HARRIS COUNTY ECONOMIC RESILIENCE PROFILE

Contents

Introduction

Economic resilience is the ability to withstand and prevent disruptions to the economy. The most common types of disruptions include downturns in the economy or in a key industry; the exit of a major employer; and natural or man made disasters.

Creating a resilient economy requires the ability to anticipate risk, evaluate how risk can impact economic assets, and build the capacity to respond to disruptions.

This profile is intended to provide an overview of the factors affecting the future growth, development and resilience of Harris County and it's economy by providing key data points on the economy, demographics, and other useful information.

Harris County Boundaries

- Harris County
- Other counties
- ● Top 5 cities
- — Major roads

County Seat: Houston
**Largest City:** Houston
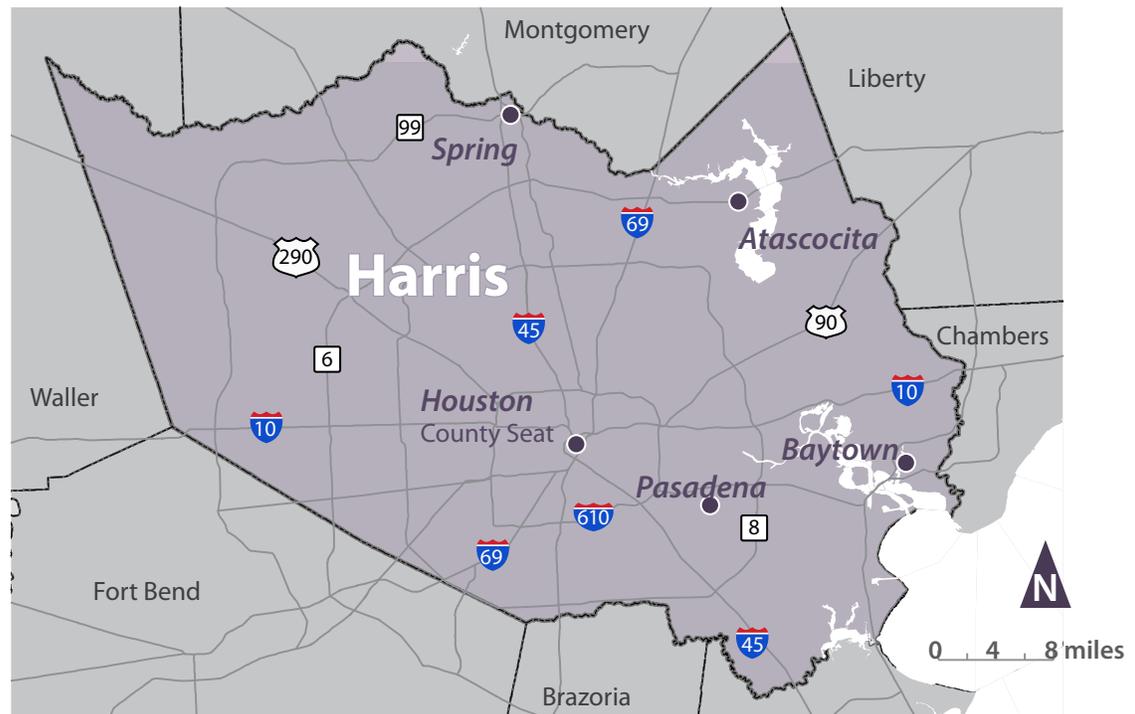
Harris County Overview

Harris County is the most populous county in Texas and the third most populous county in the nation, its estimated the population will grow from today's 4.5 million to 6.3 million by 2040. The population has grown by 67 percent since 1990, twice as fast as the national rate. Harris County has a greater population than all but 24 U.S. states. The City of Houston is the county seat of Harris County. It is the largest city in Texas and the fourth largest city in the nation with an estimated population of 2.3 million. Baytown and Pasadena have estimated populations of 67,000 and 150,000, respectively. Other Harris County cities with populations above 10,000 include Bellaire, Deer Park, Friendswood, Galena Park, Humble, Jacinto City, Katy, La Porte, Seabrook, South Houston, Tomball, Webster, and West University Place. Harris County is on the Texas Gulf Coast Plain, with Piney Woods extending in from the north. Harris County is bounded to the south-east by Galveston Bay. The main waterways are the San Jacinto River in the east (which is dammed to create Lake Houston reservoir), Spring Creek in the north, Clear Creek in the south, and Buffalo Bayou in the center.

Energy is the basis of nearly 30% of Harris County's economic output; which is a significant structural shift over the past thirty years, from when the energy sector's base employment exceeded seventy five percent. Harris County is home to the Texas Medical Center, the largest medical complex in the world; hosting 10 million patients a year, employing over 100,000 employees, and generating a GDP of $25 billion dollars. In addition to patient care, the Texas Medical Center is an internationally significant hub for biomedical research. NASA's Johnson Space Center in the southeastern Bay Area of Harris County provides 3,000 direct jobs and nearly 7,500 contract positions with an estimated economic impact of $2.47 billion in Texas. The Port of Houston is one of the world's busiest ports, creating 56,113 direct jobs and generating an estimated $264.9 billion in statewide impact.

Harris County is home to 20 Fortune 500 companies. Business services is the largest economic cluster by employment in Harris County; there are over a quarter million workers employed in this sector. There are nearly 100,000 employers in the county. Harris County's population growth has supported an ongoing expansion in the retail, construction, and services sectors. The value of annual retail sales in Harris County is $61.7 billion. Harris County added 179,000 single family homes from 2006-2016; over 82 percent of this growth was in unincorporated Harris County. The un-urbanized far west and east areas of Harris County has an estimated agricultural production of over $65 million annually; 73% of the production was in crop sales and 27% was in livestock sales.
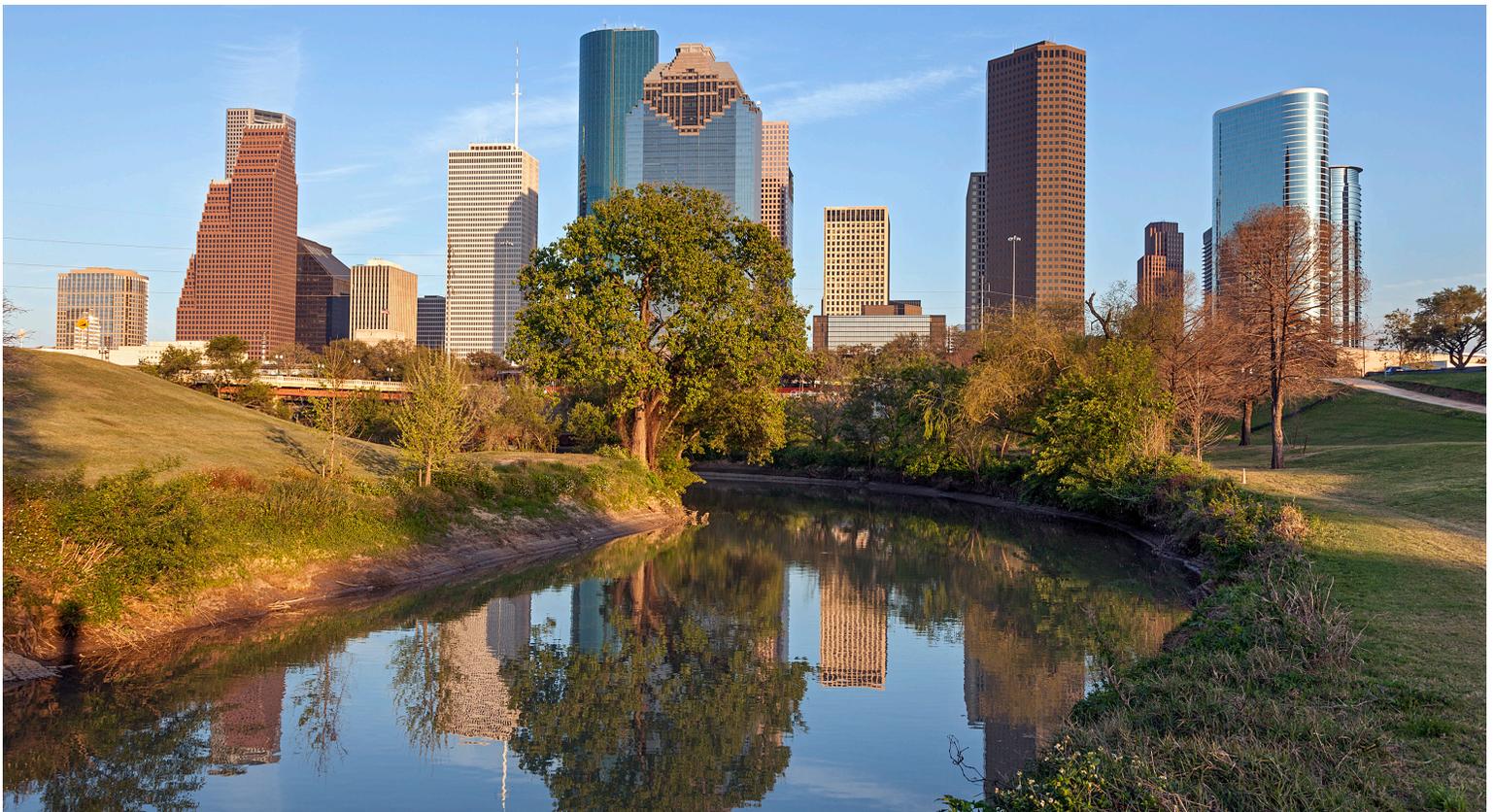
Buffalo Bayou and Downtown Houston

Recent Disruptions to the Economy

Harris County's location and topography make it vulnerable to storms coming in from the Gulf of Mexico. Hurricane Harvey dropped over 50 inches of rain in areas of Harris County, and inundated 25 to 30 percent the county. The economic impacts of Hurricane Harvey are still being calculated. Initial estimates indicate that 120,000 structures flooded in Harris County and $23 billion dollars in damage occurred Harris and Galveston counties. Harris County's economy was also affected by the Memorial Day (2015) and Tax Day (2016) floods. Flooding also occurred during Hurricane Ike in 2008. During that storm, a 10-12-foot surge flooded the southeastern portion of the county. Hurricane Ike is estimated to have had $103.8 billion dollars in economic impact to Harris County. The largest losses were in the wholesale sector, totaling $38.8 billion. Winds knocked out power lines to some areas for months afterwards.

Harris County's dependence on the energy industry was evident in wake of the collapse in the price of a barrel of oil. Prices dropped from over $100 a barrel in 2014 to under $30 in 2016. The industry lost an estimated 70,000 jobs; with knock on effect felt in retail and construction. Given the strong prices for oil during the Great Recession (2008-2012), Harris County's economy was somewhat shielded from the national downturn, although the unemployment rates peaked at 8.6 percent in July of 2009. The Texas drought of 2010-2011 caused losses for the agricultural sector, and increased infrastructure maintenance costs in developed areas from cracked pipes and shifting roadbeds.

Economic Resilience Strategies

After Harvey, Harris County is increasing efforts to enhance its resilience to flooding. Harris County has extensive flood control infrastructure which has proven to be insufficient to protect developed areas from the types of storm events the county is experiencing. The county remains vulnerable to a large windstorm/storm surge event. A direct hit by a category five hurricane to the petrochemical complexes in southeastern Harris County would be an environmental catastrophe and would have notable economic consequences to both the national and international economy. Harris County's transportation infrastructure has not been able to keep pace with its population growth, and there is little available space to increase highway capacity in the urban core. Vehicular and freight mobility are vital to the economic well-being of Harris County. As nodes of commercial, residential, and industrial development continue to grow outside of the core employment centers of Harris County, their connectivity to each other and the core needs to increase to maintain quality of life and economic competitiveness.

Recommendations

Harris County's economy will be better able to withstand, avoid, and recover from disruptions if it is able to:

Participate in the creation of a regional flood control management organization.

Develop comprehensive flood control plans for every watershed in Harris County.

Revisit development standards and clarify the Municipal Utility District's responsibilities in drainage and flood control.

Develop a report to explore the potential funding mechanisms for creating a structural solution to provide protection from storm surge in Harris County.

Investigate the costs and benefits of emerging mobility technologies including electrification, rideshare, and automated vehicles along with high capacity transit.

Land Use and Demographics
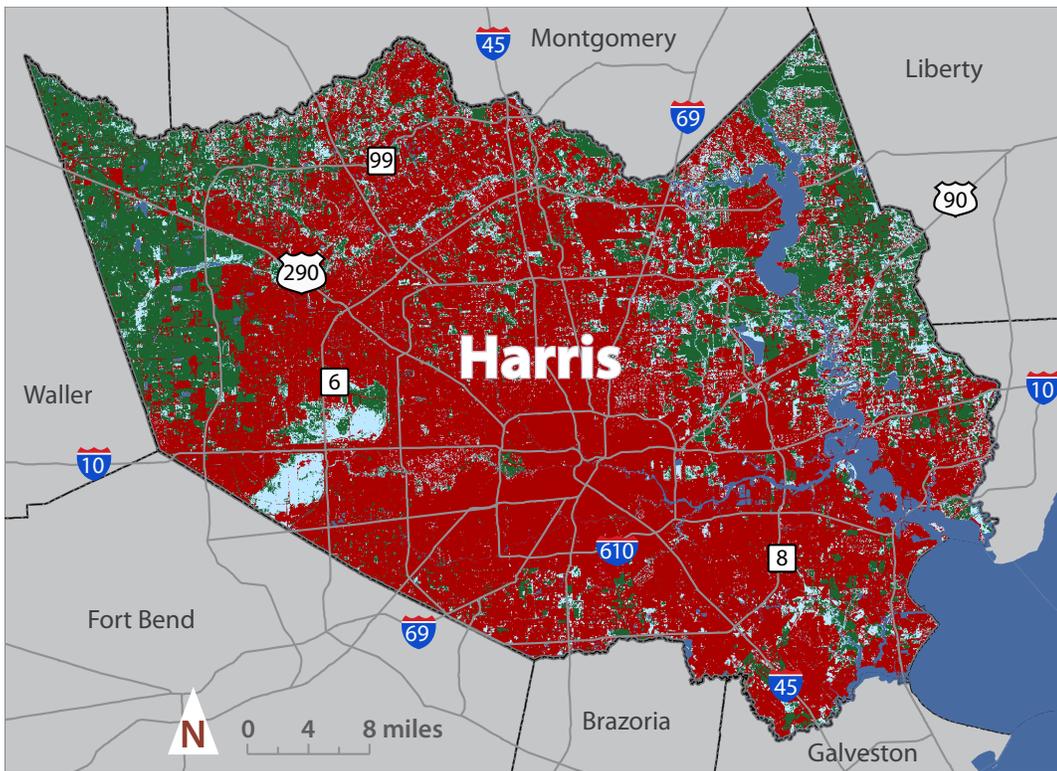
Harris County Land Use

	Other counties
3%	Open water
63%	Developed Land
12%	Wetlands
23%	Forest, shrubs, pasture, grasslands, barren lands and cultivated crops

Harris County is largely urbanized but maintains agricultural production and the far west of the county.

Population Growth Forecast

Harris County grew by 88% from 1980 to 2015 and is expected to reach 6,328,000 residents by 2040.

6,328,000

2015
4,538,000

2,410,000
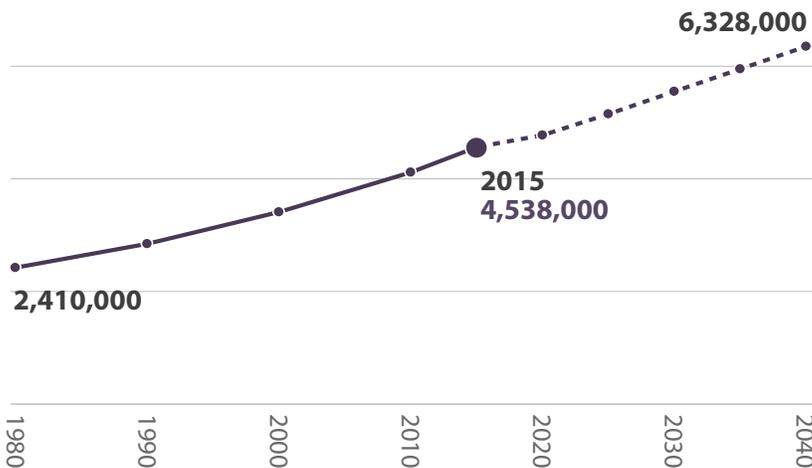
Top 10 City Populations

The City of Houston is Harris County's largest incorporated municipality.

2,254,546	Houston*
153,351	Pasadena
71,854	Baytown*
35,086	La Porte
33,782	Deer Park
18,593	Bellaire
17,463	South Houston
15,561	Humble
15,516	West University Place
13,552	Seabrook

*The municipality spans multiple counties. Only the population residing in Harris County is shown here.
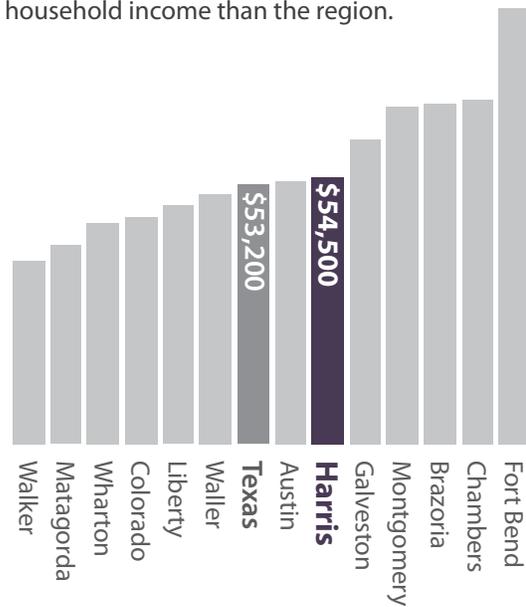
Land Use and Demographics

Residents Per Square Mile
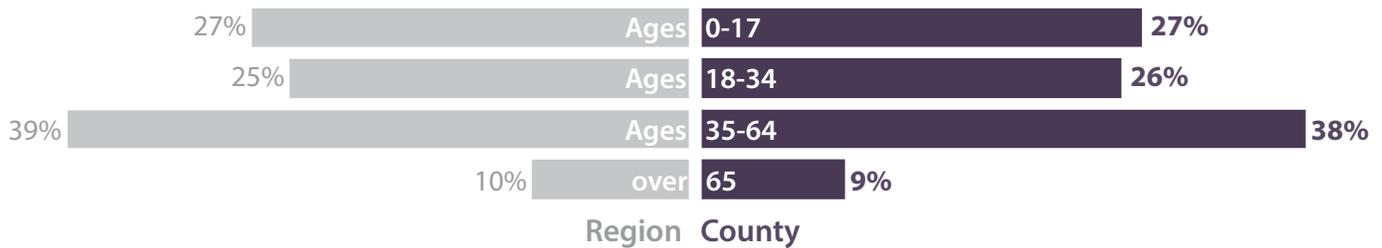
Harris County is most dense county in the region.

2,590 — Harris

560 — Region

20

Colorado, Matagorda, Wharton, Austin, Chambers, Liberty, Waller, Walker, Brazoria, Region, Montgomery, Fort Bend, Galveston, Harris
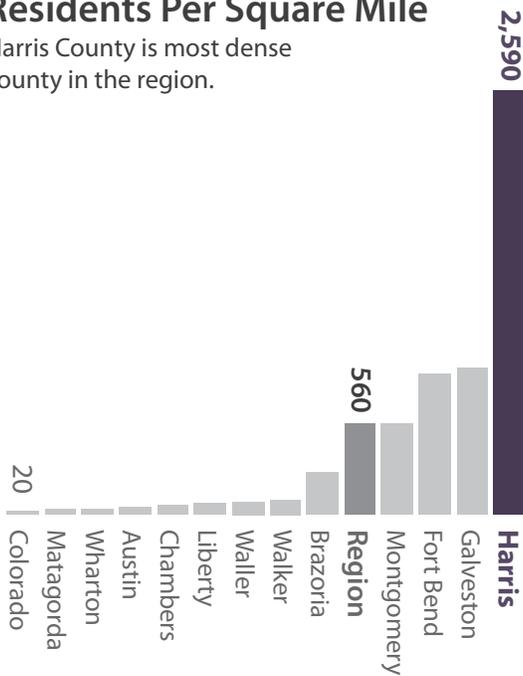
Median Household Income

Harris County has a slightly higher median household income than the region.

$53,200 — Texas

$54,500 — Harris

Walker, Matagorda, Wharton, Colorado, Liberty, Waller, Texas, Austin, Harris, Galveston, Montgomery, Brazoria, Chambers, Fort Bend

Age

Harris County has a similar age profile as the region.

Region		County
27%	Ages 0-17	27%
25%	Ages 18-34	26%
39%	Ages 35-64	38%
10%	over 65	9%

Region County

Poverty Rate

Harris County has a higher rate of poverty than the region and state.

|	Overall	Children (under 18)	Seniors (65 and over)
County	18%	27%	11%
Region	16%	23%	10%
Texas	17%	25%	11%
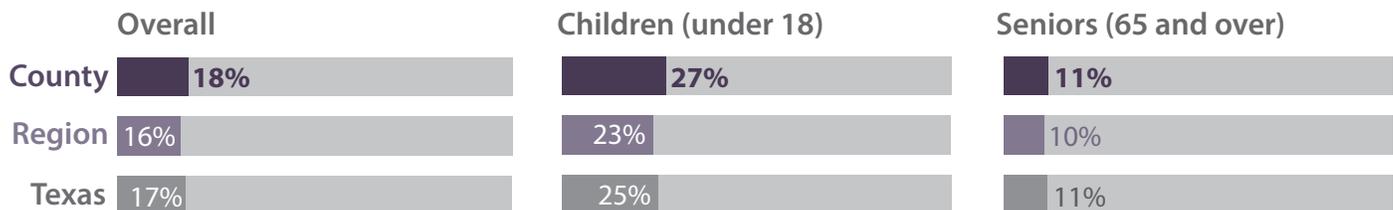
Housing

Building Permits Issued

Single-family construction has not recovered from a peak in 2006 while multi-family permits have dropped sharply between 2014 and 2016.
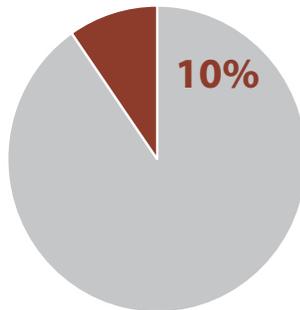
33,000

**Single Family
15,500 units**

8,100

2,000

13,400

**Multi-Family
7,200 units**

1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016
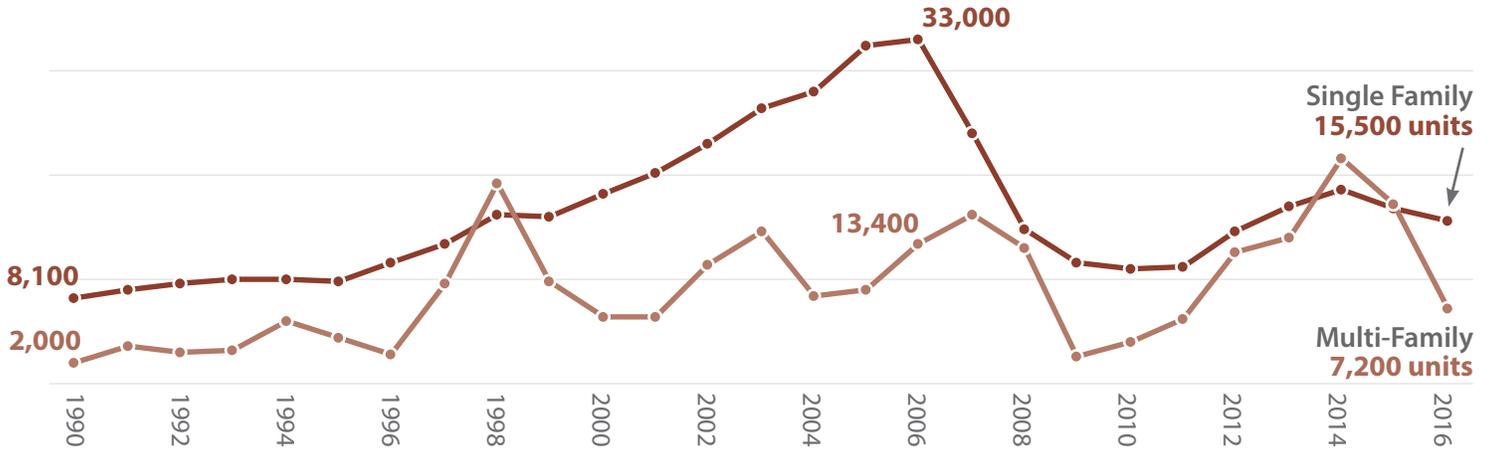
Housing Tenure

Harris County has a lower rate of homeownership than the region or the state.

Owners 55%	Renters 45%	**County**
61%	39%	**Region**
62%	38%	Texas
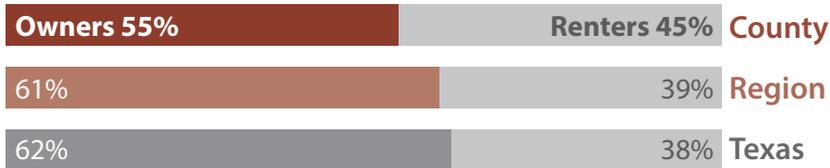
Vacant Housing Units

Around 10% of Harris County's housing units are vacant.

10%

Housing Type

Harris County has a lower portion of single family homes than the region.

61%	36%	3%	**County**
66%	29%	5%	**Region**
68%	24%	8%	Texas

Single Family   **Multi-Family**   **RV, boat, & mobile home**
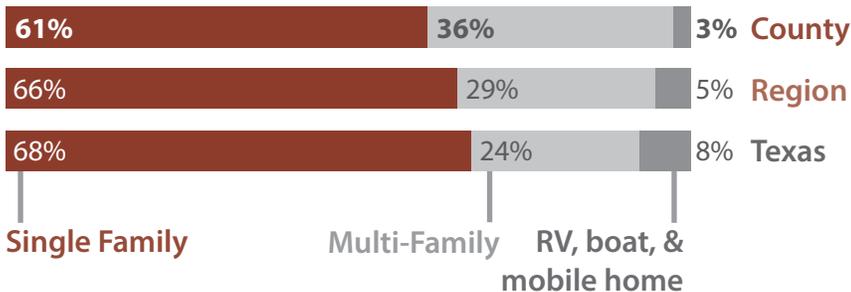
Living Costs

Harris County households spend 49% of their income on transportation and housing.

28% **Housing**

21% **Transportation**
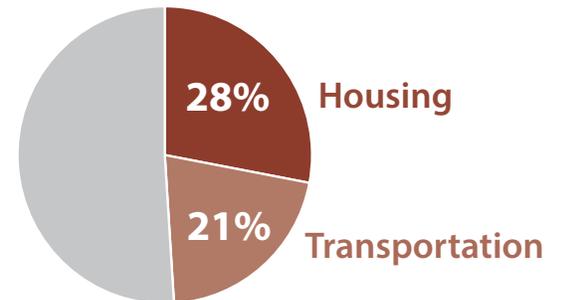
Economy

Top Industries by Percent of Overall Jobs

Employment in Harris County remained diverse between 2002 and 2014, with each of the top four industries employing more people in 2014 than in 2002.
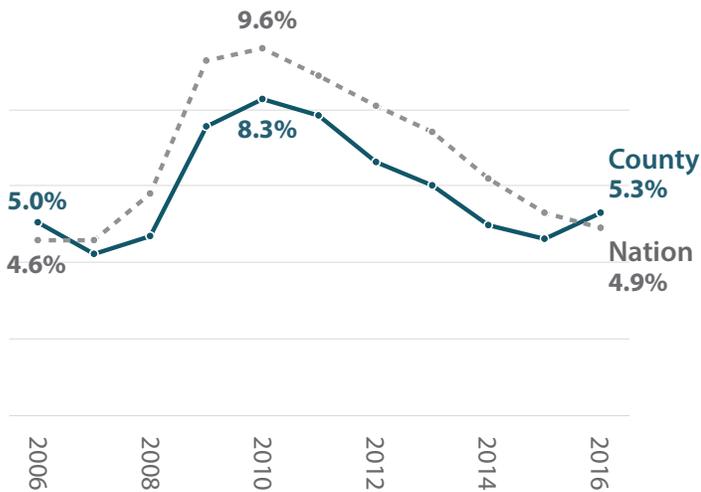
Retail Trade **11**%
Educational
Services **10**%
Manufacturing **10**%
Health Care & **9**%
Social Assistance

Health Care & **11**% Social Assistance
10% Retail Trade
9% Manufacturing
8% Educational Services

2002   2014
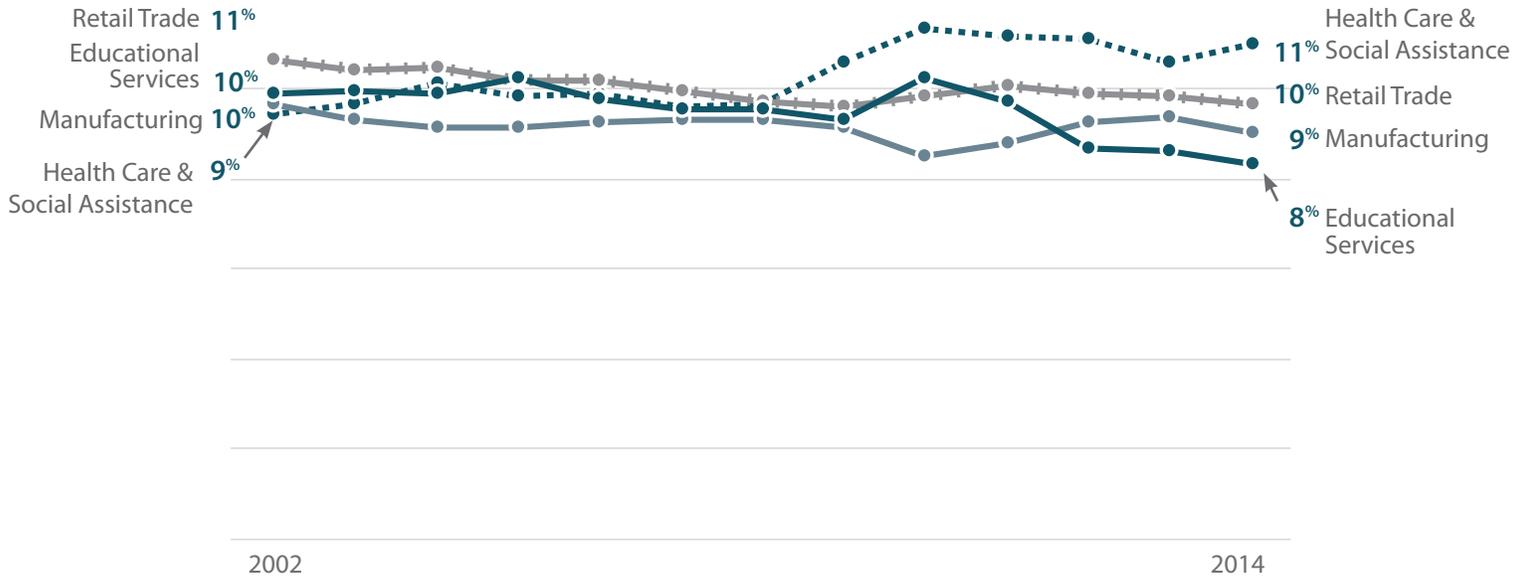
Unemployment Rate

Harris County's unemployment mirrors national trends, and was higher than the nation in 2016.

9.6%

8.3%

5.0%

4.6%

County 5.3%

Nation 4.9%

2006 2008 2010 2012 2014 2016

Earnings of Residents

Half of Harris County residents earn more than $40,000 annually, a lower percentage than the region.

17% 17%

33% 31%

50% 52%

Harris **Region**

$15,000 or less

$15,000-$40,000

$40,000 or more
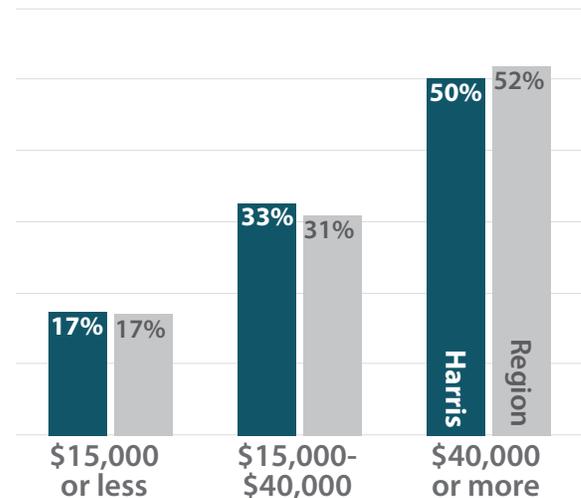
Education, Hazard Risks, and Commute

Median Earnings by Educational Attainment

A Harris County resident with a graduate or professional degree makes, on average, $54,400 more than a resident with less than a high school education annually.

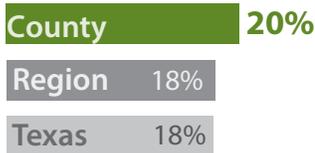$10K — Less than high school $20,500 — High school or equivalent $27,200 — Some college or Associate's $35,700 — Bachelor's $55,900 — Graduate or Professional $74,900 — $80K

Educational Attainment

Harris County has a similar educational attainment split as the region and state.

Less than High School

County	20%
Region	18%
Texas	18%

High School or Equivalent

	23%
	24%
	25%

Some College or Associate's

	27%
	28%
	29%
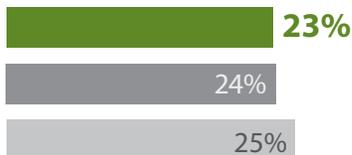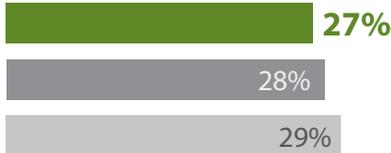
Bachelor's Degree or More

	29%
	30%
	28%
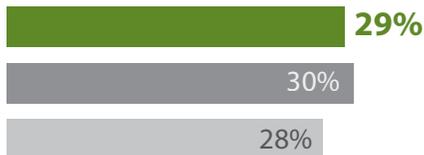
Residents in 100-year Floodplain

About the same percentage of Harris County residents live in a 100-year floodplain as the region.
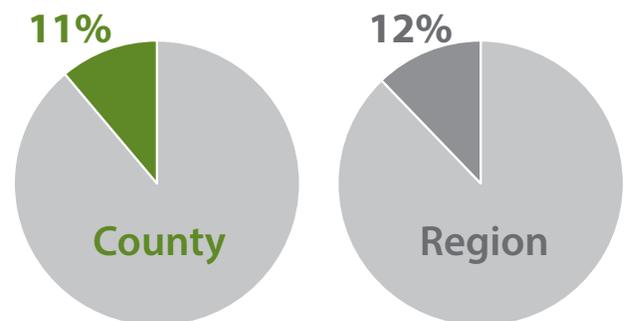
11% County

12% Region

Residents in Hurricane Evacuation Zone

Only 20% of Harris County residents live in a hurricane evacuation zone, as opposed to 25% of the region.

20% County

25% Region

Education, Hazard Risks, and Commute

Workers' Job & Home Destinations

Around 80% of Harris County residents work in the county, and 65% of workers in the county live there.
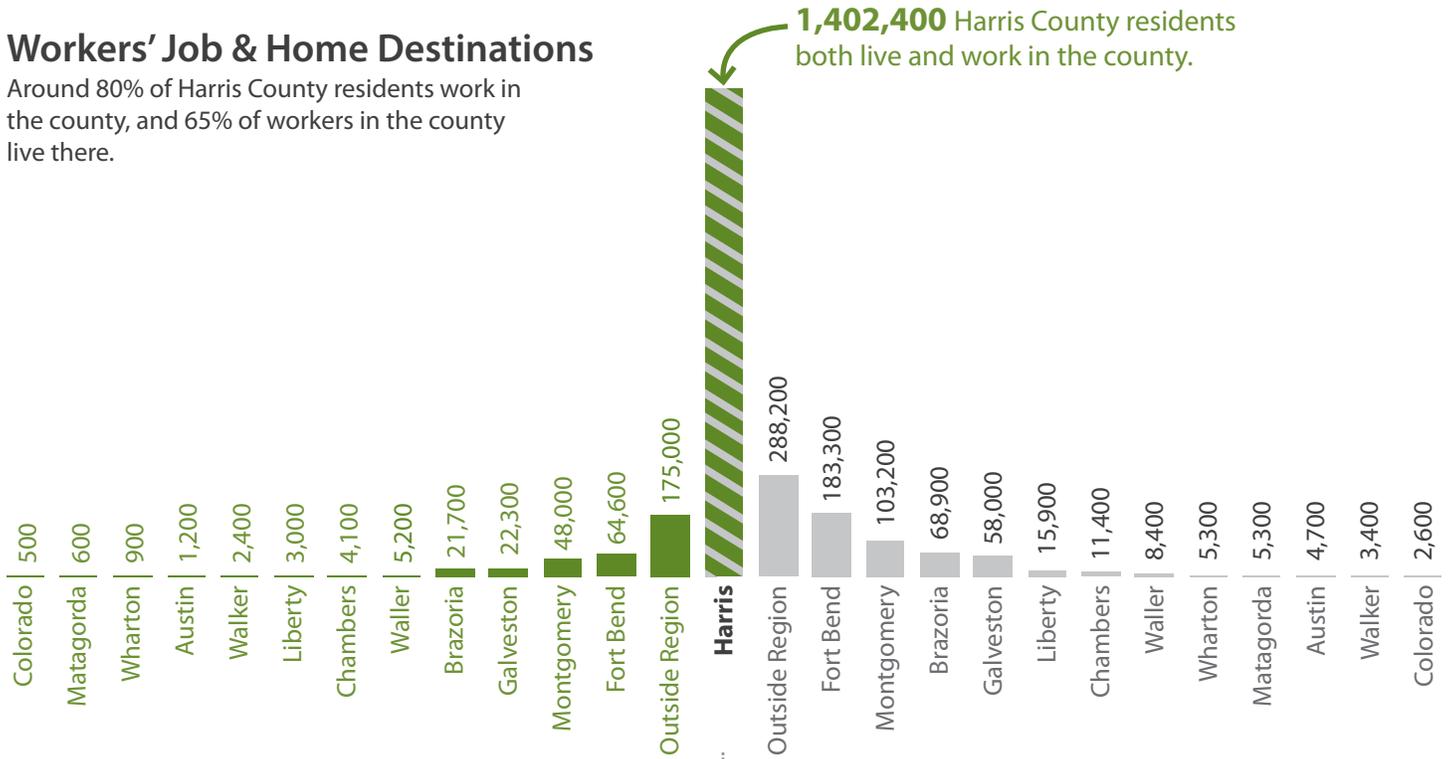
1,402,400 Harris County residents both live and work in the county.

County residents who work elsewhere:

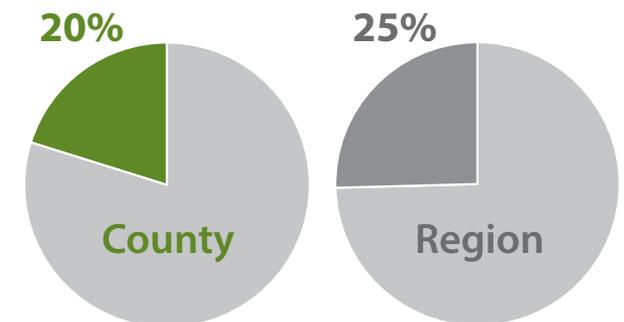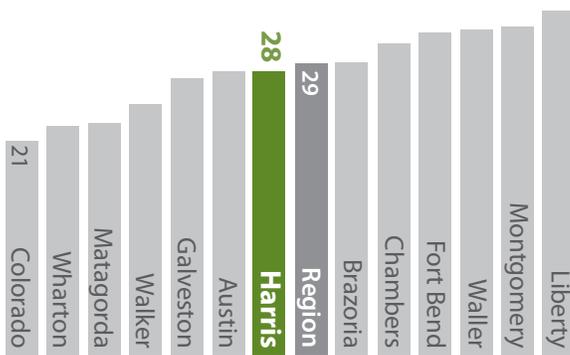| County	Value
Colorado	500
Matagorda	600
Wharton	900
Austin	1,200
Walker	2,400
Liberty	3,000
Chambers	4,100
Waller	5,200
Brazoria	21,700
Galveston	22,300
Montgomery	48,000
Fort Bend	64,600
Outside Region	175,000

Harris

County residents who work elsewhere

Workers in the county who live elsewhere:

County	Value
Outside Region	288,200
Fort Bend	183,300
Montgomery	103,200
Brazoria	68,900
Galveston	58,000
Liberty	15,900
Chambers	11,400
Waller	8,400
Wharton	5,300
Matagorda	5,300
Austin	4,700
Walker	3,400
Colorado	2,600

Workers in the county who live elsewhere

Mean Commute to Work (minutes)

Harris County workers commute for about the same amount of time as the region as a whole.

County	Minutes
Colorado	21
Wharton	
Matagorda	
Walker	
Galveston	
Austin	
Harris	**28**
Region	**29**
Brazoria	
Chambers	
Fort Bend	
Waller	
Montgomery	
Liberty	

Commute Mode to Work

A lower percentage of Harris County workers drive to work compared to the region as a whole.

	Drive alone	Carpool	Work from home	Public transit	Walk, bike, other
County	79%	11%	3%	3%	3%
Region	80%	11%	4%	2%	3%
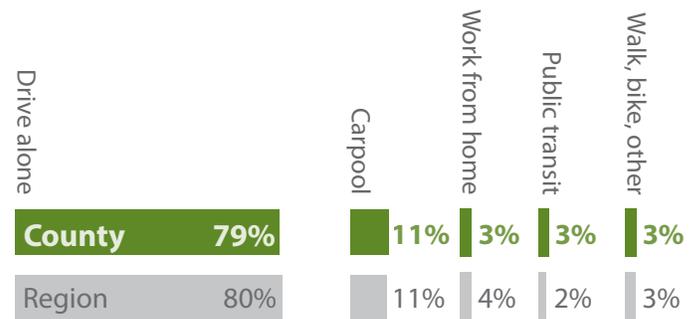
Economic Clusters

A cluster is a concentration of related businesses that make the area more competitive in those industries. Clusters exist where a set of related industries in a given location reach critical mass. Clusters enhance productivity and spur innovation by bringing together technology, information, specialized talent, competing companies, academic institution, and other organizations.

Traded clusters are groups of related industries that serve markets beyond the region in which they are located. Local clusters, in contrast, consist of industries that serve the local market. They are prevalent in every region of the country, regardless of the competitive advantages of a location.
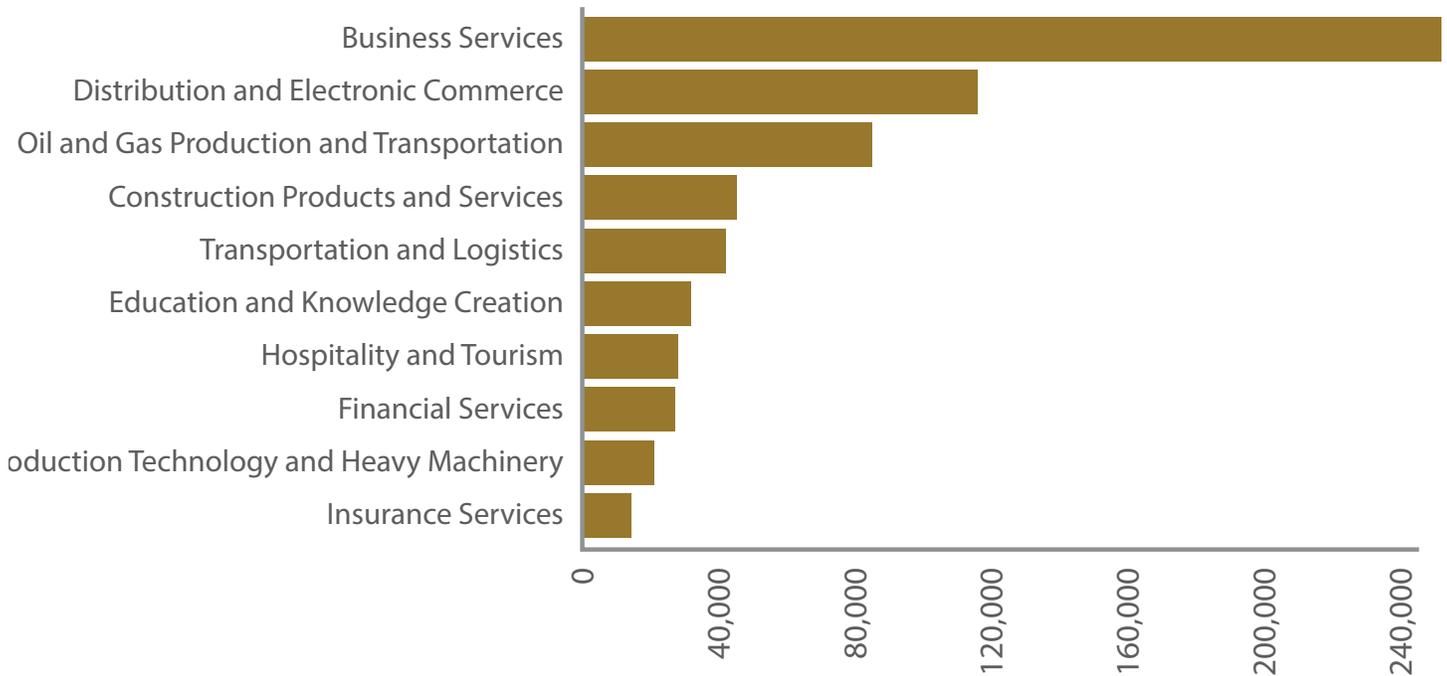
Traded v. Local Clusters

This diagram demonstrates the county's split between the traded and local sectors of the economy, based on 2014 data from the U.S. Census.

Local
60%

Traded
40%

Employment by Cluster

This bar graph demonstrates Harris County's employment by each cluster. It is based on 2014 data from the U.S. Census.

Cluster	
Business Services	
Distribution and Electronic Commerce	
Oil and Gas Production and Transportation	
Construction Products and Services	
Transportation and Logistics	
Education and Knowledge Creation	
Hospitality and Tourism	
Financial Services	
Production Technology and Heavy Machinery	
Insurance Services	

0   40,000   80,000   120,000   160,000   200,000   240,000

Local Planning

This plan highlights the efforts in Harris County to plan for disaster recovery and economic resiliency.

Harris County All Hazard Mitigation Plan

HARRIS COUNTY

ALL HAZARD
MITIGATION PLAN

Harris County is vulnerable to a wide range of natural hazards, including flooding, tornadoes, tropical storms and hurricanes. These hazards threaten the safety of residents and have the potential to damage or destroy both public and private property, disrupt the local economy and impact the overall quality of life of individuals who live, work and play in the county. The Harris County All Hazard Mitigation Plan is a logical first step toward incorporating hazard mitigation principles and practices into the routine government activities and functions of the county planning area. The mitigation actions noted in this Plan go beyond recommending structural solutions to reduce existing vulnerability. Local policies addressing community growth, incentives to protect natural resources, and public awareness and outreach campaigns are examples of other measures that can be used to reduce the future vulnerability of Harris County to identified hazards.

Data Sources

Harris County Overview

1. Houston-Galveston Area Council Projection
2. U.S. Census
3. U.S. Census
4. Federal Reserve Bank of Dallas Houston Branch
5. Greater Houston Partnership
6. NASA Estimated Economic Impact Report
7. 2014 Port of Houston Economic Impact Results
8. American Association of Port Authorities
9. US Cluster Mapping
10. US Census
11. Harris County
12. USDA Census of Agriculture

Recent Disruptions to the Economy

13. Harris County Flood Control District
14. Harris County Flood Control District
15. Reuters
16. Hurricane Ike Impact Report
17. Hurricane Ike Impact Report
18. Institute for Regional Forecasting
19. St. Louis Federal Reserve
20. U.S. Bureau of Labor Statistics

Graphics

County Boundaries Map. Houston-Galveston Area Council, 2017.

County Land Use Map. Houston-Galveston Area Council, 2017.

Population Growth Forecast. Houston-Galveston Area Council, 2017.

Residents Per Square Mile. Houston-Galveston Area Council, 2017.

Age. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table B01001.

Median Household Income. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table S2503.

Poverty Rate. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table S1701.

Building Permits Issued. U.S. Census Bureau, Building Permits Survey, 1990-2015.

Housing Tenure. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table DP04.

Vacant Housing Units. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table DP04.

Housing Type. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table DP04.

Living Costs. Center for Neighborhood Technology 2013 H+T® Index.

Top Industries by Percent of Overall Jobs. U.S. Census Bureau, 2002-2014, OnTheMap Application, Longitudinal-Employer Household Dynamics Program.

Unemployment Rate. U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics, 2006-2016.

Earnings of Residents. U.S. Census Bureau, 2014, OnTheMap Application, Longitudinal-Employer Household Dynamics Program.

Median Earnings by Educational Attainment. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table B20004.

Educational Attainment. U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table S1501.

Residents in 100-year Floodplain. Houston-Galveston Area Council, 2017.

Residents in Hurricane Evacuation Zone. Houston-Galveston Area Council, 2017.

Workers' Job & Home Destinations. U.S. Census Bureau, 2014, OnTheMap Application, Longitudinal-Employer Household Dynamics Program.

Mean Commute to Work (minutes). U.S. Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates, Table S0802.