



RICE UNIVERSITY
Shell Center for
Sustainability

HOUSTON

SUSTAINABLE DEVELOPMENT INDICATORS:

A Comprehensive Development Review for
Citizens, Analysts and Decision Makers

SOCIAL DEVELOPMENT PILLAR OF SUSTAINABILITY

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RICE





Houston Sustainable Development Indicators: A Comprehensive Development Review for Citizens, Analysts and Decision Makers

by

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Social Development Pillar of Sustainability

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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. 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).

Sustainability Benefit: Houston 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.

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

Figure 1: City of Houston Population Growth

Figure 2: Harris County Population Count

Figure 3: City of Houston Average Annual Growth

Figure 4: Harris County Average Annual Growth

Figure 5: City of Houston Race and Ethnicity

Figure 6: Harris County Race and Ethnicity

Table 1: Growth comparison of White and Hispanic populations

Figure 7: Population Density

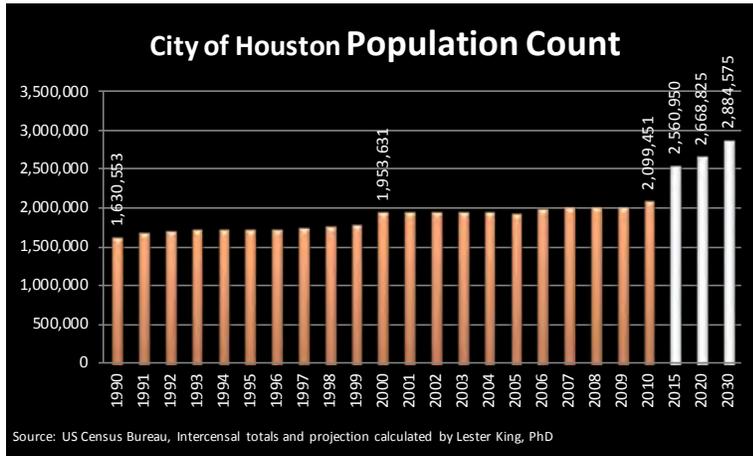


Figure 1: City of Houston Population Growth

- In 2010 Houston is 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).

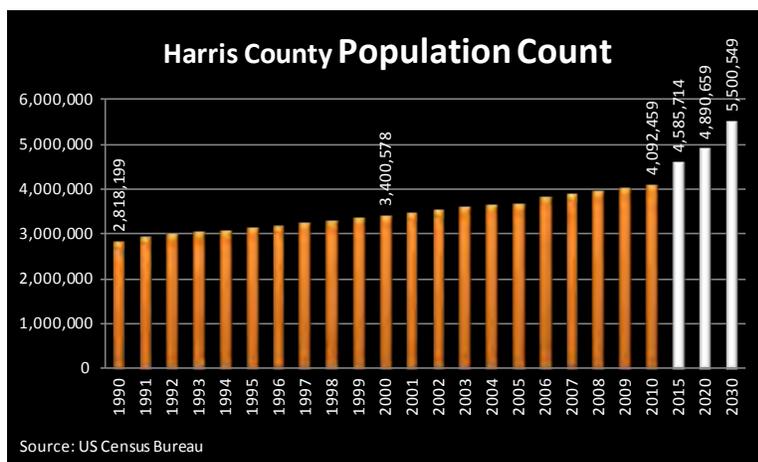


Figure 2: Harris County Population Count

- The City of Houston is located in Harris County, Texas. Harris County is the most populated county in the state of Texas with 4,092,459 persons as of the 2010 Decennial census.

- It is also the third most populous county in the country according to the 2010 census, behind Los Angeles County, CA - 9,818,605 persons; and Cook County, IL - 5,194,675 persons (US Bureau of Census 2011).
- The City of Houston comprises roughly half of the population of Harris County.
- Harris County is projected to add almost 800,000 persons by 2020 and almost 1.5 million persons by 2030. The 2030 population is projected to be 5,500,549 persons (Figure 2).

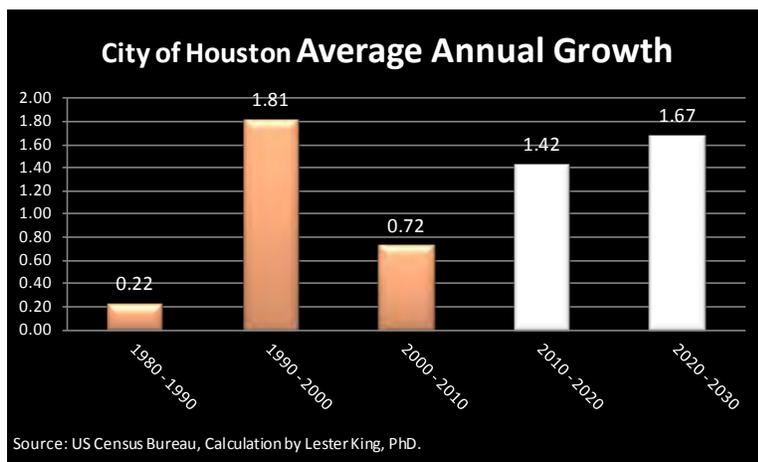


Figure 3: City of Houston Average Annual Growth

- The average annual percentage growth rate in Houston fluctuated between 0.22% per year from 1980 to 1990 and 1.81% per year between 1990 and 2000.
- Based on the linear trend between 1980 and 2010, the average annual percentage rate of growth is not expected to climb above the levels seen between 1990 and 2000 over the next 20 years (Figure 3).

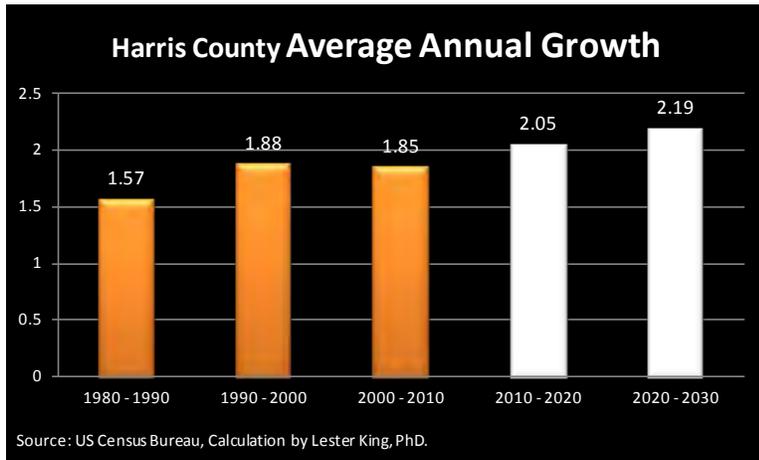


Figure 4: Harris County Average Annual Growth

- Figure 4 shows that the average annual percentage rate of growth is higher in Harris County than it is in Houston.
- Population is increasing in Harris County, in areas outside of Houston, faster than within the city limits of Houston.

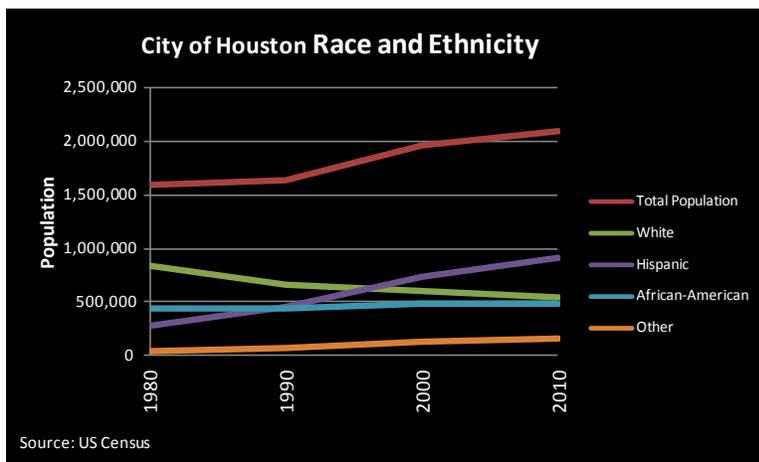


Figure 5: City of Houston Race and Ethnicity

- 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 5 shows that the trend for the Hispanic population almost exactly matches the trend for the city as a whole after the 1990 census.

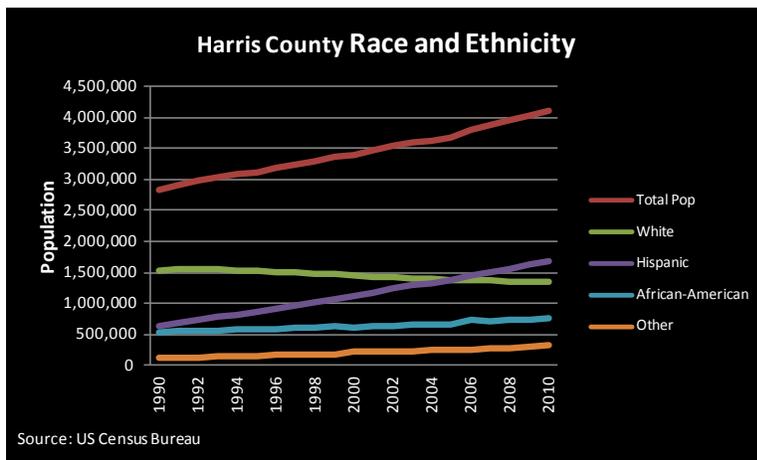


Figure 6: Harris County Race and Ethnicity

- In comparison to the City of Houston, the Hispanic population only overtook the White population after the 2000 census around 2005. However, since the Hispanic population and the total population for the county have similar trends, we can say that most of the growth in Harris County is also attributed to the growth in the Hispanic population.
- The White population in the county is also declining, but the rate is not as steep as in the City of Houston.



- The Hispanic population accounts for the largest population group, both in Harris County (1,671,540 persons, 41%) and the City of Houston (919,668 persons, 44%) (Figure 6).
- The race and ethnicity composition is as follows: Hispanic 40.8%, White 33%, Black 18.4%, All others 7.7%.

| | 1980 | 2010 | Percentage Average Annual Growth |
|------------------------|-----------|-----------|----------------------------------|
| White COH | 834,061 | 537,901 | -1.46 |
| Hispanic COH | 281,331 | 919,668 | 3.95 |
| White Harris | 1,509,430 | 1,349,646 | -0.37 |
| Hispanic Harris | 369,077 | 1,671,540 | 5.03 |

Source: US Census, Calculation by Lester King, PHD.

Table 1: Growth comparison of White and Hispanic populations

- Table 1 compares the average annual percentage growth in the Hispanic and White populations between the City of Houston (COH) and Harris County (Harris). The table shows that Hispanics are increasing in Harris County at a faster rate than in the City of Houston.
- Additionally the White population is decreasing at a slower rate in Harris County than in the City of Houston.
- The results suggest that living in Harris County beyond the City of Houston city limits is more desirable to Hispanics looking for a new home in the region.
- Since the White population is declining, data suggests that whites leaving the area are more inclined to leave the City of Houston than Harris County.
- Further research into the composition of the population groups would reveal whether those leaving were attributed to deaths or migration or other factors.

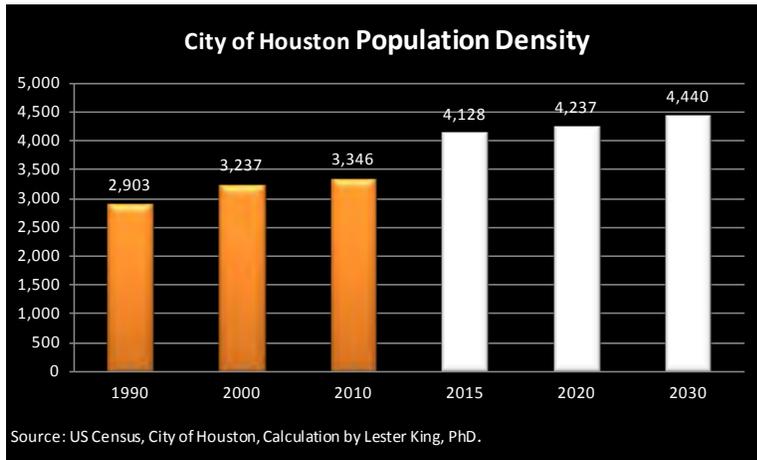


Figure 7: Population Density

- Houston’s Extraterritorial Jurisdiction (ETJ) is a five mile area surrounding the city limits. The State of Texas devolves to cities rights and responsibilities to manage property within the city limits and limited rights and responsibilities to property within this ETJ. One of the rights is that of annexation.
- After 1999 the City of Houston has primarily enacted limited annexation of property therefore the size of the city is not expected to increase by a considerable amount over time.
- The population density projection assumes the percentage increase in square miles between 2000 and 2010 would continue; and that the average growth population growth between 1980 and 2010 would continue. By 2030 the density of the City of Houston will increase by 1,094 persons per square mile more than 2010 (Figure 7).

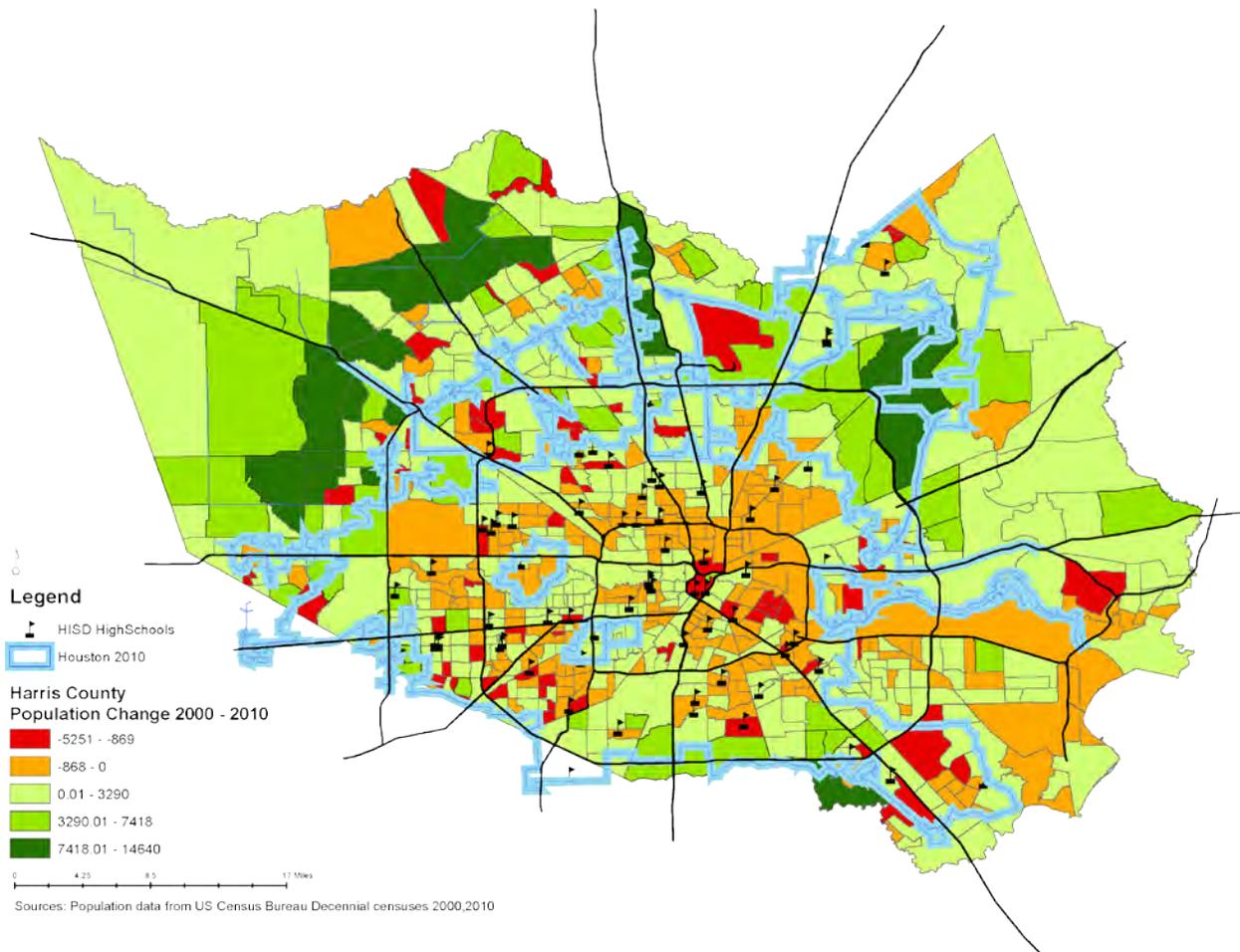


Figure 8: Population Change 2000-2010

- Houston gained 145,820 people between 2000 and 2010. However many areas within the city border actually lost population.
- This is a major problem, since as the map above illustrates, many of these areas losing population correlate with areas where the public high schools are located.

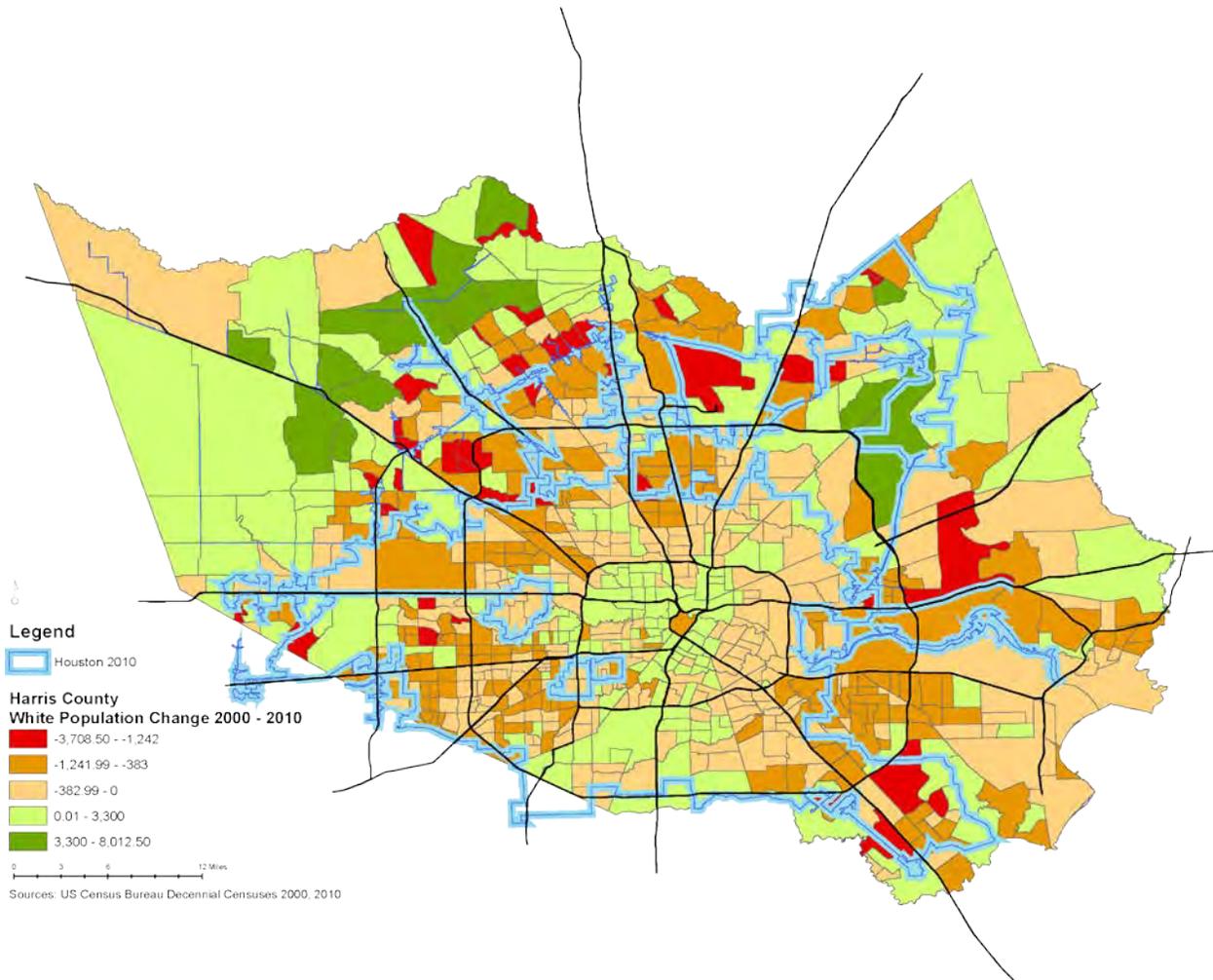


Figure 9: White population change 2000 – 2010

- The City of Houston lost 63,950 persons from the White population between 2000 and 2010.
- The map above shows that the population loses were greater in the central city and the outer edges of the city. Population increase were recorded in the central loop.



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. Of the 61.3% of persons without a diploma, that were employed, the median earnings was \$17,338 in 2010. The median earnings in the City of Houston was \$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 associates degree. The high school diploma is the fundamental threshold for the achievement of enhanced quality of life. 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.

The following metric, **Figure 10: Percentage of Students Graduating High School**, is used to measure the indicator **Education Attainment**.

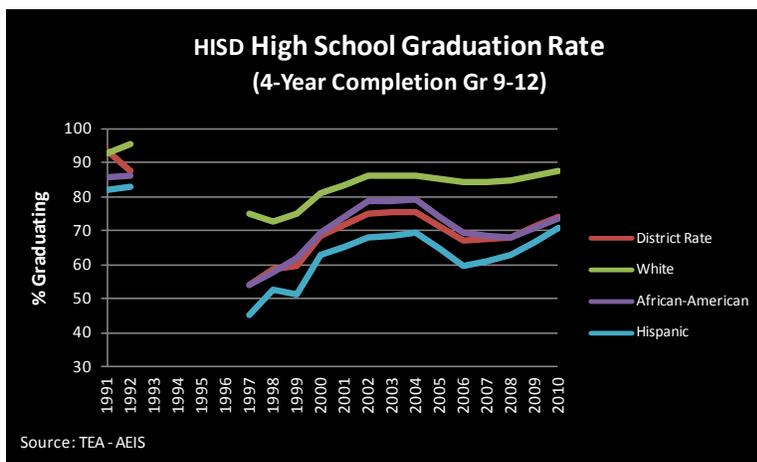


Figure 10: Percentage of Students Graduating High School

- The percentage of persons graduating is rising in the Houston Independent School District (HISD) since 2006, after a short dip from 2004.



- What is also striking about Figure 8 is the gap in graduation rate between White students and all other race and ethnicities. In 2010 the average graduation rate was 74.3%, which was similar to the African-American graduation rate. The Hispanic graduation rate was 70% and the White graduation rate was 87.9% (Figure 8).
- Hispanic students accounted for 62% of the HISD student body in 2010 and African American students accounted for 27% of students. White students only accounted for 8% of the HISD student population (Houston Independent School District, 2010). White students in Houston who do not attend HISD may reside in parts of Houston not within HISD administrative boundaries or attend private schools.



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 demonstrating 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 metric, **Voter Participation in Houston**, is used to measure the indicator **Voter Participation**.

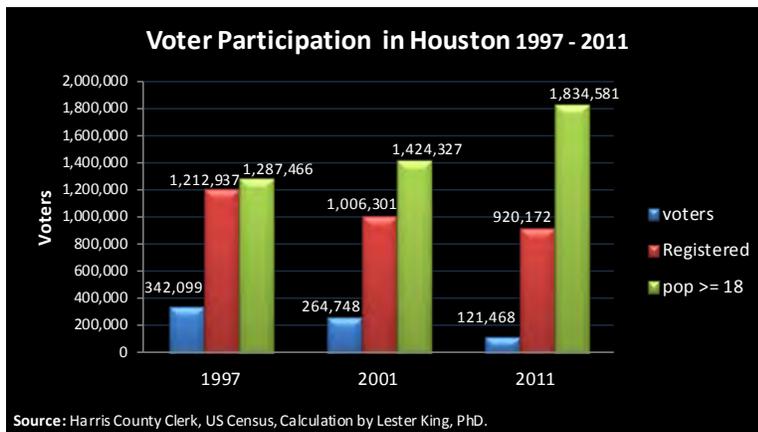


Figure 11: Voter Participation in Houston

- 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.



- In 1997, 27% of the voting age population and 28% of the registered voters participated in local elections.
- In 2001, 19% of the voting age population and 26% of the registered voters participated in local elections.
- The figure shows that over the last 14 years as the population in Houston increased less persons registered to vote and less persons actually voted, which indicates a decrease in social capital.

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 12: Median Income Comparison

Figure 13: Ratio of Share in Income

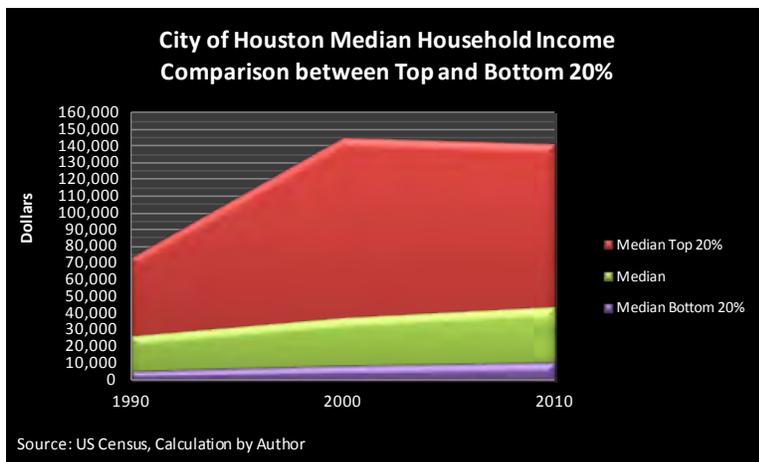


Figure 12: Median Income Comparison

- Figure 12 shows that the top 20 percent of wage earners increased at a much faster rate between 1990 and 2000 and then dropped between 2000 and 2010. This steep increase between 1990 and 2010 was not reflective in the median income of the city as a whole is indicative of income disparity in the city.

- The top 20 percent median household earnings dropped between 2000 and 2010 but this drop did not have a noticeable impact on the median income in the city. This suggests an income disparity between the top 20 percentile and the rest of workers.
- The median household earnings of the top 20 percentile was approximately \$140,000 in 2010. The median household income in the City of Houston was approximately \$43,000 and the median household income of the bottom 20 percentile was approximately \$10,000.

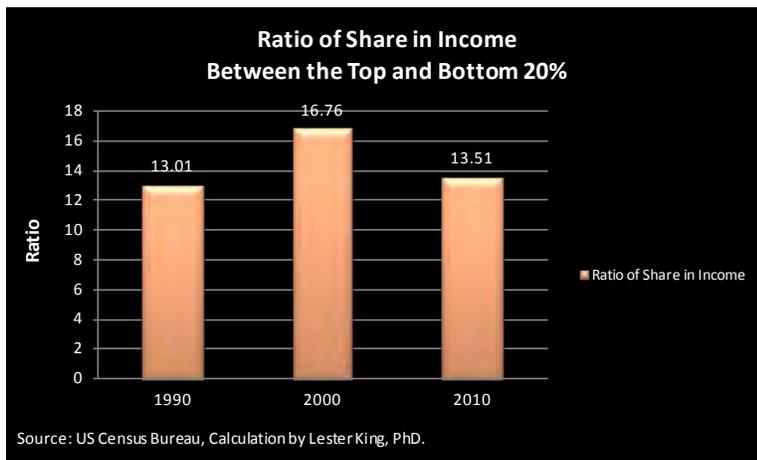


Figure 13: Ratio of Share in Income

- The ratio between the top 20th percentile and the lowest 20th percentile shows the degree to which these two groups trend together over time.
- In 2000 the income disparity increased to 16.76 points, up from 13.01 points in 1990. That number is now 13.51 in 2010.

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 features, 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, **Figure 14: Population Living Below Poverty**, is used to measure the indicator **Poverty Rate**.

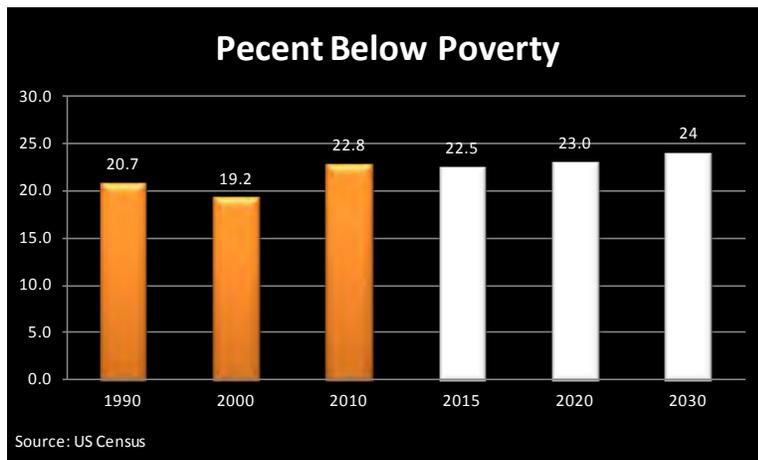


Figure 14: Population Living Below Poverty

- Data gathered between 2006 and 2010, shows that 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).
- In 1990 one fifth of all Houstonians were living in poverty and by 2015 another 2 percent of Houstonians will be living in poverty as predicted in Figure 11.



- Based on the current trend the City of Houston is expected to have almost 25% of people living below the poverty line by 2030.



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.

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

The following metric, **Table 2: City and County Health Insurance Estimates**, is used to measure the indicator *Health Coverage*.

| | 2000 Harris (a) | 2010 Harris (b) | 2010 Houston (b) |
|---|----------------------------|----------------------------|-----------------------------|
| Insured | 2,754,239 | 2,946,305 | 1,445,921 |
| Uninsured | 676,637 | 1,141,788 | 646,313 |
| % | 19.7% | 27.9% | 30.9% |
| Source: a – US Census Bureau, 2000 Small Area Health Insurance Estimates b – US Census Bureau | | | |

Table 2: City and County Health Insurance Estimates

- The percentage of uninsured persons in the City of Houston (30.9%) was higher than in Harris County (27.9%) in 2010.
- The percentage of uninsured persons in Harris County has increased over time. In 2000 the percentage was 19.7% and in 2010, the percentage was 27.9%.



Theme - Livability

Sub Theme - Cost of Living

Indicator - Affordability

Housing is a basic need with food and air. 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 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: The cost of gasoline in Houston was 20 cents lower than the average in the country in 2010. Houston is not affected by housing value decreases at the same rate as the rest of the country.

Sustainability Issue: The cost of gasoline is increasing. More people are spending more than 30% of their income on housing.

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

Figure 15: Gasoline Prices

Figure 16: Housing Affordability

Figure 17: Housing Affordability by Cost Quintiles

Figure 18: Median Home Price vs Gasoline Price

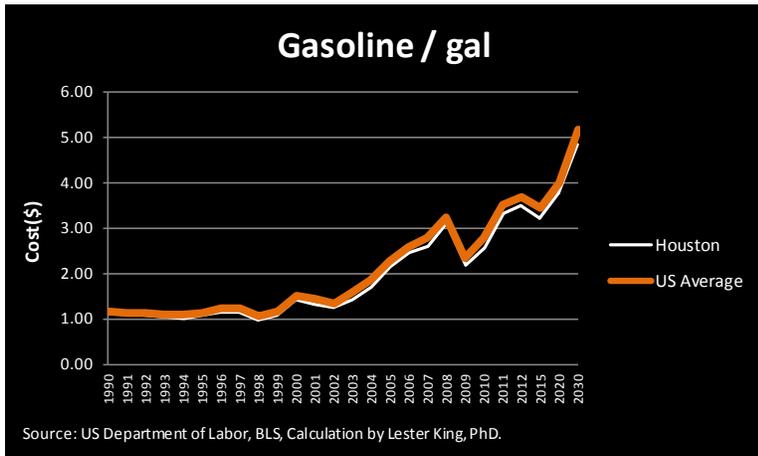


Figure 15: Gasoline Prices

- Gasoline prices in the Houston region compared to the average price across the country exhibit similar trends. Since there is very little difference between the trends then it suggests that the variation of increases and decreases exhibited in the figure above were the result of national and international policy as opposed to local dynamics.
- Figure 12 shows that although the Houston region and the national average price exhibit similar trends, over time the gap is widening. In 1990 the Houston average was five cents less; in Yr2000 Houston was almost 10 cents less and in Yr2010 the cost in Houston was approximately 20 cents less than the national average.
- The difference in the retail sale price of gasoline in the country compared to that in Houston doubled every 10 years between 1990 and 2010.

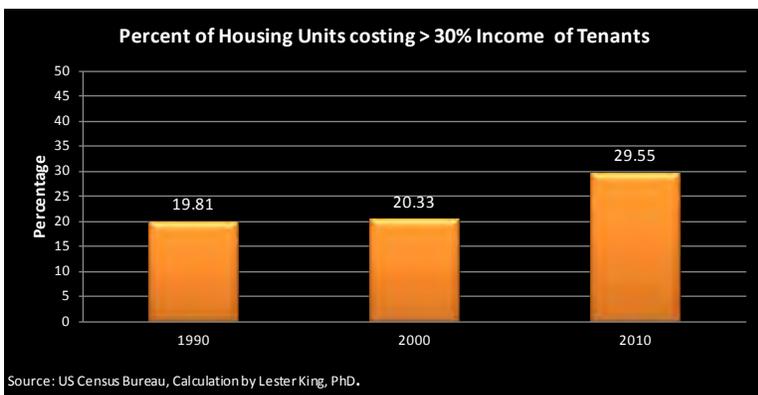


Figure 16: Housing Affordability

- 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.
- In 2010 the median monthly owner cost for households with a mortgage was \$1,423 in the City of Houston (U.S. Census Bureau, 2011). Applying the 1/3 rule for affordability, this means that the average household needs to earn \$51,228 to cover the cost of the mortgage at less than 1/3 of total annual income. In Houston 57% of the households earn less than \$51,228 annually.

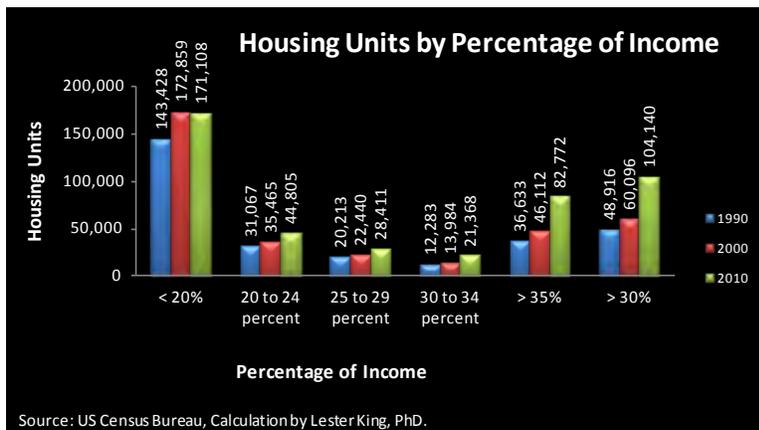


Figure 17: Housing Affordability by Cost Quintiles

- The above figure shows the dramatic increase in occupied housing units by those who would have to pay more than 35% of their income on housing costs. Between 2000 and 2010, approximately 40,000 more homes cost tenants more than 30% of their incomes. In comparison, between those same years approximately 56,000 more homes were added in Houston.
- The number of homes costing tenants less than 20% of their incomes decreased by 1,751 between 2000 and 2010.

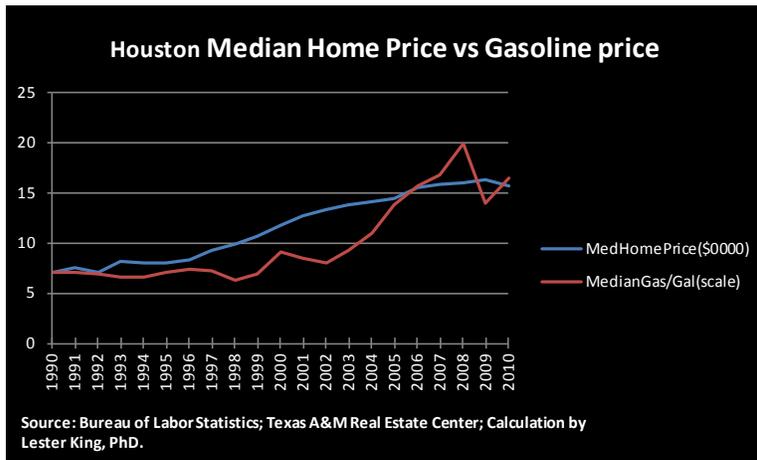


Figure 18: Median Home Price vs Gasoline Price

- The figure above shows the average gasoline price in the Houston region scaled for visual comparison purposes to meet the range of the median housing price.
- The figure shows there is no significant relationship between the trend in gasoline price and the trend in housing price in the Houston region, except that they are both increasing over time.



Theme - Livability

Sub Theme - Quality of Life

Indicator - Accessibility of Public Spaces

Quality of Life is difficult to measure since we have 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 $\frac{1}{4}$ 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).

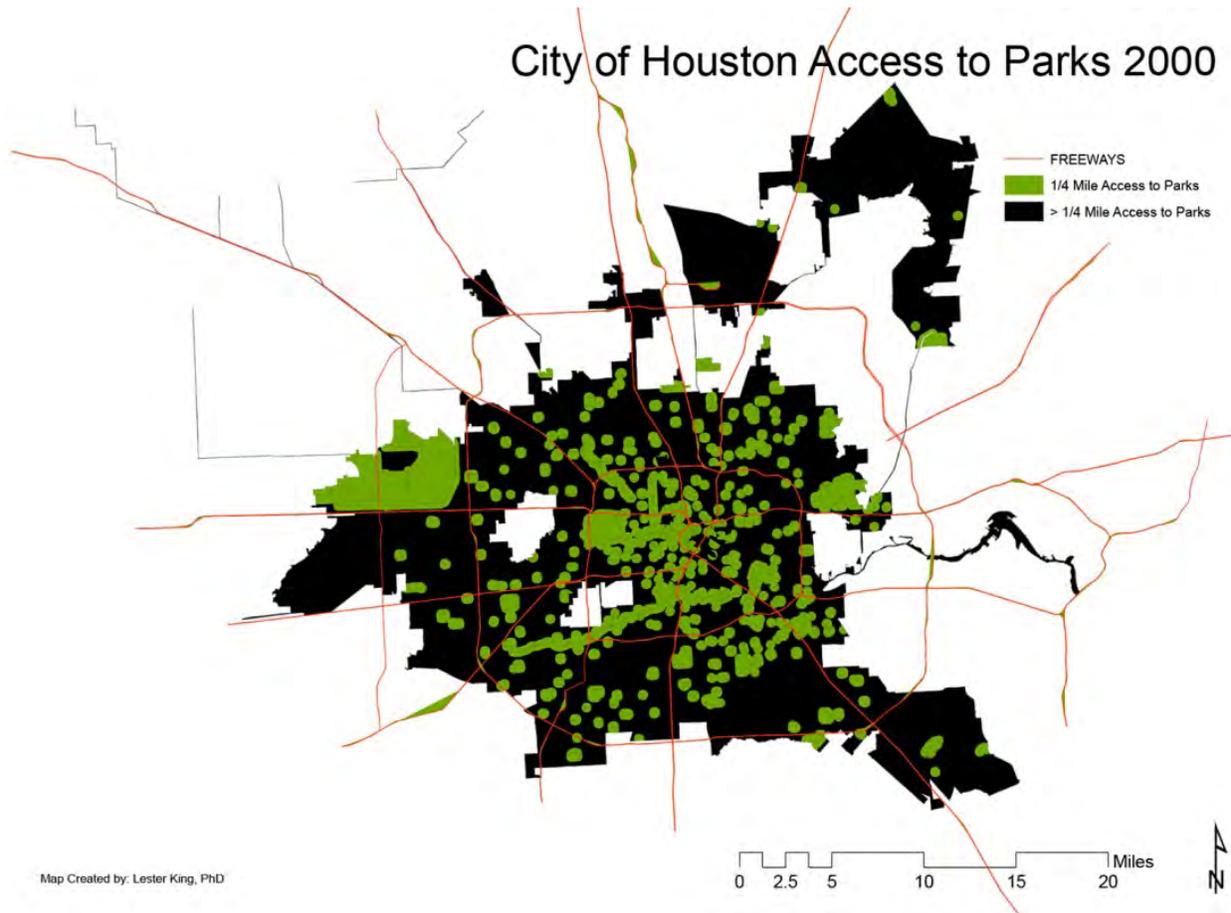
Sustainability Benefit: Small public parks are relatively well dispersed across the city.

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

Figure 20: City of Houston Access to Parks 2000 – 2010



Source: Highways, City outline, Parks from the City of Houston GIS Department

Figure 19: City of Houston Access to Parks 2000

- In 2000 there were approximately 460,000 Houstonians living within a quarter mile walking of city parks.
- That number represents almost 25% of all Houstonians in 2000.
- Figure 15 shows that there are large areas without city parks on the west side of the city, the south and south east and north east sections.

City of Houston Access to Parks 2000 - 2010

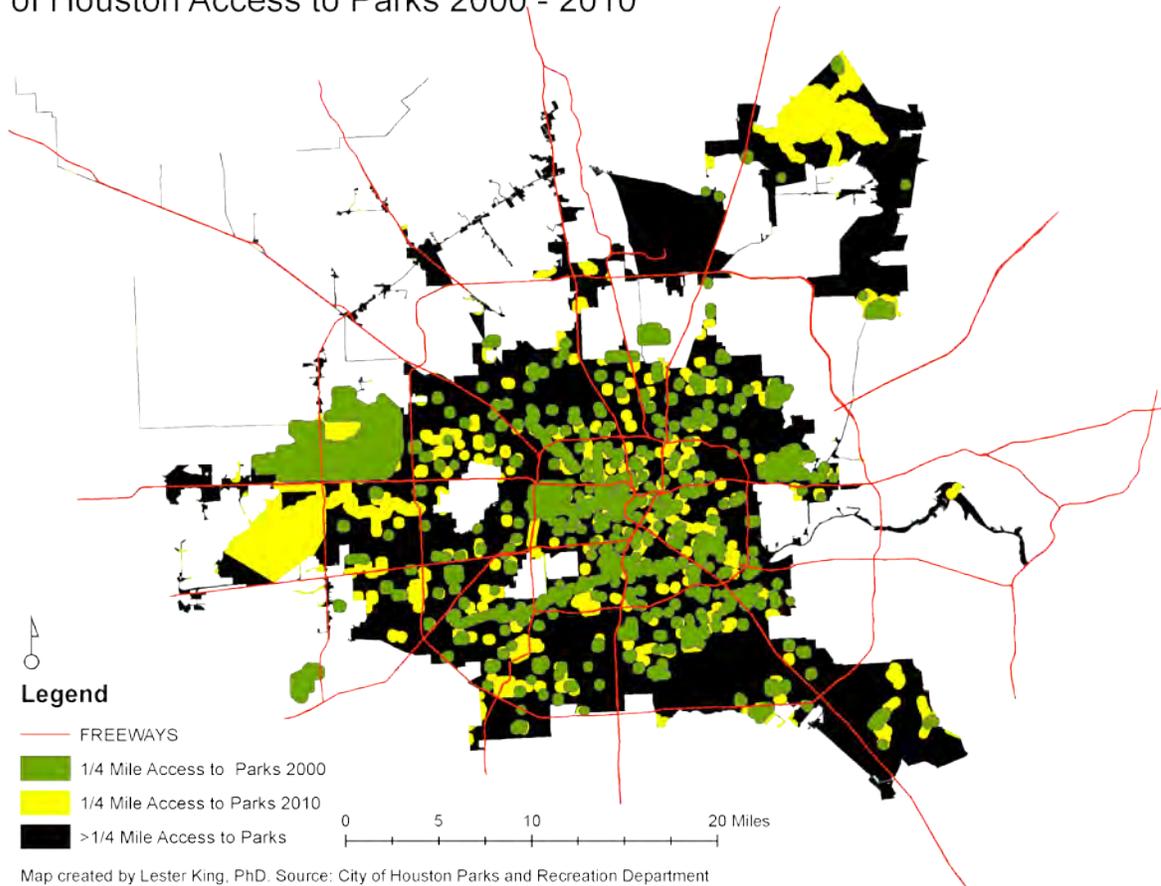


Figure 20: City of Houston Access to Parks 2000 – 2010

- A look at 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.
- For 2010, there were almost 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.
- Additionally a 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.



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 we have seen the 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.

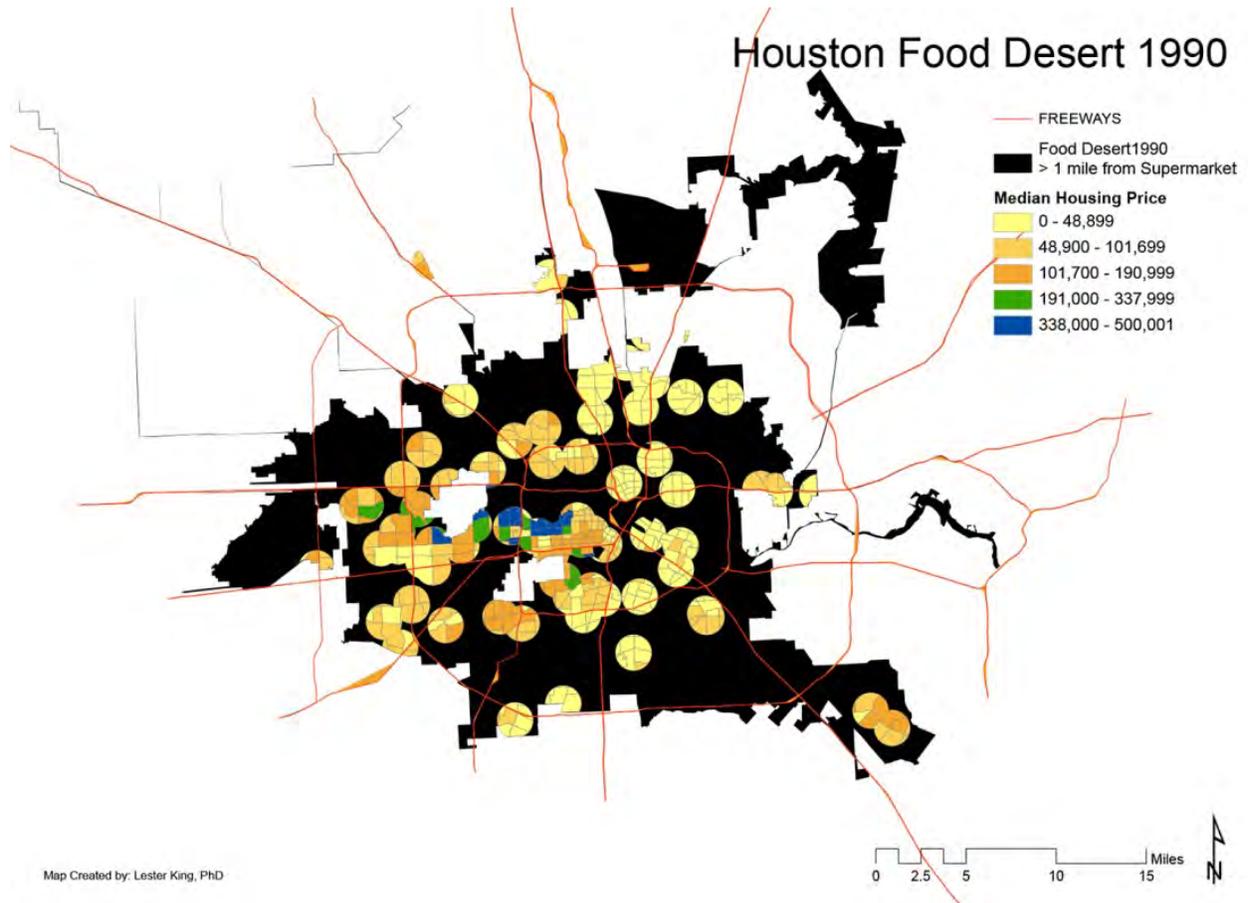
The following metrics are used to measure the indicator *Food Deserts*:

Figure 21: Houston Food Desert 1990

Figure 22: Houston Food Desert 2000

Figure 23: Houston Food Desert 2010

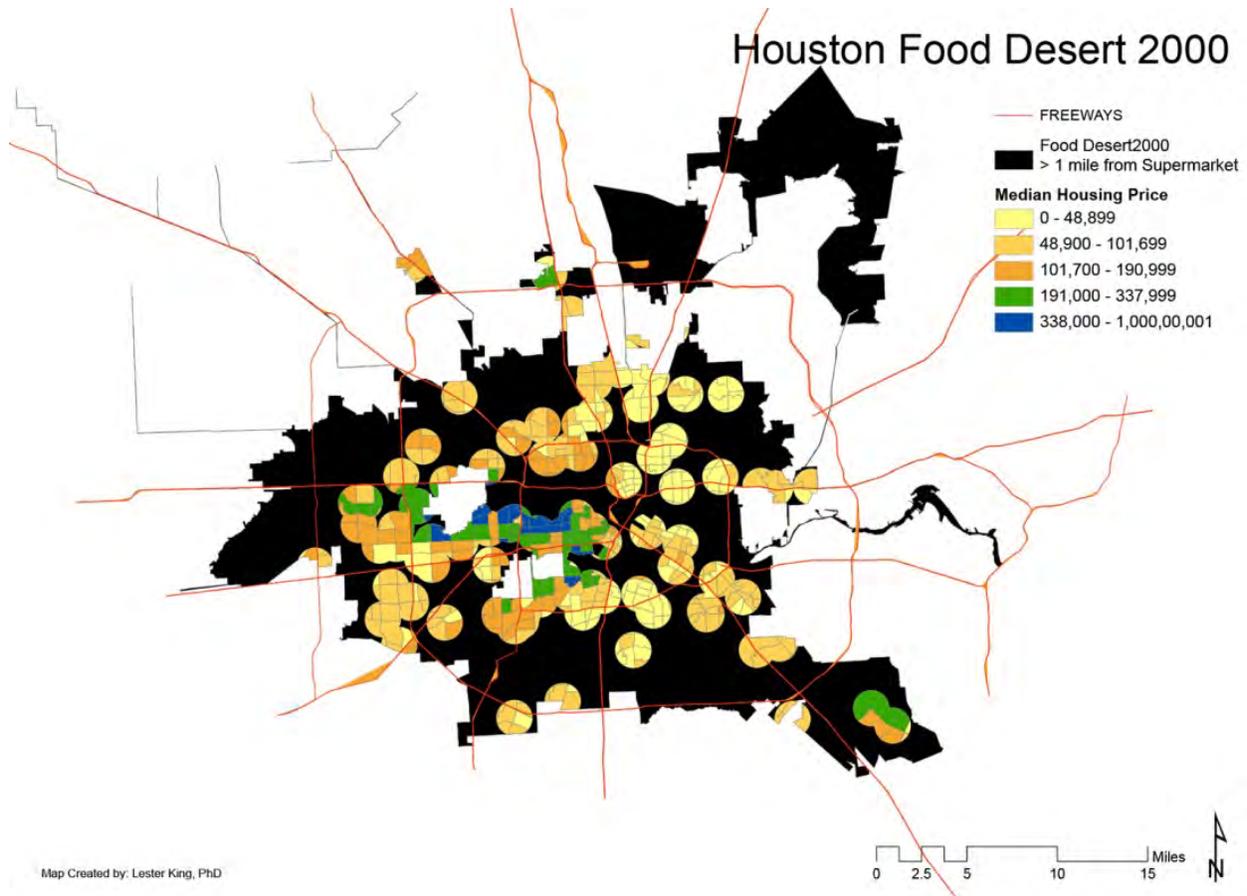
Figure 24: Houston Grocery Stores 1990 – 2010



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 1990

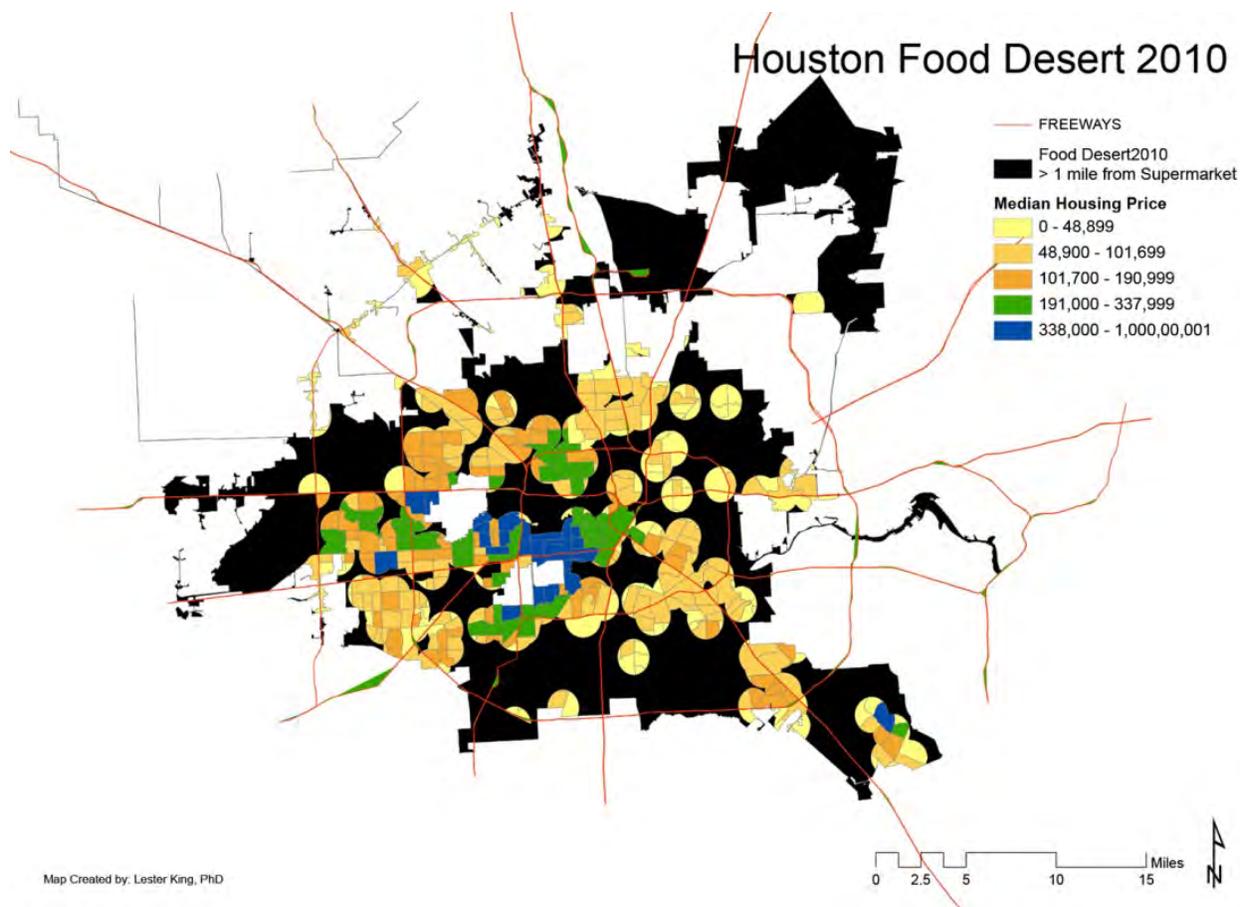
- In 1990 63% or just over a million Houstonians lived more than 1 mile from a supermarket and hence lived in a Food Desert.
- The above figure shows that many of the supermarkets are located close to the major roads in Houston.
- In 2011 the top five grossing supermarket locations that were in existence in 1990 in Houston, were HEB, Randalls, Walmart, Fiesta Mart, and Whole Foods.
- Each of the above companies made over \$60M in at least one location of their franchises in 2011.
- Both HEB and Randalls reported at least \$120M for 2011 at one of their Westheimer locations.



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

Figure 22: Houston Food Desert 2000

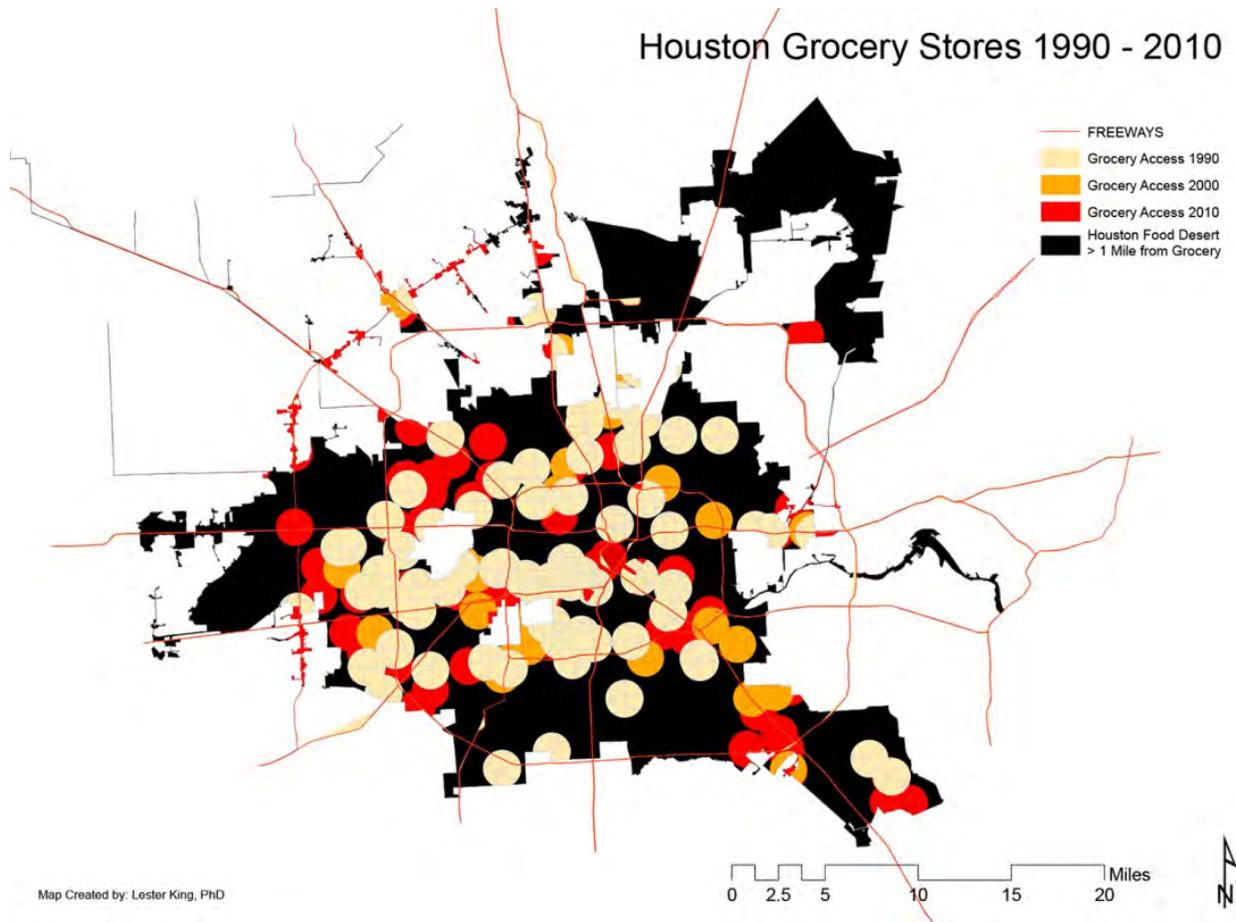
- In 2000 56% of Houstonians or 1,089,022 people lived in the Food Desert.
- There were less than 150 supermarkets selling fruits and vegetables in the City of Houston in 2000.
- If supermarkets and people were spread evenly across the city, this would be the equivalent of one supermarket for every 4 square miles and catering to 13,000 persons each.
- Since supermarkets are not spread evenly across the city it suggests that many people drive more than a mile to the supermarket and also that some supermarkets cater to more than 13,000 persons each year.



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

Figure 23: 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.
- The above figure shows that the food desert is now primarily located in the south, far west, and northeast portions of the city.
- 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.



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

Figure 24: Houston Grocery Stores 1990 – 2010

- The above figure shows the expanded coverage of supermarkets across the city from 1990 to 2010, which lead to a decline of the food desert from affecting 63% of persons to affecting 36% of persons.
- Between 1990 and 2000 many new supermarkets were located around the inner city, within Loop 610, and south along Interstate 45.
- Between 2000 and 2010 many supermarkets were primarily located to the west and northwest of the city, with continued expansion along Interstate 45 to the south.

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.

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.

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.

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.

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.

Sub Theme – Healthcare Delivery: Indicator – Health Coverage



- Need to **attract more jobs that offer healthcare and livable wages**.

THEME – Livability

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.

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



- Houston needs to **aggressively develop more parks and green space**.

Sub Theme – Health & Nutrition: Indicator – Food Deserts



- City of Houston needs to actively **attract more grocery stores selling fresh fruits and vegetables** across the city.





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