand sculpted them.

**Centro Islámico**, opened in early '16, is believed to be the nation's only Spanish-speaking mosque. Located in a former bank building on Houston's far southwest side, the building's inside has architectural elements of Moorish Spain.

**Chapel of St. Basil**, located at Houston's University of St. Thomas in the Montrose district, is a cube-shaped chapel designed by renowned architect Philip Johnson.

**Co-Cathedral of the Sacred Heart** has a congregational history dating back to the 1890s. The current cathedral building opened in '08 and features a towering stained-glass display created by artisans in Florence, Italy.

**Congregation Beth Yeshurun** is important not only for its more than 100-year history but also for its location in the Meyerland area, which has the noteworthy history of being home to many Jewish Houstonians.

**Houston Blue Mosque** is a non-profit and non-political Muslim organization operating for religious, charitable, educational and literary purposes.

**Ismaili Jamatkhana and Center** opened in '02, is set by a lake on an 11.5-acre site in Sugar Land. The center is a religious venue for Shi'a Ismaili Muslims in Houston, as well as a site for community outreach, hosting events to stimulate the intellect, encourage dialogue and celebrate cultural diversity in the greater Houston area.

**Lakewood Church**, housed in a former sports arena, is one of the largest religious congregations in the United States. It is pastored by Joel Osteen and features both English and Spanish language services.

**Mohammedi Masjid**, founded in 1979, is a mosque that is home to members of the Bohra sect of Shi'a Islam. The complex features elaborate gardens and Egyptian architecture.

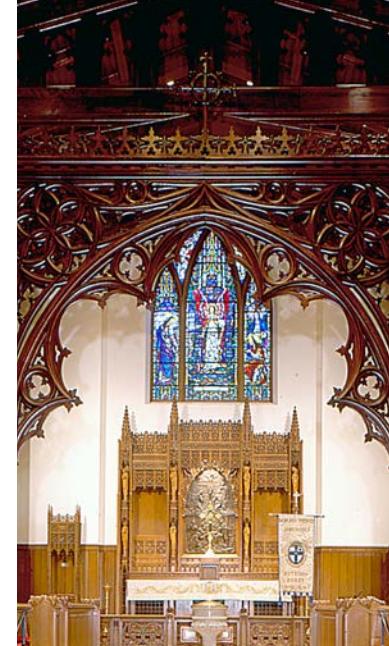
**MTO Shahmaghsoudi School of Islamic Sufism**, located along Beltway 8, is a Sufi temple that is rich in art and architecture. The energy efficient design of the building features solar panels.

**Our Lady of Guadalupe Church**, founded in 1912 in Houston's Second Ward, was the first church in Houston to offer services in Spanish. The church hosts the oldest Catholic grade school in Houston.

**St. Paul's United Methodist Church**, founded in 1905, is located in the heart of Houston's Museum District. The church is renowned for its choir and Neo-Gothic architecture.

**Texas Guandi Temple**, founded in 1999, gives Buddhist people in Houston a place to go to meditate and celebrate their diversity. The building is a focal point of Houston Old Chinatown. Materials for the building and for the interior came partly from China.

**Zarathushti Heritage and Cultural Center**, opened in May 1998, is built on a seven-acre site that was donated by community members. The Center is a house of worship for Irani Zarathushtis and Parsis from India, Iran and Pakistan.



## CONVENTION AND SPORTS FACILITIES

**Avenida Houston** is the recently renovated entertainment district in front of the George R. Brown (GRB) Convention Center. The renovation, completed in time for Super Bowl LI in February '17, houses new restaurants and a 97,000-square-foot outdoor plaza that connects the GRB to **Discovery Green** across the street. The campus includes Discovery Green's 12-acre park, public art installations, as well as two convention headquarter hotels adjoined to the GRB, the 1,200-room **Hilton Americas** and the 1,000-room **Marriott Marquis**.

**BBVA Compass Stadium**, the state-of-the-art, open-air stadium designed to host Dynamo and Dash matches, as well as additional sporting and concert events, opened in May '12. The 22,000-seat stadium is the first soccer-specific stadium in Major League Soccer located in a city's downtown district.

**Constellation Field**, opened in '12 as home of the Sugar Land Skeeters of the Atlantic League of Professional Baseball. The stadium hosts sporting events as well as concerts. It has a capacity of 7,500 spectators for baseball games (expandable to 10,000) and 9,500 for concerts.

**George R. Brown (GRB) Convention Center**, opened in 1987 and expanded in '03, offers 1.85 million square feet of exhibit and meeting space, including 773,000 square feet total exhibit space, 88 meeting rooms, seven exhibit halls, over 10,000 parking spaces and 3,600 fixed seating in its general assembly theater. Latest improvements, including the development of a grand entryway and four restaurants, were completed in December '16.

**Minute Maid Park**, the Houston Astros' retractable-roof downtown baseball stadium with seating for 41,000, opened in 2000. Renovations to its centerfield seating were completed in time for the '17 season.

**Hofheinz Pavilion/Fertitta Center**, home to the University of Houston Cougars men's and women's basketball teams, is an 8,479-seat multipurpose arena built in 1969. The arena is undergoing a \$60-million transformation into the 7,240-seat Fertitta Center, which is scheduled to open in December '18.

**NRG Park**, which occupies 350 acres and offers 26,000 parking spaces, is among the most versatile sports and meeting complexes in the United States. NRG Park includes the following venues:

### PROFESSIONAL TEAMS IN GREATER HOUSTON



**Houston Astros**  
(<sup>17</sup> World Series Champions)

Major League Baseball's  
American League  
Minute Maid Park



**Houston Dash**

National Women's  
Soccer League  
BBVA Compass Stadium



**Houston Dynamo**

Major League Soccer's  
Western Conference  
BBVA Compass Stadium



**Houston Rockets**

Western Conference in the  
National Basketball Association  
Toyota Center



**Houston Texans**  
American Football Conference  
in the National Football League  
NRG Stadium

**Houston Roller Derby**

Women's Flat Track Derby Association  
Revention Music Center

**Houston SaberCats**

Major League Rugby  
Delmar Stadium

**Sugar Land Skeeters**

Atlantic League of Professional Baseball  
Constellation Field

**Scrap Yard Dawgs**

National Pro Fastpitch  
Scrap Yard Sports Complex

- **NRG Stadium**, a 72,220-seat football stadium with a retractable roof, opened in '02. It is home to the National Football League's Houston Texans and the Houston Livestock Show and Rodeo.
- **NRG Center**, opened in '02, has 1.4 million square feet, which includes 706,000 square feet of contiguous exposition space and 59 meeting rooms.
- **NRG Arena**, has 350,000 square feet of exhibit space, an 8,000-seat arena and a 2,000-seat pavilion.
- **NRG Astrodome** debuted in 1965 as the first full-enclosed sports stadium seating 70,000. In February '18, Harris County approved a \$105 million renovation, including raising the Astrodome's floor to ground level, creating 500,000 square feet of rentable space, as well as 1,400 parking spaces. Construction is planned to begin in October '18 and will take 17 months to complete.

**Rice Stadium**, opened in 1950, is a 70,000-seat football stadium located on the Rice University campus. It has been the home of the Rice Owls football team since its completion in 1950 and hosted Super Bowl VIII in 1974. At this stadium, President John F. Kennedy made his famous challenge to America to place a man on the moon.

**TEDCU Stadium**, opened in August '14, is a \$125 million, 40,000-seat football stadium located on the campus of the University of Houston. To ensure the best level of comfort for Houston fans and student-athletes, sun and shade studies were conducted prior to construction.

**Toyota Center**, opened in '03, is a sports and entertainment center located downtown. It is home to the National Basketball Association's Houston Rockets. The center can seat 18,300 for basketball and up to 19,000 for concerts.

## MAJOR EVENTS AND CONVENTIONS

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Greater Houston has more than 4.44 million sq. ft. of convention space. According to the Greater Houston Convention & Visitors Bureau, in '17 Houston hosted 415 conventions and meetings that drew 737,335 attendees to Houston translating into an estimated economic impact of \$591.7 million.

Houston hosted its third Super Bowl (Super Bowl LI) in '17. Houston hosted its first Super Bowl in 1974 and its second in '04.

Other past major Houston-based events include '02 World Space Congress, '08 Latin Grammy Awards ceremony, '13 American Association for Clinical Chemistry, the '13 National Rifle Association, '16 Copa America Centenario and the '16 NCAA Final Four Basketball Tournament.

In '19, Houston will host two matches of the 2019 CONCACAF Gold Cup, the Confederation of North and Central America and Caribbean Association Football, in addition to the Gastech conference, held every 18 months.

## PARKS AND RECREATION

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Houston contains 53,134 acres of parkland, managed by five different entities, according to The Trust for Public Land's '17 City Park Facts report.

- Parks represent 14.4 percent of the city's adjusted land area, which subtracts airport and railyard acreage from the total city land area.
- There are 23.4 acres of total parkland per 1,000 residents, well above the median of 14.8 acres per 1,000 residents for cities of similar density.
- Of the 50 largest parks located within U.S. cities, the city of Houston contains four: Cullen Park (#12) with 9,270 acres, George Bush Park (#16) with 8,043 acres, Lake Houston Wilderness Park (#25) with 4,787 acres and Bear Creek Pioneers Park (#48) with 3,067 acres.
- Houston ranks first in total park acreage among U.S. cities with more than one million residents.
- George Bush Park is the largest county-maintained park in the United States.

### City of Houston Parks

Houston Parks and Recreation Department (HPARD) oversees 376 developed municipal parks and more than 220 green-spaces, which together encompass approximately 35,733 acres.

HPARD owns and operates 60 community centers across the city, along with the Metropolitan Multi-Service Center.

Amenities in City of Houston parks include:

- 235 Playgrounds
- 201 Tennis Courts
- 161 Baseball & Softball Fields
- 165 Miles of Trails
- 87 Soccer Fields
- 75 Baseball Practice Backstops
- 173 Basketball Courts
- 38 Pools
- 29 Water Spraygrounds

- 20 Volleyball courts
- 16 Football/Rugby/Cricket/Lacrosse Fields
- 12 Community Garden Sites
- 9 Dog Parks
- 7 Golf Courses (18-hole)
- 7 Skateparks
- 4 Nature Centers
- 5 Disc Golf Courses

#### **Major City of Houston parks:**

- **Cullen Park** (9,270 acres)
- **Lake Houston Wilderness Park** (4,787 acres)
- **Memorial Park** (1,464 acres)
- **Herman Brown Park** (717 acres)
- **Eisenhower Park** (682 acres)
- **Keith-Wiess Park** (499 acres)
- **Hermann Park** (445 acres)
- **Law Park** (314 acres)
- **Buffalo Bayou Park** (160 acres)
- **MacGregor Park** (83 acres)
- **Metropolitan Multi-Service Center** provides access to year-round activities for children and adults with disabilities.

#### **New and Recently Renovated Parks**

- **Buffalo Bend Nature Park**, opened in '16, is a 10-acre park close to Houston's ship channel that features three wetland ponds, a cistern, native plantings, pond overlook, interpretive signage and hike and bike trails.
- **Emancipation Park**, Houston's first public park, was established in 1872 and reopened in '17 after a \$33.6 million renovation. The park, located in the Third Ward area, includes a recreation center, health center, basketball court and swimming pool.

- **Evelyn's Park**, opened in '17, is a 5-acre park located in Bellaire that hosts food trucks, farmers' markets, free fitness classes and other family-oriented events.
- **Levy Park**, reopened in '17 after being completely redesigned, is a 5.9-acre park in the Upper Kirby area that includes an activity lawn, rain garden, promenade, event lawn and community gardens.
- **Midtown Park**, opened in '17, is an urban park space in the heart of Midtown Houston. The park includes an artificial bayou, art wall, garden walk and promenade, as well as an interactive water feature, dog run and unique playground.

#### **Major Downtown Houston Parks**

- **Allen's Landing**, the birthplace of the city of Houston, located at the confluence of White Oak Bayou and Buffalo Bayou.
- **Discovery Green**, a 12-acre park adjoining the George R. Brown Convention Center, opened in '08.
- **Eleanor Tinsley Park**, a section of Buffalo Bayou Park, immediately west of downtown.
- **Market Square**, Houston's original town center, is located downtown, and was donated to the city in 1854 by Augustus Allen.
- **Martha Hermann Square Park** dominated by a reflecting pool, is located at the front steps of City Hall.
- **Sam Houston Park**, the city's first park, was acquired in 1899. The park's 19.7 acres contain nine restored historic buildings.
- **Sesquicentennial Park** created to commemorate Houston's 150th birthday in 1986, is a 22.5-acre urban oasis in the heart of Houston's downtown theater district.
- **The Acre** located between One and Two Allen Center, is Houston's newest urban park.
- **Tranquility Park**, between Walker and Rusk Streets, was officially dedicated on the 10th anniversary of the first lunar landing.





## Major Harris County Parks

- **George Bush Park** (7,800 acres)
- **Cypress Creek Park** (2,700 acres)
- **Armand Bayou Nature Center** (2,500 acres)
- **Bear Creek Pioneers Park** (2,154 acres)
- **Congressman Bill Archer Park** (926 acres)
- **Terry Hershey Park** (500 acres)
- **Challenger Seven Memorial Park** (326 acres)
- **Tom Bass Regional Park** (more than 300 acres)
- **Roy Campbell Burroughs Park** (320 acres)
- **Mercer Arboretum & Botanic Gardens** (300 acres)
- **Jesse H. Jones Park & Nature Center** (275 acres)
- **Gene Green Beltway 8 Park** (250 acres)
- **Arthur Storey Park** (175 acres)

## State Parks

- **Brazos Bend State Park** (5,000 acres) is located approximately 28 miles southwest of downtown Houston in Fort Bend County.
- **Galveston Island State Park** (2,013 acres) is located southeast of Houston in Galveston County.
- **San Jacinto Battleground State Historical Park** (1,200 acres) is located 22 miles east of downtown Houston in Harris County.

- **Sheldon Lake State Park & Environmental Learning Center** (2,800 acres) is located 22 miles northeast of downtown Houston in Harris County.
- **Stephen F. Austin State Park** (663 acres) is located in Austin County.

## Golf

There are 189 golf courses within a 50-mile radius of downtown Houston, according to Golflink.com.

The City of Houston Parks and Recreation Department maintains seven municipal golf parks.

There are numerous driving ranges in Houston, including three Topgolf locations, which are multi-story driving ranges.

## Racing

**Alkek Velodrome** built in 1986, is a concrete bicycle racing track located in Houston's Cullen Park. It is one of 26 velodromes in the United States, according to USA Cycling.

**Galveston Bay Cruising Association** founded in 1947, is an all-volunteer non-profit sailboat racing club based in Clear Lake Shores.

**Gulf Greyhound Park** opened in 1992, is the world's largest greyhound racing operation, located in La Marque.

**Houston Motorsports Park** is a car racing track in Northeast Houston that features a NASCAR oval track and a NHRA drag strip.

**Royal Purple Raceway**, formerly known as "Houston Raceway Park," is a multi-purpose motorsports venue located in Baytown. The race park features a 1/4-mile drag strip sanctioned by the National Hot Rod Association (NHRA) and a 1/4-mile high-banked dirt oval speedway.

**Sam Houston Race Park** is a horse racing track located in Northwest Houston that hosts Thoroughbred and American Quarter horse races.

## Biking and Hiking

Biking options are found throughout the region and include paved and unpaved paths, mountain-bike trails and shared-road lanes

The existing bikeway network of the City of Houston offers nearly 500 miles of designated bikeways, which includes shared-use paths, separate bike lanes, bike routes and shared sidewalks. In March '17, the City Council adopted the Houston Bike Plan, which strives to make the City of Houston a safer, more accessible bike-friendly city. The long-term vision of the plan is to extend Houston's bikeway network to almost 1,800 miles.

The City of Houston is home to 56 bike share stations with over 425 bikes.



The Houston Parks and Recreation Department maintains nearly 165 miles of biking and hiking trails that loop within parks or run along streets and bayous.

## Forests

**Sam Houston National Forest**, located 50 miles north of Houston, is the largest of the four national forests in Texas. The forest contains 163,037 acres in Montgomery, San Jacinto and Walker counties.

**W. Goodrich Jones State Forest**, a largely native loblolly pine forest covering 1,725 acres, is located 40 miles north of Houston near Conroe in Montgomery County. The forest is named after W. Goodrich Jones, the founder of the Texas Forestry Association. It is owned and administered by the Texas A&M Forest Service.

## Wildlife Refuges

Houston is located along the Central Flyway, a bird migration route, and over 500 species of birds migrate through or make Houston their home. March through May is the peak migration season.

Texas National Wildlife Refuges in the greater Houston area include the Anahuac and Moody National Wildlife Refuges in Chambers County; the Brazoria, San Bernard and Big

Boggy National Wildlife Refuges in Brazoria County; and the 25,000-acre Trinity River National Wildlife Refuge in Liberty County.

Houston Audubon, one of the largest and most active chapters of the National Audubon Society, is headquartered at the Edith L. Moore Nature Sanctuary in West Houston. Prominent among its several other sanctuary locations are Bolivar Flats and High Island.

## Houston Zoo

The Houston Zoo, founded in 1922, receives 2.55 million visitors per years and is among the most-visited zoos in the U.S.

Occupying 55 acres in Hermann Park and accredited by the Association of Zoos and Aquariums, the Zoo is home to more than 7,000 animals and 450 employees.

Since '02, the non-profit corporation, Houston Zoo, Inc., has operated the zoo and invested more than \$150 million in an extensive renewal and upgrading of its facilities. In April '18, the Houston Zoo announced a \$150 million capital campaign to reimagine the entire campus, including new exhibits and redevelopment at least half of the campus. Expected completion is in '22, in time for the zoo's 100th anniversary.

# HISTORY

## 1830s

- 1836** On April 21, General Sam Houston's army wins Texas' independence from Mexico in the Battle of San Jacinto.
- 1836** Houston founded on Aug. 30 by brothers Augustus C. and John K. Allen, who pay just over \$1.40 per acre for 6,642 acres near headwaters of Buffalo Bayou.
- 1836** Allen Brothers call on Gail Borden (publisher, surveyor, originator of condensed milk) and Thomas H. Borden to survey the site. Gail Borden lays out the town's streets 80' wide, with the principal east-west street (Texas Ave.) 100' wide.
- 1837** General Sam Houston, first president of the Republic of Texas, signs an act authorizing Houston to incorporate. Houston is capital of the Republic from 1837-1839.
- 1837** The Laura is the first steamship to visit Houston.
- 1838** A bucket brigade, Protection Fire Company No. 1, is formed to fight fires.

## 1840s

- 1840** On April 4, seven Houston businessmen form the Houston Chamber of Commerce.
- 1841** Houston Police Department is formed.
- 1842** Texas' oldest newspaper, The Galveston County Daily News, is first published.
- 1846** Texas becomes the 28th state.

## 1850s

- 1850** First census after Texas joins the United States counts 2,396 Houstonians. Galveston, with 4,117 residents, is the state's largest city.
- 1853** Houston's first railroad — the Buffalo Bayou, Brazos & Colorado Railroad — begins operations.
- 1853** Texas Legislature appropriates \$4,000 for Buffalo Bayou improvements.
- 1859** Three competing firefighting companies combined into the Houston Volunteer Fire Department.

## 1860s

- 1861** City provides "land and good buildings" for a smallpox/yellow fever hospital.
- 1861** Houston and Harris County vote to secede from the Union. During the Civil War, the closest fighting is at Galveston.

- 1866** Houston's first bank, First National Bank, is founded.

- 1867** Houston Stonewalls defeat Galveston Robert E. Lees 35-2 in first recorded baseball game in Houston.
- 1868** Houston's first trolley cars (mule-drawn) appear.
- 1868** Houston's first gaslights are installed.

## 1870s

- 1870** Texas readmitted to the Union.
- 1870** Census shows Houston's population up to 9,332. Harris County's has reached 17,375, ranking it second in the state.
- 1870** Congress designates Houston a port; first survey of Houston's proposed ship channel is conducted.
- 1872** Congress makes its first appropriation — \$10,000 — for ship channel improvements.
- 1874** Houston Board of Trade and Cotton Exchange are organized.
- 1875** First grain elevator is built on the Houston Ship Channel.
- 1877** Houston's first free public schools is established.

## 1880s

- 1880** Houston's first telephone exchange is created.
- 1882** Houston Electric Light Co. is organized. Houston and New York are the first cities to build electric power plants.
- 1882** Houston gets its first arc light.
- 1887** Sisters of Charity open Houston's first general hospital.

## 1890s

- 1891** Houston is first Texas city with electric streetcars.
- 1895** Houston Business League is founded (became Houston Chamber of Commerce in 1910).
- 1895** Houston Fire Department replaces Houston Volunteer Fire Department.
- 1897** Automobile first appears in Houston as an advertising gimmick.
- 1897** Houston's first asphalt street paving is laid on Franklin St.
- 1898** Galveston Country Club opens with Texas' first recorded professionally designed golf course.
- 1899** First Houston city park opens. (This site, now Sam Houston Park, contains several of Houston's earliest buildings.)

## 1900s

- 1900** A Category 4 hurricane — deadliest in U.S. history — strikes Galveston, claiming more than 6,000 lives and causing property damage exceeding \$30 million (\$846 million in 2012 dollars).
- 1901** Houston Left Hand Fishing Club purchases the city's first automobile from Olds Motor Works of Detroit.
- 1901** Oil discovered at Spindletop. Spindletop, and later discoveries at Humble in 1905 and Goose Creek in 1906, put Houston in the center of new oil and oilfield equipment development.
- 1902** Congress appropriates \$1 million for work on the Houston Ship Channel.
- 1905** Houston has 80 automobiles.
- 1908** Houston city council sets speed limit of 8 mph.
- 1909** Houston Museum and Scientific Society, Inc., predecessor of the Houston Museum of Natural Science, is organized.
- 1909** Houston police begin using motorcycles to enforce speed limits.
- 1909** Houston Country Club opens with Houston's first professionally-designed 18-hole golf course.

## 1910s

- 1910** Congress accepts, from a group of Houston businessmen headed by the Houston Chamber of Commerce, a novel plan to split ship channel development costs between Houston and the federal government.
- 1912** Rice Institute (now Rice University) begins classes.
- 1913** Houston Symphony is established.
- 1914** George Hermann donates 285 acres to the city for a public park near Rice Institute.
- 1914** The 25-foot-deep Houston Ship Channel is completed and formally dedicated.
- 1915** First deepwater vessel, the S.S. Satilla, calls at Houston.

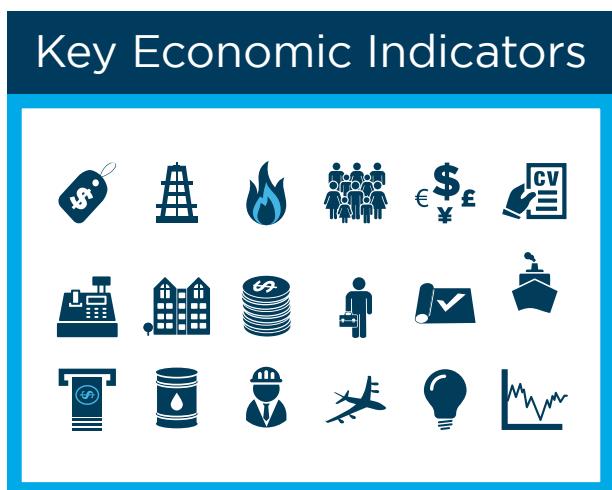
## 1920s

- 1920s-1930s** Oil refineries proliferate along the Ship Channel, taking advantage of inexpensive waterborne shipping.
- 1921** Houston adopts ordinance dedicating tax monies to its library system.
- 1923** Second National Bank becomes Houston's first air-conditioned building.

<b>1924</b>	Houston Museum of Fine Arts, the first fine arts museum in Texas, opens.	<b>1955</b>	Houston metro area population reaches 1,000,000.	<b>2000</b>	Minute Maid Park, home of Major League Baseball's Houston Astros, opens.
<b>1926</b>	Natural gas first piped into Houston.	<b>1960s</b>		<b>2001</b>	Tropical Storm Allison inundates Houston June 5-9, claiming 22 lives and inflicting \$4.9 billion in property damage, with storm precipitation as high as 35.67 inches in some areas.
<b>1927</b>	Houston Colored Junior College, the forerunner of Texas Southern University, established.	<b>1962</b>	NASA's Manned Spacecraft Center moves to Houston.	<b>2002</b>	NRG Stadium, home of the National Football League's Houston Texans, opens.
<b>1927</b>	Houston Junior College (now the University of Houston) is established.	<b>1962</b>	Houston voters reject proposed zoning ordinance.	<b>2002</b>	Hobby Center for the Performing Arts opens.
<b>1928</b>	National Democratic Convention is held in Houston.	<b>1965</b>	First event held in the Astrodome.	<b>2003</b>	Toyota Center, home of the National Basketball Association's Houston Rockets, opens.
<b>1928</b>	Municipal airport opened; air mail service to Houston begins.	<b>1969</b>	Houston Intercontinental Airport begins operations.	<b>2004</b>	Houston's first modern light rail line, 7.5-miles long, begins operations.
<b>1929</b>	City Planning Commission recommends that Houston adopt a zoning ordinance but finds scant support.	<b>1969</b>	"Houston" is the first word spoken from the lunar surface.	<b>2004</b>	Houston hosts NFL Superbowl XXXVIII.
<b>1930s</b>		<b>1970s</b>		<b>2005</b>	More than 100,000 evacuees flee to Houston from southern Louisiana in the wake of Hurricane Katrina.
<b>1930</b>	Census ranks Houston as state's most populous city at 292,352.	<b>1970</b>	The Galleria opens.	<b>2008</b>	Hurricane Ike makes landfall Sept. 13 at Galveston as a Category 2 storm, claiming at least 70 lives and causing some \$27 billion in property damage along the Texas Gulf Coast, ranking it third most costly among U.S. hurricanes.
<b>1932</b>	First Houston Fat Stock Show & Rodeo (now Houston Livestock Show and Rodeo™) held.	<b>1971</b>	Shell Oil Co. relocates corporate headquarters to Houston. More than 200 major firms move headquarters, subsidiaries and divisions here in the 1970s.	<b>2010s</b>	
<b>1934</b>	Intracoastal Canal links Houston to Mississippi River navigation system.	<b>1973</b>	Arab oil embargo quadruples oil prices in 90 days, fueling Houston's 1973-1981 economic boom.	<b>2011</b>	By November, Houston returns to 2008 pre-recession employment levels; first major metro to do so.
<b>1935</b>	Braniff International inaugurates first scheduled air passenger service to Houston.	<b>1978</b>	Voters approve and fund Metropolitan Transit Authority.	<b>2012</b>	BBVA Compass Stadium, home of Major League Soccer's Houston Dynamo, opens.
<b>1940s</b>		<b>1980s</b>		<b>2013</b>	A \$60-billion boom in chemical plant construction begins along the Gulf Coast. Construction boom helps to offset job losses in energy over the next two years.
<b>1940s</b>	Petrochemical complex develops, taking feedstocks from nearby refineries.	<b>1982</b>	Employment peaks at 1,583,400 in March before onset of recession.	<b>2014</b>	Oil prices peak at \$108 per barrel in June before plunging 75% over the next 18 months devastating the local energy industry. Nearly 80,000 energy-related jobs are lost.
<b>1941</b>	New master plan for Houston thoroughfares emphasizes a loop system.	<b>1983</b>	155 office buildings completed in 12 months.	<b>2015</b>	Hobby Airport launches international service with the opening of the airport's first international terminal.
<b>1943</b>	Texas Medical Center is founded.	<b>1983</b>	Voters approve creation of Harris County Toll Road Authority.	<b>2015</b>	Ellington Airport receives a commercial spaceport license by the Federal Aviation Administration.
<b>1946</b>	Houston Golf Assn. hosts its first PGA Tour event — now the Shell Houston Open, 10th oldest event on the PGA schedule.	<b>1987</b>	Trough of recession in January; net recession loss of 221,900 jobs.	<b>2016</b>	The energy downturn bottoms out and a slow recovery begins.
<b>1947</b>	Houston College for Negroes acquired by Texas Legislature; established as Texas State University for Negroes (now Texas Southern University).	<b>1987</b>	Wortham Center, home to Houston Ballet and Houston Grand Opera, opens.	<b>2017</b>	Houston hosts NFL Superbowl LI.
<b>1947</b>	Alley Theatre established.	<b>1989</b>	Houston Chamber of Commerce, Houston Economic Development Council and Houston World Trade Association combine to form Greater Houston Partnership.	<b>2017</b>	Hurricane Harvey inundates Houston with five days of rain. Total rainfall exceeds 50 inches in many parts of the region.
<b>1948</b>	Engineering begins on the Gulf Freeway, Texas' first freeway.	<b>1990s</b>		<b>2017</b>	The American League Houston Astros defeat the National League Los Angeles Dodgers to win Major League Baseball's World Series.
<b>1948</b>	Houston voters reject proposed zoning ordinance.	<b>1990</b>	Houston economic recovery complete; April job count above March 1982 level.	<b>2018</b>	Plans announced to develop new hub for Innovation District in Midtown.
<b>1948</b>	Dec. 31 annexation expands Houston's area from 74.4 to 216 square-miles.	<b>1990</b>	Houston hosts 16th annual Economic Summit of Industrialized Nations.		
<b>1948</b>	Port of Houston ranks second nationally in total tonnage.	<b>1991</b>	Houston City Council mandates first zoning regulations.		
<b>1949</b>	KLEE-TV broadcasts first Houston commercial TV program.	<b>1992</b>	Republican National Convention held in Houston.		
<b>1950s</b>		<b>1993</b>	Houston voters reject proposed zoning ordinance.		
<b>1953</b>	KUHT-TV, the nation's first public broadcast TV station, goes on the air.	<b>2000s</b>			
<b>1955</b>	Houston Grand Opera Association and Houston Ballet founded.	<b>2000</b>	Census finds Houston MSA has no racial or ethnic majority.		

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