

Extended Essay

Title: Segregation within Houston.

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Introduction

The aim of the investigation is to answer the question “**To what extent can Houston be classified as ‘segregated’?**” through analytical maps, primary data collected from surveys and other methods. By drawing a hypothetical transect line across Houston from East to West, I selected five equidistant neighbourhoods, to investigate the change in characteristics of the neighbourhoods. As an expat, I unintentionally surround myself with PLU’s (People like Us), living in a predominantly British enclave. This stimulated my interest into whether this apparent divide is replicated across Houston.

To begin with key terminology needs to be defined, ‘segregation’; the physical separation of population by culture, income or other criteria.¹ Segregation within Houston can exist in various different forms. Ethnic enclaves, geographic areas with a high concentration of a particular culture², are scattered across the city from Chinatown to Mahatma Gandhi District. However, segregation can also exist due to differences in socio-economic status, where more affluent residents isolate themselves in gated communities. Less affluent residents, often the minorities, are unable to relocate to better housing.

Considering the historical segregation, the investigation will enable me to explore if the city remains divided and whether there are any other challenges associated with these inequalities. This topic is important to study because problems caused by ‘Inequality doesn’t bring growth, it brings economic instability.’³

The Hoyt Model assumes higher class residential areas are located along transportation links and have a better standard of living, and the inner city is predominantly working class and has a lower quality of life. This idea was further re-enforced through the ‘doughnut’ model, reflecting a deprived centre and a band of more affluent residents located on the periphery of a city, drawing upon a causal relationship between the quality of life and the wealth of the occupants. Through further research I hypothesised that the regions near the East of Houston were subject to extreme poverty due to the historical segregation experienced in the nineteenth century Therefore the evidence suggests that the East and West will reflect different characteristics. Furthermore gentrification in the inner city, changes in lifestyle will likely impact the divide.

¹ Garrett Nagle and Briony Cooke, *Geography Course Companion* (Oxford: Oxford University Press, 2011) pg 295.

² Wikipedia, ‘Ethnic Enclaves’

³ Alice Martin, ‘Why inequality is an economic problem’, *New Economics Foundation*, Dec. 2014.

Brief History of Houston

Segregation within Houston can be traced back as early as 1836, with the expansion of the slave industry. Before the Civil War, African Americans worked on cotton plantations and post war racial segregation only intensified.⁴ When the city was founded, it was divided into geographic districts termed 'wards' (Figure 1.1). Each of the wards served a purpose for the city, specialising in a particular area.⁵ While the ward system was abolished in the early 1900s⁶, there remained a conspicuous separation of culture between the residents in Houston. Prominent areas evolved to accommodate African-American communities, previously housing slaves. In 1980 a significant proportion of the white population moved towards the suburbs from the inner city. This movement was described as the 'white flight' which led to urban decay; where a section of the city became dilapidated and run-down as money was no longer injected into the region.⁷ Common characteristics such as depopulation, poverty and increasing crime became pervasive. However to what extent does this historic divide still remain today?

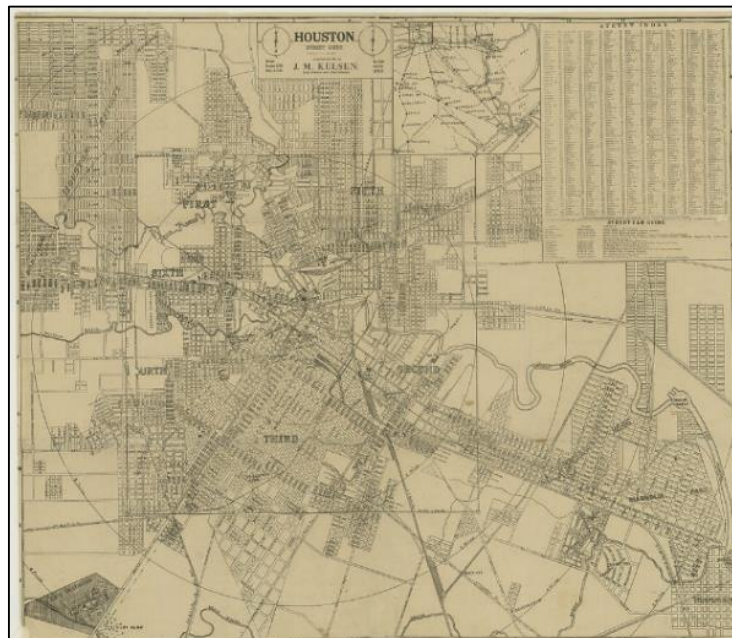


Figure 1.1 - Map of Houston's Wards in 1913

⁴ Haley, John H. 'Black Dixie: Afro-Texan history and Culture in Houston' *The Georgia Historical Quarterly*, July. 1993.

⁵ Dana Jones, 'Houston homes in danger of progress, gentrification', *Cooglif*e, August 2017.

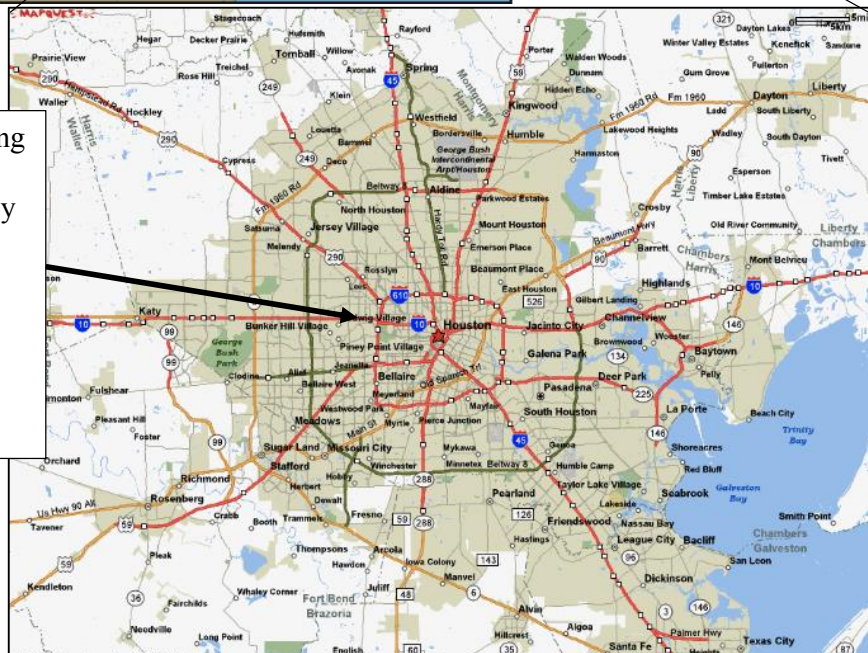
⁶ Wood, Roger. *Down in Houston: Bayou City Blues*. 2003, University of Texas Press. 1st Edition. 72.

⁷ Atara Lindenbaum, 'Houston era of 'white flight' slowing', *Houston Tomorrow*, June 2014.

Houston, Texas – Current Day

Houston is an urban city, populated by approx. 2.3 million people⁸ and is the most populated city in Texas. It is the fourth largest city in the USA, encompassing a space of 627 miles².

Maps showing the location of Houston within Texas



Houston is a multicultural city attracting multi-national companies due primarily to the oil industry being located in the region, contributing towards a large portion of the economy (Figure 1.2).

Figure 1.2 – Map of Texas, showing location of Houston

⁸ American Fact Finder *U.S. Census Bureau*

Map of Houston's Highways

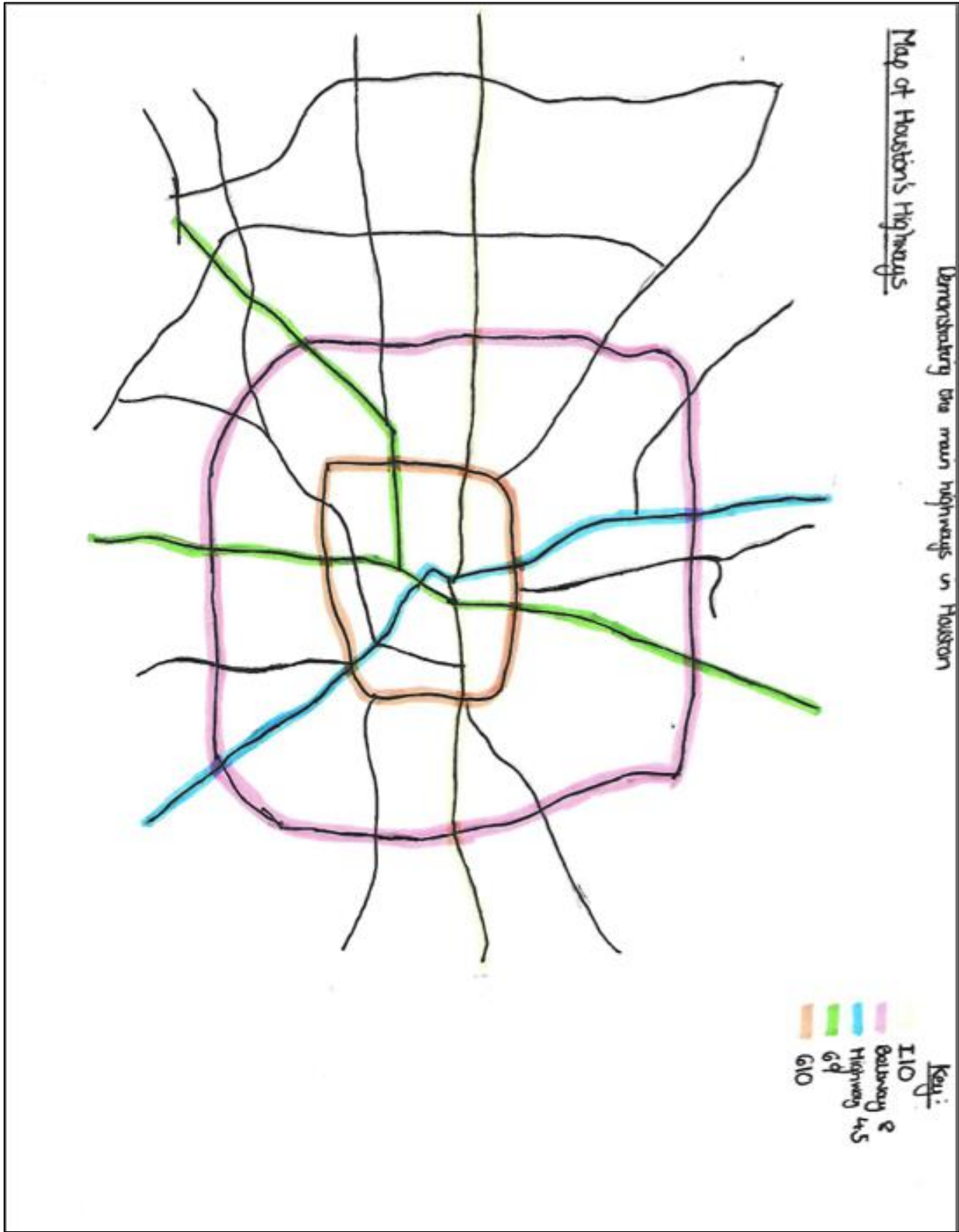


Figure 1.3 – Map of Houston's Highways

According to the Houston Chronicle⁹, the city ranks as the 15th most economically segregated city in the world, where the richest 5% make nearly 12 times more than the poorest 20%. The 2010 Houston Entropy Index 0.874 (a measure indicating diversity) surpasses the score of New York¹⁰. The divide is accentuated by the lack of associations between these divides, where the top tier are isolated from the poorest. This can lead to ignorance, where the rich occupants misunderstand the level of poverty in the regions within Houston. The segregation further increases where the rich communities are attracted towards better education and housing, leading to a further division between the individuals.

Initially the Third Ward had equal populations of White and Black people, however after World War II a majority of the white community moved towards the newly developed suburbs near the Southwest, leaving behind a large number of African Americans. In 2004, many wealthier occupants moved back to the Third Ward; however this resulted in residents protesting the gentrification of the area due to unaffordable housing prices.¹¹

Despite this, the city has been accredited as the 'most diverse city in the world'¹² with a population of 6.2% Asian, 23.5% African America, 43.1% Latino and 25.8% Anglo.¹³ While initially it appears diverse, the communities are in fact divided into economic enclaves which creates a large division. 'We have the Texas Medical Center, the finest medical facility in the world, but we also have the highest percentage of kids without health care.'¹⁴ This essay will investigate this concept, beginning by using Hoyt's urban land use model to visually see how the city itself may be divided.

Hoyt's Urban Land Use Model (Figure 1.4):

The model was developed in 1939, based on the previous 'Burgess concentric model', stating that cities are formatted in wedges extending from the centre. These are developed along transport lines, zones are developed to accommodate residential regions and industries. The land is divided into sections of

⁹ Monica Rohr, 'The Divide: Income inequality in America's most economically segregated big city', *Houston Chronicle*, April 2016.

¹⁰ Michael O. Emerson, Jenifer Bratter, Junia Howell, P. Wilner Jeanty, and Mike Cline, 'Houston region grows more racially/ethnically diverse, with small declines in segregation', *Kinder Institute for Urban Research*.

¹¹ Leah Binkovtz, 'The Third Ward fight's to manage gentrification', *Houston Chronicle*, May 2016.

¹² Sarah Gates, 'Houston surpasses New York and Los Angeles as the 'Most Diverse in Nation'', *Huffpost*, Mar 2012.

¹³ US Census Bureau, 'Race and Ethnicity in Houston, Texas', *Statistical Atlas*, April 2015.

¹⁴ Stephen Klineberg 'Houston, Zoning and the New Donut Model', *Not of it*, September 2014.

economic wealth, the upper class housing found in a distinctively different direction (East side) than the lower class. This is due to the ability to afford better accommodation secluding them from deprived and dilapidated infrastructure near the inner city.¹⁵ The model appeared more appropriate for Houston due to the strip of upper class housing which aligns with the pattern

demonstrated in Figure 1.5 and Figure 1.6.

The housing conditions are considerably improved, and is often occupied by factory worker

It is often this region which experiences gentrification, hence attracting wealthier families

Occupies larger houses, many of which are detached for wealthier families

Residential facilities such as parks, gardens and playgrounds are prevalent, amenities not noticeable in the other zones

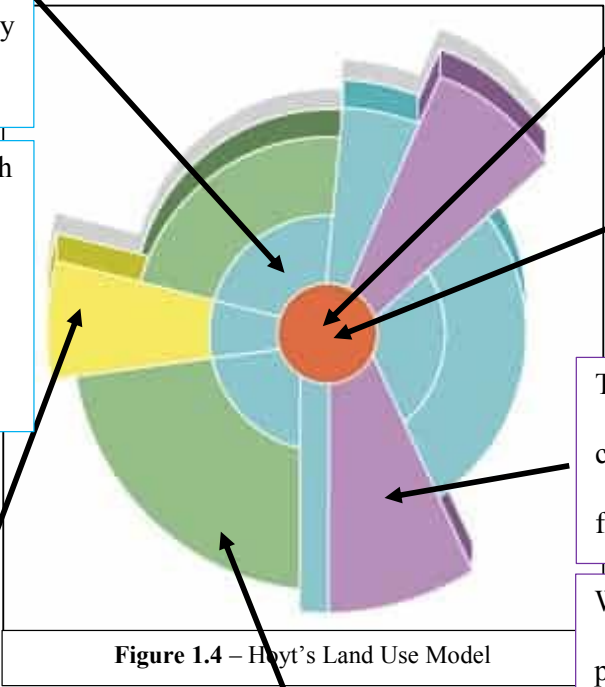
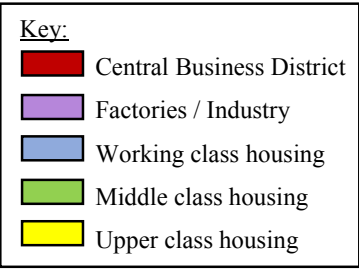


Figure 1.4 – Hoyt's Land Use Model

The innermost region, the location of the central business district. An agglomeration of business facilities, attributed to the strong transport networks which converge at the centre

Due to the high land value, the buildings are noticeably high-rise and residential areas are negligible

The region which surrounds the CBD is considerably 'decayed' due to historic factories and tenements

With the previous occupants being the poorest with lowest quality housing

This is located farthest from the centre. This region is for the highest incomes who can afford the longest commute and largest settlements

As a result there are lower population densities and large facilities such as shopping malls

Like all models, this representation is a simplification of reality. The Hoyt model is limited by its simplicity and having been developed nearly 100 years ago, hence the ideas can be outdated. With

¹⁵ 'Hoyt Sector Model: AP Human Geography Crash Course', *Albert*, March 2017.

advancements in technology and the ability to commute, particularly in Houston, people are prominent in the suburbs. Gentrification has also altered inner regions, transforming the landscape and attracting wealthier occupants. However, it is a useful initial impression of the divide within cities.

Choropleth Map showing average income of neighbourhoods in Houston¹⁶

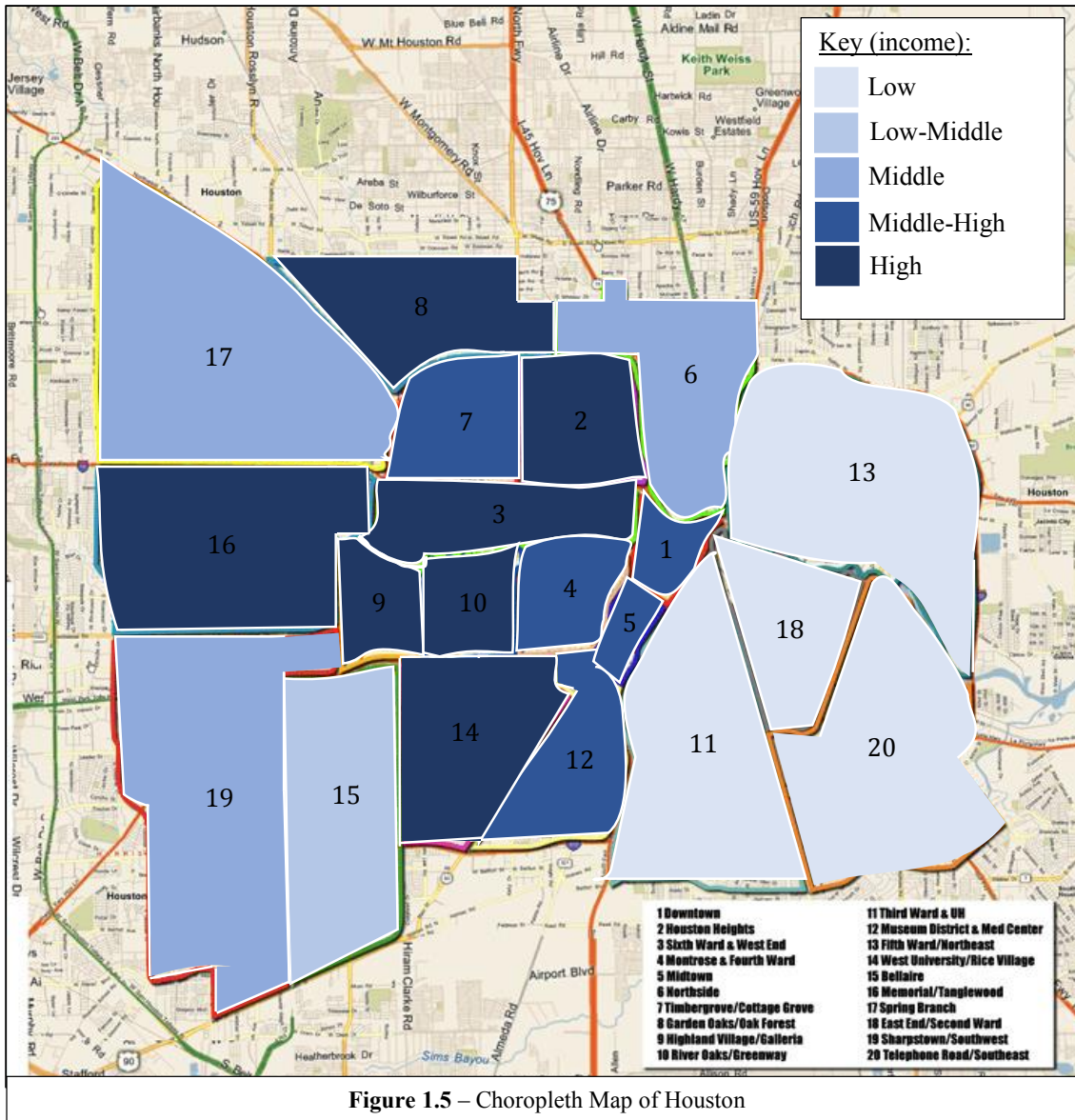


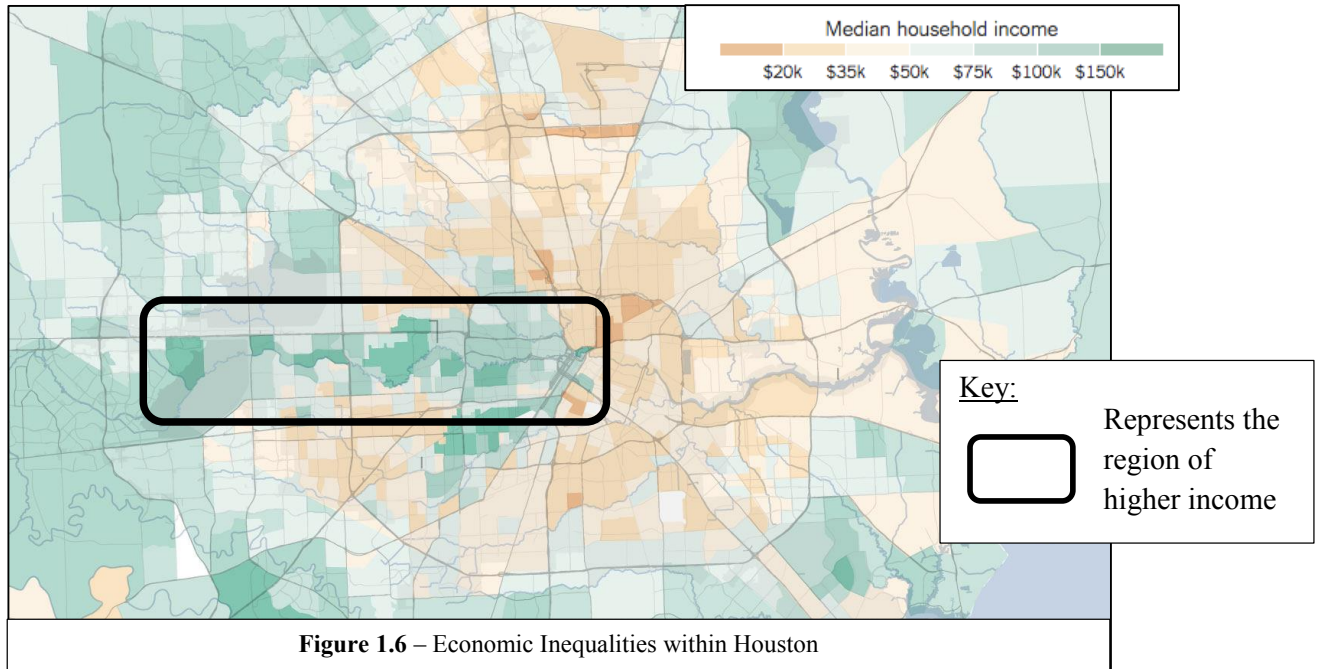
Figure 1.5 – Choropleth Map of Houston

Figure 1.5 demonstrates that near the eastern side of Houston, there are predominantly lower income households. This is in contrast to the regions on the western side, where along the I10 there is a region of high income. Industries were located near the East, due to proximity to the ports. These industries created

¹⁶ Image from: <https://s-media-cache-ak0.pinimg.com/originals/ef/ca/5d/efca5d9989587fcd152ff156d11c6c7.jpg>

pollution, which due to the prevailing easterly winds, blew air pollution towards the East. This decreases the desirability of the area and wealthier residents would accumulate towards the West where the conditions are better.¹⁷

Houston's Economic Divide



The income inequalities that exist within Houston can be attributed to the rapid growth experienced by the city. The growth has reduced the number of middle class enclaves across the United States. Houston is rapidly progressing towards this divide, according to Stephen Klineberg, a Rice University sociologist. He stated that ‘the more income inequality there is, the more the upper classes live in a different world and in a different reality than the poor kids.’¹⁸

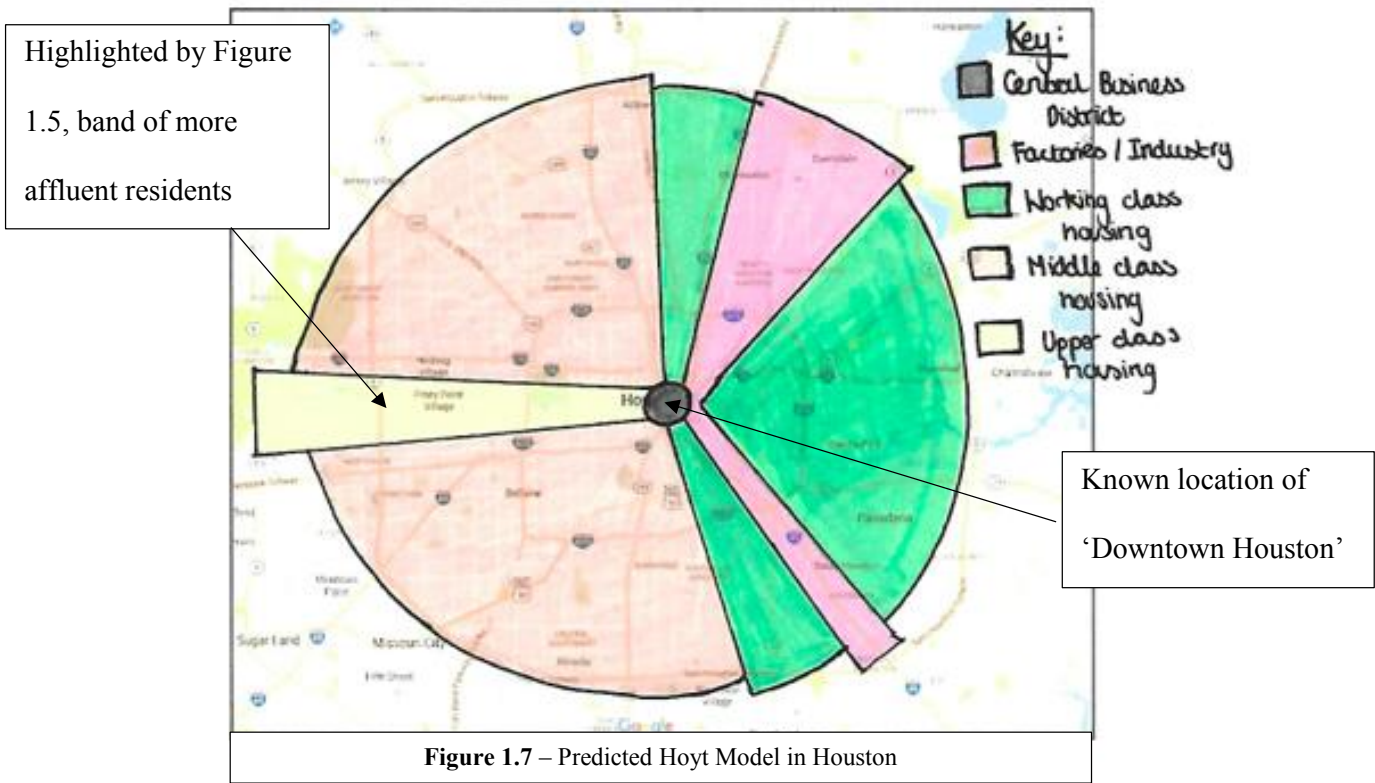
After World War II, a baby boom occurred and manufacturing rapidly developed. Factory workers lived near college professors, both with very similar incomes.¹⁹ This however is no longer the case. Currently, a divide highlighted by Figure 1.6 exists, separating the more affluent individuals from the poorer in society. As presented by the image, there is a clear band of wealthier occupants stretching from Downtown to the West of Houston. This provides more evidence for the similarities between Houston and the Hoyt Model.

¹⁷ Dan Zambonini, ‘Why are the East of Cities usually poorer?’ *The Januarist*, May 2010.

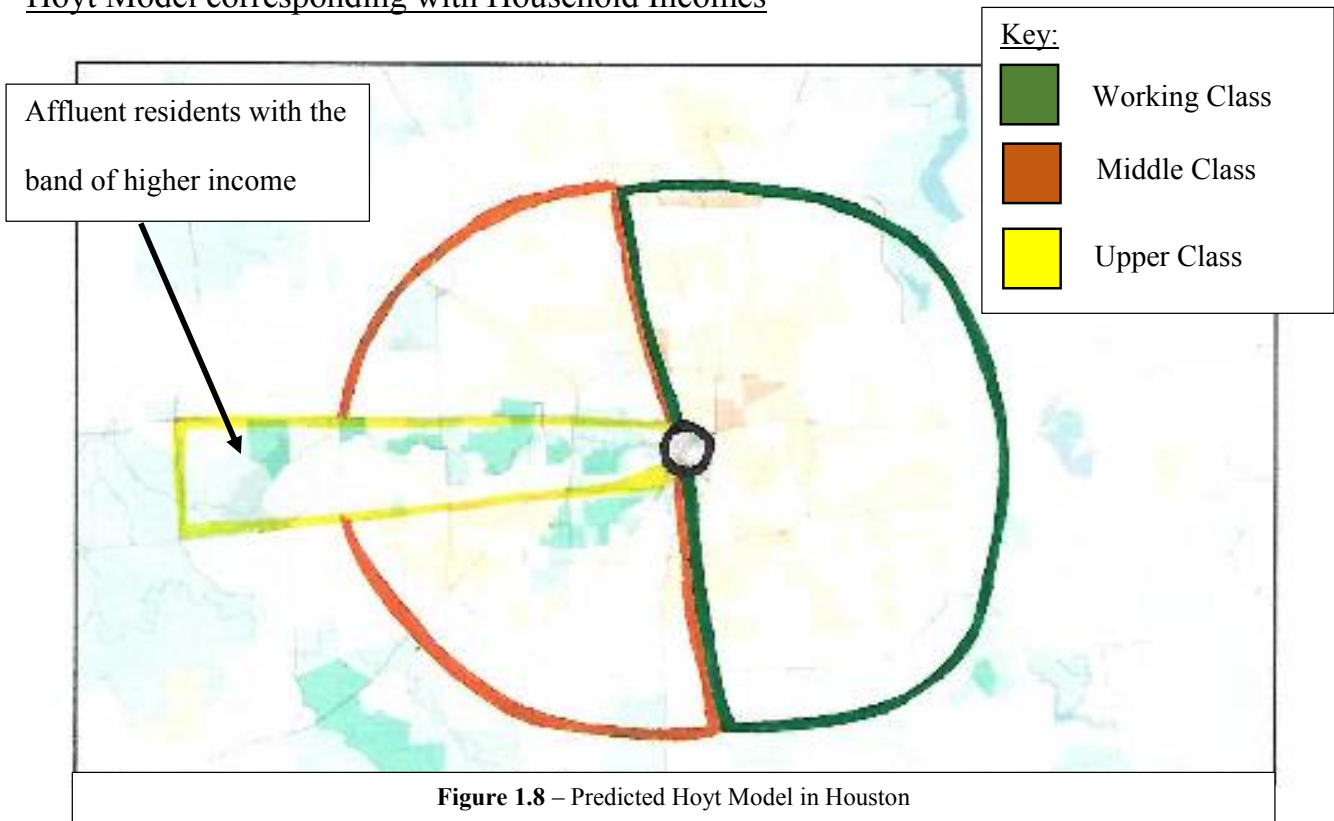
¹⁸ Mike Tolson, ‘Segregation by income in Houston is among the starkest in U.S.’, *Chron*, August 2012.

¹⁹ Mike Tolson, ‘Segregation by income in Houston is among the starkest in U.S.’, *Chron*, August 2012.

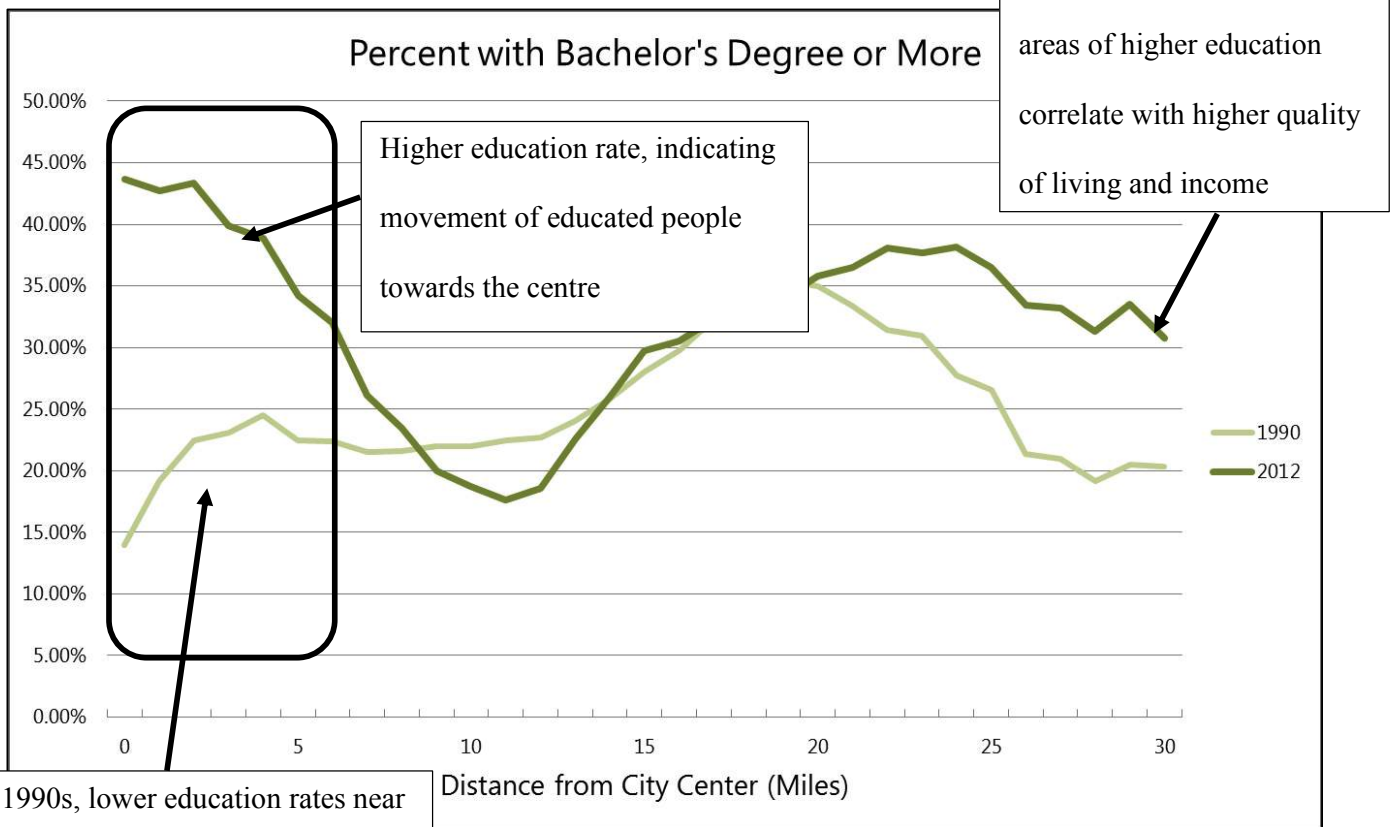
Image showing the Hoyt Model in Houston



Hoyt Model corresponding with Household Incomes



'Doughnut' Effect



Aligns with Figure 1.10, areas of higher education correlate with higher quality of living and income

Higher education rate, indicating movement of educated people towards the centre

In 1990s, lower education rates near the centre of the city suggesting poorer quality of housing

Figure 1.9 – Percentage of residents with Bachelor's Degree or More in Houston

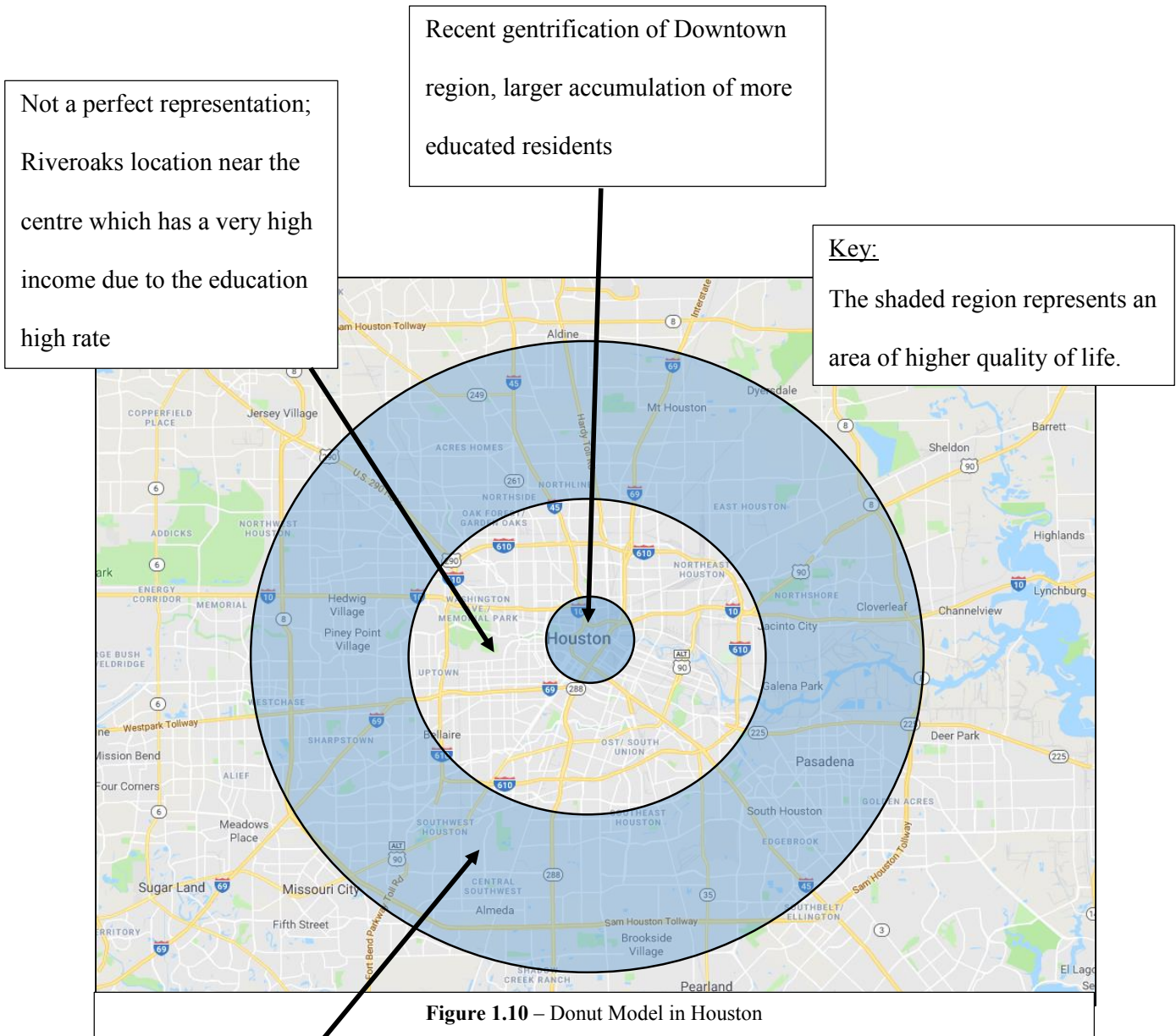
Figure 1.9 demonstrates data obtained about Houston. In the 1990s, Houston replicated the 'Doughnut' effect, referring to the physical shape of development where the city centre becomes 'hollow' as people relocate towards the suburbs, 'suburbanisation'. This process is attributed to residents finding more affordable housing towards the outskirts and, as the population declines in the centre, the businesses follow the movement of people towards the edge. This has enhanced segregation leading to more affluent residences on the periphery, whereas inner regions are subject to poverty.²⁰

Arguably, Houston has begun to exhibit this paradigm shift towards the 'New Doughnut Model' (Figure 1.10) with the gentrification of the downtown region. This is evidenced by the replacement of facilities such as Minute Maid Park replaced the Astrodome, demonstrated by the higher number of educated individuals in 2012 towards the city centre.²¹

²⁰ Martin, 'Doughnut Effect', *Cleverism*, June 2015

²¹ Stephen Klineberg 'Houston, Zoning and the New Donut Model', *Not of it*, September 2014

'New Doughnut Effect' in Houston



Investigation

To determine the patterns of segregation within Houston, I drew a transect line from the East to West. Along this line I selected five equidistant neighbourhoods (Figure 2.2), each of which I carried out the following surveys, housing, environmental and amenities.

Transect Line across cities

The model below suggests the layout of a British city moving from East to West. There is clear evidence of varying characteristics in the housing. I used this as a basis to choose the location of my five neighbourhoods.

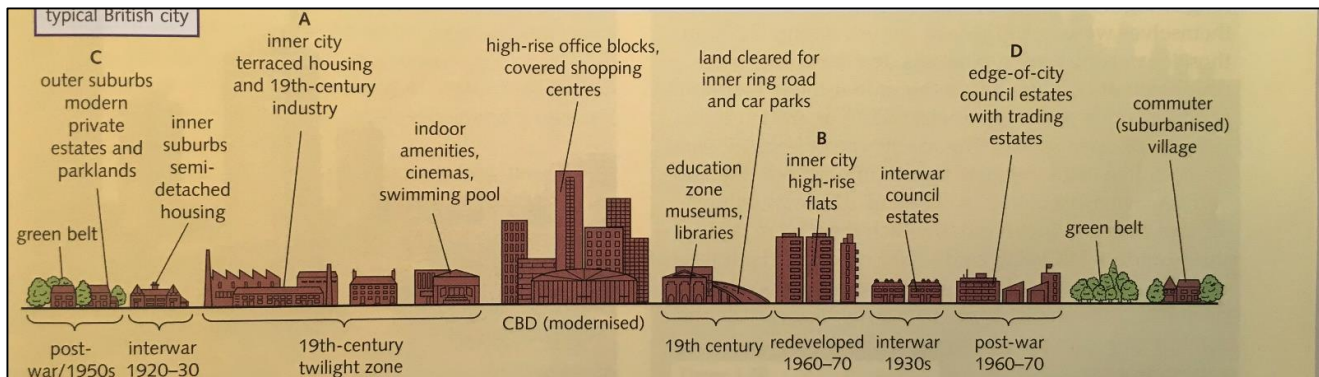
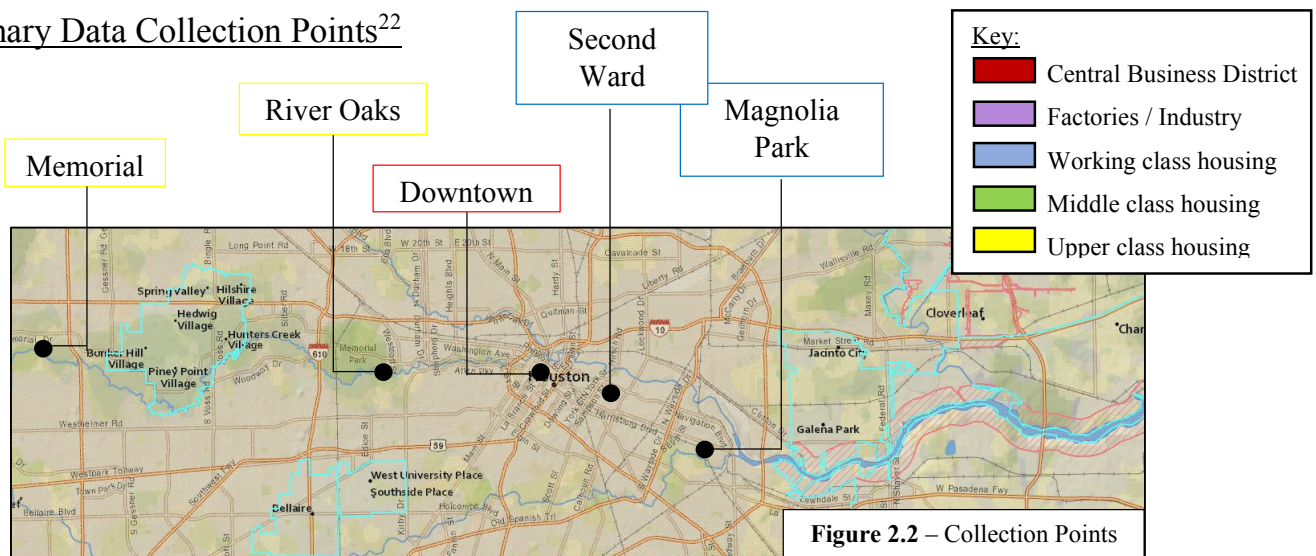


Figure 2.1 – Transect Line in a British City

Primary Data Collection Points²²



At each of these points data was collected to compare the characteristics within each region to develop ideas about the separation of communities in Houston. Indicators include; level of development,

²² Image from; <http://mycity.houstontx.gov/houstonmapviewer/>

facilities provided, education rate, income of residents, standard of living and crime in the region. The results of these factors impacts quality of living hence the people who live in the region.

Measurement of Segregation:

Indicator	Ways to Measure
Physical Indicators	Quality of Housing
	Amenities Provided
	Incidence of Crime
	Quality of Environment (Vandalism / Graffiti / Dereliction)
Social Indicators	Standards of Education
Economic Indicators	Unemployment
	Levels of income

Key:

Primary Data

Secondary Data

Figure 2.3 – Collection of Data

Surveys

Survey	To assess the five neighbourhoods, surveys were created in order to allow effective comparisons and judgements to determine the level of urban deprivation and development.
Housing Quality	Comparisons of the quality of the infrastructure highlight the level of development within the region. More money spent on improving the quality of buildings illustrates the income of households.
Environmental Quality	The environmental survey measures the quality of the environment with regions with a lower environmental quality being more deprived, and higher results indicating a neighbourhood of more development. The scale is bi-polar with both negative and positive assessments, however it is highly subjective as it is based on solely the observer's opinion.
Amenity Survey	The survey indicates the facilities which are present in the region, indicating the degree of development within the areas.

Housing Quality

Positive values indicate more developed and well-maintained infrastructure

	-3	-2	-1	0	1	2	3
Size of building							
Type of building material							
Extra amenities (pools)							
Fencing							
Doors							
Conditions of garden							
Proximity to neighbouring houses							
TOTAL	/21						

An evaluation was made based on certain criteria, such as well-kept exteriors, with 3 being high quality and -3 low quality

Environmental Survey

		-3	-2	-1	0	1	2	3	
Paving and Road	Potholes and need for resurfacing								Clean roads, no potholes
Litter	Rubbish abundant (trash everywhere)								No litter is seen in the site
Dereliction	Dilapidated, worn out buildings								Attractive buildings, no cracks
Street Furniture	Worn out and tired looking furniture.								Attractive art sculptures or benches
Advertisements	Abundant advertising and billboards								No advertisements
Air Pollution	Unpleasant odours, cloudy air from car exhausts								Clean, fresh air and no odours (pleasant smells)
Noise	Frequent loud disturbing noises								No noise, pleasant atmosphere
Landscape / Vegetation	No greenery or vegetation								Large areas of open spaces and greenery
Traffic	High level of vehicles in the streets								Limited cars on the roads
Graffiti and Vandalism	Signs of deliberate damage from vandalism								No evidence of vandalism
Crowdedness	Crowded areas, densely populated								Large areas of space with limited people
TOTAL		/33							

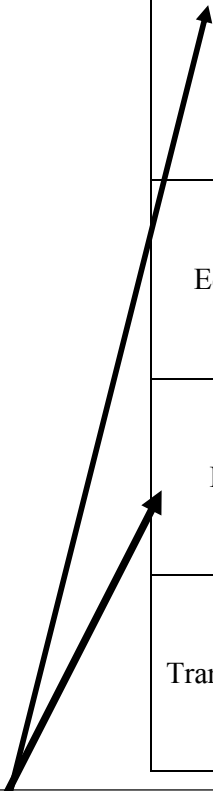
Figure 2.4 – House Quality Survey

The survey will demonstrate the variability across Houston, how it is separated into regions which vary as to quality of the surrounding.

Amenity Survey

More amenities suggests a more developed area, which is economically stable and attracts more investment to the construction of services.

Type of Amenity		Is it present in the region?	Quality of the Facilities
Retail	Bakery		
	Grocery Store		
	Hairdressers		
Services	Bank		
	Restaurants and Bars		
	Hospital		
	Church		
	Post Office		
	Library		
Education	Nursery		
	Primary		
	Secondary		
Leisure	Swimming Pool		
	Gym		
	Parks		
Transportation	Bus Stops		
	Train Station		
	Bicycle Stations		



Separated into sub-categories to show the type of buildings occupying the regions

Figure 2.5 – Amenity Survey

Figure 2.6 – Questionnaires

Questionnaires

Name of Individual	
Age	
Ethnicity	

1.	How far away do you live?
2.	How many cars do you own?
3.	How long have you been living in this area? Have you moved frequently?
4.	Do you like this area? If no specify why?

Please indicate with a cross, the most applicable answer to the statements listed in the left-hand column.

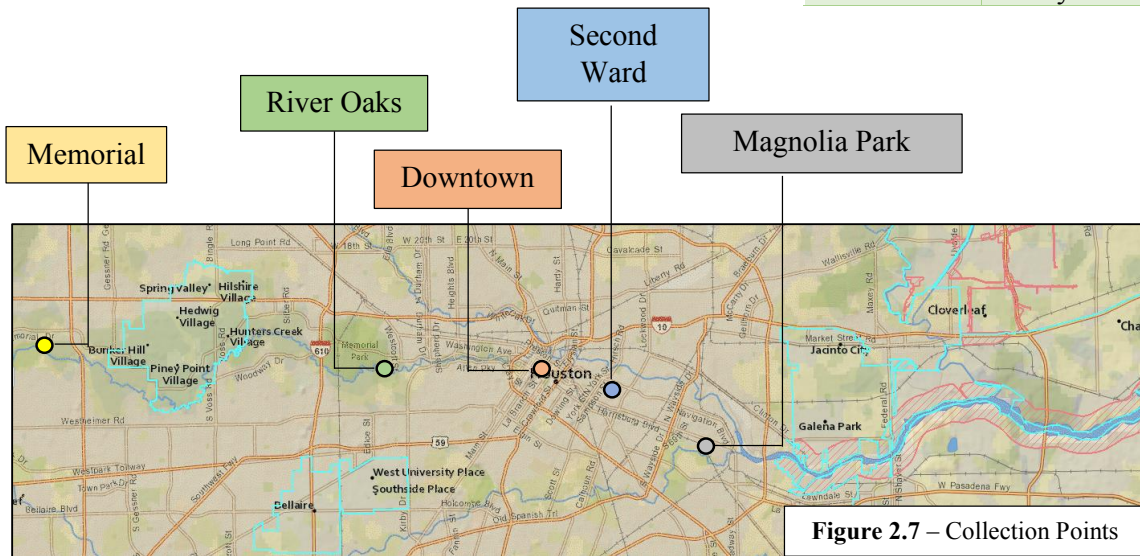
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The area is well-maintained, clean with a pleasant atmosphere					
The community is open and friendly					
The services provided are efficient					
Stores are priced well, and food is easily affordable					
Transportation is accessible, and easy to use					
The schools in the neighbourhood are of good quality					

Dates, Time and Conditions at Sites

All the surveys were carried out in the following locations, at the given time and conditions. These factors could have an effect on the data obtained.

Location	Memorial
Date	September 10 th 2017
Time	5:37 pm
Conditions	Sunny

Location	River Oaks
Date	September 10 th 2017
Time	3:15 pm
Conditions	Sunny



Location	Downtown
Date	September 10 th 2017
Time	1:32 pm
Conditions	Sunny

Location	Second Ward
Date	September 10 th 2017
Time	11:48 am
Conditions	Sunny

Location	Magnolia Park
Date	September 10 th 2017
Time	9:30 am
Conditions	Sunny

Data Presentation

Physical Indicator: Quality of Housing

Magnolia Park

Located near the East end of town, Magnolia Park is one of the oldest Hispanic neighbourhoods.²³ Historically the Hispanics fled to the region after the Mexican revolution. 58% are unemployed or not in the labour force with nearly 1/3 of the population under the poverty line.²⁴

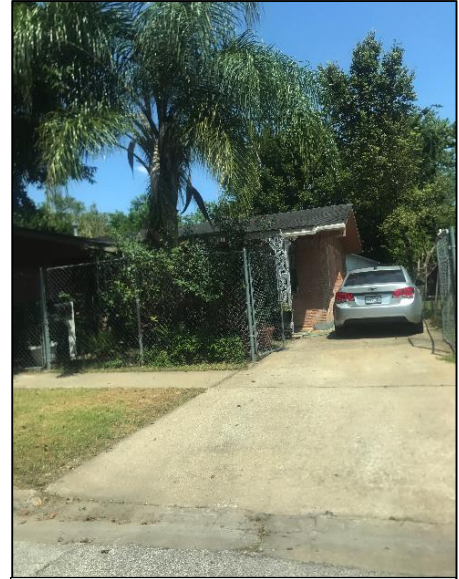


Figure 3.1 – Fencing Quality

With a community of lower income residents, infrastructure is constructed with poor materials (Figure 3.4)

Distinctively this region has a lower environmental quality, the buildings are run down and poorly maintained

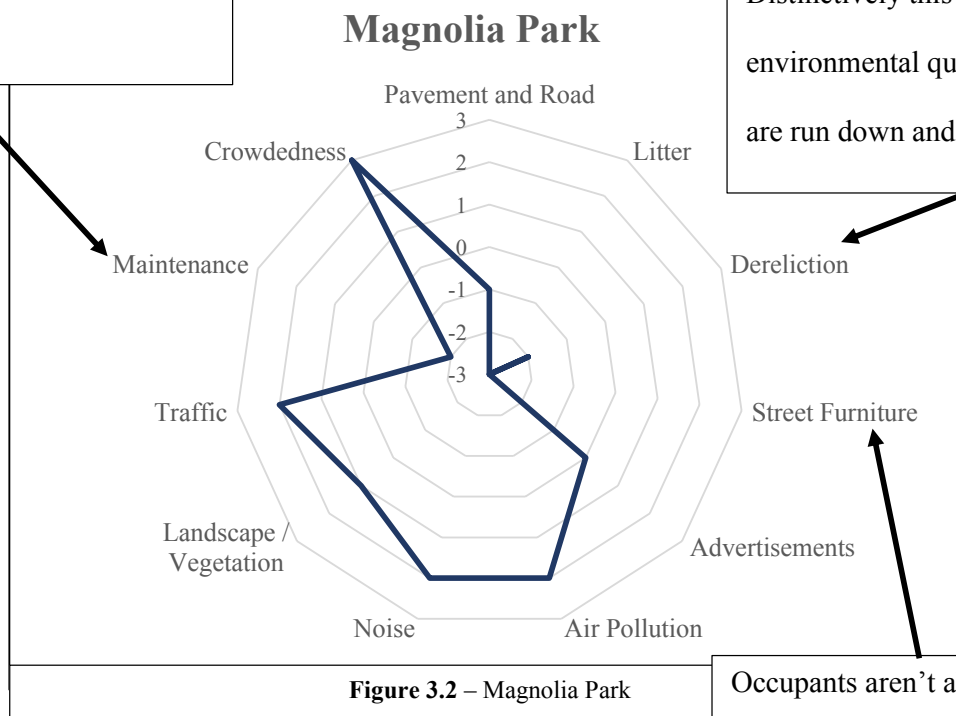


Figure 3.2 – Magnolia Park

Occupants aren't able to redevelop the area and un-kept street furniture scatters the streets

The area rich with heritage leads to settlements stagnant in development, holding onto their past, particularly among the older residents.

²³ Diana J. Kleiner, 'Magnolia Park', *Texas State Historical Association*, March 2018.

²⁴ 'Magnolia Park', *Point 2 Homes*, 2014.

Feature unique to Houston, most houses have a reasonable quality car

Necessary for transportation

Discarded furniture could be due to Hurricane Harvey

Vegetation looks overgrown, brown as not watered

Openings to provide an area for cool air to enter



Figure 3.3 – Street Furniture



Fence is broken – Limited security measures and protection

Noticeable rubbish strewn across the garden → Lack of cleanliness

Weak housing material (wood) – Not a sturdy and enduring structure

Poorly maintained garden – Grass overgrown

Figure 3.4 – Housing Quality

Second Ward

The region is comprised of Mexican-Americans after the 'white flight' following World War II. After the 1980s the area became increasingly gentrified, drawing residents close to Downtown.

Tall fences to protect the houses

Overgrown grass which now is prominent on the pathway

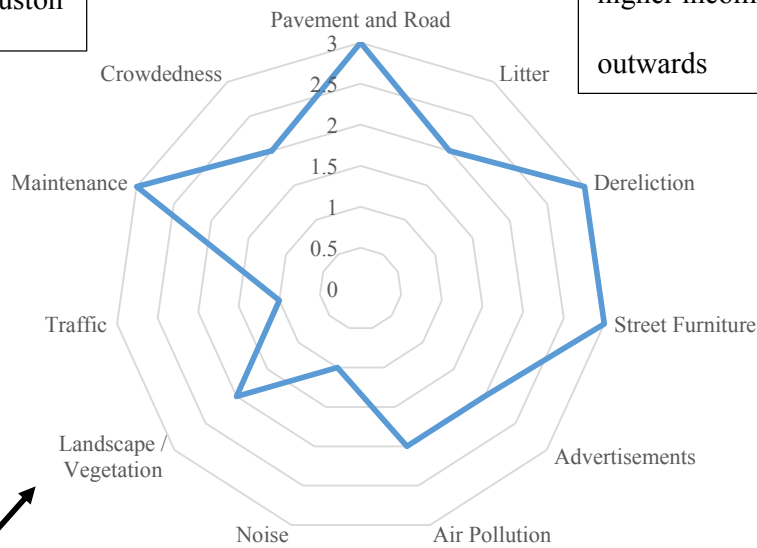


Figure 3.5 – Fencing Quality

Located east of highway 59, holding historic ties being one of the four oldest wards in Houston

Second Ward

In the 1960s the area experienced a period of declining residents, where higher income residents moved outwards



The area experienced an increasing crime rate and unemployment

Figure 3.6 – Second Ward

Previously a thriving manufacturing hub, however it has since deteriorated as the abundance of jobs declined. Consequently, this has decreased the neighbourhood businesses, as the area became more prevalent with lower income residents.



Figure 3.7 – House Design

Basic design of the house,
plain windows and
shutters

Door is dirty with brown
surrounding the rims

Lawn is overgrown,
indicating low maintenance
which hasn't been cut

Basic materials used to
construct the house e.g.
wood

Trees scattered across the
neighbourhoods, improve
aesthetics

Plain, simple doors with no
intricate designing

Pavements covered by grass →
indicates limited caretaking of
property



Figure 3.8 – Lawn

Downtown

Located near the geographic centre of Houston.

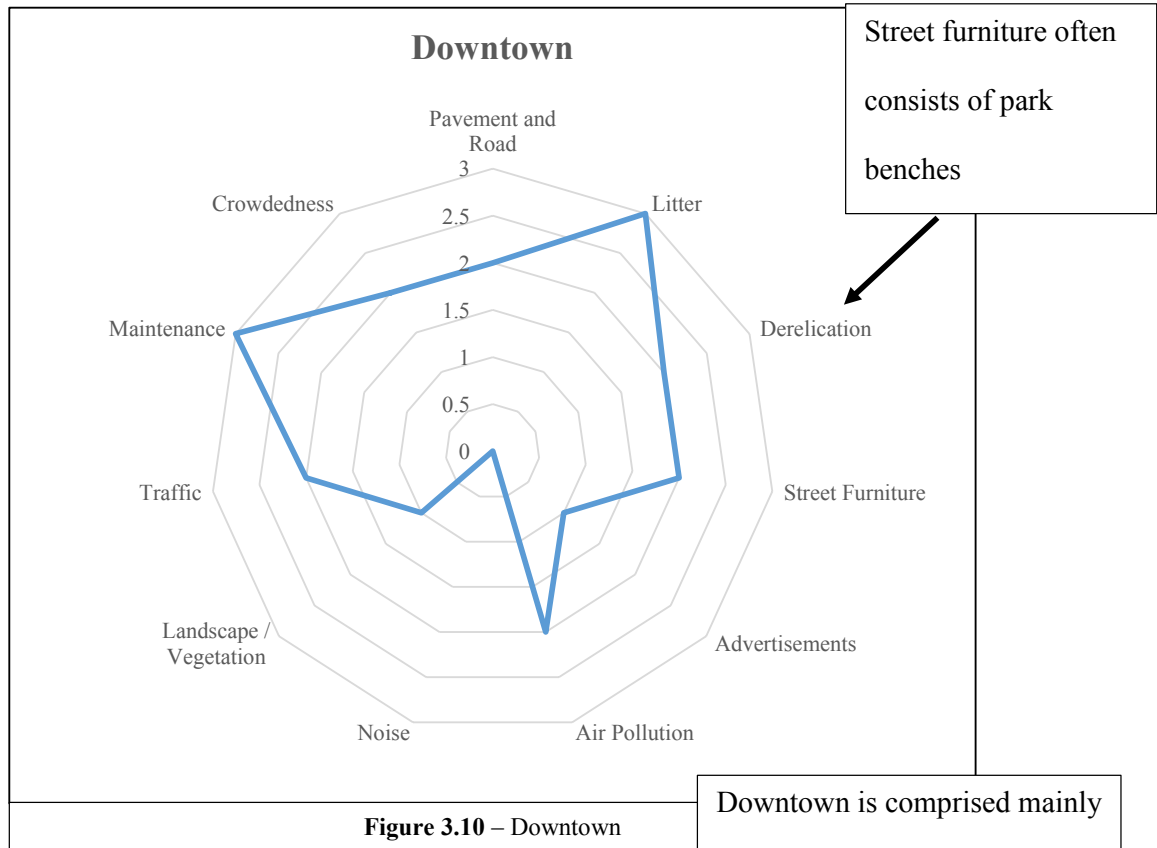
Due to the high land values, the buildings extend upwards to decrease the cost per square metre

The accommodation tends to be primarily apartments to reduce the land area occupied.



Figure 3.9– Streets in Downtown

No litter scatters the street



Street furniture often consists of park benches

Downtown is comprised mainly of office buildings, therefore the housing accommodates office workers.



Good accessibility, encouraging wealthier residents to locate here

Crowded centre, due to high number of office workers → accumulating noise

Extra amenities provided such as pools and gym

Figure 3.11 – Apartments

Due to expensive land value the area is comprised predominantly of apartments

Modern buildings extended upwards to maximise area occupied

Pristine, clean appearance covered with windows



Figure 3.12 – High-rises

River Oaks

Located near the West, close proximity to the CBD. Real estate values can reach as high as \$20 million, named the as most expensive neighbourhood in Houston.

Supplies 'high-fashion' luxuries targeted towards the high-income residents



Figure 3.13 – River Oaks Shopping Malls

The immaculate gardens and the pristine houses show connotations of cleanliness and higher income residents

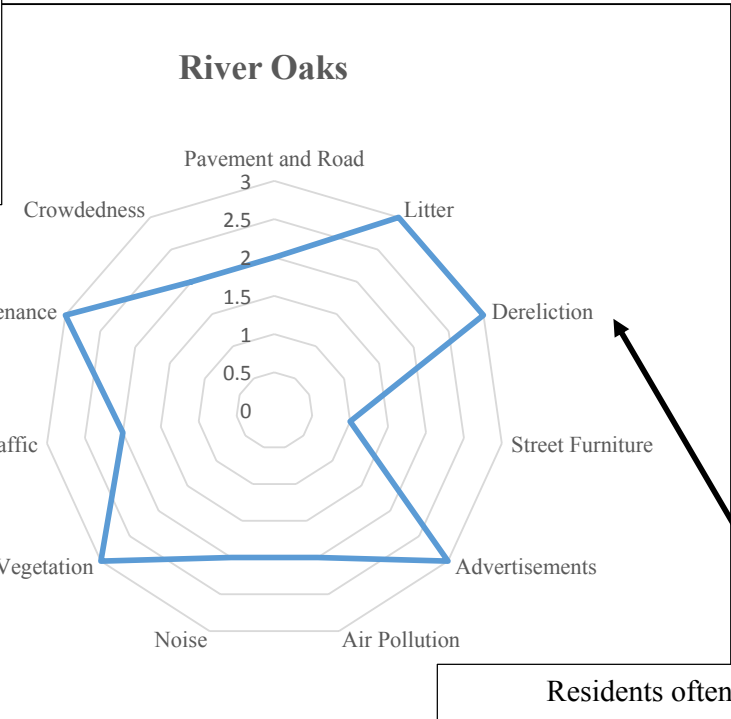


Figure 3.14 – River Oaks

The well-kept gardens demonstrate the importance of presentation, appearance and reputation within the community

Residents often pay for gardeners and cleaners who assist in the maintenance of the properties. This is an essential aspect for the community, similar to Downtown as the region improves its quality to attract offices and companies to locate to the region.



Figure 3.15 – Fencing

Fencing – Increased security, sturdy and ornate patterns

No evidence of litter or discarded furniture

Double storey houses, typically made of brick

Groomed lawns and cropped trees, improving surrounding aesthetics

Immaculate lawns – Money is invested into maintenance of the house and gardens

Properties are high in value due to investment in the area to provide accommodation for office workers commuting to Downtown



Figure 3.16 – River Oaks House

Memorial

The median house value is \$500,000. Due to its prime location near the biggest hubs (Energy Corridor and Downtown Houston), the location is appealing.



Figure 3.17 – Lawn Quality

The housing within memorial is targeted towards higher income residents, with large land spaces given for the houses

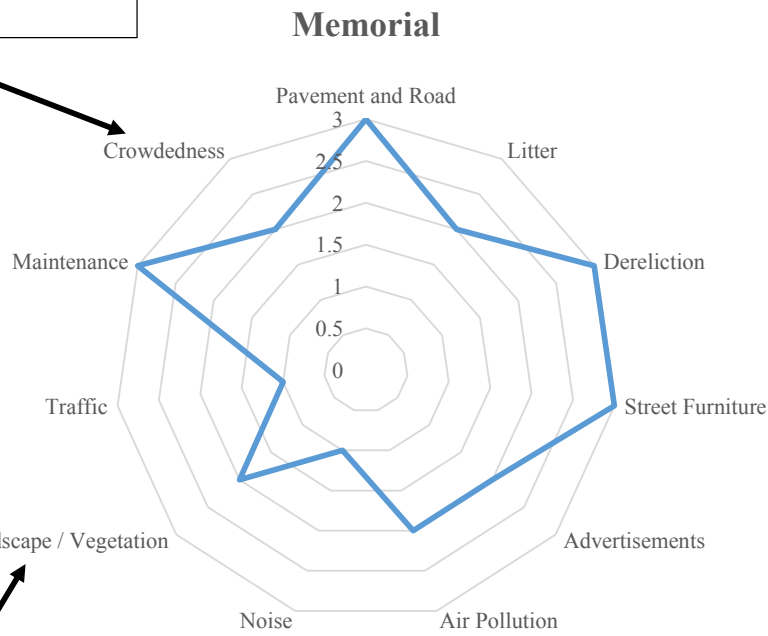


Figure 3.18 – Memorial

Located west of Downtown Houston, it is known for its forested communities



Large land space, high percentage of open space

Clean pavements, grass is not evident on paths

Immaculate lawns, well-maintained

Figure 3.19 – Pavements



Larger size of housing (at least two floors)

Double doors with arch ways, and intricate doorways

Figure 3.20 – Lawn Quality

Graphs to show the change in house quality

Transect Line from East to West of Houston

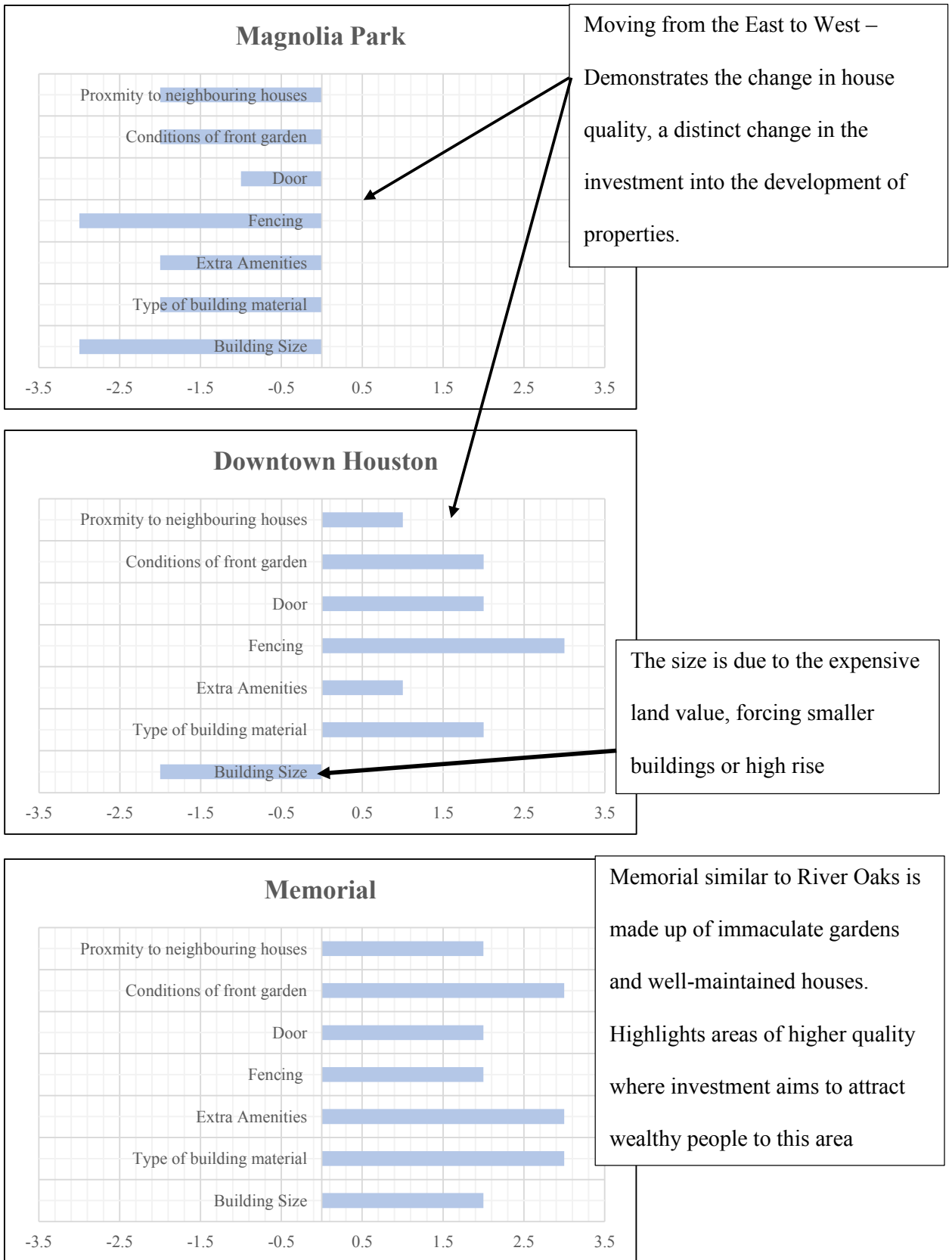


Figure 3.21 – House Quality

Physical Indicator: Amenities Provided

Land-Use Mapping

The facilities provided in each region indicate the level of development of the area. As demonstrated by Magnolia Park, whilst the dominant land-use in the model is residential, the services provided reflect the community in the region. Shown in Figure 3.23 'El Petate' a Cuban restaurant aimed towards the predominantly Hispanic residents and the 'Memo Record Shop' a popular retailer known for the Latino music which it sells. These buildings highlight how the community of Houston is becoming segregated where shops are targeting certain clientele.

Additionally in the Second Ward, the services provided such as Garcia's Party Store reiterates the influx of Hispanic's in these regions, and Tire companies demonstrate the percentage of blue collar jobs and therefore retail is targeted towards serving their needs.

Selected Areas Chosen within the zones for the Land-Use Mapping

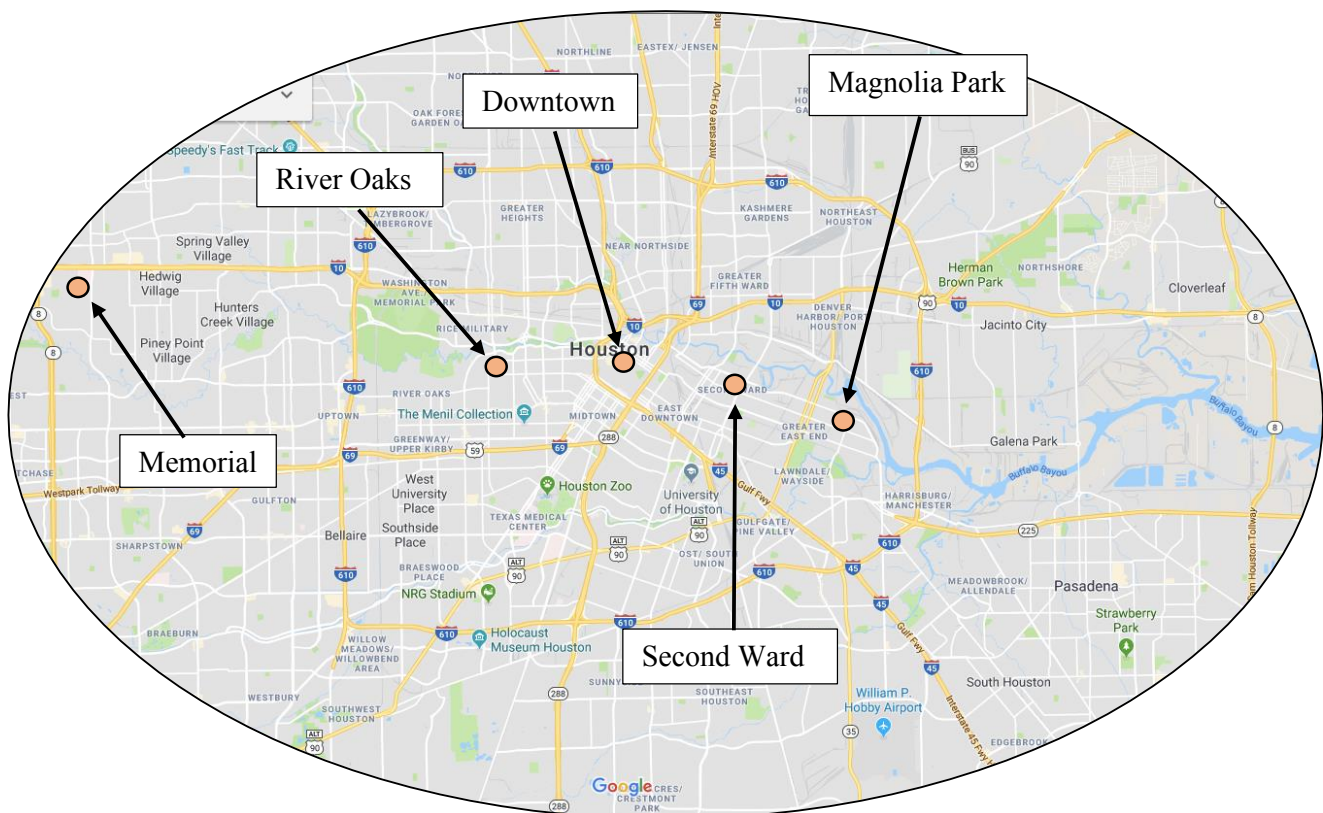
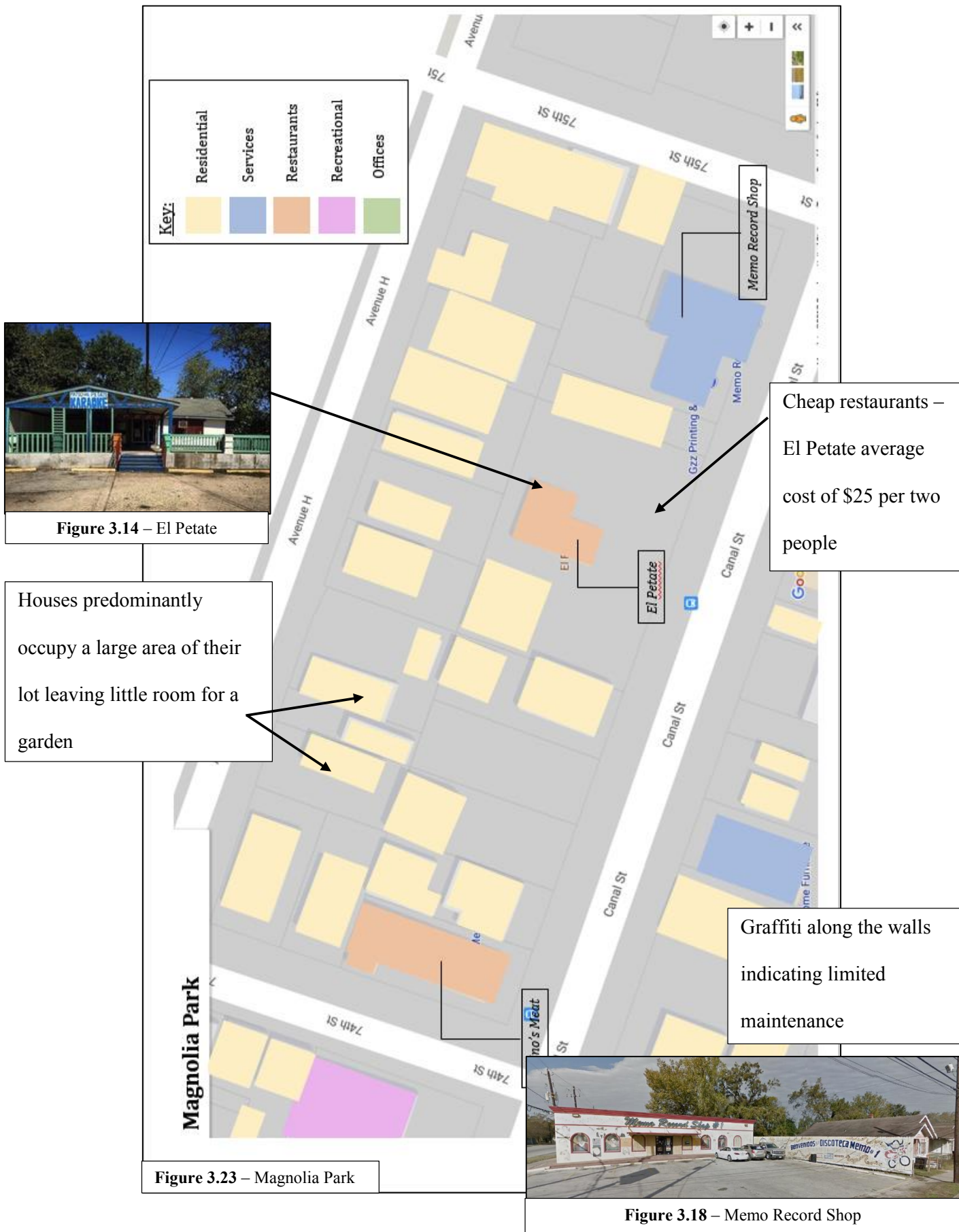
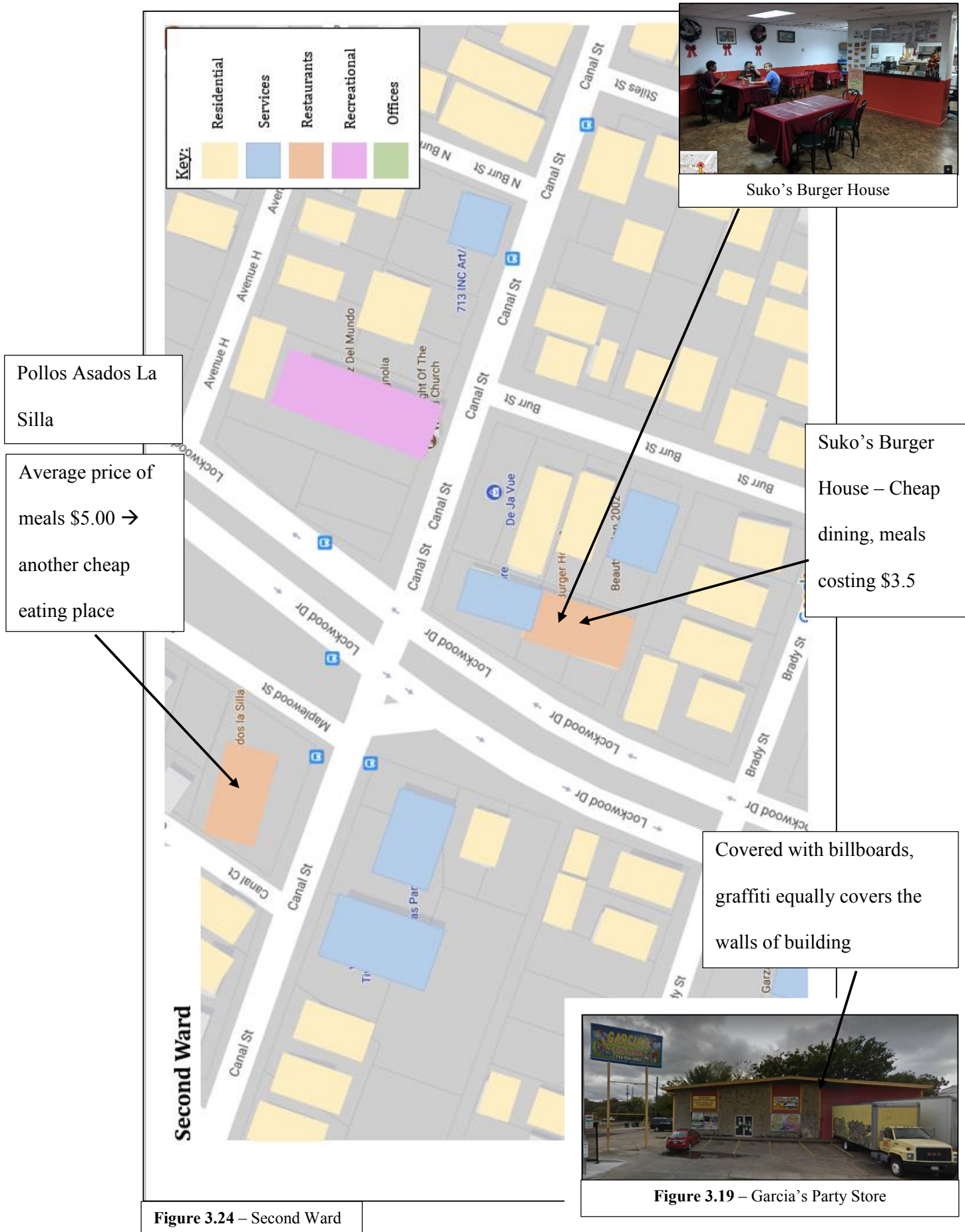


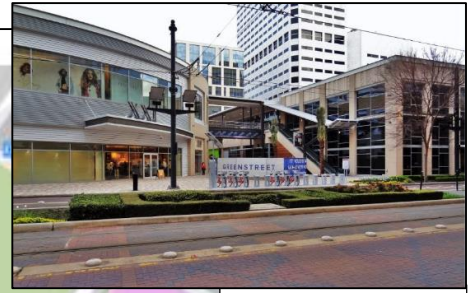
Figure 3.22 – Random Locations





Hyatt Regency Houston

– Cost of accommodation \$197, a rating of 5 stars



Forever 21 – Average t-shirts cost \$10 - \$20, relatively affordable prices



Beautiful interior; money invested into attracting wealthy residents to stay in the accommodation

Figure 3.25 – Downtown

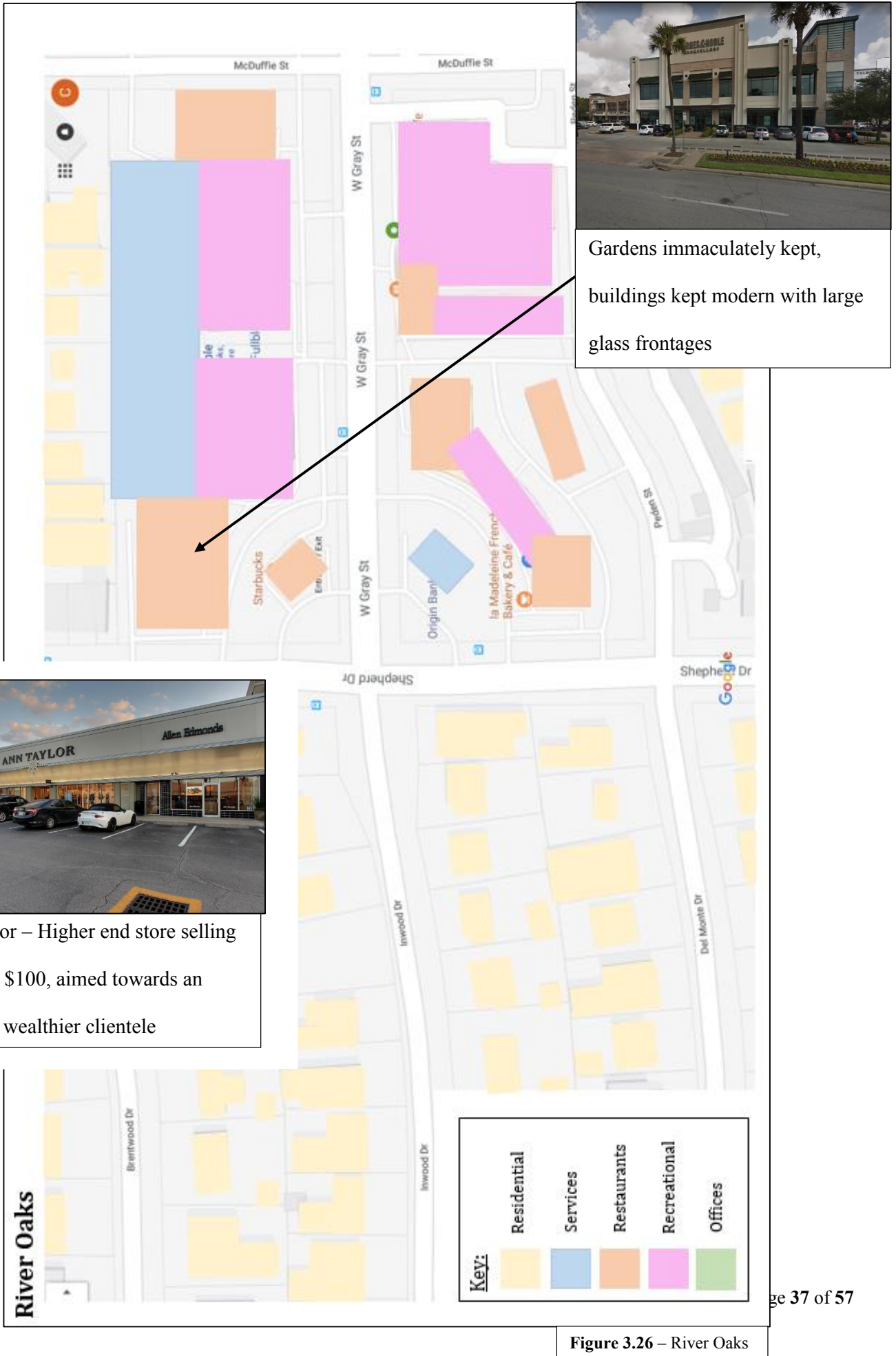
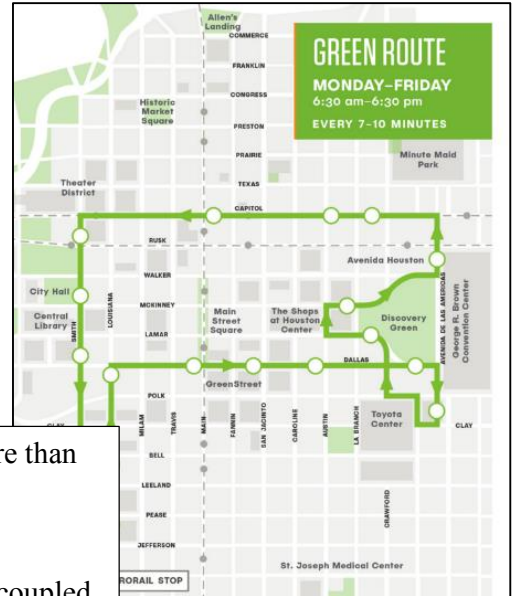
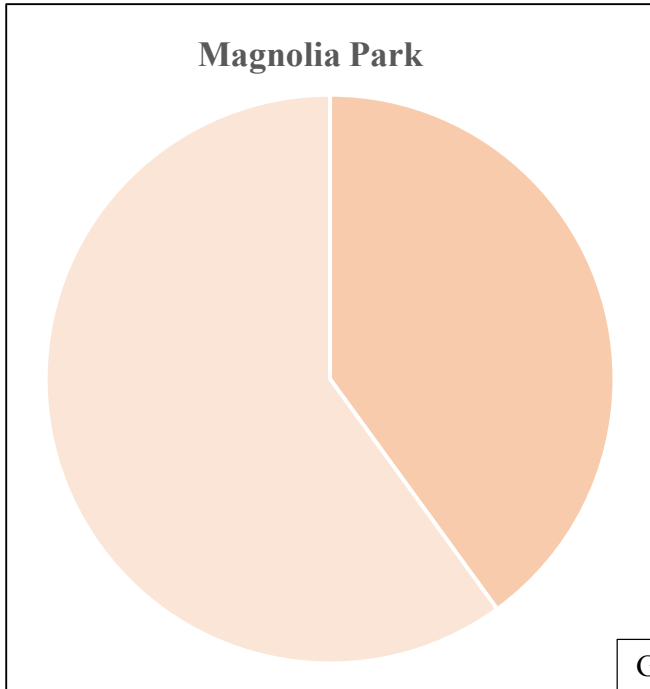


Figure 3.26 – River Oaks



Figure 3.27 – Memorial

Questionnaires – Pedestrians opinions on each location

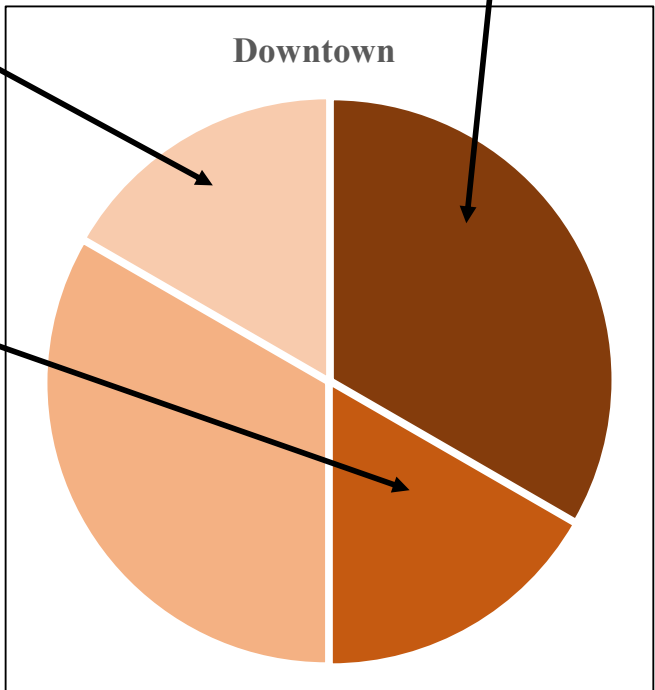


Green-link offers more than 1.34 million riders transportation which coupled with 'updated routes and lengthened hours' increases accessibility

Prices can reach \$3,295 per clothing item for women

<i>Featuring USDA Prime</i>			
FILET MIGNON*	8 oz	47	12 oz 54
PRIME NEW YORK STRIP*	14 oz		52
PRIME RIBEYE*	18 oz		55
ORGANIC PRIME NY STRIP*			MP
GRASS FED FROM STRAUSS FARMS, WI			
<i>On The Bone</i>			
FILET MIGNON*	14 oz		69
PRIME NY STRIP	20 oz		69
PRIME RIBEYE	24 oz		79
PRIME PORTERHOUSE			MP
"FOR TWO"	36 oz		

Example of a menu from "Vic and Anthony's" → demonstrating high prices of food



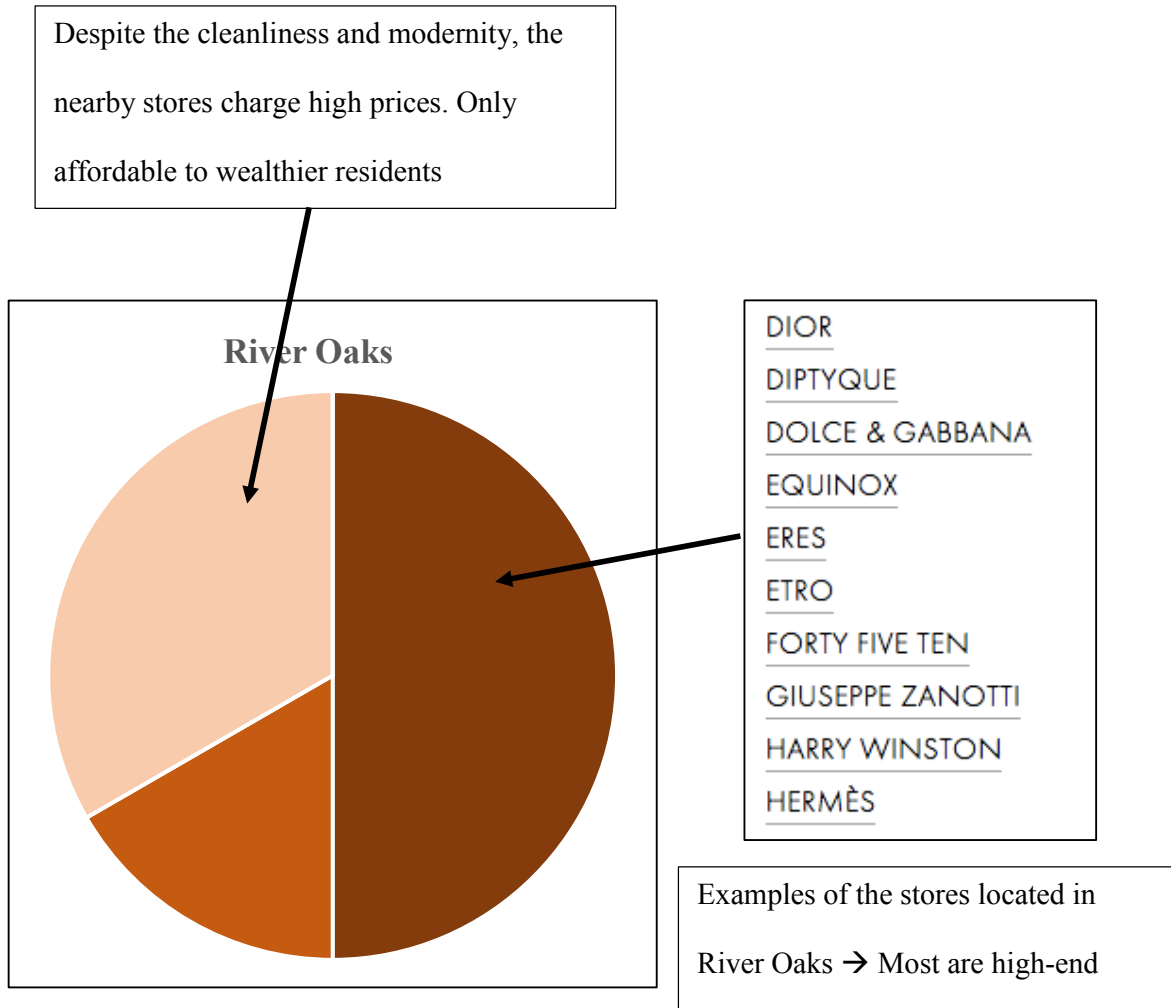


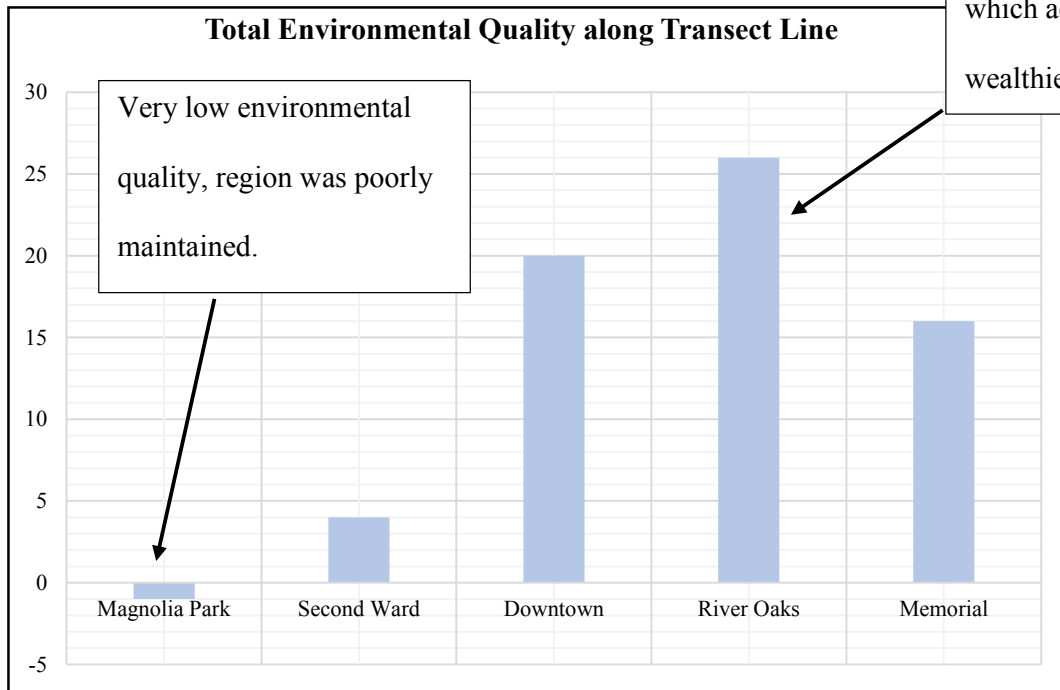
Figure 3.28 – Pie Charts from Questionnaires

Majority of answers obtained from the survey

	Magnolia Park	Downtown	River Oaks
<i>The area is well-maintained, clean with a pleasant atmosphere</i>	Strongly Disagree	Strongly Agree	Strongly Agree
<i>The community is open and friendly</i>	Strong Disagree	Agree	Agree
<i>The services provided are efficient</i>	Disagree	Agree	Strongly Agree
<i>Stores are priced well, and food is easily affordable</i>	Disagree	Strongly Disagree	Strongly Disagree
<i>Transportation is accessible, and easy to use</i>	Disagree	Strongly Agree	Agree
<i>The schools in the neighbourhood are of good quality</i>	Disagree	Agree	Strongly Agree

Physical Indicator: Environmental Quality

Survey to indicate the environmental quality in each region



Distinct improved quality at River oaks which accommodate wealthier families

Very low environmental quality, region was poorly maintained.

Figure 3.29 – Total Environmental Quality

Environmental Quality across Houston

On average River Oaks has the highest environmental quality total (26)

Traffic is consistent due to car-orientated culture

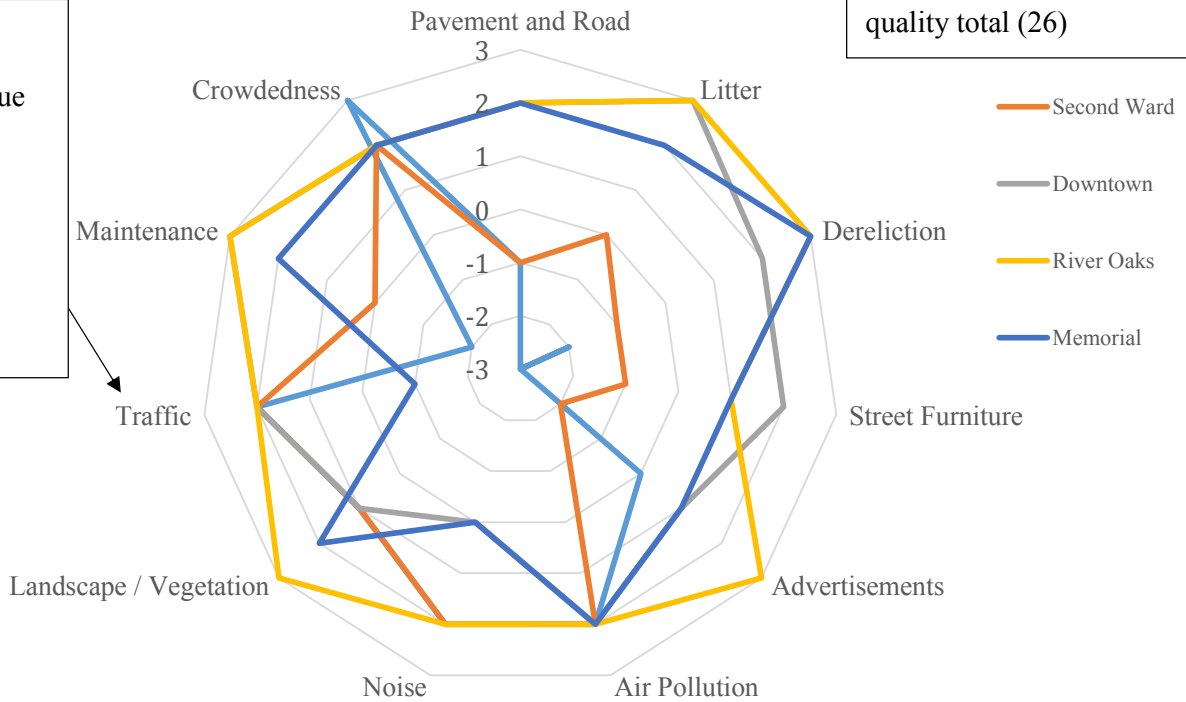


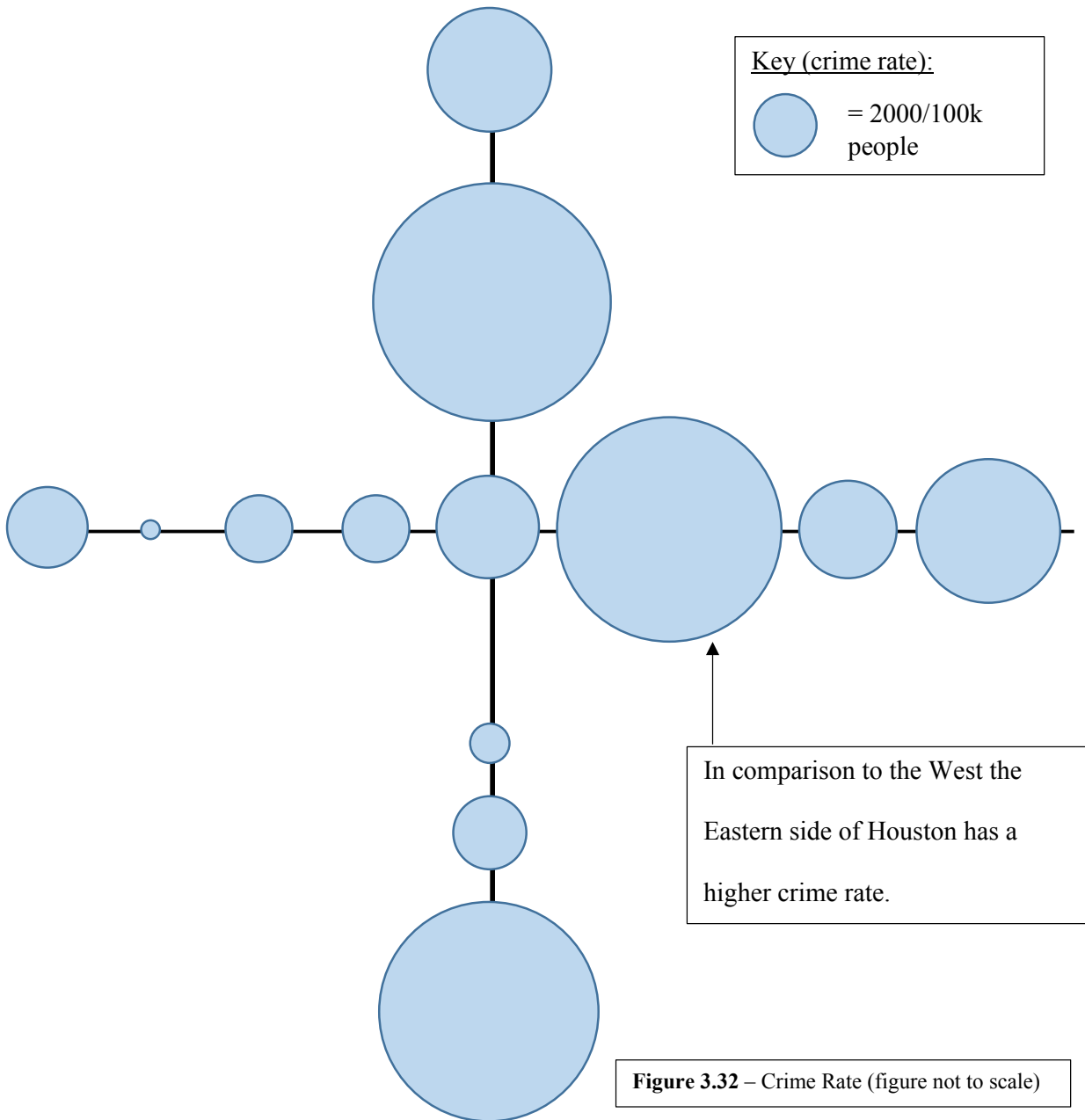
Figure 3.30 – Environmental Quality across Houston

Both Figure 3.29 and 3.30 demonstrate the inequalities between the regions. Magnolia Park is clearly urban deprived, with poorly designed fencing and unstable buildings, highlighting the stark income inequalities between regions. This can create drastic problems for the community.

Income inequalities result in an increased divide between the poor and rich sector, where those in poverty are unable to afford tuition fees reducing the number of people educated.



Physical Indicator: Crime Rate²⁵



²⁵ Data for Income, Employment, Education and Crime all obtained from <https://www.neighborhoodscout.com/tx/houston/>

Social Indicator: Level of Education

Correlation between level of income, figure 1.4, and education with a band of more educated people from Downtown along I10 West.

Improved education along the ring of Houston, demonstrates that the centre is more affected

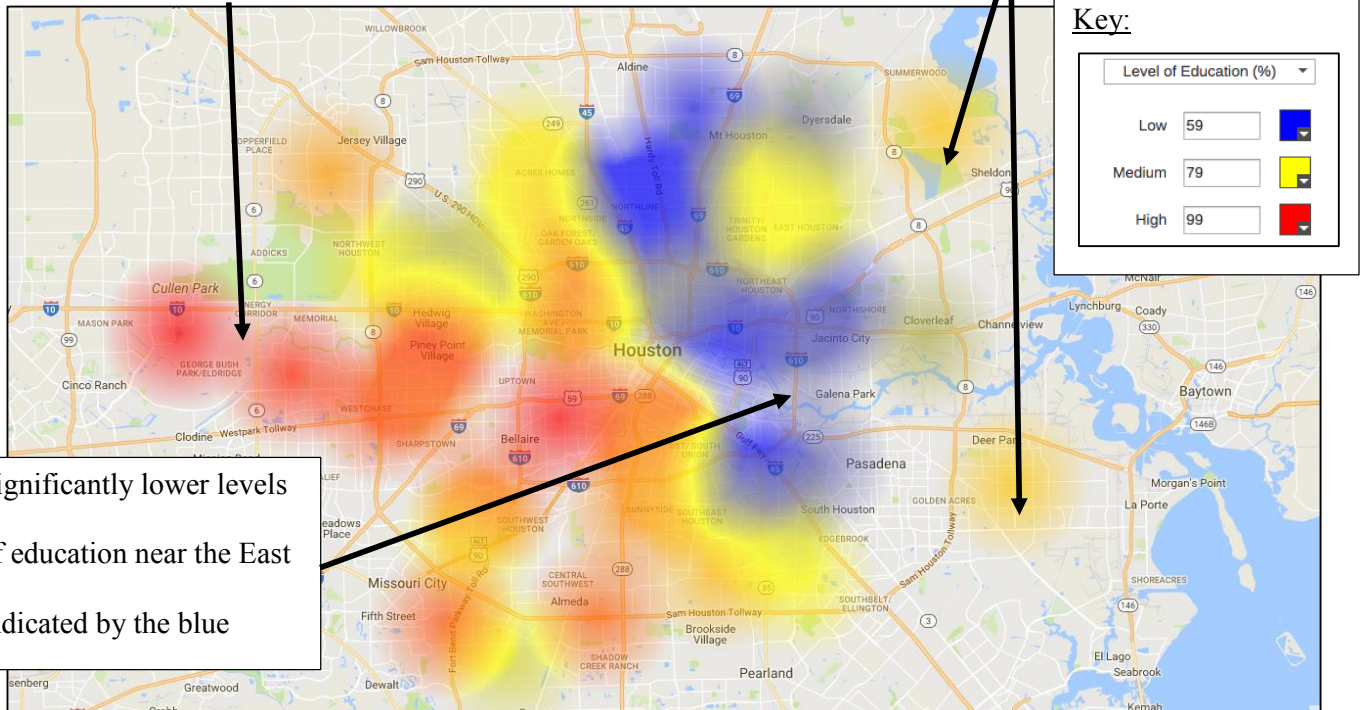
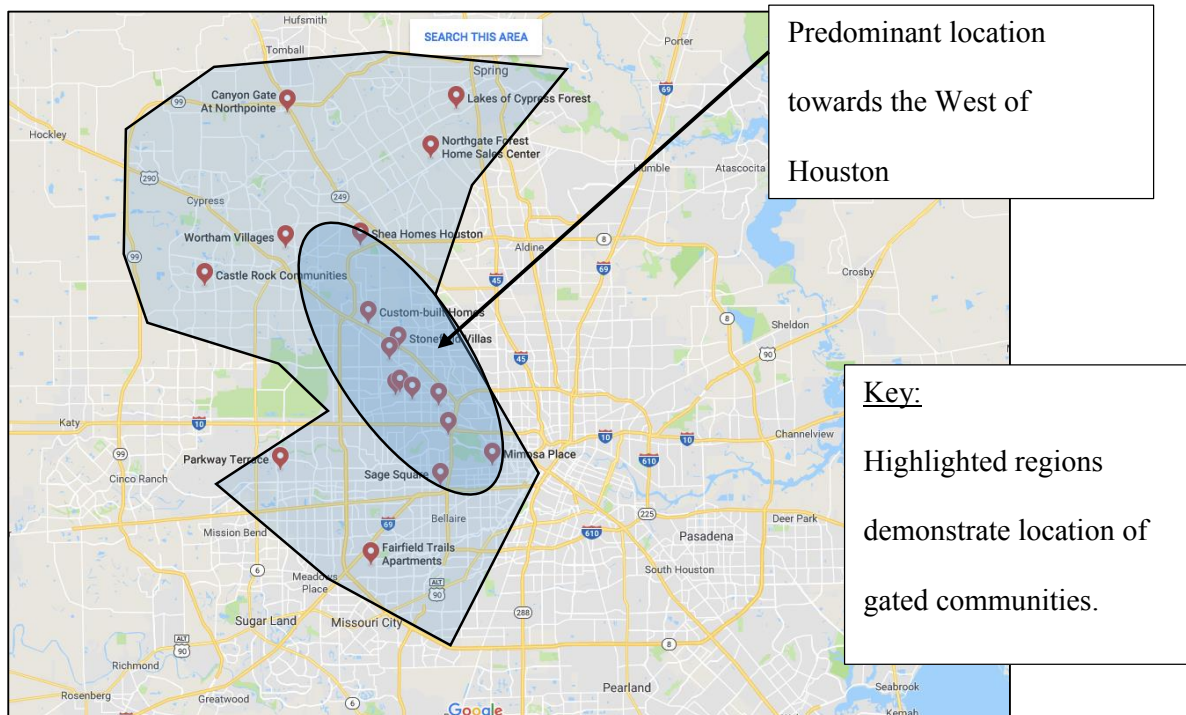


Figure 3.33 – Level of Education (based on no High School Diploma)

Significantly lower levels of education near the East indicated by the blue

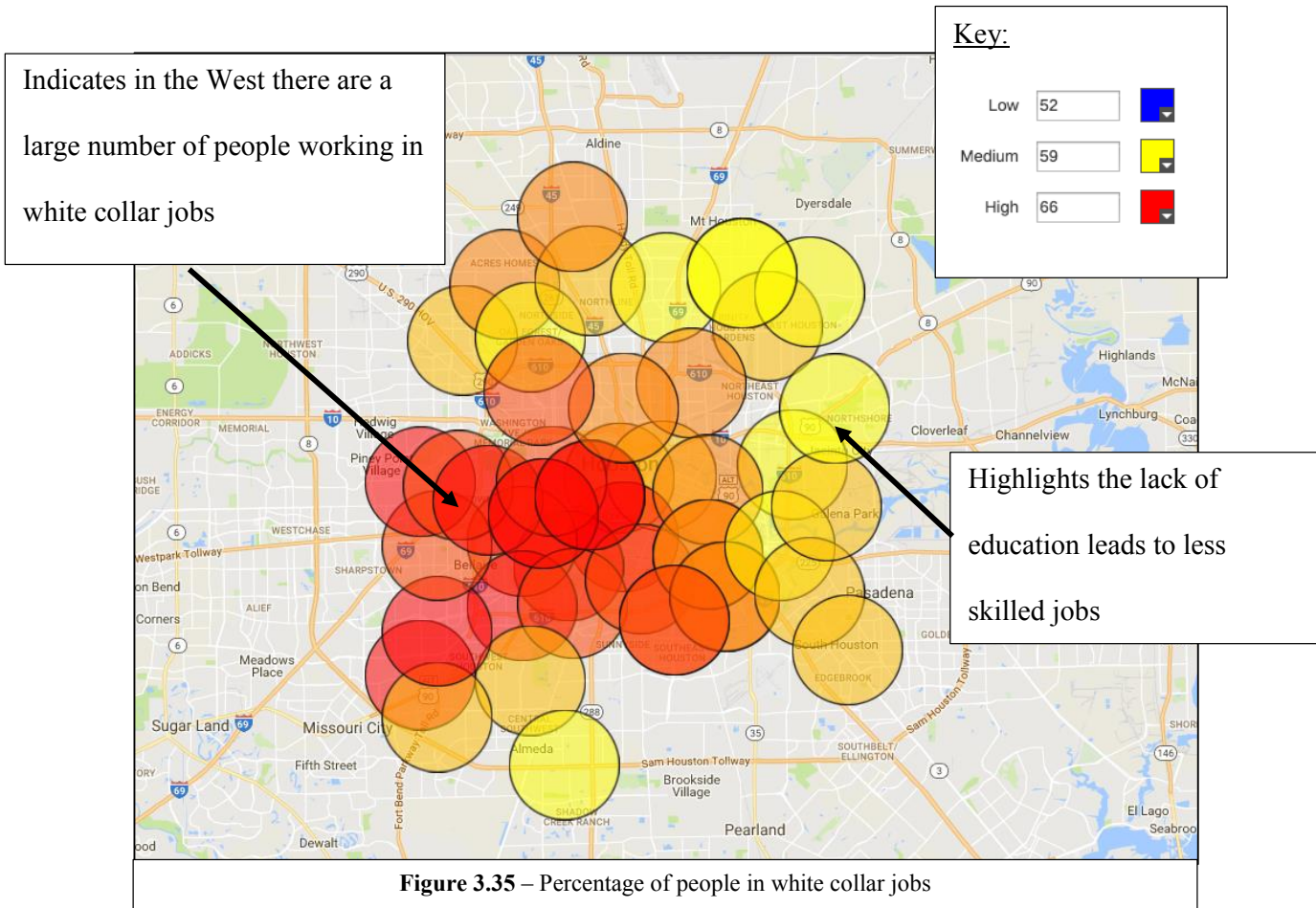
An image to show the location of gated communities in Houston



Predominant location towards the West of Houston

Figure 3.34 – Gated Communities in Houston




Economic Indicator: Employment

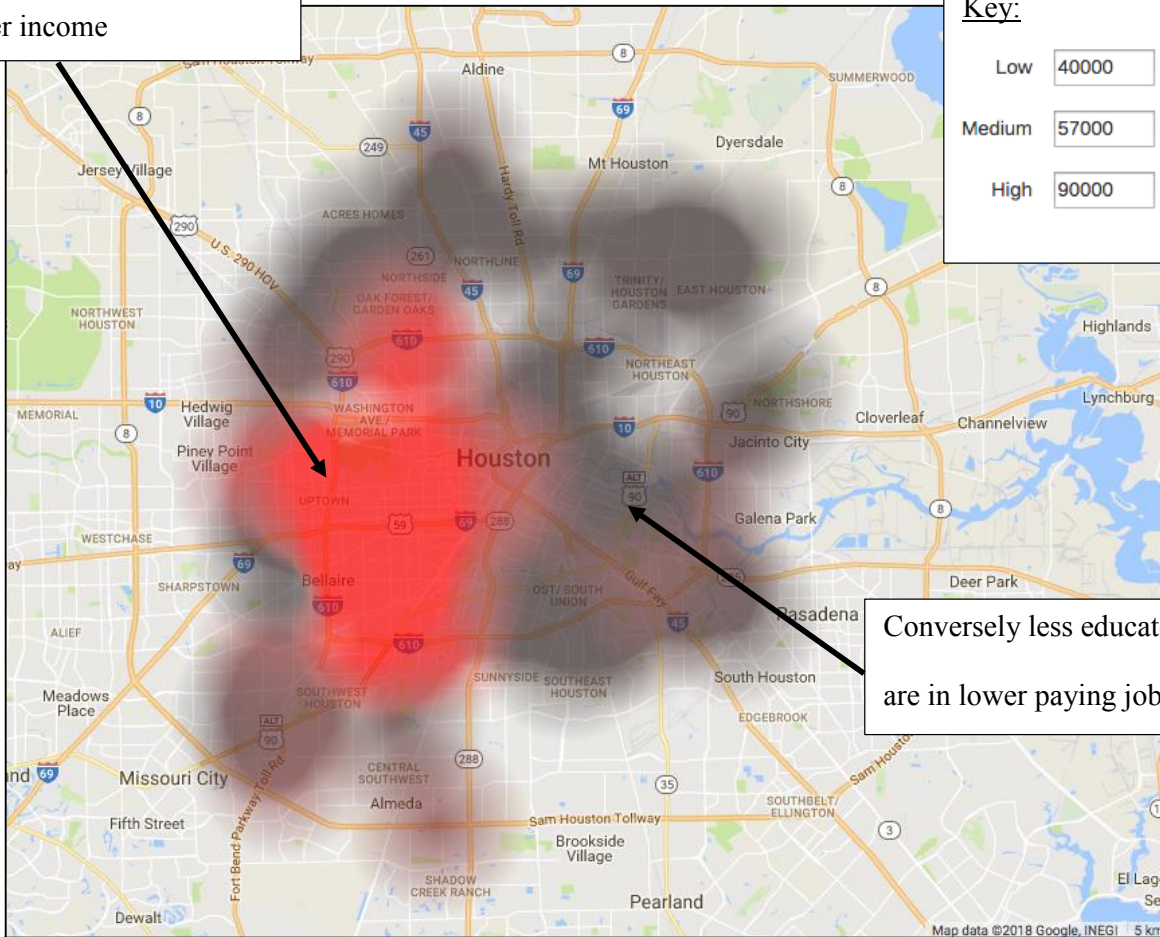


Economic Indicator: Level of Income

Reflects higher education, to better paid jobs and hence a higher income

Key:

Low	40000	
Medium	57000	
High	90000	



Conversely less educated are in lower paying jobs

Figure 3.36 – Average Household income in each zip code

Spearman's Rank Correlation Coefficients

To deduce if there is a correlation between the income of households and percentage of white residents.

Neighbourhood	Income of Households (\$) ²⁶	Percentage of White residents ²⁷	Rank of Income	Rank of Ethnicity	Difference ²
Memorial	102,600	74.5	2	1	1
River Oaks	128,594	74.3	1	2	1
Downtown	64,754	25.8	3	3	0
Second Ward	28,611	7.89	4	4	0
Magnolia Park	28,062	2.19	5	5	0
					2

Figure 3.37 – Spearman's Rank Correlation Coefficient

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

The Spearman's Rank Correlation Coefficient is used to discover the strength between two sets of data.

$$p = 1 - \frac{(6 \times 2)}{5(5^2 - 1)}$$

Calculation of Spearman's correlation without tied ranks in the data.

$$p = 1 - \frac{12}{120}$$

Spearman's rank is measured on a scale from -1 to 1 where 1 represents a strong positive correlation and -1 a negative correlation.

$$p = 1 - 0.1$$

Null Hypothesis: There is no relationship between the two variables.

$$p = 0.9$$

We can obtain from the data that there is a strong correlation so the null hypothesis can be rejected suggesting a relationship between the income of households and the percentage of Caucasians. Furthermore this demonstrates that there is a substantial link between the areas which are deprived and the ethnicity. This provides evidence that there is an ethnic and racial divide of residents across Houston.

²⁶ http://www.houstontx.gov/planning/Demographics/docs_pdfs/SN/Median_Household_Income_by_SN.pdf

²⁷ http://www.houstontx.gov/planning/Demographics/docs_pdfs/SN/sn_coh_race_ethn.pdf

Analysis

Physical Factors: Housing Quality

The primary data collected from both the surveys and images taken, demonstrate the inequalities across the five neighbourhoods. Both Magnolia Park and the Second Ward consisted of dilapidated buildings, poor building equipment and overgrown lawns (Figure 3.2 and 3.3). In comparison, River Oaks contained immaculate lawns and intricate fences and doorways highlighting high income residents who can invest money into the maintenance and aesthetics of the region.

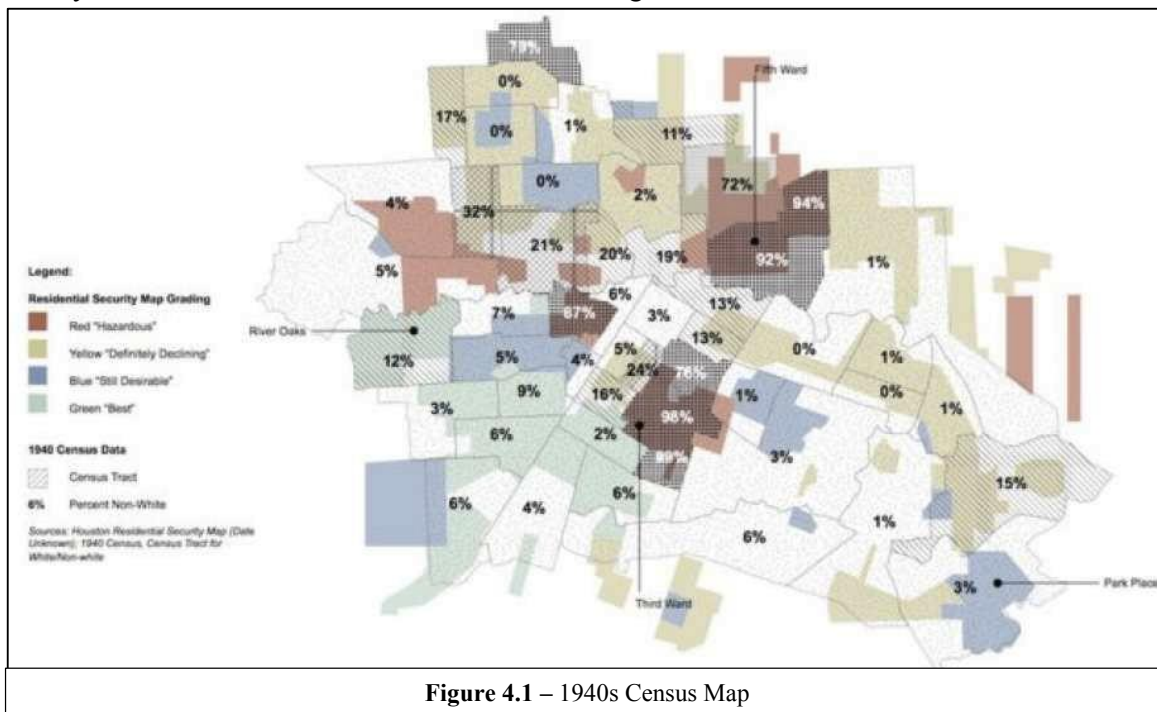


Figure 4.1 – 1940s Census Map

The variation in housing quality can be contributed towards the historical influence. Figure 4.1 reflects the 'desirability of a neighbourhood according to the residential population'²⁸ from a census conducted in the 1940s. The grades of the area were based on housing age, race, commercial and industrial buildings. The areas reflected as 'hazardous' were in regions of predominantly black ethnicity. Historically, places considered desirable like Montrose, had deed restrictions stating that the 'premises described shall never be sold, conveyed or demised to any person except the Caucasian Race.'²⁹ This historical record gives evidence towards the discrimination evident in Houston, and preventing minorities, who were subsequently

²⁸ Susan Rogers, 'Hazardous : The Redlining of Houston's Neighbourhoods', *OffCite*, October 2016

²⁹ Susan Rogers, 'Hazardous : The Redlining of Houston's Neighbourhoods', *OffCite*, October 2016

less affluent, from accessing better housing. This isolates these individuals to the poorer housing initiating the segregation which is still evident as demonstrated by the surveys.

'Redlining' is a process of denying loans to certain parts of the city due to race. As a consequence these areas declined in property and value.³⁰ The wealthier individuals are able to leave and relocate to more developed regions. In the 1940s new housing was expanded in the suburbs, increasing suburbanisation and initiating the 'white flight' movement. As these wealthier individuals moved outwards, businesses followed and the centre began to deteriorate. The wealth gap was prominent and both economic and racial segregation was clear.

This racial segregation has taken place for centuries, and created a challenge for the African American communities to buy houses in better areas. Homeownership is one of the largest attributes to American families' wealth, however 'redlining' has prevented minorities from being able to invest in housing. It facilitated the ability for people of equal wealth to move into similar regions, while preventing minority families from accessing the same opportunities as white families.³¹ Redlining has negatively affected the African-American community as it lowers demand for housing in segregated communities reducing investments. Entering this vicious poverty cycle, they become unable to afford better facilities which passes down generations. Progression can only be made when families are able to escape this cycle, and since the minority families have typically lower income they are unable to afford housing in wealthier regions, reinforcing the segregation.

Housing continues to remain an issue, money which should be injected towards low-income households such as Magnolia Park are instead invested in redevelopment of affluent residential areas.

Physical Factor: Amenities

People are attracted towards regions of similar ethnicity, share a similar culture, and for more affluent individuals have lower crime, better education etc. This can lead to the formation of ethnic enclaves, demonstrated in figure 3.18, which reflects how areas produce services to fit with the surrounding community. It is not surprising, people are attracted to communities where they share values, and a similar

³⁰ Susan Rogers, 'Hazardous: The Redlining of Houston Neighbourhoods', *Offcite*, Oct. 2016.

³¹ Will Livesley O'Neill, 'Homeownership and the racial wealth gap in Houston and beyond', *Texas Housers*, April 2015.

class. This encourages the establishment of ethnic enclaves. Lakes on Eldridge, situated along the I10, is a British enclave accommodating upper and middle class residents.

As cities begin to grow, to counteract the effects of urban sprawl and dislocation of society, developers have begun to build homes catering for higher income families. These provide facilities such as recreational fields, community centres and sometimes golf courses. John Henneberger, describes the long-term issues associated with the nearby low income families. 'The money tends to go where more affluent people live... Those isolate poor are going to be considerably disadvantaged.'³²

The reason for the growth of these gated communities can be partly explained by the notion that people like to be surrounded by 'People like Us'. Exposure to new environments and people, broaden knowledge and entice small actions such as volunteering or participation in a community project. However, within a gated community these problems are not addressed, because citizens do not view these problems. People in these communities 'risk of being culturally malnourished'³³



Figure 4.2 – Gated Community in Houston

restricting any diversity with limited connections to reality. Termed by Bill Bishop as 'The Big Sort' where people are happier to live with people similar to themselves. This development has increased the level of segregation, separating more affluent individuals from the poor and ethnic groups.³⁴

Physical Factor: Crime Rate

In areas of lower development, the crime rate as displayed in figure 3.29 is expected to be higher.

Particularly in the Western region of Houston, in areas like River Oaks, gated communities protect residents from violence and conflict. Arguably this could increase the tension between residents in surrounding houses. However in more educated regions, studies suggest a significant correlation between education and crime in a region.³⁵

³² Mike Tolson, 'Segregation by income in Houston among the starkest in U.S.', *Houston Chronicle*, August 2012.

³³ Jillian Glover, 'Why Gated Communities are becoming a Global Problem', *This City Life*, 2013

³⁴ Bill Bishop, 'The Big Sort', *The Economist*, June 2008.

³⁵ <https://phys.org/news/2011-12-lowers-crime.html>

As mentioned, the development of gated communities can be enhanced by the fear of crime. Where residents put a physical barrier to separate themselves from the external issues. This leaves the poor to become increasingly isolated. This separation can increase the segregation in communities where further mistrust is heightened and conflict arises.

High crime rates can negatively impact a neighbourhood deteriorating economic development. Therefore this 'domino effect' where the high crime rates, reduce economic development resulting in a lack of improvements in education facilities, and mean communities are unable to overcome the inequalities.

Economic Indicator: Level of Income

The poverty rate which surrounds Harris County has risen from 10 percent 1980 to 17 percent in 2014. The problem is troubling, due to the increasing tendency for poverty to become highly concentrated in regions. A report by Rice University indicates 'that economic segregation is tightening its grip on Harris County and that the areas are increasingly economically polarised.'³⁶

The study demonstrates three significant trends within Houston's economic growth:

1. The increasing number of poverty stricken areas within Harris County
2. The expansion of areas beyond the city's limits
3. Lack of economic diversity in the wealthiest areas within Houston

The report used the spatial concentration of poverty and income diversity in Harris County. Offering an insight into the landscape within Houston and the 'uneven distribution of economic circumstances across neighbourhoods'³⁷. Economic residential segregation has nearly doubled in the Houston metropolitan area between 1980 and 2010.

³⁶ Heather A. O'Connell, 'Disparate City: Understanding Rising Levels of Concentrated Poverty and Affluence in Greater Houston', *Rice, Institute for urban research*

³⁷ Heather A. O'Connell, 'Disparate City: Understanding Rising Levels of Concentrated Poverty and Affluence in Greater Houston', *Rice, Institute for urban research*

Income and Ethnicity comparison within Houston

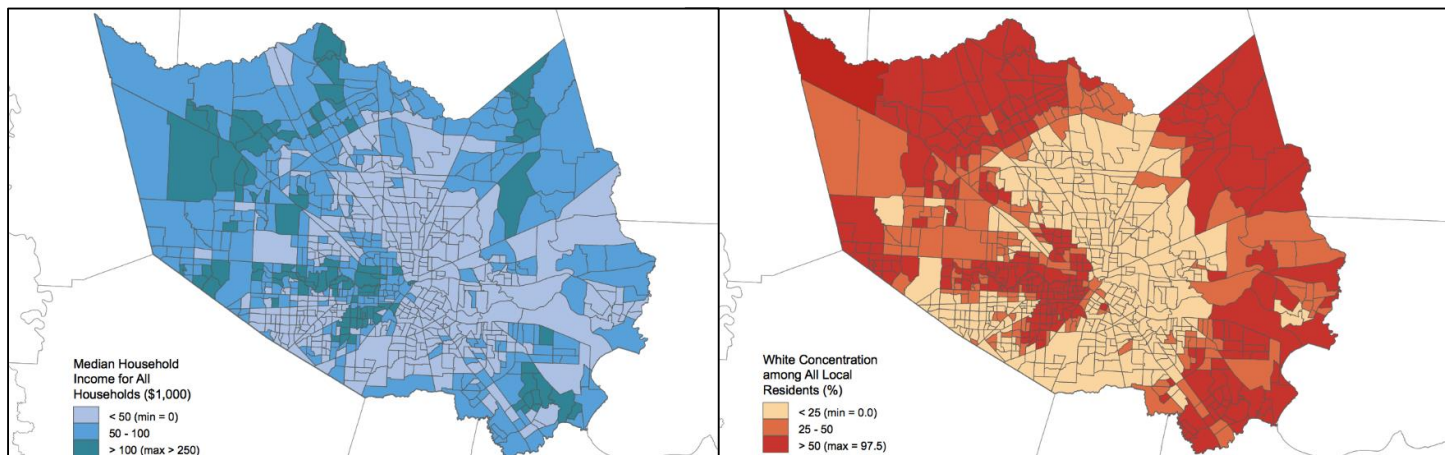


Figure 4.3 – Comparison of Income and Concentration of White Residents

Racial segregation coincides frequently with disparities of income, as Figure 3.32 demonstrates in areas of white ethnicity there is a predominantly higher income in households as shown by the darker colours. Low income households of colour are subjected to racial segregation, unable to receive the same facilities as the white communities. This cycle of poverty creates an impossible situation for minority residents to escape from. This leads to the creation of separated communities dividing the city into ethnic enclaves, and hence economically divided.

This income divide can be traced back to the difference in the standards of education. Figure 3.30 demonstrates the areas of poorer education are predominantly in the East inner city. Poor education leads to worse grades in turn reducing likelihood to become employed, especially when in competition with applicants who have a higher grade. Lack of employment leads towards to poverty which leads to the perpetuating cycle discussed earlier.

In Memorial, the region with the highest percentage of white residents, the percentage of students with a higher degree is 74.7%³⁸ In comparison a community with predominately minority groups, Magnolia Park, the percentage of people with a higher degree is 7.2%. This drastic difference highlights the variability in the quality of education available for residents across Houston.

Problems posed for the future?

Fountain View, a series of proposed apartments, serves as an example of the lack of action from the city leaders to address segregation issues. Houston’s Housing Authority aimed to build mixed-income

³⁸ <https://statisticalatlas.com/neighborhood/Texas/Houston/Greater-Memorial/Educational-Attainment>

housing in a predominantly white neighbourhood. However, the proposal caused a negative backlash from the white neighbours 'Not In My Backyard'.³⁹ As a result the mayor stopping the construction of the apartments; claiming the project was too expensive. However, such actions contribute towards maintaining the segregation as minorities as are unable to afford housing in the more affluent regions. Instead the low-income housing projects are developed in regions of existing lower wealth. This maintains the economic and ethnic divide despite federal law requiring them to create a population of integration.

In less developed communities such as the Third Ward, whilst gentrification is encouraged, the community does not accept these changes. Gentrification being 'the process of renewal and rebuilding accompanying the influx of middle –class or affluent people into deteriorating areas that often displaces poorer residents.'⁴⁰ With gentrification there could be development of houses which become no longer affordable to less wealthy individuals. Gentrification renovates houses to appeal towards middle and upper class taste.

And while it is clear that Houston is divided economically, the ways to counteract the problem have had limited success and it appears that Houston will remain this way for the near future.

Conclusion

From the evidence obtained, there is a significant indication that Houston remains segregated both economically and racially, figure 3.4 demonstrates that these factors often coincide. Disparities were reflected in the quality of the housing, with location on the Eastern side containing dilapidated infrastructure compared to the modernity of River Oaks. Furthermore, the disparities in income, education and crime also demonstrated the development of the West in comparison to the East. Both of these factors fit with the predictions made by the 'Hoyt Model' suggesting that wealthier residents are located along transport links extending from the centre.

³⁹ Rebecca Elliott, 'Federal housing agency launches civil rights investigation of city's housing practices', *Houston Chronicle*, Septmeber 2016

⁴⁰ Merriam-Webster, 'Gentrification'

I was only able to collect primary data from five neighbourhoods and hence is not a fair representation of the whole of Houston. While I attempted to fill these gaps with secondary data, I cannot draw a conclusive decision that Houston is segregated but rather from the evidence obtained from the investigation it appears likely that Houston continues to be segregated economically and racially.

Adapted Model to fit with Houston

Key:
Pink = Working Class
Blue – Middle Class
Green = Upper Class

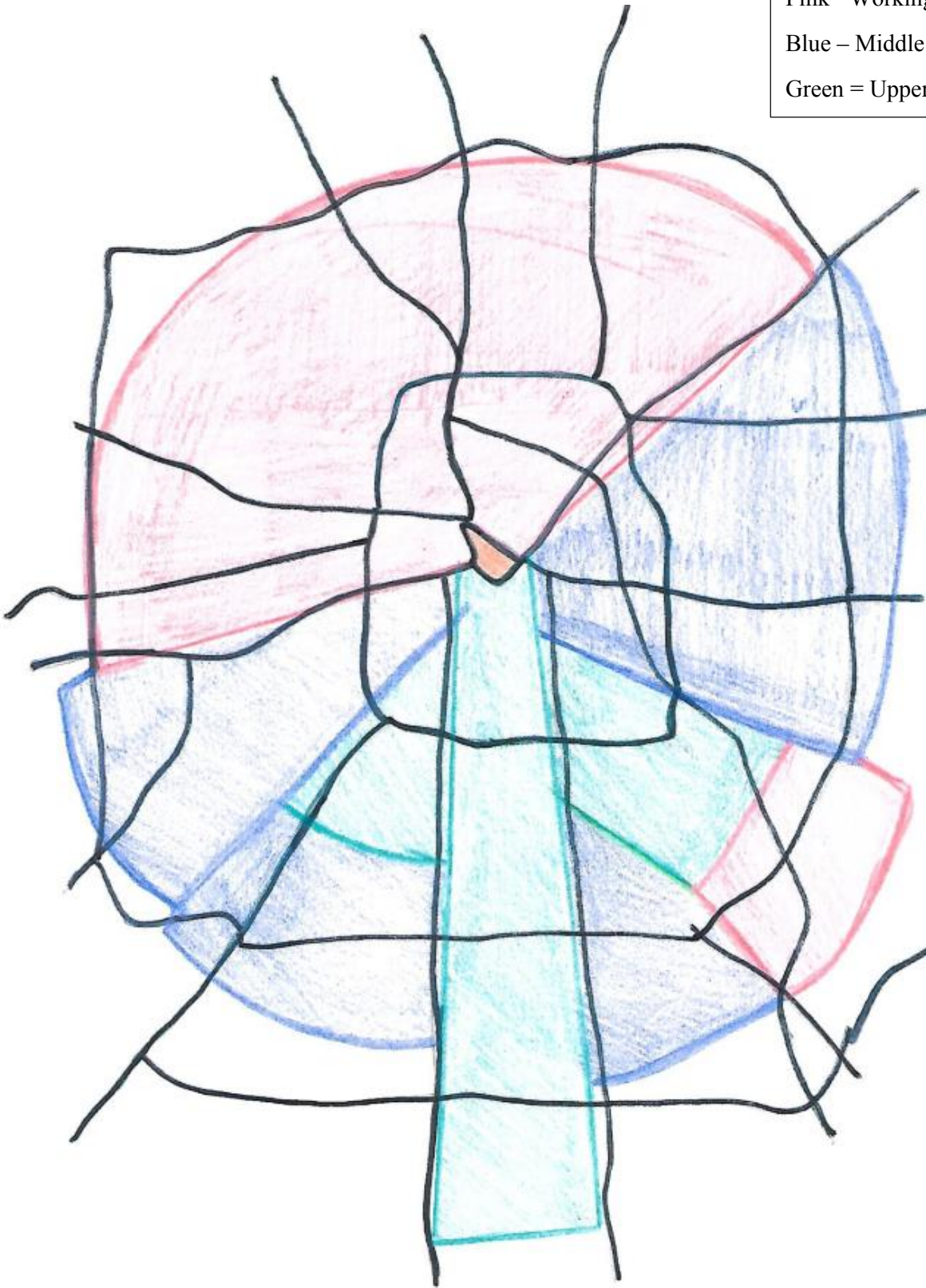


Figure 5.1 – Adapted Model to show Houston's Segregation

Evaluation

The Hoyt Model was developed in 1939, and while a strong basis for a city, the model nearly is 100 years old, and the suggestions can be outdated. The model is simplified and based heavily upon public transport, a mode not commonly used by Houstonians.

Primary data was only collected from five sections across Houston, despite evidence of segregation shown in other areas of Houston, evidenced by the secondary data. This does not give an overview of all of Houston but only along the transect line. To confirm the hypothesis that Houston does in fact remain segregated further testing in more regions would need to be conducted.

The subjectivity of the surveys, for example the environmental quality, means it is difficult to assess the reliability of the results. Particularly for Magnolia Park and the Second Ward similar characteristics were reflected by the houses but deciding which was more severe proved difficult. As I carried out the surveys myself, I did not confer with others, my own personal bias reduces the reliability. The surveys, discounting the pedestrian count, was a qualitative measure based on opinion rather than fact (quantitative results).

The period of time during which I collected the data was just after Hurricane Harvey in Houston. I collected my results due to this significant event, there was a significant reduction of traffic across all regions, as cars were unable to navigate in most areas. Street furniture was common outside houses, as places that flooded were in the process of being cleaned out. Furthermore, regions such as Memorial which were severely hit by the flood, had a lower number of pedestrians walking around due to residents having to evacuate their properties and move elsewhere. All these factors influenced the results collected. As I collected data during one period of time, to improve the results I would collect data on differing days to see if the surveys are consistent or how it varies.

Further the surveys were only conducted at one point in time ignoring variations which may be caused by different seasons. Additionally, taking the surveys at different times of the day, would improve the robustness of the results.

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