

HOUSTON FACTS

2019

GREATER HOUSTON PARTNERSHIP



Discover the
Houston Region

The facts speak for themselves.

Austin | Brazoria | Chambers | Fort Bend | Galveston | Harris | Liberty | Montgomery | San Jacinto | Walker | Waller

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.

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 1.6 million Houstonians, or roughly one in four, were born outside the U.S.**
- **If Houston were a country, it would rank as the 26th largest economy in the world—exceeding Thailand's and Iran'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

HOUSTON MSA
9,444 square miles¹

HARRIS COUNTY
1,778 square miles¹

HOUSTON
665 square miles¹



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.² Within these nine counties are 124 incorporated cities and 33 Census Designated Places (CDP).³

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 33 incorporated cities and 12 CDPs. Small portions of Houston spread into adjacent Montgomery and Fort Bend counties.

¹The 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.

²A Census Designated Place functions like a city or town but is not incorporated.

³Combined land and water area

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: 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 City and Seattle with room still to spare.

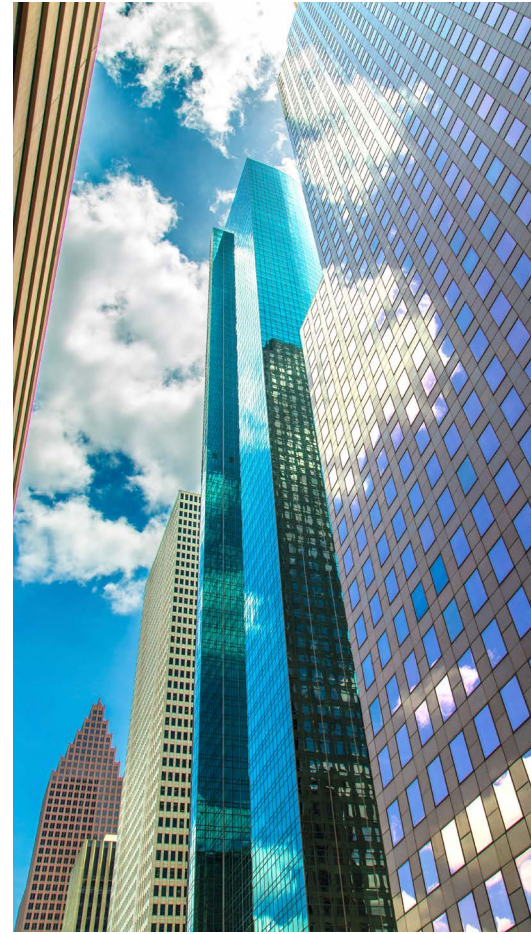
At 665 square miles, the **City of Houston** is larger than the cities of Chicago, Dallas, Los Angeles, New York, Phoenix and San Diego.

POPULATION

The nine-county **Houston MSA** had a population of 6,997,384 residents as of July 1, 2018, 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 (7,171,646) and ahead of Massachusetts (6,902,149) and Tennessee (6,770,010).

Harris County had a population of 4,698,619 residents as of July 1, 2018, according to estimates by the U.S. Census Bureau. If Harris County were a state, it would have the 25th largest population in the U.S., behind Alabama (4,887,871) and ahead of Louisiana (4,659,978) and Kentucky (4,468,402).

The **City of Houston** had a population of 2,325,502 residents as of July 1, 2018, according to estimates by the U.S. Census Bureau. If the city were a state, it would rank 35th in population in the U.S., behind Kansas (2,911,505) and ahead of New Mexico (2,095,428) and Nebraska (1,929,268).



ECONOMY

The U.S. Bureau of Economic Analysis estimates the Houston MSA's Gross Domestic Product (GDP) at \$490.1 billion in '17, making it the seventh largest U.S. metro economy. If Houston were a state, its GDP would rank 15th, behind Michigan (\$508.9 billion) and ahead of Maryland (\$399.5 billion) and Indiana (\$352.3 billion).

If the MSA were an independent nation, it would rank as the world's 26th largest economy, behind Belgium (\$495.8 billion) and ahead of Thailand (\$455.3 billion) and Iran (\$430.7 billion), according to the International Monetary Fund.

Selected Key Economic Indicators for '18

- The Houston Association of Realtors Multiple Listing Service recorded closings on 98,348 properties (includes single-family homes, townhomes, condos, high rises, etc.), an average of one every 5.3 minutes.
- Houston MSA automobile dealers sold 303,417 new cars, trucks and SUVs, an average of one every 1.7 minutes.
- The Houston Airport System handled 58,284,008 passengers, an average of 111 passengers per minute.
- The City of Houston issued building permits for construction valued at \$6.1 billion, an average of \$11,587 per minute.

DEMOGRAPHICS

DECENNIAL CENSUS AND INTERCENSAL POPULATION

Year	Metro Houston	Harris County	City of Houston
2018	6,997,384	4,698,619	2,325,502
2010	5,920,487	4,092,459	2,099,451
2000	4,693,161	3,400,578	1,953,631
1990	3,750,411	2,818,199	1,637,859
1980	3,135,806	2,409,544	1,594,086
1970	2,195,146	1,741,912	1,232,802
1960	1,594,894	1,243,158	938,219
1950	1,083,100	806,701	596,163
1940	752,937	528,961	384,514
1930	545,547	359,328	292,352
1920	348,661	186,667	138,276
1910	252,066	115,693	78,800
1900	202,438	63,786	44,633
1890	137,800	37,249	27,557
1880	112,053	27,985	16,513
1870	80,866	17,375	9,382
1860	55,317	9,070	4,845
1850	27,984	4,668	2,396

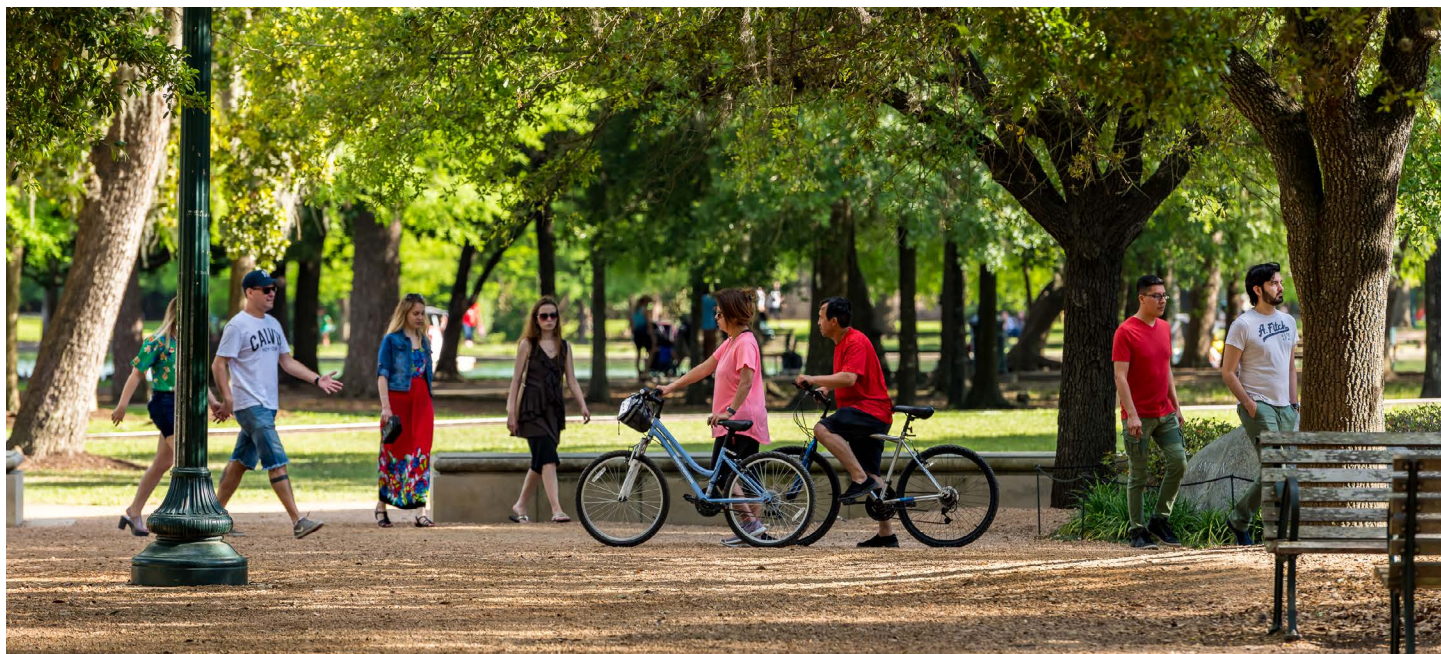
Source: U.S. Census Bureau, Texas Almanac

POPULATION AND PEOPLE

The **Houston-The Woodlands-Sugar Land MSA's** population of 6,997,384 residents on July 1, 2018 ranks fifth among the nation's metropolitan areas. The Houston MSA had the third largest numeric increase (91,689) in population of any U.S. metro from July 1, 2017 to July 1, 2018, reflecting 1.3 percent growth.

Harris County, population of 4,698,619 on July 1, 2018, is the third most populous county in the nation. Among all U.S. counties, Harris County had the third highest numeric population increase between July 1, 2016 and July 1, 2017, gaining 34,460 new residents. The county led the nation in population growth each year from '11 to '15, slipping in subsequent years.

The **City of Houston**, the fourth most populous U.S. city, had a population of 2,325,502 on July 1, 2018. Houston added 8,057 residents from July 1, 2017 to July 1, 2018, the equivalent of 0.3 percent. Slower growth for the city was expected, given the persistent weakness in the local economy during that period.



COMPONENTS OF POPULATION CHANGE

Metro Houston, 2010 – 2018

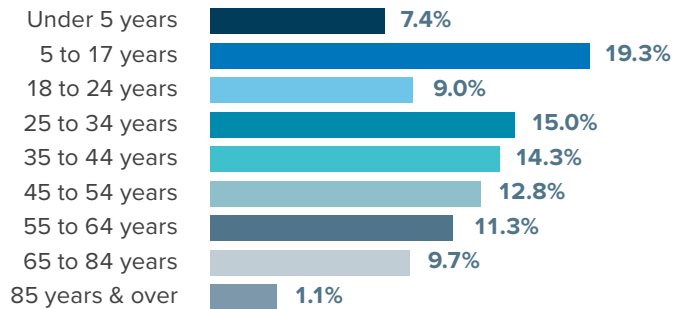
Geography	Population		Population Change Since '10				Total Population Change
	'10	'18	Net Migration		Natural Increase		
			International	Domestic	Births	Deaths	
Houston MSA	5,920,487	6,997,384	322,120	261,990	798,397	308,126	1,076,897
Austin County	28,412	29,989	235	784	2,813	2,241	1,577
Brazoria County	313,123	370,200	4,825	31,224	39,071	18,218	57,077
Chambers County	35,099	42,454	627	4,765	4,128	2,209	7,355
Fort Bend County	584,690	787,858	39,279	111,760	74,264	23,657	203,168
Galveston County	291,307	337,890	4,555	29,486	33,346	21,057	46,583
Harris County	4,093,188	4,698,619	259,047	-23,113	573,962	203,745	605,431
Liberty County	75,641	86,323	561	7,502	8,944	6,320	10,682
Montgomery County	455,750	590,925	12,578	92,845	56,794	28,230	135,175
Waller County	43,277	53,126	413	6,737	5,075	2,449	9,849

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, 2018 Population Estimates

AGE DISTRIBUTION

Houston MSA, 2017



Note: Sums may not total due to rounding.

Source: U.S. Census Bureau, 2017 American Community Survey

Nearly one in four Houstonians was born outside the U.S. Among the 1,629,242 foreign-born in the Houston metro area, 75.4 percent entered the U.S. before '10.

Top regions of birth for the Houston MSA's foreign-born are: Latin America (63.1 percent), Asia (25.1 percent), Africa (5.8 percent) and Europe (4.6 percent).

SELECTED DEMOGRAPHIC CHARACTERISTICS

Metro Houston, 2017

Geography	Median Age	Total Households	Average Household Size	Percent of Adults with Bachelor's Degree or Higher	Foreign-Born Percent of Total Population
Houston MSA	34.4	2,324,758	2.9	32.4	23.6
Austin County	40.9	11,021	2.6	22.3	10.6
Brazoria County	35.6	117,088	2.9	29.7	13.1
Chambers County	35.4	13,320	2.9	20.5	9.4
Fort Bend County	35.8	222,331	3.2	45.7	27.6
Galveston County	37.6	117,455	2.7	29.5	9.8
Harris County	33.1	1,562,813	2.9	30.5	26
Liberty County	35.8	25,974	2.8	9.3	7.5
Montgomery County	36.7	186,861	2.9	33.7	13
Waller County	28.8	14,698	3.0	19.2	14.8

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

Source: County data from U.S. Census Bureau, 2013-17 American Community Survey; MSA data from U.S. Census Bureau, 2017 American Community Survey

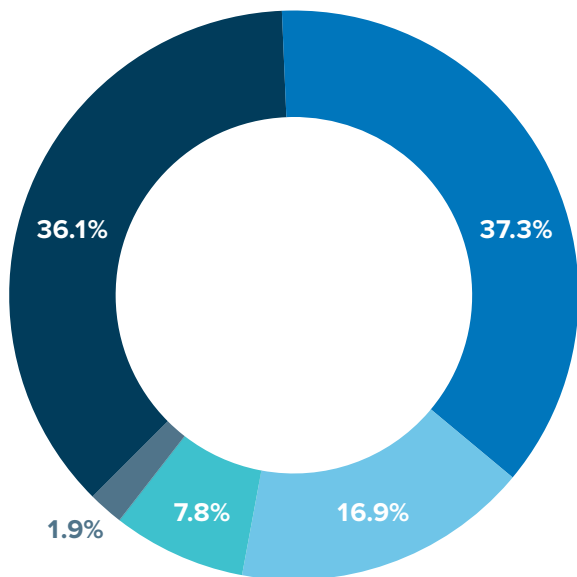
REFUGEES

Metro Houston accepted 523 refugees in '18, nearly a third 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 '18 declined 38.2 percent from the 723 received the previous year. The number of refugees resettled in the U.S. overall declined 45.9 percent during the same period.

RACE / ETHNIC COMPOSITION

Houston MSA, 2017



- White
- Hispanic/Latino
- Black/African American
- Asian
- Other

Note: Hispanic/Latino includes all races. Sums may not total due to rounding.
Source: U.S. Census Bureau, 2017 American Community Survey

EDUCATIONAL ATTAINMENT

Houston MSA, 2017

Highest Education Level Attained	Population Age 25 or Older	
	Number	Percent
No High School Diploma	729,054	16.4
High School Graduate or Higher	3,696,786	83.5
High School Diploma or GED	1,025,879	23.2
Some College, No Degree	917,211	20.7
Associate Degree	320,624	7.2
Bachelor's Degree or Higher	1,433,072	32.4
Bachelor's Degree	518,407	20.7
Graduate or Professional Degree	914,665	11.7
Total population age 25 or older	4,425,840	100.0

Note: Sums may not total due to rounding.
Source: U.S. Census Bureau, 2017 American Community Survey

INCOME

Per Capita Personal Income

The nine-county Houston MSA pretax per capita personal income (PCPI) in '17 was \$52,765, 2.2 percent above the U.S. average of \$51,640, according to the latest data available by the U.S. Bureau of Economic Analysis (BEA). PCPI increased 3.0 percent in the Houston MSA, compared to 3.6 percent nationwide from '16 to '17.

Total Personal Income

Total personal income, defined as income received from all sources, in the nine-county Houston MSA in '17 was \$363.7 billion, up 4.4 percent from '16, according to BEA data.

WAGES

The average weekly wage in metro Houston was \$1,277 in the four quarters ending Q3/18, according to the Texas Workforce Commission. Total wages for the metro area were \$195.5 billion for the same period.

TOTAL WAGES

Metro Houston, 2018*, (\$ Millions)

Houston MSA	195,509.0
Austin County	479.0
Brazoria County	6,563.1
Chambers County	962.1
Fort Bend County	9,636.6
Galveston County	5,366.4
Harris County	160,671.9
Liberty County	818.3
Montgomery County	10,232.8
Waller County	778.8

*Note: Four quarters ending Q3/18. Sums may not total due to rounding.
Source: Texas Workforce Commission, Quarterly Census of Employment and Wages

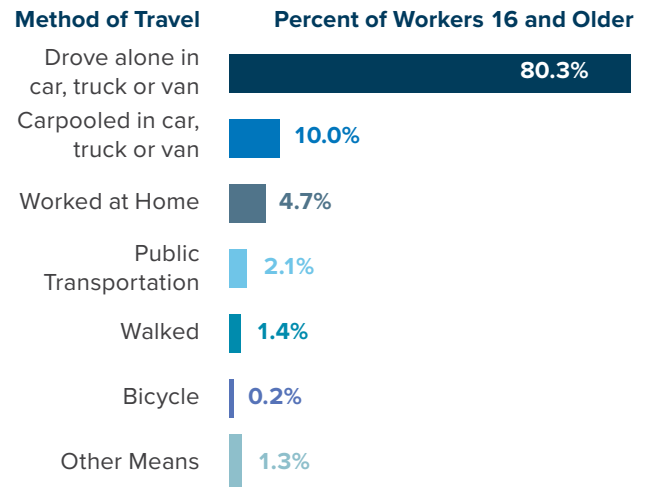
COMMUTING TO WORK

Average travel time to work: 29.9 minutes in '17.

COMMUTING TO WORK

Houston MSA, 2017

Average travel time to work **29.9 minutes**



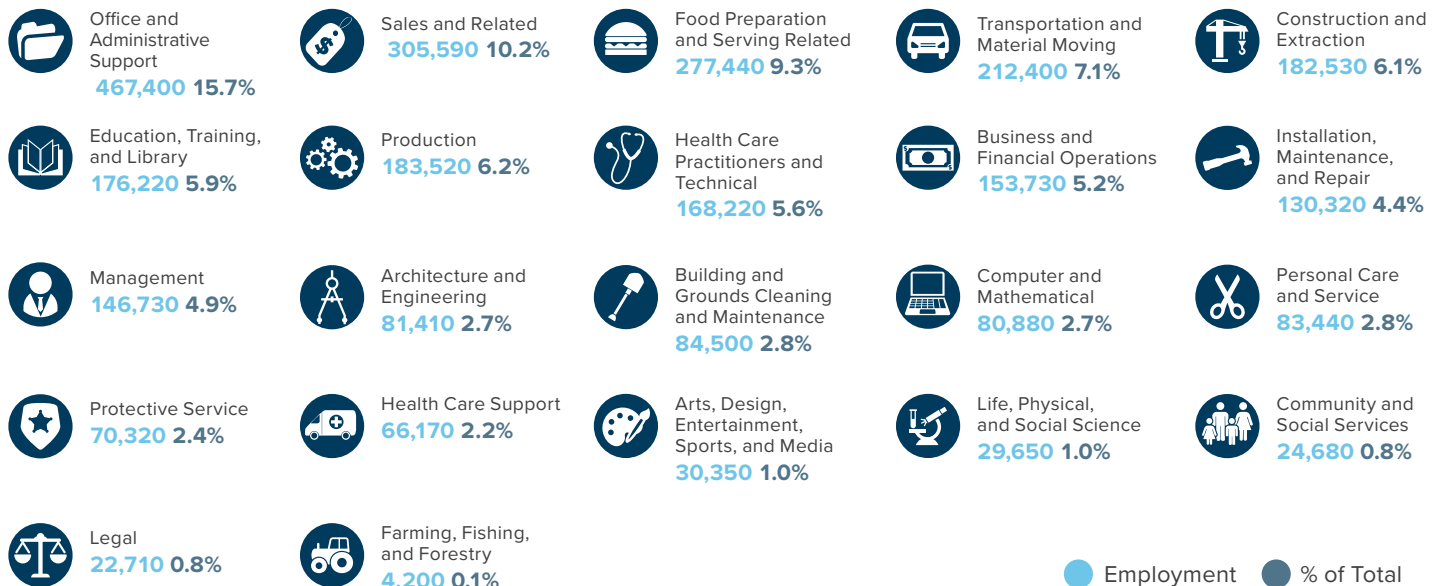
Note: Sums may not total due to rounding.
Source: U.S. Census Bureau, 2017 American Community Survey

METRO HOUSTON OCCUPATIONS

OCCUPATIONS

Houston MSA, 2018

Total Occupation Employment **2,982,410**



Source: U.S. Department of Labor, Bureau of Labor Statistics, 2018 Occupation Employment Statistics

HOUSTON ECONOMY

Over the past decade, Houston has endured two economic downturns (the Great Recession and the Fracking Bust) and two major storms (Hurricanes Ike and Harvey), yet the region has demonstrated remarkable growth and resiliency over that period. From '08 to '18, Houston has gained 1.4 million residents, created more than 500,000 jobs and added \$100 billion to its gross domestic product (GDP).

Houston lost 120,000 jobs in the Great Recession but was among the first to recover, recouping all the jobs lost in less than two years. Houston went on to lead the nation in job growth, averaging 100,000 per year during the height of the fracking boom ('10 – '14). Population growth exceeded 170,000 new residents in some years.

Oil prices fell from over \$100 per barrel in June '14 to \$26 per barrel in February '16 and the energy industry proceeded to shed nearly 93,000 jobs. Construction, retail, health care, business and professional services and hospitality grew, but not enough to offset the layoffs in oil and gas. Houston lost 4,900 jobs in the downturn, by any standards a relatively mild recession. Population growth responded in a like manner, dropping to around

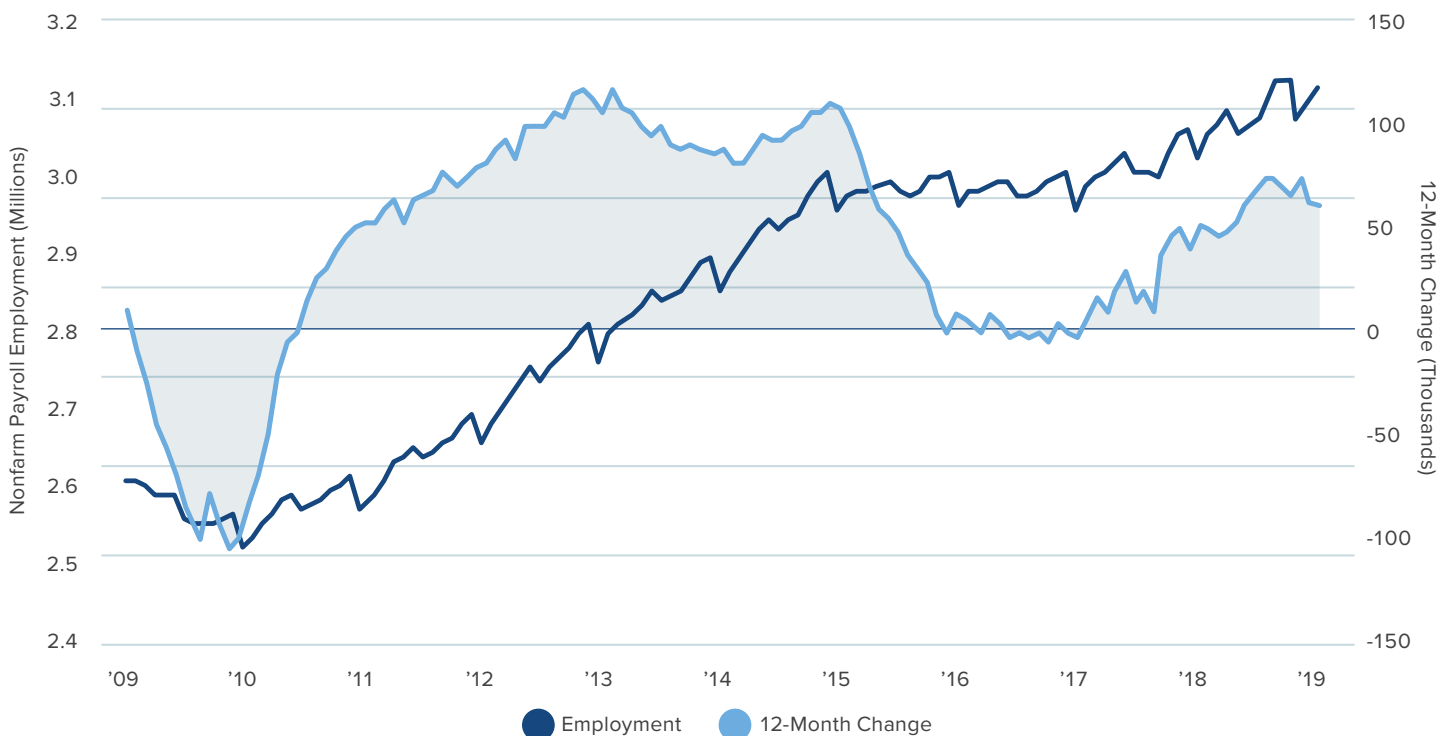
93,000 new residents in '17 and 92,000 in '18, the gains coming solely from the net natural increase (births minus deaths) and international migration.

Job growth resumed mid-'17, aided by a healthy U.S. economy and strong ties to a growing global economy. The Brookings Institution estimates that 17.3 percent of Houston's GDP is now tied to exports, up from just 8.9 percent in '03.

The current economic outlook remains bright for Houston. The region is on pace to add 71,000 jobs, build more than 30,000 single-family homes and handle more than \$240 billion in foreign trade in '19. Population growth always lags job growth by one to two years, so Houston probably won't return to its long-term average of 125,000 new residents per year until '20 or later. Though population gains have slowed, Houston consistently ranks among the top five metros for growth. The Perryman Group calls for the region's population to hit 8.4 million, payroll employment to reach 4.0 million and GDP to top \$1.0 trillion by the end of the next decade.

PAYROLL EMPLOYMENT

Metro Houston



Source: Texas Workforce Commission, Employment Estimates

EMPLOYMENT BY INDUSTRY

Houston MSA, 2018 (Annual Average)

Industry	Jobs (000)	% of Total
GOODS PRODUCING	529,2	17.2
MINING AND LOGGING	79,1	2.6
Oil and Gas Extraction	36,7	1.2
Support Activities for Mining	41,2	1.3
CONSTRUCTION	221,1	7.2
MANUFACTURING	229,0	7.4
Durable Goods	145,0	4.7
Non-Durable Goods	83,9	2.7
TRADE, TRANSPORTATION AND UTILITIES	624,9	20.3
Wholesale Trade	168,8	5.5
Retail Trade	307,7	10.0
Transportation, Warehousing and Utilities	148,3	4.8
SERVICE PROVIDING	2,555,5	82.8
INFORMATION	31,6	1.0
FINANCIAL ACTIVITIES	164,1	5.3
Finance and Insurance	102,9	3.3
Real Estate and Rental and Leasing	61,2	2.0
PROFESSIONAL AND BUSINESS SERVICES	493,7	16.0
Professional, Scientific, and Technical Services	228,0	7.4
Management of Companies and Enterprises	46,9	1.5
Admin and Support and Waste Mgmt.	218,8	7.1
EDUCATIONAL AND HEALTH SERVICES	393,5	12.8
Educational Services	60,8	2.0
Health Care and Social Assistance	332,7	10.8
LEISURE AND HOSPITALITY	325.0	10.5
Arts, Entertainment, and Recreation	35.3	1.1
Accommodation and Food Services	289.7	9.4
OTHER SERVICES	111,7	3.6
GOVERNMENT	411,1	13.3
TOTAL NONFARM	3,084,7	100.0

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, 2018 Current Employment Statistics



CORPORATE ECONOMY

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

The region ranks sixth on the 2018 Fortune Global 500 list, and 53 of the 100 largest non-U.S.-based corporations have a presence in Houston.

The Texas Workforce Commission reports that Metro Houston is home to more than 157,000 establishments.

HOUSTON-HEADQUARTERED COMPANIES

	Number of Companies	Metro Rank
2018 Fortune 500	21	4
2018 Fortune 1000	44	3
2018 Fortune Global 500	6	6
2018 Forbes Global 2000	23	5
2018 Inc. 5000	100	13

Source: Fortune, Forbes and Inc.

The three industries with the most establishments are professional, scientific, and technical services; health care and social assistance; and retail trade. These three industries comprise 38.0 percent of the region's business establishments. Over half of the metro's 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
TOTAL	139,010	100.0

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

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 19 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. The Houston/Galveston Customs District handled 19.5 million metric tons in exports valued at \$140.5 billion in '18, according to WISERTrade. These exports accounted for 60.3 percent of the value of total trade that passed through the region in '18—a 15-point increase from 44.9 percent in '09.

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).

ESTABLISHMENTS BY INDUSTRY

Houston MSA, 2018*

Industry	Number	Percent
Professional, Scientific, and Technical Services	21,764	13.9
Health Care and Social Assistance	19,954	12.7
Retail Trade	17,998	11.5
Other Services (except Public Administration)	15,041	9.6
Accommodation and Food Services	12,565	8.0
Construction	11,071	7.0
Wholesale Trade	10,931	7.0
Finance and Insurance	9,010	5.7
Administrative and Support and Waste Management and Remediation Services	8,584	5.5
Real Estate and Rental and Leasing	7,663	4.9
Manufacturing	6,388	4.1
Transportation and Warehousing	4,618	2.9
Educational Services	2,011	1.3
Mining, Quarrying, and Oil and Gas Extraction	1,917	1.2
Unclassified	1,781	1.1
Arts, Entertainment, and Recreation	1,651	1.1
Information	1,614	1.0
Management of Companies and Enterprises	789	0.5
Public Administration	708	0.5
Agriculture, Forestry, Fishing and Hunting	577	0.4
Utilities	504	0.3
Total	157,137	100.0

*Note: Four quarters ending Q3/18. Sums may not total due to rounding.

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

HOUSTON'S TOP EMPLOYERS

More Than 20,000 Employees

H-E-B	UT MD Anderson Cancer Center
Houston Methodist	Walmart
Memorial Hermann Health System	

10,000 to 19,999 Employees

ExxonMobil	National Oilwell Varco	Texas Children's Hospital
HCA	Schlumberger	United Airlines
Kroger	Shell Oil Co.	UT Medical Branch Health System

5,000 to 9,999 Employees

AT&T	CHI St. Luke's Health	Houston Community College	S&B Engineers and Constructors
Baker Hughes, a GE Company	Dow Chemical Co.	JPMorgan Chase	Target Corp.
Baylor College of Medicine	Halliburton	KBR	University of Houston
BP America	Harris Health System	Lone Star College	UT Health Science Center at Houston
CenterPoint Energy	Hewlett Packard Enterprise	Michael E. DeBakey VA Medical Center	Walgreens
Chevron	Home Depot		

2,000 to 4,999 Employees

Academy Sports & Outdoors	Daikin/Goodman	Landry's	Rice University
AIG	Deloitte	Lewis Food Town	Sam's Club
Air Liquide USA	Dril-Quip	Lowe's Cos.	Sodexo
American National Insurance Co	Enterprise Products	Luby's	Southwest Airlines
Aon	Equistar Chemicals	LyondellBasell	Sysco Corp.
Bank of America	FedEx	Macy's	TechnipFMC
Bechtel Corporation	Fiesta Mart	Mariner Post-Acute Network	Tenet Healthcare Corp.
Brinker International	Fluor	McDermott	Texas Home Health
Brock Group	Grocers Supply Company	NASA - Johnson Space Center	Union Pacific Railroad
Cameron, a Schlumberger Company	Group 1 Automotive	NRG Energy	UnitedHealthcare
Chevron Phillips Chemical Co.	Jacobs	Occidental Petroleum	Waste Management
Comcast	Kelsey-Seybold Clinic	O'Reilly Auto Parts	Weatherford
ConocoPhillips	Kinder Morgan	Phillips 66	Wells Fargo
CVS Health	Kindred Healthcare	Randalls Food Markets, Inc.	Wood Group

Note: The list excludes government employers (except hospitals, universities and research centers) and fast food chains.
Source: Greater Houston Partnership Research, March 2019

Ninety 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 more than 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.

More than 150 Houston-based companies operate subsidiary locations around the world. These firms account for over 3,000 offices in more than 110 countries.

More than 1,700 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 218,580 people in the four quarters ending Q3/18, 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 24.3 percent, and heavy and civil engineering construction accounted for 25.5 percent of construction employment. Annual wages in the industry averaged \$74,386.

Establishments

The Houston metro area was home to nearly 11,071 construction establishments in the four quarters ending Q3/18. Of that total, 61.1 percent were specialty trade contractors, 29.2 percent were in building construction, and 9.6 percent were heavy and civil engineering construction 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, Summit Industrial, Tellepsen, Turner Construction, Turner Industries, Williams Brothers Construction and Zachary.

Building Permits

City of Houston building permits totaled \$6.1 billion in '18 with \$2.3 billion for residential and \$3.3 billion for commercial building permits, according to city data.

Office

At the close of '18, CBRE reports that the Houston area, the nation's sixth largest office market, counted 1,276 general-purpose office buildings containing 213.5 million-square-foot (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 1.2 msf in '18. The vacancy rate for the entire Houston market was 18.7 percent at the end of '18.

Average asking rent for the entire Class A office market was \$37.12 per square foot (\$44.65 for CBD Class A and \$33.46 for suburban Class A).

Industrial

The industrial market in Houston had 521.3 msf of net rentable area. It is ranked as the sixth largest U.S. industrial market. CBRE reported year-end '18 occupancy remained tight at 95.0 percent. During '18, 16.3 msf of projects commenced construction, a record high. Net absorption for '18 was strong with a total of 10.6 msf. Across the market, average monthly asking rates were \$0.62 per square foot in the fourth quarter of '18.



Retail

The Houston retail market recorded 677,082 square feet of net absorption in '18. The region is home to 8,053 retail centers with 303.6 msf of net rentable area. Occupancy rates continued to rise throughout '18, and the year ended with a vacancy rate of 5.6 percent. The average annual rental rate was \$27.66 per square foot.

Single-Family

In '18, single-family closings (largely resale homes) in the Houston area totaled 82,177, and an additional 6,746 town homes, condos and high rises were sold, according to the Houston Association of Realtors. The median sales price for a resale single-family detached home was \$237,500. Single-family starts in '18 numbered 30,146, according to Metrostudy.

Multi-Family

Apartment Data Services reported that Houston area multi-family occupancy was 89.6 percent in '18, with an inventory of 647,941 units, and as of December '18, inventory included 2,763 complexes. Prices averaged \$1,022 per month. Rental rates ending December '18, averaged \$1.16 per square foot per month.

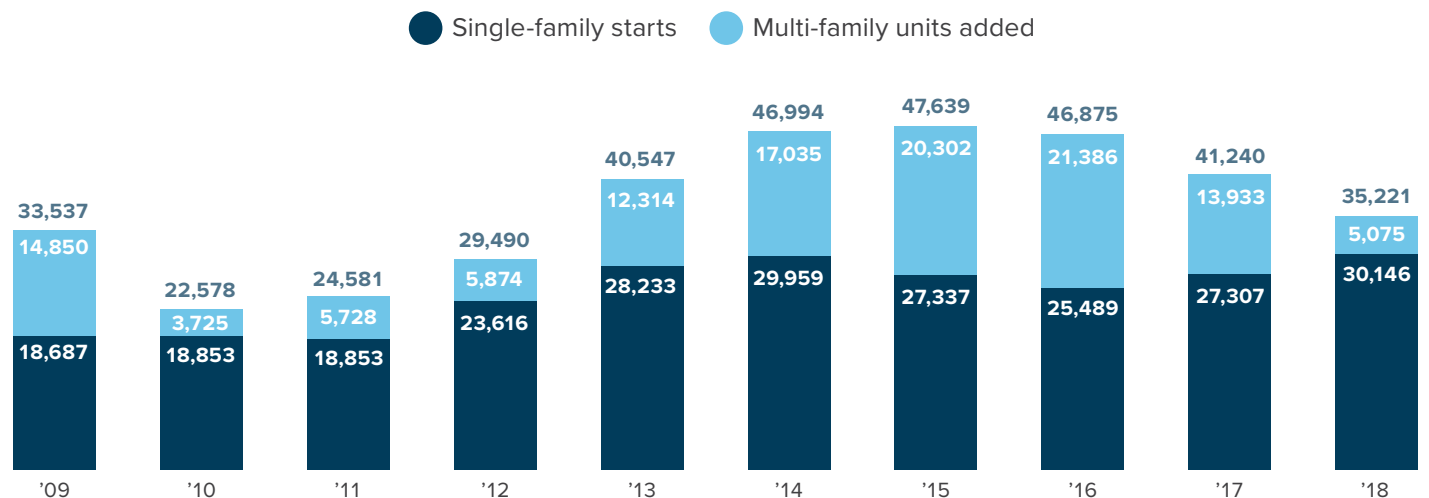
- Class A apartments recorded 87.2 percent occupancy at \$1.57/sf/mo;
- Class B recorded 90.7 percent occupancy at \$1.14/sf/mo;
- Class C recorded 90.1 percent occupancy at \$0.93/sf/mo; and
- Class D recorded 88.3 percent occupancy at \$0.75/sf/mo.



An additional 5,075 new units were added to the market in '18, a decline from the high level of apartment construction in previous years. In '18, 7,966 units were absorbed, a decrease from the record high absorption of 17,108 units in '17 due to demand by residents displaced by Hurricane Harvey. As of January '19, 53 communities with 15,753 units are under construction, and 92 communities with 27,313 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 an average of 366,582 people in the year ending in Q3/18, almost one in eight Houston workers, according to the Texas Workforce Commission. Ambulatory health care accounts for 43.6 percent of the sector employment, hospitals for 32.5 percent and social assistance, nursing and residential care for 23.9 percent. The average annual wage for the industry was \$54,337 in the year ending in Q3/18.

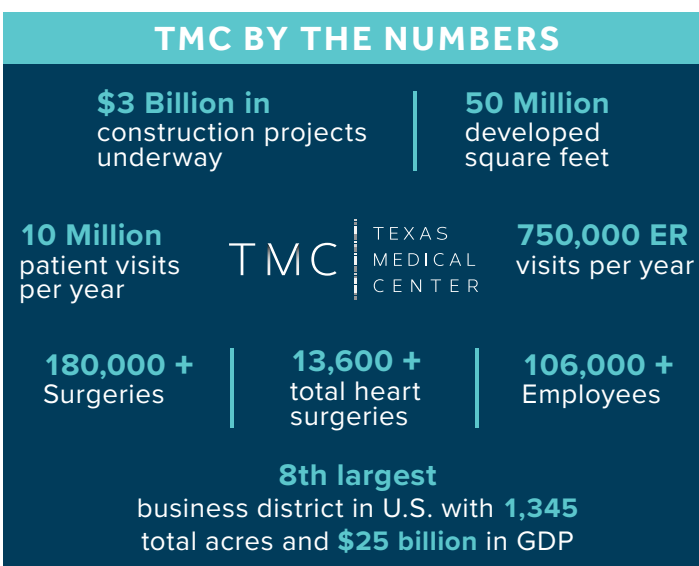
According to the Texas Medical Board, 18,529 physicians are licensed in the Houston region, 80.0 percent of which are in Harris County. The concentration of anesthesiologists, nurse anesthetists, cardiovascular technologists and technicians, respiratory therapy technicians, and occupational health and safety specialists/technicians is well above the national average.

Establishments

Houston's 19,954 health care and social assistance establishments included 13,085 ambulatory health care providers, 6,003 social assistance establishments, 683 nursing and residential care facilities and 184 hospitals for the year ending in Q3/18.

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 are consistently recognized by U.S. News and World Report as some of the best hospitals and universities in the nation.

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 developing five institutes to foster collaboration across all member institutions:

- **Clinical Research:** To be the world leader in clinical research by more efficiently translating discoveries into breakthrough therapies and cures.
- **Genomics:** To create the world's premier clinical genomics program.
- **Health Policy:** To develop effective policy solutions to improve the health of diverse populations in Houston and Texas and 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 Texas' economy.



MANUFACTURING

The 6,388 manufacturing establishments in the Houston region employed 224,708, or about 1 in 13 Houston-area workers in '18, according to the Texas Workforce Commission. Average annual wage was \$89,352. The value of goods manufactured in metro Houston topped \$82.6 billion in '17 and accounted for 16.9 percent of the region's total GDP, according to the Bureau of Economic Analysis.

MANUFACTURING OVERVIEW

Houston MSA, 2018*

Manufacturing Industry	Employment	Establishments
Fabricated Metal Products	51,085	1,729
Machinery	43,590	806
Chemical	38,900	570
Computer and Electronic Products	13,344	318
Food	11,881	420
Petroleum and Coal Products	10,027	90
Plastics and Rubber Products	9,988	220
Nonmetallic Mineral Products	6,579	277
Electrical Equipment and Appliances	5,910	156
Transportation Equipment	5,059	136
Other Manufacturing	28,345	1,666
Total Manufacturing	224,708	6,388

* Four quarters ending Q3/18

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

Chemicals

The Houston region was home to 570 chemical plants employing 38,900, or 17.3 percent of Greater Houston's total manufacturing workforce in '18, according to the Texas Workforce Commission. The region has 44.2 percent of the nation's overall base petrochemicals manufacturing capacity which includes 48.7 percent of butadiene produced in the country, 48.1 percent of ethylene, 47.0 percent of propylene, 39.1 percent of benzene, 33.2 percent of xylenes and 33.3 percent of toluene.

Base petrochemicals are the raw materials for producing some of the more important plastics and resins.



BASE CHEMICAL PRODUCTION CAPACITY

Houston MSA, 2019

	Million Metric Tons per year	% of U.S. Total
Butadiene	1.2	48.7
Ethylene	17.2	48.1
Propylene	14.8	47.0
Benzene	3.3	39.1
Xylenes	4.0	33.2
Toluene	1.9	33.3
Total	42.5	44.2

Note: Sums may not total due to rounding.

Source: IHS Markit

The Houston MSA also dominates U.S. production of three major resins, producing 47.8 percent of the country's capacity of polypropylene, 44.2 percent of polyethylene and 34.1 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 9,204 in '18, equivalent to 4.1 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 Co	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
Total Metro Houston Capacity	2,571,505	
Percent of U.S. Capacity	13.8	

Source: U.S. Energy Information Agency, Refinery Capacity Report January 1, 2018 (Release Date: June 25, 2018)

PROFESSIONAL AND TECHNICAL SERVICES

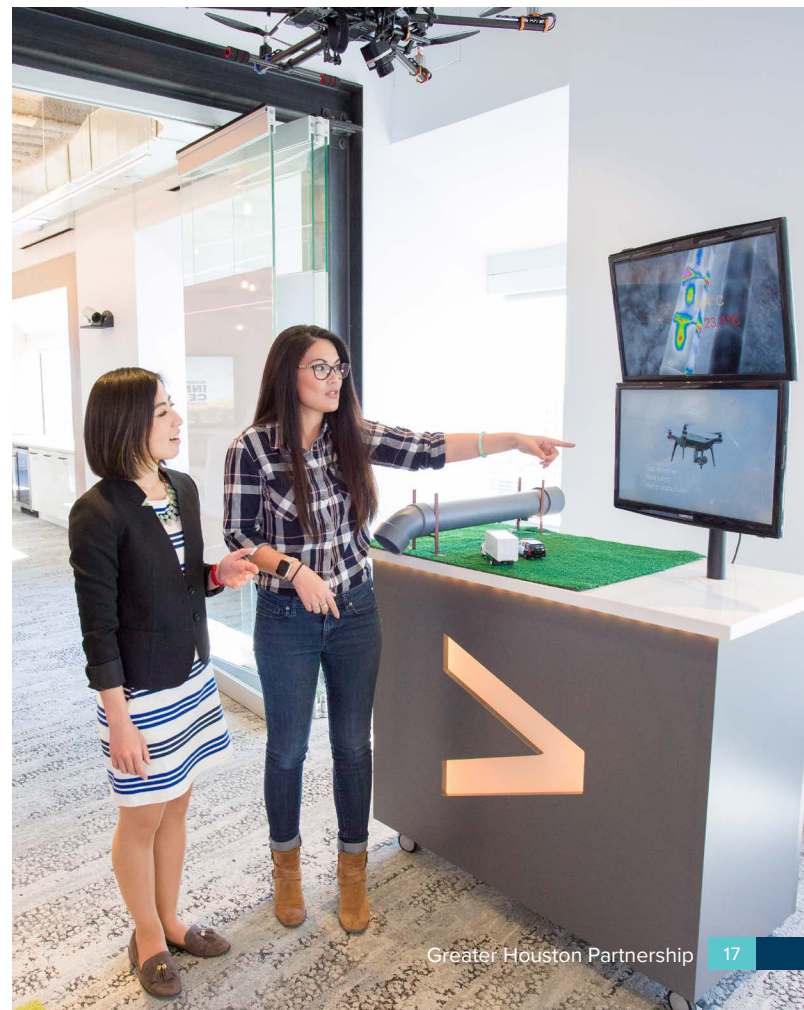
Employment

Metro Houston employed 214,797 professional, scientific and technical service workers in the four quarters ending Q3/18. Architectural and engineering services, with 66,696 workers, represents nearly a third of the sector's total employees. The second and third largest industry subsectors include management and technical consulting (37,324 employees) and computer systems design services (28,839 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 1,873 engineers. In comparison, for every 100,000 workers in the U.S., there are 1,163 engineers.

Establishments

The Houston MSA had 21,764 establishments in professional, scientific and technical services in the four quarters ending Q3/18. The sector includes 5,219 management and technical consulting establishments, 3,922 computer systems design companies and 3,806 establishments that provide legal services. Forty of the nation's top engineering and design firms are located in metro Houston, according to Engineering News-Record.



ENGINEERS

Houston MSA vs. U.S., 2018

Engineering Concentration	Engineers in Houston	Per 100,000 Workers Houston	Per 100,000 Workers U.S.
Aerospace	2,410	80.7	44.2
Biomedical	230	7.6	13.1
Chemical	4,400	147.5	22.1
Civil	9,420	315.8	211.4
Computer Hardware	590	19.8	42.0
Electrical	4,030	135.0	128.9
Electronics	2,680	89.7	92.7
Environmental	1,210	40.7	36.7
Health and Safety	1,360	45.6	18.1
Industrial	4,920	164.8	193.2
Marine Engineers and Naval Architects	540	18.0	7.8
Materials	920	31.0	18.6
Mechanical	8,130	272.4	209.7
Mining and Geological	150	5.0	4.0
Petroleum	11,260	377.6	22.5
All Other Engineers	3,620	121.4	98.1
Total Engineers	55,870	1,873	1,163

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics, May 2018

Finance

Metro Houston's 97 Federal Deposit Insurance Corporation (FDIC)-insured institutions had 1,420 offices and branches with \$245.7 billion in local deposits, according to June '18 FDIC data. Houston ranked 12th among U.S. metros in total deposits in '18.

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

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 157,315 in the Houston MSA, including 97,570 in durable goods, 47,340 in nondurable goods and 12,403 in electronic markets in '18. Retail trade employed 303,753, including 66,274 in food and beverage, 58,492 in general merchandise and 41,598 in motor vehicle and part dealers. Average annual wage in '18 was \$85,591 for wholesale workers and \$33,187 for retail workers.

Establishments

Metro Houston contained 10,931 wholesale trade establishments, including 6,514 durable goods wholesalers and 2,458 nondurable goods wholesalers in '18. There were 17,968 retail establishments, including 2,575 food and beverage stores, 2,434 gas stations and 2,316 clothing stores.

Top Employers

Academy Sports & Outdoors, CVS Health, FedEx, Fiesta Mart, H-E-B, Home Depot, Kroger, Lewis Food Town, Lowe's, Macy's, Sam's Club, Sysco, Target, Walmart and Walgreens.

GROSS RETAIL SALES

Metro Houston, 2017-2018 (\$ Millions)

Geography	'17	'18	% Change from '17
Houston MSA	117,072.3	127,594.2	9.0%
Austin County	292.5	319.9	9.4%
Brazoria County	4,361.8	4,826.0	10.6%
Chambers County	374.8	437.0	16.6%
Fort Bend County	7,960.6	9,087.3	14.2%
Galveston County	4,074.3	4,331.7	6.3%
Harris County	90,852.3	98,720.7	8.7%
Liberty County	861.6	881.1	2.3%
Montgomery County	7,674.8	8,371.0	9.1%
Waller County	560.1	560.6	0.1%

Note: Data compiled from four quarters ending Q3.
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 650 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 44 of the nation's 128 publicly traded oil and gas exploration and production firms, including 8 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. More than half of all oil field service firms based outside of North America (e.g., Weatherford, ENI, TechnipFMC) have offices in Houston, and around one-fifth of the world's national oil companies (e.g., Saudi Aramco, PetroChina, Gazprom) have operations in Houston.

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. Thirteen of the nation's 20 largest oil pipeline

operators have corporate or divisional headquarters or ownership interests based in Houston. These 13 pipeline companies control 56,140 miles, or 33.4 percent of all U.S. oil pipeline capacity. Fifteen of the nation's top 20 natural gas transmission companies have corporate or divisional headquarters in Houston, controlling 109,926 miles of U.S. pipeline, which is 56.8 percent of the total U.S. natural gas pipeline capacity.

In '17, the Houston MSA held 26.1 percent of the nation's jobs in oil and gas extraction (37,505 of 143,925), and 11.7 percent of jobs in support activities for oil and gas operations (26,614 of 227,703), according to the U.S. Bureau of Labor Statistics.

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 '18 accounted for 8.3 percent of the region's employment and 3.6 percent of its firms. The average job in an energy-related industry paid approximately \$142,077 per year, more than double the metro average of \$66,378.

Top Energy Employers

Anadarko Petroleum, Apache, Baker Hughes (a GE Company), BP, Chevron, ConocoPhillips, Enbridge, Enterprise Products, EOG Resources, ExxonMobil, Halliburton, Hess, Key Energy Services, Kinder Morgan, Marathon, Nabors Industries, Nalco Champion, National Oilwell Varco, NRG Energy, Occidental, Oceaneering, Phillips 66, Schlumberger, Shell, Southwestern Energy, Superior Energy Services, TechnipFMC, Total, Weatherford International and Wood.

ENERGY-RELATED INDUSTRIES

Houston MSA, 2018*

Industry	Employment	Firms	Avg. Annual Wage (\$)
Engineering services	45,740	1,781	124,566
Chemical manufacturing	38,900	442	135,187
Oil and gas extraction	36,429	509	226,369
Oil and gas field machinery and equipment	27,879	245	116,064
Support activities for oil and gas operations	27,401	788	131,131
Oil and gas pipeline construction	21,628	201	92,144
Pipeline transportation	11,355	92	184,132
Drilling oil and gas wells	11,219	152	151,541
Petroleum refineries	9,204	40	163,839
Fabricated pipe and pipe fitting mfg.	5,433	90	67,847
Industrial valve manufacturing	3,688	67	88,114
Geophysical surveying and mapping services	3,393	147	136,344
Pump and compressor manufacturing	1,698	49	107,354
Total Energy-Related	243,967	4,601	142,077
Share of Metro Houston Total	8.3%	3.6%	

Note: Due to the reach of the energy industry in Houston, portions of several other industries (e.g., utilities, accounting, real estate) could be added to this definition.

* Four quarters ending Q3/18

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

NASA AND AEROSPACE

As the home of NASA's Johnson Space Center (JSC), Houston is the epicenter of human space exploration. Every manned U.S. space mission since 1961 has been planned and executed from the Bayou City. Every astronaut has lived and trained here, every manned mission controlled here. The missions of tomorrow – to the moon, to Mars and beyond – are being planned today by scientists and engineers who call Houston home.

The thousands of NASA employees and civilian contractors supporting JSC's operations have created a rich talent pool of aerospace expertise, positioning Houston as a leader in the emerging commercial realm of space flight.

JSC serves as NASA's lead center for life sciences research and application, astronaut selection and training and mission control. JSC personnel direct industrial efforts to design, develop, build and upgrade piloted space craft and oversee many of the medical, scientific and engineering experiments conducted in space.

JSC manages an annual budget of approximately \$4.6 billion in contracts, grants, civil service payroll and procurements. In '18, NASA awarded \$2.8 billion in service contracts and grants to Houston 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 \$2.0 billion in '18, and aircraft, spacecraft, and parts are Houston's 14th largest internationally traded commodity.

In '15, the Federal Aviation Administration (FAA) designated Ellington Field as a spaceport, clearing the way for commercial space flight in Houston. The Space Commerce Conference and Expo (SPACECOM) annually draws more than 2,000 attendees to Houston's George R. Brown Convention Center.

INNOVATION

As the home of NASA's Johnson Space Center and headquarters to the global energy industry, Houston has long been a global hub of engineering talent. In recent years, those skills have given rise to a thriving ecosystem of digital technology companies. With more than 223,000 tech workers, Houston has the 12th largest tech sector in the U.S., according to the Computing Technology Industry Association. Nearly two-thirds of Houston's high-tech workers are employed in industries other than computers and software.

The region is home to over 8,200 tech-related firms, including more than 500 tech startups. According to S&P Capital IQ, Houston companies in clean energy, health innovation and digital technology have received \$3.1 billion in venture capital and growth funding across 333 deals since '14, averaging \$576 million every year. In '18, venture funding totaled \$447.7 million, up 50.9 percent from '17.

The largest recipient of funding in the last five years is the residential solar company Sunnova, which received \$1.3 billion. The software firm Onit received a \$200 million venture capital investment in early '19, the largest software deal in Houston in recent years.

Houston's top recipients for venture funding in '18 were Sunnova Energy (\$183 million), OncoResponse (\$40 million), Trisun Energy Services (\$39 million), Arundo Analytics (\$25 million), Procyron (\$16 million), QuVa Pharma (\$15 million), and NeoSensory (\$12 million).

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, biotech and clean energy sectors. A number of coworking spaces, incubators and accelerators have emerged to facilitate tech entrepreneurs in recent years. **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 as 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 **Owlsparc Accelerator** has helped launch dozens of companies and the

HOUSTON INNOVATION FUNDING

Houston Metro, 2014-2018 (\$ Millions)

Industry	'14	'15	'16	'17	'18	Total	% of Total
Clean Energy	532.0	425.7	535.3	-	264.4	1,757.5	64.0
Digital tech	55.2	32.6	82.8	212.2	63.7	446.4	16.3
Health Innovation	172.6	122.2	42.4	84.4	119.6	541.3	19.7
Total	759.9	580.5	660.5	296.6	447.7	2,745.2	100.0

Note: Funding sources include venture capital, private equity and debt financing. Sums may not total due to rounding.
Source: S&P Capital IQ

Rice Business Plan Competition is the richest pitch competition in the country, with awards in '19 totaling \$3 million. 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

The nonprofit **Houston Exponential** (HX) was formed in '17 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 \$25-million **HX Venture Fund of Funds**, the organization plans 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. An anchor coworking space, **The Ion**, will open in '20 to serve as the central hub of the district.

HOUSTON INNOVATION FUNDING

Houston Metro, 2014-2018 (\$ Millions)

Recipient	'14	'15	'16	'17	'18	Total
Baylor College of Medicine	192.7	231.0	252.2	229.8	255.1	1,160.9
University of Texas MD Anderson Cancer Center	120.9	119.6	124.5	147.6	148.6	661.1
University of Texas Health Science Center	81.5	76.4	87.9	92.2	90.2	428.2
University of Texas Medical Branch Galveston	72.0	75.6	79.6	80.8	87.0	394.9
University of Houston	16.6	19.5	18.5	21.1	23.9	99.6
Methodist Hospital Research Institute	13.8	11.8	14.2	16.2	19.0	74.9
Rice University	13.3	13.0	14.7	11.4	14.1	66.6
Texas Southern University	1.2	1.7	2.0	1.4	3.2	9.6
All other	18.0	10.3	16.8	24.1	26.5	95.7
Total	530.0	558.9	610.3	624.7	667.7	2,991.6

Source: NIH.gov

Industry Backing

Oil and gas startups continue to be the most frequent destination for venture capital 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: **BP Ventures, Chevron Technology Ventures, ConocoPhillips Technology Ventures and Shell Technology Ventures.**

Biotech and Life Science

As a hub for medical device manufacturing, pharmaceuticals, and health research, Houston has more than 1,760 life sciences companies, cutting-edge health care facilities and research institutions. The region is home to more than 25,100 biotech specialists and 7,200 of the world's top medical researchers. More than 1,800 clinical trials were active in the Houston region in '18, representing 20.5 percent of all trials in the country.

Houston institutions received \$668 million in medical research grant funding from the National Institutes of Health (NIH) in '18, a 6.9 percent increase from '17. Since '14, the region has received nearly \$3 billion in NIH funding, an average of \$600 million per year. In '18, the top Houston institutions receiving NIH funding were: Baylor College of Medicine (\$255 million), University of Texas MD Anderson Cancer Center (\$149 million), University of Texas Health Science Center (\$90 million), University of Texas Medical Branch Galveston (\$87 million), University of Houston (\$24 million), Methodist Hospital Research Institute (\$19 million), Rice University (\$14 million) and Texas Southern University (\$3 million).

Venture capital and private equity investment in Houston life science startups totaled \$119 million in '18, a 41.7 percent increase from \$84 million in '17, according to S&P Capital IQ. In '18, the top biotech firms receiving investment were OncoResponse (\$40 million), Procyron (\$16 million), QuVa Pharma (\$15 million), Pulmotect (\$10 million) and Tvardi Therapeutics (\$9 million).

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. 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.



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 current elected officials, serving four-year terms, are: the mayor, Sylvester Turner; the city controller, Chris B. 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." City of Houston elected officials can serve no more than two terms of four years each.

The city's adopted General Fund budget for fiscal year (FY) '19 is \$2.48 billion, a \$83 million increase from the previous fiscal year. Property and sales taxes compose 78 percent of revenue for the General Fund, with property taxes expecting to total \$1.2 billion and revenue from sales tax estimated at \$658 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. The Commissioners Court of Harris County, which overlaps the City of Houston, has Judge Lina Hidalgo in addition to its four precinct commissioners. The county's General Fund budget for fiscal year '19 is \$3.1 billion.





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. In '18, Governor Greg Abbott was reelected along with Lieutenant Governor Dan Patrick.

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 overseen by 36 elected officials that represent 13 counties (Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller and Wharton), 177 cities and 84 school districts.

H-GAC is not an additional level of government, a regulatory agency or a taxing authority. 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. Its activities are financed by local government dues, state appropriations, and through grants and contracts with local, state and federal entities.

TAXATION

The 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.

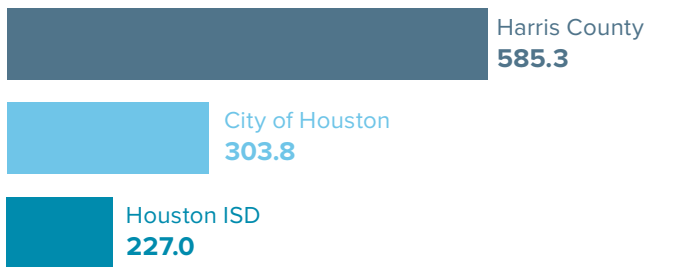
The table below shows typical tax rates for property located within Houston city limits. The tax rates are expressed as dollars per \$100 taxable value.

TYPICAL PROPERTY TAXES, 2018	
Jurisdiction	Tax Rate per \$100 Taxable Value
City of Houston	0.58
Harris County	0.42
Houston Independent School District	1.21
Houston Community College	0.10
Total Property Tax Rate	2.31

Source: Harris County Appraisal District

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 '19 is \$871.3 million.
- The HPD budget calls for a total of 6,316 full-time-equivalent (FTE) police personnel, of which 5,155 are classified, 975 civilian and 186 police cadets in training.
- HPD's estimated average response time in '18 was 5.5 minutes for priority one calls, the second fastest response time in the nation, and 10.15 minutes for priority two calls.
- HPD responded to 1,108,044 calls for service in '18.

Harris County Sheriff's Office (HCSO)

- Founded in 1837, HCSO is the largest sheriff's office in Texas and the third largest in the United States.
- HCSO's FY '19 operating budget is \$679.8 million.
- The Harris County Sheriff's Office provides law enforcement protection to the 4.7 million residents in Harris County, including the 2.1 million people in unincorporated areas.
- HCSO employs nearly 4,734 salaried personnel, comprised of 2,240 certified peace officers, 1,108 administrative and support staff, and 1,386 detention officers that work in the jails. The department also has 202 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. The City of Houston has 105 fire stations equipped with 87 engine companies, 92 ambulances (36 with advanced life support), 2 hazmat response units, 11 booster trucks, 4 cascade units, 32 ladder trucks, and 13 evacuation and rescue boats.
- In '18, HFD responded to 340,488 incidents. Of these incidents, there were 44,657 fire related incidents with a total response time of 7.6 minutes and 295,831 EMS related incidents with a total response time of 10.0 minutes.
- HFD's FY '19 budget is \$503.5 million and calls for 4,206 FTE employees, of whom 108 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 '18, HPL served 8.2 million visitors and circulated 5.7 million books, magazines, e-books, audiobooks, DVDs and CDs.
- The Harris County Public Library (HCPL) system is a network of 26 branches with 1.6 million items in its collection. In '18, 7.5 million physical items and 2.1 million digital items were borrowed by 1.7 million library card holders.

EDUCATION

SCHOOLS

The 11-county Greater Houston area contains more than 60 independent school districts (ISDs) and nearly 40 state-approved charter management organizations (CMOs). 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 Texas, in fall '17.

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 213,000 students during the '17-'18 academic year.

SELECTED HOUSTON-AREA INDEPENDENT SCHOOL DISTRICTS (ISD) AND CHARTER MANAGEMENT ORGANIZATIONS (CMO), 2017-2018

ISD or CMO	Campuses	Fall '17 Total Students	Student-Teacher Ratio	Expenditures per Student (\$)	County
Houston	281	213,528	18.0	7,889	Harris
Cypress-Fairbanks	87	116,138	16.3	7,737	Harris
Katy	66	77,331	15.0	8,677	Harris
Fort Bend	78	74,957	16.2	8,094	Fort Bend
Aldine	78	67,234	15.4	8,494	Harris
Conroe	57	61,323	16.3	8,113	Montgomery
Pasadena	65	54,520	14.1	8,374	Harris
Klein	48	52,896	15.0	8,018	Harris
Alief	46	46,223	14.1	9,092	Harris
Humble	45	42,301	15.6	8,746	Harris
Clear Creek	45	42,008	16.8	7,871	Galveston
Spring	39	36,079	16.2	8,183	Harris
Spring Branch	47	34,975	15.6	8,789	Harris
Lamar CISD*	42	32,051	16.2	8,175	Fort Bend
Alvin	29	24,755	15.2	9,977	Brazoria
Goose Creek CISD*	30	23,701	15.7	9,089	Harris
Galena Park	24	22,565	16.0	9,222	Harris
Pearland	24	21,559	16.3	7,844	Brazoria
Tomball	20	15,884	16.1	8,068	Harris
New Caney	19	15,030	14.9	8,648	Montgomery
KIPP Public Charter	27	14,397	19.9	9,557	Harris
Magnolia	15	12,955	15.8	8,367	Montgomery
Deer Park	14	12,904	15.5	8,803	Harris
Brazosport	20	12,327	15.1	8,691	Brazoria
Dickinson	17	10,898	14.4	8,309	Galveston
YES Prep Public Schools	13	10,895	16.2	9,278	Harris
Huntsville	11	8,257	20.9	7,694	Walker
Waller	9	7,122	16.5	8,892	Waller
Cleveland	7	5,563	16.8	8,558	Liberty
Barbers Hill	9	5,379	14.3	11,168	Chambers
Sealy	4	2,809	14.0	8,230	Austin
Shepherd	4	2,015	15.4	8,764	San Jacinto

Note: List includes all ISDs/CMOs with enrollment greater than 10,000, plus the largest ISD/CMO in each Greater Houston county if each ISD/CMO had enrollment less than 10,000. Expenditures per student refers to operating expenditures from General Fund. Fall '17 total students includes 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 27, 2017.

* CISD refers to consolidated ISD.

Source: Texas Education Agency, 2017-2018 Texas Academic Performance Reports; Texas Education Agency, 2016-17 PEIMS Financial Standard Reports

HIGHER EDUCATION

Nearly 430,000 students enrolled in more than 40 two-year community colleges and four-year or above universities in the Houston region in the fall '18 semester. Undergraduates make up 86.7 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 located within the Houston MSA are designated as “Tier I,” the highest ranking for research activity, according to the Carnegie Classification: Rice University and University of Houston. Texas A&M-College Station, located within 100 miles of Metro Houston, is also a Tier I research institution.

HIGHER EDUCATION ENROLLMENT IN GREATER HOUSTON, FALL 2018

Institution	Undergraduate	Graduate	Total
Two-Year Community Colleges	203,269	-	203,269
Lone Star College System	68,333	-	68,333
Houston Community College	48,309	-	48,309
San Jacinto Community College District	32,137	-	32,137
Blinn College District	19,113	-	19,113
Lee College	7,773	-	7,773
Wharton County Junior College*	6,768	-	6,768
Alvin Community College	5,645	-	5,645
College of the Mainland Community College District	4,673	-	4,673
Brazosport College†	4,304	-	4,304
Lamar Institute of Technology*	3,260	-	3,260
Galveston College	2,423	-	2,423
Texas State Technical College-Fort Bend	531	-	531
Four-Year or Above Universities	168,182	57,092	225,274
Texas A&M University-College Station*	51,389	12,305	63,694
University of Houston	37,369	8,955	46,324
Sam Houston State University	18,473	2,552	21,025
Texas Woman's University-Houston	393	788	1,181
University of Houston-Downtown	12,350	1,911	14,261
Lamar University*	8,812	5,364	14,176
Texas Southern University	7,604	2,128	9,732
Prairie View A&M University	8,524	992	9,516
University of Houston-Clear Lake	6,212	2,749	8,961
Rice University	3,962	3,027	6,989
UT Health Science Center-Houston	717	4,618	5,335
University of Houston-Victoria*	3,203	1,178	4,381
Houston Baptist University*	2,321	1,111	3,432
UT Medical Branch-Galveston	753	2,591	3,344
University of St. Thomas	2,047	1,267	3,314
Texas A&M Health Science Center	670	2,197	2,867
Texas A&M University at Galveston	1,653	153	1,806
University of Phoenix-Texas (Houston)‡	1,374	226	1,600
Baylor College of Medicine	-	1,576	1,576
The Art Institute of Houston‡	-	1,096	1,096
UT M.D. Anderson Cancer Center	356	20	376
South Texas College of Law Houston	-	288	288
Total	371,451	57,092	428,543

* * Located within 100 miles of Houston but not within Houston MSA. † Brazosport also awards bachelor's degrees. ‡ Data for Fall '17.

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 fourth quarter '18 report:

- CNP's assets total more than \$27.0 billion.
- The company employs 14,377, of which approximately 3,000 work in Houston.
- CNP, via its subsidiary Houston Electric, serves 2,485,370 Texas Gulf customers (2,198,225 residential and 287,145 commercial/industrial).
- CNP's Houston Electric owns and operates 3,809 circuit miles of overhead and 26 miles of underground electric transmission lines, 29,094 circuit miles of overhead and 25,255 miles of underground distribution lines, 235 major substation sites with a capacity of 68,338 megavolt amperes and 14 regional service centers.
- In '18, CenterPoint Energy Resources Corporation (CERC) delivered 471 billion cubic feet (bcf) of natural gas to 3,506,310 customers (3,246,277 residential and 260,033 commercial/industrial) across five states, including Texas.
- 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 dekatherms (Dth) per day.

Telecommunications

Houston is served by seven area codes: 281, 346, 409, 713, 832, 936 and 979, four of which overlap.

- The Public Utilities Commission of Texas (PUC) has certified 302 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 fifty cellular service providers offer mobile voice and data communications in the Houston MSA.

Fiber-Optic Telecommunications

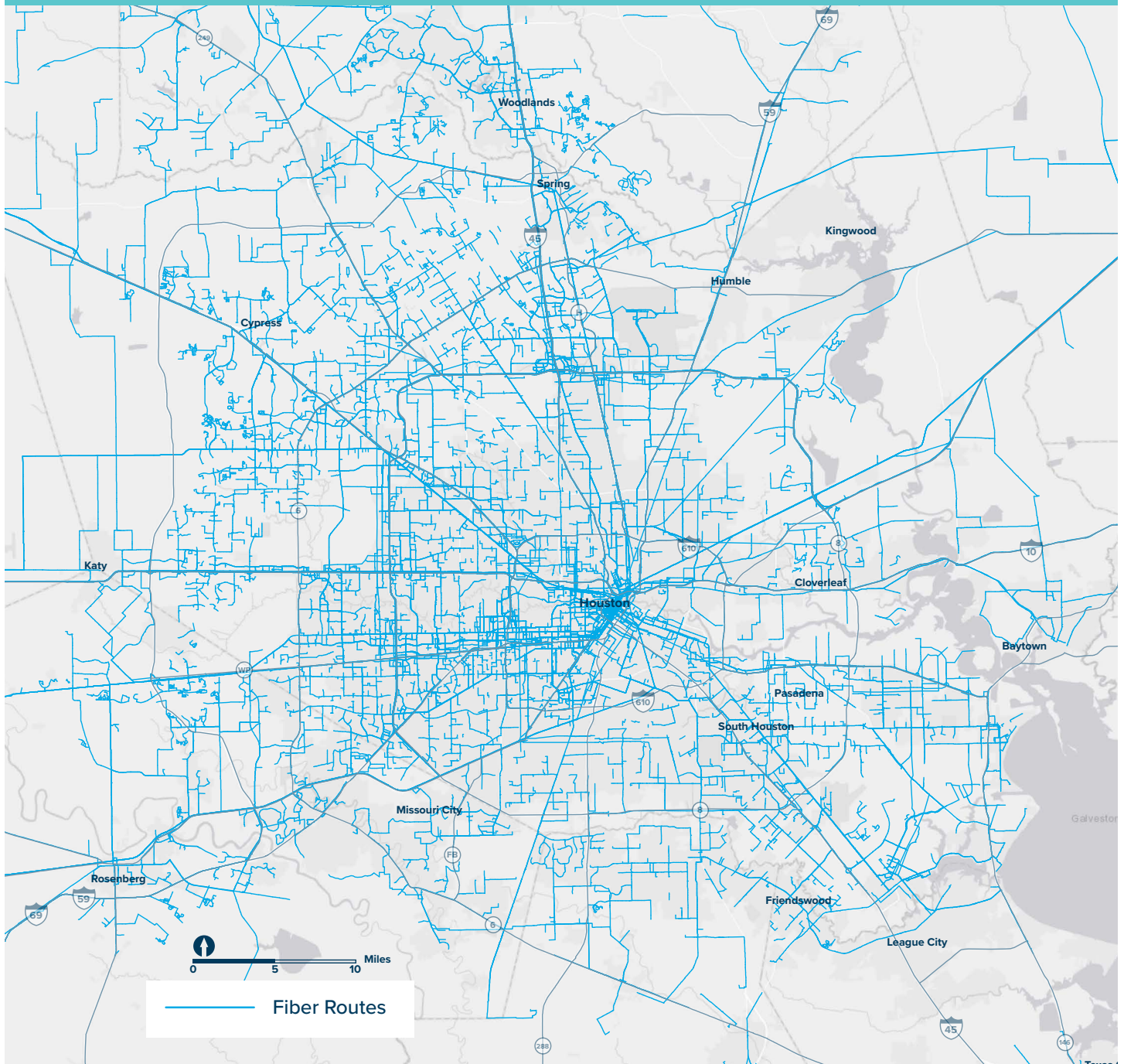
Houston added 430 miles of carrier fiber since the first quarter of '18. As of Q1/19, the Houston metro has 12,047 installed fiber carrier miles, the equivalent of 7,922 fiber route miles. A fiber conduit can have 12 to 1,024 fiber strands inside it, and carriers can own multiple strands within each conduit. Fiber carrier miles are measured by strand length in each conduit, but only one strand per carrier is counted regardless of the number of strands owned within the conduit. However, fiber route miles are measured by conduit length.

Twenty-four carriers operate or provide fiber service in Houston including AT&T, Centurylink, Crown Castle, Consolidated Communications, Fiberlight, Phonoscope, Verizon, Windstream, XO Communications and Zayo.

Fifty-five companies operate fiber-lit data centers in Houston including CyrusOne, Data Foundry, Equinix, Hypercube, Lakota, Nortel, Softlayers Technologies, Stratitsphere, Telcordia and Texlink.



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 three 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 Houston's

Drinking Water Operations produced and distributed more than 160 billion gallons of water in '17, the most recent data available, 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 383 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

909 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 Galveston Railroad, Port Terminal Railroad Association and Texas

City Terminal Railway Company. Eleven mainline tracks radiate from Houston.

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

Intracoastal Waterway

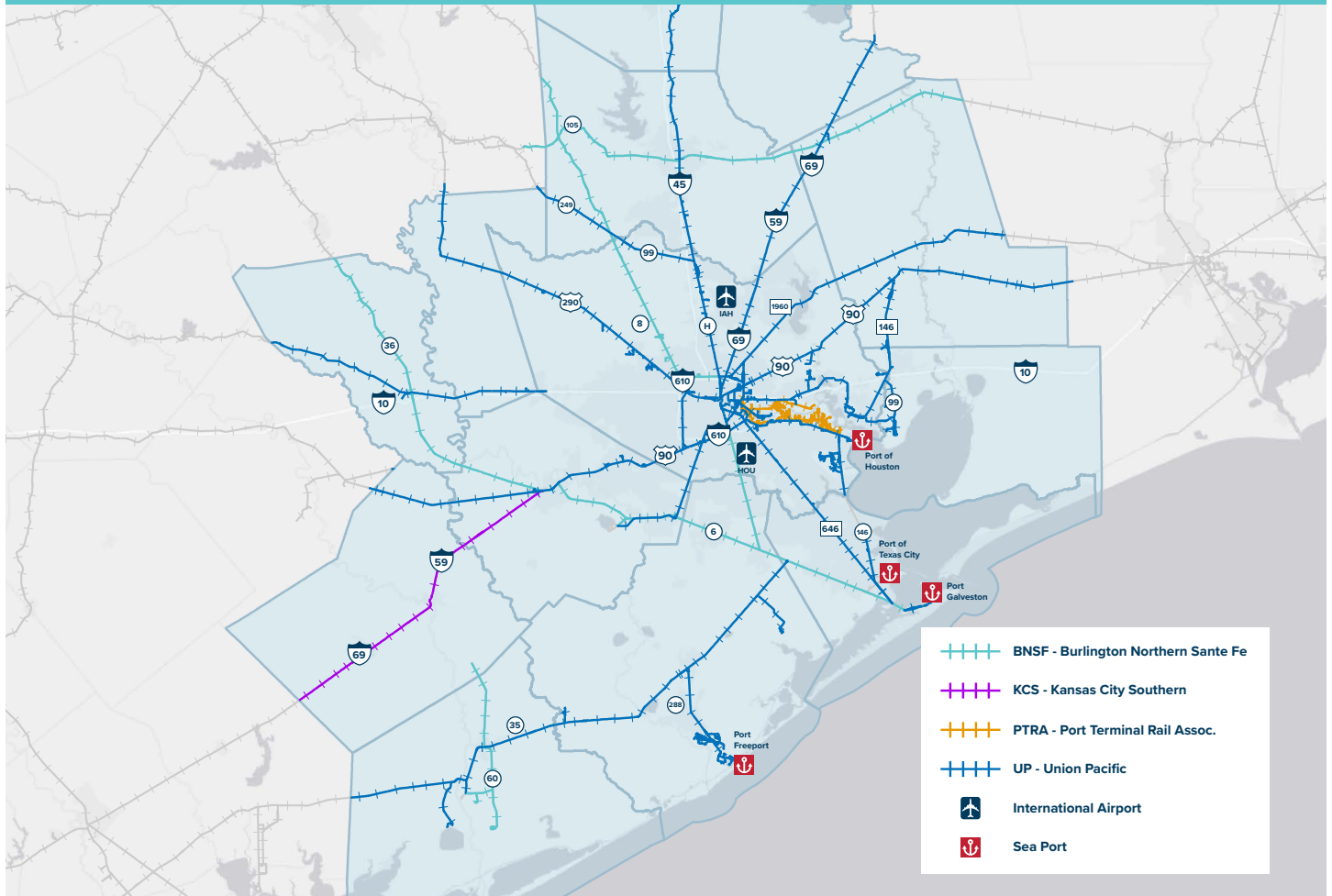
The Texas portion of the Gulf Intracoastal Waterway stretches 406 miles. The main channel is 12 feet deep and 125 feet wide. The entire Gulf Intracoastal Waterway spans approximately 1,100 miles from Brownsville, Texas to St. Mark's, Florida.

Texas' portion of the Gulf Coast Intracoastal Waterway facilitated the transportation of 112 million tons of internal domestic cargo in '17, the latest data available.

Freeways, Highways and Toll Roads

There are 3,306 centerline miles and 10,741 lane miles of freeways and expressways in operation, according to the Texas Department of Transportation (TxDOT) Houston District. The Houston District includes Brazoria, Fort Bend, Galveston, Harris, Montgomery and Waller Counties.

RAIL ROADS, HIGHWAYS AND PORTS, GREATER HOUSTON



Source: Greater Houston Partnership Research

- **Corridors:** Houston's major thoroughfares include Beltway 8, Fort Bend Tollway, Grand Parkway 99, Hardy Tollway, I-10, I-45, I-610, SH 6, SH 146, SH 225, SH 288, US 59/I-69, US 90, US 290 and the Westpark Tollway.
- **Highway Spending:** In FY '18, the TxDOT spent \$1.2 billion on construction and maintenance projects in the Houston District, with an 83.6 percent on-time completion rate.
- **Vehicle Miles Traveled (VMT):** Motorists traveled a total of 94,355,880 vehicle miles per day in the Houston district in '18. The average daily VMT per vehicle was 17.3 miles based on the 5,448,996 vehicles registered in the region.

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, 8,964 bus stops and 27 Park & Ride lots, according to METRO Highlights '18.
- METRO's fleet included 1,404 buses and 76 light-rail train cars in FY '18. METRO operates 114 routes and three light-rail lines that travel more than 22 track miles.
- Ridership in '18, including bus, rail and Park & Ride, totaled 85.8 million passengers, up 0.9 percent from '17, according to annual calculations from METRO's Monthly Ridership Reports.
- Passenger boardings in '18 averaged 7.1 million per month.
- Daily fixed-route weekday ridership in '18 averaged 280,586 boardings.
- All buses on METRO's 114 bus routes and all METRO Rail 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. METROLift paratransit service operated 158 vans and provided 1.9 million trips to 16,551 eligible riders in FY '18.

SEAPORTS RANKED BY FOREIGN TRADE 2018

U.S. Rank	Port	Total Trade (Metric Tons)
1	Houston	181,243,371
19	Freeport	19,220,484
21	Texas City	18,541,772
45	Galveston	5,773,424

Source: WISERTrade

PORTS

Sea Ports

The Houston region has four seaports which handled 224.8 million metric tons of trade in '18.

Port Houston

Among U.S. ports, the Port of Houston ranked second in total tonnage (domestic and foreign) for the 26th consecutive year and first in foreign tonnage (exports and imports) for the 22nd consecutive year in '17, the most recent data 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 69 percent of U.S. Gulf Coast container traffic and 96 percent of Texas container traffic.

The Port of Houston handled 25.0 million metric tons of containerized cargo and hauled in 2.7 million TEUs (twenty-foot equivalent units) in '18, setting new port records for containers handled in a year. The Port ranked as the sixth busiest U.S. container port in '18, based on total TEUs.

Foreign shipments in '18 totaled 181.2 million metric tons valued at \$158.9 billion. Foreign imports were 63.2 million metric tons, valued at \$69.0 billion. Foreign exports were 118.1 million metric tons, valued at \$89.9 billion.

The Port of Houston traded with 212 countries in '18. Of those, trade with 31 countries exceeded one billion dollars each, and trade with 173 countries exceeded one million dollars. Mexico was the Port's top trading partner by both value and weight.

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.

PORT HOUSTON TOTAL TRADE VALUE AND WEIGHT BY TRADING PARTNER, 2018

By Value (\$, Millions) and By Weight (Metric Tons, Thousands)

Rank	Trading Partners	Value	Rank	Trading Partners	Weight
1	Mexico	16,642.8	1	Mexico	31,438.5
2	China	14,818.5	2	Brazil	12,251.3
3	Brazil	9,541.4	3	China	10,438.7
4	Germany	7,185.8	4	Japan	9,710.6
5	South Korea	6,936.3	5	South Korea	8,343.1
Total Top 5 Trading Partners		55,124.7	Total Top 5 Trading Partners		72,182.2
All Other Trading Partners		103,738.4	All Other Trading Partners		109,061.1
Total All Trading Partners		158,863.1	Total All Trading Partners		181,243.4

Source: WISERTrade from U.S. Census Bureau Foreign Trade Division data

PORT HOUSTON TOTAL TRADE VALUE AND WEIGHT BY COMMODITY, 2018

By Value (\$, Millions) and By Weight (Metric Tons, Thousands)

Rank	Commodity	Value	Rank	Commodity	Weight
1	Mineral fuels, oil, refined products	61,487.8	1	Mineral fuels, oil, refined products	124,296.2
2	Organic chemicals	16,716.8	2	Organic chemicals	17,145.2
3	Industrial equipment and computers	13,672.0	3	Plastics and plastic products	6,569.1
4	Plastics and plastic products	9,624.4	4	Articles of iron or steel	4,966.6
5	Articles of iron or steel	7,745.6	5	Salt, sulfur, stone, lime, and cement plaster	4,522.9
Total Top 5 Commodities		109,246.6	Total Top 5 Commodities		157,500.0
All Other Commodities		49,616.5	All Other Commodities		23,743.4
Total All Commodities		158,863.1	Total All Commodities		181,243.4

Source: WISERTrade from U.S. Census Bureau Foreign Trade Division data

AIR TRANSPORTATION

Houston is the international air gateway to the 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.

The Houston Airport System (HAS) was recognized with a number of awards in '18:

- George Bush Intercontinental (IAH) ranked sixth among “mega airports” in the U.S. and William P. Hobby Airport (HOU) ranked 10th among “large airports” in the U.S. according to J.D. Power airport satisfaction rankings released in September '18.
- IAH ranked as the 12th best airport in the nation on the first-ever Wall Street Journal U.S. airport rankings

released November '18. Among the 15 factors in the study, IAH was among the best for on-site parking cost, on-time arrivals and nonstop cities served. The airport fared worse on average domestic fares, TSA checkpoint wait times and Wi-Fi speed.

In July '18, Southwest officially began shipping international cargo shipping between the U.S. and Mexico from Hobby Airport.

In October '18, Houston City Council approved the updated contracts and funding for the redevelopment of George Bush Intercontinental Airport. The adjusted International Terminal Redevelopment Program (ITRP) has a budget of \$1.2 billion and includes refurbishing the existing Terminal D facility, as well as demolishing the Terminal D/E parking garage to allow for an international terminal processor for passengers. The plans are expected to be mostly complete by '24.

Houston City Council also approved \$18.8 million in funding for the first phase of the Houston Spaceport project at Ellington Airport in October '18. The project encompasses the development of streets, water, wastewater, electrical power distribution facilities, and communications facilities.

Houston Airport System (HAS) Aviation Statistics

- HAS served 58,284,008 passengers in '18, up 7.6 percent from '17.
 - International traffic increased 4.7 percent to 11,763,298 passengers in '18.
 - Domestic passenger totals increased 8.4 percent to 46,520,710 in '18.
- At George Bush International (IAH), domestic passengers numbered 33.1 million in '18, up 8.9 percent from '17.

- At William P. Hobby Airport (HOU), domestic traffic rose 7.1 percent to 13.4 million passengers in '18.
- The Houston Airport System handled a total of 539,948 metric tons of air freight in '18. Domestic cargo accounted for 53.5 percent of total air freight while international cargo accounted for 46.5 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 123 domestic and 68 international destinations; 29 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 Airlines, 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, Bahamas Air, British Airways, Emirates, EVA Air, Inter Jet, 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 Airlines, 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 278 professional media outlets, including 190 print and online publications, 41 television stations and 47 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

According to Nielsen, the Houston television market was the seventh largest in the nation in '18, making up 2.2 percent of all TV households in the U.S. Top local TV news stations include the NBC-affiliate KPRC (Channel 2), CBS-affiliate KHOU (Channel 11), ABC-affiliate KTRK (Channel 13), Fox-affiliate KRIV (Channel 26), CW-affiliate KIAH (Channel 39), Univision-affiliate KXLN (Channel 45) and Telemundo-affiliate KTMD (Channel 47).

The most popular local radio stations, by share of listenership, include KODA-FM (Sunny 99.1), KLTN-FM (Qué Buena 102.9), KMJQ-FM (Majic 102.1), KGLK-FM (Houston Eagle 107.5) and KRBE-FM (KRBE 104.1), according to ratings from Nielson.

Houston's podcast industry is also booming, offering topics varying from politics and hurricane season to sports and religion. One of Houston's podcasts on classical music, Classical Classroom, is regularly listed in the top 50 most popular music podcasts on iTunes.

DIGITAL AND PRINT

Houston's major daily newspaper is the Houston Chronicle, which was founded in 1901. The paper has the second highest circulation in Texas and consistently ranks among the 15 most widely read newspapers in the country. The newspaper's website receives over 39 million unique visitors and 125 million pageviews each month.

Other top print and digital outlets in Houston include: Bisnow, Community Impact, Culture Map Houston, Houston Business Journal, Houston Press, Houston Public Media, Houstonia Magazine, Houston Style Magazine, Intown Magazine, Local Houston, PaperCity, Realty News Report and Swamplot.

COMMUNICATIONS MEDIA BY TYPE

Houston MSA, 2018*

	Establishments	Employment	Avg. Annual Wage (\$)
TV	41	1,478	94,364
Radio	47	984	80,907
Print	190	3,399	71,927

* Four quarters ending Q3/18.

Source: Texas Labor Market Information, Quarterly Census of Employment and Wages



LIFE IN HOUSTON

COST OF LIVING

Houston's living costs are 26.3 percent below the average of the nation's 20 most populous metropolitan areas, ranking it the third most affordable, according to the Cost of Living Index from the Council for Community and Economic Research (C2ER). Houston's overall living costs are 3.8 percent below the average for all U.S. metros.

Housing costs in Houston are 46.2 percent below the average for the nation's 20 most populous metro areas and 3.1 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 35.3 percent below the major metro average.

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

2018 Annual Average

(Average for 270 Urban Areas = 100)

Urban Area	Composite	Grocery Items	Housing	Utilities	Transportation	Health Care	Misc.
New York (Manhattan), NY	248.5	139.5	522.8	118.9	126.9	114.8	141.3
San Francisco, CA	196.3	130.7	355.8	126.6	132.6	126.5	130.4
Washington, DC	162.6	117.0	267.3	115.6	103.0	99.8	127.5
Seattle, WA	154.8	127.1	212.5	111.1	135.4	123.5	136.9
Boston, MA	150.0	108.5	213.6	121.8	116.6	134.2	130.3
Los Angeles, CA	148.2	112.1	237.2	109.6	118.9	107.5	109.8
San Diego, CA	147.0	112.7	230.3	131.5	122.2	108.2	105.4
Chicago, IL	123.2	102.7	156.9	93.0	125.6	101.8	112.4
Baltimore, MD	116.9	111.4	147.2	108.2	101.3	90.0	103.2
Miami, FL	116.2	110.2	146.0	101.1	105.7	96.2	102.5
Philadelphia, PA	113.4	116.7	124.3	107.4	113.9	103.5	105.5
Denver, CO	113.2	99.0	138.8	81.0	104.5	103.1	108.8
Minneapolis, MN	106.3	105.3	103.7	97.5	108.2	105.9	110.8
Dallas, TX	105.4	107.0	106.3	105.8	98.4	105.4	105.9
Atlanta, GA	101.8	99.6	106.2	87.0	100.1	109.1	102.4
Phoenix, AZ	97.4	98.7	94.4	111.2	99.2	95.5	95.7
Houston, TX	96.2	85.7	96.9	109.8	98.9	93.5	95.8
Detroit, MI	95.1	89.0	92.3	92.7	107.1	93.8	97.3
Tampa, FL	89.1	103.7	71.6	87.6	99.9	95.5	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 (C2ER), Cost of Living Index, 2018 Annual Average Data (Data based on a survey of 270 urban areas, published January 2019).

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 59.4° 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 86 percent at midnight; 92 percent at 6:00 a.m.; 62 percent at noon; 68 percent at 6:00 p.m. in '18.
- The Houston MSA lies in a zone with 260-275 frost-free days per year.

Precipitation

- Houston had 56.0 inches of rain in '18, higher than the 30-year annual average of 49.8 inches.
- Thunderstorms occurred on 80 days in '18, higher than the 49-year average of 63.1 days per year.
- Record monthly rainfall: 39.1 inches in August '17, breaking the previous record of 19.2 inches in June '01.
- Highest rainfall in a 24-hour period: 18.1 inches fell on August 26-27, 2017 during Hurricane Harvey, breaking the previous record of 11.0 inches on June 8-9, 2001 during Tropical Storm Allison.
- 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 August.
 - “Cloudy” on 160.3 days, common in December through February.
 - Fog limiting visibility to a quarter of a mile or less occurs on average 23.9 days per year.

Wind

Prevailing wind in '18 was south-southeasterly at an average speed of 7.6 miles per hour—consistent with the Normal (35-year average) speed of 7.5 mph.

HOUSTON WEATHER 2018

	Average High Temperature (°F)	Average Low Temperature (°F)	Total Precipitation (inches)
January	59.7	37.6	3.1
February	70.8	54.2	5.7
March	77.7	57.4	3.0
April	77.9	55.9	1.9
May	90.1	69.6	3.8
June	93.7	76.1	6.6
July	95.3	76.3	6.0
August	95.0	75.6	0.9
September	87.4	74.0	8.6
October	80.5	64.0	7.0
November	68.2	49.1	1.8
December	64.7	46.4	7.6
Annual	80.1	61.4	56.0

Note: Recorded at George Bush Intercontinental Airport's weather station.
Source: National Oceanic and Atmospheric Administration



LODGING

According to CBRE Hotels, in Q4/18, the Houston MSA had 924 major hotels and motels, with 90,959 total rooms. There were 4,043 hotel and motel rooms under construction at the time. Annual room occupancy was 63.2 percent in '18 with an average room rate of \$105.49 per night.

Houstonians offered 1,243,871 units (any space, such as an entire home, private room, or shared room listed for rent) on Airbnb in '18, up 19.2 percent from '17. Just over half of the units, or 52.4 percent, were rented out during the year. These 652,255 rental bookings created \$75.3 million in revenue for their owners, up 2.6 percent from last year. The average daily Airbnb rate in '18 was \$115.36. Bookings for entire homes or apartments accounted for 87.5 percent of all transactions, followed by private rooms (12.2 percent) and shared rooms (0.2 percent). The highest number of active units (at least one night sold within a month) was reached in December '18.

DINING

Houston restaurants feature outstanding regional dishes as well as diverse international cuisine. In the four quarters ending Q3/18, the Houston MSA was home to 11,292 food service and drinking establishments that employed more than 258,700. These establishments included: 4,319 full-service restaurants, 4,330 limited-service eating places and 648 drinking establishments.

Houston MSA's food service and drinking establishments had sales of \$18.1 billion in the four quarters ending Q3/18, according to the State Comptroller's office.

According to Yelp.com, Houston has nearly 160 categories of cuisine, including Afghan, Georgian and Polish restaurants. Houston is also home to over 650 food trucks and stands, nearly 140 delis and about 100 wine bars.

In December '18, Houston was ranked second on Food & Wine's "32 Places to Go (And Eat) in 2019." This ranking is echoed in Yelp's "Top 100 Places to Eat for 2019," which includes five greater Houston eateries. Southern Living's "Top 50 Barbecue Joints" lists two Houston restaurants, while the city is among WalletHub's "Best Cities for Vegans & Vegetarians" as well. "The Best New Restaurants in Texas for 2019" lists six Houston restaurants, of which three are collectively listed as No. 1.

Houston's reputation of being a culinary hotspot is recognized by the James Beard Foundation, which announced the finalists of their 2019 James Beard



Awards, the "Oscars of the food world" in the city. The greater Houston area received 11 semifinalist nominations for this year's awards.

The increasing number of food halls in the Houston area is one of the reasons the New York Times included the city on their "52 Places to Go in 2019." Houston's first food hall opened downtown in '16, followed by a second at the end of '18. Three other downtown food halls are under construction and two food halls have been announced outside downtown.

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 by Americans for the Arts. 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, spans 17 blocks, and its four flagship theaters house 13,000 seats. The Alley Theatre, Hobby Center for the Performing Arts, Jones Hall and Wortham Theater Center host seven renowned performing arts organizations as well as many smaller programs. The Theater District also includes one venue dedicated solely to dance: Houston Ballet's Center of Dance.

Alley Theatre, home to a nationally recognized performing arts company, offers two stages, the 774-seat Hubbard Stage and the 296-seat Neuhaus Stage, and nearly 500 annual performances. Founded in 1947, the theater company produces up to 16 plays annually. Through its performances and educational programs, the company reaches over 200,000 people each year.

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, Sarofim Hall and Zilkha Hall, have seating for 2,650 and 500.

Houston Ballet's Center for Dance, is the largest professional dance company facility of its kind in the U.S. With 115,000 square feet, the six-story structure with sustainable features was constructed for \$47 million and opened in '11. The center features nine dance studios and a dance lab that seats 175.

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. More than 400,000 visitors attend performances each year.

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 an 11,000-seat athletic stadium, a conference center with over 15,000 square feet, an 8,312-seat arena and a 484-seat theater.

Cynthia Woods Mitchell Pavilion, located in The Woodlands, offers outdoor performance space and

accommodates 16,500. Established in 1990, it presents an eclectic range of programs featuring nationally and internationally recognized artists.

Midtown Arts & Theater Center Houston (MATCH), which had its first performances 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 consists of two buildings with four performance spaces, three rehearsal studios, a gallery space and offices for arts professionals.

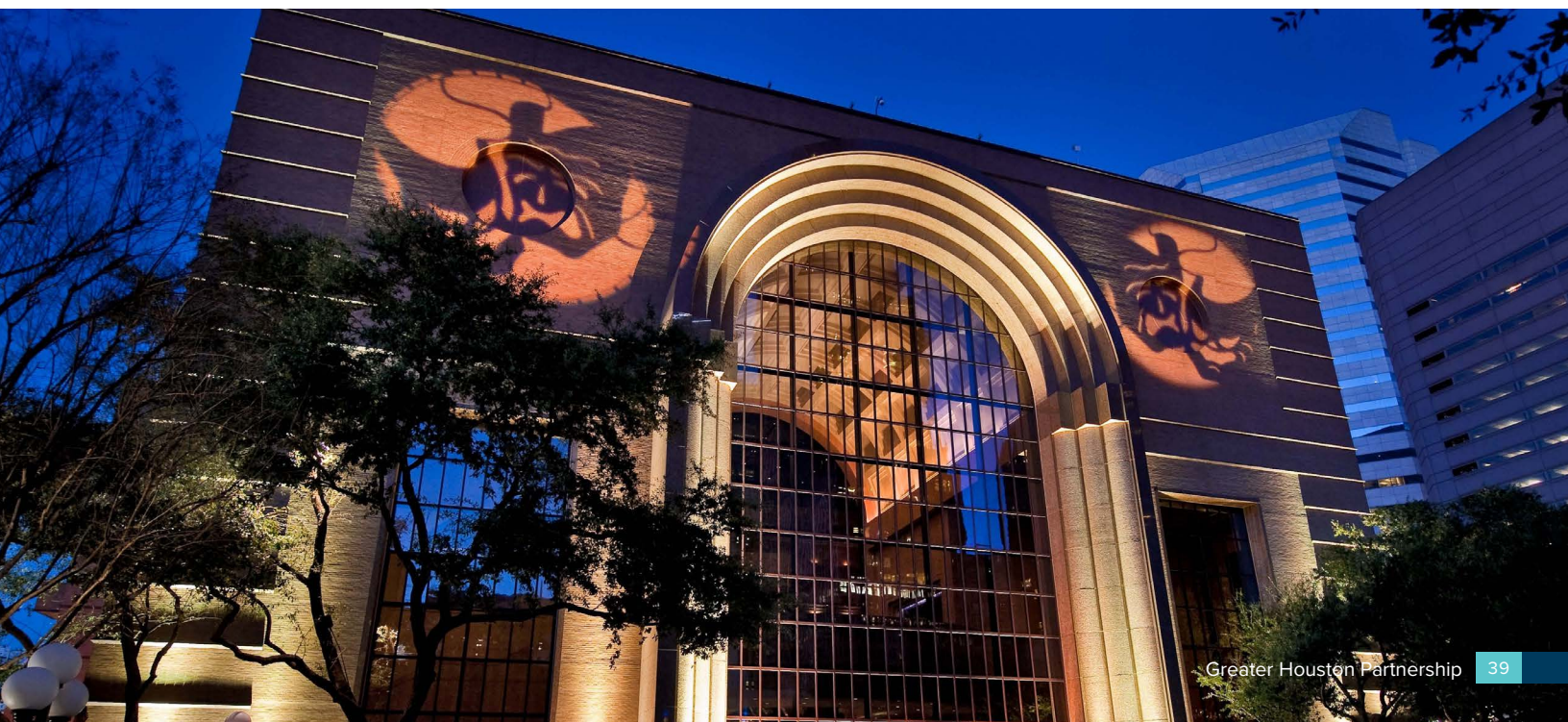
Miller Outdoor Theatre in Hermann Park offers free outdoor performances by Houston's performing arts organizations. The city-owned theatre is located on 7.5 acres of land in Hermann Park, site of the Houston Zoo, the Garden Center and the Museum of Natural Science. Seating is provided for 1,705 patrons 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 2,700 inside the 130,000-square-foot Bayou Place entertainment complex in downtown Houston.

Smart Financial Centre, located in Sugar Land, 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. The Centre is ranked ninth in the world in ticket sales for venues under 10,000 seats.

Stafford Centre, located in Stafford, includes a performing arts theater with seating for 1,154 and more than 28 acres of outdoor festival green space.

The Grand 1894 Opera House, in Galveston is a Romanesque Revival style theater. Listed in the National



Register of Historic Places, the Opera House has seating for 1,040 and presents Broadway shows, comedians, musicians, silent films and more.

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. Houston Ballet has toured extensively over the past 15 years, appearing in Europe, Canada, Australia and cities throughout the U.S. The company produced nine ballets in the '17-'18 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 annually serves more than 12,000 readers and writers of fiction, poetry, and creative nonfiction. Literary performance programs have featured more than 250 celebrated writers from 28 countries, including winners of seven Nobel Prizes, 12 Man Booker Prizes, 44 National Book Critics Circle Awards, 53 National Book Awards, 56 Pulitzer Prizes as well as 17 U.S. Poets Laureate.

Music

Da Camera, founded in 1987, provides thematically programmed concerts with a broad range of repertoire and musical styles. Each year in April, Da Camera celebrates Jazz Appreciation Month by performing a series of free concerts. Da Camera also founded the Young Artist Program in '09 to provide performance opportunities for emerging musicians.

Houston Symphony, was founded in 1913 and is one of the oldest performing arts organizations in Texas. The Grammy Award-winning symphony has a full-time ensemble of 88 professional musicians and presents nearly 170 concerts each year. In addition, the musicians 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 '18-'19 season. In '18, the Houston Symphony won their first ever Grammy award for Best Opera Recording of Alban Berg's *Wozzeck*.

Houston Grand Opera (HGO) founded in 1955, is known worldwide and enjoys a reputation for commissioning and presenting new works and in training young artists. HGO has presented 66 world premieres to date. HGO presents six to eight productions per season and has an operating budget of \$27 million. The opera offers diverse, innovative and wide-reaching community and education projects. HGO has won two Emmy Awards, two Grammy Awards and a Tony Award. 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. SPA provides affordable opportunities to discover and develop creativity on and off the stage through diverse educational and community programs and cultural partnerships.

Theater

A.D. Players, founded in 1967, is one of Houston's largest resident theater companies, which produces plays and programs from a Christian world-view. The A.D. Players offered five mainstage shows and four children's theater performances for the '17-'18 season. In '17, the company moved to its new \$18-million, 35,000-square-foot theater with seating for 440.

Ensemble Theatre, located in Midtown and established in 1976, is one of the only professional theaters in the Southwest devoted to preserving African-American artistic expression. Ensemble Theatre is one of the nation's largest African American theatres owning and operating its own facility and producing in-house. The theatre offers six contemporary and classical works annually, a Performing Arts Education Program and a Young Performers Program.

Main Street Theater (MST) founded in 1975, produces professional, engaging productions based on children's literature in-house and on tour around Texas. MST also offers Education and Outreach programs on-site and at locations throughout the Houston region. Numerous world premieres have been presented by MST.

Stages Repertory Theatre founded in 1978, presents plays and musicals on two stages – the 171-seat Yeager Theater and the 229-seat Arena Theater. With an average of 12 productions per year and more than 380 performances, Stages welcomes 65,000 visitors each season. Stages will move to a new three-theatre campus called The Gordy in the '19-'20 season.

Theatre Under the Stars (TUTS) founded in 1968, offers a mix of touring musicals and self-produced shows, both new works and revivals, performed at the Hobby Center. It also operates the Humphreys School of Musical Theatre. The River Performing and Visual Arts Center merged with TUTS in '10 to provide singing, dancing and acting opportunities to children with disabilities. 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. 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 the 273-seat Brown Foundation Performing Arts Theater, the Louisa Stude Sarofim Gallery and more. One of only 13 Asia Society locations throughout the world, the center serves as an Asia-Pacific educational and cultural institution in the region.

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, is ranked as the number one children's museum in the U.S. by *Parents Magazine*. Families from 31 countries, all 50 states and 905 Texas cities have visited the Children's Museum of Houston. The museum receives nearly 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 art, music and dance. The center features a wide array of cultural events, film screenings, art exhibitions and lectures.

DiverseWorks, founded in 1982, presents and commissions new visual performing and literary art. With a year-round schedule of exhibitions, performances and community programs, DiverseWorks is a leader in the nationwide movement of artist-centered organizations.

Holocaust Museum Houston, opened in 1996, is dedicated to educating people about the Holocaust, honoring the survivors' legacy and remembering the six million Jews and other innocent victims who died in concentration camps in WWII. The museum is currently undergoing a \$34 million expansion, and its new 57,000-square-foot facility will be the fourth largest Holocaust museum in the nation. The new location will be open in June '19 and will be called the Holocaust Museum Houston, Lester and Sue Smith Campus.

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 offers a gallery and a library with over 4,000 books. In addition, the center provides more than 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 17 permanent exhibits, the Burke Baker Planetarium, Cockrell Butterfly Center and the Wortham GIANT Screen 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 all fourth grade and seventh grade classes 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 more than 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. With over 2.5 million visitors, the museum is the most visited health museum in the country. 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 and offers more than 200 classes annually. 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, including masterpieces from antiquity, the Byzantine and the tribal cultures of Oceania. The museum has one of the world's foremost collections of Surrealist holdings. In '18, the museum underwent six months of renovations, reopening in fall '18.

Moody Center for the Arts, located at Rice University, serves as an experimental platform for creating and presenting art works. The 50,000-square-foot facility newly constructed in '17 for \$30 million features a striking contemporary design with bold geometric shapes. 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. The museum is among the 10 largest art museums in the U.S. with more than 65,000 works of art. The MFAH campus includes two buildings, the Glassell School of Art and a sculpture garden. Satellite facilities include Rienzi and the Bayou Bend Collection and Gardens. The museum began construction of a new master planned campus transformation in summer '15 and has completed the second phase of construction in '18. 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. The chapel contains 14 canvases by the painter Mark Rothko and is lit only by skylight. The chapel's plaza contains an obelisk in memory of Dr. Martin Luther King Jr.

Outside the Houston Museum District

Houston Arts Alliance works to implement local civic art through murals and cultural events.

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, located in the historic Galveston Orphans Home, opened in '15 and houses one of the world's largest collections of historical artifacts, documents and artwork relating to Texas and the American West. The museum also has a library and an archive.

Fort Bend Art Center, opened in '18 and is a multi-arts center with fine artwork by more than 30 member artists on display and for sale. With two galleries, the art center functions as a shared-space for artists and art enthusiasts to create, exhibit and experience art.

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 five to 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 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.

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,

RECURRING EVENTS AND FESTIVALS		
January	February	March
Chevron Houston Marathon MLK Grande Parade “Original” MLK, Jr. Birthday Parade	Experimental Action: Performance Art Festival 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 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 Comicalooza 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 Star-Spangled Salute	AIA Sandcastle Competition Houston International Jazz Festival Houston Restaurant Weeks Houston Shakespeare Festival Theater District Open House White Linen Night in the Heights	AdvoCare Texas Kickoff Fiestas Patrias Oktoberfest Houston
October	November	December
Bayou City Art Festival Downtown Grito Fest Houston Black Heritage Festival Houston Italian Festival Houston Open 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 Houston Zoo Lights Interfaith Thanksgiving Service at Rothko Chapel International Quilt Festival Lone Star Rally H-E-B Thanksgiving Day Parade Mayor’s Holiday Celebration and Tree Lighting Moody Garden’s Festival of Lights & Ice Land The Nutcracker Market Texas Championship Native American Pow Wow Via Colori	Candlelight Tour in the Park Christmas Boat Lane Parade Christmas Village at Bayou Bend Dickens on the Strand Fiesta Guadalupeana Tamale Festival Houston Texas Bowl Tomball German Christmas Market & Festival



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 comprehensive exhibitions from Afghanistan, Austria, Colombia, Congo, Czech Republic, India, Iraq, Mexico, Palestine, Peru, Russia, South Africa and Venezuela.

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 seaborne 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 (Umuse), opened in 2000, has 11,000 square feet of exhibition space with exceptional acoustics for musical performances. The museum displays a collection of African and African American art accumulated over four decades.

RELIGIOUS AND CULTURAL DIVERSITY

According to the Kinder Institute for Urban Research's 38th Annual '19 Houston Area Survey, 78.1 percent of Harris County residents report that religion is "somewhat" or "very" important to them. Among those surveyed, 40.9 percent identify as Protestant and 31.8 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 a Zoroastrian cultural center spotted across the region. Representative religious congregations in Houston include:

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, the first traditional Hindu Mandir of its kind in the U.S., is located in Stafford. 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 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.

Christ Church Cathedral was Houston's first religious congregation when founded in 1839 and is the only one still worshipping on its original site from the days when Houston was the capital of the Republic of Texas.

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, the largest conservative synagogue in the U.S., is important not only for its 100-year history but also for its location in the Meyerland area, which is known as the center of Houston's Jewish community.

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 events to stimulate the intellect, encourage dialogue and celebrate cultural diversity in the greater Houston area. Houston will soon become the home of the first U.S. Ismaili Center, located in Montrose, serving as a national hub for the social, cultural, and intellectual activities of the Ismaili Muslim Community.

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

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 parish 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, welcomes Taoists, Buddhists and anyone who seeks respite, meditation or counsel. The building is a focal point of Houston Old Chinatown. An architect from China designed the Texas Guandi Temple, the largest temple in the nation dedicated

to Guandi. Materials for the building and for the interior also came 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 which opened in '17, is the entertainment district in front of the George R. Brown (GRB) Convention Center in downtown Houston. The 97,000-square-foot outdoor plaza incorporates **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**. The area around Avenida Houston offers many retail and dining options, including several restaurants within the GRB.

BBVA Compass Stadium, the state-of-the-art, open-air stadium designed to host Dynamo and Dash soccer 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 of exhibit space with seven

exhibit halls, 88 meeting rooms, over 10,000 parking spaces and 3,600 fixed seating in its general assembly theater. Latest improvements, which include 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 April '00. Renovations to its centerfield seating were completed in time for the '17 season. The stadium's ornamental train, positioned 90 feet above the field on the left-field wall, makes its way along the 800-foot track whenever the Astros score a homerun.

Fertitta Center, formerly known as Hofheinz Pavilion, is home to the University of Houston Cougars men's and women's basketball teams. The 7,100-seat multipurpose area, built in 1969, has undergone a \$60-million transformation in '18, including the addition of a seating bowl bringing fans only 10 feet from the sideline and a new audio system, sports lighting and video boards.

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. Hosting over 500 events annually, NRG Park includes the following venues:

- **NRG Stadium**, a 71,995-seat football stadium with a retractable roof and natural grass, 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 over 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 targeted to begin after the '19 Rodeo.

Rice Stadium, which opened in 1950, is a 47,000-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 and bring him safely home again.

TDECU Stadium, which 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, which 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.



PROFESSIONAL TEAMS IN GREATER HOUSTON



Houston Astros

(*17 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
AVEVA Stadium

Sugar Land Skeeters

(*18 Atlantic League World Champions)
Atlantic League of Professional Baseball
Constellation Field

MAJOR EVENTS AND CONVENTIONS

Greater Houston has 4.4 million sq. ft. of convention space and regularly hosts worldwide events such as the International Quilt Festival, which draws 60,000 participants to George R. Brown Convention Center and the Offshore Technology Conference, with 62,000 attendees at NRG Park.

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, drawing 150,000 visitor and generating an estimated economic impact of \$347 million. The previous two Super Bowls hosted by Houston were Super Bowl VIII in 1974 and Super Bowl XXXVIII in '04.

Other past major Houston-based events include '02 World Space Congress, '08 Latin Grammy Awards ceremony, '13 American Association for Clinical Chemistry, '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.

Houston is slated to host the U.S. Women's Open Golf Championship in '20, the NCAA Men's Basketball Championship in '23 and the College Football National Championship in '24. Houston is also a finalist host city for the '26 FIFA World Cup.

PARKS AND RECREATION

Houston contains 66,641 acres of park land and 580 parks, according to The Trust for Public Land's '18 Houston, TX report.

- Parks represent 18.1 percent of the city's adjusted land area in '18. Park land as a percent of city area increased 3.7 percent from '17. Houston ranks 16th in park land as a percent of adjusted city area among main U.S. cities, ahead of Dallas (ranked 31st) and Los Angeles (ranked 32nd).
- There are approximately 35 people served per park acre with \$38.08 spending per resident.
- Houston's oldest municipal park is Sam Houston Park, established 1899, while the area's largest municipal park is Cullen Park with 9,720 acres. Cullen Park is also one of the largest parks in the U.S. The most visited park in the Houston region is Hermann Park.
- There are 28.6 acres of total parkland per 1,000 residents, well above the median of 8.1 acres per 1,000 residents for cities of similar density.

City of Houston Parks

Houston Parks and Recreation Department (HPARD) oversees 380 developed municipal parks and more than 167 green spaces, which together encompass approximately 39,501 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
- 173 Basketball Courts
- 165.3 Miles of Trails
- 161 Baseball & Softball Fields
- 87 Soccer Fields

- 75 Practice Backstops
- 30 Pools
- 29 Water Spray Grounds
- 20 Volleyball Courts
- 16 Football/Rugby/Cricket/Lacrosse Fields
- 11 Community Garden Sites
- 9 Dog Parks
- 8 Golf Courses
- 7 Skate Parks
- 5 Fitness Centers
- 4 Nature Centers

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)
- **F.M. 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

- **Champion Forest Park**, opening in early '19 in Spring, features four soccer fields and a playground and will connect to the Kickerillo-Mischer Preserve and Matzke Park. It is also designed to absorb water during heavy rains.
- **Edgewater Park**, located in the Kingwood area, will connect to the Spring Creek Greenway and will feature public boat ramps on the San Jacinto River when it opens in '19.
- **Hermann Brown Park**, a 717-acre park located eight miles from downtown is currently renovating a 24-acre section to have rolling hills with pavilions, a new play area and native landscaping. Referred to as the 'Commons,' this project is the first of the park's 20-year master plan for improvements.
- **Levy Park**, a six-acre park in Upper Kirby, won the '18 Urban Open Space, an international award from the Urban Land Institute, for the park's architecture and amenities. Finalists for the award included parks in China and Spain.

Major Downtown Houston Parks

- **Allen's Landing**, referred to as "Houston's Plymouth Rock," is where August Chapman and John Kirby Allen stepped ashore in 1836 to found Houston.
- **Discovery Green**, a 12-acre park adjoining the George R. Brown Convention Center, opened in '08. The park is currently undergoing a \$12 million renovation.
- **Eleanor Tinsley Park**, a section of Buffalo Bayou Park, immediately west of downtown, is the site of major Houston festivals and events, including Houston's Fourth of July Fireworks.
- **Hermann Square**, serves as the courtyard of City Hall, occupies a city block, and is dominated by a reflecting pool.
- **Market Square**, a one square block donated to the city in 1854 by Augustus Allen, was Houston's original town center. The park now provides live entertainment, shady walkways and dog runs.
- **Root Square** was donated in 1923 by the descendants of Alexander Porter Root. Located across from the Toyota Center, the park has a basketball court, a shade pavilion and displays civic art.
- **Sam Houston Park**, the city's first park and a short distance from City Hall, was acquired in 1899. The park's 19.7 acres contain 10 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.

- **Settegast Park**, located adjacent to a community center building, provides a playground and swimming pool as well as courts for basketball, tennis and volleyball.
- **The Acre**, located between One and Two Allen Center, is a new urban park with a plaza and linear lawn.
- **Tranquility Park**, between Walker and Rusk Streets, was dedicated on the 10th anniversary of the first lunar landing to honor Apollo 11 and includes cylindrical water fountains.



Major Harris County Parks

- **George Bush Park** (7,800 acres)
- **Armand Bayou Nature Center** (2,500 acres)
- **Bear Creek Pioneers Park** (2,154 acres)
- **Congressman Bill Archer Park** (926 acres)
- **Tom Bass Regional Park** (585 acres)
- **Terry Hershey Park** (496 acres)
- **Challenger Seven Memorial Park** (326 acres)
- **Mercer Arboretum & Botanic Gardens** (325 acres)
- **Roy Campbell Burroughs Park** (320 acres)
- **Jesse H. Jones Park & Nature Center** (312 acres)
- **Gene Green Beltway 8 Park** (250 acres)
- **Arthur Storey Park** (175 acres)
- **Cypress Park** (165 acres)

State Parks

- **Brazos Bend State Park** (5,000 acres) has coastal prairies, woodlands and wetlands. The park is located approximately 45 miles southwest of downtown Houston in Fort Bend County.
- **Galveston Island State Park** (2,013 acres) is a mosaic of coastal habitats and located southeast of Houston in Galveston County.
- **San Jacinto Battleground State Historical Park** (1,200 acres) has a 600-foot tall monument and is located 22 miles east of downtown Houston in Harris County.
- **Sheldon Lake State Park & Environmental Learning Center** (2,800 acres) is filled with wetlands, lakes and ponds. The park is located 22 miles northeast of downtown Houston in Harris County.
- **Stephen F. Austin State Park** (473 acres) has acres of wetland and hardwood forests located 51 miles east of downtown Houston in Austin County.

Golf

There are 167 golf courses in the Houston MSA, according to pga.com.

Houston has hosted world-class golf tournaments for over half a century, including five PGA tour championships, two LPGA tour championships, one Ryder Cup, one U.S. Open, and five U.S. amateur championships.

The Houston Open has made the Bayou City an annual PGA tour stop since it was first played in 1930. The Golf Club of Houston has hosted the tournament since '03, though the event will move to Memorial Park starting in '20.

The Woodlands Country Club has hosted the Insuperity Invitational since '08. The event was held at Augusta Pines from '04-'07. It's the only Texas stop for the PGA's senior tour.

Houston was selected to host the U.S. Women's Open Tournament in '20. The event will take place at Champions Golf Club. Houston previously hosted the men's U.S. Open in 1969.

Bluejack National, located in Montgomery County, was named Golf Digest's "Best New Course" in '16.

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

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. In '19, Alkek was selected as one of four inaugural training centers for U.S. Track Cycling's Olympic Development Program.

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

Houston Raceway Park is a multi-purpose motorsports venue located in Baytown. The race park features a quarter-mile drag strip sanctioned by the National Hot Rod Association (NHRA).

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

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

Biking and Hiking

The City of Houston has over 500 miles of designated bikeways, including 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 Houston a safer, more bike-friendly city. The long-term vision of the plan is to extend Houston's bikeway network to almost 1,800 miles.

Houston Bicycle is a non-profit program that offers rentable bikes at 90 bike share stations with 635 bikes in circulation.

The Houston Parks and Recreation Department maintains 176 surfaced running and hiking trails spanning 155 miles.

- Asphalt 80 miles
- Concrete 43 miles
- Granite 16 miles
- Gravel/Other 16 miles

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, an urban working 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. Migration occurs spring through fall, depending on the species.

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 30,000-acre Trinity River National Wildlife Refuge in Liberty County. Locally-based wildlife refuges in the Houston region include Seabrook Wildlife Refuge and Park.

Houston Audubon, the largest and most active chapter of Audubon Texas, is headquartered at the Edith L. Moore Nature Sanctuary in West Houston. Among its several sanctuary locations are Bolivar Flats and High Island.

Houston Zoo

The Houston Zoo, founded in 1922, receives 2.4 million visitors per year 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 6,000 animals and over 330 employees.

In '18, the Houston Zoo announced its plans for a \$150 million renovation, with a new exhibit to be opened each year leading up to '22, the zoo's 100th anniversary celebration.



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 trolley cars (mule-drawn) appear.

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 (\$902 million in 2019 dollars).
- 1901** Houston Left Hand Fishing Club purchases the city's first automobile from Olds Motor Works of Detroit.
- 1901** Oil discovered at 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.
- 1924** Houston Museum of Fine Arts, the first fine arts museum in Texas, opens.

- 1926** Natural gas first piped into Houston.
- 1927** Houston Colored Junior College, the forerunner of Texas Southern University, established.
- 1927** Houston Junior College (now the University of Houston) is established.
- 1928** National Democratic Convention is held in Houston.
- 1928** Municipal airport opened; air mail service to Houston begins.
- 1929** City Planning Commission recommends that Houston adopt a zoning ordinance but finds scant support.

1930s

- 1930** Census ranks Houston as state's most populous city at 292,352.
- 1932** First Houston Fat Stock Show & Rodeo (now Houston Livestock Show and Rodeo) held.
- 1934** Intracoastal Canal links Houston to Mississippi River navigation system.
- 1935** Braniff International inaugurates first scheduled air passenger service to Houston.

1940s

- 1940s** Petrochemical complex develops, taking feedstocks from nearby refineries.
- 1941** New master plan for Houston thoroughfares emphasizes a loop system.
- 1943** Texas Medical Center is founded.
- 1946** Houston Golf Assn. hosts its first PGA Tour event — now the Houston Open, 10th oldest event on the PGA schedule.
- 1947** Houston College for Negroes acquired by Texas Legislature; established as Texas State University for Negroes (now Texas Southern University).
- 1947** Alley Theatre established.
- 1947** Engineering begins on the Gulf Freeway, Texas' first freeway.
- 1948** Houston voters reject proposed zoning ordinance.
- 1948** Dec. 31 annexation expands Houston's area from 74.4 to 216 square-miles.
- 1948** Port of Houston ranks second nationally in total tonnage.
- 1949** KLEE-TV broadcasts first Houston commercial TV program.

1950s

- 1953** KUHT-TV, the nation's first public broadcast TV station, goes on the air.
- 1955** Houston Grand Opera Association and Houston Ballet founded.

- 1955** Houston metro area population reaches 1,000,000.

1960s

- 1962** NASA's Manned Spacecraft Center moves to Houston.
- 1962** Houston voters reject proposed zoning ordinance.
- 1965** First event held in the Astrodome.
- 1969** Houston Intercontinental Airport begins operations.
- 1969** "Houston" is the first word spoken from the lunar surface.

1970s

- 1970** The Galleria opens.
- 1971** Shell Oil Co. relocates corporate headquarters to Houston. More than 200 major firms move headquarters, subsidiaries and divisions here in the 1970s.
- 1973** Arab oil embargo quadruples oil prices in 90 days, fueling Houston's 1973-1981 economic boom.
- 1978** Voters approve and fund Metropolitan Transit Authority.

1980s

- 1982** Employment peaks at 1,583,400 in March before onset of recession.
- 1983** 155 office buildings completed in 12 months.
- 1983** Voters approve creation of Harris County Toll Road Authority.
- 1987** Trough of recession in January; net recession loss of 221,900 jobs.
- 1987** Wortham Center, home to Houston Ballet and Houston Grand Opera, opens.
- 1989** Houston Chamber of Commerce, Houston Economic Development Council and Houston World Trade Association combine to form Greater Houston Partnership.

1990s

- 1990** Houston economic recovery complete; April job count above March 1982 level.
- 1990** Houston hosts 16th annual Economic Summit of Industrialized Nations.
- 1991** Houston City Council mandates first zoning regulations.
- 1992** Republican National Convention held in Houston.
- 1993** Houston voters reject proposed zoning ordinance.

2000s

- 2000** Census finds Houston MSA has no racial or ethnic majority.

- 2000** Minute Maid Park, home of Major League Baseball's Houston Astros, opens.
- 2001** 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.
- 2002** NRG Stadium, home of the National Football League's Houston Texans, opens.
- 2002** Hobby Center for the Performing Arts opens.
- 2003** Toyota Center, home of the National Basketball Association's Houston Rockets, opens

- 2004** Houston's first modern light rail line, 7.5-miles long, begins operations.
- 2004** Houston hosts NFL Superbowl XXXVIII
- 2005** More than 100,000 evacuees flee to Houston from southern Louisiana in the wake of Hurricane Katrina.
- 2008** 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.

2010s

- 2011** By November, Houston returns to 2008 pre-recession employment levels; first major metro to do so.
- 2012** BBVA Compass Stadium, home of Major League Soccer's Houston Dynamo, opens.
- 2013** 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.
- 2014** 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.
- 2015** Hobby Airport launches international service with the opening of the airport's first international terminal.
- 2015** Ellington Airport receives a commercial spaceport license by the Federal Aviation Administration.
- 2016** The energy downturn bottoms out and a slow recovery begins.
- 2017** Houston hosts NFL Super Bowl LI.
- 2017** Hurricane Harvey inundates Houston with five days of rain. Total rainfall exceeds 50 inches in many parts of the region.
- 2017** The American League Houston Astros defeat the National League Los Angeles Dodgers to win Major League Baseball's World Series.
- 2018** Rice University announced plans to develop new hub for Innovation District in Midtown.



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