



RICE UNIVERSITY
**Shell Center for
Sustainability**

**SUSTAINABLE DEVELOPMENT OF
HOUSTON DISTRICTS:**

The Health of the City

SOCIAL

DEVELOPMENT

LESTER KING, PHD.



RICE





Sustainable Development of Houston Districts:

The Health of the City

by

Lester King, PhD, AICP, LEED

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Theme - Social Demography

Sub Theme - Population Growth

Indicator - Population Growth

Population Growth is one of the indicators of urban successes in the United States (Linneman & Saiz, 2005). Municipalities compete for population growth in different ways: ensuring adequate housing supply; quality schools; or funding beautification projects for an enhanced quality of life (Hill & Brennan, 2012). Some suggest that Houston's population growth is based on its ability to provide an affordable lifestyle for middle-class people, primarily due to low cost housing (Glaeser, 2011). Population growth has an essential impact on sustainability in that the per capita demand on non-renewable resources should be monitored to ensure supplies are available for present and future generations.

Sustainability Benefit: Houston is the 4th largest city in terms of both population and land area and the 25th most densely populated among the 63 largest cities in the country (U.S. Census Bureau, 2011). The city is attracting new residents, which suggests that these new residents perceive living in Houston as advantageous over other places to live.

Sustainability Issue: More residents require more resources. Sustainable management of natural resources in Houston is critical to ensure that the supplies are sufficient to accommodate the needs of increasing population levels. Additionally, Anglos are the only racial/ethnic group that has declined in absolute numbers since 1980, dropping 36 percent (300,000 persons) between 1980 and 2010.

The following figures and tables represent different metrics to measure the indicator *Population Growth*:

Figure 1: City of Houston Population Growth

Figure 2: Council District Populations

Figure 3: City of Houston Race and Ethnicity

Figure 4: Population Growth 1990 – 2010

Figure 5: District Race and Ethnicity

Figure 6: Map of Districts by Primary Race/ Ethnicity

Figure 7: Dissimilarity Indexes for Districts

Figure 8: Districts Population Density



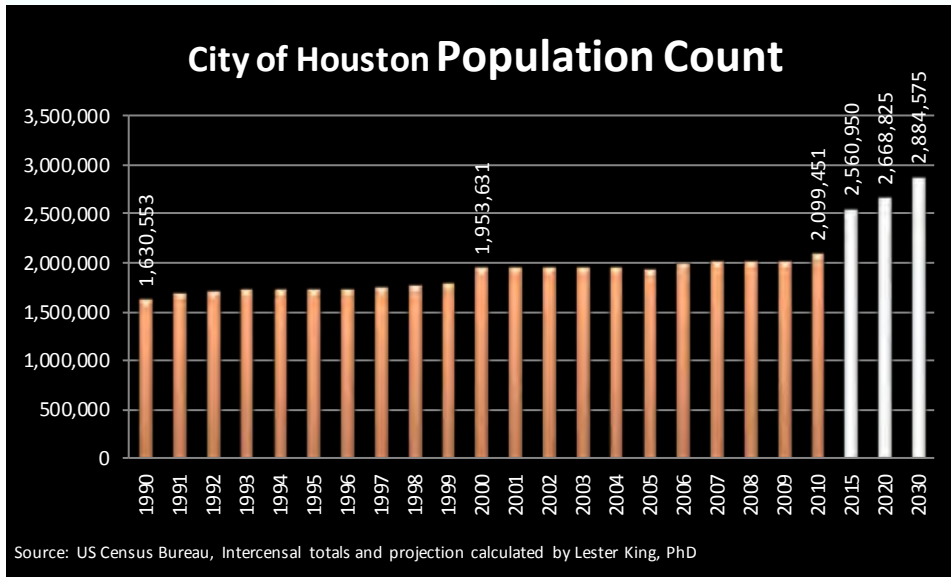


Figure 1: City of Houston Population Growth

- In 2010 Houston was the fourth largest city in the United States with 2,099,451 people (Census 2010). Based on the population growth trend between 1990 and 2010, the City of Houston will gain over 500,000 persons by 2020. The 2030 population is projected to be 2,884,575 persons within the city limits (Figure 1). The City of Houston average annual growth rate projection for each year between 2010 and 2020 is 1.42%.

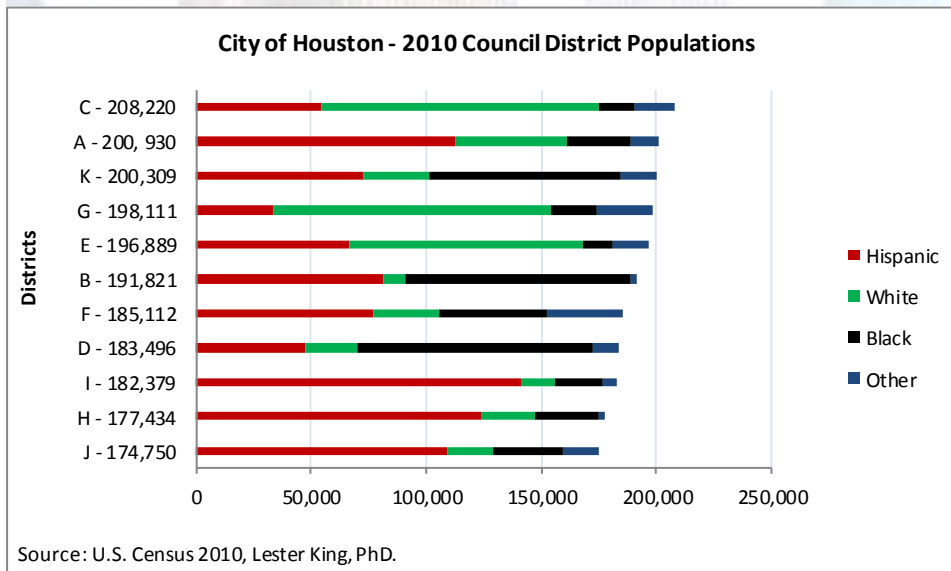


Figure 2: Council District Populations

- In 2010 Houston Council District populations ranged from District J with 174,750 persons to District C with 208,220 persons.

- Each district is represented by an elected official who serves on the Houston City Council. Therefore, the average City Councilman in Houston represents the needs, aspirations and goals of approximately 191,000 citizens.

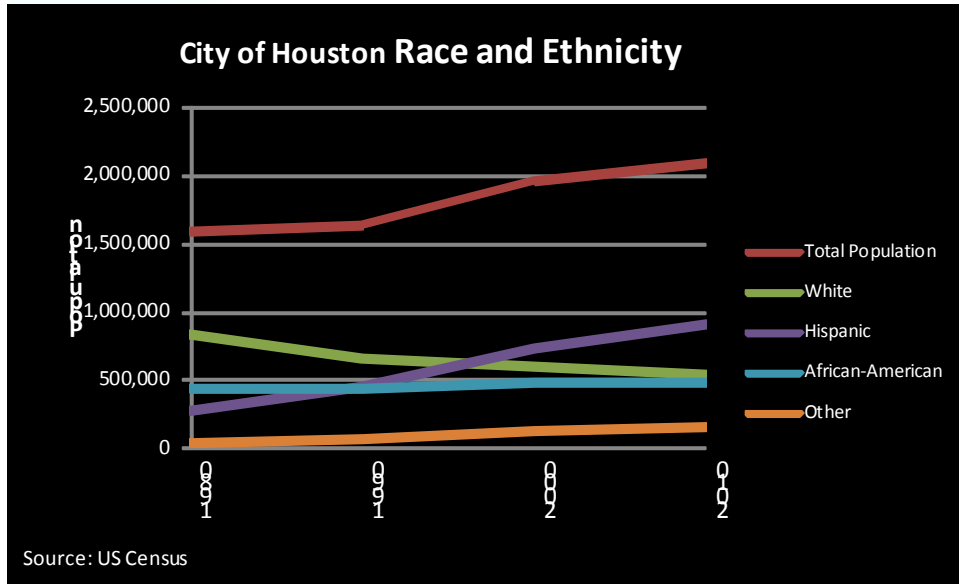


Figure 3: City of Houston Race and Ethnicity

- The race and ethnicity composition of the city is as follows: Hispanic 43.8%, White 25.6%, Black 23.1%, All others 7.4%. In 1980 there were at least 500,000 more Whites than Hispanics in the City of Houston. The exact counts were 834,061 White and 281,331 Hispanics. The population counts for Whites and Hispanics were approximately the same around 1996.
- The latest decennial census results show that there are almost 400,000 more Hispanics in the City of Houston than Whites. Exact counts are 537,901 Whites and 919,668 Hispanics.
- In 1980, the African American population was almost half that of the White population. In the 2010 census the African American population was estimated at just over 50,000 persons less than the White population.
- The City of Houston is losing population among the White cohort.
- Most of the growth in the City of Houston can be attributed to the Hispanic population. A look at figure 3 shows that the trend for the Hispanic population almost exactly matches the trend for the city as a whole after the 1990 census.

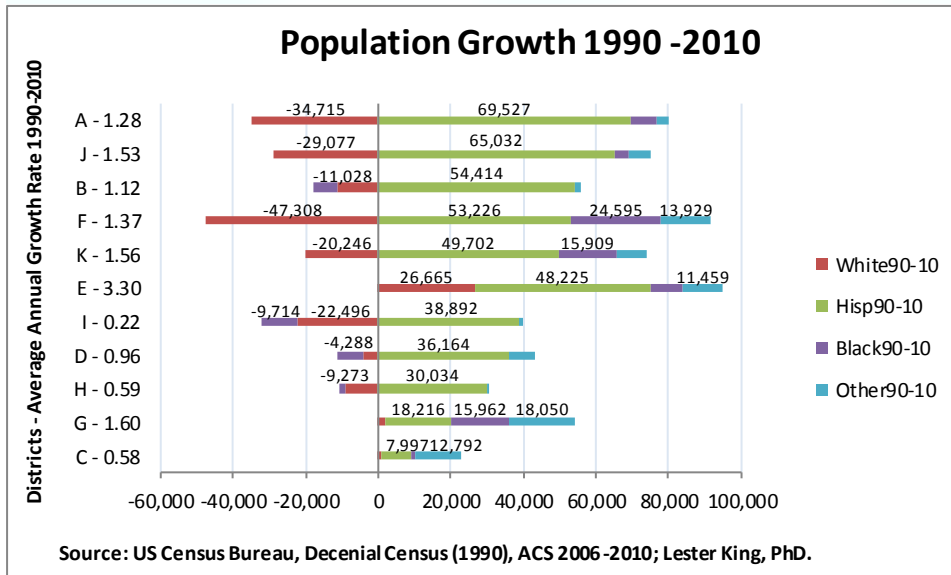


Figure 4: Population Growth 1990 – 2010

- The above chart shows the average annual growth rate based on 1990 – 2010 population growth for each district (Next to district label on left of figure). It also shows the total growth for each racial/ethnic group by district.
- The average annual growth rate, based on the 20 year period between 1990 – 2010, ranged from 0.22 (District I) to 3.30 (District E).
- Most districts lost considerable population among the White cohort between 1990 and 2010 (Districts A, J, B, F, K, I, D, H). The largest lost was District F with 47, 308 persons. Districts E, G and C did not lose population among the White cohort during this period.
- All Districts gained population from the Hispanic cohort between 1990 and 2010.
- Four districts lost population from the African American cohort (Districts D, H, I and B). The largest lost was in District I with 9,714 African American persons.

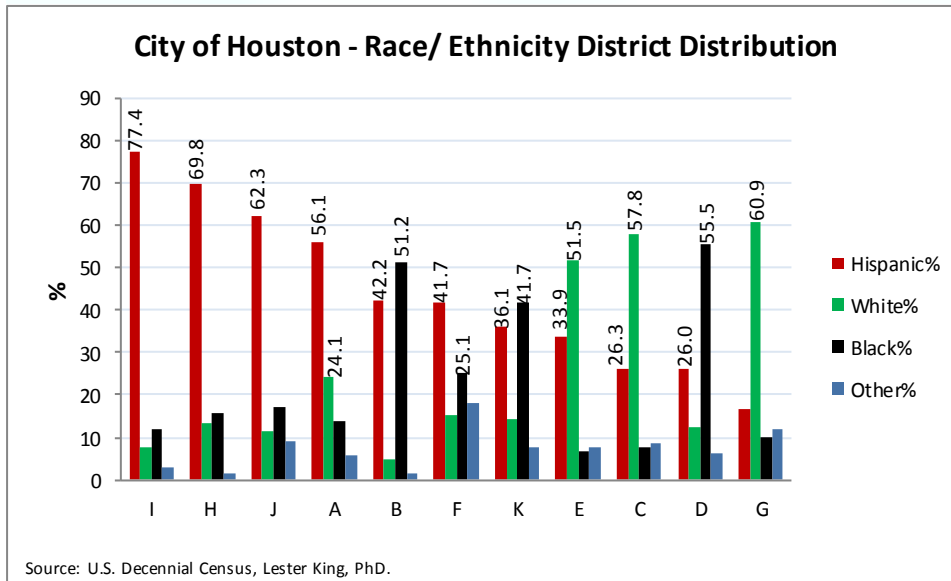


Figure 5: District Race and Ethnicity

- The above figure shows the racial and ethnic distribution of districts across the city in 2010.
- Of the 11 districts in the analysis, the data shows that, with the exception of Councils B, and K, the districts in Houston are not evenly distributed with regards to race and ethnicity.
- Five of the districts are primarily Hispanic (I, H, J, A, F). All districts have at least 25% Hispanic with the exception of District G.
- Three of the districts are primarily White (E, C, G). Only these three districts have more than 25% White cohorts.
- Three are primarily Black (B, K, D). These three plus district F, constitute the only districts with more than 25% of the population of the Black cohort.
- Councils B and K are relatively evenly distributed between Black and Hispanic cohorts.

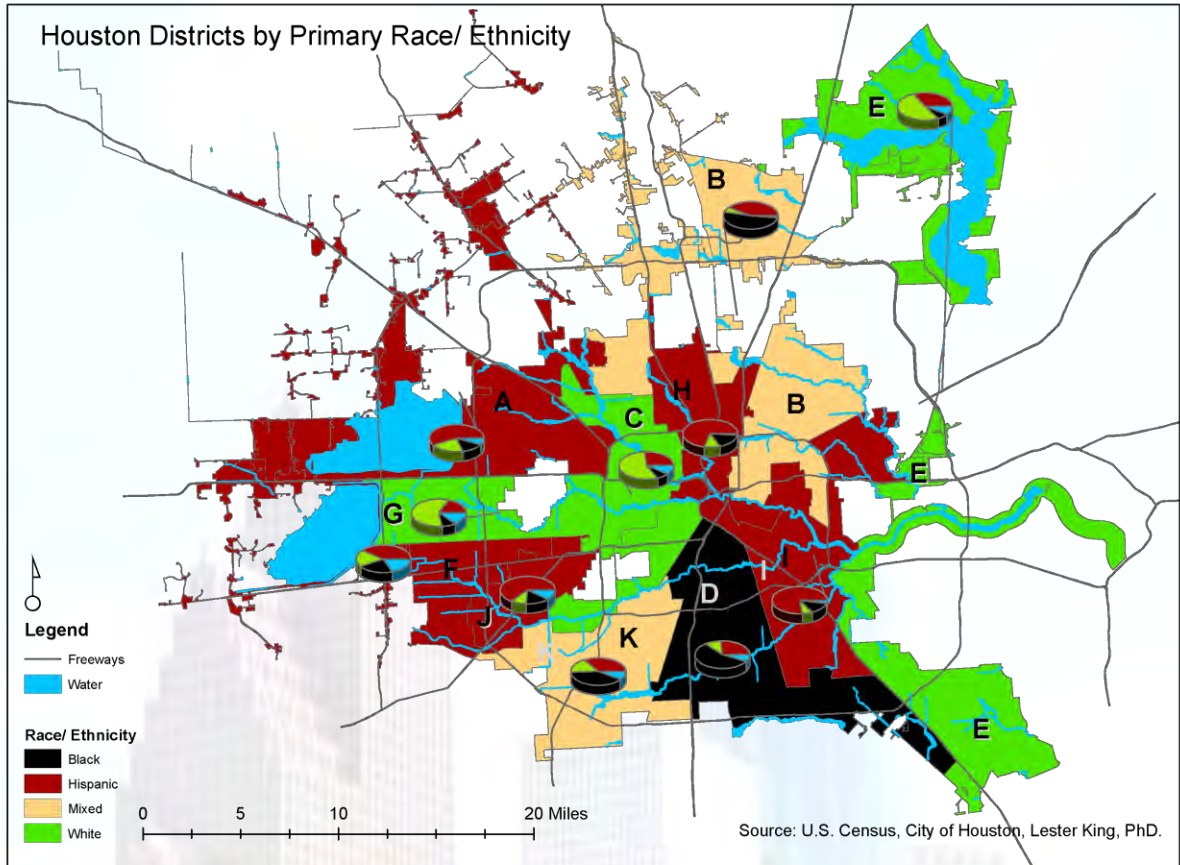


Figure 6: Map of Districts by Primary Race/ Ethnicity

- The above map shows the distribution of race/ ethnic demographic groups across the city in 2010. See Figure 4 for actual percentages of concentrations larger than 25%.
- Hispanic concentrations are to the east, near-north, southeast, northeast and southwest of the city.
- White concentrations are to the near-west, far-northeast, and far-southeast of the city.
- Black concentrations are to the south of the city.
- The southwest and north of the city are the only districts that are mixed.

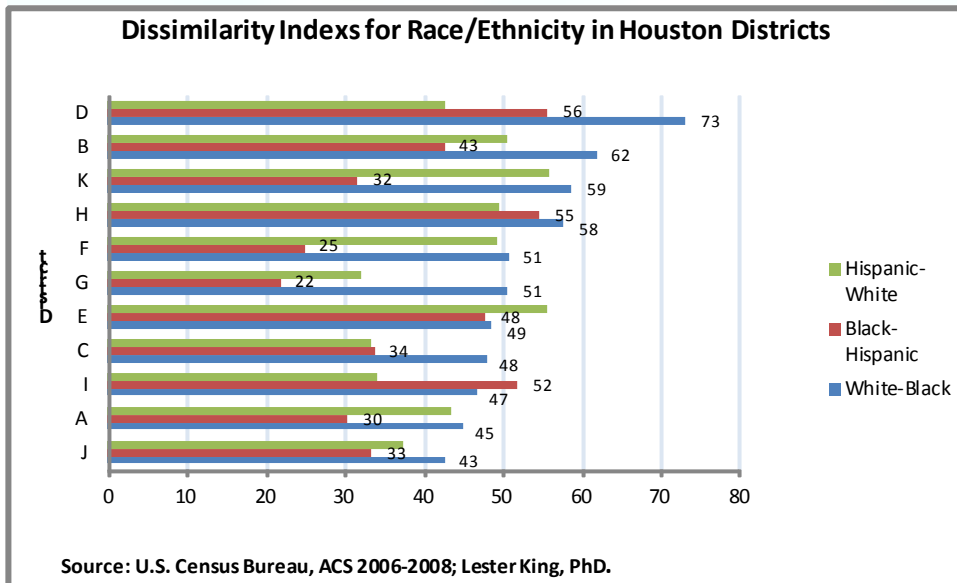


Figure 7: Dissimilarity Indexes for Districts

- The above figure shows indexes for dissimilarity for each district. Dissimilarity is basically a measure of the degree to which the selected racial/ethnic groups are separated from each other. A high value indicates that the two groups tend to live in different tracts. The dissimilarity index ranges from 0 to 100. A value of 60 (or above) is considered very high. It means that 60% (or more) of the members of one group would need to move to a different tract in order for the two groups to be equally distributed. Values of 40 or 50 are usually considered a moderate level of segregation, and values of 30 or below are considered to be fairly low.
- The Hispanic, White, and Black groups are shown exclusively since these three groups make up 97% of the population in Houston in 2010 (U.S. Census Bureau, 2011).
- Districts D,B,K,H,F,E and I all have dissimilarity indexes above 50 for at least one of the combinations of racial/ethnic groups analyzed.
- District D has the highest index value for Black – White segregation in Houston with an index value of 73.
- District D also has the highest index value for Black – Hispanic segregation in Houston with an index value of 56. District H also shows an index separation value of 55 between these two groups.
- Districts K and E are tied for the highest index value for Hispanic – White segregation in Houston with an index values of 56.

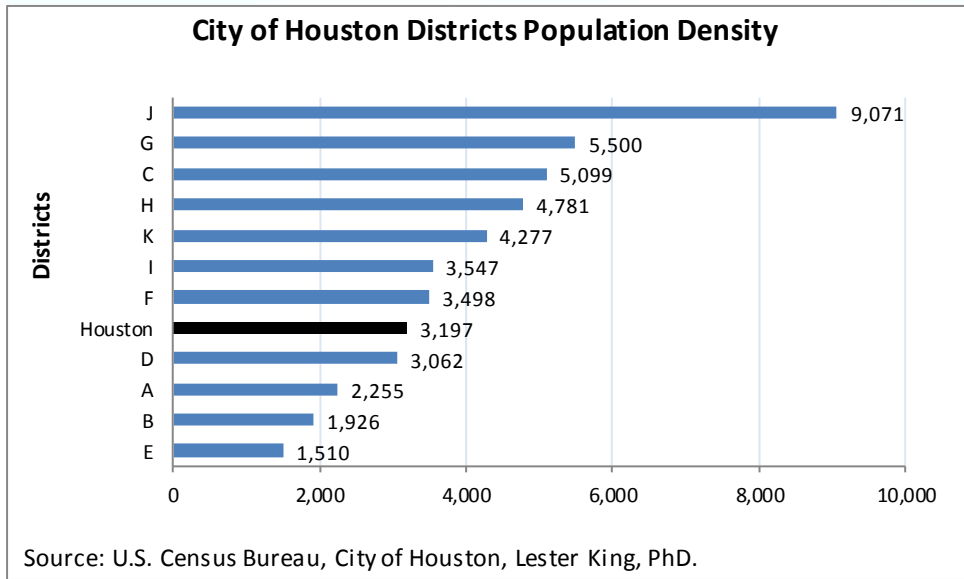


Figure 8: Districts Population Density

- In 2010, the City of Houston population was 2,099,451 and the area of the city was 657 square miles. The population density estimate was 3,197 persons per square mile.
- An analysis of varying size districts and varying populations in those districts presents a very diverse picture of population densities across the city.
- District J had the highest density with 9,071 persons per square mile and District E had the lowest density with 1,510 persons per square mile. Seven Districts had above average population densities (J, G, C, H, K, F, I). These seven districts account for 63% of the population in Houston and 43% of the total land area.

Theme - Social Demography

Sub Theme - Education

Indicator - Education Attainment

Critical to economic, civil, and personal health viability is **Education Attainment** (CFH, 2012). Higher levels of education directly produce healthier behaviors such as more exercise and enhanced nutrition; better jobs and income and higher quality neighborhoods; and more resources for healthcare (Sanborn, 2012). According to the 2010 decennial census, 38.7% of persons without a high school diploma were unemployed. In comparison to the city median unemployment rate of 10%, this suggests that a person without a high school diploma is almost four times as likely to be unemployed. Of the 61.3% of persons without a diploma that were employed, the median earnings were \$17,338 in 2010. The median earnings in the City of Houston were \$30,241 and the median earnings of persons with a college or associate's degree was \$30,313 (US Bureau of Census 2010). This suggests that the average Houstonian has some college or an Associate Degree. It also shows that attainment of the high school diploma is not the final accomplishment for securing wages commensurate with the average Houstonian. However, the high school diploma is still the fundamental threshold for the achievement of enhanced quality of life, since it is not possible to matriculate through other degrees without it. Education is the number one indicator among sustainability indicator studies across the country (Blackburn, 2011).

Sustainability Benefit: The graduation rate for High School is increasing.

Sustainability Issue: There exists a gap between the graduation rates of the White student population and all other groups. Districts in Houston vary tremendously based on the percentage of persons with university degrees, which suggests very separated neighborhoods in Houston.

The following metrics are used to measure the indicator *Education Attainment*.

Figure 9: Education Attainment by District

Table 2: K-12 Schools in the City of Houston

Figure 10: High School Graduation Rates



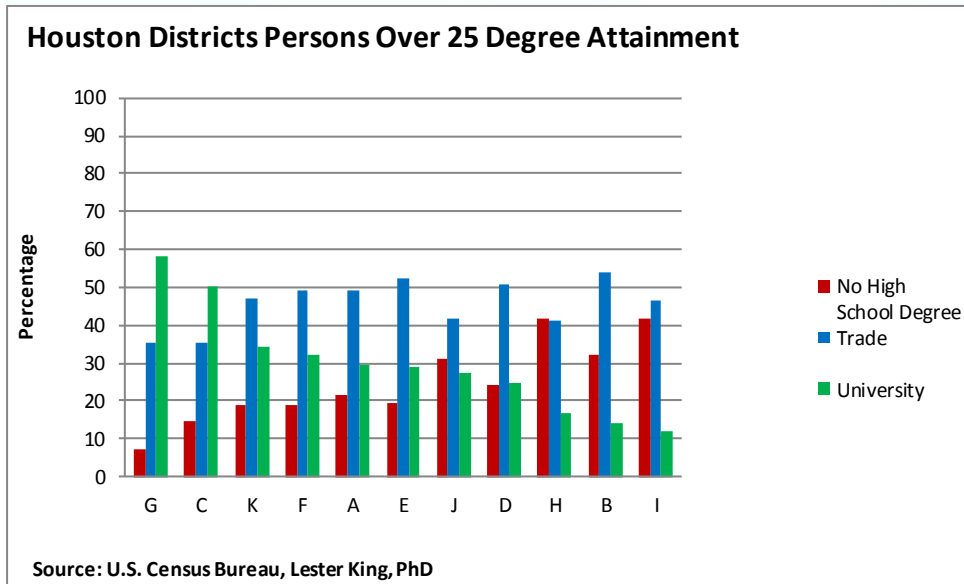


Figure 9: Education Attainment by District

- Two districts have over 50% of persons over 25 years of age reporting university degrees. Those districts are G and C. District G has the highest percentage with 58% of persons.
- Six districts have over 20% of persons reporting no high school degree. Those districts are A, J, D, H, B, I. Districts I and H both have 42% of persons over 25 years of age, without at least a High School degree. These districts represent the highest percentage in the city for this metric.
- In most districts in the City of Houston, residents with high school diplomas who do not have university degrees make up the highest percentage of citizens.

Houston k-12 Schools				
	Elementary	Middle	High	Total
Public Schools	351	116	118	585
Private Schools	14	52	41	107
Total	365	168	159	692

Note: Schools are classified based on highest grade available, therefore schools that serve k-12 grades will be classified as High Schools.
Source: Texas Education Agency; Texas Private School Accreditation Commission; Lester King, PhD.

Table 2: K-12 Schools in the City of Houston

- The City of Houston has approximately 692 public and private K-12 schools. Of this number, 585 are public schools and about 15 percent or just over 100 are private schools.

- There are approximately 26 separate independent school districts that overlap the administrative boundary of the City of Houston. These independent school districts all have their own Boards of Directors and are separately administered outside of the City of Houston jurisdiction.
- The Houston Independent School District is the 7th largest in the country with a budget of approximately \$2 Billion. The district serves 200,000 students and employs over 22, 300 people (Texas Education Agency, 2011). The budget for the City of Houston is \$4 Billion (City of Houston, 2011).

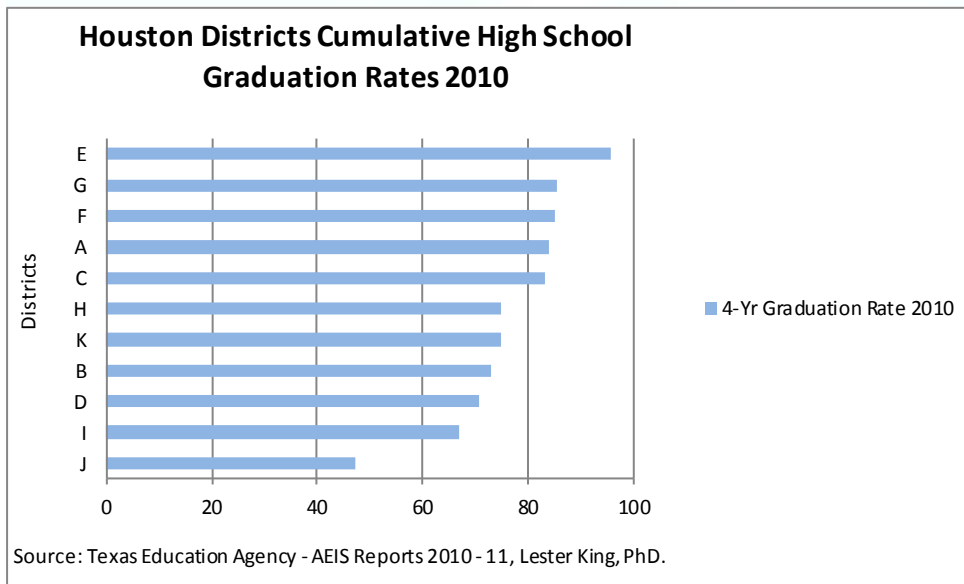


Figure 10: High School Graduation Rates

- The 4-Year Graduation rate tracks the cohort of students who enter school between 9th and 12th grade as the student group qualified to graduate. It is calculated as the number of graduates divided by the sum of the graduates plus continuers plus GED recipients plus continuers.
- Districts J has the poorest performance across Houston with only 47% of students graduating. District E has the highest number of graduates with 96% graduating.



Theme - Social Demography

Sub Theme - Community Involvement

Indicator - Voter Participation

Voter participation is a sign that citizens are involved in their community. Participation leads to a sense of community (Julian, Reischl, Carrick, & Katrenich, 1997). Societies which have higher voter participation also tend to have enhanced livability and high social capital since residents are more involved in the management of their neighborhoods and communities. The State of Texas has empowered local neighborhoods with enforcement capabilities called ‘Deed Restrictions’, to allow citizens to develop and enforce their own neighborhood building and design standards. This is an excellent model for the empowerment of citizens and their sense of local neighborhood (Julian, Reischl, Carrick, & Katrenich, 1997). As a result, arguably, residents have focused their limited time and attention on the administration of neighborhood needs and devolved management of the city commons, outside of neighborhoods, to elected officials. An increase in voter participation is a good indicator of the degree of public interest with the comprehensive management of the City of Houston.

Sustainability Benefit: Voting in Houston is conducted in a democratic format.

Sustainability Issue: Very few people vote in the local elections.

The following metrics are used to measure the indicator *Voter Participation*.

Figure 11: Voter Participation in Houston

Figure 12: Voting by District

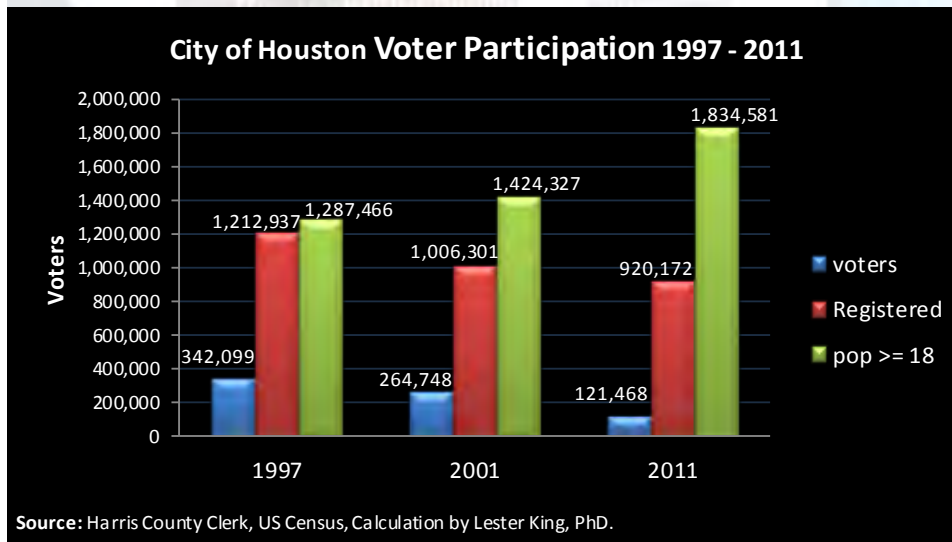


Figure 11: Voter Participation in Houston

- In this analysis we look at voting participation as a percentage of persons of eligible age, and as a percentage of registered voters.
- Only 7% of the Houston voting age population voted in the local election of 2011. This was the lowest voter participation rate in comparison to 1997 and 2001. The number of people who voted also constituted 13% of the registered voters.
- The figure shows that over the last 14 years, as the population in Houston increased. Fewer persons registered to vote and fewer persons actually voted, which indicates a decrease in social capital.

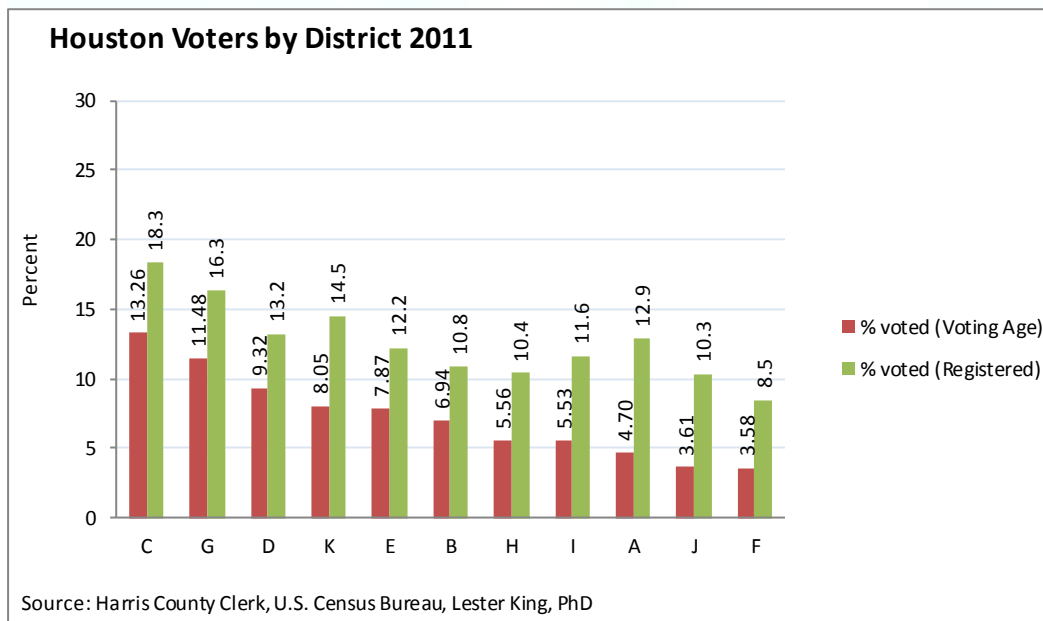


Figure 12: Voting by District

- The above figure shows comparative voter participation among the Districts. Less than 20% voter participation occurred throughout all the districts in the City of Houston.
- District C had the highest participation rate among voters of 13.26%. District F had the lowest voter participation rate of 3.58%.
- The difference between the participation rate for registered voters and for the voting age population suggests that those persons who registered to vote were more inclined to actually vote. This may explain discrepancies between participation rates in Districts K, I, A, and J.

Theme - Poverty

Sub Theme - Inequality

Indicator – Income Inequality

Income inequality has an effect in the broad social capital of a city since it gives rise to separate cultures of poverty. Persons in poverty are unable to prioritize spending on maintenance of physical living spaces, which leads to blighted neighborhoods. They are unable to contribute properly to the tax base, which makes it more difficult for public agencies to supply public services. Income disparities are greater today than at any other time since the 1920s in Harris County and greater in America than in any other country (Klineberg, 2005)

Sustainability Benefit: Median household income earnings in Houston have increased over time.

Sustainability Issue: The top 20 percent of earners report fluctuating incomes.

The following metrics are used to measure the indicator *Income Inequality*.

Figure 13: Household Income by District

Figure 14: Ratio of Share in Income

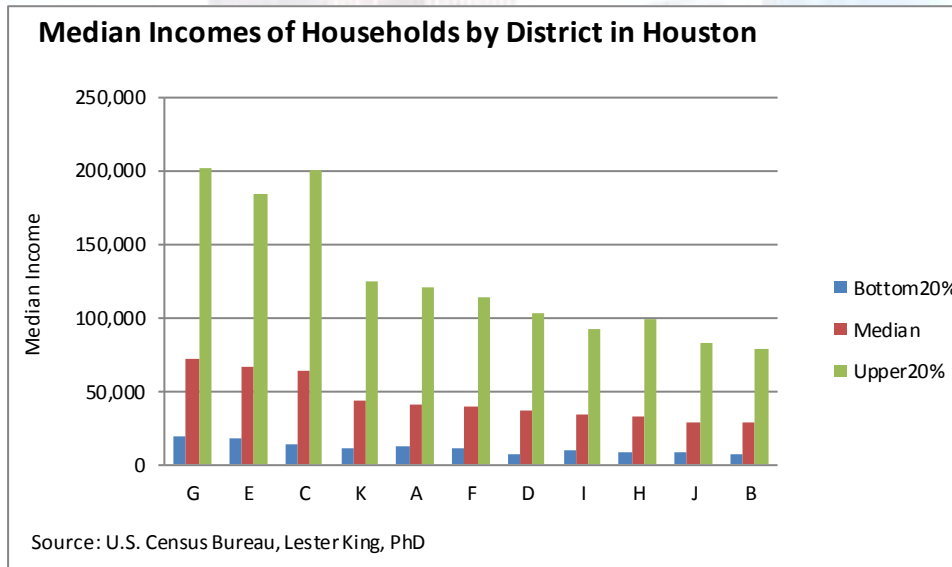


Figure 13: Household Income by District

- The median household income in the City of Houston in 2010 was \$42,962.
- The above figure shows that only three districts have median household incomes over \$50,000 in the City of Houston. Those districts are G - \$72,421, E - \$66,924, and C - \$63,586. These districts are also the only ones with median income of the upper 20% of wage earners over

\$150,000. These 3 districts G, E, and C can be considered the most prosperous in Houston, at least in terms of median household incomes.

- All districts except I, J and B have median incomes of the top 20% of wage earners over \$100,000. These three districts can be considered the least prosperous in Houston in terms of median household incomes.

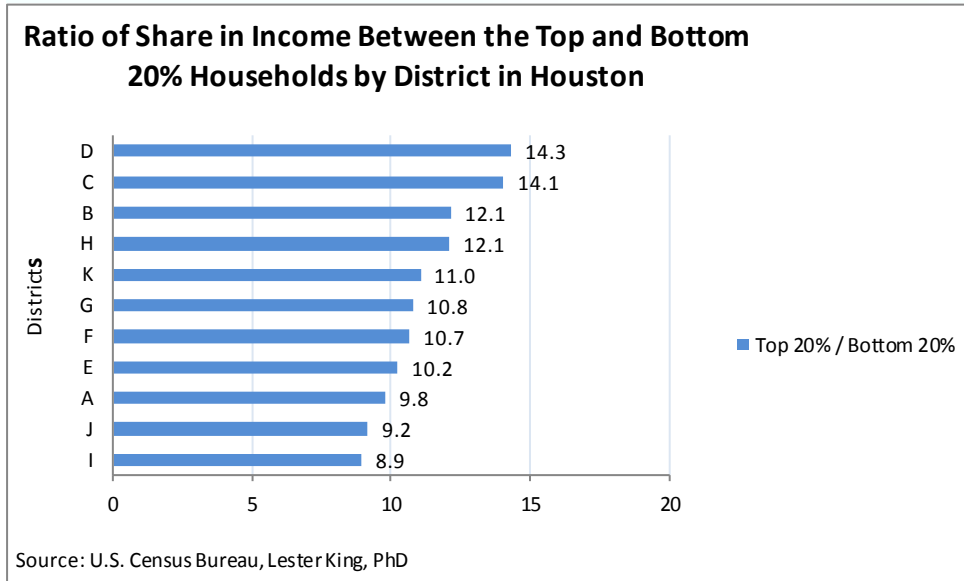


Figure 14: Ratio of Share in Income

- In 2010 the income disparity in the City of Houston, measured by the ratio of the top 20% divided by the bottom 20% median household incomes, was 13.51.
- Districts D and C had the highest ratio share in incomes with 14.3 and 14.1 respectively. These ratios were the only two above the average for the city of Houston, which suggests that the greatest disparity in incomes between the top earners and bottom earners, occurs in these two districts.
- District I had the lowest disparity between top and bottom earners with a ratio of 8.9.

Theme - Poverty

Sub Theme - Poverty Level

Indicator – Poverty Rate

High **Poverty rates** lead to development of social cultures, which by necessity favor private survival needs over involvement in public affairs. This suggests that public facilities, such as schools, parks, sidewalks, streets and neighborhood businesses will suffer from neglect due to pervasive poverty. Reduction in poverty rates is important because it helps households become self-sufficient. Access to good jobs, good schools, and shopping does not occur in poor neighborhoods (McClure, 2008).

Sustainability Benefit: The drop in poverty rates between 1990 and 2000 compared to the sharp increase in income between 1990 and 2000 shows that the local economy is capable of lifting persons out of poverty.

Sustainability Issue: The poverty rate in 2010 was higher than it was in 1990 and 2000.

The following metric, Percent Below Poverty by District, is used to measure the indicator *Poverty Rate*.

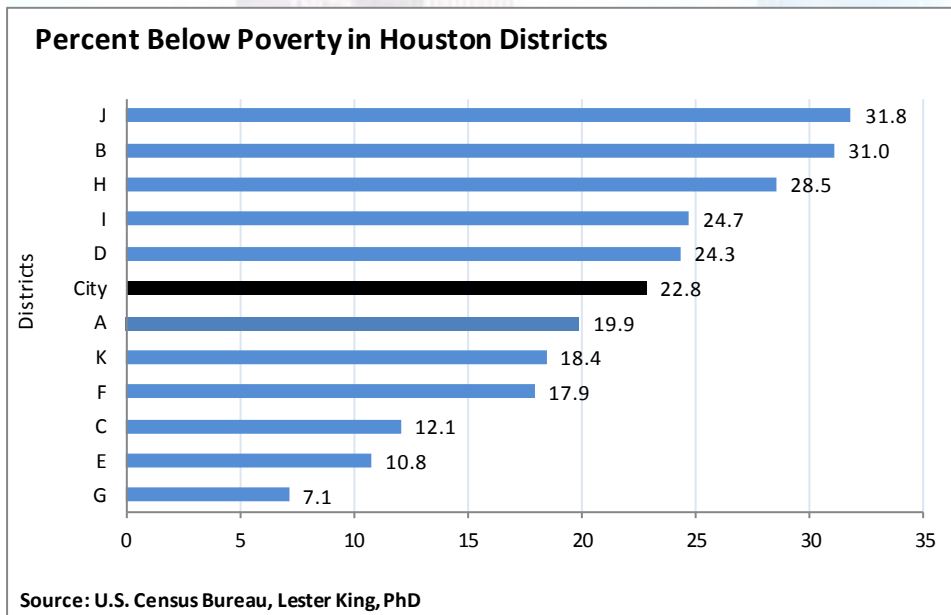


Figure 15: Percent Below Poverty by District

- The percentage of persons below the poverty line was higher in Houston (23%) than it was in Harris County and Texas (16.8% for both). The percent of people below the poverty line in the United States was 13.8% (US Census Bureau, 2010).
- Five districts have higher percentages of the population below poverty than the average for the City. Those districts are J, B, H, I and D.

- Districts A, K, F, C, E, and G all have less than the City average for persons below poverty. District G has the lowest percentage of persons below the poverty line with 7.1 percent.



Theme - Poverty

Sub Theme - Healthcare Delivery

Indicator – Health Coverage

Health coverage is essential in this country to access quality care. In measuring access to healthcare, one can measure the physical access such as the distance and difficulty to get from home or work to a healthcare institution. However, in the U.S., there is a major barrier to access, which is the need to have healthcare insurance before adequate care can be offered. The provision of healthcare is normally offered by employers to employees in the U.S. and as a result persons without jobs are vulnerable to not having access to healthcare. In 2010, the Affordable Care Act was signed into law to improve the delivery of affordable health care services (Office of the Legislative Counsel, 2010).

Sustainability Benefit: The Texas Medical Center in Houston is the largest medical center in the world. This suggests that the availability of doctors per capita should be higher than other comparable places.

Sustainability Issue: The percentage of persons without health insurance has increased in Harris County.

The following metric, Population per Health Center by District, is used to measure the indicator *Health Coverage*.

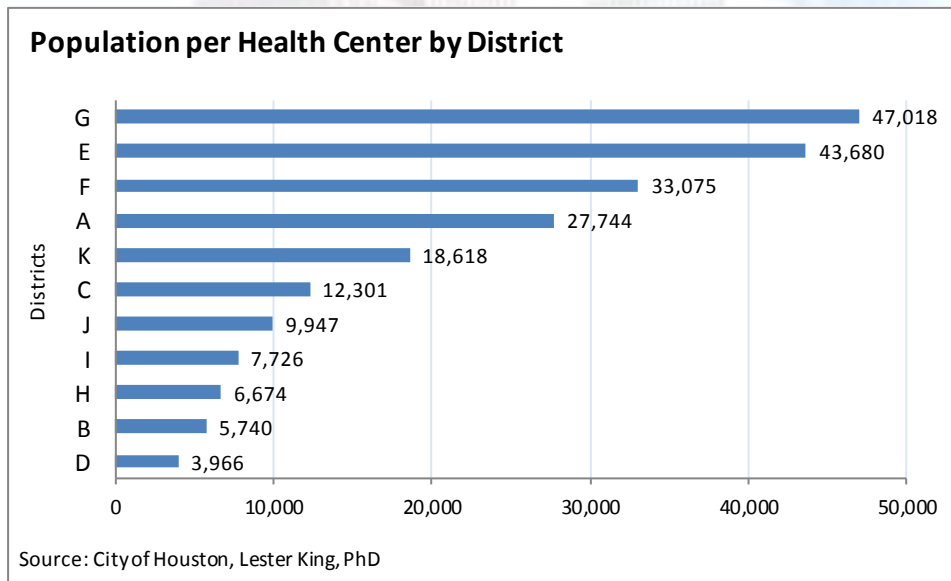


Figure 16: Population per Health Center by District

- The percentage of uninsured persons in the City of Houston (30.9%) was higher than in Harris County (27.9%) in 2010.
- The number of Health Facilities in the City varies greatly by district. District D has the highest number of 48, while District G has the lowest number of 4.

- Districts G, E, F, A, K all have very low numbers of health centers relative to the population. These five districts have a population ratio to health center of over 15,000 persons per Health Center.
- The Affordable Care Act has made provisions for the Community Health Center Fund that provides \$11 billion over a 5 year period for the operation, expansion, and construction of health centers throughout the nation. This effort is expected to improve the performance of this indicator in Houston, and this indicator can be used to support decision making as to where centers should be located (U. S. Department of Health and Human Services, 2011).



Theme - Livability

Sub Theme - Cost of Living

Indicator - Affordability

Housing is a basic need. Ensuring that housing is affordable may correlate strongly with home ownership but neither of these are in absolute terms a basic necessity. The basic necessity is met with the supply of homes not with the cost. That said, it is a good policy for local governments to supply affordable homes. This helps to enhance the quality of life of citizens and to bolster their economic well-being, which ensures a more sustainable financial future (Blackburn, 2011). Housing affordability can be defined as relative, subjective, a product of family budget, a ratio, or residual. This would explain the gamut of definitions of housing affordability, but spending less than 30% of income on housing (Ratio standard) has taken the fore as the definition of affordability in the U.S. (Stone, 2006).

The relationship between the Cost of Gasoline and Housing Costs is also used to measure Affordability in this study. These two price indicators are selected based on the theory that travel costs (including time) and affordability of housing are two of the primary factors which influence where people live in urban areas. In the study of Urban Economics, households will maximize their bid-rent capability by locating close to the jobs commensurate to their ability to afford housing in the area (Stegman, 1969). Housing will probably always be more affordable the farther one travels from the central city, but gasoline prices influence the affordability to travel increasingly longer distances from the city. When comparing cities in the country with more than 250,000 people, Houston ranks 26th for affordability, with 46% of income going to housing and transportation costs. Philadelphia was first with 33%; New York was 4th with 37%; Chicago was 14th with 42%; and Los Angeles was 51st with 52% of income going to housing and transportation cost (Center for Neighborhood Technology, 2010).

Sustainability Benefit: On average, Houston is not affected by housing value decreases at the same rate as the rest of the country. Real estate prices are relatively stable.

Sustainability Issue: More people are spending more than 30% of their income on housing.

The following metrics are used to measure the indicator *Affordability*:

Figure 17: Housing Affordability

Figure 18: Housing Affordability by Cost Quintiles



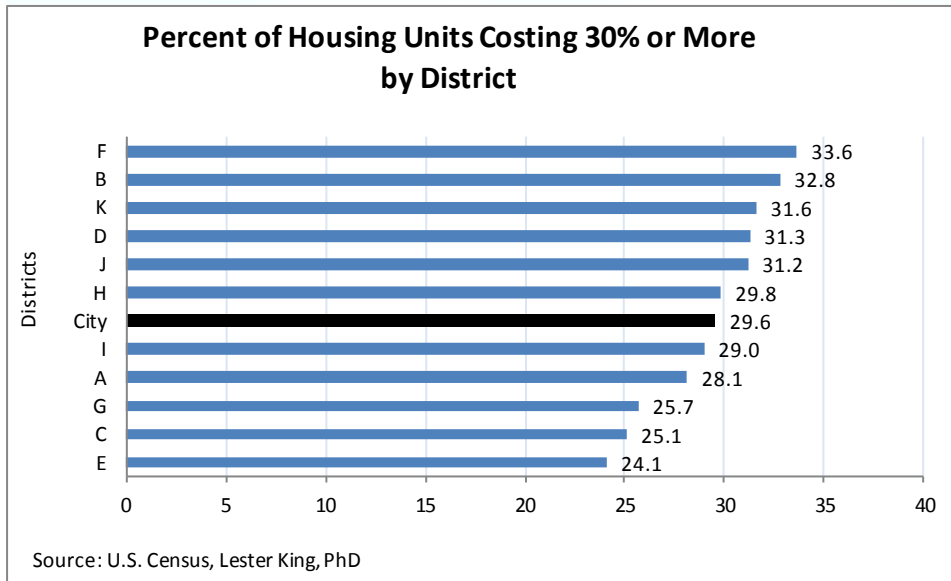


Figure 17: Housing Affordability

- The percentage of housing units in Houston where tenants spent more than 30% of their incomes on housing costs increased almost 50% in 2010 from 1990 and 2000 levels, which were relatively similar in percentage. In 2010, 30% or 104,140 housing units cost tenants more than 30 percent of their incomes.
- Within each district in Houston, at least 24% of housing units spend more than 30% of their incomes on housing costs.
- The highest percentage of units are in District F – 33.6% and the lowest percentage is in District E – 24.1%.

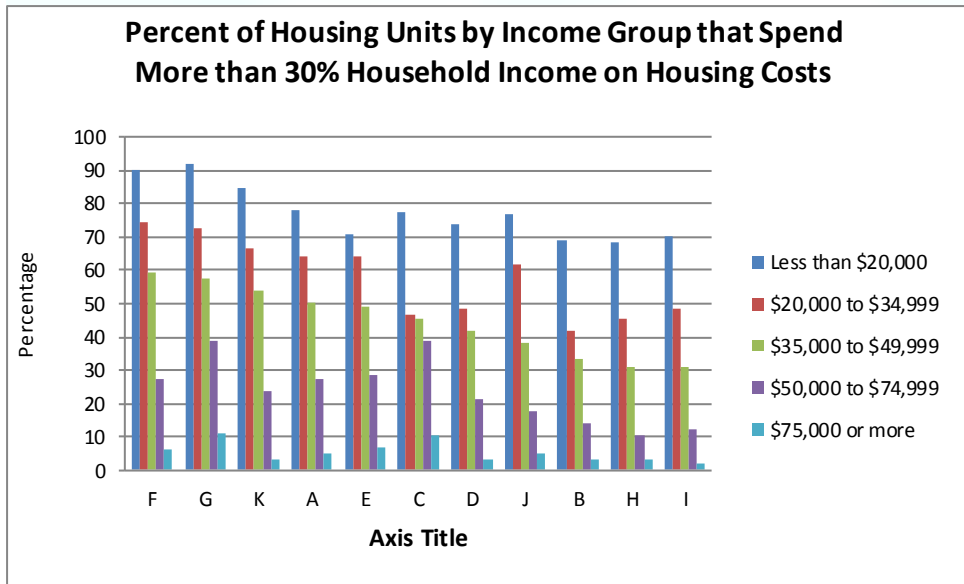


Figure 18: Housing Affordability by Cost Quintiles

The above figure shows that among people in Houston, who earn in the median income bracket (\$35,000-\$49,999), the range among districts for those who have to spend more than 30% of their incomes on housing costs is from 60% in District F to 31% in District I.





Theme - Livability

Sub Theme - Quality of Life

Indicator - Accessibility of Public Spaces

Quality of Life is difficult to measure since the City of Houston has a diverse number of cultures and persons with individual differences within those cultures. However access to nature and open space has been proven effective in combating health and behavioral problems (Mitchell & Popham, 2008). Accessibility of public spaces enhances quality of life by offering a physical space for the interaction of people to form community and neighborhood networks (Alexander, Ishikawa, & Silverstein, 1977). Places where we want to encourage a high level of accessibility, and hence frequency of use such as commercial centers, transit lines, and community facilities such as parks should be no more than ¼ mile walking distance from population residences (Ewing, 1999). Houston ranked 32nd among the 63 largest cities in the country for pedestrian activity and incentives to walking (Walkscore, 2012). According to the Trust for Public Land (TPL), Houston ranked 21st among the 63 largest cities in the country, in terms of percentage of area devoted to parks with 13% (The Trust for Public Land, 2011).

Sustainability Benefit: Small public parks are relatively well dispersed across the city.

Sustainability Issue: Half the population does not have a public park within walking distance and few new parks are being developed.

The following metrics are used to measure the indicator *Accessibility of Public Spaces*:

Figure 19: City of Houston Access to Parks 2000 – 2010

Figure 20: Access to Parks by District



City of Houston Access to Parks 2000 - 2010

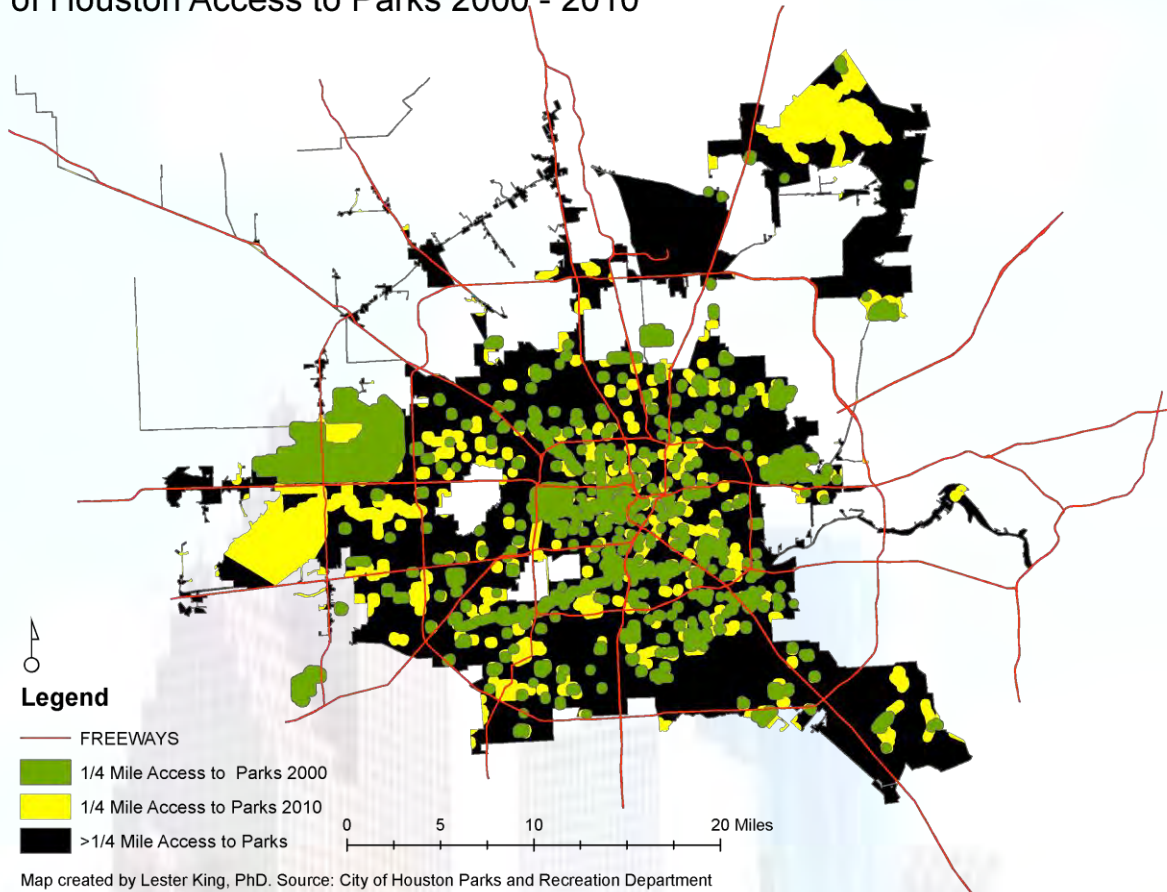


Figure 19: City of Houston Access to Parks 2000 – 2010

- A map of existing parks in 2000 superimposed on a map of existing parks in 2010, shows the new areas classified as parks in 2010. These areas include pedestrian and bike trails, school parks shared by neighboring communities, and county parks.
- In 2010, there were 918,882 persons living within a quarter mile of parks in Houston.
- That figure represents 44% of the population living within walking distance of a park.
- Demographic analysis of access to parks in 2010 shows the following figures by race and ethnicity. White cohort 48%; Black cohort 41%; Hispanic cohort 44% living within ¼ mile to a park or open space.

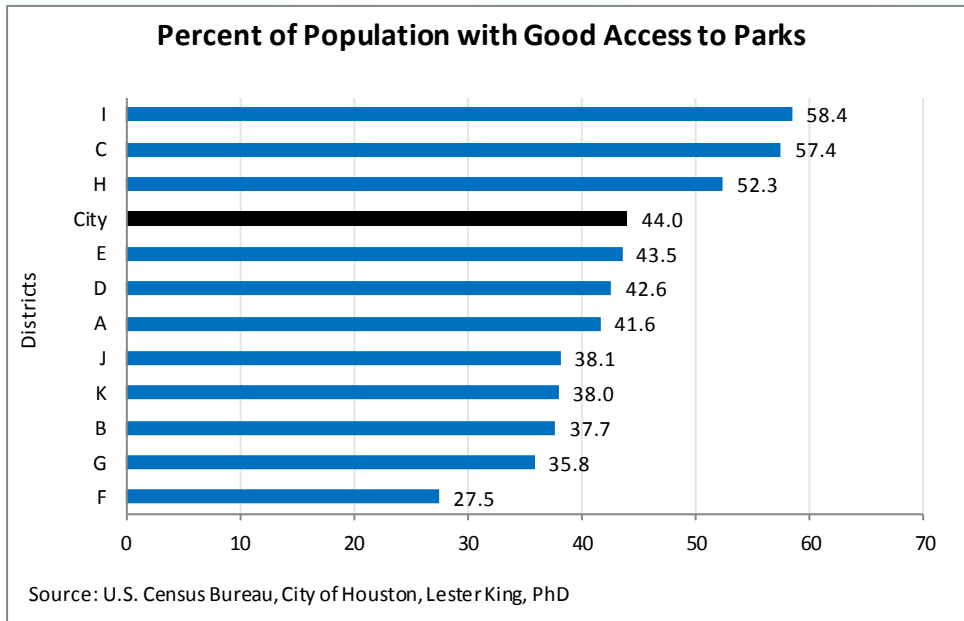


Figure 20: Access to Parks by District

- Good access to park spaces within districts in Houston ranges from 58.4% of the population to 27.5% of the population.
- Three districts have greater than average access to parks. Those are I – 58.4%, C – 57.4%, H – 52.3%. All other districts have below average access to parks according to the Houston average, which is 44% of the population.



Theme - Livability

Sub Theme - Health & Nutrition

Indicator - Food Deserts

Food deserts are correlated with low-income neighborhoods, health and nutrition deficiencies, and fast food restaurants. According to the Centers for Disease Control and Prevention (CDC), food deserts are defined as 'areas that lack access to affordable fruits, vegetables, whole grains, lowfat milk, and other foods that make up the full range of a healthy diet' (Centers for Disease Control and Prevention, 2012). The CDC also states that there is no standard definition of food desert, however the US Department of Agriculture (USDA) defines a food desert as a census tract more than 1 mile from a supermarket with at least \$2 million in annual sales (urban definition), and that at least 20% of the people living there are poor (US Department of Agriculture, 2012). This report uses the definition of any area more than 1 mile from a grocery store selling fresh fruits and produce as being in a food desert. The reason is because some small stores also sell produce that meet the CDC's definition and also some areas that are not necessarily poor, but are not within a mile to supermarkets will not be covered by the USDA definition.

Texas has the lowest number of supermarkets per capita in comparison to other states in the country (Manon, Giang, & Treering, 2010). The economic model that finds it strategic to locate a fast food store in a food desert is clearly different from the model that is used to locate grocery stores. Low income persons have to shop more frequently for retail items since they do not have enough stored wealth or storage space to stock up on consumer goods. Recently there has been an emergence of several Farmer's Markets across the city (Turner, 2012). The increase of Farmer's Markets suggests that there is a local demand, which traditional grocery stores are not meeting. There are also reportedly more than 125 community and school gardens across the city (Blackburn, 2011).

Sustainability Benefit: The Food Desert in Houston is getting smaller.

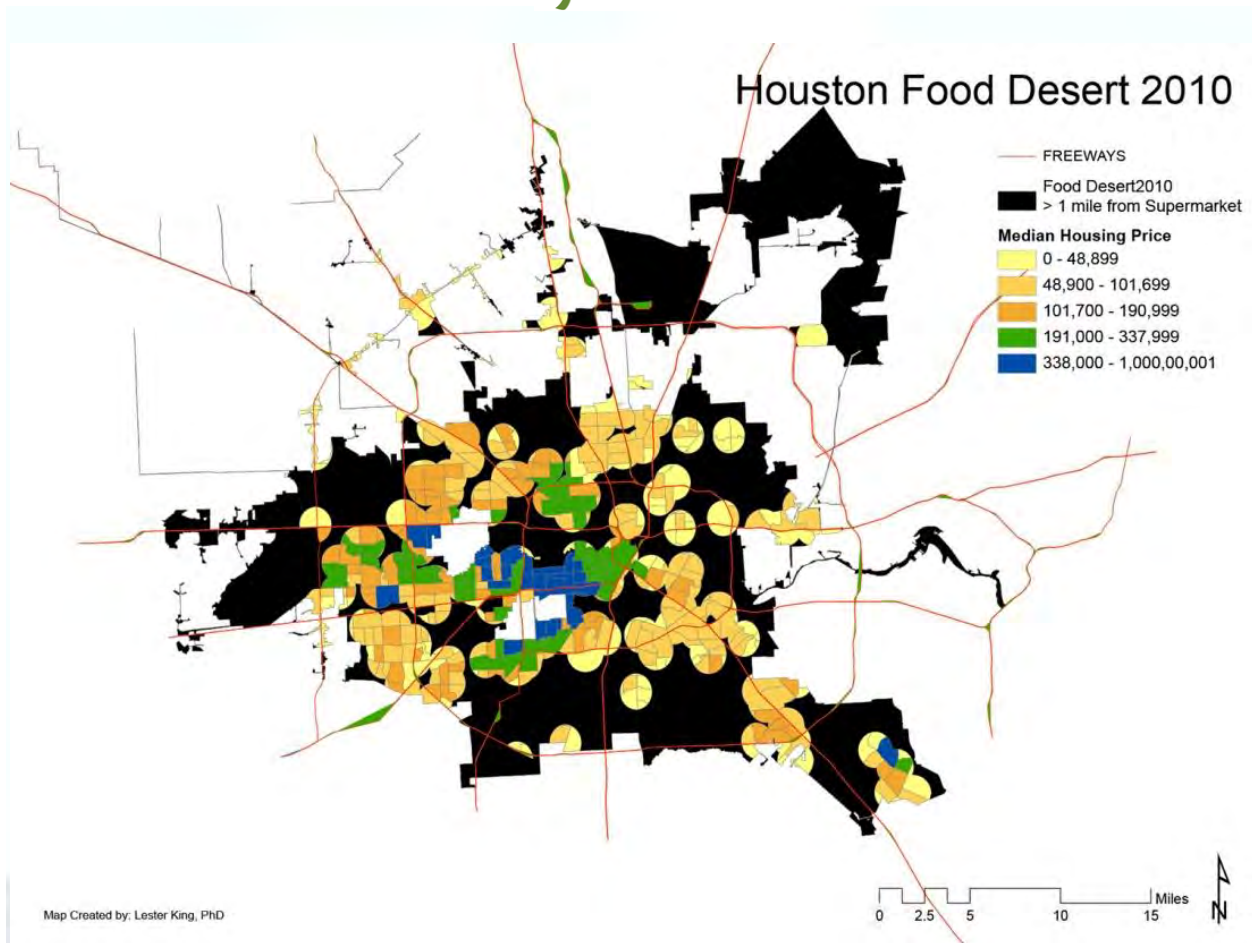
Sustainability Issue: More than 700,000 people in Houston do not live within a mile of a grocery store selling fresh fruits and vegetables.

The following metrics are used to measure the indicator *Food Deserts*:

Figure 21: Houston Food Desert 2010

Figure 22: Food Deserts by District





Source: Highways, City outline by City of Houston. Address locations of supermarkets by InfoUsa. Calculation of Food Desert by author.

Figure 21: Houston Food Desert 2010

- In 2010 there were about 750,000 persons living in a food desert accounting for 36% of the population. This is a big decrease in the number of food deserts compared to previous years.
- In the south central portion of the city, between Highway 288 and Interstate 45-South, the food desert continues to exist when comparing data from 1990 to 2010. This area is known as the Greater Third Ward neighborhood and is home to University of Houston and Texas Southern University.
- Some of the 1-mile regions around supermarkets show that the median housing value is under \$50,000, therefore the food deserts in Houston cannot be explained by lower income levels alone.

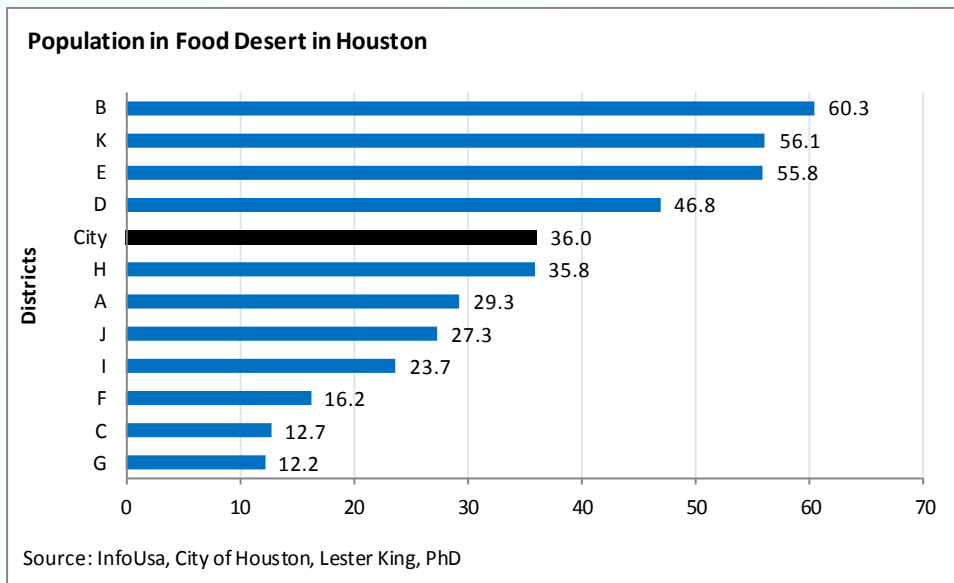


Figure 22: Food Deserts by District

- The figure above shows that four districts have above average food deserts in terms of population affected. Districts B, K, E and D all have above the Houston average of 36% of the population.
- Districts G, C and F all have below 20% of their populations affected by food deserts.



Theme - Livability

Sub Theme – Environmental Justice

Indicator - Waste Exposure

In the United States, there were 250 million tons of municipal solid waste generated in 2010. Paper and paperboard constituted 28.5% of this total and another 28% was organic wastes such as food scraps, and yard trimmings (US Environmental Protection Agency, 2010). The data presented here covers waste generation. However, the other sustainability component of waste is the environmental justice issue of where landfills are located. There has historically been a higher rate of poorer communities located close to landfills (Bullard, 2000).

Sustainability Benefit: Municipal Solid Waste disposal numbers are decreasing in the 13 county region.

Sustainability Issue: Private waste haulers account for a large portion of the market and do not have to report tonnage by generating sources to the state (King, 2012). As a result, public agencies do not have a good understanding of the types and amounts of waste generated by various sectors.

The metric **Population Close to Waste Sites** is used to measure the indicator **Waste Exposure**:

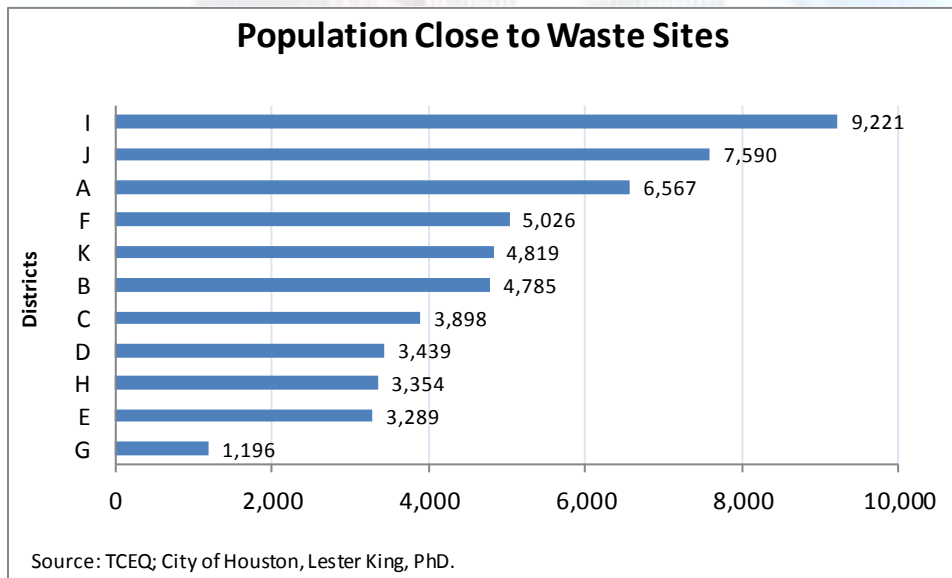


Figure 23: Population Within a Quarter Mile to Waste Sites

- The above figure shows the population living within a quarter mile of municipal solid waste sites and permitted hazardous waste sites.
- District I has the highest number of persons living in close proximity to waste sites with 9,221 people.

- District G has the lowest number of persons living in close proximity to solid waste sites with 1,196 persons.



Social Development Policy Recommendations

THEME – Social Demography

Sub Theme – Population Growth: Indicator – Population Growth



- We need to encourage more **population growth within the City** through incentives to develop in the city as opposed to the suburbs.
- Population forecasts for the City of Houston should be based on the City of Houston boundaries and not the region.
 - Citizens can do the following:
 - Contact elected officials.
 - Organize in community groups.
 - Participate in the electoral process.
 - Local government can do the following:
 - Retrofit infrastructure including Complete Streets model for street design.
 - Provide incentives to market for diverse housing choices.
 - Provide more resources to improve schools.
 - Create areas for mixed-use development and reduce permit processing time.
 - Improve community facilities.
 - Long range planning.
 - Businesses can do the following:
 - Supply quality and diversity in housing choices.
 - Non-profit groups can do the following:
 - Advocate and educate for improved quality of life.

Sub Theme – Education: Indicator – Education Attainment



- Major actions and interventions are needed to **reduce the education gap** among students of color and whites.
- Structure K-12 to **develop vocational tech training** that provides blue collar jobs.
 - Citizens can do the following:
 - Provide better at home education.
 - Demand accountability.
 - Local government including school districts can do the following:
 - Adjust school hours around work hours and provide public daycare options.
 - Universal pre-school and Montessori options.
 - Raising teacher performance.
 - Reduce separation of kids by achievement level and integrate active learning.
 - Reduce charter school starts.
 - Improve quality of learning environment.
 - Non-profit groups can do the following:

- More extra curricular activities.
- Educate citizens on home education responsibilities.
- More cultural enrichment opportunities.

Sub Theme – Community Involvement: **Indicator – Voter Participation**



- We need to strive to **increase voting** since it is a major cornerstone to any democracy.
- Elected officials need to find ways to **demonstrate accountability to citizens, adoption of a comprehensive sustainability indicators program** will aid this goal.
 - Citizens can do the following:
 - Vote
 - Local government can do the following:
 - Implement Saturday voting.
 - Offer incentives to vote.
 - Reduce language barriers.
 - Offer on-going government classes.
 - Non-Profit groups can do the following
 - Educate community in culture of civic participation.
 - Increase voter registration activity.

THEME – Poverty

Sub Theme – Inequality: **Indicator – Income Inequality**



- **Improved skills and training** needs to be developed to reduce income inequality.
- A **local or state taxing structure to reduce income inequality** would allow for systematic approach to this issue.
 - Local government and school districts can do the following:
 - Integrate more vocational training in middle and high school levels.
 - Bridge gap between market demand and concentrations at colleges.
 - Integrate businesses in curriculum development.
 - Tax incentives for businesses to offer internships and apprenticeships.
 - Businesses can do the following:
 - Offer internships and apprenticeships.

Sub Theme – Poverty Level: **Indicator – Poverty Rate**



- Need to **establish a commission on the root causes of poverty** which often link back to underperforming schools, and inadequate job skills.
 - This is an effort, which should be led by the local government with opportunities to participate by citizens, businesses and non-profit groups.

Sub Theme – Healthcare Delivery: **Indicator – Health Coverage**



- Need to **attract more jobs that offer healthcare and livable wages.**
 - Local government can do the following:
 - Establish more wellness programs.
 - Develop more healthy infrastructure such as trails, parks and sidewalks.
 - Work with businesses to increase participation in wellness programs.
 - Education for wellness in schools.

THEME – Livability

- Citizens and Non-profits should advocate for more wellness programs.

Sub Theme – Cost of Living: Indicator – Affordability



- Citizens in Houston pay more for transportation as a percentage of income than other cities of comparable size. **Improving transit options** would help to alleviate this burden.
 - Citizens can do the following:
 - Use public transit where possible.
 - Advocate for more funding.
 - Form conservancies to advocate for parks.
 - Local government can do the following
 - Funding infrastructure for multimodal travel options.
 - Incentivize mixed-Use development.
 - Incentivize the use of jitney services for flexible destinations.
 - Businesses can do the following
 - Provide facilities to encourage biking/ walking.
 - Educate employees on the benefits of alternative travel.
 - Offer flex-time and other alternative options to 9 – 5 workday.

Sub Theme – Quality of Life: Indicator – Accessibility of Public Spaces



- Houston needs to **aggressively develop more parks and green space**.
 - Citizens can do the following:
 - Form conservancies to advocate for parks.
 - Local government can do the following
 - Develop interlocal co-op agreements.
 - Educate developers on incentives to build parks.
 - Reduce development in flood prone areas and convert land to parks.
 - Long range planning for parkland acquisition.
 - Establish Transfer-of-Development Rights program.
 - Non-Profit groups can do the following
 - Advocate for more parks

Sub Theme – Health & Nutrition: Indicator – Food Deserts



- City of Houston needs to actively **attract more grocery stores selling fresh fruits and vegetables in food deserts** across the city.
 - Citizens can do the following:
 - Send letters to local elected officials.
 - Establish co-op enterprises
 - Local government can do the following
 - Reduce parking requirements for supermarkets.
 - Tax incentives for more supermarkets.
 - Incentivize co-op options.
 - Market analysis showing alternative resources to businesses.









**Sustainable Development
of Houston Districts:**

**A Sustainability
Indicators Study**

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shellcenter.rice.edu